National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
White Sands Test Facility
P.O. Box 20
Las Cruces, NM 88004-0020

August 13, 2014

Reply to Attn of: RE-14-097

Mr. John E. Kieling, Chief
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Subject: Request for a No Longer Contained-In Determination (NLCID) for Investigation Derived Waste (IDW) from the 200 Area Phase II Investigation

In accordance with the New Mexico Environment Department (NMED)-approved 200 Area Phase II Investigation Work Plan, Appendix C, IDW Management Plan, NASA is requesting a No Longer Contained-In Determination (NLCID) for the IDW generated in association with the 200 Area Phase II Investigation. The IDW consists of soils (cuttings and returns) and contact debris such as PPE and plastic sheeting. This request is applicable to boreholes 200-SB-05, 200-SB-06, 200-SB-07, 200-SB-08, 200-SB-13, 200-SB-20 and 200-SB-21. Subsequent requests for NLCIDs will be submitted as additional data are received and processed.

In accordance with the NMED-approved 200 Area Phase II Investigation Work Plan, the IDW generated for this project is currently being managed in accordance with 40 CFR §262.34 as potentially listed hazardous wastes carrying EPA Waste Codes F001 and F002. The 90-day time limit for the IDW will expire on September 1, 2014.

NASA has received, reviewed, and compared the analytical data generated from the borehole sampling to the applicable 40 CFR Part 268 Subpart D Treatment Standards and the NMED Soil Screening Levels. Based on this review, F001 and F002 contaminants of concern, and other contaminants of concern not related to the F001 and F002 waste codes, were not detected above regulatory limits. NASA is requesting this NLCID for the F001 and F002 hazardous waste listing and concurrence from NMED that the soil (environmental media) can be reapplied to the land surface.

Upon receipt of NMED approval, NASA proposes to thin-spread the soil (environmental media) on the ground in the vicinity of the borings, but in an area that will not be readily accessible to routine traffic or easily subjected to runoff. NASA will document where the material is placed and will record this documentation in the official operating record. In addition, IDW debris that is determined to be non-hazardous waste will be disposed of as solid waste.

Enclosure 1 provides an Executive Summary for the NLCID. Enclosure 2 provides a summary table of the analytical results and a comparison to applicable regulatory limits.

Enclosure 3 provides a CD-ROM containing the table of analytical results and regulatory comparisons, a map of soil boring and well locations, analytical summaries, laboratory analytical reports, field notes, and chain of custody documentation.

I certify under penalty of law that this document and attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.

If you have any questions or comments, please contact Tim Davis of my staff at 575-524-5024.

for Radel Bunker-Farrah
Chief, Environmental Office

3 Enclosures

cc (w/enclosures):
Mr. Dan Comeau
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

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Hazardous Waste Bureau
Attn: Mr. Dan Comeau
New Mexico Environmental Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

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Enclosure 1
Executive Summary

Background

Based on historical information provided in the 200 Area Phase II Investigation Work Plan (NASA, 2013), soil removed during drilling or other investigation activities has the potential to be contaminated with volatile organic constituents (VOCs) including trichloroethene (TCE), tetrachloroethene (PCE), trichlorofluoromethane (Freon 11), dichlorofluoromethane (Freon 21), and 1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113). Based on historical knowledge, these constituents were spent solvents meeting the F001 and F002 listed waste definitions when they were historically discharged in the 200 Area. Therefore, investigation derived waste has the potential to contain F001 and F002 contaminants of concern (COCs). In addition to the F001 and F002 COCs, the 200 Area Phase II Investigation Work Plan (Section 2.2) includes a summary of other COCs which could potentially be present in the soil. For review purposes, Table 2.1 from the 200 Area Phase II Investigation Work Plan (Section 2.2) is included in this submittal (Enclosure 3).

Basis for No Longer Contained-In Determination

Analytical sampling data from the 200 Area Phase II Investigation have been received and reviewed. Waste characterization for the investigation-derived waste (IDW) was completed in accordance with New Mexico Environment Department (NMED) approved Attachment 12: Waste Analysis Plan of the NASA WSTF Hazardous Waste Permit (2009), incorporating the 200 Area Phase II Investigation Work Plan. In accordance with the 200 Area Phase II Investigation Work Plan, analytical data may be compared to the applicable 40 CFR §268 Subpart D Treatment Standards and the NMED soil screening levels (SSLs; February 2012, Residential Soil). If the IDW does not pose an unacceptable risk with respect to these standards and screening levels, NMED can determine that the wastes can be managed as no longer containing listed waste.

F001 and F002 COCs

The COC detections are summarized in the Analytical Detections Summary Table (Enclosure 2). The F001 and F002 COCs were not detected above the reporting limits, which in all cases were below the regulatory limits included in the 40 CFR §268 Subpart D Treatment Standards and the NMED SSLs. Only one COC (methylene chloride/dichloromethane) was detected above the laboratory's method detection limit, but still below the reporting limit. However, this concentration is still below the applicable regulatory limits.

Other COCs (Refer to Table 2.1)

Based on the review of the analytical sampling data, which is summarized in the attached Analytical Detections Summary Table, other COCs were not detected at concentrations that exceeded the regulatory limits included in 40 CFR §261.24, §268 Subpart D Treatment Standards, and the NMED SSLs. Only one COC (arsenic) was detected above the residential SSL. However, the concentration was still below the industrial SSL and arsenic is a known background soil constituent. In accordance with the work plan, these COCs were compared against industrial SSLs. For reference purposes, NASA has included both the residential and industrial SSLs in the Analytical Detections Summary Table.

Analytical Reports and Chain of Custody Interpretation

Analytical reports are included in Enclosure 3. Analytical data sheets specific to all analyses as identified by sample number are included in the Borehole Analytical Summary section. The next section includes the complete analytical reports, which comprises the laboratory case narrative and supporting documentation specific to the laboratory report. The complete report also includes results for other samples related to the project (e.g., decontamination and rinsate samples). These results are not part of the NASA request for the NLCID. However, to minimize confusion and maintain the integrity of the report, NASA has not removed this data from the complete report. The chain of custody documentation also includes samples that are not specific to the NLCID.

Other Considerations

The 200 Area Phase II Investigation Work Plan, Section 4.2.2 Soil Sampling Plan, indicates that soil samples will be collected at the shallow surface (upper 10 ft. below ground surface (bgs)), an intermediate depth within the soil boring, and at a depth in the soil boring near the total depth (TD). Due to contacting bedrock at 18 ft. in 200-SB-5 and 18 ft. in 200-SB-6, soil samples were only collected from 8 to 10 ft. below ground surface. Additionally, due to difficult borehole sampling conditions, soil samples were only collected from two zones in 200-SB-13 and only VOC, hydrazine, and SVOC soil samples were collected from 200-SB-20/9-10.

Enclosure 2

TABLE 1 200 AREA INVESTIGATION ANALYTICAL DETECTIONS SUMMARY

Sample Location	Sample ID/Borehole Depth (BGS) in feet	Analytical Method (Totals)	Analytes Detected	Results mg/kg unless noted	Toxicity Results 40 CFR 261.24 mg/L unless noted[1]	40 CFR Part 268 Subpart D Treatment Standard mg/kg unless noted	NMED Industrial Soil Screening Levels mg/kg[2]	NMED Residental Soil Screening Levels mg/kg[2]
200-SB-5	1406151130/8-10	6010C/6020A/7471 (Totals)	Aluminum	5080	NA	NA	1.13E+06	7.80E+04
			Antimony	0.9 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	5.8	0.3	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	73.6	3.7	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.45 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.32 J	0.016	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	63500	NA	NA	NA	NA
			Chromium (Total)	7.56	0.4	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	4.54	NA	NA	NA	NA
			Copper	6.36	NA	NA	4.54E+04	3.13E+03
			Iron	13100	NA	NA	7.95E+05	5.48E+04
			Lead	7.7	0.4	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Molybdenum	0.8 J	NA	NA	5.68E+03	3.91E+02
			Nickel	9.7	NA	NA	2.25E+04	1.56E+03
			Potassium	1070	NA	NA	NA	NA
			Sodium	110B	NA	NA	NA	NA
			Strontium	136	NA	NA	6.81E+05	4.69E+04
			Titanium	110B	NA	NA	NA	NA
			Vanadium	29.9	NA	NA	5.68E+03	3.91E+02
			Zinc	38.6	NA	NA	3.41E+05	2.35E+04
	1406151146/8-10*	6010C/6020A/7471 (Totals)	Aluminum	5500	NA	NA	1.13E+06	7.80E+04
			Antimony	1.0 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	5.4	0.3	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	69.7	3.5	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.44 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.44 J	0.022	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	71800	NA	NA	NA	NA
			Chromium (Total)	6.98	0.3	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	4.60	NA	NA	NA	NA
			Copper	6.57	NA	NA	4.54E+04	3.13E+03
			Iron	16500	NA	NA	7.95E+05	5.48E+04
			Lead	11.7	0.6	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	15200	NA	NA	N/A	N/A
			Manganese	215	NA	NA	2.67E+04	1.86E+03
			Molybdenum	0.9 J	NA	NA	5.68E+03	3.91E+02
			Nickel	10.9	NA	NA	2.25E+04	1.56E+03

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200-SB-5	1406151146/8-10*	6010C/6020A/7471 (Totals)	Strontium	157	NA	NA	6.81E+05	4.69E+04
			Titanium,	102	NA	NA	NA	NA
			Uranium,	1.15	NA	NA	3.41E+03	2.35E+02
			Vanadium	39.6	NA	NA	5.68E+03	3.91E+02
			Zinc	38.5	NA	NA	3.41E+05	2.35E+04
	1406151146/8-10*	353.2M	Nitrate+Nitrite as N	0.8 J	NA	NA	NA	NA
	1406151130/8-10		Nitrate+Nitrite as N	0.7 J	NA	NA	NA	NA
	1406151129/8-10	8290	1,2,3,6,7,8-HxCDD	0.0729 JK ng/Kg	NA	NA	NA	NA
			OCDD	0.643 ng/Kg	NA	0.005	NA	NA
			1,2,3,4,6,7,8-HpCDF	0.159 J ng/Kg	NA	NA	NA	NA
	1406151145/8-10*	8290	1,2,3,7,8,9-HxCDD	0.157 JK	NA	NA	NA	NA
			1,2,3,4,6,7,8-HpCDD	2.35 JK	NA	NA	NA	NA
			OCDD	23.7 ng/Kg	NA	0.005	NA	NA
			1,2,3,7,8,9-HxCDF	0.133 JK	NA	NA	NA	NA
			1,2,3,4,7,8-HxCDF	0.123 JK	NA	NA	NA	NA
			1,2,3,4,6,7,8-HpCDF	0.309 JK	NA	NA	NA	NA
			OCDF	0.534 J	NA	0.005	NA	NA
			Total Hexa-Dioxins	0.325 J	NA	NA	NA	NA
			Total Hepta-Dioxins	2.31 J	NA	NA	NA	NA
			Total Hepta-Furans	0.313 J	NA	NA	NA	NA
200-SB-6	1406141705/8-10	6010C/6020A/7471 (Totals)	Aluminum	3620	NA	NA	1.13E+06	7.80E+04
			Antimony	1.0 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	4.13	0.2	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	40.2	2.0	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.35 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.30 J	0.015	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	103000	NA	NA	NA	NA
			Chromium (Total)	5.85	0.3	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	2.97	NA	NA	NA	NA
			Copper	5.7	NA	NA	4.54E+04	3.13E+03
			Iron	9380	NA	NA	7.95E+05	5.48E+04
			Lead	8.6	0.4	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Molybdenum	1.6 J	NA	NA	5.68E+03	3.91E+02
			Nickel	6.1	NA	NA	2.25E+04	1.56E+03
			Potassium	1130	NA	NA	NA	NA
			Sodium	108B	NA	NA	NA	NA

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200-SB-6	1406141705/8-10	6010C/6020A/7471 (Totals)	Strontium	141	NA	NA	6.81E+05	4.69E+04
			Vanadium	18.0	NA	NA	5.68E+03	3.91E+02
			Zinc	36.3	NA	NA	3.41E+05	2.35E+04
	1406141705/8-10	7199	Chromium, Hexvalant	0.04 J	0.002	0.60 mg/L TCLP	6.31E+01	2.97E+00
			Chromium, Hexvalant	0.03 J	0.0015	0.60 mg/L TCLP	6.31E+01	2.97E+00
	1406141704/8-10	8290A	OCDD	0.800 JK ng/kg	NA	0.005	NA	NA
			OCDF	0.182 JK ng/kg	NA	NA	NA	NA
			1,2,3,4,7,8,9-HpCDF	0.182 JK ng/Kg	NA	NA	NA	NA
200-SB-7	1406111505/8-10	6010C/6020A/7471 (Totals)	Aluminum	5390	NA	NA	1.13E+06	7.80E+04
			Antimony	0.9 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	6.9	0.3	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	108	5.4	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.46 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.19 J	0.023	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	53600	NA	NA	NA	NA
			Chromium (Total)	9.26	0.5	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	4.75	NA	NA	NA	NA
			Copper	8.21	NA	NA	4.54E+04	3.13E+03
			Iron	12500	NA	NA	7.95E+05	5.48E+04
			Lead	8	0.4	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	15300	NA	NA	NA	NA
			Manganese	207	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.5 J	NA	NA	5.68E+03	3.91E+02
			Nickel	8.6	NA	NA	2.25E+04	1.56E+03
			Potassium	1310	NA	NA	NA	NA
			Sodium	111 B	NA	NA	NA	NA
			Strontium	175	NA	NA	6.81E+05	4.69E+04
			Titanium	111	NA	NA	NA	NA
			Uranium	1.76	NA	NA	3.41E+03	2.35E+02
			Vanadium	42.2	NA	NA	5.68E+03	3.91E+02
			Zinc	36.9	NA	NA	3.41E+05	2.35E+04
	1406111505/8-10	353.2	Nitrate+Nitrite as N	1.5 J	NA	NA	NA	NA
	1406111503/8-10	8290A	1,2,3,4,6,7,8-HpCDD	1.37 J ng/kg	NA	NA	NA	NA
			OCDD	17.1 ng/kg	NA	0.005	NA	NA
			HpCDD, Total	1.21 J ng/kg	NA	NA	NA	NA
	1406111635/18-21	6010C/6020A/7471 (Totals)	Aluminum	7100	NA	NA	1.13E+06	7.80E+04

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200-SB-7	1406111635/18-21	6010C/6020A/7471 (Totals)	Antimony	1.0 J	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	5.5	0.3	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	41.4	2.1	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.37 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.27 J	0.135	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	72300	NA	NA	NA	NA
			Chromium (Total)	6.58	0.3	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	4.70	NA	NA	NA	NA
			Copper	6.53	NA	NA	4.54E+04	3.13E+03
			Iron	12500	NA	NA	7.95E+05	5.48E+04
			Lead	9.5	0.5	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	11400	NA	NA	NA	NA
			Manganese	200	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.0 J	NA	NA	5.68E+03	3.91E+02
			Nickel	10.3	NA	NA	2.25E+04	1.56E+03
			Potassium	3110	NA	NA	NA	NA
			Sodium	150	NA	NA	NA	NA
			Strontium	153	NA	NA	6.81E+05	4.69E+04
			Titanium	156	NA	NA	NA	NA
			Uranium	2.26	NA	NA	3.41E+03	2.35E+02
			Vanadium	16.6	NA	NA	5.68E+03	3.91E+02
			Zinc	33.3	NA	NA	3.41E+05	2.35E+04
	1406111635/18-21	353.2	Nitrate+Nitrite as N	2.0 J	NA	NA	NA	NA
	1406111634/18-21	8290A	1,2,3,4,6,7,8-HpCDD	0.827 J ng/kg	NA	NA	NA	NA
			OCDD	8.88 ng/kg	NA	0.005	NA	NA
			HpCDD, Total	0.827 J ng/kg	NA	NA	NA	NA
	1406120935/38-40	6010C/6020A/7471 (Totals)	Aluminum	3270	NA	NA	1.13E+06	7.80E+04
			Antimony	1.2 J	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	3.6	0.2	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	67.3	3.4	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.37 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.32 J	1.6	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	96000	NA	NA	NA	NA
			Chromium (Total)	6.24	0.3	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	3.05	NA	NA	NA	NA
			Copper	5.47	NA	NA	4.54E+04	3.13E+03
			Iron	11100	NA	NA	7.95E+05	5.48E+04

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200-SB-7	1406120935/38-40	6010C/6020A/7471 (Totals)	Lead	7	0.4	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	16600	NA	NA	NA	NA
			Manganese	198	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.4 J	NA	NA	5.68E+03	3.91E+02
			Nickel	6.7	NA	NA	2.25E+04	1.56E+03
			Potassium	970	NA	NA	NA	NA
			Sodium	140 B	NA	NA	NA	NA
			Strontium	153	NA	NA	6.81E+05	4.69E+04
			Titanium	111	NA	NA	NA	NA
			Uranium	1.38	NA	NA	3.41E+03	2.35E+02
			Vanadium	12.4	NA	NA	5.68E+03	3.91E+02
			Zinc	43.1	NA	NA	3.41E+05	2.35E+04
	1406120935/38-40	353.2	Nitrate+Nitrite as N	1.2 J	NA	NA	NA	NA
		7199	Chromium, Hexvalant	0.03 J	NA	0.60 mg/L TCLP	6.31E+01	2.97E+00
	1406120934/38-40	8290A	OCDD	0.874 ng/kg	NA	0.005	NA	NA
	1406120932/38-40	607	Bromacil	0.16 J ug/kg	NA	2.3	NA	NA
200-SB-8	1406130805/8-10	6010C/6020A/7471 (Totals)	Aluminum	5910	NA	NA	1.13E+06	7.80E+04
			Antimony	1.0 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	8.21	0.4	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	50.6	2.5	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.44 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.35 J	0.0175	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	102000	NA	NA	NA	NA
			Chromium (Total)	8.79	0.4	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	4.34	NA	NA	NA	NA
			Copper	6.41	NA	NA	4.54E+04	3.13E+03
			Iron	13000	NA	NA	7.95E+05	5.48E+04
			Lead	9.6	0.5	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	17400	NA	NA	NA	NA
			Manganese	321	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.1 J	NA	NA	5.68E+03	3.91E+02
			Nickel	11	NA	NA	2.25E+04	1.56E+03
			Potassium	1560	NA	NA	NA	NA
			Sodium	116 B	NA	NA	NA	NA
			Strontium	233	NA	NA	6.81E+05	4.69E+04

TABLE 1 200 AREA INVESTIGATION ANALYTICAL DETECTIONS SUMMARY

Sample Location	Sample ID/Borehole Depth (BGS) in feet	Analytical Method (Totals)	Analytes Detected	Results mg/kg unless noted	Toxicity Results 40 CFR 261.24 mg/L unless noted[1]	40 CFR Part 268 Subpart D Treatment Standard mg/kg unless noted	NMED Industrial Soil Screening Levels mg/kg[2]	NMED Residental Soil Screening Levels mg/kg[2]
200-SB-8	1406130805/8-10	6010C/6020A/7471 (Totals)	Titanium	79.8	NA	NA	NA	NA
			Uranium	1.05	NA	NA	3.41E+03	2.35E+02
			Vanadium	26.5	NA	NA	5.68E+03	3.91E+02
			Zinc	36.6	NA	NA	3.41E+05	2.35E+04
	1406130815/8-10*	6010C/6020A/7471 (Totals)	Aluminum	6460	NA	NA	1.13E+06	7.80E+04
			Antimony	1.2 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	6.9	0.3	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	64	3.2	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.49 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.42 J	0.021	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	104000	NA	NA	NA	NA
			Chromium (Total)	8.31	0.4	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	5.35	NA	NA	NA	NA
			Copper	7.88	NA	NA	4.54E+04	3.13E+03
			Iron	14000	NA	NA	7.95E+05	5.48E+04
			Lead	9.4	0.5	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	28400	NA	NA	NA	NA
			Manganese	294	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.4 J	NA	NA	5.68E+03	3.91E+02
			Nickel	10.7	NA	NA	2.25E+04	1.56E+03
			Potassium	1870	NA	NA	NA	NA
			Sodium	130 B	NA	NA	NA	NA
			Strontium	193	NA	NA	6.81E+05	4.69E+04
			Titanium	109	NA	NA	NA	NA
			Uranium	1.12	NA	NA	3.41E+03	2.35E+02
			Vanadium	28.8	NA	NA	5.68E+03	3.91E+02
			Zinc	42.4	NA	NA	3.41E+05	2.35E+04
	1406130815/8-10	353.2	Nitrate+Nitrite as N	1.4 J	NA	NA	NA	NA
	1406130805/8-10	353.2	Nitrate+Nitrite as N	1.4 J	NA	NA	NA	NA
		7199	Chromium, Hexvalant	0.03 J	NA	0.60 mg/L TCLP	6.31E+01	2.97E+00
	1406130804/8-10	8290A	OCDD	1.46 JK ng/Kg	NA	0.005	NA	NA
	1406130814/ 8-10	8290A	OCDD	1.24 J ng/Kg	NA	0.005	NA	NA
	1406130945/28-30	6010C/6020A/7471 (Totals)	Aluminum	5030	NA	NA	1.13E+06	7.80E+04
			Antimony	1.0 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	4.5	0.2	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	34.1	1.7	21 mg/L TCLP	2.23E+05	1.56E+04

TABLE 1 200 AREA INVESTIGATION ANALYTICAL DETECTIONS SUMMARY

Sample Location	Sample ID/Borehole Depth (BGS) in feet	Analytical Method (Totals)	Analytes Detected	Results mg/kg unless noted	Toxicity Results 40 CFR 261.24 mg/L unless noted[1]	40 CFR Part 268 Subpart D Treatment Standard mg/kg unless noted	NMED Industrial Soil Screening Levels mg/kg[2]	NMED Residental Soil Screening Levels mg/kg[2]
200-SB-8	1406130945/28-30	6010C/6020A/7471 (Totals)	Beryllium	0.47 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.36 J	0.018	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	80700	NA	NA	NA	NA
			Chromium (Total)	8.5	0.4	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	4.28	NA	NA	NA	NA
			Copper	6.15	NA	NA	4.54E+04	3.13E+03
			Iron	12500	NA	NA	7.95E+05	5.48E+04
			Lead	8.1	0.4	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	12800	NA	NA	NA	NA
			Manganese	234	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.3 J	NA	NA	5.68E+03	3.91E+02
			Nickel	9.5	NA	NA	2.25E+04	1.56E+03
			Potassium	1240	NA	NA	NA	NA
			Sodium	100 B	NA	NA	NA	NA
			Strontium	138	NA	NA	6.81E+05	4.69E+04
			Titanium	72.1	NA	NA	NA	NA
			Uranium	1.51	NA	NA	3.41E+03	2.35E+02
			Vanadium	14.5	NA	NA	5.68E+03	3.91E+02
			Zinc	39.3	NA	NA	3.41E+05	2.35E+04
	1406130944/28-30	8290A	OCDD	0.706 JK ng/Kg	NA	0.005	NA	NA
	1406131305/43-45	6010C/6020A/7471 (Totals)	Aluminum	2730	NA	NA	1.13E+06	7.80E+04
			Antimony	1.0 J	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	4.5	0.2	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	49.5	2.5	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.32 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.65	0.03	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	148000	NA	NA	NA	NA
			Chromium (Total)	7.17	0.4	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	2.41	NA	NA	NA	NA
			Copper	5.06	NA	NA	4.54E+04	3.13E+03
			Iron	9700	NA	NA	7.95E+05	5.48E+04
			Lead	10.9	0.5	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	20500	NA	NA	NA	NA
			Manganese	289	NA	NA	2.67E+04	1.86E+03
			Molybdenum	3.2	NA	NA	5.68E+03	3.91E+02
			Nickel	6.8	NA	NA	2.25E+04	1.56E+03

TABLE 1 200 AREA INVESTIGATION ANALYTICAL DETECTIONS SUMMARY

Sample Location	Sample ID/Borehole Depth (BGS) in feet	Analytical Method (Totals)	Analytes Detected	Results mg/kg unless noted	Toxicity Results 40 CFR 261.24 mg/L unless noted[1]	40 CFR Part 268 Subpart D Treatment Standard mg/kg unless noted	NMED Industrial Soil Screening Levels mg/kg[2]	NMED Residental Soil Screening Levels mg/kg[2]
200-SB-8	1406131305/43-45	6010C/6020A/7471 (Totals)	Potassium	880	NA	NA	NA	NA
			Sodium	132 B	NA	NA	NA	NA
			Strontium	220	NA	NA	6.81E+05	4.69E+04
			Titanium	52.3	NA	NA	NA	NA
			Uranium	1.43	NA	NA	3.41E+03	2.35E+02
			Vanadium	10.7	NA	NA	5.68E+03	3.91E+02
			Zinc	42.7	NA	NA	3.41E+05	2.35E+04
	1406131305/43-45	353.2	Nitrate+Nitrite as N	2.2 J	NA	NA	NA	NA
		9056A	Chloride	7 J	NA	NA	NA	NA
	1406131304/43-45	8290A	OCDD	0.744 JK ng/Kg	NA	0.005	NA	NA
200-SB-13	1406161405/8-10	6010C/6020A/7471 (Totals)	Aluminum	4640	NA	NA	1.13E+06	7.80E+04
			Antimony	0.9 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	4.06	0.2	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	39.9	2.0	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.38 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.39	0.02	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	98900	NA	NA	NA	NA
			Chromium (Total)	6.86	0.3	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	3.44	NA	NA	NA	NA
			Copper	6.36	NA	NA	4.54E+04	3.13E+03
			Iron	11600	NA	NA	7.95E+05	5.48E+04
			Lead	6.9	0.3	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	17400	NA	NA	NA	NA
			Manganese	218	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.0 J	NA	NA	5.68E+03	3.91E+02
			Nickel	7.1	NA	NA	2.25E+04	1.56E+03
			Potassium	1350	NA	NA	NA	NA
			Sodium	148	NA	NA	NA	NA
			Strontium	250	NA	NA	6.81E+05	4.69E+04
			Titanium	99.8	NA	NA	NA	NA
			Uranium	1.45	NA	NA	3.41E+03	2.35E+02
			Vanadium	25.9	NA	NA	5.68E+03	3.91E+02
			Zinc	31.6	NA	NA	3.41E+05	2.35E+04
		353.2	Nitrate+Nitrite as N	7.4	NA	NA	NA	NA
		9056A	Chloride	13 J	NA	NA	NA	NA
	1406161404/8-10	8290A	1,2,3,4,7,8-HxCDD	0.105 JK ng/Kg	NA	NA	NA	NA

TABLE 1 200 AREA INVESTIGATION ANALYTICAL DETECTIONS SUMMARY

Sample Location	Sample ID/Borehole Depth (BGS) in feet	Analytical Method (Totals)	Analytes Detected	Results mg/kg unless noted	Toxicity Results 40 CFR 261.24 mg/L unless noted[1]	40 CFR Part 268 Subpart D Treatment Standard mg/kg unless noted	NMED Industrial Soil Screening Levels mg/kg[2]	NMED Residental Soil Screening Levels mg/kg[2]
200-SB-13	1406161404/8-10	8290A	1,2,3,7,8,9-HxCDD	0.107 JK ng/Kg	NA	NA	NA	NA
			1,2,3,4,6,7,8-HpCDD	0.202 JK ng/Kg	NA	NA	NA	NA
			OCDD	10 ng/Kg	NA	0.005	NA	NA
			1,2,3,6,7,8-HxCDF	0.0506 JK ng/Kg	NA	NA	NA	NA
			1,2,3,4,7,8-HxCDF	0.0843 JK ng/Kg	NA	NA	NA	NA
			1,2,3,4,6,7,8-HpCDF	0.0604 JK ng/Kg	NA	NA	NA	NA
			1,2,3,4,7,8,9-HpCDF	0.0664 JK ng/Kg	NA	NA	NA	NA
			1,2,3,4,7,8-HxCDD	0.105 ng/Kg	NA	NA	NA	NA
			1,2,3,7,8,9-HxCDD	0.107 ng/Kg	NA	NA	NA	NA
			1,2,3,4,6,7,8-HpCDD	0.202 ng/Kg	NA	NA	NA	NA
			1,2,3,6,7,8-HxCDF	0.0506 ng/Kg	NA	NA	NA	NA
			1,2,3,4,7,8-HxCDF	0.0843 ng/Kg	NA	NA	NA	NA
			1,2,3,4,6,7,8-HpCDF	0.0604 ng/Kg	NA	NA	NA	NA
			1,2,3,4,7,8,9-HpCDF	0.0664 ng/Kg	NA	NA	NA	NA
	1406161550/28-32	6010C/6020A/7471 (Totals)	Aluminum	6040	NA	NA	1.13E+06	7.80E+04
			Antimony	0.9 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	3.9	0.2	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	30.1	1.5	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.48 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.41 J	0.20	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	918000	NA	NA	NA	NA
			Chromium (Total)	7.47	0.4	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	4.58	NA	NA	NA	NA
			Copper	6065	NA	NA	4.54E+04	3.13E+03
			Iron	10200	NA	NA	7.95E+05	5.48E+04
			Lead	6.5	0.3	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	7700	NA	NA	NA	NA
			Manganese	189	NA	NA	2.67E+04	1.86E+03
			Molybdenum	0.8 BJ	NA	NA	5.68E+03	3.91E+02
			Nickel	6.9	NA	NA	2.25E+04	1.56E+03
			Potassium	2590	NA	NA	NA	NA
			Sodium	80 J	NA	NA	NA	NA
			Strontium	311	NA	NA	6.81E+05	4.69E+04
			Titanium	162	NA	NA	NA	NA
			Uranium	2.39	NA	NA	3.41E+03	2.35E+02
			Vanadium	15.6	NA	NA	5.68E+03	3.91E+02
			Zinc	26.4	NA	NA	3.41E+05	2.35E+04

TABLE 1 200 AREA INVESTIGATION ANALYTICAL DETECTIONS SUMMARY

Sample Location	Sample ID/Borehole Depth (BGS) in feet	Analytical Method (Totals)	Analytes Detected	Results mg/kg unless noted	Toxicity Results 40 CFR 261.24 mg/L unless noted[1]	40 CFR Part 268 Subpart D Treatment Standard mg/kg unless noted	NMED Industrial Soil Screening Levels mg/kg[2]	NMED Residental Soil Screening Levels mg/kg[2]
200-SB-13	1406161550/28-32	353.2	Nitrate+Nitrite as N	4.0 J	NA	NA	NA	NA
		7199	Chromium, Hexvalant	0.05 J ng/Kg	NA	0.60 mg/L TCLP	6.31E+01	2.97E+00
			Chromium, Hexvalant	0.05 J ng/Kg	NA	0.60 mg/L TCLP	6.31E+01	2.97E+00
	1406161548/28-32	8290A	1,2,3,7,8,9-HxCDD	0.166 J ng/Kg	NA	NA		
			1,2,3,4,6,7,8-HpCDD	2.38 J ng/Kg	NA	NA	NA	NA
			OCDD	16 g/Kg	NA	0.005	NA	NA
			1,2,3,7,8-PeCDF	0.128 JK ng/Kg	NA	NA	NA	NA
			2,3,4,7,8-PeCDF	0.0954 JK ng/Kg	NA	NA	NA	NA
			1,2,3,6,7,8-HxCDF	0.104 J ng/Kg	NA	NA	NA	NA
			1,2,3,7,8,9-HxCDF	0.142 J ng/Kg	NA	NA	NA	NA
			1,2,3,4,7,8-HxCDF	0.0589 J ng/Kg	NA	NA	NA	NA
			1,2,3,4,6,7,8-HpCDF	0.231 JK ng/Kg	NA	NA	NA	NA
			Total Hexa-Dioxins	0.166 J ng/Kg	NA	NA	NA	NA
			Total Hepta-Dioxins	2.38 J ng/Kg	NA	NA	NA	NA
			Total Hexa-Furans	0.404 J ng/Kg	NA	NA	NA	NA
			1,2,3,7,8,9-HxCDD	0.166 ng/Kg	NA	NA	NA	NA
			1,2,3,4,6,7,8-HpCDD	2.38 ng/Kg	NA	NA	NA	NA
			1,2,3,7,8-PeCDF	0.128 ng/Kg	NA	NA	NA	NA
			2,3,4,7,8-PeCDF	0.0954 ng/Kg	NA	NA	NA	NA
			1,2,3,6,7,8-HxCDF	0.104 ng/Kg	NA	NA	NA	NA
			1,2,3,7,8,9-HxCDF	0.142 ng/Kg	NA	NA	NA	NA
			1,2,3,4,7,8-HxCDF	0.0589 ng/Kg	NA	NA	NA	NA
			1,2,3,4,6,7,8-HpCDF	0.231 ng/Kg	NA	NA	NA	NA
200-SB-20	1406040940/9-10	8260C	Dichloromethane	0.75 J	NA	30	4.70E+03	4.09E+02
	1406041205/30	8290A	OCDD	1.03 JK ng/Kg	NA	0.005	NA	NA
			Total Hexa-Dioxins	0.380 J ng/Kg	NA	NA	NA	NA
			Total Tetra-Furans	0.656 ng/Kg	NA	NA	NA	NA
	1406041206/30	6010C/6020A/7471B (Totals)	Aluminum	2710 ng/Kg	NA	NA	1.13E+06	7.80E+04
			Antimony	1.4 BJ ng/Kg	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	3.73	0.2	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	20.00	1.0	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.28 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Calcium	65800	NA	NA	NA	NA
			Chromium (Total)	6.52	0.3	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	2.33	NA	NA	NA	NA

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200-SB-20	1406041206/30	6010C/6020A/7471B (Totals)	Copper	5.43	NA	NA	4.54E+04	3.13E+03
			Iron	9940	NA	NA	7.95E+05	5.48E+04
			Lead	4.9 J	0.245	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	16500	NA	NA	NA	NA
			Manganese	207	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.1 J	NA	NA	5.68E+03	3.91E+02
			Nickel	6.1	NA	NA	2.25E+04	1.56E+03
			Potassium	600	NA	NA	NA	NA
			Sodium	129	NA	NA	NA	NA
			Strontium	115	NA	NA	6.81E+05	4.69E+04
			Titanium	34.7	NA	NA	NA	NA
			Uranium	1.49	NA	NA	3.41E+03	2.35E+02
			Vanadium	15.3	NA	NA	5.68E+03	3.91E+02
			Zinc	37.8	NA	NA	3.41E+05	2.35E+04
	1406041200/30	8260C	Acetone	3.8 J	NA	160	8.68E+05	6.66E+04
	1406041204/30	8270D	Bis(2-ethylhexyl) Phthalate	340	NA	28	1.37E+03	3.47E+02
	1406041206/30	9056A	Chloride	56	NA	NA	NA	NA
		9012B	Cyanide, Total	0.015 J	NA	NA	6.81E+02	4.69E+01
	1406041725/50	8290A	Total Tetra-Furans	0.392 J	NA	NA	NA	NA
	1406041725/50	6010C/6020A/7471B (Totals)	Aluminum,	2520	NA	NA	1.13E+06	7.80E+04
			Antimony,	1.4 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	3.98	0.2	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	51.80	2.6	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.40 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Calcium	154000	NA	NA	NA	NA
			Chromium (Total)	7.72	NA	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	2.90	NA	NA	NA	NA
			Copper	5.68	NA	NA	4.54E+04	3.13E+03
			Iron	8850	NA	NA	7.95E+05	5.48E+04
			Lead	5.6	0.3	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	23700	NA	NA	NA	NA
			Manganese	303	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.5 J	NA	NA	5.68E+03	3.91E+02
			Nickel	6.1	NA	NA	2.25E+04	1.56E+03
			Potassium	720	NA	NA	N/A	NA
			Sodium	161	NA	NA	N/A	NA

TABLE 1 200 AREA INVESTIGATION ANALYTICAL DETECTIONS SUMMARY

Sample Location	Sample ID/Borehole Depth (BGS) in feet	Analytical Method (Totals)	Analytes Detected	Results mg/kg unless noted	Toxicity Results 40 CFR 261.24 mg/L unless noted[1]	40 CFR Part 268 Subpart D Treatment Standard mg/kg unless noted	NMED Industrial Soil Screening Levels mg/kg[2]	NMED Residental Soil Screening Levels mg/kg[2]
200-SB-20	1406041725/50	6010C/6020A/7471B (Totals)	Strontium	249	NA	NA	6.81E+05	4.69E+04
			Titanium	39.0	NA	NA	NA	NA
			Uranium	1.36	NA	NA	3.41E+03	2.35E+02
			Vanadium	9.8	NA	NA	5.68E+03	3.91E+02
			Zinc	28.1	NA	NA	3.41E+05	2.35E+04
	1406041725/50	9056A	Chloride	28 J	NA	NA	NA	NA
200-SB-21	1406091139/7.5-10	8290A	1,2,3,4,6,7,8-HpCDD	1.03 JK ng/Kg	NA	NA	NA	NA
			OCDD	6.36 ng/Kg	NA	0.005	NA	NA
			1,2,3,4,6,7,8-HpCDF	0.348 JK	NA	NA	NA	NA
			OCDF	2.06 J ng/Kg	NA	0.005	NA	NA
			1,2,3,7,8,9-HxCDD	1.03 ng/Kg	NA	NA	NA	NA
	1406091140/7.5-10	6010C/6020A/7471B (Totals)	Aluminum	4460	NA	NA	1.13E+06	7.80E+04
			Antimony	1.2 J	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Barium	36.4	1.8	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.36 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Calcium	97400	NA	NA	NA	NA
			Chromium (Total)	7.12	0.4	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	3.88	NA	NA	NA	NA
			Copper	5.37	NA	NA	4.54E+04	3.13E+03
			Iron	11600	NA	NA	7.95E+05	5.48E+04
			Lead	7.4	0.4	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	14200	NA	NA	NA	NA
			Manganese	220	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.1 J	NA	NA	5.68E+03	3.91E+02
			Nickel	8.3	NA	NA	2.25E+04	1.56E+03
			Potassium	1060	NA	NA	N/A	NA
			Sodium	229	NA	NA	N/A	NA
			Strontium	182	NA	NA	6.81E+05	4.69E+04
			Titanium	94.5	NA	NA	NA	NA
			Uranium	0.95	NA	NA	3.41E+03	2.35E+02
			Vanadium	32.0	NA	NA	5.68E+03	3.91E+02
			Zinc	30.7	NA	NA	3.41E+05	2.35E+04
	1406091140/7.5-10	9056A	Chloride	142	NA	NA	NA	NA
	1406091138/7.5-10	6850	Perchlorate	0.64 J	NA	NA	7.95E+02	5.48E+01
	1406091615/17.5-22.5	6010C/6020A/7471B (Totals)	Aluminum	1380	NA	NA	1.13E+06	7.80E+04
			Antimony	0.9 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	1.24	0.1	5.0 mg/L TCLP	1.77E+01	3.90E+00

TABLE 1 200 AREA INVESTIGATION ANALYTICAL DETECTIONS SUMMARY

Sample Location	Sample ID/Borehole Depth (BGS) in feet	Analytical Method (Totals)	Analytes Detected	Results mg/kg unless noted	Toxicity Results 40 CFR 261.24 mg/L unless noted[1]	40 CFR Part 268 Subpart D Treatment Standard mg/kg unless noted	NMED Industrial Soil Screening Levels mg/kg[2]	NMED Residental Soil Screening Levels mg/kg[2]
200-SB-21	1406091615/17.5-22.5	6010C/6020A/7471B (Totals)	Barium	9.3	0.5	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.30 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Calcium	116000	NA	NA	8.97E+02	NA
			Chromium (Total)	5.46	0.3	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	2.55	NA	NA	NA	NA
			Copper	4.11	NA	NA	4.54E+04	3.13E+03
			Iron	3760	NA	NA	7.95E+05	5.48E+04
			Lead	3.1 J	0.2	0.75 mg/L TCLP	8.00E+02	4.00E+02
			Magnesium	31100	NA	NA	NA	NA
			Manganese	169	NA	NA	2.67E+04	1.86E+03
			Molybdenum	0.5 J	NA	NA	5.68E+03	3.91E+02
			Nickel	4.7	NA	NA	2.25E+04	1.56E+03
			Potassium	340	NA	NA	N/A	NA
			Sodium	126	NA	NA	N/A	NA
			Strontium	108	NA	NA	6.81E+05	4.69E+04
			Titanium	15.3	NA	NA	NA	NA
			Uranium	1.79	NA	NA	3.41E+03	2.35E+02
			Vanadium	4.2 J	NA	NA	5.68E+03	3.91E+02
			Zinc	18.5	NA	NA	3.41E+05	2.35E+04
	1406091615/27.5-32.5	9012B	Cyanide, Total	0.019 J	NA	NA	6.81E+02	4.69E+01
	1406091749/27.5-32.5	8290A	1,2,3,4,6,7,8-HpCDD	1.11 J ng/Kg	NA	NA	N/A	NA
			OCDD	6.91 ng/Kg	NA	0.005	N/A	N/A
			Total Hepta-Dioxins	1.11 J ng/Kg	NA	NA	N/A	NA
			1,2,3,4,6,7,8-HpCDD	1.11 ng/Kg	NA	NA	N/A	NA
	1406091750/27.5-32.5	6010C/6020A/7471B (Totals)	Aluminum	3510	NA	NA	1.13E+06	7.80E+04
			Antimony	1.2 BJ	NA	1.15 mg/L TCLP	4.54E+02	3.13E+01
			Arsenic	3.75	0.2	5.0 mg/L TCLP	1.77E+01	3.90E+00
			Barium	40.3	2.0	21 mg/L TCLP	2.23E+05	1.56E+04
			Beryllium	0.36 J	NA	1.22 mg/L TCLP	2.26E+03	1.56E+02
			Cadmium	0.1 J	0.005	0.11 mg/L TCLP	8.97E+02	7.03E+01
			Calcium	94500	NA	NA	NA	NA
			Chromium (Total)	6.18	0.3	0.60 mg/L TCLP	1.70E+06	1.17E+05
			Cobalt	3.36	NA	NA	NA	NA
			Copper	4.87	NA	NA	4.54E+04	3.13E+03
			Iron	11100	NA	NA	7.95E+05	5.48E+04
			Lead	11.5	0.6	0.75 mg/L TCLP	8.00E+02	4.00E+02

TABLE 1 200 AREA INVESTIGATION ANALYTICAL DETECTIONS SUMMARY

Sample Location	Sample ID/Borehole Depth (BGS) in feet	Analytical Method (Totals)	Analytes Detected	Results mg/kg unless noted	Toxicity Results 40 CFR 261.24 mg/L unless noted[1]	40 CFR Part 268 Subpart D Treatment Standard mg/kg unless noted	NMED Industrial Soil Screening Levels mg/kg[2]	NMED Residental Soil Screening Levels mg/kg[2]
200-SB-21	1406091750/27.5-32.5	6010C/6020A/7471B (Totals)	Magnesium	25000	NA	NA	NA	NA
			Manganese	366	NA	NA	2.67E+04	1.86E+03
			Molybdenum	1.1 J	NA	NA	5.68E+03	3.91E+02
			Nickel	9.7	NA	NA	2.25E+04	1.56E+03
			Potassium	770	NA	NA	N/A	NA
			Sodium	195	NA	NA	N/A	NA
			Strontium	141	NA	NA	6.81E+05	4.69E+04
			Titanium	56.9	NA	NA	NA	NA
			Uranium	1.63	NA	NA	3.41E+03	2.35E+02
			Vanadium	15.8	NA	NA	5.68E+03	3.91E+02
			Zinc	50.4	NA	NA	3.41E+05	2.35E+04
	1406091750/27.5-32.5	9056A	Chloride	62	NA	NA	N/A	NA
		353.2M	Nitrate+Nitrite as Nitrogen	1.8 J	NA	NA	N/A	NA

Notes:
BGS Indicates below ground surface.
*- Indicates duplicate samples were collected.
N/A - Indicates not applicable.
J - Indicates that the analyte was detected above the laboratory method detection limit but below the method reporting limit.
B - Indicates that the analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
K - Indicates EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound (applicable to dioxin and furan analysis only).
[1] - For waste characterization purposes with respect to 40 CFR Part 261.24 - Toxicity Characteristic, incorporating the NMED approved 200 Area Phase II Investigation Work Plan, the 20 to 1 rule (theoretical maximum leachate concentration) will be applied to total metals analyses that include a treatment standard as mg/L TCLP.
[2] - NMED Risk Assessment Guidance for Site Investigations and Remediation, February 2012.

Enclosure 3

Soil Gas Phase II

Wells (2012 Data)

0 125 250 500 750 1,000 Feet

N W E S

200 Area Phase II Soil Boring and Well Locations

Table 2.1 Preliminary List of COCs for the 200 Area Vadose Zone Investigation

Constituent	Sample Type
Chloride	ANION
Cyanide	CYANIDE
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	DIOXINS/FURANS
Heptachlorodibenzo-p-dioxins (HpCDD), Total	DIOXINS/FURANS
Octachlorodibenzofuran (OCDF)	DIOXINS/FURANS
Octachlorodibenzo-p-dioxin (OCDD)	DIOXINS/FURANS
Hydrazine	HYDRAZINE
Monomethylhydrazine (MMH)	HYDRAZINE
Unsymmetrical Dimethylhydrazine (UDMH)	HYDRAZINE
Aluminum	METALS
Antimony	METALS
Arsenic	METALS
Barium	METALS
Beryllium	METALS
Boron	METALS
Cadmium	METALS
Calcium	METALS
Chromium (Total)	METALS
Chromium (VI)	METALS
Cobalt	METALS
Copper	METALS
Lead	METALS
Mercury	METALS
Molybdenum	METALS
Nickel	METALS
Selenium	METALS
Silver	METALS
Strontium	METALS
Thallium	METALS
Tin	METALS
Vanadium	METALS
Zinc	METALS
Bromacil	BROMACIL
N-Nitrosodimethylamine	NITROSAMINES
Nitrate	NITROGEN
Nitrite	NITROGEN
Perchlorate	PERCHLORATE
Bis(2-ethylhexyl) Phthalate	SVOA
Di-n-butyl Phthalate	SVOA
1,1,1-Trichloroethane	VOA
1,1,2-Trichloroethane	VOA
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	VOA
1,1-Dichloroethene	VOA
1,2-Dichloro-1,1,2-trifluoroethane (Freon 123a)	VOA
1,2-Dichloroethane	VOA
2,2-Dichloro-1,1,1-trifluoroethane (Freon 123)	VOA
2-Butanone (Methyl Ethyl Ketone)	VOA
2-Propanol	VOA
Acetone	VOA
Benzene	VOA

Table 2.1 Preliminary List of COCs for the 200 Area Vadose Zone Investigation

Constituent	Sample Type
Bromodichloromethane	VOA
Bromoform	VOA
Chlorobenzene	VOA
Chloroform	VOA
Chloromethane	VOA
Dibromochloromethane	VOA
Dichlorofluoromethane (Freon 21)	VOA
Methyl tert-Butyl Ether	VOA
Methylene Chloride	VOA
m-Xylene & p-Xylene	VOA
Tetrachloroethene (PCE)	VOA
Toluene	VOA
Trichloroethene (TCE)	VOA
Trichlorofluoromethane (Freon 11)	VOA

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Analyzed:	6/19/14 15:13
Sample Name:	1406151125 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404590-028	**Basis:**	Dry
		Percent Solids:	93.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397948
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061914\K9499.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.4	0.79	
79-00-5	1,1,2-Trichloroethane	ND	U	5.4	0.79	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.4	1.4	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.4	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.4	0.66	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.4	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.4	2.5	
67-63-0	Isopropanol	ND	U	110	30	
67-64-1	Acetone	ND	U	5.4	3.1	
71-43-2	Benzene	ND	U	5.4	0.32	
75-27-4	Bromodichloromethane	ND	U	5.4	0.66	
75-25-2	Bromoform	ND	U	5.4	1.0	
108-90-7	Chlorobenzene	ND	U	5.4	0.32	
67-66-3	Chloroform	ND	U	5.4	1.4	
74-87-3	Chloromethane	ND	U	5.4	0.44	
124-48-1	Dibromochloromethane	ND	U	5.4	0.79	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.4	1.7	
75-09-2	Dichloromethane	ND	U	5.4	0.62	
100-41-4	Ethylbenzene	ND	U	5.4	0.25	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.4	1.1	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.4	0.95	
108-88-3	Toluene	ND	U	5.4	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.4	1.1	
179601-23-1	m,p-Xylenes	ND	U	11	1.2	
95-47-6	o-Xylene	ND	U	5.4	0.52	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.4	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	51-136	6/19/14 15:13	
Dibromofluoromethane	100	63-138	6/19/14 15:13	
Toluene-d8	101	66-138	6/19/14 15:13	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Analyzed:	6/19/14 15:51
Sample Name:	1406151141 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404590-029	**Basis:**	Dry
		Percent Solids:	96.9

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397948
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061914\K9500.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.76	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.76	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.63	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.2	2.9	
71-43-2	Benzene	ND	U	5.2	0.30	
75-27-4	Bromodichloromethane	ND	U	5.2	0.63	
75-25-2	Bromoform	ND	U	5.2	0.96	
108-90-7	Chlorobenzene	ND	U	5.2	0.30	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.76	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.59	
100-41-4	Ethylbenzene	ND	U	5.2	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.98	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.91	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.50	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	51-136	6/19/14 15:51	
Dibromofluoromethane	100	63-138	6/19/14 15:51	
Toluene-d8	100	66-138	6/19/14 15:51	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/20/14 17:01
Sample Name:	1406151128 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404590-023	**Basis:**	Dry
		Percent Solids:	95.9

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211056
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU948.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	45	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	69	47-126	6/20/14 17:01	
Nitrobenzene-d5	59	39-136	6/20/14 17:01	
p-Terphenyl-d14	78	35-152	6/20/14 17:01	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/20/14 17:28
Sample Name:	1406151144 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404590-024	**Basis:**	Dry
		Percent Solids:	96.9

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211056
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU949.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	45	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	58	47-126	6/20/14 17:28	
Nitrobenzene-d5	50	39-136	6/20/14 17:28	
p-Terphenyl-d14	72	35-152	6/20/14 17:28	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406151146 200-SB-5 8/10'		
Lab Code:	R1404589-029	**Basis:**	Dry
		Percent Solids:	96.9

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**5500**		mg/Kg	10	3	1	6/20/14	6/24/14 11:00	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	6.1	0.3	1	6/20/14	6/23/14 21:43	
Arsenic, Total	6010C	**5.4**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 11:00	
Barium, Total	6010C	**69.7**		mg/Kg	2.0	0.10	1	6/20/14	6/23/14 21:43	
Beryllium, Total	6020A	**0.44**	J	mg/Kg	0.51	0.02	5	6/20/14	7/1/14 17:23	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 21:43	
Cadmium, Total	6010C	**0.44**	J	mg/Kg	0.51	0.05	1	6/20/14	6/23/14 21:43	
Calcium, Total	6010C	**71800**		mg/Kg	2000	300	20	6/20/14	6/25/14 10:52	
Chromium, Total	6020A	**6.98**		mg/Kg	0.51	0.05	5	6/20/14	7/2/14 14:36	
Cobalt, Total	6020A	**4.60**		mg/Kg	0.51	0.04	5	6/20/14	7/1/14 17:23	
Copper, Total	6020A	**6.57**		mg/Kg	0.51	0.20	5	6/20/14	7/1/14 17:23	
Iron, Total	6010C	**16500**		mg/Kg	100	80	10	6/20/14	6/23/14 19:05	
Lead, Total	6010C	**11.7**		mg/Kg	5.1	0.03	1	6/20/14	6/23/14 21:43	
Magnesium, Total	6010C	**15200**		mg/Kg	100	2	1	6/20/14	6/23/14 21:43	
Manganese, Total	6010C	**215**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 21:43	
Mercury, Total	7471B	ND	U	mg/Kg	0.033	0.002	1	6/20/14	6/20/14 19:05	
Molybdenum, Total	6010C	**0.9**	J	mg/Kg	2.6	0.07	1	6/20/14	6/23/14 21:43	
Nickel, Total	6010C	**10.9**		mg/Kg	4.1	0.10	1	6/20/14	6/23/14 21:43	
Potassium, Total	6010C	**1220**		mg/Kg	200	20	1	6/20/14	6/23/14 21:43	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 21:43	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 21:43	
Sodium, Total	6010C	**110**	B	mg/Kg	100	7	1	6/20/14	6/23/14 21:43	
Strontium, Total	6010C	**157**		mg/Kg	10	0.06	1	6/20/14	6/23/14 21:43	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 21:43	
Tin, Total	6010C	ND	U	mg/Kg	51	2	1	6/20/14	6/23/14 21:43	
Titanium, Total	6010C	**102**		mg/Kg	5.1	0.10	1	6/20/14	6/23/14 21:43	
Uranium, Total	6020A	**1.15**		mg/Kg	0.51	0.0010	5	6/20/14	7/2/14 14:36	
Vanadium, Total	6010C	**39.6**		mg/Kg	5.1	0.2	1	6/20/14	6/23/14 21:43	
Zinc, Total	6010C	**38.5**		mg/Kg	2.0	0.2	1	6/20/14	6/23/14 21:43	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Collected: 6/15/14
Date Received: 6/17/14

Sample Name: 1406151130 200-SB-5 8/10'
Lab Code: R1404589-028

Basis: Dry
Percent Solids: 95.3

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**5080**		mg/Kg	10	3	1	6/20/14	6/24/14 10:53	
Antimony, Total	6010C	**0.9**	BJ	mg/Kg	6.2	0.3	1	6/20/14	6/23/14 21:37	
Arsenic, Total	6010C	**5.8**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 10:53	
Barium, Total	6010C	**73.6**		mg/Kg	2.1	0.10	1	6/20/14	6/23/14 21:37	
Beryllium, Total	6020A	**0.45**	J	mg/Kg	0.50	0.02	5	6/20/14	7/1/14 17:01	
Boron, Total	6010C	ND	U	mg/Kg	21	4	1	6/20/14	6/23/14 21:37	
Cadmium, Total	6010C	**0.32**	J	mg/Kg	0.52	0.05	1	6/20/14	6/23/14 21:37	
Calcium, Total	6010C	**63500**		mg/Kg	2100	300	20	6/20/14	6/25/14 10:46	
Chromium, Total	6020A	**7.56**		mg/Kg	0.50	0.05	5	6/20/14	7/1/14 17:01	
Cobalt, Total	6020A	**4.54**		mg/Kg	0.50	0.04	5	6/20/14	7/1/14 17:01	
Copper, Total	6020A	**6.36**		mg/Kg	0.50	0.20	5	6/20/14	7/1/14 17:01	
Iron, Total	6010C	**13100**		mg/Kg	100	80	10	6/20/14	6/23/14 18:59	
Lead, Total	6010C	**7.7**		mg/Kg	5.2	0.03	1	6/20/14	6/23/14 21:37	
Magnesium, Total	6010C	**17500**		mg/Kg	100	2	1	6/20/14	6/23/14 21:37	
Manganese, Total	6010C	**194**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 21:37	
Mercury, Total	7471B	ND	U	mg/Kg	0.035	0.003	1	6/20/14	6/20/14 19:03	
Molybdenum, Total	6010C	**0.8**	J	mg/Kg	2.6	0.07	1	6/20/14	6/23/14 21:37	
Nickel, Total	6010C	**9.7**		mg/Kg	4.2	0.10	1	6/20/14	6/23/14 21:37	
Potassium, Total	6010C	**1070**		mg/Kg	210	20	1	6/20/14	6/23/14 21:37	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 21:37	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 21:37	
Sodium, Total	6010C	**110**	B	mg/Kg	100	7	1	6/20/14	6/23/14 21:37	
Strontium, Total	6010C	**136**		mg/Kg	10	0.06	1	6/20/14	6/23/14 21:37	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 21:37	
Tin, Total	6010C	ND	U	mg/Kg	52	2	1	6/20/14	6/23/14 21:37	
Titanium, Total	6010C	**94.3**		mg/Kg	5.2	0.10	1	6/20/14	6/23/14 21:37	
Uranium, Total	6020A	**1.04**		mg/Kg	0.50	0.0010	5	6/20/14	7/2/14 14:10	
Vanadium, Total	6010C	**29.9**		mg/Kg	5.2	0.3	1	6/20/14	6/23/14 21:37	
Zinc, Total	6010C	**38.6**		mg/Kg	2.1	0.2	1	6/20/14	6/23/14 21:37	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406151146 200-SB-5 8/10'		
Lab Code:	R1404589-029	**Basis:**	Dry
		Percent Solids:	96.9

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 15:36	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 18:46	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 18:53	
Cyanide, Total	9012B	ND	U	mg/Kg	0.10	0.02	1	6/24/14	6/25/14 11:20	
Nitrate+Nitrite as Nitrogen	353.2M	**0.8**	J	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:44	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406151130 200-SB-5 8/10'		
Lab Code:	R1404589-028	**Basis:**	Dry
		Percent Solids:	95.3

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 15:06	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 18:40	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 18:32	
Cyanide, Total	9012B	ND	U	mg/Kg	0.097	0.015	1	6/24/14	6/25/14 11:20	
Nitrate+Nitrite as Nitrogen	353.2M	**0.7**	J	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:41	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 18:58
Sample Name:	1406151128 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404589-023	**Basis:**	Dry
		Percent Solids:	96.0

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031558.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 19:11
Sample Name:	1406151144 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404589-024	**Basis:**	Dry
		Percent Solids:	96.9

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031559.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

Southwest Research Institute

010038

Method 607 Analysis Data Sheet

Sample ID

1406151127 (200-SB-5 8/10')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.74 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555196
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

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010039

Method 607 Analysis Data Sheet

Sample ID

1406151143 (200-SB-5 8/10')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.31 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555197
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

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010045

Method 607 Surrogate Recovery Summary

Client: Navarro
Matrix: Soil /Aqueous
Project: 16988.01.10X

SDG: 555187, 555515, 555862, 555191, 555520

	Client Sample ID	Lab Sample ID	N-Nitroso-di-n-propylamine	
			% Recovery	Recovery Limits
3	BLANK_20JUN14	555768	94	40-160
4	LCS_20JUN14	555769 LCS	100	40-160
5	1406130722 (200-SB-8)	555187	81	40-160
6	1406130853A (100-E-261)	555188	94	40-160
7	1406141652 (200-SB-6)	555189	89	40-160
8	1406151112 (200-SB-5)	555190	82	40-160
9	1406160847A (BLM-15-305)	555515	95	40-160
10	1406160907 (B655-EFF-2)	555516	98	40-160
11	1406160927 (B655-INF-2)	555517	93	40-160
12	1406161051A (BLM-15-305)	555518	100	40-160
13	BLANK_26JUN14	556407	96	40-160
14	LCS_26JUN14	556408 LCS	100	40-160
15	1406191014C (BLM-40-517)	555862	98	40-160
16	1406191015C (BLM-40-517)	555863	99	40-160
17	SMB_25JUN14	556397	100	40-160
18	LCS_25JUN14	556398 LCS	104	40-160
19	1406130802 (200-SB-8 8/10')	555191	100	40-160
20	1406130812 (200-SB-8 8/10')	555192	100	40-160
21	1406130942 (200-SB-8 28/30')	555193	101	40-160
22	1406131302 (200-SB-8 43/45')	555194	102	40-160
23	1406141702 (200-SB-6 8/10')	555195	106	40-160
24	1406151127 (200-SB-5 8/10')	555196	105	40-160
25	1406151143 (200-SB-5 8/10')	555197	96	40-160
26	1406161402 (200-SB-13 8-10')	555520	106	40-160
27	1406161544 (200-SB-13 28-30/32')	555521	98	40-160
28	1406161545 (200-SB-13 28-30/32')	555522 MS	105	40-160

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151129 200-SB-5 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-014	**Basis:**	Dry
		Percent Solids:	96.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2209
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.038g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229929	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.273	0.518			1
1,2,3,7,8-PeCDD	ND	U	0.120	2.59			1
1,2,3,6,7,8-HxCDD	**0.0729**	JK	0.0687	2.59	1.04	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.0626	2.59			1
1,2,3,7,8,9-HxCDD	ND	U	0.0635	2.59			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.141	2.59			1
OCDD	**0.643**	JK	0.0947	5.18	1.03	1.001	1
2,3,7,8-TCDF	ND	U	0.286	0.518			1
1,2,3,7,8-PeCDF	ND	U	0.0803	2.59			1
2,3,4,7,8-PeCDF	ND	U	0.0811	2.59			1
1,2,3,6,7,8-HxCDF	ND	U	0.0440	2.59			1
1,2,3,7,8,9-HxCDF	ND	U	0.0614	2.59			1
1,2,3,4,7,8-HxCDF	ND	U	0.0537	2.59			1
2,3,4,6,7,8-HxCDF	ND	U	0.0467	2.59			1
1,2,3,4,6,7,8-HpCDF	**0.159**	J	0.0396	2.59	0.95	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0536	2.59			1
OCDF	ND	U	0.206	5.18			1
Total Tetra-Dioxins	ND	U	0.273	0.518			1
Total Penta-Dioxins	ND	U	0.120	2.59			1
Total Hexa-Dioxins	ND	U	0.0650	2.59			1
Total Hepta-Dioxins	ND	U	0.141	2.59			1
Total Tetra-Furans	ND	U	0.286	0.518			1
Total Penta-Furans	ND	U	0.0948	2.59			1
Total Hexa-Furans	ND	U	0.0504	2.59			1
Total Hepta-Furans	**0.159**	J	0.0459	2.59	0.95		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151129 200-SB-5 8/10'	**Units:**	Percent
Lab Code:	R1404651-014	**Basis:**	Dry
		Percent Solids:	96.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2209
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.038g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229929	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1074.648	54		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1596.852	80		40-135	1.60	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1173.493	59		40-135	1.41	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1222.425	61		40-135	1.20	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1243.434	62		40-135	1.06	1.066
13C-OCDD	4000	2573.837	64		40-135	0.92	1.142
13C-2,3,7,8-TCDF	2000	1050.493	53		40-135	0.81	0.994
13C-1,2,3,7,8-PeCDF	2000	1259.263	63		40-135	1.60	1.136
13C-2,3,4,7,8-PeCDF	2000	1242.055	62		40-135	1.58	1.166
13C-1,2,3,4,7,8-HxCDF	2000	842.121	42		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1069.155	53		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	977.746	49		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1062.854	53		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	991.846	50		40-135	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1019.199	51		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	372.390	47		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151129 200-SB-5 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.273	0.518	1	1	
1,2,3,7,8-PeCDD	ND	0.120	2.59	1	1	
1,2,3,6,7,8-HxCDD	**0.0729**	0.0687	2.59	1	0.1	0.00729
1,2,3,4,7,8-HxCDD	ND	0.0626	2.59	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.0635	2.59	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.141	2.59	1	0.01	
OCDD	**0.643**	0.0947	5.18	1	0.0003	0.000193
2,3,7,8-TCDF	ND	0.286	0.518	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0803	2.59	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0811	2.59	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.0440	2.59	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0614	2.59	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.0537	2.59	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0467	2.59	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.159**	0.0396	2.59	1	0.01	0.00159
1,2,3,4,7,8,9-HpCDF	ND	0.0536	2.59	1	0.01	
OCDF	ND	0.206	5.18	1	0.0003	
		Total TEQ				0.00907

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151145 200-SB-5 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-015	**Basis:**	Dry
		Percent Solids:	96.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0431
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.187g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229937	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.198	0.508			1
1,2,3,7,8-PeCDD	ND	U	0.123	2.54			1
1,2,3,6,7,8-HxCDD	ND	U	0.0657	2.54			1
1,2,3,4,7,8-HxCDD	ND	U	0.0658	2.54			1
1,2,3,7,8,9-HxCDD	**0.157**	JK	0.0608	2.54	1.66	1.006	1
1,2,3,4,6,7,8-HpCDD	**2.35**	JK	0.0629	2.54	0.80	1.000	1
OCDD	**23.7**		0.0992	5.08	0.97	1.000	1
2,3,7,8-TCDF	ND	U	0.233	0.508			1
1,2,3,7,8-PeCDF	ND	U	0.118	2.54			1
2,3,4,7,8-PeCDF	ND	U	0.123	2.54			1
1,2,3,6,7,8-HxCDF	ND	U	0.0344	2.54			1
1,2,3,7,8,9-HxCDF	**0.133**	JK	0.0524	2.54	1.71	1.000	1
1,2,3,4,7,8-HxCDF	**0.123**	JK	0.0433	2.54	2.74	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0376	2.54			1
1,2,3,4,6,7,8-HpCDF	**0.309**	JK	0.0502	2.54	1.27	1.001	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0709	2.54			1
OCDF	**0.534**	J	0.170	5.08	0.88	1.005	1
Total Tetra-Dioxins	ND	U	0.198	0.508			1
Total Penta-Dioxins	ND	U	0.123	2.54			1
Total Hexa-Dioxins	**0.325**	J	0.0640	2.54	1.08		1
Total Hepta-Dioxins	**2.31**	J	0.0629	2.54	1.12		1
Total Tetra-Furans	ND	U	0.233	0.508			1
Total Penta-Furans	ND	U	0.0607	2.54			1
Total Hexa-Furans	ND	U	0.0409	2.54			1
Total Hepta-Furans	**0.313**	J	0.0595	2.54	0.97		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151145 200-SB-5 8/10'	**Units:**	Percent
Lab Code:	R1404651-015	**Basis:**	Dry
		Percent Solids:	96.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0431
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.187g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229937	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1119.191	56		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1389.992	69		40-135	1.64	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1508.895	75		40-135	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1494.647	75		40-135	1.32	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1399.617	70		40-135	1.09	1.066
13C-OCDD	4000	2574.102	64		40-135	0.93	1.143
13C-2,3,7,8-TCDF	2000	1074.586	54		40-135	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1230.973	62		40-135	1.59	1.136
13C-2,3,4,7,8-PeCDF	2000	1165.606	58		40-135	1.64	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1238.889	62		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1515.980	76		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1230.633	62		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1452.175	73		40-135	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1287.639	64		40-135	0.42	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1240.432	62		40-135	0.41	1.080
37Cl-2,3,7,8-TCDD	800	377.026	47		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151145 200-SB-5 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.198	0.508	1	1	
1,2,3,7,8-PeCDD	ND	0.123	2.54	1	1	
1,2,3,6,7,8-HxCDD	ND	0.0657	2.54	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.0658	2.54	1	0.1	
1,2,3,7,8,9-HxCDD	**0.157**	0.0608	2.54	1	0.1	0.0157
1,2,3,4,6,7,8-HpCDD	**2.35**	0.0629	2.54	1	0.01	0.0235
OCDD	**23.7**	0.0992	5.08	1	0.0003	0.00711
2,3,7,8-TCDF	ND	0.233	0.508	1	0.1	
1,2,3,7,8-PeCDF	ND	0.118	2.54	1	0.03	
2,3,4,7,8-PeCDF	ND	0.123	2.54	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.0344	2.54	1	0.1	
1,2,3,7,8,9-HxCDF	**0.133**	0.0524	2.54	1	0.1	0.0133
1,2,3,4,7,8-HxCDF	**0.123**	0.0433	2.54	1	0.1	0.0123
2,3,4,6,7,8-HxCDF	ND	0.0376	2.54	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.309**	0.0502	2.54	1	0.01	0.00309
1,2,3,4,7,8,9-HpCDF	ND	0.0709	2.54	1	0.01	
OCDF	**0.534**	0.170	5.08	1	0.0003	0.000160
		Total TEQ				0.0752

2005 WHO TEFs, ND = 0

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729737

Location: WSTF
Sample ID: 200-SB-5, 1406151126-field sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1647

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-5, 1406151142-field sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1708

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

Location: WSTF
Sample ID: 200-SB-5, 1406151142- (dup) sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1730

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Analyzed:	6/19/14 14:35
Sample Name:	1406141700 200-SB-6 8/10'	**Units:**	µg/Kg
Lab Code:	R1404590-027	**Basis:**	Dry
		Percent Solids:	97.8

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397948
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061914\K9498.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.1	0.75	
79-00-5	1,1,2-Trichloroethane	ND	U	5.1	0.75	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.1	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.1	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.1	0.63	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.1	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.1	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.1	2.9	
71-43-2	Benzene	ND	U	5.1	0.30	
75-27-4	Bromodichloromethane	ND	U	5.1	0.63	
75-25-2	Bromoform	ND	U	5.1	0.96	
108-90-7	Chlorobenzene	ND	U	5.1	0.30	
67-66-3	Chloroform	ND	U	5.1	1.3	
74-87-3	Chloromethane	ND	U	5.1	0.41	
124-48-1	Dibromochloromethane	ND	U	5.1	0.75	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.1	1.6	
75-09-2	Dichloromethane	ND	U	5.1	0.59	
100-41-4	Ethylbenzene	ND	U	5.1	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.1	0.97	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.1	0.90	
108-88-3	Toluene	ND	U	5.1	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.1	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.1	0.50	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.1	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/19/14 14:35	
Dibromofluoromethane	100	63-138	6/19/14 14:35	
Toluene-d8	100	66-138	6/19/14 14:35	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/20/14 16:35
Sample Name:	1406141703 200-SB-6 8/10'	**Units:**	µg/Kg
Lab Code:	R1404590-022	**Basis:**	Dry
		Percent Solids:	97.1

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211056
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU947.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	44	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	55	47-126	6/20/14 16:35	
Nitrobenzene-d5	48	39-136	6/20/14 16:35	
p-Terphenyl-d14	61	35-152	6/20/14 16:35	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406141705 200-SB-6 8/10'		
Lab Code:	R1404589-027	**Basis:**	Dry
		Percent Solids:	97.7

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**3620**		mg/Kg	9.7	2.2	1	6/20/14	6/24/14 10:46	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	5.8	0.3	1	6/20/14	6/23/14 21:31	
Arsenic, Total	6010C	**4.13**		mg/Kg	0.97	0.29	1	6/20/14	6/24/14 10:46	
Barium, Total	6010C	**40.2**		mg/Kg	1.9	0.10	1	6/20/14	6/23/14 21:31	
Beryllium, Total	6020A	**0.35**	J	mg/Kg	0.49	0.02	5	6/20/14	7/1/14 16:56	
Boron, Total	6010C	ND	U	mg/Kg	19	4	1	6/20/14	6/23/14 21:31	
Cadmium, Total	6010C	**0.30**	J	mg/Kg	0.49	0.05	1	6/20/14	6/23/14 21:31	
Calcium, Total	6010C	**103000**		mg/Kg	4900	700	50	6/20/14	6/25/14 10:40	
Chromium, Total	6020A	**5.85**		mg/Kg	0.49	0.05	5	6/20/14	7/1/14 16:56	
Cobalt, Total	6020A	**2.97**		mg/Kg	0.49	0.04	5	6/20/14	7/1/14 16:56	
Copper, Total	6020A	**5.70**		mg/Kg	0.49	0.20	5	6/20/14	7/1/14 16:56	
Iron, Total	6010C	**9380**		mg/Kg	97	74	10	6/20/14	6/23/14 18:53	
Lead, Total	6010C	**8.6**		mg/Kg	4.9	0.03	1	6/20/14	6/23/14 21:31	
Magnesium, Total	6010C	**20000**		mg/Kg	97	2	1	6/20/14	6/23/14 21:31	
Manganese, Total	6010C	**234**		mg/Kg	0.97	0.12	1	6/20/14	6/23/14 21:31	
Mercury, Total	7471B	**0.003**	J	mg/Kg	0.031	0.002	1	6/20/14	6/20/14 19:02	
Molybdenum, Total	6010C	**1.6**	J	mg/Kg	2.4	0.07	1	6/20/14	6/23/14 21:31	
Nickel, Total	6010C	**6.1**		mg/Kg	3.9	0.10	1	6/20/14	6/23/14 21:31	
Potassium, Total	6010C	**1130**		mg/Kg	190	20	1	6/20/14	6/23/14 21:31	
Selenium, Total	6010C	ND	U	mg/Kg	0.97	0.57	1	6/20/14	6/23/14 21:31	
Silver, Total	6010C	ND	U	mg/Kg	0.97	0.08	1	6/20/14	6/23/14 21:31	
Sodium, Total	6010C	**108**	B	mg/Kg	97	7	1	6/20/14	6/23/14 21:31	
Strontium, Total	6010C	**141**		mg/Kg	9.7	0.05	1	6/20/14	6/23/14 21:31	
Thallium, Total	6010C	ND	U	mg/Kg	0.97	0.75	1	6/20/14	6/23/14 21:31	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/20/14	6/23/14 21:31	
Titanium, Total	6010C	**69.4**		mg/Kg	4.9	0.10	1	6/20/14	6/23/14 21:31	
Uranium, Total	6020A	**1.14**		mg/Kg	0.49	0.0010	5	6/20/14	7/2/14 14:03	
Vanadium, Total	6010C	**18.0**		mg/Kg	4.9	0.2	1	6/20/14	6/23/14 21:31	
Zinc, Total	6010C	**36.3**		mg/Kg	1.9	0.2	1	6/20/14	6/23/14 21:31	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406141705 200-SB-6 8/10'		
Lab Code:	R1404589-027	**Basis:**	Dry
		Percent Solids:	97.7

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 14:56	
Chromium, Hexavalent	7199	**0.04**	J	mg/Kg	0.39	0.03	1	6/20/14	6/23/14 18:19	
Chromium, Hexavalent	7199	**0.03**	J	mg/Kg	0.39	0.03	1	6/20/14	6/23/14 18:26	
Cyanide, Total	9012B	ND	U	mg/Kg	0.098	0.015	1	6/24/14	6/25/14 11:19	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.1	0.6	1	6/24/14	6/24/14 12:40	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 18:31
Sample Name:	1406141703 200-SB-6 8/10'	**Units:**	µg/Kg
Lab Code:	R1404589-022	**Basis:**	Dry
		Percent Solids:	97.1

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031556.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.33	

Southwest Research Institute

010037

Method 607 Analysis Data Sheet

Sample ID

1406141702 (200-SB-6 8/10')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.34 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555195
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010045

Method 607 Surrogate Recovery Summary

Client: Navarro
Matrix: Soil /Aqueous
Project: 16988.01.10X

SDG: 555187, 555515, 555862, 555191, 555520

	Client Sample ID	Lab Sample ID	N-Nitroso-di-n-propylamine	
			% Recovery	Recovery Limits
3	BLANK_20JUN14	555768	94	40-160
4	LCS_20JUN14	555769 LCS	100	40-160
5	1406130722 (200-SB-8)	555187	81	40-160
6	1406130853A (100-E-261)	555188	94	40-160
7	1406141652 (200-SB-6)	555189	89	40-160
8	1406151112 (200-SB-5)	555190	82	40-160
9	1406160847A (BLM-15-305)	555515	95	40-160
10	1406160907 (B655-EFF-2)	555516	98	40-160
11	1406160927 (B655-INF-2)	555517	93	40-160
12	1406161051A (BLM-15-305)	555518	100	40-160
13	BLANK_26JUN14	556407	96	40-160
14	LCS_26JUN14	556408 LCS	100	40-160
15	1406191014C (BLM-40-517)	555862	98	40-160
16	1406191015C (BLM-40-517)	555863	99	40-160
17	SMB_25JUN14	556397	100	40-160
18	LCS_25JUN14	556398 LCS	104	40-160
19	1406130802 (200-SB-8 8/10')	555191	100	40-160
20	1406130812 (200-SB-8 8/10')	555192	100	40-160
21	1406130942 (200-SB-8 28/30')	555193	101	40-160
22	1406131302 (200-SB-8 43/45')	555194	102	40-160
23	1406141702 (200-SB-6 8/10')	555195	106	40-160
24	1406151127 (200-SB-5 8/10')	555196	105	40-160
25	1406151143 (200-SB-5 8/10')	555197	96	40-160
26	1406161402 (200-SB-13 8-10')	555520	106	40-160
27	1406161544 (200-SB-13 28-30/32')	555521	98	40-160
28	1406161545 (200-SB-13 28-30/32')	555522 MS	105	40-160

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406141704 200-SB-6 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-013	**Basis:**	Dry
		Percent Solids:	97.1

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2121
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.033g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229928	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.320	0.513			1
1,2,3,7,8-PeCDD	ND	U	0.134	2.57			1
1,2,3,6,7,8-HxCDD	ND	U	0.0774	2.57			1
1,2,3,4,7,8-HxCDD	ND	U	0.0749	2.57			1
1,2,3,7,8,9-HxCDD	ND	U	0.0736	2.57			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.159	2.57			1
OCDD	**0.800**	JK	0.134	5.13	1.10	1.001	1
2,3,7,8-TCDF	ND	U	0.257	0.513			1
1,2,3,7,8-PeCDF	ND	U	0.0804	2.57			1
2,3,4,7,8-PeCDF	ND	U	0.0809	2.57			1
1,2,3,6,7,8-HxCDF	ND	U	0.0712	2.57			1
1,2,3,7,8,9-HxCDF	ND	U	0.0974	2.57			1
1,2,3,4,7,8-HxCDF	ND	U	0.0875	2.57			1
2,3,4,6,7,8-HxCDF	ND	U	0.0769	2.57			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0778	2.57			1
1,2,3,4,7,8,9-HpCDF	**0.182**	JK	0.101	2.57	1.43	1.000	1
OCDF	ND	U	0.214	5.13			1
Total Tetra-Dioxins	ND	U	0.320	0.513			1
Total Penta-Dioxins	ND	U	0.134	2.57			1
Total Hexa-Dioxins	ND	U	0.0753	2.57			1
Total Hepta-Dioxins	ND	U	0.159	2.57			1
Total Tetra-Furans	ND	U	0.257	0.513			1
Total Penta-Furans	ND	U	0.0795	2.57			1
Total Hexa-Furans	ND	U	0.0820	2.57			1
Total Hepta-Furans	ND	U	0.0883	2.57			1

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406141704 200-SB-6 8/10'	**Units:**	Percent
Lab Code:	R1404651-013	**Basis:**	Dry
		Percent Solids:	97.1

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2121
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.033g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229928	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	984.301	49		40-135	0.76	1.021
13C-1,2,3,7,8-PeCDD	2000	1431.254	72		40-135	1.62	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1148.837	57		40-135	1.32	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1234.472	62		40-135	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1220.680	61		40-135	1.07	1.067
13C-OCDD	4000	2365.203	59		40-135	0.91	1.142
13C-2,3,7,8-TCDF	2000	960.446	48		40-135	0.77	0.994
13C-1,2,3,7,8-PeCDF	2000	1159.614	58		40-135	1.61	1.136
13C-2,3,4,7,8-PeCDF	2000	1166.912	58		40-135	1.62	1.166
13C-1,2,3,4,7,8-HxCDF	2000	879.777	44		40-135	0.49	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1057.674	53		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1020.992	51		40-135	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1077.643	54		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	954.069	48		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1048.261	52		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	359.140	45		40-135	NA	1.021

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406141704 200-SB-6 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.320	0.513	1	1	
1,2,3,7,8-PeCDD	ND	0.134	2.57	1	1	
1,2,3,6,7,8-HxCDD	ND	0.0774	2.57	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.0749	2.57	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.0736	2.57	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.159	2.57	1	0.01	
OCDD	**0.800**	0.134	5.13	1	0.0003	0.000240
2,3,7,8-TCDF	ND	0.257	0.513	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0804	2.57	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0809	2.57	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.0712	2.57	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0974	2.57	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.0875	2.57	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0769	2.57	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.0778	2.57	1	0.01	
1,2,3,4,7,8,9-HpCDF	**0.182**	0.101	2.57	1	0.01	0.00182
OCDF	ND	0.214	5.13	1	0.0003	
		Total TEQ				0.00206

2005 WHO TEFs, ND = 0

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729726

Location: WSTF
Sample ID: 200-SB-6, 1406141701-field sample
Date Received: 6/19/2014
Date Extracted: 6/19/2014
Date Analyzed: 6/19/2014

QA Batch Number: 4
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/19/2014, 1818

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

PRELIMINARY

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Analyzed:	6/18/14 15:58
Sample Name:	1406111455 200-SB-7 8-10'	**Units:**	µg/Kg
Lab Code:	R1404510-004	**Basis:**	Dry
		Percent Solids:	95.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9480.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.77	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.77	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	30	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.98	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.77	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.25	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.99	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.92	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.51	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 15:58	
Dibromofluoromethane	100	63-138	6/18/14 15:58	
Toluene-d8	100	66-138	6/18/14 15:58	

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010020

Method 607 Analysis Data Sheet

Sample ID

1406111459 (200-SB-7 8-10')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140613-8
Matrix: Soil
Sample Wt/Vol: 30.48 g

Project: 16988.01.103
Date Received: 06/13/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554786
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

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010021

Method 607 Analysis Data Sheet

Sample ID

1406111632 (200-SB-7 18-21')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140613-8
Matrix: Soil
Sample Wt/Vol: 30.56 g

Project: 16988.01.103
Date Received: 06/13/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554788
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

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Method 607 Analysis Data Sheet

010022

Sample ID

1406120932 (200-SB-7 38-40')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140613-8
Matrix: Soil
Sample Wt/Vol: 31.02 g

Project: 16988.01.103
Date Received: 06/13/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554789
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	0.16	J

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010024

Method 607 Surrogate Recovery Summary

Client: Navarro
Matrix: Soil
Project: 16988.01.103

SDG: 553448, 554117, NIST, 544786

	Client Sample ID	Lab Sample ID	N-Nitroso-di-n-propylamine	
			% Recovery	Recovery Limits
2	SMB_17JUN14	555238	101	40-160
3	LCS_17JUN14	555239 LCS	102	40-160
4	1406040942 (200-SB-20 9'/10')	553448	81	40-160
5	1406041203 (200-SB-20 30')	553449	88	40-160
6	1406041722 (200-SB-20 50')	553450	96	40-160
7	1406091137 (200-SB-21 7.5-10')	554117	91	40-160
8	1406091612 (200-SB-21)	554118	106	40-160
9	1406091747 (200-SB-21)	554119	105	40-160
10	1406111459 (200-SB-7 8-10')	554786	103	40-160
11	1406111500 (200-SB-7 8-10')	554787 MS	97	40-160
12	1406111632 (200-SB-7 18-21')	554788	109	40-160
13	1406120932 (200-SB-7 38-40')	554789	100	40-160

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-006	**Basis:**	Dry
		Percent Solids:	95.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0143
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.027g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149810	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.339	0.524			1
1,2,3,7,8-PeCDD	ND	U	0.397	2.62			1
1,2,3,6,7,8-HxCDD	ND	U	0.283	2.62			1
1,2,3,4,7,8-HxCDD	ND	U	0.275	2.62			1
1,2,3,7,8,9-HxCDD	ND	U	0.257	2.62			1
1,2,3,4,6,7,8-HpCDD	**1.37**	JK	0.272	2.62	0.84	1.000	1
OCDD	**17.1**		0.447	5.24	0.91	1.000	1
2,3,7,8-TCDF	ND	U	0.287	0.524			1
1,2,3,7,8-PeCDF	ND	U	0.231	2.62			1
2,3,4,7,8-PeCDF	ND	U	0.239	2.62			1
1,2,3,6,7,8-HxCDF	ND	U	0.159	2.62			1
1,2,3,7,8,9-HxCDF	ND	U	0.212	2.62			1
1,2,3,4,7,8-HxCDF	ND	U	0.199	2.62			1
2,3,4,6,7,8-HxCDF	ND	U	0.177	2.62			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.183	2.62			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.205	2.62			1
OCDF	ND	U	0.421	5.24			1
Total Tetra-Dioxins	ND	U	0.339	0.524			1
Total Penta-Dioxins	ND	U	0.397	2.62			1
Total Hexa-Dioxins	ND	U	0.272	2.62			1
Total Hepta-Dioxins	**1.21**	J	0.272	2.62	1.09		1
Total Tetra-Furans	ND	U	0.287	0.524			1
Total Penta-Furans	ND	U	0.232	2.62			1
Total Hexa-Furans	ND	U	0.184	2.62			1
Total Hepta-Furans	ND	U	0.194	2.62			1

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	Percent
Lab Code:	R1404651-006	**Basis:**	Dry
		Percent Solids:	95.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0143
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.027g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149810	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1089.751	54		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1326.358	66		40-135	1.56	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1339.407	67		40-135	1.29	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1299.241	65		40-135	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1309.957	65		40-135	1.10	1.067
13C-OCDD	4000	1954.304	49		40-135	0.91	1.145
13C-2,3,7,8-TCDF	2000	1104.619	55		40-135	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1215.111	61		40-135	1.59	1.137
13C-2,3,4,7,8-PeCDF	2000	1170.930	59		40-135	1.59	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1169.326	58		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1448.061	72		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1295.479	65		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1361.439	68		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1162.202	58		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1270.340	64		40-135	0.45	1.081
37Cl-2,3,7,8-TCDD	800	382.458	48		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.339	0.524	1	1	
1,2,3,7,8-PeCDD	ND	0.397	2.62	1	1	
1,2,3,6,7,8-HxCDD	ND	0.283	2.62	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.275	2.62	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.257	2.62	1	0.1	
1,2,3,4,6,7,8-HpCDD	**1.37**	0.272	2.62	1	0.01	0.0137
OCDD	**17.1**	0.447	5.24	1	0.0003	0.00513
2,3,7,8-TCDF	ND	0.287	0.524	1	0.1	
1,2,3,7,8-PeCDF	ND	0.231	2.62	1	0.03	
2,3,4,7,8-PeCDF	ND	0.239	2.62	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.159	2.62	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.212	2.62	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.199	2.62	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.177	2.62	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.183	2.62	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.205	2.62	1	0.01	
OCDF	ND	0.421	5.24	1	0.0003	
		Total TEQ				0.0188

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111634 200-SB-7 18/21'	**Units:**	ng/Kg
Lab Code:	R1404651-007	**Basis:**	Dry
		Percent Solids:	91.3

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1059
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.280g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149816	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.390	0.533			1
1,2,3,7,8-PeCDD	ND	U	0.360	2.66			1
1,2,3,6,7,8-HxCDD	ND	U	0.346	2.66			1
1,2,3,4,7,8-HxCDD	ND	U	0.342	2.66			1
1,2,3,7,8,9-HxCDD	ND	U	0.316	2.66			1
1,2,3,4,6,7,8-HpCDD	**0.827**	J	0.290	2.66	1.11	1.001	1
OCDD	**8.88**		0.530	5.33	0.82	1.000	1
2,3,7,8-TCDF	ND	U	0.322	0.533			1
1,2,3,7,8-PeCDF	ND	U	0.217	2.66			1
2,3,4,7,8-PeCDF	ND	U	0.217	2.66			1
1,2,3,6,7,8-HxCDF	ND	U	0.205	2.66			1
1,2,3,7,8,9-HxCDF	ND	U	0.319	2.66			1
1,2,3,4,7,8-HxCDF	ND	U	0.240	2.66			1
2,3,4,6,7,8-HxCDF	ND	U	0.227	2.66			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.253	2.66			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.288	2.66			1
OCDF	ND	U	0.519	5.33			1
Total Tetra-Dioxins	ND	U	0.390	0.533			1
Total Penta-Dioxins	ND	U	0.360	2.66			1
Total Hexa-Dioxins	ND	U	0.334	2.66			1
Total Hepta-Dioxins	**0.827**	J	0.290	2.66	1.11		1
Total Tetra-Furans	ND	U	0.322	0.533			1
Total Penta-Furans	ND	U	0.227	2.66			1
Total Hexa-Furans	ND	U	0.242	2.66			1
Total Hepta-Furans	ND	U	0.270	2.66			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111634 200-SB-7 18/21'	**Units:**	Percent
Lab Code:	R1404651-007	**Basis:**	Dry
		Percent Solids:	91.3

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1059
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.280g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149816	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1108.536	55		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1348.643	67		40-135	1.57	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1313.275	66		40-135	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1402.609	70		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1352.812	68		40-135	1.10	1.067
13C-OCDD	4000	2081.196	52		40-135	0.94	1.145
13C-2,3,7,8-TCDF	2000	1117.911	56		40-135	0.82	0.994
13C-1,2,3,7,8-PeCDF	2000	1211.799	61		40-135	1.60	1.137
13C-2,3,4,7,8-PeCDF	2000	1171.880	59		40-135	1.57	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1203.575	60		40-135	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1450.944	73		40-135	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1142.083	57		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1382.224	69		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1172.188	59		40-135	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1220.389	61		40-135	0.48	1.080
37Cl-2,3,7,8-TCDD	800	390.061	49		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111634 200-SB-7 18/21'	**Units:**	ng/Kg
Lab Code:	R1404651-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.390	0.533	1	1	
1,2,3,7,8-PeCDD	ND	0.360	2.66	1	1	
1,2,3,6,7,8-HxCDD	ND	0.346	2.66	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.342	2.66	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.316	2.66	1	0.1	
1,2,3,4,6,7,8-HpCDD	**0.827**	0.290	2.66	1	0.01	0.00827
OCDD	**8.88**	0.530	5.33	1	0.0003	0.00266
2,3,7,8-TCDF	ND	0.322	0.533	1	0.1	
1,2,3,7,8-PeCDF	ND	0.217	2.66	1	0.03	
2,3,4,7,8-PeCDF	ND	0.217	2.66	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.205	2.66	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.319	2.66	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.240	2.66	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.227	2.66	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.253	2.66	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.288	2.66	1	0.01	
OCDF	ND	0.519	5.33	1	0.0003	
		Total TEQ				0.0109

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406120934 200-SB-7 38-40'	**Units:**	ng/Kg
Lab Code:	R1404651-008	**Basis:**	Dry
		Percent Solids:	82.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1147
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.172g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149817	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.451	0.593			1
1,2,3,7,8-PeCDD	ND	U	0.470	2.96			1
1,2,3,6,7,8-HxCDD	ND	U	0.364	2.96			1
1,2,3,4,7,8-HxCDD	ND	U	0.353	2.96			1
1,2,3,7,8,9-HxCDD	ND	U	0.330	2.96			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.414	2.96			1
OCDD	**0.874**	J	0.573	5.93	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.374	0.593			1
1,2,3,7,8-PeCDF	ND	U	0.287	2.96			1
2,3,4,7,8-PeCDF	ND	U	0.288	2.96			1
1,2,3,6,7,8-HxCDF	ND	U	0.177	2.96			1
1,2,3,7,8,9-HxCDF	ND	U	0.257	2.96			1
1,2,3,4,7,8-HxCDF	ND	U	0.208	2.96			1
2,3,4,6,7,8-HxCDF	ND	U	0.181	2.96			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.316	2.96			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.409	2.96			1
OCDF	ND	U	0.655	5.93			1
Total Tetra-Dioxins	ND	U	0.451	0.593			1
Total Penta-Dioxins	ND	U	0.470	2.96			1
Total Hexa-Dioxins	ND	U	0.349	2.96			1
Total Hepta-Dioxins	ND	U	0.414	2.96			1
Total Tetra-Furans	ND	U	0.374	0.593			1
Total Penta-Furans	ND	U	0.296	2.96			1
Total Hexa-Furans	ND	U	0.201	2.96			1
Total Hepta-Furans	ND	U	0.360	2.96			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406120934 200-SB-7 38-40'	**Units:**	Percent
Lab Code:	R1404651-008	**Basis:**	Dry
		Percent Solids:	82.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1147
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.172g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149817	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1064.318	53		40-135	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1290.012	65		40-135	1.54	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1333.538	67		40-135	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1354.189	68		40-135	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1232.990	62		40-135	1.08	1.067
13C-OCDD	4000	1997.913	50		40-135	0.92	1.145
13C-2,3,7,8-TCDF	2000	1064.292	53		40-135	0.83	0.994
13C-1,2,3,7,8-PeCDF	2000	1167.598	58		40-135	1.58	1.137
13C-2,3,4,7,8-PeCDF	2000	1136.569	57		40-135	1.55	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1142.555	57		40-135	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1410.058	71		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1153.931	58		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1394.510	70		40-135	0.49	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1156.290	58		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1172.242	59		40-135	0.45	1.081
37Cl-2,3,7,8-TCDD	800	349.298	44		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406120934 200-SB-7 38-40'	**Units:**	ng/Kg
Lab Code:	R1404651-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.451	0.593	1	1	
1,2,3,7,8-PeCDD	ND	0.470	2.96	1	1	
1,2,3,6,7,8-HxCDD	ND	0.364	2.96	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.353	2.96	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.330	2.96	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.414	2.96	1	0.01	
OCDD	**0.874**	0.573	5.93	1	0.0003	0.000262
2,3,7,8-TCDF	ND	0.374	0.593	1	0.1	
1,2,3,7,8-PeCDF	ND	0.287	2.96	1	0.03	
2,3,4,7,8-PeCDF	ND	0.288	2.96	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.177	2.96	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.257	2.96	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.208	2.96	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.181	2.96	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.316	2.96	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.409	2.96	1	0.01	
OCDF	ND	0.655	5.93	1	0.0003	
		Total TEQ				0.000262

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Analyzed:	6/18/14 16:35
Sample Name:	1406111630 200-SB-7 18-21'	**Units:**	µg/Kg
Lab Code:	R1404510-005	**Basis:**	Dry
		Percent Solids:	91.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9481.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.5	0.80	
79-00-5	1,1,2-Trichloroethane	ND	U	5.5	0.80	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.5	1.4	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.5	1.5	
107-06-2	1,2-Dichloroethane	ND	U	5.5	0.67	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.5	1.6	
78-93-3	2-Butanone (MEK)	ND	U	5.5	2.6	
67-63-0	Isopropanol	ND	U	110	31	
67-64-1	Acetone	ND	U	5.5	3.1	
71-43-2	Benzene	ND	U	5.5	0.32	
75-27-4	Bromodichloromethane	ND	U	5.5	0.67	
75-25-2	Bromoform	ND	U	5.5	1.1	
108-90-7	Chlorobenzene	ND	U	5.5	0.32	
67-66-3	Chloroform	ND	U	5.5	1.4	
74-87-3	Chloromethane	ND	U	5.5	0.44	
124-48-1	Dibromochloromethane	ND	U	5.5	0.80	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.5	1.7	
75-09-2	Dichloromethane	ND	U	5.5	0.63	
100-41-4	Ethylbenzene	ND	U	5.5	0.26	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.5	1.1	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.5	0.97	
108-88-3	Toluene	ND	U	5.5	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.5	1.2	
179601-23-1	m,p-Xylenes	ND	U	11	1.2	
95-47-6	o-Xylene	ND	U	5.5	0.53	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.5	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 16:35	
Dibromofluoromethane	99	63-138	6/18/14 16:35	
Toluene-d8	100	66-138	6/18/14 16:35	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Analyzed:	6/18/14 17:13
Sample Name:	1406120930 200-SB-7 38-40'	**Units:**	µg/Kg
Lab Code:	R1404510-006	**Basis:**	Dry
		Percent Solids:	96.6

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9482.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.76	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.76	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.97	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.76	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.98	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.92	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.50	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	51-136	6/18/14 17:13	
Dibromofluoromethane	100	63-138	6/18/14 17:13	
Toluene-d8	100	66-138	6/18/14 17:13	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/20/14 20:31
Sample Name:	1406111501 200-SB-7 8-10'	**Units:**	µg/Kg
Lab Code:	R1404510-001	**Basis:**	Dry
		Percent Solids:	94.3

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211022
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU956.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	350	46	
84-74-2	Di-n-butyl Phthalate	ND	U	350	54	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	59	47-126	6/20/14 20:31	
Nitrobenzene-d5	52	39-136	6/20/14 20:31	
p-Terphenyl-d14	69	35-152	6/20/14 20:31	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/20/14 20:31
Sample Name:	1406111501 200-SB-7 8-10'	**Units:**	µg/Kg
Lab Code:	R1404510-001	**Basis:**	Dry
		Percent Solids:	94.3

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211022
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU956.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	350	46	
84-74-2	Di-n-butyl Phthalate	ND	U	350	54	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	59	47-126	6/20/14 20:31	
Nitrobenzene-d5	52	39-136	6/20/14 20:31	
p-Terphenyl-d14	69	35-152	6/20/14 20:31	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/20/14 21:51
Sample Name:	1406111633 200-SB-7 18-21'	**Units:**	µg/Kg
Lab Code:	R1404510-002	**Basis:**	Dry
		Percent Solids:	91.7

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211022
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU959.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	360	47	
84-74-2	Di-n-butyl Phthalate	ND	U	360	56	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	52	47-126	6/20/14 21:51	
Nitrobenzene-d5	49	39-136	6/20/14 21:51	
p-Terphenyl-d14	62	35-152	6/20/14 21:51	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/20/14 21:51
Sample Name:	1406111633 200-SB-7 18-21'	**Units:**	µg/Kg
Lab Code:	R1404510-002	**Basis:**	Dry
		Percent Solids:	91.7

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211022
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU959.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	360	47	
84-74-2	Di-n-butyl Phthalate	ND	U	360	56	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	52	47-126	6/20/14 21:51	
Nitrobenzene-d5	49	39-136	6/20/14 21:51	
p-Terphenyl-d14	62	35-152	6/20/14 21:51	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/20/14 22:18
Sample Name:	1406120933 200-SB-7 38-40'	**Units:**	µg/Kg
Lab Code:	R1404510-003	**Basis:**	Dry
		Percent Solids:	97.0

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211022
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU960.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	45	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	60	47-126	6/20/14 22:18	
Nitrobenzene-d5	51	39-136	6/20/14 22:18	
p-Terphenyl-d14	67	35-152	6/20/14 22:18	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Analyzed:	6/18/14 15:58
Sample Name:	1406111455 200-SB-7 8-10'	**Units:**	µg/Kg
Lab Code:	R1404510-004	**Basis:**	Dry
		Percent Solids:	95.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9480.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.77	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.77	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	30	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.98	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.77	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.25	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.99	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.92	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.51	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 15:58	
Dibromofluoromethane	100	63-138	6/18/14 15:58	
Toluene-d8	100	66-138	6/18/14 15:58	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Analyzed:	6/18/14 16:35
Sample Name:	1406111630 200-SB-7 18-21'	**Units:**	µg/Kg
Lab Code:	R1404510-005	**Basis:**	Dry
		Percent Solids:	91.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9481.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.5	0.80	
79-00-5	1,1,2-Trichloroethane	ND	U	5.5	0.80	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.5	1.4	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.5	1.5	
107-06-2	1,2-Dichloroethane	ND	U	5.5	0.67	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.5	1.6	
78-93-3	2-Butanone (MEK)	ND	U	5.5	2.6	
67-63-0	Isopropanol	ND	U	110	31	
67-64-1	Acetone	ND	U	5.5	3.1	
71-43-2	Benzene	ND	U	5.5	0.32	
75-27-4	Bromodichloromethane	ND	U	5.5	0.67	
75-25-2	Bromoform	ND	U	5.5	1.1	
108-90-7	Chlorobenzene	ND	U	5.5	0.32	
67-66-3	Chloroform	ND	U	5.5	1.4	
74-87-3	Chloromethane	ND	U	5.5	0.44	
124-48-1	Dibromochloromethane	ND	U	5.5	0.80	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.5	1.7	
75-09-2	Dichloromethane	ND	U	5.5	0.63	
100-41-4	Ethylbenzene	ND	U	5.5	0.26	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.5	1.1	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.5	0.97	
108-88-3	Toluene	ND	U	5.5	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.5	1.2	
179601-23-1	m,p-Xylenes	ND	U	11	1.2	
95-47-6	o-Xylene	ND	U	5.5	0.53	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.5	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 16:35	
Dibromofluoromethane	99	63-138	6/18/14 16:35	
Toluene-d8	100	66-138	6/18/14 16:35	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Analyzed:	6/18/14 17:13
Sample Name:	1406120930 200-SB-7 38-40'	**Units:**	µg/Kg
Lab Code:	R1404510-006	**Basis:**	Dry
		Percent Solids:	96.6

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9482.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.76	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.76	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.97	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.76	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.98	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.92	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.50	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	51-136	6/18/14 17:13	
Dibromofluoromethane	100	63-138	6/18/14 17:13	
Toluene-d8	100	66-138	6/18/14 17:13	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406111505 200-SB-7 8-10'		
Lab Code:	R1404507-006	**Basis:**	Dry
		Percent Solids:	95.5

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 12:45	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/17/14	6/17/14 21:29	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/17/14	6/17/14 21:36	
Cyanide, Total	9012B	ND	U	mg/Kg	0.098	0.015	1	6/17/14	6/18/14 11:38	
Nitrate+Nitrite as Nitrogen	353.2M	**1.5**	J	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:28	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406111505 200-SB-7 8-10'		
Lab Code:	R1404507-006	**Basis:**	Dry
		Percent Solids:	95.5

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**5390**		mg/Kg	10	3	1	6/20/14	6/24/14 09:13	
Antimony, Total	6010C	**0.9**	BJ	mg/Kg	6.2	0.3	1	6/20/14	6/23/14 20:06	
Arsenic, Total	6010C	**6.9**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 09:13	
Barium, Total	6010C	**108**		mg/Kg	2.1	0.10	1	6/20/14	6/23/14 20:06	
Beryllium, Total	6020A	**0.46**	J	mg/Kg	0.50	0.02	5	6/20/14	7/1/14 15:41	
Boron, Total	6010C	ND	U	mg/Kg	21	4	1	6/20/14	6/23/14 20:06	
Cadmium, Total	6010C	**0.19**	J	mg/Kg	0.51	0.05	1	6/20/14	6/23/14 20:06	
Calcium, Total	6010C	**53600**		mg/Kg	2100	300	20	6/20/14	6/25/14 09:16	
Chromium, Total	6020A	**9.26**		mg/Kg	0.50	0.05	5	6/20/14	7/1/14 15:41	
Cobalt, Total	6020A	**4.75**		mg/Kg	0.50	0.04	5	6/20/14	7/1/14 15:41	
Copper, Total	6020A	**8.21**		mg/Kg	0.50	0.20	5	6/20/14	7/1/14 15:41	
Iron, Total	6010C	**12500**		mg/Kg	100	80	10	6/20/14	6/23/14 17:35	
Lead, Total	6010C	**8.0**		mg/Kg	5.1	0.03	1	6/20/14	6/23/14 20:06	
Magnesium, Total	6010C	**15300**		mg/Kg	100	2	1	6/20/14	6/23/14 20:06	
Manganese, Total	6010C	**207**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 20:06	
Mercury, Total	7471B	ND	U	mg/Kg	0.035	0.003	1	6/18/14	6/19/14 17:02	
Molybdenum, Total	6010C	**1.5**	J	mg/Kg	2.6	0.07	1	6/20/14	6/23/14 20:06	
Nickel, Total	6010C	**8.6**		mg/Kg	4.1	0.10	1	6/20/14	6/23/14 20:06	
Potassium, Total	6010C	**1310**		mg/Kg	210	20	1	6/20/14	6/23/14 20:06	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 20:06	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 20:06	
Sodium, Total	6010C	**110**	B	mg/Kg	100	7	1	6/20/14	6/23/14 20:06	
Strontium, Total	6010C	**175**		mg/Kg	10	0.06	1	6/20/14	6/23/14 20:06	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 20:06	
Tin, Total	6010C	ND	U	mg/Kg	51	2	1	6/20/14	6/23/14 20:06	
Titanium, Total	6010C	**111**		mg/Kg	5.1	0.10	1	6/20/14	6/23/14 20:06	
Uranium, Total	6020A	**1.76**		mg/Kg	0.50	0.0010	5	6/20/14	7/2/14 12:37	
Vanadium, Total	6010C	**42.2**		mg/Kg	5.1	0.3	1	6/20/14	6/23/14 20:06	
Zinc, Total	6010C	**36.9**		mg/Kg	2.1	0.2	1	6/20/14	6/23/14 20:06	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406111635 200-SB-7 18-21'		
Lab Code:	R1404507-007	**Basis:**	Dry
		Percent Solids:	89.9

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	33	7	1	6/23/14	6/23/14 13:36	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.44	0.03	1	6/17/14	6/17/14 22:54	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.44	0.03	1	6/17/14	6/17/14 23:01	
Cyanide, Total	9012B	ND	U	mg/Kg	0.099	0.015	1	6/17/14	6/18/14 11:40	
Nitrate+Nitrite as Nitrogen	353.2M	**2.0**	J	mg/Kg	5.6	0.6	1	6/24/14	6/24/14 12:34	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: 6/11/14
Date Received: 6/13/14

Sample Name: 1406111635 200-SB-7 18-21'
Lab Code: R1404507-007

Basis: Dry
Percent Solids: 89.9

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**7100**		mg/Kg	11	3	1	6/20/14	6/24/14 09:46	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	6.4	0.3	1	6/20/14	6/23/14 20:36	
Arsenic, Total	6010C	**5.5**		mg/Kg	1.1	0.4	1	6/20/14	6/24/14 09:46	
Barium, Total	6010C	**41.4**		mg/Kg	2.1	0.10	1	6/20/14	6/23/14 20:36	
Beryllium, Total	6020A	**0.37**	J	mg/Kg	0.55	0.02	5	6/20/14	7/1/14 16:21	
Boron, Total	6010C	ND	U	mg/Kg	21	5	1	6/20/14	6/23/14 20:36	
Cadmium, Total	6010C	**0.27**	J	mg/Kg	0.53	0.05	1	6/20/14	6/23/14 20:36	
Calcium, Total	6010C	**72300**		mg/Kg	2100	300	20	6/20/14	6/25/14 09:46	
Chromium, Total	6020A	**6.58**		mg/Kg	0.55	0.06	5	6/20/14	7/1/14 16:21	
Cobalt, Total	6020A	**4.70**		mg/Kg	0.55	0.04	5	6/20/14	7/1/14 16:21	
Copper, Total	6020A	**6.53**		mg/Kg	0.55	0.21	5	6/20/14	7/1/14 16:21	
Iron, Total	6010C	**12500**		mg/Kg	110	80	10	6/20/14	6/23/14 18:05	
Lead, Total	6010C	**9.5**		mg/Kg	5.3	0.03	1	6/20/14	6/23/14 20:36	
Magnesium, Total	6010C	**11400**		mg/Kg	110	2	1	6/20/14	6/23/14 20:36	
Manganese, Total	6010C	**200**		mg/Kg	1.1	0.2	1	6/20/14	6/23/14 20:36	
Mercury, Total	7471B	ND	U	mg/Kg	0.036	0.003	1	6/18/14	6/19/14 17:07	
Molybdenum, Total	6010C	**1.0**	J	mg/Kg	2.7	0.07	1	6/20/14	6/23/14 20:36	
Nickel, Total	6010C	**10.3**		mg/Kg	4.3	0.10	1	6/20/14	6/23/14 20:36	
Potassium, Total	6010C	**3110**		mg/Kg	210	20	1	6/20/14	6/23/14 20:36	
Selenium, Total	6010C	ND	U	mg/Kg	1.1	0.7	1	6/20/14	6/23/14 20:36	
Silver, Total	6010C	ND	U	mg/Kg	1.1	0.08	1	6/20/14	6/23/14 20:36	
Sodium, Total	6010C	**150**		mg/Kg	110	7	1	6/20/14	6/23/14 20:36	
Strontium, Total	6010C	**153**		mg/Kg	11	0.06	1	6/20/14	6/23/14 20:36	
Thallium, Total	6010C	ND	U	mg/Kg	1.1	0.9	1	6/20/14	6/23/14 20:36	
Tin, Total	6010C	ND	U	mg/Kg	53	2	1	6/20/14	6/23/14 20:36	
Titanium, Total	6010C	**156**		mg/Kg	5.3	0.10	1	6/20/14	6/23/14 20:36	
Uranium, Total	6020A	**2.26**		mg/Kg	0.55	0.002	5	6/20/14	7/2/14 13:10	
Vanadium, Total	6010C	**16.6**		mg/Kg	5.3	0.3	1	6/20/14	6/23/14 20:36	
Zinc, Total	6010C	**33.3**		mg/Kg	2.1	0.3	1	6/20/14	6/23/14 20:36	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406120935 200-SB-7 38-40'		
Lab Code:	R1404507-008	**Basis:**	Dry
		Percent Solids:	96.9

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 13:46	
Chromium, Hexavalent	7199	**0.03**	J	mg/Kg	0.41	0.03	1	6/17/14	6/17/14 23:15	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/17/14	6/17/14 23:07	
Cyanide, Total	9012B	ND	U	mg/Kg	0.10	0.02	1	6/17/14	6/18/14 11:41	
Nitrate+Nitrite as Nitrogen	353.2M	**1.2**	J	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:35	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: 6/12/14
Date Received: 6/13/14

Sample Name: 1406120935 200-SB-7 38-40'
Lab Code: R1404507-008

Basis: Dry
Percent Solids: 96.9

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**3270**		mg/Kg	10	3	1	6/20/14	6/24/14 10:06	
Antimony, Total	6010C	**1.2**	BJ	mg/Kg	6.2	0.3	1	6/20/14	6/23/14 20:42	
Arsenic, Total	6010C	**3.6**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 10:06	
Barium, Total	6010C	**67.3**		mg/Kg	2.1	0.10	1	6/20/14	6/23/14 20:42	
Beryllium, Total	6020A	**0.37**	J	mg/Kg	0.51	0.02	5	6/20/14	7/1/14 16:27	
Boron, Total	6010C	ND	U	mg/Kg	21	4	1	6/20/14	6/23/14 20:42	
Cadmium, Total	6010C	**0.32**	J	mg/Kg	0.52	0.05	1	6/20/14	6/23/14 20:42	
Calcium, Total	6010C	**96000**		mg/Kg	2100	300	20	6/20/14	6/25/14 09:52	
Chromium, Total	6020A	**6.24**		mg/Kg	0.51	0.05	5	6/20/14	7/1/14 16:27	
Cobalt, Total	6020A	**3.05**		mg/Kg	0.51	0.04	5	6/20/14	7/1/14 16:27	
Copper, Total	6020A	**5.47**		mg/Kg	0.51	0.20	5	6/20/14	7/1/14 16:27	
Iron, Total	6010C	**11100**		mg/Kg	100	80	10	6/20/14	6/23/14 18:11	
Lead, Total	6010C	**7.0**		mg/Kg	5.2	0.03	1	6/20/14	6/23/14 20:42	
Magnesium, Total	6010C	**16600**		mg/Kg	100	2	1	6/20/14	6/23/14 20:42	
Manganese, Total	6010C	**198**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 20:42	
Mercury, Total	7471B	ND	U	mg/Kg	0.034	0.003	1	6/18/14	6/19/14 17:09	
Molybdenum, Total	6010C	**1.4**	J	mg/Kg	2.6	0.07	1	6/20/14	6/23/14 20:42	
Nickel, Total	6010C	**6.7**		mg/Kg	4.1	0.10	1	6/20/14	6/23/14 20:42	
Potassium, Total	6010C	**970**		mg/Kg	210	20	1	6/20/14	6/23/14 20:42	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 20:42	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 20:42	
Sodium, Total	6010C	**140**	B	mg/Kg	100	7	1	6/20/14	6/23/14 20:42	
Strontium, Total	6010C	**153**		mg/Kg	10	0.06	1	6/20/14	6/23/14 20:42	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 20:42	
Tin, Total	6010C	ND	U	mg/Kg	52	2	1	6/20/14	6/23/14 20:42	
Titanium, Total	6010C	**111**		mg/Kg	5.2	0.10	1	6/20/14	6/23/14 20:42	
Uranium, Total	6020A	**1.38**		mg/Kg	0.51	0.0010	5	6/20/14	7/2/14 13:17	
Vanadium, Total	6010C	**12.4**		mg/Kg	5.2	0.3	1	6/20/14	6/23/14 20:42	
Zinc, Total	6010C	**43.1**		mg/Kg	2.1	0.2	1	6/20/14	6/23/14 20:42	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/18/14 00:03
Sample Name:	1406111501 200-SB-7 8-10'	**Units:**	µg/Kg
Lab Code:	R1404507-009	**Basis:**	Dry
		Percent Solids:	95.4

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031476.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/18/14 00:17
Sample Name:	1406111633 200-SB-7 18-21'	**Units:**	µg/Kg
Lab Code:	R1404507-010	**Basis:**	Dry
		Percent Solids:	91.0

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031477.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.2	0.36	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/18/14 00:30
Sample Name:	1406120933 200-SB-7 38-40'	**Units:**	µg/Kg
Lab Code:	R1404507-011	**Basis:**	Dry
		Percent Solids:	96.4

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031478.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001
Sample Matrix: Soil

Service Request: R1404510
Date Collected: 6/11/14
Date Received: 6/13/14
Date Analyzed: 6/18/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: 1406111455 200-SB-7 8-10'
Lab Code: R1404510-004

Units: µg/Kg
Basis: Dry

Analytical Method: 8260C

		1406111455 200-SB-7 8-10'MS			1406111455 200-SB-7 8-10'DMS					
		Matrix Spike RQ1406804-05			**Duplicate Matrix Spike** RQ1406804-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	ND	48.1	52.2	92	50.5	52.2	97	37 - 142	5	30
1,1,2-Trichloroethane	ND	46.2	52.2	88	47.9	52.2	92	35 - 144	4	30
1,1,2-Trichlorotrifluoroethane	ND	51.2	52.2	98	51.7	52.2	99	31 - 139	1	30
1,1-Dichloroethene (1,1-DCE)	ND	58.0	52.2	111	59.7	52.2	114	47 - 155	3	30
1,2-Dichloroethane	ND	47.5	52.2	91	46.3	52.2	89	37 - 142	2	30
2,2-Dichloro-1,1,1-trifluoroethane (CFC	ND	53.9	52.2	103	55.6	52.2	106	46 - 159	3	30
2-Butanone (MEK)	ND	48.3	52.2	92	48.7	52.2	93	29 - 166	1	30
Isopropanol	ND	1130	1040	108	1120	1040	107	10 - 158	<1	30
Acetone	ND	42.6	52.2	82	41.9	52.2	80	21 - 197	2	30
Benzene	ND	48.7	52.2	93	49.2	52.2	94	33 - 144	1	30
Bromodichloromethane	ND	47.4	52.2	91	48.2	52.2	92	35 - 144	1	30
Bromoform	ND	47.0	52.2	90	48.7	52.2	93	16 - 157	3	30
Chlorobenzene	ND	46.9	52.2	90	48.3	52.2	92	17 - 151	2	30
Chloroform	ND	46.8	52.2	90	48.0	52.2	92	43 - 145	2	30
Chloromethane	ND	53.4	52.2	102	55.8	52.2	107	11 - 162	5	30
Dibromochloromethane	ND	46.4	52.2	89	47.5	52.2	91	23 - 154	2	30
Dichlorofluoromethane (CFC 21)	ND	45.5	52.2	87	46.5	52.2	89	45 - 158	2	30
Dichloromethane	ND	48.9	52.2	94	51.3	52.2	98	42 - 135	4	30
Ethylbenzene	ND	43.8	52.2	84	45.4	52.2	87	13 - 159	4	30
Methyl tert-Butyl Ether	ND	49.5	52.2	95	50.7	52.2	97	48 - 131	2	30
Tetrachloroethene (PCE)	ND	47.5	52.2	91	48.5	52.2	93	19 - 159	2	30
Toluene	ND	47.8	52.2	91	48.7	52.2	93	22 - 148	2	30
Trichloroethene (TCE)	ND	53.9	52.2	103	53.8	52.2	103	11 - 167	<1	30
m,p-Xylenes	ND	94.3	104	90	96.8	104	93	10 - 160	3	30
o-Xylene	ND	46.1	52.2	88	48.3	52.2	92	10 - 160	4	30
1,2-Dichloro-1,1,2-trifluoroethane (CFC	ND	62.4	52.2	119	63.9	52.2	122	45 - 151	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713a

Location: WSTF
Sample ID: 200-SB-7, 1406111457-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1834

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

Location: WSTF
Sample ID: 200-SB-7, 1406111458-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1916

Name	CAS Number	Result (mg/kg)	Reporting (Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	0.42	0.050	
Methylhydrazine	60-34-4	0.57	0.050	
N,N-Dimethylhydrazine	57-14-7	0.78	0.050	

Location: WSTF
Sample ID: 200-SB-7, 1406111458 (dup.sample)
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1937

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713a

Location: WSTF
Sample ID: 200-SB-7, 1406111458-matrix spike
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1958

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.
All matrix spikes are spiked to 1 ppm hydrazines.

Location: WSTF
Sample ID: 200-SB-7, 1406111631-field sample
Date Received: 6/13/2014
Date Extracted: 6/19/2014
Date Analyzed: 6/19/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/19/2014, 1653

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-7, 1406120931-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 2019

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit (0.050 mg/kg)

PRELIMINARY

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Analyzed:	6/19/14 12:01
Sample Name:	1406130800 200-SB-8 8'/10'	**Units:**	µg/Kg
Lab Code:	R1404590-012	**Basis:**	Dry
		Percent Solids:	95.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397948
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061914\K9494.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.77	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.77	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	30	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.98	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.77	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.25	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.99	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.92	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.51	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	51-136	6/19/14 12:01	
Dibromofluoromethane	98	63-138	6/19/14 12:01	
Toluene-d8	101	66-138	6/19/14 12:01	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Analyzed:	6/19/14 12:41
Sample Name:	1406130810 200-SB-8 8'/10'	**Units:**	µg/Kg
Lab Code:	R1404590-013	**Basis:**	Dry
		Percent Solids:	95.9

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397948
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061914\K9495.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.77	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.77	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	30	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.97	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.77	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.99	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.92	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.51	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/19/14 12:41	
Dibromofluoromethane	101	63-138	6/19/14 12:41	
Toluene-d8	100	66-138	6/19/14 12:41	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Analyzed:	6/19/14 13:19
Sample Name:	1406130940 200-SB-8 28/30'	**Units:**	µg/Kg
Lab Code:	R1404590-025	**Basis:**	Dry
		Percent Solids:	85.1

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397948
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061914\K9496.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.9	0.86	
79-00-5	1,1,2-Trichloroethane	ND	U	5.9	0.86	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.9	1.5	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.9	1.6	
107-06-2	1,2-Dichloroethane	ND	U	5.9	0.72	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.9	1.7	
78-93-3	2-Butanone (MEK)	ND	U	5.9	2.7	
67-63-0	Isopropanol	ND	U	120	33	
67-64-1	Acetone	ND	U	5.9	3.4	
71-43-2	Benzene	ND	U	5.9	0.35	
75-27-4	Bromodichloromethane	ND	U	5.9	0.72	
75-25-2	Bromoform	ND	U	5.9	1.1	
108-90-7	Chlorobenzene	ND	U	5.9	0.35	
67-66-3	Chloroform	ND	U	5.9	1.5	
74-87-3	Chloromethane	ND	U	5.9	0.48	
124-48-1	Dibromochloromethane	ND	U	5.9	0.86	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.9	1.8	
75-09-2	Dichloromethane	ND	U	5.9	0.67	
100-41-4	Ethylbenzene	ND	U	5.9	0.28	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.9	1.2	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.9	1.1	
108-88-3	Toluene	ND	U	5.9	1.2	
79-01-6	Trichloroethene (TCE)	ND	U	5.9	1.2	
179601-23-1	m,p-Xylenes	ND	U	12	1.3	
95-47-6	o-Xylene	ND	U	5.9	0.57	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.9	1.6	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	51-136	6/19/14 13:19	
Dibromofluoromethane	103	63-138	6/19/14 13:19	
Toluene-d8	101	66-138	6/19/14 13:19	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Analyzed:	6/19/14 13:57
Sample Name:	1406131300 200-SB-8 43/45'	**Units:**	µg/Kg
Lab Code:	R1404590-026	**Basis:**	Dry
		Percent Solids:	99.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397948
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061914\K9497.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.1	0.74	
79-00-5	1,1,2-Trichloroethane	ND	U	5.1	0.74	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.1	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.1	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.1	0.62	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.1	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.1	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.1	2.9	
71-43-2	Benzene	ND	U	5.1	0.30	
75-27-4	Bromodichloromethane	ND	U	5.1	0.62	
75-25-2	Bromoform	ND	U	5.1	0.94	
108-90-7	Chlorobenzene	ND	U	5.1	0.30	
67-66-3	Chloroform	ND	U	5.1	1.3	
74-87-3	Chloromethane	ND	U	5.1	0.41	
124-48-1	Dibromochloromethane	ND	U	5.1	0.74	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.1	1.6	
75-09-2	Dichloromethane	ND	U	5.1	0.58	
100-41-4	Ethylbenzene	ND	U	5.1	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.1	0.95	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.1	0.89	
108-88-3	Toluene	ND	U	5.1	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.1	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.1	0.49	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.1	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	51-136	6/19/14 13:57	
Dibromofluoromethane	101	63-138	6/19/14 13:57	
Toluene-d8	99	66-138	6/19/14 13:57	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/20/14 00:58
Sample Name:	1406130803 200-SB-8 8'/10'	**Units:**	µg/Kg
Lab Code:	R1404590-014	**Basis:**	Dry
		Percent Solids:	96.0

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398144
Prep Method:	EPA 3541	**Extraction Lot:**	211056
Data File Name:	I:\ACQUDATA\5973D\Data\061914\AU922.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	45	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	43	*	47-126	6/20/14 00:58	
Nitrobenzene-d5	38	*	39-136	6/20/14 00:58	
p-Terphenyl-d14	48		35-152	6/20/14 00:58	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/20/14 15:15
Sample Name:	1406130813 200-SB-8 8'/10'	**Units:**	µg/Kg
Lab Code:	R1404590-015	**Basis:**	Dry
		Percent Solids:	95.4

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211056
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU944.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	350	45	
84-74-2	Di-n-butyl Phthalate	ND	U	350	54	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	68	47-126	6/20/14 15:15	
Nitrobenzene-d5	60	39-136	6/20/14 15:15	
p-Terphenyl-d14	80	35-152	6/20/14 15:15	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/20/14 15:42
Sample Name:	1406130943 200-SB-8 28/30'	**Units:**	µg/Kg
Lab Code:	R1404590-020	**Basis:**	Dry
		Percent Solids:	97.2

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211056
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU945.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	44	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	81	47-126	6/20/14 15:42	
Nitrobenzene-d5	70	39-136	6/20/14 15:42	
p-Terphenyl-d14	98	35-152	6/20/14 15:42	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/20/14 16:08
Sample Name:	1406131303 200-SB-8 43/45'	**Units:**	µg/Kg
Lab Code:	R1404590-021	**Basis:**	Dry
		Percent Solids:	99.0

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211056
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU946.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	330	44	
84-74-2	Di-n-butyl Phthalate	ND	U	330	52	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	72	47-126	6/20/14 16:08	
Nitrobenzene-d5	61	39-136	6/20/14 16:08	
p-Terphenyl-d14	84	35-152	6/20/14 16:08	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130805 200-SB-8 8/10'		
Lab Code:	R1404589-016	**Basis:**	Dry
		Percent Solids:	95.3

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**5910**		mg/Kg	10	2.2	1	6/20/14	6/24/14 10:19	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	6.0	0.3	1	6/20/14	6/23/14 21:06	
Arsenic, Total	6010C	**8.21**		mg/Kg	1.0	0.29	1	6/20/14	6/24/14 10:19	
Barium, Total	6010C	**50.6**		mg/Kg	2.0	0.10	1	6/20/14	6/23/14 21:06	
Beryllium, Total	6020A	**0.44**	J	mg/Kg	0.50	0.02	5	6/20/14	7/1/14 16:32	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 21:06	
Cadmium, Total	6010C	**0.35**	J	mg/Kg	0.50	0.05	1	6/20/14	6/23/14 21:06	
Calcium, Total	6010C	**102000**		mg/Kg	5000	700	50	6/20/14	6/25/14 09:58	
Chromium, Total	6020A	**8.79**		mg/Kg	0.50	0.05	5	6/20/14	7/1/14 16:32	
Cobalt, Total	6020A	**4.34**		mg/Kg	0.50	0.04	5	6/20/14	7/1/14 16:32	
Copper, Total	6020A	**6.41**		mg/Kg	0.50	0.20	5	6/20/14	7/1/14 16:32	
Iron, Total	6010C	**13000**		mg/Kg	100	74	10	6/20/14	6/23/14 18:17	
Lead, Total	6010C	**9.6**		mg/Kg	5.0	0.03	1	6/20/14	6/23/14 21:06	
Magnesium, Total	6010C	**17400**		mg/Kg	100	2	1	6/20/14	6/23/14 21:06	
Manganese, Total	6010C	**321**		mg/Kg	1.0	0.12	1	6/20/14	6/23/14 21:06	
Mercury, Total	7471B	ND	U	mg/Kg	0.032	0.002	1	6/20/14	6/20/14 18:49	
Molybdenum, Total	6010C	**1.1**	J	mg/Kg	2.5	0.07	1	6/20/14	6/23/14 21:06	
Nickel, Total	6010C	**11.0**		mg/Kg	4.0	0.10	1	6/20/14	6/23/14 21:06	
Potassium, Total	6010C	**1560**		mg/Kg	200	20	1	6/20/14	6/23/14 21:06	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.57	1	6/20/14	6/23/14 21:06	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 21:06	
Sodium, Total	6010C	**116**	B	mg/Kg	100	7	1	6/20/14	6/23/14 21:06	
Strontium, Total	6010C	**233**		mg/Kg	10	0.05	1	6/20/14	6/23/14 21:06	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.75	1	6/20/14	6/23/14 21:06	
Tin, Total	6010C	ND	U	mg/Kg	50	2	1	6/20/14	6/23/14 21:06	
Titanium, Total	6010C	**79.8**		mg/Kg	5.0	0.10	1	6/20/14	6/23/14 21:06	
Uranium, Total	6020A	**1.05**		mg/Kg	0.50	0.0010	5	6/20/14	7/2/14 13:36	
Vanadium, Total	6010C	**26.5**		mg/Kg	5.0	0.2	1	6/20/14	6/23/14 21:06	
Zinc, Total	6010C	**36.6**		mg/Kg	2.0	0.2	1	6/20/14	6/23/14 21:06	

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Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Collected: 6/13/14
Date Received: 6/17/14

Sample Name: 1406130815 200-SB-8 8/10'
Lab Code: R1404589-017

Basis: Dry
Percent Solids: 95.2

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**6460**		mg/Kg	10	3	1	6/20/14	6/24/14 10:26	
Antimony, Total	6010C	**1.2**	BJ	mg/Kg	6.1	0.3	1	6/20/14	6/23/14 21:12	
Arsenic, Total	6010C	**6.9**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 10:26	
Barium, Total	6010C	**64.0**		mg/Kg	2.0	0.10	1	6/20/14	6/23/14 21:12	
Beryllium, Total	6020A	**0.49**	J	mg/Kg	0.50	0.02	5	6/20/14	7/1/14 16:38	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 21:12	
Cadmium, Total	6010C	**0.42**	J	mg/Kg	0.51	0.05	1	6/20/14	6/23/14 21:12	
Calcium, Total	6010C	**104000**		mg/Kg	5100	700	50	6/20/14	6/25/14 10:22	
Chromium, Total	6020A	**8.31**		mg/Kg	0.50	0.05	5	6/20/14	7/1/14 16:38	
Cobalt, Total	6020A	**5.35**		mg/Kg	0.50	0.04	5	6/20/14	7/1/14 16:38	
Copper, Total	6020A	**7.88**		mg/Kg	0.50	0.20	5	6/20/14	7/1/14 16:38	
Iron, Total	6010C	**14000**		mg/Kg	100	80	10	6/20/14	6/23/14 18:35	
Lead, Total	6010C	**9.4**		mg/Kg	5.1	0.03	1	6/20/14	6/23/14 21:12	
Magnesium, Total	6010C	**28400**		mg/Kg	100	2	1	6/20/14	6/23/14 21:12	
Manganese, Total	6010C	**294**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 21:12	
Mercury, Total	7471B	ND	U	mg/Kg	0.034	0.003	1	6/20/14	6/20/14 18:53	
Molybdenum, Total	6010C	**1.4**	J	mg/Kg	2.5	0.07	1	6/20/14	6/23/14 21:12	
Nickel, Total	6010C	**10.7**		mg/Kg	4.0	0.10	1	6/20/14	6/23/14 21:12	
Potassium, Total	6010C	**1870**		mg/Kg	200	20	1	6/20/14	6/23/14 21:12	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 21:12	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 21:12	
Sodium, Total	6010C	**130**	B	mg/Kg	100	7	1	6/20/14	6/23/14 21:12	
Strontium, Total	6010C	**193**		mg/Kg	10	0.06	1	6/20/14	6/23/14 21:12	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 21:12	
Tin, Total	6010C	ND	U	mg/Kg	51	2	1	6/20/14	6/23/14 21:12	
Titanium, Total	6010C	**109**		mg/Kg	5.1	0.10	1	6/20/14	6/23/14 21:12	
Uranium, Total	6020A	**1.12**		mg/Kg	0.50	0.0010	5	6/20/14	7/2/14 13:43	
Vanadium, Total	6010C	**28.8**		mg/Kg	5.1	0.2	1	6/20/14	6/23/14 21:12	
Zinc, Total	6010C	**42.4**		mg/Kg	2.0	0.2	1	6/20/14	6/23/14 21:12	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Collected: 6/13/14
Date Received: 6/17/14

Sample Name: 1406130945 200-SB-8 28/30'
Lab Code: R1404589-025

Basis: Dry
Percent Solids: 97.5

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**5030**		mg/Kg	10	3	1	6/20/14	6/24/14 10:32	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	6.1	0.3	1	6/20/14	6/23/14 21:19	
Arsenic, Total	6010C	**4.5**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 10:32	
Barium, Total	6010C	**34.1**		mg/Kg	2.0	0.10	1	6/20/14	6/23/14 21:19	
Beryllium, Total	6020A	**0.47**	J	mg/Kg	0.51	0.02	5	6/20/14	7/1/14 16:44	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 21:19	
Cadmium, Total	6010C	**0.36**	J	mg/Kg	0.51	0.05	1	6/20/14	6/23/14 21:19	
Calcium, Total	6010C	**80700**		mg/Kg	2000	300	20	6/20/14	6/25/14 10:28	
Chromium, Total	6020A	**8.50**		mg/Kg	0.51	0.05	5	6/20/14	7/1/14 16:44	
Cobalt, Total	6020A	**4.28**		mg/Kg	0.51	0.04	5	6/20/14	7/1/14 16:44	
Copper, Total	6020A	**6.15**		mg/Kg	0.51	0.20	5	6/20/14	7/1/14 16:44	
Iron, Total	6010C	**12500**		mg/Kg	100	80	10	6/20/14	6/23/14 18:41	
Lead, Total	6010C	**8.1**		mg/Kg	5.1	0.03	1	6/20/14	6/23/14 21:19	
Magnesium, Total	6010C	**12800**		mg/Kg	100	2	1	6/20/14	6/23/14 21:19	
Manganese, Total	6010C	**234**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 21:19	
Mercury, Total	7471B	ND	U	mg/Kg	0.031	0.002	1	6/20/14	6/20/14 18:55	
Molybdenum, Total	6010C	**1.3**	J	mg/Kg	2.5	0.07	1	6/20/14	6/23/14 21:19	
Nickel, Total	6010C	**9.5**		mg/Kg	4.1	0.10	1	6/20/14	6/23/14 21:19	
Potassium, Total	6010C	**1240**		mg/Kg	200	20	1	6/20/14	6/23/14 21:19	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 21:19	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 21:19	
Sodium, Total	6010C	**100**	B	mg/Kg	100	7	1	6/20/14	6/23/14 21:19	
Strontium, Total	6010C	**138**		mg/Kg	10	0.06	1	6/20/14	6/23/14 21:19	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 21:19	
Tin, Total	6010C	ND	U	mg/Kg	51	2	1	6/20/14	6/23/14 21:19	
Titanium, Total	6010C	**72.1**		mg/Kg	5.1	0.10	1	6/20/14	6/23/14 21:19	
Uranium, Total	6020A	**1.51**		mg/Kg	0.51	0.0010	5	6/20/14	7/2/14 13:50	
Vanadium, Total	6010C	**14.5**		mg/Kg	5.1	0.2	1	6/20/14	6/23/14 21:19	
Zinc, Total	6010C	**39.3**		mg/Kg	2.0	0.2	1	6/20/14	6/23/14 21:19	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Collected: 6/13/14
Date Received: 6/17/14

Sample Name: 1406131305 200-SB-8 43/45'
Lab Code: R1404589-026

Basis: Dry
Percent Solids: 99.1

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**2730**		mg/Kg	9.8	2.2	1	6/20/14	6/24/14 10:39	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	5.9	0.3	1	6/20/14	6/23/14 21:25	
Arsenic, Total	6010C	**4.50**		mg/Kg	0.98	0.29	1	6/20/14	6/24/14 10:39	
Barium, Total	6010C	**49.5**		mg/Kg	2.0	0.10	1	6/20/14	6/23/14 21:25	
Beryllium, Total	6020A	**0.32**	J	mg/Kg	0.48	0.02	5	6/20/14	7/1/14 16:50	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 21:25	
Cadmium, Total	6010C	**0.65**		mg/Kg	0.49	0.05	1	6/20/14	6/23/14 21:25	
Calcium, Total	6010C	**148000**		mg/Kg	4900	700	50	6/20/14	6/25/14 10:34	
Chromium, Total	6020A	**7.17**		mg/Kg	0.48	0.05	5	6/20/14	7/1/14 16:50	
Cobalt, Total	6020A	**2.41**		mg/Kg	0.48	0.04	5	6/20/14	7/1/14 16:50	
Copper, Total	6020A	**5.06**		mg/Kg	0.48	0.20	5	6/20/14	7/1/14 16:50	
Iron, Total	6010C	**9700**		mg/Kg	98	74	10	6/20/14	6/23/14 18:47	
Lead, Total	6010C	**10.9**		mg/Kg	4.9	0.03	1	6/20/14	6/23/14 21:25	
Magnesium, Total	6010C	**20500**		mg/Kg	98	2	1	6/20/14	6/23/14 21:25	
Manganese, Total	6010C	**289**		mg/Kg	0.98	0.12	1	6/20/14	6/23/14 21:25	
Mercury, Total	7471B	**0.004**	J	mg/Kg	0.033	0.003	1	6/20/14	6/20/14 18:57	
Molybdenum, Total	6010C	**3.2**		mg/Kg	2.4	0.07	1	6/20/14	6/23/14 21:25	
Nickel, Total	6010C	**6.8**		mg/Kg	3.9	0.10	1	6/20/14	6/23/14 21:25	
Potassium, Total	6010C	**880**		mg/Kg	200	20	1	6/20/14	6/23/14 21:25	
Selenium, Total	6010C	ND	U	mg/Kg	0.98	0.57	1	6/20/14	6/23/14 21:25	
Silver, Total	6010C	ND	U	mg/Kg	0.98	0.08	1	6/20/14	6/23/14 21:25	
Sodium, Total	6010C	**132**	B	mg/Kg	98	7	1	6/20/14	6/23/14 21:25	
Strontium, Total	6010C	**220**		mg/Kg	9.8	0.05	1	6/20/14	6/23/14 21:25	
Thallium, Total	6010C	ND	U	mg/Kg	0.98	0.75	1	6/20/14	6/23/14 21:25	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/20/14	6/23/14 21:25	
Titanium, Total	6010C	**52.3**		mg/Kg	4.9	0.10	1	6/20/14	6/23/14 21:25	
Uranium, Total	6020A	**1.43**		mg/Kg	0.48	0.0010	5	6/20/14	7/2/14 13:57	
Vanadium, Total	6010C	**10.7**		mg/Kg	4.9	0.2	1	6/20/14	6/23/14 21:25	
Zinc, Total	6010C	**42.7**		mg/Kg	2.0	0.2	1	6/20/14	6/23/14 21:25	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130815 200-SB-8 8/10'		
Lab Code:	R1404589-017	**Basis:**	Dry
		Percent Solids:	95.2

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	32	6	1	6/23/14	6/23/14 14:26	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 17:23	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 17:30	
Cyanide, Total	9012B	ND	U	mg/Kg	0.097	0.015	1	6/24/14	6/25/14 11:15	
Nitrate+Nitrite as Nitrogen	353.2M	**1.4**	J	mg/Kg	5.3	0.6	1	6/24/14	6/24/14 12:37	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130805 200-SB-8 8/10'		
Lab Code:	R1404589-016	**Basis:**	Dry
		Percent Solids:	95.3

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 14:16	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 17:16	
Chromium, Hexavalent	7199	**0.03**	J	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 17:09	
Cyanide, Total	9012B	ND	U	mg/Kg	0.099	0.015	1	6/24/14	6/25/14 11:14	
Nitrate+Nitrite as Nitrogen	353.2M	**1.4**	J	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:36	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130945 200-SB-8 28/30'		
Lab Code:	R1404589-025	**Basis:**	Dry
		Percent Solids:	97.5

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 14:36	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 17:59	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 17:51	
Cyanide, Total	9012B	ND	U	mg/Kg	0.098	0.015	1	6/24/14	6/25/14 11:16	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.1	0.6	1	6/24/14	6/24/14 12:38	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406131305 200-SB-8 43/45'		
Lab Code:	R1404589-026	**Basis:**	Dry
		Percent Solids:	99.1

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**7**	J	mg/Kg	30	6	1	6/23/14	6/23/14 14:46	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 18:12	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 18:05	
Cyanide, Total	9012B	ND	U	mg/Kg	0.094	0.015	1	6/24/14	6/25/14 11:18	
Nitrate+Nitrite as Nitrogen	353.2M	**2.2**	J	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:39	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 17:37
Sample Name:	1406130803 200-SB-8 8/10'	**Units:**	µg/Kg
Lab Code:	R1404589-018	**Basis:**	Dry
		Percent Solids:	96.0

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031552.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 17:51
Sample Name:	1406130813 200-SB-8 8/10'	**Units:**	µg/Kg
Lab Code:	R1404589-019	**Basis:**	Dry
		Percent Solids:	95.4

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031553.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 18:04
Sample Name:	1406130943 200-SB-8 28/30'	**Units:**	µg/Kg
Lab Code:	R1404589-020	**Basis:**	Dry
		Percent Solids:	97.0

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031554.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 18:17
Sample Name:	1406131303 200-SB-8 43/45'	**Units:**	µg/Kg
Lab Code:	R1404589-021	**Basis:**	Dry
		Percent Solids:	98.5

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031555.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.33	

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713b

Location: WSTF
Sample ID: 200-SB-8, 1406130801-field sample
Date Received: 6/13/2014
Date Extracted: 6/17/2014
Date Analyzed: 6/17/2014

QA Batch Number: 3
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/17/2014, 1734

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

Location: WSTF
Sample ID: 200-SB-8, 1406130811-field sample
Date Received: 6/13/2014
Date Extracted: 6/17/2014
Date Analyzed: 6/17/2014

QA Batch Number: 3
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/17/2014, 1755

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-8, 1406130941-field sample
Date Received: 6/19/2014
Date Extracted: 6/19/2014
Date Analyzed: 6/19/2014

QA Batch Number: 4
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/19/2014, 1715

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713b

Location: WSTF
Sample ID: 200-SB-8, 1406131301-field sample
Date Received: 6/19/2014
Date Extracted: 6/19/2014
Date Analyzed: 6/19/2014

QA Batch Number: 4
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/19/2014, 1736

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

Southwest Research Institute

Method 607 Analysis Data Sheet

010033

Sample ID

1406130802 (200-SB-8 8/10')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.29 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555191
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010034

Method 607 Analysis Data Sheet

Sample ID

1406130812 (200-SB-8 8/10')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.26 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555192
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010035

Method 607 Analysis Data Sheet

Sample ID

1406130942 (200-SB-8 28/30')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.77 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555193
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010036

Method 607 Analysis Data Sheet

Sample ID

1406131302 (200-SB-8 43/45')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.78 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555194
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010045

Method 607 Surrogate Recovery Summary

Client: Navarro
Matrix: Soil /Aqueous
Project: 16988.01.10X

SDG: 555187, 555515, 555862, 555191, 555520

	Client Sample ID	Lab Sample ID	N-Nitroso-di-n-propylamine	
			% Recovery	Recovery Limits
3	BLANK_20JUN14	555768	94	40-160
4	LCS_20JUN14	555769 LCS	100	40-160
5	1406130722 (200-SB-8)	555187	81	40-160
6	1406130853A (100-E-261)	555188	94	40-160
7	1406141652 (200-SB-6)	555189	89	40-160
8	1406151112 (200-SB-5)	555190	82	40-160
9	1406160847A (BLM-15-305)	555515	95	40-160
10	1406160907 (B655-EFF-2)	555516	98	40-160
11	1406160927 (B655-INF-2)	555517	93	40-160
12	1406161051A (BLM-15-305)	555518	100	40-160
13	BLANK_26JUN14	556407	96	40-160
14	LCS_26JUN14	556408 LCS	100	40-160
15	1406191014C (BLM-40-517)	555862	98	40-160
16	1406191015C (BLM-40-517)	555863	99	40-160
17	SMB_25JUN14	556397	100	40-160
18	LCS_25JUN14	556398 LCS	104	40-160
19	1406130802 (200-SB-8 8/10')	555191	100	40-160
20	1406130812 (200-SB-8 8/10')	555192	100	40-160
21	1406130942 (200-SB-8 28/30')	555193	101	40-160
22	1406131302 (200-SB-8 43/45')	555194	102	40-160
23	1406141702 (200-SB-6 8/10')	555195	106	40-160
24	1406151127 (200-SB-5 8/10')	555196	105	40-160
25	1406151143 (200-SB-5 8/10')	555197	96	40-160
26	1406161402 (200-SB-13 8-10')	555520	106	40-160
27	1406161544 (200-SB-13 28-30/32')	555521	98	40-160
28	1406161545 (200-SB-13 28-30/32')	555522 MS	105	40-160

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130804 200-SB-8 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-009	**Basis:**	Dry
		Percent Solids:	95.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1236
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.247g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149818	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.410	0.510			1
1,2,3,7,8-PeCDD	ND	U	0.323	2.55			1
1,2,3,6,7,8-HxCDD	ND	U	0.269	2.55			1
1,2,3,4,7,8-HxCDD	ND	U	0.254	2.55			1
1,2,3,7,8,9-HxCDD	ND	U	0.241	2.55			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.390	2.55			1
OCDD	**1.46**	JK	0.680	5.10	1.38	1.000	1
2,3,7,8-TCDF	ND	U	0.273	0.510			1
1,2,3,7,8-PeCDF	ND	U	0.211	2.55			1
2,3,4,7,8-PeCDF	ND	U	0.216	2.55			1
1,2,3,6,7,8-HxCDF	ND	U	0.157	2.55			1
1,2,3,7,8,9-HxCDF	ND	U	0.240	2.55			1
1,2,3,4,7,8-HxCDF	ND	U	0.200	2.55			1
2,3,4,6,7,8-HxCDF	ND	U	0.175	2.55			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.205	2.55			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.275	2.55			1
OCDF	ND	U	0.694	5.10			1
Total Tetra-Dioxins	ND	U	0.410	0.510			1
Total Penta-Dioxins	ND	U	0.323	2.55			1
Total Hexa-Dioxins	ND	U	0.254	2.55			1
Total Hepta-Dioxins	ND	U	0.390	2.55			1
Total Tetra-Furans	ND	U	0.273	0.510			1
Total Penta-Furans	ND	U	0.222	2.55			1
Total Hexa-Furans	ND	U	0.188	2.55			1
Total Hepta-Furans	ND	U	0.237	2.55			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130804 200-SB-8 8/10'	**Units:**	Percent
Lab Code:	R1404651-009	**Basis:**	Dry
		Percent Solids:	95.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1236
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.247g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149818	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1001.262	50		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1197.580	60		40-135	1.58	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1297.568	65		40-135	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1326.210	66		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1217.765	61		40-135	1.07	1.067
13C-OCDD	4000	1918.769	48		40-135	0.87	1.144
13C-2,3,7,8-TCDF	2000	1013.696	51		40-135	0.83	0.994
13C-1,2,3,7,8-PeCDF	2000	1093.908	55		40-135	1.61	1.137
13C-2,3,4,7,8-PeCDF	2000	1073.816	54		40-135	1.55	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1132.515	57		40-135	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1428.338	71		40-135	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1136.043	57		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1361.175	68		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1186.282	59		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1174.727	59		40-135	0.45	1.080
37Cl-2,3,7,8-TCDD	800	352.517	44		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130804 200-SB-8 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.410	0.510	1	1	
1,2,3,7,8-PeCDD	ND	0.323	2.55	1	1	
1,2,3,6,7,8-HxCDD	ND	0.269	2.55	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.254	2.55	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.241	2.55	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.390	2.55	1	0.01	
OCDD	**1.46**	0.680	5.10	1	0.0003	0.000438
2,3,7,8-TCDF	ND	0.273	0.510	1	0.1	
1,2,3,7,8-PeCDF	ND	0.211	2.55	1	0.03	
2,3,4,7,8-PeCDF	ND	0.216	2.55	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.157	2.55	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.240	2.55	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.200	2.55	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.175	2.55	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.205	2.55	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.275	2.55	1	0.01	
OCDF	ND	0.694	5.10	1	0.0003	
		Total TEQ				0.000438

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130814 200-SB-8 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-010	**Basis:**	Dry
		Percent Solids:	96.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1325
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.474g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149819	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.333	0.494			1
1,2,3,7,8-PeCDD	ND	U	0.331	2.47			1
1,2,3,6,7,8-HxCDD	ND	U	0.314	2.47			1
1,2,3,4,7,8-HxCDD	ND	U	0.303	2.47			1
1,2,3,7,8,9-HxCDD	ND	U	0.284	2.47			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.285	2.47			1
OCDD	**1.24**	J	0.451	4.94	0.91	1.000	1
2,3,7,8-TCDF	ND	U	0.314	0.494			1
1,2,3,7,8-PeCDF	ND	U	0.226	2.47			1
2,3,4,7,8-PeCDF	ND	U	0.250	2.47			1
1,2,3,6,7,8-HxCDF	ND	U	0.192	2.47			1
1,2,3,7,8,9-HxCDF	ND	U	0.252	2.47			1
1,2,3,4,7,8-HxCDF	ND	U	0.237	2.47			1
2,3,4,6,7,8-HxCDF	ND	U	0.212	2.47			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.220	2.47			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.262	2.47			1
OCDF	ND	U	0.350	4.94			1
Total Tetra-Dioxins	ND	U	0.333	0.494			1
Total Penta-Dioxins	ND	U	0.331	2.47			1
Total Hexa-Dioxins	ND	U	0.300	2.47			1
Total Hepta-Dioxins	ND	U	0.285	2.47			1
Total Tetra-Furans	ND	U	0.314	0.494			1
Total Penta-Furans	ND	U	0.227	2.47			1
Total Hexa-Furans	ND	U	0.220	2.47			1
Total Hepta-Furans	ND	U	0.240	2.47			1

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130814 200-SB-8 8/10'	**Units:**	Percent
Lab Code:	R1404651-010	**Basis:**	Dry
		Percent Solids:	96.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1325
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.474g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149819	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1043.650	52		40-135	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1227.285	61		40-135	1.56	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1248.008	62		40-135	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1260.212	63		40-135	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1200.804	60		40-135	1.08	1.067
13C-OCDD	4000	2021.640	51		40-135	0.89	1.144
13C-2,3,7,8-TCDF	2000	1063.163	53		40-135	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1144.712	57		40-135	1.56	1.137
13C-2,3,4,7,8-PeCDF	2000	1080.995	54		40-135	1.62	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1100.762	55		40-135	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1353.561	68		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1213.264	61		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1297.921	65		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1160.508	58		40-135	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1235.601	62		40-135	0.44	1.081
37Cl-2,3,7,8-TCDD	800	361.148	45		40-135	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130814 200-SB-8 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.333	0.494	1	1	
1,2,3,7,8-PeCDD	ND	0.331	2.47	1	1	
1,2,3,6,7,8-HxCDD	ND	0.314	2.47	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.303	2.47	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.284	2.47	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.285	2.47	1	0.01	
OCDD	**1.24**	0.451	4.94	1	0.0003	0.000372
2,3,7,8-TCDF	ND	0.314	0.494	1	0.1	
1,2,3,7,8-PeCDF	ND	0.226	2.47	1	0.03	
2,3,4,7,8-PeCDF	ND	0.250	2.47	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.192	2.47	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.252	2.47	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.237	2.47	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.212	2.47	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.220	2.47	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.262	2.47	1	0.01	
OCDF	ND	0.350	4.94	1	0.0003	
		Total TEQ				0.000372

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130944 200-SB-8 28/30'	**Units:**	ng/Kg
Lab Code:	R1404651-011	**Basis:**	Dry
		Percent Solids:	96.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1413
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.164g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149820	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.484	0.508			1
1,2,3,7,8-PeCDD	ND	U	0.308	2.54			1
1,2,3,6,7,8-HxCDD	ND	U	0.347	2.54			1
1,2,3,4,7,8-HxCDD	ND	U	0.313	2.54			1
1,2,3,7,8,9-HxCDD	ND	U	0.304	2.54			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.390	2.54			1
OCDD	**0.706**	JK	0.550	5.08	1.08	1.000	1
2,3,7,8-TCDF	ND	U	0.363	0.508			1
1,2,3,7,8-PeCDF	ND	U	0.246	2.54			1
2,3,4,7,8-PeCDF	ND	U	0.264	2.54			1
1,2,3,6,7,8-HxCDF	ND	U	0.190	2.54			1
1,2,3,7,8,9-HxCDF	ND	U	0.250	2.54			1
1,2,3,4,7,8-HxCDF	ND	U	0.225	2.54			1
2,3,4,6,7,8-HxCDF	ND	U	0.200	2.54			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.306	2.54			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.421	2.54			1
OCDF	ND	U	0.624	5.08			1
Total Tetra-Dioxins	ND	U	0.484	0.508			1
Total Penta-Dioxins	ND	U	0.308	2.54			1
Total Hexa-Dioxins	ND	U	0.321	2.54			1
Total Hepta-Dioxins	ND	U	0.390	2.54			1
Total Tetra-Furans	ND	U	0.363	0.508			1
Total Penta-Furans	ND	U	0.253	2.54			1
Total Hexa-Furans	ND	U	0.213	2.54			1
Total Hepta-Furans	ND	U	0.359	2.54			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130944 200-SB-8 28/30'	**Units:**	Percent
Lab Code:	R1404651-011	**Basis:**	Dry
		Percent Solids:	96.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1413
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.164g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149820	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1067.798	53		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1274.337	64		40-135	1.55	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1343.255	67		40-135	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1309.627	65		40-135	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1288.828	64		40-135	1.08	1.067
13C-OCDD	4000	2094.255	52		40-135	0.93	1.145
13C-2,3,7,8-TCDF	2000	1106.796	55		40-135	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1147.825	57		40-135	1.58	1.137
13C-2,3,4,7,8-PeCDF	2000	1119.114	56		40-135	1.59	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1186.391	59		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1410.428	71		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1251.964	63		40-135	0.50	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1410.403	71		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1233.006	62		40-135	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1214.830	61		40-135	0.44	1.081
37Cl-2,3,7,8-TCDD	800	364.202	46		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130944 200-SB-8 28/30'	**Units:**	ng/Kg
Lab Code:	R1404651-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.484	0.508	1	1	
1,2,3,7,8-PeCDD	ND	0.308	2.54	1	1	
1,2,3,6,7,8-HxCDD	ND	0.347	2.54	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.313	2.54	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.304	2.54	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.390	2.54	1	0.01	
OCDD	**0.706**	0.550	5.08	1	0.0003	0.000212
2,3,7,8-TCDF	ND	0.363	0.508	1	0.1	
1,2,3,7,8-PeCDF	ND	0.246	2.54	1	0.03	
2,3,4,7,8-PeCDF	ND	0.264	2.54	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.190	2.54	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.250	2.54	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.225	2.54	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.200	2.54	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.306	2.54	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.421	2.54	1	0.01	
OCDF	ND	0.624	5.08	1	0.0003	
		Total TEQ				0.000212

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406131304 200-SB-8 43/45'	**Units:**	ng/Kg
Lab Code:	R1404651-012	**Basis:**	Dry
		Percent Solids:	98.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2033
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.378g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229927	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.346	0.487			1
1,2,3,7,8-PeCDD	ND	U	0.115	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0770	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0728	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0724	2.44			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.179	2.44			1
OCDD	**0.744**	JK	0.103	4.87	1.22	1.000	1
2,3,7,8-TCDF	ND	U	0.228	0.487			1
1,2,3,7,8-PeCDF	ND	U	0.0876	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0821	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0416	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0631	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0533	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0464	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0912	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.124	2.44			1
OCDF	ND	U	0.186	4.87			1
Total Tetra-Dioxins	ND	U	0.346	0.487			1
Total Penta-Dioxins	ND	U	0.115	2.44			1
Total Hexa-Dioxins	ND	U	0.0741	2.44			1
Total Hepta-Dioxins	ND	U	0.179	2.44			1
Total Tetra-Furans	ND	U	0.228	0.487			1
Total Penta-Furans	ND	U	0.0981	2.44			1
Total Hexa-Furans	ND	U	0.0498	2.44			1
Total Hepta-Furans	ND	U	0.107	2.44			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406131304 200-SB-8 43/45'	**Units:**	Percent
Lab Code:	R1404651-012	**Basis:**	Dry
		Percent Solids:	98.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2033
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.378g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229927	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1157.276	58		40-135	0.75	1.020
13C-1,2,3,7,8-PeCDD	2000	1796.571	90		40-135	1.62	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1295.443	65		40-135	1.33	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1365.885	68		40-135	1.32	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1122.102	56		40-135	1.07	1.066
13C-OCDD	4000	2688.751	67		40-135	0.91	1.142
13C-2,3,7,8-TCDF	2000	1191.064	60		40-135	0.76	0.994
13C-1,2,3,7,8-PeCDF	2000	1414.430	71		40-135	1.61	1.136
13C-2,3,4,7,8-PeCDF	2000	1489.255	74		40-135	1.63	1.166
13C-1,2,3,4,7,8-HxCDF	2000	968.813	48		40-135	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1231.231	62		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1095.691	55		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1197.859	60		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1022.364	51		40-135	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1106.772	55		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	399.946	50		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406131304 200-SB-8 43/45'	**Units:**	ng/Kg
Lab Code:	R1404651-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.346	0.487	1	1	
1,2,3,7,8-PeCDD	ND	0.115	2.44	1	1	
1,2,3,6,7,8-HxCDD	ND	0.0770	2.44	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.0728	2.44	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.0724	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.179	2.44	1	0.01	
OCDD	**0.744**	0.103	4.87	1	0.0003	0.000223
2,3,7,8-TCDF	ND	0.228	0.487	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0876	2.44	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0821	2.44	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.0416	2.44	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0631	2.44	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.0533	2.44	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0464	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.0912	2.44	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.124	2.44	1	0.01	
OCDF	ND	0.186	4.87	1	0.0003	
		Total TEQ				0.000223

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	6/24/14 13:02
Sample Name:	1406161400 200-SB-13 8/10'	**Units:**	µg/Kg
Lab Code:	R1404618-001	**Basis:**	Dry
		Percent Solids:	96.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398628
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\062414\K9560.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.76	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.76	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.97	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.76	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.98	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.92	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.50	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/24/14 13:02	
Dibromofluoromethane	101	63-138	6/24/14 13:02	
Toluene-d8	101	66-138	6/24/14 13:02	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	6/24/14 13:40
Sample Name:	1406161540 200-SB-28 30/32'	**Units:**	µg/Kg
Lab Code:	R1404618-003	**Basis:**	Dry
		Percent Solids:	93.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398628
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\062414\K9561.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.3	0.78	
79-00-5	1,1,2-Trichloroethane	ND	U	5.3	0.78	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.3	1.4	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.3	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.3	0.66	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.3	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.3	2.5	
67-63-0	Isopropanol	ND	U	110	30	
67-64-1	Acetone	ND	U	5.3	3.0	
71-43-2	Benzene	ND	U	5.3	0.31	
75-27-4	Bromodichloromethane	ND	U	5.3	0.66	
75-25-2	Bromoform	ND	U	5.3	1.0	
108-90-7	Chlorobenzene	ND	U	5.3	0.31	
67-66-3	Chloroform	ND	U	5.3	1.4	
74-87-3	Chloromethane	ND	U	5.3	0.43	
124-48-1	Dibromochloromethane	ND	U	5.3	0.78	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.3	1.7	
75-09-2	Dichloromethane	ND	U	5.3	0.61	
100-41-4	Ethylbenzene	ND	U	5.3	0.25	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.3	1.1	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.3	0.94	
108-88-3	Toluene	ND	U	5.3	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.3	1.1	
179601-23-1	m,p-Xylenes	ND	U	11	1.2	
95-47-6	o-Xylene	ND	U	5.3	0.52	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.3	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	51-136	6/24/14 13:40	
Dibromofluoromethane	98	63-138	6/24/14 13:40	
Toluene-d8	100	66-138	6/24/14 13:40	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Extracted:	6/25/14
		Date Analyzed:	6/26/14 15:10
Sample Name:	1406161403 200-SB-13 8/10'	**Units:**	µg/Kg
Lab Code:	R1404618-002	**Basis:**	Dry
		Percent Solids:	97.1

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	399279
Prep Method:	EPA 3541	**Extraction Lot:**	211329
Data File Name:	I:\ACQUDATA\5973A\DATA\062614\CZ258.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	44	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	66	47-126	6/26/14 15:10	
Nitrobenzene-d5	62	39-136	6/26/14 15:10	
p-Terphenyl-d14	70	35-152	6/26/14 15:10	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Extracted:	6/25/14
		Date Analyzed:	6/26/14 15:38
Sample Name:	1406161546 200-SB-13 30/32'	**Units:**	µg/Kg
Lab Code:	R1404618-004	**Basis:**	Dry
		Percent Solids:	92.8

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	399279
Prep Method:	EPA 3541	**Extraction Lot:**	211329
Data File Name:	I:\ACQUDATA\5973A\DATA\062614\CZ259.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	360	47	
84-74-2	Di-n-butyl Phthalate	ND	U	360	55	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	46	*	47-126	6/26/14 15:38	
Nitrobenzene-d5	45		39-136	6/26/14 15:38	
p-Terphenyl-d14	52		35-152	6/26/14 15:38	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Extracted:	7/1/14
		Date Analyzed:	7/2/14 12:58
Sample Name:	1406161546 200-SB-13 30/32'	**Units:**	µg/Kg
Lab Code:	R1404618-004	**Basis:**	Dry
Run Type:	Reanalysis	**Percent Solids:**	92.8

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	400112
Prep Method:	EPA 3541	**Extraction Lot:**	211771
Data File Name:	I:\ACQUDATA\5973A\DATA\070214\CZ299.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	360	47	*
84-74-2	Di-n-butyl Phthalate	ND	U	360	55	*

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	59	47-126	7/2/14 12:58	
Nitrobenzene-d5	51	39-136	7/2/14 12:58	
p-Terphenyl-d14	63	35-152	7/2/14 12:58	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 19:24
Sample Name:	1406161403 200-SB-13 8/10'	**Units:**	µg/Kg
Lab Code:	R1404622-005	**Basis:**	Dry
		Percent Solids:	97.1

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031560.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 19:38
Sample Name:	1406161546 200-SB-28 30/32'	**Units:**	µg/Kg
Lab Code:	R1404622-006	**Basis:**	Dry
		Percent Solids:	92.8

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031561.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.2	0.35	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161405 200-SB-13 8/10'		
Lab Code:	R1404622-007	**Basis:**	Dry
		Percent Solids:	96.3

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**13**	J	mg/Kg	31	6	1	6/23/14	6/23/14 13:56	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 19:25	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 19:17	
Cyanide, Total	9012B	ND	U	mg/Kg	0.096	0.015	1	6/24/14	6/25/14 11:21	
Nitrate+Nitrite as Nitrogen	353.2M	**7.4**		mg/Kg	5.2	0.6	1	7/ 3/14	7/3/14 15:56	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161550 200-SB-28 30/32'		
Lab Code:	R1404622-008	**Basis:**	Dry
		Percent Solids:	92.6

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	32	7	1	6/24/14	6/24/14 21:24	
Chromium, Hexavalent	7199	**0.05**	J	mg/Kg	0.42	0.03	1	6/20/14	6/23/14 19:38	
Chromium, Hexavalent	7199	**0.05**	J	mg/Kg	0.42	0.03	1	6/20/14	6/23/14 19:31	
Cyanide, Total	9012B	ND	U	mg/Kg	0.32	0.05	1	6/24/14	6/25/14 11:22	
Nitrate+Nitrite as Nitrogen	353.2M	**4.0**	J	mg/Kg	5.4	0.6	1	7/ 3/14	7/3/14 15:57	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Collected: 6/16/14
Date Received: 6/19/14

Sample Name: 1406161405 200-SB-13 8/10'
Lab Code: R1404622-007

Basis: Dry
Percent Solids: 96.3

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**4640**		mg/Kg	10	2.2	1	6/27/14	7/2/14 12:36	
Antimony, Total	6010C	**0.9**	BJ	mg/Kg	6.0	0.3	1	6/27/14	6/30/14 22:19	
Arsenic, Total	6010C	**4.06**		mg/Kg	1.0	0.29	1	6/27/14	7/2/14 12:36	
Barium, Total	6010C	**39.9**		mg/Kg	2.0	0.10	1	6/27/14	6/30/14 22:19	
Beryllium, Total	6020A	**0.38**	J	mg/Kg	0.49	0.02	5	6/27/14	7/1/14 17:41	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/27/14	6/30/14 22:19	
Cadmium, Total	6010C	**0.39**	J	mg/Kg	0.50	0.05	1	6/27/14	6/30/14 22:19	
Calcium, Total	6010C	**98900**		mg/Kg	5000	700	50	6/27/14	7/2/14 13:35	
Chromium, Total	6020A	**6.86**		mg/Kg	0.49	0.05	5	6/27/14	7/2/14 15:16	
Cobalt, Total	6020A	**3.44**		mg/Kg	0.49	0.04	5	6/27/14	7/1/14 17:41	
Copper, Total	6020A	**6.36**		mg/Kg	0.49	0.20	5	6/27/14	7/1/14 17:41	
Iron, Total	6010C	**11600**		mg/Kg	100	74	10	6/27/14	6/30/14 20:54	
Lead, Total	6010C	**6.9**		mg/Kg	5.0	0.03	1	6/27/14	6/30/14 22:19	
Magnesium, Total	6010C	**17400**		mg/Kg	100	2	1	6/27/14	6/30/14 22:19	
Manganese, Total	6010C	**218**		mg/Kg	1.0	0.12	1	6/27/14	6/30/14 22:19	
Mercury, Total	7471B	ND	U	mg/Kg	0.032	0.002	1	6/24/14	6/24/14 18:54	
Molybdenum, Total	6010C	**1.0**	J	mg/Kg	2.5	0.07	1	6/27/14	6/30/14 22:19	
Nickel, Total	6010C	**7.1**		mg/Kg	4.0	0.10	1	6/27/14	6/30/14 22:19	
Potassium, Total	6010C	**1350**		mg/Kg	200	20	1	6/27/14	6/30/14 22:19	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.57	1	6/27/14	6/30/14 22:19	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/27/14	6/30/14 22:19	
Sodium, Total	6010C	**148**		mg/Kg	100	7	1	6/27/14	6/30/14 22:19	
Strontium, Total	6010C	**250**		mg/Kg	10	0.05	1	6/27/14	6/30/14 22:19	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.75	1	6/27/14	6/30/14 22:19	
Tin, Total	6010C	ND	U	mg/Kg	50	2	1	6/27/14	6/30/14 22:19	
Titanium, Total	6010C	**99.8**		mg/Kg	5.0	0.10	1	6/27/14	6/30/14 22:19	
Uranium, Total	6020A	**1.45**		mg/Kg	0.49	0.0010	5	6/27/14	7/2/14 15:16	
Vanadium, Total	6010C	**25.9**		mg/Kg	5.0	0.2	1	6/27/14	6/30/14 22:19	
Zinc, Total	6010C	**31.6**		mg/Kg	2.0	0.2	1	6/27/14	6/30/14 22:19	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Collected: 6/16/14
Date Received: 6/19/14

Sample Name: 1406161550 200-SB-28 30/32'
Lab Code: R1404622-008

Basis: Dry
Percent Solids: 92.6

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**6040**		mg/Kg	11	3	1	6/27/14	7/2/14 12:43	
Antimony, Total	6010C	**0.9**	BJ	mg/Kg	6.4	0.3	1	6/27/14	6/30/14 22:25	
Arsenic, Total	6010C	**3.9**		mg/Kg	1.1	0.3	1	6/27/14	7/2/14 12:43	
Barium, Total	6010C	**30.1**		mg/Kg	2.1	0.10	1	6/27/14	6/30/14 22:25	
Beryllium, Total	6020A	**0.48**	J	mg/Kg	0.53	0.02	5	6/27/14	7/1/14 17:47	
Boron, Total	6010C	ND	U	mg/Kg	21	5	1	6/27/14	6/30/14 22:25	
Cadmium, Total	6010C	**0.41**	J	mg/Kg	0.53	0.05	1	6/27/14	6/30/14 22:25	
Calcium, Total	6010C	**91800**		mg/Kg	2100	300	20	6/27/14	7/2/14 13:41	
Chromium, Total	6020A	**7.47**		mg/Kg	0.53	0.05	5	6/27/14	7/2/14 15:23	
Cobalt, Total	6020A	**4.58**		mg/Kg	0.53	0.04	5	6/27/14	7/1/14 17:47	
Copper, Total	6020A	**6.65**		mg/Kg	0.53	0.21	5	6/27/14	7/1/14 17:47	
Iron, Total	6010C	**10200**		mg/Kg	110	80	10	6/27/14	6/30/14 21:00	
Lead, Total	6010C	**6.5**		mg/Kg	5.3	0.03	1	6/27/14	6/30/14 22:25	
Magnesium, Total	6010C	**7700**		mg/Kg	110	2	1	6/27/14	6/30/14 22:25	
Manganese, Total	6010C	**189**		mg/Kg	1.1	0.2	1	6/27/14	6/30/14 22:25	
Mercury, Total	7471B	ND	U	mg/Kg	0.035	0.003	1	6/24/14	6/24/14 18:56	
Molybdenum, Total	6010C	**0.8**	BJ	mg/Kg	2.6	0.07	1	6/27/14	6/30/14 22:25	
Nickel, Total	6010C	**6.9**		mg/Kg	4.2	0.10	1	6/27/14	6/30/14 22:25	
Potassium, Total	6010C	**2590**		mg/Kg	210	20	1	6/27/14	6/30/14 22:25	
Selenium, Total	6010C	ND	U	mg/Kg	1.1	0.6	1	6/27/14	6/30/14 22:25	
Silver, Total	6010C	ND	U	mg/Kg	1.1	0.08	1	6/27/14	6/30/14 22:25	
Sodium, Total	6010C	**80**	J	mg/Kg	110	7	1	6/27/14	6/30/14 22:25	
Strontium, Total	6010C	**311**		mg/Kg	11	0.06	1	6/27/14	6/30/14 22:25	
Thallium, Total	6010C	ND	U	mg/Kg	1.1	0.8	1	6/27/14	6/30/14 22:25	
Tin, Total	6010C	ND	U	mg/Kg	53	2	1	6/27/14	6/30/14 22:25	
Titanium, Total	6010C	**162**		mg/Kg	5.3	0.10	1	6/27/14	6/30/14 22:25	
Uranium, Total	6020A	**2.39**		mg/Kg	0.53	0.002	5	6/27/14	7/2/14 15:23	
Vanadium, Total	6010C	**15.6**		mg/Kg	5.3	0.3	1	6/27/14	6/30/14 22:25	
Zinc, Total	6010C	**26.4**		mg/Kg	2.1	0.2	1	6/27/14	6/30/14 22:25	

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729737

Location: WSTF
Sample ID: 200-SB-13, 1406161401-field sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1812

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-13, 1406161542-field sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1833

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-13, 1406161543-field sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1854

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729737

Location: WSTF
Sample ID: 200-SB-13, 1406161543-matrix spike
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1915

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	0.10	0.050	

All matrix spikes are spiked to 1 ppm hydrazines.

PRELIMINARY

Southwest Research Institute

010040

Method 607 Analysis Data Sheet

Sample ID

1406161402 (200-SB-13 8-10')

Client: Navarro
Batch: M607-#663
Task Order: 140619-9
Matrix: Soil
Sample Wt/Vol: 30.25 g

Project: 16988.01.10X
Date Received: 06/19/14
Date Extracted: 06/25/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555520
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010041

Method 607 Analysis Data Sheet

Sample ID

1406161544 (200-SB-13 28-30/32')

Client: Navarro
Batch: M607-#663
Task Order: 140619-9
Matrix: Soil
Sample Wt/Vol: 30.30 g

Project: 16988.01.10X
Date Received: 06/19/14
Date Extracted: 06/25/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555521
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010055

Method 607 Analysis Data Sheet

Sample ID

1406161545 (200-SB-13 28-30/32') MS

Client: Navarro
Batch: M607-#663
Task Order: 140619-9
Matrix: Soil
Sample Wt/Vol: 30.50 g

Project: 16988.01.10X
Date Received: 06/19/14
Date Extracted: 06/25/14 QH 7/9/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555522 MS
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

Compared Sample: 1406161544 (200-SB-13 28-30/32')

CAS No.	ANALYTE	RESULT	Spike	Recovery	Recovery Limit
62-75-9	N-Nitrosodimethylamine	15.48	17.00	91%	13-110%
4164-28-7	N-Nitrodimethylamine	17.15	17.00	101%	30-150%
314-40-9	Bromacil	15.57	17.00	92%	40-190%

U - Undetected, indicates not found above the detection limit

J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010045

Method 607 Surrogate Recovery Summary

Client: Navarro
Matrix: Soil /Aqueous
Project: 16988.01.10X

SDG: 555187, 555515, 555862, 555191, 555520

	Client Sample ID	Lab Sample ID	N-Nitroso-di-n-propylamine	
			% Recovery	Recovery Limits
3	BLANK_20JUN14	555768	94	40-160
4	LCS_20JUN14	555769 LCS	100	40-160
5	1406130722 (200-SB-8)	555187	81	40-160
6	1406130853A (100-E-261)	555188	94	40-160
7	1406141652 (200-SB-6)	555189	89	40-160
8	1406151112 (200-SB-5)	555190	82	40-160
9	1406160847A (BLM-15-305)	555515	95	40-160
10	1406160907 (B655-EFF-2)	555516	98	40-160
11	1406160927 (B655-INF-2)	555517	93	40-160
12	1406161051A (BLM-15-305)	555518	100	40-160
13	BLANK_26JUN14	556407	96	40-160
14	LCS_26JUN14	556408 LCS	100	40-160
15	1406191014C (BLM-40-517)	555862	98	40-160
16	1406191015C (BLM-40-517)	555863	99	40-160
17	SMB_25JUN14	556397	100	40-160
18	LCS_25JUN14	556398 LCS	104	40-160
19	1406130802 (200-SB-8 8/10')	555191	100	40-160
20	1406130812 (200-SB-8 8/10')	555192	100	40-160
21	1406130942 (200-SB-8 28/30')	555193	101	40-160
22	1406131302 (200-SB-8 43/45')	555194	102	40-160
23	1406141702 (200-SB-6 8/10')	555195	106	40-160
24	1406151127 (200-SB-5 8/10')	555196	105	40-160
25	1406151143 (200-SB-5 8/10')	555197	96	40-160
26	1406161402 (200-SB-13 8-10')	555520	106	40-160
27	1406161544 (200-SB-13 28-30/32')	555521	98	40-160
28	1406161545 (200-SB-13 28-30/32')	555522 MS	105	40-160

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161404 200-SB-13 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-016	**Basis:**	Dry
		Percent Solids:	96.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0519
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.208g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229938	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.270	0.505			1
1,2,3,7,8-PeCDD	ND	U	0.0885	2.53			1
1,2,3,6,7,8-HxCDD	ND	U	0.0622	2.53			1
1,2,3,4,7,8-HxCDD	**0.105**	JK	0.0629	2.53	1.63	1.001	1
1,2,3,7,8,9-HxCDD	**0.107**	JK	0.0578	2.53	1.51	1.007	1
1,2,3,4,6,7,8-HpCDD	**0.202**	JK	0.0605	2.53	0.47	1.000	1
OCDD	**10.0**		0.144	5.05	0.82	1.000	1
2,3,7,8-TCDF	ND	U	0.308	0.505			1
1,2,3,7,8-PeCDF	ND	U	0.114	2.53			1
2,3,4,7,8-PeCDF	ND	U	0.121	2.53			1
1,2,3,6,7,8-HxCDF	**0.0506**	JK	0.0459	2.53	2.33	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0680	2.53			1
1,2,3,4,7,8-HxCDF	**0.0843**	JK	0.0566	2.53	2.12	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0504	2.53			1
1,2,3,4,6,7,8-HpCDF	**0.0604**	JK	0.0447	2.53	0.81	1.000	1
1,2,3,4,7,8,9-HpCDF	**0.0664**	JK	0.0640	2.53	1.43	1.000	1
OCDF	ND	U	0.249	5.05			1
Total Tetra-Dioxins	ND	U	0.270	0.505			1
Total Penta-Dioxins	ND	U	0.0885	2.53			1
Total Hexa-Dioxins	ND	U	0.0609	2.53			1
Total Hepta-Dioxins	ND	U	0.0605	2.53			1
Total Tetra-Furans	ND	U	0.308	0.505			1
Total Penta-Furans	ND	U	0.0700	2.53			1
Total Hexa-Furans	ND	U	0.0541	2.53			1
Total Hepta-Furans	ND	U	0.0533	2.53			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161404 200-SB-13 8/10'	**Units:**	Percent
Lab Code:	R1404651-016	**Basis:**	Dry
		Percent Solids:	96.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0519
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.208g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229938	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	992.859	50		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1214.651	61		40-135	1.63	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1314.466	66		40-135	1.32	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1302.749	65		40-135	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1245.091	62		40-135	1.10	1.066
13C-OCDD	4000	2233.495	56		40-135	0.92	1.143
13C-2,3,7,8-TCDF	2000	943.202	47		40-135	0.77	0.994
13C-1,2,3,7,8-PeCDF	2000	1070.072	54		40-135	1.59	1.136
13C-2,3,4,7,8-PeCDF	2000	1007.065	50		40-135	1.65	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1152.523	58		40-135	0.50	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1291.965	65		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1092.803	55		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1272.839	64		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1153.312	58		40-135	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1090.858	55		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	366.124	46		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161404 200-SB-13 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.270	0.505	1	1	
1,2,3,7,8-PeCDD	ND	0.0885	2.53	1	1	
1,2,3,6,7,8-HxCDD	ND	0.0622	2.53	1	0.1	
1,2,3,4,7,8-HxCDD	**0.105**	0.0629	2.53	1	0.1	0.0105
1,2,3,7,8,9-HxCDD	**0.107**	0.0578	2.53	1	0.1	0.0107
1,2,3,4,6,7,8-HpCDD	**0.202**	0.0605	2.53	1	0.01	0.00202
OCDD	**10.0**	0.144	5.05	1	0.0003	0.00300
2,3,7,8-TCDF	ND	0.308	0.505	1	0.1	
1,2,3,7,8-PeCDF	ND	0.114	2.53	1	0.03	
2,3,4,7,8-PeCDF	ND	0.121	2.53	1	0.3	
1,2,3,6,7,8-HxCDF	**0.0506**	0.0459	2.53	1	0.1	0.00506
1,2,3,7,8,9-HxCDF	ND	0.0680	2.53	1	0.1	
1,2,3,4,7,8-HxCDF	**0.0843**	0.0566	2.53	1	0.1	0.00843
2,3,4,6,7,8-HxCDF	ND	0.0504	2.53	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.0604**	0.0447	2.53	1	0.01	0.000604
1,2,3,4,7,8,9-HpCDF	**0.0664**	0.0640	2.53	1	0.01	0.000664
OCDF	ND	0.249	5.05	1	0.0003	
		Total TEQ				0.0410

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	ng/Kg
Lab Code:	R1404651-017	**Basis:**	Dry
		Percent Solids:	98.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0607
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.353g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229939	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.269	0.489			1
1,2,3,7,8-PeCDD	ND	U	0.0997	2.45			1
1,2,3,6,7,8-HxCDD	ND	U	0.0917	2.45			1
1,2,3,4,7,8-HxCDD	ND	U	0.0871	2.45			1
1,2,3,7,8,9-HxCDD	**0.166**	J	0.0825	2.45	1.16	1.007	1
1,2,3,4,6,7,8-HpCDD	**2.38**	J	0.101	2.45	0.96	1.000	1
OCDD	**16.0**		0.180	4.89	0.91	1.000	1
2,3,7,8-TCDF	ND	U	0.180	0.489			1
1,2,3,7,8-PeCDF	**0.128**	JK	0.0593	2.45	0.55	1.000	1
2,3,4,7,8-PeCDF	**0.0954**	JK	0.0617	2.45	0.43	1.000	1
1,2,3,6,7,8-HxCDF	**0.104**	J	0.0394	2.45	1.19	1.000	1
1,2,3,7,8,9-HxCDF	**0.142**	J	0.0594	2.45	1.05	1.001	1
1,2,3,4,7,8-HxCDF	**0.0589**	J	0.0469	2.45	1.11	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0402	2.45			1
1,2,3,4,6,7,8-HpCDF	**0.231**	JK	0.0271	2.45	0.79	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0402	2.45			1
OCDF	ND	U	0.212	4.89			1
Total Tetra-Dioxins	ND	U	0.269	0.489			1
Total Penta-Dioxins	ND	U	0.0997	2.45			1
Total Hexa-Dioxins	**0.166**	J	0.0870	2.45	1.16		1
Total Hepta-Dioxins	**2.38**	J	0.101	2.45	0.96		1
Total Tetra-Furans	ND	U	0.180	0.489			1
Total Penta-Furans	ND	U	0.0643	2.45			1
Total Hexa-Furans	**0.404**	J	0.0453	2.45	1.30		1
Total Hepta-Furans	ND	U	0.0328	2.45			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	Percent
Lab Code:	R1404651-017	**Basis:**	Dry
		Percent Solids:	98.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0607
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.353g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229939	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	994.183	50		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1176.020	59		40-135	1.63	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1311.514	66		40-135	1.29	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1168.934	58		40-135	1.32	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1102.286	55		40-135	1.07	1.066
13C-OCDD	4000	1868.027	47		40-135	0.91	1.142
13C-2,3,7,8-TCDF	2000	979.438	49		40-135	0.77	0.994
13C-1,2,3,7,8-PeCDF	2000	1049.588	52		40-135	1.60	1.136
13C-2,3,4,7,8-PeCDF	2000	1026.377	51		40-135	1.59	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1069.546	53		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1218.640	61		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	983.296	49		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1233.845	62		40-135	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1025.044	51		40-135	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	962.398	48		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	395.844	49		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	ng/Kg
Lab Code:	R1404651-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.269	0.489	1	1	
1,2,3,7,8-PeCDD	ND	0.0997	2.45	1	1	
1,2,3,6,7,8-HxCDD	ND	0.0917	2.45	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.0871	2.45	1	0.1	
1,2,3,7,8,9-HxCDD	**0.166**	0.0825	2.45	1	0.1	0.0166
1,2,3,4,6,7,8-HpCDD	**2.38**	0.101	2.45	1	0.01	0.0238
OCDD	**16.0**	0.180	4.89	1	0.0003	0.00480
2,3,7,8-TCDF	ND	0.180	0.489	1	0.1	
1,2,3,7,8-PeCDF	**0.128**	0.0593	2.45	1	0.03	0.00384
2,3,4,7,8-PeCDF	**0.0954**	0.0617	2.45	1	0.3	0.0286
1,2,3,6,7,8-HxCDF	**0.104**	0.0394	2.45	1	0.1	0.0104
1,2,3,7,8,9-HxCDF	**0.142**	0.0594	2.45	1	0.1	0.0142
1,2,3,4,7,8-HxCDF	**0.0589**	0.0469	2.45	1	0.1	0.00589
2,3,4,6,7,8-HxCDF	ND	0.0402	2.45	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.231**	0.0271	2.45	1	0.01	0.00231
1,2,3,4,7,8,9-HpCDF	ND	0.0402	2.45	1	0.01	
OCDF	ND	0.212	4.89	1	0.0003	
		Total TEQ				0.110

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404316
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Analyzed:	6/18/14 12:12
Sample Name:	1406040940 200-SB-20 9-10'	**Units:**	µg/Kg
Lab Code:	R1404316-001	**Basis:**	Dry
		Percent Solids:	97.8

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9474.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.1	0.75	
79-00-5	1,1,2-Trichloroethane	ND	U	5.1	0.75	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.1	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.1	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.1	0.63	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.1	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.1	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.1	2.9	
71-43-2	Benzene	ND	U	5.1	0.30	
75-27-4	Bromodichloromethane	ND	U	5.1	0.63	
75-25-2	Bromoform	ND	U	5.1	0.96	
108-90-7	Chlorobenzene	ND	U	5.1	0.30	
67-66-3	Chloroform	ND	U	5.1	1.3	
74-87-3	Chloromethane	ND	U	5.1	0.41	
124-48-1	Dibromochloromethane	ND	U	5.1	0.75	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.1	1.6	
75-09-2	Dichloromethane	0.75	J	5.1	0.59	
100-41-4	Ethylbenzene	ND	U	5.1	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.1	0.97	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.1	0.90	
108-88-3	Toluene	ND	U	5.1	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.1	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.1	0.50	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.1	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	51-136	6/18/14 12:12	
Dibromofluoromethane	98	63-138	6/18/14 12:12	
Toluene-d8	101	66-138	6/18/14 12:12	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404316
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Analyzed:	6/18/14 12:49
Sample Name:	1406041200 200-SB-20 30'	**Units:**	µg/Kg
Lab Code:	R1404316-002	**Basis:**	Dry
		Percent Solids:	99.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9475.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.0	0.74	
79-00-5	1,1,2-Trichloroethane	ND	U	5.0	0.74	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.0	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.0	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.0	0.62	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	ND	U	5.0	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	**3.8**	J	5.0	2.9	
71-43-2	Benzene	ND	U	5.0	0.30	
75-27-4	Bromodichloromethane	ND	U	5.0	0.62	
75-25-2	Bromoform	ND	U	5.0	0.94	
108-90-7	Chlorobenzene	ND	U	5.0	0.30	
67-66-3	Chloroform	ND	U	5.0	1.3	
74-87-3	Chloromethane	ND	U	5.0	0.41	
124-48-1	Dibromochloromethane	ND	U	5.0	0.74	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.0	1.6	
75-09-2	Dichloromethane	ND	U	5.0	0.58	
100-41-4	Ethylbenzene	ND	U	5.0	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.0	0.95	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.0	0.89	
108-88-3	Toluene	ND	U	5.0	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.0	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.1	
95-47-6	o-Xylene	ND	U	5.0	0.49	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.0	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	51-136	6/18/14 12:49	
Dibromofluoromethane	100	63-138	6/18/14 12:49	
Toluene-d8	99	66-138	6/18/14 12:49	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404316
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Analyzed:	6/18/14 13:27
Sample Name:	1406041720 200-SB-20 50'	**Units:**	µg/Kg
Lab Code:	R1404316-003	**Basis:**	Dry
		Percent Solids:	99.2

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9476.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.0	0.74	
79-00-5	1,1,2-Trichloroethane	ND	U	5.0	0.74	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.0	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.0	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.0	0.62	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.0	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.0	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.0	2.9	
71-43-2	Benzene	ND	U	5.0	0.30	
75-27-4	Bromodichloromethane	ND	U	5.0	0.62	
75-25-2	Bromoform	ND	U	5.0	0.94	
108-90-7	Chlorobenzene	ND	U	5.0	0.30	
67-66-3	Chloroform	ND	U	5.0	1.3	
74-87-3	Chloromethane	ND	U	5.0	0.41	
124-48-1	Dibromochloromethane	ND	U	5.0	0.74	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.0	1.6	
75-09-2	Dichloromethane	ND	U	5.0	0.58	
100-41-4	Ethylbenzene	ND	U	5.0	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.0	0.95	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.0	0.89	
108-88-3	Toluene	ND	U	5.0	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.0	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.1	
95-47-6	o-Xylene	ND	U	5.0	0.49	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.0	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 13:27	
Dibromofluoromethane	100	63-138	6/18/14 13:27	
Toluene-d8	101	66-138	6/18/14 13:27	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404316
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 15:32
Sample Name:	1406041204 200-SB-20 30'	**Units:**	µg/Kg
Lab Code:	R1404316-004	**Basis:**	Dry
		Percent Solids:	99.7

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ133.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	**340**		330	43	
84-74-2	Di-n-butyl Phthalate	ND	U	330	51	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	55	47-126	6/16/14 15:32	
Nitrobenzene-d5	50	39-136	6/16/14 15:32	
p-Terphenyl-d14	58	35-152	6/16/14 15:32	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404316
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 16:53
Sample Name:	1406041723 200-SB-20 50'	**Units:**	µg/Kg
Lab Code:	R1404316-005	**Basis:**	Dry
		Percent Solids:	99.4

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ136.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	330	43	
84-74-2	Di-n-butyl Phthalate	ND	U	330	52	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	55	47-126	6/16/14 16:53	
Nitrobenzene-d5	50	39-136	6/16/14 16:53	
p-Terphenyl-d14	61	35-152	6/16/14 16:53	

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Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Sample Name: 1406041206 200-SB-20 30'
Lab Code: R1404273-005

Service Request: R1404273
Date Collected: 6/ 4/14
Date Received: 6/ 6/14

Basis: Dry
Percent Solids: 99.5

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**2710**		mg/Kg	10	2.2	1	6/13/14	6/18/14 14:41	
Antimony, Total	6010C	**1.4**	BJ	mg/Kg	6.0	0.3	1	6/13/14	6/17/14 23:41	
Arsenic, Total	6010C	**3.73**		mg/Kg	1.0	0.29	1	6/13/14	6/18/14 14:41	
Barium, Total	6010C	**20.0**		mg/Kg	2.0	0.10	1	6/13/14	6/17/14 23:41	
Beryllium, Total	6020A	**0.28**	J	mg/Kg	0.50	0.02	5	6/13/14	6/20/14 15:50	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/17/14 23:41	
Cadmium, Total	6010C	ND	U	mg/Kg	0.50	0.05	1	6/13/14	6/17/14 23:41	
Calcium, Total	6010C	**65800**		mg/Kg	2000	300	20	6/13/14	6/18/14 20:40	
Chromium, Total	6020A	**6.52**		mg/Kg	0.50	0.05	5	6/13/14	6/20/14 15:50	
Cobalt, Total	6020A	**2.33**		mg/Kg	0.50	0.04	5	6/13/14	6/20/14 15:50	
Copper, Total	6020A	**5.43**		mg/Kg	0.50	0.20	5	6/13/14	6/20/14 15:50	
Iron, Total	6010C	**9940**		mg/Kg	200	150	20	6/13/14	6/18/14 20:40	
Lead, Total	6010C	**4.9**	J	mg/Kg	5.0	0.03	1	6/13/14	6/17/14 23:41	
Magnesium, Total	6010C	**16500**		mg/Kg	100	2	1	6/13/14	6/17/14 23:41	
Manganese, Total	6010C	**207**		mg/Kg	1.0	0.12	1	6/13/14	6/17/14 23:41	
Mercury, Total	7471B	ND	U	mg/Kg	0.032	0.002	1	6/10/14	6/10/14 15:00	
Molybdenum, Total	6010C	**1.1**	J	mg/Kg	2.5	0.07	1	6/13/14	6/17/14 23:41	
Nickel, Total	6010C	**6.1**		mg/Kg	4.0	0.10	1	6/13/14	6/17/14 23:41	
Potassium, Total	6010C	**600**		mg/Kg	200	20	1	6/13/14	6/17/14 23:41	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.57	1	6/13/14	6/17/14 23:41	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/13/14	6/17/14 23:41	
Sodium, Total	6010C	**129**		mg/Kg	100	7	1	6/13/14	6/17/14 23:41	
Strontium, Total	6010C	**115**		mg/Kg	10	0.05	1	6/13/14	6/18/14 14:41	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.75	1	6/13/14	6/17/14 23:41	
Tin, Total	6010C	ND	U	mg/Kg	50	2	1	6/13/14	6/17/14 23:41	
Titanium, Total	6010C	**34.7**		mg/Kg	5.0	0.10	1	6/13/14	6/17/14 23:41	
Uranium, Total	6020A	**1.49**		mg/Kg	0.50	0.0010	5	6/13/14	6/20/14 15:50	
Vanadium, Total	6010C	**15.3**		mg/Kg	5.0	0.2	1	6/13/14	6/17/14 23:41	
Zinc, Total	6010C	**37.8**		mg/Kg	2.0	0.2	1	6/13/14	6/17/14 23:41	

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Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404273
Date Collected: 6/ 4/14
Date Received: 6/ 6/14

Sample Name: 1406041725 200-SB-20 50'
Lab Code: R1404273-006

Basis: Dry
Percent Solids: 99.5

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**2520**		mg/Kg	9.8	2.2	1	6/13/14	6/18/14 14:48	
Antimony, Total	6010C	**1.3**	BJ	mg/Kg	5.9	0.3	1	6/13/14	6/17/14 23:47	
Arsenic, Total	6010C	**3.98**		mg/Kg	0.98	0.29	1	6/13/14	6/18/14 14:48	
Barium, Total	6010C	**51.8**		mg/Kg	2.0	0.10	1	6/13/14	6/17/14 23:47	
Beryllium, Total	6020A	**0.40**	J	mg/Kg	0.48	0.02	5	6/13/14	6/20/14 16:35	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/17/14 23:47	
Cadmium, Total	6010C	ND	U	mg/Kg	0.49	0.05	1	6/13/14	6/17/14 23:47	
Calcium, Total	6010C	**154000**		mg/Kg	4900	700	50	6/13/14	6/18/14 20:46	
Chromium, Total	6020A	**7.72**		mg/Kg	0.48	0.05	5	6/13/14	6/20/14 16:35	
Cobalt, Total	6020A	**2.90**		mg/Kg	0.48	0.04	5	6/13/14	6/20/14 16:35	
Copper, Total	6020A	**5.68**		mg/Kg	0.48	0.20	5	6/13/14	6/20/14 16:35	
Iron, Total	6010C	**8850**		mg/Kg	98	74	10	6/13/14	6/18/14 20:52	
Lead, Total	6010C	**5.6**		mg/Kg	4.9	0.03	1	6/13/14	6/17/14 23:47	
Magnesium, Total	6010C	**23700**		mg/Kg	98	2	1	6/13/14	6/17/14 23:47	
Manganese, Total	6010C	**303**		mg/Kg	0.98	0.12	1	6/13/14	6/17/14 23:47	
Mercury, Total	7471B	**0.003**	J	mg/Kg	0.031	0.002	1	6/10/14	6/10/14 15:01	
Molybdenum, Total	6010C	**1.5**	J	mg/Kg	2.4	0.07	1	6/13/14	6/17/14 23:47	
Nickel, Total	6010C	**6.1**		mg/Kg	3.9	0.10	1	6/13/14	6/17/14 23:47	
Potassium, Total	6010C	**720**		mg/Kg	200	20	1	6/13/14	6/17/14 23:47	
Selenium, Total	6010C	ND	U	mg/Kg	0.98	0.57	1	6/13/14	6/17/14 23:47	
Silver, Total	6010C	ND	U	mg/Kg	0.98	0.08	1	6/13/14	6/17/14 23:47	
Sodium, Total	6010C	**161**		mg/Kg	98	7	1	6/13/14	6/17/14 23:47	
Strontium, Total	6010C	**249**		mg/Kg	9.8	0.05	1	6/13/14	6/18/14 14:48	
Thallium, Total	6010C	ND	U	mg/Kg	0.98	0.75	1	6/13/14	6/17/14 23:47	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/13/14	6/17/14 23:47	
Titanium, Total	6010C	**39.0**		mg/Kg	4.9	0.10	1	6/13/14	6/17/14 23:47	
Uranium, Total	6020A	**1.36**		mg/Kg	0.48	0.0010	5	6/13/14	6/20/14 16:35	
Vanadium, Total	6010C	**9.8**		mg/Kg	4.9	0.2	1	6/13/14	6/17/14 23:47	
Zinc, Total	6010C	**28.1**		mg/Kg	2.0	0.2	1	6/13/14	6/17/14 23:47	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404273
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
Sample Name:	1406041206 200-SB-20 30'		
Lab Code:	R1404273-005	**Basis:**	Dry
		Percent Solids:	99.5

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**56**		mg/Kg	30	6	1	6/23/14	6/23/14 12:25	
Cyanide, Total	9012B	**0.015**	J	mg/Kg	0.095	0.015	1	6/10/14	6/11/14 11:52	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:21	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404273
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
Sample Name:	1406041725 200-SB-20 50'		
Lab Code:	R1404273-006	**Basis:**	Dry
		Percent Solids:	99.5

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**28**	J	mg/Kg	30	6	1	6/23/14	6/23/14 12:35	
Cyanide, Total	9012B	ND	U	mg/Kg	0.10	0.02	1	6/10/14	6/11/14 11:54	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:24	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404273
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 22:56
Sample Name:	1406041204 200-SB-20 30'	**Units:**	µg/Kg
Lab Code:	R1404273-007	**Basis:**	Dry
		Percent Solids:	99.7

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031471.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.33	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404273
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 23:10
Sample Name:	1406041723 200-SB-20 50'	**Units:**	µg/Kg
Lab Code:	R1404273-008	**Basis:**	Dry
		Percent Solids:	99.4

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031472.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.33	

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010014

Method 607 Analysis Data Sheet

Sample ID

1406040942 (200-SB-20 9'/10')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140606-9
Matrix: Soil
Sample Wt/Vol: 31.13 g

Project: 16988.01.103
Date Received: 06/06/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 553448
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

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010015

Method 607 Analysis Data Sheet

Sample ID

1406041203 (200-SB-20 30')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140606-9
Matrix: Soil
Sample Wt/Vol: 31.22 g

Project: 16988.01.103
Date Received: 06/06/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 553449
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

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Method 607 Analysis Data Sheet

Sample ID

1406041722 (200-SB-20 50')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140606-9
Matrix: Soil
Sample Wt/Vol: 30.34 g

Project: 16988.01.103
Date Received: 06/06/14
Date Extracted: 06/17/14
Date Analyzed: 06/19/14
Date Reported: 06/19/14

Lab Sample ID: 553450
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

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010024

Method 607 Surrogate Recovery Summary

Client: Navarro
Matrix: Soil
Project: 16988.01.103

SDG: 553448, 554117, NIST, 544786

	Client Sample ID	Lab Sample ID	N-Nitroso-di-n-propylamine	
			% Recovery	Recovery Limits
2	SMB_17JUN14	555238	101	40-160
3	LCS_17JUN14	555239 LCS	102	40-160
4	1406040942 (200-SB-20 9'/10')	553448	81	40-160
5	1406041203 (200-SB-20 30')	553449	88	40-160
6	1406041722 (200-SB-20 50')	553450	96	40-160
7	1406091137 (200-SB-21 7.5-10')	554117	91	40-160
8	1406091612 (200-SB-21)	554118	106	40-160
9	1406091747 (200-SB-21)	554119	105	40-160
10	1406111459 (200-SB-7 8-10')	554786	103	40-160
11	1406111500 (200-SB-7 8-10')	554787 MS	97	40-160
12	1406111632 (200-SB-7 18-21')	554788	109	40-160
13	1406120932 (200-SB-7 38-40')	554789	100	40-160

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041205 200-SB-20 30'	**Units:**	ng/Kg
Lab Code:	R1404651-001	**Basis:**	Dry
		Percent Solids:	99.4

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2139
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.230g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149805	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.369	0.492			1
1,2,3,7,8-PeCDD	ND	U	0.548	2.46			1
1,2,3,6,7,8-HxCDD	ND	U	0.277	2.46			1
1,2,3,4,7,8-HxCDD	ND	U	0.254	2.46			1
1,2,3,7,8,9-HxCDD	ND	U	0.244	2.46			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.311	2.46			1
OCDD	**1.03**	JK	0.635	4.92	0.47	1.000	1
2,3,7,8-TCDF	ND	U	0.384	0.492			1
1,2,3,7,8-PeCDF	ND	U	0.261	2.46			1
2,3,4,7,8-PeCDF	ND	U	0.265	2.46			1
1,2,3,6,7,8-HxCDF	ND	U	0.174	2.46			1
1,2,3,7,8,9-HxCDF	ND	U	0.244	2.46			1
1,2,3,4,7,8-HxCDF	ND	U	0.209	2.46			1
2,3,4,6,7,8-HxCDF	ND	U	0.185	2.46			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.256	2.46			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.313	2.46			1
OCDF	ND	U	0.529	4.92			1
Total Tetra-Dioxins	ND	U	0.369	0.492			1
Total Penta-Dioxins	ND	U	0.548	2.46			1
Total Hexa-Dioxins	**0.380**	J	0.258	2.46	1.17		1
Total Hepta-Dioxins	ND	U	0.311	2.46			1
Total Tetra-Furans	**0.656**		0.384	0.492	0.87		1
Total Penta-Furans	ND	U	0.250	2.46			1
Total Hexa-Furans	ND	U	0.200	2.46			1
Total Hepta-Furans	ND	U	0.283	2.46			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041205 200-SB-20 30'	**Units:**	Percent
Lab Code:	R1404651-001	**Basis:**	Dry
		Percent Solids:	99.4

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2139
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.230g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149805	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	973.472	49		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1142.841	57		40-135	1.57	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1203.396	60		40-135	1.35	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1154.561	58		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1208.789	60		40-135	1.09	1.067
13C-OCDD	4000	1877.035	47		40-135	0.91	1.145
13C-2,3,7,8-TCDF	2000	971.324	49		40-135	0.82	0.994
13C-1,2,3,7,8-PeCDF	2000	1035.333	52		40-135	1.56	1.137
13C-2,3,4,7,8-PeCDF	2000	1014.402	51		40-135	1.60	1.168
13C-1,2,3,4,7,8-HxCDF	2000	1050.331	53		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1279.063	64		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1082.310	54		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1207.591	60		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1040.808	52		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1116.953	56		40-135	0.45	1.081
37Cl-2,3,7,8-TCDD	800	324.696	41		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041205 200-SB-20 30'	**Units:**	ng/Kg
Lab Code:	R1404651-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.369	0.492	1	1	
1,2,3,7,8-PeCDD	ND	0.548	2.46	1	1	
1,2,3,6,7,8-HxCDD	ND	0.277	2.46	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.254	2.46	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.244	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.311	2.46	1	0.01	
OCDD	**1.03**	0.635	4.92	1	0.0003	0.000309
2,3,7,8-TCDF	ND	0.384	0.492	1	0.1	
1,2,3,7,8-PeCDF	ND	0.261	2.46	1	0.03	
2,3,4,7,8-PeCDF	ND	0.265	2.46	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.174	2.46	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.244	2.46	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.209	2.46	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.185	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.256	2.46	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.313	2.46	1	0.01	
OCDF	ND	0.529	4.92	1	0.0003	
		Total TEQ				0.000309

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041724 200-SB-20 50'	**Units:**	ng/Kg
Lab Code:	R1404651-002	**Basis:**	Dry
		Percent Solids:	99.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2228
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.324g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149806	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.384	0.486			1
1,2,3,7,8-PeCDD	ND	U	0.535	2.43			1
1,2,3,6,7,8-HxCDD	ND	U	0.353	2.43			1
1,2,3,4,7,8-HxCDD	ND	U	0.329	2.43			1
1,2,3,7,8,9-HxCDD	ND	U	0.314	2.43			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.290	2.43			1
OCDD	ND	U	0.594	4.86			1
2,3,7,8-TCDF	ND	U	0.319	0.486			1
1,2,3,7,8-PeCDF	ND	U	0.317	2.43			1
2,3,4,7,8-PeCDF	ND	U	0.327	2.43			1
1,2,3,6,7,8-HxCDF	ND	U	0.188	2.43			1
1,2,3,7,8,9-HxCDF	ND	U	0.275	2.43			1
1,2,3,4,7,8-HxCDF	ND	U	0.236	2.43			1
2,3,4,6,7,8-HxCDF	ND	U	0.206	2.43			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.231	2.43			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.269	2.43			1
OCDF	ND	U	0.582	4.86			1
Total Tetra-Dioxins	ND	U	0.384	0.486			1
Total Penta-Dioxins	ND	U	0.535	2.43			1
Total Hexa-Dioxins	ND	U	0.332	2.43			1
Total Hepta-Dioxins	ND	U	0.290	2.43			1
Total Tetra-Furans	**0.392**	J	0.319	0.486	0.70		1
Total Penta-Furans	ND	U	0.207	2.43			1
Total Hexa-Furans	ND	U	0.222	2.43			1
Total Hepta-Furans	ND	U	0.249	2.43			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041724 200-SB-20 50'	**Units:**	Percent
Lab Code:	R1404651-002	**Basis:**	Dry
		Percent Solids:	99.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2228
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.324g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149806	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	949.882	47		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1172.276	59		40-135	1.57	1.177
13C-1,2,3,4,7,8-HxCDD	2000	1223.723	61		40-135	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1179.518	59		40-135	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1190.551	60		40-135	1.08	1.067
13C-OCDD	4000	1769.944	44		40-135	0.93	1.145
13C-2,3,7,8-TCDF	2000	980.340	49		40-135	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1071.473	54		40-135	1.57	1.137
13C-2,3,4,7,8-PeCDF	2000	1019.867	51		40-135	1.58	1.168
13C-1,2,3,4,7,8-HxCDF	2000	1064.734	53		40-135	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1319.598	66		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1091.625	55		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1256.752	63		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1079.410	54		40-135	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1153.153	58		40-135	0.43	1.080
37Cl-2,3,7,8-TCDD	800	345.304	43		40-135	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041724 200-SB-20 50'	**Units:**	ng/Kg
Lab Code:	R1404651-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.384	0.486	1	1	
1,2,3,7,8-PeCDD	ND	0.535	2.43	1	1	
1,2,3,6,7,8-HxCDD	ND	0.353	2.43	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.329	2.43	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.314	2.43	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.290	2.43	1	0.01	
OCDD	ND	0.594	4.86	1	0.0003	
2,3,7,8-TCDF	ND	0.319	0.486	1	0.1	
1,2,3,7,8-PeCDF	ND	0.317	2.43	1	0.03	
2,3,4,7,8-PeCDF	ND	0.327	2.43	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.188	2.43	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.275	2.43	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.236	2.43	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.206	2.43	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.231	2.43	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.269	2.43	1	0.01	
OCDF	ND	0.582	4.86	1	0.0003	
		Total TEQ				0.00

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Analyzed:	6/18/14 14:05
Sample Name:	1406091135 200-SB-21 7.5-10'	**Units:**	µg/Kg
Lab Code:	R1404425-001	**Basis:**	Dry
		Percent Solids:	95.5

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9477.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.77	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.77	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	30	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.98	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.77	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.25	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.99	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.93	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.51	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 14:05	
Dibromofluoromethane	101	63-138	6/18/14 14:05	
Toluene-d8	101	66-138	6/18/14 14:05	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Analyzed:	6/18/14 14:42
Sample Name:	1406091610 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404425-002	**Basis:**	Dry
		Percent Solids:	99.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9478.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.0	0.74	
79-00-5	1,1,2-Trichloroethane	ND	U	5.0	0.74	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.0	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.0	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.0	0.62	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	ND	U	5.0	2.3	
67-63-0	Isopropanol	ND	U	100	28	
67-64-1	Acetone	ND	U	5.0	2.9	
71-43-2	Benzene	ND	U	5.0	0.30	
75-27-4	Bromodichloromethane	ND	U	5.0	0.62	
75-25-2	Bromoform	ND	U	5.0	0.94	
108-90-7	Chlorobenzene	ND	U	5.0	0.30	
67-66-3	Chloroform	ND	U	5.0	1.3	
74-87-3	Chloromethane	ND	U	5.0	0.41	
124-48-1	Dibromochloromethane	ND	U	5.0	0.74	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.0	1.6	
75-09-2	Dichloromethane	ND	U	5.0	0.58	
100-41-4	Ethylbenzene	ND	U	5.0	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.0	0.95	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.0	0.89	
108-88-3	Toluene	ND	U	5.0	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.0	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.1	
95-47-6	o-Xylene	ND	U	5.0	0.49	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.0	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 14:42	
Dibromofluoromethane	102	63-138	6/18/14 14:42	
Toluene-d8	101	66-138	6/18/14 14:42	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Analyzed:	6/18/14 15:20
Sample Name:	1406091745 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404425-003	**Basis:**	Dry
		Percent Solids:	99.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9479.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.1	0.74	
79-00-5	1,1,2-Trichloroethane	ND	U	5.1	0.74	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.1	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.1	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.1	0.62	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.1	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.1	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.1	2.9	
71-43-2	Benzene	ND	U	5.1	0.30	
75-27-4	Bromodichloromethane	ND	U	5.1	0.62	
75-25-2	Bromoform	ND	U	5.1	0.94	
108-90-7	Chlorobenzene	ND	U	5.1	0.30	
67-66-3	Chloroform	ND	U	5.1	1.3	
74-87-3	Chloromethane	ND	U	5.1	0.41	
124-48-1	Dibromochloromethane	ND	U	5.1	0.74	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.1	1.6	
75-09-2	Dichloromethane	ND	U	5.1	0.58	
100-41-4	Ethylbenzene	ND	U	5.1	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.1	0.95	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.1	0.89	
108-88-3	Toluene	ND	U	5.1	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.1	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.1	0.49	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.1	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	51-136	6/18/14 15:20	
Dibromofluoromethane	101	63-138	6/18/14 15:20	
Toluene-d8	101	66-138	6/18/14 15:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 19:33
Sample Name:	1406091138 200-SB-21 7.5-10'	**Units:**	µg/Kg
Lab Code:	R1404425-004	**Basis:**	Dry
		Percent Solids:	94.1

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ142.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	350	46	
84-74-2	Di-n-butyl Phthalate	ND	U	350	54	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	47	47-126	6/16/14 19:33	
Nitrobenzene-d5	43	39-136	6/16/14 19:33	
p-Terphenyl-d14	52	35-152	6/16/14 19:33	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 20:00
Sample Name:	1406091613 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404425-005	**Basis:**	Dry
		Percent Solids:	99.6

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ143.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	330	43	
84-74-2	Di-n-butyl Phthalate	ND	U	330	51	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	48	47-126	6/16/14 20:00	
Nitrobenzene-d5	46	39-136	6/16/14 20:00	
p-Terphenyl-d14	52	35-152	6/16/14 20:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 20:26
Sample Name:	1406091748 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404425-006	**Basis:**	Dry
		Percent Solids:	80.9

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ144.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	410	53	
84-74-2	Di-n-butyl Phthalate	ND	U	410	63	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	48	47-126	6/16/14 20:26	
Nitrobenzene-d5	45	39-136	6/16/14 20:26	
p-Terphenyl-d14	52	35-152	6/16/14 20:26	

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Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Collected: 6/ 9/14
Date Received: 6/11/14

Sample Name: 1406091140 200-SB-21 7.5-10'
Lab Code: R1404421-008

Basis: Dry
Percent Solids: 96.4

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**4460**		mg/Kg	9.9	2.2	1	6/13/14	6/18/14 15:21	
Antimony, Total	6010C	**1.2**	BJ	mg/Kg	5.9	0.3	1	6/13/14	6/18/14 00:00	
Arsenic, Total	6010C	**4.74**		mg/Kg	0.99	0.29	1	6/13/14	6/18/14 15:21	
Barium, Total	6010C	**36.4**		mg/Kg	2.0	0.10	1	6/13/14	6/18/14 00:00	
Beryllium, Total	6020A	**0.36**	J	mg/Kg	0.52	0.02	5	6/13/14	7/1/14 14:50	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/18/14 00:00	
Cadmium, Total	6010C	ND	U	mg/Kg	0.49	0.05	1	6/13/14	6/18/14 00:00	
Calcium, Total	6010C	**97400**		mg/Kg	4900	700	50	6/13/14	6/18/14 20:58	
Chromium, Total	6020A	**7.12**		mg/Kg	0.52	0.05	5	6/13/14	7/1/14 14:50	
Cobalt, Total	6020A	**3.88**		mg/Kg	0.52	0.04	5	6/13/14	7/1/14 14:50	
Copper, Total	6020A	**5.37**		mg/Kg	0.52	0.20	5	6/13/14	7/1/14 14:50	
Iron, Total	6010C	**11600**		mg/Kg	49	37	5	6/13/14	6/18/14 21:04	
Lead, Total	6010C	**7.4**		mg/Kg	4.9	0.03	1	6/13/14	6/18/14 00:00	
Magnesium, Total	6010C	**14200**		mg/Kg	99	2	1	6/13/14	6/18/14 00:00	
Manganese, Total	6010C	**220**		mg/Kg	0.99	0.12	1	6/13/14	6/18/14 00:00	
Mercury, Total	7471B	ND	U	mg/Kg	0.032	0.002	1	6/18/14	6/19/14 16:57	
Molybdenum, Total	6010C	**1.1**	J	mg/Kg	2.5	0.07	1	6/13/14	6/18/14 00:00	
Nickel, Total	6010C	**8.3**		mg/Kg	4.0	0.10	1	6/13/14	6/18/14 00:00	
Potassium, Total	6010C	**1060**		mg/Kg	200	20	1	6/13/14	6/18/14 00:00	
Selenium, Total	6010C	ND	U	mg/Kg	0.99	0.57	1	6/13/14	6/18/14 00:00	
Silver, Total	6010C	ND	U	mg/Kg	0.99	0.08	1	6/13/14	6/18/14 00:00	
Sodium, Total	6010C	**229**		mg/Kg	99	7	1	6/13/14	6/18/14 00:00	
Strontium, Total	6010C	**182**		mg/Kg	9.9	0.05	1	6/13/14	6/18/14 15:21	
Thallium, Total	6010C	ND	U	mg/Kg	0.99	0.75	1	6/13/14	6/18/14 00:00	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/13/14	6/18/14 00:00	
Titanium, Total	6010C	**94.5**		mg/Kg	4.9	0.10	1	6/13/14	6/18/14 00:00	
Uranium, Total	6020A	**0.95**		mg/Kg	0.52	0.0010	5	6/13/14	7/2/14 11:17	
Vanadium, Total	6010C	**32.0**		mg/Kg	4.9	0.2	1	6/13/14	6/18/14 00:00	
Zinc, Total	6010C	**30.7**		mg/Kg	2.0	0.2	1	6/13/14	6/18/14 00:00	

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Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Collected: 6/ 9/14
Date Received: 6/11/14

Sample Name: 1406091615 200-SB-21
Lab Code: R1404421-009

Basis: Dry
Percent Solids: 99.6

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**1380**		mg/Kg	9.8	2.2	1	6/13/14	6/18/14 15:28	
Antimony, Total	6010C	**0.9**	BJ	mg/Kg	5.9	0.3	1	6/13/14	6/18/14 00:06	
Arsenic, Total	6010C	**1.24**		mg/Kg	0.98	0.29	1	6/13/14	6/18/14 15:28	
Barium, Total	6010C	**9.3**		mg/Kg	2.0	0.10	1	6/13/14	6/18/14 00:06	
Beryllium, Total	6020A	**0.30**	J	mg/Kg	0.48	0.02	5	6/13/14	7/1/14 14:56	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/18/14 00:06	
Cadmium, Total	6010C	ND	U	mg/Kg	0.49	0.05	1	6/13/14	6/18/14 00:06	
Calcium, Total	6010C	**116000**		mg/Kg	4900	700	50	6/13/14	6/18/14 21:10	
Chromium, Total	6020A	**5.46**		mg/Kg	0.48	0.05	5	6/13/14	7/1/14 14:56	
Cobalt, Total	6020A	**2.55**		mg/Kg	0.48	0.04	5	6/13/14	7/1/14 14:56	
Copper, Total	6020A	**4.11**		mg/Kg	0.48	0.20	5	6/13/14	7/1/14 14:56	
Iron, Total	6010C	**3760**		mg/Kg	49	37	5	6/13/14	6/18/14 21:16	
Lead, Total	6010C	**3.1**	J	mg/Kg	4.9	0.03	1	6/13/14	6/18/14 00:06	
Magnesium, Total	6010C	**31100**		mg/Kg	98	2	1	6/13/14	6/18/14 00:06	
Manganese, Total	6010C	**169**		mg/Kg	0.98	0.12	1	6/13/14	6/18/14 00:06	
Mercury, Total	7471B	ND	U	mg/Kg	0.033	0.003	1	6/18/14	6/19/14 16:59	
Molybdenum, Total	6010C	**0.5**	J	mg/Kg	2.5	0.07	1	6/13/14	6/18/14 00:06	
Nickel, Total	6010C	**4.7**		mg/Kg	3.9	0.10	1	6/13/14	6/18/14 00:06	
Potassium, Total	6010C	**340**		mg/Kg	200	20	1	6/13/14	6/18/14 00:06	
Selenium, Total	6010C	ND	U	mg/Kg	0.98	0.57	1	6/13/14	6/18/14 00:06	
Silver, Total	6010C	ND	U	mg/Kg	0.98	0.08	1	6/13/14	6/18/14 00:06	
Sodium, Total	6010C	**126**		mg/Kg	98	7	1	6/13/14	6/18/14 00:06	
Strontium, Total	6010C	**108**		mg/Kg	9.8	0.05	1	6/13/14	6/18/14 15:28	
Thallium, Total	6010C	ND	U	mg/Kg	0.98	0.75	1	6/13/14	6/18/14 00:06	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/13/14	6/18/14 00:06	
Titanium, Total	6010C	**15.3**		mg/Kg	4.9	0.10	1	6/13/14	6/18/14 00:06	
Uranium, Total	6020A	**1.79**		mg/Kg	0.48	0.0010	5	6/13/14	7/2/14 11:23	
Vanadium, Total	6010C	**4.2**	J	mg/Kg	4.9	0.2	1	6/13/14	6/18/14 00:06	
Zinc, Total	6010C	**18.5**		mg/Kg	2.0	0.2	1	6/13/14	6/18/14 00:06	

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Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Collected: 6/ 9/14
Date Received: 6/11/14

Sample Name: 1406091750 200-SB-21
Lab Code: R1404421-010

Basis: Dry
Percent Solids: 99.4

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**3510**		mg/Kg	9.8	2.2	1	6/13/14	6/18/14 15:47	
Antimony, Total	6010C	**1.2**	BJ	mg/Kg	5.9	0.3	1	6/13/14	6/18/14 00:12	
Arsenic, Total	6010C	**3.75**		mg/Kg	0.98	0.29	1	6/13/14	6/18/14 15:47	
Barium, Total	6010C	**40.3**		mg/Kg	2.0	0.10	1	6/13/14	6/18/14 00:12	
Beryllium, Total	6020A	**0.36**	J	mg/Kg	0.48	0.02	5	6/13/14	7/1/14 15:01	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/18/14 00:12	
Cadmium, Total	6010C	**0.1**	J	mg/Kg	0.49	0.05	1	6/13/14	6/18/14 00:12	
Calcium, Total	6010C	**94500**		mg/Kg	4900	700	50	6/13/14	6/18/14 21:34	
Chromium, Total	6020A	**6.18**		mg/Kg	0.48	0.05	5	6/13/14	7/1/14 15:01	
Cobalt, Total	6020A	**3.36**		mg/Kg	0.48	0.04	5	6/13/14	7/1/14 15:01	
Copper, Total	6020A	**4.87**		mg/Kg	0.48	0.20	5	6/13/14	7/1/14 15:01	
Iron, Total	6010C	**11100**		mg/Kg	49	37	5	6/13/14	6/18/14 21:40	
Lead, Total	6010C	**11.5**		mg/Kg	4.9	0.03	1	6/13/14	6/18/14 00:12	
Magnesium, Total	6010C	**25000**		mg/Kg	98	2	1	6/13/14	6/18/14 00:12	
Manganese, Total	6010C	**366**		mg/Kg	0.98	0.12	1	6/13/14	6/18/14 00:12	
Mercury, Total	7471B	ND	U	mg/Kg	0.031	0.002	1	6/18/14	6/19/14 17:01	
Molybdenum, Total	6010C	**1.1**	J	mg/Kg	2.4	0.07	1	6/13/14	6/18/14 00:12	
Nickel, Total	6010C	**9.7**		mg/Kg	3.9	0.10	1	6/13/14	6/18/14 00:12	
Potassium, Total	6010C	**770**		mg/Kg	200	20	1	6/13/14	6/18/14 00:12	
Selenium, Total	6010C	ND	U	mg/Kg	0.98	0.57	1	6/13/14	6/18/14 00:12	
Silver, Total	6010C	ND	U	mg/Kg	0.98	0.08	1	6/13/14	6/18/14 00:12	
Sodium, Total	6010C	**195**		mg/Kg	98	7	1	6/13/14	6/18/14 00:12	
Strontium, Total	6010C	**141**		mg/Kg	9.8	0.05	1	6/13/14	6/18/14 15:47	
Thallium, Total	6010C	ND	U	mg/Kg	0.98	0.75	1	6/13/14	6/18/14 00:12	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/13/14	6/18/14 00:12	
Titanium, Total	6010C	**56.9**		mg/Kg	4.9	0.10	1	6/13/14	6/18/14 00:12	
Uranium, Total	6020A	**1.63**		mg/Kg	0.48	0.0010	5	6/13/14	7/2/14 11:30	
Vanadium, Total	6010C	**15.8**		mg/Kg	4.9	0.2	1	6/13/14	6/18/14 00:12	
Zinc, Total	6010C	**50.4**		mg/Kg	2.0	0.2	1	6/13/14	6/18/14 00:12	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091140 200-SB-21 7.5-10'		
Lab Code:	R1404421-008	**Basis:**	Dry
		Percent Solids:	96.4

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**142**		mg/Kg	31	6	1	6/23/14	6/23/14 11:55	
Cyanide, Total	9012B	ND	U	mg/Kg	0.094	0.015	1	6/17/14	6/18/14 11:35	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:25	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091615 200-SB-21		
Lab Code:	R1404421-009	**Basis:**	Dry
		Percent Solids:	99.6

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	30	6	1	6/23/14	6/23/14 12:05	
Cyanide, Total	9012B	**0.019**	J	mg/Kg	0.097	0.015	1	6/17/14	6/18/14 11:36	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	4.8	0.5	1	6/24/14	6/24/14 12:26	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091750 200-SB-21		
Lab Code:	R1404421-010	**Basis:**	Dry
		Percent Solids:	99.4

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**62**		mg/Kg	30	6	1	6/23/14	6/23/14 12:15	
Cyanide, Total	9012B	ND	U	mg/Kg	0.093	0.015	1	6/17/14	6/18/14 11:37	
Nitrate+Nitrite as Nitrogen	353.2M	**1.8**	J	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:27	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 23:23
Sample Name:	1406091138 200-SB-21 7.5-10'	**Units:**	µg/Kg
Lab Code:	R1404421-005	**Basis:**	Dry
		Percent Solids:	94.1

Perchlorates in Water, Soils, Solid Wastes Using High Performahce LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031473.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**0.64**	J	2.1	0.35	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 23:36
Sample Name:	1406091613 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404421-006	**Basis:**	Dry
		Percent Solids:	99.6

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031474.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.33	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 23:50
Sample Name:	1406091748 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404421-007	**Basis:**	Dry
		Percent Solids:	98.9

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031475.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.33	

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713a

Location: WSTF
Sample ID: 200-SB-7, 1406111458-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1916

Name	CAS Number	Result (mg/kg)	Reporting (Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	0.42	0.050	
Methylhydrazine	60-34-4	0.57	0.050	
N,N-Dimethylhydrazine	57-14-7	0.78	0.050	

Location: WSTF
Sample ID: 200-SB-7, 1406111458 (dup.sample)
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1937

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-7, 1406111458-matrix spike
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1958

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.
All matrix spikes are spiked to 1 ppm hydrazines.

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713a

Location: WSTF
Sample ID: 200-SB-7, 1406111631-field sample
Date Received: 6/13/2014
Date Extracted: 6/19/2014
Date Analyzed: 6/19/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/19/2014, 1653

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-7, 1406120931-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 2019

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

ND* indicates the result is below the reporting limit (0.050 mg/kg)

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713a

Location: WSTF
Sample ID: 200-SB-21, 1406091746-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1752

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-7, 1406111436-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: water
Time sample analyzed: 6/16/2014, 1812

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/L)	QA Flag
Hydrazine	302-01-2	ND*	0.01	
Methylhydrazine	60-34-4	ND	0.01	
N,N-Dimethylhydrazine	57-14-7	ND	0.01	

Location: WSTF
Sample ID: 200-SB-7, 1406111457-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1834

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713

Location: WSTF
Sample ID: 200-SB-20, 1406041721-field sample
Date Received: 6/13/2014
Date Extracted: 6/13/2014
Date Analyzed: 6/13/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/13/2014, 1641

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND indicates the result is below the reporting limit.

All matrix spikes are spiked to 1 ppm hydrazines.

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713

Location: WSTF
Sample ID: 200-SB-20, 1406040811-field sample
Date Received: 6/13/2014
Date Extracted: 6/13/2014
Date Analyzed: 6/13/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: water
Time sample analyzed: 6/13/2014, 1537

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/L)	QA Flag
Hydrazine	302-01-2	ND*	0.01	
Methylhydrazine	60-34-4	ND	0.01	
N,N-Dimethylhydrazine	57-14-7	ND	0.01	

Location: WSTF
Sample ID: 200-SB-20, 1406040941-field sample
Date Received: 6/13/2014
Date Extracted: 6/13/2014
Date Analyzed: 6/13/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/13/2014, 1559

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-20, 1406040941**matrix spike
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1901

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	0.17	0.050	
Methylhydrazine	60-34-4	0.18	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

**Matrix spike of extraction fluid

ND indicates the result is below the reporting limit.

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713

Location: WSTF
Sample ID: 200-SB-20, 1406040941(dup.,sample)
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 2041

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-20, 1406041202-field sample
Date Received: 6/13/2014
Date Extracted: 6/13/2014
Date Analyzed: 6/13/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/13/2014, 1620

Name	CAS Number	Result (mg/kg)	Reporting (Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-20, 1406041202[1]-matrix spike
Date Received: 6/13/2014
Date Extracted: 6/17/2014
Date Analyzed: 6/17/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/17/2014, 1652

Name	CAS Number	Result (mg/kg)	Reporting (Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	0.42	0.050	
Methylhydrazine	60-34-4	0.57	0.050	
N,N-Dimethylhydrazine	57-14-7	0.78	0.050	

[1]Matrix Spike of soil, pre-extraction

ND indicates the result is below the reporting limit.

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713a

Location: WSTF
Sample ID: 200-SB-21, 1406090812-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: water
Time sample analyzed: 6/16/2014, 1648

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/L)	QA Flag
Hydrazine	302-01-2	ND*	0.01	
Methylhydrazine	60-34-4	ND	0.01	
N,N-Dimethylhydrazine	57-14-7	ND	0.01	

Location: WSTF
Sample ID: 200-SB-21, 1406091136-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1709

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-21, 1406091611-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1730

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

PRELIMINARY

Southwest Research Institute

010017

Method 607 Analysis Data Sheet

Sample ID

1406091137 (200-SB-21 7.5-10')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140611-4
Matrix: Soil
Sample Wt/Vol: 31.46 g

Project: 16988.01.103
Date Received: 06/11/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554117
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010018

Method 607 Analysis Data Sheet

Sample ID

1406091612 (200-SB-21)

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140611-4
Matrix: Soil
Sample Wt/Vol: 30.52 g

Project: 16988.01.103
Date Received: 06/11/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554118
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute 010019

Method 607 Analysis Data Sheet

Sample ID

1406091747 (200-SB-21)

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140611-4
Matrix: Soil
Sample Wt/Vol: 31.27 g

Project: 16988.01.103
Date Received: 06/11/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554119
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010024

Method 607 Surrogate Recovery Summary

Client: Navarro
Matrix: Soil
Project: 16988.01.103

SDG: 553448, 554117, NIST, 544786

	Client Sample ID	Lab Sample ID	N-Nitroso-di-n-propylamine	
			% Recovery	Recovery Limits
2	SMB_17JUN14	555238	101	40-160
3	LCS_17JUN14	555239 LCS	102	40-160
4	1406040942 (200-SB-20 9'/10')	553448	81	40-160
5	1406041203 (200-SB-20 30')	553449	88	40-160
6	1406041722 (200-SB-20 50')	553450	96	40-160
7	1406091137 (200-SB-21 7.5-10')	554117	91	40-160
8	1406091612 (200-SB-21)	554118	106	40-160
9	1406091747 (200-SB-21)	554119	105	40-160
10	1406111459 (200-SB-7 8-10')	554786	103	40-160
11	1406111500 (200-SB-7 8-10')	554787 MS	97	40-160
12	1406111632 (200-SB-7 18-21')	554788	109	40-160
13	1406120932 (200-SB-7 38-40')	554789	100	40-160

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091139 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-003	**Basis:**	Dry
		Percent Solids:	93.8

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2317
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.009g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149807	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.440	0.533			1
1,2,3,7,8-PeCDD	ND	U	0.631	2.66			1
1,2,3,6,7,8-HxCDD	ND	U	0.316	2.66			1
1,2,3,4,7,8-HxCDD	ND	U	0.306	2.66			1
1,2,3,7,8,9-HxCDD	ND	U	0.286	2.66			1
1,2,3,4,6,7,8-HpCDD	**1.03**	JK	0.446	2.66	0.62	1.000	1
OCDD	**6.36**		0.564	5.33	0.95	1.000	1
2,3,7,8-TCDF	ND	U	0.373	0.533			1
1,2,3,7,8-PeCDF	ND	U	0.313	2.66			1
2,3,4,7,8-PeCDF	ND	U	0.327	2.66			1
1,2,3,6,7,8-HxCDF	ND	U	0.213	2.66			1
1,2,3,7,8,9-HxCDF	ND	U	0.294	2.66			1
1,2,3,4,7,8-HxCDF	ND	U	0.260	2.66			1
2,3,4,6,7,8-HxCDF	ND	U	0.234	2.66			1
1,2,3,4,6,7,8-HpCDF	**0.348**	JK	0.274	2.66	1.85	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.347	2.66			1
OCDF	**2.06**	J	0.625	5.33	0.92	1.005	1
Total Tetra-Dioxins	ND	U	0.440	0.533			1
Total Penta-Dioxins	ND	U	0.631	2.66			1
Total Hexa-Dioxins	ND	U	0.303	2.66			1
Total Hepta-Dioxins	ND	U	0.446	2.66			1
Total Tetra-Furans	ND	U	0.373	0.533			1
Total Penta-Furans	ND	U	0.303	2.66			1
Total Hexa-Furans	ND	U	0.246	2.66			1
Total Hepta-Furans	ND	U	0.308	2.66			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091139 200-SB-21 7.5/10'	**Units:**	Percent
Lab Code:	R1404651-003	**Basis:**	Dry
		Percent Solids:	93.8

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2317
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.009g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149807	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	926.091	46		40-135	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1134.480	57		40-135	1.58	1.177
13C-1,2,3,4,7,8-HxCDD	2000	1126.446	56		40-135	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1148.703	57		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1173.962	59		40-135	1.08	1.067
13C-OCDD	4000	1878.915	47		40-135	0.91	1.145
13C-2,3,7,8-TCDF	2000	953.304	48		40-135	0.82	0.994
13C-1,2,3,7,8-PeCDF	2000	1048.951	52		40-135	1.55	1.137
13C-2,3,4,7,8-PeCDF	2000	997.903	50		40-135	1.55	1.168
13C-1,2,3,4,7,8-HxCDF	2000	1015.097	51		40-135	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1253.247	63		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1073.099	54		40-135	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1195.358	60		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1057.453	53		40-135	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1082.947	54		40-135	0.45	1.080
37Cl-2,3,7,8-TCDD	800	338.480	42		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091139 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.440	0.533	1	1	
1,2,3,7,8-PeCDD	ND	0.631	2.66	1	1	
1,2,3,6,7,8-HxCDD	ND	0.316	2.66	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.306	2.66	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.286	2.66	1	0.1	
1,2,3,4,6,7,8-HpCDD	**1.03**	0.446	2.66	1	0.01	0.0103
OCDD	**6.36**	0.564	5.33	1	0.0003	0.00191
2,3,7,8-TCDF	ND	0.373	0.533	1	0.1	
1,2,3,7,8-PeCDF	ND	0.313	2.66	1	0.03	
2,3,4,7,8-PeCDF	ND	0.327	2.66	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.213	2.66	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.294	2.66	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.260	2.66	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.234	2.66	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.348**	0.274	2.66	1	0.01	0.00348
1,2,3,4,7,8,9-HpCDF	ND	0.347	2.66	1	0.01	
OCDF	**2.06**	0.625	5.33	1	0.0003	0.000618
		Total TEQ				0.0163

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091614 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-004	**Basis:**	Dry
		Percent Solids:	99.8

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0005
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.192g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149808	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.335	0.492			1
1,2,3,7,8-PeCDD	ND	U	0.535	2.46			1
1,2,3,6,7,8-HxCDD	ND	U	0.210	2.46			1
1,2,3,4,7,8-HxCDD	ND	U	0.203	2.46			1
1,2,3,7,8,9-HxCDD	ND	U	0.190	2.46			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.335	2.46			1
OCDD	ND	U	0.493	4.92			1
2,3,7,8-TCDF	ND	U	0.348	0.492			1
1,2,3,7,8-PeCDF	ND	U	0.233	2.46			1
2,3,4,7,8-PeCDF	ND	U	0.235	2.46			1
1,2,3,6,7,8-HxCDF	ND	U	0.162	2.46			1
1,2,3,7,8,9-HxCDF	ND	U	0.235	2.46			1
1,2,3,4,7,8-HxCDF	ND	U	0.202	2.46			1
2,3,4,6,7,8-HxCDF	ND	U	0.174	2.46			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.238	2.46			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.295	2.46			1
OCDF	ND	U	0.592	4.92			1
Total Tetra-Dioxins	ND	U	0.335	0.492			1
Total Penta-Dioxins	ND	U	0.535	2.46			1
Total Hexa-Dioxins	ND	U	0.201	2.46			1
Total Hepta-Dioxins	ND	U	0.335	2.46			1
Total Tetra-Furans	ND	U	0.348	0.492			1
Total Penta-Furans	ND	U	0.198	2.46			1
Total Hexa-Furans	ND	U	0.189	2.46			1
Total Hepta-Furans	ND	U	0.265	2.46			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091614 200-SB-21 7.5/10'	**Units:**	Percent
Lab Code:	R1404651-004	**Basis:**	Dry
		Percent Solids:	99.8

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0005
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.192g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149808	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1014.292	51		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1202.158	60		40-135	1.59	1.177
13C-1,2,3,4,7,8-HxCDD	2000	1256.244	63		40-135	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1247.355	62		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1212.741	61		40-135	1.11	1.067
13C-OCDD	4000	1820.579	46		40-135	0.91	1.145
13C-2,3,7,8-TCDF	2000	1044.925	52		40-135	0.83	0.994
13C-1,2,3,7,8-PeCDF	2000	1094.842	55		40-135	1.58	1.137
13C-2,3,4,7,8-PeCDF	2000	1070.556	54		40-135	1.61	1.168
13C-1,2,3,4,7,8-HxCDF	2000	1123.238	56		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1383.209	69		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1121.337	56		40-135	0.53	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1309.369	65		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1099.709	55		40-135	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1146.490	57		40-135	0.45	1.081
37Cl-2,3,7,8-TCDD	800	351.433	44		40-135	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091614 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.335	0.492	1	1	
1,2,3,7,8-PeCDD	ND	0.535	2.46	1	1	
1,2,3,6,7,8-HxCDD	ND	0.210	2.46	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.203	2.46	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.190	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.335	2.46	1	0.01	
OCDD	ND	0.493	4.92	1	0.0003	
2,3,7,8-TCDF	ND	0.348	0.492	1	0.1	
1,2,3,7,8-PeCDF	ND	0.233	2.46	1	0.03	
2,3,4,7,8-PeCDF	ND	0.235	2.46	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.162	2.46	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.235	2.46	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.202	2.46	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.174	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.238	2.46	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.295	2.46	1	0.01	
OCDF	ND	0.592	4.92	1	0.0003	
		Total TEQ				0.00

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091749 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-005	**Basis:**	Dry
		Percent Solids:	98.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0054
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.001g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149809	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.400	0.506			1
1,2,3,7,8-PeCDD	ND	U	0.470	2.53			1
1,2,3,6,7,8-HxCDD	ND	U	0.271	2.53			1
1,2,3,4,7,8-HxCDD	ND	U	0.257	2.53			1
1,2,3,7,8,9-HxCDD	ND	U	0.243	2.53			1
1,2,3,4,6,7,8-HpCDD	**1.11**	J	0.318	2.53	1.17	1.001	1
OCDD	**6.91**		0.604	5.06	0.83	1.000	1
2,3,7,8-TCDF	ND	U	0.342	0.506			1
1,2,3,7,8-PeCDF	ND	U	0.295	2.53			1
2,3,4,7,8-PeCDF	ND	U	0.307	2.53			1
1,2,3,6,7,8-HxCDF	ND	U	0.168	2.53			1
1,2,3,7,8,9-HxCDF	ND	U	0.244	2.53			1
1,2,3,4,7,8-HxCDF	ND	U	0.209	2.53			1
2,3,4,6,7,8-HxCDF	ND	U	0.187	2.53			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.196	2.53			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.244	2.53			1
OCDF	ND	U	0.552	5.06			1
Total Tetra-Dioxins	ND	U	0.400	0.506			1
Total Penta-Dioxins	ND	U	0.470	2.53			1
Total Hexa-Dioxins	ND	U	0.257	2.53			1
Total Hepta-Dioxins	**1.11**	J	0.318	2.53	1.17		1
Total Tetra-Furans	ND	U	0.342	0.506			1
Total Penta-Furans	ND	U	0.228	2.53			1
Total Hexa-Furans	ND	U	0.197	2.53			1
Total Hepta-Furans	ND	U	0.219	2.53			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091749 200-SB-21 7.5/10'	**Units:**	Percent
Lab Code:	R1404651-005	**Basis:**	Dry
		Percent Solids:	98.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0054
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.001g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149809	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	933.169	47		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1147.807	57		40-135	1.61	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1181.012	59		40-135	1.29	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1190.484	60		40-135	1.32	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1175.509	59		40-135	1.06	1.067
13C-OCDD	4000	1817.479	45		40-135	0.89	1.145
13C-2,3,7,8-TCDF	2000	928.762	46		40-135	0.82	0.994
13C-1,2,3,7,8-PeCDF	2000	1057.258	53		40-135	1.61	1.137
13C-2,3,4,7,8-PeCDF	2000	1011.303	51		40-135	1.60	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1055.004	53		40-135	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1332.976	67		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1052.125	53		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1238.207	62		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1083.978	54		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1103.190	55		40-135	0.43	1.081
37Cl-2,3,7,8-TCDD	800	332.936	42		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091749 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.400	0.506	1	1	
1,2,3,7,8-PeCDD	ND	0.470	2.53	1	1	
1,2,3,6,7,8-HxCDD	ND	0.271	2.53	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.257	2.53	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.243	2.53	1	0.1	
1,2,3,4,6,7,8-HpCDD	**1.11**	0.318	2.53	1	0.01	0.0111
OCDD	**6.91**	0.604	5.06	1	0.0003	0.00207
2,3,7,8-TCDF	ND	0.342	0.506	1	0.1	
1,2,3,7,8-PeCDF	ND	0.295	2.53	1	0.03	
2,3,4,7,8-PeCDF	ND	0.307	2.53	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.168	2.53	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.244	2.53	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.209	2.53	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.187	2.53	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.196	2.53	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.244	2.53	1	0.01	
OCDF	ND	0.552	5.06	1	0.0003	
		Total TEQ				0.0132

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/20/14 17:01
Sample Name:	1406151128 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404590-023	**Basis:**	Dry
		Percent Solids:	95.9

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211056
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU948.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	45	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	69	47-126	6/20/14 17:01	
Nitrobenzene-d5	59	39-136	6/20/14 17:01	
p-Terphenyl-d14	78	35-152	6/20/14 17:01	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/20/14 17:28
Sample Name:	1406151144 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404590-024	**Basis:**	Dry
		Percent Solids:	96.9

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211056
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU949.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	45	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	58	47-126	6/20/14 17:28	
Nitrobenzene-d5	50	39-136	6/20/14 17:28	
p-Terphenyl-d14	72	35-152	6/20/14 17:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Analyzed:	6/19/14 15:13
Sample Name:	1406151125 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404590-028	**Basis:**	Dry
		Percent Solids:	93.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397948
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061914\K9499.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.4	0.79	
79-00-5	1,1,2-Trichloroethane	ND	U	5.4	0.79	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.4	1.4	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.4	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.4	0.66	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.4	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.4	2.5	
67-63-0	Isopropanol	ND	U	110	30	
67-64-1	Acetone	ND	U	5.4	3.1	
71-43-2	Benzene	ND	U	5.4	0.32	
75-27-4	Bromodichloromethane	ND	U	5.4	0.66	
75-25-2	Bromoform	ND	U	5.4	1.0	
108-90-7	Chlorobenzene	ND	U	5.4	0.32	
67-66-3	Chloroform	ND	U	5.4	1.4	
74-87-3	Chloromethane	ND	U	5.4	0.44	
124-48-1	Dibromochloromethane	ND	U	5.4	0.79	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.4	1.7	
75-09-2	Dichloromethane	ND	U	5.4	0.62	
100-41-4	Ethylbenzene	ND	U	5.4	0.25	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.4	1.1	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.4	0.95	
108-88-3	Toluene	ND	U	5.4	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.4	1.1	
179601-23-1	m,p-Xylenes	ND	U	11	1.2	
95-47-6	o-Xylene	ND	U	5.4	0.52	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.4	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	51-136	6/19/14 15:13	
Dibromofluoromethane	100	63-138	6/19/14 15:13	
Toluene-d8	101	66-138	6/19/14 15:13	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404590
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Analyzed:	6/19/14 15:51
Sample Name:	1406151141 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404590-029	**Basis:**	Dry
		Percent Solids:	96.9

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397948
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061914\K9500.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.76	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.76	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.63	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.2	2.9	
71-43-2	Benzene	ND	U	5.2	0.30	
75-27-4	Bromodichloromethane	ND	U	5.2	0.63	
75-25-2	Bromoform	ND	U	5.2	0.96	
108-90-7	Chlorobenzene	ND	U	5.2	0.30	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.76	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.59	
100-41-4	Ethylbenzene	ND	U	5.2	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.98	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.91	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.50	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	51-136	6/19/14 15:51	
Dibromofluoromethane	100	63-138	6/19/14 15:51	
Toluene-d8	100	66-138	6/19/14 15:51	

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number 14-4590

Cooler received on 6/17/14 by: JJS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y N	5a	**Perchlorate** samples have required headspace?	Y N NA
2	**Custody papers** properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N NA
3	Did all bottles arrive in good **condition** (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: **Wet Ice** **Dry Ice** **Gel packs** present?	Y N	7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 6/17 Time: 0956 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	1.2	3.6	2.7				
Correction Factor (°C)	–	–	–				
Corrected Temp (°C)	1.2	3.6	2.7				
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: ROC by JJS on 6/17 at 0956
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: JMS 6/17/14

Cooler Breakdown: Date: 6/17/14 Time: 1928 by: JJS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: clear

Other Comments:

PC Secondary Review: JMS 7/1/14

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

SUPPORTING DOCUMENTATION

ALS Environmental - Rochester, NY
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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B
Sample Matrix: Soil

Service Request: R1404590
Date Analyzed: 6/19/14 11:23

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1406898-04
Instrument ID: R-MS-07
File ID: I:\ACQUDATA\MSVOA7\DATA\061914\K9493.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406898-03	I:\ACQUDATA\MSVOA7\DATA\061914\K9491.D\	6/19/14 10:05
1406130800 200-SB-8 8'/10'	R1404590-012	I:\ACQUDATA\MSVOA7\DATA\061914\K9494.D\	6/19/14 12:01
1406130810 200-SB-8 8'/10'	R1404590-013	I:\ACQUDATA\MSVOA7\DATA\061914\K9495.D\	6/19/14 12:41
1406130940 200-SB-8 28/30'	R1404590-025	I:\ACQUDATA\MSVOA7\DATA\061914\K9496.D\	6/19/14 13:19
1406131300 200-SB-8 43/45'	R1404590-026	I:\ACQUDATA\MSVOA7\DATA\061914\K9497.D\	6/19/14 13:57
1406141700 200-SB-6 8/10'	R1404590-027	I:\ACQUDATA\MSVOA7\DATA\061914\K9498.D\	6/19/14 14:35
1406151125 200-SB-5 8/10'	R1404590-028	I:\ACQUDATA\MSVOA7\DATA\061914\K9499.D\	6/19/14 15:13
1406151141 200-SB-5 8/10'	R1404590-029	I:\ACQUDATA\MSVOA7\DATA\061914\K9500.D\	6/19/14 15:51

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Date Analyzed: 6/19/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA7\DATA\061914\K9490.D\

Calibration Date: 5/29/14
Calibration ID: RC1400043
Analysis Lot: 397948
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1-Trichloroethane (TCA)	50.0	46.6	0.7075	0.6590	-6.9	NA	± 20 %	Average RF
1,1,2-Trichloroethane	50.0	49.0	0.3414	0.3346	-2.0	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	45.9	0.4820	0.4426	-8.2	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	49.6	0.4169	0.4137	-0.8	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	49.1	0.4920	0.4827	-1.9	NA	± 20 %	Average RF
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	50.0	.55.4	0.8365	0.9269	10.8	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	48.3	0.7656	0.7390	-3.5	NA	± 20 %	Average RF
Isopropanol	1000	1060	0.08660	0.09188	6.1	NA	± 20 %	Average RF
Acetone	50.0	43.0	0.6020	0.5175	-14.0	NA	± 20 %	Average RF
Benzene	50.0	48.8	1.440	1.406	-2.3	NA	± 20 %	Average RF
Bromodichloromethane	50.0	49.4	0.4660	0.4602	-1.2	NA	± 20 %	Average RF
Bromoform	50.0	49.7	0.2458	0.2441	-0.7	NA	± 20 %	Average RF
Chlorobenzene	50.0	48.7	0.9166	0.8919	-2.7	NA	± 20 %	Average RF
Chloroform	50.0	48.8	1.049	1.024	-2.4	NA	± 20 %	Average RF
Chloromethane	50.0	53.9	1.118	1.205	7.8	NA	± 20 %	Average RF
Dibromochloromethane	50.0	48.7	0.3859	0.3755	-2.7	NA	± 20 %	Average RF
Dichlorofluoromethane (CFC 21)	50.0	54.8	1.436	1.575	9.7	NA	± 20 %	Average RF
Dichloromethane	50.0	49.3	0.6951	0.6850	-1.4	NA	± 20 %	Average RF
Ethylbenzene	50.0	45.5	1.608	1.462	-9.1	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	49.8	1.847	1.840	-0.4	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	45.0	0.3262	0.2934	-10.0	NA	± 20 %	Average RF
Toluene	50.0	47.8	1.479	1.415	-4.3	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	47.0	0.3311	0.3113	-6.0	NA	± 20 %	Average RF
m,p-Xylenes	100	92.3	0.5809	0.5360	-7.7	NA	± 20 %	Average RF
o-Xylene	50.0	47.1	0.5852	0.5517	-5.7	NA	± 20 %	Average RF
1,2-Dichloro-1,1,2-trifluoroethane (CFC	50.0	57.6	0.8761	1.009	15.1	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	49.3	0.4853	0.4786	-1.4	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	50.0	0.3338	0.3337	0.0	NA	± 20 %	Average RF
Toluene-d8	50.0	51.5	1.294	1.332	2.9	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

#	File Location	Acquisition Date	#	File Location	Acquisition Date
01	I:\ACQUDATA\MSVOA7\DATA\052914\K9081	5/29/14 13:54	02	I:\ACQUDATA\MSVOA7\DATA\052914\K9082	5/29/14 14:31
03	I:\ACQUDATA\MSVOA7\DATA\052914\K9083	5/29/14 15:09	04	I:\ACQUDATA\MSVOA7\DATA\052914\K9084	5/29/14 15:47
05	I:\ACQUDATA\MSVOA7\DATA\052914\K9085	5/29/14 16:24	06	I:\ACQUDATA\MSVOA7\DATA\052914\K9086	5/29/14 17:02
07	I:\ACQUDATA\MSVOA7\DATA\052914\K9087	5/29/14 17:39	08	I:\ACQUDATA\MSVOA7\DATA\052914\K9088	5/29/14 18:16

Analyte

1,1,1-Trichloroethane (TCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.7839	02	5.000	0.7509	03	10.000	0.7284	04	20.000	0.6127
05	50.000	0.6606	06	100.000	0.6772	07	150.000	0.7145	08	200.000	0.7320

1,1,2-Trichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3874	02	5.000	0.3495	03	10.000	0.3341	04	20.000	0.3176
05	50.000	0.3329	06	100.000	0.3427	07	150.000	0.3360	08	200.000	0.3308

1,1,2-Trichlorotrifluoroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5947	02	5.000	0.5106	03	10.000	0.4949	04	20.000	0.4003
05	50.000	0.4170	06	100.000	0.4406	07	150.000	0.5023	08	200.000	0.4958

1,1-Dichloroethene (1,1-DCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4287	02	5.000	0.4345	03	10.000	0.4227	04	20.000	0.4036
05	50.000	0.4110	06	100.000	0.3927	07	150.000	0.4180	08	200.000	0.4236

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5482	02	5.000	0.5030	03	10.000	0.5071	04	20.000	0.4618
05	50.000	0.4971	06	100.000	0.4830	07	150.000	0.4706	08	200.000	0.4654

2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9132	02	5.000	0.8478	03	10.000	0.8259	04	20.000	0.8460
05	50.000	0.8658	06	100.000	0.7603	07	150.000	0.8231	08	200.000	0.8096

2-Butanone (MEK)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8520	02	5.000	0.8114	03	10.000	0.8282	04	20.000	0.6699
05	50.000	0.7465	06	100.000	0.7626	07	150.000	0.7310	08	200.000	0.7234

Isopropanol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20.000	0.09561	02	100.000	0.08746	03	200.000	0.08773	04	400.000	0.08729
05	1000.000	0.08880	06	2000.000	0.08603	07	3000.000	0.08103	08	4000.000	0.07884

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Acetone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7647	03	10.000	0.7579	04	20.000	0.5490	05	50.000	0.5746
06	100.000	0.5454	07	150.000	0.5177	08	200.000	0.5047			

Benzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.596	02	5.000	1.535	03	10.000	1.466	04	20.000	1.318
05	50.000	1.382	06	100.000	1.388	07	150.000	1.402	08	200.000	1.431

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4916	02	5.000	0.4571	03	10.000	0.4730	04	20.000	0.4355
05	50.000	0.4643	06	100.000	0.4670	07	150.000	0.4646	08	200.000	0.4746

Bromoform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2226	02	5.000	0.2401	03	10.000	0.2401	04	20.000	0.2204
05	50.000	0.2512	06	100.000	0.2653	07	150.000	0.2634	08	200.000	0.2633

Chlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.046	02	5.000	0.9396	03	10.000	0.9567	04	20.000	0.7815
05	50.000	0.8522	06	100.000	0.8984	07	150.000	0.9364	08	200.000	0.9222

Chloroform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.206	02	5.000	1.120	03	10.000	1.016	04	20.000	1.017
05	50.000	1.023	06	100.000	0.9987	07	150.000	1.003	08	200.000	1.006

Chloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.395	02	5.000	1.091	03	10.000	1.020	04	20.000	1.109
05	50.000	1.074	06	100.000	1.055	07	150.000	1.105	08	200.000	1.093

Dibromochloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4190	02	5.000	0.3982	03	10.000	0.3683	04	20.000	0.3414
05	50.000	0.3785	06	100.000	0.3915	07	150.000	0.3938	08	200.000	0.3963

Dichlorofluoromethane (CFC 21)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.487	02	5.000	1.460	03	10.000	1.400	04	20.000	1.420
05	50.000	1.497	06	100.000	1.357	07	150.000	1.436	08	200.000	1.432

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Dichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7799	03	10.000	0.7323	04	20.000	0.6584	05	50.000	0.6868
06	100.000	0.6674	07	150.000	0.6625	08	200.000	0.6782			

Ethylbenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.782	02	5.000	1.803	03	10.000	1.701	04	20.000	1.348
05	50.000	1.426	06	100.000	1.560	07	150.000	1.647	08	200.000	1.599

Methyl tert-Butyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.982	02	5.000	1.860	03	10.000	1.863	04	20.000	1.734
05	50.000	1.877	06	100.000	1.843	07	150.000	1.812	08	200.000	1.801

Tetrachloroethene (PCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4071	02	5.000	0.3694	03	10.000	0.3436	04	20.000	0.2614
05	50.000	0.2735	06	100.000	0.3000	07	150.000	0.3294	08	200.000	0.3249

Toluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.670	02	5.000	1.584	03	10.000	1.537	04	20.000	1.282
05	50.000	1.376	06	100.000	1.432	07	150.000	1.484	08	200.000	1.468

Trichloroethene (TCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4316	02	5.000	0.3414	03	10.000	0.3265	04	20.000	0.2828
05	50.000	0.2997	06	100.000	0.3152	07	150.000	0.3251	08	200.000	0.3265

m,p-Xylenes

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.6838	02	10.000	0.6233	03	20.000	0.6206	04	40.000	0.4834
05	100.000	0.5118	06	200.000	0.5540	07	300.000	0.5902	08	400.000	0.5802

o-Xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.6621	02	5.000	0.6233	03	10.000	0.6266	04	20.000	0.4869
05	50.000	0.5256	06	100.000	0.5698	07	150.000	0.5983	08	200.000	0.5890

1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9808	02	5.000	0.8778	03	10.000	0.8576	04	20.000	0.8867
05	50.000	0.9405	06	100.000	0.7860	07	150.000	0.8413	08	200.000	0.8382

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	50.000	0.4833	07	50.000	0.4775	02	50.000	0.4893	04	50.000	0.4931
01	50.000	0.4940	03	50.000	0.4875	08	50.000	0.4756	05	50.000	0.4819

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	50.000	0.3361	06	50.000	0.3295	07	50.000	0.3245	02	50.000	0.3390
04	50.000	0.3406	01	50.000	0.3368	03	50.000	0.3344	08	50.000	0.3299

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	50.000	1.289	03	50.000	1.291	01	50.000	1.307	04	50.000	1.306
02	50.000	1.305	07	50.000	1.289	06	50.000	1.276	05	50.000	1.291

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

		Calibration Evaluation					RRF Evaluation		
Analyte Name	**Compound Type**	**Fit Type**	**Eval.**	**Eval. Result**	**Q**	**Control Criteria**	**Average RRF**	**Q**	**Minimum RRF**
1,1,1-Trichloroethane (TCA)	TRG	Average RF	% RSD	7.7		≤ 20	0.7075		0.100
1,1,2-Trichloroethane	TRG	Average RF	% RSD	6.1		≤ 20	0.3414		0.100
1,1,2-Trichlorotrifluoroethane	TRG	Average RF	% RSD	12.9		≤ 20	0.4820		0.100
1,1-Dichloroethene (1,1-DCE)	TRG	Average RF	% RSD	3.3		≤ 20	0.4169		0.100
1,2-Dichloroethane	TRG	Average RF	% RSD	5.8		≤ 20	0.4920		0.100
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	TRG	Average RF	% RSD	5.3		≤ 20	0.8365		
2-Butanone (MEK)	TRG	Average RF	% RSD	8.0		≤ 20	0.7656		0.05
Isopropanol	TRG	Average RF	% RSD	5.9		≤ 20	0.08660		
Acetone	TRG	Average RF	% RSD	18.5		≤ 20	0.6020		0.05
Benzene	TRG	Average RF	% RSD	6.2		≤ 20	1.440		0.500
Bromodichloromethane	TRG	Average RF	% RSD	3.4		≤ 20	0.4660		0.200
Bromoform	TRG	Average RF	% RSD	7.3		≤ 20	0.2458		0.100
Chlorobenzene	TRG	Average RF	% RSD	8.4		≤ 20	0.9166		0.500
Chloroform	TRG	Average RF	% RSD	7.1		≤ 20	1.049		0.200
Chloromethane	TRG	Average RF	% RSD	10.4		≤ 20	1.118		0.100
Dibromochloromethane	TRG	Average RF	% RSD	6.0		≤ 20	0.3859		0.100
Dichlorofluoromethane (CFC 21)	TRG	Average RF	% RSD	3.2		≤ 20	1.436		
Dichloromethane	TRG	Average RF	% RSD	6.5		≤ 20	0.6951		0.100
Ethylbenzene	TRG	Average RF	% RSD	10.0		≤ 20	1.608		0.100
Methyl tert-Butyl Ether	TRG	Average RF	% RSD	3.9		≤ 20	1.847		0.100
Tetrachloroethene (PCE)	TRG	Average RF	% RSD	14.8		≤ 20	0.3262		0.200
Toluene	TRG	Average RF	% RSD	8.2		≤ 20	1.479		0.400
Trichloroethene (TCE)	TRG	Average RF	% RSD	13.4		≤ 20	0.3311		0.200
m,p-Xylenes	TRG	Average RF	% RSD	11.1		≤ 20	0.5809		0.100
o-Xylene	TRG	Average RF	% RSD	9.7		≤ 20	0.5852		0.300
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	TRG	Average RF	% RSD	7.0		≤ 20	0.8761		
4-Bromofluorobenzene	SURR	Average RF	% RSD	1.4		≤ 20	0.4853		
Dibromofluoromethane	SURR	Average RF	% RSD	1.6		≤ 20	0.3338		
Toluene-d8	SURR	Average RF	% RSD	0.8		≤ 20	1.294		

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B
Sample Matrix: Water

Service Request: R1404590
Date Analyzed: 6/24/14 12:21

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1407111-04
Instrument ID: R-MS-12
File ID: I:\ACQUDATA\MSVOA12\DATA\062414\M6818.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1407111-03	I:\ACQUDATA\MSVOA12\DATA\062414\M6816.D\	6/24/14 11:16
1406130700 200-SB-8	R1404590-030	I:\ACQUDATA\MSVOA12\DATA\062414\M6823.D\	6/24/14 15:03
1406130720 200-SB-8	R1404590-031	I:\ACQUDATA\MSVOA12\DATA\062414\M6824.D\	6/24/14 15:35
1406141200 200-SB-6	R1404590-034	I:\ACQUDATA\MSVOA12\DATA\062414\M6825.D\	6/24/14 16:08
1406141650 200-SB-6	R1404590-035	I:\ACQUDATA\MSVOA12\DATA\062414\M6826.D\	6/24/14 16:40
1406151050 200-SB-5	R1404590-037	I:\ACQUDATA\MSVOA12\DATA\062414\M6827.D\	6/24/14 17:13
1406151110 200-SB-5	R1404590-038	I:\ACQUDATA\MSVOA12\DATA\062414\M6828.D\	6/24/14 17:45

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Date Analyzed: 6/24/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\062414\M6815.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 398611
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1-Trichloroethane (TCA)	50.0	57.2	0.7425	0.8498	14.4	NA	± 20 %	Average RF
1,1,2-Trichloroethane	50.0	50.9	0.2285	0.2326	1.8	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	53.4	0.4199	0.4487	6.8	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	49.9	0.3927	0.3922	-0.1	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	60.7	0.3640	0.4418	21.4 *	NA	± 20 %	Average RF
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	50.0	56.1	0.6622	0.7433	12.2	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	69.1	0.1412	0.1953	38.2 *	NA	± 20 %	Average RF
Isopropanol	1000	1430	0.01880	0.02684	42.8 *	NA	± 20 %	Average RF
Acetone	50.0	58.7	0.09881	0.1159	17.3	NA	± 20 %	Average RF
Benzene	50.0	52.8	1.285	1.356	5.5	NA	± 20 %	Average RF
Bromodichloromethane	50.0	53.3	0.3973	0.4231	6.5	NA	± 20 %	Average RF
Bromoform	50.0	45.2	0.3115	0.2814	-9.7	NA	± 20 %	Average RF
Chlorobenzene	50.0	48.0	0.9545	0.9159	-4.0	NA	± 20 %	Average RF
Chloroform	50.0	57.9	0.8431	0.9760	15.8	NA	± 20 %	Average RF
Chloromethane	50.0	51.8	0.5810	0.6024	3.7	NA	± 20 %	Average RF
Dibromochloromethane	50.0	49.7	0.2867	0.2851	-0.5	NA	± 20 %	Average RF
Dichlorofluoromethane (CFC 21)	50.0	55.1	0.8818	0.9713	10.1	NA	± 20 %	Average RF
Dichloromethane	50.0	50.9	0.5147	0.5240	1.8	NA	± 20 %	Average RF
Ethylbenzene	50.0	49.0	0.5238	0.5138	-1.9	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	61.6	1.152	1.418	23.1 *	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	45.8	0.2709	0.2483	-8.3	NA	± 20 %	Average RF
Toluene	50.0	50.5	1.361	1.373	0.9	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	46.0	0.3273	0.3009	-8.1	NA	± 20 %	Average RF
m,p-Xylenes	100	97.4	0.6427	0.6258	-2.6	NA	± 20 %	Average RF
o-Xylene	50.0	47.2	0.6461	0.6104	-5.5	NA	± 20 %	Average RF
1,2-Dichloro-1,1,2-trifluoroethane (CFC	50.0	62.2	0.5809	0.7230	24.5 *	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	53.9	0.4652	0.5010	7.7	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	53.9	0.2865	0.3087	7.8	NA	± 20 %	Average RF
Toluene-d8	50.0	51.9	1.241	1.288	3.8	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Calibration Date: 6/13/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400048
Instrument ID: R-MS-12

Signal ID: 1

#	File Location	Acquisition Date	#	File Location	Acquisition Date
01	I:\ACQUDATA\msvoa12\Data\061314\M6499.D	6/13/14 14:37	02	I:\ACQUDATA\msvoa12\Data\061314\M6500.D	6/13/14 15:09
03	I:\ACQUDATA\msvoa12\Data\061314\M6501.D	6/13/14 15:42	04	I:\ACQUDATA\msvoa12\Data\061314\M6502.D	6/13/14 16:14
05	I:\ACQUDATA\msvoa12\Data\061314\M6503.D	6/13/14 16:46	06	I:\ACQUDATA\msvoa12\Data\061314\M6504.D	6/13/14 17:19
07	I:\ACQUDATA\msvoa12\Data\061314\M6505.D	6/13/14 17:51	08	I:\ACQUDATA\msvoa12\Data\061314\M6506.D	6/13/14 18:23

Analyte

1,1,1-Trichloroethane (TCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.8400	02	1.000	0.7811	03	2.000	0.7033	04	5.000	0.7164
05	20.000	0.7341	06	50.000	0.7130	07	100.000	0.7383	08	200.000	0.7142

1,1,2-Trichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.2495	02	1.000	0.2274	03	2.000	0.2259	04	5.000	0.2146
05	20.000	0.2283	06	50.000	0.2282	07	100.000	0.2324	08	200.000	0.2219

1,1,2-Trichlorotrifluoroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.4232	02	1.000	0.4190	03	2.000	0.4185	04	5.000	0.4074
05	20.000	0.4226	06	50.000	0.4234	07	100.000	0.4310	08	200.000	0.4145

1,1-Dichloroethene (1,1-DCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.5009	02	1.000	0.3821	03	2.000	0.3826	04	5.000	0.3610
05	20.000	0.3808	06	50.000	0.3670	07	100.000	0.3857	08	200.000	0.3818

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.3818	02	1.000	0.3685	03	2.000	0.3686	04	5.000	0.3675
05	20.000	0.3660	06	50.000	0.3534	07	100.000	0.3616	08	200.000	0.3446

2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.7197	02	1.000	0.6870	03	2.000	0.6695	04	5.000	0.6507
05	20.000	0.6188	06	50.000	0.6375	07	100.000	0.6621	08	200.000	0.6524

2-Butanone (MEK)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
03	2.000	0.1170	04	5.000	0.1543	05	20.000	0.1497	06	50.000	0.1438
07	100.000	0.1408	08	200.000	0.1418						

Isopropanol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	20.000	0.01773	03	40.000	0.01797	04	100.000	0.01950	05	400.000	0.02033
06	1000.000	0.01938	07	2000.000	0.01891	08	4000.000	0.01777			

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Calibration Date: 6/13/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400048
Instrument ID: R-MS-12

Signal ID: 1

Analyte

Acetone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
04	5.000	0.1005	05	20.000	0.09856	06	50.000	0.09745	07	100.000	0.09889
08	200.000	0.09867									

Benzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	1.299	02	1.000	1.391	03	2.000	1.275	04	5.000	1.244
05	20.000	1.283	06	50.000	1.271	07	100.000	1.290	08	200.000	1.229

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.4049	02	1.000	0.4235	03	2.000	0.3956	04	5.000	0.3912
05	20.000	0.3879	06	50.000	0.3921	07	100.000	0.3980	08	200.000	0.3850

Bromoform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.3326	02	1.000	0.2918	03	2.000	0.3115	04	5.000	0.2982
05	20.000	0.3071	06	50.000	0.3071	07	100.000	0.3194	08	200.000	0.3245

Chlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	1.007	02	1.000	0.9796	03	2.000	0.9358	04	5.000	0.9386
05	20.000	0.9430	06	50.000	0.9445	07	100.000	0.9723	08	200.000	0.9149

Chloroform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.9668	02	1.000	0.8691	03	2.000	0.8379	04	5.000	0.8166
05	20.000	0.8347	06	50.000	0.8027	07	100.000	0.8201	08	200.000	0.7968

Chloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.5520	02	1.000	0.6137	03	2.000	0.5712	04	5.000	0.5457
05	20.000	0.6043	06	50.000	0.5781	07	100.000	0.5954	08	200.000	0.5879

Dibromochloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.3049	02	1.000	0.2757	03	2.000	0.2533	04	5.000	0.2829
05	20.000	0.2905	06	50.000	0.2927	07	100.000	0.3011	08	200.000	0.2927

Dichlorofluoromethane (CFC 21)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.9613	02	1.000	0.9717	03	2.000	0.9290	04	5.000	0.8554
05	20.000	0.8316	06	50.000	0.8384	07	100.000	0.8551	08	200.000	0.8118

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Calibration Date: 6/13/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400048
Instrument ID: R-MS-12

Signal ID: 1

Analyte

Dichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.6919	02	1.000	0.5707	03	2.000	0.5025	04	5.000	0.4764
05	20.000	0.4732	06	50.000	0.4669	07	100.000	0.4734	08	200.000	0.4626

Ethylbenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.4995	02	1.000	0.5334	03	2.000	0.5167	04	5.000	0.5251
05	20.000	0.5183	06	50.000	0.5200	07	100.000	0.5484	08	200.000	0.5288

Methyl tert-Butyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	1.116	02	1.000	1.112	03	2.000	1.113	04	5.000	1.183
05	20.000	1.221	06	50.000	1.179	07	100.000	1.173	08	200.000	1.117

Tetrachloroethene (PCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.2870	02	1.000	0.2674	03	2.000	0.2711	04	5.000	0.2539
05	20.000	0.2660	06	50.000	0.2658	07	100.000	0.2820	08	200.000	0.2739

Toluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	1.407	02	1.000	1.409	03	2.000	1.384	04	5.000	1.363
05	20.000	1.366	06	50.000	1.349	07	100.000	1.368	08	200.000	1.242

Trichloroethene (TCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.3248	02	1.000	0.3536	03	2.000	0.3395	04	5.000	0.3156
05	20.000	0.3214	06	50.000	0.3207	07	100.000	0.3281	08	200.000	0.3146

m,p-Xylenes

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.6771	02	2.000	0.6179	03	4.000	0.6544	04	10.000	0.6366
05	40.000	0.6468	06	100.000	0.6410	07	200.000	0.6619	08	400.000	0.6063

o-Xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.6651	02	1.000	0.6441	03	2.000	0.6407	04	5.000	0.6392
05	20.000	0.6310	06	50.000	0.6402	07	100.000	0.6681	08	200.000	0.6403

1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.500	0.5884	02	1.000	0.5671	03	2.000	0.5884	04	5.000	0.5918
05	20.000	0.5717	06	50.000	0.5819	07	100.000	0.5802	08	200.000	0.5779

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Calibration Date: 6/13/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400048
Instrument ID: R-MS-12

Signal ID: 1

Analyte

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
07	50.000	0.4715	05	50.000	0.4657	03	50.000	0.4568	01	50.000	0.4583
08	50.000	0.4740	06	50.000	0.4712	04	50.000	0.4618	02	50.000	0.4626

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	50.000	0.2875	07	50.000	0.2869	04	50.000	0.2877	06	50.000	0.2870
08	50.000	0.2876	01	50.000	0.2858	03	50.000	0.2826	05	50.000	0.2866

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
07	50.000	1.252	02	50.000	1.239	04	50.000	1.238	06	50.000	1.244
08	50.000	1.251	01	50.000	1.240	03	50.000	1.231	05	50.000	1.233

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404590
Calibration Date: 6/13/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400048
Instrument ID: R-MS-12

Signal ID: 1

		Calibration Evaluation					RRF Evaluation		
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
1,1,1-Trichloroethane (TCA)	TRG	Average RF	% RSD	6.2		≤ 20	0.7425		0.100
1,1,2-Trichloroethane	TRG	Average RF	% RSD	4.4		≤ 20	0.2285		0.100
1,1,2-Trichlorotrifluoroethane	TRG	Average RF	% RSD	1.7		≤ 20	0.4199		0.100
1,1-Dichloroethene (1,1-DCE)	TRG	Average RF	% RSD	11.3		≤ 20	0.3927		0.100
1,2-Dichloroethane	TRG	Average RF	% RSD	3.1		≤ 20	0.3640		0.100
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	TRG	Average RF	% RSD	4.7		≤ 20	0.6622		
2-Butanone (MEK)	TRG	Average RF	% RSD	9.2		≤ 20	0.1412		0.05
Isopropanol	TRG	Average RF	% RSD	5.4		≤ 20	0.01880		
Acetone	TRG	Average RF	% RSD	1.1		≤ 20	0.09881		0.05
Benzene	TRG	Average RF	% RSD	3.8		≤ 20	1.285		0.500
Bromodichloromethane	TRG	Average RF	% RSD	3.1		≤ 20	0.3973		0.200
Bromoform	TRG	Average RF	% RSD	4.3		≤ 20	0.3115		0.100
Chlorobenzene	TRG	Average RF	% RSD	3.1		≤ 20	0.9545		0.500
Chloroform	TRG	Average RF	% RSD	6.5		≤ 20	0.8431		0.200
Chloromethane	TRG	Average RF	% RSD	4.1		≤ 20	0.5810		0.100
Dibromochloromethane	TRG	Average RF	% RSD	5.7		≤ 20	0.2867		0.100
Dichlorofluoromethane (CFC 21)	TRG	Average RF	% RSD	7.1		≤ 20	0.8818		
Dichloromethane	TRG	Average RF	% RSD	15.5		≤ 20	0.5147		0.100
Ethylbenzene	TRG	Average RF	% RSD	2.7		≤ 20	0.5238		0.100
Methyl tert-Butyl Ether	TRG	Average RF	% RSD	3.7		≤ 20	1.152		0.100
Tetrachloroethene (PCE)	TRG	Average RF	% RSD	3.8		≤ 20	0.2709		0.200
Toluene	TRG	Average RF	% RSD	3.9		≤ 20	1.361		0.400
Trichloroethene (TCE)	TRG	Average RF	% RSD	4.0		≤ 20	0.3273		0.200
m,p-Xylenes	TRG	Average RF	% RSD	3.6		≤ 20	0.6427		0.100
o-Xylene	TRG	Average RF	% RSD	2.0		≤ 20	0.6461		0.300
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	TRG	Average RF	% RSD	1.5		≤ 20	0.5809		
4-Bromofluorobenzene	SURR	Average RF	% RSD	1.4		≤ 20	0.4652		
Dibromofluoromethane	SURR	Average RF	% RSD	0.6		≤ 20	0.2865		
Toluene-d8	SURR	Average RF	% RSD	0.6		≤ 20	1.241		

Analysis: 8260D Waters Analyst: Fluest Tune Method: W061314
Date: ~~6/25/14~~ 6/24/14 (KR) Data Path: j:\acqudata\msvoa 12\ 062514 Run Method: ↓
Instr. 12 LIMS Run#: 398611 (LL), 398619

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
1	~~TUNE (carbon 15/5m)~~ HMH		HMH 6 PASES STD						M6813		
2	TUNE (carbon 15/5m)		RQ1407111-01	Q7127-01					M6814	YT	(auto) 10:13
3	CCV		02	02					M6815	YC	Hexcep. ↑ (B)
4	LCS		(LL) 03	03					M6816	YQ	THF ↑
2	VBLK		—	—					M6817	(N)	not 40
3	↓		04	04					M6818	YB	Bromom + 1,2,4TCB = 5
4	R1404559-001	1.0		[redacted]	16676	3	1	<2	M6819	Y	
5	002	1.0					1	<2	M6820	Y	
6	003	1.0					1	<2	M6821	Y	
7	004	1.0					1	<2	M6822	Y	
8	R1404590-030	1.0		[redacted]	11813	3	1	<2	M6823	Y	
9	031	1.0					1	<2	M6824	Y	
10	034	1.0					1	<2	M6825	Y	
11	036	1.0					1	<2	M6826	Y	
12	037	1.0					1	<2	M6827	Y	
13	038	1.0					1	<2	M6828	Y	
14	R1404658-001	1.0		[redacted]	11423	4	2	<2	M6829	Y	
15	R1404965-003	1.0					2	<2	M6830	Y	
16	002	2.0	25/50mls				2	<2	M6831	(Y)	DL
17	R1404656-014	4.0	12.5/50mls				2	<2	M6832	(Y)	DL
18	004	25	2/50mls				1	<2	M6833	(Y)	not 50
19	MS 004	25	RQ1407111-05				1	<2	M6834	YQ	(Run QL) (QC spiked 10.6ml! NJ's)
20	MSD 004	25	06				1	<2	M6835	YQ	↓ 21:32 ✓
21	HMH STD							—	M6836	—	
22	BLK							—	M6837	—	

EOD
KR 6/24/14

All samples = 10 mL + 1 uL combined IS/Surr. 10 mL purged

50D Primary HBO : 71034
Primary OCC : 71035
Primary HSL : 71505 5ml → 50mls = CCV
Primary Fr+ : 71500
Primary TG : 71498

20D Secondary Fr+ : 71581 -5ml
50D Secondary HBO : 71564
Secondary OCC : 71485 2ml
Secondary HSL : 71067
Secondary TG : 71484
50mls = LCS

- 10.6ml
4.2ml
42ml vial = MLD

Combined IS/Surr 50D : 71724
Surrogate :
Internal Std :

Runlog-MSVOAr2 9/20/13
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Analysis: 8260-soil
Date: 06/19/14 AM
Instr. MS #7

Analyst: Ben Wojtkiewicz
Data Path: j:\acqudata\msvoa7\DATA\061914

Tune Method: T052914.M
Run Method: ~~T~~ S052914.M
LIMS Run#: 397948

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
1	Blank	-				-	1	-	K9487	-	
2	↓	-				-	2	-	88	-	
3	Tune	-				-	1	-	89	Y	
4	CCV	-				-	1	-	90	Y	
5	LCS	-				-	1	-	91	Y	
6	MBlank	-				-	1	-	92	N	apr for clo
7	MBlank	-				-	2	-	93	Y	
8	R1404590-012	1		[redacted]	11813	3	1	NA	94	Y	
9	-013	1					1		95	Y	
10	-025	1					1		96	Y	
11	-026	1					1		97	Y	
12	-027	1					1		98	Y	
13	-028	1					1		99	Y	
14	-029	1					1		500	Y	
15	R1404676-005	0.69	10063	[redacted]	6702	2	1		01	Y	ISL, report + ppr as RA
16	-003	0.62	10025				1		02	Y	
17	-004	0.66	10119				1		03	N	ISL, ppr
18	-002	0.64	10023				1		04	Y	
19	-001	0.55	10037				1		05	Y	
20	R1404590-029MS	1		[redacted]	11813	3	2		06	N	Archon error, run QC only
21	-029DMS	1					3		07	N	Archon error, vials not run
22	Blank	-				-	1	-	08		
23	↓	-				-	2	-	09		

BW 06/20/14

All samples = 5 mL + 1 uL combined IS/Surr. 10 mL purged

500 Primary TG : 71499 5mL
Primary MBO : 71034
Primary MSL : 71505
Primary Frz : 71500
Primary :

50mL = CCV

500 Secondary TG : 71184 2mL
Secondary MBO : 71584
Secondary MSL : 71067
250 Secondary Frz : 71581 5mL
Secondary :

50g = LCS

5mL → 12.5mL

50g = MS, DMS

Combined IS/Surr 250 : 71597
Surrogate : -
Internal Std : -

Response Factor Report 5973D

Method Path : I:\ACQUDATA\5973D\METHODS\
Method File : 82700619D.M
Title : 8270 BNA ANALYSIS
Last Update : Fri Jun 20 07:39:36 2014
Response Via : Initial Calibration

Calibration Files
5 =AU902.D 10 =AU903.D 50 =AU904.D 80 =AU905.D 100 =AU906.D 120 =AU907.D 160 =AU908.D

		Compound	5	10	50	80	100	120	160	Avg	%RSD
1)	IR	d4-1,4-Dichloroben...	----------ISTD----------								
2)	TM	Pyridine		1.290	1.262	1.352	1.281	1.297	1.296		2.62
3)	TM	N-Nitrosodimet...	0.550	0.647	0.687	0.695	0.737	0.725	0.711	0.679	9.41
4)	S	SURR1,2-FLUORO...	1.161	1.325	1.315	1.354	1.413	1.378	1.409	1.336	6.43
5)	TM	Benzaldehyde		0.533	0.404	0.420	0.387	0.332	0.415		17.79
6)	TM	Aniline	1.820	1.892	1.515	1.346	1.406	1.259	1.273	1.501	17.15
7)	S	SURR2,PHENOL-D6	1.407	1.454	1.530	1.587	1.668	1.577	1.622	1.549	5.96
8)	TMC	Phenol	1.361	1.498	1.638	1.664	1.743	1.652	1.746	1.615	8.60
9)	TM	bis(2-Clethyl)...	1.076	1.153	1.171	1.175	1.248	1.172	1.147	1.163	4.36
10)	TM	2-Chlorophenol	1.320	1.326	1.387	1.380	1.502	1.402	1.456	1.396	4.71
11)	TM	1,3-Diclbenzene	1.534	1.565	1.540	1.543	1.655	1.594	1.587	1.574	2.71
12)	TMC	1,4-Dichlorobe...	1.579	1.652	1.597	1.614	1.701	1.633	1.629	1.629	2.44
13)	TM	1,2-Diclbenzene	1.533	1.480	1.526	1.524	1.620	1.550	1.545	1.540	2.74
14)	TM	Benzyl Alcohol	0.904	0.922	1.024	1.048	1.109	1.046	1.066	1.017	7.49
15)	TM	2,2'-oxybis(1-...	1.539	1.551	1.604	1.636	1.727	1.638	1.684	1.625	4.16
16)	TM	2-Methylphenol	1.017	1.182	1.275	1.281	1.352	1.284	1.334	1.246	9.20
17)	TM	Acetophenone	1.475	1.652	1.705	1.711	1.869	1.772	1.810	1.713	7.45
18)	TMP	N-Nitroso-Di-n...	0.860	0.868	0.918	0.915	0.976	0.942	0.995	0.925	5.48
19)	TM	Hexachloroethane	0.653	0.586	0.587	0.596	0.628	0.616	0.620	0.612	4.02
20)	TM	3+4-Methylphenol	1.136	1.167	1.316	1.343	1.414	1.357	1.419	1.307	8.64
21)	T	1-Methyl-2-pyr...		0.817	0.898	0.921	0.983	0.907	0.951	0.913	6.19
22)	IR	d8-Naphthalene	----------ISTD----------								
23)	S	SURR4,NITROBEN...	0.339	0.374	0.390	0.398	0.398	0.353	0.347	0.371	6.67
24)	TM	Nitrobenzene	0.332	0.345	0.348	0.355	0.354	0.354	0.358	0.349	2.54
25)	TM	Isophorone	0.584	0.581	0.629	0.635	0.644	0.641	0.640	0.622	4.46
26)	TCM	2-Nitrophenol	0.164	0.181	0.195	0.198	0.202	0.203	0.201	0.192	7.53
27)	TM	Benzoic Acid		0.205	0.281	0.310	0.318	0.316	0.334	0.294	15.99
28)	TM	2,4-Dimethylph...	0.273	0.318	0.339	0.350	0.355	0.345	0.358	0.334	8.96
29)	TM	bis(-2-Chloroe...	0.341	0.360	0.379	0.373	0.384	0.383	0.384	0.372	4.33
30)	TCM	2,4-Dichloroph...	0.241	0.284	0.318	0.322	0.334	0.316	0.337	0.308	11.08
31)	TM	1,2,4-Trichlor...	0.337	0.348	0.354	0.359	0.365	0.365	0.371	0.357	3.31
32)	TM	Naphthalene	1.000	1.044	1.069	1.068	1.086	1.079	1.092	1.063	2.99
33)	TM	4-Chloroaniline	0.379	0.415	0.402	0.391	0.396	0.370	0.356	0.387	5.18
34)	TCM	Hexachlorobuta...	0.191	0.198	0.206	0.211	0.211	0.210	0.214	0.206	4.01
35)	TMC	4-Chloro-3-met...	0.223	0.253	0.281	0.294	0.296	0.288	0.301	0.277	10.30
36)	TM	Caprolactam		0.101	0.099	0.102	0.103	0.104	0.083	0.099	7.86
37)	TM	2-Methylnaphth...	0.628	0.703	0.734	0.748	0.761	0.777	0.767	0.731	7.04

Method Path : I:\ACQUDATA\5973D\METHODS\
Method File : 82700619D.M

38)	TM	1-Methylnaphth...	0.594	0.654	0.677	0.678	0.694	0.700	0.704	0.672	5.69
39)	IR	d10-Acenaphthene	----------ISTD----------								
40)	TPM	Hexachlorocycl...	0.321	0.356	0.381	0.397	0.398	0.375	0.372	0.371	7.14
41)	TCM	2,4,6-Trichlor...	0.338	0.335	0.388	0.408	0.413	0.404	0.419	0.386	9.17
42)	TM	2,4,5-Trichlor...	0.357	0.379	0.381	0.405	0.403	0.401	0.414	0.391	5.06
43)	S	SURR5,2-FLUORO...	1.211	1.316	1.347	1.371	1.355	1.357	1.405	1.337	4.62
44)	TM	1,1'-Biphenyl	1.314	1.387	1.401	1.412	1.450	1.439	1.469	1.410	3.63
45)	TM	2-Chloronaphth...	1.053	1.064	1.119	1.148	1.151	1.159	1.170	1.123	4.20
46)	TM	2-Nitroaniline			0.294	0.310	0.307	0.303	0.300	0.303	2.09
47)	TM	Acenaphthylene	1.658	1.706	1.786	1.788	1.815	1.774	1.806	1.762	3.29
48)	TM	Dimethyl phtha...	1.147	1.185	1.253	1.222	1.215	1.194	1.201	1.202	2.74
49)	TM	2,6-Dinitrotol...	0.221	0.250	0.276	0.291	0.285	0.276	0.272	0.267	8.94
50)	TMC	Acenaphthene	1.132	1.134	1.167	1.208	1.222	1.195	1.235	1.184	3.48
51)	TM	3-Nitroaniline			0.279	0.298	0.300	0.298	0.308	0.297	3.54
52)	TPM	2,4-Dinitrophenol			0.111	0.143	0.154	0.156	0.178	0.149	16.41
53)	TM	Dibenzofuran	1.549	1.628	1.666	1.724	1.752	1.710	1.746	1.682	4.37
54)	TM	2,4-Dinitrotol...	0.256	0.279	0.347	0.361	0.360	0.376	0.383	0.337	14.67
55)	TMP	4-Nitrophenol			0.185	0.212	0.222	0.214	0.229	0.213	7.93
56)	TM	Fluorene	1.225	1.311	1.361	1.389	1.418	1.363	1.374	1.349	4.72
57)	TM	4-Chlorophenyl...	0.621	0.659	0.664	0.703	0.701	0.688	0.687	0.675	4.34
58)	TM	Diethylphthalate	1.078	1.124	1.063	1.117	1.139	1.141	1.194	1.122	3.86
59)	TM	4-Nitroaniline			0.324	0.336	0.347	0.335	0.346	0.338	2.80
60)	S	SURR3,2,4,6-TR...	0.167	0.168	0.181	0.195	0.200	0.201	0.215	0.190	9.42
61)	IR	d10-Phenanthrene	----------ISTD----------								
62)	T	1-Phenyl-1(4-m...								0.000#	-1.00
63)	TM	4,6-Dinitro-2-...			0.127	0.141	0.146	0.144	0.153	0.142	6.77
64)	TM	1,2 Diphenylhy...	0.681	0.773	0.806	0.768	0.735	0.726	0.690	0.740	6.14
65)	TCM	N-Nitrosodiphe...	0.508	0.536	0.543	0.520	0.511	0.517	0.533	0.524	2.53
66)	TM	4-Bromophenyl-...	0.231	0.260	0.250	0.232	0.226	0.224	0.226	0.236	5.87
67)	T	1-Phenyl-1(2,4...								0.000#	-1.00
68)	TM	Hexachlorobenzene	0.256	0.263	0.282	0.268	0.257	0.260	0.263	0.264	3.35
69)	TM	Atrazine	0.073	0.074	0.073	0.056	0.052	0.047	0.042	0.060	22.79 avg
70)	TCM	Pentachlorophenol			0.126	0.148	0.147	0.153	0.165	0.148	9.57
71)	TM	Phenanthrene	1.077	1.100	1.069	1.095	1.095	1.121	1.130	1.098	1.98
72)	TM	Anthracene	0.984	1.084	1.150	1.192	1.175	1.184	1.194	1.138	6.83
73)	TM	Carbazole	0.934	1.011	1.121	1.137	1.139	1.126	1.123	1.084	7.38
74)	TM	Di-n-butylphth...	0.942	0.949	1.274	1.314	1.283	1.260	1.308	1.190	14.12
75)	TCM	Fluoranthene	1.059	1.041	1.359	1.389	1.408	1.378	1.370	1.286	12.62
76)	IR	d12-Chrysene	----------ISTD----------								
77)	TM	Benzidine			0.234	0.163	0.156	0.132	0.124	0.162	26.78 avg
78)	TM	Pyrene	1.082	1.046	1.156	1.164	1.214	1.196	1.210	1.152	5.65
79)	S	SURR6,TERPHENY...	0.745	0.757	0.786	0.795	0.811	0.811	0.839	0.792	4.13
80)	TM	Butyl benzyl p...	0.435	0.442	0.484	0.494	0.509	0.496	0.511	0.482	6.39
81)	TM	3,3'-Dichlorob...	0.346	0.371	0.383	0.371	0.380	0.366	0.366	0.369	3.27
82)	TM	Benzo(a)anthra...	1.089	1.146	1.158	1.153	1.182	1.184	1.191	1.158	2.99

Method Path : I:\ACQUDATA\5973D\METHODS\
Method File : 82700619D.M

83)	TM	Chrysene	1.080	1.117	1.126	1.155	1.179	1.178	1.199	1.148	3.67
84)	TM	bis(2-Ethylhex...	0.553	0.569	0.654	0.670	0.706	0.682	0.712	0.649	9.84
85)	IR	d12-Perylene	----------ISTD----------								
86)	TCM	Di-n-octyl pht...	0.762	0.854	1.077	1.155	1.170	1.161	1.243	1.060	17.08
87)	TM	Benzo(b)Fluora...	0.959	0.986	1.067	1.148	1.146	1.128	1.164	1.086	7.70
88)	TM	Benzo(k)fluora...	1.052	1.052	1.166	1.187	1.218	1.241	1.230	1.164	6.90
89)	TCM	Benzo(a)pyrene	0.947	0.951	1.078	1.104	1.134	1.139	1.154	1.072	8.20
90)	TM	Indeno(1,2,3-c...	0.940	0.945	1.058	1.065	1.081	1.071	1.072	1.033	6.02
91)	TM	Dibenz(a,h)ant...	0.910	0.983	1.097	1.123	1.115	1.115	1.127	1.067	8.02
92)	TM	Benzo(g,h,i)pe...	0.958	1.042	1.082	1.083	1.088	1.074	1.066	1.056	4.33

(#) = Out of Range

Data Path : I:\ACQUDATA\5973D\Data\061914\
Data File : AU905.D
Acq On : 19 Jun 2014 5:36 pm
Operator : Z.Miao
Sample : SSTD080
Misc : 80 PPM STD 8270/625
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 19 17:51:39 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon Jun 16 11:44:24 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	100	0.00
2	TM	Pyridine	1.296	1.262	2.6	100	0.00
3	TM	N-Nitrosodimethylamine	0.679	0.695	-2.4	100	0.00
4	S	SURR1,2-FLUOROPHENOL	1.336	1.354	-1.3	100	0.00
5	TM	Benzaldehyde	0.415	0.404	2.7	100	0.00
6	TM	Aniline	1.501	1.346	10.3	100	0.00
7	S	SURR2,PHENOL-D6	1.549	1.587	-2.5	100	0.00
8	TMC	Phenol	1.615	1.664	-3.0	100	0.00
9	TM	bis(2-Clethyl)Ether	1.163	1.175	-1.0	100	0.00
10	TM	2-Chlorophenol	1.396	1.380	1.1	100	0.00
11	TM	1,3-Diclbenzene	1.574	1.543	2.0	100	0.00
12	TMC	1,4-Dichlorobenzene	1.629	1.614	0.9	100	0.00
13	TM	1,2-Diclbenzene	1.540	1.524	1.0	100	0.00
14	TM	Benzyl Alcohol	1.017	1.048	-3.0	100	0.00
15	TM	2,2'-oxybis(1-Chloropropane	1.625	1.636	-0.7	100	0.00
16	TM	2-Methylphenol	1.246	1.281	-2.8	100	0.00
17	TM	Acetophenone	1.713	1.711	0.1	100	0.00
18	TMP	N-Nitroso-Di-n-propylamine	0.925	0.915	1.1	100	0.00
19	TM	Hexachloroethane	0.612	0.596	2.6	100	0.00
20	TM	3+4-Methylphenol	1.307	1.343	-2.8	100	0.00
21	T	1-Methyl-2-pyrrolidinone	0.913	0.921	-0.9	100	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	100	0.00
23	S	SURR4,NITROBENZENE-D5	0.371	0.398	-7.3	100	0.00
24	TM	Nitrobenzene	0.349	0.355	-1.7	100	0.00
25	TM	Isophorone	0.622	0.635	-2.1	100	0.00
26	TCM	2-Nitrophenol	0.192	0.198	-3.1	100	0.00
27	TM	Benzoic Acid	0.294	0.310	-5.4	100	0.00
28	TM	2,4-Dimethylphenol	0.334	0.350	-4.8	100	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.372	0.373	-0.3	100	0.00
30	TCM	2,4-Dichlorophenol	0.308	0.322	-4.5	100	0.00
31	TM	1,2,4-Trichlorobenzene	0.357	0.359	-0.6	100	0.00
32	TM	Naphthalene	1.063	1.068	-0.5	100	0.00
33	TM	4-Chloroaniline	0.387	0.391	-1.0	100	0.00
34	TCM	Hexachlorobutadiene	0.206	0.211	-2.4	100	0.00
35	TMC	4-Chloro-3-methylphenol	0.277	0.294	-6.1	100	0.00
36	TM	Caprolactam	0.099	0.102	-3.0	100	0.00
37	TM	2-Methylnaphthalene	0.731	0.748	-2.3	100	0.00
38	TM	1-Methylnaphthalene	0.672	0.678	-0.9	100	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	100	0.00
40	TPM	Hexachlorocyclopentadiene	0.371	0.397	-7.0	100	0.00
41	TCM	2,4,6-Trichlorophenol	0.386	0.408	-5.7	100	0.00
42	TM	2,4,5-Trichlorophenol	0.391	0.405	-3.6	100	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.337	1.371	-2.5	100	0.00
44	TM	1,1'-Biphenyl	1.410	1.412	-0.1	100	0.00
45	TM	2-Chloronaphthalene	1.123	1.148	-2.2	100	0.00

Data Path : I:\ACQUDATA\5973D\Data\061914\
Data File : AU905.D
Acq On : 19 Jun 2014 5:36 pm
Operator : Z.Miao
Sample : SSTD080
Misc : 80 PPM STD 8270/625
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 19 17:51:39 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon Jun 16 11:44:24 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
46	TM	2-Nitroaniline	0.303	0.310	-2.3	100	0.00
47	TM	Acenaphthylene	1.762	1.788	-1.5	100	0.00
48	TM	Dimethyl phthalate	1.202	1.222	-1.7	100	0.00
49	TM	2,6-Dinitrotoluene	0.267	0.291	-9.0	100	0.00
50	TMC	Acenaphthene	1.184	1.208	-2.0	100	0.00
51	TM	3-Nitroaniline	0.297	0.298	-0.3	100	0.00
52	TPM	2,4-Dinitrophenol	0.149	0.143	4.0	100	0.00
53	TM	Dibenzofuran	1.682	1.724	-2.5	100	0.00
54	TM	2,4-Dinitrotoluene	0.337	0.361	-7.1	100	0.00
55	TMP	4-Nitrophenol	0.213	0.212	0.5	100	0.00
56	TM	Fluorene	1.349	1.389	-3.0	100	0.00
57	TM	4-Chlorophenyl-phenylether	0.675	0.703	-4.1	100	0.00
58	TM	Diethylphthalate	1.122	1.117	0.4	100	0.00
59	TM	4-Nitroaniline	0.338	0.336	0.6	100	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.190	0.195	-2.6	100	0.00
61	IR	d10-Phenanthrene	1.000	1.000	0.0	100	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	0#	-11.45#
63	TM	4,6-Dinitro-2-methylphenol	0.142	0.141	0.7	100	0.00
64	TM	1,2 Diphenylhydrazine	0.740	0.768	-3.8	100	0.00
65	TCM	N-Nitrosodiphenylamine	0.524	0.520	0.8	100	0.00
66	TM	4-Bromophenyl-phenylether	0.236	0.232	1.7	100	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	100	0.00
68	TM	Hexachlorobenzene	0.264	0.268	-1.5	100	0.00
69	TM	Atrazine	0.060	0.056	6.7	100	0.00
70	TCM	Pentachlorophenol	0.148	0.148	0.0	100	0.00
71	TM	Phenanthrene	1.098	1.095	0.3	100	0.00
72	TM	Anthracene	1.138	1.192	-4.7	100	0.00
73	TM	Carbazole	1.084	1.137	-4.9	100	0.00
74	TM	Di-n-butylphthalate	1.190	1.314	-10.4	100	0.00
75	TCM	Fluoranthene	1.286	1.389	-8.0	100	0.00
76	IR	d12-Chrysene	1.000	1.000	0.0	100	0.00
77	TM	Benzidine	0.162	0.163	-0.6	100	0.00
78	TM	Pyrene	1.152	1.164	-1.0	100	0.00
79	S	SURR6,TERPHENYL-D14	0.792	0.795	-0.4	100	0.00
80	TM	Butyl benzyl phthalate	0.482	0.494	-2.5	100	0.00
81	TM	3,3'-Dichlorobenzidine	0.369	0.371	-0.5	100	0.00
82	TM	Benzo(a)anthracene	1.158	1.153	0.4	100	0.00
83	TM	Chrysene	1.148	1.155	-0.6	100	0.00
84	TM	bis(2-Ethylhexyl)phthalate	0.649	0.670	-3.2	100	0.00
85	IR	d12-Perylene	1.000	1.000	0.0	100	0.00
86	TCM	Di-n-octyl phthalate	1.060	1.155	-9.0	100	0.00
87	TM	Benzo(b)Fluoranthene	1.086	1.148	-5.7	100	0.00
88	TM	Benzo(k)fluoranthene	1.164	1.187	-2.0	100	0.00
89	TCM	Benzo(a)pyrene	1.072	1.104	-3.0	100	0.00

Data Path : I:\ACQUDATA\5973D\Data\061914\
Data File : AU905.D
Acq On : 19 Jun 2014 5:36 pm
Operator : Z.Miao
Sample : SSTD080
Misc : 80 PPM STD 8270/625
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 19 17:51:39 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon Jun 16 11:44:24 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90 TM	Indeno(1,2,3-cd)Pyrene	1.033	1.065	-3.1	100	0.00
91 TM	Dibenz(a,h)anthracene	1.067	1.123	-5.2	100	0.00
92 TM	Benzo(g,h,i)perylene	1.056	1.083	-2.6	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : I:\ACQUDATA\5973D\Data\062014\
Data File : AU937.D
Acq On : 20 Jun 2014 11:59 am
Operator : Z.Miao
Sample : CCV
Misc : 80 PPM STD 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 20 12:14:36 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Fri Jun 20 07:44:56 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	99	0.00
2	TM	Pyridine	1.296	1.434	-10.6	113	0.00
3	TM	N-Nitrosodimethylamine	0.679	0.799	-17.7	114	0.00
4	S	SURR1,2-FLUOROPHENOL	1.336	1.422	-6.4	104	0.00
5	TM	Benzaldehyde	0.415	0.556	-34.0#	136	0.00
6	TM	Aniline	1.501	1.678	-11.8	123	0.00
7	S	SURR2,PHENOL-D6	1.549	1.654	-6.8	103	0.00
8	TMC	Phenol	1.615	1.768	-9.5	105	0.00
9	TM	bis(2-Clethyl)Ether	1.163	1.241	-6.7	105	0.00
10	TM	2-Chlorophenol	1.396	1.480	-6.0	106	0.00
11	TM	1,3-Diclbenzene	1.574	1.588	-0.9	102	0.00
12	TMC	1,4-Dichlorobenzene	1.629	1.640	-0.7	101	0.00
13	TM	1,2-Diclbenzene	1.540	1.546	-0.4	100	0.00
14	TM	Benzyl Alcohol	1.017	1.127	-10.8	106	0.00
15	TM	2,2'-oxybis(1-Chloropropane	1.625	1.769	-8.9	107	0.00
16	TM	2-Methylphenol	1.246	1.311	-5.2	101	0.00
17	TM	Acetophenone	1.713	1.845	-7.7	107	0.00
18	TMP	N-Nitroso-Di-n-propylamine	0.925	1.004	-8.5	109	0.00
19	TM	Hexachloroethane	0.612	0.616	-0.7	102	0.00
20	TM	3+4-Methylphenol	1.307	1.419	-8.6	105	0.00
21	T	1-Methyl-2-pyrrolidinone	0.913	0.974	-6.7	105	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	105	0.00
23	S	SURR4,NITROBENZENE-D5	0.371	0.398	-7.3	105	0.00
24	TM	Nitrobenzene	0.349	0.353	-1.1	104	0.00
25	TM	Isophorone	0.622	0.636	-2.3	105	0.00
26	TCM	2-Nitrophenol	0.192	0.194	-1.0	103	0.00
27	TM	Benzoic Acid	0.294	0.283	3.7	95	0.00
28	TM	2,4-Dimethylphenol	0.334	0.346	-3.6	103	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.372	0.373	-0.3	105	0.00
30	TCM	2,4-Dichlorophenol	0.308	0.312	-1.3	101	0.00
31	TM	1,2,4-Trichlorobenzene	0.357	0.346	3.1	101	0.00
32	TM	Naphthalene	1.063	1.044	1.8	102	0.00
33	TM	4-Chloroaniline	0.387	0.392	-1.3	105	0.00
34	TCM	Hexachlorobutadiene	0.206	0.194	5.8	96	0.00
35	TMC	4-Chloro-3-methylphenol	0.277	0.283	-2.2	101	0.00
36	TM	Caprolactam	0.099	0.104	-5.1	107	0.00
37	TM	2-Methylnaphthalene	0.731	0.709	3.0	99	0.00
38	TM	1-Methylnaphthalene	0.672	0.652	3.0	101	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	103	0.00
40	TPM	Hexachlorocyclopentadiene	0.371	0.358	3.5	93	0.00
41	TCM	2,4,6-Trichlorophenol	0.386	0.387	-0.3	98	0.00
42	TM	2,4,5-Trichlorophenol	0.391	0.381	2.6	97	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.337	1.317	1.5	99	0.00
44	TM	1,1'-Biphenyl	1.410	1.377	2.3	101	0.00
45	TM	2-Chloronaphthalene	1.123	1.083	3.6	97	0.00

Data Path : I:\ACQUDATA\5973D\Data\062014\
Data File : AU937.D
Acq On : 20 Jun 2014 11:59 am
Operator : Z.Miao
Sample : CCV
Misc : 80 PPM STD 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 20 12:14:36 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Fri Jun 20 07:44:56 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
46	TM	2-Nitroaniline	0.303	0.309	-2.0	103	0.00
47	TM	Acenaphthylene	1.762	1.783	-1.2	103	0.00
48	TM	Dimethyl phthalate	1.202	1.197	0.4	101	0.00
49	TM	2,6-Dinitrotoluene	0.267	0.272	-1.9	97	0.00
50	TMC	Acenaphthene	1.184	1.142	3.5	98	0.00
51	TM	3-Nitroaniline	0.297	0.287	3.4	99	0.00
52	TPM	2,4-Dinitrophenol	0.149	0.126	15.4	91	0.00
53	TM	Dibenzofuran	1.682	1.608	4.4	96	0.00
54	TM	2,4-Dinitrotoluene	0.337	0.344	-2.1	98	0.00
55	TMP	4-Nitrophenol	0.213	0.200	6.1	97	0.00
56	TM	Fluorene	1.349	1.327	1.6	99	0.00
57	TM	4-Chlorophenyl-phenylether	0.675	0.642	4.9	94	0.00
58	TM	Diethylphthalate	1.122	1.073	4.4	99	0.00
59	TM	4-Nitroaniline	0.338	0.330	2.4	101	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.190	0.183	3.7	97	0.00
61	IR	d10-Phenanthrene	1.000	1.000	0.0	100	0.02
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	0#	-11.45#
63	TM	4,6-Dinitro-2-methylphenol	0.142	0.133	6.3	94	0.00
64	TM	1,2 Diphenylhydrazine	0.740	0.765	-3.4	100	0.00
65	TCM	N-Nitrosodiphenylamine	0.524	0.511	2.5	98	0.00
66	TM	4-Bromophenyl-phenylether	0.236	0.234	0.8	101	0.01
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	101	0.02
68	TM	Hexachlorobenzene	0.264	0.261	1.1	97	0.01
69	TM	Atrazine	0.060	0.067	-11.7	120	0.01
70	TCM	Pentachlorophenol	0.148	0.122	17.6	82	0.02
71	TM	Phenanthrene	1.098	1.078	1.8	98	0.02
72	TM	Anthracene	1.138	1.158	-1.8	97	0.02
73	TM	Carbazole	1.084	1.116	-3.0	98	0.02
74	TM	Di-n-butylphthalate	1.190	1.273	-7.0	97	0.02
75	TCM	Fluoranthene	1.286	1.344	-4.5	97	0.03
76	IR	d12-Chrysene	1.000	1.000	0.0	97	0.03
77	TM	Benzidine	0.162	0.302	-86.4#	179	0.02 N.T.
78	TM	Pyrene	1.152	1.169	-1.5	97	0.02
79	S	SURR6,TERPHENYL-D14	0.792	0.789	0.4	96	0.03
80	TM	Butyl benzyl phthalate	0.482	0.491	-1.9	96	0.03
81	TM	3,3'-Dichlorobenzidine	0.369	0.395	-7.0	103	0.03
82	TM	Benzo(a)anthracene	1.158	1.151	0.6	97	0.03
83	TM	Chrysene	1.148	1.138	0.9	95	0.03
84	TM	bis(2-Ethylhexyl)phthalate	0.649	0.683	-5.2	98	0.03
85	IR	d12-Perylene	1.000	1.000	0.0	97	0.02
86	TCM	Di-n-octyl phthalate	1.060	1.147	-8.2	97	0.03
87	TM	Benzo(b)Fluoranthene	1.086	1.099	-1.2	93	0.03
88	TM	Benzo(k)fluoranthene	1.164	1.183	-1.6	97	0.02
89	TCM	Benzo(a)pyrene	1.072	1.094	-2.1	96	0.02

Data Path : I:\ACQUDATA\5973D\Data\062014\
Data File : AU937.D
Acq On : 20 Jun 2014 11:59 am
Operator : Z.Miao
Sample : CCV
Misc : 80 PPM STD 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 20 12:14:36 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Fri Jun 20 07:44:56 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90 TM	Indeno(1,2,3-cd)Pyrene	1.033	1.037	-0.4	95	0.01
91 TM	Dibenz(a,h)anthracene	1.067	1.078	-1.0	93	0.01
92 TM	Benzo(g,h,i)perylene	1.056	1.053	0.3	95	0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : I:\ACQUDATA\5973D\Data\062014\
Data File : AU937.D
Acq On : 20 Jun 2014 11:59 am
Operator : Z.Miao
Sample : CCV
Misc : 80 PPM STD 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 20 12:14:36 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Fri Jun 20 07:44:56 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	99	0.00
2	TM	Pyridine	1.296	1.434	-10.6	113	0.00
3	TM	N-Nitrosodimethylamine	0.679	0.799	-17.7	114	0.00
4	S	SURR1,2-FLUOROPHENOL	1.336	1.422	-6.4	104	0.00
5	TM	Benzaldehyde	0.415	0.556	-34.0#	136	0.00
6	TM	Aniline	1.501	1.678	-11.8	123	0.00
7	S	SURR2,PHENOL-D6	1.549	1.654	-6.8	103	0.00
8	TMC	Phenol	1.615	1.768	-9.5	105	0.00
9	TM	bis(2-Clethyl)Ether	1.163	1.241	-6.7	105	0.00
10	TM	2-Chlorophenol	1.396	1.480	-6.0	106	0.00
11	TM	1,3-Diclbenzene	1.574	1.588	-0.9	102	0.00
12	TMC	1,4-Dichlorobenzene	1.629	1.640	-0.7	101	0.00
13	TM	1,2-Diclbenzene	1.540	1.546	-0.4	100	0.00
14	TM	Benzyl Alcohol	1.017	1.127	-10.8	106	0.00
15	TM	2,2'-oxybis(1-Chloropropane	1.625	1.769	-8.9	107	0.00
16	TM	2-Methylphenol	1.246	1.311	-5.2	101	0.00
17	TM	Acetophenone	1.713	1.845	-7.7	107	0.00
18	TMP	N-Nitroso-Di-n-propylamine	0.925	1.004	-8.5	109	0.00
19	TM	Hexachloroethane	0.612	0.616	-0.7	102	0.00
20	TM	3+4-Methylphenol	1.307	1.419	-8.6	105	0.00
21	T	1-Methyl-2-pyrrolidinone	0.913	0.974	-6.7	105	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	105	0.00
23	S	SURR4,NITROBENZENE-D5	0.371	0.398	-7.3	105	0.00
24	TM	Nitrobenzene	0.349	0.353	-1.1	104	0.00
25	TM	Isophorone	0.622	0.636	-2.3	105	0.00
26	TCM	2-Nitrophenol	0.192	0.194	-1.0	103	0.00
27	TM	Benzoic Acid	0.294	0.283	3.7	95	0.00
28	TM	2,4-Dimethylphenol	0.334	0.346	-3.6	103	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.372	0.373	-0.3	105	0.00
30	TCM	2,4-Dichlorophenol	0.308	0.312	-1.3	101	0.00
31	TM	1,2,4-Trichlorobenzene	0.357	0.346	3.1	101	0.00
32	TM	Naphthalene	1.063	1.044	1.8	102	0.00
33	TM	4-Chloroaniline	0.387	0.392	-1.3	105	0.00
34	TCM	Hexachlorobutadiene	0.206	0.194	5.8	96	0.00
35	TMC	4-Chloro-3-methylphenol	0.277	0.283	-2.2	101	0.00
36	TM	Caprolactam	0.099	0.104	-5.1	107	0.00
37	TM	2-Methylnaphthalene	0.731	0.709	3.0	99	0.00
38	TM	1-Methylnaphthalene	0.672	0.652	3.0	101	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	103	0.00
40	TPM	Hexachlorocyclopentadiene	0.371	0.358	3.5	93	0.00
41	TCM	2,4,6-Trichlorophenol	0.386	0.387	-0.3	98	0.00
42	TM	2,4,5-Trichlorophenol	0.391	0.381	2.6	97	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.337	1.317	1.5	99	0.00
44	TM	1,1'-Biphenyl	1.410	1.377	2.3	101	0.00
45	TM	2-Chloronaphthalene	1.123	1.083	3.6	97	0.00

Data Path : I:\ACQUDATA\5973D\Data\062014\
Data File : AU937.D
Acq On : 20 Jun 2014 11:59 am
Operator : Z.Miao
Sample : CCV
Misc : 80 PPM STD 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 20 12:14:36 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Fri Jun 20 07:44:56 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
46	TM	2-Nitroaniline	0.303	0.309	-2.0	103	0.00	
47	TM	Acenaphthylene	1.762	1.783	-1.2	103	0.00	
48	TM	Dimethyl phthalate	1.202	1.197	0.4	101	0.00	
49	TM	2,6-Dinitrotoluene	0.267	0.272	-1.9	97	0.00	
50	TMC	Acenaphthene	1.184	1.142	3.5	98	0.00	
51	TM	3-Nitroaniline	0.297	0.287	3.4	99	0.00	
52	TPM	2,4-Dinitrophenol	0.149	0.126	15.4	91	0.00	
53	TM	Dibenzofuran	1.682	1.608	4.4	96	0.00	
54	TM	2,4-Dinitrotoluene	0.337	0.344	-2.1	98	0.00	
55	TMP	4-Nitrophenol	0.213	0.200	6.1	97	0.00	
56	TM	Fluorene	1.349	1.327	1.6	99	0.00	
57	TM	4-Chlorophenyl-phenylether	0.675	0.642	4.9	94	0.00	
58	TM	Diethylphthalate	1.122	1.073	4.4	99	0.00	
59	TM	4-Nitroaniline	0.338	0.330	2.4	101	0.00	
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.190	0.183	3.7	97	0.00	
61	IR	d10-Phenanthrene	1.000	1.000	0.0	100	0.02	
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	0#	-11.45#	
63	TM	4,6-Dinitro-2-methylphenol	0.142	0.133	6.3	94	0.00	
64	TM	1,2 Diphenylhydrazine	0.740	0.765	-3.4	100	0.00	
65	TCM	N-Nitrosodiphenylamine	0.524	0.511	2.5	98	0.00	
66	TM	4-Bromophenyl-phenylether	0.236	0.234	0.8	101	0.01	
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	101	0.02	
68	TM	Hexachlorobenzene	0.264	0.261	1.1	97	0.01	
69	TM	Atrazine	0.060	0.067	-11.7	120	0.01	
70	TCM	Pentachlorophenol	0.148	0.122	17.6	82	0.02	
71	TM	Phenanthrene	1.098	1.078	1.8	98	0.02	
72	TM	Anthracene	1.138	1.158	-1.8	97	0.02	
73	TM	Carbazole	1.084	1.116	-3.0	98	0.02	
74	TM	Di-n-butylphthalate	1.190	1.273	-7.0	97	0.02	
75	TCM	Fluoranthene	1.286	1.344	-4.5	97	0.03	
76	IR	d12-Chrysene	1.000	1.000	0.0	97	0.03	
77	TM	Benzidine	0.162	0.302	-86.4#	179	0.02	N.T.
78	TM	Pyrene	1.152	1.169	-1.5	97	0.02	
79	S	SURR6,TERPHENYL-D14	0.792	0.789	0.4	96	0.03	
80	TM	Butyl benzyl phthalate	0.482	0.491	-1.9	96	0.03	
81	TM	3,3'-Dichlorobenzidine	0.369	0.395	-7.0	103	0.03	
82	TM	Benzo(a)anthracene	1.158	1.151	0.6	97	0.03	
83	TM	Chrysene	1.148	1.138	0.9	95	0.03	
84	TM	bis(2-Ethylhexyl)phthalate	0.649	0.683	-5.2	98	0.03	
85	IR	d12-Perylene	1.000	1.000	0.0	97	0.02	
86	TCM	Di-n-octyl phthalate	1.060	1.147	-8.2	97	0.03	
87	TM	Benzo(b)Fluoranthene	1.086	1.099	-1.2	93	0.03	
88	TM	Benzo(k)fluoranthene	1.164	1.183	-1.6	97	0.02	
89	TCM	Benzo(a)pyrene	1.072	1.094	-2.1	96	0.02	

Data Path : I:\ACQUDATA\5973D\Data\062014\
Data File : AU937.D
Acq On : 20 Jun 2014 11:59 am
Operator : Z.Miao
Sample : CCV
Misc : 80 PPM STD 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 20 12:14:36 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Fri Jun 20 07:44:56 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90 TM	Indeno(1,2,3-cd)Pyrene	1.033	1.037	-0.4	95	0.01
91 TM	Dibenz(a,h)anthracene	1.067	1.078	-1.0	93	0.01
92 TM	Benzo(g,h,i)perylene	1.056	1.053	0.3	95	0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Preparation Information Benchsheet

Prep Run#: 211076
Team: Semivoa GCMS/DMURPHY

Prep WorkFlow: OrgExtAq(7)
Prep Method: EPA 3510C

Status: Prepped
Prep Date/Time: 6/18/14 07:04 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406755-01	MB		1000mL	625/SVO	6	x	x	1.00mL	clear-colorless	1.0000 mL/68950	
2	RQ1406755-01	MB		1000mL	8270D/SVO	6	x	x	1.00mL	clear-colorless	1.0000 mL/68950	
3	RQ1406755-02	LCS		1000mL	625/SVO	6	x	x	1.00mL	clear-colorless	1.0000 mL/71247; 1.0000 mL/70367; 1.0000 mL/68950; 1.0000 mL/71198	
4	RQ1406755-02	LCS		1000mL	8270D/SVO	6	x	x	1.00mL	clear-colorless	1.0000 mL/70367; 1.0000 mL/71198; 1.0000 mL/71247; 1.0000 mL/68950	
5	RQ1406755-03	DLCS		1000mL	625/SVO	6	x	x	1.00mL	clear-colorless	1.0000 mL/68950; 1.0000 mL/71198; 1.0000 mL/71247; 1.0000 mL/70367	
6	RQ1406755-03	DLCS		1000mL	8270D/SVO	6	x	x	1.00mL	clear-colorless	1.0000 mL/71247; 1.0000 mL/70367; 1.0000 mL/68950; 1.0000 mL/71198	
7	R1404569-002 [redacted]	006D-2Q3M-2X-GS	.01	1060mL	625/SVO 1PPL	7	x	x	1.00mL	yellow-cloudy	1.0000 mL/68950	6/20/14 II
8	R1404590-039 [redacted]	1406130723 200-SB-8	.02	1060mL	8270D/SVO 6978	8	x	x	1.00mL	yellow-cloudy	1.0000 mL/68950	7/1/14 II S+V
9	R1404590-036	1406141653 200-SB-6	.01	1060mL	8270D/SVO	8	x	x	1.00mL	clear-colorless	1.0000 mL/68950	
10	R1404590-039	1406151113 200-SB-5	.02	1060mL	8270D/SVO	8	x	x	1.00mL	clear-colorless	1.0000 mL/68950	
11	R1404594-001 [redacted]	COMPOSITE	.11	1060mL	625/SVO 1PPL	8	x	x	1.00mL	black-opaque	1.0000 mL/68950	6/26/14 II

Spiking Solutions

Name:	Color Coded BNA Surrogate Solution 10	Inventory ID	68950	Logbook Ref:		Expires On:	03/18/2016	Lot #:	224442
Name:	8270 LCS Mix1: 100 ug/mL	Inventory ID	70367	Logbook Ref:		Expires On:	10/31/2014	Lot #:	Lc02739
Name:	Benzidine LCS Spike 100ppm	Inventory ID	71198	Logbook Ref:		Expires On:	11/30/2014		
Name:	OLM/SOM additionals Spike 100ppm	Inventory ID	71247	Logbook Ref:		Expires On:	09/01/2014		

Preparation Materials

Eppendorf Pipette Repeater	EXT #14 (61350)	2mL Graduated Vials	(71402)	Sulfuric Acid, 50% H2SO4	(70312)
Dichloromethane (Methylene Chloride) 99.9% MeCl2	canister (71374)	Sodium Hydroxide 50% NaOH	(66000)	Prepared Sodium Sulfate Na2SO4	(70845)

Preparation Steps

Step:	Extraction	Step:	Concentration	Step:	Final Volume
Started:	6/18/14 07:04	Started:	6/18/14 12:40	Started:	6/18/14 14:40
Finished:	6/18/14 14:18	Finished:	6/18/14 14:05	Finished:	6/18/14 14:40
By:	DMURPHY	By:	SGOLBERG	By:	SGOLBERG
Comments		Comments		Comments	

Preparation Information Benchsheet

Prep Run#: 211076
Team: Semivoa GCMS/DMURPHY

Prep WorkFlow: OrgExtAq(7)
Prep Method: EPA 3510C

Status: Prepped
Prep Date/Time: 6/18/14 07:04 AM

Comments:

Reviewed By: Date: Spike Witness: LPRUNOSKE Date: 6/19

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211056 **Prep WorkFlow:** OrgExtS(14) **Status:** Prepped
Team: Semivoa GCMS/SGOLBERG **Prep Method:** EPA 3541 **Prep Date/Time:** 6/18/14 12:30 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406747-01	MB		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/69705	
2	RQ1406747-02	LCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/70367; 1.0000 mL/69705; 1.0000 mL/71247	
3	RQ1406747-03	DLCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/70367; 1.0000 mL/69705; 1.0000 mL/71247	
4	R1404317-001RE [redacted]	RM-SS-1A	.02	30.0g	8270D/SVO /TCL				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	6/23 II.
5	R1404317-002RE	RM-SS-2B	.02	30.0g	8270D/SVO				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	
6	R1404317-003RE	RM-SS-3C	.02	30.0g	8270D/SVO				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	
7	R1404590-014 [redacted]	1406130803 200-SB-8 8'/10'	.01	30.0g	8270D/SVO /BEHP 6/18				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705	7/1/4 II. Str
8	RQ1406747-04	R1404590-014 MS	.01	30.0g	8270D/SVO				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705; 1.0000 mL/71247; 1.0000 mL/70367	
9	RQ1406747-05	R1404590-014 DMS	.01	30.0g	8270D/SVO				1.00mL	reddish-brown sand and gravel	1.0000 mL/70367; 1.0000 mL/69705; 1.0000 mL/71247	
10	R1404590-015	1406130813 200-SB-8 8'/10'	.01	30.0g	8270D/SVO				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705	
11	R1404590-020	1406130943 200-SB-8 28/30'	.01	30.0g	8270D/SVO				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705	
12	R1404590-021	1406131303 200-SB-8 43/45'	.01	30.0g	8270D/SVO				1.00mL	light gray-brown sand and gravel	1.0000 mL/69705	
13	R1404590-022	1406141703 200-SB-6 8/10'	.01	30.0g	8270D/SVO				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705	
14	R1404590-023	1406151128 200-SB-5 8/10'	.01	30.0g	8270D/SVO				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705	
15	R1404590-024	1406151144 200-SB-5 8/10'	.01	30.0g	8270D/SVO				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705	

Spiking Solutions

Name:	8270 Soil Surrogate 100-200ppm	Inventory ID	69705	Logbook Ref:	8270 Soil Surrogate 100-200ppm	Expires On:	10/17/2014		
Name:	8270 LCS Mix1: 100 ug/mL	Inventory ID	70367	Logbook Ref:		Expires On:	10/31/2014	Lot #:	Lc02739
Name:	OLM/SOM additionals Spike 100ppm	Inventory ID	71247	Logbook Ref:		Expires On:	09/01/2014		

Preparation Materials

Eppendorf Pipette Repeater	EXT #15 (67588)	2mL Graduated Vials	(71402)	50:50 Dichloromethane:Acetone (71682)
Prepared Sodium Sulfate Na2SO4	(70845)	Sand Reagent Grade	SVOA (71055)	

Preparation Information Benchsheet

Prep Run#: 211056
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/18/14 12:30 PM

Preparation Steps

Step:	Extraction	Step:	Concentration	Step:	Extraction Complete
Started:	6/18/14 12:30	Started:	6/18/14 18:15	Started:	6/18/14 19:14
Finished:	6/18/14 17:22	Finished:	6/18/14 19:00	Finished:	6/18/14 19:14
By:	SGOLBERG	By:	SGOLBERG	By:	SGOLBERG
Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: 6/18/14 Spike Witness: BALLGEIER Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analysis: 8270	Analyst: 8270	Run Method: 8270bl90.m
Date: 6/20/14	Instr. 5973-D	Quant Method: 8270bl90.m
		LIMS Run#:

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	Tune 50ng	DFTPP	Tune.m	AN931	N	70613
	Tune ↓		↓	932	YT	10:54Am
	CCV			35	No data	
	CCV			36	No data	
1	CCV 80 ppm	8270bl90.m		37	YC	
2	[redacted] RQ14068876-01 BLLC	6/9/14 8270TCLP		38	Ym	R 4634 8270TCLP } IV.
3	-02 LLS			39	YQ	R 4632 8270bl1442 }
4	-03 LLSD			40	YQ	
5	R 4634-001			41	Y	
6	RQ 6858-01	EQBLLC		42	Y	
7	[redacted] R 4632-001	8270bl1442		43	Y	
8	[redacted] R 4590-015	8270BEHP Soil 6/18/14		44	Y	
9	-020			45	Y	
10	-021			46	Y	
11	-022			47	X	
12	-023			48	Y	
13	-024			49	Y	
14	[redacted] R 4317-001	Re-ex 8270TCL 4/5		50	Y	
15	-002			51	Y	
16	-003			52	Y	
17	[redacted] RQ 6735-01 BLLC	6/17/14 Soil 8270BEHP		53	Ym	only.
18	-02LLS			54	YQ	
19	-03 LLSD			55	YQ	
20	R 4510-001			56	Y	
21	-001MS	RQ6735-04		57	YQ	
22	-001MSD	-05		58	YQ	
23	-002			59	Y	
24	-003			60	Y	10:18Pm

All samples = 1 mL + 10 uL Combined IS/Surr.; 70461

Primary : exp: Secondary : exp:

Primary: exp: Secondary : exp:

Runlog GCEXT r1 12/5/12

July 11, 2014

Service Request No: R1404589

Ms. Carlyn Tufts
NASA/WSTF/Navarro
P.O. Box 20
Las Cruces, NM 88004

Laboratory Results for: White Sands Test Facility/13EC059B

Dear Ms. Tufts:

Enclosed are the results of the sample(s) submitted to our laboratory on June 17, 2014. For your reference, these analyses have been assigned our service request number **R1404589**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Janice Jaeger
Client Services Manager

ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623 PHONE 585-288-5380 | FAX 585-288-8475
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental
www.alsglobal.com
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CASE NARRATIVE

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	WSTF	**Project Number:**	
Sample Matrix:	Soil/Water	**Date Received:**	06/17/14

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II deliverables. When appropriate to the method, method blank and LCS results have been reported with each analytical test.

Sample Receipt

Samples were collected on 06/13-15/14 and received on 06/17/14 at cooler temperatures of 1.2-3.6 C in good condition except as noted on the cooler receipt and preservation check form. The samples were stored in a refrigerator at 1 - 6 °C upon receipt at the laboratory.

Inorganics

Water and soil samples were analyzed for a site specific list of inorganics. Please see attached data pages for method numbers.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was not requested on these samples.

Hexavalent chromium for 1406130727 200-SB-8, 1406151117 200-SB-4 and 1406141657 200-SB-6 was received outside the 24 hour holding time as noted by the "*". The sample was analyzed as soon as possible after receipt.

The Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries were acceptable. All RPD's were within limits.

The Method Blanks associated with these samples were free of contamination.

No analytical or QC problems were encountered.

Metals

Water and soil samples were analyzed for Metals by methods 6010C/6020A/7471 from SW-846.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was not requested on these samples.

All Internal Standards were within limits.

The Laboratory Control Sample recoveries were acceptable.

The Method Blanks associated with these samples were free of contamination except for Antimony, Chromium, Copper, Lead, Manganese, Sodium, Titanium and Zinc. All affected data has been flagged with a "B".

No analytical or QC problems were encountered.

Perchlorate

Water and soil samples were analyzed for Perchlorate by method 6850 from SW-846.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was not requested on these samples.

All Internal Standards were within limits.

The Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries were acceptable. All RPD's were within limits.

The Method Blanks associated with these samples were free of contamination.

No analytical or QC problems were encountered.

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1404589

Lab ID	Client ID
R1404589-001	1406130726 200-SB-8
R1404589-002	1406130727 200-SB-8
R1404589-003	1406130729 200-SB-8
R1404589-004	1406130728 200-SB-8
R1404589-005	1406130724 200-SB-8
R1404589-006	1406141656 200-SB-6
R1404589-007	1406141657 200-SB-6
R1404589-008	1406141658 200-SB-6
R1404589-009	1406141659 200-SB-6
R1404589-010	1406141654 200-SB-6
R1404589-011	1406151116 200-SB-5
R1404589-012	1406151117 200-SB-5
R1404589-013	1406151118 200-SB-5
R1404589-014	1406151119 200-SB-5
R1404589-015	1406151114 200-SB-5
R1404589-016	1406130805 200-SB-8 8/10'
R1404589-017	1406130815 200-SB-8 8/10'
R1404589-018	1406130803 200-SB-8 8/10'
R1404589-019	1406130813 200-SB-8 8/10'
R1404589-020	1406130943 200-SB-8 28/30'
R1404589-021	1406131303 200-SB-8 43/45'
R1404589-022	1406141703 200-SB-6 8/10'
R1404589-023	1406151128 200-SB-5 8/10'
R1404589-024	1406151144 200-SB-5 8/10'
R1404589-025	1406130945 200-SB-8 28/30'
R1404589-026	1406131305 200-SB-8 43/45'
R1404589-027	1406141705 200-SB-6 8/10'
R1404589-028	1406151130 200-SB-5 8/10'
R1404589-029	1406151146 200-SB-5 8/10'

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

\# Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404589
Date Collected: 6/13/14
Date Received: 6/17/14

Sample Name: 1406130726 200-SB-8
Lab Code: R1404589-001

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**0.39**		mg/L	0.10	0.03	1	6/19/14	6/25/14 17:40	
Antimony, Total	6020A	**0.0002**	J	mg/L	0.0010	0.0002	1	6/24/14	6/26/14 22:22	
Arsenic, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/19/14	6/25/14 17:40	
Barium, Total	6010C	**0.007**	J	mg/L	0.020	0.004	1	6/19/14	6/25/14 17:40	
Beryllium, Total	6010C	ND	U	mg/L	0.0030	0.0002	1	6/19/14	6/25/14 17:40	
Boron, Total	6010C	ND	U	mg/L	0.20	0.03	1	6/19/14	6/25/14 17:40	
Cadmium, Total	6010C	ND	U	mg/L	0.0050	0.0005	1	6/19/14	6/25/14 17:40	
Calcium, Total	6010C	**3.2**		mg/L	1.0	0.2	1	6/19/14	6/26/14 19:47	
Chromium, Total	6010C	**0.010**		mg/L	0.010	0.0009	1	6/19/14	6/25/14 17:40	
Cobalt, Total	6010C	ND	U	mg/L	0.050	0.002	1	6/19/14	6/25/14 17:40	
Copper, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/19/14	6/25/14 17:40	
Iron, Total	6010C	**2.22**		mg/L	0.10	0.02	1	6/19/14	6/25/14 17:40	
Lead, Total	6010C	**0.0019**	J	mg/L	0.0050	0.0014	1	6/19/14	6/25/14 17:40	
Magnesium, Total	6010C	**0.6**	J	mg/L	1.0	0.02	1	6/19/14	6/26/14 19:47	
Manganese, Total	6010C	**0.017**		mg/L	0.010	0.002	1	6/19/14	6/25/14 17:40	
Mercury, Total	7470A	ND	U	mg/L	0.00020	0.00003	1	6/20/14	6/20/14 13:28	
Molybdenum, Total	6010C	**0.007**	J	mg/L	0.025	0.002	1	6/19/14	6/25/14 17:40	
Nickel, Total	6010C	ND	U	mg/L	0.040	0.002	1	6/19/14	6/25/14 17:40	
Potassium, Total	6010C	**0.2**	J	mg/L	2.0	0.2	1	6/19/14	6/25/14 17:40	
Selenium, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/19/14	6/25/14 17:40	
Silver, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/19/14	6/25/14 17:40	
Sodium, Total	6010C	**0.3**	J	mg/L	1.0	0.09	1	6/19/14	6/25/14 17:40	
Strontium, Total	6010C	**0.01**	J	mg/L	0.10	0.002	1	6/19/14	6/25/14 17:40	
Thallium, Total	6020A	ND	U	mg/L	0.0010	0.00004	1	6/24/14	6/30/14 17:21	
Tin, Total	6010C	ND	U	mg/L	0.50	0.05	1	6/19/14	6/25/14 17:40	
Titanium, Total	6010C	**0.016**	J	mg/L	0.050	0.0008	1	6/19/14	6/25/14 17:40	
Uranium, Total	6020A	**0.00007**	J	mg/L	0.0010	0.000003	1	6/24/14	6/30/14 17:21	
Vanadium, Total	6010C	**0.0009**	J	mg/L	0.050	0.0007	1	6/19/14	6/25/14 17:40	
Zinc, Total	6010C	**0.01**	J	mg/L	0.020	0.005	1	6/19/14	6/25/14 17:40	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Sample Name: 1406130726 200-SB-8
Lab Code: R1404589-001
Matrix: Water

Date Collected: 6/13/14
Date Received: 6/17/14

Analysis Method	Extracted/Digested By	Analyzed By
6010C	MCRIBBIN	CWINKSTERN
6020A	MCRIBBIN	TCHRIST
7470A	CWINKSTERN	CWINKSTERN

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	1406130727 200-SB-8		
Lab Code:	R1404589-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/17/14 13:03	*
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/17/14 12:55	*

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406130727 200-SB-8	**Date Collected:**	6/13/14
Lab Code:	R1404589-002	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
7199		CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	1406130729 200-SB-8		
Lab Code:	R1404589-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/L	2.0	0.3	10	NA	6/24/14 22:48	
Nitrate+Nitrite as Nitrogen	353.2	**0.011**	J	mg/L	0.050	0.002	1	NA	6/19/14 08:46	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406130729 200-SB-8	**Date Collected:**	6/13/14
Lab Code:	R1404589-003	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
353.2		LDOLGOS
9056A		LDRESSEL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	1406130728 200-SB-8		
Lab Code:	R1404589-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Cyanide, Total	9012B	ND	U	mg/L	0.010	0.003	1	6/24/14	6/24/14 12:25	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406130728 200-SB-8	**Date Collected:**	6/13/14
Lab Code:	R1404589-004	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
9012B	GNITAJOUPPI	GNITAJOUPPI

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Water	**Date Received:**	6/17/14
		Date Extracted:	6/23/14
		Date Analyzed:	6/23/14 10:40
Sample Name:	1406130724 200-SB-8	**Units:**	µg/L
Lab Code:	R1404589-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398569
Prep Method:	Method	**Extraction Lot:**	211378
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062314\B0031534.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	0.20	0.026	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406130724 200-SB-8	**Date Collected:**	6/13/14
Lab Code:	R1404589-005	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	1406141656 200-SB-6		
Lab Code:	R1404589-006	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**0.23**		mg/L	0.10	0.03	1	6/19/14	6/25/14 17:46	
Antimony, Total	6020A	**0.0003**	J	mg/L	0.0010	0.0002	1	6/24/14	6/26/14 22:42	
Arsenic, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/19/14	6/25/14 17:46	
Barium, Total	6010C	**0.004**	J	mg/L	0.020	0.004	1	6/19/14	6/25/14 17:46	
Beryllium, Total	6010C	ND	U	mg/L	0.0030	0.0002	1	6/19/14	6/25/14 17:46	
Boron, Total	6010C	ND	U	mg/L	0.20	0.03	1	6/19/14	6/25/14 17:46	
Cadmium, Total	6010C	ND	U	mg/L	0.0050	0.0005	1	6/19/14	6/25/14 17:46	
Calcium, Total	6010C	**1.7**		mg/L	1.0	0.2	1	6/19/14	6/26/14 19:53	
Chromium, Total	6010C	**0.011**		mg/L	0.010	0.0009	1	6/19/14	6/25/14 17:46	
Cobalt, Total	6010C	ND	U	mg/L	0.050	0.002	1	6/19/14	6/25/14 17:46	
Copper, Total	6010C	**0.005**	J	mg/L	0.020	0.004	1	6/19/14	6/25/14 17:46	
Iron, Total	6010C	**1.46**		mg/L	0.10	0.02	1	6/19/14	6/25/14 17:46	
Lead, Total	6010C	**0.0017**	J	mg/L	0.0050	0.0014	1	6/19/14	6/25/14 17:46	
Magnesium, Total	6010C	**0.4**	J	mg/L	1.0	0.02	1	6/19/14	6/26/14 19:53	
Manganese, Total	6010C	**0.017**		mg/L	0.010	0.002	1	6/19/14	6/25/14 17:46	
Mercury, Total	7470A	ND	U	mg/L	0.00020	0.00003	1	6/20/14	6/20/14 13:30	
Molybdenum, Total	6010C	**0.005**	J	mg/L	0.025	0.002	1	6/19/14	6/25/14 17:46	
Nickel, Total	6010C	ND	U	mg/L	0.040	0.002	1	6/19/14	6/25/14 17:46	
Potassium, Total	6010C	ND	U	mg/L	2.0	0.2	1	6/19/14	6/25/14 17:46	
Selenium, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/19/14	6/25/14 17:46	
Silver, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/19/14	6/25/14 17:46	
Sodium, Total	6010C	**1.5**		mg/L	1.0	0.09	1	6/19/14	6/25/14 17:46	
Strontium, Total	6010C	**0.009**	J	mg/L	0.10	0.002	1	6/19/14	6/25/14 17:46	
Thallium, Total	6020A	ND	U	mg/L	0.0010	0.00004	1	6/24/14	6/30/14 17:28	
Tin, Total	6010C	ND	U	mg/L	0.50	0.05	1	6/19/14	6/25/14 17:46	
Titanium, Total	6010C	**0.008**	J	mg/L	0.050	0.0008	1	6/19/14	6/25/14 17:46	
Uranium, Total	6020A	**0.00004**	J	mg/L	0.0010	0.000003	1	6/24/14	6/30/14 17:28	
Vanadium, Total	6010C	**0.0009**	J	mg/L	0.050	0.0007	1	6/19/14	6/25/14 17:46	
Zinc, Total	6010C	**0.014**	J	mg/L	0.020	0.005	1	6/19/14	6/25/14 17:46	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Sample Name: 1406141656 200-SB-6
Lab Code: R1404589-006
Matrix: Water

Date Collected: 6/14/14
Date Received: 6/17/14

Analysis Method	Extracted/Digested By	Analyzed By
6010C	MCRIBBIN	CWINKSTERN
6020A	MCRIBBIN	TCHRIST
7470A	CWINKSTERN	CWINKSTERN

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	1406141657 200-SB-6		
Lab Code:	R1404589-007	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/17/14 13:17	*
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/17/14 13:09	*

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406141657 200-SB-6	**Date Collected:**	6/14/14
Lab Code:	R1404589-007	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
7199		CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	1406141658 200-SB-6		
Lab Code:	R1404589-008	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Cyanide, Total	9012B	ND	U	mg/L	0.010	0.003	1	6/24/14	6/24/14 12:25	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406141658 200-SB-6	**Date Collected:**	6/14/14
Lab Code:	R1404589-008	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
9012B	GNITAJOUPPI	GNITAJOUPPI

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	1406141659 200-SB-6		
Lab Code:	R1404589-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**0.9**	J	mg/L	2.0	0.3	10	NA	6/24/14 23:00	
Nitrate+Nitrite as Nitrogen	353.2	**0.014**	J	mg/L	0.050	0.002	1	NA	6/19/14 08:47	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406141659 200-SB-6	**Date Collected:**	6/14/14
Lab Code:	R1404589-009	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
353.2		LDOLGOS
9056A		LDRESSEL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Water	**Date Received:**	6/17/14
		Date Extracted:	6/23/14
		Date Analyzed:	6/23/14 10:54
Sample Name:	1406141654 200-SB-6	**Units:**	µg/L
Lab Code:	R1404589-010	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398569
Prep Method:	Method	**Extraction Lot:**	211378
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062314\B0031535.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	0.20	0.026	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406141654 200-SB-6	**Date Collected:**	6/14/14
Lab Code:	R1404589-010	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404589
Date Collected: 6/15/14
Date Received: 6/17/14

Sample Name: 1406151116 200-SB-5
Lab Code: R1404589-011

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**0.14**		mg/L	0.10	0.03	1	6/19/14	6/25/14 17:52	
Antimony, Total	6020A	ND	U	mg/L	0.0010	0.0002	1	6/24/14	6/26/14 22:48	
Arsenic, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/19/14	6/25/14 17:52	
Barium, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/19/14	6/25/14 17:52	
Beryllium, Total	6010C	ND	U	mg/L	0.0030	0.0002	1	6/19/14	6/25/14 17:52	
Boron, Total	6010C	ND	U	mg/L	0.20	0.03	1	6/19/14	6/25/14 17:52	
Cadmium, Total	6010C	ND	U	mg/L	0.0050	0.0005	1	6/19/14	6/25/14 17:52	
Calcium, Total	6010C	**1.3**		mg/L	1.0	0.2	1	6/19/14	6/26/14 20:00	
Chromium, Total	6010C	**0.003**	J	mg/L	0.010	0.0009	1	6/19/14	6/25/14 17:52	
Cobalt, Total	6010C	ND	U	mg/L	0.050	0.002	1	6/19/14	6/25/14 17:52	
Copper, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/19/14	6/25/14 17:52	
Iron, Total	6010C	**0.46**		mg/L	0.10	0.02	1	6/19/14	6/25/14 17:52	
Lead, Total	6010C	ND	U	mg/L	0.0050	0.0014	1	6/19/14	6/25/14 17:52	
Magnesium, Total	6010C	**0.3**	J	mg/L	1.0	0.02	1	6/19/14	6/26/14 20:00	
Manganese, Total	6010C	**0.006**	J	mg/L	0.010	0.002	1	6/19/14	6/25/14 17:52	
Mercury, Total	7470A	ND	U	mg/L	0.00020	0.00003	1	6/20/14	6/20/14 13:31	
Molybdenum, Total	6010C	**0.002**	J	mg/L	0.025	0.002	1	6/19/14	6/25/14 17:52	
Nickel, Total	6010C	ND	U	mg/L	0.040	0.002	1	6/19/14	6/25/14 17:52	
Potassium, Total	6010C	ND	U	mg/L	2.0	0.2	1	6/19/14	6/25/14 17:52	
Selenium, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/19/14	6/25/14 17:52	
Silver, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/19/14	6/25/14 17:52	
Sodium, Total	6010C	**0.3**	J	mg/L	1.0	0.09	1	6/19/14	6/25/14 17:52	
Strontium, Total	6010C	**0.007**	J	mg/L	0.10	0.002	1	6/19/14	6/25/14 17:52	
Thallium, Total	6020A	ND	U	mg/L	0.0010	0.00004	1	6/24/14	6/30/14 17:34	
Tin, Total	6010C	ND	U	mg/L	0.50	0.05	1	6/19/14	6/25/14 17:52	
Titanium, Total	6010C	**0.003**	J	mg/L	0.050	0.0008	1	6/19/14	6/25/14 17:52	
Uranium, Total	6020A	**0.00001**	J	mg/L	0.0010	0.000003	1	6/24/14	6/30/14 17:34	
Vanadium, Total	6010C	ND	U	mg/L	0.050	0.0007	1	6/19/14	6/25/14 17:52	
Zinc, Total	6010C	**0.006**	J	mg/L	0.020	0.005	1	6/19/14	6/25/14 17:52	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Sample Name: 1406151116 200-SB-5
Lab Code: R1404589-011
Matrix: Water

Date Collected: 6/15/14
Date Received: 6/17/14

Analysis Method	Extracted/Digested By	Analyzed By
6010C	MCRIBBIN	CWINKSTERN
6020A	MCRIBBIN	TCHRIST
7470A	CWINKSTERN	CWINKSTERN

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	1406151117 200-SB-5		
Lab Code:	R1404589-012	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/17/14 13:30	*
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/17/14 13:23	*

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406151117 200-SB-5	**Date Collected:**	6/15/14
Lab Code:	R1404589-012	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
7199		CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	1406151118 200-SB-5		
Lab Code:	R1404589-013	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Cyanide, Total	9012B	ND	U	mg/L	0.010	0.003	1	6/24/14	6/24/14 12:26	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406151118 200-SB-5	**Date Collected:**	6/15/14
Lab Code:	R1404589-013	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
9012B	GNITAJOUPPI	GNITAJOUPPI

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404589
Date Collected: 6/15/14
Date Received: 6/17/14

Sample Name: 1406151119 200-SB-5
Lab Code: R1404589-014

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**1.0**	J	mg/L	2.0	0.3	10	NA	6/24/14 23:13	
Nitrate+Nitrite as Nitrogen	353.2	**0.029**	J	mg/L	0.050	0.002	1	NA	6/19/14 08:48	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Sample Name: 1406151119 200-SB-5
Lab Code: R1404589-014
Matrix: Water

Date Collected: 6/15/14
Date Received: 6/17/14

Analysis Method	Extracted/Digested By	Analyzed By
353.2		LDOLGOS
9056A		LDRESSEL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Water	**Date Received:**	6/17/14
		Date Extracted:	6/23/14
		Date Analyzed:	6/23/14 11:21
Sample Name:	1406151114 200-SB-5	**Units:**	µg/L
Lab Code:	R1404589-015	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398569
Prep Method:	Method	**Extraction Lot:**	211378
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062314\B0031537.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	0.20	0.026	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406151114 200-SB-5	**Date Collected:**	6/15/14
Lab Code:	R1404589-015	**Date Received:**	6/17/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130805 200-SB-8 8/10'		
Lab Code:	R1404589-016	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**95.3**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130805 200-SB-8 8/10'		
Lab Code:	R1404589-016	**Basis:**	Dry
		Percent Solids:	95.3

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 14:16	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 17:16	
Chromium, Hexavalent	7199	**0.03**	J	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 17:09	
Cyanide, Total	9012B	ND	U	mg/Kg	0.099	0.015	1	6/24/14	6/25/14 11:14	
Nitrate+Nitrite as Nitrogen	353.2M	**1.4**	J	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:36	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130805 200-SB-8 8/10'		
Lab Code:	R1404589-016	**Basis:**	Dry
		Percent Solids:	95.3

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**5910**		mg/Kg	10	2.2	1	6/20/14	6/24/14 10:19	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	6.0	0.3	1	6/20/14	6/23/14 21:06	
Arsenic, Total	6010C	**8.21**		mg/Kg	1.0	0.29	1	6/20/14	6/24/14 10:19	
Barium, Total	6010C	**50.6**		mg/Kg	2.0	0.10	1	6/20/14	6/23/14 21:06	
Beryllium, Total	6020A	**0.44**	J	mg/Kg	0.50	0.02	5	6/20/14	7/1/14 16:32	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 21:06	
Cadmium, Total	6010C	**0.35**	J	mg/Kg	0.50	0.05	1	6/20/14	6/23/14 21:06	
Calcium, Total	6010C	**102000**		mg/Kg	5000	700	50	6/20/14	6/25/14 09:58	
Chromium, Total	6020A	**8.79**		mg/Kg	0.50	0.05	5	6/20/14	7/1/14 16:32	
Cobalt, Total	6020A	**4.34**		mg/Kg	0.50	0.04	5	6/20/14	7/1/14 16:32	
Copper, Total	6020A	**6.41**		mg/Kg	0.50	0.20	5	6/20/14	7/1/14 16:32	
Iron, Total	6010C	**13000**		mg/Kg	100	74	10	6/20/14	6/23/14 18:17	
Lead, Total	6010C	**9.6**		mg/Kg	5.0	0.03	1	6/20/14	6/23/14 21:06	
Magnesium, Total	6010C	**17400**		mg/Kg	100	2	1	6/20/14	6/23/14 21:06	
Manganese, Total	6010C	**321**		mg/Kg	1.0	0.12	1	6/20/14	6/23/14 21:06	
Mercury, Total	7471B	ND	U	mg/Kg	0.032	0.002	1	6/20/14	6/20/14 18:49	
Molybdenum, Total	6010C	**1.1**	J	mg/Kg	2.5	0.07	1	6/20/14	6/23/14 21:06	
Nickel, Total	6010C	**11.0**		mg/Kg	4.0	0.10	1	6/20/14	6/23/14 21:06	
Potassium, Total	6010C	**1560**		mg/Kg	200	20	1	6/20/14	6/23/14 21:06	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.57	1	6/20/14	6/23/14 21:06	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 21:06	
Sodium, Total	6010C	**116**	B	mg/Kg	100	7	1	6/20/14	6/23/14 21:06	
Strontium, Total	6010C	**233**		mg/Kg	10	0.05	1	6/20/14	6/23/14 21:06	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.75	1	6/20/14	6/23/14 21:06	
Tin, Total	6010C	ND	U	mg/Kg	50	2	1	6/20/14	6/23/14 21:06	
Titanium, Total	6010C	**79.8**		mg/Kg	5.0	0.10	1	6/20/14	6/23/14 21:06	
Uranium, Total	6020A	**1.05**		mg/Kg	0.50	0.0010	5	6/20/14	7/2/14 13:36	
Vanadium, Total	6010C	**26.5**		mg/Kg	5.0	0.2	1	6/20/14	6/23/14 21:06	
Zinc, Total	6010C	**36.6**		mg/Kg	2.0	0.2	1	6/20/14	6/23/14 21:06	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Sample Name: 1406130805 200-SB-8 8/10'
Lab Code: R1404589-016
Matrix: Soil

Date Collected: 6/13/14
Date Received: 6/17/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	GNITAJOUPPI	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130815 200-SB-8 8/10'		
Lab Code:	R1404589-017	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**95.2**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130815 200-SB-8 8/10'		
Lab Code:	R1404589-017	**Basis:**	Dry
		Percent Solids:	95.2

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	32	6	1	6/23/14	6/23/14 14:26	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 17:23	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 17:30	
Cyanide, Total	9012B	ND	U	mg/Kg	0.097	0.015	1	6/24/14	6/25/14 11:15	
Nitrate+Nitrite as Nitrogen	353.2M	**1.4**	J	mg/Kg	5.3	0.6	1	6/24/14	6/24/14 12:37	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Collected: 6/13/14
Date Received: 6/17/14

Sample Name: 1406130815 200-SB-8 8/10'
Lab Code: R1404589-017

Basis: Dry
Percent Solids: 95.2

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**6460**		mg/Kg	10	3	1	6/20/14	6/24/14 10:26	
Antimony, Total	6010C	**1.2**	BJ	mg/Kg	6.1	0.3	1	6/20/14	6/23/14 21:12	
Arsenic, Total	6010C	**6.9**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 10:26	
Barium, Total	6010C	**64.0**		mg/Kg	2.0	0.10	1	6/20/14	6/23/14 21:12	
Beryllium, Total	6020A	**0.49**	J	mg/Kg	0.50	0.02	5	6/20/14	7/1/14 16:38	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 21:12	
Cadmium, Total	6010C	**0.42**	J	mg/Kg	0.51	0.05	1	6/20/14	6/23/14 21:12	
Calcium, Total	6010C	**104000**		mg/Kg	5100	700	50	6/20/14	6/25/14 10:22	
Chromium, Total	6020A	**8.31**		mg/Kg	0.50	0.05	5	6/20/14	7/1/14 16:38	
Cobalt, Total	6020A	**5.35**		mg/Kg	0.50	0.04	5	6/20/14	7/1/14 16:38	
Copper, Total	6020A	**7.88**		mg/Kg	0.50	0.20	5	6/20/14	7/1/14 16:38	
Iron, Total	6010C	**14000**		mg/Kg	100	80	10	6/20/14	6/23/14 18:35	
Lead, Total	6010C	**9.4**		mg/Kg	5.1	0.03	1	6/20/14	6/23/14 21:12	
Magnesium, Total	6010C	**28400**		mg/Kg	100	2	1	6/20/14	6/23/14 21:12	
Manganese, Total	6010C	**294**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 21:12	
Mercury, Total	7471B	ND	U	mg/Kg	0.034	0.003	1	6/20/14	6/20/14 18:53	
Molybdenum, Total	6010C	**1.4**	J	mg/Kg	2.5	0.07	1	6/20/14	6/23/14 21:12	
Nickel, Total	6010C	**10.7**		mg/Kg	4.0	0.10	1	6/20/14	6/23/14 21:12	
Potassium, Total	6010C	**1870**		mg/Kg	200	20	1	6/20/14	6/23/14 21:12	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 21:12	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 21:12	
Sodium, Total	6010C	**130**	B	mg/Kg	100	7	1	6/20/14	6/23/14 21:12	
Strontium, Total	6010C	**193**		mg/Kg	10	0.06	1	6/20/14	6/23/14 21:12	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 21:12	
Tin, Total	6010C	ND	U	mg/Kg	51	2	1	6/20/14	6/23/14 21:12	
Titanium, Total	6010C	**109**		mg/Kg	5.1	0.10	1	6/20/14	6/23/14 21:12	
Uranium, Total	6020A	**1.12**		mg/Kg	0.50	0.0010	5	6/20/14	7/2/14 13:43	
Vanadium, Total	6010C	**28.8**		mg/Kg	5.1	0.2	1	6/20/14	6/23/14 21:12	
Zinc, Total	6010C	**42.4**		mg/Kg	2.0	0.2	1	6/20/14	6/23/14 21:12	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Service Request: R1404589

Sample Name: 1406130815 200-SB-8 8/10'
Lab Code: R1404589-017
Matrix: Soil
Date Collected: 6/13/14
Date Received: 6/17/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	GNITAJOUPPI	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130803 200-SB-8 8/10'		
Lab Code:	R1404589-018	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**96.0**		Percent	1.0	1	NA	6/23/14 13:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 17:37
Sample Name:	1406130803 200-SB-8 8/10'	**Units:**	µg/Kg
Lab Code:	R1404589-018	**Basis:**	Dry
		Percent Solids:	96.0

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031552.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406130803 200-SB-8 8/10'	**Date Collected:**	6/13/14
Lab Code:	R1404589-018	**Date Received:**	6/17/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130813 200-SB-8 8/10'		
Lab Code:	R1404589-019	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**95.4**		Percent	1.0	1	NA	6/23/14 13:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 17:51
Sample Name:	1406130813 200-SB-8 8/10'	**Units:**	µg/Kg
Lab Code:	R1404589-019	**Basis:**	Dry
		Percent Solids:	95.4

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031553.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406130813 200-SB-8 8/10'	**Date Collected:**	6/13/14
Lab Code:	R1404589-019	**Date Received:**	6/17/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130943 200-SB-8 28/30'		
Lab Code:	R1404589-020	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**97.0**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 18:04
Sample Name:	1406130943 200-SB-8 28/30'	**Units:**	µg/Kg
Lab Code:	R1404589-020	**Basis:**	Dry
		Percent Solids:	97.0

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031554.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.33	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406130943 200-SB-8 28/30'	**Date Collected:**	6/13/14
Lab Code:	R1404589-020	**Date Received:**	6/17/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406131303 200-SB-8 43/45'		
Lab Code:	R1404589-021	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**98.5**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 18:17
Sample Name:	1406131303 200-SB-8 43/45'	**Units:**	µg/Kg
Lab Code:	R1404589-021	**Basis:**	Dry
		Percent Solids:	98.5

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031555.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.33	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406131303 200-SB-8 43/45'	**Date Collected:**	6/13/14
Lab Code:	R1404589-021	**Date Received:**	6/17/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406141703 200-SB-6 8/10'		
Lab Code:	R1404589-022	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**97.1**		Percent	1.0	1	NA	6/23/14 13:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 18:31
Sample Name:	1406141703 200-SB-6 8/10'	**Units:**	µg/Kg
Lab Code:	R1404589-022	**Basis:**	Dry
		Percent Solids:	97.1

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031556.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.33	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406141703 200-SB-6 8/10'	**Date Collected:**	6/14/14
Lab Code:	R1404589-022	**Date Received:**	6/17/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406151128 200-SB-5 8/10'		
Lab Code:	R1404589-023	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**96.0**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 18:58
Sample Name:	1406151128 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404589-023	**Basis:**	Dry
		Percent Solids:	96.0

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031558.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406151128 200-SB-5 8/10'	**Date Collected:**	6/15/14
Lab Code:	R1404589-023	**Date Received:**	6/17/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406151144 200-SB-5 8/10'		
Lab Code:	R1404589-024	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**96.9**		Percent	1.0	1	NA	6/23/14 13:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 19:11
Sample Name:	1406151144 200-SB-5 8/10'	**Units:**	µg/Kg
Lab Code:	R1404589-024	**Basis:**	Dry
		Percent Solids:	96.9

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031559.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406151144 200-SB-5 8/10'	**Date Collected:**	6/15/14
Lab Code:	R1404589-024	**Date Received:**	6/17/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130945 200-SB-8 28/30'		
Lab Code:	R1404589-025	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**97.5**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406130945 200-SB-8 28/30'		
Lab Code:	R1404589-025	**Basis:**	Dry
		Percent Solids:	97.5

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 14:36	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 17:59	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 17:51	
Cyanide, Total	9012B	ND	U	mg/Kg	0.098	0.015	1	6/24/14	6/25/14 11:16	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.1	0.6	1	6/24/14	6/24/14 12:38	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Collected: 6/13/14
Date Received: 6/17/14

Sample Name: 1406130945 200-SB-8 28/30'
Lab Code: R1404589-025

Basis: Dry
Percent Solids: 97.5

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**5030**		mg/Kg	10	3	1	6/20/14	6/24/14 10:32	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	6.1	0.3	1	6/20/14	6/23/14 21:19	
Arsenic, Total	6010C	**4.5**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 10:32	
Barium, Total	6010C	**34.1**		mg/Kg	2.0	0.10	1	6/20/14	6/23/14 21:19	
Beryllium, Total	6020A	**0.47**	J	mg/Kg	0.51	0.02	5	6/20/14	7/1/14 16:44	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 21:19	
Cadmium, Total	6010C	**0.36**	J	mg/Kg	0.51	0.05	1	6/20/14	6/23/14 21:19	
Calcium, Total	6010C	**80700**		mg/Kg	2000	300	20	6/20/14	6/25/14 10:28	
Chromium, Total	6020A	**8.50**		mg/Kg	0.51	0.05	5	6/20/14	7/1/14 16:44	
Cobalt, Total	6020A	**4.28**		mg/Kg	0.51	0.04	5	6/20/14	7/1/14 16:44	
Copper, Total	6020A	**6.15**		mg/Kg	0.51	0.20	5	6/20/14	7/1/14 16:44	
Iron, Total	6010C	**12500**		mg/Kg	100	80	10	6/20/14	6/23/14 18:41	
Lead, Total	6010C	**8.1**		mg/Kg	5.1	0.03	1	6/20/14	6/23/14 21:19	
Magnesium, Total	6010C	**12800**		mg/Kg	100	2	1	6/20/14	6/23/14 21:19	
Manganese, Total	6010C	**234**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 21:19	
Mercury, Total	7471B	ND	U	mg/Kg	0.031	0.002	1	6/20/14	6/20/14 18:55	
Molybdenum, Total	6010C	**1.3**	J	mg/Kg	2.5	0.07	1	6/20/14	6/23/14 21:19	
Nickel, Total	6010C	**9.5**		mg/Kg	4.1	0.10	1	6/20/14	6/23/14 21:19	
Potassium, Total	6010C	**1240**		mg/Kg	200	20	1	6/20/14	6/23/14 21:19	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 21:19	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 21:19	
Sodium, Total	6010C	**100**	B	mg/Kg	100	7	1	6/20/14	6/23/14 21:19	
Strontium, Total	6010C	**138**		mg/Kg	10	0.06	1	6/20/14	6/23/14 21:19	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 21:19	
Tin, Total	6010C	ND	U	mg/Kg	51	2	1	6/20/14	6/23/14 21:19	
Titanium, Total	6010C	**72.1**		mg/Kg	5.1	0.10	1	6/20/14	6/23/14 21:19	
Uranium, Total	6020A	**1.51**		mg/Kg	0.51	0.0010	5	6/20/14	7/2/14 13:50	
Vanadium, Total	6010C	**14.5**		mg/Kg	5.1	0.2	1	6/20/14	6/23/14 21:19	
Zinc, Total	6010C	**39.3**		mg/Kg	2.0	0.2	1	6/20/14	6/23/14 21:19	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Sample Name: 1406130945 200-SB-8 28/30'
Lab Code: R1404589-025
Matrix: Soil

Date Collected: 6/13/14
Date Received: 6/17/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	GNITAJOUPPI	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406131305 200-SB-8 43/45'		
Lab Code:	R1404589-026	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**99.1**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406131305 200-SB-8 43/45'		
Lab Code:	R1404589-026	**Basis:**	Dry
		Percent Solids:	99.1

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**7**	J	mg/Kg	30	6	1	6/23/14	6/23/14 14:46	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 18:12	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 18:05	
Cyanide, Total	9012B	ND	U	mg/Kg	0.094	0.015	1	6/24/14	6/25/14 11:18	
Nitrate+Nitrite as Nitrogen	353.2M	**2.2**	J	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:39	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Collected: 6/13/14
Date Received: 6/17/14

Sample Name: 1406131305 200-SB-8 43/45'
Lab Code: R1404589-026

Basis: Dry
Percent Solids: 99.1

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**2730**		mg/Kg	9.8	2.2	1	6/20/14	6/24/14 10:39	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	5.9	0.3	1	6/20/14	6/23/14 21:25	
Arsenic, Total	6010C	**4.50**		mg/Kg	0.98	0.29	1	6/20/14	6/24/14 10:39	
Barium, Total	6010C	**49.5**		mg/Kg	2.0	0.10	1	6/20/14	6/23/14 21:25	
Beryllium, Total	6020A	**0.32**	J	mg/Kg	0.48	0.02	5	6/20/14	7/1/14 16:50	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 21:25	
Cadmium, Total	6010C	**0.65**		mg/Kg	0.49	0.05	1	6/20/14	6/23/14 21:25	
Calcium, Total	6010C	**148000**		mg/Kg	4900	700	50	6/20/14	6/25/14 10:34	
Chromium, Total	6020A	**7.17**		mg/Kg	0.48	0.05	5	6/20/14	7/1/14 16:50	
Cobalt, Total	6020A	**2.41**		mg/Kg	0.48	0.04	5	6/20/14	7/1/14 16:50	
Copper, Total	6020A	**5.06**		mg/Kg	0.48	0.20	5	6/20/14	7/1/14 16:50	
Iron, Total	6010C	**9700**		mg/Kg	98	74	10	6/20/14	6/23/14 18:47	
Lead, Total	6010C	**10.9**		mg/Kg	4.9	0.03	1	6/20/14	6/23/14 21:25	
Magnesium, Total	6010C	**20500**		mg/Kg	98	2	1	6/20/14	6/23/14 21:25	
Manganese, Total	6010C	**289**		mg/Kg	0.98	0.12	1	6/20/14	6/23/14 21:25	
Mercury, Total	7471B	**0.004**	J	mg/Kg	0.033	0.003	1	6/20/14	6/20/14 18:57	
Molybdenum, Total	6010C	**3.2**		mg/Kg	2.4	0.07	1	6/20/14	6/23/14 21:25	
Nickel, Total	6010C	**6.8**		mg/Kg	3.9	0.10	1	6/20/14	6/23/14 21:25	
Potassium, Total	6010C	**880**		mg/Kg	200	20	1	6/20/14	6/23/14 21:25	
Selenium, Total	6010C	ND	U	mg/Kg	0.98	0.57	1	6/20/14	6/23/14 21:25	
Silver, Total	6010C	ND	U	mg/Kg	0.98	0.08	1	6/20/14	6/23/14 21:25	
Sodium, Total	6010C	**132**	B	mg/Kg	98	7	1	6/20/14	6/23/14 21:25	
Strontium, Total	6010C	**220**		mg/Kg	9.8	0.05	1	6/20/14	6/23/14 21:25	
Thallium, Total	6010C	ND	U	mg/Kg	0.98	0.75	1	6/20/14	6/23/14 21:25	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/20/14	6/23/14 21:25	
Titanium, Total	6010C	**52.3**		mg/Kg	4.9	0.10	1	6/20/14	6/23/14 21:25	
Uranium, Total	6020A	**1.43**		mg/Kg	0.48	0.0010	5	6/20/14	7/2/14 13:57	
Vanadium, Total	6010C	**10.7**		mg/Kg	4.9	0.2	1	6/20/14	6/23/14 21:25	
Zinc, Total	6010C	**42.7**		mg/Kg	2.0	0.2	1	6/20/14	6/23/14 21:25	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Sample Name: 1406131305 200-SB-8 43/45'
Lab Code: R1404589-026
Matrix: Soil

Date Collected: 6/13/14
Date Received: 6/17/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	GNITAJOUPPI	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406141705 200-SB-6 8/10'		
Lab Code:	R1404589-027	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	97.7		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406141705 200-SB-6 8/10'		
Lab Code:	R1404589-027	**Basis:**	Dry
		Percent Solids:	97.7

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 14:56	
Chromium, Hexavalent	7199	**0.04**	J	mg/Kg	0.39	0.03	1	6/20/14	6/23/14 18:19	
Chromium, Hexavalent	7199	**0.03**	J	mg/Kg	0.39	0.03	1	6/20/14	6/23/14 18:26	
Cyanide, Total	9012B	ND	U	mg/Kg	0.098	0.015	1	6/24/14	6/25/14 11:19	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.1	0.6	1	6/24/14	6/24/14 12:40	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406141705 200-SB-6 8/10'		
Lab Code:	R1404589-027	**Basis:**	Dry
		Percent Solids:	97.7

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**3620**		mg/Kg	9.7	2.2	1	6/20/14	6/24/14 10:46	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	5.8	0.3	1	6/20/14	6/23/14 21:31	
Arsenic, Total	6010C	**4.13**		mg/Kg	0.97	0.29	1	6/20/14	6/24/14 10:46	
Barium, Total	6010C	**40.2**		mg/Kg	1.9	0.10	1	6/20/14	6/23/14 21:31	
Beryllium, Total	6020A	**0.35**	J	mg/Kg	0.49	0.02	5	6/20/14	7/1/14 16:56	
Boron, Total	6010C	ND	U	mg/Kg	19	4	1	6/20/14	6/23/14 21:31	
Cadmium, Total	6010C	**0.30**	J	mg/Kg	0.49	0.05	1	6/20/14	6/23/14 21:31	
Calcium, Total	6010C	**103000**		mg/Kg	4900	700	50	6/20/14	6/25/14 10:40	
Chromium, Total	6020A	**5.85**		mg/Kg	0.49	0.05	5	6/20/14	7/1/14 16:56	
Cobalt, Total	6020A	**2.97**		mg/Kg	0.49	0.04	5	6/20/14	7/1/14 16:56	
Copper, Total	6020A	**5.70**		mg/Kg	0.49	0.20	5	6/20/14	7/1/14 16:56	
Iron, Total	6010C	**9380**		mg/Kg	97	74	10	6/20/14	6/23/14 18:53	
Lead, Total	6010C	**8.6**		mg/Kg	4.9	0.03	1	6/20/14	6/23/14 21:31	
Magnesium, Total	6010C	**20000**		mg/Kg	97	2	1	6/20/14	6/23/14 21:31	
Manganese, Total	6010C	**234**		mg/Kg	0.97	0.12	1	6/20/14	6/23/14 21:31	
Mercury, Total	7471B	**0.003**	J	mg/Kg	0.031	0.002	1	6/20/14	6/20/14 19:02	
Molybdenum, Total	6010C	**1.6**	J	mg/Kg	2.4	0.07	1	6/20/14	6/23/14 21:31	
Nickel, Total	6010C	**6.1**		mg/Kg	3.9	0.10	1	6/20/14	6/23/14 21:31	
Potassium, Total	6010C	**1130**		mg/Kg	190	20	1	6/20/14	6/23/14 21:31	
Selenium, Total	6010C	ND	U	mg/Kg	0.97	0.57	1	6/20/14	6/23/14 21:31	
Silver, Total	6010C	ND	U	mg/Kg	0.97	0.08	1	6/20/14	6/23/14 21:31	
Sodium, Total	6010C	**108**	B	mg/Kg	97	7	1	6/20/14	6/23/14 21:31	
Strontium, Total	6010C	**141**		mg/Kg	9.7	0.05	1	6/20/14	6/23/14 21:31	
Thallium, Total	6010C	ND	U	mg/Kg	0.97	0.75	1	6/20/14	6/23/14 21:31	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/20/14	6/23/14 21:31	
Titanium, Total	6010C	**69.4**		mg/Kg	4.9	0.10	1	6/20/14	6/23/14 21:31	
Uranium, Total	6020A	**1.14**		mg/Kg	0.49	0.0010	5	6/20/14	7/2/14 14:03	
Vanadium, Total	6010C	**18.0**		mg/Kg	4.9	0.2	1	6/20/14	6/23/14 21:31	
Zinc, Total	6010C	**36.3**		mg/Kg	1.9	0.2	1	6/20/14	6/23/14 21:31	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406141705 200-SB-6 8/10'	**Date Collected:**	6/14/14
Lab Code:	R1404589-027	**Date Received:**	6/17/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	GNITAJOUPPI	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406151130 200-SB-5 8/10'		
Lab Code:	R1404589-028	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**95.3**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406151130 200-SB-5 8/10'		
Lab Code:	R1404589-028	**Basis:**	Dry
		Percent Solids:	95.3

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 15:06	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 18:40	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 18:32	
Cyanide, Total	9012B	ND	U	mg/Kg	0.097	0.015	1	6/24/14	6/25/14 11:20	
Nitrate+Nitrite as Nitrogen	353.2M	**0.7**	J	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:41	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Collected: 6/15/14
Date Received: 6/17/14

Sample Name: 1406151130 200-SB-5 8/10'
Lab Code: R1404589-028

Basis: Dry
Percent Solids: 95.3

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**5080**		mg/Kg	10	3	1	6/20/14	6/24/14 10:53	
Antimony, Total	6010C	**0.9**	BJ	mg/Kg	6.2	0.3	1	6/20/14	6/23/14 21:37	
Arsenic, Total	6010C	**5.8**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 10:53	
Barium, Total	6010C	**73.6**		mg/Kg	2.1	0.10	1	6/20/14	6/23/14 21:37	
Beryllium, Total	6020A	**0.45**	J	mg/Kg	0.50	0.02	5	6/20/14	7/1/14 17:01	
Boron, Total	6010C	ND	U	mg/Kg	21	4	1	6/20/14	6/23/14 21:37	
Cadmium, Total	6010C	**0.32**	J	mg/Kg	0.52	0.05	1	6/20/14	6/23/14 21:37	
Calcium, Total	6010C	**63500**		mg/Kg	2100	300	20	6/20/14	6/25/14 10:46	
Chromium, Total	6020A	**7.56**		mg/Kg	0.50	0.05	5	6/20/14	7/1/14 17:01	
Cobalt, Total	6020A	**4.54**		mg/Kg	0.50	0.04	5	6/20/14	7/1/14 17:01	
Copper, Total	6020A	**6.36**		mg/Kg	0.50	0.20	5	6/20/14	7/1/14 17:01	
Iron, Total	6010C	**13100**		mg/Kg	100	80	10	6/20/14	6/23/14 18:59	
Lead, Total	6010C	**7.7**		mg/Kg	5.2	0.03	1	6/20/14	6/23/14 21:37	
Magnesium, Total	6010C	**17500**		mg/Kg	100	2	1	6/20/14	6/23/14 21:37	
Manganese, Total	6010C	**194**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 21:37	
Mercury, Total	7471B	ND	U	mg/Kg	0.035	0.003	1	6/20/14	6/20/14 19:03	
Molybdenum, Total	6010C	**0.8**	J	mg/Kg	2.6	0.07	1	6/20/14	6/23/14 21:37	
Nickel, Total	6010C	**9.7**		mg/Kg	4.2	0.10	1	6/20/14	6/23/14 21:37	
Potassium, Total	6010C	**1070**		mg/Kg	210	20	1	6/20/14	6/23/14 21:37	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 21:37	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 21:37	
Sodium, Total	6010C	**110**	B	mg/Kg	100	7	1	6/20/14	6/23/14 21:37	
Strontium, Total	6010C	**136**		mg/Kg	10	0.06	1	6/20/14	6/23/14 21:37	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 21:37	
Tin, Total	6010C	ND	U	mg/Kg	52	2	1	6/20/14	6/23/14 21:37	
Titanium, Total	6010C	**94.3**		mg/Kg	5.2	0.10	1	6/20/14	6/23/14 21:37	
Uranium, Total	6020A	**1.04**		mg/Kg	0.50	0.0010	5	6/20/14	7/2/14 14:10	
Vanadium, Total	6010C	**29.9**		mg/Kg	5.2	0.3	1	6/20/14	6/23/14 21:37	
Zinc, Total	6010C	**38.6**		mg/Kg	2.1	0.2	1	6/20/14	6/23/14 21:37	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Sample Name: 1406151130 200-SB-5 8/10'
Lab Code: R1404589-028
Matrix: Soil

Date Collected: 6/15/14
Date Received: 6/17/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	GNITAJOUPPI	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406151146 200-SB-5 8/10'		
Lab Code:	R1404589-029	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**96.9**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406151146 200-SB-5 8/10'		
Lab Code:	R1404589-029	**Basis:**	Dry
		Percent Solids:	96.9

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 15:36	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 18:46	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 18:53	
Cyanide, Total	9012B	ND	U	mg/Kg	0.10	0.02	1	6/24/14	6/25/14 11:20	
Nitrate+Nitrite as Nitrogen	353.2M	**0.8**	J	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:44	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/17/14
Sample Name:	1406151146 200-SB-5 8/10'		
Lab Code:	R1404589-029	**Basis:**	Dry
		Percent Solids:	96.9

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**5500**		mg/Kg	10	3	1	6/20/14	6/24/14 11:00	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	6.1	0.3	1	6/20/14	6/23/14 21:43	
Arsenic, Total	6010C	**5.4**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 11:00	
Barium, Total	6010C	**69.7**		mg/Kg	2.0	0.10	1	6/20/14	6/23/14 21:43	
Beryllium, Total	6020A	**0.44**	J	mg/Kg	0.51	0.02	5	6/20/14	7/1/14 17:23	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 21:43	
Cadmium, Total	6010C	**0.44**	J	mg/Kg	0.51	0.05	1	6/20/14	6/23/14 21:43	
Calcium, Total	6010C	**71800**		mg/Kg	2000	300	20	6/20/14	6/25/14 10:52	
Chromium, Total	6020A	**6.98**		mg/Kg	0.51	0.05	5	6/20/14	7/2/14 14:36	
Cobalt, Total	6020A	**4.60**		mg/Kg	0.51	0.04	5	6/20/14	7/1/14 17:23	
Copper, Total	6020A	**6.57**		mg/Kg	0.51	0.20	5	6/20/14	7/1/14 17:23	
Iron, Total	6010C	**16500**		mg/Kg	100	80	10	6/20/14	6/23/14 19:05	
Lead, Total	6010C	**11.7**		mg/Kg	5.1	0.03	1	6/20/14	6/23/14 21:43	
Magnesium, Total	6010C	**15200**		mg/Kg	100	2	1	6/20/14	6/23/14 21:43	
Manganese, Total	6010C	**215**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 21:43	
Mercury, Total	7471B	ND	U	mg/Kg	0.033	0.002	1	6/20/14	6/20/14 19:05	
Molybdenum, Total	6010C	**0.9**	J	mg/Kg	2.6	0.07	1	6/20/14	6/23/14 21:43	
Nickel, Total	6010C	**10.9**		mg/Kg	4.1	0.10	1	6/20/14	6/23/14 21:43	
Potassium, Total	6010C	**1220**		mg/Kg	200	20	1	6/20/14	6/23/14 21:43	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 21:43	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 21:43	
Sodium, Total	6010C	**110**	B	mg/Kg	100	7	1	6/20/14	6/23/14 21:43	
Strontium, Total	6010C	**157**		mg/Kg	10	0.06	1	6/20/14	6/23/14 21:43	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 21:43	
Tin, Total	6010C	ND	U	mg/Kg	51	2	1	6/20/14	6/23/14 21:43	
Titanium, Total	6010C	**102**		mg/Kg	5.1	0.10	1	6/20/14	6/23/14 21:43	
Uranium, Total	6020A	**1.15**		mg/Kg	0.51	0.0010	5	6/20/14	7/2/14 14:36	
Vanadium, Total	6010C	**39.6**		mg/Kg	5.1	0.2	1	6/20/14	6/23/14 21:43	
Zinc, Total	6010C	**38.5**		mg/Kg	2.0	0.2	1	6/20/14	6/23/14 21:43	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Sample Name: 1406151146 200-SB-5 8/10'
Lab Code: R1404589-029
Matrix: Soil

Date Collected: 6/15/14
Date Received: 6/17/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	GNITAJOUPPI	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404589-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/L	0.20	0.03	1	NA	6/24/14 19:30	
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/17/14 12:34	
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/17/14 12:34	
Cyanide, Total	9012B	ND	U	mg/L	0.010	0.003	1	6/24/14	6/24/14 12:10	
Nitrate+Nitrite as Nitrogen	353.2	ND	U	mg/L	0.050	0.002	1	NA	6/19/14 08:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404589-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404589-MB2	**Basis:**	Dry

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	30	6	1	6/23/14	6/23/14 11:35	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 16:41	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 16:49	
Cyanide, Total	9012B	ND	U	mg/Kg	0.10	0.02	1	6/24/14	6/25/14 11:12	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:19	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404589-MB3	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/23/14 13:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404589-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	ND	U	mg/L	0.10	0.03	1	6/19/14	6/25/14 16:10	
Antimony, Total	6020A	ND	U	mg/L	0.0010	0.0002	1	6/24/14	6/26/14 20:56	
Arsenic, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/19/14	6/25/14 16:10	
Barium, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/19/14	6/25/14 16:10	
Beryllium, Total	6010C	ND	U	mg/L	0.0030	0.0002	1	6/19/14	6/25/14 16:10	
Boron, Total	6010C	ND	U	mg/L	0.20	0.03	1	6/19/14	6/25/14 16:10	
Cadmium, Total	6010C	ND	U	mg/L	0.0050	0.0005	1	6/19/14	6/25/14 16:10	
Calcium, Total	6010C	ND	U	mg/L	1.0	0.2	1	6/19/14	6/26/14 18:25	
Chromium, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/19/14	6/25/14 16:10	
Cobalt, Total	6010C	ND	U	mg/L	0.050	0.002	1	6/19/14	6/25/14 16:10	
Copper, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/19/14	6/25/14 16:10	
Iron, Total	6010C	ND	U	mg/L	0.10	0.02	1	6/19/14	6/25/14 16:10	
Lead, Total	6010C	ND	U	mg/L	0.0050	0.0014	1	6/19/14	6/25/14 16:10	
Magnesium, Total	6010C	ND	U	mg/L	1.0	0.02	1	6/19/14	6/26/14 18:25	
Manganese, Total	6010C	ND	U	mg/L	0.010	0.002	1	6/19/14	6/25/14 16:10	
Mercury, Total	7470A	ND	U	mg/L	0.00020	0.00003	1	6/20/14	6/20/14 13:25	
Molybdenum, Total	6010C	ND	U	mg/L	0.025	0.002	1	6/19/14	6/25/14 16:10	
Nickel, Total	6010C	ND	U	mg/L	0.040	0.002	1	6/19/14	6/25/14 16:10	
Potassium, Total	6010C	ND	U	mg/L	2.0	0.2	1	6/19/14	6/25/14 16:10	
Selenium, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/19/14	6/25/14 16:10	
Silver, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/19/14	6/25/14 16:10	
Sodium, Total	6010C	ND	U	mg/L	1.0	0.09	1	6/19/14	6/25/14 16:10	
Strontium, Total	6010C	ND	U	mg/L	0.10	0.002	1	6/19/14	6/25/14 16:10	
Thallium, Total	6020A	ND	U	mg/L	0.0010	0.00004	1	6/24/14	6/27/14 12:36	
Tin, Total	6010C	ND	U	mg/L	0.50	0.05	1	6/19/14	6/25/14 16:10	
Titanium, Total	6010C	ND	U	mg/L	0.050	0.0008	1	6/19/14	6/25/14 16:10	
Uranium, Total	6020A	ND	U	mg/L	0.0010	0.000003	1	6/24/14	6/30/14 16:08	
Vanadium, Total	6010C	ND	U	mg/L	0.050	0.0007	1	6/19/14	6/25/14 16:10	
Zinc, Total	6010C	ND	U	mg/L	0.020	0.005	1	6/19/14	6/25/14 16:10	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: R1404589-MB2

Basis: Dry

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	ND	U	mg/Kg	10	3	1	6/20/14	6/24/14 08:47	
Antimony, Total	6010C	**1.0**	J	mg/Kg	6.0	0.3	1	6/20/14	6/23/14 17:23	
Arsenic, Total	6010C	ND	U	mg/Kg	1.0	0.3	1	6/20/14	6/24/14 08:47	
Barium, Total	6010C	ND	U	mg/Kg	2.0	0.10	1	6/20/14	6/23/14 17:23	
Beryllium, Total	6020A	ND	U	mg/Kg	0.50	0.02	5	6/20/14	7/1/14 15:29	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 17:23	
Cadmium, Total	6010C	ND	U	mg/Kg	0.50	0.05	1	6/20/14	6/23/14 17:23	
Calcium, Total	6010C	ND	U	mg/Kg	100	20	1	6/20/14	6/25/14 09:04	
Chromium, Total	6020A	**0.1**	J	mg/Kg	0.50	0.05	5	6/20/14	7/1/14 15:29	
Cobalt, Total	6020A	ND	U	mg/Kg	0.50	0.04	5	6/20/14	7/1/14 15:29	
Copper, Total	6020A	**0.35**	J	mg/Kg	0.50	0.20	5	6/20/14	7/1/14 15:29	
Iron, Total	6010C	ND	U	mg/Kg	10	8	1	6/20/14	6/23/14 17:23	
Lead, Total	6010C	**0.04**	J	mg/Kg	5.0	0.03	1	6/20/14	6/23/14 17:23	
Magnesium, Total	6010C	ND	U	mg/Kg	100	2	1	6/20/14	6/23/14 17:23	
Manganese, Total	6010C	**0.6**	J	mg/Kg	1.0	0.2	1	6/20/14	6/23/14 17:23	
Mercury, Total	7471B	ND	U	mg/Kg	0.033	0.002	1	6/20/14	6/20/14 18:45	
Molybdenum, Total	6010C	ND	U	mg/Kg	2.5	0.07	1	6/20/14	6/23/14 17:23	
Nickel, Total	6010C	ND	U	mg/Kg	4.0	0.10	1	6/20/14	6/23/14 17:23	
Potassium, Total	6010C	ND	U	mg/Kg	200	20	1	6/20/14	6/23/14 17:23	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 17:23	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 17:23	
Sodium, Total	6010C	**10**	J	mg/Kg	100	7	1	6/20/14	6/23/14 17:23	
Strontium, Total	6010C	ND	U	mg/Kg	10	0.05	1	6/20/14	6/23/14 17:23	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 17:23	
Tin, Total	6010C	ND	U	mg/Kg	50	2	1	6/20/14	6/23/14 17:23	
Titanium, Total	6010C	**0.1**	J	mg/Kg	5.0	0.10	1	6/20/14	6/23/14 17:23	
Uranium, Total	6020A	ND	U	mg/Kg	0.50	0.0010	5	6/20/14	7/2/14 12:23	
Vanadium, Total	6010C	ND	U	mg/Kg	5.0	0.2	1	6/20/14	6/23/14 17:23	
Zinc, Total	6010C	**0.4**	J	mg/Kg	2.0	0.2	1	6/20/14	6/23/14 17:23	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/23/14
		Date Analyzed:	6/23/14 08:53
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407014-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398569
Prep Method:	Method	**Extraction Lot:**	211378
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062314\B0031526.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404589
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 16:30
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1407129-01	**Basis:**	Dry

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031547.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.32	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Analyzed: 6/23/14 - 6/25/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404589-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Chloride	9056A	213	200	107	80 - 120
Chromium, Hexavalent	7199	625	656	95	80 - 120
Chromium, Hexavalent	7199	627	656	96	80 - 120
Cyanide, Total	9012B	1.01	1.00	100	85 - 115
Nitrate+Nitrite as Nitrogen	353.2M	48.2	50.0	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Analyzed: 6/25/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404589-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	9012B	3.91	4.00	98	85 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404589
Date Analyzed: 6/17/14 - 6/24/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404589-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Chloride	9056A	1.99	2.00	99	80 - 120
Chromium, Hexavalent	7199	0.207	0.200	103	85 - 115
Chromium, Hexavalent	7199	0.206	0.200	103	85 - 115
Cyanide, Total	9012B	0.0950	0.100	95	85 - 115
Nitrate+Nitrite as Nitrogen	353.2	0.487	0.500	97	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404589
Date Analyzed: 6/24/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404589-LCS4 Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	9012B	0.395	0.400	99	85 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Analyzed: 6/20/14 - 7/ 2/14

Lab Control Sample Summary
Inorganic Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404589-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	184	200	92	80 - 120
Antimony, Total	6010C	44.7	50.0	89	80 - 120
Arsenic, Total	6010C	3.70	4.0	92	80 - 120
Barium, Total	6010C	195	200	98	80 - 120
Beryllium, Total	6020A	1.89	2.00	95	80 - 120
Boron, Total	6010C	90.7	100	91	80 - 120
Cadmium, Total	6010C	4.60	5.00	92	80 - 120
Calcium, Total	6010C	194	200	97	80 - 120
Chromium, Total	6020A	1.79	2.00	90	80 - 120
Cobalt, Total	6020A	1.78	2.00	89	80 - 120
Copper, Total	6020A	1.70	2.00	85	80 - 120
Iron, Total	6010C	99.9	100	100	80 - 120
Lead, Total	6010C	47.4	50.0	95	80 - 120
Magnesium, Total	6010C	195	200	98	80 - 120
Manganese, Total	6010C	48.6	50.0	97	80 - 120
Mercury, Total	7471B	0.166	0.167	100	80 - 120
Molybdenum, Total	6010C	47.9	50.0	96	80 - 120
Nickel, Total	6010C	49.5	50.0	99	80 - 120
Potassium, Total	6010C	1940	2000	97	80 - 120
Selenium, Total	6010C	83.5	101	83	80 - 120
Silver, Total	6010C	4.82	5.0	96	80 - 120
Sodium, Total	6010C	1970	2000	99	80 - 120
Strontium, Total	6010C	186	200	93	80 - 120
Thallium, Total	6010C	177	200	88	80 - 120
Tin, Total	6010C	507	500	101	80 - 120
Titanium, Total	6010C	49.5	50.0	99	80 - 120
Uranium, Total	6020A	2.01	2.00	100	80 - 120
Vanadium, Total	6010C	49.1	50.0	98	80 - 120
Zinc, Total	6010C	48.7	50.0	97	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404589
Date Analyzed: 6/20/14 - 6/30/14

Lab Control Sample Summary
Inorganic Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404589-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	1.92	2.00	96	80 - 120
Antimony, Total	6020A	0.0191	0.0200	96	80 - 120
Arsenic, Total	6010C	0.0372	0.040	93	80 - 120
Barium, Total	6010C	2.10	2.00	105	80 - 120
Beryllium, Total	6010C	0.0499	0.0500	100	80 - 120
Boron, Total	6010C	0.973	1.00	97	80 - 120
Cadmium, Total	6010C	0.0508	0.0500	102	80 - 120
Calcium, Total	6010C	2.05	2.0	103	80 - 120
Chromium, Total	6010C	0.214	0.200	107	80 - 120
Cobalt, Total	6010C	0.508	0.500	102	80 - 120
Copper, Total	6010C	0.262	0.250	105	80 - 120
Iron, Total	6010C	1.04	1.00	104	80 - 120
Lead, Total	6010C	0.520	0.500	104	80 - 120
Magnesium, Total	6010C	2.14	2.0	107	80 - 120
Manganese, Total	6010C	0.515	0.500	103	80 - 120
Mercury, Total	7470A	0.00103	0.00100	103	80 - 120
Molybdenum, Total	6010C	0.503	0.500	101	80 - 120
Nickel, Total	6010C	0.527	0.500	105	80 - 120
Potassium, Total	6010C	19.8	20.0	99	80 - 120
Selenium, Total	6010C	0.984	1.01	97	80 - 120
Silver, Total	6010C	0.0518	0.050	104	80 - 120
Sodium, Total	6010C	20.4	20.0	102	80 - 120
Strontium, Total	6010C	1.97	2.00	98	80 - 120
Thallium, Total	6020A	0.0216	0.0200	108	80 - 120
Tin, Total	6010C	5.39	5.00	108	80 - 120
Titanium, Total	6010C	0.522	0.500	104	80 - 120
Uranium, Total	6020A	0.0207	0.0200	103	80 - 120
Vanadium, Total	6010C	0.518	0.500	104	80 - 120
Zinc, Total	6010C	0.524	0.500	105	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404589
Date Analyzed: 6/23/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 211378

	Lab Control Sample RQ1407014-02			Duplicate Lab Control Sample RQ1407014-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.170	0.200	85	0.180	0.200	90	80 - 120	6	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404589
Date Analyzed: 6/23/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 211378

	Lab Control Sample RQ1407014-08			Duplicate Lab Control Sample RQ1407014-09					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.170	0.200	85	0.0900	0.100	90	80 - 120	62 *	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Analyzed: 6/24/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/Kg
Basis: Dry

Extraction Lot: 211546

	Lab Control Sample RQ1407129-02			Duplicate Lab Control Sample RQ1407129-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	1.80	2.00	90	1.80	2.00	90	80 - 120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404589
Date Analyzed: 6/24/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Units: µg/Kg
Basis: Dry

Analysis Lot: 398819

	Lab Control Sample RQ1407195-04			Duplicate Lab Control Sample RQ1407195-05					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	1.80	2.00	90	0.900	1.00	90	80 - 120	67 *	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number R1404589

Cooler received on 6/17/14 by: JBS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 6/17 Time: 0956 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	1.2	3.6	2.7				
Correction Factor (°C)	–	–	–				
Corrected Temp (°C)	1.2	3.6	2.7				
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: rm2 by JS on 6/17 at 0956
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: JMS 6/17/14

Cooler Breakdown: Date: 6-17-14 Time: 14:00 by: AZ

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH	✓		Lot info covered by client label					
≤2	HNO_3	✓		Lot info covered by client label					
≤2	H_2SO_4	✓		Lot inf covered by client label					
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: Lot information covered by client label.

Other Comments:

PC Secondary Review: JMS 7/7/14 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

SUPPORTING DOCUMENTATION

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Continuing Calibration Verification (CCV) Summary
Chloride

Analytical Method: 9056A

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398625	RQ1407218-04	6/23/14 11:15	3.25	3.39	104	90 - 110
CCV2	398625	RQ1407218-03	6/23/14 13:16	3.25	3.43	106	90 - 110
CCV3	398625	RQ1407218-02	6/23/14 15:16	3.25	3.46	106	90 - 110
CCV4	398625	RQ1407218-01	6/23/14 16:06	3.25	3.46	106	90 - 110
CCV5	398802	RQ1407187-06	6/24/14 19:17	3.25	3.34	103	90 - 110
CCV6	398802	RQ1407187-07	6/24/14 21:46	3.25	3.37	104	90 - 110
CCV7	398802	RQ1407187-08	6/24/14 23:50	3.25	3.38	104	90 - 110

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Continuing Calibration Verification (CCV) Summary
Chromium, Hexavalent

Analytical Method: 7199

Units: ppm

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397662	RQ1406776-03	6/17/14 12:27	0.500	0.500	100	90 - 110
CCV2	397662	RQ1406776-03	6/17/14 12:27	0.500	0.500	100	90 - 110
CCV3	397662	RQ1406776-04	6/17/14 13:50	0.500	0.501	100	90 - 110
CCV4	397662	RQ1406776-04	6/17/14 13:50	0.500	0.501	100	90 - 110
CCV5	397662	RQ1406776-05	6/17/14 14:34	0.500	0.502	100	90 - 110
CCV6	397662	RQ1406776-05	6/17/14 14:34	0.500	0.502	100	90 - 110
CCV7	398788	RQ1407180-01	6/23/14 16:10	0.500	0.502	100	90 - 110
CCV8	398788	RQ1407180-01	6/23/14 16:10	0.500	0.502	100	90 - 110
CCV9	398788	RQ1407180-02	6/23/14 17:36	0.500	0.504	101	90 - 110
CCV10	398788	RQ1407180-02	6/23/14 17:36	0.500	0.504	101	90 - 110
CCV11	398788	RQ1407180-03	6/23/14 19:03	0.500	0.503	101	90 - 110
CCV12	398788	RQ1407180-03	6/23/14 19:03	0.500	0.503	101	90 - 110
CCV13	398788	RQ1407180-04	6/23/14 20:26	0.500	0.501	100	90 - 110
CCV14	398788	RQ1407180-04	6/23/14 20:26	0.500	0.501	100	90 - 110
CCV15	398788	RQ1407180-05	6/23/14 21:50	0.500	0.497	99	90 - 110
CCV16	398788	RQ1407180-05	6/23/14 21:50	0.500	0.497	99	90 - 110

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Continuing Calibration Verification (CCV) Summary
Cyanide, Total

Analytical Method: 9012B

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398656	RQ1407131-01	6/24/14 12:09	0.500	0.508	102	85 - 115
CCV2	398656	RQ1407131-03	6/24/14 12:18	0.500	0.508	102	85 - 115
CCV3	398656	RQ1407131-05	6/24/14 12:28	0.500	0.508	102	85 - 115
CCV4	398656	RQ1407131-07	6/24/14 12:37	0.500	0.510	102	85 - 115
CCV5	398865	RQ1407215-01	6/25/14 11:07	0.500	0.525	105	85 - 115
CCV6	398865	RQ1407215-03	6/25/14 11:17	0.500	0.507	101	85 - 115
CCV7	398865	RQ1407215-05	6/25/14 11:26	0.500	0.510	102	85 - 115

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404589

Continuing Calibration Verification (CCV) Summary
Nitrate+Nitrite as Nitrogen

Analytical Method: 353.2

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397880	RQ1406871-01	6/19/14 08:19	0.900	0.875	97	90 - 110
CCV2	397880	RQ1406871-06	6/19/14 08:31	0.900	0.862	96	90 - 110
CCV3	397880	RQ1406871-11	6/19/14 08:44	0.900	0.867	96	90 - 110
CCV4	397880	RQ1406871-14	6/19/14 08:57	0.900	0.834	93	90 - 110

Client: NASA/WSTF/Navarro **Service Request:** R1404589
Project: White Sands Test Facility/13EC059B

Continuing Calibration Verification (CCV) Summary
Nitrate+Nitrite as Nitrogen

Analytical Method: 353.2M **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398613	RQ1407113-01	6/24/14 12:17	0.900	0.899	100	90 - 110
CCV2	398613	RQ1407113-04	6/24/14 12:30	0.900	0.886	98	90 - 110
CCV3	398613	RQ1407113-06	6/24/14 12:42	0.900	0.889	99	90 - 110
CCV4	398613	RQ1407113-08	6/24/14 13:00	0.900	0.885	98	90 - 110

Preparation Information Benchsheet

Prep Run#: 211473
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 10:00 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407071-03	MB		1g	9056A/Chloride				100.00mL			
2	RQ1407071-04	LCS		1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
3	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1g	9056A/Chloride				100.00mL			
4	R1404421-009	1406091615 200-SB-21	.01	1g	9056A/Chloride				100.00mL			
5	R1404421-010	1406091750 200-SB-21	.01	1g	9056A/Chloride				100.00mL			
6	R1404273-005	1406041206 200-SB-20 30'	.01	1g	9056A/Chloride				100.00mL			
7	R1404273-006	1406041725 200-SB-20 50'	.01	1g	9056A/Chloride				100.00mL			
8	R1404507-006	1406111505 200-SB-7 8-10'	.02	1g	9056A/Chloride				100.00mL			
9	RQ1407071-01	R1404507-006 DUP	.02	1g	9056A/Chloride				100.00mL			
10	RQ1407071-02	R1404507-006 MS	.02	1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
11	R1404507-007	1406111635 200-SB-7 18-21'	.01	1g	9056A/Chloride				100.00mL			
12	R1404507-008	1406120935 200-SB-7 38-40'	.01	1g	9056A/Chloride				100.00mL			
13	R1404622-007	1406161405 200-SB-13 8/10'	.01	1g	9056A/Chloride				100.00mL			
14	R1404589-016	1406130805 200-SB-8 8/10'	.01	1g	9056A/Chloride				100.00mL			
15	R1404589-017	1406130815 200-SB-8 8/10'	.01	1g	9056A/Chloride				100.00mL			
16	R1404589-025	1406130945 200-SB-8 28/30'	.01	1g	9056A/Chloride				100.00mL			
17	R1404589-026	1406131305 200-SB-8 43/45'	.01	1g	9056A/Chloride				100.00mL			
18	R1404589-027	1406141705 200-SB-6 8/10'	.01	1g	9056A/Chloride				100.00mL			
19	R1404589-028	1406151130 200-SB-5 8/10'	.01	1g	9056A/Chloride				100.00mL			
20	R1404589-029	1406151146 200-SB-5 8/10'	.01	1g	9056A/Chloride				100.00mL			

Spiking Solutions

Name: 300.0 Calibration/LCS/MS Intermediate : Inventory ID 71260 Logbook Ref: WC118013A Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 6/23/14 10:00
Finished: 6/23/14 10:05
By: CWOODS
Comments

Preparation Information Benchsheet

Prep Run#: 211473
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 10:00 AM

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Schedule File: C:\PeakNet\Schedule\SCHEDULES\IC#6\6-062314.sch 06-23-14 IC#6

Line	Sample	Sample Type	Level	Method	Data File	Dilution	Comment
1	CCV	Sample		6-052814.met	623_001.dxd	1	300.0/9056A/26A
2	CCB	Sample		6-052814.met	623_002.dxd	1	300.0/9056A/26A
3	SOIL METHOD BLANK	Sample		6-052814.met	623_003.dxd	1	9056A C (1g SAMPLE -> 100g DI)
4	SOIL LCS	Sample		6-052814.met	623_004.dxd	1	9056A C (1g SAMPLE -> 100g DI)
5	R1404421-008	Sample		6-052814.met	623_005.dxd	1	9056A C (1g SAMPLE -> 100g DI)
6	R1404421-009	Sample		6-052814.met	623_006.dxd	1	9056A C (1g SAMPLE -> 100g DI)
7	R1404421-010	Sample		6-052814.met	623_007.dxd	1	9056A C (1g SAMPLE -> 100g DI)
8	R1404273-005	Sample		6-052814.met	623_008.dxd	1	9056A C (1g SAMPLE -> 100g DI)
9	R1404273-006	Sample		6-052814.met	623_009.dxd	1	9056A C (1g SAMPLE -> 100g DI)
10	R1404507-006	Sample		6-052814.met	623_010.dxd	1	9056A C (1g SAMPLE -> 100g DI)
11	R1404507-006 EXT DUP	Sample		6-052814.met	623_011.dxd	1	9056A C (1g SAMPLE -> 100g DI)
12	R1404507-006 EXT SPK	Sample		6-052814.met	623_012.dxd	1	9056A C (1g SAMPLE -> 100g DI)
13	CCV	Sample		6-052814.met	623_013.dxd	1	300.0/9056A/26A
14	CCB	Sample		6-052814.met	623_014.dxd	1	300.0/9056A/26A
15	R1404507-007	Sample		6-052814.met	623_015.dxd	1	9056A C (1g SAMPLE -> 100g DI)
16	R1404507-008	Sample		6-052814.met	623_016.dxd	1	9056A C (1g SAMPLE -> 100g DI)
17	R1404622-007	Sample		6-052814.met	623_017.dxd	1	9056A C (1g SAMPLE -> 100g DI)
18	R1404622-008	Sample		6-052814.met	623_018.dxd	1	9056A C (1g SAMPLE -> 100g DI)
19	R1404589-016	Sample		6-052814.met	623_019.dxd	1	9056A C (1g SAMPLE -> 100g DI)
20	R1404589-017	Sample		6-052814.met	623_020.dxd	1	9056A C (1g SAMPLE -> 100g DI)
21	R1404589-025	Sample		6-052814.met	623_021.dxd	1	9056A C (1g SAMPLE -> 100g DI)
22	R1404589-026	Sample		6-052814.met	623_022.dxd	1	9056A C (1g SAMPLE -> 100g DI)
23	R1404589-027	Sample		6-052814.met	623_023.dxd	1	9056A C (1g SAMPLE -> 100g DI)
24	R1404589-028	Sample		6-052814.met	623_024.dxd	1	9056A C (1g SAMPLE -> 100g DI)
25	CCV	Sample		6-052814.met	623_025.dxd	1	300.0/9056A/26A
26	CCB	Sample		6-052814.met	623_026.dxd	1	300.0/9056A/26A
27	R1404589-029	Sample		6-052814.met	623_027.dxd	1	9056A C (1g SAMPLE -> 100g DI)
28	CCV	Sample		6-052814.met	623_028.dxd	1	300.0/9056A/26A
29	CCB	Sample		6-052814.met	623_029.dxd	1	300.0/9056A/26A

Default Method Path: C:\PEAKNET\METHOD\IC#6\DI METHODS
Default Data Path: C:\PEAKNET\DATA\IC#6\062314
Comment:

Analyst: CWoods
Pipets: FRED
BARNEY

Tier II

~~R4422~~
R4421
R4273
R4507
R4622
R4589

Reviewed & Approved
By: CW
Date: 6/25/14

06-24-14 IC#3 Analyst: GWoods Pipets: Barney FRED

System	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Level	Injections	Done	Sample Info 1	Sample Info 2
metrohm.smt	CCV	1	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	2	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	LCS	3	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404746-001	4	1.0	1.0	1.0	100.0	0	1	1	300.0 FCS	DRINKING WATER
metrohm.smt	R1404746-002	5	1.0	1.0	1.0	100.0	0	1	1	300.0 FCS	DRINKING WATER
metrohm.smt	R1404746-003	6	1.0	1.0	1.0	100.0	0	1	1	300.0 FCS	DRINKING WATER
metrohm.smt	R1404776-001	7	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-002	8	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003	9	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003 MS	10	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003 MSD	11	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404683-010	12	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	CCV	13	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	14	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	Tier III
metrohm.smt	R1404560-002	15	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404560-002	16	1.0	10.0	1.0	100.0	0	1	1	300.0 C	R4560
metrohm.smt	R1404560-002 MS	17	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404560-002 MSD	18	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404560-002	19	1.0	50.0	1.0	100.0	0	1	1	300.0 S	R4507
metrohm.smt	R1404564-009	20	1.0	40.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404564-011	21	1.0	40.0	1.0	100.0	0	1	1	300.0 C	R4622
metrohm.smt	R1404564-017	22	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404564-017 MS	23	1.0	20.0	1.0	100.0	0	1	1	300.0 C	R4589
metrohm.smt	R1404564-017 MSD	24	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	CCV	25	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	26	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404658-009	27	1.0	40.0	1.0	100.0	0	1	1	300.0 S	
metrohm.smt	R1404715-001	28	1.0	10.0	1.0	100.0	0	1	1	300.0 S	Tier IV
metrohm.smt	R1404582-001	29	1.0	200.0	1.0	100.0	0	1	1	300.0 S	
metrohm.smt	R1404429-009	30	1.0	10.0	1.0	100.0	0	1	1	300.0 S	R4564 — BA
metrohm.smt	R1404429-078	31	1.0	100.0	1.0	100.0	0	1	1	300.0 S	
metrohm.smt	LCS	32	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404413-001	33	1.0	10.0	1.0	100.0	0	1	1	9056A S	R4658 —
metrohm.smt	R1404507-003	34	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404776-001	35	1.0	20.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003	36	1.0	20.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	CCV	37	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	38	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404444-001	39	1.0	10.0	1.0	100.0	0	1	1	9056A S	
metrohm.smt	R1404444-002	40	1.0	10.0	1.0	100.0	0	1	1	9056A S	
metrohm.smt	R1404622-003	41	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-003	42	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-009	43	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-014	44	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-014 MS	45	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-014 MSD	46	1.0	10.0	1.0	100.0	0	1	1	9056A C	

Reviewed & Approved

By: CH

Date: 6/25/14

00118

System	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Level	Injections	Done	Sample Info 1	Sample Info 2
metrohm.smt	*CCV*	47	1.0	1.0	1.0	100.0	0	1	1	*300.0/9056A/26A*	
metrohm.smt	*CCB*	48	1.0	1.0	1.0	100.0	0	1	1	*300.0/9056A/26A*	

00179

06-17-14 IC#8 7199RL Analyst: CWoods Pipets: Barney FERB

Injection Number	Injection Name	Type	Level	Processing Method	Inject Time	Dilution	Comment
1	STANDARD 1	Calibration Standard	01	8-061714RL	17/06/14 11:41	1.0	7199/218.6 RL
2	STANDARD 2	Calibration Standard	02	8-061714RL	17/06/14 11:48	1.0	7199/218.6 RL
3	STANDARD 3	Calibration Standard	03	8-061714RL	17/06/14 11:55	1.0	7199/218.6 RL
4	STANDARD 4	Calibration Standard	04	8-061714RL	17/06/14 12:02	1.0	7199/218.6 RL
5	STANDARD 5	Calibration Standard	05	8-061714RL	17/06/14 12:10	1.0	7199/218.6 RL
6	ICV	Unknown		8-061714RL	17/06/14 12:27	1.0	7199/218.6 RL
7	ICB	Unknown		8-061714RL	17/06/14 12:34	1.0	7199/218.6 RL
8	WATER LCS	Unknown		8-061714RL	17/06/14 12:42	1.0	7199/218.6 RL
9	WATER LCS	Unknown		8-061714RL	17/06/14 12:49	1.0	7199 REPLICATE
10	140613	Unknown		8-061714RL	17/06/14 12:55	1.0	7199
11	140613	Unknown		8-061714RL	17/06/14 13:03	1.0	7199 REPLICATE
12	140614	Unknown		8-061714RL	17/06/14 13:09	1.0	7199
13	140614	Unknown		8-061714RL	17/06/14 13:17	1.0	7199 REPLICATE
14	140615	Unknown		8-061714RL	17/06/14 13:23	1.0	7199
15	140615	Unknown		8-061714RL	17/06/14 13:30	1.0	7199 REPLICATE
16	140615 MS	Unknown		8-061714RL	17/06/14 13:37	1.0	7199
17	140615 MS	Unknown		8-061714RL	17/06/14 13:44	1.0	7199 REPLICATE
18	CCV	Unknown		8-061714RL	17/06/14 13:50	1.0	7199/218.6 RL
19	CCB	Unknown		8-061714RL	17/06/14 13:58	1.0	7199/218.6 RL
20	140615 MSD	Unknown		8-061714RL	17/06/14 14:06	1.0	7199
21	140615 MSD	Unknown		8-061714RL	17/06/14 14:14	1.0	7199 REPLICATE
22	CCV	Unknown		8-061714RL	17/06/14 14:34	1.0	7199/218.6 RL
23	CCB	Unknown		8-061714RL	17/06/14 14:42	1.0	7199/218.6 RL
24	CCV	Unknown		8-061714RL	17/06/14 20:31	1.0	7199/218.6 RL
25	CCB	Unknown		8-061714RL	17/06/14 20:39	1.0	7199/218.6 RL
26	SOIL METHOD BLANK	Unknown		8-061714RL	17/06/14 21:02	1.0	7199
27	SOIL METHOD BLANK	Unknown		8-061714RL	17/06/14 21:09	1.0	7199 REPLICATE
28	SOIL LCS	Unknown		8-061714RL	17/06/14 21:15	20.0	7199
29	SOIL LCS	Unknown		8-061714RL	17/06/14 21:23	20.0	7199 REPLICATE
30	R1404507-006	Unknown		8-061714RL	17/06/14 21:29	1.0	7199
31	R1404507-006	Unknown		8-061714RL	17/06/14 21:36	1.0	7199 REPLICATE
32	R1404507-006 DUP	Unknown		8-061714RL	17/06/14 21:43	1.0	7199
33	R1404507-006 DUP	Unknown		8-061714RL	17/06/14 21:50	1.0	7199 REPLICATE
34	R1404507-006 SOL	Unknown		8-061714RL	17/06/14 21:56	2.0	7199
35	R1404507-006 SOL	Unknown		8-061714RL	17/06/14 22:04	2.0	7199 REPLICATE

Ter III
R4507

Ter IV
R 4357

Reviewed & Approved
By: CK
Date: 6/18/14

00120

36	CCV	Unknown	8-061714RL	17/06/14 22:10	1.0	7199/218.6 RL
37	CCB	Unknown	8-061714RL	17/06/14 22:18	1.0	7199/218.6 RL
38	R1404507-006 INSOL	Unknown	8-061714RL	17/06/14 22:26	20.0	7199
39	R1404507-006 INSOL	Unknown	8-061714RL	17/06/14 22:34	20.0	7199 REPLICATE
40	R1404507-006 PVS	Unknown	8-061714RL	17/06/14 22:40	2.0	7199
41	R1404507-006 PVS	Unknown	8-061714RL	17/06/14 22:47	2.0	7199 REPLICATE
42	R1404507-007	Unknown	8-061714RL	17/06/14 22:54	1.0	7199
43	R1404507-007	Unknown	8-061714RL	17/06/14 23:01	1.0	7199 REPLICATE
44	R1404507-008	Unknown	8-061714RL	17/06/14 23:07	1.0	7199
45	R1404507-008	Unknown	8-061714RL	17/06/14 23:15	1.0	7199 REPLICATE
46	R1404352-001	Unknown	8-061714RL	17/06/14 23:21	1.0	7199
47	R1404352-001	Unknown	8-061714RL	17/06/14 23:29	1.0	7199 REPLICATE
48	CCV	Unknown	8-061714RL	17/06/14 23:35	1.0	7199/218.6 RL
49	CCB	Unknown	8-061714RL	17/06/14 23:43	1.0	7199/218.6 RL
50	R1404352-002	Unknown	8-061714RL	17/06/14 23:52	1.0	7199
51	R1404352-002	Unknown	8-061714RL	17/06/14 23:59	1.0	7199 REPLICATE
52	R1404352-003	Unknown	8-061714RL	18/06/14 00:05	1.0	7199
53	R1404352-003	Unknown	8-061714RL	18/06/14 00:13	1.0	7199 REPLICATE
54	R1404352-004	Unknown	8-061714RL	18/06/14 00:19	1.0	7199
55	R1404352-004	Unknown	8-061714RL	18/06/14 00:27	1.0	7199 REPLICATE
56	R1404352-005	Unknown	8-061714RL	18/06/14 00:33	1.0	7199
57	R1404352-005	Unknown	8-061714RL	18/06/14 00:40	1.0	7199 REPLICATE
58	R1404357-001	Unknown	8-061714RL	18/06/14 00:47	1.0	7199
59	R1404357-001	Unknown	8-061714RL	18/06/14 00:54	1.0	7199 REPLICATE
60	CCV	Unknown	8-061714RL	18/06/14 01:00	1.0	7199/218.6 RL
61	CCB	Unknown	8-061714RL	18/06/14 01:08	1.0	7199/218.6 RL
62	R1404357-002	Unknown	8-061714RL	18/06/14 01:15	1.0	7199
63	R1404357-002	Unknown	8-061714RL	18/06/14 01:23	1.0	7199 REPLICATE
64	R1404357-003	Unknown	8-061714RL	18/06/14 01:29	1.0	7199
65	R1404357-003	Unknown	8-061714RL	18/06/14 01:37	1.0	7199 REPLICATE
66	R1404457-001	Unknown	8-061714RL	18/06/14 01:43	1.0	7199
67	R1404457-001	Unknown	8-061714RL	18/06/14 01:50	1.0	7199 REPLICATE
68	R1404457-002	Unknown	8-061714RL	18/06/14 01:57	1.0	7199
69	R1404457-002	Unknown	8-061714RL	18/06/14 02:04	1.0	7199 REPLICATE
70	R1404342-001	Unknown	8-061714RL	18/06/14 02:10	1.0	7199
71	R1404342-001	Unknown	8-061714RL	18/06/14 02:18	1.0	7199 REPLICATE
72	CCV	Unknown	8-061714RL	18/06/14 02:24	1.0	7199/218.6 RL
73	CCB	Unknown	8-061714RL	18/06/14 02:32	1.0	7199/218.6 RL
74	R1404342-003	Unknown	8-061714RL	18/06/14 02:40	1.0	7199

75	R1404342-003	Unknown	8-061714RL	18/06/14 02:48	1.0	7199 REPLICATE
76	CCV	Unknown	8-061714RL	18/06/14 02:54	1.0	7199/218.6 RL
77	CCB	Unknown	8-061714RL	18/06/14 03:02	1.0	7199/218.6 RL

Preparation Information Benchsheet

Prep Run#: 211351
Team: GenChem/CWOODS

Prep WorkFlow: Gen Dig Cr6
Prep Method: EPA 3060A

Status: Prepped
Prep Date/Time: 6/20/14 06:35 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406993-04	MB		2.5g	7199/Cr6				100.00mL			
2	RQ1406993-05	LCS		2.5g	7199/Cr6				100.00mL		10.2000 mg/54146	
3	R1404589-016	1406130805 200-SB-8 8/10'	.01	2.6000g	7199/Cr6				100.00mL			
4	R1404589-017	1406130815 200-SB-8 8/10'	.01	2.5700g	7199/Cr6				100.00mL			
5	R1404589-025	1406130945 200-SB-8 28/30'	.01	2.5g	7199/Cr6				100.00mL			
6	R1404589-026	1406131305 200-SB-8 43/45'	.01	2.5100g	7199/Cr6				100.00mL			
7	R1404589-027	1406141705 200-SB-6 8/10'	.01	2.6000g	7199/Cr6				100.00mL			
8	R1404589-028	1406151130 200-SB-5 8/10'	.01	2.6000g	7199/Cr6				100.00mL			
9	R1404589-029	1406151146 200-SB-5 8/10'	.01	2.5000g	7199/Cr6				100.00mL			
10	R1404622-007	1406161405 200-SB-13 8/10'	.01	2.5400g	7199/Cr6				100.00mL			
11	R1404622-008	1406161550 200-SB-28 30/32'	.01	2.5500g	7199/Cr6				100.00mL			
12	RQ1406993-01	R1404622-008 DUP	.01	2.6000g	7199/Cr6				100.00mL			
13	RQ1406993-02	R1404622-008 MS	.01	2.5100g	7199/Cr6				100.00mL		1.0000 mL/60022	
14	RQ1406993-03	R1404622-008 MS	.01	2.5g	7199/Cr6				100.00mL		10.5000 mg/54146	
15	R1404633-001	IDW-SO-061714-01	.03	2.5200g	7199/Cr6				100.00mL			
16	R1404691-001	277990	.01	2.5g	7199/Cr6				100.00mL			

Spiking Solutions

Name:	Lead (11) Chromate	Inventory ID	54146	Logbook Ref:	WC112202F	Expires On:	01/18/2018	Lot #:	1016071
Name:	Chromium (VI) (Hexavalent) 100 ppm Cı	Inventory ID	60022	Logbook Ref:	Fresh Daily	Expires On:	09/30/2014		

Preparation Steps

Step: Digestion
Started: 6/20/14 18:35
Finished: 6/20/14 19:35
By: CWOODS
Comments

01123

Preparation Information Benchsheet

Prep Run#: 211351
Team: GenChem/CWOODS

Prep WorkFlow: Gen Dig Cr6
Prep Method: EPA 3060A

Status: Prepped
Prep Date/Time: 6/20/14 06:35 PM

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: LDRESSEL Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

06-24-14 IC#8 7199/218.6RL Analyst: Cwoods Pipets: Barney FRED

Injection Number	Injection Name	Type	Level	Processing Method	Inject Time	Dilution	Comment
1	STANDARD 1	Calibration Standard	01	8-062314RL	23/06/14 12:37	1.0	7199/218.6 RL
2	STANDARD 2	Calibration Standard	02	8-062314RL	23/06/14 12:44	1.0	7199/218.6 RL
3	STANDARD 3	Calibration Standard	03	8-062314RL	23/06/14 12:51	1.0	7199/218.6 RL
4	STANDARD 4	Calibration Standard	04	8-062314RL	23/06/14 12:59	1.0	7199/218.6 RL
5	STANDARD 5	Calibration Standard	05	8-062314RL	23/06/14 13:06	1.0	7199/218.6 RL
6	CCV	Unknown		8-062314RL	24/06/14 11:57	1.0	7199/218.6 RL
7	CCB	Unknown		8-062314RL	24/06/14 12:04	1.0	7199/218.6 RL
8	R1404635-002	Unknown		8-062314RL	24/06/14 12:35	10.0	7199
9	R1404635-002	Unknown		8-062314RL	24/06/14 12:42	10.0	7199 REPLICATE
10	R1404635-008	Unknown		8-062314RL	24/06/14 12:49	4.0	7199
11	R1404635-008	Unknown		8-062314RL	24/06/14 12:56	4.0	7199 REPLICATE
12	R1404635-010	Unknown		8-062314RL	24/06/14 13:02	2.0	7199
13	R1404635-010	Unknown		8-062314RL	24/06/14 13:10	2.0	7199 REPLICATE
14	R1404635-010 DUP	Unknown		8-062314RL	24/06/14 13:16	2.0	7199
15	R1404635-010 DUP	Unknown		8-062314RL	24/06/14 13:23	2.0	7199 REPLICATE
16	R1404635-010 SOL	Unknown		8-062314RL	24/06/14 13:30	4.0	7199
17	R1404635-010 SOL	Unknown		8-062314RL	24/06/14 13:37	4.0	7199 REPLICATE
18	CCV	Unknown		8-062314RL	24/06/14 13:44	1.0	7199/218.6 RL
19	CCB	Unknown		8-062314RL	24/06/14 13:52	1.0	7199/218.6 RL
20	R1404635-010 INSOL	Unknown		8-062314RL	24/06/14 14:00	20.0	7199
21	R1404635-010 INSOL	Unknown		8-062314RL	24/06/14 14:07	20.0	7199 REPLICATE
22	R1404635-010 PVS	Unknown		8-062314RL	24/06/14 14:13	4.0	7199
23	R1404635-010 PVS	Unknown		8-062314RL	24/06/14 14:21	4.0	7199 REPLICATE
24	R1404635-011	Unknown		8-062314RL	24/06/14 14:27	5.0	7199
25	R1404635-011	Unknown		8-062314RL	24/06/14 14:35	5.0	7199 REPLICATE
26	R1404635-010 INSOL	Unknown		8-062314RL	24/06/14 14:45	20.0	7199 REPLICATE
27	CCV	Unknown		8-062314RL	24/06/14 14:53	1.0	7199/218.6 RL
28	CCB	Unknown		8-062314RL	24/06/14 15:02	1.0	7199/218.6 RL
29	WATER LCS	Unknown		8-062314RL	24/06/14 17:33	1.0	7199/218.6 RL
30	R1404632-001	Unknown		8-062314RL	24/06/14 17:47	100.0	218.6 RL
31	R1404632-001	Unknown		8-062314RL	24/06/14 17:57	300.0	218.6 RL
32	R1404632-001 MS	Unknown		8-062314RL	24/06/14 18:05	300.0	218.6 RL
33	R1404632-001 MSD	Unknown		8-062314RL	24/06/14 18:12	300.0	218.6 RL
34	CCV	Unknown		8-062314RL	24/06/14 18:19	1.0	218.6 RL
35	CCB	Unknown		8-062314RL	24/06/14 18:26	1.0	218.6 RL

06-23-14 IC#8 7199/218.6RL Analyst: CWoods Pipets: Barney FRED
06-24-14

Injection Number	Injection Name	Type	Level	Processing Method	Inject Time	Dilution	Comment
1	STANDARD 1	Calibration Standard	01	8-062314RL	23/06/14 12:37	1.0	7199/218.6 RL
2	STANDARD 2	Calibration Standard	02	8-062314RL	23/06/14 12:44	1.0	7199/218.6 RL
3	STANDARD 3	Calibration Standard	03	8-062314RL	23/06/14 12:51	1.0	7199/218.6 RL
4	STANDARD 4	Calibration Standard	04	8-062314RL	23/06/14 12:59	1.0	7199/218.6 RL
5	STANDARD 5	Calibration Standard	05	8-062314RL	23/06/14 13:06	1.0	7199/218.6 RL
6	ICV	Unknown		8-062314RL	23/06/14 13:14	1.0	7199/218.6 RL
7	ICB	Unknown		8-062314RL	23/06/14 13:21	1.0	7199/218.6 RL
8	WATER LCS	Unknown		8-062314RL	23/06/14 13:29	1.0	7199/218.6 RL
9	R1404720-001	Unknown		8-062314RL	23/06/14 13:36	200.0	218.6 RL
10	R1404720-001 MS	Unknown		8-062314RL	23/06/14 13:43	200.0	218.6 RL
11	R1404720-001 MSD	Unknown		8-062314RL	23/06/14 13:51	200.0	218.6 RL
12	R1404720-002	Unknown		8-062314RL	23/06/14 13:57	200.0	218.6 RL
13	R1404720-003	Unknown		8-062314RL	23/06/14 14:05	200.0	218.6 RL
14	R1404720-004	Unknown		8-062314RL	23/06/14 14:12	200.0	218.6 RL
15	R1404720-005	Unknown		8-062314RL	23/06/14 14:19	200.0	218.6 RL
16	R1404720-006	Unknown		8-062314RL	23/06/14 14:27	200.0	218.6 RL
17	AC-25-1	Unknown		8-062314RL	23/06/14 14:34	1.0	218.6 RL
18	CCV	Unknown		8-062314RL	23/06/14 14:41	1.0	7199/218.6 RL
19	CCB	Unknown		8-062314RL	23/06/14 14:49	1.0	7199/218.6 RL
20	AC-25-1 MS	Unknown		8-062314RL	23/06/14 14:57	1.0	218.6 RL
21	AC-25-1 MSD	Unknown		8-062314RL	23/06/14 15:05	1.0	218.6 RL
22	AC-25-2	Unknown		8-062314RL	23/06/14 15:11	1.0	218.6 RL
23	AC-25-3	Unknown		8-062314RL	23/06/14 15:18	1.0	218.6 RL
24	AC-25-4	Unknown		8-062314RL	23/06/14 15:26	1.0	218.6 RL
25	AC-25-5	Unknown		8-062314RL	23/06/14 15:33	1.0	218.6 RL
26	R1404720-001	Unknown		8-062314RL	23/06/14 15:40	100.0	218.6 RL
27	R1404720-002	Unknown		8-062314RL	23/06/14 15:48	100.0	218.6 RL
28	R1404720-003	Unknown		8-062314RL	23/06/14 15:55	200.0	218.6 RL
29	R1404720-004	Unknown		8-062314RL	23/06/14 16:03	300.0	218.6 RL
30	CCV	Unknown		8-062314RL	23/06/14 16:10	1.0	7199/218.6 RL
31	CCB	Unknown		8-062314RL	23/06/14 16:18	1.0	7199/218.6 RL
32	R1404720-005	Unknown		8-062314RL	23/06/14 16:27	300.0	218.6 RL
33	R1404720-006	Unknown		8-062314RL	23/06/14 16:34	300.0	218.6 RL
34	SOIL METHOD BLANK	Unknown		8-062314RL	23/06/14 16:41	1.0	7199
35	SOIL METHOD BLANK	Unknown		8-062314RL	23/06/14 16:49	1.0	7199 REPLICATE

Ter IV
R4720
R4736
R4633
R4632

Ter III
R4589
R4622

Reviewed & Approved
By: CK
Date: 6/25/14

00126

36	SOIL LCS	Unknown	8-062314RL	23/06/14 16:55	20.0	7199
37	SOIL LCS	Unknown	8-062314RL	23/06/14 17:03	20.0	7199 REPLICATE
38	R1404589-016	Unknown	8-062314RL	23/06/14 17:09	1.0	7199
39	R1404589-016	Unknown	8-062314RL	23/06/14 17:16	1.0	7199 REPLICATE
40	R1404589-017	Unknown	8-062314RL	23/06/14 17:23	1.0	7199
41	R1404589-017	Unknown	8-062314RL	23/06/14 17:30	1.0	7199 REPLICATE
42	CCV	Unknown	8-062314RL	23/06/14 17:36	1.0	7199/218.6 RL
43	CCB	Unknown	8-062314RL	23/06/14 17:44	1.0	7199/218.6 RL
44	R1404589-025	Unknown	8-062314RL	23/06/14 17:51	1.0	7199
45	R1404589-025	Unknown	8-062314RL	23/06/14 17:59	1.0	7199 REPLICATE
46	R1404589-026	Unknown	8-062314RL	23/06/14 18:05	1.0	7199
47	R1404589-026	Unknown	8-062314RL	23/06/14 18:12	1.0	7199 REPLICATE
48	R1404589-027	Unknown	8-062314RL	23/06/14 18:19	1.0	7199
49	R1404589-027	Unknown	8-062314RL	23/06/14 18:26	1.0	7199 REPLICATE
50	R1404589-028	Unknown	8-062314RL	23/06/14 18:32	1.0	7199
51	R1404589-028	Unknown	8-062314RL	23/06/14 18:40	1.0	7199 REPLICATE
52	R1404589-029	Unknown	8-062314RL	23/06/14 18:46	1.0	7199
53	R1404589-029	Unknown	8-062314RL	23/06/14 18:53	1.0	7199 REPLICATE
54	CCV	Unknown	8-062314RL	23/06/14 19:03	1.0	7199/218.6 RL
55	CCB	Unknown	8-062314RL	23/06/14 19:10	1.0	7199/218.6 RL
56	R1404622-007	Unknown	8-062314RL	23/06/14 19:17	1.0	7199
57	R1404622-007	Unknown	8-062314RL	23/06/14 19:25	1.0	7199 REPLICATE
58	R1404622-008	Unknown	8-062314RL	23/06/14 19:31	1.0	7199
59	R1404622-008	Unknown	8-062314RL	23/06/14 19:38	1.0	7199 REPLICATE
60	R1404622-008 DUP	Unknown	8-062314RL	23/06/14 19:45	1.0	7199
61	R1404622-008 DUP	Unknown	8-062314RL	23/06/14 19:52	1.0	7199 REPLICATE
62	R1404622-008 SOL	Unknown	8-062314RL	23/06/14 19:58	2.0	7199
63	R1404622-008 SOL	Unknown	8-062314RL	23/06/14 20:06	2.0	7199 REPLICATE
64	R1404622-008 INSOL	Unknown	8-062314RL	23/06/14 20:12	20.0	7199
65	R1404622-008 INSOL	Unknown	8-062314RL	23/06/14 20:19	20.0	7199 REPLICATE
66	CCV	Unknown	8-062314RL	23/06/14 20:26	1.0	7199/218.6 RL
67	CCB	Unknown	8-062314RL	23/06/14 20:34	1.0	7199/218.6 RL
68	R1404622-008 PVS	Unknown	8-062314RL	23/06/14 20:41	2.0	7199
69	R1404622-008 PVS	Unknown	8-062314RL	23/06/14 20:49	2.0	7199 REPLICATE
70	R1404633-001	Unknown	8-062314RL	23/06/14 20:55	1.0	7199
71	R1404633-001	Unknown	8-062314RL	23/06/14 21:03	1.0	7199 REPLICATE
72	R1404691-001	Unknown	8-062314RL	23/06/14 21:09	1.0	7199
73	R1404691-001	Unknown	8-062314RL	23/06/14 21:17	1.0	7199 REPLICATE
74	SOIL METHOD BLANK #2	Unknown	8-062314RL	23/06/14 21:23	1.0	7199

75	SOIL METHOD BLANK #2	Unknown	8-062314RL	23/06/14 21:30	1.0	7199 REPLICATE
76	SOIL LCS #2	Unknown	8-062314RL	23/06/14 21:37	20.0	7199
77	SOIL LCS #2	Unknown	8-062314RL	23/06/14 21:44	20.0	7199 REPLICATE
78	CCV	Unknown	8-062314RL	23/06/14 21:50	1.0	7199/218.6 RL
79	CCB	Unknown	8-062314RL	23/06/14 21:59	1.0	7199/218.6 RL
80	R1404635-001	Unknown	8-062314RL	23/06/14 22:07	1.0	7199
81	R1404635-001	Unknown	8-062314RL	23/06/14 22:15	1.0	7199 REPLICATE
82	R1404635-002	Unknown	8-062314RL	23/06/14 22:21	1.0	7199
83	R1404635-002	Unknown	8-062314RL	23/06/14 22:28	1.0	7199 REPLICATE
84	R1404635-003	Unknown	8-062314RL	23/06/14 22:35	1.0	7199
85	R1404635-003	Unknown	8-062314RL	23/06/14 22:42	1.0	7199 REPLICATE
86	R1404635-004	Unknown	8-062314RL	23/06/14 22:48	1.0	7199
87	R1404635-004	Unknown	8-062314RL	23/06/14 22:56	1.0	7199 REPLICATE
88	R1404635-005	Unknown	8-062314RL	23/06/14 23:02	1.0	7199
89	R1404635-005	Unknown	8-062314RL	23/06/14 23:10	1.0	7199 REPLICATE
90	CCV	Unknown	8-062314RL	23/06/14 23:16	1.0	7199/218.6 RL
91	CCB	Unknown	8-062314RL	23/06/14 23:23	1.0	7199/218.6 RL
92	R1404635-006	Unknown	8-062314RL	23/06/14 23:31	1.0	7199
93	R1404635-006	Unknown	8-062314RL	23/06/14 23:38	1.0	7199 REPLICATE
94	R1404635-007	Unknown	8-062314RL	23/06/14 23:44	1.0	7199
95	R1404635-007	Unknown	8-062314RL	23/06/14 23:52	1.0	7199 REPLICATE
96	R1404635-008	Unknown	8-062314RL	23/06/14 23:58	1.0	7199
97	R1404635-008	Unknown	8-062314RL	24/06/14 00:06	1.0	7199 REPLICATE
98	R1404635-009	Unknown	8-062314RL	24/06/14 00:12	1.0	7199
99	R1404635-009	Unknown	8-062314RL	24/06/14 00:19	1.0	7199 REPLICATE
100	R1404635-010	Unknown	8-062314RL	24/06/14 00:26	1.0	7199
101	R1404635-010	Unknown	8-062314RL	24/06/14 00:33	1.0	7199 REPLICATE
102	CCV	Unknown	8-062314RL	24/06/14 00:39	1.0	7199/218.6 RL
103	CCB	Unknown	8-062314RL	24/06/14 00:47	1.0	7199/218.6 RL
104	R1404635-010 DUP	Unknown	8-062314RL	24/06/14 00:55	1.0	7199
105	R1404635-010 DUP	Unknown	8-062314RL	24/06/14 01:03	1.0	7199 REPLICATE
106	R1404635-010 SOL	Unknown	8-062314RL	24/06/14 01:09	1.0	7199
107	R1404635-010 SOL	Unknown	8-062314RL	24/06/14 01:16	1.0	7199 REPLICATE
108	R1404635-010 INSOL	Unknown	8-062314RL	24/06/14 01:23	20.0	7199
109	R1404635-010 INSOL	Unknown	8-062314RL	24/06/14 01:30	20.0	7199 REPLICATE
110	R1404635-010 PVS	Unknown	8-062314RL	24/06/14 01:36	2.0	7199
111	R1404635-010 PVS	Unknown	8-062314RL	24/06/14 01:44	2.0	7199 REPLICATE
112	R1404635-011	Unknown	8-062314RL	24/06/14 01:50	1.0	7199
113	R1404635-011	Unknown	8-062314RL	24/06/14 01:58	1.0	7199 REPLICATE

114	CCV	Unknown	8-062314RL	24/06/14 02:04	1.0	7199/218.6 RL
115	CCB	Unknown	8-062314RL	24/06/14 02:12	1.0	7199/218.6 RL
116	R1404635-012	Unknown	8-062314RL	24/06/14 02:21	1.0	7199
117	R1404635-012	Unknown	8-062314RL	24/06/14 02:28	1.0	7199 REPLICATE
118	R1404635-013	Unknown	8-062314RL	24/06/14 02:35	1.0	7199
119	R1404679-013	Unknown	8-062314RL	24/06/14 02:42	1.0	7199 REPLICATE
120	R1404679-001	Unknown	8-062314RL	24/06/14 02:48	1.0	7199
121	R1404679-001	Unknown	8-062314RL	24/06/14 02:56	1.0	7199 REPLICATE
122	R1404679-002	Unknown	8-062314RL	24/06/14 03:02	1.0	7199
123	R1404679-002	Unknown	8-062314RL	24/06/14 03:10	1.0	7199 REPLICATE
124	CCV	Unknown	8-062314RL	24/06/14 03:16	1.0	7199/218.6 RL
125	CCB	Unknown	8-062314RL	24/06/14 03:23	1.0	7199/218.6 RL

Preparation Information Benchsheet

Prep Run#: 211542
Team: GenChem/GNITAJOUPPI

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 09:00 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407130-01	MB		6mL	335.4/CN T				6.00mL			
2	RQ1407130-01	MB		6mL	9012B/CN Tot				6.00mL			
3	RQ1407130-02	LCS		6mL	335.4/CN T				6.00mL		0.0600 mL/71940	
4	RQ1407130-02	LCS		6mL	9012B/CN Tot				6.00mL		0.0600 mL/71940	
5	RQ1407130-03	LCS		6mL	335.4/CN T				6.00mL		0.2400 mL/71940	
6	RQ1407130-03	LCS		6mL	9012B/CN Tot				6.00mL		0.2400 mL/71940	
7	R1404573-001	2014002144 W007-4HR-WA-061314	.04	6mL	335.4/CN T				6.00mL			
8	R1404609-001	WWTP0617	.01	6mL	335.4/CN T				6.00mL			
9	R1404615-003	2014002379 E001-GRAB-WA-061714	.02	6mL	335.4/CN T				6.00mL			
10	RQ1407130-04	R1404615-003 MS	.02	6mL	335.4/CN T				6.00mL		0.0600 mL/71940	
11	RQ1407130-05	R1404615-003 DMS	.02	6mL	335.4/CN T				6.00mL		0.0600 mL/71940	
12	R1404615-010	2014002393 W01DSAE-24HR-WA-061714	.01	6mL	335.4/CN T				6.00mL			
13	R1404615-011	2014002395 W001-4HR-WA-061714	.02	6mL	335.4/CN T				6.00mL			
14	R1404615-013	2014002397 W004SAE-4HR-WA-061714	.01	6mL	335.4/CN T				6.00mL			
15	RQ1407130-06	R1404615-013 MS	.01	6mL	335.4/CN T				6.00mL		0.0600 mL/71940	
16	RQ1407130-07	R1404615-013 DMS	.01	6mL	335.4/CN T				6.00mL		0.0600 mL/71940	
17	R1404661-001	B/325 Final Eff 24Hr Comp	.07	6mL	335.4/CN T				6.00mL			
18	R1404699-001	IEX6314	.09	6mL	335.4/CN T				6.00mL			
19	R1404632-001	IDW-WW-061714-01	.07	6mL	9012B/CN Tot				6.00mL			
20	R1404589-004	1406130728 200-SB-8	.01	6mL	9012B/CN Tot				6.00mL			
21	R1404589-008	1406141658 200-SB-6	.01	6mL	9012B/CN Tot				6.00mL			
22	R1404589-013	1406151118 200-SB-5	.01	6mL	9012B/CN Tot				6.00mL			
23	R1404551-001	PZ-3	.03	6mL	9012B/CN Tot				6.00mL			
24	R1404551-002	MW-17	.03	6mL	9012B/CN Tot				6.00mL			
25	R1404551-003	MW-13S	.03	6mL	9012B/CN Tot				6.00mL			
26	R1404551-004	MW-12M	.03	6mL	9012B/CN Tot				6.00mL			
27	R1404551-005	MW-16	.03	6mL	9012B/CN Tot				6.00mL			
28	R1404551-006	PZ-2	.03	6mL	9012B/CN Tot				6.00mL			
29	R1404551-008	MW-4D	.03	6mL	9012B/CN Tot				6.00mL			
30	R1404551-009	MW-4D DUP	.03	6mL	9012B/CN Tot				6.00mL			

Spiking Solutions

Name: Cyanide 10 ppm as CN Inventory ID 71940 Logbook Ref: FRESH DAILY Expires On: 07/27/2014

Preparation Information Benchsheet

Prep Run#: 211542
Team: GenChem/GNITAJOUPPI

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 09:00 AM

Preparation Steps

Step: Distillation
Started: 6/24/14 09:00
Finished: 6/24/14 10:30
By: MKSMITH
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: GNITAJOUPPI Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Creator : GABRIELA NITA-JOUPPI

Creation Date : 6/24/2014 11:57:06 AM

Last Modified : 6/24/2014 1:14:06 PM

Description :

R4589

Cup	Sample ID	MDF	Weight	Sample Type	Comments
S1	1.0 ppm CN			Calibration Standard	
S2	0.50 ppm CN			Calibration Standard	
S3	0.20 ppm CN			Calibration Standard	
S4	0.10 ppm CN			Calibration Standard	
S5	0.05 ppm CN			Calibration Standard	
S6	0.02 ppm CN			Calibration Standard	
S7	0.01 ppm CN			Calibration Standard	
S8	0.00 ppm CN			Calibration Standard	
1	ICV			Unknown	
2	ICB			Unknown	
3	CRDL - 0.0200			Unknown	
4	CRDL - 0.0100			Unknown	
5	CCV			Unknown	
6	CCB			Unknown	
7	MB-1			Unknown	
8	LCS-1 LL			Unknown	
9	LCS-1 HL			Unknown	
10	R1404573-001			Unknown	
11	R1404609-001			Unknown	
12	R1404615-003			Unknown	
13	4615-003 MS			Unknown	
14	4615-003 MSD			Unknown	
15	R1404615-010			Unknown	
16	R1404615-011			Unknown	
17	CCV			Unknown	
18	CCB			Unknown	
19	R1404615-013			Unknown	
20	4615-013 MS			Unknown	
21	4615-013 MSD			Unknown	
22	R1404661-001			Unknown	
23	R1404699-001			Unknown	
24	R1404632-001			Unknown	
25	R1404589-004			Unknown	
26	R1404589-008			Unknown	
27	R1404589-013			Unknown	
28	R1404551-001			Unknown	
29	CCV			Unknown	
30	CCB			Unknown	
31	R1404551-002			Unknown	
32	R1404551-003			Unknown	

33	R1401551-004			Unknown	
34	R1404551-005			Unknown	
35	R1404551-006			Unknown	
36	R1404551-008			Unknown	
37	R1404551-009			Unknown	
38	MB 2			Unknown	
39	LCS 2 LL			Unknown	
40	LCS 2 HL			Unknown	
41	CCV			Unknown	
42	CCB			Unknown	
43	R1404551-007			Unknown	
44	4551-007 DUP			Unknown	
45	4551-007 SPK			Unknown	
46	R1404551-010			Unknown	
47	R1404551-011			Unknown	
48	R1404551-012			Unknown	
49	R1404551-014			Unknown	
50	R1404551-015			Unknown	
51	R1404551-016			Unknown	
52	R1404551-017			Unknown	
53	CCV			Unknown	
54	CCB			Unknown	
55	R1404551-018			Unknown	
56	R1404562-001			Unknown	
57	MB 3			Unknown	
58	LCS 3 LL			Unknown	
59	LCS 3 HL			Unknown	
60	R1404551-019			Unknown	
61	4551-019 DUP			Unknown	
62	4551-019 SPK			Unknown	
63	R1404551-020			Unknown	
64	R1404622-002			Unknown	
65	CCV			Unknown	
66	CCB			Unknown	
67	R1404596-001			Unknown	
68	R1404596-002			Unknown	
69	R1404616-001			Unknown	
70	R1404616-002			Unknown	
71	R1404616-003			Unknown	
72	R1404616-004			Unknown	
73	4616-004 DUP			Unknown	
74	4616-004 SPK			Unknown	
75	R1404673-001			Unknown	
76	R1404723-015	10.0000		Unknown	
77	CCV			Unknown	

78	CCB			Unknown	
79	R1404723-016			Unknown	
80	R1404723-017	5.00000		Unknown	
81	R1404723-018			Unknown	
82	CCV			Unknown	
83	CCB		GW	Unknown	
84	R1404723-015 RPT	50	6/24/14	Unknown	
85	CCV	~~50.0000~~	1.00	Unknown	
86	CCB			Unknown	

Analyte Table	Cyanide 9012B/SM450
	(mg CN/L)
1.0 ppm CN	1.00000
0.50 ppm CN	0.50000
0.20 ppm CN	0.20000
0.10 ppm CN	0.10000
0.05 ppm CN	0.05000
0.02 ppm CN	0.02000
0.01 ppm CN	0.01000
0.00 ppm CN	0.00000

Preparation Information Benchsheet

Prep Run#: 211563
Team: GenChem/GNITAJOUPPI

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 09:30 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407142-03	MB		0.6g	9012B/CN Tot				6.00mL			
2	RQ1407142-04	LCS		0.6g	9012B/CN Tot				6.00mL		0.0600 mL/71940	
3	RQ1407142-05	LCS		0.6g	9012B/CN Tot				6.00mL		0.2400 mL/71940	
4	R1404589-016	1406130805 200-SB-8 8/10'	.01	0.6376g	9012B/CN Tot				6.00mL			
5	R1404589-017	1406130815 200-SB-8 8/10'	.01	0.6497g	9012B/CN Tot				6.00mL			
6	R1404589-025	1406130945 200-SB-8 28/30'	.01	0.6261g	9012B/CN Tot				6.00mL			
7	R1404589-026	1406131305 200-SB-8 43/45'	.01	0.6418g	9012B/CN Tot				6.00mL			
8	R1404589-027	1406141705 200-SB-6 8/10'	.01	0.6250g	9012B/CN Tot				6.00mL			
9	R1404589-028	1406151130 200-SB-5 8/10'	.01	0.6484g	9012B/CN Tot				6.00mL			
10	R1404589-029	1406151146 200-SB-5 8/10'	.01	0.6083g	9012B/CN Tot				6.00mL			
11	R1404622-007	1406161405 200-SB-13 8/10'	.01	0.6468g	9012B/CN Tot				6.00mL			
12	R1404622-008	1406161550 200-SB-28 30/32'	.01	0.2020g	9012B/CN Tot				6.00mL			
13	RQ1407142-01	R1404622-008 DUP	.01	0.2466g	9012B/CN Tot				6.00mL			
14	RQ1407142-02	R1404622-008 MS	.01	0.2019g	9012B/CN Tot				6.00mL		0.0600 mL/71940	

Spiking Solutions

Name: Cyanide 10 ppm as CN Inventory ID 71940 Logbook Ref: FRESH DAILY Expires On: 07/27/2014

Preparation Steps

Step: Distillation
Started: 6/24/14 09:30
Finished: 6/24/14 15:07
By: AGRAHAM
Comments

0013

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: KABBOTT Date: _____

Preparation Information Benchsheet

Prep Run#: 211563
Team: GenChem/GNITAJOUPPI

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 09:30 AM

Chain of Custody

Relinquished By:		Date:		Extracts Examined
Received By:		Date:		Yes No

Creator : KABBOTT
Creation Date : 6/25/2014 9:59:31 AM
Last Modified : 6/25/2014 11:37:12 AM
Description :

Cup	Sample ID	MDF	Weight	Sample Type	Comments
S1	1.0 ppm CN			Calibration Standard	
S2	0.50 ppm CN			Calibration Standard	
S3	0.20 ppm CN			Calibration Standard	
S4	0.10 ppm CN			Calibration Standard	
S5	0.05 ppm CN			Calibration Standard	
S6	0.02 ppm CN			Calibration Standard	
S7	0.01 ppm CN			Calibration Standard	
S8	0.00 ppm CN			Calibration Standard	
1	ICV			Unknown	
2	ICB			Unknown	
3	CRDL - 0.0200			Unknown	
4	CRDL - 0.0100			Unknown	
5	CCV			Unknown	
6	CCB			Unknown	
7	MB-4			Unknown	
8	LCS-4 LL			Unknown	
9	LCS-4 HL			Unknown	
10	R1404429-053			Unknown	
11	R1404429-055			Unknown	
12	R1404429-057			Unknown	
13	R1404429-059	10.0000		Unknown	
14	R1404429-061			Unknown	
15	R1404429-063			Unknown	
16	R1404429-065			Unknown	
17	CCV			Unknown	
18	CCB			Unknown	
19	R1404429-067			Unknown	
20	R1404429-069			Unknown	
21	R1404429-071			Unknown	
22	R1404429-072			Unknown	
23	R1404429-074			Unknown	
24	4429-074 MS			Unknown	
25	4429-074 MSD			Unknown	
26	R1404429-076			Unknown	
27	R1404429-078			Unknown	
28	R1404429-080			Unknown	
29	CCV			Unknown	
30	CCB			Unknown	
31	4429-080 MS			Unknown	
32	4429-080 MSD			Unknown	

33	R1404594-001			Unknown	
34	R1404723-001	50.0000		Unknown	
35	R1404723-002			Unknown	
36	R1404723-003	10.0000		Unknown	
37	R1404723-004			Unknown	
38	MB 5			Unknown	
39	LCS 5 LL			Unknown	
40	LCS 5 HL			Unknown	
41	CCV			Unknown	
42	CCB			Unknown	
43	R1404723-005	2.00000		Unknown	
44	R1404723-006	10.0000		Unknown	
45	R1404723-007	20.0000		Unknown	
46	R1404723-008	10.0000		Unknown	
47	4723-008 MS	10.0000		Unknown	
48	4723-008 MSD	10.0000		Unknown	
49	R1404723-009	50.0000		Unknown	
50	R1404723-010	50.0000		Unknown	
51	R1404723-011	20.0000		Unknown	
52	R1404723-012	10.0000		Unknown	
53	CCV			Unknown	
54	CCB			Unknown	
55	R1404723-013	10.0000		Unknown	
56	R1404723-014	50.0000		Unknown	
57	MB WAD			Unknown	
58	LCS LL WAD			Unknown	
59	LCS HL WAD			Unknown	
60	R1404429-053			Unknown	
61	4429-053 MS			Unknown	
62	4429-053 MSD			Unknown	
63	R1404429-055			Unknown	
64	R1404429-057			Unknown	
65	CCV			Unknown	
66	CCB			Unknown	
67	R1404429-059			Unknown	
68	R1404429-061			Unknown	
69	R1404429-063			Unknown	
70	R1404429-065			Unknown	
71	R1404429-067			Unknown	
72	R1404429-069			Unknown	
73	R1404429-071			Unknown	
74	R1404429-072			Unknown	
75	R1404429-074			Unknown	
76	4429-074 MS			Unknown	
77	CCV			Unknown	

78	CCB			Unknown	
79	4429-074 MSD			Unknown	
80	R1404429-076			Unknown	
81	R1404429-078			Unknown	
82	R1404429-080			Unknown	
83	MB SOIL			Unknown	
84	LCS LL SOIL			Unknown	
85	LCS HL SOIL			Unknown	
86	R1404589-019			Unknown	
87	R1404589-017			Unknown	
88	R1404589-025			Unknown	
89	CCV			Unknown	
90	CCB			Unknown	
91	R1404589-026			Unknown	
92	R1404589-027			Unknown	
93	R1404589-028			Unknown	
94	R1404589-029			Unknown	
95	R1404622-007			Unknown	
96	R1404622-008			Unknown	
97	4622-008 DUP			Unknown	
98	4622-008 SPK			Unknown	
99	MB RES			Unknown	
100	LCS RES			Unknown	
101	CCV			Unknown	
102	CCB			Unknown	
103	R1404594-001			Unknown	
104	4594-001 DUP			Unknown	
105	4429-074 RPT			Unknown	
106	4723-002 RPT	5.00000		Unknown	
107	4723-005 RPT	4.00000		Unknown	
108	CCV			Unknown	
109	CCB			Unknown	
110	MB FILTER			Unknown	
111	LCS HL FILTER			Unknown	
112	CCV			Unknown	
113	CCB			Unknown	

Filter lot # R3SA46669

Creator: LDOLGOS
Creation Date: Jun 19, 2014 7:58:24
Last Modified: Jun 19, 2014 9:02:26
Description: QC 8000 353.2 TOTN - RUN LOG - 1406190A

R4589

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	1.00 NO3	1.0000	Unknown	
2	1.00 NO2	1.0000	Unknown	
3	ICV TV= 0.90	1.0000	Unknown	
4	ICB	1.0000	Unknown	
5	CRDL - 0.100	1.0000	Unknown	
6	CRDL - 0.050	1.0000	Unknown	
7	CCV	1.0000	Unknown	
8	CCB	1.0000	Unknown	
9	LCS	1.0000	Unknown	
10	AIR	1.0000	Unknown	
11	R1404274-004	1.0000	Unknown	
12	R1404335-004 1/2	2.0000	Unknown	
13	R1404335-013 1/2	2.0000	Unknown	
14	R1404335-018	1.0000	Unknown	
15	R1404335-025	1.0000	Unknown	
16	R1404335-029 1/4	4.0000	Unknown	
17	R1404421-004	1.0000	Unknown	
18	R1404273-003	1.0000	Unknown	
19	CCV	1.0000	Unknown	
20	CCB	1.0000	Unknown	
21	R1404448-001	1.0000	Unknown	
22	4335-025 DUP	1.0000	Unknown	
23	4335-025 SPK	1.0000	Unknown	
24	R1404443-001 1/2	2.0000	Unknown	
25	R1404492-002	1.0000	Unknown	
26	R1404493-002	1.0000	Unknown	
27	R1404557-001	1.0000	Unknown	
28	R1404611-001	1.0000	Unknown	
29	R1404492-002 DUP	1.0000	Unknown	
30	R1404492-002 SPK	1.0000	Unknown	
31	CCV	1.0000	Unknown	

Cup #	Sample ID	Manual Dilution	Sample Type	
32	CCB	1.0000	Unknown	
33	R1404589-003	1.0000	Unknown	
34	R1404589-009	1.0000	Unknown	
35	R1404589-014	1.0000	Unknown	
36	R1404486-001 1/2	2.0000	Unknown	
37	R1404507-003	1.0000	Unknown	
38	LCS	1.0000	Unknown	
39	R1404560-004	1.0000	Unknown	
40	R1404516-001 1/5	5.0000	Unknown	
41	R1404516-002 1/5	5.0000	Unknown	
42	BLK	1.0000	Unknown	
43	CCV	1.0000	Unknown	
44	CCB	1.0000	Unknown	
45	R1404560-004 DUP	1.0000	Unknown	
46	R1404560-004 SPK	1.0000	Unknown	
47	CCV	1.0000	Unknown	
48	CCB	1.0000	Unknown	

Preparation Information Benchsheet

Run 398613

Prep Run#: 211514
Team: GenChem/TPULS

Prep WorkFlow: GenExt28Day
Prep Method: CAS SOP

Status: Prepped
Prep Date/Time: 6/24/14 10:30 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407109-01	MB		1g	353.2M/NO2 NO3				100.00mL			
2	RQ1407109-02	LCS		1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
3	R1404273-005	1406041206 200-SB-20 30'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
4	RQ1407109-03	R1404273-005 DUP	.01	1g	353.2M/NO2 NO3				100.00mL			
5	RQ1407109-04	R1404273-005 MS	.01	1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
6	R1404273-006	1406041725 200-SB-20 50'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
7	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1g	353.2M/NO2 NO3				100.00mL			
8	R1404421-009	1406091615 200-SB-21	.01	1.0500g	353.2M/NO2 NO3				100.00mL			
9	R1404421-010	1406091750 200-SB-21	.01	1g	353.2M/NO2 NO3				100.00mL			
10	R1404507-006	1406111505 200-SB-7 8-10'	.02	1g	353.2M/NO2 NO3				100.00mL			
11	RQ1407109-05	R1404507-006 DUP	.02	1g	353.2M/NO2 NO3				100.00mL			
12	RQ1407109-06	R1404507-006 MS	.02	1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
13	R1404507-007	1406111635 200-SB-7 18-21'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
14	R1404507-008	1406120935 200-SB-7 38-40'	.01	1g	353.2M/NO2 NO3				100.00mL			
15	R1404589-016	1406130805 200-SB-8 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
16	R1404589-017	1406130815 200-SB-8 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
17	R1404589-025	1406130945 200-SB-8 28/30'	.01	1g	353.2M/NO2 NO3				100.00mL			
18	R1404589-026	1406131305 200-SB-8 43/45'	.01	1g	353.2M/NO2 NO3				100.00mL			
19	R1404589-027	1406141705 200-SB-6 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
20	R1404589-028	1406151130 200-SB-5 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
21	R1404589-029	1406151146 200-SB-5 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			

Spiking Solutions

Name: Nitrate (NO3) 1000 ppm as N Inventory ID 67499 Logbook Ref: WC118001N Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 6/24/14 10:30
Finished: 6/24/14 10:35
By: MKSMITH
Comments

Preparation Information Benchsheet

Prep Run#: 211514
Team: GenChem/TPULS

Prep WorkFlow: GenExt28Day
Prep Method: CAS SOP

Status: Prepped
Prep Date/Time: 6/24/14 10:30 AM

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: LDOLGOS Date: _____

Chain of Custody

Relinquished By:	[signature]	Date:	6-24-14	Extracts Examined
Received By:	[signature]	Date:	6/24/14	Yes No

R 4589

Creator: LDOLGOS
Creation Date: Jun 24, 2014 10:57:22
Last Modified: Jun 24, 2014 13:06:48
Description: QC 8000 353.2 TOTN - RUN LOG - 1406240B

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	1.00 NO3	1.0000	Unknown	
2	1.00 NO2	1.0000	Unknown	
3	ICV TV= 0.90	1.0000	Unknown	
4	ICB	1.0000	Unknown	
5	CRDL - 0.100	1.0000	Unknown	
6	CRDL - 0.050	1.0000	Unknown	
7	CCV	1.0000	Unknown	
8	CCB	1.0000	Unknown	
9	PB SOIL	1.0000	Unknown	
10	LCS SOIL	1.0000	Unknown	
11	R1404273-005	1.0000	Unknown	
12	R1404273-005 DUP	1.0000	Unknown	
13	R1404273-005 SPK	1.0000	Unknown	
14	R1404273-006	1.0000	Unknown	
15	R1404421-008	1.0000	Unknown	
16	R1404421-009	1.0000	Unknown	
17	R1404421-010	1.0000	Unknown	
18	R1404507-006	1.0000	Unknown	
19	CCV	1.0000	Unknown	
20	CCB	1.0000	Unknown	
21	R1404507-006 DUP	1.0000	Unknown	
22	R1404507-006 SPK	1.0000	Unknown	
23	R1404507-007	1.0000	Unknown	
24	R1404507-008	1.0000	Unknown	
25	R1404589-016	1.0000	Unknown	
26	R1404589-017	1.0000	Unknown	
27	R1404589-025	1.0000	Unknown	
28	R1404589-026	1.0000	Unknown	
29	R1404589-027	1.0000	Unknown	
30	R1404589-028	1.0000	Unknown	
31	CCV	1.0000	Unknown	

Cup #	Sample ID	Manual Dilution	Sample Type	
32	CCB	1.0000	Unknown	
33	R1404589-029	1.0000	Unknown	
34	LCSW	1.0000	Unknown	
35	R1404622-003	1.0000	Unknown	
36	R1404739-001	1.0000	Unknown	
37	R1404739-002	1.0000	Unknown	
38	R1404739-003	1.0000	Unknown	
39	R1404739-003 DUP	1.0000	Unknown	
40	R1404739-003 SPK	1.0000	Unknown	
41	R1404619-003	1.0000	Unknown	
42	R1404619-004	1.0000	Unknown	
43	CCV	1.0000	Unknown	
44	CCB	1.0000	Unknown	
45	R1404619-003 RPT 1/2	2.0000	Unknown	
46	R1404619-004 RPT 1/2	2.0000	Unknown	
47	R1404739-002 DUP	1.0000	Unknown	
48	R1404739-002 SPK	1.0000	Unknown	
49	CCV	1.0000	Unknown	
50	CCB	1.0000	Unknown	

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver	500	531	106	500	529	106	524	105	P
Antimony	50	51	102	50	52	104	51	102	MS
Aluminum	10000	10100	101	10000	9920	99	10100	101	P
Arsenic	1000	1020	102	1000	1030	103	997	100	P
Boron	2500	2560	102	2500	2510	100	2490	100	P
Barium	10000	10700	107	10000	10500	105	10700	107	P
Beryllium	250	256	102	250	254	102	254	102	P
Calcium	25000	25700	103	25000	25700	103	25100	100	P
Cadmium	500	518	104	500	519	104	517	103	P
Cobalt	2500	2580	103	2500	2560	102	2590	104	P
Chromium	500	533	107	500	531	106	531	106	P
Copper	1250	1280	102	1250	1250	100	1270	102	P
Iron	5000	5190	104	5000	5140	103	5190	104	P
Potassium	25000	26200	105	25000	26600	106	25400	102	P
Magnesium	25000	27100	108	25000	26800	107	26300	105	P
Manganese	750	786	105	750	777	104	786	105	P
Mercury	3.00	2.99	100	3.00	2.99	100	2.96	99	CV
Molybdenum	2500	2520	101	2500	2510	100	2510	100	P
Sodium	25000	26100	104	25000	27100	108	25400	102	P
Nickel	2000	2090	104	2000	2090	104	2090	104	P
Lead	500	519	104	500	519	104	516	103	P
Selenium	500	506	101	500	503	101	500	100	P
Tin	5000	5110	102	5000	5060	101	5120	102	P
Thallium	50	52	104	50	53	106	52	104	MS
Titanium	2500.0	2590.00	103.6	2500.0	2560.00	102.4	2570.00	102.8	P
Vanadium	2500	2600	104	2500	2620	105	2560	102	P
Zinc	1000	1040	104	1000	1050	105	1040	104	P
Strontium	2500	2420	97	2500	2560	102	2330	93	P
Uranium	50	52	104	50	48	96	51	102	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	549	110	537	107	P
Antimony				50	50	100	50	100	MS
Aluminum				10000	10300	103	10100	101	P
Arsenic				1000	1050	105	1030	103	P
Boron				2500	2600	104	2550	102	P
Barium				10000	11000	110	10800	108	P
Beryllium				250	264	106	260	104	P
Calcium				25000	25800	103	26100	104	P
Cadmium				500	535	107	530	106	P
Cobalt				2500	2660	106	2630	105	P
Chromium				500	549	110	542	108	P
Copper				1250	1310	105	1280	102	P
Iron				5000	5340	107	5260	105	P
Potassium				25000	27000	108	26400	106	P
Magnesium				25000	27100	108	27100	108	P
Manganese				750	809	108	797	106	P
Mercury				3.00	2.98	99	2.99	100	CV
Molybdenum				2500	2590	104	2550	102	P
Sodium				25000	26900	108	26200	105	P
Nickel				2000	2160	108	2130	106	P
Lead				500	537	107	531	106	P
Selenium				500	524	105	514	103	P
Tin				5000	5280	106	5240	105	P
Thallium				50	52	104			MS
Titanium				2500.0	2660.00	106.4	2610.00	104.4	P
Vanadium				2500	2680	107	2640	106	P
Zinc				1000	1080	108	1070	107	P
Strontium				2500	2480	99	2410	96	P
Uranium				50	50	100			MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	545	109			P
Antimony				50	49	98	50	100	MS
Aluminum				10000	10300	103			P
Arsenic				1000	1060	106			P
Boron				2500	2660	106			P
Barium				10000	11100	111			P
Beryllium				250	267	107			P
Cadmium				500	543	109			P
Cobalt				2500	2680	107			P
Chromium				500	553	111			P
Copper				1250	1300	104			P
Iron				5000	5390	108			P
Potassium				25000	27100	108			P
Manganese				750	815	109			P
Mercury				3.00	2.99	100	2.98	99	CV
Molybdenum				2500	2600	104			P
Sodium				25000	26800	107			P
Nickel				2000	2180	109			P
Lead				500	541	108			P
Selenium				500	532	106			P
Tin				5000	5390	108			P
Titanium				2500.0	2660.00	106.4			P
Vanadium				2500	2640	106			P
Zinc				1000	1100	110			P
Strontium				2500	2490	100			P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Antimony				50	50	100	50	100	MS
Mercury				3.00	3.01	100			CV

Comments:

00149

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver	500	518	104	500	516	103	510	102	P
Aluminum	10000	9730	97	10000	9630	96	9770	98	P
Arsenic	1000	959	96	1000	936	94	959	96	P
Boron	2500	2520	101	2500	2460	98	2390	96	P
Beryllium	50	53	106	50	54	108	48	96	MS
Barium	10000	10200	102	10000	10200	102	10100	101	P
Calcium	25000	26400	106	25000	26200	105	26900	108	P
Cadmium	500	489	98	500	489	98	482	96	P
Chromium	50	46	92	50	48	96	46	92	MS
Cobalt	50	49	98	50	50	100	49	98	MS
Copper	50	51	102	50	47	94	51	102	MS
Iron	5000	4990	100	5000	5000	100	4910	98	P
Potassium	25000	24500	98	25000	24700	99	24500	98	P
Magnesium	25000	24700	99	25000	24700	99	24400	98	P
Manganese	750	757	101	750	754	101	751	100	P
Mercury	3.00	3.12	104	3.00	3.09	103	3.09	103	CV
Molybdenum	2500	2420	97	2500	2400	96	2360	94	P
Sodium	25000	24600	98	25000	24400	98	24500	98	P
Nickel	2000	2030	102	2000	2020	101	2000	100	P
Lead	500	488	98	500	488	98	481	96	P
Antimony	5000	4900	98	5000	4900	98	4790	96	P
Selenium	500	487	97	500	486	97	472	94	P
Tin	5000	4660	93	5000	4650	93	4570	91	P
Titanium	2500.0	2520.00	100.8	2500.0	2520.00	100.8	2480.00	99.2	P
Thallium	1000	963	96	1000	959	96	939	94	P
Vanadium	2500	2510	100	2500	2490	100	2470	99	P
Zinc	1000	1010	101	1000	1010	101	998	100	P
Strontium	2500	2410	96	2500	2400	96	2370	95	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	513	103	517	103	P
Aluminum				10000	9720	97	9640	96	P
Arsenic				1000	956	96	949	95	P
Boron				2500	2420	97	2440	98	P
Barium				10000	10100	101	10100	101	P
Beryllium				50	53	106	51	102	MS
Calcium				25000	26600	106	26000	104	P
Cadmium				500	483	97	489	98	P
Chromium				50	47	94	47	94	MS
Cobalt				50	51	102	49	98	MS
Copper				50	50	100	50	100	MS
Iron				5000	4910	98	4960	99	P
Potassium				25000	24900	100	24700	99	P
Magnesium				25000	24400	98	24600	98	P
Manganese				750	747	100	754	101	P
Mercury				3.00	3.11	104	3.10	103	CV
Molybdenum				2500	2370	95	2400	96	P
Sodium				25000	24100	96	24800	99	P
Nickel				2000	2000	100	2020	101	P
Lead				500	483	97	484	97	P
Antimony				5000	4830	97	4840	97	P
Selenium				500	470	94	474	95	P
Tin				5000	4600	92	4610	92	P
Titanium				2500.0	2500.00	100.0	2490.00	99.6	P
Thallium				1000	939	94	946	95	P
Vanadium				2500	2500	100	2510	100	P
Zinc				1000	1000	100	1010	101	P
Strontium				2500	2360	94	2410	96	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	514	103	515	103	P
Boron				2500	2490	100	2420	97	P
Barium				10000	10100	101	10100	101	P
Beryllium				50	51	102	53	106	MS
Cadmium				500	489	98	488	98	P
Chromium				50	47	94	50	100	MS
Cobalt				50	49	98	52	104	MS
Copper				50	51	102	50	100	MS
Iron				5000	4980	100	4970	99	P
Potassium				25000	25000	100	25200	101	P
Magnesium				25000	24700	99	24700	99	P
Manganese				750	755	101	753	100	P
Molybdenum				2500	2390	96	2380	95	P
Sodium				25000	25000	100	24600	98	P
Nickel				2000	2020	101	2020	101	P
Lead				500	486	97	487	97	P
Antimony				5000	4800	96	4810	96	P
Selenium				500	477	95	478	96	P
Tin				5000	4670	93	4650	93	P
Titanium				2500.0	2480.00	99.2	2500.00	100.0	P
Thallium				1000	950	95	953	95	P
Vanadium				2500	2480	99	2460	98	P
Zinc				1000	1010	101	1010	101	P
Strontium				2500	2430	97	2420	97	P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	503	101	513	103	P
Boron				2500	2350	94	2400	96	P
Barium				10000	9980	100	10000	100	P
Cadmium				500	473	95	484	97	P
Iron				5000	4840	97	4950	99	P
Potassium				25000	24900	100	24800	99	P
Magnesium				25000	24000	96	24600	98	P
Manganese				750	733	98	747	100	P
Molybdenum				2500	2320	93	2360	94	P
Sodium				25000	24500	98	24700	99	P
Nickel				2000	1960	98	2000	100	P
Lead				500	477	95	477	95	P
Antimony				5000	4720	94	4710	94	P
Selenium				500	473	95	472	94	P
Tin				5000	4550	91	4560	91	P
Titanium				2500.0	2470.00	98.8	2480.00	99.2	P
Thallium				1000	934	93	934	93	P
Vanadium				2500	2400	96	2450	98	P
Zinc				1000	985	98	991	99	P
Strontium				2500	2400	96	2420	97	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	516	103	508	102	P
Boron				2500	2400	96	2330	93	P
Barium				10000	10000	100	9920	99	P
Cadmium				500	488	98	482	96	P
Iron				5000	4920	98	4870	97	P
Potassium				25000	25200	101	24600	98	P
Magnesium				25000	24600	98	24300	97	P
Manganese				750	748	100	739	99	P
Molybdenum				2500	2380	95	2340	94	P
Sodium				25000	24300	97	23100	92	P
Nickel				2000	2020	101	2000	100	P
Lead				500	483	97	480	96	P
Antimony				5000	4790	96	4760	95	P
Selenium				500	474	95	461	92	P
Tin				5000	4690	94	4520	90	P
Titanium				2500.0	2480.00	99.2	2440.00	97.6	P
Thallium				1000	931	93	928	93	P
Vanadium				2500	2510	100	2510	100	P
Zinc				1000	1010	101	1000	100	P
Strontium				2500	2340	94	2250	90	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	506	101			P
Boron				2500	2340	94			P
Barium				10000	9940	99			P
Cadmium				500	485	97			P
Iron				5000	4890	98			P
Potassium				25000	24700	99			P
Magnesium				25000	24400	98			P
Manganese				750	741	99			P
Molybdenum				2500	2330	93			P
Sodium				25000	23600	94			P
Nickel				2000	2000	100			P
Lead				500	479	96			P
Antimony				5000	4720	94			P
Selenium				500	463	93			P
Tin				5000	4510	90			P
Titanium				2500.0	2440.00	97.6			P
Thallium				1000	922	92			P
Vanadium				2500	2490	100			P
Zinc				1000	1000	100			P
Strontium				2500	2300	92			P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium	50	51	102	50	50	100	52	104	MS
Uranium	50	47	94	50	47	94	47	94	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium				50	50.80	101.6	51	102	MS
Uranium				50	47.80	95.6	48	96	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium				50.0	52	104	52.70	105.4	MS
Uranium				50.0	47	94	46.60	93.2	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404589

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404589

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium				50	52	104			MS
Uranium				50	46	92			MS

Comments:

Preparation Information Benchsheet

Prep Run#: 211226 **Prep WorkFlow:** MetDigAqICP **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3010A **Prep Date/Time:** 6/19/14 01:10 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406882-01	MB		50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			50.00mL	Colorless, Clear		Hb8 Therm=287 Well=D1 temp=95
2	RQ1406882-02	LCS		50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			50.00mL	Colorless, Clear	0.5000 mL/70003; 0.0500 mL/57174; 0.1000 mL/59992; 0.2500 mL/69693; 0.5000 mL/70002	
3	R1404444-012	SW-5	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
4	R1404444-013	MW-13A	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
5	R1404444-014	MW-13B	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
6	R1404444-015	OW-4	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
7	R1404444-016	OW-27	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Yellow, Clear / Colorless, Clear		
8	R1404444-017	OW-15	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
9	R1404444-018	MW-11A	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
10	R1404444-019	MW-11B	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
11	R1404560-001	1406130854A 100-E-261	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless, Clear		III
12	R1404589-001	1406130726 200-SB-8	.01	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless, Clear		III
13	R1404589-006	1406141656 200-SB-6	.01	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless, Clear		
14	R1404589-011	1406151116 200-SB-5	.01	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless, Clear		

Preparation Information Benchsheet

Prep Run#: 211226 **Prep WorkFlow:** MetDigAqICP **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3010A **Prep Date/Time:** 6/19/14 01:10 PM

15	R1404596-001	Down Gradient	.08	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Tl T, V T, Zn T	<2			50.00mL	Colorless, Clear		
16	RQ1406882-03	R1404596-001 DUP	.08	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Tl T, V T, Zn T	<2			50.00mL	Colorless, Clear		
17	RQ1406882-04	R1404596-001 MS	.08	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Tl T, V T, Zn T	<2			50.00mL	Colorless, Clear	0.0500 mL/57174; 0.1000 mL/59992; 0.2500 mL/69693; 0.5000 mL/70002; 0.5000 mL/70003	
18	R1404596-002	Up Gradient	.08	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Tl T, V T, Zn T	<2			50.00mL	Colorless, Clear		

Spiking Solutions

Name:	Selenium 1000 ug/mL Se	Inventory ID	57174	Logbook Ref:	M5280028BB	Expires On:	10/04/2014	Lot #:	1233330
Name:	Strontium 1000 ug/mL Sr	Inventory ID	59992	Logbook Ref:	M5280031Q	Expires On:	01/08/2015	Lot #:	1208804
Name:	Tin 1000 ug/mL Sn	Inventory ID	69693	Logbook Ref:	M5280037P	Expires On:	10/04/2015	Lot #:	13H087
Name:	Custom LCS STD A Metals	Inventory ID	70002	Logbook Ref:	M5280037CC	Expires On:	04/17/2015	Lot #:	14D125
Name:	Custom LCS STD B Metals	Inventory ID	70003	Logbook Ref:	M5280037DD	Expires On:	10/18/2015	Lot #:	14D123

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	Hot Block Cups	50 mL Lot 1306159 (63960)	Nitric Acid Metals Grade HNO3	M5280037X (69879)
Thermometer	293 (12952)				

Preparation Steps

Step: Digestion
Started: 6/19/14 13:10
Finished: 6/20/14 10:08
By: MCRIBBIN
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 211226
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqICP
Prep Method: EPA 3010A

Status: Prepped
Prep Date/Time: 6/19/14 01:10 PM

Reviewed By: D Bond Date: 6/20/14 Spike Witness: CWINKSTERN Date:

Chain of Custody

Relinquished By: Date: 6/20/14 1015

Received By: RAO Date: 6/20/14 1015

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211308
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/20/14 10:33 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406952-01	MB		1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	White, Coarse / Colorless, Clear		HB8 Therm=287 Well=I5 Temp=95
2	RQ1406952-02	LCS		1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	White, Coarse / Colorless, Clear	0.1000 mL/57174; 0.5000 mL/69693; 1.0000 mL/70003; 1.0000 mL/70002; 0.2000 mL/59992	
3	R1404342-001	SVP-3-4/5	.01	1.0300g	6010C/Ag T, As T, Ba T, Be T, Cd T, Cr T, Cu T, Mn T, Ni T, Pb T, Se T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
4	R1404342-003	SVP-5-3/5	.01	1.0100g	6010C/Ag T, As T, Ba T, Be T, Cd T, Cr T, Cu T, Mn T, Ni T, Pb T, Se T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
5	R1404507-006	1406111505 200-SB-7 8-10'	.01	1.0200g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		III
6	RQ1406952-03	R1404507-006 DUP	.01	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
7	RQ1406952-04	R1404507-006 MS	.01	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear	0.2000 mL/59992; 0.5000 mL/69693; 1.0000 mL/70003; 1.0000 mL/70002; 0.1000 mL/57174	
8	R1404507-007	1406111635 200-SB-7 18-21'	.02	1.0400g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
9	R1404507-008	1406120935 200-SB-7 38-40'	.02	1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
10	R1404521-001	Lot 0635040001	.01	1.0500g	6010C/Zn T	<2			100.00mL	Red, Fine / Yellow, Clear		
11	R1404589-016	1406130805 200-SB-8 8/10'	.02	1.0500g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		III

Preparation Information Benchsheet

Prep Run#: 211308 **Prep WorkFlow:** MetDigSICP **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3050B **Prep Date/Time:** 6/20/14 10:33 AM

12	R1404589-017	1406130815 200-SB-8 8/10'	.02	1.0400g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
13	R1404589-025	1406130945 200-SB-8 28/30'	.03	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
14	R1404589-026	1406131305 200-SB-8 43/45'	.03	1.0300g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
15	R1404589-027	1406141705 200-SB-6 8/10'	.03	1.0500g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
16	R1404589-028	1406151130 200-SB-5 8/10'	.03	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
17	R1404589-029	1406151146 200-SB-5 8/10'	.03	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		

Spiking Solutions

Name:	Selenium 1000 ug/mL Se	Inventory ID	57174	Logbook Ref:	M5280028BB	Expires On:	10/04/2014	Lot #:	1233330
Name:	Strontium 1000 ug/mL Sr	Inventory ID	59992	Logbook Ref:	M5280031Q	Expires On:	01/08/2015	Lot #:	1208804
Name:	Tin 1000 ug/mL Sn	Inventory ID	69693	Logbook Ref:	M5280037P	Expires On:	10/04/2015	Lot #:	13H087
Name:	Custom LCS STD A Metals	Inventory ID	70002	Logbook Ref:	M5280037CC	Expires On:	04/17/2015	Lot #:	14D125
Name:	Custom LCS STD B Metals	Inventory ID	70003	Logbook Ref:	M5280037DD	Expires On:	10/18/2015	Lot #:	14D123

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Boiling Stones PTFE	M5280036N (67019)
Hot Block Cups	50 mL Lot 1306159 (63960)	Filter Paper	Filter Paper (55693)	Hydrogen Peroxide 30% Reagent Grade H2O2	M5280033R (69313)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Thermometer	287 (12953)		

Preparation Information Benchsheet

Prep Run#: 211308
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/20/14 10:33 AM

Preparation Steps

Step: Digestion
Started: 6/20/14 10:33
Finished: 6/20/14 15:45
By: MCRIBBIN
Comments

Comments:

Reviewed By: [signature] Date: 6/23/14 Spike Witness: TCHRIST Date:

Chain of Custody

Relinquished By: [signature] Date: 6/20/14 1550

Received By: RAO1 Date: 6/20/14 1550

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211307
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSMS
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/20/14 10:25 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406950-01	MB		1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	White, Coarse / Colorless, Clear		HB8 MS-Soil Therm=287 Well=I5 Temp=95
2	RQ1406950-02	LCS		1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	White, Coarse / Colorless, Clear	0.2000 mL/71752; 0.2000 mL/71751	
3	R1404507-006	1406111505 200-SB-7 8-10'	.01	1.0400g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		III
4	RQ1406950-03	R1404507-006 DUP	.01	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
5	RQ1406950-04	R1404507-006 MS	.01	1g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear	0.2000 mL/71752; 0.2000 mL/71751	
6	R1404507-007	1406111635 200-SB-7 18-21'	.02	1.0200g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
7	R1404507-008	1406120935 200-SB-7 38-40'	.02	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
8	R1404589-016	1406130805 200-SB-8 8/10'	.02	1.0500g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		III
9	R1404589-017	1406130815 200-SB-8 8/10'	.02	1.0500g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
10	R1404589-025	1406130945 200-SB-8 28/30'	.03	1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
11	R1404589-026	1406131305 200-SB-8 43/45'	.03	1.0500g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
12	R1404589-027	1406141705 200-SB-6 8/10'	.03	1.0500g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
13	R1404589-028	1406151130 200-SB-5 8/10'	.03	1.0400g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
14	R1404589-029	1406151146 200-SB-5 8/10'	.03	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		

Spiking Solutions

Name:	ICPMS Calibration Standard 1 (10 ug/mL	Inventory ID	71751	Logbook Ref:	M5280038J	Expires On:	08/31/2015	Lot #:	21208507
Name:	ICPMS Calibration Standard 2 (10 ug/mL	Inventory ID	71752	Logbook Ref:	M5280038J	Expires On:	05/31/2016	Lot #:	21206511

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Boiling Stones PTFE	M5280036N (67019)
Hot Block Cups	50 mL Lot 1306159 (63960)	Filter Paper	Filter Paper (55693)	Hydrogen Peroxide 30% Reagent Grade H2O2	M5280033R (69313)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Thermometer	287 (12953)		

Preparation Information Benchsheet

Prep Run#: 211307
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSMS
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/20/14 10:25 AM

Preparation Steps

Step: Digestion
Started: 6/20/14 10:25
Finished: 6/20/14 15:42
By: MCRIBBIN
Comments

Comments:

Reviewed By: [signature] Date: 6/23/14 Spike Witness: TCHRIST Date:

Chain of Custody

Relinquished By: [signature] Date: 6/20/14 1550

Received By: [signature] Date: 6/20/14 1550

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211500
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqMS
Prep Method: EPA CLP-METALS ILM05.3

Status: Prepped
Prep Date/Time: 6/24/14 09:39 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407097-01	MB		50mL	200.8/Cu T, Zn T, 6020A/Ag T, As T, Co T, Cu T, Ni T, Pb T, Sb T, Se T, Tl T, U T, V T				50.00mL	Colorless-Clear		HB #6 temp =95C Location = D4
2	RQ1407097-07	MB		50mL	200.8/Cu T, Pb T				50.00mL			
3	RQ1407097-02	LCS		50mL	200.8/Cu T, Zn T, 6020A/Ag T, As T, Co T, Cu T, Ni T, Pb T, Sb T, Se T, Tl T, U T, V T				50.00mL	Colorless-Clear	0.1000 mL/71752; 0.1000 mL/71751	
4	RQ1407097-08	LCS		50mL	200.8/Cu T, Pb T				50.00mL		0.1000 mL/71751; 0.1000 mL/71752	
5	R1404507-001	1406111441 200-SB-7	.01	50mL	6020A/Sb T, Tl T, U T				50.00mL	Colorless-Clear		TIER III
6	R1404509-001	1406110918A BW-7-211	.01	50mL	6020A/As T, Sb T, Tl T				50.00mL	Colorless-Clear		TIER III
7	R1404560-001	1406130854A 100-E-261	.01	50mL	6020A/As T, Sb T, Tl T				50.00mL	Colorless-Clear		TIER III
8	R1404563-001	OUTFALL03-0614	.01	50mL	6020A/Ag T, Co T, Cu T, Ni T, Pb T, Se T, Tl T, V T				50.00mL	Colorless-Clear		
9	RQ1407097-05	R1404563-001 DUP	.01	50mL	6020A/Ag T, Co T, Cu T, Ni T, Pb T, Se T, Tl T, V T				50.00mL	Colorless-Clear		
10	RQ1407097-06	R1404563-001 MS	.01	50mL	6020A/Ag T, Co T, Cu T, Ni T, Pb T, Se T, Tl T, V T				50.00mL	Colorless-Clear	0.1000 mL/71752; 0.1000 mL/71751	
11	R1404563-002	OUTFALL01-0614	.05	50mL	6020A/As T, Cu T, Pb T, V T	<2			50.00mL	Colorless-Clear		
12	R1404589-001	1406130726 200-SB-8	.01	50mL	6020A/Sb T, Tl T, U T				50.00mL	Colorless-Clear		TIER III
13	R1404589-006	1406141656 200-SB-6	.01	50mL	6020A/Sb T, Tl T, U T				50.00mL	Colorless-Clear		
14	R1404589-011	1406151116 200-SB-5	.01	50mL	6020A/Sb T, Tl T, U T				50.00mL	Colorless-Clear		
15	R1404611-002	M14914-3	.01	50mL	200.8/Pb T				50.00mL	Colorless-Clear		
16	R1404663-001	B316-1-P5 HYDRATION STATION	.01	50mL	200.8/Cu T, Pb T				50.00mL	Colorless-Clear		
17	RQ1407097-03	R1404663-001 DUP	.01	50mL	200.8/Cu T, Pb T				50.00mL	Colorless-Clear		
18	RQ1407097-04	R1404663-001 MS	.01	50mL	200.8/Cu T, Pb T				50.00mL	Colorless-Clear	0.1000 mL/71751; 0.1000 mL/71752	
19	R1404663-002	B321-1-L7 HYDRATION STATION	.01	50mL	200.8/Cu T, Pb T				50.00mL	Colorless-Clear		
20	R1404671-001	MP-21	.03	50mL	6020A/As T				50.00mL	Colorless-Clear		TIER IV
21	R1404671-002	MP-43S	.03	50mL	6020A/As T				50.00mL	Colorless-Clear		
22	R1404688-004	PC	.03	50mL	200.8/Cu T, Zn T				50.00mL	Colorless-Clear		

Spiking Solutions

Name:	ICPMS Calibration Standard 1 (10 ug/mL	Inventory ID	71751	Logbook Ref:	M5280038J	Expires On:	08/31/2015	Lot #:	21208507
Name:	ICPMS Calibration Standard 2 (10 ug/mL	Inventory ID	71752	Logbook Ref:	M5280038J	Expires On:	05/31/2016	Lot #:	21206511

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Hot Block Cups	50 mL Lot 1306159 (63960)
Thermometer	329 (42023)				

Preparation Information Benchsheet

Prep Run#: 211500
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqMS
Prep Method: EPA CLP-METALS ILM05.3

Status: Prepped
Prep Date/Time: 6/24/14 09:39 AM

Preparation Steps

Step: Digestion
Started: 6/24/14 09:39
Finished: 6/24/14 18:56
By: CWINKSTERN
Comments

Comments:

Reviewed By: Tracy Christ Date: 6/25/14 Spike Witness: DBOND Date:

Chain of Custody

Relinquished By: [illegible] Date: 6/24/14

Received By: [illegible] Date: ↓

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211270 **Prep WorkFlow:** HgDigAq **Status:** Prepped
Team: Metals/CWINKSTERN **Prep Method:** Method **Prep Date/Time:** 6/20/14 09:00 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406920-01	MB		25mL	245.1/Hg D, 7470A/Hg T				25.00mL	Colorless-Clear		HB #1 temp =95C /95C Location = D2
2	RQ1406920-02	LCS		25mL	245.1/Hg D, 7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/71818	
3	R1404589-001	1406130726 200-SB-8	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
4	R1404589-006	1406141656 200-SB-6	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
5	R1404589-011	1406151116 200-SB-5	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
6	R1404596-001	Down Gradient	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
7	R1404596-002	Up Gradient	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
8	R1404616-001	MW-7A2	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER IV
9	R1404616-002	MW-7B	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
10	R1404616-003	MW-10A	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
11	R1404616-004	MW-8A	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
12	RQ1406920-03	R1404616-004 DUP	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
13	RQ1406920-04	R1404616-004 MS	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/71818	
14	R1404631-002	MRC-MW-22B-061714	.17	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER IV
15	R1404631-004	MRC-MW-25A-061714	.17	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
16	R1404631-005	MRC-MW-78B-061714	.17	25mL	7470A/Hg T				25.00mL	Brown-Cloudy		
17	R1404631-006	MRC-MW-98A-061714	.17	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
18	R1404631-007	MRC-MW-98B-061714	.17	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
19	R1404631-009	MRC-MW-111B-061614	.22	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
20	R1404632-001	IDW-WW-061714-01	.25	25mL	7470A/Hg T				25.00mL	Yellow-Clear		TIER IV
21	R1404678-001	FILTER BLANK 6/19	.06	25mL	245.1/Hg D				25.00mL	Colorless-Clear		TIER IV
22	R1404678-002	BR-RW-061914-B1	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
23	R1404678-003	BR-RW-061914-B2	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
24	RQ1406920-05	R1404678-003 DUP	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
25	RQ1406920-06	R1404678-003 MS	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear	0.2500 mL/71818	

Spiking Solutions

Name: Mercury LCSW Metals Hg Inventory ID 71818 Logbook Ref: M681007E Expires On: 06/20/2014

Preparation Materials

Hot Block Cups	50 mL Lot 1306159 (63960)	Sulfuric Acid Reagent Grade H2SO4	M5280026S (53233)	Hydrochloric Acid (HCl) Metals Grade	M5280038D (70868)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Hydroxylamine Hydrochloride Reagent Grade	M5280034Z (65271)	Potassium Permanganate RG KMnO4	M5280037K (69039)
Potassium Persulfate RG K2S2O8	M5280026F (52494)	Sodium Chloride Reagent Grade NaCl	WC126052C (61711)	Stannous Chloride SnCl2	M5280033p (63338)
Thermometer	293 (12952)				

Preparation Information Benchsheet

Prep Run#: 211270
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigAq
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/20/14 09:00 AM

Preparation Steps

Step: Digestion
Started: 6/20/14 09:00
Finished: 6/20/14 11:00
By: MCRIBBIN
Comments

Comments:

Reviewed By: Tracy Christ Date: 6/20/14

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211333 **Prep WorkFlow:** HgDigS **Status:** Prepped
Team: Metals/CWINKSTERN **Prep Method:** Method **Prep Date/Time:** 6/20/14 04:45 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406965-01	MB		0.6g	7471B/Hg				100.00mL	White-Coarse		
2	RQ1406965-02	LCS		0.6g	7471B/Hg				100.00mL	White-Coarse	1.0000 mL/71825	
3	R1404589-016	1406130805 200-SB-8 8/10'	.01	0.6400g	7471B/Hg				100.00mL	Brown-Fine		TIER III
4	RQ1406965-03	R1404589-016 DUP	.01	0.6400g	7471B/Hg				100.00mL	Brown-Fine		
5	RQ1406965-04	R1404589-016 MS	.01	0.6400g	7471B/Hg				100.00mL	Brown-Fine	1.0000 mL/71825	
6	R1404589-017	1406130815 200-SB-8 8/10'	.01	0.6200g	7471B/Hg				100.00mL	Brown-Fine		
7	R1404589-025	1406130945 200-SB-8 28/30'	.03	0.6500g	7471B/Hg				100.00mL	Brown-Fine		
8	R1404589-026	1406131305 200-SB-8 43/45'	.03	0.6g	7471B/Hg				100.00mL	Brown-Fine		
9	R1404589-027	1406141705 200-SB-6 8/10'	.03	0.6500g	7471B/Hg				100.00mL	Brown-Fine		
10	R1404589-028	1406151130 200-SB-5 8/10'	.03	0.6g	7471B/Hg				100.00mL	Brown-Fine		
11	R1404589-029	1406151146 200-SB-5 8/10'	.03	0.6200g	7471B/Hg				100.00mL	Brown-Fine		
12	R1404600-001	CL-SED-1-TOP	.03	0.6000g	7471B/Hg				100.00mL	Brown-Medium		
13	R1404600-002	CL-SED-2-TOP	.03	0.6300g	7471B/Hg				100.00mL	Brown-Medium		
14	R1404600-003	CL-SED-3-TOP	.03	0.6500g	7471B/Hg				100.00mL	Brown-Medium		
15	R1404600-004	CL-SED-4-TOP	.03	0.6500g	7471B/Hg				100.00mL	Brown-Medium		
16	R1404600-005	AF-SED-1-TOP	.03	0.6400g	7471B/Hg				100.00mL	Brown-Medium		
17	R1404600-006	AF-SED-2-TOP	.03	0.6300g	7471B/Hg				100.00mL	Brown-Medium		
18	R1404600-007	AF-SED-3-TOP	.03	0.6400g	7471B/Hg				100.00mL	Brown-Medium		
19	R1404600-008	AF-SED-4-TOP	.03	0.6000g	7471B/Hg				100.00mL	Brown-Medium		
20	R1404600-009	AF-SED-4-BOT	.03	0.6500g	7471B/Hg				100.00mL	Brown-Medium		
21	R1404656-013	MAINT BLDG PIPE	.04	0.6000g	7471B/Hg				100.00mL	Brown-Medium		
22	R1404701-001	LCP2-5121-001	.01	0.6500g	7471B/Hg				100.00mL	Brown-Medium		Tier IV
23	R1404701-002	LCP2-5121-002	.01	0.6g	7471B/Hg				100.00mL	Brown-Medium		

Spiking Solutions

Name: Mercury LCSW Metals Hg Inventory ID 71825 Logbook Ref: M681007F Expires On: 06/20/2014

Preparation Materials

Boiling Stones PTFE	M5280036N (67019)	Hot Block Cups	125 mL 1308077 (65844)	Hydrochloric Acid (HCl) Metals Grade	M5280038D (70868)
Nitric Acid Metals Grade HNO3	M5280038F (71729)	Hydroxylamine Hydrochloride Reagent Grade	M5280034Z (65271)	Thermometer	294 (12954)
Potassium Permanganate RG KMnO4	M5280037K (69039)	Sodium Chloride Reagent Grade NaCl	WC126052C (61711)	Stannous Chloride SnCl2	M5280033p (63338)

Preparation Information Benchsheet

Prep Run#: 211333
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/20/14 04:45 PM

Preparation Steps

Step: Digestion
Started: 6/20/14 16:45
Finished: 6/20/14 17:15
By: CWINKSTERN
Comments

Comments:

Reviewed By: Stacy Christ Date: 6/23/14

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

Analyst: DCB Date: 6/23/14 Data File: 3 Jun 23

Prep Dates: MRL 6/12/14 ICSA 6/6/14 ICSAB 6/6/14 Int.Std 6/20/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/23/14

HLCCV2 6/18/14

Lot #: MRL M6700105A ICSA M6700126A ICSAB M6700146A Int.Std M6700158L

Cal Std 1 M6700013B Cal Std 2 M6700022D Cal Std 5 / HLCCV1 M6700037H ICV / CCV M6700058L

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M6700079B

Blank Prepared Daily Lot: HNO3 M5280037H HCL M5280038B

1	1		Calib Blank 1	36	3	QC	CCV	70	4	QC	CCV
2	9		Calib Std 1	37	1	QC	CCB	71	5	QC	CCB
3	10		Calib Std 2	38	58		R1404631-007A	72	6	QC	MRL
4	11		Calib Std 3	39	59		R1404631-007L	73	7	QC	ICSA
5	12		Calib Std 4	40	60		R1404631-009	74	8	QC	ICSAB
6	2		Calib Std 5	41	61		R1404632-001 100X	75	4	QC	CCV
7	3	QC	ICV	42	62		R1404632-001L 100X	76	5	QC	CCB
8	1	QC	ICB	43	3	QC	CCV	77	79		R1404342-001
9	6	QC	MRL	44	1	QC	CCB	78	80		R1404342-003
10	7	QC	ICSA	45	6	QC	MRL	79	81		R1404507-006
11	8	QC	ICSAB	46	7	QC	ICSA	80	82		R1404507-006D
12	3	QC	CCV	47	8	QC	ICSAB	81	83		R1404507-006S
13	1	QC	CCB	48	13	QC	HLCCV2	82	84		R1404507-006A
14	38		PBW-211196	49	2	QC	HLCCV1	83	85		R1404507-006L
15	39		LCSW-211196	50	3	QC	CCV	84	86		R1404507-007
16	40		R1404632-001	51	1	QC	CCB	85	87		R1404507-008
17	41		R1404632-001L	52	63		PBS-211308	86	88		R1404521-001
18	42		R1404632-001 10X	53	64		LCSS-211308	87	4	QC	CCV 6/23/14
19	43		R140462-001L 10X	54	65		R1404507-006 10X	88	5	QC	CCB DBrad
20	44		R1404565-002	55	66		R1404507-006D 10X	89	89		R1404589-016
21	45		R1404565-005	56	67		R1404507-006S 10X	90	90		R1404589-017
22	46		R1404565-007	57	68		R1404507-006A 10X	91	91		R1404589-025
23	47		R1404565-008	58	69		R1404507-006L 10X	92	92		R1404589-026
24	3	QC	CCV	59	70		R1404507-007 10X	93	93		R1404589-027
25	1	QC	CCB	60	71		R1404507-008 10X	94	94		R1404589-028
26	48		R1404565-009	61	72		R1404589-016 10X	95	95		R1404589-029
27	49		R1404565-012	62	4	QC	CCV	96	4	QC	CCV
28	50		R1404565-012L	63	5	QC	CCB	97	5	QC	CCB
29	51		R1404631-002	64	73		R1404589-017 10X	98	6	QC	MRL
30	52		R1404631-004	65	74		R1404589-025 10X	99	7	QC	ICSA
31	53		R1404631-005	66	75		R1404589-026 10X	100	8	QC	ICSAB
32	54		R1404631-006	67	76		R1404589-027 10X	101	4	QC	CCV
33	55		R1404631-007	68	77		R1404589-028 10X	102	5	QC	CCB
34	56		R1404631-007D	69	78		R1404589-029 10X	103	96		Sample096
35	57		R1404631-007S								

OPTIMA 5300DV (#4) Run Log

Serial number: 077N6052202

Analyst: DCB Date: 6/24/14 Data File: 4 Jun 24

Prep Dates: MRL 6/12/14 ICSA 6/6/14 ICSAB 6/6/14 Int.Std 6/24/14

Cal Std 1 6/24/14 Cal Std 2 6/24/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/24/14

HLCCV2 6/18/14

Lot #: MRL m6700105A ICSA m6700126B ICSAB m6700146A Int.Std m6700158M

Cal Std 1 m6700013C Cal Std 2 m6700022E Cal Std 5 / HLCCV1 m6700037H ICV / CCV m6700058D

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 m6700079B

Blank Prepared Daily Lot: HNO3 m5280038F HCL m5280038D

1	1	Calib Blank 1	23	47	R1404507-007
2	9	Calib Std 1	24	3	CCV
3	10	Calib Std 2	25	1	CCB
4	11	Calib Std 3	26	48	R1404507-008
5	12	Calib Std 4	27	49	R1404521-001 10X
6	2	Calib Std 5	28	50	R1404589-016
7	3	ICV	29	51	R1404589-017
8	1	ICB	30	52	R1404589-025
9	6	MRL	31	53	R1404589-026
10	7	ICSA	32	54	R1404589-027
11	8	ICSAB	33	55	R1404589-028
12	3	CCV	34	56	R1404589-029
13	1	CCB	35	3	CCV 6/24/14
14	38	PBS-211308	36	1	CCB
15	39	LCSS-211308	37	6	MRL
16	40	R1404342-001	38	7	ICSA
17	41	R1404342-003	39	8	ICSAB
18	42	R1404507-006	40	13	HLCCV2
19	43	R1404507-006D	41	2	HLCCV1
20	44	R1404507-006S	42	3	CCV
21	45	R1404507-006A	43	1	CCB
22	46	R1404507-006L	44	57	Sample057

P4589

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

Analyst: CW Date: 6/25/14 Data File: JJun25A

Prep Dates: MRL 6/12/14 ICSA 6/12/14 ICSAB 6/24/14 Int.Std 6/24/14

Cal Std 1 6/24/14 Cal Std 2 6/24/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/25/14

HLCCV2 6/18/14

Lot #: MRL M670105A ICSA M670119A ICSAB M670137B Int.Std M670158M

Cal Std 1 M670043C Cal Std 2 M670022E Cal Std 5 / HLCCV1 M670637H ICV / CCV M670056E

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670039B

Blank Prepared Daily Lot: HNO3 M52600388F HCL M52600360D

1	1		Calib Blank 1	42	3	QC	CCV	84	84		PBW-211593	PBS-211632	114		
2	9		Calib Std 1	43	1	QC	CCB	85	85		LCSW-211593	LCSS-211632	115		
3	10		Calib Std 2	44	6	QC	MRL	86	86		R1404698-001	DLCSS	116		
4	11		Calib Std 3	45	7	QC	ICSA	87	87		R1404698-002	R1404734-001 10X	117		
5	12		Calib Std 4	46	8	QC	ICSAB	88	88		R1404698-003	R1404734-001L 10X	118		
6	2		Calib Std 5	47	13	QC	HLCCV2	89	89		R1404698-004	R1404734-001	119		
7	3	QC	ICV	48	2	QC	HLCCV1	90	90		R1404698-005	R1404734-001L	120		
8	1	QC	ICB	49	3	QC	CCV	91	91		R1404698-006				
9	6	QC	MRL	50	1	QC	CCB	92	92		R1404698-006D				
10	7	QC	ICSA	51	62		PBW-211139	93	93		R1404698-006S				
11	8	QC	ICSAB	52	63		LCSW-211139	94	4	QC	CCV				
12	3	QC	CCV	53	64		R1404551-001	95	5	QC	CCB				
13	1	QC	CCB	54	65		R1404551-002	96	94		R1404698-006A		125	126	127
14	38		PBW-211442	55	66		R1404551-003	97	95		R1404698-006L				
15	39		LCSW-211442	56	67		R1404551-004	98	96		R1404698-007				
16	40		R1404658-017 10X	57	68		R1404551-005	99	97		R1404698-008				
17	41		R1404658-017L 10X	58	69		R1404551-006	100	98		R1404698-009				
18	42		PBW-211226	59	3	QC	CCV	101	99		R1404714-001	CCV			
19	43		LCSW-211226	60	1	QC	CCB	102	100		R1404726-001	CCB			
20	44		R1404444-012	61	70		R1404551-007	103	101		R1404726-002	MRL			
21	3	QC	CCV	62	71		R1404551-007D	104	102		R1404726-003	ICSA			
22	1	QC	CCB	63	72		R1404551-007S	105	103		R1404742-001	ICSAB			
23	45		R1404444-013	64	73		R1404551-007A	106	4	QC	CCV	CCV			
24	46		R1404444-014	65	74		R1404551-007L	107	5	QC	CCB	CCB			
25	47		R1404444-015	66	75		R1404551-008	108	104		R1404742-002	SAMPLE	4	5	6
26	48		R1404444-016	67	76		R1404551-009	109	105		R1404745-001				
27	49		R1404444-017	68	77		R1404551-010	110	106		R1404745-001D		132	133	134
28	50		R1404444-018	69	3	QC	CCV	111	107		R1404745-001S				
29	51		R1404444-019	70	1	QC	CCB	112	108		R1404745-001A				
30	52		R1404560-001	71	78		R1404551-011	113	109		R1404745-001L				
31	3	QC	CCV	72	79		R1404551-012	114	110		R1404745-002				
32	1	QC	CCB	73	80		R1404551-014	115	111		R1404745-003				
33	53		R1404589-001	74	81		R1404551-015	116	112		R1404745-004				
34	54		R1404589-006	75	82		R1404551-016	117	113		R1404745-005				
35	55		R1404589-011	76	83		R1404551-017	118	4	QC	CCV				
36	56		R1404596-001	77	4	QC	CCV	119	5	QC	CCB				
37	57		R1404596-001D	78	5	QC	CCB	120	6	QC	MRL				
38	58		R1404596-001S	79	6	QC	MRL	121	7	QC	ICSA				
39	59		R1404596-001A	80	7	QC	ICSA	122	8	QC	ICSAB				
40	60		R1404596-001L	81	8	QC	ICSAB	123	4	QC	CCV				
41	61		R1404596-002	82	4	QC	CCV	124	5	QC	CCB				
				83	5	QC	CCB								

6/25/14

00176

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

Analyst: DCB Date: 6/25/14 Data File: 3 Jun 25

Prep Dates:

MRL 6/12/14 ICSA 6/12/14 ICSAB 6/24/14 Int.Std 6/20/14

Cal Std 1 6/24/14 Cal Std 2 6/24/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/25/14

HLCCV2 6/18/14

Lot #:

MRL M6700105A ICSA M6700119A ICSAB M6700137B Int.Std M6700158L

Cal Std 1 M6700013C Cal Std 2 M6700022E Cal Std 5 / HLCCV1 M6700037H ICV / CCV M6700058E

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M6700079B

Blank Prepared Daily Lot: HNO3 M5280038F HCL M5280038D

1	1		Calib Blank 1
2	9		Calib Std 1
3	10		Calib Std 2
4	11		Calib Std 3
5	12		Calib Std 4
6	2		Calib Std 5
7	3	QC	ICV
8	1	QC	ICB
9	6	QC	MRL
10	7	QC	ICSA
11	8	QC	ICSAB
12	3	QC	CCV 6/25/14
13	1	QC	CCB DRL
14	38		PBS-211308
15	39		LCSS-211308
16	40		R1404507-006 20X
17	41		R1404507-006D 20X
18	42		R1404507-006S 20X
19	43		R1404507-006A 20X
20	44		R1404507-006L 20X
21	45		R1404507-007 20X
22	46		R1404507-008 20X
23	47		R1404589-016 50X
24	3	QC	CCV
25	1	QC	CCB
26	48		R1404589-017 50X
27	49		R1404589-025 20X
28	50		R1404589-026 50X
29	51		R1404589-027 50X
30	52		R1404589-028 20X
31	53		R1404589-029 20X
32	3	QC	CCV
33	1	QC	CCB
34	6	QC	MRL
35	7	QC	ICSA
36	8	QC	ICSAB
37	13	QC	HLCCV2
38	2	QC	HLCCV1
39	3	QC	CCV
40	1	QC	CCB
41	54		Sample054

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC Date: 6/26/14

Data File: 062614 B Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066 A 6/23/14 Cal Std 2: M6510015G 6/17/14

Cal Std 3: M6510026H 6/9/14 ICV/CCV: M6510051D 6/26/14

HLCCV2: M6510081A 6/25/14 Internal Std: M6510109A 4/8/14

ICSA (6020A): n/a ICSAB (6020A): n/a

Tuning Solution: M6510140B 4/29/14 HNO_3: MS28CD38F

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210970	PBW-210970
39	210970	LCSW-210970
40	210970	R1404353-001
41	210970	R1404353-002
42	210970	R1404353-002D
43	210970	R1404353-002S
44	210970	R1404353-002A
45	210970	R1404353-002L
46	210970	R1404353-003
47	210970	R1404353-007
48	210970	R1404353-009
49	210970	R1404353-010
50	210970	R1404353-011
TC 6/26/14	210970	HLCCV2
52	210970	R1404412-004_20
53	210970	R1404412-004L_20
54	210970	R1404412-004_5
55	210970	R1404412-004L_5
56	210970	R1404412-004
57	210970	R1404412-004L
58	211500	PBW-211500
59	211500	LCSW-211500 TC 6/26/14
60	211500	R1404507-001
61	211500	R1404509-001
62	211500	R1404560-001
63	211500	R1404563-001
64	211500	R1404563-001D
65	211500	R1404563-001S
66	211500	R1404563-001A
67	211500	R1404563-001L
68	211500	R1404563-002
69	211500	R1404589-001
70	211500	R1404589-006
71	211500	R1404589-011
72	211500	R1404671-001
73	211500	R1404671-002
74	211500	R1404671-002L

OPTIMA 5300DV (#4) Run Log

Serial number: 077N6052202

Analyst: CJW Date: 6/26/14 Data File: 4Jun26A

Prep Dates:
MRL 6/12/14 ICSA 6/6/14 ICSAB 6/25/14 Int.Std 6/24/14
Cal Std 1 6/24/14 Cal Std 2 6/24/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/26/14
HLCCV2 6/18/14

Lot #:
MRL M670105A ICSA M670126B ICSAB M670146B Int.Std M670056M
Cal Std 1 M670013C Cal Std 2 M670022 Cal Std 5 / HLCCV1 M670037 ICV / CCV M670058F
(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670079B

Blank Prepared Daily Lot: HNO3 M5260088F HCL M5280036P

1	1		Calib Blank 1	36	3		CCV	77	79		R1404551-017
2	9		Calib Std 1	37	1		CCB	78	80		PBW-211706
3	10		Calib Std 2	38	6		MRL	79	81		LCSW-211706
4	11		Calib Std 3	39	7		ICSA	80	82		FB
5	12		Calib Std 4	40	8		ICSAB	81	83		R1404429-054
6	2		Calib Std 5	41	13		HLCCV2	82	84		R1404429-056
7	3		ICV	42	2		HLCCV1	83	85		R1404429-056MS
8	1		ICB	43	3		CCV	84	86		R1404429-056MSD
9	6		MRL	44	1		CCB	85	87		R1404429-056A
10	7		ICSA	45	58		PBW-211139	86	88		R1404429-056L
11	8		ICSAB	46	59		LCSW-211139	87	4		CCV
12	3		CCV	47	60		R1404551-001	88	5		CCB
13	1		CCB	48	61		R1404551-002	89	89		R1404429-058
14	38		PBW-211226	49	62		R1404551-003	90	90		R1404429-060
15	39		LCSW-211226	50	63		R1404551-004	91	91		R1404429-062
16	40		R1404444-012	51	64		R1404551-005	92	92		R1404429-064
17	41		R1404444-013	52	65		R1404551-006	93	93		R1404429-066
18	42		R1404444-014	53	3		CCV	94	94		R1404429-068
19	43		R1404444-015	54	1		CCB	95	95		R1404429-070
20	44		R1404444-016	55	66		R1404551-007	96	96		R1404429-073
21	45		R1404444-017	56	67		R1404551-007D	97	4		CCV
22	46		R1404444-018	57	68		R1404551-007S	98	5		CCB
23	47		R1404444-019	58	69		R1404551-007A	99	97		R1404429-075
24	3		CCV	59	70		R1404551-007L	100	98		R1404429-075MS
25	1		CCB	60	71		R1404551-008	101	99		R1404429-075MSD
26	48		R1404560-001	61	72		R1404551-009	102	100		R1404429-075A
27	49		R1404589-001	62	3		CCV	103	101		R1404429-075L
28	50		R1404589-006	63	1		CCB	104	102		R1404429-077
29	51		R1404589-011	64	73		R1404551-010	105	103		R1404429-079
30	52		R1404596-001	65	74		R1404551-011	106	104		R1404429-081
31	53		R1404596-001D	66	75		R1404551-012	107	4		CCV
32	54		R1404596-001S	67	76		R1404551-014	108	5		CCB
33	55		R1404596-001A	68	77		R1404551-015	109	6		MRL
34	56		R1404596-001L	69	78		R1404551-016	110	7		ICSA
35	57		R1404596-002	70	4		CCV	111	8		ICSAB
				71	5		CCB	112	4		CCV
				72	6		MRL	113	5		CCB
				73	7		ICSA	114	105		SAMPLE
				74	8		ICSAB				
				75	4		CCV				
				76	5		CCB				

6/26/14

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC Date: 6/30/14

Data File: 063014 B Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066A 6/23/14 Cal Std 2: M6510015G 6/17/14

Cal Std 3: M6510026H 6/9/14 ICV/CCV: M6510051F 6/30/14

HLCCV2: M6510081A 6/25/14 Internal Std: M6510109A 4/8/14

ICSA (6020A): M6576091M 6/24/14 ICSAB (6020A): M6510103A 6/30/14

Tuning Solution: M6510140B 4/28/14 HNO_3: MS280038F

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

53	211500	PBW-211500
54	211500	LCSW-211500
55	211500	R1404507-001
56	211500	R1404563-001
57	211500	R1404563-001D
58	211500	R1404563-001S
59	211500	R1404563-001A
60	211500	R1404563-001L
61	211500	R1404563-002
62	211500	R1404589-001 TC
63	211500	R1404589-006
64	211500	R1404589-011
9		HLCCV2
53	211500	PBW-211500
54	211500	LCSW-211500
55	211500	R1404507-001
56	211500	R1404563-001
57	211500	R1404563-001D
58	211500	R1404563-001S
59	211500	R1404563-001A
60	211500	R1404563-001L
61	211500	R1404563-002
62	211500	R1404589-001
63	211500	R1404589-006
64	211500	R1404589-011
9		HLCCV2
38	211499	PBW-211499
39	211499	LCSW-211499
40	211499	R1404508-004_10
41	211499	R1404508-011_10
42	211499	R1404508-013_10
43	211499	R1404508-013L_10
44	211499	R1404565-002_10
45	211499	R1404565-002D_10
46	211499	R1404565-002S_10
47	211499	R1404565-002A_10
48	211499	R1404565-002L_10
49	211499	R1404565-005_10
50	211499	R1404565-007_10
51	211499	R1404565-008_10
52	211499	R1404565-009_10
53	211499	R1404565-012_10
54	211499	R1404658-013_10
55	211499	R1404658-014_10
56	211499	R1404658-015_10
57	211499	R1404658-016_10
58	211499	R1404658-017_10
59	211499	R1404658-018_10
60	211499	R1404658-020_10
61	211499	R1404658-021_10
62	211499	R1404658-022_10
63	211499	R1404658-022L_10
98	211499	R1404508-004
99	211499	R1404508-011 TC 6/30/14
100	211499	R1404508-013
101	211499	R1404508-013L
102	211499	R1404565-002
103	211499	R1404565-002D
104	211499	R1404565-002S
105	211499	R1404565-002A
106	211499	R1404565-002L
107		R1404565-005
108	211499	R1404565-007
109	211499	R1404565-008
110	211499	R1404565-009
111	211499	R1404565-012
112	211499	R1404658-013
113	211499	R1404658-014
114	211499	R1404658-015
115	211499	R1404658-016
116	211499	R1404658-017
117	211499	R1404658-018
118	211499	R1404658-020
119	211499	R1404658-021
120	211499	R1404658-022
121	211499	R1404658-022L

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC

Date: 7/1/14

Data File: 070114A

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066B 7/1/14

Cal Std 2: M6510015H 7/1/14

Cal Std 3: M6510026I 7/1/14

ICV/CCV: M6510051G 7/1/14

HLCCV2: M6510080P 6/19/14

Internal Std: M6510109A 4/8/14

ICSA (6020A): M6510091N 7/1/14

ICSAB (6020A): M6510103B 7/1/14

Tuning Solution: M6510140B 4/29/14

HNO_3: M5280038F

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210334	PBS-210334_5
39	210334	LCSS-210334_5
40	210334	R1404273-005_5
41	210334	R1404273-005D_5
42	210334	R1404273-005S_5
43	210334	R1404273-005A_5
44	210334	R1404273-005L_5
45	210334	R1404273-006_5
46	210334	R1404421-008_5
47	210334	R1404421-009_5
48	210334	R1404421-010_5
9		HLCCV2 TC 7/1/14
49	211307	PBS-211307_5
50	211307	LCSS-211307_5
51	211307	R1404507-006_5
52	211307	R1404507-006D_5
53	211307	R1404507-006S_5
54	211307	R1404507-006A_5
55	211307	R1404507-006L_5
56	211307	R1404507-007_5
57	211307	R1404507-008_5
58	211307	R1404589-016_5
59	211307	R1404589-017_5
60	211307	R1404589-025_5
61	211307	R1404589-026_5
62	211307	R1404589-027_5
63	211307	R1404589-028_5
64	211307	R1404589-029_5
65	211858	PBS-211858_5
66	211858	LCSS-211858_5
67	211858	R1404622-007_5
68	211858	R1404622-008_5
69	211858	R1404622-008D_5
70	211858	R1404622-008S_5
71	211858	R1404622-008A_5
72	211858	R1404622-008L_5

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC

Date: 7/2/14

Data File: 070214B

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066B 7/1/14

Cal Std 2: M6510015H 7/1/14

Cal Std 3: M6510026B 7/1/14

ICV/CCV: M6510051H 7/2/14

HLCCV2: M6510080P 6/19/14

Internal Std: M6510109A 4/18/14

ICSA (6020A): M6510091N 7/1/14

ICSAB (6020A): M6510010 3B 7/1/14

Tuning Solution: M6510014 0B 4/22/14

HNO_3:

TC 7/2/14

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210334	PBS-210334_5
39	210334	LCSS-210334_5
40	210334	R1404421-008_5
41	210334	R1404421-009_5
42	210334	R1404421-010_5
43	210334	R1404421-010L_5
9		HLCCV2
5		CCV
1		CCB
44	211307	PBS-211307_5
45	211307	LCSS-211307_5
46	211307	R1404507-006_5
47	211307	R1404507-006D_5
48	211307	R1404507-006S_5
49	211307	R1404507-006A_5
50	211307	R1404507-006L_5
51	211307	R1404507-007_5
52	211307	R1404507-008_5
53	211307	R1404589-016_5
54	211307	R1404589-017_5
55	211307	R1404589-025_5
56	211307	R1404589-026_5
57	211307	R1404589-027_5
58	211307	R1404589-028_5
59	211307	R1404589-029_5
6		MRL
5		CCV
1		CCB
60	211858	PBS-211858_5
61	211858	LCSS-211858_5
62	211858	R1404622-007_5
63	211858	R1404622-008_5
64	211858	R1404622-008D_5
65	211858	R1404622-008S_5
66	211858	R1404622-008A_5
67	211858	R1404622-008L_5

TC 7/2/14

24589

Perkin Elmer FIMS Run Log

Serial number: 101S12110203

Analyst: CW

Data File: Jun-20w

Date Prepped: 6/19/14

Date Analyzed: 6/20/14

Lot #: Calibration/CRDL Source Standard: M52600283

ICV/CCV/LCS/MS Source Standard: M52800382

Cal/ CRDL 10ppm stock: M661057A

ICV/CCV/LCS/MS 10ppm stock: M681007D

Cal/ CRDL 0.1ppm stock: M661057E

ICV/CCV/LCS/MS 0.1 ppm stock: M681007E

1	1		Calib Blank
2	2	✓	0.2ppb std
3	3	✓	0.5ppb std
4	4	✓	1.0ppb std
5	5	✓	2.0ppb std
6	6	✓	5.0ppb std
7	7	✓	10.0ppb std
8	8	OC	ICV
9	1	OC	ICB
10	2	OC	MRL
11	8	OC	CCV
12	1	OC	CCB
13	38		PBW-211270
14	39		LCSW
15	40		R1404589-001
16	41		R1404589-006
17	42		R1404589-011
18	43		R1404596-001
19	44		R1404596-002
20	45		R1404616-001
21	8	OC	CCV
22	1	OC	CCB
23	46		R1404616-002
24	47		R1404616-003
25	48		R1404616-004
26	49		R1404616-004D
27	50		R1404616-004S
28	51		R1404631-002
29	52		R1404631-004
30	53		R1404631-005
31	54		R1404631-006
32	8	OC	CCV
33	1	OC	CCB
34	55		R1404631-007
35	56		R1404631-009
36	57		R1404632-001
37	58		R1404678-001
38	59		R1404678-002
39	60		R1404678-003
40	61		R1404678-003D
41	62		R1404678-003S
42	2	OC	MRL
43	8	OC	CCV
44	1	OC	CCB
45	63		PBW-211271
46	64		LCSW
47	65		R1404551-001
48	66		R1404551-002
49	67		R1404551-003
50	68		R1404551-004
51	69		R1404551-005
52	70		R1404551-006
53	8	OC	CCV
54	1	OC	CCB
55	71		R1404551-007
56	72		R1404551-007D
57	73		R1404551-007S
58	74		R1404551-008
59	75		R1404551-009
60	76		R1404551-010
61	77		R1404551-011
62	78		R1404551-012
63	8	OC	CCV
64	1	OC	CCB
65	79		R1404551-014
66	80		R1404551-015
67	81		R1404551-016
68	82		R1404551-017
69	83		R1404551-018
70	84		R1404551-019
71	85		R1404511-020
72	86		R1404560-001
73	2	OC	MRL
74	8	OC	CCV
75	1	OC	CCB
76	87		PBW-211274
77	88		LCST
78	89		MB 6858-01
79	90		R1404634-001
80	91		R1404634-001D
81	92		R1404634-001S
82	2	OC	MRL
83	8	OC	CCV
84	1	OC	CCB
85	93		SAMPLE

CW 6/20/14

00183

Perkin Elmer FIMS Run Log

Serial number: 101S12110203

Analyst: CJW Data File: Jun-20S

Date Prepped: 6/20/14 Date Analyzed: 6/20/14

Lot #: Calibration/CRDL Source Standard: M5280830S ICV/CCV/LCS/MS Source Standard: M5280830R

Cal/ CRDL 10ppm stock: M6810057A ICV/CCV/LCS/MS 10ppm stock: M6810057A

Cal/ CRDL 0.1ppm stock: M6810057F ICV/CCV/LCS/MS 0.1 ppm stock: M6810057F

1	1		Calib Blank
2	2		0.2ppb std
3	3		0.5ppb std
4	4		1.0ppb std
5	5		2.0ppb std
6	6		5.0ppb std
7	7		10.0ppb std
8	8	QC	ICV
9	1	QC	ICB
10	2	QC	MRL
11	8	QC	CCV
12	1	QC	CCB
13	38		PBS-211333 6/20/14
14	39		LCSS
15	40		R1404589-016
16	41		R1404589-016D
17	42		R1404589-016S
18	43		R1404589-017
19	44		R1404589-025
20	45		R1404589-026
21	8	QC	CCV
22	1	QC	CCB
23	46		R1404589-027
24	47		R1404589-028
25	48		R1404589-029
26	49		R1404600-001
27	50		R1404600-002
28	51		R1404600-003
29	52		R1404600-004
30	53		R1404600-005
31	54		R1404600-006
32	8	QC	CCV
33	1	QC	CCB
34	55		R1404600-007
35	56		R1404600-008
36	57		R1404600-009
37	58		R1404656-013
38	59		R1404701-001
39	60		R1404701-002
40	2	QC	MRL
41	8	QC	CCV
42	1	QC	CCB
43	61		SAMPLE

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	018LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

M 1/29

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030535.D PERC0129.M Wed Jan 29 13:54:02 2014

00185

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 29 13:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.84	89	182264	1.00 ug/L	0.00
Target Compounds					Qvalue
2) Perchlorate	7.84	83	195969	0.99 ug/L	100
3) #2 perc ion	7.84	85	64118	0.96 ug/L	100

Ratio
3.06

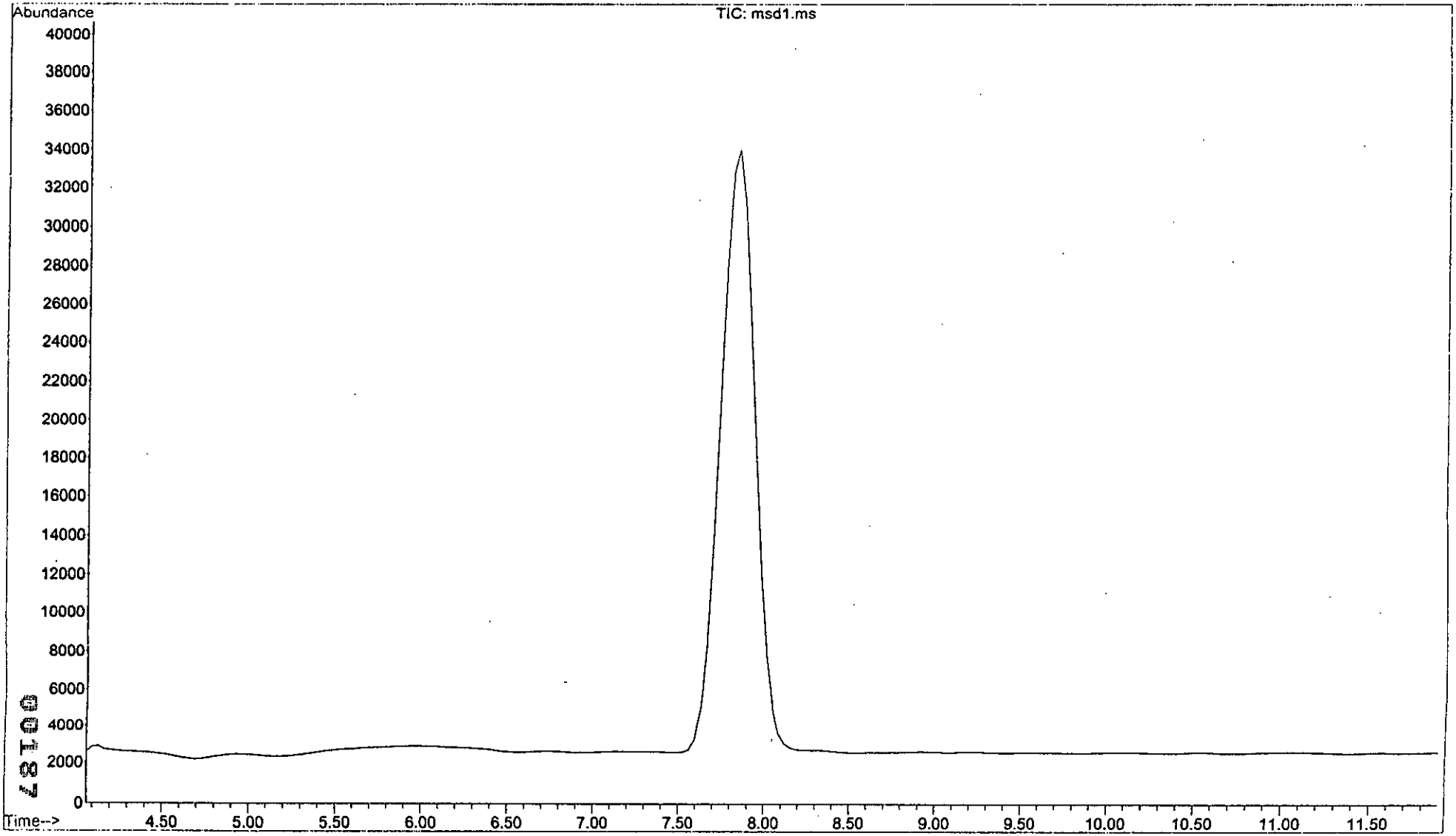
MP 1/29

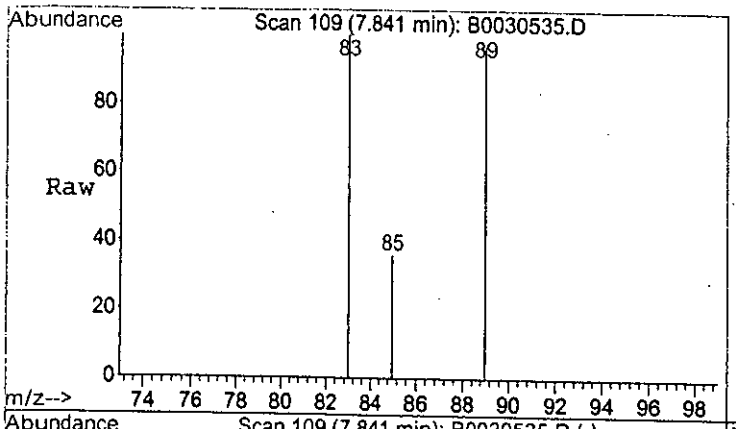
(#) = qualifier out of range (m) = manual integration
B0030535.D PERC0129.M Wed Jan 29 13:54:06 2014

00186

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 29 13:53 2014 Quant Results File: PERC0129.RES

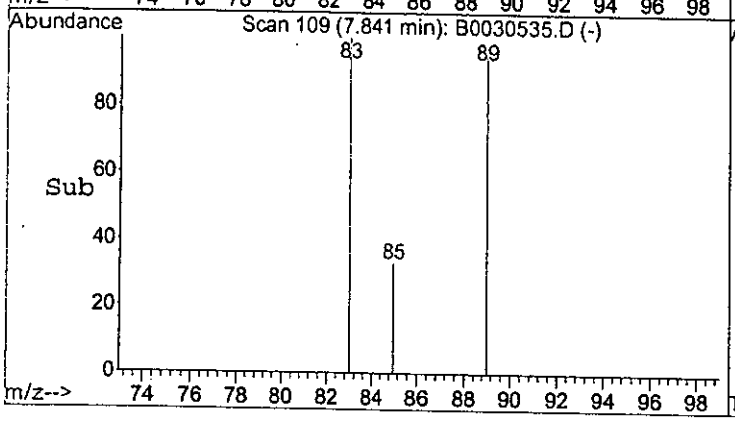
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Initial Calibration

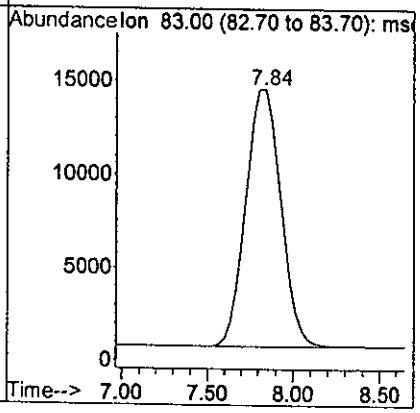


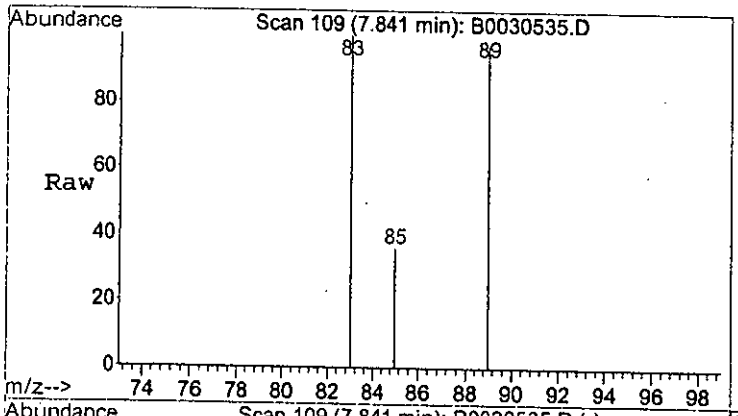


#2
Perchlorate
Concen: 0.99 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.04 min
Lab File: B0030535.D
Acq: 29 Jan 2014 10:56 am

Tgt Ion: 83 Resp: 195969

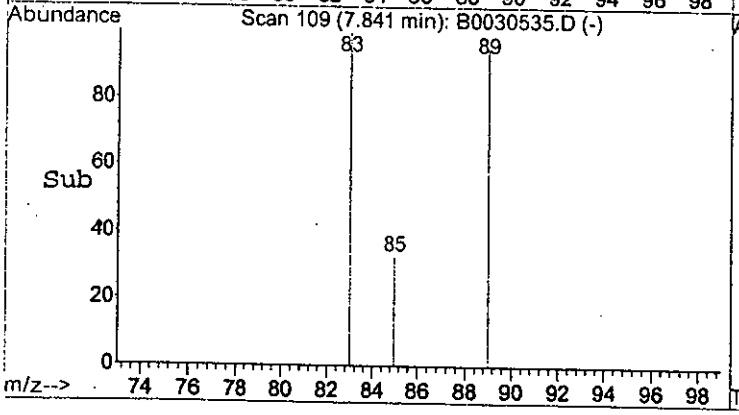


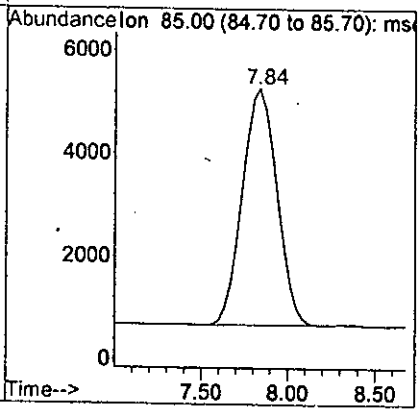




#3
#2 perc ion
Concen: 0.96 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.01 min
Lab File: B0030535.D
Acq: 29 Jan 2014 10:56 am

Tgt Ion: 85 Resp: 64118





00188

Analysis: [illegible] Analyst: [illegible] Run Method: [illegible]
Date: 1/28/14 Instr. HPLC-02 Quant Method: [illegible]
LIMS Run#:

Setup: Column: Kprime # 2100 Col.Temp: 30 Flow: 0.5 ml/min
Mobile Phase: 60/40 MeCN/H2O 0.1 CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	AMBLK			B030524	—	
	↓			525	—	
	CCV Ion/Mass			526	Y	
	RWL			527	Y	
	.1 ppb	1ml/10ml	66006	528	Y	
	.2 ppb	2ml/10ml		529	Y	
	.5 ppb	5ml/10ml		530	Y	
	.75 ppb	7.5ml/10ml		531	Y	
	1.0 ppb	10ml/10ml		532	Y	
	2.0 ppb	20ml/10ml		533	Y	
	5.0 ppb	50ml/10ml	↓	534	Y	
	ICV	10ml/10ml	66005	535	Y ICV	exp 5/31/14
	CCV 1.0 ppb		66007	536	YC	
	RQ1400131-01			537	Y	
	04			538	Y	
	02			539	Y	
	03			540	Y	
	↓ 05			541	Y	
	R1400128-001			542	Y	
	RQ1400431-06			543	Y	
	07			544	Y	
	R1400128-002			545	Y	
	003			546	Y	
	CCV 1.0 ppb		66007	547	YC	
	R1400128-004			548	Y	
	R1400205-001			549	Y	
	R1400119-001			550	Y	
	↓ 001	10.0		551	Y	
	RQ1400431-04			552	Y	
	CCV 1.0 ppb		66007	553	YC	
	RQ1400826-01			554	Y	
	04			555	Y	
	07			556	N	OUT
	03			557	Y	

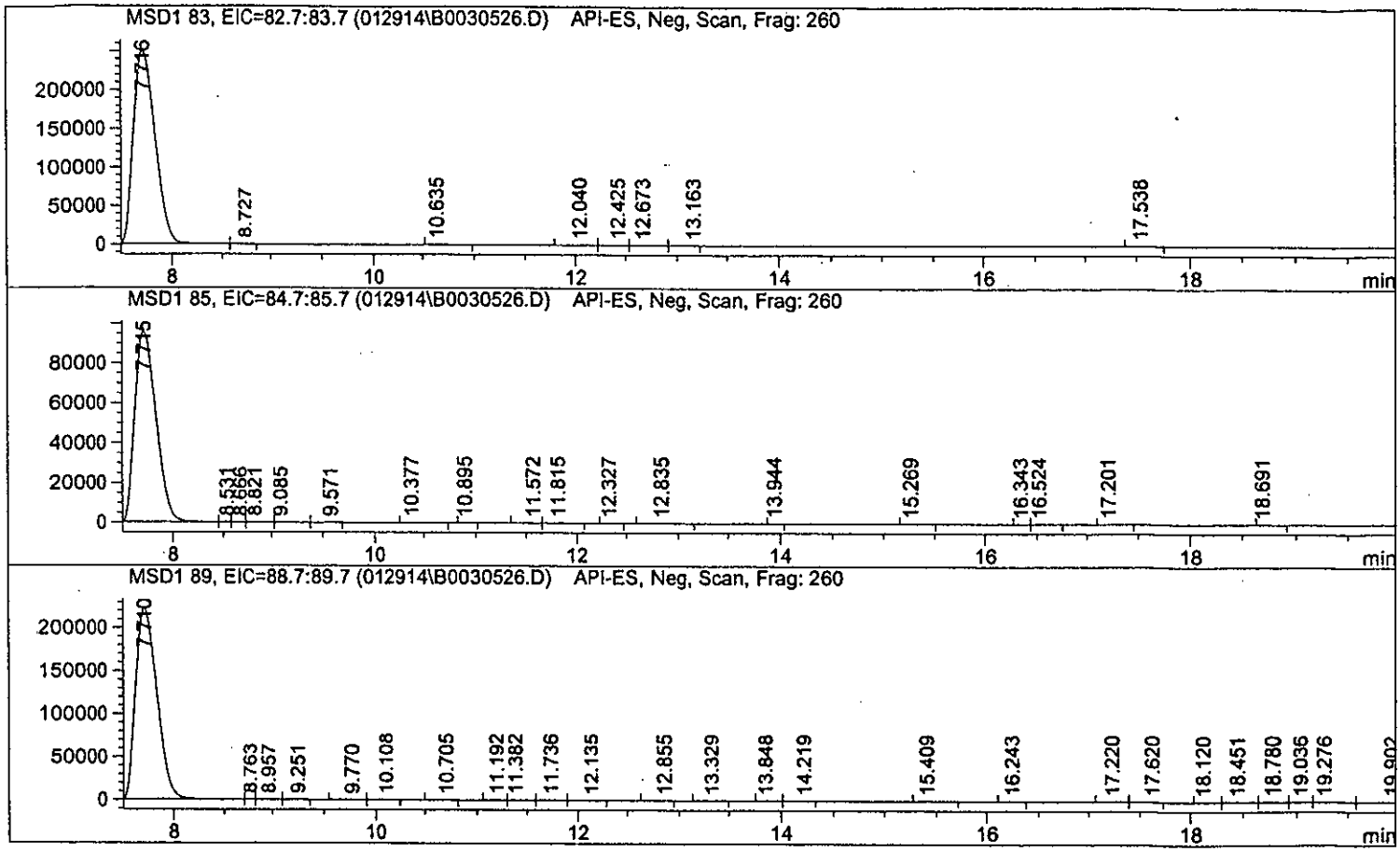
All samples = _____ mL + _____ uL Combined IS/Surr.:

Primary: 66007 exp: 4/30/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

Data File C:\HPCHEM\1\DATA\012914\b0030526.D Sample Name: ion/mass ccv

Injection Date	: 1/29/2014 8:27:24 AM	Seq. Line :	2
Sample Name	: ion/mass ccv	Location :	Vial 100
Acq. Operator	: m.pedro	Inj :	1
Acq. Instrument	: Instrument 1	Inj Volume :	30 µl
Sequence File	: C:\HPCHEM\1\SEQUENCE\112613.S		
Method	: I:\ACQUDATA\HPLC02\METHODS\PERCTUNZ.M		
Last changed	: 1/29/2014 7:45:45 AM by b.allgeier		

SIM Perchlorate on K` column



Internal Standard Report

Sorted By	:	Signal
Calib. Data Modified	:	4/19/2007 12:57:24 PM
Multiplier	:	1.0000
Dilution	:	1.0000

Do not use Multiplier & Dilution Factor with ISTDs

Sample ISTD Information:

ISTD #	ISTD Amount [ng/ml]	Name
1	2.00000	Internal STD

MP 1/29

Signal 1: MSD1 83, EIC=82.7:83.7

RetTime [min]	Type	Area	Amt/Area ratio	Amount [ng/ml]	Grp	Name
12.040	BB	1399.23999	3.31261	3.80558		Perchlorate

Totals without ISTD(s) : 3.80558

Signal 2: MSD1 85, EIC=84.7:85.7

RetTime [min]	Type	Area	Amt/Area ratio	Amount [ng/ml]	Grp	Name
11.815	BBA	803.50800	9.33554	6.15868		second ion

Totals without ISTD(s) : 6.15868

Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Type	Area	Amt/Area ratio	Amount [ng/ml]	Grp	Name
11.736	BB +I	2435.96899	1.00000	2.00000		Internal STD

Totals without ISTD(s) : 0.00000

1 Warnings or Errors :

Warning : Elution order of calibrated compounds may have changed

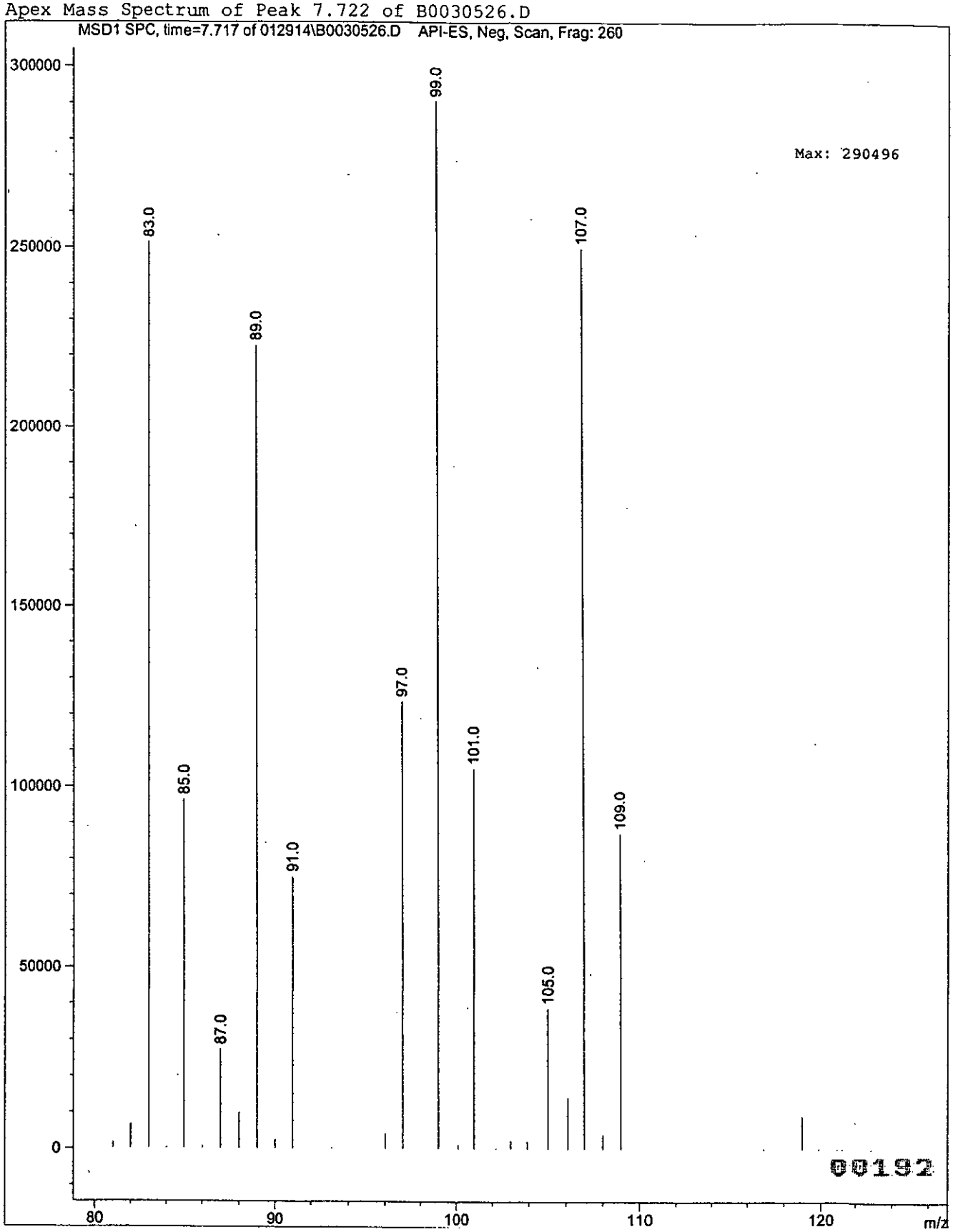
*** End of Report ***

Print of window 79: Apex Mass Spectrum of Peak 7.722 of B0030526.D

Injection Date	: 1/29/2014 8:27:24 AM	Seq. Line :	2
Sample Name	: ion/mass ccv	Location :	Vial 100
Acq. Operator	: m.pedro	Inj :	1
Acq. Instrument	: Instrument 1	Inj Volume :	30 µl
Method	: I:\ACQUDATA\HPLC02\METHODS\PERCTUNZ.M		
Last changed	: 1/29/2014 7:45:45 AM by b.allgeier		

SIM Perchlorate on K` column

Apex Mass Spectrum of Peak 7.722 of B0030526.D



Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031525.D Vial: 6
Acq On : 23 Jun 2014 8:40 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	108	0.00
2	Perchlorate	1.085	1.097	-1.1	103	0.00
3	#2 perc ion	0.366	0.327	10.7	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031525.D PERC0129.M Tue Jun 24 08:45:00 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031525.D Vial: 6
Acq On : 23 Jun 2014 8:40 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.84	89	218007	1.00 ug/L	0.00
Target Compounds					Qvalue
2) Perchlorate	7.80	83	239102	1.01 ug/L	100
3) #2 perc ion	7.84	85	71357	0.89 ug/L	100

Ratio
3.35

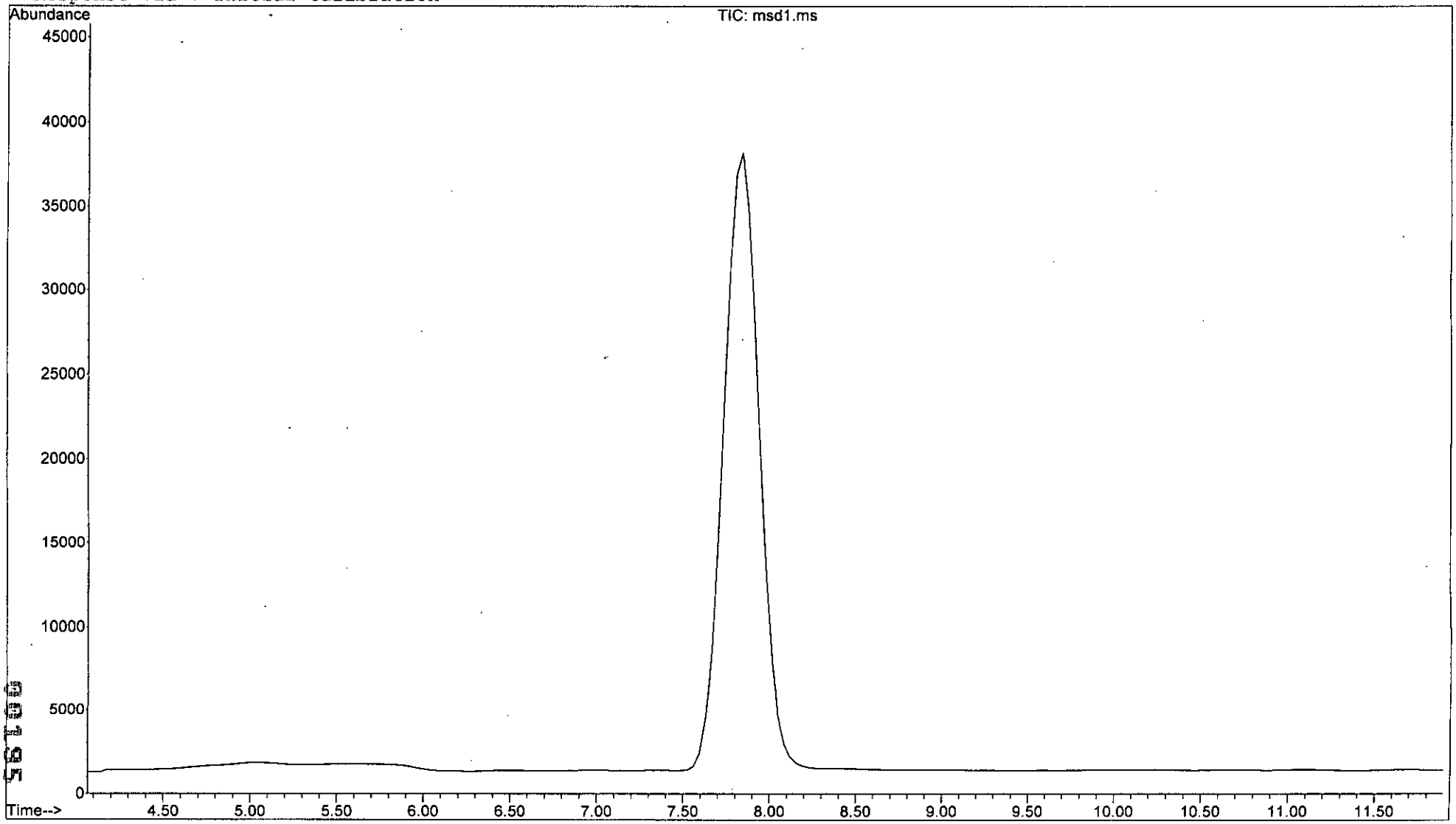
BA 6/24

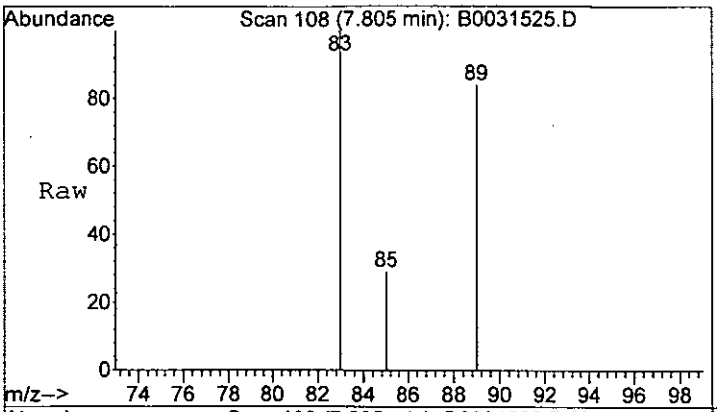
(#) = qualifier out of range (m) = manual integration
B0031525.D PERC0129.M Tue Jun 24 08:44:45 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031525.D Vial: 6
Acq On : 23 Jun 2014 8:40 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

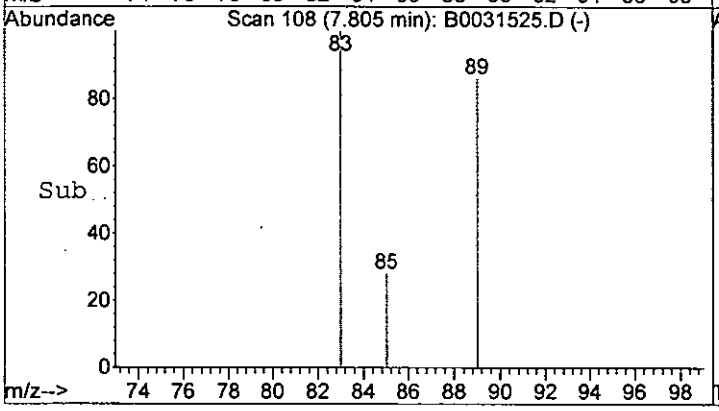
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

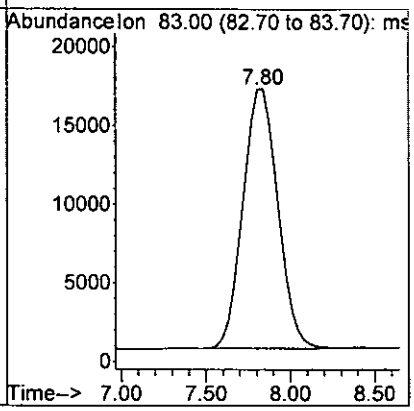


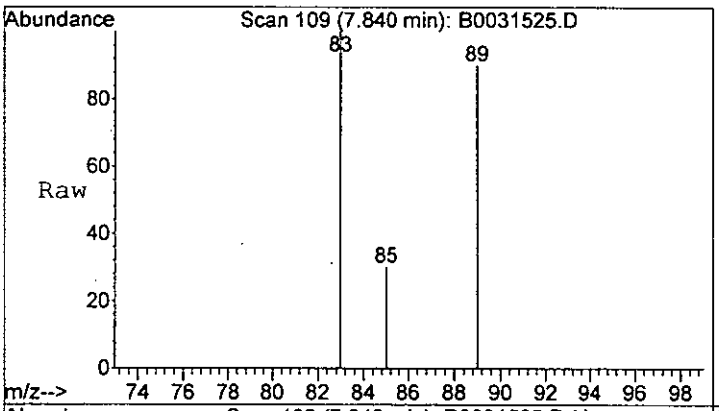


#2
Perchlorate
Concen: 1.01 ug/L
RT: 7.80 min Scan# 108
Delta R.T. -0.00 min
Lab File: B0031525.D
Acq: 23 Jun 2014 8:40 am

Tgt Ion: 83 Resp: 239102

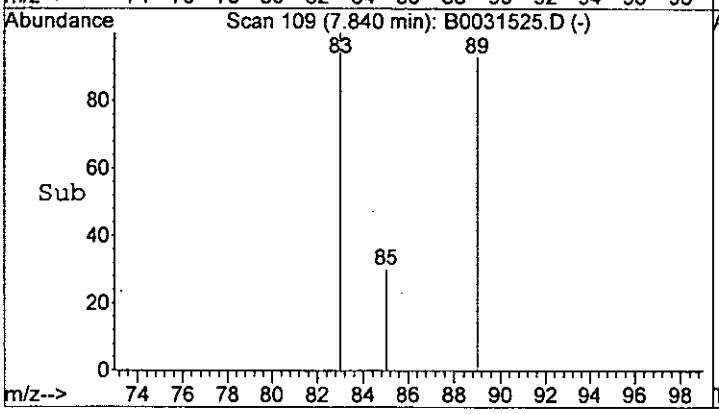


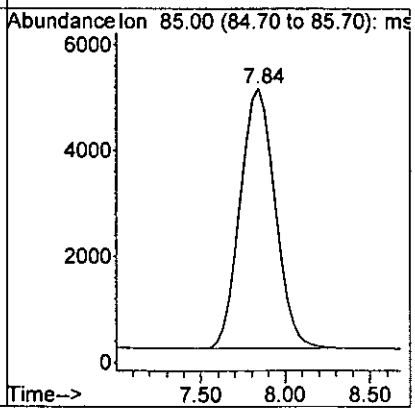




#3
#2 perc ion
Concen: 0.89 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.00 min
Lab File: B0031525.D
Acq: 23 Jun 2014 8:40 am

Tgt Ion: 85 Resp: 71357





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031536.D Vial: 6
Acq On : 23 Jun 2014 11:07 am Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	103	0.04
2	Perchlorate	1.085	1.106	-1.9	98	0.04
3	#2 perc ion	0.366	0.338	7.7	93	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031536.D PERC0129.M Tue Jun 24 08:50:28 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031536.D Vial: 6
Acq On : 23 Jun 2014 11:07 am Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.88	89	206661	1.00 ug/L	0.04
Target Compounds					Qvalue
2) Perchlorate	7.84	83	228662	1.02 ug/L	100
3) #2 perc ion	7.88	85	69944	0.93 ug/L	100

Ratio
3.27

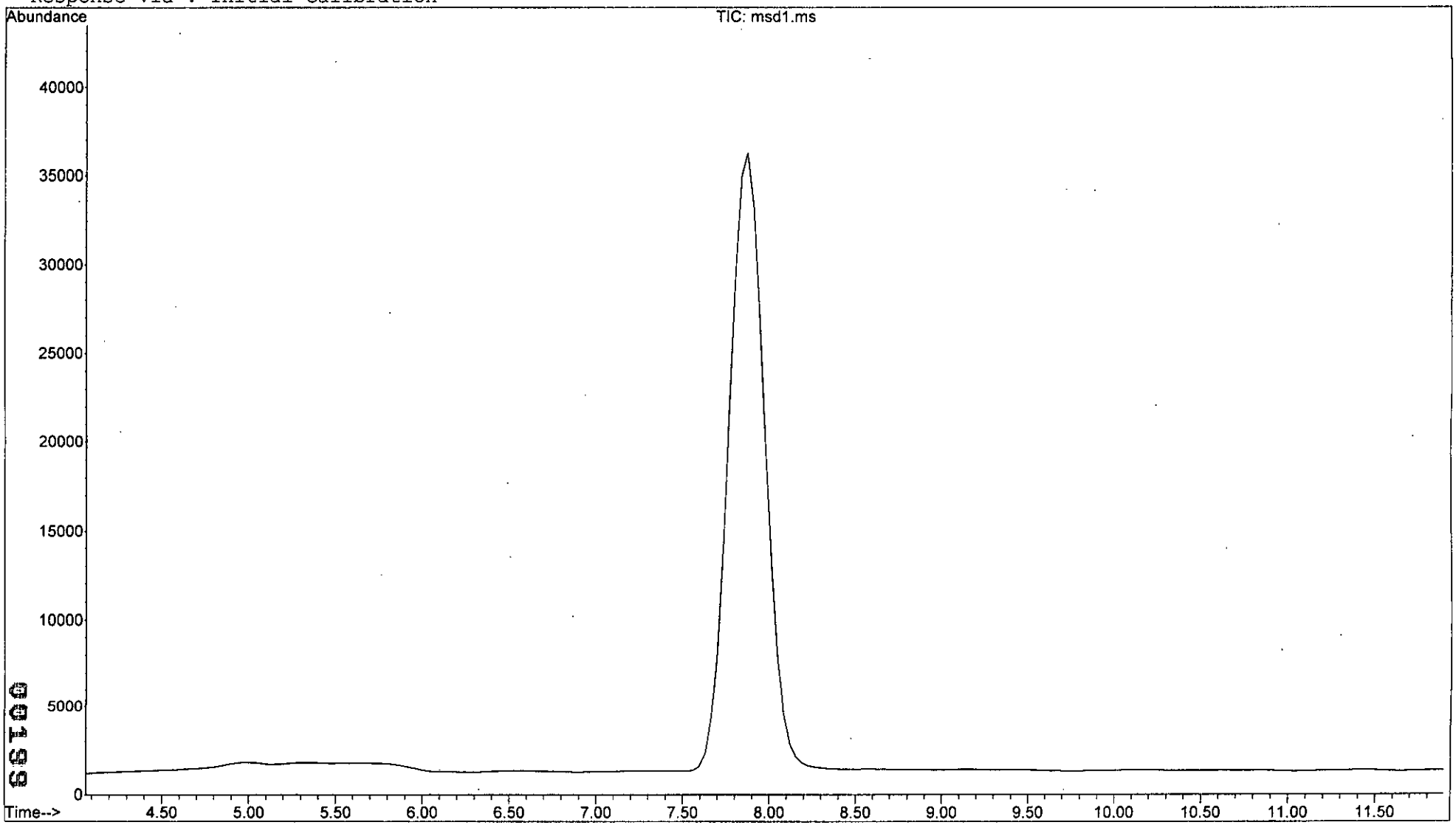
BA6/24

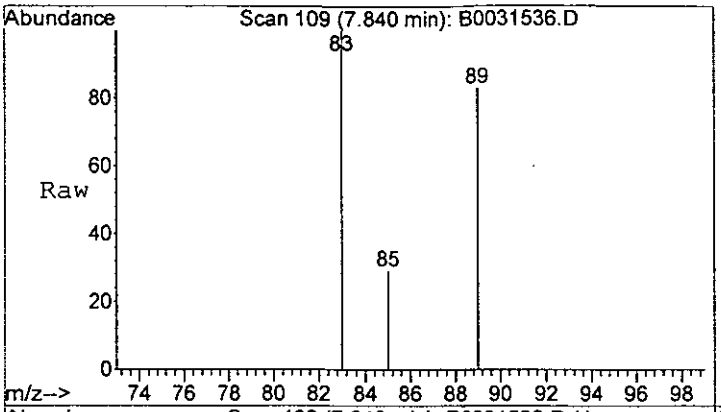
(#) = qualifier out of range (m) = manual integration
B0031536.D PERC0129.M Tue Jun 24 08:50:10 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031536.D Vial: 6
Acq On : 23 Jun 2014 11:07 am Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

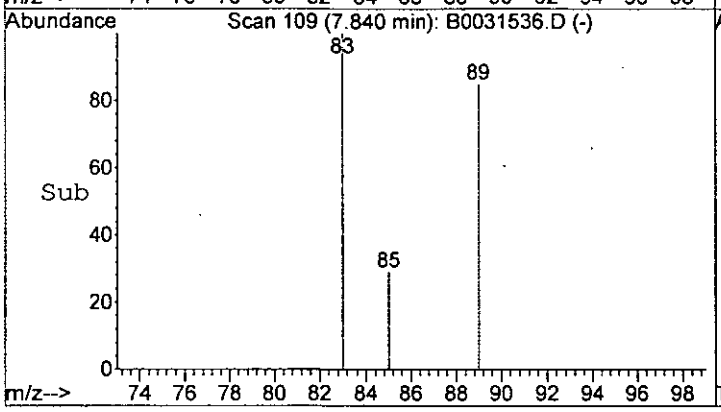
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

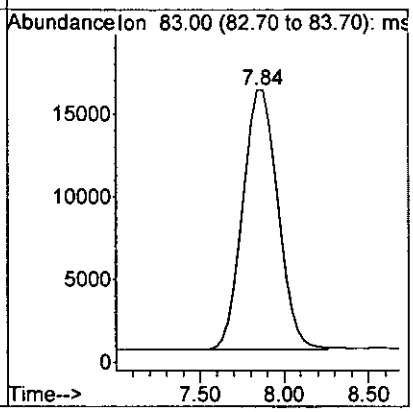


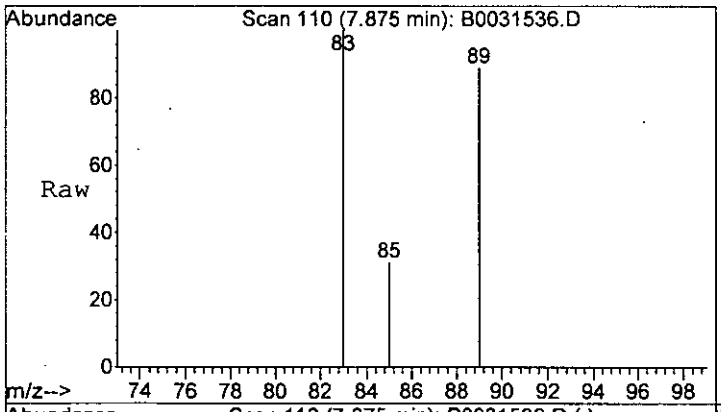


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.04 min
Lab File: B0031536.D
Acq: 23 Jun 2014 11:07 am

Tgt Ion: 83 Resp: 228662

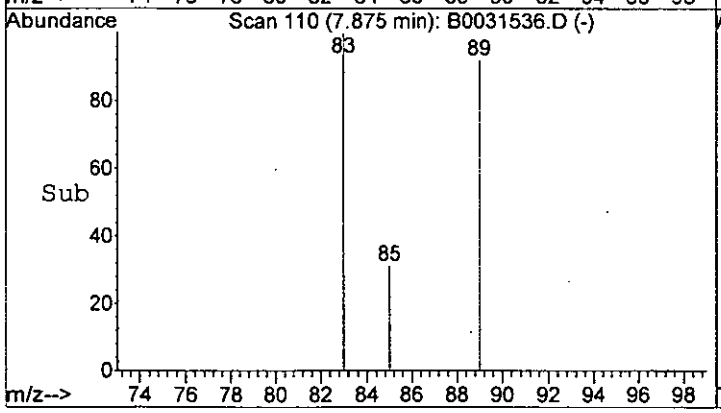


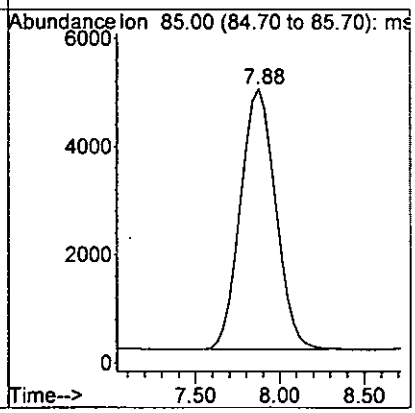




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.88 min Scan# 110
Delta R.T. 0.04 min
Lab File: B0031536.D
Acq: 23 Jun 2014 11:07 am

Tgt Ion: 85 Resp: 69944





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031543.D Vial: 6
Acq On : 23 Jun 2014 12:41 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	102	0.03
2	Perchlorate	1.085	1.126	-3.8	99	0.03
3	#2 perc ion	0.366	0.344	6.0	94	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031543.D Vial: 6
Acq On : 23 Jun 2014 12:41 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.87	89	204834	1.00 ug/L	0.03
Target Compounds					Qvalue
2) Perchlorate	7.84	83	230613	1.04 ug/L	100
3) #2 perc ion	7.87	85	70477	0.94 ug/L	100

Ratio
3.27

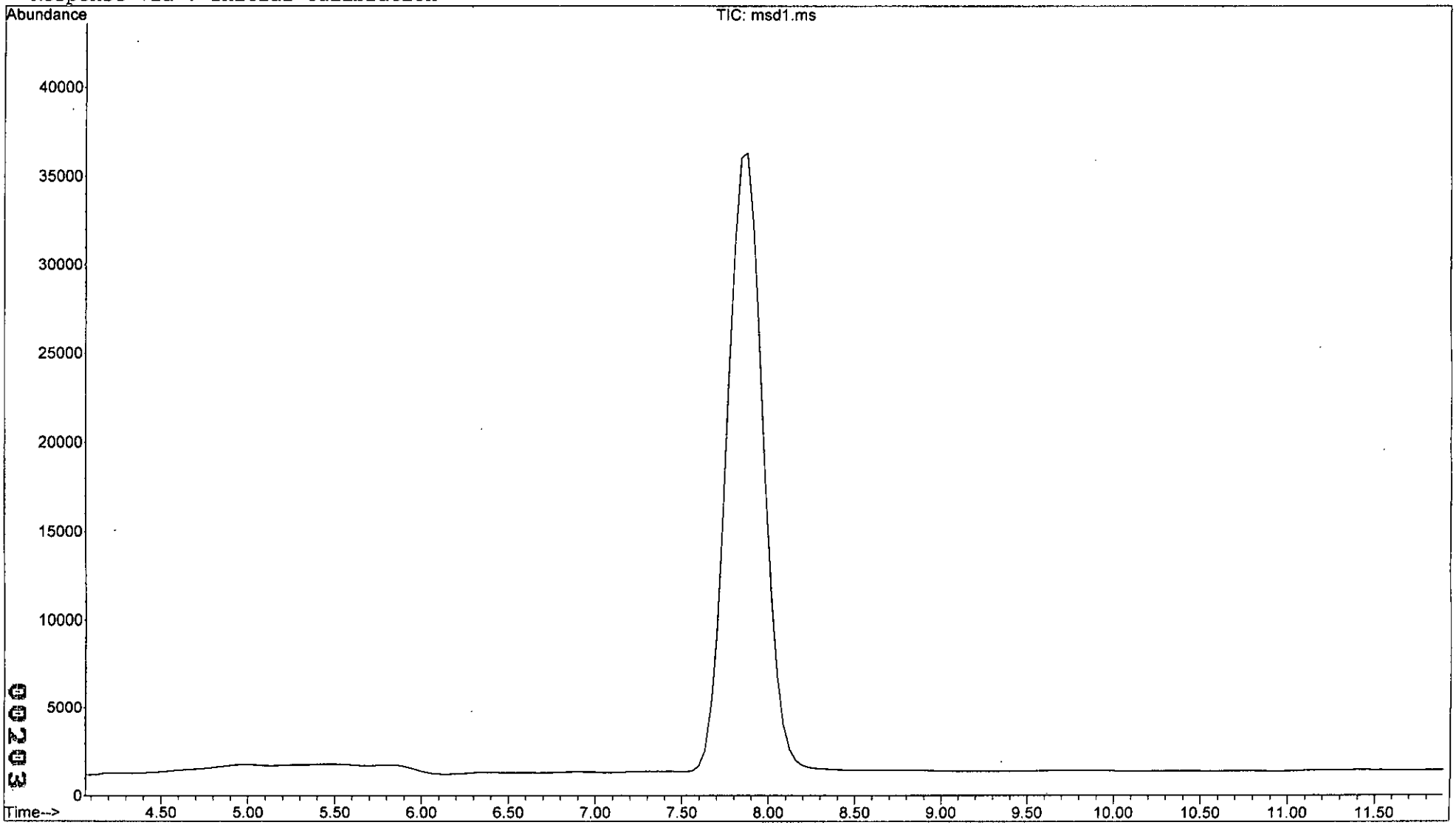
BA 6/24

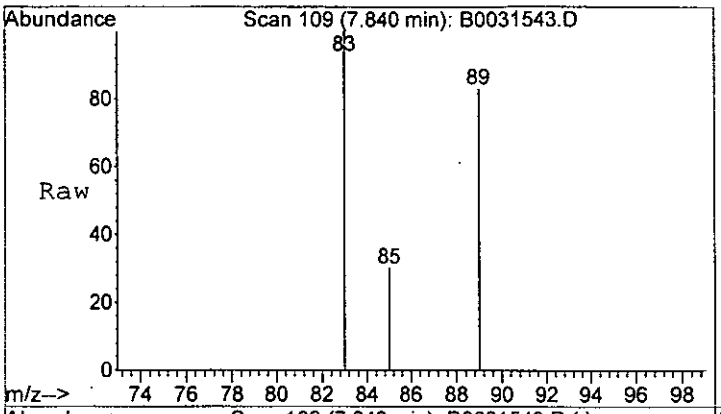
(#) = qualifier out of range (m) = manual integration
B0031543.D PERC0129.M Tue Jun 24 09:03:47 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031543.D Vial: 6
Acq On : 23 Jun 2014 12:41 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

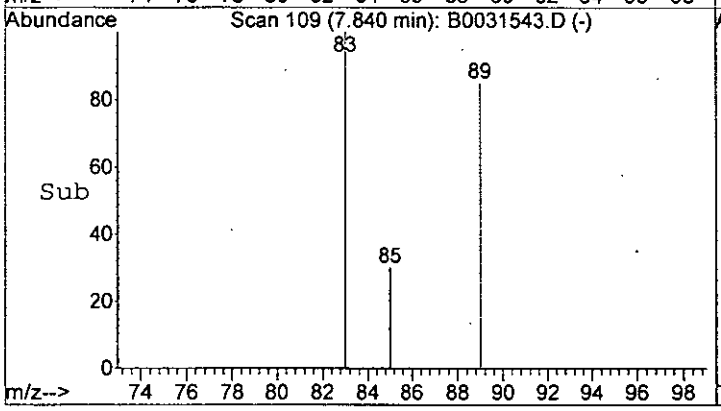
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

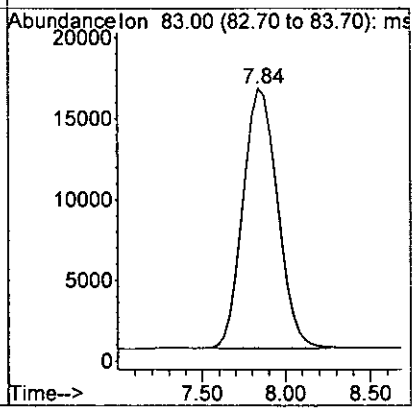


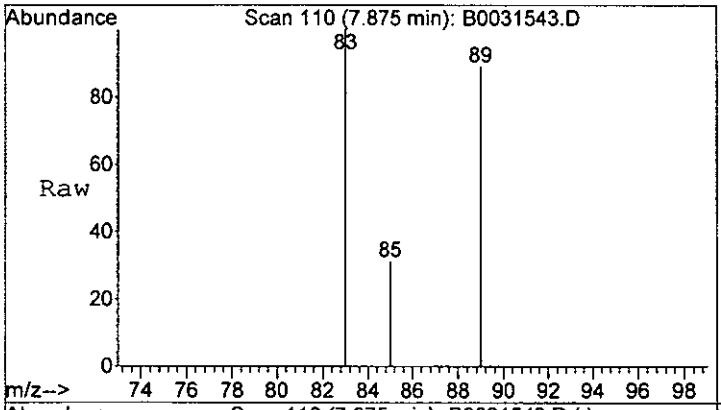


#2
Perchlorate
Concen: 1.04 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.03 min
Lab File: B0031543.D
Acq: 23 Jun 2014 12:41 pm

Tgt Ion: 83 Resp: 230613

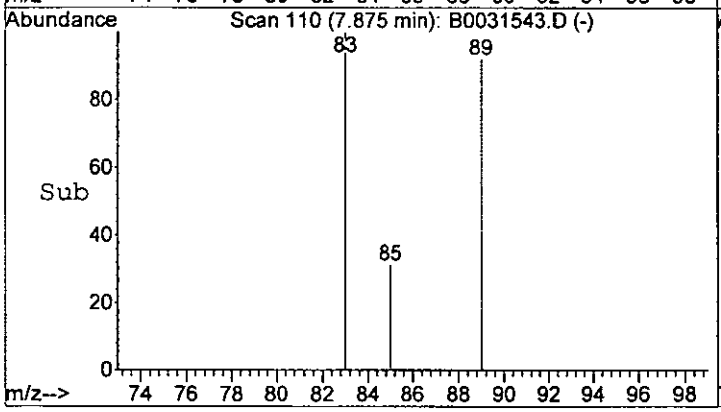


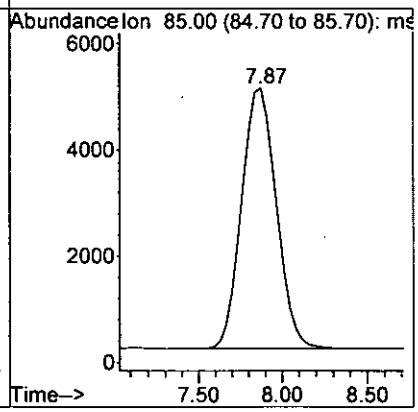




#3
#2 perc ion
Concen: 0.94 ug/L
RT: 7.87 min Scan# 110
Delta R.T. 0.04 min
Lab File: B0031543.D
Acq: 23 Jun 2014 12:41 pm

Tgt Ion: 85 Resp: 70477





Quadratic Screening Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031546.D Vial: 6
Acq On : 24 Jun 2014 4:17 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	102	0.11
2	Perchlorate	1.085	1.136	-4.7	101	0.11
3	#2 perc ion	0.366	0.344	6.0	94	0.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031546.D PERC0129.M Wed Jun 25 10:51:19 2014

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031546.D Vial: 6
Acq On : 24 Jun 2014 4:17 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.95	89	206234	1.00 ug/L	0.11

Target Compounds					Qvalue
2) Perchlorate	7.91	83	234277	1.05 ug/L	100
3) #2 perc ion	7.95	85	70996	0.94 ug/L	100

Ratio
3.30

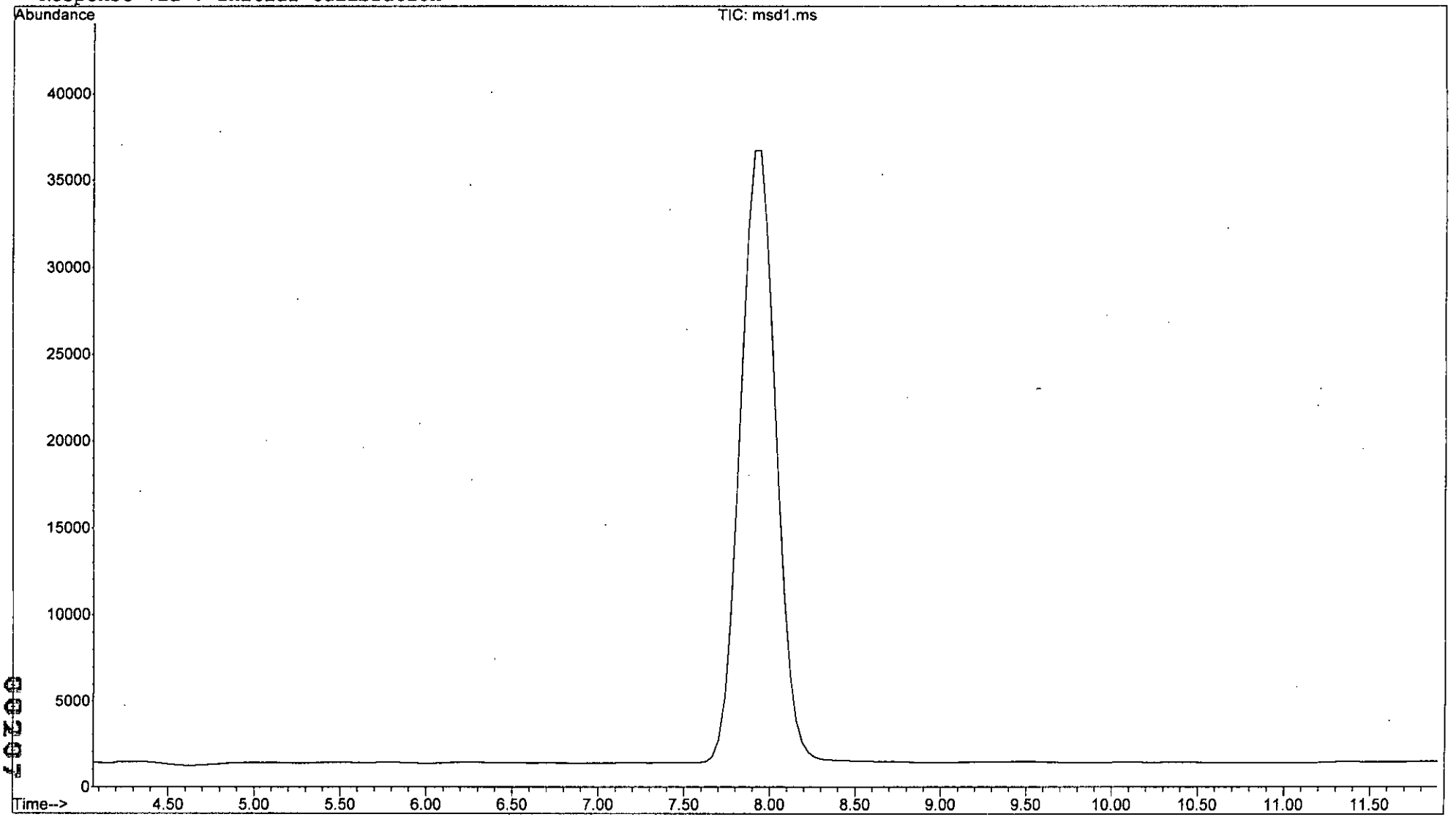
BA 6/24

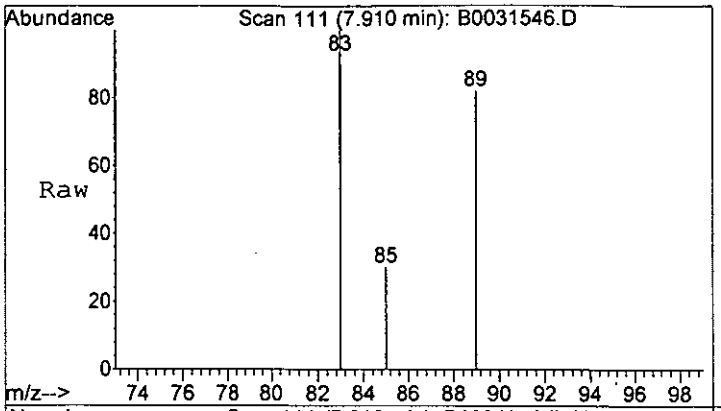
(#) = qualifier out of range (m) = manual integration
B0031546.D PERC0129.M Wed Jun 25 10:51:02 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031546.D Vial: 6
Acq On : 24 Jun 2014 4:17 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

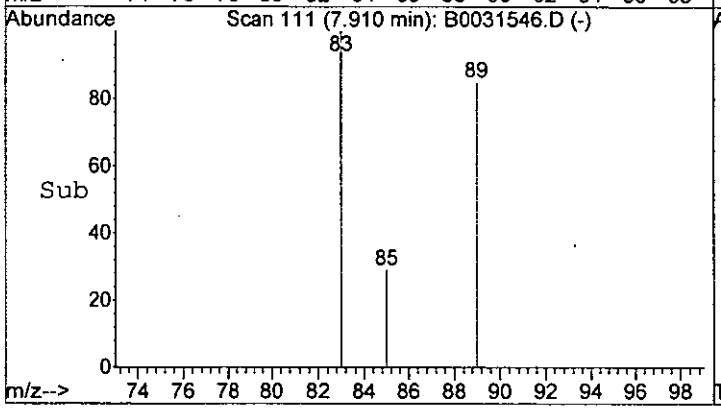
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

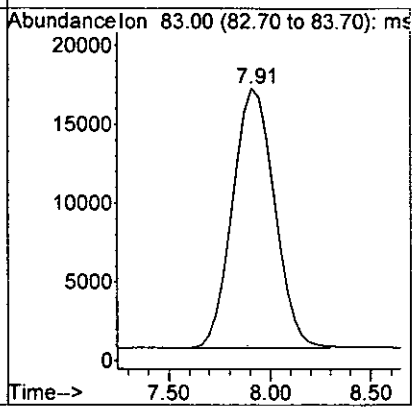


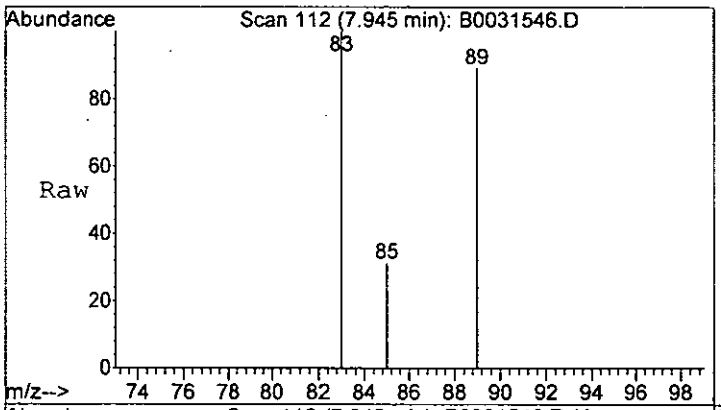


#2
Perchlorate
Concen: 1.05 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.11 min
Lab File: B0031546.D
Acq: 24 Jun 2014 4:17 pm

Tgt Ion: 83 Resp: 234277

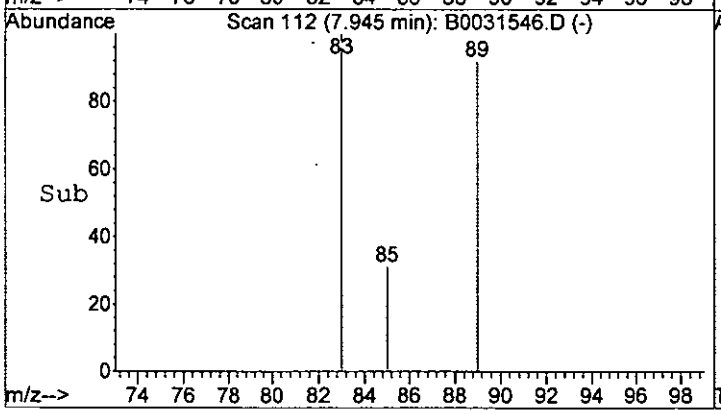


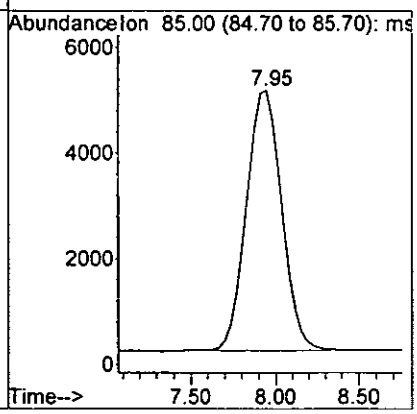




#3
#2 perc ion
Concen: 0.94 ug/L
RT: 7.95 min Scan# 112
Delta R.T. 0.11 min
Lab File: B0031546.D
Acq: 24 Jun 2014 4:17 pm

Tgt Ion: 85 Resp: 70996





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031557.D Vial: 6
Acq On : 24 Jun 2014 6:44 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	101	0.10
2	Perchlorate	1.085	1.085	0.0	95	0.14
3	#2 perc ion	0.366	0.337	7.9	91	0.11

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031557.D Vial: 6
Acq On : 24 Jun 2014 6:44 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	204169	1.00 ug/L	0.10
Target Compounds					Qvalue
2) Perchlorate	7.94	83	221542	1.00 ug/L	100
3) #2 perc ion	7.94	85	68729	0.92 ug/L	100

Ratio
3.22

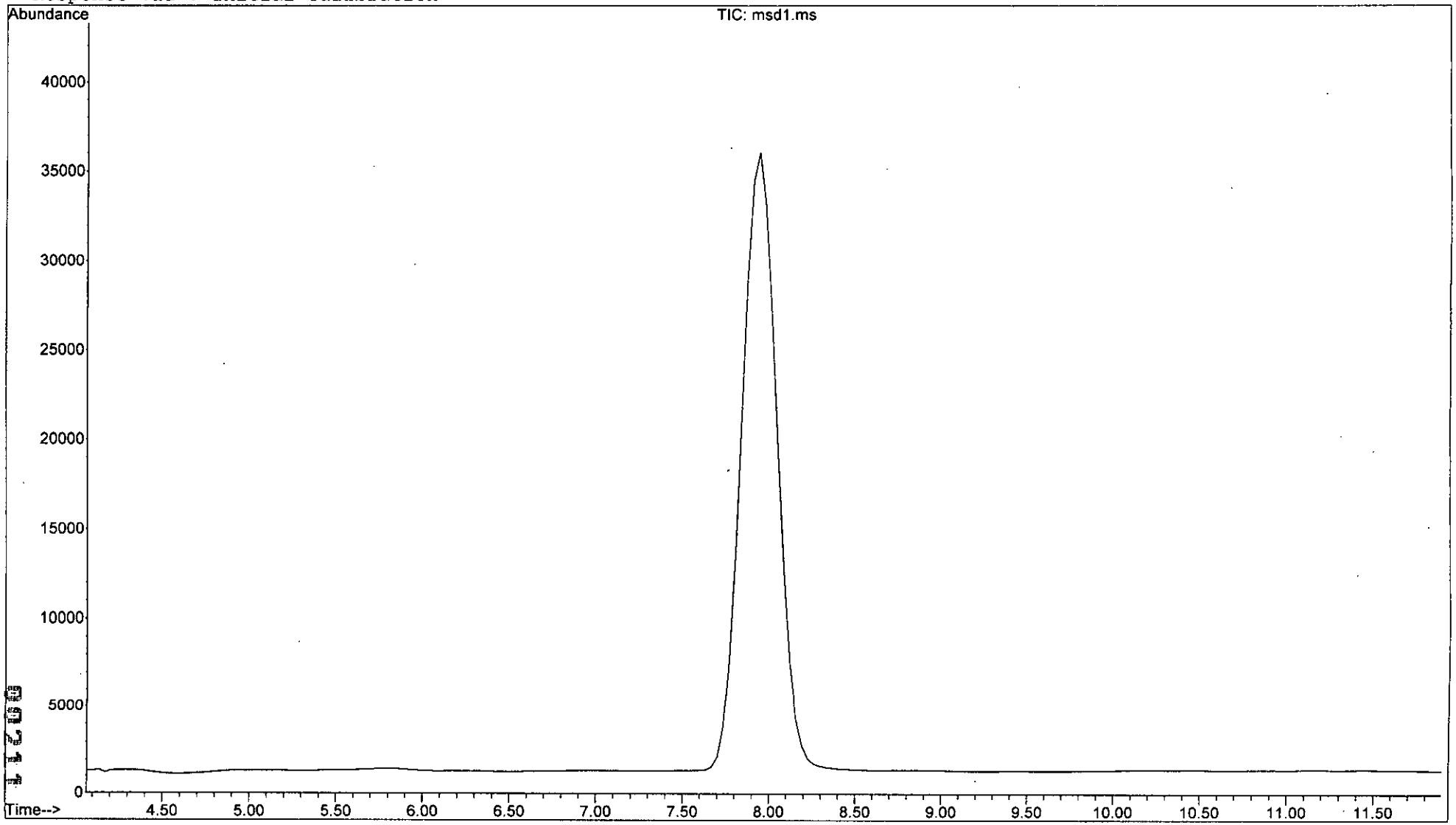
BA6/25

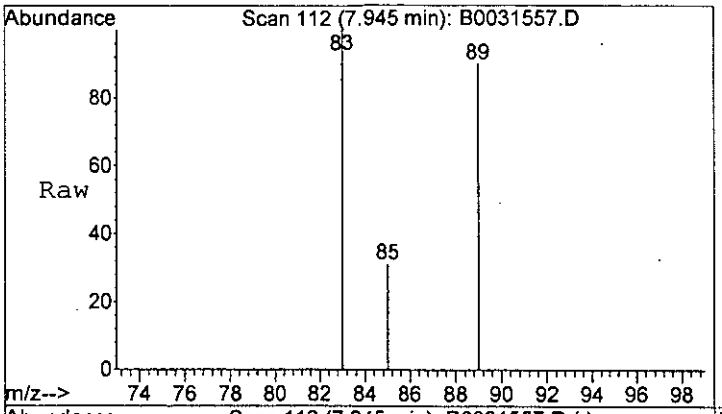
(#) = qualifier out of range (m) = manual integration
B0031557.D PERC0129.M Wed Jun 25 10:58:27 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031557.D Vial: 6
Acq On : 24 Jun 2014 6:44 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

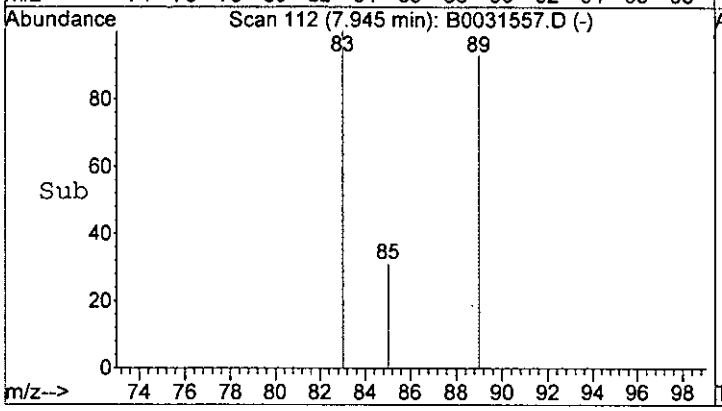
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

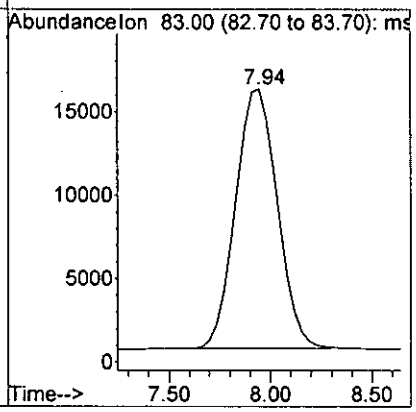


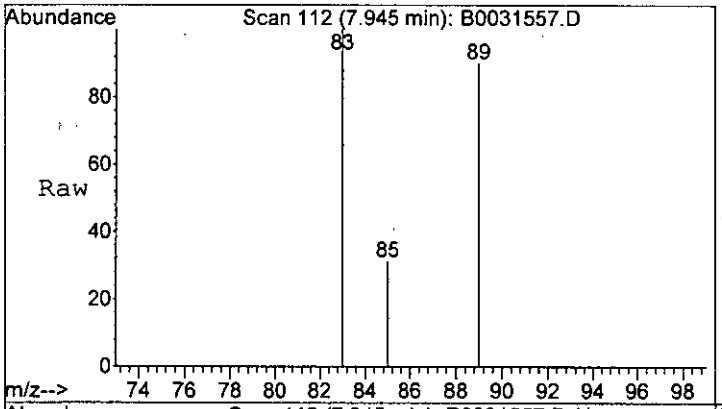


#2
Perchlorate
Concen: 1.00 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.14 min
Lab File: B0031557.D
Acq: 24 Jun 2014 6:44 pm

Tgt Ion: 83 Resp: 221542

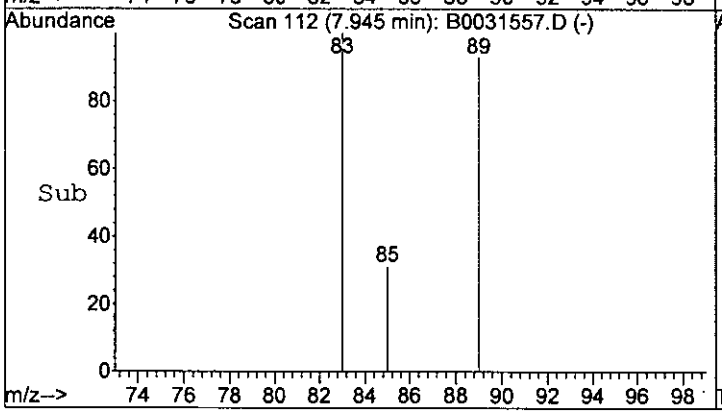


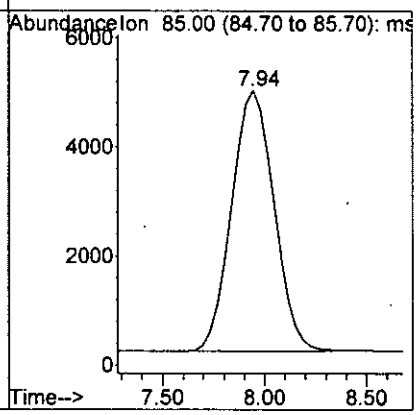




#3
#2 perc ion
Concen: 0.92 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.11 min
Lab File: B0031557.D
Acq: 24 Jun 2014 6:44 pm

Tgt Ion: 85 Resp: 68729





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031565.D Vial: 6
Acq On : 24 Jun 2014 8:32 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	100	0.14
2	Perchlorate	1.085	1.094	-0.8	94	0.14
3	#2 perc ion	0.366	0.338	7.7	90	0.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031565.D PERC0129.M Wed Jun 25 11:03:57 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031565.D Vial: 6
Acq On : 24 Jun 2014 8:32 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.98	89	200421	1.00 ug/L	0.14
Target Compounds					Qvalue
2) Perchlorate	7.94	83	219181	1.01 ug/L	100
3) #2 perc ion	7.94	85	67790	0.92 ug/L	100

Ratio
3.23

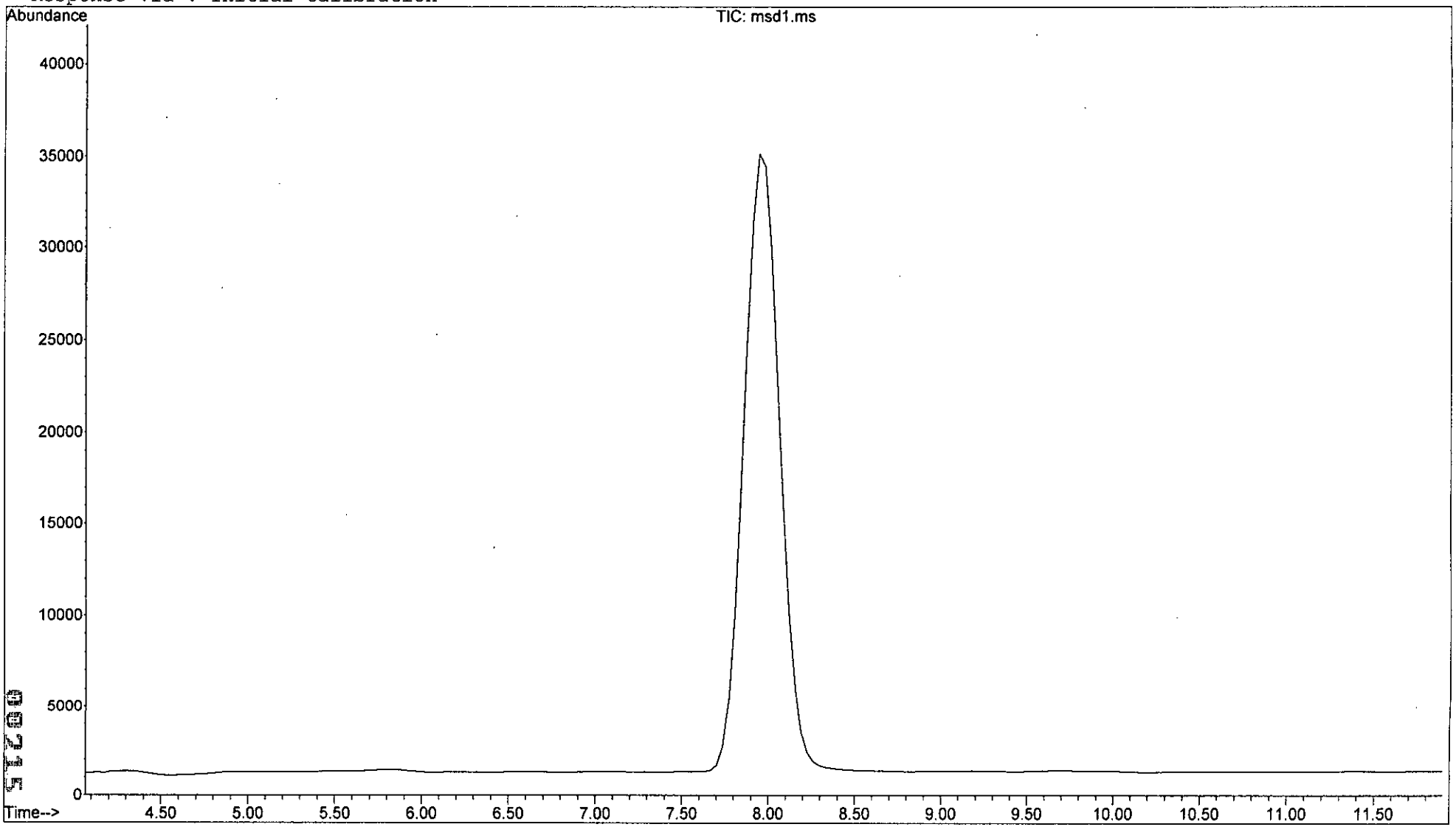
BA 6/25

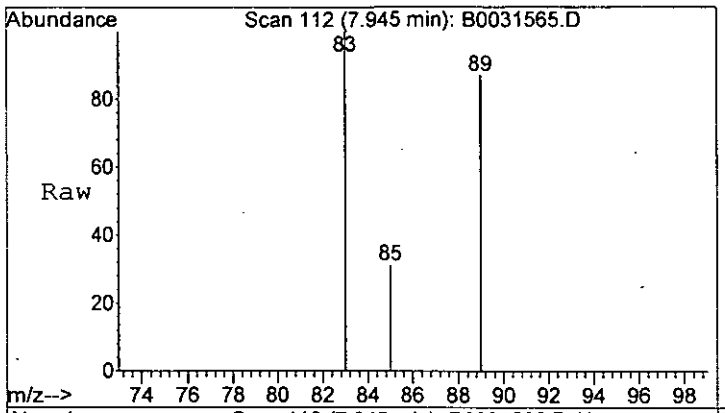
(#) = qualifier out of range (m) = manual integration
B0031565.D PERC0129.M Wed Jun 25 11:03:44 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031565.D Vial: 6
Acq On : 24 Jun 2014 8:32 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

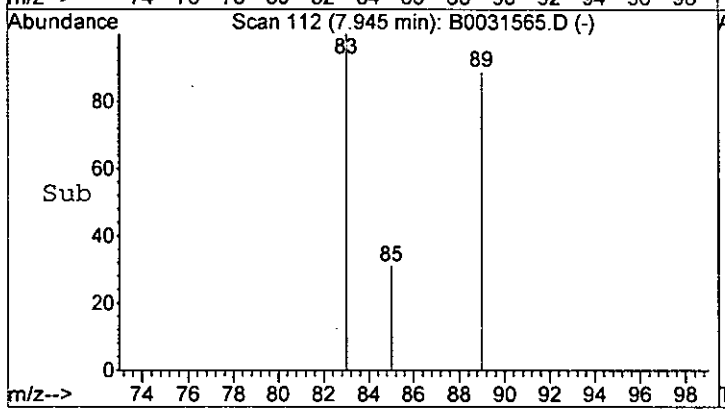
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

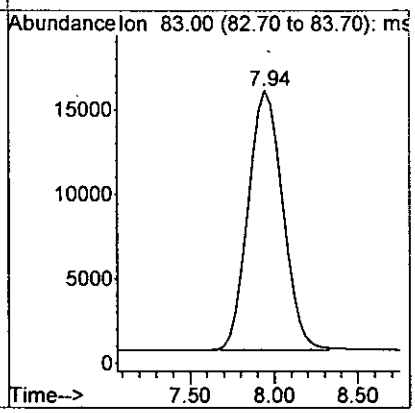


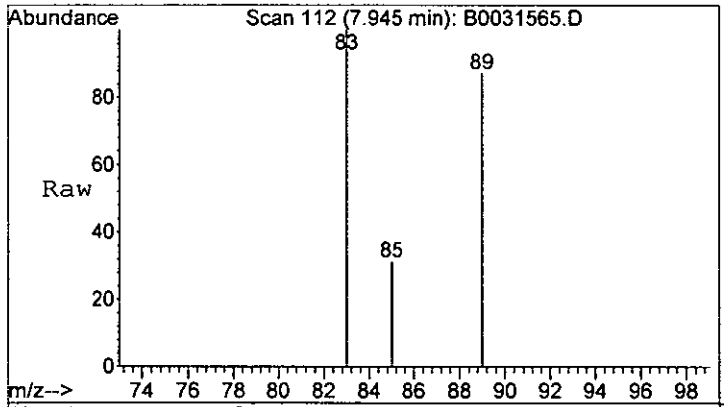


#2
Perchlorate
Concen: 1.01 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.14 min
Lab File: B0031565.D
Acq: 24 Jun 2014 8:32 pm

Tgt Ion: 83 Resp: 219181

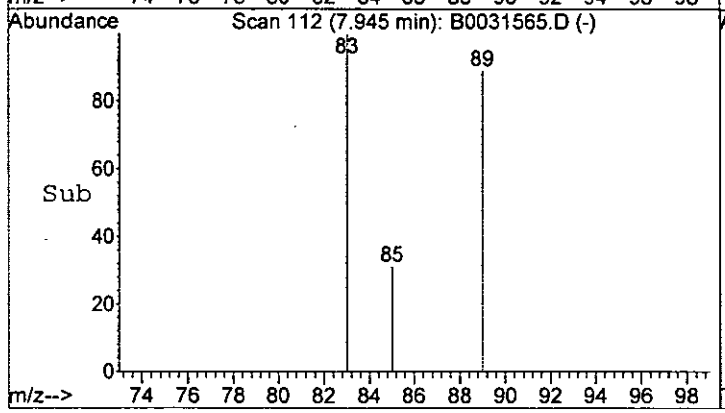


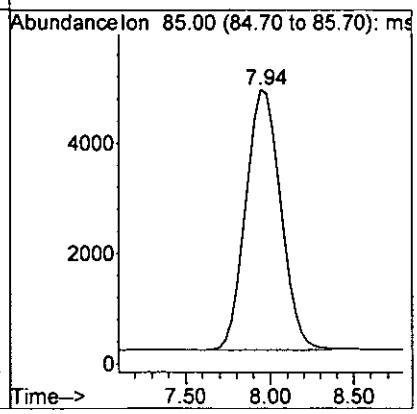




#3
#2 perc ion
Concen: 0.92 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.11 min
Lab File: B0031565.D
Acq: 24 Jun 2014 8:32 pm

Tgt Ion: 85 Resp: 67790





Preparation Information Benchsheet

Prep Run#: 211378
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 07:15 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407014-01	MB		10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1407014-02	LCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
3	RQ1407014-03	DLCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1407014-04	LODV		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 1.0000 uL/71223	
5	RQ1407014-05	ICS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
6	R1404658-015	MRC-MW-60A-061114	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
7	R1404658-016	MRC-MW-60B-061114	.03	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
8	R1404658-019	MRC-MW-90B-060914	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
9	R1404589-005	1406130724 200-SB-8	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
10	R1404589-010	1406141654 200-SB-6	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
11	R1404589-015	1406151114 200-SB-5	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
12	R1404622-004	1406161344 200-SB-13	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
13	RQ1407014-06	R1404622-004 MS	.01	10mL	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
14	RQ1407014-07	R1404622-004 DMS	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
15	R1404561-001	1406130857A 100-E-261	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
16	RQ1407014-08	LCS		10mL	6850/ClO4				10.00mL		2.0000 uL/71223; 10.0000 uL/68807	
17	RQ1407014-09	DLCS		10mL	6850/ClO4				10.00mL		2.0000 uL/71223; 10.0000 uL/68807	
18	R1404707-003	6850 W LODV	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	

Spiking Solutions

Name:	Inventory ID	Logbook Ref:	Expires On:	Lot #:
O18 isotopic labeled perchlorate	68807		01/31/2016	122313
Perchlorate 1000 ppb CLO4	71223		11/30/2014	

Preparation Materials

Water	(71353)
interference check standard for perchlorate	(63899)

Preparation Steps

Step: Extraction
Started: 6/23/14 07:15
Finished: 6/23/14 07:50
By: BALLGEIER
Comments

Preparation Information Benchsheet

Prep Run#: 211378
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 07:15 AM

Comments:

Reviewed By: _____ Date: _____ Spike Witness: LPRUNOSKE Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211546
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 02:15 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407129-01	MB		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1407129-04	LODV		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 1.0000 uL/71223	
3	RQ1407129-02	LCS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1407129-03	DLCS		1.0g	6850/ClO4				10.00mL		2.0000 uL/71223; 10.0000 uL/68807	
5	RQ1407129-05	ICS		1.0g	6850/ClO4				10.00mL		2.0000 uL/71223; 10.0000 uL/68807	
6	R1404589-018	1406130803 200-SB-8 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
7	R1404589-019	1406130813 200-SB-8 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
8	R1404589-020	1406130943 200-SB-8 28/30'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
9	R1404589-021	1406131303 200-SB-8 43/45'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
10	R1404589-022	1406141703 200-SB-6 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
11	R1404589-023	1406151128 200-SB-5 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
12	R1404589-024	1406151144 200-SB-5 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
13	R1404622-005	1406161403 200-SB-13 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
14	R1404622-006	1406161546 200-SB-28 30/32'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
15	RQ1407129-06	R1404622-006 MS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
16	RQ1407129-07	R1404622-006 DMS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
17	R1404707-004	6850 S LODV	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	

Spiking Solutions

Name:	O18 isotopic labeled perchlorate	Inventory ID	68807	Logbook Ref:		Expires On:	01/31/2016	Lot #:	122313
Name:	Perchlorate 1000 ppb CLO4	Inventory ID	71223	Logbook Ref:		Expires On:	11/30/2014		

Preparation Materials

Water	(71353)	interference check standard for perchlorate	(63899)	Sand Reagent Grade	SVOA (71055)

6/24/14

Preparation Information Benchsheet

Prep Run#: 211546
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 02:15 PM

Preparation Steps

Step: Extraction
Started: 6/24/14 14:15
Finished: 6/24/14 16:00
By: BALLGEIER
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: SGOLBERG Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analysis: 6850 Analyst: MPLUCO Run Method: Perclorate
Date: 1/28/14 Instr. HPLC-02 Quant Method: PerCD129
LIMS Run#:

Setup: Column: Kprime # 2100 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 MeCN/H2O 0.1 CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	AMBLK			B0030524	—	
	↓			525	—	
	CCV Ion/Mass			526	Y	
	RLK			527	Y	
	.1 ppb	1ul/10ml	66006	528	Y	
	.2 ppb	2ul/10m		529	Y	
	.5 ppb	5ul/10ml		530	Y	
	.75 ppb	7.5ul/10ml		531	Y	
	1.0 ppb	10ul/10ml		532	Y	
	2.0 ppb	20ul/10ml		533	Y	
	5.0 ppb	50ul/10ml	↓	534	Y	
	ICV	10ul/10ml	66005	535	YICV	exp 5/31/14
	CCV 1.0 ppb		66007	536	YC	
	RQ1400131-01			537	Y	
	04			538	Y	
	02			539	Y	
	03			540	Y	
	↓ 05			541	Y	
	R1400128-001			542	Y	
	RQ1400131-06			543	Y	
	07			544	Y	
	R1400128-002			545	Y	
	003			546	Y	
	CCV 1.0 ppb		66007	547	YC	
	R1400128-004			548	Y	
	R1400205-001			549	Y	
	R1400119-001			550	Y	
	↓ 001	10.0		551	Y	
	RQ1400131-04			552	Y	
	CCV 1.0 ppb		66007	553	YC	
	RQ1400826-4			554	Y	
	04			555	Y	
	07			556	N	OUT
	03			557	Y	

All samples = _____mL + _____uL Combined IS/Surr.:

Primary: 66007 exp: 4/30/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

Analysis: 6850.Perc Analyst: BA Run Method: Percdodz
Date: 6/23/14 Instr. HPLC-02 Quant Method: Perc 0129
LIMS Run#: 398569
Setup: Column: K'Prime #2011 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 H2O/MeCN 0.1CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BUK			B0031523	—	
	ION/MASSCCV			24	YT	
	CCV 1.00PPB		70263	25	YC	
	RQ1407014-01			26	Y	
	-04			27	Y	
	-02			28	Y	
	-03			29	Y	
	-05			30	Y	
	R1404658-015			31	Y	
	-016			32	Y	
	-019			33	Y	
	R1404589-005			34	Y	
	-010			35	Y	
	CCV 1.00PPB		70263	36	YC	
	-015			37	Y	
	R1404561-001			38	Y	
	4622-004			39	Y	
	RQ1407014-06			40	Y	
	-07			41	Y	
	-04			42	Y	
	CCV 1.00PPB		70263	43	YC	
	$\bar{X}$ = 191901					
	High = 387852					
	Low = 95957					
	BA 6/24/14					

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 70263 exp: 11/3/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

Runlog HPLC02r1
1/10/13

Analysis: 6850.Perc Analyst: BA Run Method: Percdodz
Date: 6/24/14 Instr. HPLC-02 Quant Method: Perc0123
LIMS Run#: 398819

Setup: Column: K'PRIME Col.Temp: 30 Flow: 0.5 ml/min
Mobile Phase: 50/50 H2O/MeCN 0.1CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BLK			B0031544	—	
	ION/MASS CCV			45	Y	
	CCV 1.00PPB		70263	46	YC	
	RQ1407129-01	MB		47	Y	
	-04	LOD		48	Y	
	-02	LCS		49	Y	
	-03	PLCS		50	Y	
	-05	ICS		51	Y	
	R1404589-018			52	Y	
	-019			53	Y	
	-020			54	Y	
	-021			55	Y	
	-022			56	Y	
	CCV 1.00PPB		70263	57	YC	
	-023			58	Y	
	-024			59	Y	
	4622-005			60	Y	
	-006			61	Y	
	RQ1407129-06	MS		62	Y	
	-07	MSD		63	Y	
	-04	LOD		64	Y	
	CCV 1.00PPB		70263	65	YC	
	$\bar{X}$ = 191901					
	High = 387852					
	Low = 95957					
		BA		6/24/14		

All samples = _____mL + _____uL Combined IS/Surr.;

Primary : 70263 exp: 11/3/14 Secondary : _____ exp:
Primary: _____ exp: Secondary : _____ exp:

Runlog HPLC02r1
1/10/13

July 10, 2014

Service Request No: R1404507

Ms. Carlyn Tufts
NASA/WSTF/Navarro
P.O. Box 20
Las Cruces, NM 88004

Laboratory Results for: White Sands Test Facility/13EC059B

Dear Ms. Tufts:

Enclosed are the results of the sample(s) submitted to our laboratory on June 13, 2014. For your reference, these analyses have been assigned our service request number **R1404507**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Janice Jaeger
Client Services Manager

ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623 PHONE 585-288-5380 | FAX 585-288-8475
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

CASE NARRATIVE

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	WSTF	**Project Number:**	
Sample Matrix:	Soil/Water	**Date Received:**	06/13/14

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II deliverables. When appropriate to the method, method blank and LCS results have been reported with each analytical test.

Sample Receipt

Samples were collected on 06/11-12/14 and received on 06/13/14 at cooler temperatures of 4.3-5.8 C in good condition except as noted on the cooler receipt and preservation check form. The samples were stored in a refrigerator at 1 - 6 °C upon receipt at the laboratory.

Inorganics

Water and soil samples were analyzed for a site specific list of inorganics. Please see attached data pages for method numbers.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was performed on 1406111505 200-SB-7 8-10' as requested. All MS recoveries are within limits except Cyanide and has been flagged with an "*". All RPD's were acceptable. Please note: The RPD for Nitrate+Nitrite appears to be outside limits but since the results are plus or minus the Method Reporting Limit (MRL), the data was accepted.

Hexavalent chromium for 1406111442 200-SB-7 was received outside the 24 hour holding time. The sample was analyzed as soon as possible after receipt.

The Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries were acceptable. All RPD's were within limits.

The Method Blanks associated with these samples were free of contamination.

No analytical or QC problems were encountered.

Metals

Water and soil samples were analyzed for Metals by methods 6010C/6020A/7471 from SW-846.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was performed on 1406111505 200-SB-7 8-10' as requested. All MS recoveries are within limits except Cobalt, Copper and Manganese and have been flagged with an "N". All RPD's were acceptable. Please note: Various RPD's appear to be outside limits but since the results are plus or minus the Method Reporting Limit (MRL), the data was accepted. The MS recoveries for Calcium, Chromium, Iron, and Magnesium could not be accurately determined as the amount present in the sample was greater than four times the amount added as spike as noted by the "#".

All Internal Standards were within limits.

The Laboratory Control Sample recoveries were acceptable.

The Method Blanks associated with these samples were free of contamination except for Aluminum, Antimony, Chromium, Copper, Lead, Manganese, Sodium, Titanium and Zinc. All affected data has been flagged with a "B".

No analytical or QC problems were encountered.

Perchlorate

Water and soil samples were analyzed for Perchlorate by method 6850 from SW-846.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was requested on 1406111501 200-SB-7 8-10' but due to a laboratory error, was not performed.

All Internal Standards were within limits.

The Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries were acceptable. All RPD's were within limits.

The Method Blanks associated with these samples were free of contamination.

No analytical or QC problems were encountered.

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1404507

Lab ID	Client ID
R1404507-001	1406111441 200-SB-7
R1404507-002	1406111442 200-SB-7
R1404507-003	1406111444 200-SB-7
R1404507-004	1406111443 200-SB-7
R1404507-005	1406111439 200-SB-7
R1404507-006	1406111505 200-SB-7 8-10'
R1404507-007	1406111635 200-SB-7 18-21'
R1404507-008	1406120935 200-SB-7 38-40'
R1404507-009	1406111501 200-SB-7 8-10'
R1404507-010	1406111633 200-SB-7 18-21'
R1404507-011	1406120933 200-SB-7 38-40'

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404507
Date Collected: 6/11/14
Date Received: 6/13/14

Sample Name: 1406111441 200-SB-7
Lab Code: R1404507-001

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**0.16**		mg/L	0.10	0.03	1	6/17/14	6/20/14 21:02	
Antimony, Total	6020A	**0.0002**	J	mg/L	0.0010	0.0002	1	6/24/14	6/26/14 21:09	
Arsenic, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/17/14	6/21/14 16:43	
Barium, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/17/14	6/21/14 16:43	
Beryllium, Total	6010C	**0.0003**	J	mg/L	0.0030	0.0002	1	6/17/14	6/21/14 16:43	
Boron, Total	6010C	ND	U	mg/L	0.20	0.03	1	6/17/14	6/21/14 16:43	
Cadmium, Total	6010C	ND	U	mg/L	0.0050	0.0005	1	6/17/14	6/21/14 16:43	
Calcium, Total	6010C	**0.9**	J	mg/L	1.0	0.2	1	6/17/14	6/21/14 16:43	
Chromium, Total	6010C	**0.003**	J	mg/L	0.010	0.0009	1	6/17/14	6/21/14 16:43	
Cobalt, Total	6010C	ND	U	mg/L	0.050	0.002	1	6/17/14	6/21/14 16:43	
Copper, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/17/14	6/21/14 16:43	
Iron, Total	6010C	**0.46**		mg/L	0.10	0.02	1	6/17/14	6/21/14 16:43	
Lead, Total	6010C	ND	U	mg/L	0.0050	0.0014	1	6/17/14	6/21/14 16:43	
Magnesium, Total	6010C	**0.2**	J	mg/L	1.0	0.02	1	6/17/14	6/21/14 16:43	
Manganese, Total	6010C	**0.006**	BJ	mg/L	0.010	0.002	1	6/17/14	6/21/14 16:43	
Mercury, Total	7470A	ND	U	mg/L	0.00020	0.00003	1	6/18/14	6/19/14 12:14	
Molybdenum, Total	6010C	**0.002**	J	mg/L	0.025	0.002	1	6/17/14	6/21/14 16:43	
Nickel, Total	6010C	ND	U	mg/L	0.040	0.002	1	6/17/14	6/21/14 16:43	
Potassium, Total	6010C	ND	U	mg/L	2.0	0.2	1	6/17/14	6/21/14 16:43	
Selenium, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/17/14	6/21/14 16:43	
Silver, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/17/14	6/21/14 16:43	
Sodium, Total	6010C	**0.4**	J	mg/L	1.0	0.09	1	6/17/14	6/21/14 16:43	
Strontium, Total	6010C	**0.005**	J	mg/L	0.10	0.002	1	6/17/14	6/21/14 16:43	
Thallium, Total	6020A	ND	U	mg/L	0.0010	0.00004	1	6/24/14	7/2/14 18:47	
Tin, Total	6010C	ND	U	mg/L	0.50	0.05	1	6/17/14	6/21/14 16:43	
Titanium, Total	6010C	**0.005**	J	mg/L	0.050	0.0008	1	6/17/14	6/21/14 16:43	
Uranium, Total	6020A	**0.00002**	J	mg/L	0.0010	0.000003	1	6/24/14	7/2/14 18:47	
Vanadium, Total	6010C	ND	U	mg/L	0.050	0.0007	1	6/17/14	6/21/14 16:43	
Zinc, Total	6010C	**0.009**	J	mg/L	0.020	0.005	1	6/17/14	6/21/14 16:43	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404507

Sample Name: 1406111441 200-SB-7
Lab Code: R1404507-001
Matrix: Water

Date Collected: 6/11/14
Date Received: 6/13/14

Analysis Method	Extracted/Digested By	Analyzed By
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
6020A	MCRIBBIN	CWINKSTERN
7470A	CWINKSTERN	CWINKSTERN

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14 1442
Sample Matrix:	Water	**Date Received:**	6/13/14
Sample Name:	1406111442 200-SB-7		
Lab Code:	R1404507-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/13/14 13:59	*
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/13/14 13:51	*

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406111442 200-SB-7	**Date Collected:**	6/11/14
Lab Code:	R1404507-002	**Date Received:**	6/13/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
7199		CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Water	**Date Received:**	6/13/14
Sample Name:	1406111444 200-SB-7		
Lab Code:	R1404507-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**1.0**	J	mg/L	2.0	0.3	10	NA	6/24/14 21:09	
Nitrate+Nitrite as Nitrogen	353.2	**0.043**	J	mg/L	0.050	0.002	1	NA	6/19/14 08:50	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406111444 200-SB-7	**Date Collected:**	6/11/14
Lab Code:	R1404507-003	**Date Received:**	6/13/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
353.2		LDOLGOS
9056A		LDRESSEL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Water	**Date Received:**	6/13/14
Sample Name:	1406111443 200-SB-7		
Lab Code:	R1404507-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Cyanide, Total	9012B	ND	U	mg/L	0.010	0.003	1	6/17/14	6/18/14 10:58	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406111443 200-SB-7	**Date Collected:**	6/11/14
Lab Code:	R1404507-004	**Date Received:**	6/13/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
9012B	KABBOTT	KABBOTT

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 19:54
Sample Name:	1406111439 200-SB-7	**Units:**	µg/L
Lab Code:	R1404507-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031510.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	0.20	0.026	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406111439 200-SB-7	**Date Collected:**	6/11/14
Lab Code:	R1404507-005	**Date Received:**	6/13/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406111505 200-SB-7 8-10'		
Lab Code:	R1404507-006	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**95.5**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406111505 200-SB-7 8-10'		
Lab Code:	R1404507-006	**Basis:**	Dry
		Percent Solids:	95.5

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 12:45	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/17/14	6/17/14 21:29	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/17/14	6/17/14 21:36	
Cyanide, Total	9012B	ND	U	mg/Kg	0.098	0.015	1	6/17/14	6/18/14 11:38	
Nitrate+Nitrite as Nitrogen	353.2M	**1.5**	J	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406111505 200-SB-7 8-10'		
Lab Code:	R1404507-006	**Basis:**	Dry
		Percent Solids:	95.5

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**5390**		mg/Kg	10	3	1	6/20/14	6/24/14 09:13	
Antimony, Total	6010C	**0.9**	BJ	mg/Kg	6.2	0.3	1	6/20/14	6/23/14 20:06	
Arsenic, Total	6010C	**6.9**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 09:13	
Barium, Total	6010C	**108**		mg/Kg	2.1	0.10	1	6/20/14	6/23/14 20:06	
Beryllium, Total	6020A	**0.46**	J	mg/Kg	0.50	0.02	5	6/20/14	7/1/14 15:41	
Boron, Total	6010C	ND	U	mg/Kg	21	4	1	6/20/14	6/23/14 20:06	
Cadmium, Total	6010C	**0.19**	J	mg/Kg	0.51	0.05	1	6/20/14	6/23/14 20:06	
Calcium, Total	6010C	**53600**		mg/Kg	2100	300	20	6/20/14	6/25/14 09:16	
Chromium, Total	6020A	**9.26**		mg/Kg	0.50	0.05	5	6/20/14	7/1/14 15:41	
Cobalt, Total	6020A	**4.75**		mg/Kg	0.50	0.04	5	6/20/14	7/1/14 15:41	
Copper, Total	6020A	**8.21**		mg/Kg	0.50	0.20	5	6/20/14	7/1/14 15:41	
Iron, Total	6010C	**12500**		mg/Kg	100	80	10	6/20/14	6/23/14 17:35	
Lead, Total	6010C	**8.0**		mg/Kg	5.1	0.03	1	6/20/14	6/23/14 20:06	
Magnesium, Total	6010C	**15300**		mg/Kg	100	2	1	6/20/14	6/23/14 20:06	
Manganese, Total	6010C	**207**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 20:06	
Mercury, Total	7471B	ND	U	mg/Kg	0.035	0.003	1	6/18/14	6/19/14 17:02	
Molybdenum, Total	6010C	**1.5**	J	mg/Kg	2.6	0.07	1	6/20/14	6/23/14 20:06	
Nickel, Total	6010C	**8.6**		mg/Kg	4.1	0.10	1	6/20/14	6/23/14 20:06	
Potassium, Total	6010C	**1310**		mg/Kg	210	20	1	6/20/14	6/23/14 20:06	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 20:06	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 20:06	
Sodium, Total	6010C	**110**	B	mg/Kg	100	7	1	6/20/14	6/23/14 20:06	
Strontium, Total	6010C	**175**		mg/Kg	10	0.06	1	6/20/14	6/23/14 20:06	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 20:06	
Tin, Total	6010C	ND	U	mg/Kg	51	2	1	6/20/14	6/23/14 20:06	
Titanium, Total	6010C	**111**		mg/Kg	5.1	0.10	1	6/20/14	6/23/14 20:06	
Uranium, Total	6020A	**1.76**		mg/Kg	0.50	0.0010	5	6/20/14	7/2/14 12:37	
Vanadium, Total	6010C	**42.2**		mg/Kg	5.1	0.3	1	6/20/14	6/23/14 20:06	
Zinc, Total	6010C	**36.9**		mg/Kg	2.1	0.2	1	6/20/14	6/23/14 20:06	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404507

Sample Name: 1406111505 200-SB-7 8-10'
Lab Code: R1404507-006
Matrix: Soil

Date Collected: 6/11/14
Date Received: 6/13/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	KABBOTT	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406111635 200-SB-7 18-21'		
Lab Code:	R1404507-007	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**89.9**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406111635 200-SB-7 18-21'		
Lab Code:	R1404507-007	**Basis:**	Dry
		Percent Solids:	89.9

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	33	7	1	6/23/14	6/23/14 13:36	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.44	0.03	1	6/17/14	6/17/14 22:54	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.44	0.03	1	6/17/14	6/17/14 23:01	
Cyanide, Total	9012B	ND	U	mg/Kg	0.099	0.015	1	6/17/14	6/18/14 11:40	
Nitrate+Nitrite as Nitrogen	353.2M	**2.0**	J	mg/Kg	5.6	0.6	1	6/24/14	6/24/14 12:34	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: 6/11/14
Date Received: 6/13/14

Sample Name: 1406111635 200-SB-7 18-21'
Lab Code: R1404507-007

Basis: Dry
Percent Solids: 89.9

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**7100**		mg/Kg	11	3	1	6/20/14	6/24/14 09:46	
Antimony, Total	6010C	**1.0**	BJ	mg/Kg	6.4	0.3	1	6/20/14	6/23/14 20:36	
Arsenic, Total	6010C	**5.5**		mg/Kg	1.1	0.4	1	6/20/14	6/24/14 09:46	
Barium, Total	6010C	**41.4**		mg/Kg	2.1	0.10	1	6/20/14	6/23/14 20:36	
Beryllium, Total	6020A	**0.37**	J	mg/Kg	0.55	0.02	5	6/20/14	7/1/14 16:21	
Boron, Total	6010C	ND	U	mg/Kg	21	5	1	6/20/14	6/23/14 20:36	
Cadmium, Total	6010C	**0.27**	J	mg/Kg	0.53	0.05	1	6/20/14	6/23/14 20:36	
Calcium, Total	6010C	**72300**		mg/Kg	2100	300	20	6/20/14	6/25/14 09:46	
Chromium, Total	6020A	**6.58**		mg/Kg	0.55	0.06	5	6/20/14	7/1/14 16:21	
Cobalt, Total	6020A	**4.70**		mg/Kg	0.55	0.04	5	6/20/14	7/1/14 16:21	
Copper, Total	6020A	**6.53**		mg/Kg	0.55	0.21	5	6/20/14	7/1/14 16:21	
Iron, Total	6010C	**12500**		mg/Kg	110	80	10	6/20/14	6/23/14 18:05	
Lead, Total	6010C	**9.5**		mg/Kg	5.3	0.03	1	6/20/14	6/23/14 20:36	
Magnesium, Total	6010C	**11400**		mg/Kg	110	2	1	6/20/14	6/23/14 20:36	
Manganese, Total	6010C	**200**		mg/Kg	1.1	0.2	1	6/20/14	6/23/14 20:36	
Mercury, Total	7471B	ND	U	mg/Kg	0.036	0.003	1	6/18/14	6/19/14 17:07	
Molybdenum, Total	6010C	**1.0**	J	mg/Kg	2.7	0.07	1	6/20/14	6/23/14 20:36	
Nickel, Total	6010C	**10.3**		mg/Kg	4.3	0.10	1	6/20/14	6/23/14 20:36	
Potassium, Total	6010C	**3110**		mg/Kg	210	20	1	6/20/14	6/23/14 20:36	
Selenium, Total	6010C	ND	U	mg/Kg	1.1	0.7	1	6/20/14	6/23/14 20:36	
Silver, Total	6010C	ND	U	mg/Kg	1.1	0.08	1	6/20/14	6/23/14 20:36	
Sodium, Total	6010C	**150**		mg/Kg	110	7	1	6/20/14	6/23/14 20:36	
Strontium, Total	6010C	**153**		mg/Kg	11	0.06	1	6/20/14	6/23/14 20:36	
Thallium, Total	6010C	ND	U	mg/Kg	1.1	0.9	1	6/20/14	6/23/14 20:36	
Tin, Total	6010C	ND	U	mg/Kg	53	2	1	6/20/14	6/23/14 20:36	
Titanium, Total	6010C	**156**		mg/Kg	5.3	0.10	1	6/20/14	6/23/14 20:36	
Uranium, Total	6020A	**2.26**		mg/Kg	0.55	0.002	5	6/20/14	7/2/14 13:10	
Vanadium, Total	6010C	**16.6**		mg/Kg	5.3	0.3	1	6/20/14	6/23/14 20:36	
Zinc, Total	6010C	**33.3**		mg/Kg	2.1	0.3	1	6/20/14	6/23/14 20:36	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404507

Sample Name: 1406111635 200-SB-7 18-21'
Lab Code: R1404507-007
Matrix: Soil

Date Collected: 6/11/14
Date Received: 6/13/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	KABBOTT	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406120935 200-SB-7 38-40'		
Lab Code:	R1404507-008	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**96.9**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406120935 200-SB-7 38-40'		
Lab Code:	R1404507-008	**Basis:**	Dry
		Percent Solids:	96.9

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	31	6	1	6/23/14	6/23/14 13:46	
Chromium, Hexavalent	7199	**0.03**	J	mg/Kg	0.41	0.03	1	6/17/14	6/17/14 23:15	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/17/14	6/17/14 23:07	
Cyanide, Total	9012B	ND	U	mg/Kg	0.10	0.02	1	6/17/14	6/18/14 11:41	
Nitrate+Nitrite as Nitrogen	353.2M	**1.2**	J	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:35	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: 6/12/14
Date Received: 6/13/14

Sample Name: 1406120935 200-SB-7 38-40'
Lab Code: R1404507-008

Basis: Dry
Percent Solids: 96.9

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**3270**		mg/Kg	10	3	1	6/20/14	6/24/14 10:06	
Antimony, Total	6010C	**1.2**	BJ	mg/Kg	6.2	0.3	1	6/20/14	6/23/14 20:42	
Arsenic, Total	6010C	**3.6**		mg/Kg	1.0	0.3	1	6/20/14	6/24/14 10:06	
Barium, Total	6010C	**67.3**		mg/Kg	2.1	0.10	1	6/20/14	6/23/14 20:42	
Beryllium, Total	6020A	**0.37**	J	mg/Kg	0.51	0.02	5	6/20/14	7/1/14 16:27	
Boron, Total	6010C	ND	U	mg/Kg	21	4	1	6/20/14	6/23/14 20:42	
Cadmium, Total	6010C	**0.32**	J	mg/Kg	0.52	0.05	1	6/20/14	6/23/14 20:42	
Calcium, Total	6010C	**96000**		mg/Kg	2100	300	20	6/20/14	6/25/14 09:52	
Chromium, Total	6020A	**6.24**		mg/Kg	0.51	0.05	5	6/20/14	7/1/14 16:27	
Cobalt, Total	6020A	**3.05**		mg/Kg	0.51	0.04	5	6/20/14	7/1/14 16:27	
Copper, Total	6020A	**5.47**		mg/Kg	0.51	0.20	5	6/20/14	7/1/14 16:27	
Iron, Total	6010C	**11100**		mg/Kg	100	80	10	6/20/14	6/23/14 18:11	
Lead, Total	6010C	**7.0**		mg/Kg	5.2	0.03	1	6/20/14	6/23/14 20:42	
Magnesium, Total	6010C	**16600**		mg/Kg	100	2	1	6/20/14	6/23/14 20:42	
Manganese, Total	6010C	**198**		mg/Kg	1.0	0.2	1	6/20/14	6/23/14 20:42	
Mercury, Total	7471B	ND	U	mg/Kg	0.034	0.003	1	6/18/14	6/19/14 17:09	
Molybdenum, Total	6010C	**1.4**	J	mg/Kg	2.6	0.07	1	6/20/14	6/23/14 20:42	
Nickel, Total	6010C	**6.7**		mg/Kg	4.1	0.10	1	6/20/14	6/23/14 20:42	
Potassium, Total	6010C	**970**		mg/Kg	210	20	1	6/20/14	6/23/14 20:42	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 20:42	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 20:42	
Sodium, Total	6010C	**140**	B	mg/Kg	100	7	1	6/20/14	6/23/14 20:42	
Strontium, Total	6010C	**153**		mg/Kg	10	0.06	1	6/20/14	6/23/14 20:42	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 20:42	
Tin, Total	6010C	ND	U	mg/Kg	52	2	1	6/20/14	6/23/14 20:42	
Titanium, Total	6010C	**111**		mg/Kg	5.2	0.10	1	6/20/14	6/23/14 20:42	
Uranium, Total	6020A	**1.38**		mg/Kg	0.51	0.0010	5	6/20/14	7/2/14 13:17	
Vanadium, Total	6010C	**12.4**		mg/Kg	5.2	0.3	1	6/20/14	6/23/14 20:42	
Zinc, Total	6010C	**43.1**		mg/Kg	2.1	0.2	1	6/20/14	6/23/14 20:42	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406120935 200-SB-7 38-40'	**Date Collected:**	6/12/14
Lab Code:	R1404507-008	**Date Received:**	6/13/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	KABBOTT	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406111501 200-SB-7 8-10'		
Lab Code:	R1404507-009	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**95.4**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/18/14 00:03
Sample Name:	1406111501 200-SB-7 8-10'	**Units:**	µg/Kg
Lab Code:	R1404507-009	**Basis:**	Dry
		Percent Solids:	95.4

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031476.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406111501 200-SB-7 8-10'	**Date Collected:**	6/11/14
Lab Code:	R1404507-009	**Date Received:**	6/13/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406111633 200-SB-7 18-21'		
Lab Code:	R1404507-010	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**91.0**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/18/14 00:17
Sample Name:	1406111633 200-SB-7 18-21'	**Units:**	µg/Kg
Lab Code:	R1404507-010	**Basis:**	Dry
		Percent Solids:	91.0

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031477.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.2	0.36	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406111633 200-SB-7 18-21'	**Date Collected:**	6/11/14
Lab Code:	R1404507-010	**Date Received:**	6/13/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
Sample Name:	1406120933 200-SB-7 38-40'		
Lab Code:	R1404507-011	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**96.4**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/18/14 00:30
Sample Name:	1406120933 200-SB-7 38-40'	**Units:**	µg/Kg
Lab Code:	R1404507-011	**Basis:**	Dry
		Percent Solids:	96.4

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031478.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.34	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406120933 200-SB-7 38-40'	**Date Collected:**	6/12/14
Lab Code:	R1404507-011	**Date Received:**	6/13/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404507-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/L	0.20	0.03	1	NA	6/24/14 19:30	
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/13/14 13:27	
Chromium, Hexavalent	7199	ND	U	mg/L	0.010	0.0003	1	NA	6/13/14 13:27	
Cyanide, Total	9012B	ND	U	mg/L	0.010	0.003	1	6/17/14	6/18/14 10:54	
Nitrate+Nitrite as Nitrogen	353.2	ND	U	mg/L	0.050	0.002	1	NA	6/19/14 08:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404507-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/17/14 08:00	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404507-MB2	**Basis:**	Dry

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	30	6	1	6/23/14	6/23/14 11:35	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/17/14	6/17/14 21:02	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/17/14	6/17/14 21:09	
Cyanide, Total	9012B	ND	U	mg/Kg	0.10	0.02	1	6/17/14	6/18/14 11:30	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:19	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404507-MB3	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404507
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: R1404507-MB1

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	ND	U	mg/L	0.10	0.03	1	6/17/14	6/20/14 18:09	
Antimony, Total	6020A	ND	U	mg/L	0.0010	0.0002	1	6/24/14	6/26/14 20:56	
Arsenic, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/17/14	6/21/14 12:20	
Barium, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/17/14	6/21/14 12:20	
Beryllium, Total	6010C	ND	U	mg/L	0.0030	0.0002	1	6/17/14	6/21/14 12:20	
Boron, Total	6010C	ND	U	mg/L	0.20	0.03	1	6/17/14	6/21/14 12:20	
Cadmium, Total	6010C	ND	U	mg/L	0.0050	0.0005	1	6/17/14	6/21/14 12:20	
Calcium, Total	6010C	ND	U	mg/L	1.0	0.2	1	6/17/14	6/21/14 12:20	
Chromium, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/17/14	6/21/14 12:20	
Cobalt, Total	6010C	ND	U	mg/L	0.050	0.002	1	6/17/14	6/21/14 12:20	
Copper, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/17/14	6/21/14 12:20	
Iron, Total	6010C	ND	U	mg/L	0.10	0.02	1	6/17/14	6/21/14 12:20	
Lead, Total	6010C	ND	U	mg/L	0.0050	0.0014	1	6/17/14	6/21/14 12:20	
Magnesium, Total	6010C	ND	U	mg/L	1.0	0.02	1	6/17/14	6/21/14 12:20	
Manganese, Total	6010C	**0.004**	J	mg/L	0.010	0.002	1	6/17/14	6/21/14 12:20	
Mercury, Total	7470A	ND	U	mg/L	0.00020	0.00003	1	6/18/14	6/19/14 12:09	
Molybdenum, Total	6010C	ND	U	mg/L	0.025	0.002	1	6/17/14	6/21/14 12:20	
Nickel, Total	6010C	ND	U	mg/L	0.040	0.002	1	6/17/14	6/21/14 12:20	
Potassium, Total	6010C	ND	U	mg/L	2.0	0.2	1	6/17/14	6/21/14 12:20	
Selenium, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/17/14	6/21/14 12:20	
Silver, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/17/14	6/21/14 12:20	
Sodium, Total	6010C	ND	U	mg/L	1.0	0.09	1	6/17/14	6/21/14 12:20	
Strontium, Total	6010C	ND	U	mg/L	0.10	0.002	1	6/17/14	6/21/14 12:20	
Thallium, Total	6020A	ND	U	mg/L	0.0010	0.00004	1	6/24/14	6/27/14 12:36	
Tin, Total	6010C	ND	U	mg/L	0.50	0.05	1	6/17/14	6/21/14 12:20	
Titanium, Total	6010C	ND	U	mg/L	0.050	0.0008	1	6/17/14	6/21/14 12:20	
Uranium, Total	6020A	ND	U	mg/L	0.0010	0.000003	1	6/24/14	6/30/14 16:08	
Vanadium, Total	6010C	ND	U	mg/L	0.050	0.0007	1	6/17/14	6/21/14 12:20	
Zinc, Total	6010C	ND	U	mg/L	0.020	0.005	1	6/17/14	6/21/14 12:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: R1404507-MB2

Basis: Dry

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	ND	U	mg/Kg	10	3	1	6/20/14	6/24/14 08:47	
Antimony, Total	6010C	**1.0**	J	mg/Kg	6.0	0.3	1	6/20/14	6/23/14 17:23	
Arsenic, Total	6010C	ND	U	mg/Kg	1.0	0.3	1	6/20/14	6/24/14 08:47	
Barium, Total	6010C	ND	U	mg/Kg	2.0	0.10	1	6/20/14	6/23/14 17:23	
Beryllium, Total	6020A	ND	U	mg/Kg	0.50	0.02	5	6/20/14	7/1/14 15:29	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/20/14	6/23/14 17:23	
Cadmium, Total	6010C	ND	U	mg/Kg	0.50	0.05	1	6/20/14	6/23/14 17:23	
Calcium, Total	6010C	ND	U	mg/Kg	100	20	1	6/20/14	6/25/14 09:04	
Chromium, Total	6020A	**0.1**	J	mg/Kg	0.50	0.05	5	6/20/14	7/1/14 15:29	
Cobalt, Total	6020A	ND	U	mg/Kg	0.50	0.04	5	6/20/14	7/1/14 15:29	
Copper, Total	6020A	**0.35**	J	mg/Kg	0.50	0.20	5	6/20/14	7/1/14 15:29	
Iron, Total	6010C	ND	U	mg/Kg	10	8	1	6/20/14	6/23/14 17:23	
Lead, Total	6010C	**0.04**	J	mg/Kg	5.0	0.03	1	6/20/14	6/23/14 17:23	
Magnesium, Total	6010C	ND	U	mg/Kg	100	2	1	6/20/14	6/23/14 17:23	
Manganese, Total	6010C	**0.6**	J	mg/Kg	1.0	0.2	1	6/20/14	6/23/14 17:23	
Mercury, Total	7471B	ND	U	mg/Kg	0.033	0.002	1	6/18/14	6/19/14 16:41	
Molybdenum, Total	6010C	ND	U	mg/Kg	2.5	0.07	1	6/20/14	6/23/14 17:23	
Nickel, Total	6010C	ND	U	mg/Kg	4.0	0.10	1	6/20/14	6/23/14 17:23	
Potassium, Total	6010C	ND	U	mg/Kg	200	20	1	6/20/14	6/23/14 17:23	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/20/14	6/23/14 17:23	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/20/14	6/23/14 17:23	
Sodium, Total	6010C	**10**	J	mg/Kg	100	7	1	6/20/14	6/23/14 17:23	
Strontium, Total	6010C	ND	U	mg/Kg	10	0.05	1	6/20/14	6/23/14 17:23	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/20/14	6/23/14 17:23	
Tin, Total	6010C	ND	U	mg/Kg	50	2	1	6/20/14	6/23/14 17:23	
Titanium, Total	6010C	**0.1**	J	mg/Kg	5.0	0.10	1	6/20/14	6/23/14 17:23	
Uranium, Total	6020A	ND	U	mg/Kg	0.50	0.0010	5	6/20/14	7/2/14 12:23	
Vanadium, Total	6010C	ND	U	mg/Kg	5.0	0.2	1	6/20/14	6/23/14 17:23	
Zinc, Total	6010C	**0.4**	J	mg/Kg	2.0	0.2	1	6/20/14	6/23/14 17:23	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 17:47
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1406734-01	**Basis:**	Dry

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031448.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.32	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 16:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406802-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031493.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: 6/11/14
Date Received: 6/13/14
Date Analyzed: 6/17/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name: 1406111505 200-SB-7 8-10'
Lab Code: R1404507-006

Units: Percent
Basis: As Received

Analyte Name	Method	MRL	Sample Result	1406111505 200-SB-7 8-10'DUP Duplicate Sample R1404507-006DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	1.0	95.5	96.0	95.8	<1	20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: 6/11/14
Date Received: 6/13/14
Date Analyzed: 6/17/14 - 6/24/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name: 1406111505 200-SB-7 8-10'
Lab Code: R1404507-006

Units: mg/Kg
Basis: Dry

Analyte Name	Method	MRL	MDL	Sample Result	1406111505 200-SB-7 8-10'DUP Duplicate Sample R1404507-006DUP Result	Average	RPD		RPD Limit
Chloride	9056A	31	6	ND U	ND U	NC	NC		15
Chromium, Hexavalent	7199	0.41	0.03	ND U	ND U	NC	NC		20
Chromium, Hexavalent	7199	0.41	0.03	ND U	ND U	NC	NC		20
Cyanide, Total	9012B	0.098	0.015	ND U	0.017 J	NC	NC		30
Nitrate+Nitrite as Nitrogen	353.2M	5.2	0.6	1.5 J	1.0 J	1.23	36	*	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: 6/11/14
Date Received: 6/13/14
Date Analyzed: 6/17/14 - 6/24/14

Matrix Spike Summary
General Chemistry Parameters

Sample Name: 1406111505 200-SB-7 8-10'
Lab Code: R1404507-006

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Sample Result	1406111505 200-SB-7 8-10'MS Matrix Spike R1404507-006MS1 Result	Spike Amount	% Rec		% Rec Limits
Chloride	9056A	ND	226	209	108		63 - 136
Chromium, Hexavalent	7199	ND	39.1	41.6	94		75 - 125
Chromium, Hexavalent	7199	ND	39.1	41.6	94		75 - 125
Cyanide, Total	9012B	ND	0.45	1.00	45	*	46 - 159
Nitrate+Nitrite as Nitrogen	353.2M	1.5	54.3	52.4	101		76 - 128

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: 6/11/14
Date Received: 6/13/14
Date Analyzed: 6/17/14

Matrix Spike Summary
General Chemistry Parameters

Sample Name: 1406111505 200-SB-7 8-10'
Lab Code: R1404507-006

Units: mg/Kg
Basis: Dry

Analytical Method: 7199
Prep Method: EPA 3060A

1406111505 200-SB-7 8-10'MS
Matrix Spike
R1404507-006MS2

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Chromium, Hexavalent	ND	610	663	92	75 - 125
Chromium, Hexavalent	ND	609	663	92	75 - 125

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404507
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Analyzed:	6/20/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	1406111501 200-SB-7 8-10'	**Units:**	Percent
Lab Code:	R1404507-009	**Basis:**	As Received

Analyte Name	Method	MRL	Sample Result	1406111501 200-SB-7 8-10'DUP Duplicate Sample R1404507-009DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	1.0	95.4	95.4	95.4	<1	20

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: 6/11/14
Date Received: 6/13/14
Date Analyzed: 6/19/14 - 7/ 2/14

Replicate Sample Summary
Inorganic Parameters

Sample Name: 1406111505 200-SB-7 8-10'
Lab Code: R1404507-006

Units: mg/Kg
Basis: Dry

Analyte Name	Method	MRL	MDL	Sample Result	1406111505 200-SB-7 8-10'DUP Duplicate Sample R1404507-006DUP Result	Average	RPD		RPD Limit
Aluminum, Total	6010C	10	3	5390	6240	5810	15		20
Antimony, Total	6010C	6.2	0.3	0.9 BJ	1.2 J	1.02	34	*	20
Arsenic, Total	6010C	1.0	0.3	6.9	7.0	6.93	1		20
Barium, Total	6010C	2.1	0.10	108	91.5	99.9	17		20
Beryllium, Total	6020A	0.52	0.02	0.46 J	0.45 J	0.456	3		20
Boron, Total	6010C	21	4	ND U	ND U	NC	NC		20
Cadmium, Total	6010C	0.52	0.05	0.19 J	0.32 J	0.259	51	*	20
Calcium, Total	6010C	2100	300	53600	76600	65100	35	*	20
Chromium, Total	6020A	0.52	0.05	9.26	8.10	8.68	13		20
Cobalt, Total	6020A	0.52	0.04	4.75	4.58	4.67	4		20
Copper, Total	6020A	0.52	0.20	8.21	7.99	8.10	3		20
Iron, Total	6010C	100	80	12500	14500	13500	14		20
Lead, Total	6010C	5.2	0.03	8.0	9.0	8.48	11		20
Magnesium, Total	6010C	100	2	15300	22000	18600	36	*	20
Manganese, Total	6010C	1.0	0.2	207	278	243	29	*	20
Mercury, Total	7471B	0.032	0.002	ND U	ND U	NC	NC		35
Molybdenum, Total	6010C	2.6	0.07	1.5 J	1.6 J	1.55	11		20
Nickel, Total	6010C	4.1	0.10	8.6	10.3	9.47	18		20
Potassium, Total	6010C	210	20	1310	1440	1380	10		20
Selenium, Total	6010C	1.0	0.6	ND U	ND U	NC	NC		20
Silver, Total	6010C	1.0	0.08	ND U	ND U	NC	NC		20
Sodium, Total	6010C	100	7	110 B	120	115	14		20
Strontium, Total	6010C	10	0.06	175	211	193	19		20
Thallium, Total	6010C	1.0	0.8	ND U	ND U	NC	NC		20
Tin, Total	6010C	52	2	ND U	ND U	NC	NC		20
Titanium, Total	6010C	5.2	0.10	111	126	118	12		20
Uranium, Total	6020A	0.52	0.0010	1.76	1.72	1.74	3		20
Vanadium, Total	6010C	5.2	0.3	42.2	47.8	45.0	13		20
Zinc, Total	6010C	2.1	0.2	36.9	43.3	40.1	16		20

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Collected: 6/11/14
Date Received: 6/13/14
Date Analyzed: 6/19/14 - 7/ 2/14

Matrix Spike Summary
Inorganic Parameters

Sample Name: 1406111505 200-SB-7 8-10'
Lab Code: R1404507-006

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Sample Result	1406111505 200-SB-7 8-10'MS Matrix Spike R1404507-006MS Result	Spike Amount	% Rec		% Rec Limits
Aluminum, Total	6010C	5390	5440	207	27	#	75 - 125
Antimony, Total	6010C	0.9	42.5	51.8	80		75 - 125
Arsenic, Total	6010C	6.9	10.8	4.1	94		75 - 125
Barium, Total	6010C	108	275	207	80		75 - 125
Beryllium, Total	6020A	0.46	2.33	2.09	89		75 - 125
Boron, Total	6010C	ND	87	104	84		75 - 125
Cadmium, Total	6010C	0.19	4.61	5.18	85		75 - 125
Calcium, Total	6010C	53600	61500	200	3823	#	75 - 125
Chromium, Total	6020A	9.26	9.61	2.09	17	#	75 - 125
Cobalt, Total	6020A	4.75	6.29	2.09	73	N	75 - 125
Copper, Total	6020A	8.21	8.90	2.09	33	N	75 - 125
Iron, Total	6010C	12500	12800	100	223	#	75 - 125
Lead, Total	6010C	8.0	56.5	51.8	94		75 - 125
Magnesium, Total	6010C	15300	17200	210	896	#	75 - 125
Manganese, Total	6010C	207	274	51.8	129	N	75 - 125
Mercury, Total	7471B	ND	0.176	0.175	101		75 - 125
Molybdenum, Total	6010C	1.5	47.2	51.8	88		75 - 125
Nickel, Total	6010C	8.6	53.8	51.8	87		75 - 125
Potassium, Total	6010C	1310	3630	2070	112		75 - 125
Selenium, Total	6010C	ND	88.7	105	85		75 - 125
Silver, Total	6010C	ND	4.4	5.2	84		75 - 125
Sodium, Total	6010C	110	2210	2070	102		75 - 125
Strontium, Total	6010C	175	390	207	104		75 - 125
Thallium, Total	6010C	ND	177	207	85		75 - 125
Tin, Total	6010C	ND	475	518	92		75 - 125
Titanium, Total	6010C	111	164	51.8	101		75 - 125
Uranium, Total	6020A	1.76	3.69	2.09	92		75 - 125
Vanadium, Total	6010C	42.2	91.7	51.8	96		75 - 125
Zinc, Total	6010C	36.9	80.4	51.8	84		75 - 125

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Analyzed: 6/17/14 - 6/24/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404507-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Chloride	9056A	213	200	107	80 - 120
Chromium, Hexavalent	7199	608	669	91	80 - 120
Chromium, Hexavalent	7199	608	669	91	80 - 120
Cyanide, Total	9012B	0.898	1.00	90	85 - 115
Nitrate+Nitrite as Nitrogen	353.2M	48.2	50.0	96	90 - 110

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Analyzed: 6/18/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404507-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	9012B	3.60	4.00	90	85 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404507
Date Analyzed: 6/18/14 - 6/24/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404507-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Chloride	9056A	1.99	2.00	99	80 - 120
Cyanide, Total	9012B	0.0913	0.100	91	85 - 115
Nitrate+Nitrite as Nitrogen	353.2	0.487	0.500	97	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404507
Date Analyzed: 6/18/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404507-LCS4 Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	9012B	0.353	0.400	88	85 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404507
Date Analyzed: 6/13/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1404507-LCS5			Duplicate Lab Control Sample R1404507-DLCS5					
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chromium, Hexavalent	7199	0.212	0.200	106	0.204	0.200	102	85 - 115	4	20
Chromium, Hexavalent	7199	0.211	0.200	105	0.205	0.200	102	85 - 115	3	20

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Analyzed: 6/19/14 - 7/ 2/14

Lab Control Sample Summary
Inorganic Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404507-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	184	200	92	80 - 120
Antimony, Total	6010C	44.7	50.0	89	80 - 120
Arsenic, Total	6010C	3.70	4.0	92	80 - 120
Barium, Total	6010C	195	200	98	80 - 120
Beryllium, Total	6020A	1.89	2.00	95	80 - 120
Boron, Total	6010C	90.7	100	91	80 - 120
Cadmium, Total	6010C	4.60	5.00	92	80 - 120
Calcium, Total	6010C	194	200	97	80 - 120
Chromium, Total	6020A	1.79	2.00	90	80 - 120
Cobalt, Total	6020A	1.78	2.00	89	80 - 120
Copper, Total	6020A	1.70	2.00	85	80 - 120
Iron, Total	6010C	99.9	100	100	80 - 120
Lead, Total	6010C	47.4	50.0	95	80 - 120
Magnesium, Total	6010C	195	200	98	80 - 120
Manganese, Total	6010C	48.6	50.0	97	80 - 120
Mercury, Total	7471B	0.161	0.167	97	80 - 120
Molybdenum, Total	6010C	47.9	50.0	96	80 - 120
Nickel, Total	6010C	49.5	50.0	99	80 - 120
Potassium, Total	6010C	1940	2000	97	80 - 120
Selenium, Total	6010C	83.5	101	83	80 - 120
Silver, Total	6010C	4.82	5.0	96	80 - 120
Sodium, Total	6010C	1970	2000	99	80 - 120
Strontium, Total	6010C	186	200	93	80 - 120
Thallium, Total	6010C	177	200	88	80 - 120
Tin, Total	6010C	507	500	101	80 - 120
Titanium, Total	6010C	49.5	50.0	99	80 - 120
Uranium, Total	6020A	2.01	2.00	100	80 - 120
Vanadium, Total	6010C	49.1	50.0	98	80 - 120
Zinc, Total	6010C	48.7	50.0	97	80 - 120

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404507
Date Analyzed: 6/19/14 - 6/30/14

Lab Control Sample Summary
Inorganic Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404507-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	1.93	2.00	97	80 - 120
Antimony, Total	6020A	0.0191	0.0200	96	80 - 120
Arsenic, Total	6010C	0.0356	0.040	89	80 - 120
Barium, Total	6010C	2.04	2.00	102	80 - 120
Beryllium, Total	6010C	0.0499	0.0500	100	80 - 120
Boron, Total	6010C	0.942	1.00	94	80 - 120
Cadmium, Total	6010C	0.0484	0.0500	97	80 - 120
Calcium, Total	6010C	1.98	2.0	99	80 - 120
Chromium, Total	6010C	0.207	0.200	103	80 - 120
Cobalt, Total	6010C	0.501	0.500	100	80 - 120
Copper, Total	6010C	0.262	0.250	105	80 - 120
Iron, Total	6010C	1.03	1.00	103	80 - 120
Lead, Total	6010C	0.489	0.500	98	80 - 120
Magnesium, Total	6010C	2.02	2.0	101	80 - 120
Manganese, Total	6010C	0.504	0.500	101	80 - 120
Mercury, Total	7470A	0.000966	0.00100	97	80 - 120
Molybdenum, Total	6010C	0.485	0.500	97	80 - 120
Nickel, Total	6010C	0.512	0.500	102	80 - 120
Potassium, Total	6010C	19.2	20.0	96	80 - 120
Selenium, Total	6010C	0.955	1.01	95	80 - 120
Silver, Total	6010C	0.0515	0.050	103	80 - 120
Sodium, Total	6010C	19.4	20.0	97	80 - 120
Strontium, Total	6010C	1.94	2.00	97	80 - 120
Thallium, Total	6020A	0.0216	0.0200	108	80 - 120
Tin, Total	6010C	5.32	5.00	106	80 - 120
Titanium, Total	6010C	0.491	0.500	98	80 - 120
Uranium, Total	6020A	0.0207	0.0200	103	80 - 120
Vanadium, Total	6010C	0.506	0.500	101	80 - 120
Zinc, Total	6010C	0.511	0.500	102	80 - 120

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404507
Date Analyzed: 6/17/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/Kg
Basis: Dry

Extraction Lot: 211029

	Lab Control Sample RQ1406734-02			Duplicate Lab Control Sample RQ1406734-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	1.80	2.00	90	1.70	2.00	85	80 - 120	6	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404507
Date Analyzed: 6/18/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 211135

	Lab Control Sample RQ1406802-02			Duplicate Lab Control Sample RQ1406802-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.180	0.200	90	0.180	0.200	90	80 - 120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number M4-Y507

Cooler received on 6/13/14 by: JS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y N	5a	**Perchlorate** samples have required headspace?	Y N NA
2	**Custody papers** properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N NA
3	Did all bottles arrive in good **condition** (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: **Wet Ice Dry Ice Gel packs** present?	Y N	7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 6/13/14 Time: 1044 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	5.8	4.3					
Correction Factor (°C)	–	–					
Corrected Temp (°C)	5.8	4.3					
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: NOR by JS on 6/13/14 at 1044
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: 6/13/14

Cooler Breakdown: Date: 6/16/14 Time: 0926 by: JS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH	✓		client					
≤2 +	HNO_3	✓		client					
≤2	H_2SO_4	✓		client					
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: client

Other Comments:

* See COC!!!

PC Secondary Review: 7/7/14

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

SUPPORTING DOCUMENTATION

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: NASA/WSTF/Navarro **Service Request:** R1404507
Project: White Sands Test Facility/13EC059B

Continuing Calibration Verification (CCV) Summary
Chromium, Hexavalent

Analytical Method: 7199 **Units:** ppm

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397199	RQ1406602-01	6/13/14 13:18	0.500	0.501	100	90 - 110
CCV2	397199	RQ1406602-01	6/13/14 13:18	0.500	0.501	100	90 - 110
CCV3	397199	RQ1406602-02	6/13/14 14:51	0.500	0.499	100	90 - 110
CCV4	397199	RQ1406602-02	6/13/14 14:51	0.500	0.499	100	90 - 110
CCV5	397661	RQ1406775-01	6/17/14 20:31	0.500	0.502	100	90 - 110
CCV6	397661	RQ1406775-01	6/17/14 20:31	0.500	0.502	100	90 - 110
CCV7	397661	RQ1406775-02	6/17/14 22:10	0.500	0.491	98	90 - 110
CCV8	397661	RQ1406775-02	6/17/14 22:10	0.500	0.491	98	90 - 110
CCV9	397661	RQ1406775-03	6/17/14 23:35	0.500	0.490	98	90 - 110
CCV10	397661	RQ1406775-03	6/17/14 23:35	0.500	0.490	98	90 - 110
CCV11	397661	RQ1406775-04	6/18/14 01:00	0.500	0.495	99	90 - 110
CCV12	397661	RQ1406775-04	6/18/14 01:00	0.500	0.495	99	90 - 110
CCV13	397661	RQ1406775-05	6/18/14 02:24	0.500	0.495	99	90 - 110
CCV14	397661	RQ1406775-05	6/18/14 02:24	0.500	0.495	99	90 - 110
CCV15	397661	RQ1406775-06	6/18/14 02:54	0.500	0.486	97	90 - 110
CCV16	397661	RQ1406775-06	6/18/14 02:54	0.500	0.486	97	90 - 110

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404507

Continuing Calibration Verification (CCV) Summary
Chloride

Analytical Method: 9056A

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398625	RQ1407218-04	6/23/14 11:15	3.25	3.39	104	90 - 110
CCV2	398625	RQ1407218-03	6/23/14 13:16	3.25	3.43	106	90 - 110
CCV3	398625	RQ1407218-02	6/23/14 15:16	3.25	3.46	106	90 - 110
CCV4	398625	RQ1407218-01	6/23/14 16:06	3.25	3.46	106	90 - 110
CCV5	398802	RQ1407187-06	6/24/14 19:17	3.25	3.34	103	90 - 110
CCV6	398802	RQ1407187-07	6/24/14 21:46	3.25	3.37	104	90 - 110
CCV7	398802	RQ1407187-08	6/24/14 23:50	3.25	3.38	104	90 - 110

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404507

Continuing Calibration Verification (CCV) Summary
Cyanide, Total

Analytical Method: 9012B

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397739	RQ1406809-01	6/18/14 10:46	0.500	0.503	101	85 - 115
CCV2	397739	RQ1406809-03	6/18/14 10:55	0.500	0.494	99	85 - 115
CCV3	397739	RQ1406809-05	6/18/14 11:04	0.500	0.486	97	85 - 115
CCV4	397739	RQ1406809-07	6/18/14 11:13	0.500	0.484	97	85 - 115
CCV5	397739	RQ1406809-13	6/18/14 11:23	0.500	0.484	97	85 - 115
CCV6	397743	RQ1406811-01	6/18/14 11:23	0.500	0.484	97	85 - 115
CCV7	397743	RQ1406811-03	6/18/14 11:32	0.500	0.489	98	85 - 115
CCV8	397743	RQ1406811-05	6/18/14 11:42	0.500	0.482	96	85 - 115
CCV9	397739	RQ1406809-15	6/18/14 11:56	0.500	0.486	97	85 - 115
CCV10	397739	RQ1406809-11	6/18/14 12:05	0.500	0.481	96	85 - 115

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404507

Continuing Calibration Verification (CCV) Summary
Nitrate+Nitrite as Nitrogen

Analytical Method: 353.2

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397880	RQ1406871-01	6/19/14 08:19	0.900	0.875	97	90 - 110
CCV2	397880	RQ1406871-06	6/19/14 08:31	0.900	0.862	96	90 - 110
CCV3	397880	RQ1406871-11	6/19/14 08:44	0.900	0.867	96	90 - 110
CCV4	397880	RQ1406871-14	6/19/14 08:57	0.900	0.834	93	90 - 110

Client: NASA/WSTF/Navarro **Service Request:** R1404507
Project: White Sands Test Facility/13EC059B

Continuing Calibration Verification (CCV) Summary
Nitrate+Nitrite as Nitrogen

Analytical Method: 353.2M **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398613	RQ1407113-01	6/24/14 12:17	0.900	0.899	100	90 - 110
CCV2	398613	RQ1407113-04	6/24/14 12:30	0.900	0.886	98	90 - 110
CCV3	398613	RQ1407113-06	6/24/14 12:42	0.900	0.889	99	90 - 110
CCV4	398613	RQ1407113-08	6/24/14 13:00	0.900	0.885	98	90 - 110

Preparation Information Benchsheet

Prep Run#: 211473
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 10:00 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407071-03	MB		1g	9056A/Chloride				100.00mL			
2	RQ1407071-04	LCS		1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
3	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1g	9056A/Chloride				100.00mL			
4	R1404421-009	1406091615 200-SB-21	.01	1g	9056A/Chloride				100.00mL			
5	R1404421-010	1406091750 200-SB-21	.01	1g	9056A/Chloride				100.00mL			
6	R1404273-005	1406041206 200-SB-20 30'	.01	1g	9056A/Chloride				100.00mL			
7	R1404273-006	1406041725 200-SB-20 50'	.01	1g	9056A/Chloride				100.00mL			
8	R1404507-006	1406111505 200-SB-7 8-10'	.02	1g	9056A/Chloride				100.00mL			
9	RQ1407071-01	R1404507-006 DUP	.02	1g	9056A/Chloride				100.00mL			
10	RQ1407071-02	R1404507-006 MS	.02	1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
11	R1404507-007	1406111635 200-SB-7 18-21'	.01	1g	9056A/Chloride				100.00mL			
12	R1404507-008	1406120935 200-SB-7 38-40'	.01	1g	9056A/Chloride				100.00mL			
13	R1404622-007	1406161405 200-SB-13 8/10'	.01	1g	9056A/Chloride				100.00mL			
14	R1404589-016	1406130805 200-SB-8 8/10'	.01	1g	9056A/Chloride				100.00mL			
15	R1404589-017	1406130815 200-SB-8 8/10'	.01	1g	9056A/Chloride				100.00mL			
16	R1404589-025	1406130945 200-SB-8 28/30'	.01	1g	9056A/Chloride				100.00mL			
17	R1404589-026	1406131305 200-SB-8 43/45'	.01	1g	9056A/Chloride				100.00mL			
18	R1404589-027	1406141705 200-SB-6 8/10'	.01	1g	9056A/Chloride				100.00mL			
19	R1404589-028	1406151130 200-SB-5 8/10'	.01	1g	9056A/Chloride				100.00mL			
20	R1404589-029	1406151146 200-SB-5 8/10'	.01	1g	9056A/Chloride				100.00mL			

Spiking Solutions

Name: 300.0 Calibration/LCS/MS Intermediate : Inventory ID 71260 Logbook Ref: WC118013A Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 6/23/14 10:00
Finished: 6/23/14 10:05
By: CWOODS
Comments

Preparation Information Benchsheet

Prep Run#: 211473
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 10:00 AM

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Schedule File: C:\PeakNet\Schedule\SCHEDULES\IC#6\6-062314.sch 06-23-14 IC#6

Line	Sample	Sample Type	Level	Method	Data File	Dilution	Comment
1	CCV	Sample		6-052814.met	623_001.dxd	1	300.0/9056A/26A
2	CCB	Sample		6-052814.met	623_002.dxd	1	300.0/9056A/26A
3	SOIL METHOD BLANK	Sample		6-052814.met	623_003.dxd	1	9056A C (1g SAMPLE -> 100g DI)
4	SOIL LCS	Sample		6-052814.met	623_004.dxd	1	9056A C (1g SAMPLE -> 100g DI)
5	R1404421-008	Sample		6-052814.met	623_005.dxd	1	9056A C (1g SAMPLE -> 100g DI)
6	R1404421-009	Sample		6-052814.met	623_006.dxd	1	9056A C (1g SAMPLE -> 100g DI)
7	R1404421-010	Sample		6-052814.met	623_007.dxd	1	9056A C (1g SAMPLE -> 100g DI)
8	R1404273-005	Sample		6-052814.met	623_008.dxd	1	9056A C (1g SAMPLE -> 100g DI)
9	R1404273-006	Sample		6-052814.met	623_009.dxd	1	9056A C (1g SAMPLE -> 100g DI)
10	R1404507-006	Sample		6-052814.met	623_010.dxd	1	9056A C (1g SAMPLE -> 100g DI)
11	R1404507-006 EXT DUP	Sample		6-052814.met	623_011.dxd	1	9056A C (1g SAMPLE -> 100g DI)
12	R1404507-006 EXT SPK	Sample		6-052814.met	623_012.dxd	1	9056A C (1g SAMPLE -> 100g DI)
13	CCV	Sample		6-052814.met	623_013.dxd	1	300.0/9056A/26A
14	CCB	Sample		6-052814.met	623_014.dxd	1	300.0/9056A/26A
15	R1404507-007	Sample		6-052814.met	623_015.dxd	1	9056A C (1g SAMPLE -> 100g DI)
16	R1404507-008	Sample		6-052814.met	623_016.dxd	1	9056A C (1g SAMPLE -> 100g DI)
17	R1404622-007	Sample		6-052814.met	623_017.dxd	1	9056A C (1g SAMPLE -> 100g DI)
18	R1404622-008	Sample		6-052814.met	623_018.dxd	1	9056A C (1g SAMPLE -> 100g DI)
19	R1404589-016	Sample		6-052814.met	623_019.dxd	1	9056A C (1g SAMPLE -> 100g DI)
20	R1404589-017	Sample		6-052814.met	623_020.dxd	1	9056A C (1g SAMPLE -> 100g DI)
21	R1404589-025	Sample		6-052814.met	623_021.dxd	1	9056A C (1g SAMPLE -> 100g DI)
22	R1404589-026	Sample		6-052814.met	623_022.dxd	1	9056A C (1g SAMPLE -> 100g DI)
23	R1404589-027	Sample		6-052814.met	623_023.dxd	1	9056A C (1g SAMPLE -> 100g DI)
24	R1404589-028	Sample		6-052814.met	623_024.dxd	1	9056A C (1g SAMPLE -> 100g DI)
25	CCV	Sample		6-052814.met	623_025.dxd	1	300.0/9056A/26A
26	CCB	Sample		6-052814.met	623_026.dxd	1	300.0/9056A/26A
27	R1404589-029	Sample		6-052814.met	623_027.dxd	1	9056A C (1g SAMPLE -> 100g DI)
28	CCV	Sample		6-052814.met	623_028.dxd	1	300.0/9056A/26A
29	CCB	Sample		6-052814.met	623_029.dxd	1	300.0/9056A/26A

Default Method Path: C:\PEAKNET\METHOD\IC#6\DI METHODS
Default Data Path: C:\PEAKNET\DATA\IC#6\062314
Comment:

Analyst: CWoods
Pipets: FRED
BARNEY

Ter III
~~R422~~
R4421
R4273
R4507
R4622
R4589

Reviewed & Approved
By: CW
Date: 6/25/14

06-24-14 IC#3 Analyst: CWoods Pipets: Barney FRED

System	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Level	Injections	Done	Sample Info 1	Sample Info 2
metrohm.smt	CCV	1	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	2	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	LCS	3	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404746-001	4	1.0	1.0	1.0	100.0	0	1	1	300.0 FCS	DRINKING WATER
metrohm.smt	R1404746-002	5	1.0	1.0	1.0	100.0	0	1	1	300.0 FCS	DRINKING WATER
metrohm.smt	R1404746-003	6	1.0	1.0	1.0	100.0	0	1	1	300.0 FCS	DRINKING WATER
metrohm.smt	R1404776-001	7	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-002	8	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003	9	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003 MS	10	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003 MSD	11	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404683-010	12	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	CCV	13	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	14	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	Tier III
metrohm.smt	R1404560-002	15	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404560-002	16	1.0	10.0	1.0	100.0	0	1	1	300.0 C	R4560
metrohm.smt	R1404560-002 MS	17	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404560-002 MSD	18	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404560-002	19	1.0	50.0	1.0	100.0	0	1	1	300.0 S	R4507
metrohm.smt	R1404564-009	20	1.0	40.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404564-011	21	1.0	40.0	1.0	100.0	0	1	1	300.0 C	R4622
metrohm.smt	R1404564-017	22	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404564-017 MS	23	1.0	20.0	1.0	100.0	0	1	1	300.0 C	R4589
metrohm.smt	R1404564-017 MSD	24	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	CCV	25	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	26	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404658-009	27	1.0	40.0	1.0	100.0	0	1	1	300.0 S	
metrohm.smt	R1404715-001	28	1.0	10.0	1.0	100.0	0	1	1	300.0 S	
metrohm.smt	R1404582-001	29	1.0	200.0	1.0	100.0	0	1	1	300.0 S	Tier IV
metrohm.smt	R1404429-009	30	1.0	10.0	1.0	100.0	0	1	1	300.0 S	
metrohm.smt	R1404429-078	31	1.0	100.0	1.0	100.0	0	1	1	300.0 S	R4564 — BA
metrohm.smt	LCS	32	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404413-001	33	1.0	10.0	1.0	100.0	0	1	1	9056A S	R4658 —
metrohm.smt	R1404507-003	34	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404776-001	35	1.0	20.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003	36	1.0	20.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	CCV	37	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	38	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404444-001	39	1.0	10.0	1.0	100.0	0	1	1	9056A S	
metrohm.smt	R1404444-002	40	1.0	10.0	1.0	100.0	0	1	1	9056A S	
metrohm.smt	R1404622-003	41	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-003	42	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-009	43	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-014	44	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-014 MS	45	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-014 MSD	46	1.0	10.0	1.0	100.0	0	1	1	9056A C	

Reviewed & Approved

By: CH

Date: 6/25/14

0007 4

System	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Level	Injections	Done	Sample Info 1	Sample Info 2
metrohm.smt	*CCV*	47	1.0	1.0	1.0	100.0	0	1	1	*300.0/9056A/26A*	
metrohm.smt	*CCB*	48	1.0	1.0	1.0	100.0	0	1	1	*300.0/9056A/26A*	

00075

06-13-14 IC#8 7199/218.6RL Analyst: CWoods Pipets: Barney R4507

6/16/14 ~~OH~~ FERB

Injection Number	Injection Name	Type	Level	Processing Method	Inject Time	Dilution	Comment
1	STANDARD 1	Calibration Standard	01	8-061314RL	13/06/14 12:37	1.0	7199/218.6 RL
2	STANDARD 2	Calibration Standard	02	8-061314RL	13/06/14 12:45	1.0	7199/218.6 RL
3	STANDARD 3	Calibration Standard	03	8-061314RL	13/06/14 12:53	1.0	7199/218.6 RL
4	STANDARD 4	Calibration Standard	04	8-061314RL	13/06/14 13:02	1.0	7199/218.6 RL
5	STANDARD 5	Calibration Standard	05	8-061314RL	13/06/14 13:10	1.0	7199/218.6 RL
6	ICV	Unknown		8-061314RL	13/06/14 13:18	1.0	7199/218.6 RL
7	ICB	Unknown		8-061314RL	13/06/14 13:27	1.0	7199/218.6 RL
8	WATER LCS	Unknown		8-061314RL	13/06/14 13:35	1.0	7199/218.6 RL
9	WATER LCS	Unknown		8-061314RL	13/06/14 13:44	1.0	7199 REPLICATE
10	EB	Unknown		8-061314RL	13/06/14 13:51	1.0	7199
11	EB	Unknown		8-061314RL	13/06/14 13:59	1.0	7199 REPLICATE
12	WATER LCSD	Unknown		8-061314RL	13/06/14 14:06	1.0	7199
13	WATER LCSD	Unknown		8-061314RL	13/06/14 14:15	1.0	7199 REPLICATE
14	SOIL METHOD BLANK	Unknown		8-061314RL	13/06/14 14:22	1.0	7199
15	SOIL METHOD BLANK	Unknown		8-061314RL	13/06/14 14:31	1.0	7199 REPLICATE
16	SOIL LCS	Unknown		8-061314RL	13/06/14 14:37	20.0	7199
17	SOIL LCS	Unknown		8-061314RL	13/06/14 14:45	20.0	7199 REPLICATE
18	CCV	Unknown		8-061314RL	13/06/14 14:51	1.0	7199/218.6 RL
19	CCB	Unknown		8-061314RL	13/06/14 15:00	1.0	7199/218.6 RL
20	R1404151-001	Unknown		8-061314RL	13/06/14 15:08	1.0	7199
21	R1404151-001	Unknown		8-061314RL	13/06/14 15:16	1.0	7199 REPLICATE
22	R1404152-001	Unknown		8-061314RL	13/06/14 15:22	1.0	7199
23	R1404152-001	Unknown		8-061314RL	13/06/14 15:30	1.0	7199 REPLICATE
24	R1404152-001 DUP	Unknown		8-061314RL	13/06/14 15:36	1.0	7199
25	R1404152-001 DUP	Unknown		8-061314RL	13/06/14 15:44	1.0	7199 REPLICATE
26	R1404152-001 SOL	Unknown		8-061314RL	13/06/14 15:50	1.0	7199
27	R1404152-001 SOL	Unknown		8-061314RL	13/06/14 15:58	1.0	7199 REPLICATE
28	R1404152-001 INSOL	Unknown		8-061314RL	13/06/14 16:04	20.0	7199
29	R1404152-001 INSOL	Unknown		8-061314RL	13/06/14 16:12	20.0	7199 REPLICATE
30	CCV	Unknown		8-061314RL	13/06/14 16:19	1.0	7199/218.6 RL
31	CCB	Unknown		8-061314RL	13/06/14 16:26	1.0	7199/218.6 RL
32	R1404152-003	Unknown		8-061314RL	13/06/14 16:34	~~2.0~~ 1	7199
33	R1404152-003	Unknown		8-061314RL	13/06/14 16:41	~~2.0~~ 1	7199 REPLICATE
34	R1404153-001	Unknown		8-061314RL	13/06/14 16:48	1.0	7199
35	R1404153-001	Unknown		8-061314RL	13/06/14 16:56	1.0	7199 REPLICATE

6/16/14

Tier IV

R4451

R4452 ✓ R/R

R4453

R4452

R4468

Tier III

R4507

Reviewed & Approved

By: CK

Date: 6/16/14

0067

36	R1404153-002	Unknown	8-061314RL	13/06/14 17:02	1.0	7199
37	R1404153-002	Unknown	8-061314RL	13/06/14 17:10	1.0	7199 REPLICATE
38	CCV	Unknown	8-061314RL	13/06/14 17:16	1.0	7199
39	CCB	Unknown	8-061314RL	13/06/14 17:38	1.0	7199 REPLICATE
40	R1404452-001	Unknown	8-061314RL	13/06/14 18:01	1.0	218.6 RL
41	R1404452-001 MS	Unknown	8-061314RL	13/06/14 18:09	1.0	218.6 RL
42	R1404452-001 MSD	Unknown	8-061314RL	13/06/14 18:16	1.0	218.6 RL
43	R1404468-001	Unknown	8-061314RL	13/06/14 18:23	1.0	218.6 RL
44	R1404152-001 PVS	Unknown	8-061314RL	13/06/14 18:31	2.0	7199
45	R1404152-001 PVS	Unknown	8-061314RL	13/06/14 18:38	2.0	7199 REPLICATE
46	R1404152-002	Unknown	8-061314RL	13/06/14 18:45	1.0	7199
47	R1404152-002	Unknown	8-061314RL	13/06/14 18:52	1.0	7199 REPLICATE
48	CCV	Unknown	8-061314RL	13/06/14 18:59	1.0	7199/218.6 RL
49	CCB	Unknown	8-061314RL	13/06/14 19:06	1.0	7199/218.6 RL

Preparation Information Benchsheet

Prep Run#: 211097
Team: GenChem/CWOODS

Prep WorkFlow: Gen Dig Cr6
Prep Method: EPA 3060A

Status: Prepped
Prep Date/Time: 6/17/14 02:40 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406772-01	MB		2.5g	7199/Cr6				100.00mL			
2	RQ1406772-02	LCS		2.5g	7199/Cr6				100.00mL		10.4000 mg/54146	
3	R1404507-006	1406111505 200-SB-7 8-10'	.02	2.6000g	7199/Cr6				100.00mL			
4	RQ1406772-03	R1404507-006 DUP	.02	2.5300g	7199/Cr6				100.00mL			
5	RQ1406772-04	R1404507-006 MS	.02	2.5200g	7199/Cr6				100.00mL		1.0000 mL/60022	
6	RQ1406772-05	R1404507-006 MS	.02	2.5400g	7199/Cr6				100.00mL		10.0000 mg/54146	
7	R1404507-007	1406111635 200-SB-7 18-21'	.01	2.5500g	7199/Cr6				100.00mL			
8	R1404507-008	1406120935 200-SB-7 38-40'	.01	2.5300g	7199/Cr6				100.00mL			
9	R1404352-001	1416035001	.03	2.6000g	7199/Cr6				100.00mL			
10	R1404352-002	1416035002	.03	2.6000g	7199/Cr6				100.00mL			
11	R1404352-003	1416035003	.03	2.5500g	7199/Cr6				100.00mL			
12	R1404352-004	1416035004	.03	2.6000g	7199/Cr6				100.00mL			
13	R1404352-005	1416035005	.03	2.5000g	7199/Cr6				100.00mL			
14	R1404357-001	2010754 009	.03	2.5100g	7199/Cr6				100.00mL			
15	R1404357-002	2010754 014	.03	2.6000g	7199/Cr6				100.00mL			
16	R1404357-003	2010754 016	.03	2.5400g	7199/Cr6				100.00mL			
17	R1404457-001	2011421 012	.02	2.5700g	7199/Cr6				100.00mL			
18	R1404457-002	2011421 027	.01	2.5700g	7199/Cr6				100.00mL			
19	R1404342-001	SVP-3-4/5	.01	2.5200g	7199/Cr6				100.00mL			
20	R1404342-003	SVP-5-3/5	.01	2.5700g	7199/Cr6				100.00mL			

Spiking Solutions

Name:	Lead (11) Chromate	Inventory ID	54146	Logbook Ref:	WC112202F	Expires On:	01/18/2018	Lot #:	10160719
Name:	Chromium (VI) (Hexavalent) 100 ppm Cr	Inventory ID	60022	Logbook Ref:	Fresh Daily	Expires On:	09/30/2014		

Preparation Steps

Step: Digestion
Started: 6/17/14 14:40
Finished: 6/17/14 15:40
By: GNITAJOUPPI
Comments

Preparation Information Benchsheet

Prep Run#: 211097
Team: GenChem/CWOODS

Prep WorkFlow: Gen Dig Cr6
Prep Method: EPA 3060A

Status: Prepped
Prep Date/Time: 6/17/14 02:40 PM

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

06-17-14 IC#8 7199RL Analyst: CWoods Pipets: Barney FERB

Injection Number	Injection Name	Type	Level	Processing Method	Inject Time	Dilution	Comment
1	STANDARD 1	Calibration Standard	01	8-061714RL	17/06/14 11:41	1.0	7199/218.6 RL
2	STANDARD 2	Calibration Standard	02	8-061714RL	17/06/14 11:48	1.0	7199/218.6 RL
3	STANDARD 3	Calibration Standard	03	8-061714RL	17/06/14 11:55	1.0	7199/218.6 RL
4	STANDARD 4	Calibration Standard	04	8-061714RL	17/06/14 12:02	1.0	7199/218.6 RL
5	STANDARD 5	Calibration Standard	05	8-061714RL	17/06/14 12:10	1.0	7199/218.6 RL
6	ICV	Unknown		8-061714RL	17/06/14 12:27	1.0	7199/218.6 RL
7	ICB	Unknown		8-061714RL	17/06/14 12:34	1.0	7199/218.6 RL
8	WATER LCS	Unknown		8-061714RL	17/06/14 12:42	1.0	7199/218.6 RL
9	WATER LCS	Unknown		8-061714RL	17/06/14 12:49	1.0	7199 REPLICATE
10	140613	Unknown		8-061714RL	17/06/14 12:55	1.0	7199
11	140613	Unknown		8-061714RL	17/06/14 13:03	1.0	7199 REPLICATE
12	140614	Unknown		8-061714RL	17/06/14 13:09	1.0	7199
13	140614	Unknown		8-061714RL	17/06/14 13:17	1.0	7199 REPLICATE
14	140615	Unknown		8-061714RL	17/06/14 13:23	1.0	7199
15	140615	Unknown		8-061714RL	17/06/14 13:30	1.0	7199 REPLICATE
16	140615 MS	Unknown		8-061714RL	17/06/14 13:37	1.0	7199
17	140615 MS	Unknown		8-061714RL	17/06/14 13:44	1.0	7199 REPLICATE
18	CCV	Unknown		8-061714RL	17/06/14 13:50	1.0	7199/218.6 RL
19	CCB	Unknown		8-061714RL	17/06/14 13:58	1.0	7199/218.6 RL
20	140615 MSD	Unknown		8-061714RL	17/06/14 14:06	1.0	7199
21	140615 MSD	Unknown		8-061714RL	17/06/14 14:14	1.0	7199 REPLICATE
22	CCV	Unknown		8-061714RL	17/06/14 14:34	1.0	7199/218.6 RL
23	CCB	Unknown		8-061714RL	17/06/14 14:42	1.0	7199/218.6 RL
24	CCV	Unknown		8-061714RL	17/06/14 20:31	1.0	7199/218.6 RL
25	CCB	Unknown		8-061714RL	17/06/14 20:39	1.0	7199/218.6 RL
26	SOIL METHOD BLANK	Unknown		8-061714RL	17/06/14 21:02	1.0	7199
27	SOIL METHOD BLANK	Unknown		8-061714RL	17/06/14 21:09	1.0	7199 REPLICATE
28	SOIL LCS	Unknown		8-061714RL	17/06/14 21:15	20.0	7199
29	SOIL LCS	Unknown		8-061714RL	17/06/14 21:23	20.0	7199 REPLICATE
30	R1404507-006	Unknown		8-061714RL	17/06/14 21:29	1.0	7199
31	R1404507-006	Unknown		8-061714RL	17/06/14 21:36	1.0	7199 REPLICATE
32	R1404507-006 DUP	Unknown		8-061714RL	17/06/14 21:43	1.0	7199
33	R1404507-006 DUP	Unknown		8-061714RL	17/06/14 21:50	1.0	7199 REPLICATE
34	R1404507-006 SOL	Unknown		8-061714RL	17/06/14 21:56	2.0	7199
35	R1404507-006 SOL	Unknown		8-061714RL	17/06/14 22:04	2.0	7199 REPLICATE

Ter III
R4507

Ter IV
R 4357
VMR

Reviewed & Approved
By: CK
Date: 6/18/14

00000

36	CCV	Unknown	8-061714RL	17/06/14 22:10	1.0	7199/218.6 RL
37	CCB	Unknown	8-061714RL	17/06/14 22:18	1.0	7199/218.6 RL
38	R1404507-006 INSOL	Unknown	8-061714RL	17/06/14 22:26	20.0	7199
39	R1404507-006 INSOL	Unknown	8-061714RL	17/06/14 22:34	20.0	7199 REPLICATE
40	R1404507-006 PVS	Unknown	8-061714RL	17/06/14 22:40	2.0	7199
41	R1404507-006 PVS	Unknown	8-061714RL	17/06/14 22:47	2.0	7199 REPLICATE
42	R1404507-007	Unknown	8-061714RL	17/06/14 22:54	1.0	7199
43	R1404507-007	Unknown	8-061714RL	17/06/14 23:01	1.0	7199 REPLICATE
44	R1404507-008	Unknown	8-061714RL	17/06/14 23:07	1.0	7199
45	R1404507-008	Unknown	8-061714RL	17/06/14 23:15	1.0	7199 REPLICATE
46	R1404352-001	Unknown	8-061714RL	17/06/14 23:21	1.0	7199
47	R1404352-001	Unknown	8-061714RL	17/06/14 23:29	1.0	7199 REPLICATE
48	CCV	Unknown	8-061714RL	17/06/14 23:35	1.0	7199/218.6 RL
49	CCB	Unknown	8-061714RL	17/06/14 23:43	1.0	7199/218.6 RL
50	R1404352-002	Unknown	8-061714RL	17/06/14 23:52	1.0	7199
51	R1404352-002	Unknown	8-061714RL	17/06/14 23:59	1.0	7199 REPLICATE
52	R1404352-003	Unknown	8-061714RL	18/06/14 00:05	1.0	7199
53	R1404352-003	Unknown	8-061714RL	18/06/14 00:13	1.0	7199 REPLICATE
54	R1404352-004	Unknown	8-061714RL	18/06/14 00:19	1.0	7199
55	R1404352-004	Unknown	8-061714RL	18/06/14 00:27	1.0	7199 REPLICATE
56	R1404352-005	Unknown	8-061714RL	18/06/14 00:33	1.0	7199
57	R1404352-005	Unknown	8-061714RL	18/06/14 00:40	1.0	7199 REPLICATE
58	R1404357-001	Unknown	8-061714RL	18/06/14 00:47	1.0	7199
59	R1404357-001	Unknown	8-061714RL	18/06/14 00:54	1.0	7199 REPLICATE
60	CCV	Unknown	8-061714RL	18/06/14 01:00	1.0	7199/218.6 RL
61	CCB	Unknown	8-061714RL	18/06/14 01:08	1.0	7199/218.6 RL
62	R1404357-002	Unknown	8-061714RL	18/06/14 01:15	1.0	7199
63	R1404357-002	Unknown	8-061714RL	18/06/14 01:23	1.0	7199 REPLICATE
64	R1404357-003	Unknown	8-061714RL	18/06/14 01:29	1.0	7199
65	R1404357-003	Unknown	8-061714RL	18/06/14 01:37	1.0	7199 REPLICATE
66	R1404457-001	Unknown	8-061714RL	18/06/14 01:43	1.0	7199
67	R1404457-001	Unknown	8-061714RL	18/06/14 01:50	1.0	7199 REPLICATE
68	R1404457-002	Unknown	8-061714RL	18/06/14 01:57	1.0	7199
69	R1404457-002	Unknown	8-061714RL	18/06/14 02:04	1.0	7199 REPLICATE
70	R1404342-001	Unknown	8-061714RL	18/06/14 02:10	1.0	7199
71	R1404342-001	Unknown	8-061714RL	18/06/14 02:18	1.0	7199 REPLICATE
72	CCV	Unknown	8-061714RL	18/06/14 02:24	1.0	7199/218.6 RL
73	CCB	Unknown	8-061714RL	18/06/14 02:32	1.0	7199/218.6 RL
74	R1404342-003	Unknown	8-061714RL	18/06/14 02:40	1.0	7199

75	R1404342-003	Unknown	8-061714RL	18/06/14 02:48	1.0	7199 REPLICATE
76	CCV	Unknown	8-061714RL	18/06/14 02:54	1.0	7199/218.6 RL
77	CCB	Unknown	8-061714RL	18/06/14 03:02	1.0	7199/218.6 RL

Preparation Information Benchsheet

Prep Run#: 211007
Team: GenChem/KABBOTT

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/17/14 12:00 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406709-05	MB		6mL	9012B/CN Tot				6.00mL			
2	RQ1406709-05	MB		6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
3	RQ1406709-06	LCS		6mL	9012B/CN Tot				6.00mL		0.0600 mL/59557	
4	RQ1406709-06	LCS		6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL		0.0600 mL/59557	
5	RQ1406709-07	LCS		6mL	9012B/CN Tot				6.00mL		0.2400 mL/59557	
6	RQ1406709-07	LCS		6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL		0.2400 mL/59557	
7	R1404507-004	1406111443 200-SB-7	.01	6mL	9012B/CN Tot				6.00mL			
8	R1404544-001	LPS	.05	6mL	9012B/CN Tot				6.00mL			
9	R1404388-001	LT-2	.13	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
10	R1404429-017	MW-28S-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
11	R1404429-019	MW-33S-0614	.01	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
12	R1404429-020	MW-26S-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
13	RQ1406709-01	R1404429-020 MS	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL		0.0600 mL/59557	
14	RQ1406709-02	R1404429-020 DMS	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL		0.0600 mL/59557	
15	R1404429-022	FDRAIN-0614	.02	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
16	R1404429-023	PZ-46-0614	.02	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
17	R1404429-024	PZ-45-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
18	R1404429-025	PZ-44-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
19	R1404429-027	MW-2001-009FBW	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
20	R1404429-029	MW-2001-007BD	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
21	R1404429-031	MW-11SR-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
22	R1404429-033	MW-12S-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
23	R1404429-035	MW-13S-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
24	R1404429-037	MW-2001-10FBW	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
25	R1404429-039	MW-14S-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL			
26	RQ1406709-03	R1404429-039 MS	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL		0.0600 mL/59557	
27	RQ1406709-04	R1404429-039 DMS	.04	6mL	SM 4500-CN-E-2001(2011)/CN T				6.00mL		0.0600 mL/59557	

Preparation Information Benchsheet

Prep Run#: 211007
Team: GenChem/KABBOTT

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/17/14 12:00 PM

28	R1404429-041	MW-15S-87-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CNT				6.00mL			
29	R1404429-043	MW-20-85S-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CNT				6.00mL			
30	R1404429-045	MW-23-85S-0614	.04	6mL	SM 4500-CN-E-2001(2011)/CNT				6.00mL			

Spiking Solutions

Name: Cyanide 10 ppm as CN Inventory ID 59557 Logbook Ref: Fresh daily Expires On: 06/19/2014

Preparation Steps

Step: Distillation
Started: 6/17/14 12:00
Finished: 6/17/14 14:00
By: NMUEHLEISEN
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: KMENGS Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Creator : KABBOTT
Creation Date : 6/18/2014 9:37:18 AM
Last Modified : 6/18/2014 11:49:23 AM
Description :

Cup	Sample ID	MDF	Weight	Sample Type	Comments
S1	1.0 ppm CN			Calibration Standard	
S2	0.50 ppm CN			Calibration Standard	
S3	0.20 ppm CN			Calibration Standard	
S4	0.10 ppm CN			Calibration Standard	
S5	0.05 ppm CN			Calibration Standard	
S6	0.02 ppm CN			Calibration Standard	
S7	0.01 ppm CN			Calibration Standard	
S8	0.00 ppm CN			Calibration Standard	
1	ICV			Unknown	
2	ICB			Unknown	
3	CRDL - 0.0200			Unknown	
4	CRDL - 0.0100			Unknown	
5	CCV			Unknown	
6	CCB			Unknown	
7	MB-1 6-16-14			Unknown	
8	LCS-1 LL 6-16-14			Unknown	
9	LCS-1 HL 6-16-14			Unknown	
10	R1404428-006			Unknown	
11	R1404428-007			Unknown	
12	4428-007 MS			Unknown	
13	4428-007 MSD			Unknown	
14	R1404428-008			Unknown	
15	R1404428-009			Unknown	
16	R1404454-001			Unknown	
17	CCV			Unknown	
18	CCB			Unknown	
19	R1404475-001			Unknown	
20	R1404394-002			Unknown	
21	4394-002 DUP			Unknown	
22	4394-002 SPK			Unknown	
23	R1404394-003			Unknown	
24	R1404394-004			Unknown	
25	R1404394-005			Unknown	
26	R1404394-006			Unknown	
27	R1404394-007			Unknown	
28	R1404394-008			Unknown	
29	CCV			Unknown	
30	CCB			Unknown	
31	R1404394-009			Unknown	
32	R1404394-010			Unknown	

33	R1404394-011			Unknown	
34	R1404394-012			Unknown	
35	R1404394-013			Unknown	
36	R1404394-014			Unknown	
37	R1404394-015			Unknown	
38	MB 2 6-16-14			Unknown	
39	LCS 2 LL 6-16-14			Unknown	
40	LCS 2 HL 6-16-14			Unknown	
41	CCV			Unknown	
42	CCB			Unknown	
43	R1404394-016			Unknown	
44	R1404394-017			Unknown	
45	4394-017 DUP			Unknown	
46	4394-017 SPK			Unknown	
47	R1404394-018			Unknown	
48	R1404394-019			Unknown	
49	R1404394-020			Unknown	
50	R1404394-021			Unknown	
51	R1404394-022			Unknown	
52	R1404394-023			Unknown	
53	CCV			Unknown	
54	CCB			Unknown	
55	R1404421-003			Unknown	
56	R1404438-001			Unknown	
57	MB 3 6-16-14			Unknown	
58	LCS 3 LL 6-16-14			Unknown	
59	LCS 3 HL 6-16-14			Unknown	
60	R1404438-002			Unknown	
61	4438-002 DUP			Unknown	
62	4438-002 SPK			Unknown	
63	R1404438-003			Unknown	
64	R1404438-004			Unknown	
65	CCV			Unknown	
66	CCB			Unknown	
67	R1404438-005			Unknown	
68	R1404438-006			Unknown	
69	R1404438-007			Unknown	
70	R1404438-008			Unknown	
71	R1404438-009			Unknown	
72	R1404438-010			Unknown	
73	R1404438-011			Unknown	
74	R1404438-012			Unknown	
75	R1404438-013			Unknown	
76	R1404429-001			Unknown	
77	CCV			Unknown	

78	CCB			Unknown	
79	4429-001 MS			Unknown	
80	4429-001 MSD			Unknown	
81	R1404429-003			Unknown	
82	R1404429-005			Unknown	
83	R1404429-007			Unknown	
84	R1404429-009			Unknown	
85	R1404429-011			Unknown	
86	R1404429-013			Unknown	
87	R1404429-015			Unknown	
88	MB 1 6-17-14			Unknown	
89	CCV			Unknown	
90	CCB			Unknown	
91	LCS 1 LL 6-17-14			Unknown	
92	LCS 1 HL 6-17-14			Unknown	
93	R1404507-004			Unknown	
94	R1404544-001			Unknown	
95	R1404388-001			Unknown	
96	R1404429-017			Unknown	
97	R1404429-019			Unknown	
98	R1404429-020			Unknown	
99	4429-020 MS			Unknown	
100	4429-020 MSD			Unknown	
101	CCV			Unknown	
102	CCB			Unknown	
103	R1404429-022			Unknown	
104	R1404429-023			Unknown	
105	R1404429-024			Unknown	
106	R1404429-025			Unknown	
107	R1404429-027			Unknown	
108	R1404429-029			Unknown	
109	R1404429-031			Unknown	
110	R1404429-033			Unknown	
111	R1404429-035			Unknown	
112	R1404429-037			Unknown	
113	CCV			Unknown	
114	CCB			Unknown	
115	R1404429-039			Unknown	
116	4429-039 MS			Unknown	
117	4429-039 MSD			Unknown	
118	R1404429-041			Unknown	
119	R1404429-043			Unknown	
120	R1404429-045			Unknown	
121	MB 2 6-17-14			Unknown	
122	LCS 2 LL 6-17-14			Unknown	

123	LCS 2 HL 6-17-14			Unknown	
124	R1404429-047			Unknown	
125	CCV			Unknown	
126	CCB			Unknown	
127	R1404429-049			Unknown	
128	R1404429-051			Unknown	
129	R1404491-002			Unknown	
130	R1404491-003			Unknown	
131	4491-003 DUP			Unknown	
132	4491-003 SPK			Unknown	
133	R1404506-001			Unknown	
134	MB SOIL			Unknown	
135	LCS SOIL LL			Unknown	
136	LCS SOIL HL			Unknown	
137	CCV			Unknown	
138	CCB			Unknown	
139	R1404342-001			Unknown	
140	R1404342-003			Unknown	
141	R1404421-008			Unknown	
142	R1404421-009			Unknown	
143	R1404421-010			Unknown	
144	R1404507-006			Unknown	
145	4507-006 DUP			Unknown	
146	4507-006 SPK			Unknown	
147	R1404507-007			Unknown	
148	R1404507-008			Unknown	
149	CCV			Unknown	
150	CCB			Unknown	
151	MB RES			Unknown	
152	LCS RES			Unknown	
153	R1404491-002			Unknown	
154	4491-002 DUP			Unknown	
155	R1404491-003			Unknown	
156	R1404506-001			Unknown	
157	MB FILTER			Unknown	
158	LCS FILTER			Unknown	
159	4429-017 RPT	4.00000		Unknown	
160	4429-027 RPT			Unknown	
161	CCV			Unknown	
162	CCB			Unknown	

Creator: LDOLGOS
Creation Date: Jun 19, 2014 7:58:24
Last Modified: Jun 19, 2014 9:02:26
Description: QC 8000 353.2 TOTN - RUN LOG - 1406190A

R4507

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	1.00 NO3	1.0000	Unknown	
2	1.00 NO2	1.0000	Unknown	
3	ICV TV= 0.90	1.0000	Unknown	
4	ICB	1.0000	Unknown	
5	CRDL - 0.100	1.0000	Unknown	
6	CRDL - 0.050	1.0000	Unknown	
7	CCV	1.0000	Unknown	
8	CCB	1.0000	Unknown	
9	LCS	1.0000	Unknown	
10	AIR	1.0000	Unknown	
11	R1404274-004	1.0000	Unknown	
12	R1404335-004 1/2	2.0000	Unknown	
13	R1404335-013 1/2	2.0000	Unknown	
14	R1404335-018	1.0000	Unknown	
15	R1404335-025	1.0000	Unknown	
16	R1404335-029 1/4	4.0000	Unknown	
17	R1404421-004	1.0000	Unknown	
18	R1404273-003	1.0000	Unknown	
19	CCV	1.0000	Unknown	
20	CCB	1.0000	Unknown	
21	R1404448-001	1.0000	Unknown	
22	4335-025 DUP	1.0000	Unknown	
23	4335-025 SPK	1.0000	Unknown	
24	R1404443-001 1/2	2.0000	Unknown	
25	R1404492-002	1.0000	Unknown	
26	R1404493-002	1.0000	Unknown	
27	R1404557-001	1.0000	Unknown	
28	R1404611-001	1.0000	Unknown	
29	R1404492-002 DUP	1.0000	Unknown	
30	R1404492-002 SPK	1.0000	Unknown	
31	CCV	1.0000	Unknown	

Cup #	Sample ID	Manual Dilution	Sample Type	
32	CCB	1.0000	Unknown	
33	R1404589-003	1.0000	Unknown	
34	R1404589-009	1.0000	Unknown	
35	R1404589-014	1.0000	Unknown	
36	R1404486-001 1/2	2.0000	Unknown	
37	R1404507-003	1.0000	Unknown	
38	LCS	1.0000	Unknown	
39	R1404560-004	1.0000	Unknown	
40	R1404516-001 1/5	5.0000	Unknown	
41	R1404516-002 1/5	5.0000	Unknown	
42	BLK	1.0000	Unknown	
43	CCV	1.0000	Unknown	
44	CCB	1.0000	Unknown	
45	R1404560-004 DUP	1.0000	Unknown	
46	R1404560-004 SPK	1.0000	Unknown	
47	CCV	1.0000	Unknown	
48	CCB	1.0000	Unknown	

Preparation Information Benchsheet

Run 398613

Prep Run#: 211514
Team: GenChem/TPULS

Prep WorkFlow: GenExt28Day
Prep Method: CAS SOP

Status: Prepped
Prep Date/Time: 6/24/14 10:30 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407109-01	MB		1g	353.2M/NO2 NO3				100.00mL			
2	RQ1407109-02	LCS		1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
3	R1404273-005	1406041206 200-SB-20 30'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
4	RQ1407109-03	R1404273-005 DUP	.01	1g	353.2M/NO2 NO3				100.00mL			
5	RQ1407109-04	R1404273-005 MS	.01	1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
6	R1404273-006	1406041725 200-SB-20 50'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
7	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1g	353.2M/NO2 NO3				100.00mL			
8	R1404421-009	1406091615 200-SB-21	.01	1.0500g	353.2M/NO2 NO3				100.00mL			
9	R1404421-010	1406091750 200-SB-21	.01	1g	353.2M/NO2 NO3				100.00mL			
10	R1404507-006	1406111505 200-SB-7 8-10'	.02	1g	353.2M/NO2 NO3				100.00mL			
11	RQ1407109-05	R1404507-006 DUP	.02	1g	353.2M/NO2 NO3				100.00mL			
12	RQ1407109-06	R1404507-006 MS	.02	1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
13	R1404507-007	1406111635 200-SB-7 18-21'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
14	R1404507-008	1406120935 200-SB-7 38-40'	.01	1g	353.2M/NO2 NO3				100.00mL			
15	R1404589-016	1406130805 200-SB-8 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
16	R1404589-017	1406130815 200-SB-8 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
17	R1404589-025	1406130945 200-SB-8 28/30'	.01	1g	353.2M/NO2 NO3				100.00mL			
18	R1404589-026	1406131305 200-SB-8 43/45'	.01	1g	353.2M/NO2 NO3				100.00mL			
19	R1404589-027	1406141705 200-SB-6 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
20	R1404589-028	1406151130 200-SB-5 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
21	R1404589-029	1406151146 200-SB-5 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			

Spiking Solutions

Name: Nitrate (NO3) 1000 ppm as N Inventory ID 67499 Logbook Ref: WC118001N Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 6/24/14 10:30
Finished: 6/24/14 10:35
By: MKSMITH
Comments

Preparation Information Benchsheet

Prep Run#: 211514
Team: GenChem/TPULS

Prep WorkFlow: GenExt28Day
Prep Method: CAS SOP

Status: Prepped
Prep Date/Time: 6/24/14 10:30 AM

Comments:

Reviewed By: Date: Spike Witness: LDOLGOS Date:

Chain of Custody

Relinquished By:		Date: 6-24-14	Extracts Examined
Received By:		Date: 6/24/14	Yes No

R4507

Creator: LDOLGOS
Creation Date: Jun 24, 2014 10:57:22
Last Modified: Jun 24, 2014 13:06:48
Description: QC 8000 353.2 TOTN - RUN LOG - 1406240B

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	1.00 NO3	1.0000	Unknown	
2	1.00 NO2	1.0000	Unknown	
3	ICV TV= 0.90	1.0000	Unknown	
4	ICB	1.0000	Unknown	
5	CRDL - 0.100	1.0000	Unknown	
6	CRDL - 0.050	1.0000	Unknown	
7	CCV	1.0000	Unknown	
8	CCB	1.0000	Unknown	
9	PB SOIL	1.0000	Unknown	
10	LCS SOIL	1.0000	Unknown	
11	R1404273-005	1.0000	Unknown	
12	R1404273-005 DUP	1.0000	Unknown	
13	R1404273-005 SPK	1.0000	Unknown	
14	R1404273-006	1.0000	Unknown	
15	R1404421-008	1.0000	Unknown	
16	R1404421-009	1.0000	Unknown	
17	R1404421-010	1.0000	Unknown	
18	R1404507-006	1.0000	Unknown	
19	CCV	1.0000	Unknown	
20	CCB	1.0000	Unknown	
21	R1404507-006 DUP	1.0000	Unknown	
22	R1404507-006 SPK	1.0000	Unknown	
23	R1404507-007	1.0000	Unknown	
24	R1404507-008	1.0000	Unknown	
25	R1404589-016	1.0000	Unknown	
26	R1404589-017	1.0000	Unknown	
27	R1404589-025	1.0000	Unknown	
28	R1404589-026	1.0000	Unknown	
29	R1404589-027	1.0000	Unknown	
30	R1404589-028	1.0000	Unknown	
31	CCV	1.0000	Unknown	

Cup #	Sample ID	Manual Dilution	Sample Type	
32	CCB	1.0000	Unknown	
33	R1404589-029	1.0000	Unknown	
34	LCSW	1.0000	Unknown	
35	R1404622-003	1.0000	Unknown	
36	R1404739-001	1.0000	Unknown	
37	R1404739-002	1.0000	Unknown	
38	R1404739-003	1.0000	Unknown	
39	R1404739-003 DUP	1.0000	Unknown	
40	R1404739-003 SPK	1.0000	Unknown	
41	R1404619-003	1.0000	Unknown	
42	R1404619-004	1.0000	Unknown	
43	CCV	1.0000	Unknown	
44	CCB	1.0000	Unknown	
45	R1404619-003 RPT 1/2	2.0000	Unknown	
46	R1404619-004 RPT 1/2	2.0000	Unknown	
47	R1404739-002 DUP	1.0000	Unknown	
48	R1404739-002 SPK	1.0000	Unknown	
49	CCV	1.0000	Unknown	
50	CCB	1.0000	Unknown	

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver	500	495	99	500	493	99	494	99	P
Antimony	50	51	102	50	52	104	51	102	MS
Aluminum	10000	9830	98	10000	9770	98	9760	98	P
Arsenic	1000	988	99	1000	987	99	980	98	P
Boron	2500	2480	99	2500	2420	97	2390	96	P
Barium	10000	10100	101	10000	10100	101	9860	99	P
Beryllium	250	250	100	250	249	100	243	97	P
Calcium	25000	24300	97	25000	24300	97	24500	98	P
Cadmium	500	502	100	500	502	100	493	99	P
Cobalt	2500	2500	100	2500	2500	100	2450	98	P
Chromium	500	504	101	500	502	100	496	99	P
Copper	1250	1230	98	1250	1220	98	1200	96	P
Iron	5000	5010	100	5000	5030	101	4880	98	P
Potassium	25000	24300	97	25000	24200	97	23800	95	P
Magnesium	25000	24800	99	25000	24800	99	24200	97	P
Manganese	750	751	100	750	750	100	736	98	P
Mercury	3.00	3.06	102	3.00	3.05	102	3.07	102	CV
Molybdenum	2500	2500	100	2500	2490	100	2440	98	P
Sodium	25000	24800	99	25000	23700	95	23400	94	P
Nickel	2000	2010	100	2000	2000	100	1980	99	P
Lead	500	497	99	500	500	100	491	98	P
Selenium	500	494	99	500	499	100	480	96	P
Tin	5000	4900	98	5000	4920	98	4790	96	P
Thallium	50	53	106	50	52	104	51	102	MS
Titanium	2500.0	2500.00	100.0	2500.0	2490.00	99.6	2450.00	98.0	P
Vanadium	2500	2510	100	2500	2490	100	2560	102	P
Zinc	1000	994	99	1000	1000	100	974	97	P
Strontium	2500	2470	99	2500	2380	95	2330	93	P
Uranium	50	53	106	50	51	102	54	108	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	489	98	492	98	P
Antimony				50	50	100	50	100	MS
Aluminum				10000	9590	96	9840	98	P
Arsenic				1000	963	96	986	99	P
Boron				2500	2400	96	2400	96	P
Barium				10000	10000	100	9900	99	P
Beryllium				250	246	98	246	98	P
Calcium				25000	24000	96	24200	97	P
Cadmium				500	491	98	494	99	P
Cobalt				2500	2460	98	2450	98	P
Chromium				500	493	99	495	99	P
Copper				1250	1220	98	1200	96	P
Iron				5000	4940	99	4890	98	P
Potassium				25000	24500	98	24000	96	P
Magnesium				25000	24500	98	24300	97	P
Manganese				750	740	99	735	98	P
Mercury				3.00	3.11	104	3.17	106	CV
Molybdenum				2500	2450	98	2450	98	P
Sodium				25000	24100	96	24300	97	P
Nickel				2000	1970	98	1980	99	P
Lead				500	490	98	494	99	P
Selenium				500	487	97	487	97	P
Tin				5000	4840	97	4830	97	P
Titanium				2500.0	2470.00	98.8	2460.00	98.4	P
Vanadium				2500	2440	98	2520	101	P
Zinc				1000	974	97	987	99	P
Strontium				2500	2410	96	2420	97	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	489	98	491	98	P
Antimony				50	49	98	50	100	MS
Aluminum				10000	9750	98	9950	100	P
Arsenic				1000	980	98	965	96	P
Boron				2500	2450	98	2400	96	P
Barium				10000	10100	101	10100	101	P
Beryllium				250	248	99	248	99	P
Calcium				25000	24200	97	24100	96	P
Cadmium				500	502	100	499	100	P
Cobalt				2500	2500	100	2500	100	P
Chromium				500	502	100	500	100	P
Copper				1250	1220	98	1230	98	P
Iron				5000	5010	100	5030	101	P
Potassium				25000	24100	96	24000	96	P
Magnesium				25000	24800	99	24900	100	P
Manganese				750	750	100	753	100	P
Molybdenum				2500	2480	99	2480	99	P
Sodium				25000	24500	98	24500	98	P
Nickel				2000	2000	100	2000	100	P
Lead				500	499	100	496	99	P
Selenium				500	494	99	494	99	P
Tin				5000	4950	99	5020	100	P
Titanium				2500.0	2470.00	98.8	2470.00	98.8	P
Vanadium				2500	2470	99	2450	98	P
Zinc				1000	1010	101	1000	100	P
Strontium				2500	2440	98	2440	98	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	500	100	493	99	P
Antimony				50	50	100	50	100	MS
Aluminum				10000	9970	100	10600	106	P
Arsenic				1000	990	99	979	98	P
Boron				2500	2450	98	2400	96	P
Barium				10000	10000	100	10100	101	P
Beryllium				250	245	98	248	99	P
Calcium				25000	25100	100	24700	99	P
Cadmium				500	504	101	502	100	P
Cobalt				2500	2480	99	2490	100	P
Chromium				500	495	99	492	98	P
Copper				1250	1210	97	1210	97	P
Iron				5000	4960	99	4990	100	P
Potassium				25000	24300	97	24900	100	P
Magnesium				25000	25400	102	25500	102	P
Manganese				750	728	97	730	97	P
Molybdenum				2500	2480	99	2460	98	P
Sodium				25000	24700	99	25400	102	P
Nickel				2000	1950	98	1940	97	P
Lead				500	501	100	500	100	P
Selenium				500	485	97	492	98	P
Tin				5000	5320	106	5360	107	P
Titanium				2500.0	2470.00	98.8	2470.00	98.8	P
Vanadium				2500	2560	102	2460	98	P
Zinc				1000	978	98	974	97	P
Strontium				2500	2330	93	2410	96	P

Comments:

ALS Environmental

METALS
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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	494	99			P
Aluminum				10000	10800	108			P
Arsenic				1000	976	98			P
Boron				2500	2400	96			P
Barium				10000	10200	102			P
Beryllium				250	250	100			P
Calcium				25000	24600	98			P
Cadmium				500	506	101			P
Cobalt				2500	2510	100			P
Chromium				500	495	99			P
Copper				1250	1220	98			P
Iron				5000	5060	101			P
Potassium				25000	24600	98			P
Magnesium				25000	25800	103			P
Manganese				750	736	98			P
Molybdenum				2500	2480	99			P
Sodium				25000	24600	98			P
Nickel				2000	1960	98			P
Lead				500	501	100			P
Selenium				500	497	99			P
Tin				5000	5420	108			P
Titanium				2500.0	2490.00	99.6			P
Vanadium				2500	2440	98			P
Zinc				1000	982	98			P
Strontium				2500	2340	94			P

Comments:

ALS Environmental

METALS
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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver	500	518	104	500	516	103	510	102	P
Aluminum	10000	9730	97	10000	9630	96	9770	98	P
Arsenic	1000	959	96	1000	936	94	959	96	P
Boron	2500	2520	101	2500	2460	98	2390	96	P
Beryllium	50	53	106	50	54	108	48	96	MS
Barium	10000	10200	102	10000	10200	102	10100	101	P
Calcium	25000	26400	106	25000	26200	105	26900	108	P
Cadmium	500	489	98	500	489	98	482	96	P
Chromium	50	46	92	50	48	96	46	92	MS
Cobalt	50	49	98	50	50	100	49	98	MS
Copper	50	51	102	50	47	94	51	102	MS
Iron	5000	4990	100	5000	5000	100	4910	98	P
Potassium	25000	24500	98	25000	24700	99	24500	98	P
Magnesium	25000	24700	99	25000	24700	99	24400	98	P
Manganese	750	757	101	750	754	101	751	100	P
Mercury	3.00	3.04	101	3.00	3.07	102	3.09	103	CV
Molybdenum	2500	2420	97	2500	2400	96	2360	94	P
Sodium	25000	24600	98	25000	24400	98	24500	98	P
Nickel	2000	2030	102	2000	2020	101	2000	100	P
Lead	500	488	98	500	488	98	481	96	P
Antimony	5000	4900	98	5000	4900	98	4790	96	P
Selenium	500	487	97	500	486	97	472	94	P
Tin	5000	4660	93	5000	4650	93	4570	91	P
Titanium	2500.0	2520.00	100.8	2500.0	2520.00	100.8	2480.00	99.2	P
Thallium	1000	963	96	1000	959	96	939	94	P
Vanadium	2500	2510	100	2500	2490	100	2470	99	P
Zinc	1000	1010	101	1000	1010	101	998	100	P
Strontium	2500	2410	96	2500	2400	96	2370	95	P
Uranium	50	47	94	50	47	94	47	94	MS

Comments:

ALS Environmental

METALS
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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	513	103	517	103	P
Aluminum				10000	9720	97	9640	96	P
Arsenic				1000	956	96	949	95	P
Boron				2500	2420	97	2440	98	P
Beryllium				50	53	106	51	102	MS
Barium				10000	10100	101	10100	101	P
Calcium				25000	26600	106	26000	104	P
Cadmium				500	483	97	489	98	P
Chromium				50	47	94	47	94	MS
Cobalt				50	51	102	49	98	MS
Copper				50	50	100	50	100	MS
Iron				5000	4910	98	4960	99	P
Potassium				25000	24900	100	24700	99	P
Magnesium				25000	24400	98	24600	98	P
Manganese				750	747	100	754	101	P
Mercury				3.00	3.03	101			CV
Molybdenum				2500	2370	95	2400	96	P
Sodium				25000	24100	96	24800	99	P
Nickel				2000	2000	100	2020	101	P
Lead				500	483	97	484	97	P
Antimony				5000	4830	97	4840	97	P
Selenium				500	470	94	474	95	P
Tin				5000	4600	92	4610	92	P
Titanium				2500.0	2500.00	100.0	2490.00	99.6	P
Thallium				1000	939	94	946	95	P
Vanadium				2500	2500	100	2510	100	P
Zinc				1000	1000	100	1010	101	P
Strontium				2500	2360	94	2410	96	P
Uranium				50	47.80	95.6	48	96	MS

Comments:

ALS Environmental

METALS
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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	514	103	515	103	P
Boron				2500	2490	100	2420	97	P
Beryllium				50	51	102	53	106	MS
Barium				10000	10100	101	10100	101	P
Cadmium				500	489	98	488	98	P
Chromium				50	47	94	50	100	MS
Cobalt				50	49	98	52	104	MS
Copper				50	51	102	50	100	MS
Iron				5000	4980	100	4970	99	P
Potassium				25000	25000	100	25200	101	P
Magnesium				25000	24700	99	24700	99	P
Manganese				750	755	101	753	100	P
Molybdenum				2500	2390	96	2380	95	P
Sodium				25000	25000	100	24600	98	P
Nickel				2000	2020	101	2020	101	P
Lead				500	486	97	487	97	P
Antimony				5000	4800	96	4810	96	P
Selenium				500	477	95	478	96	P
Tin				5000	4670	93	4650	93	P
Titanium				2500.0	2480.00	99.2	2500.00	100.0	P
Thallium				1000	950	95	953	95	P
Vanadium				2500	2480	99	2460	98	P
Zinc				1000	1010	101	1010	101	P
Strontium				2500	2430	97	2420	97	P
Uranium				50.0	47	94	46.60	93.2	MS

Comments:

METALS
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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	503	101	513	103	P
Boron				2500	2350	94	2400	96	P
Barium				10000	9980	100	10000	100	P
Cadmium				500	473	95	484	97	P
Iron				5000	4840	97	4950	99	P
Potassium				25000	24900	100	24800	99	P
Magnesium				25000	24000	96	24600	98	P
Manganese				750	733	98	747	100	P
Molybdenum				2500	2320	93	2360	94	P
Sodium				25000	24500	98	24700	99	P
Nickel				2000	1960	98	2000	100	P
Lead				500	477	95	477	95	P
Antimony				5000	4720	94	4710	94	P
Selenium				500	473	95	472	94	P
Tin				5000	4550	91	4560	91	P
Titanium				2500.0	2470.00	98.8	2480.00	99.2	P
Thallium				1000	934	93	934	93	P
Vanadium				2500	2400	96	2450	98	P
Zinc				1000	985	98	991	99	P
Strontium				2500	2400	96	2420	97	P
Uranium				50	46	92			MS

Comments:

ALS Environmental

METALS
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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	516	103	508	102	P
Boron				2500	2400	96	2330	93	P
Barium				10000	10000	100	9920	99	P
Cadmium				500	488	98	482	96	P
Iron				5000	4920	98	4870	97	P
Potassium				25000	25200	101	24600	98	P
Magnesium				25000	24600	98	24300	97	P
Manganese				750	748	100	739	99	P
Molybdenum				2500	2380	95	2340	94	P
Sodium				25000	24300	97	23100	92	P
Nickel				2000	2020	101	2000	100	P
Lead				500	483	97	480	96	P
Antimony				5000	4790	96	4760	95	P
Selenium				500	474	95	461	92	P
Tin				5000	4690	94	4520	90	P
Titanium				2500.0	2480.00	99.2	2440.00	97.6	P
Thallium				1000	931	93	928	93	P
Vanadium				2500	2510	100	2510	100	P
Zinc				1000	1010	101	1000	100	P
Strontium				2500	2340	94	2250	90	P

Comments:

ALS Environmental

METALS

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404507

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404507

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	506	101			P
Boron				2500	2340	94			P
Barium				10000	9940	99			P
Cadmium				500	485	97			P
Iron				5000	4890	98			P
Potassium				25000	24700	99			P
Magnesium				25000	24400	98			P
Manganese				750	741	99			P
Molybdenum				2500	2330	93			P
Sodium				25000	23600	94			P
Nickel				2000	2000	100			P
Lead				500	479	96			P
Antimony				5000	4720	94			P
Selenium				500	463	93			P
Tin				5000	4510	90			P
Titanium				2500.0	2440.00	97.6			P
Thallium				1000	922	92			P
Vanadium				2500	2490	100			P
Zinc				1000	1000	100			P
Strontium				2500	2300	92			P

Comments:

Preparation Information Benchsheet

Prep Run#: 211005
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqICP
Prep Method: EPA 3010A

Status: Prepped
Prep Date/Time: 6/17/14 01:03 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406711-01	MB		50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless, Clear		Hb8 Therm=325 Well=F3 Temp=95
2	RQ1406711-02	LCS		50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless, Clear	0.0500 mL/57174; 0.2500 mL/69693; 0.1000 mL/59992; 0.5000 mL/70002; 0.5000 mL/70003	
3	R1404444-008	SW-3	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
4	R1404444-009	SW-4	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
5	R1404444-010	MW-12A	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
6	R1404444-011	MW-12B	.05	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
7	R1404487-001	MW-8601	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
8	R1404487-002	MW-8002	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
9	R1404487-003	MW-8004	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
10	R1404487-004	MW-7833	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
11	R1404487-005	MW-8003	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
12	RQ1406711-03	R1404487-005 DUP	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
13	RQ1406711-04	R1404487-005 MS	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear	0.1000 mL/59992; 0.2500 mL/69693; 0.5000 mL/70002; 0.0500 mL/57174; 0.5000 mL/70003	
14	R1404487-006	MW-8605SH	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
15	R1404487-007	MW-8605D	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
16	R1404487-008	MW-9103SH	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
17	R1404487-009	MW-9103D	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
18	R1404487-010	UD#1	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
19	R1404487-011	UD#2	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
20	R1404487-012	POND GRAB	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		
21	R1404487-013	POND LINER LEAK DETECTION	.01	50mL	6010C/Ca T, Fe T, K T, Mg T, Mn T, Na T	<2			50.00mL	Colorless, Clear		

Preparation Information Benchsheet

Prep Run#: 211005 **Prep WorkFlow:** MetDigAqICP **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3010A **Prep Date/Time:** 6/17/14 01:03 PM

22	R1404507-001	1406111441 200-SB-7	.01	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless, Clear		III NASA
23	R1404509-001	1406110918A BW-7-211	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless, Clear		
24	R1404542-001	SW-5	.01	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		

Spiking Solutions

Name:	Selenium 1000 ug/mL Se	Inventory ID	57174	Logbook Ref:	M5280028BB	Expires On:	10/04/2014	Lot #:	123333
Name:	Strontium 1000 ug/mL Sr	Inventory ID	59992	Logbook Ref:	M5280031Q	Expires On:	01/08/2015	Lot #:	12088(
Name:	Tin 1000 ug/mL Sn	Inventory ID	69693	Logbook Ref:	M5280037P	Expires On:	10/04/2015	Lot #:	13H08
Name:	Custom LCS STD A Metals	Inventory ID	70002	Logbook Ref:	M5280037CC	Expires On:	04/17/2015	Lot #:	14D12
Name:	Custom LCS STD B Metals	Inventory ID	70003	Logbook Ref:	M5280037DD	Expires On:	10/18/2015	Lot #:	14D12

Preparation Materials

1:1 HCl Metals Grade M5280036X (63957) Hot Block Cups 50 mL Lot 1306159 (63960) Nitric Acid Metals Grade HNO3 M5280037X (69879)
Thermometer 321 (36800)

Preparation Steps

Step: Digestion
Started: 6/17/14 13:03
Finished: 6/18/14 09:21
By: MCRIBBIN
Comments

Comments:

Reviewed By: DBand Date: 6/18/14 Spike Witness: CWINKSTERN Date:

Chain of Custody

Relinquished By: MA Date: 6/18/14 950

Received By: RAO1 Date: 6/18/14 950

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211308 **Prep WorkFlow:** MetDigSICP **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3050B **Prep Date/Time:** 6/20/14 10:33 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406952-01	MB		1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	White, Coarse / Colorless, Clear		HB8 Therm=287 Well=I5 Temp=95
2	RQ1406952-02	LCS		1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	White, Coarse / Colorless, Clear	0.1000 mL/57174; 0.5000 mL/69693; 1.0000 mL/70003; 1.0000 mL/70002; 0.2000 mL/59992	
3	R1404342-001	SVP-3-4/5	.01	1.0300g	6010C/Ag T, As T, Ba T, Be T, Cd T, Cr T, Cu T, Mn T, Ni T, Pb T, Se T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
4	R1404342-003	SVP-5-3/5	.01	1.0100g	6010C/Ag T, As T, Ba T, Be T, Cd T, Cr T, Cu T, Mn T, Ni T, Pb T, Se T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
5	R1404507-006	1406111505 200-SB-7 8-10'	.01	1.0200g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		III
6	RQ1406952-03	R1404507-006 DUP	.01	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
7	RQ1406952-04	R1404507-006 MS	.01	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear	0.2000 mL/59992; 0.5000 mL/69693; 1.0000 mL/70003; 1.0000 mL/70002; 0.1000 mL/57174	
8	R1404507-007	1406111635 200-SB-7 18-21'	.02	1.0400g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
9	R1404507-008	1406120935 200-SB-7 38-40'	.02	1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
10	R1404521-001	Lot 0635040001	.01	1.0500g	6010C/Zn T	<2			100.00mL	Red, Fine / Yellow, Clear		
11	R1404589-016	1406130805 200-SB-8 8/10'	.02	1.0500g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		III

Preparation Information Benchsheet

Prep Run#: 211308 **Prep WorkFlow:** MetDigSICP **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3050B **Prep Date/Time:** 6/20/14 10:33 AM

12	R1404589-017	1406130815 200-SB-8 8/10'	.02	1.0400g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
13	R1404589-025	1406130945 200-SB-8 28/30'	.03	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
14	R1404589-026	1406131305 200-SB-8 43/45'	.03	1.0300g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
15	R1404589-027	1406141705 200-SB-6 8/10'	.03	1.0500g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
16	R1404589-028	1406151130 200-SB-5 8/10'	.03	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		
17	R1404589-029	1406151146 200-SB-5 8/10'	.03	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		

Spiking Solutions

Name:	Selenium 1000 ug/mL Se	Inventory ID	57174	Logbook Ref:	M5280028BB	Expires On:	10/04/2014	Lot #:	1233330
Name:	Strontium 1000 ug/mL Sr	Inventory ID	59992	Logbook Ref:	M5280031Q	Expires On:	01/08/2015	Lot #:	1208804
Name:	Tin 1000 ug/mL Sn	Inventory ID	69693	Logbook Ref:	M5280037P	Expires On:	10/04/2015	Lot #:	13H087
Name:	Custom LCS STD A Metals	Inventory ID	70002	Logbook Ref:	M5280037CC	Expires On:	04/17/2015	Lot #:	14D125
Name:	Custom LCS STD B Metals	Inventory ID	70003	Logbook Ref:	M5280037DD	Expires On:	10/18/2015	Lot #:	14D123

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Boiling Stones PTFE	M5280036N (67019)
Hot Block Cups	50 mL Lot 1306159 (63960)	Filter Paper	Filter Paper (55693)	Hydrogen Peroxide 30% Reagent Grade H2O2	M5280033R (69313)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Thermometer	287 (12953)		

Preparation Information Benchsheet

Prep Run#: 211308
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/20/14 10:33 AM

Preparation Steps

Step: Digestion
Started: 6/20/14 10:33
Finished: 6/20/14 15:45
By: MCRIBBIN
Comments

Comments:

Reviewed By: [illegible] Date: 6/23/14 Spike Witness: TCHRIST Date:

Chain of Custody

Relinquished By: [illegible] Date: 6/20/14 1550

Received By: RDO Date: 6/20/14 1550

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211307 **Prep WorkFlow:** MetDigSMS **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3050B **Prep Date/Time:** 6/20/14 10:25 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406950-01	MB		1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	White, Coarse / Colorless, Clear		HB8 MS-Soil Therm=287 Well=I5 Temp=95
2	RQ1406950-02	LCS		1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	White, Coarse / Colorless, Clear	0.2000 mL/71752; 0.2000 mL/71751	
3	R1404507-006	1406111505 200-SB-7 8-10'	.01	1.0400g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		III
4	RQ1406950-03	R1404507-006 DUP	.01	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
5	RQ1406950-04	R1404507-006 MS	.01	1g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear	0.2000 mL/71752; 0.2000 mL/71751	
6	R1404507-007	1406111635 200-SB-7 18-21'	.02	1.0200g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
7	R1404507-008	1406120935 200-SB-7 38-40'	.02	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
8	R1404589-016	1406130805 200-SB-8 8/10'	.02	1.0500g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		III
9	R1404589-017	1406130815 200-SB-8 8/10'	.02	1.0500g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
10	R1404589-025	1406130945 200-SB-8 28/30'	.03	1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
11	R1404589-026	1406131305 200-SB-8 43/45'	.03	1.0500g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
12	R1404589-027	1406141705 200-SB-6 8/10'	.03	1.0500g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
13	R1404589-028	1406151130 200-SB-5 8/10'	.03	1.0400g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		
14	R1404589-029	1406151146 200-SB-5 8/10'	.03	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Colorless, Clear		

Spiking Solutions

Name:	ICPMS Calibration Standard 1 (10 ug/mL	Inventory ID	71751	Logbook Ref:	M5280038J	Expires On:	08/31/2015	Lot #:	21208507
Name:	ICPMS Calibration Standard 2 (10 ug/mL	Inventory ID	71752	Logbook Ref:	M5280038J	Expires On:	05/31/2016	Lot #:	21206511

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Boiling Stones PTFE	M5280036N (67019)
Hot Block Cups	50 mL Lot 1306159 (63960)	Filter Paper	Filter Paper (55693)	Hydrogen Peroxide 30% Reagent Grade H2O2	M5280033R (69313)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Thermometer	287 (12953)		

Preparation Information Benchsheet

Prep Run#: 211307
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSMS
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/20/14 10:25 AM

Preparation Steps

Step: Digestion
Started: 6/20/14 10:25
Finished: 6/20/14 15:42
By: MCRIBBIN
Comments

Comments:

Reviewed By: [signature] Date: 6/23/14 Spike Witness: TCHRIST Date:

Chain of Custody

Relinquished By: [signature] Date: 6/20/14 1550

Received By: [signature] Date: 6/20/14 1550

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211500
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqMS
Prep Method: EPA CLP-METALS ILM05.3

Status: Prepped
Prep Date/Time: 6/24/14 09:39 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407097-01	MB		50mL	200.8/Cu T, Zn T, 6020A/Ag T, As T, Co T, Cu T, Ni T, Pb T, Sb T, Se T, Tl T, U T, V T				50.00mL	Colorless-Clear		HB #6 temp =95C Location = D4
2	RQ1407097-07	MB		50mL	200.8/Cu T, Pb T				50.00mL			
3	RQ1407097-02	LCS		50mL	200.8/Cu T, Zn T, 6020A/Ag T, As T, Co T, Cu T, Ni T, Pb T, Sb T, Se T, Tl T, U T, V T				50.00mL	Colorless-Clear	0.1000 mL/71752; 0.1000 mL/71751	
4	RQ1407097-08	LCS		50mL	200.8/Cu T, Pb T				50.00mL		0.1000 mL/71751; 0.1000 mL/71752	
5	R1404507-001	1406111441 200-SB-7	.01	50mL	6020A/Sb T, Tl T, U T				50.00mL	Colorless-Clear		TIER III
6	R1404509-001	1406110918A BW-7-211	.01	50mL	6020A/As T, Sb T, Tl T				50.00mL	Colorless-Clear		TIER III
7	R1404560-001	1406130854A 100-E-261	.01	50mL	6020A/As T, Sb T, Tl T				50.00mL	Colorless-Clear		TIER III
8	R1404563-001	OUTFALL03-0614	.01	50mL	6020A/Ag T, Co T, Cu T, Ni T, Pb T, Se T, Tl T, V T				50.00mL	Colorless-Clear		
9	RQ1407097-05	R1404563-001 DUP	.01	50mL	6020A/Ag T, Co T, Cu T, Ni T, Pb T, Se T, Tl T, V T				50.00mL	Colorless-Clear		
10	RQ1407097-06	R1404563-001 MS	.01	50mL	6020A/Ag T, Co T, Cu T, Ni T, Pb T, Se T, Tl T, V T				50.00mL	Colorless-Clear	0.1000 mL/71752; 0.1000 mL/71751	
11	R1404563-002	OUTFALL01-0614	.05	50mL	6020A/As T, Cu T, Pb T, V T	<2			50.00mL	Colorless-Clear		
12	R1404589-001	1406130726 200-SB-8	.01	50mL	6020A/Sb T, Tl T, U T				50.00mL	Colorless-Clear		TIER III
13	R1404589-006	1406141656 200-SB-6	.01	50mL	6020A/Sb T, Tl T, U T				50.00mL	Colorless-Clear		
14	R1404589-011	1406151116 200-SB-5	.01	50mL	6020A/Sb T, Tl T, U T				50.00mL	Colorless-Clear		
15	R1404611-002	M14914-3	.01	50mL	200.8/Pb T				50.00mL	Colorless-Clear		
16	R1404663-001	B316-1-P5 HYDRATION STATION	.01	50mL	200.8/Cu T, Pb T				50.00mL	Colorless-Clear		
17	RQ1407097-03	R1404663-001 DUP	.01	50mL	200.8/Cu T, Pb T				50.00mL	Colorless-Clear		
18	RQ1407097-04	R1404663-001 MS	.01	50mL	200.8/Cu T, Pb T				50.00mL	Colorless-Clear	0.1000 mL/71751; 0.1000 mL/71752	
19	R1404663-002	B321-1-L7 HYDRATION STATION	.01	50mL	200.8/Cu T, Pb T				50.00mL	Colorless-Clear		
20	R1404671-001	MP-21	.03	50mL	6020A/As T				50.00mL	Colorless-Clear		TIER IV
21	R1404671-002	MP-43S	.03	50mL	6020A/As T				50.00mL	Colorless-Clear		
22	R1404688-004	PC	.03	50mL	200.8/Cu T, Zn T				50.00mL	Colorless-Clear		

Spiking Solutions

Name:	ICPMS Calibration Standard 1 (10 ug/mL	Inventory ID	71751	Logbook Ref:	M5280038J	Expires On:	08/31/2015	Lot #:	21208507
Name:	ICPMS Calibration Standard 2 (10 ug/mL	Inventory ID	71752	Logbook Ref:	M5280038J	Expires On:	05/31/2016	Lot #:	21206511

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Hot Block Cups	50 mL Lot 1306159 (63960)
Thermometer	329 (42023)				

Preparation Information Benchsheet

Prep Run#: 211500
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqMS
Prep Method: EPA CLP-METALS ILM05.3

Status: Prepped
Prep Date/Time: 6/24/14 09:39 AM

Preparation Steps

Step: Digestion
Started: 6/24/14 09:39
Finished: 6/24/14 18:56
By: CWINKSTERN
Comments

Comments:

Reviewed By: Tracy Christ Date: 6/25/14 Spike Witness: DBOND Date:

Chain of Custody

Relinquished By: Date: 6/24/14
Received By: Date:

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211173 **Prep WorkFlow:** HgDigS **Status:** Prepped
Team: Metals/CWINKSTERN **Prep Method:** Method **Prep Date/Time:** 6/18/14 08:15 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406836-01	MB		0.6g	7471B/Hg				100.00mL	White-Coarse		HB #3 temp =95C/95C Location = A5
2	RQ1406836-05	MB		0.6g	7471B/Hg				100.00mL			
3	RQ1406836-02	LCS		0.6g	7471B/Hg				100.00mL	White-Coarse	1.0000 mL/71746	
4	RQ1406836-06	LCS		0.6g	7471B/Hg				100.00mL		1.0000 mL/71746	
5	R1404329-001	Centrifuge Sludge	.02	0.6400g	7471B/Hg				100.00mL	Brown-Coarse		
6	R1404342-001	SVP-3-4/5	.01	0.6500g	7471B/Hg				100.00mL	Brown-Fine		
7	R1404342-003	SVP-5-3/5	.01	0.6500g	7471B/Hg				100.00mL	Brown-Fine		
8	R1404393-001	14RC104698	.01	0.6200g	7471B/Hg				100.00mL	Yellow-Clear		
9	R1404393-003	14RC119823	.01	0.6000g	7471B/Hg				100.00mL	Yellow-Clear		
10	R1404393-007	14RC156057	.01	0.6400g	7471B/Hg				100.00mL	Red-Clear		
11	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	0.6500g	7471B/Hg				100.00mL	Brown-Medium		TIER III
12	R1404421-009	1406091615 200-SB-21	.01	0.6g	7471B/Hg				100.00mL	Brown-Coarse		
13	R1404421-010	1406091750 200-SB-21	.01	0.6500g	7471B/Hg				100.00mL	Brown-Medium		
14	R1404507-006	1406111505 200-SB-7 8-10'	.01	0.6g	7471B/Hg				100.00mL	Brown-Medium		TIER III
15	RQ1406836-03	R1404507-006 DUP	.01	0.6400g	7471B/Hg				100.00mL	Brown-Medium		
16	RQ1406836-04	R1404507-006 MS	.01	0.6000g	7471B/Hg				100.00mL	Brown-Medium	1.0000 mL/71746	
17	R1404507-007	1406111635 200-SB-7 18-21'	.02	0.6200g	7471B/Hg				100.00mL	Brown-Medium		
18	R1404507-008	1406120935 200-SB-7 38-40'	.02	0.6000g	7471B/Hg				100.00mL	Brown-Fine		

Spiking Solutions

Name: Mercury LCSW Metals Hg Inventory ID 71746 Logbook Ref: M681007D Expires On: 06/19/2014

Preparation Materials

Boiling Stones PTFE	M5280036N (67019)	Hot Block Cups	125 mL 1308077 (65844)	Hydrochloric Acid (HCl) Metals Grade	M5280038D (70868)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Hydroxylamine Hydrochloride Reagent Grade	M5280034Z (65271)	Potassium Permanganate RG KMnO4	M5280037K (69039)
Sodium Chloride Reagent Grade NaCl	WC126052C (61711)	Stannous Chloride SnCl2	M5280033p (63338)	Thermometer	294 (12954)

Preparation Steps

Step: Digestion
Started: 6/18/14 20:15
Finished: 6/18/14 20:45
By: CWINKSTERN
Comments

Preparation Information Benchsheet

Prep Run#: 211173
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/18/14 08:15 PM

Comments: _____

Reviewed By: Tracy Christ Date: 6/20/14

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211149
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigAq
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/18/14 06:00 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406825-01	MB		25mL	245.1/Hg D, 7470A/Hg T				25.00mL	Colorless-Clear		HB #1 temp =95C ?95C Location = C6
2	RQ1406825-02	LCS		25mL	245.1/Hg D, 7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/71746	
3	R1404421-001	1406090817 200-SB-21	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
4	R1404507-001	1406111441 200-SB-7	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
5	R1404509-001	1406110918A BW-7-211	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
6	R1404544-001	LPS	.18	25mL	7470A/Hg T				25.00mL	Yellow-Clear		
7	R1404562-001	TBC4-0614	.17	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
8	R1404565-002	MRC-MW-100B-061214	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER IV
9	RQ1406825-03	R1404565-002 DUP	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
10	RQ1406825-04	R1404565-002 MS	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/71746	
11	R1404565-005	MRC-MW-80A-061214	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
12	R1404565-007	MRC-MW-57A-061214	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
13	R1404565-008	MRC-MW-41A-061314	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
14	R1404565-009	MRC-MW-42A-061314	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
15	R1404565-012	DUP-05-061314	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
16	R1404597-001	BR-RB-061414-B3	.07	25mL	245.1/Hg D				25.00mL	Colorless-Clear		TIER IV
17	R1404598-001	FILTER BLANK 6/17	.07	25mL	245.1/Hg D				25.00mL	Colorless-Clear		TIER IV
18	R1404598-002	BR-RW-061714-B3	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
19	R1404598-003	BR-RW-061714-B4	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
20	RQ1406825-05	R1404598-003 DUP	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
21	RQ1406825-06	R1404598-003 MS	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear	0.2500 mL/71746	
22	R1404642-001	FILTER BLANK 6/18	.07	25mL	245.1/Hg D				25.00mL	Colorless-Clear		TIER IV
23	R1404642-002	BR-RW-061814-B1	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
24	R1404642-003	BR-RW-061814-B2	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
25	R1404642-004	BR-RW-061814-B52	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		

Spiking Solutions

Name: Mercury LCSW Metals Hg Inventory ID 71746 Logbook Ref: M681007D Expires On: 06/19/2014

Preparation Materials

Hot Block Cups	50 mL Lot 1306159 (63960)	Sulfuric Acid Reagent Grade H2SO4	M5280026S (53233)	Hydrochloric Acid (HCl) Metals Grade	M5280038D (70868)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Hydroxylamine Hydrochloride Reagent Grade	M5280034Z (65271)	Sodium Chloride Reagent Grade NaCl	WC126052C (61711)
Thermometer	293 (12952)	Potassium Permanganate RG KMnO4	M5280037K (69039)	Potassium Persulfate RG K2S2O8	M5280026F (52494)
Stannous Chloride SnCl2	M5280033p (63338)				

Preparation Information Benchsheet

Prep Run#: 211149
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigAq
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/18/14 06:00 PM

Preparation Steps

Step: Digestion
Started: 6/18/14 18:00
Finished: 6/18/14 20:00
By: CWINKSTERN
Comments

Comments:

Reviewed By: Tracy Christ Date: 6/19/14

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

OPTIMA 5300DV (#4) Run Log

CJW 6/20/14 Serial number: 077N6052202

R4507

Analyst: CJW DCB Date: 6/20/14 Data File: 4Jun20A

Prep Dates: MRL 6/12/14 ICSA 6/16/14 ICSAB 6/16/14 Int.Std 6/17/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/16/14 ICV / CCV 6/20/14

HLCCV2 6/16/14

Lot #: MRL M670105A ICSA M670126B ICSAB M670146A Int.Std M670158X

Cal Std 1 M670013B Cal Std 2 M670022D Cal Std 5 / HLCCV1 M670037G ICV / CCV M670058A

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670079B

Blank Prepared Daily Lot: HNO3 M5280037X HCL M5280038D

1	1		Calib Blank 1
2	9		Calib Std 1
3	10		Calib Std 2
4	11		Calib Std 3
5	12		Calib Std 4
6	2		Calib Std 5
7	3	OC	ICV
8	1	OC	ICB
9	6	OC	MRL
10	7	OC	ICSA
11	8	OC	ICSAB
12	3	OC	CCV
13	1	OC	CCB
14	38		PBW-210891
15	39		LCSW-210891
16	40		R1404333-001 500X
17	41		R1404333-001 200X
18	42		R1404333-001 10X
19	43		R1404335-001
20	44		R1404335-007
21	45		R1404335-014
22	46		R1404335-015
23	47		R1404335-021
24	3	OC	CCV
25	1	OC	CCB
26	48		R1404335-022
27	49		R1404335-026
28	50		R1404338-001
29	51		R1404338-001D
30	52		R1404338-001S
31	53		R1404338-001A
32	54		R1404338-001L
33	55		R1404338-002
34	56		R1404338-003
35	57		R1404338-004
36	3	OC	CCV
37	1	OC	CCB
38	58		R1404413-001 20X
39	59		R1404421-001
40	60		R1404433-001 1000X
41	3	OC	CCV
42	1	OC	CCB
43	6	OC	MRL
44	7	OC	ICSA
45	8	OC	ICSAB
46	13	OC	HLCCV2
47	2	OC	HLCCV1
48	3	OC	CCV
49	1	OC	CCB
50	61		PBW-211005
51	62		LCSW-211005
52	63		R1404444-008
53	64		R1404444-009
54	65		R1404444-010
55	66		R1404444-011
56	67		R1404487-001
57	68		R1404487-002
58	69		R1404487-003
59	70		R1404487-004
60	3	OC	CCV
61	1	OC	CCB
62	71		R1404487-005
63	72		R1404487-005D
64	73		R1404487-005S
65	74		R1404487-005A
66	75		R1404487-005L
67	76		R1404487-006
68	77		R1404487-007
69	78		R1404487-008
70	79		R1404487-009
71	80		R1404487-010
72	4	OC	CCV
73	5	OC	CCB
74	81		R1404487-011
75	82		R1404487-012
76	83		R1404487-013
77	84		R1404507-001
78	85		R1404509-001
79	86		R1404542-001
80	4	OC	CCV
81	5	OC	CCB
82	6	OC	MRL
83	7	OC	ICSA
84	8	OC	ICSAB
85	4	OC	CCV
86	5	OC	CCB
87	87		PBW-211000
88	88		LCSW-211000
89	89		FBLK 6704-03
90	90		R1404433-001 10X
91	91		R1404429-045
92	92		R1404429-046
93	93		R1404429-047
94	94		R1404429-048
95	95		R1404429-049
96	96		R1404429-050
97	4	OC	CCV
98	5	OC	CCB
99	97		R1404429-051
100	98		R1404429-051S
101	99		R1404429-051SD
102	100		R1404429-051A
103	101		R1404429-051L
104	102		R1404429-052
105	4	OC	CCV
106	5	OC	CCB
107	6	OC	MRL
108	7	OC	ICSA
109	8	OC	ICSAB
110	4	OC	CCV
111	5	OC	CCB
112	103		Sample103

CJW 6/20/14

R4507

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

Analyst: DCB Date: 6/21/14 Data File: 3 Jun 21

Prep Dates: MRL 6/12/14 ICSA 6/12/14 ICSAB 6/9/14 Int.Std 6/20/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/16/14 ICV / CCV 6/21/14

HLCCV2 6/18/14

Lot #: MRL m6700105A ICSA m6700119A ICSAB m6700137A Int.Std m6700158L

Cal Std 1 m6700018B Cal Std 2 m6700022D Cal Std 5 / HLCCV1 m6700037G ICV / CCV m6700058B

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 m6700079B

Blank Prepared Daily Lot: HNO3 m5280037X HCL m5280038D

1	1		Calib Blank 1	40	60		R1404487-011 10X	79	86		R1404509-001
2	9		Calib Std 1	41	61		R1404487-012 10X	80	87		R1404542-001
3	10		Calib Std 2	42	62		R1404487-012 5X	81	4	QC	CCV
4	11		Calib Std 3	43	63		R1404487-013 10X	82	5	QC	CCB
5	12		Calib Std 4	44	3	QC	CCV	83	6	QC	MRL
6	2		Calib Std 5	45	1	QC	CCB	84	7	QC	ICSA
7	3	QC	ICV	46	6	QC	MRL	85	8	QC	ICSAB
8	1	QC	ICB	47	7	QC	ICSA	86	4	QC	CCV
9	6	QC	MRL	48	8	QC	ICSAB	87	5	QC	CCB
10	7	QC	ICSA	49	13	QC	HLCCV2	88	88		PBW-210891
11	8	QC	ICSAB	50	2	QC	HLCCV1	89	89		LCSW-210891
12	3	QC	CCV	51	3	QC	CCV	90	90		R1404335-001
13	1	QC	CCB	52	1	QC	CCB	91	91		R1404335-007
14	38		PBW-210899	53	64		R1404444-008	92	92		R1404335-014
15	39		LCSW-210899	54	65		R1404444-009	93	93		R1404335-015
16	40		R1404353-009 10X	55	66		R1404444-010	94	94		R1404335-021
17	41		R1404353-010 10X	56	67		R1404444-011	95	95		R1404335-022
18	42		R1404343-010L 10X	57	68		R1404487-001	96	96		R1404335-026
19	43		R1404411-001	58	69		R1404487-002	97	97		R1404338-001
20	44		R1404411-002	59	70		R1404487-003	98	4	QC	CCV 6/21/14
21	45		R1404411-003	60	71		R1404487-004	99	5	QC	CCB DR
22	46		R1404411-004	61	72		R1404487-005	100	98		R1404338-001D
23	47		R1404411-005	62	73		R1404487-005D	101	99		R1404338-001S
24	3	QC	CCV	63	3	QC	CCV	102	100		R1404338-001A
25	1	QC	CCB	64	1	QC	CCB	103	101		R1404338-001L
26	48		R1404411-005D	65	74		R1404487-005S	104	102		R1404338-002
27	49		R1404411-005S	66	75		R1404487-005A	105	103		R1404338-003
28	50		R1404411-005A	67	76		R1404487-005L	106	104		R1404338-004
29	51		R1404411-005L	68	77		R1404487-006	107	105		R1404413-001 10X
30	52		R1404411-006	69	78		R1404487-007	108	106		R1404421-001
31	53		R1404411-007	70	79		R1404487-008	109	4	QC	CCV
32	54		R1404412-004 10X	71	80		R1404487-009	110	5	QC	CCB
33	55		R1404412-004L 10X	72	81		R1404487-010	111	6	QC	MRL
34	56		PBW-211005	73	82		R1404487-011	112	7	QC	ICSA
35	57		LCSW-211005	74	83		R1404487-012	113	8	QC	ICSAB
36	3	QC	CCV	75	4	QC	CCV	114	4	QC	CCV
37	1	QC	CCB	76	5	QC	CCB	115	5	QC	CCB
38	58		R1404487-010 10X	77	84		R1404487-013	116	107		Sample107
39	59		R1404487-011 20X	78	85		R1404507-001				

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

Analyst: DCB Date: 6/23/14 Data File: 3 Jun 23

Prep Dates:

MRL 6/12/14 ICSA 6/6/14 ICSAB 6/6/14 Int.Std 6/20/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/23/14

HLCCV2 6/18/14

Lot #:

MRL M6700105A ICSA M6700126B ICSAB M6700146A Int.Std M6700158L

Cal Std 1 M6700013B Cal Std 2 M6700022D Cal Std 5 / HLCCV1 M6700037H ICV / CCV M6700058L

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M6700079B

Blank Prepared Daily Lot: HNO3 M5280037A HCL M5280038B

1	1		Calib Blank 1	36	3	QC	CCV	70	4	QC	CCV
2	9		Calib Std 1	37	1	QC	CCB	71	5	QC	CCB
3	10		Calib Std 2	38	58		R1404631-007A	72	6	QC	MRL
4	11		Calib Std 3	39	59		R1404631-007L	73	7	QC	ICSA
5	12		Calib Std 4	40	60		R1404631-009	74	8	QC	ICSAB
6	2		Calib Std 5	41	61		R1404632-001 100X	75	4	QC	CCV
7	3	QC	ICV	42	62		R1404632-001L 100X	76	5	QC	CCB
8	1	QC	ICB	43	3	QC	CCV	77	79		R1404342-001
9	6	QC	MRL	44	1	QC	CCB	78	80		R1404342-003
10	7	QC	ICSA	45	6	QC	MRL	79	81		R1404507-006
11	8	QC	ICSAB	46	7	QC	ICSA	80	82		R1404507-006D
12	3	QC	CCV	47	8	QC	ICSAB	81	83		R1404507-006S
13	1	QC	CCB	48	13	QC	HLCCV2	82	84		R1404507-006A
14	38		PBW-211196	49	2	QC	HLCCV1	83	85		R1404507-006L
15	39		LCSW-211196	50	3	QC	CCV	84	86		R1404507-007
16	40		R1404632-001	51	1	QC	CCB	85	87		R1404507-008
17	41		R1404632-001L	52	63		PBS-211308	86	88		R1404521-001
18	42		R1404632-001 10X	53	64		LCSS-211308	87	4	QC	CCV 6/23/14
19	43		R140462-001L 10X	54	65		R1404507-006 10X	88	5	QC	CCB DBrad
20	44		R1404565-002	55	66		R1404507-006D 10X	89	89		R1404589-016
21	45		R1404565-005	56	67		R1404507-006S 10X	90	90		R1404589-017
22	46		R1404565-007	57	68		R1404507-006A 10X	91	91		R1404589-025
23	47		R1404565-008	58	69		R1404507-006L 10X	92	92		R1404589-026
24	3	QC	CCV	59	70		R1404507-007 10X	93	93		R1404589-027
25	1	QC	CCB	60	71		R1404507-008 10X	94	94		R1404589-028
26	48		R1404565-009	61	72		R1404589-016 10X	95	95		R1404589-029
27	49		R1404565-012	62	4	QC	CCV	96	4	QC	CCV
28	50		R1404565-012L	63	5	QC	CCB	97	5	QC	CCB
29	51		R1404631-002	64	73		R1404589-017 10X	98	6	QC	MRL
30	52		R1404631-004	65	74		R1404589-025 10X	99	7	QC	ICSA
31	53		R1404631-005	66	75		R1404589-026 10X	100	8	QC	ICSAB
32	54		R1404631-006	67	76		R1404589-027 10X	101	4	QC	CCV
33	55		R1404631-007	68	77		R1404589-028 10X	102	5	QC	CCB
34	56		R1404631-007D	69	78		R1404589-029 10X	103	96		Sample096
35	57		R1404631-007S								

OPTIMA 5300DV (#4) Run Log

Serial number: 077N6052202

Analyst: DCB Date: 6/24/14 Data File: 4 Jun 24

Prep Dates: MRL 6/12/14 ICSA 6/6/14 ICSAB 6/6/14 Int.Std 6/24/14

Cal Std 1 6/24/14 Cal Std 2 6/24/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/24/14

HLCCV2 6/18/14

Lot #: MRL m6700105A ICSA m6700126B ICSAB m6700146A Int.Std m6700158M

Cal Std 1 m6700013C Cal Std 2 m6700022E Cal Std 5 / HLCCV1 m6700037H ICV / CCV m6700058D

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 m6700079B

Blank Prepared Daily Lot: HNO3 m5280038F HCL m5280038D

1	1		Calib Blank 1	23	47		R1404507-007
2	9		Calib Std 1	24	3		CCV
3	10		Calib Std 2	25	1		CCB
4	11		Calib Std 3	26	48		R1404507-008
5	12		Calib Std 4	27	49		R1404521-001 10X
6	2		Calib Std 5	28	50		R1404589-016
7	3		ICV	29	51		R1404589-017
8	1		ICB	30	52		R1404589-025
9	6		MRL	31	53		R1404589-026
10	7		ICSA	32	54		R1404589-027
11	8		ICSAB	33	55		R1404589-028
12	3		CCV	34	56		R1404589-029
13	1		CCB	35	3		CCV 6/24/14
14	38		PBS-211308	36	1		CCB DCB
15	39		LCSS-211308	37	6		MRL
16	40		R1404342-001	38	7		ICSA
17	41		R1404342-003	39	8		ICSAB
18	42		R1404507-006	40	13		HLCCV2
19	43		R1404507-006D	41	2		HLCCV1
20	44		R1404507-006S	42	3		CCV
21	45		R1404507-006A	43	1		CCB
22	46		R1404507-006L	44	57		Sample057

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

Analyst: DCB Date: 6/25/14 Data File: 3 Jun 25

Prep Dates: MRL 6/12/14 ICSA 6/12/14 ICSAB 6/24/14 Int.Std 6/20/14

Cal Std 1 6/24/14 Cal Std 2 6/24/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/25/14

HLCCV2 6/18/14

Lot #: MRL M6700105A ICSA M6700119A ICSAB M6700137B Int.Std M6700138L

Cal Std 1 M6700013C Cal Std 2 M6700022E Cal Std 5 / HLCCV1 M6700037H ICV / CCV M6700058E

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M6700079B

Blank Prepared Daily Lot: HNO3 M5280038F HCL M5280038D

1	1		Calib Blank 1
2	9		Calib Std 1
3	10		Calib Std 2
4	11		Calib Std 3
5	12		Calib Std 4
6	2		Calib Std 5
7	3		ICV
8	1		ICB
9	6		MRL
10	7		ICSA
11	8		ICSAB
12	3		CCV 6/25/14
13	1		CCB DRL
14	38		PBS-211308
15	39		LCSS-211308
16	40		R1404507-006 20X
17	41		R1404507-006D 20X
18	42		R1404507-006S 20X
19	43		R1404507-006A 20X
20	44		R1404507-006L 20X
21	45		R1404507-007 20X
22	46		R1404507-008 20X
23	47		R1404589-016 50X
24	3		CCV
25	1		CCB
26	48		R1404589-017 50X
27	49		R1404589-025 20X
28	50		R1404589-026 50X
29	51		R1404589-027 50X
30	52		R1404589-028 20X
31	53		R1404589-029 20X
32	3		CCV
33	1		CCB
34	6		MRL
35	7		ICSA
36	8		ICSAB
37	13		HLCCV2
38	2		HLCCV1
39	3		CCV
40	1		CCB
41	54		Sample054

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC

Date: 6/26/14

Data File: 062614 B

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066 A 6/23/14

Cal Std 2: M6510015G 6/17/14

Cal Std 3: M6510026H 6/9/14

ICV/CCV: M6510051D 6/26/14

HLCCV2: M6510081A 6/25/14

Internal Std: M6510109A 4/8/14

ICSA (6020A): n/a

ICSAB (6020A): n/a

Tuning Solution: M6510140B 4/29/14

HNO_3: MS280038F

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210970	PBW-210970
39	210970	LCSW-210970
40	210970	R1404353-001
41	210970	R1404353-002
42	210970	R1404353-002D
43	210970	R1404353-002S
44	210970	R1404353-002A
45	210970	R1404353-002L
46	210970	R1404353-003
47	210970	R1404353-007
48	210970	R1404353-009
49	210970	R1404353-010
50	210970	R1404353-011
51	210970	HLCCV2
52	210970	R1404412-004_20
53	210970	R1404412-004L_20
54	210970	R1404412-004_5
55	210970	R1404412-004L_5
56	210970	R1404412-004
57	210970	R1404412-004L
58	211500	PBW-211500
59	211500	LCSW-211500
60	211500	R1404507-001
61	211500	R1404509-001
62	211500	R1404560-001
63	211500	R1404563-001
64	211500	R1404563-001D
65	211500	R1404563-001S
66	211500	R1404563-001A
67	211500	R1404563-001L
68	211500	R1404563-002
69	211500	R1404589-001
70	211500	R1404589-006
71	211500	R1404589-011
72	211500	R1404671-001
73	211500	R1404671-002
74	211500	R1404671-002L

TC 6/26/14 9:55

TC 6/26/14

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC

Date: 7/1/14

Data File: 070114A

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066B 7/1/14

Cal Std 2: M6510015H 7/1/14

Cal Std 3: M6510026I 7/1/14

ICV/CCV: M6510051G 7/1/14

HLCCV2: M6510080P 6/19/14

Internal Std: M6510109A 4/8/14

ICSA (6020A): M6510091N 7/1/14

ICSAB (6020A): M6510103B 7/1/14

Tuning Solution: M6510014OB 4/29/14

HNO_3: M5280038F

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210334	PBS-210334_5
39	210334	LCSS-210334_5
40	210334	R1404273-005_5
41	210334	R1404273-005D_5
42	210334	R1404273-005S_5
43	210334	R1404273-005A_5
44	210334	R1404273-005L_5
45	210334	R1404273-006_5
46	210334	R1404421-008_5
47	210334	R1404421-009_5
48	210334	R1404421-010_5
9		HLCCV2 TC 7/1/14
49	211307	PBS-211307_5
50	211307	LCSS-211307_5
51	211307	R1404507-006_5
52	211307	R1404507-006D_5
53	211307	R1404507-006S_5
54	211307	R1404507-006A_5
55	211307	R1404507-006L_5
56	211307	R1404507-007_5
57	211307	R1404507-008_5
58	211307	R1404589-016_5
59	211307	R1404589-017_5
60	211307	R1404589-025_5
61	211307	R1404589-026_5
62	211307	R1404589-027_5
63	211307	R1404589-028_5
64	211307	R1404589-029_5
65	211858	PBS-211858_5
66	211858	LCSS-211858_5
67	211858	R1404622-007_5
68	211858	R1404622-008_5
69	211858	R1404622-008D_5
70	211858	R1404622-008S_5
71	211858	R1404622-008A_5
72	211858	R1404622-008L_5

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC

Date: 7/2/14

Data File: 070214B

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066B 7/1/14

Cal Std 2: M6510015J 7/1/14

Cal Std 3: M6510026B 7/1/14

TC 7/2/14

ICV/CCV: M6510051H 7/2/14

HLCCV2: M6510080P 6/19/14

Internal Std: M6510109A 4/18/14

ICSA (6020A): M6510091N 7/1/14

ICSAB (6020A): M6510010 3B 7/1/14

Tuning Solution: M6510014 0B 4/22/14

HNO_3:

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210334	PBS-210334_5
39	210334	LCSS-210334_5
40	210334	R1404421-008_5
41	210334	R1404421-009_5
42	210334	R1404421-010_5
43	210334	R1404421-010L_5
9		HLCCV2
5		CCV
1		CCB
44	211307	PBS-211307_5
45	211307	LCSS-211307_5
46	211307	R1404507-006_5
47	211307	R1404507-006D_5
48	211307	R1404507-006S_5
49	211307	R1404507-006A_5
50	211307	R1404507-006L_5
51	211307	R1404507-007_5
52	211307	R1404507-008_5
53	211307	R1404589-016_5
54	211307	R1404589-017_5
55	211307	R1404589-025_5
56	211307	R1404589-026_5
57	211307	R1404589-027_5
58	211307	R1404589-028_5
59	211307	R1404589-029_5
6		MRL
5		CCV
1		CCB
60	211858	PBS-211858_5
61	211858	LCSS-211858_5
62	211858	R1404622-007_5
63	211858	R1404622-008_5
64	211858	R1404622-008D_5
65	211858	R1404622-008S_5
66	211858	R1404622-008A_5
67	211858	R1404622-008L_5

TC 7/2/14

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: CJW

Date: 7/2/14

Data File: 070214C

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066A 6/23/14

Cal Std 2: M6510015G 6/17/14

Cal Std 3: M6510026H 6/19/14

ICV/CCV: M6510051I 7/2/14

HLCCV2: M6510081A 6/25/14 TC 7/3/14 ~~M6510080 6/18/14~~

Internal Std: M6510109A 4/8/14

ICSA (6020A): M6510091O 7/2/14

ICSAB (6020A): M6510103A 6/30/14

Tuning Solution: M6510140B 4/29/14

HNO_3: M5280038F

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	211500	PBW-211500
39	211500	LCSW-211500
40	211500	R1404507-001
41	211500	R1404507-001L
9		HLCCV2
42	212057	PBW-212057
43	212057	LCSW-212057
44	212057	R1404746-001
45	212057	R1404746-002
46	212057	R1404746-003
47	212057	R1404777-003
48	212057	R1404777-004 TC 7/3/14
49	212057	R1404794-001
50	212057	R1404794-001D
51	212057	R1404794-001S
52	212057	R1404794-001A
53	212057	R1404794-001L
54	212057	R1404865-002
55	212057	R1404897-001
56	212059	PBW-212059
57	212059	LCSW-212059
58	212059	R1404619-001
59	212059	R1404619-002
60	212059	R1404622-001
61	212059	R1404894-001
62	212059	R1404894-001D
63	212059	R1404894-001S
64	212059	R1404894-001A
65	212059	R1404894-001L
66	212059	R1404894-002

Perkin Elmer FIMS Run Log

Serial number: 101S12110203

Analyst: CJW

Data File: Jun.19S

Date Prepped: 6/18/14

Date Analyzed: 6/19/14

Lot #: Calibration/CRDL Source Standard: M5280038S

ICV/CCV/LCS/MS Source Standard: M5280030

Cal/ CRDL 10ppm stock: M6810057A

ICV/CCV/LCS/MS 10ppm stock: M6810057A

Cal/ CRDL 0.1ppm stock: M6810057D

ICV/CCV/LCS/MS 0.1 ppm stock: M6810057D

1	1		Calib Blank
2	2	✓	0.2ppb std
3	3	✓	0.5ppb std
4	4	✓	1.0ppb std
5	5	✓	2.0ppb std
6	6	✓	5.0ppb std
7	7	✓	10.0ppb std
8	8	QC	ICV
9	1	QC	ICB
10	2	QC	MRL
11	8	QC	CCV
12	1	QC	CCB 6/19/14
13	38		PBS-211173
14	39		LCSS
15	40		R1404329-001
16	41		R1404342-001
17	42		R1404342-003
18	43		R1404393-001
19	44		R1404393-003
20	45		R1404393-007
21	8	QC	CCV
22	1	QC	CCB
23	46		R1404221-008
24	47		R1404221-009
25	48		R1404221-010
26	49		R1404507-006
27	50		R1404507-006D
28	51		R1404507-006S
29	52		R1404507-007
30	53		R1404507-008
31	2	QC	MRL
32	8	QC	CCV
33	1	QC	CCB
34	54		SAMPLE

Perkin Elmer FIMS Run Log

Serial number: 101S12110203

Analyst: CJL

Data File: Jun-19W

Date Prepped: 6/18/14

Date Analyzed: 6/19/14

Lot #: Calibration/CRDL Source Standard: MS2600303

ICV/CCV/LCS/MS Source Standard: MS2600802R

Cal/ CRDL 10ppm stock: M6810577A

ICV/CCV/LCS/MS 10ppm stock: M6810077A

Cal/ CRDL 0.1ppm stock: M6810577D

ICV/CCV/LCS/MS 0.1 ppm stock: M6810077D

1	1	Calib Blank	45	63	PBW-211150
2	2	0.2ppb std	46	64	LCSW
3	3	0.5ppb std	47	65	R1404438-001
4	4	1.0ppb std	48	66	R1404438-001D
5	5	2.0ppb std	49	67	R1404438-001S
6	6	5.0ppb std	50	68	R1404438-002
7	7	10.0ppb std	51	8	CCV
8	8	ICV	52	1	CCB
9	1	ICB	53	69	R1404438-003
10	2	MRL	54	70	R1404438-004
11	8	CCV	55	71	R1404438-005
12	1	CCB	56	72	R1404438-006
13	38	PBW-211149	57	73	R1404438-007
14	39	LCSW	58	74	R1404438-008
15	40	R1404421-001	59	75	R1404438-009
16	41	R1404507-001	60	76	R1404438-010
17	42	R1404509-001	61	8	CCV
18	43	R1404544-001	62	1	CCB
19	44	R1404562-001	63	77	R1404438-011
20	45	R1404565-002	64	78	R1404438-012
21	8	CCV	65	79	R1404438-013
22	1	CCB	66	80	R1404508-004
23	46	R1404565-002D	67	81	R1404508-011
24	47	R1404565-002S	68	82	R1404508-013
25	48	R1404565-005	69	2	MRL
26	49	R1404565-007	70	8	CCV
27	50	R1404565-008	71	1	CCB
28	51	R1404565-009	72	83	R1404393-002
29	52	R1404565-012	73	84	R1404393-004
30	53	R1404597-001	74	85	R1404393-005
31	8	CCV	75	86	R1404393-006
32	1	CCB	76	2	MRL
33	54	R1404598-001	77	8	CCV
34	55	R1404598-002	78	1	CCB
35	56	R1404598-003	79	87	SAMPLE
36	57	R1404598-003D			
37	58	R1404598-003S			
38	59	R1404642-001			
39	60	R1404642-002			
40	61	R1404642-003			
41	62	R1404642-004			
42	2	MRL			
43	8	CCV			
44	1	CCB			

CJL 6/19/14

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

MP 1/29

00130

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 29 13:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.84	89	182264	1.00 ug/L	0.00
Target Compounds					Qvalue
2) Perchlorate	7.84	83	195969	0.99 ug/L	100
3) #2 perc ion	7.84	85	64118	0.96 ug/L	100

Ratio
3.06

MP 1/29

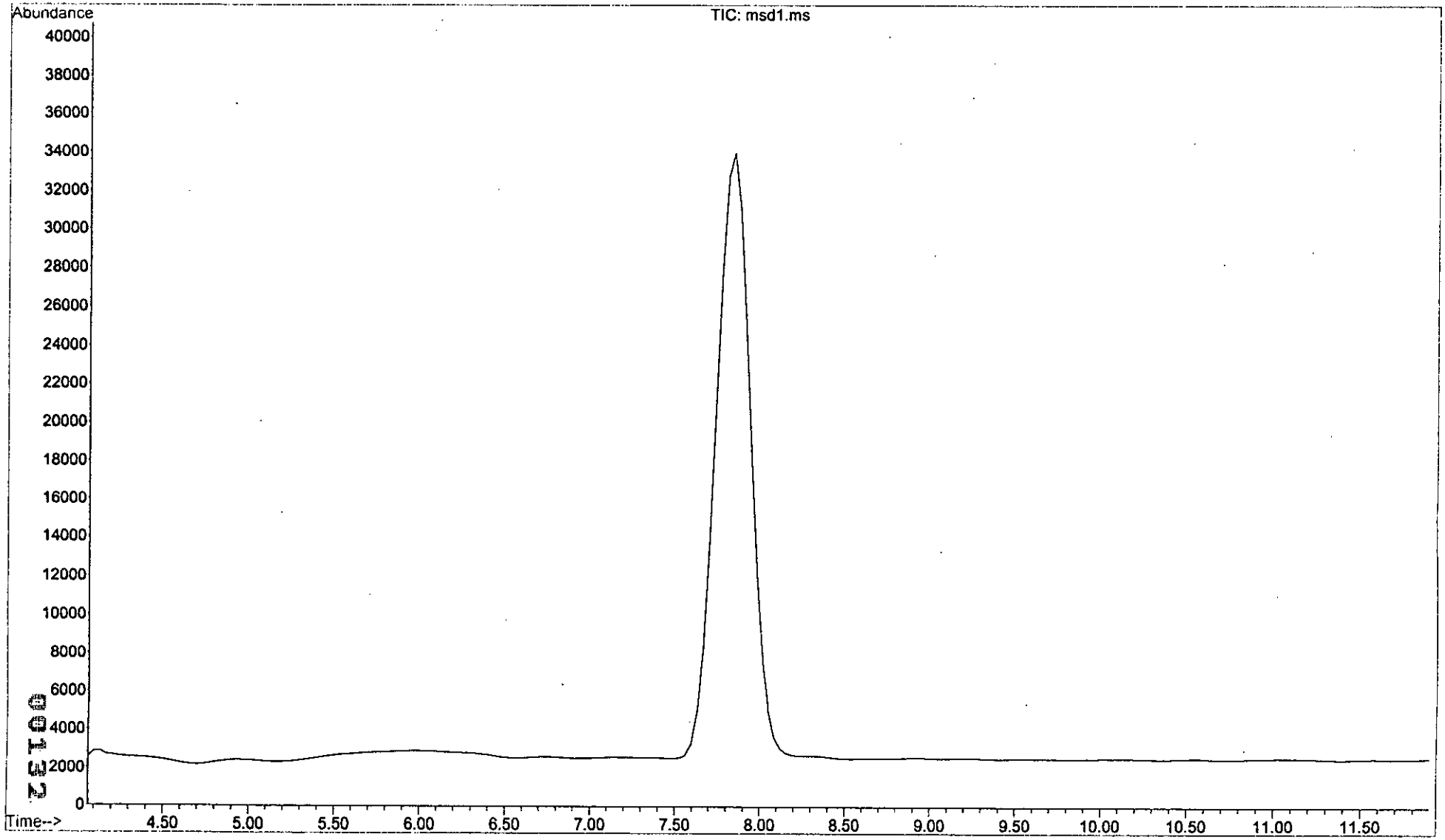
00131

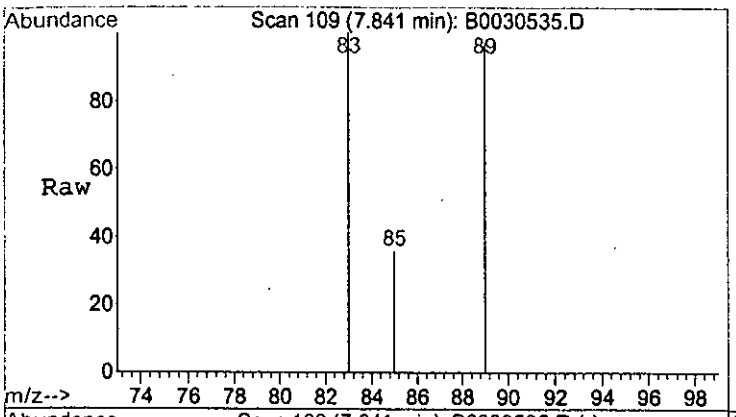
(#) = qualifier out of range (m) = manual integration
B0030535.D PERC0129.M Wed Jan 29 13:54:06 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 29 13:53 2014 Quant Results File: PERC0129.RES

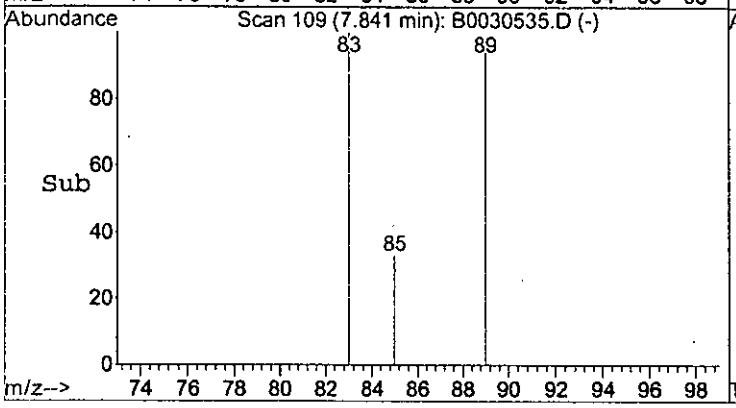
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Initial Calibration

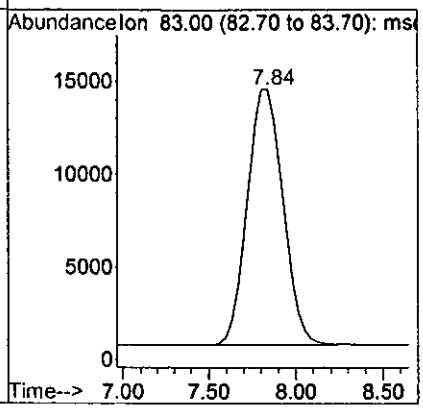


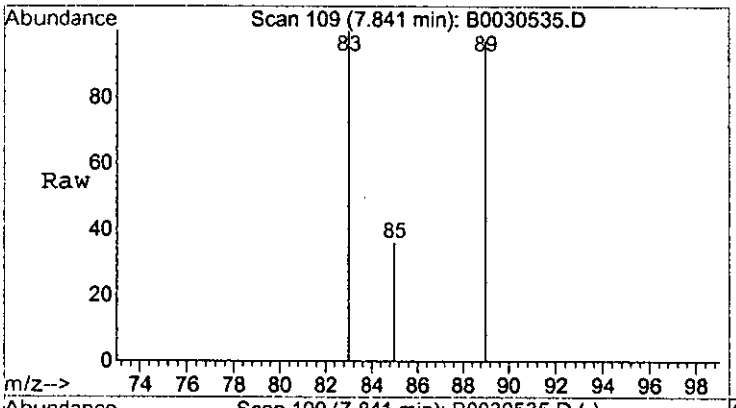


#2
Perchlorate
Concen: 0.99 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.04 min
Lab File: B0030535.D
Acq: 29 Jan 2014 10:56 am

Tgt Ion: 83 Resp: 195969

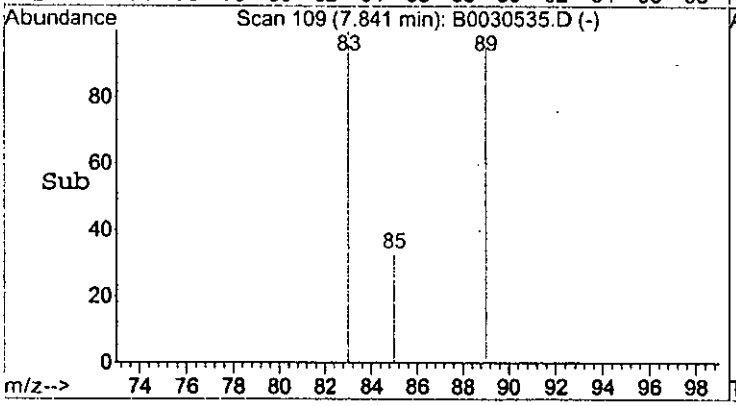


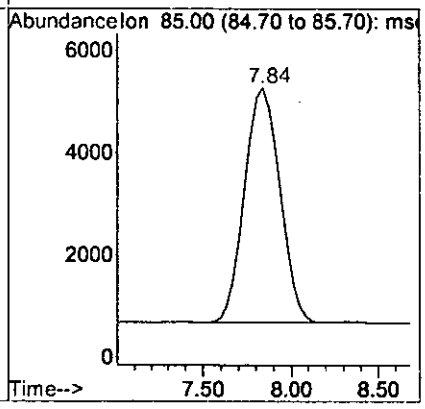




#3
#2 perc ion
Concen: 0.96 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.01 min
Lab File: B0030535.D
Acq: 29 Jan 2014 10:56 am

Tgt Ion: 85 Resp: 64118





00133

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031447.D Vial: 6
Acq On : 17 Jun 2014 5:34 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	95	0.10
2	Perchlorate	1.085	1.125	-3.7	93	0.10
3	#2 perc ion	0.366	0.342	6.6	87	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031447.D PERC0129.M Wed Jun 18 09:06:47 2014

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031447.D Vial: 6
Acq On : 17 Jun 2014 5:34 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	192056	1.00 ug/L	0.10
Target Compounds					Qvalue
2) Perchlorate	7.91	83	216010	1.04 ug/L	100
3) #2 perc ion	7.91	85	65717	0.94 ug/L	100

Ratio
3.29

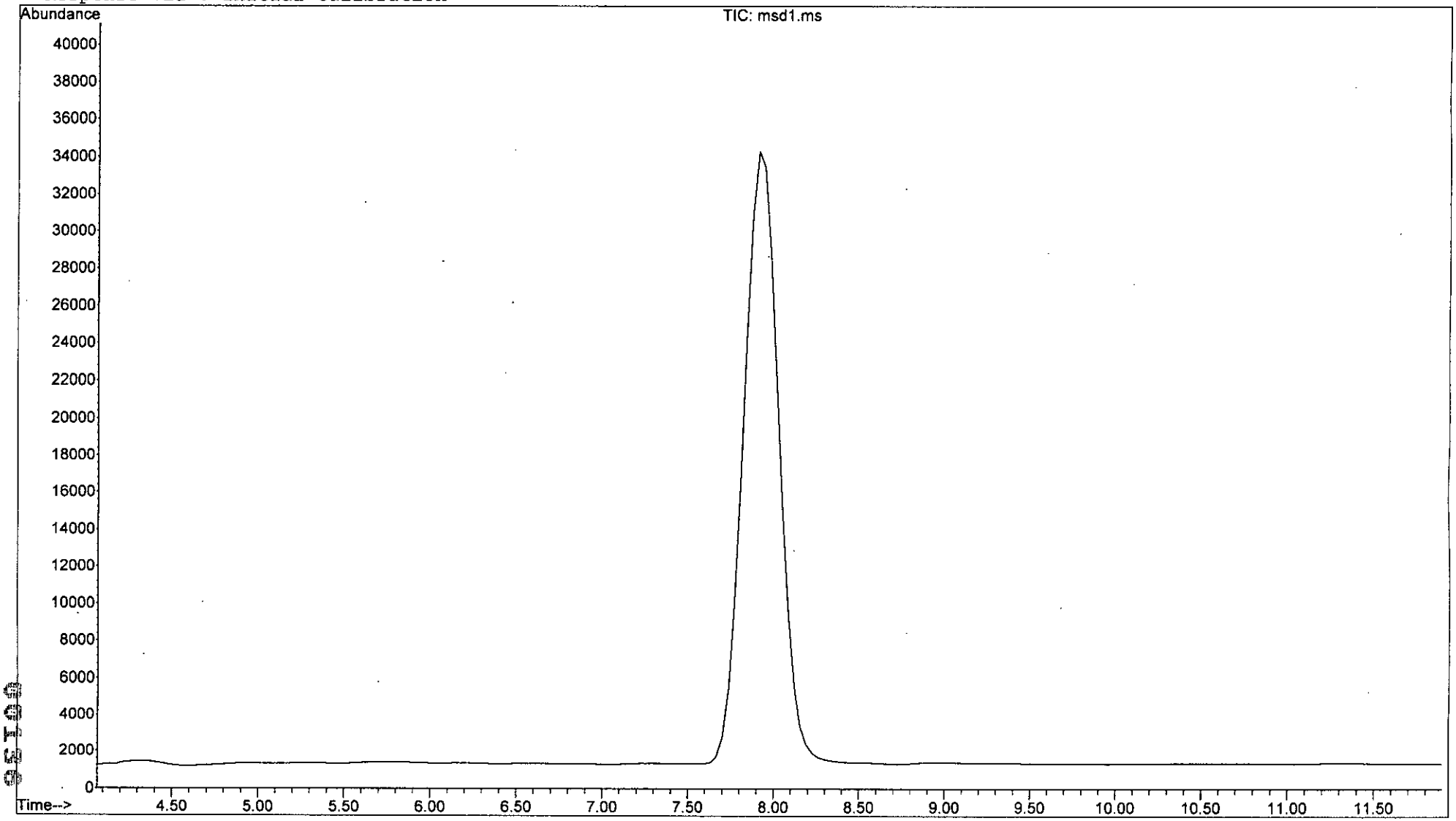
BA6/17

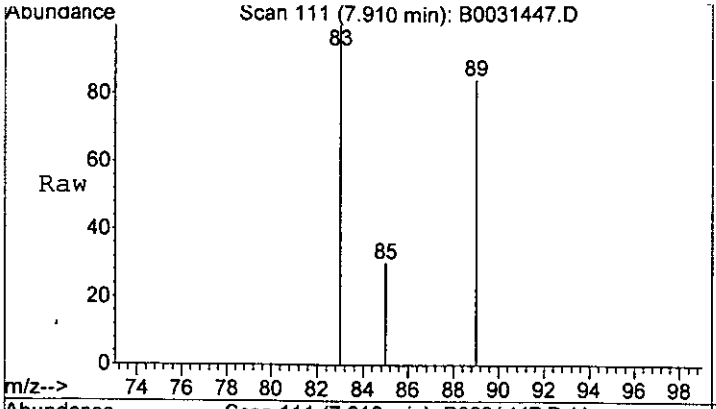
(#) = qualifier out of range (m) = manual integration
B0031447.D PERC0129.M Wed Jun 18 09:06:36 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031447.D Vial: 6
Acq On : 17 Jun 2014 5:34 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

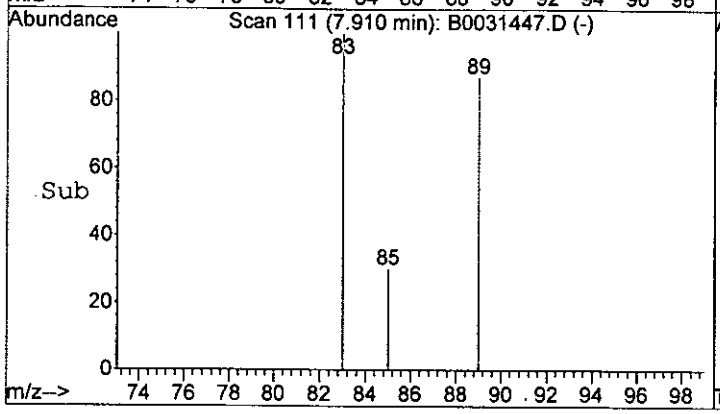
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

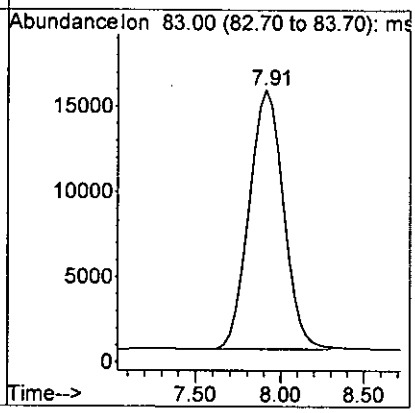


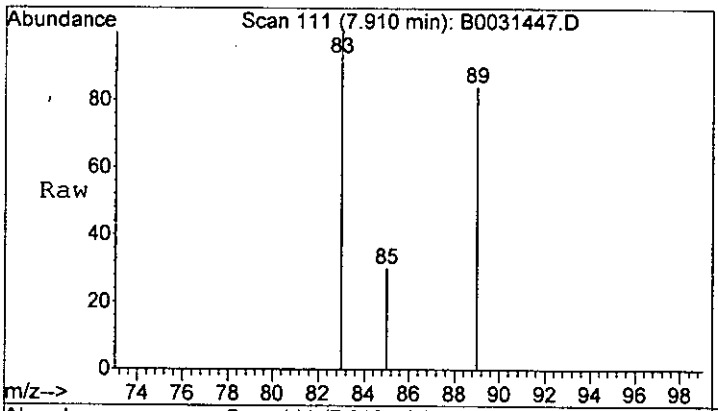


#2
Perchlorate
Concen: 1.04 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031447.D
Acq: 17 Jun 2014 5:34 pm

Tgt Ion: 83 Resp: 216010

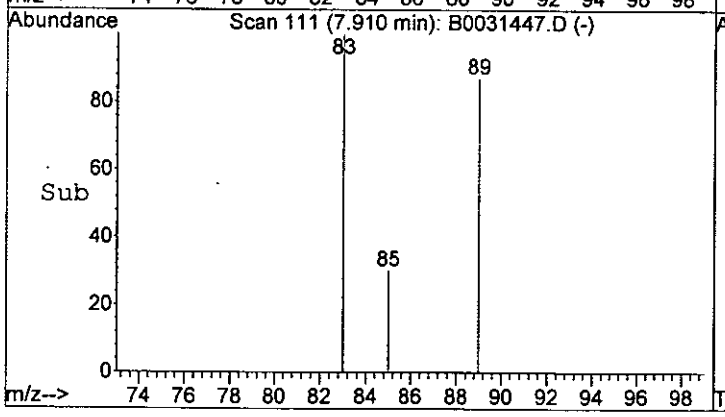


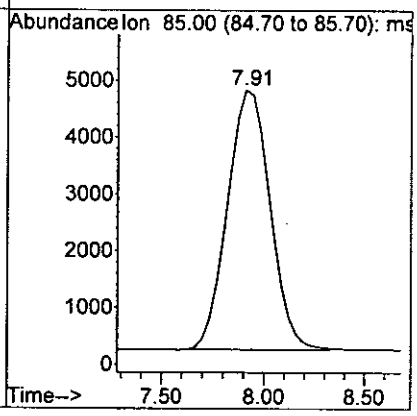




#3
#2 perc ion
Concen: 0.94 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031447.D
Acq: 17 Jun 2014 5:34 pm

Tgt Ion: 85 Resp: 65717





Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031458.D Vial: 6
Acq On : 17 Jun 2014 8:02 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	92	0.10
2	Perchlorate	1.085	1.101	-1.5	87	0.10
3	#2 perc ion	0.366	0.335	8.5	82	0.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031458.D PERC0129.M Wed Jun 18 09:18:31 2014

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031458.D Vial: 6
Acq On : 17 Jun 2014 8:02 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) O18LP	7.94	89	184216	1.00	ug/L	0.10
Target Compounds						Qvalue
2) Perchlorate	7.91	83	202898	1.02	ug/L	100
3) #2 perc ion	7.94	85	61745	0.92	ug/L	100

Ratio
3.29

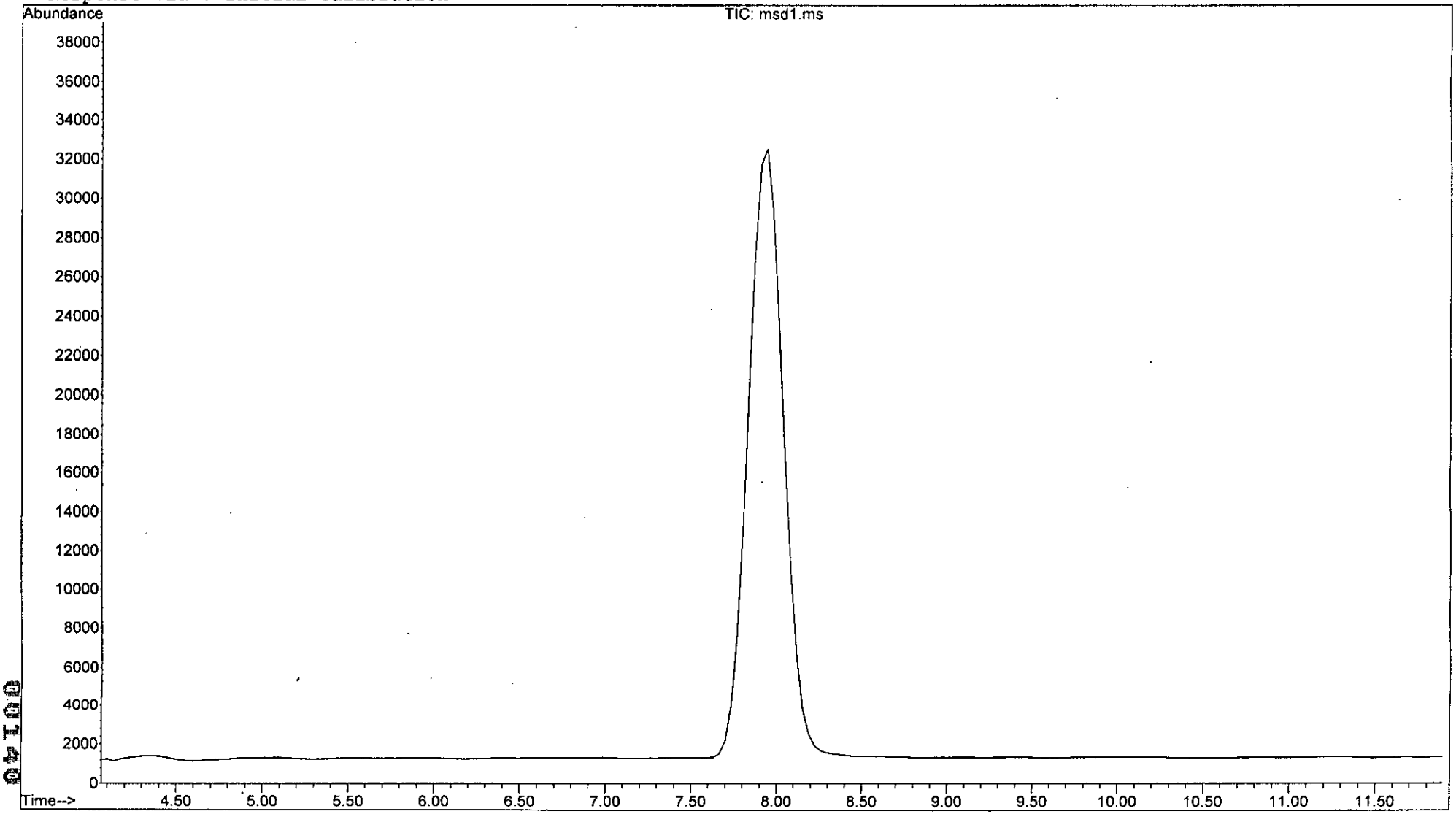
BA6/18

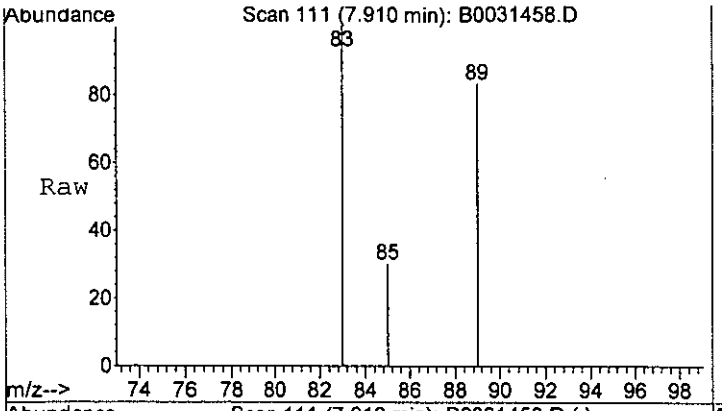
(#) = qualifier out of range (m) = manual integration
B0031458.D PERC0129.M Wed Jun 18 09:18:14 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031458.D Vial: 6
Acq On : 17 Jun 2014 8:02 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

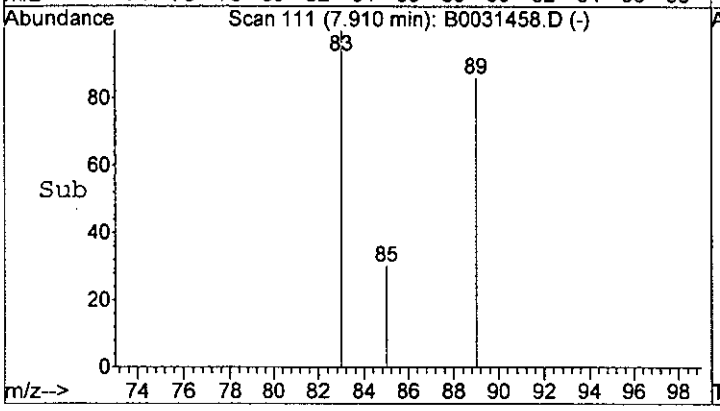
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

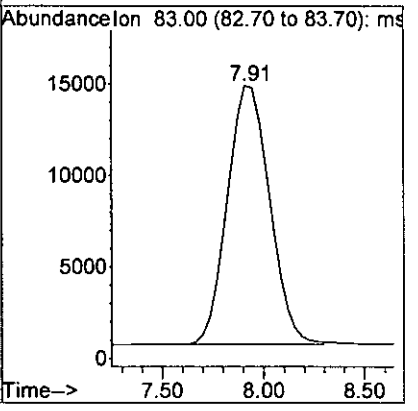


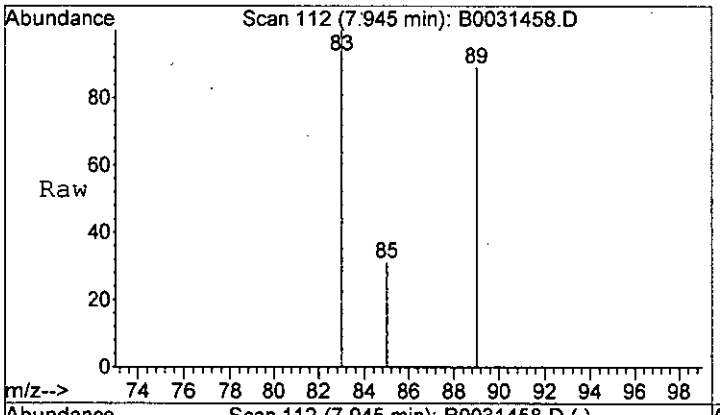


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031458.D
Acq: 17 Jun 2014 8:02 pm

Tgt Ion: 83 Resp: 202898

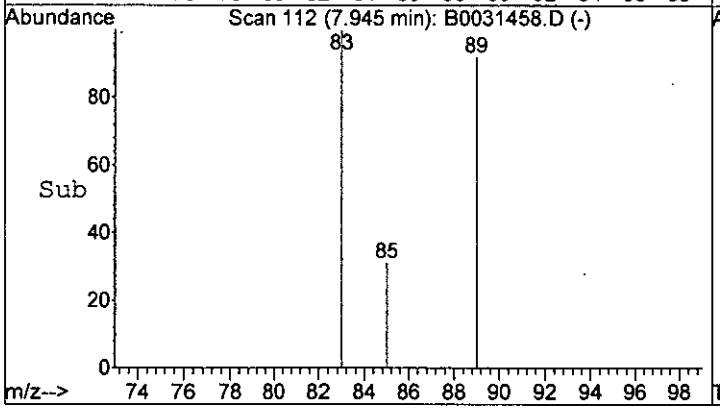


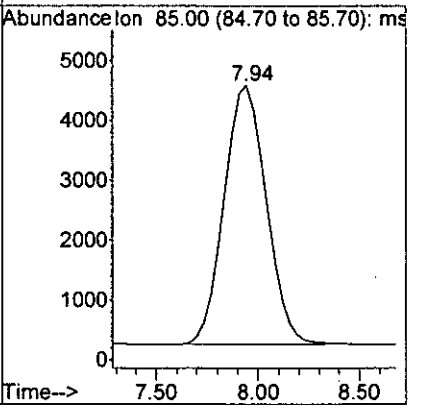




#3
#2 perc ion
Concen: 0.92 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.11 min
Lab File: B0031458.D
Acq: 17 Jun 2014 8:02 pm

Tgt Ion: 85 Resp: 61745





Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031469.D Vial: 6
Acq On : 17 Jun 2014 10:29 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	87	0.14
2	Perchlorate	1.085	1.119	-3.1	84	0.14
3	#2 perc ion	0.366	0.339	7.4	78	0.14

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031469.D PERC0129.M Wed Jun 18 09:24:26 2014

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031469.D Vial: 6
Acq On : 17 Jun 2014 10:29 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.98	89	174390	1.00 ug/L	0.14
Target Compounds					Qvalue
2) Perchlorate	7.94	83	195112	1.03 ug/L	100
3) #2 perc ion	7.98	85	59051	0.93 ug/L	100

Ratio
3.30

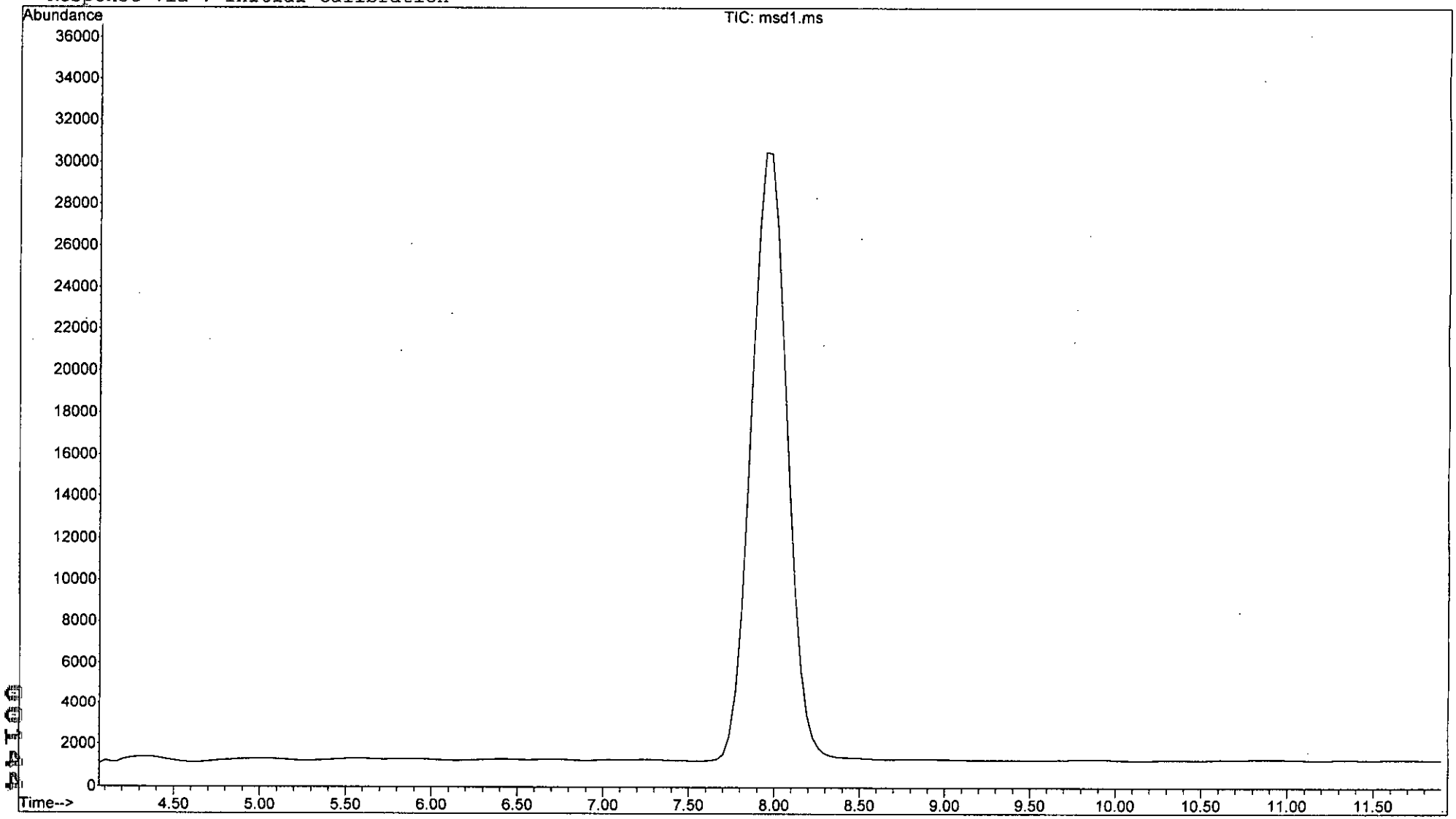
BA 6/18

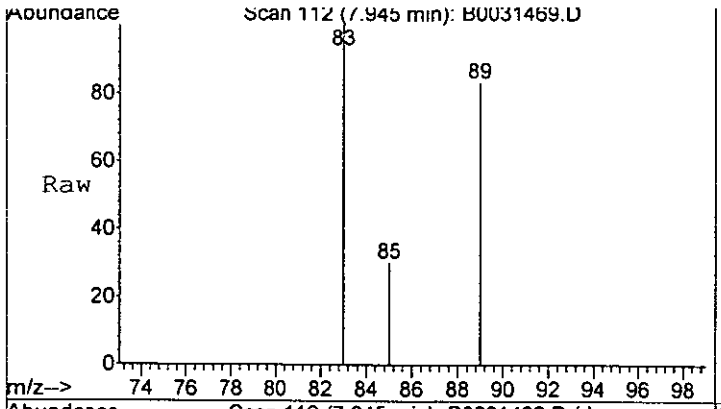
(#) = qualifier out of range (m) = manual integration
B0031469.D PERC0129.M Wed Jun 18 09:24:13 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031469.D Vial: 6
Acq On : 17 Jun 2014 10:29 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

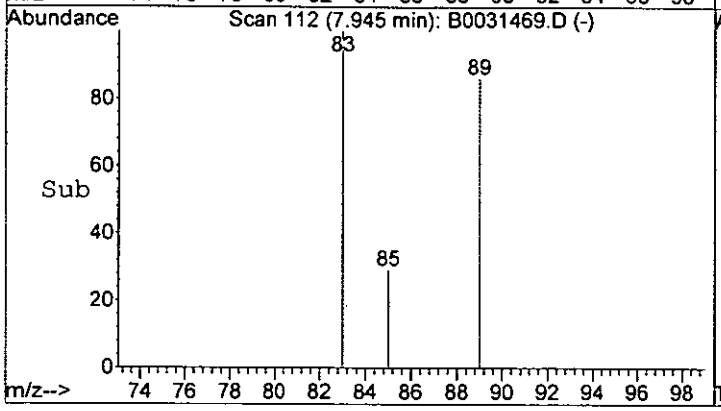
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

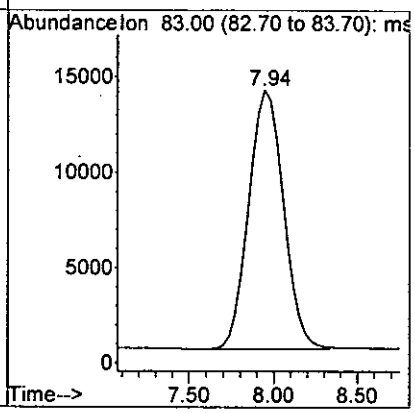


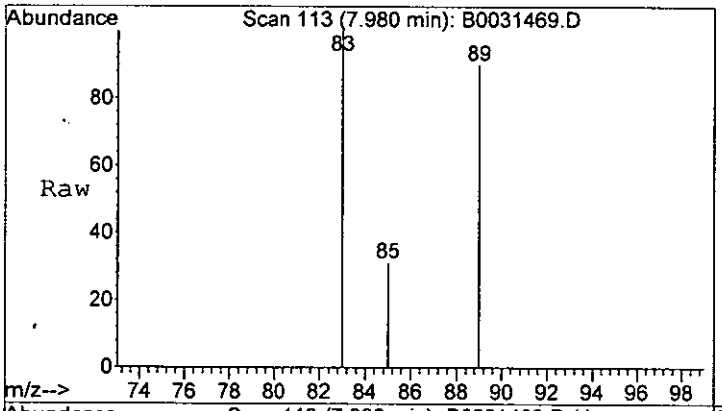


#2
Perchlorate
Concen: 1.03 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.14 min
Lab File: B0031469.D
Acq: 17 Jun 2014 10:29 pm

Tgt Ion: 83 Resp: 195112

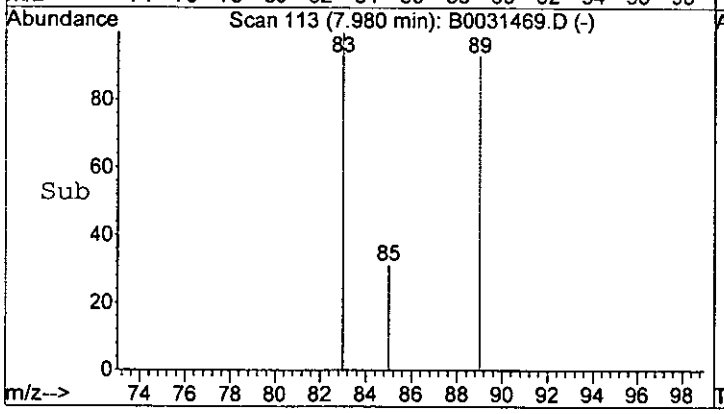


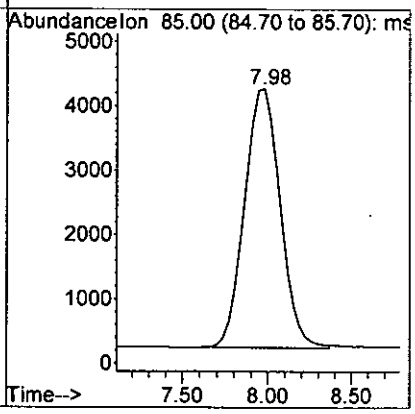




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.98 min Scan# 113
Delta R.T. 0.14 min
Lab File: B0031469.D
Acq: 17 Jun 2014 10:29 pm

Tgt Ion: 85 Resp: 59051





Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031480.D Vial: 6
Acq On : 18 Jun 2014 12:57 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	89	0.07
2	Perchlorate	1.085	1.129	-4.1	87	0.10
3	#2 perc ion	0.366	0.340	7.1	81	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031480.D PERC0129.M Wed Jun 18 09:31:37 2014

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031480.D Vial: 6
Acq On : 18 Jun 2014 12:57 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.91	89	179955	1.00 ug/L	0.07
Target Compounds					Qvalue
2) Perchlorate	7.91	83	203192	1.04 ug/L	100
3) #2 perc ion	7.91	85	61234	0.93 ug/L	100

Ratio
3.32

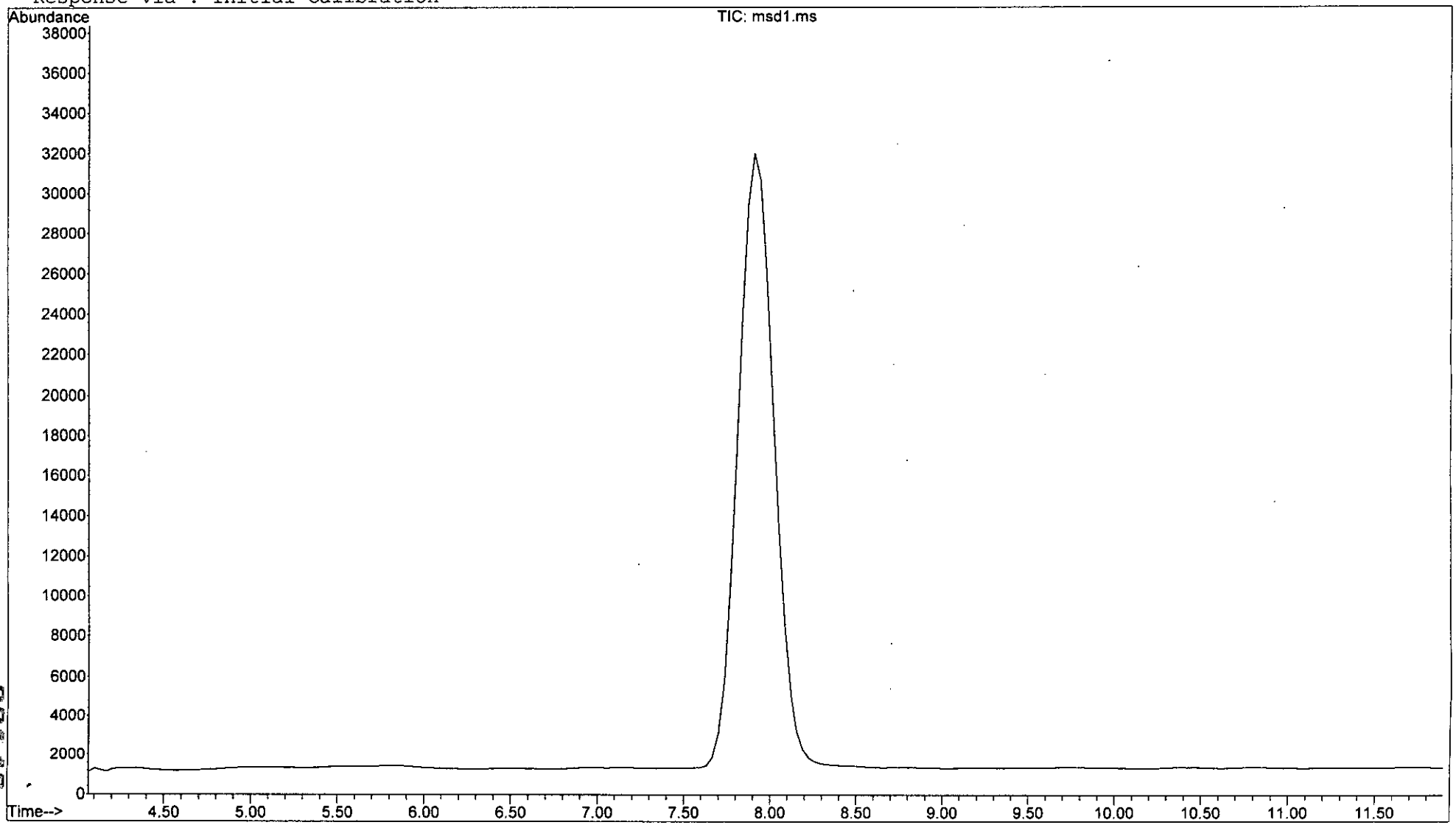
BA6/16

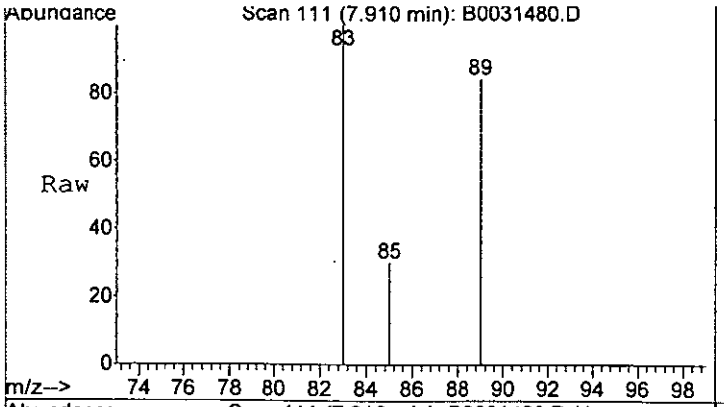
(#) = qualifier out of range (m) = manual integration
B0031480.D PERC0129.M Wed Jun 18 09:31:23 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031480.D Vial: 6
Acq On : 18 Jun 2014 12:57 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

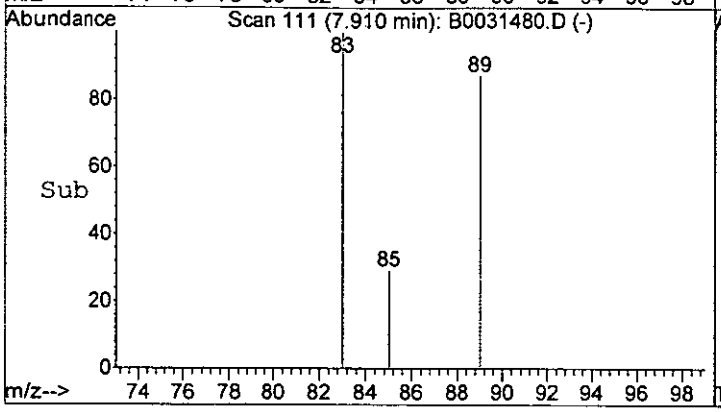
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

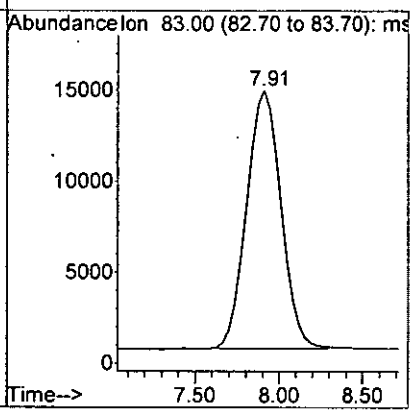


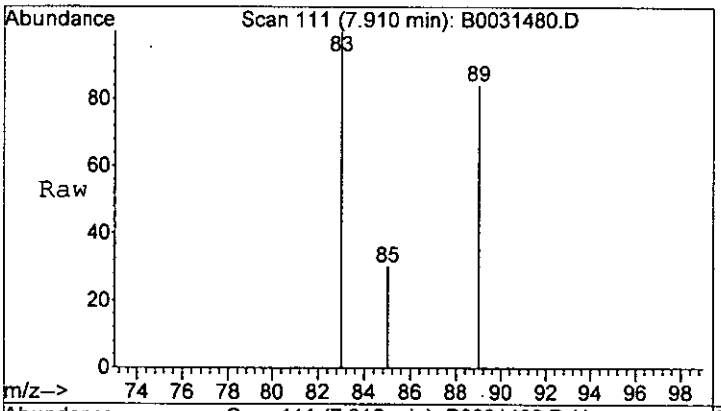


#2
Perchlorate
Concen: 1.04 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031480.D
Acq: 18 Jun 2014 12:57 am

Tgt Ion: 83 Resp: 203192

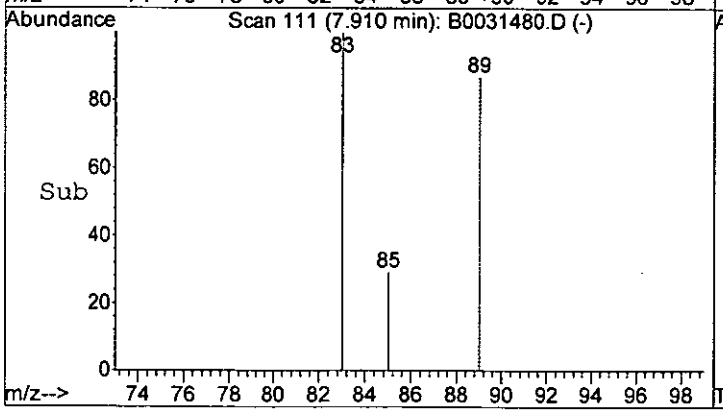


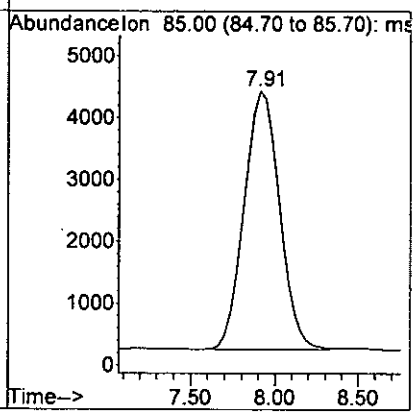




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031480.D
Acq: 18 Jun 2014 12:57 am

Tgt Ion: 85 Resp: 61234





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031492.D Vial: 6
Acq On : 18 Jun 2014 3:52 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.10
2	Perchlorate	1.085	1.104	-1.8	87	0.10
3	#2 perc ion	0.366	0.335	8.5	81	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031492.D Vial: 6
Acq On : 18 Jun 2014 3:52 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 10:30 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	182894	1.00 ug/L	0.10
Target Compounds					Qvalue
2) Perchlorate	7.91	83	201841	1.02 ug/L	100
3) #2 perc ion	7.91	85	61269	0.92 ug/L	100

Ratio
3.29

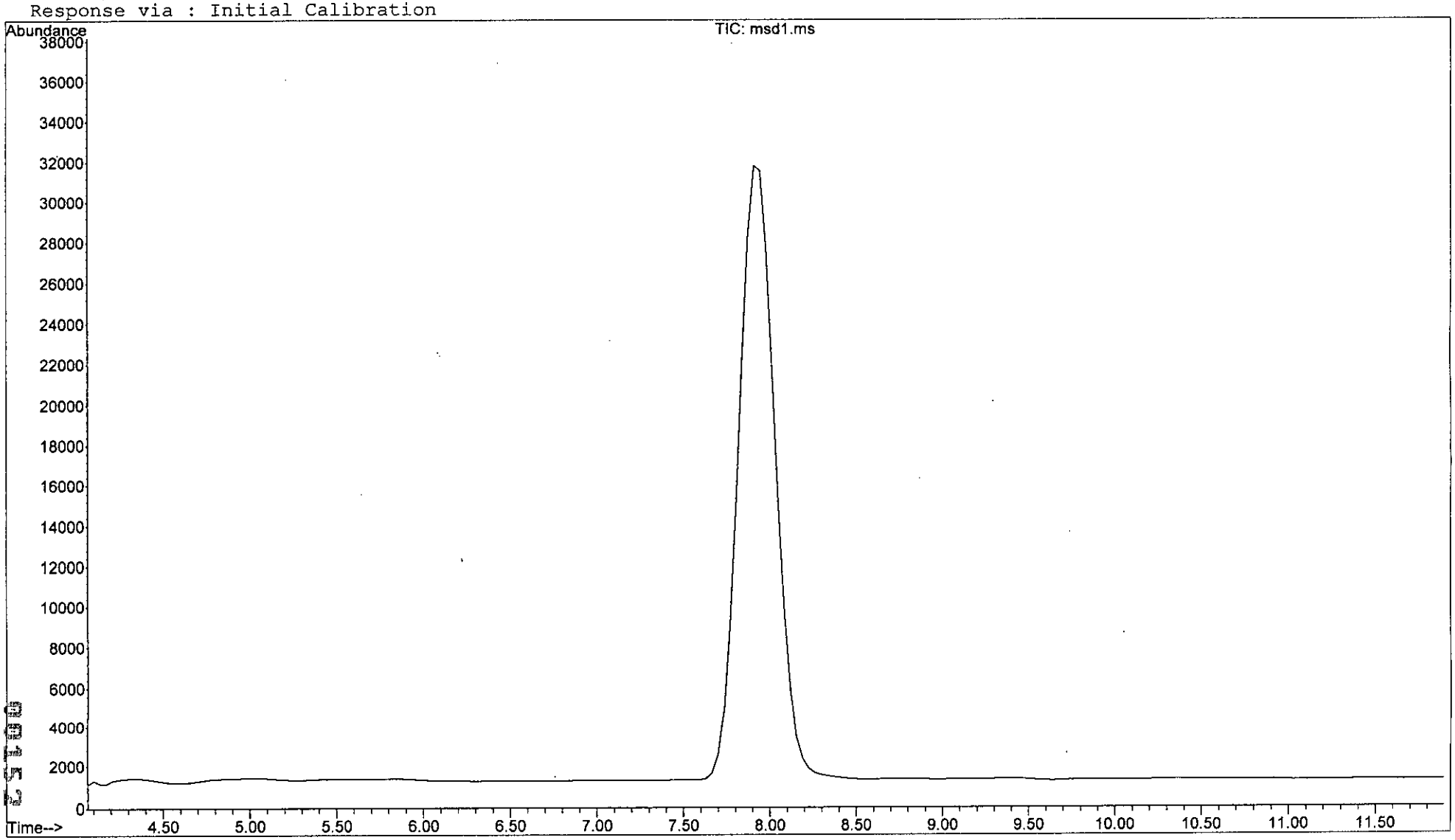
BA6/19

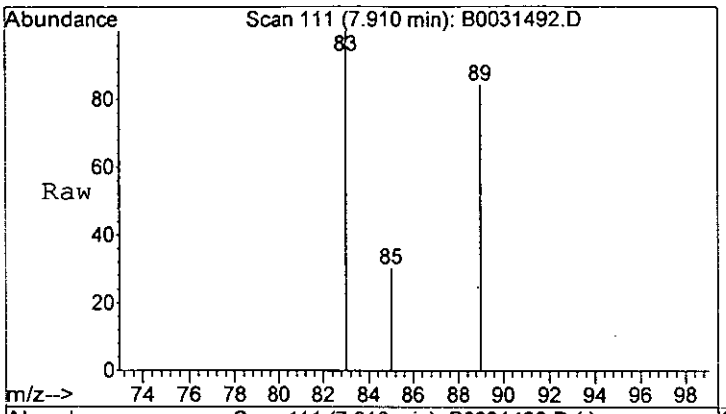
(#) = qualifier out of range (m) = manual integration
B0031492.D PERC0129.M Thu Jun 19 11:12:23 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031492.D Vial: 6
Acq On : 18 Jun 2014 3:52 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 10:30 2014 Quant Results File: PERC0129.RES

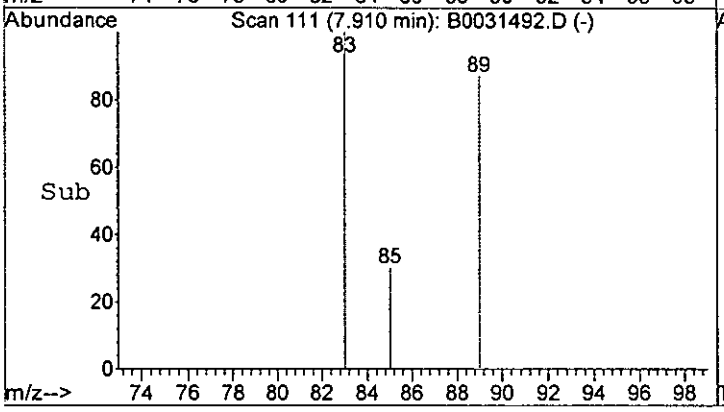
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

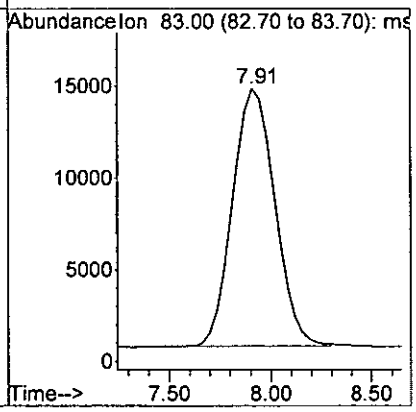


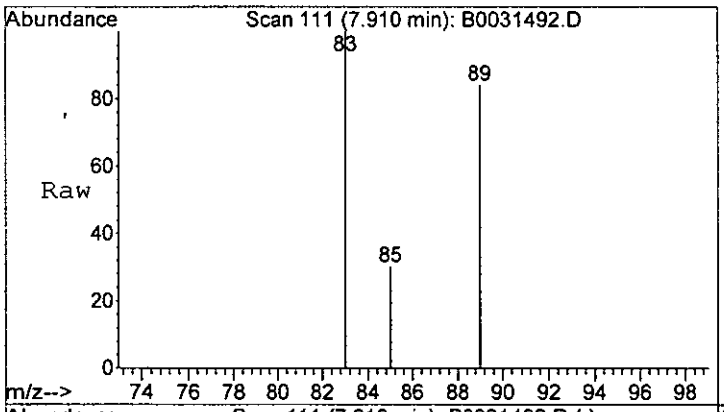


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031492.D
Acq: 18 Jun 2014 3:52 pm

Tgt Ion: 83 Resp: 201841

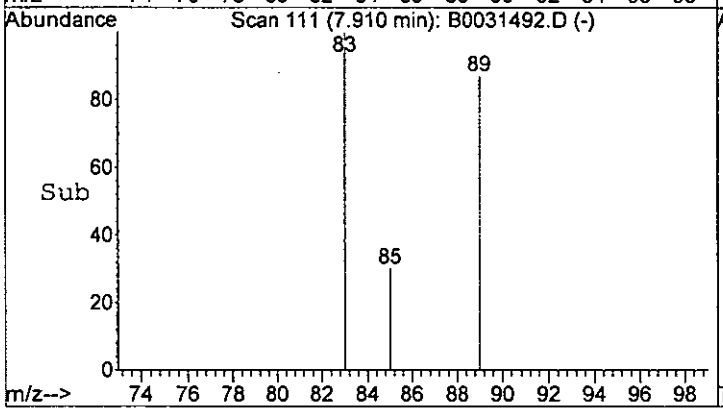


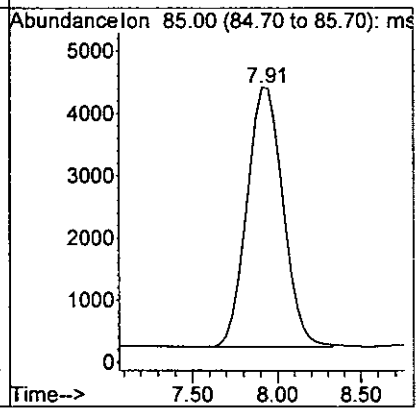




#3
#2 perc ion
Concen: 0.92 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031492.D
Acq: 18 Jun 2014 3:52 pm

Tgt Ion: 85 Resp: 61269





Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031503.D Vial: 6
Acq On : 18 Jun 2014 6:20 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	93	0.10
2	Perchlorate	1.085	1.108	-2.1	89	0.10
3	#2 perc ion	0.366	0.348	4.9	86	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031503.D PERC0129.M Thu Jun 19 12:56:36 2014

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031503.D Vial: 6
Acq On : 18 Jun 2014 6:20 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	187082	1.00 ug/L	0.10

Target Compounds					Qvalue
2) Perchlorate	7.91	83	207202	1.02 ug/L	100
3) #2 perc ion	7.91	85	65069	0.95 ug/L	100

Ratio
3.18

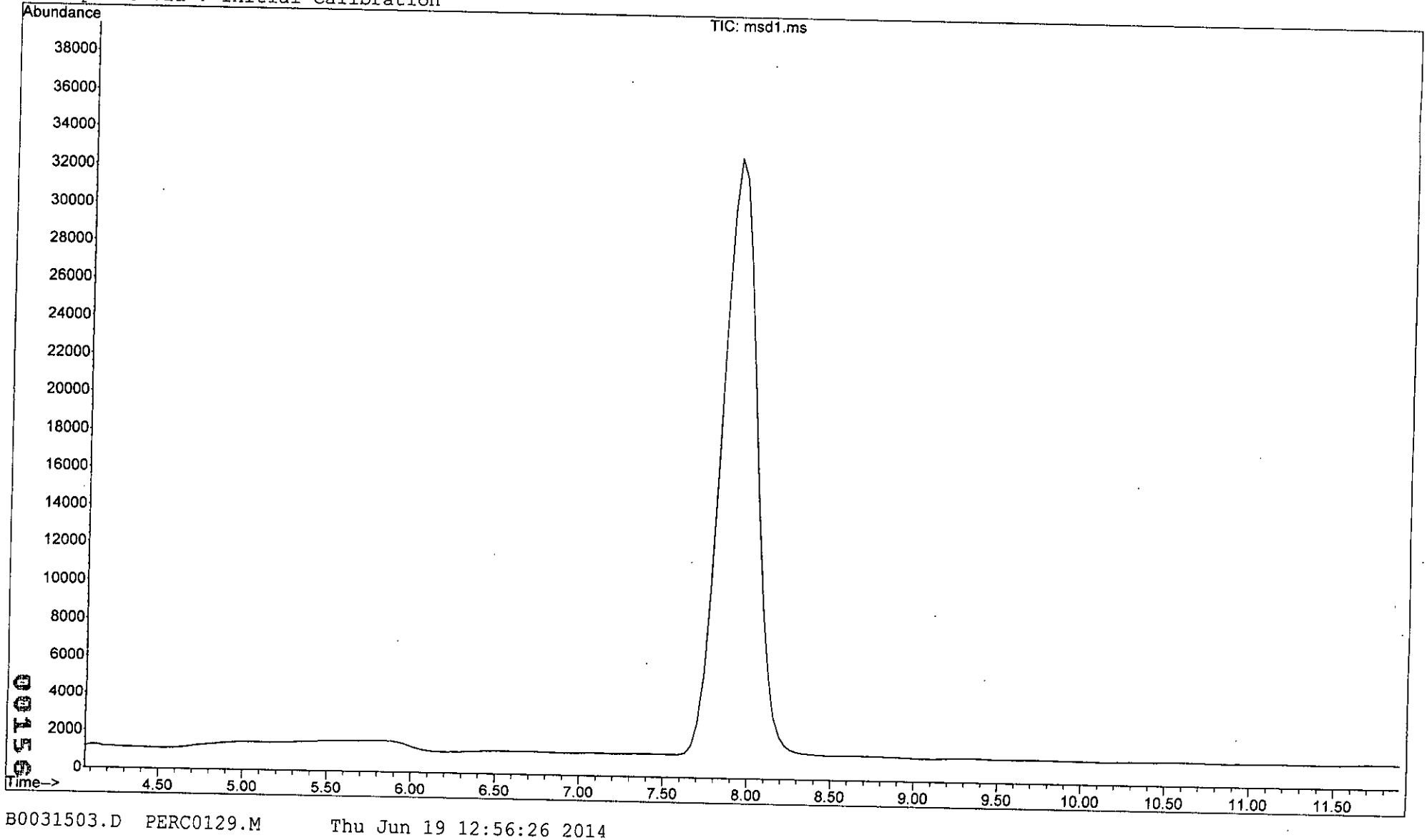
BA6/19

(#) = qualifier out of range (m) = manual integration
B0031503.D PERC0129.M Thu Jun 19 12:56:23 2014

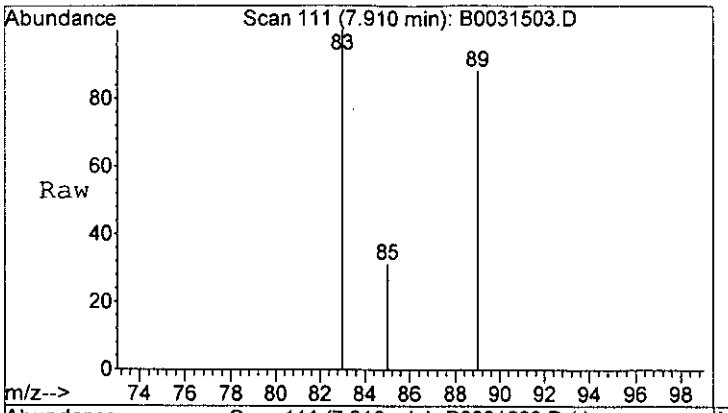
Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031503.D Vial: 6
Acq On : 18 Jun 2014 6:20 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

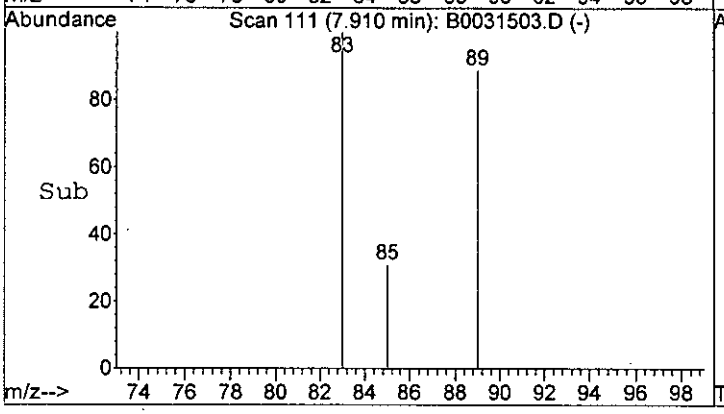


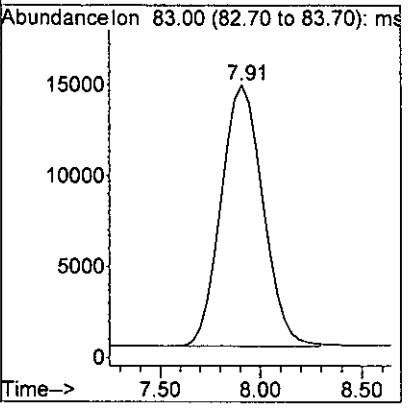
B0031503.D PERC0129.M Thu Jun 19 12:56:26 2014

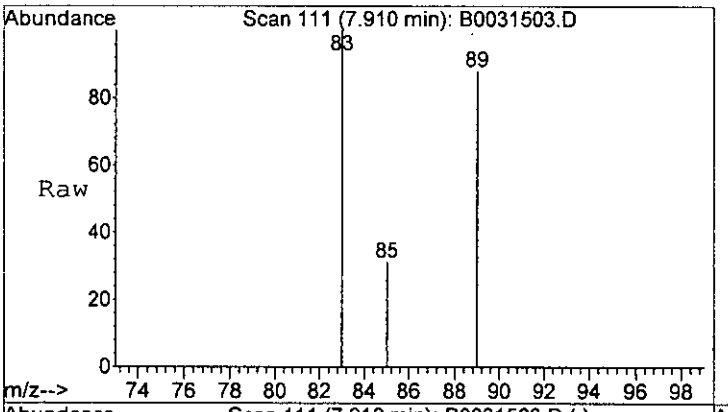


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031503.D
Acq: 18 Jun 2014 6:20 pm

Tgt Ion: 83 Resp: 207202

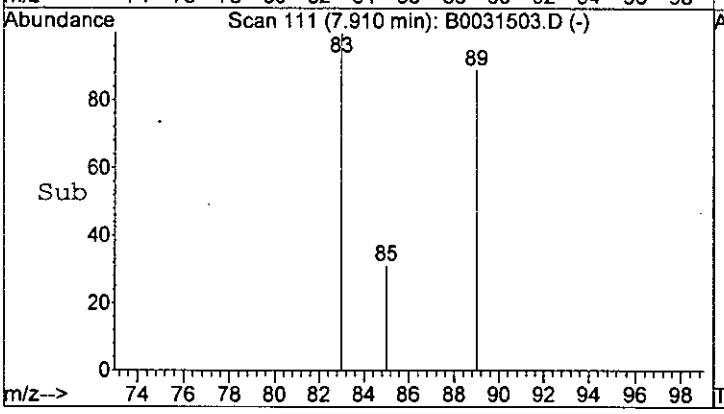


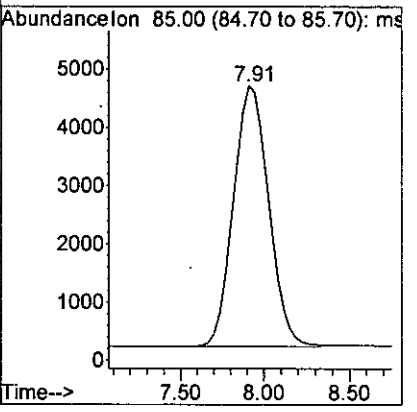




#3
#2 perc ion
Concen: 0.95 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031503.D
Acq: 18 Jun 2014 6:20 pm

Tgt Ion: 85 Resp: 65069





Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031514.D Vial: 6
Acq On : 18 Jun 2014 8:47 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	93	0.07
2	Perchlorate	1.085	1.098	-1.2	88	0.10
3	#2 perc ion	0.366	0.341	6.8	84	0.07

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031514.D Vial: 6
Acq On : 18 Jun 2014 8:47 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.91	89	186397	1.00 ug/L	0.07
Target Compounds					Qvalue
2) Perchlorate	7.91	83	204626	1.01 ug/L	100
3) #2 perc ion	7.91	85	63643	0.93 ug/L	100

Ratio
3.22

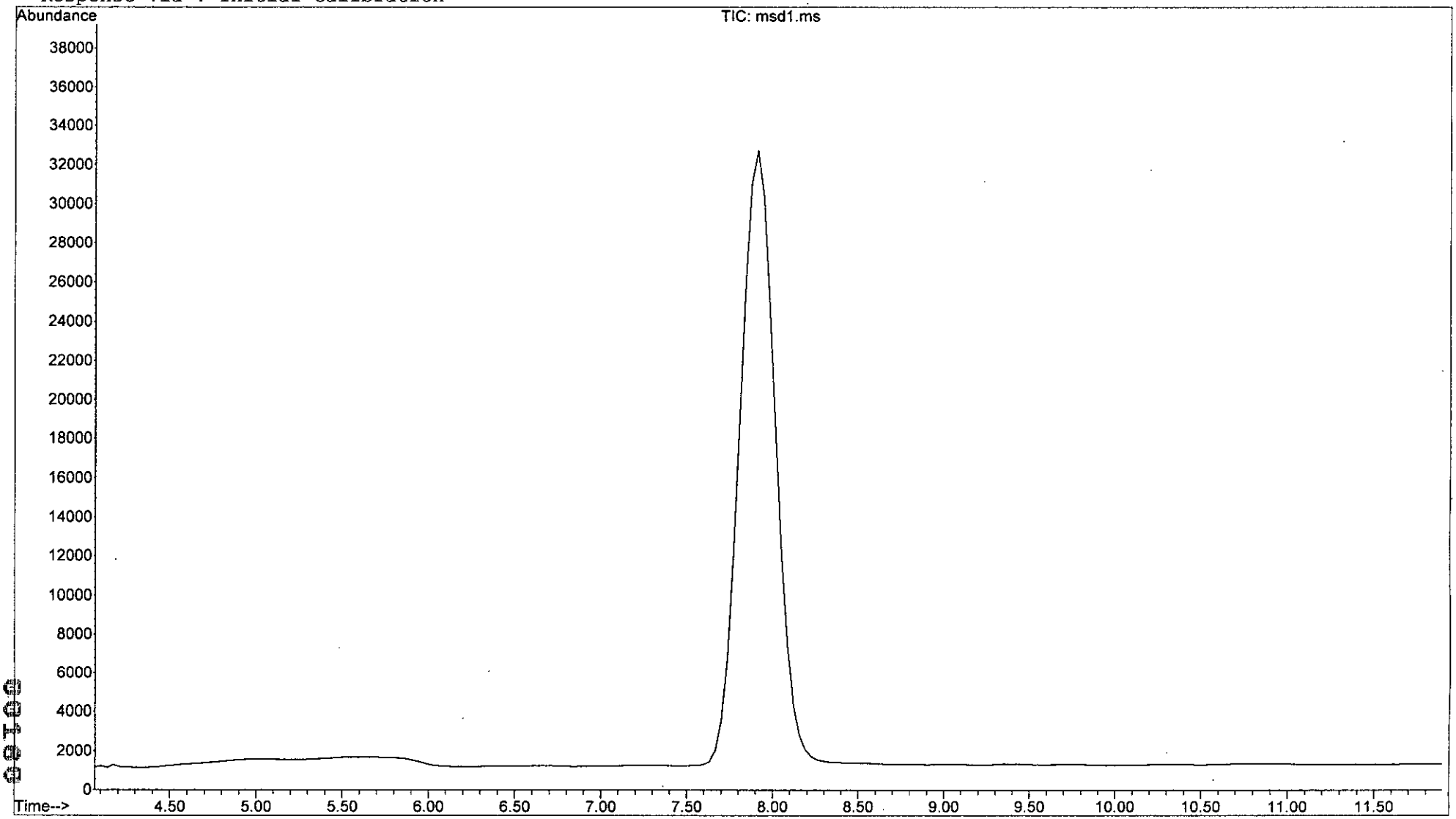
BA6/19

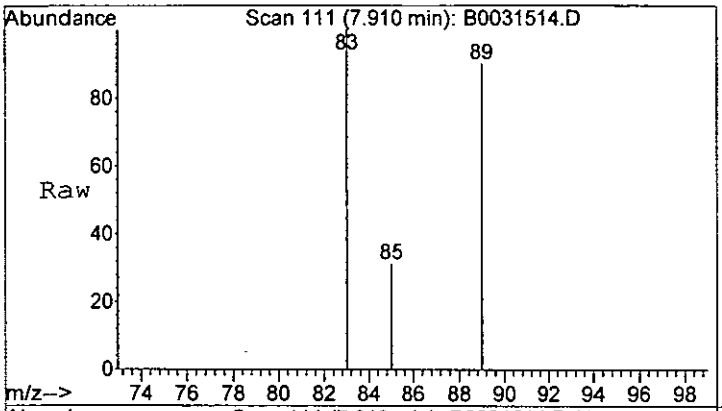
(#) = qualifier out of range (m) = manual integration
B0031514.D PERC0129.M Thu Jun 19 13:03:20 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031514.D Vial: 6
Acq On : 18 Jun 2014 8:47 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

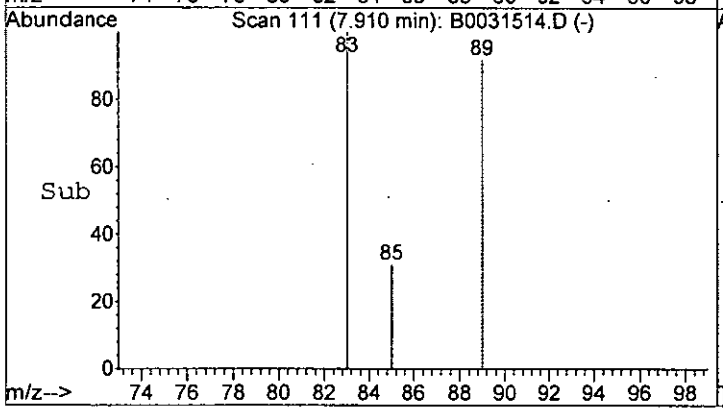
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

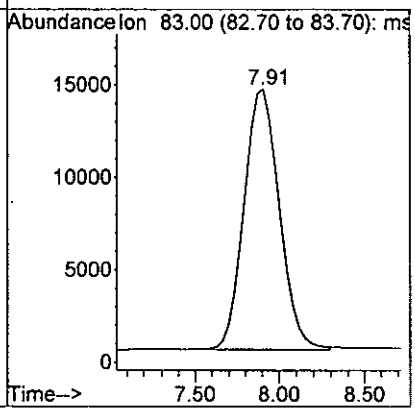


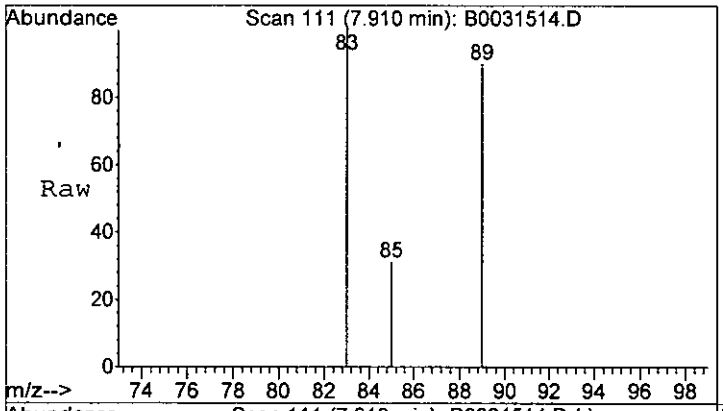


#2
Perchlorate
Concen: 1.01 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031514.D
Acq: 18 Jun 2014 8:47 pm

Tgt Ion: 83 Resp: 204626

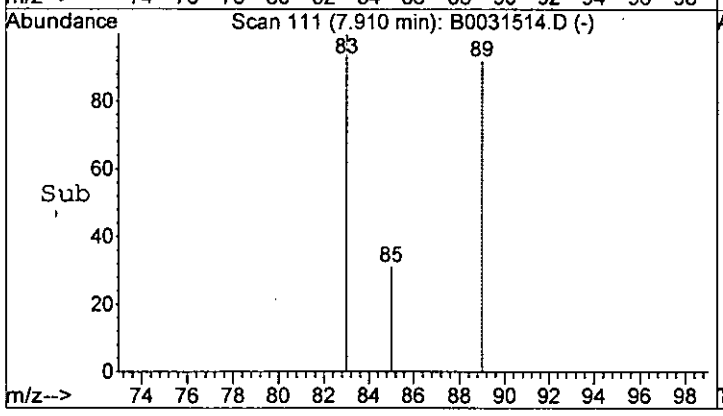


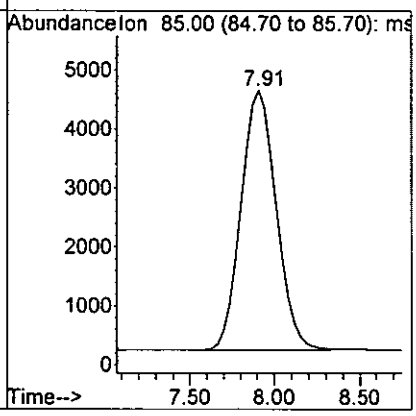




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031514.D
Acq: 18 Jun 2014 8:47 pm

Tgt Ion: 85 Resp: 63643





Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031522.D Vial: 6
Acq On : 18 Jun 2014 10:35 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	93	0.07
2	Perchlorate	1.085	1.110	-2.3	90	0.07
3	#2 perc ion	0.366	0.340	7.1	85	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031522.D PERC0129.M Thu Jun 19 13:07:43 2014

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031522.D Vial: 6
Acq On : 18 Jun 2014 10:35 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.91	89	188109	1.00 ug/L	0.07

Target Compounds					Qvalue
2) Perchlorate	7.88	83	208826	1.02 ug/L	100
3) #2 perc ion	7.88	85	63876	0.93 ug/L	100

Ratio
3.27

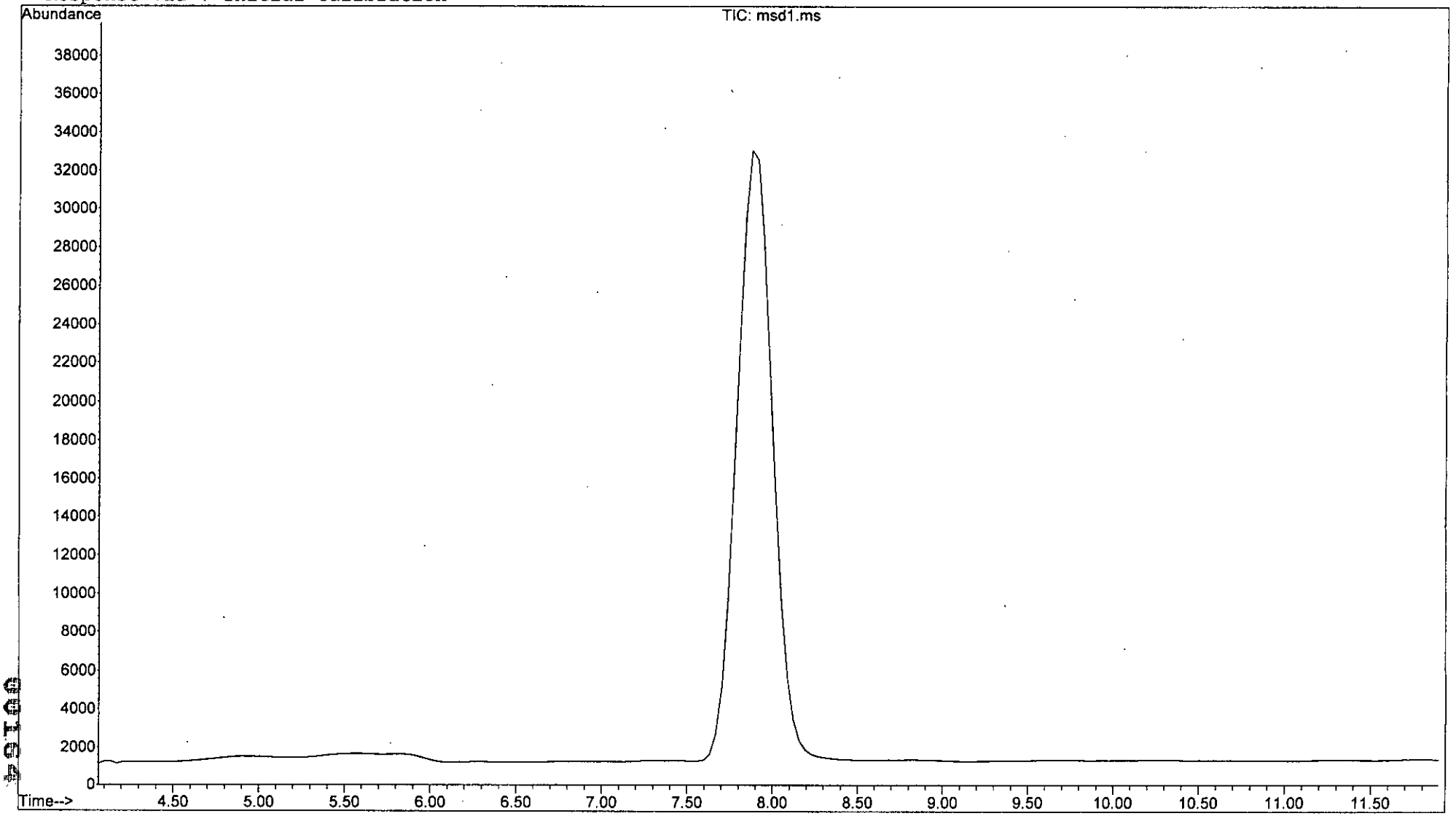
BA6/19

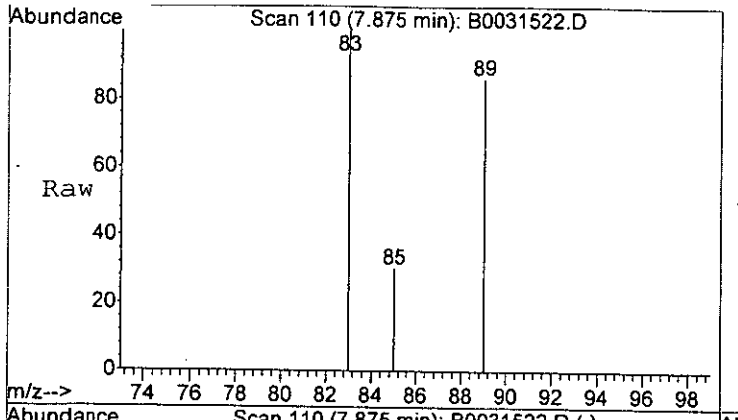
(#) = qualifier out of range (m) = manual integration
B0031522.D PERC0129.M Thu Jun 19 13:07:25 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031522.D Vial: 6
Acq On : 18 Jun 2014 10:35 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

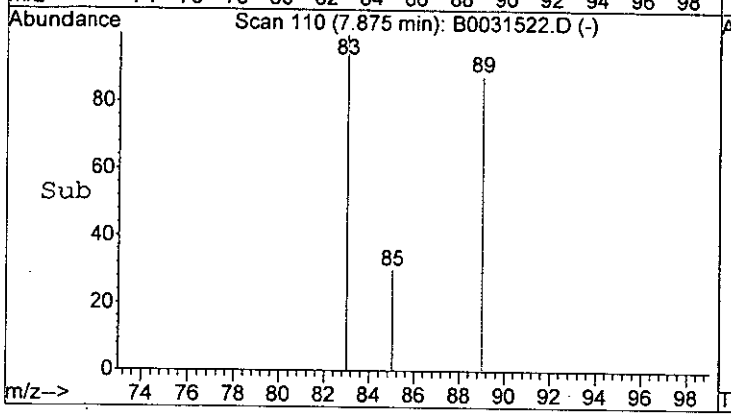
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

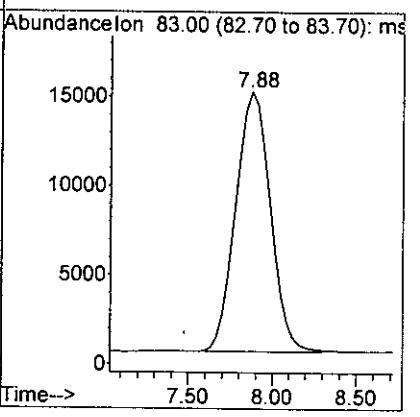


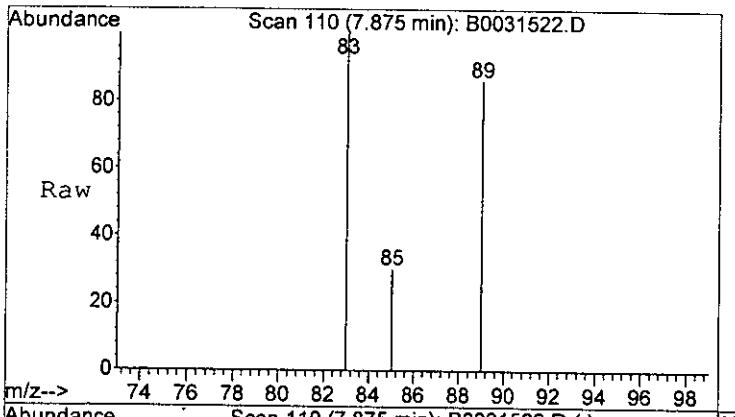


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.88 min Scan# 110
Delta R.T. 0.07 min
Lab File: B0031522.D
Acq: 18 Jun 2014 10:35 pm

Tgt Ion: 83 Resp: 208826

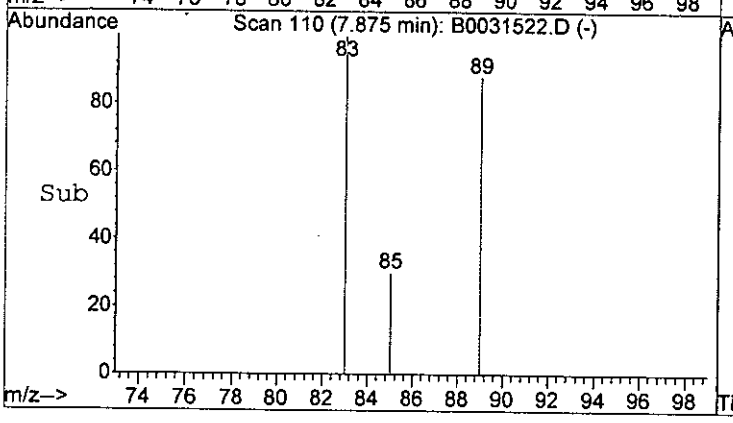


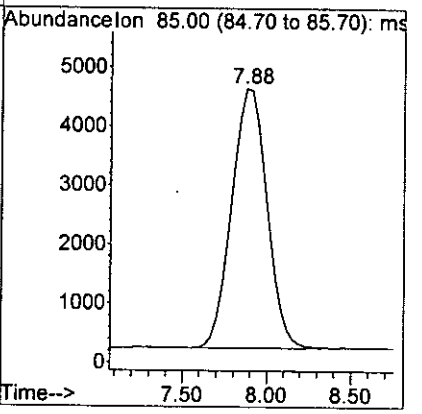




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.88 min Scan# 110
Delta R.T. 0.04 min
Lab File: B0031522.D
Acq: 18 Jun 2014 10:35 pm

Tgt Ion: 85 Resp: 63876





Preparation Information Benchsheet

Prep Run#: 211029 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 6/17/14 02:51 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406734-01	MB		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1406734-04	LODV		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 1.0000 uL/71223	
3	RQ1406734-02	LCS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1406734-03	DLCS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
5	RQ1406734-05	ICS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
6	R1404437-001	18CPTPB13(8-9)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
7	RQ1406734-06	R1404437-001 MS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
8	RQ1406734-07	R1404437-001 DMS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
9	R1404437-002	18CPTPB13(13.5-14.5)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
10	RQ1406734-08	R1404437-002 MS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
11	RQ1406734-09	R1404437-002 DMS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
12	R1404437-003	18CPTPB13(18-19)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
13	RQ1406734-10	R1404437-003 MS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
14	RQ1406734-11	R1404437-003 DMS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
15	R1404437-004	18CPTPB13(22-23)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
16	RQ1406734-12	R1404437-004 MS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
17	RQ1406734-13	R1404437-004 DMS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
18	R1404437-005	18CPTPB14(6-7)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
19	R1404437-006	18CPTPB14(18-19)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
20	R1404437-007	18CPTPB14(22-23)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
21	R1404437-008	18CPTPB14(25-26)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
22	R1404273-007	1406041204 200-SB-20 30'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
23	R1404273-008	1406041723 200-SB-20 50'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
24	R1404421-005	1406091138 200-SB-21 7.5-10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
25	R1404421-006	1406091613 200-SB-21	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
26	R1404421-007	1406091748 200-SB-21	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
27	R1404507-009	1406111501 200-SB-7 8-10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	

Preparation Information Benchsheet

Prep Run#: 211029 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 6/17/14 02:51 PM

28	R1404507-010	1406111633 200-SB-7 18-21'	.01	1.0g	6850/ClO4			-	10.00mL		10.0000 uL/68807	
29	R1404507-011	1406120923 200-SB-7 38-40'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	

Spiking Solutions

Name:	O18 isotopic labeled perchlorate	Inventory ID	68807	Logbook Ref:		Expires On:	01/31/2016	Lot #:	122313
Name:	Perchlorate 1000 ppb CLO4	Inventory ID	71223	Logbook Ref:		Expires On:	11/30/2014		

Preparation Materials

Water	(71353)	interference check standard for perchlorate	(63899)	Sand Reagent Grade	SVOA (71055)

Preparation Steps

Step: Extraction
Started: 6/17/14 14:51
Finished: 6/18/14 10:23
By: BALLGEIER
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: SGOLBERG Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 211135 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 6/18/14 02:29 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406802-01	MB		10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1406802-04	LODV		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 1.0000 uL/71223	
3	RQ1406802-02	LCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1406802-03	DLCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
5	RQ1406802-05	ICS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
6	R1404568-001	1406673-01D	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
7	R1404568-002	1406673-02D	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
8	R1404568-003	1406673-03D	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
9	R1404353-009	MRC-MW-17A-060514	.09	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
10	RQ1406802-06	R1404353-009 MS	.09	10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
11	RQ1406802-07	R1404353-009 DMS	.09	10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
12	R1404353-010	MRC-MW-109A-060514	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
13	R1404353-011	MRC-MW-109B-060514	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
14	R1404412-001	MRC-MW-74A-060614	.04	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
15	R1404412-002	MRC-MW-74B-060614	.04	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
16	R1404421-002	1406090815 200-SB-21	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
17	R1404507-005	1406111439 200-SB-7	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
18	R1404548-001	S/N 002 (South)	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
19	R1404354-001	1406060815C WW-2-489	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
20	R1404354-002	1406061011X WW-5-814	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
21	R1404354-003	1406061045C WW-2-664	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
22	R1404354-004	1406071033X WW-5-912	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
23	R1404565-003	MRC-MW-08B-061214	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
24	R1404565-008	MRC-MW-41A-061314	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
25	R1404565-010	MRC-MW-01A-061314	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
26	R1404565-013	DUP-06-061314	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	

Spiking Solutions

Name: O18 isotopic labeled perchlorate Inventory ID 68807 Logbook Ref: Expires On: 01/31/2016 Lot #: 122313

Name: Perchlorate 1000 ppb CLO4 Inventory ID 71223 Logbook Ref: Expires On: 11/30/2014

Preparation Materials

Water (71353) interference check standard for perchlorate (63899)

Preparation Information Benchsheet

Prep Run#: 211135
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/18/14 02:29 PM

Preparation Steps

Step: Extraction
Started: 6/18/14 14:29
Finished: 6/18/14 15:00
By: BALLGEIER
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: SGOLBERG Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analysis: DBCD Analyst: MPLLW Run Method: Perchlorate
Date: 1/28/14 Instr. HPLC-02 Quant Method: PerD129
LIMS Run#:

Setup: Column: Kprime # 2100 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 MeOH/H2O 0.1 Ch3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	AMBLK			B0030524	—	
	↓			525	—	
	CCV Ion/MSS			526	Y	
	RLK			527	Y	
	.1 ppb	1ml/10ml	66006	528	Y	
	.2 ppb	2ml/10ml		529	Y	
	.5 ppb	5ml/10ml		530	Y	
	.75 ppb	7.5ml/10ml		531	Y	
	1.0 ppb	10ml/10ml		532	Y	
	2.0 ppb	20ml/10ml		533	Y	
	5.0 ppb	50ml/10ml	↓	534	Y	
	ICV	10ml/10ml	66005	535	Y ICV	exp 5/31/14
	CCV 1.0 ppb		66007	536	YC	
	RQ1400131-01			537	Y	
	04			538	Y	
	02			539	Y	
	03			540	Y	
	↓ 05			541	Y	
	R1400128-001			542	Y	
	RQ1400131-06			543	Y	
	07			544	Y	
	R1400128-002			545	Y	
	003			546	Y	
	CCV 1.0 ppb		66007	547	YC	
	R1400128-004			548	Y	
	R1400205-001			549	Y	
	R1400119-001			550	Y	
	↓ 001	10.0		551	Y	
	RQ1400131-04			552	Y	
	CCV 1.0 ppb		66007	553	YC	
	RQ1400826-01			554	Y	
	⋮ 04			555	Y	
	02			556	N	OUT
	03			557	Y	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 66007 exp: 4/30/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

Analysis: 6850. Perc Analyst: BA Run Method: Percdoalz

Date: 6/17/14 Instr. HPLC-02 Quant Method: Perc0129

LIMS Run#:

Setup: Column: K'Prime #2011 Col.Temp: 30 Flow: 0.5 ml/min

Mobile Phase: 50/50 H2O/MeCN 0.1CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BLK			B0031428	—	
	ION/MASS CCV			2528	YT	
	CCV 1.00 PPB		70263	2630	YC	
	RQ1406555-04	LOD		2731	Y	
	R1404434-004	10.0		2832	Y	
	RQ1406555-04	LOD		2933	Y	
	6558-04	LOD		3034	Y	
	R1404435-015	500		3135	Y	
	RQ1406558-04	LOD		3236	Y	
	CCV 1.00 PPB		70263	3337	YC	
	RQ1406647-04	LOD		3438	Y	
	R1404436-001	5.0		3539	Y	
	-003			3640	N	RPT 1/25
	-004	50.0		3741	Y	
	-005	25.0		3842	Y	
	-006	20.0		3943	Y	
	RQ1406647-06	20.0		4044	Y	DILUTED OUT
	-07	20.0		4145	Y	
	R1404436-007	100.0		4246	Y	
	-008	50.0		4347	Y	
	CCV 1.00 PPB			4448	YC	
	-013	1000		4549	Y	
	RQ1406647-04	LOD		4650	Y	
	CCV 1.00 PPB		70263	4751	YC	
	RQ1406734-01	MB		4852	Y	
	-04	LOD		4853	Y	
	-02	LCS		5054	Y	
	-03	DLCS		5155	Y	
	-05	ICS		5256	Y	
	R1404437-001			5357	Y	
	-06	MS		5458	Y	
	-07	MSD		5559	Y	
	4437-002			5660	Y	

All samples = _____mL (+ _____uL Combined IS/Surr.;

Primary: 70263 exp: 11/3/14 Secondary: _____ exp:

Primary: _____ exp: Secondary: _____ exp:

BA 6/18

Runlog HPLC02r1
1/10/13

Analysis: 6850.Perc Analyst: BA Run Method: Percdoolz
Date: 6/17/14 Instr. HPLC-02 Quant Method: Perc0125
LIMS Run#:

Setup: Column: K'PRIME #2011 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 H2O/MeCN 0.1CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	RQ1406734-08	MS		R0031401	Y	
	CCV 1.00PPB		70263	58 02	YC	
	-09	MSD		5903	Y	
	R1404437-003			6064	Y	
	-10	MS		6105	Y	
	-11	MSD		6206	Y	
	4437-004			6367	Y	
	-12	MS		6468	Y	
	-13	MSD		6569	Y	
	4437-005			6670	Y	
	-006			6771	N	RPT 1/5
	-007			6872	N	RPT 1/50
	CCV 1.00PPB		70263	6973	YC	
	-008			70 74	N	RPT 1/100
	4471-005			7175	Y	
	-006			7276	Y	
	-007			7377	Y	
	4507-009			7478	Y	
	-010			7579	Y	
	-011			7680	Y	
	RQ1406734-04	LCD		7781	Y	
	CCV 1.00PPB		70263	7982	YC	
	R1404273-007			7983	Y	
	-008			8084	YC	
	$\bar{X}$ = 191901					
	high = 387852			BAG/18		
	low = 95957					

BA 6/17/14

All samples = _____mL + _____uL Combined IS/Surr.;

Primary : 70263 exp: 11/3/14 Secondary : _____ exp:
Primary: _____ exp: Secondary : _____ exp:

Runlog HPLC02r1
1/10/13

Analysis: 6850. Perc Analyst: BA Run Method: Percdoalz

Date: 6/18/14 Instr. HPLC-02 Quant Method: Perc0129

LIMS Run#:

Setup: Column: K'Prime # 2011 Col.Temp: 30 Flow: 0.5 ml/min

Mobile Phase: 50/50 H2O/MeCN 0.1 et3 COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BLL			B0031481	—	
	ION/MASS CCV			82		
	PCV 1.00 PPB		70263	83	YC	
	RQ1406647-04	LOD		84	Y	
	R1404436-003	25.0		85	Y	
	RQ1406647-04	LOD		86	Y	
	RQ1406734-04	LOD		87	Y	
	R1404437-006	5.0		88		
	~~RQ1406734-04~~	~~LOD~~				
	-007	50.0		89	Y	
	-008	100.0		90	Y	
	RQ1406734-04	LOD		91	Y	
	CCV 1.00 PPB		70263	92	YC	
	RQ1406802.01			93	Y	
	-04			94	Y	
	-02			95	Y	
	-03			96	Y	
	-05			97	Y	
	R1404568-001			98	Y	
	-002			99	Y	
	-003			500	Y	
	4353-009			01	Y	
	~~RQ1406802-06~~ ~~CCV 1.00 PPB~~	MS		02	Y	
	CCV 1.00 PPB		70263	03	YC	
	-07	MSD		04	Y	
	4353-010			05	Y	
	-011			06	Y	
	4412-001			07	Y	
	-002			08	Y	
	4421-002			09	Y	
	4507-005			10	Y	
	4548-001			11	Y	
	4354-001			12	Y	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 70263 exp: 11/3/14 Secondary: _____ exp:

Primary: _____ exp: Secondary: _____ exp:

Runlog HPLC02r1
1/10/13

00173

Analysis: 6850.Perc Analyst: BA Run Method: Perc.lodz
Date: 6/18/14 Instr. HPLC-02 Quant Method: Perc0129
LIMS Run#:

Setup: Column: K' Prime # 2011 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 H2O/MeCN 0.1% HCOOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	R1404354-002			B0031513	Y	
	CCV 1.00PPB		70263	14	YC	
	-003			15	Y	
	-004			16	Y	
	4565-003			17	Y	
	-008			18	Y	
	-010			19	Y	
	-013			20	Y	
	RQ1406302-04	LOD		21	Y	
	CCV 1.00PPB		70263	22	YC	
	R=191901					
	High=387852					
	Low=95957					

6/18/14

BA

All samples = _____mL + _____uL Combined IS/Surr.;

Primary : 70263 exp: 11/3/14 Secondary : _____ exp:
Primary: _____ exp: Secondary : _____ exp:

Runlog HPLC02r1
1/10/13

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Analyzed:	6/18/14 15:58
Sample Name:	1406111455 200-SB-7 8-10'	**Units:**	µg/Kg
Lab Code:	R1404510-004	**Basis:**	Dry
		Percent Solids:	95.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9480.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.77	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.77	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	30	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.98	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.77	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.25	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.99	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.92	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.51	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 15:58	
Dibromofluoromethane	100	63-138	6/18/14 15:58	
Toluene-d8	100	66-138	6/18/14 15:58	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Analyzed:	6/18/14 16:35
Sample Name:	1406111630 200-SB-7 18-21'	**Units:**	µg/Kg
Lab Code:	R1404510-005	**Basis:**	Dry
		Percent Solids:	91.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9481.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.5	0.80	
79-00-5	1,1,2-Trichloroethane	ND	U	5.5	0.80	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.5	1.4	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.5	1.5	
107-06-2	1,2-Dichloroethane	ND	U	5.5	0.67	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.5	1.6	
78-93-3	2-Butanone (MEK)	ND	U	5.5	2.6	
67-63-0	Isopropanol	ND	U	110	31	
67-64-1	Acetone	ND	U	5.5	3.1	
71-43-2	Benzene	ND	U	5.5	0.32	
75-27-4	Bromodichloromethane	ND	U	5.5	0.67	
75-25-2	Bromoform	ND	U	5.5	1.1	
108-90-7	Chlorobenzene	ND	U	5.5	0.32	
67-66-3	Chloroform	ND	U	5.5	1.4	
74-87-3	Chloromethane	ND	U	5.5	0.44	
124-48-1	Dibromochloromethane	ND	U	5.5	0.80	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.5	1.7	
75-09-2	Dichloromethane	ND	U	5.5	0.63	
100-41-4	Ethylbenzene	ND	U	5.5	0.26	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.5	1.1	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.5	0.97	
108-88-3	Toluene	ND	U	5.5	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.5	1.2	
179601-23-1	m,p-Xylenes	ND	U	11	1.2	
95-47-6	o-Xylene	ND	U	5.5	0.53	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.5	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 16:35	
Dibromofluoromethane	99	63-138	6/18/14 16:35	
Toluene-d8	100	66-138	6/18/14 16:35	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Analyzed:	6/18/14 17:13
Sample Name:	1406120930 200-SB-7 38-40'	**Units:**	µg/Kg
Lab Code:	R1404510-006	**Basis:**	Dry
		Percent Solids:	96.6

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9482.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.76	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.76	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.97	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.76	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.98	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.92	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.50	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	51-136	6/18/14 17:13	
Dibromofluoromethane	100	63-138	6/18/14 17:13	
Toluene-d8	100	66-138	6/18/14 17:13	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/20/14 20:31
Sample Name:	1406111501 200-SB-7 8-10'	**Units:**	µg/Kg
Lab Code:	R1404510-001	**Basis:**	Dry
		Percent Solids:	94.3

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211022
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU956.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	350	46	
84-74-2	Di-n-butyl Phthalate	ND	U	350	54	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	59	47-126	6/20/14 20:31	
Nitrobenzene-d5	52	39-136	6/20/14 20:31	
p-Terphenyl-d14	69	35-152	6/20/14 20:31	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/20/14 21:51
Sample Name:	1406111633 200-SB-7 18-21'	**Units:**	µg/Kg
Lab Code:	R1404510-002	**Basis:**	Dry
		Percent Solids:	91.7

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211022
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU959.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	360	47	
84-74-2	Di-n-butyl Phthalate	ND	U	360	56	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	52	47-126	6/20/14 21:51	
Nitrobenzene-d5	49	39-136	6/20/14 21:51	
p-Terphenyl-d14	62	35-152	6/20/14 21:51	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404510
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/13/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/20/14 22:18
Sample Name:	1406120933 200-SB-7 38-40'	**Units:**	µg/Kg
Lab Code:	R1404510-003	**Basis:**	Dry
		Percent Solids:	97.0

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	398357
Prep Method:	EPA 3541	**Extraction Lot:**	211022
Data File Name:	I:\ACQUDATA\5973D\Data\062014\AU960.D\	**Instrument Name:**	R-MS-54
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	45	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	60	47-126	6/20/14 22:18	
Nitrobenzene-d5	51	39-136	6/20/14 22:18	
p-Terphenyl-d14	67	35-152	6/20/14 22:18	

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number N14-4510

Cooler received on 6/13/14 by: JS

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 6/13/14 Time: 1044 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	5.8	4.3					
Correction Factor (°C)	–	–					
Corrected Temp (°C)	5.8	4.3					
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: NOR by JS on 6/13/14 at 1044
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: JMS 6/13/14

Cooler Breakdown: Date: 6/16/14 Time: 0940 by: JS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: elect

Other Comments:

* See COC!!!

PC Secondary Review: JMS 6/27/14 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

SUPPORTING DOCUMENTATION

ALS Environmental - Rochester, NY
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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001
Sample Matrix: Soil

Service Request: R1404510
Date Analyzed: 6/18/14 11:31

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1406804-04
Instrument ID: R-MS-07
File ID: I:\ACQUDATA\MSVOA7\DATA\061814\K9473.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406804-03	I:\ACQUDATA\MSVOA7\DATA\061814\K9471.D\	6/18/14 10:15
1406111455 200-SB-7 8-10'	R1404510-004	I:\ACQUDATA\MSVOA7\DATA\061814\K9480.D\	6/18/14 15:58
1406111630 200-SB-7 18-21'	R1404510-005	I:\ACQUDATA\MSVOA7\DATA\061814\K9481.D\	6/18/14 16:35
1406120930 200-SB-7 38-40'	R1404510-006	I:\ACQUDATA\MSVOA7\DATA\061814\K9482.D\	6/18/14 17:13
1406111455 200-SB-7 8-10'MS	RQ1406804-05	I:\ACQUDATA\MSVOA7\DATA\061814\K9483.D\	6/18/14 17:51
1406111455 200-SB-7 8-10'DMS	RQ1406804-06	I:\ACQUDATA\MSVOA7\DATA\061814\K9484.D\	6/18/14 18:28

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404510
Date Analyzed: 6/18/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA7\DATA\061814\K9470.D\

Calibration Date: 5/29/14
Calibration ID: RC1400043
Analysis Lot: 397732
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1-Trichloroethane (TCA)	50.0	42.6	0.7075	0.6034	-14.7	NA	± 20 %	Average RF
1,1,2-Trichloroethane	50.0	49.7	0.3414	0.3396	-0.5	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	41.9	0.4820	0.4036	-16.3	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	47.2	0.4169	0.3938	-5.5	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	49.5	0.4920	0.4875	-0.9	NA	± 20 %	Average RF
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	50.0	54.6	0.8365	0.9125	9.1	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	49.8	0.7656	0.7621	-0.5	NA	± 20 %	Average RF
Isopropanol	1000	1130	0.08660	0.09777	12.9	NA	± 20 %	Average RF
Acetone	50.0	42.8	0.6020	0.5150	-14.4	NA	± 20 %	Average RF
Benzene	50.0	47.9	1.440	1.378	-4.3	NA	± 20 %	Average RF
Bromodichloromethane	50.0	47.8	0.4660	0.4458	-4.3	NA	± 20 %	Average RF
Bromoform	50.0	50.2	0.2458	0.2469	0.5	NA	± 20 %	Average RF
Chlorobenzene	50.0	46.8	0.9166	0.8578	-6.4	NA	± 20 %	Average RF
Chloroform	50.0	47.8	1.049	1.003	-4.3	NA	± 20 %	Average RF
Chloromethane	50.0	52.8	1.118	1.180	5.6	NA	± 20 %	Average RF
Dibromochloromethane	50.0	48.5	0.3859	0.3743	-3.0	NA	± 20 %	Average RF
Dichlorofluoromethane (CFC 21)	50.0	53.7	1.436	1.541	7.3	NA	± 20 %	Average RF
Dichloromethane	50.0	48.8	0.6951	0.6779	-2.5	NA	± 20 %	Average RF
Ethylbenzene	50.0	43.5	1.608	1.400	-12.9	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	50.9	1.847	1.880	1.8	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	42.2	0.3262	0.2750	-15.7	NA	± 20 %	Average RF
Toluene	50.0	45.4	1.479	1.344	-9.1	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	43.8	0.3311	0.2898	-12.5	NA	± 20 %	Average RF
m,p-Xylenes	100	88.3	0.5809	0.5128	-11.7	NA	± 20 %	Average RF
o-Xylene	50.0	44.9	0.5852	0.5255	-10.2	NA	± 20 %	Average RF
1,2-Dichloro-1,1,2-trifluoroethane (CFC	50.0	56.5	0.8761	0.9906	13.1	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	49.0	0.4853	0.4757	-2.0	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	49.9	0.3338	0.3332	-0.2	NA	± 20 %	Average RF
Toluene-d8	50.0	51.7	1.294	1.339	3.5	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404510
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

#	File Location	Acquisition Date	#	File Location	Acquisition Date
01	I:\ACQUDATA\MSVOA7\DATA\052914\K9081	5/29/14 13:54	02	I:\ACQUDATA\MSVOA7\DATA\052914\K9082	5/29/14 14:31
03	I:\ACQUDATA\MSVOA7\DATA\052914\K9083	5/29/14 15:09	04	I:\ACQUDATA\MSVOA7\DATA\052914\K9084	5/29/14 15:47
05	I:\ACQUDATA\MSVOA7\DATA\052914\K9085	5/29/14 16:24	06	I:\ACQUDATA\MSVOA7\DATA\052914\K9086	5/29/14 17:02
07	I:\ACQUDATA\MSVOA7\DATA\052914\K9087	5/29/14 17:39	08	I:\ACQUDATA\MSVOA7\DATA\052914\K9088	5/29/14 18:16

Analyte

1,1,1-Trichloroethane (TCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.7839	02	5.000	0.7509	03	10.000	0.7284	04	20.000	0.6127
05	50.000	0.6606	06	100.000	0.6772	07	150.000	0.7145	08	200.000	0.7320

1,1,2-Trichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3874	02	5.000	0.3495	03	10.000	0.3341	04	20.000	0.3176
05	50.000	0.3329	06	100.000	0.3427	07	150.000	0.3360	08	200.000	0.3308

1,1,2-Trichlorotrifluoroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5947	02	5.000	0.5106	03	10.000	0.4949	04	20.000	0.4003
05	50.000	0.4170	06	100.000	0.4406	07	150.000	0.5023	08	200.000	0.4958

1,1-Dichloroethene (1,1-DCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4287	02	5.000	0.4345	03	10.000	0.4227	04	20.000	0.4036
05	50.000	0.4110	06	100.000	0.3927	07	150.000	0.4180	08	200.000	0.4236

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5482	02	5.000	0.5030	03	10.000	0.5071	04	20.000	0.4618
05	50.000	0.4971	06	100.000	0.4830	07	150.000	0.4706	08	200.000	0.4654

2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9132	02	5.000	0.8478	03	10.000	0.8259	04	20.000	0.8460
05	50.000	0.8658	06	100.000	0.7603	07	150.000	0.8231	08	200.000	0.8096

2-Butanone (MEK)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8520	02	5.000	0.8114	03	10.000	0.8282	04	20.000	0.6699
05	50.000	0.7465	06	100.000	0.7626	07	150.000	0.7310	08	200.000	0.7234

Isopropanol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20.000	0.09561	02	100.000	0.08746	03	200.000	0.08773	04	400.000	0.08729
05	1000.000	0.08880	06	2000.000	0.08603	07	3000.000	0.08103	08	4000.000	0.07884

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404510
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Acetone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7647	03	10.000	0.7579	04	20.000	0.5490	05	50.000	0.5746
06	100.000	0.5454	07	150.000	0.5177	08	200.000	0.5047			

Benzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.596	02	5.000	1.535	03	10.000	1.466	04	20.000	1.318
05	50.000	1.382	06	100.000	1.388	07	150.000	1.402	08	200.000	1.431

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4916	02	5.000	0.4571	03	10.000	0.4730	04	20.000	0.4355
05	50.000	0.4643	06	100.000	0.4670	07	150.000	0.4646	08	200.000	0.4746

Bromoform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2226	02	5.000	0.2401	03	10.000	0.2401	04	20.000	0.2204
05	50.000	0.2512	06	100.000	0.2653	07	150.000	0.2634	08	200.000	0.2633

Chlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.046	02	5.000	0.9396	03	10.000	0.9567	04	20.000	0.7815
05	50.000	0.8522	06	100.000	0.8984	07	150.000	0.9364	08	200.000	0.9222

Chloroform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.206	02	5.000	1.120	03	10.000	1.016	04	20.000	1.017
05	50.000	1.023	06	100.000	0.9987	07	150.000	1.003	08	200.000	1.006

Chloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.395	02	5.000	1.091	03	10.000	1.020	04	20.000	1.109
05	50.000	1.074	06	100.000	1.055	07	150.000	1.105	08	200.000	1.093

Dibromochloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4190	02	5.000	0.3982	03	10.000	0.3683	04	20.000	0.3414
05	50.000	0.3785	06	100.000	0.3915	07	150.000	0.3938	08	200.000	0.3963

Dichlorofluoromethane (CFC 21)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.487	02	5.000	1.460	03	10.000	1.400	04	20.000	1.420
05	50.000	1.497	06	100.000	1.357	07	150.000	1.436	08	200.000	1.432

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404510
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Dichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7799	03	10.000	0.7323	04	20.000	0.6584	05	50.000	0.6868
06	100.000	0.6674	07	150.000	0.6625	08	200.000	0.6782			

Ethylbenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.782	02	5.000	1.803	03	10.000	1.701	04	20.000	1.348
05	50.000	1.426	06	100.000	1.560	07	150.000	1.647	08	200.000	1.599

Methyl tert-Butyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.982	02	5.000	1.860	03	10.000	1.863	04	20.000	1.734
05	50.000	1.877	06	100.000	1.843	07	150.000	1.812	08	200.000	1.801

Tetrachloroethene (PCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4071	02	5.000	0.3694	03	10.000	0.3436	04	20.000	0.2614
05	50.000	0.2735	06	100.000	0.3000	07	150.000	0.3294	08	200.000	0.3249

Toluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.670	02	5.000	1.584	03	10.000	1.537	04	20.000	1.282
05	50.000	1.376	06	100.000	1.432	07	150.000	1.484	08	200.000	1.468

Trichloroethene (TCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4316	02	5.000	0.3414	03	10.000	0.3265	04	20.000	0.2828
05	50.000	0.2997	06	100.000	0.3152	07	150.000	0.3251	08	200.000	0.3265

m,p-Xylenes

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.6838	02	10.000	0.6233	03	20.000	0.6206	04	40.000	0.4834
05	100.000	0.5118	06	200.000	0.5540	07	300.000	0.5902	08	400.000	0.5802

o-Xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.6621	02	5.000	0.6233	03	10.000	0.6266	04	20.000	0.4869
05	50.000	0.5256	06	100.000	0.5698	07	150.000	0.5983	08	200.000	0.5890

1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9808	02	5.000	0.8778	03	10.000	0.8576	04	20.000	0.8867
05	50.000	0.9405	06	100.000	0.7860	07	150.000	0.8413	08	200.000	0.8382

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404510
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	50.000	0.4833	07	50.000	0.4775	02	50.000	0.4893	04	50.000	0.4931
01	50.000	0.4940	03	50.000	0.4875	08	50.000	0.4756	05	50.000	0.4819

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	50.000	0.3361	06	50.000	0.3295	07	50.000	0.3245	02	50.000	0.3390
04	50.000	0.3406	01	50.000	0.3368	03	50.000	0.3344	08	50.000	0.3299

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	50.000	1.289	03	50.000	1.291	01	50.000	1.307	04	50.000	1.306
02	50.000	1.305	07	50.000	1.289	06	50.000	1.276	05	50.000	1.291

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404510
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation					RRF Evaluation		
		Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
1,1,1-Trichloroethane (TCA)	TRG	Average RF	% RSD	7.7		≤ 20	0.7075		0.100
1,1,2-Trichloroethane	TRG	Average RF	% RSD	6.1		≤ 20	0.3414		0.100
1,1,2-Trichlorotrifluoroethane	TRG	Average RF	% RSD	12.9		≤ 20	0.4820		0.100
1,1-Dichloroethene (1,1-DCE)	TRG	Average RF	% RSD	3.3		≤ 20	0.4169		0.100
1,2-Dichloroethane	TRG	Average RF	% RSD	5.8		≤ 20	0.4920		0.100
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	TRG	Average RF	% RSD	5.3		≤ 20	0.8365		
2-Butanone (MEK)	TRG	Average RF	% RSD	8.0		≤ 20	0.7656		0.05
Isopropanol	TRG	Average RF	% RSD	5.9		≤ 20	0.08660		
Acetone	TRG	Average RF	% RSD	18.5		≤ 20	0.6020		0.05
Benzene	TRG	Average RF	% RSD	6.2		≤ 20	1.440		0.500
Bromodichloromethane	TRG	Average RF	% RSD	3.4		≤ 20	0.4660		0.200
Bromoform	TRG	Average RF	% RSD	7.3		≤ 20	0.2458		0.100
Chlorobenzene	TRG	Average RF	% RSD	8.4		≤ 20	0.9166		0.500
Chloroform	TRG	Average RF	% RSD	7.1		≤ 20	1.049		0.200
Chloromethane	TRG	Average RF	% RSD	10.4		≤ 20	1.118		0.100
Dibromochloromethane	TRG	Average RF	% RSD	6.0		≤ 20	0.3859		0.100
Dichlorofluoromethane (CFC 21)	TRG	Average RF	% RSD	3.2		≤ 20	1.436		
Dichloromethane	TRG	Average RF	% RSD	6.5		≤ 20	0.6951		0.100
Ethylbenzene	TRG	Average RF	% RSD	10.0		≤ 20	1.608		0.100
Methyl tert-Butyl Ether	TRG	Average RF	% RSD	3.9		≤ 20	1.847		0.100
Tetrachloroethene (PCE)	TRG	Average RF	% RSD	14.8		≤ 20	0.3262		0.200
Toluene	TRG	Average RF	% RSD	8.2		≤ 20	1.479		0.400
Trichloroethene (TCE)	TRG	Average RF	% RSD	13.4		≤ 20	0.3311		0.200
m,p-Xylenes	TRG	Average RF	% RSD	11.1		≤ 20	0.5809		0.100
o-Xylene	TRG	Average RF	% RSD	9.7		≤ 20	0.5852		0.300
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	TRG	Average RF	% RSD	7.0		≤ 20	0.8761		
4-Bromofluorobenzene	SURR	Average RF	% RSD	1.4		≤ 20	0.4853		
Dibromofluoromethane	SURR	Average RF	% RSD	1.6		≤ 20	0.3338		
Toluene-d8	SURR	Average RF	% RSD	0.8		≤ 20	1.294		

Analysis: 8260 - soil
Date: 06/18/14
Instr. MS #7

Analyst: Ben Wojtasiewicz
Data Path: j:\acqudata\msvoa7\DATA\061814

Tune Method: T0529M.M
Run Method: S0529M.M
LIMS Run#: 397732

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
1	Blank	-				-	1	-	K9467	-	
2	↓	-				-	2	-	68	-	
3	Tune	-				-	1	-	69	YT	
4	CCV	-				-	1	-	70	YC	
5	LCS	-				-	1	-	71	YC	
6	MBlank	-				-	1	-	72	ND	ok for c/o
7	MBlank	-				-	2	-	73	YA	
8	R1404316-001	1	5g	[redacted]	11913	3	2	NA	74	Y	
9	-002	1					2		75	Y	
10	-003	1					2		76	Y	
11	R1404425-001	1					2		77	Y	
12	-002	1					2		78	Y	
13	-003	1					2		79	Y	
14	R1404150-004	1					1		80	Y	
15	-005	1					1		81	Y	
16	-006	1					1		82	Y	
17	-004MS	1					2		83	Y	
18	-004AMS	1					3		84	Y	
19	Blank	-				-	1	-	85	-	
20	↓	-				-	2	-	86	-	

BW 06/19/14

All samples = 5 mL + 1 uL combined IS/Surr. 10 mL purged

500 Primary TG : 71498 5mL
Primary HBO : 71634
Primary HSL : 71505
Primary EPA : 71500
Primary :
50mL = CCV

500 Secondary TG : 71184 2mL
Secondary HBO : 71584
Secondary HSL : 71067
200 Secondary EPA : 71591 5mL
Secondary :
50µL = LCS

5mL → 12.5mL
50µL = MS, AMS

Combined IS/Surr 250: 71597
Surrogate :
Internal Std :

Method Path : I:\ACQUDATA\5973D\METHODS\
Method File : 82700619D.M
Title : 8270 BNA ANALYSIS
Last Update : Fri Jun 20 07:39:36 2014
Response Via : Initial Calibration

Calibration Files
5 =AU902.D 10 =AU903.D 50 =AU904.D 80 =AU905.D 100 =AU906.D 120 =AU907.D 160 =AU908.D

		Compound	5	10	50	80	100	120	160	Avg	%RSD
1)	IR	d4-1,4-Dichloroben...	----------ISTD----------								
2)	TM	Pyridine		1.290	1.262	1.352	1.281	1.297	1.296		2.62
3)	TM	N-Nitrosodimet...	0.550	0.647	0.687	0.695	0.737	0.725	0.711	0.679	9.41
4)	S	SURR1,2-FLUORO...	1.161	1.325	1.315	1.354	1.413	1.378	1.409	1.336	6.43
5)	TM	Benzaldehyde			0.533	0.404	0.420	0.387	0.332	0.415	17.79
6)	TM	Aniline	1.820	1.892	1.515	1.346	1.406	1.259	1.273	1.501	17.15
7)	S	SURR2,PHENOL-D6	1.407	1.454	1.530	1.587	1.668	1.577	1.622	1.549	5.96
8)	TMC	Phenol	1.361	1.498	1.638	1.664	1.743	1.652	1.746	1.615	8.60
9)	TM	bis(2-Clethyl)...	1.076	1.153	1.171	1.175	1.248	1.172	1.147	1.163	4.36
10)	TM	2-Chlorophenol	1.320	1.326	1.387	1.380	1.502	1.402	1.456	1.396	4.71
11)	TM	1,3-Diclbenzene	1.534	1.565	1.540	1.543	1.655	1.594	1.587	1.574	2.71
12)	TMC	1,4-Dichlorobe...	1.579	1.652	1.597	1.614	1.701	1.633	1.629	1.629	2.44
13)	TM	1,2-Diclbenzene	1.533	1.480	1.526	1.524	1.620	1.550	1.545	1.540	2.74
14)	TM	Benzyl Alcohol	0.904	0.922	1.024	1.048	1.109	1.046	1.066	1.017	7.49
15)	TM	2,2'-oxybis(1-...	1.539	1.551	1.604	1.636	1.727	1.638	1.684	1.625	4.16
16)	TM	2-Methylphenol	1.017	1.182	1.275	1.281	1.352	1.284	1.334	1.246	9.20
17)	TM	Acetophenone	1.475	1.652	1.705	1.711	1.869	1.772	1.810	1.713	7.45
18)	TMP	N-Nitroso-Di-n...	0.860	0.868	0.918	0.915	0.976	0.942	0.995	0.925	5.48
19)	TM	Hexachloroethane	0.653	0.586	0.587	0.596	0.628	0.616	0.620	0.612	4.02
20)	TM	3+4-Methylphenol	1.136	1.167	1.316	1.343	1.414	1.357	1.419	1.307	8.64
21)	T	1-Methyl-2-pyr...		0.817	0.898	0.921	0.983	0.907	0.951	0.913	6.19
22)	IR	d8-Naphthalene	----------ISTD----------								
23)	S	SURR4,NITROBEN...	0.339	0.374	0.390	0.398	0.398	0.353	0.347	0.371	6.67
24)	TM	Nitrobenzene	0.332	0.345	0.348	0.355	0.354	0.354	0.358	0.349	2.54
25)	TM	Isophorone	0.584	0.581	0.629	0.635	0.644	0.641	0.640	0.622	4.46
26)	TCM	2-Nitrophenol	0.164	0.181	0.195	0.198	0.202	0.203	0.201	0.192	7.53
27)	TM	Benzoic Acid		0.205	0.281	0.310	0.318	0.316	0.334	0.294	15.99
28)	TM	2,4-Dimethylph...	0.273	0.318	0.339	0.350	0.355	0.345	0.358	0.334	8.96
29)	TM	bis(-2-Chloroe...	0.341	0.360	0.379	0.373	0.384	0.383	0.384	0.372	4.33
30)	TCM	2,4-Dichloroph...	0.241	0.284	0.318	0.322	0.334	0.316	0.337	0.308	11.08
31)	TM	1,2,4-Trichlor...	0.337	0.348	0.354	0.359	0.365	0.365	0.371	0.357	3.31
32)	TM	Naphthalene	1.000	1.044	1.069	1.068	1.086	1.079	1.092	1.063	2.99
33)	TM	4-Chloroaniline	0.379	0.415	0.402	0.391	0.396	0.370	0.356	0.387	5.18
34)	TCM	Hexachlorobuta...	0.191	0.198	0.206	0.211	0.211	0.210	0.214	0.206	4.01
35)	TMC	4-Chloro-3-met...	0.223	0.253	0.281	0.294	0.296	0.288	0.301	0.277	10.30
36)	TM	Caprolactam		0.101	0.099	0.102	0.103	0.104	0.083	0.099	7.86
37)	TM	2-Methylnaphth...	0.628	0.703	0.734	0.748	0.761	0.777	0.767	0.731	7.04

Method Path : I:\ACQUDATA\5973D\METHODS\
Method File : 82700619D.M

38)	TM	1-Methylnaphth...	0.594	0.654	0.677	0.678	0.694	0.700	0.704	0.672	5.69
39)	IR	d10-Acenaphthene	----------ISTD----------								
40)	TPM	Hexachlorocycl...	0.321	0.356	0.381	0.397	0.398	0.375	0.372	0.371	7.14
41)	TCM	2,4,6-Trichlor...	0.338	0.335	0.388	0.408	0.413	0.404	0.419	0.386	9.17
42)	TM	2,4,5-Trichlor...	0.357	0.379	0.381	0.405	0.403	0.401	0.414	0.391	5.06
43)	S	SURR5,2-FLUORO...	1.211	1.316	1.347	1.371	1.355	1.357	1.405	1.337	4.62
44)	TM	1,1'-Biphenyl	1.314	1.387	1.401	1.412	1.450	1.439	1.469	1.410	3.63
45)	TM	2-Chloronaphth...	1.053	1.064	1.119	1.148	1.151	1.159	1.170	1.123	4.20
46)	TM	2-Nitroaniline			0.294	0.310	0.307	0.303	0.300	0.303	2.09
47)	TM	Acenaphthylene	1.658	1.706	1.786	1.788	1.815	1.774	1.806	1.762	3.29
48)	TM	Dimethyl phtha...	1.147	1.185	1.253	1.222	1.215	1.194	1.201	1.202	2.74
49)	TM	2,6-Dinitrotol...	0.221	0.250	0.276	0.291	0.285	0.276	0.272	0.267	8.94
50)	TMC	Acenaphthene	1.132	1.134	1.167	1.208	1.222	1.195	1.235	1.184	3.48
51)	TM	3-Nitroaniline			0.279	0.298	0.300	0.298	0.308	0.297	3.54
52)	TPM	2,4-Dinitrophenol			0.111	0.143	0.154	0.156	0.178	0.149	16.41
53)	TM	Dibenzofuran	1.549	1.628	1.666	1.724	1.752	1.710	1.746	1.682	4.37
54)	TM	2,4-Dinitrotol...	0.256	0.279	0.347	0.361	0.360	0.376	0.383	0.337	14.67
55)	TMP	4-Nitrophenol			0.185	0.212	0.222	0.214	0.229	0.213	7.93
56)	TM	Fluorene	1.225	1.311	1.361	1.389	1.418	1.363	1.374	1.349	4.72
57)	TM	4-Chlorophenyl...	0.621	0.659	0.664	0.703	0.701	0.688	0.687	0.675	4.34
58)	TM	Diethylphthalate	1.078	1.124	1.063	1.117	1.139	1.141	1.194	1.122	3.86
59)	TM	4-Nitroaniline			0.324	0.336	0.347	0.335	0.346	0.338	2.80
60)	S	SURR3,2,4,6-TR...	0.167	0.168	0.181	0.195	0.200	0.201	0.215	0.190	9.42
61)	IR	d10-Phenanthrene	----------ISTD----------								
62)	T	1-Phenyl-1(4-m...								0.000#	-1.00
63)	TM	4,6-Dinitro-2-...			0.127	0.141	0.146	0.144	0.153	0.142	6.77
64)	TM	1,2 Diphenylhy...	0.681	0.773	0.806	0.768	0.735	0.726	0.690	0.740	6.14
65)	TCM	N-Nitrosodiphe...	0.508	0.536	0.543	0.520	0.511	0.517	0.533	0.524	2.53
66)	TM	4-Bromophenyl-...	0.231	0.260	0.250	0.232	0.226	0.224	0.226	0.236	5.87
67)	T	1-Phenyl-1(2,4...								0.000#	-1.00
68)	TM	Hexachlorobenzene	0.256	0.263	0.282	0.268	0.257	0.260	0.263	0.264	3.35
69)	TM	Atrazine	0.073	0.074	0.073	0.056	0.052	0.047	0.042	0.060	22.79 avg
70)	TCM	Pentachlorophenol			0.126	0.148	0.147	0.153	0.165	0.148	9.57
71)	TM	Phenanthrene	1.077	1.100	1.069	1.095	1.095	1.121	1.130	1.098	1.98
72)	TM	Anthracene	0.984	1.084	1.150	1.192	1.175	1.184	1.194	1.138	6.83
73)	TM	Carbazole	0.934	1.011	1.121	1.137	1.139	1.126	1.123	1.084	7.38
74)	TM	Di-n-butylphth...	0.942	0.949	1.274	1.314	1.283	1.260	1.308	1.190	14.12
75)	TCM	Fluoranthene	1.059	1.041	1.359	1.389	1.408	1.378	1.370	1.286	12.62
76)	IR	d12-Chrysene	----------ISTD----------								
77)	TM	Benzidine			0.234	0.163	0.156	0.132	0.124	0.162	26.78 avg
78)	TM	Pyrene	1.082	1.046	1.156	1.164	1.214	1.196	1.210	1.152	5.65
79)	S	SURR6,TERPHENY...	0.745	0.757	0.786	0.795	0.811	0.811	0.839	0.792	4.13
80)	TM	Butyl benzyl p...	0.435	0.442	0.484	0.494	0.509	0.496	0.511	0.482	6.39
81)	TM	3,3'-Dichlorob...	0.346	0.371	0.383	0.371	0.380	0.366	0.366	0.369	3.27
82)	TM	Benzo(a)anthra...	1.089	1.146	1.158	1.153	1.182	1.184	1.191	1.158	2.99

Method Path : I:\ACQUDATA\5973D\METHODS\
Method File : 82700619D.M

83)	TM	Chrysene	1.080	1.117	1.126	1.155	1.179	1.178	1.199	1.148	3.67
84)	TM	bis(2-Ethylhex...	0.553	0.569	0.654	0.670	0.706	0.682	0.712	0.649	9.84
85)	IR	d12-Perylene	----------ISTD----------								
86)	TCM	Di-n-octyl pht...	0.762	0.854	1.077	1.155	1.170	1.161	1.243	1.060	17.08
87)	TM	Benzo(b)Fluora...	0.959	0.986	1.067	1.148	1.146	1.128	1.164	1.086	7.70
88)	TM	Benzo(k)fluora...	1.052	1.052	1.166	1.187	1.218	1.241	1.230	1.164	6.90
89)	TCM	Benzo(a)pyrene	0.947	0.951	1.078	1.104	1.134	1.139	1.154	1.072	8.20
90)	TM	Indeno(1,2,3-c...	0.940	0.945	1.058	1.065	1.081	1.071	1.072	1.033	6.02
91)	TM	Dibenz(a,h)ant...	0.910	0.983	1.097	1.123	1.115	1.115	1.127	1.067	8.02
92)	TM	Benzo(g,h,i)pe...	0.958	1.042	1.082	1.083	1.088	1.074	1.066	1.056	4.33

(#) = Out of Range

Data Path : I:\ACQUDATA\5973D\Data\061914\
Data File : AU905.D
Acq On : 19 Jun 2014 5:36 pm
Operator : Z.Miao
Sample : SSTD080
Misc : 80 PPM STD 8270/625
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 19 17:51:39 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon Jun 16 11:44:24 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	100	0.00
2	TM	Pyridine	1.296	1.262	2.6	100	0.00
3	TM	N-Nitrosodimethylamine	0.679	0.695	-2.4	100	0.00
4	S	SURR1,2-FLUOROPHENOL	1.336	1.354	-1.3	100	0.00
5	TM	Benzaldehyde	0.415	0.404	2.7	100	0.00
6	TM	Aniline	1.501	1.346	10.3	100	0.00
7	S	SURR2,PHENOL-D6	1.549	1.587	-2.5	100	0.00
8	TMC	Phenol	1.615	1.664	-3.0	100	0.00
9	TM	bis(2-Clethyl)Ether	1.163	1.175	-1.0	100	0.00
10	TM	2-Chlorophenol	1.396	1.380	1.1	100	0.00
11	TM	1,3-Diclbenzene	1.574	1.543	2.0	100	0.00
12	TMC	1,4-Dichlorobenzene	1.629	1.614	0.9	100	0.00
13	TM	1,2-Diclbenzene	1.540	1.524	1.0	100	0.00
14	TM	Benzyl Alcohol	1.017	1.048	-3.0	100	0.00
15	TM	2,2'-oxybis(1-Chloropropane	1.625	1.636	-0.7	100	0.00
16	TM	2-Methylphenol	1.246	1.281	-2.8	100	0.00
17	TM	Acetophenone	1.713	1.711	0.1	100	0.00
18	TMP	N-Nitroso-Di-n-propylamine	0.925	0.915	1.1	100	0.00
19	TM	Hexachloroethane	0.612	0.596	2.6	100	0.00
20	TM	3+4-Methylphenol	1.307	1.343	-2.8	100	0.00
21	T	1-Methyl-2-pyrrolidinone	0.913	0.921	-0.9	100	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	100	0.00
23	S	SURR4,NITROBENZENE-D5	0.371	0.398	-7.3	100	0.00
24	TM	Nitrobenzene	0.349	0.355	-1.7	100	0.00
25	TM	Isophorone	0.622	0.635	-2.1	100	0.00
26	TCM	2-Nitrophenol	0.192	0.198	-3.1	100	0.00
27	TM	Benzoic Acid	0.294	0.310	-5.4	100	0.00
28	TM	2,4-Dimethylphenol	0.334	0.350	-4.8	100	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.372	0.373	-0.3	100	0.00
30	TCM	2,4-Dichlorophenol	0.308	0.322	-4.5	100	0.00
31	TM	1,2,4-Trichlorobenzene	0.357	0.359	-0.6	100	0.00
32	TM	Naphthalene	1.063	1.068	-0.5	100	0.00
33	TM	4-Chloroaniline	0.387	0.391	-1.0	100	0.00
34	TCM	Hexachlorobutadiene	0.206	0.211	-2.4	100	0.00
35	TMC	4-Chloro-3-methylphenol	0.277	0.294	-6.1	100	0.00
36	TM	Caprolactam	0.099	0.102	-3.0	100	0.00
37	TM	2-Methylnaphthalene	0.731	0.748	-2.3	100	0.00
38	TM	1-Methylnaphthalene	0.672	0.678	-0.9	100	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	100	0.00
40	TPM	Hexachlorocyclopentadiene	0.371	0.397	-7.0	100	0.00
41	TCM	2,4,6-Trichlorophenol	0.386	0.408	-5.7	100	0.00
42	TM	2,4,5-Trichlorophenol	0.391	0.405	-3.6	100	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.337	1.371	-2.5	100	0.00
44	TM	1,1'-Biphenyl	1.410	1.412	-0.1	100	0.00
45	TM	2-Chloronaphthalene	1.123	1.148	-2.2	100	0.00

Data Path : I:\ACQUDATA\5973D\Data\061914\
Data File : AU905.D
Acq On : 19 Jun 2014 5:36 pm
Operator : Z.Miao
Sample : SSTD080
Misc : 80 PPM STD 8270/625
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 19 17:51:39 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon Jun 16 11:44:24 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
46	TM	2-Nitroaniline	0.303	0.310	-2.3	100	0.00
47	TM	Acenaphthylene	1.762	1.788	-1.5	100	0.00
48	TM	Dimethyl phthalate	1.202	1.222	-1.7	100	0.00
49	TM	2,6-Dinitrotoluene	0.267	0.291	-9.0	100	0.00
50	TMC	Acenaphthene	1.184	1.208	-2.0	100	0.00
51	TM	3-Nitroaniline	0.297	0.298	-0.3	100	0.00
52	TPM	2,4-Dinitrophenol	0.149	0.143	4.0	100	0.00
53	TM	Dibenzofuran	1.682	1.724	-2.5	100	0.00
54	TM	2,4-Dinitrotoluene	0.337	0.361	-7.1	100	0.00
55	TMP	4-Nitrophenol	0.213	0.212	0.5	100	0.00
56	TM	Fluorene	1.349	1.389	-3.0	100	0.00
57	TM	4-Chlorophenyl-phenylether	0.675	0.703	-4.1	100	0.00
58	TM	Diethylphthalate	1.122	1.117	0.4	100	0.00
59	TM	4-Nitroaniline	0.338	0.336	0.6	100	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.190	0.195	-2.6	100	0.00
61	IR	d10-Phenanthrene	1.000	1.000	0.0	100	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	0#	-11.45#
63	TM	4,6-Dinitro-2-methylphenol	0.142	0.141	0.7	100	0.00
64	TM	1,2 Diphenylhydrazine	0.740	0.768	-3.8	100	0.00
65	TCM	N-Nitrosodiphenylamine	0.524	0.520	0.8	100	0.00
66	TM	4-Bromophenyl-phenylether	0.236	0.232	1.7	100	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	100	0.00
68	TM	Hexachlorobenzene	0.264	0.268	-1.5	100	0.00
69	TM	Atrazine	0.060	0.056	6.7	100	0.00
70	TCM	Pentachlorophenol	0.148	0.148	0.0	100	0.00
71	TM	Phenanthrene	1.098	1.095	0.3	100	0.00
72	TM	Anthracene	1.138	1.192	-4.7	100	0.00
73	TM	Carbazole	1.084	1.137	-4.9	100	0.00
74	TM	Di-n-butylphthalate	1.190	1.314	-10.4	100	0.00
75	TCM	Fluoranthene	1.286	1.389	-8.0	100	0.00
76	IR	d12-Chrysene	1.000	1.000	0.0	100	0.00
77	TM	Benzidine	0.162	0.163	-0.6	100	0.00
78	TM	Pyrene	1.152	1.164	-1.0	100	0.00
79	S	SURR6,TERPHENYL-D14	0.792	0.795	-0.4	100	0.00
80	TM	Butyl benzyl phthalate	0.482	0.494	-2.5	100	0.00
81	TM	3,3'-Dichlorobenzidine	0.369	0.371	-0.5	100	0.00
82	TM	Benzo(a)anthracene	1.158	1.153	0.4	100	0.00
83	TM	Chrysene	1.148	1.155	-0.6	100	0.00
84	TM	bis(2-Ethylhexyl)phthalate	0.649	0.670	-3.2	100	0.00
85	IR	d12-Perylene	1.000	1.000	0.0	100	0.00
86	TCM	Di-n-octyl phthalate	1.060	1.155	-9.0	100	0.00
87	TM	Benzo(b)Fluoranthene	1.086	1.148	-5.7	100	0.00
88	TM	Benzo(k)fluoranthene	1.164	1.187	-2.0	100	0.00
89	TCM	Benzo(a)pyrene	1.072	1.104	-3.0	100	0.00

Data Path : I:\ACQUDATA\5973D\Data\061914\
Data File : AU905.D
Acq On : 19 Jun 2014 5:36 pm
Operator : Z.Miao
Sample : SSTD080
Misc : 80 PPM STD 8270/625
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 19 17:51:39 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon Jun 16 11:44:24 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90 TM	Indeno(1,2,3-cd)Pyrene	1.033	1.065	-3.1	100	0.00
91 TM	Dibenz(a,h)anthracene	1.067	1.123	-5.2	100	0.00
92 TM	Benzo(g,h,i)perylene	1.056	1.083	-2.6	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : I:\ACQUDATA\5973D\Data\062014\
Data File : AU937.D
Acq On : 20 Jun 2014 11:59 am
Operator : Z.Miao
Sample : CCV
Misc : 80 PPM STD 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 20 12:14:36 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Fri Jun 20 07:44:56 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	99	0.00
2	TM	Pyridine	1.296	1.434	-10.6	113	0.00
3	TM	N-Nitrosodimethylamine	0.679	0.799	-17.7	114	0.00
4	S	SURR1,2-FLUOROPHENOL	1.336	1.422	-6.4	104	0.00
5	TM	Benzaldehyde	0.415	0.556	-34.0#	136	0.00
6	TM	Aniline	1.501	1.678	-11.8	123	0.00
7	S	SURR2,PHENOL-D6	1.549	1.654	-6.8	103	0.00
8	TMC	Phenol	1.615	1.768	-9.5	105	0.00
9	TM	bis(2-Clethyl)Ether	1.163	1.241	-6.7	105	0.00
10	TM	2-Chlorophenol	1.396	1.480	-6.0	106	0.00
11	TM	1,3-Diclbenzene	1.574	1.588	-0.9	102	0.00
12	TMC	1,4-Dichlorobenzene	1.629	1.640	-0.7	101	0.00
13	TM	1,2-Diclbenzene	1.540	1.546	-0.4	100	0.00
14	TM	Benzyl Alcohol	1.017	1.127	-10.8	106	0.00
15	TM	2,2'-oxybis(1-Chloropropane	1.625	1.769	-8.9	107	0.00
16	TM	2-Methylphenol	1.246	1.311	-5.2	101	0.00
17	TM	Acetophenone	1.713	1.845	-7.7	107	0.00
18	TMP	N-Nitroso-Di-n-propylamine	0.925	1.004	-8.5	109	0.00
19	TM	Hexachloroethane	0.612	0.616	-0.7	102	0.00
20	TM	3+4-Methylphenol	1.307	1.419	-8.6	105	0.00
21	T	1-Methyl-2-pyrrolidinone	0.913	0.974	-6.7	105	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	105	0.00
23	S	SURR4,NITROBENZENE-D5	0.371	0.398	-7.3	105	0.00
24	TM	Nitrobenzene	0.349	0.353	-1.1	104	0.00
25	TM	Isophorone	0.622	0.636	-2.3	105	0.00
26	TCM	2-Nitrophenol	0.192	0.194	-1.0	103	0.00
27	TM	Benzoic Acid	0.294	0.283	3.7	95	0.00
28	TM	2,4-Dimethylphenol	0.334	0.346	-3.6	103	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.372	0.373	-0.3	105	0.00
30	TCM	2,4-Dichlorophenol	0.308	0.312	-1.3	101	0.00
31	TM	1,2,4-Trichlorobenzene	0.357	0.346	3.1	101	0.00
32	TM	Naphthalene	1.063	1.044	1.8	102	0.00
33	TM	4-Chloroaniline	0.387	0.392	-1.3	105	0.00
34	TCM	Hexachlorobutadiene	0.206	0.194	5.8	96	0.00
35	TMC	4-Chloro-3-methylphenol	0.277	0.283	-2.2	101	0.00
36	TM	Caprolactam	0.099	0.104	-5.1	107	0.00
37	TM	2-Methylnaphthalene	0.731	0.709	3.0	99	0.00
38	TM	1-Methylnaphthalene	0.672	0.652	3.0	101	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	103	0.00
40	TPM	Hexachlorocyclopentadiene	0.371	0.358	3.5	93	0.00
41	TCM	2,4,6-Trichlorophenol	0.386	0.387	-0.3	98	0.00
42	TM	2,4,5-Trichlorophenol	0.391	0.381	2.6	97	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.337	1.317	1.5	99	0.00
44	TM	1,1'-Biphenyl	1.410	1.377	2.3	101	0.00
45	TM	2-Chloronaphthalene	1.123	1.083	3.6	97	0.00

Data Path : I:\ACQUDATA\5973D\Data\062014\
Data File : AU937.D
Acq On : 20 Jun 2014 11:59 am
Operator : Z.Miao
Sample : CCV
Misc : 80 PPM STD 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 20 12:14:36 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Fri Jun 20 07:44:56 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
46	TM	2-Nitroaniline	0.303	0.309	-2.0	103	0.00
47	TM	Acenaphthylene	1.762	1.783	-1.2	103	0.00
48	TM	Dimethyl phthalate	1.202	1.197	0.4	101	0.00
49	TM	2,6-Dinitrotoluene	0.267	0.272	-1.9	97	0.00
50	TMC	Acenaphthene	1.184	1.142	3.5	98	0.00
51	TM	3-Nitroaniline	0.297	0.287	3.4	99	0.00
52	TPM	2,4-Dinitrophenol	0.149	0.126	15.4	91	0.00
53	TM	Dibenzofuran	1.682	1.608	4.4	96	0.00
54	TM	2,4-Dinitrotoluene	0.337	0.344	-2.1	98	0.00
55	TMP	4-Nitrophenol	0.213	0.200	6.1	97	0.00
56	TM	Fluorene	1.349	1.327	1.6	99	0.00
57	TM	4-Chlorophenyl-phenylether	0.675	0.642	4.9	94	0.00
58	TM	Diethylphthalate	1.122	1.073	4.4	99	0.00
59	TM	4-Nitroaniline	0.338	0.330	2.4	101	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.190	0.183	3.7	97	0.00
61	IR	d10-Phenanthrene	1.000	1.000	0.0	100	0.02
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	0#	-11.45#
63	TM	4,6-Dinitro-2-methylphenol	0.142	0.133	6.3	94	0.00
64	TM	1,2 Diphenylhydrazine	0.740	0.765	-3.4	100	0.00
65	TCM	N-Nitrosodiphenylamine	0.524	0.511	2.5	98	0.00
66	TM	4-Bromophenyl-phenylether	0.236	0.234	0.8	101	0.01
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	101	0.02
68	TM	Hexachlorobenzene	0.264	0.261	1.1	97	0.01
69	TM	Atrazine	0.060	0.067	-11.7	120	0.01
70	TCM	Pentachlorophenol	0.148	0.122	17.6	82	0.02
71	TM	Phenanthrene	1.098	1.078	1.8	98	0.02
72	TM	Anthracene	1.138	1.158	-1.8	97	0.02
73	TM	Carbazole	1.084	1.116	-3.0	98	0.02
74	TM	Di-n-butylphthalate	1.190	1.273	-7.0	97	0.02
75	TCM	Fluoranthene	1.286	1.344	-4.5	97	0.03
76	IR	d12-Chrysene	1.000	1.000	0.0	97	0.03
77	TM	Benzidine	0.162	0.302	-86.4#	179	0.02 N.T.
78	TM	Pyrene	1.152	1.169	-1.5	97	0.02
79	S	SURR6,TERPHENYL-D14	0.792	0.789	0.4	96	0.03
80	TM	Butyl benzyl phthalate	0.482	0.491	-1.9	96	0.03
81	TM	3,3'-Dichlorobenzidine	0.369	0.395	-7.0	103	0.03
82	TM	Benzo(a)anthracene	1.158	1.151	0.6	97	0.03
83	TM	Chrysene	1.148	1.138	0.9	95	0.03
84	TM	bis(2-Ethylhexyl)phthalate	0.649	0.683	-5.2	98	0.03
85	IR	d12-Perylene	1.000	1.000	0.0	97	0.02
86	TCM	Di-n-octyl phthalate	1.060	1.147	-8.2	97	0.03
87	TM	Benzo(b)Fluoranthene	1.086	1.099	-1.2	93	0.03
88	TM	Benzo(k)fluoranthene	1.164	1.183	-1.6	97	0.02
89	TCM	Benzo(a)pyrene	1.072	1.094	-2.1	96	0.02

Data Path : I:\ACQUDATA\5973D\Data\062014\
Data File : AU937.D
Acq On : 20 Jun 2014 11:59 am
Operator : Z.Miao
Sample : CCV
Misc : 80 PPM STD 8270
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Jun 20 12:14:36 2014
Quant Method : I:\ACQUDATA\5973D\METHODS\82700619D.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Fri Jun 20 07:44:56 2014
Response via : Initial Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
90 TM	Indeno(1,2,3-cd)Pyrene	1.033	1.037	-0.4	95	0.01
91 TM	Dibenz(a,h)anthracene	1.067	1.078	-1.0	93	0.01
92 TM	Benzo(g,h,i)perylene	1.056	1.053	0.3	95	0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Preparation Information Benchsheet

Prep Run#: 211022
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/17/14 12:00 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406735-01	MB		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/69705	
2	RQ1406735-02	LCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/71247; 1.0000 mL/70367; 1.0000 mL/69705	
3	RQ1406735-03	DLCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/70367; 1.0000 mL/71247; 1.0000 mL/69705	
4	R1404510-001 [redacted]	1406111501 200-SB-7 8-10'	.01	30.0g	8270D/SVO /BEHP + DNBP 69T8				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705	6/27 III. SJV
5	RQ1406735-04	R1404510-001 MS	.01	30.0g	8270D/SVO				1.00mL	reddish-brown sand and gravel	1.0000 mL/71247; 1.0000 mL/69705; 1.0000 mL/70367	
6	RQ1406735-05	R1404510-001 DMS	.01	30.0g	8270D/SVO				1.00mL	reddish-brown sand and gravel	1.0000 mL/71247; 1.0000 mL/70367; 1.0000 mL/69705	
7	R1404510-002	1406111633 200-SB-7 18-21'	.01	30.0g	8270D/SVO				1.00mL	light reddish-brown sandy clay	1.0000 mL/69705	
8	R1404510-003	1406120933 200-SB-7 38-40'	.01	30.0g	8270D/SVO				1.00mL	light reddish-brown sand and gravel	1.0000 mL/69705	

Spiking Solutions

Name:	8270 Soil Surrogate 100-200ppm	Inventory ID	69705	Logbook Ref:	8270 Soil Surrogate 100-200ppm	Expires On:	10/17/2014		
Name:	8270 LCS Mix1: 100 ug/mL	Inventory ID	70367	Logbook Ref:		Expires On:	10/31/2014	Lot #:	Lc02739
Name:	OLM/SOM additionals Spike 100ppm	Inventory ID	71247	Logbook Ref:		Expires On:	09/01/2014		

Preparation Materials

Eppendorf Pipette Repeater	EXT #14 (61350)	2mL Graduated Vials	(71402)	50:50 Dichloromethane:Acetone	(71513)
Prepared Sodium Sulfate Na2SO4	(70845)	Sand Reagent Grade	SVOA (71055)		

Preparation Steps

Step:	Extraction	Step:	Concentration	Step:	Extraction Complete
Started:	6/17/14 12:00	Started:	6/17/14 18:10	Started:	6/17/14 20:35
Finished:	6/17/14 18:00	Finished:	6/17/14 18:45	Finished:	6/17/14 20:35
By:	SGOLBERG	By:	SGOLBERG	By:	SGOLBERG
Comments		Comments		Comments	

0
0
0
5
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Comments:

Preparation Information Benchsheet

Prep Run#: 211022
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/17/14 12:00 PM

Reviewed By: _____ Date: 6/17/14 Spike Witness: BALLGEIER Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analysis: 8270	Analyst: 8270	Run Method: 8270061912.m	
Date: 6/20/14	Instr. 5973-D	Quant Method: 8270061912.m	
		LIMS Run#:	398357

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	Tune 50ng	DFTPP	Tuned.m	AN931	N	7063
	Tune ↓		↓	932	Y	10:54Am
	CCV			35	No data	
	CCV			36	No data	
1	CCV 80 ppm	8270061912.m		37	Y	
2	[redacted] RQ1406876-01 BLK		6/19/14 8270TCLP	38	Ym	R 4634 8270TCLP } IV.
3	-02 LCS			39	YQ	R 4632 8270061912.m
4	-03 LCSD			40	YQ	
5	R 4634-001			41	Y	
6	RQ 6858-01		SQ BLK	42	Y	
7	[redacted] R 4632-001		8270061912	43	Y	
8	[redacted] R 4590-015		8270BEHP Soil 6/18/14	44	Y	
9	-020			45	Y	
10	-021			46	Y	
11	-022			47	Y	
12	-023			48	Y	
13	-024			49	Y	
14	[redacted] R 4317-001		Re-ex 8270TCL 6/18	50	Y	
15	-002			51	Y	
16	-003			52	Y	
17	[redacted] RQ 6735-01		BLK 6/17/14 Soil 8270BEHP	53	Ym	only.
18	-02 LCS			54	YQ	
19	-03 LCSD			55	YQ	
20	R 4510-001			56	Y	
21	-001MS		RQ 6735-04	57	YQ	
22	-001MSD		-05	58	YQ	
23	-002			59	Y	
24	-003			60	Y	10:18Pm

All samples = 1 mL + 10 uL Combined IS/Surr.; 7046

Primary : _____ exp: Secondary : _____ exp:

Primary: _____ exp: Secondary : _____ exp:

Runlog GCEXT r1 12/5/12

00056

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	6/24/14 13:02
Sample Name:	1406161400 200-SB-13 8/10'	**Units:**	µg/Kg
Lab Code:	R1404618-001	**Basis:**	Dry
		Percent Solids:	96.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398628
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\062414\K9560.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.76	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.76	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.97	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.76	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.98	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.92	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.50	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/24/14 13:02	
Dibromofluoromethane	101	63-138	6/24/14 13:02	
Toluene-d8	101	66-138	6/24/14 13:02	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	6/24/14 13:40
Sample Name:	1406161540 200-SB-28 30/32'	**Units:**	µg/Kg
Lab Code:	R1404618-003	**Basis:**	Dry
		Percent Solids:	93.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398628
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\062414\K9561.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.3	0.78	
79-00-5	1,1,2-Trichloroethane	ND	U	5.3	0.78	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.3	1.4	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.3	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.3	0.66	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.3	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.3	2.5	
67-63-0	Isopropanol	ND	U	110	30	
67-64-1	Acetone	ND	U	5.3	3.0	
71-43-2	Benzene	ND	U	5.3	0.31	
75-27-4	Bromodichloromethane	ND	U	5.3	0.66	
75-25-2	Bromoform	ND	U	5.3	1.0	
108-90-7	Chlorobenzene	ND	U	5.3	0.31	
67-66-3	Chloroform	ND	U	5.3	1.4	
74-87-3	Chloromethane	ND	U	5.3	0.43	
124-48-1	Dibromochloromethane	ND	U	5.3	0.78	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.3	1.7	
75-09-2	Dichloromethane	ND	U	5.3	0.61	
100-41-4	Ethylbenzene	ND	U	5.3	0.25	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.3	1.1	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.3	0.94	
108-88-3	Toluene	ND	U	5.3	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.3	1.1	
179601-23-1	m,p-Xylenes	ND	U	11	1.2	
95-47-6	o-Xylene	ND	U	5.3	0.52	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.3	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	51-136	6/24/14 13:40	
Dibromofluoromethane	98	63-138	6/24/14 13:40	
Toluene-d8	100	66-138	6/24/14 13:40	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Extracted:	6/25/14
		Date Analyzed:	6/26/14 15:10
Sample Name:	1406161403 200-SB-13 8/10'	**Units:**	µg/Kg
Lab Code:	R1404618-002	**Basis:**	Dry
		Percent Solids:	97.1

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	399279
Prep Method:	EPA 3541	**Extraction Lot:**	211329
Data File Name:	I:\ACQUDATA\5973A\DATA\062614\CZ258.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	340	44	
84-74-2	Di-n-butyl Phthalate	ND	U	340	53	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	66	47-126	6/26/14 15:10	
Nitrobenzene-d5	62	39-136	6/26/14 15:10	
p-Terphenyl-d14	70	35-152	6/26/14 15:10	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Extracted:	6/25/14
		Date Analyzed:	6/26/14 15:38
Sample Name:	1406161546 200-SB-13 30/32'	**Units:**	µg/Kg
Lab Code:	R1404618-004	**Basis:**	Dry
		Percent Solids:	92.8

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	399279
Prep Method:	EPA 3541	**Extraction Lot:**	211329
Data File Name:	I:\ACQUDATA\5973A\DATA\062614\CZ259.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	360	47	
84-74-2	Di-n-butyl Phthalate	ND	U	360	55	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	46	*	47-126	6/26/14 15:38	
Nitrobenzene-d5	45		39-136	6/26/14 15:38	
p-Terphenyl-d14	52		35-152	6/26/14 15:38	

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number MM-4618.

Cooler received on 6/19/14 by: JPS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 6/19/14 Time: 0952 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	5.9	4.3	3.4				
Correction Factor (°C)	–	–	-1.7				
Corrected Temp (°C)	5.9	4.3	1.7				
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: room by JPS on 6/19/14 at 0952
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: JMS 6/19/14

Cooler Breakdown: Date: 6/20/14 Time: 1437 by: JPS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated NA

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: see check

Other Comments:

SEE COC.

140616 1345 200-SB-13 - bottle for dioxin arrived broken

PC Secondary Review: JMS 7/7/14 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

SUPPORTING DOCUMENTATION

ALS Environmental - Rochester, NY
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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Analyzed:**	6/24/14 10:28
Sample Matrix:	Soil		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-07
Lab Code:	RQ1407115-04	**File ID:**	I:\ACQUDATA\MSVOA7\DATA\062414\K9556.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1407115-03	I:\ACQUDATA\MSVOA7\DATA\062414\K9554.D\	6/24/14 09:11
1406161400 200-SB-13 8/10'	R1404618-001	I:\ACQUDATA\MSVOA7\DATA\062414\K9560.D\	6/24/14 13:02
1406161540 200-SB-28 30/32'	R1404618-003	I:\ACQUDATA\MSVOA7\DATA\062414\K9561.D\	6/24/14 13:40
1406161540 200-SB-28 30/32'MS	RQ1407115-05	I:\ACQUDATA\MSVOA7\DATA\062414\K9566.D\	6/24/14 16:50
1406161540 200-SB-28 30/32'DMS	RQ1407115-06	I:\ACQUDATA\MSVOA7\DATA\062414\K9567.D\	6/24/14 17:31

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Extracted:	7/1/14
		Date Analyzed:	7/2/14 12:58
Sample Name:	1406161546 200-SB-13 30/32'	**Units:**	µg/Kg
Lab Code:	R1404618-004	**Basis:**	Dry
Run Type:	Reanalysis	**Percent Solids:**	92.8

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	400112
Prep Method:	EPA 3541	**Extraction Lot:**	211771
Data File Name:	I:\ACQUDATA\5973A\DATA\070214\CZ299.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	360	47	*
84-74-2	Di-n-butyl Phthalate	ND	U	360	55	*

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	59	47-126	7/2/14 12:58	
Nitrobenzene-d5	51	39-136	7/2/14 12:58	
p-Terphenyl-d14	63	35-152	7/2/14 12:58	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B		
Sample Name:	1406161552 200-SB-13 30/32'	**Date Collected:**	6/16/14
Lab Code:	R1404618-006	**Date Received:**	6/19/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
9045D		DWARD

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404618-MB1	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/23/14 13:20	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404618-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/24/14 12:38	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404618-MB3	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/24/14 12:38	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	6/24/14 10:28
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1407115-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398628
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\062414\K9556.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.0	0.73	
79-00-5	1,1,2-Trichloroethane	ND	U	5.0	0.73	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.0	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.0	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.0	0.61	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	ND	U	5.0	2.3	
67-63-0	Isopropanol	ND	U	100	28	
67-64-1	Acetone	ND	U	5.0	2.9	
71-43-2	Benzene	ND	U	5.0	0.29	
75-27-4	Bromodichloromethane	ND	U	5.0	0.61	
75-25-2	Bromoform	ND	U	5.0	0.93	
108-90-7	Chlorobenzene	ND	U	5.0	0.29	
67-66-3	Chloroform	ND	U	5.0	1.3	
74-87-3	Chloromethane	ND	U	5.0	0.40	
124-48-1	Dibromochloromethane	ND	U	5.0	0.73	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.0	1.5	
75-09-2	Dichloromethane	ND	U	5.0	0.57	
100-41-4	Ethylbenzene	ND	U	5.0	0.23	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.0	0.94	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.0	0.88	
108-88-3	Toluene	ND	U	5.0	1.0	
79-01-6	Trichloroethene (TCE)	ND	U	5.0	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.1	
95-47-6	o-Xylene	ND	U	5.0	0.48	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.0	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	51-136	6/24/14 10:28	
Dibromofluoromethane	100	63-138	6/24/14 10:28	
Toluene-d8	101	66-138	6/24/14 10:28	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	6/25/14
		Date Analyzed:	6/26/14 20:56
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1407208-01	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	399279
Prep Method:	EPA 3541	**Extraction Lot:**	211329
Data File Name:	I:\ACQUDATA\5973A\DATA\062614\CZ270.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	330	43	
84-74-2	Di-n-butyl Phthalate	ND	U	330	51	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	57	47-126	6/26/14 20:56	
Nitrobenzene-d5	52	39-136	6/26/14 20:56	
p-Terphenyl-d14	62	35-152	6/26/14 20:56	

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	7/1/14
		Date Analyzed:	7/2/14 11:37
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1407476-01	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	400112
Prep Method:	EPA 3541	**Extraction Lot:**	211771
Data File Name:	I:\ACQUDATA\5973A\DATA\070214\CZ296.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	330	43	
84-74-2	Di-n-butyl Phthalate	ND	U	330	51	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	69	47-126	7/2/14 11:37	
Nitrobenzene-d5	64	39-136	7/2/14 11:37	
p-Terphenyl-d14	76	35-152	7/2/14 11:37	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	6/24/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name: 1406161540 200-SB-28 30/32'
Lab Code: R1404618-003

Units: Percent
Basis: As Received

Analyte Name	Method	MRL	Sample Result	1406161540 200-SB-28 30/32'DUP Duplicate Sample R1404618-003DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	1.0	93.7	93.6	93.7	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B
Sample Matrix: Soil

Service Request: R1404618
Date Collected: 6/16/14
Date Received: 6/19/14
Date Analyzed: 6/23/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name: 1406161546 200-SB-13 30/32'
Lab Code: R1404618-004

Units: Percent
Basis: As Received

Analyte Name	Method	MRL	Sample Result	1406161546 200-SB-13 30/32'DUP Duplicate Sample R1404618-004DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	1.0	92.8	92.7	92.7	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	6/23/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name: 1406161552 200-SB-13 30/32'
Lab Code: R1404618-006

Units: pH Units
Basis: As Received

Analyte Name	Method	MRL	Sample Result	1406161552 200-SB-13 30/32'DUP Duplicate Sample R1404618-006DUP Result	Average	RPD	RPD Limit
pH	9045D	-	8.79	8.86	8.82	<1	0.10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B
Sample Matrix: Soil

Service Request: R1404618
Date Collected: 6/16/14
Date Received: 6/19/14
Date Analyzed: 6/24/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: 1406161540 200-SB-28 30/32'
Lab Code: R1404618-003

Units: µg/Kg
Basis: Dry

Analytical Method: 8260C

		1406161540 200-SB-28 30/32'MS Matrix Spike RQ1407115-05			1406161540 200-SB-28 30/32'DMS Duplicate Matrix Spike RQ1407115-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	ND	46.2	53.4	87	46.3	53.4	87	37 - 142	<1	30
1,1,2-Trichloroethane	ND	48.4	53.4	91	49.4	53.4	93	35 - 144	2	30
1,1,2-Trichlorotrifluoroethane	ND	46.4	53.4	87	47.4	53.4	89	31 - 139	2	30
1,1-Dichloroethene (1,1-DCE)	ND	55.7	53.4	104	55.8	53.4	105	47 - 155	<1	30
1,2-Dichloroethane	ND	44.7	53.4	84	46.7	53.4	88	37 - 142	5	30
2,2-Dichloro-1,1,1-trifluoroethane (CFC	ND	49.4	53.4	93	50.4	53.4	94	46 - 159	1	30
2-Butanone (MEK)	ND	45.2	53.4	85	51.7	53.4	97	29 - 166	13	30
Isopropanol	ND	1050	1070	99	1200	1070	113	10 - 158	13	30
Acetone	ND	40.0	53.4	75	44.2	53.4	83	21 - 197	10	30
Benzene	ND	47.7	53.4	89	48.7	53.4	91	33 - 144	2	30
Bromodichloromethane	ND	46.0	53.4	86	48.3	53.4	91	35 - 144	6	30
Bromoform	ND	48.1	53.4	90	50.0	53.4	94	16 - 157	4	30
Chlorobenzene	ND	47.2	53.4	88	47.0	53.4	88	17 - 151	<1	30
Chloroform	ND	45.0	53.4	84	45.8	53.4	86	43 - 145	2	30
Chloromethane	ND	46.6	53.4	87	48.3	53.4	90	11 - 162	3	30
Dibromochloromethane	ND	47.6	53.4	89	48.0	53.4	90	23 - 154	1	30
Dichlorofluoromethane (CFC 21)	ND	41.6	53.4	78	42.2	53.4	79	45 - 158	1	30
Dichloromethane	ND	47.7	53.4	89	48.8	53.4	91	42 - 135	2	30
Ethylbenzene	ND	43.0	53.4	81	43.3	53.4	81	13 - 159	<1	30
Methyl tert-Butyl Ether	ND	48.5	53.4	91	51.1	53.4	96	48 - 131	5	30
Tetrachloroethene (PCE)	ND	45.8	53.4	86	46.8	53.4	88	19 - 159	2	30
Toluene	ND	47.9	53.4	90	48.0	53.4	90	22 - 148	<1	30
Trichloroethene (TCE)	ND	55.7	53.4	104	58.2	53.4	109	11 - 167	5	30
m,p-Xylenes	ND	91.1	107	85	90.9	107	85	10 - 160	<1	30
o-Xylene	ND	45.2	53.4	85	46.5	53.4	87	10 - 160	2	30
1,2-Dichloro-1,1,2-trifluoroethane (CFC	ND	56.4	53.4	106	55.6	53.4	104	45 - 151	2	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404618
Project:	White Sands Test Facility/14EC009B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14

Matrix Spike Summary
Semivolatile Organic Compounds by GC/MS

Sample Name: 1406161546 200-SB-13 30/32'
Lab Code: R1404618-004

Units: µg/Kg
Basis: Dry

Analytical Method: 8270D
Prep Method: EPA 3541

		1406161546 200-SB-13 30/32'MS Matrix Spike RQ1407208-04			1406161546 200-SB-13 30/32'DMS Duplicate Matrix Spike RQ1407208-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bis(2-ethylhexyl) Phthalate	ND	2210	3590	62	1910	3590	53	13 - 164	15	30
Di-n-butyl Phthalate	ND	2290	3590	64	2100	3590	58	14 - 174	9	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B
Sample Matrix: Soil

Service Request: R1404618
Date Analyzed: 6/24/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 398628

Analyte Name	Lab Control Sample RQ1407115-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	15.7	20.0	78	64 - 127
1,1,2-Trichloroethane	19.4	20.0	97	76 - 123
1,1,2-Trichlorotrifluoroethane	15.7	20.0	78	59 - 146
1,1-Dichloroethene (1,1-DCE)	19.6	20.0	98	75 - 151
1,2-Dichloroethane	18.4	20.0	92	66 - 123
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	21.5	20.0	108	61 - 138
2-Butanone (MEK)	19.0	20.0	95	62 - 128
Isopropanol	428	400	107	62 - 142
Acetone	17.4	20.0	87	53 - 143
Benzene	18.3	20.0	92	74 - 123
Bromodichloromethane	19.4	20.0	97	77 - 127
Bromoform	19.1	20.0	95	65 - 133
Chlorobenzene	19.0	20.0	95	77 - 124
Chloroform	17.8	20.0	89	73 - 125
Chloromethane	19.5	20.0	98	56 - 154
Dibromochloromethane	19.5	20.0	97	77 - 124
Dichlorofluoromethane (CFC 21)	18.4	20.0	92	79 - 142
Dichloromethane	22.2	20.0	111	77 - 126
Ethylbenzene	16.3	20.0	81	73 - 123
Methyl tert-Butyl Ether	20.3	20.0	102	72 - 131
Tetrachloroethene (PCE)	16.8	20.0	84	65 - 133
Toluene	17.7	20.0	89	72 - 127
Trichloroethene (TCE)	17.3	20.0	87	72 - 129
m,p-Xylenes	35.8	40.0	90	77 - 125
o-Xylene	18.4	20.0	92	75 - 124
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	26.1	20.0	130	56 - 154

Results flagged with an asterisk (*) indicate values outside control criteria.

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Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404618
Date Analyzed: 6/24/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA7\DATA\062414\K9553.D\

Calibration Date: 5/29/14
Calibration ID: RC1400043
Analysis Lot: 398628
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1-Trichloroethane (TCA)	50.0	43.1	0.7075	0.6095	-13.9	NA	± 20 %	Average RF
1,1,2-Trichloroethane	50.0	46.9	0.3414	0.3205	-6.1	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	45.4	0.4820	0.4378	-9.2	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	45.4	0.4169	0.3783	-9.2	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	44.9	0.4920	0.4422	-10.1	NA	± 20 %	Average RF
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	50.0	50.2	0.8365	0.8390	0.3	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	42.0	0.7656	0.6435	-15.9	NA	± 20 %	Average RF
Isopropanol	1000	953	0.08660	0.08255	-4.7	NA	± 20 %	Average RF
Acetone	50.0	38.1	0.6020	0.4587	-23.8 *	NA	± 20 %	Average RF
Benzene	50.0	47.4	1.440	1.364	-5.3	NA	± 20 %	Average RF
Bromodichloromethane	50.0	46.8	0.4660	0.4364	-6.3	NA	± 20 %	Average RF
Bromoform	50.0	49.0	0.2458	0.2409	-2.0	NA	± 20 %	Average RF
Chlorobenzene	50.0	48.4	0.9166	0.8864	-3.3	NA	± 20 %	Average RF
Chloroform	50.0	44.4	1.049	0.9309	-11.2	NA	± 20 %	Average RF
Chloromethane	50.0	48.0	1.118	1.073	-4.0	NA	± 20 %	Average RF
Dibromochloromethane	50.0	48.9	0.3859	0.3777	-2.1	NA	± 20 %	Average RF
Dichlorofluoromethane (CFC 21)	50.0	48.5	1.436	1.394	-2.9	NA	± 20 %	Average RF
Dichloromethane	50.0	45.0	0.6951	0.6251	-10.1	NA	± 20 %	Average RF
Ethylbenzene	50.0	45.9	1.608	1.475	-8.3	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	45.3	1.847	1.672	-9.5	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	45.9	0.3262	0.2994	-8.2	NA	± 20 %	Average RF
Toluene	50.0	47.8	1.479	1.414	-4.4	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	46.7	0.3311	0.3094	-6.6	NA	± 20 %	Average RF
m,p-Xylenes	100	92.8	0.5809	0.5392	-7.2	NA	± 20 %	Average RF
o-Xylene	50.0	46.6	0.5852	0.5458	-6.7	NA	± 20 %	Average RF
1,2-Dichloro-1,1,2-trifluoroethane (CFC	50.0	51.9	0.8761	0.9100	3.9	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	49.2	0.4853	0.4771	-1.7	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	48.8	0.3338	0.3256	-2.5	NA	± 20 %	Average RF
Toluene-d8	50.0	51.6	1.294	1.336	3.2	NA	± 20 %	Average RF

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QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404618
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

#	File Location	Acquisition Date	#	File Location	Acquisition Date
01	I:\ACQUDATA\MSVOA7\DATA\052914\K9081	5/29/14 13:54	02	I:\ACQUDATA\MSVOA7\DATA\052914\K9082	5/29/14 14:31
03	I:\ACQUDATA\MSVOA7\DATA\052914\K9083	5/29/14 15:09	04	I:\ACQUDATA\MSVOA7\DATA\052914\K9084	5/29/14 15:47
05	I:\ACQUDATA\MSVOA7\DATA\052914\K9085	5/29/14 16:24	06	I:\ACQUDATA\MSVOA7\DATA\052914\K9086	5/29/14 17:02
07	I:\ACQUDATA\MSVOA7\DATA\052914\K9087	5/29/14 17:39	08	I:\ACQUDATA\MSVOA7\DATA\052914\K9088	5/29/14 18:16

Analyte

1,1,1-Trichloroethane (TCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.7839	02	5.000	0.7509	03	10.000	0.7284	04	20.000	0.6127
05	50.000	0.6606	06	100.000	0.6772	07	150.000	0.7145	08	200.000	0.7320

1,1,2-Trichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3874	02	5.000	0.3495	03	10.000	0.3341	04	20.000	0.3176
05	50.000	0.3329	06	100.000	0.3427	07	150.000	0.3360	08	200.000	0.3308

1,1,2-Trichlorotrifluoroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5947	02	5.000	0.5106	03	10.000	0.4949	04	20.000	0.4003
05	50.000	0.4170	06	100.000	0.4406	07	150.000	0.5023	08	200.000	0.4958

1,1-Dichloroethene (1,1-DCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4287	02	5.000	0.4345	03	10.000	0.4227	04	20.000	0.4036
05	50.000	0.4110	06	100.000	0.3927	07	150.000	0.4180	08	200.000	0.4236

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5482	02	5.000	0.5030	03	10.000	0.5071	04	20.000	0.4618
05	50.000	0.4971	06	100.000	0.4830	07	150.000	0.4706	08	200.000	0.4654

2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9132	02	5.000	0.8478	03	10.000	0.8259	04	20.000	0.8460
05	50.000	0.8658	06	100.000	0.7603	07	150.000	0.8231	08	200.000	0.8096

2-Butanone (MEK)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8520	02	5.000	0.8114	03	10.000	0.8282	04	20.000	0.6699
05	50.000	0.7465	06	100.000	0.7626	07	150.000	0.7310	08	200.000	0.7234

Isopropanol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20.000	0.09561	02	100.000	0.08746	03	200.000	0.08773	04	400.000	0.08729
05	1000.000	0.08880	06	2000.000	0.08603	07	3000.000	0.08103	08	4000.000	0.07884

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QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404618
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Acetone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7647	03	10.000	0.7579	04	20.000	0.5490	05	50.000	0.5746
06	100.000	0.5454	07	150.000	0.5177	08	200.000	0.5047			

Benzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.596	02	5.000	1.535	03	10.000	1.466	04	20.000	1.318
05	50.000	1.382	06	100.000	1.388	07	150.000	1.402	08	200.000	1.431

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4916	02	5.000	0.4571	03	10.000	0.4730	04	20.000	0.4355
05	50.000	0.4643	06	100.000	0.4670	07	150.000	0.4646	08	200.000	0.4746

Bromoform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2226	02	5.000	0.2401	03	10.000	0.2401	04	20.000	0.2204
05	50.000	0.2512	06	100.000	0.2653	07	150.000	0.2634	08	200.000	0.2633

Chlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.046	02	5.000	0.9396	03	10.000	0.9567	04	20.000	0.7815
05	50.000	0.8522	06	100.000	0.8984	07	150.000	0.9364	08	200.000	0.9222

Chloroform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.206	02	5.000	1.120	03	10.000	1.016	04	20.000	1.017
05	50.000	1.023	06	100.000	0.9987	07	150.000	1.003	08	200.000	1.006

Chloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.395	02	5.000	1.091	03	10.000	1.020	04	20.000	1.109
05	50.000	1.074	06	100.000	1.055	07	150.000	1.105	08	200.000	1.093

Dibromochloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4190	02	5.000	0.3982	03	10.000	0.3683	04	20.000	0.3414
05	50.000	0.3785	06	100.000	0.3915	07	150.000	0.3938	08	200.000	0.3963

Dichlorofluoromethane (CFC 21)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.487	02	5.000	1.460	03	10.000	1.400	04	20.000	1.420
05	50.000	1.497	06	100.000	1.357	07	150.000	1.436	08	200.000	1.432

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QA/QC Report

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Project: White Sands Test Facility/14EC009B

Service Request: R1404618
Calibration Date: 5/29/14

Initial Calibration Summary
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Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Dichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7799	03	10.000	0.7323	04	20.000	0.6584	05	50.000	0.6868
06	100.000	0.6674	07	150.000	0.6625	08	200.000	0.6782			

Ethylbenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.782	02	5.000	1.803	03	10.000	1.701	04	20.000	1.348
05	50.000	1.426	06	100.000	1.560	07	150.000	1.647	08	200.000	1.599

Methyl tert-Butyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.982	02	5.000	1.860	03	10.000	1.863	04	20.000	1.734
05	50.000	1.877	06	100.000	1.843	07	150.000	1.812	08	200.000	1.801

Tetrachloroethene (PCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4071	02	5.000	0.3694	03	10.000	0.3436	04	20.000	0.2614
05	50.000	0.2735	06	100.000	0.3000	07	150.000	0.3294	08	200.000	0.3249

Toluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.670	02	5.000	1.584	03	10.000	1.537	04	20.000	1.282
05	50.000	1.376	06	100.000	1.432	07	150.000	1.484	08	200.000	1.468

Trichloroethene (TCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4316	02	5.000	0.3414	03	10.000	0.3265	04	20.000	0.2828
05	50.000	0.2997	06	100.000	0.3152	07	150.000	0.3251	08	200.000	0.3265

m,p-Xylenes

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.6838	02	10.000	0.6233	03	20.000	0.6206	04	40.000	0.4834
05	100.000	0.5118	06	200.000	0.5540	07	300.000	0.5902	08	400.000	0.5802

o-Xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.6621	02	5.000	0.6233	03	10.000	0.6266	04	20.000	0.4869
05	50.000	0.5256	06	100.000	0.5698	07	150.000	0.5983	08	200.000	0.5890

1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9808	02	5.000	0.8778	03	10.000	0.8576	04	20.000	0.8867
05	50.000	0.9405	06	100.000	0.7860	07	150.000	0.8413	08	200.000	0.8382

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QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC009B

Service Request: R1404618
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	50.000	0.4819	06	50.000	0.4833	07	50.000	0.4775	02	50.000	0.4893
04	50.000	0.4931	01	50.000	0.4940	03	50.000	0.4875	08	50.000	0.4756

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	50.000	0.3295	05	50.000	0.3361	07	50.000	0.3245	02	50.000	0.3390
04	50.000	0.3406	01	50.000	0.3368	08	50.000	0.3299	03	50.000	0.3344

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	50.000	1.289	03	50.000	1.291	01	50.000	1.307	04	50.000	1.306
02	50.000	1.305	07	50.000	1.289	06	50.000	1.276	05	50.000	1.291

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Service Request: R1404618
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

		Calibration Evaluation					RRF Evaluation		
Analyte Name	**Compound Type**	**Fit Type**	**Eval.**	**Eval. Result**	**Q**	**Control Criteria**	**Average RRF**	**Q**	**Minimum RRF**
1,1,1-Trichloroethane (TCA)	TRG	Average RF	% RSD	7.7		≤ 20	0.7075		0.100
1,1,2-Trichloroethane	TRG	Average RF	% RSD	6.1		≤ 20	0.3414		0.100
1,1,2-Trichlorotrifluoroethane	TRG	Average RF	% RSD	12.9		≤ 20	0.4820		0.100
1,1-Dichloroethene (1,1-DCE)	TRG	Average RF	% RSD	3.3		≤ 20	0.4169		0.100
1,2-Dichloroethane	TRG	Average RF	% RSD	5.8		≤ 20	0.4920		0.100
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	TRG	Average RF	% RSD	5.3		≤ 20	0.8365		
2-Butanone (MEK)	TRG	Average RF	% RSD	8.0		≤ 20	0.7656		0.05
Isopropanol	TRG	Average RF	% RSD	5.9		≤ 20	0.08660		
Acetone	TRG	Average RF	% RSD	18.5		≤ 20	0.6020		0.05
Benzene	TRG	Average RF	% RSD	6.2		≤ 20	1.440		0.500
Bromodichloromethane	TRG	Average RF	% RSD	3.4		≤ 20	0.4660		0.200
Bromoform	TRG	Average RF	% RSD	7.3		≤ 20	0.2458		0.100
Chlorobenzene	TRG	Average RF	% RSD	8.4		≤ 20	0.9166		0.500
Chloroform	TRG	Average RF	% RSD	7.1		≤ 20	1.049		0.200
Chloromethane	TRG	Average RF	% RSD	10.4		≤ 20	1.118		0.100
Dibromochloromethane	TRG	Average RF	% RSD	6.0		≤ 20	0.3859		0.100
Dichlorofluoromethane (CFC 21)	TRG	Average RF	% RSD	3.2		≤ 20	1.436		
Dichloromethane	TRG	Average RF	% RSD	6.5		≤ 20	0.6951		0.100
Ethylbenzene	TRG	Average RF	% RSD	10.0		≤ 20	1.608		0.100
Methyl tert-Butyl Ether	TRG	Average RF	% RSD	3.9		≤ 20	1.847		0.100
Tetrachloroethene (PCE)	TRG	Average RF	% RSD	14.8		≤ 20	0.3262		0.200
Toluene	TRG	Average RF	% RSD	8.2		≤ 20	1.479		0.400
Trichloroethene (TCE)	TRG	Average RF	% RSD	13.4		≤ 20	0.3311		0.200
m,p-Xylenes	TRG	Average RF	% RSD	11.1		≤ 20	0.5809		0.100
o-Xylene	TRG	Average RF	% RSD	9.7		≤ 20	0.5852		0.300
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	TRG	Average RF	% RSD	7.0		≤ 20	0.8761		
4-Bromofluorobenzene	SURR	Average RF	% RSD	1.4		≤ 20	0.4853		
Dibromofluoromethane	SURR	Average RF	% RSD	1.6		≤ 20	0.3338		
Toluene-d8	SURR	Average RF	% RSD	0.8		≤ 20	1.294		

Analysis: 8260-5011 | Analyst: Ben Wojtosiewicz | Tune Method: T0529.14.M

Date: 06/24/14 | Data Path: j:\acqudata\msvoa 7 \ DATA \ 062414 | Run Method: S0529.14.M

Instr. MS #7 | LIMS Run#: 398628

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
1	Blank	-				-	1	-	K9551	-	
2	Tune	-				-	1	-	52	YT	
3	CCV	-				-	1	-	53	YC	
4	LCS	-				-	1	-	54	YC	
5	MBlank	-				-	1	-	55	(N)	pH for c/o
6	MBlank	-				-	2	-	56	YB	
7	R1404600-006	1		[redacted]	6684	2	2	NA	57	Y	
8	↓ -004	1		↓	↓	↓	2		58	Y	
9	R1404691-001	1		[redacted]	6764	2	1		59	Y	
10	R1404619-001	1		[redacted]	11813	3	1		60	Y	
11	↓ -003	1		↓	↓	↓	1		61	Y	
12	R1404705-001	1		[redacted]	11903	2	1		62	Y	
13	R1404656-013	5	1g	[redacted]	6713	1	2		63	Y	RA
14	R1404706-001	5	1g	[redacted]	11903	2	1	↓	64	(N)	ISL, pH
15	CBlank	-				-	1	-	65	-	
16	R1404618-003MS	1		[redacted]	11913	3	2	NA	66	Y	
17	↓ -003DMS	1		↓	↓	↓	3	↓	67	Y	
18	Blank	-				-	1	-	68	-	
19	↓	-				-	2	-	69	-	

Sm 06/25/14

All samples = 5 mL + 1 uL combined IS/Surr. 10 mL purged

500 Primary TG : 71498 5uL
Primary HBO : 71034
Primary HSL : 71505
Primary Frs : 71500
Primary :

50mL = CCV

500 Secondary TG : 71494 2uL
Secondary HBO : 71564
Secondary HSL : 71067
200 Secondary Frs : 71581 5uL
Secondary :

50₁ = LCS

5uL → 12.5uL

50₁ = MS, DMS

Combined IS/Surr 250 : 71597
Surrogate : -
Internal Std :

Response Factor Report 5973-A

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Initial Calibration

Calibration Files
5 =CZ185.D 10 =CZ186.D 50 =CZ187.D
80 =CZ188.D 100 =CZ189.D 120 =CZ190.D 160=CZ191.D

		Compound	5	10	50	80	100	120	Avg	%RSD
1)	IR	d4-1,4-Dichlorobenzen	ISTD							
2)	TM	Pyridine			1.701	1.728	1.787	1.646	1.719	3.00
3)	TM	N-Nitrosodimethylam	0.941	0.952	1.071	1.039	1.092	1.038	1.027	5.65
4)	S	SURR1,2-FLUOROPHENO	1.547	1.513	1.503	1.501	1.528	1.465	1.510	1.69
5)	TM	Benzaldehyde			0.667	0.532	0.513	0.480	0.522	17.55
6)	TM	Aniline	2.352	2.399	1.725	1.512	1.543	1.345	1.740	26.24 AVG
7)	S	SURR2,PHENOL-D6	1.679	1.895	1.839	1.759	1.848	1.709	1.785	4.40
8)	TMC	Phenol	2.074	2.119	1.825	1.820	1.981	1.859	1.938	6.26
9)	TM	bis(2-Clethyl)Ether	1.528	1.651	1.544	1.417	1.512	1.433	1.506	5.35
10)	TM	2-Chlorophenol	1.371	1.509	1.499	1.445	1.477	1.417	1.450	3.35
11)	TM	1,3-Diclbenzene	1.502	1.666	1.546	1.506	1.520	1.431	1.515	5.19
12)	TMC	1,4-Dichlorobenzene	1.623	1.588	1.522	1.480	1.522	1.420	1.514	4.89
13)	TM	1,2-Diclbenzene	1.692	1.543	1.433	1.422	1.432	1.366	1.467	7.83
14)	TM	Benzyl Alcohol	1.129	1.206	1.241	1.266	1.261	1.194	1.220	3.94
15)	TM	2,2'-oxybis(1-Chlor	2.305	2.141	2.141	2.024	2.080	1.989	2.098	5.26
16)	TM	2-Methylphenol	1.336	1.379	1.365	1.335	1.372	1.336	1.350	1.54
17)	TM	Acetophenone	1.916	1.887	1.848	1.778	1.805	1.711	1.803	4.88
18)	TMP	N-Nitroso-Di-n-prop	1.240	1.299	1.221	1.143	1.190	1.103	1.184	6.40
19)	TM	Hexachloroethane	0.740	0.683	0.657	0.640	0.642	0.627	0.661	5.90
20)	TM	3+4-Methylphenol	1.394	1.463	1.449	1.417	1.425	1.367	1.418	2.27
21)	T	1-Methyl-2-pyrrolid		1.136	1.080	1.052	1.085	1.001	1.067	4.21
22)	IR	d8-Naphthalene	ISTD							
23)	S	SURR4,NITROBENZENE-	0.492	0.491	0.498	0.478	0.465	0.461	0.476	4.06
24)	TM	Nitrobenzene	0.444	0.446	0.446	0.427	0.414	0.407	0.425	4.97
25)	TM	Isophorone	0.815	0.811	0.806	0.763	0.749	0.724	0.766	6.00
26)	TCM	2-Nitrophenol	0.196	0.213	0.216	0.209	0.203	0.207	0.207	3.15
27)	TM	Benzoic Acid			0.357	0.376	0.378	0.372	0.372	2.36
28)	TM	2,4-Dimethylphenol	0.340	0.382	0.389	0.377	0.373	0.365	0.368	4.68
29)	TM	bis(-2-Chloroethoxy	0.450	0.501	0.472	0.456	0.444	0.427	0.453	6.13
30)	TCM	2,4-Dichlorophenol	0.644	0.662	0.616	0.581	0.572	0.540	0.590	9.01
31)	TM	1,2,4-Trichlorobenz	0.323	0.328	0.324	0.314	0.300	0.296	0.310	5.10
32)	TM	Naphthalene	1.099	1.092	0.994	0.954	0.957	0.917	0.977	9.94
33)	TM	4-Chloroaniline	0.447	0.430	0.395	0.373	0.362	0.346	0.383	11.41
34)	TCM	Hexachlorobutadiene	0.183	0.184	0.191	0.183	0.185	0.182	0.183	2.73
35)	TMC	4-Chloro-3-methylph	0.309	0.300	0.329	0.321	0.315	0.318	0.314	3.08
36)	TM	Caprolactam		0.120	0.121	0.124	0.119	0.116	0.115	11.16
37)	TM	2-Methylnaphthalene	0.726	0.724	0.704	0.677	0.662	0.645	0.679	6.08
38)	TM	1-Methylnaphthalene	0.607	0.646	0.631	0.624	0.620	0.581	0.610	4.76
39)	IR	d10-Acenaphthene	ISTD							
40)	TPM	Hexachlorocyclopent	0.142	0.202	0.303	0.294	0.305	0.308	0.264	24.73 QA
41)	TCM	2,4,6-Trichlorophen	0.336	0.368	0.388	0.364	0.380	0.374	0.369	4.46

(#) = Out of Range ### Number of calibration levels exceeded format ###

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Initial Calibration

Calibration Files
5 =CZ185.D 10 =CZ186.D 50 =CZ187.D
80 =CZ188.D 100 =CZ189.D 120 =CZ190.D

		Compound	5	10	50	80	100	120	Avg	%RSD	
42)	TM	2,4,5-Trichlorophen	0.415	0.470	0.413	0.404	0.403	0.401	0.412	6.89	
43)	S	SURR5,2-FLUOROBIPHE	1.384	1.444	1.305	1.228	1.250	1.203	1.281	8.07	
44)	TM	1,1'-Biphenyl	1.464	1.541	1.453	1.338	1.371	1.304	1.389	7.36	
45)	TM	2-Chloronaphthalene	1.178	1.232	1.141	1.055	1.078	1.026	1.099	8.01	
46)	TM	2-Nitroaniline			0.445	0.434	0.457	0.431	0.436	3.71	
47)	TM	Acenaphthylene	1.931	1.993	1.774	1.613	1.651	1.563	1.716	11.09	
48)	TM	Dimethyl phthalate	1.397	1.418	1.261	1.176	1.193	1.140	1.239	10.24	
49)	TM	2,6-Dinitrotoluene	0.299	0.335	0.322	0.302	0.312	0.295	0.308	5.18	
50)	TMC	Acenaphthene	1.242	1.255	1.185	1.120	1.139	1.082	1.152	6.96	
51)	TM	3-Nitroaniline			0.355	0.347	0.352	0.346	0.347	1.98	
52)	TPM	2,4-Dinitrophenol			0.172	0.185	0.190	0.188	0.185	4.07	
53)	TM	Dibenzofuran	1.689	1.689	1.586	1.461	1.486	1.412	1.521	9.13	
54)	TM	2,4-Dinitrotoluene	0.433	0.411	0.403	0.388	0.413	0.414	0.408	3.58	
55)	TMP	4-Nitrophenol			0.283	0.276	0.298	0.294	0.290	3.47	
56)	TM	Fluorene	1.351	1.388	1.311	1.217	1.220	1.193	1.256	7.70	
57)	TM	4-Chlorophenyl-phen	0.601	0.669	0.627	0.577	0.597	0.574	0.600	6.40	
58)	TM	Diethylphthalate	1.410	1.445	1.190	1.133	1.188	1.134	1.225	11.69	
59)	TM	4-Nitroaniline			0.357	0.347	0.377	0.353	0.358	3.17	
60)	S	SURR3,2,4,6-TRIBROM	0.283	0.320	0.277	0.263	0.284	0.268	0.281	6.77	
61)	IR	d10-Phenanthrene	----------ISTD----------								
62)	T	1-Phenyl-1(4-methyl							0.000#	-1.00	
63)	TM	4,6-Dinitro-2-methy			0.153	0.165	0.165	0.162	0.162	3.06	
64)	TM	1,2 Diphenylhydrazi	1.026	1.146	1.051	0.978	0.949	0.901	0.981	10.92	
65)	TCM	N-Nitrosodiphenylam	0.592	0.667	0.575	0.538	0.548	0.523	0.564	9.69	
66)	TM	4-Bromophenyl-pheny	0.235	0.277	0.255	0.246	0.244	0.227	0.243	8.24	
67)	T	1-Phenyl-1(2,4-dime							0.000#	-1.00	
68)	TM	Hexachlorobenzene	0.312	0.334	0.330	0.315	0.310	0.296	0.312	5.40	
69)	TM	Atrazine	0.081	0.083	0.074	0.050	0.046	0.047	0.060	32.39	Avg
70)	TCM	Pentachlorophenol			0.185	0.184	0.189	0.185	0.186	1.25	
71)	TM	Phenanthrene	1.090	1.203	1.033	1.014	0.986	0.953	1.024	9.82	
72)	TM	Anthracene	1.060	1.239	1.096	1.061	1.047	0.991	1.061	8.95	
73)	TM	Carbazole	1.038	1.122	1.157	1.091	1.068	1.012	1.064	6.21	
74)	TM	Di-n-butylphthalate	1.208	1.403	1.396	1.334	1.317	1.216	1.287	7.91	
75)	TCM	Fluoranthene	1.138	1.226	1.296	1.250	1.249	1.191	1.212	5.04	
76)	IR	d12-Chrysene	----------ISTD----------								
77)	TM	Benzidine			0.269	0.190	0.184	0.162	0.193	23.32	Avg
78)	TM	Pyrene	1.096	1.144	1.144	1.099	1.093	1.060	1.098	3.37	
79)	S	SURR6,TERPHENYL-D14	0.826	0.838	0.809	0.780	0.761	0.764	0.790	4.35	
80)	TM	Butyl benzyl phthal	0.620	0.618	0.642	0.618	0.622	0.608	0.621	1.66	
81)	TM	3,3'-Dichlorobenzid	0.452	0.482	0.457	0.427	0.416	0.422	0.439	5.68	
82)	TM	Benzo(a)anthracene	1.115	1.249	1.149	1.113	1.093	1.090	1.126	5.27	
83)	TM	Chrysene	1.068	1.096	1.071	1.016	0.992	0.996	1.030	4.63	

(#) = Out of Range ### Number of calibration levels exceeded format ###

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Initial Calibration

Calibration Files
5 =CZ185.D 10 =CZ186.D 50 =CZ187.D
80 =CZ188.D 100 =CZ189.D 120 =CZ190.D

		Compound	5	10	50	80	100	120	Avg	%RSD
84)	TM	bis(2-Ethylhexyl)ph	0.770	0.814	0.806	0.802	0.794	0.779	0.792	1.99
85)	IR	d12-Perylene	----------ISTD----------							
86)	TCM	Di-n-octyl phthalat	1.080	1.190	1.250	1.268	1.240	1.207	1.208	5.16
87)	TM	Benzo(b)Fluoranthen	1.026	1.067	1.087	1.095	1.062	1.051	1.063	2.14
88)	TM	Benzo(k)fluoranthen	0.976	1.127	1.050	1.069	1.052	1.006	1.045	4.56
89)	TCM	Benzo(a)pyrene	1.003	1.070	1.036	1.053	1.040	1.019	1.036	2.11
90)	TM	Indeno(1,2,3-cd)Pyr	0.895	0.992	1.042	1.104	1.091	1.079	1.042	7.21
91)	TM	Dibenz(a,h)anthrace	1.027	1.003	1.030	1.046	1.026	1.011	1.022	1.40
92)	TM	Benzo(g,h,i)perylen	1.071	0.999	0.999	0.990	0.979	0.952	0.988	4.53

(#) = Out of Range ### Number of calibration levels exceeded format ###

Data File : I:\ACQUDATA\5973A\DATA\062014\CZ188.D Vial: 7
Acq On : 20 Jun 2014 11:38 am Operator: Z.Miao
Sample : SSTD080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	100	0.00
2	TM	Pyridine	1.719	1.728	-0.5	100	0.00
3	TM	N-Nitrosodimethylamine	1.027	1.039	-1.2	100	0.00
4	S	SURR1,2-FLUOROPHENOL	1.510	1.501	0.6	100	0.00
5	TM	Benzaldehyde	0.522	0.532	-1.9	100	0.00
6	TM	Aniline	1.740	1.512	13.1	100	0.00
7	S	SURR2,PHENOL-D6	1.785	1.759	1.5	100	0.00
8	TMC	Phenol	1.938	1.820	6.1	100	0.00
9	TM	bis(2-Clethyl)Ether	1.506	1.417	5.9	100	0.00
10	TM	2-Chlorophenol	1.450	1.445	0.3	100	0.00
11	TM	1,3-Diclbenzene	1.515	1.506	0.6	100	0.00
12	TMC	1,4-Dichlorobenzene	1.514	1.480	2.2	100	0.00
13	TM	1,2-Diclbenzene	1.467	1.422	3.1	100	0.00
14	TM	Benzyl Alcohol	1.220	1.266	-3.8	100	0.00
15	TM	2,2'-oxybis(1-Chloropropane	2.098	2.024	3.5	100	0.00
16	TM	2-Methylphenol	1.350	1.335	1.1	100	0.00
17	TM	Acetophenone	1.803	1.778	1.4	100	0.00
18	TMP	N-Nitroso-Di-n-propylamine	1.184	1.143	3.5	100	0.00
19	TM	Hexachloroethane	0.661	0.640	3.2	100	0.00
20	TM	3+4-Methylphenol	1.418	1.417	0.1	100	0.00
21	T	1-Methyl-2-pyrrolidinone	1.067	1.052	1.4	100	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	100	0.00
23	S	SURR4,NITROBENZENE-D5	0.476	0.478	-0.4	100	0.00
24	TM	Nitrobenzene	0.425	0.427	-0.5	100	0.00
25	TM	Isophorone	0.766	0.763	0.4	100	0.00
26	TCM	2-Nitrophenol	0.207	0.209	-1.0	100	0.00
27	TM	Benzoic Acid	0.372	0.376	-1.1	100	0.00
28	TM	2,4-Dimethylphenol	0.368	0.377	-2.4	100	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.453	0.456	-0.7	100	0.00
30	TCM	2,4-Dichlorophenol	0.590	0.581	1.5	100	0.00
31	TM	1,2,4-Trichlorobenzene	0.310	0.314	-1.3	100	0.00
32	TM	Naphthalene	0.977	0.954	2.4	100	0.00
33	TM	4-Chloroaniline	0.383	0.373	2.6	100	0.00
34	TCM	Hexachlorobutadiene	0.183	0.183	0.0	100	0.00
35	TMC	4-Chloro-3-methylphenol	0.314	0.321	-2.2	100	0.00
36	TM	Caprolactam	0.115	0.124	-7.8	100	0.00
37	TM	2-Methylnaphthalene	0.679	0.677	0.3	100	0.00
38	TM	1-Methylnaphthalene	0.610	0.624	-2.3	100	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	100	0.00

(#) = Out of Range

Data File : I:\ACQUDATA\5973A\DATA\062014\CZ188.D Vial: 7
Acq On : 20 Jun 2014 11:38 am Operator: Z.Miao
Sample : SSTD080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	0.264	0.294	-11.4	100	0.00
41	TCM	2,4,6-Trichlorophenol	0.369	0.364	1.4	100	0.00
42	TM	2,4,5-Trichlorophenol	0.412	0.404	1.9	100	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.281	1.228	4.1	100	0.00
44	TM	1,1'-Biphenyl	1.389	1.338	3.7	100	0.00
45	TM	2-Chloronaphthalene	1.099	1.055	4.0	100	0.00
46	TM	2-Nitroaniline	0.436	0.434	0.5	100	0.00
47	TM	Acenaphthylene	1.716	1.613	6.0	100	0.00
48	TM	Dimethyl phthalate	1.239	1.176	5.1	100	0.00
49	TM	2,6-Dinitrotoluene	0.308	0.302	1.9	100	0.00
50	TMC	Acenaphthene	1.152	1.120	2.8	100	0.00
51	TM	3-Nitroaniline	0.347	0.347	0.0	100	0.00
52	TPM	2,4-Dinitrophenol	0.185	0.185	0.0	100	0.00
53	TM	Dibenzofuran	1.521	1.461	3.9	100	0.00
54	TM	2,4-Dinitrotoluene	0.408	0.388	4.9	100	0.00
55	TMP	4-Nitrophenol	0.290	0.276	4.8	100	0.00
56	TM	Fluorene	1.256	1.217	3.1	100	0.00
57	TM	4-Chlorophenyl-phenylether	0.600	0.577	3.8	100	0.00
58	TM	Diethylphthalate	1.225	1.133	7.5	100	0.00
59	TM	4-Nitroaniline	0.358	0.347	3.1	100	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.281	0.263	6.4	100	0.00
61	IR	d10-Phenanthrene	1.000	1.000	0.0	100	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	100	0.00
63	TM	4,6-Dinitro-2-methylphenol	0.162	0.165	-1.9	100	0.00
64	TM	1,2 Diphenylhydrazine	0.981	0.978	0.3	100	0.00
65	TCM	N-Nitrosodiphenylamine	0.564	0.538	4.6	100	0.00
66	TM	4-Bromophenyl-phenylether	0.243	0.246	-1.2	100	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	100	0.00
68	TM	Hexachlorobenzene	0.312	0.315	-1.0	100	0.00
69	TM	Atrazine	0.060	0.050#	16.7	100	0.00
70	TCM	Pentachlorophenol	0.186	0.184	1.1	100	0.00
71	TM	Phenanthrene	1.024	1.014	1.0	100	0.00
72	TM	Anthracene	1.061	1.061	0.0	100	0.00
73	TM	Carbazole	1.064	1.091	-2.5	100	0.00
74	TM	Di-n-butylphthalate	1.287	1.334	-3.7	100	0.00
75	TCM	Fluoranthene	1.212	1.250	-3.1	100	0.00
76	IR	d12-Chrysene	1.000	1.000	0.0	100	0.00
77	TM	Benzidine	0.193	0.190	1.6	100	0.00
78	TM	Pyrene	1.098	1.099	-0.1	100	0.00

(#) = Out of Range

Data File : I:\ACQUDATA\5973A\DATA\062014\CZ188.D
Acq On : 20 Jun 2014 11:38 am
Sample : SSTD080
Misc : 80 PPM STD 8270/625
MS Integration Params: RTEINT.P

Vial: 7
Operator: Z.Miao
Inst : 5973-A
Multiplr: 1.00

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	0.790	0.780	1.3	100	0.00
80	TM	Butyl benzyl phthalate	0.621	0.618	0.5	100	0.00
81	TM	3,3'-Dichlorobenzidine	0.439	0.427	2.7	100	0.00
82	TM	Benzo(a)anthracene	1.126	1.113	1.2	100	0.00
83	TM	Chrysene	1.030	1.016	1.4	100	0.00
84	TM	bis(2-Ethylhexyl)phthalate	0.792	0.802	-1.3	100	0.00
85	IR	d12-Perylene	1.000	1.000	0.0	100	0.00
86	TCM	Di-n-octyl phthalate	1.208	1.268	-5.0	100	0.00
87	TM	Benzo(b)Fluoranthene	1.063	1.095	-3.0	100	0.00
88	TM	Benzo(k)fluoranthene	1.045	1.069	-2.3	100	0.00
89	TCM	Benzo(a)pyrene	1.036	1.053	-1.6	100	0.00
90	TM	Indeno(1,2,3-cd)Pyrene	1.042	1.104	-6.0	100	0.00
91	TM	Dibenz(a,h)anthracene	1.022	1.046	-2.3	100	0.00
92	TM	Benzo(g,h,i)perylene	0.988	0.990	-0.2	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\062614\CZ253.D Vial: 1
Acq On : 26 Jun 2014 12:24 pm Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270 Multiplr: 1.00
MS Integration Params: RTEINT.P

LR: #40

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	77	0.00
2	TM	Pyridine	1.719	1.793	-4.3	80	0.00
3	TM	N-Nitrosodimethylamine	1.027	1.112	-8.3	82	0.00
4	S	SURR1,2-FLUOROPHENOL	1.510	1.534	-1.6	79	0.00
5	TM	Benzaldehyde	0.522	0.670	-28.4#	97	0.00
6	TM	Aniline	1.740	1.841	-5.8	94	0.00
7	S	SURR2,PHENOL-D6	1.785	1.892	-6.0	83	0.00
8	TMC	Phenol	1.938	1.934	0.2	82	0.00
9	TM	bis(2-Clethyl)Ether	1.506	1.589	-5.5	86	0.00
10	TM	2-Chlorophenol	1.450	1.528	-5.4	81	0.00
11	TM	1,3-Diclbenzene	1.515	1.517	-0.1	77	0.00
12	TMC	1,4-Dichlorobenzene	1.514	1.519	-0.3	79	0.00
13	TM	1,2-Diclbenzene	1.467	1.446	1.4	78	0.00
14	TM	Benzyl Alcohol	1.220	1.347	-10.4	82	0.00
15	TM	2,2'-oxybis(1-Chloropropane	2.098	2.351	-12.1	89	0.00
16	TM	2-Methylphenol	1.350	1.437	-6.4	83	0.00
17	TM	Acetophenone	1.803	1.943	-7.8	84	0.00
18	TMP	N-Nitroso-Di-n-propylamine	1.184	1.314	-11.0	88	0.00
19	TM	Hexachloroethane	0.661	0.691	-4.5	83	0.00
20	TM	3+4-Methylphenol	1.418	1.564	-10.3	85	0.00
21	T	1-Methyl-2-pyrrolidinone	1.067	1.114	-4.4	81	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	82	0.00
23	S	SURR4,NITROBENZENE-D5	0.476	0.501	-5.3	86	0.00
24	TM	Nitrobenzene	0.425	0.450	-5.9	86	0.00
25	TM	Isophorone	0.766	0.811	-5.9	87	0.00
26	TCM	2-Nitrophenol	0.207	0.210	-1.4	82	0.00
27	TM	Benzoic Acid	0.372	0.376	-1.1	82	0.00
28	TM	2,4-Dimethylphenol	0.368	0.390	-6.0	85	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.453	0.464	-2.4	83	0.00
30	TCM	2,4-Dichlorophenol	0.590	0.582	1.4	82	0.00
31	TM	1,2,4-Trichlorobenzene	0.310	0.304	1.9	80	0.00
32	TM	Naphthalene	0.977	0.987	-1.0	85	0.00
33	TM	4-Chloroaniline	0.383	0.396	-3.4	87	0.00
34	TCM	Hexachlorobutadiene	0.183	0.185	-1.1	83	0.00
35	TMC	4-Chloro-3-methylphenol	0.314	0.339	-8.0	86	0.00
36	TM	Caprolactam	0.115	0.120	-4.3	80	0.00
37	TM	2-Methylnaphthalene	0.679	0.682	-0.4	82	0.00
38	TM	1-Methylnaphthalene	0.610	0.617	-1.1	81	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	80	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\062614\CZ253.D Vial: 1
Acq On : 26 Jun 2014 12:24 pm Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	0.264	0.254	3.8	69	0.00
41	TCM	2,4,6-Trichlorophenol	0.369	0.367	0.5	81	0.00
42	TM	2,4,5-Trichlorophenol	0.412	0.388	5.8	77	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.281	1.254	2.1	82	0.00
44	TM	1,1'-Biphenyl	1.389	1.417	-2.0	85	0.00
45	TM	2-Chloronaphthalene	1.099	1.083	1.5	82	0.00
46	TM	2-Nitroaniline	0.436	0.469	-7.6	86	0.00
47	TM	Acenaphthylene	1.716	1.712	0.2	85	0.00
48	TM	Dimethyl phthalate	1.239	1.240	-0.1	84	0.00
49	TM	2,6-Dinitrotoluene	0.308	0.303	1.6	80	0.00
50	TMC	Acenaphthene	1.152	1.167	-1.3	83	0.00
51	TM	3-Nitroaniline	0.347	0.348	-0.3	80	0.00
52	TPM	2,4-Dinitrophenol	0.185	0.131	29.2#	57	0.00
53	TM	Dibenzofuran	1.521	1.527	-0.4	84	0.00
54	TM	2,4-Dinitrotoluene	0.408	0.398	2.5	82	0.00
55	TMP	4-Nitrophenol	0.290	0.267	7.9	77	0.00
56	TM	Fluorene	1.256	1.260	-0.3	83	0.00
57	TM	4-Chlorophenyl-phenylether	0.600	0.589	1.8	82	0.00
58	TM	Diethylphthalate	1.225	1.222	0.2	86	0.00
59	TM	4-Nitroaniline	0.358	0.355	0.8	82	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.281	0.252	10.3	77	0.00
61	IR	d10-Phenanthrene	1.000	1.000	0.0	80	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	116	0.00
63	TM	4,6-Dinitro-2-methylphenol	0.162	0.142	12.3	69	0.00
64	TM	1,2 Diphenylhydrazine	0.981	1.122	-14.4	92	0.00
65	TCM	N-Nitrosodiphenylamine	0.564	0.557	1.2	83	0.00
66	TM	4-Bromophenyl-phenylether	0.243	0.254	-4.5	82	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	237#	0.06
68	TM	Hexachlorobenzene	0.312	0.325	-4.2	82	0.00
69	TM	Atrazine	0.060	0.063	-5.0	101	0.00
70	TCM	Pentachlorophenol	0.186	0.167	10.2	72	0.00
71	TM	Phenanthrene	1.024	1.041	-1.7	82	0.00
72	TM	Anthracene	1.061	1.092	-2.9	82	0.00
73	TM	Carbazole	1.064	1.152	-8.3	84	0.00
74	TM	Di-n-butylphthalate	1.287	1.456	-13.1	87	0.00
75	TCM	Fluoranthene	1.212	1.275	-5.2	81	0.00
76	IR	d12-Chrysene	1.000	1.000	0.0	77	0.00
77	TM	Benzidine	0.193	0.299	-54.9#	122	0.00
78	TM	Pyrene	1.098	1.144	-4.2	81	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\062614\CZ253.D Vial: 1
Acq On : 26 Jun 2014 12:24 pm Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	0.790	0.777	1.6	77	0.00
80	TM	Butyl benzyl phthalate	0.621	0.658	-6.0	82	0.00
81	TM	3,3'-Dichlorobenzidine	0.439	0.453	-3.2	82	0.00
82	TM	Benzo(a)anthracene	1.126	1.117	0.8	78	0.00
83	TM	Chrysene	1.030	1.009	2.0	77	0.00
84	TM	bis(2-Ethylhexyl)phthalate	0.792	0.855	-8.0	83	0.00
85	IR	d12-Perylene	1.000	1.000	0.0	79	0.00
86	TCM	Di-n-octyl phthalate	1.208	1.331	-10.2	83	0.00
87	TM	Benzo(b)Fluoranthene	1.063	1.050	1.2	75	0.00
88	TM	Benzo(k)fluoranthene	1.045	1.035	1.0	76	0.00
89	TCM	Benzo(a)pyrene	1.036	1.020	1.5	76	0.00
90	TM	Indeno(1,2,3-cd)Pyrene	1.042	1.037	0.5	74	0.00
91	TM	Dibenz(a,h)anthracene	1.022	0.989	3.2	74	0.00
92	TM	Benzo(g,h,i)perylene	0.988	0.966	2.2	77	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\062614\CZ253.D Vial: 1
Acq On : 26 Jun 2014 12:24 pm Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	40.000	40.000	0.0	77	0.00
2	TM	Pyridine	80.000	83.427	-4.3	80	0.00
3	TM	N-Nitrosodimethylamine	80.000	86.622	-8.3	82	0.00
4	S	SURR1,2-FLUOROPHENOL	80.000	81.254	-1.6	79	0.00
5	TM	Benzaldehyde	80.000	102.611	-28.3#	97	0.00
6	TM	Aniline	80.000	84.652	-5.8	94	0.00
7	S	SURR2,PHENOL-D6	80.000	84.795	-6.0	83	0.00
8	TMC	Phenol	80.000	79.803	0.2	82	0.00
9	TM	bis(2-Clethyl)Ether	80.000	84.438	-5.5	86	0.00
10	TM	2-Chlorophenol	80.000	84.272	-5.3	81	0.00
11	TM	1,3-Diclbenzene	80.000	80.088	-0.1	77	0.00
12	TMC	1,4-Dichlorobenzene	80.000	80.297	-0.4	79	0.00
13	TM	1,2-Diclbenzene	80.000	78.861	1.4	78	0.00
14	TM	Benzyl Alcohol	80.000	88.282	-10.4	82	0.00
15	TM	2,2'-oxybis(1-Chloropropane	80.000	89.663	-12.1	89	0.00
16	TM	2-Methylphenol	80.000	85.147	-6.4	83	0.00
17	TM	Acetophenone	80.000	86.203	-7.8	84	0.00
18	TMP	N-Nitroso-Di-n-propylamine	80.000	88.793	-11.0	88	0.00
19	TM	Hexachloroethane	80.000	83.630	-4.5	83	0.00
20	TM	3+4-Methylphenol	80.000	88.233	-10.3	85	0.00
21	T	1-Methyl-2-pyrrolidinone	80.000	83.499	-4.4	81	0.00
22	IR	d8-Naphthalene	40.000	40.000	0.0	82	0.00
23	S	SURR4,NITROBENZENE-D5	80.000	84.186	-5.2	86	0.00
24	TM	Nitrobenzene	80.000	84.675	-5.8	86	0.00
25	TM	Isophorone	80.000	84.626	-5.8	87	0.00
26	TCM	2-Nitrophenol	80.000	80.918	-1.1	82	0.00
27	TM	Benzoic Acid	80.000	80.828	-1.0	82	0.00
28	TM	2,4-Dimethylphenol	80.000	84.852	-6.1	85	0.00
29	TM	bis(-2-Chloroethoxy)Methane	80.000	82.010	-2.5	83	0.00
30	TCM	2,4-Dichlorophenol	80.000	78.953	1.3	82	0.00
31	TM	1,2,4-Trichlorobenzene	80.000	78.483	1.9	80	0.00
32	TM	Naphthalene	80.000	80.864	-1.1	85	0.00
33	TM	4-Chloroaniline	80.000	82.745	-3.4	87	0.00
34	TCM	Hexachlorobutadiene	80.000	80.643	-0.8	83	0.00
35	TMC	4-Chloro-3-methylphenol	80.000	86.353	-7.9	86	0.00
36	TM	Caprolactam	80.000	83.963	-5.0	80	0.00
37	TM	2-Methylnaphthalene	80.000	80.330	-0.4	82	0.00
38	TM	1-Methylnaphthalene	80.000	80.897	-1.1	81	0.00
39	IR	d10-Acenaphthene	40.000	40.000	0.0	80	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\062614\CZ253.D Vial: 1
Acq On : 26 Jun 2014 12:24 pm Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	80.000	68.636	14.2	69	0.00
41	TCM	2,4,6-Trichlorophenol	80.000	79.683	0.4	81	0.00
42	TM	2,4,5-Trichlorophenol	80.000	75.325	5.8	77	0.00
43	S	SURR5,2-FLUOROBIPHENYL	80.000	78.332	2.1	82	0.00
44	TM	1,1'-Biphenyl	80.000	81.612	-2.0	85	0.00
45	TM	2-Chloronaphthalene	80.000	78.833	1.5	82	0.00
46	TM	2-Nitroaniline	80.000	86.008	-7.5	86	0.00
47	TM	Acenaphthylene	80.000	79.815	0.2	85	0.00
48	TM	Dimethyl phthalate	80.000	80.064	-0.1	84	0.00
49	TM	2,6-Dinitrotoluene	80.000	78.753	1.6	80	0.00
50	TMC	Acenaphthene	80.000	81.034	-1.3	83	0.00
51	TM	3-Nitroaniline	80.000	80.283	-0.4	80	0.00
52	TPM	2,4-Dinitrophenol	80.000	56.444	29.4#	57	0.00
53	TM	Dibenzofuran	80.000	80.328	-0.4	84	0.00
54	TM	2,4-Dinitrotoluene	80.000	78.016	2.5	82	0.00
55	TMP	4-Nitrophenol	80.000	73.623	8.0	77	0.00
56	TM	Fluorene	80.000	80.212	-0.3	83	0.00
57	TM	4-Chlorophenyl-phenylether	80.000	78.528	1.8	82	0.00
58	TM	Diethylphthalate	80.000	79.803	0.2	86	0.00
59	TM	4-Nitroaniline	80.000	79.293	0.9	82	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	80.000	71.910	10.1	77	0.00
61	IR	d10-Phenanthrene	40.000	40.000	0.0	80	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	-1.000	0.000	0.0	116	0.00
63	TM	4,6-Dinitro-2-methylphenol	80.000	70.542	11.8	69	0.00
64	TM	1,2 Diphenylhydrazine	80.000	91.474	-14.3	92	0.00
65	TCM	N-Nitrosodiphenylamine	80.000	79.097	1.1	83	0.00
66	TM	4-Bromophenyl-phenylether	80.000	83.563	-4.5	82	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	-1.000	0.000	0.0	237	0.06
68	TM	Hexachlorobenzene	80.000	83.270	-4.1	82	0.00
69	TM	Atrazine	80.000	84.391	-5.5	101	0.00
70	TCM	Pentachlorophenol	80.000	71.472	10.7	72	0.00
71	TM	Phenanthrene	80.000	81.262	-1.6	82	0.00
72	TM	Anthracene	80.000	82.332	-2.9	82	0.00
73	TM	Carbazole	80.000	86.589	-8.2	84	0.00
74	TM	Di-n-butylphthalate	80.000	90.481	-13.1	87	0.00
75	TCM	Fluoranthene	80.000	84.174	-5.2	81	0.00
76	IR	d12-Chrysene	40.000	40.000	0.0	77	0.00
77	TM	Benzidine	80.000	124.211	-55.3#	122	0.00
78	TM	Pyrene	80.000	83.355	-4.2	81	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\062614\CZ253.D Vial: 1
Acq On : 26 Jun 2014 12:24 pm Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	80.000	78.723	1.6	77	0.00
80	TM	Butyl benzyl phthalate	80.000	84.843	-6.1	82	0.00
81	TM	3,3'-Dichlorobenzidine	80.000	82.552	-3.2	82	0.00
82	TM	Benzo(a)anthracene	80.000	79.366	0.8	78	0.00
83	TM	Chrysene	80.000	78.329	2.1	77	0.00
84	TM	bis(2-Ethylhexyl)phthalate	80.000	86.353	-7.9	83	0.00
85	IR	d12-Perylene	40.000	40.000	0.0	79	0.00
86	TCM	Di-n-octyl phthalate	80.000	88.175	-10.2	83	0.00
87	TM	Benzo(b)Fluoranthene	80.000	79.018	1.2	75	0.00
88	TM	Benzo(k)fluoranthene	80.000	79.198	1.0	76	0.00
89	TCM	Benzo(a)pyrene	80.000	78.733	1.6	76	0.00
90	TM	Indeno(1,2,3-cd)Pyrene	80.000	79.670	0.4	74	0.00
91	TM	Dibenz(a,h)anthracene	80.000	77.406	3.2	74	0.00
92	TM	Benzo(g,h,i)perylene	80.000	78.218	2.2	77	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\070214\CZ293.D Vial: 1
Acq On : 2 Jul 2014 9:50 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	95	0.00
2	TM	Pyridine	1.719	1.791	-4.2	98	0.00
3	TM	N-Nitrosodimethylamine	1.027	1.131	-10.1	103	0.00
4	S	SURR1,2-FLUOROPHENOL	1.510	1.585	-5.0	100	0.00
5	TM	Benzaldehyde	0.522	0.464	11.1	83	0.00
6	TM	Aniline	1.740	1.909	-9.7	120	0.00
7	S	SURR2,PHENOL-D6	1.785	1.837	-2.9	99	0.00
8	TMC	Phenol	1.938	2.048	-5.7	107	0.00
9	TM	bis(2-Clethyl)Ether	1.506	1.481	1.7	99	0.00
10	TM	2-Chlorophenol	1.450	1.510	-4.1	99	0.00
11	TM	1,3-Diclbenzene	1.515	1.528	-0.9	96	0.00
12	TMC	1,4-Dichlorobenzene	1.514	1.492	1.5	96	0.00
13	TM	1,2-Diclbenzene	1.467	1.391	5.2	93	0.00
14	TM	Benzyl Alcohol	1.220	1.358	-11.3	102	0.00
15	TM	2,2'-oxybis(1-Chloropropane	2.098	2.244	-7.0	105	0.00
16	TM	2-Methylphenol	1.350	1.405	-4.1	100	0.00
17	TM	Acetophenone	1.803	1.860	-3.2	99	0.00
18	TMP	N-Nitroso-Di-n-propylamine	1.184	1.299	-9.7	108	0.00
19	TM	Hexachloroethane	0.661	0.692	-4.7	103	0.00
20	TM	3+4-Methylphenol	1.418	1.477	-4.2	99	0.00
21	T	1-Methyl-2-pyrrolidinone	1.067	1.052	1.4	95	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	98	0.00
23	S	SURR4,NITROBENZENE-D5	0.476	0.501	-5.3	103	0.00
24	TM	Nitrobenzene	0.425	0.455	-7.1	105	0.00
25	TM	Isophorone	0.766	0.797	-4.0	103	0.00
26	TCM	2-Nitrophenol	0.207	0.208	-0.5	98	0.00
27	TM	Benzoic Acid	0.372	0.394	-5.9	103	0.00
28	TM	2,4-Dimethylphenol	0.368	0.386	-4.9	101	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.453	0.461	-1.8	99	0.00
30	TCM	2,4-Dichlorophenol	0.590	0.572	3.1	97	0.00
31	TM	1,2,4-Trichlorobenzene	0.310	0.298	3.9	93	0.00
32	TM	Naphthalene	0.977	0.996	-1.9	103	0.00
33	TM	4-Chloroaniline	0.383	0.413	-7.8	109	0.00
34	TCM	Hexachlorobutadiene	0.183	0.188	-2.7	101	0.00
35	TMC	4-Chloro-3-methylphenol	0.314	0.328	-4.5	100	0.00
36	TM	Caprolactam	0.115	0.120	-4.3	95	0.00
37	TM	2-Methylnaphthalene	0.679	0.663	2.4	96	0.00
38	TM	1-Methylnaphthalene	0.610	0.609	0.2	96	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	95	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\070214\CZ293.D Vial: 1
Acq On : 2 Jul 2014 9:50 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	0.264	0.260	1.5	84	0.00
41	TCM	2,4,6-Trichlorophenol	0.369	0.378	-2.4	99	0.00
42	TM	2,4,5-Trichlorophenol	0.412	0.415	-0.7	98	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.281	1.215	5.2	94	0.00
44	TM	1,1'-Biphenyl	1.389	1.359	2.2	97	0.00
45	TM	2-Chloronaphthalene	1.099	1.074	2.3	97	0.00
46	TM	2-Nitroaniline	0.436	0.459	-5.3	101	0.00
47	TM	Acenaphthylene	1.716	1.709	0.4	101	0.00
48	TM	Dimethyl phthalate	1.239	1.181	4.7	96	0.00
49	TM	2,6-Dinitrotoluene	0.308	0.309	-0.3	97	0.00
50	TMC	Acenaphthene	1.152	1.120	2.8	95	0.00
51	TM	3-Nitroaniline	0.347	0.335	3.5	92	0.00
52	TPM	2,4-Dinitrophenol	0.185	0.162	12.4	83	0.00
53	TM	Dibenzofuran	1.521	1.449	4.7	94	0.00
54	TM	2,4-Dinitrotoluene	0.408	0.385	5.6	94	0.00
55	TMP	4-Nitrophenol	0.290	0.291	-0.3	100	0.00
56	TM	Fluorene	1.256	1.212	3.5	95	0.00
57	TM	4-Chlorophenyl-phenylether	0.600	0.569	5.2	94	0.00
58	TM	Diethylphthalate	1.225	1.157	5.6	97	0.00
59	TM	4-Nitroaniline	0.358	0.386	-7.8	106	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.281	0.271	3.6	98	0.00
61	IR	d10-Phenanthrene	1.000	1.000	0.0	95	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	116	0.00
63	TM	4,6-Dinitro-2-methylphenol	0.162	0.159	1.9	92	0.00
64	TM	1,2 Diphenylhydrazine	0.981	1.037	-5.7	101	0.00
65	TCM	N-Nitrosodiphenylamine	0.564	0.546	3.2	96	0.00
66	TM	4-Bromophenyl-phenylether	0.243	0.234	3.7	90	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	186	0.00
68	TM	Hexachlorobenzene	0.312	0.320	-2.6	96	0.00
69	TM	Atrazine	0.060	0.069	-15.0	133	0.00
70	TCM	Pentachlorophenol	0.186	0.190	-2.2	98	0.00
71	TM	Phenanthrene	1.024	1.005	1.9	94	0.00
72	TM	Anthracene	1.061	1.061	0.0	95	0.00
73	TM	Carbazole	1.064	1.120	-5.3	98	0.01
74	TM	Di-n-butylphthalate	1.287	1.357	-5.4	97	0.01
75	TCM	Fluoranthene	1.212	1.253	-3.4	95	0.00
76	IR	d12-Chrysene	1.000	1.000	0.0	94	0.01
77	TM	Benzidine	0.193	0.279 N.7	-44.6#	137	0.00
78	TM	Pyrene	1.098	1.121	-2.1	96	0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\070214\CZ293.D Vial: 1
Acq On : 2 Jul 2014 9:50 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	0.790	0.787	0.4	95	0.01
80	TM	Butyl benzyl phthalate	0.621	0.646	-4.0	98	0.01
81	TM	3,3'-Dichlorobenzidine	0.439	0.461	-5.0	101	0.01
82	TM	Benzo(a)anthracene	1.126	1.137	-1.0	96	0.01
83	TM	Chrysene	1.030	1.000	2.9	92	0.01
84	TM	bis(2-Ethylhexyl)phthalate	0.792	0.842	-6.3	98	0.01
85	IR	d12-Perylene	1.000	1.000	0.0	98	0.01
86	TCM	Di-n-octyl phthalate	1.208	1.298	-7.5	100	0.00
87	TM	Benzo(b)Fluoranthene	1.063	1.057	0.6	94	0.00
88	TM	Benzo(k)fluoranthene	1.045	1.064	-1.8	97	0.00
89	TCM	Benzo(a)pyrene	1.036	1.055	-1.8	98	0.01
90	TM	Indeno(1,2,3-cd)Pyrene	1.042	1.098	-5.4	97	0.00
91	TM	Dibenz(a,h)anthracene	1.022	1.043	-2.1	97	0.00
92	TM	Benzo(g,h,i)perylene	0.988	1.024	-3.6	101	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\070214\CZ293.D Vial: 1
Acq On : 2 Jul 2014 9:50 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	40.000	40.000	0.0	95	0.00
2	TM	Pyridine	80.000	83.337	-4.2	98	0.00
3	TM	N-Nitrosodimethylamine	80.000	88.129	-10.2	103	0.00
4	S	SURR1,2-FLUOROPHENOL	80.000	83.992	-5.0	100	0.00
5	TM	Benzaldehyde	80.000	71.039	11.2	83	0.00
6	TM	Aniline	80.000	87.795	-9.7	120	0.00
7	S	SURR2,PHENOL-D6	80.000	82.338	-2.9	99	0.00
8	TMC	Phenol	80.000	84.539	-5.7	107	0.00
9	TM	bis(2-Clethyl)Ether	80.000	78.706	1.6	99	0.00
10	TM	2-Chlorophenol	80.000	83.300	-4.1	99	0.00
11	TM	1,3-Diclbenzene	80.000	80.636	-0.8	96	0.00
12	TMC	1,4-Dichlorobenzene	80.000	78.852	1.4	96	0.00
13	TM	1,2-Diclbenzene	80.000	75.887	5.1	93	0.00
14	TM	Benzyl Alcohol	80.000	89.008	-11.3	102	0.00
15	TM	2,2'-oxybis(1-Chloropropane	80.000	85.584	-7.0	105	0.00
16	TM	2-Methylphenol	80.000	83.257	-4.1	100	0.00
17	TM	Acetophenone	80.000	82.512	-3.1	99	0.00
18	TMP	N-Nitroso-Di-n-propylamine	80.000	87.790	-9.7	108	0.00
19	TM	Hexachloroethane	80.000	83.741	-4.7	103	0.00
20	TM	3+4-Methylphenol	80.000	83.317	-4.1	99	0.00
21	T	1-Methyl-2-pyrrolidinone	80.000	78.854	1.4	95	0.00
22	IR	d8-Naphthalene	40.000	40.000	0.0	98	0.00
23	S	SURR4,NITROBENZENE-D5	80.000	84.239	-5.3	103	0.00
24	TM	Nitrobenzene	80.000	85.652	-7.1	105	0.00
25	TM	Isophorone	80.000	83.221	-4.0	103	0.00
26	TCM	2-Nitrophenol	80.000	80.345	-0.4	98	0.00
27	TM	Benzoic Acid	80.000	84.820	-6.0	103	0.00
28	TM	2,4-Dimethylphenol	80.000	83.843	-4.8	101	0.00
29	TM	bis(-2-Chloroethoxy)Methane	80.000	81.531	-1.9	99	0.00
30	TCM	2,4-Dichlorophenol	80.000	77.544	3.1	97	0.00
31	TM	1,2,4-Trichlorobenzene	80.000	76.812	4.0	93	0.00
32	TM	Naphthalene	80.000	81.554	-1.9	103	0.00
33	TM	4-Chloroaniline	80.000	86.236	-7.8	109	0.00
34	TCM	Hexachlorobutadiene	80.000	81.904	-2.4	101	0.00
35	TMC	4-Chloro-3-methylphenol	80.000	83.640	-4.6	100	0.00
36	TM	Caprolactam	80.000	83.997	-5.0	95	0.00
37	TM	2-Methylnaphthalene	80.000	78.096	2.4	96	0.00
38	TM	1-Methylnaphthalene	80.000	79.880	0.2	96	0.00
39	IR	d10-Acenaphthene	40.000	40.000	0.0	95	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\070214\CZ293.D Vial: 1
Acq On : 2 Jul 2014 9:50 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.		%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	80.000	70.262		12.2	84	0.00
41	TCM	2,4,6-Trichlorophenol	80.000	82.001		-2.5	99	0.00
42	TM	2,4,5-Trichlorophenol	80.000	80.682		-0.9	98	0.00
43	S	SURR5,2-FLUOROBIPHENYL	80.000	75.889		5.1	94	0.00
44	TM	1,1'-Biphenyl	80.000	78.297		2.1	97	0.00
45	TM	2-Chloronaphthalene	80.000	78.133		2.3	97	0.00
46	TM	2-Nitroaniline	80.000	84.280		-5.4	101	0.00
47	TM	Acenaphthylene	80.000	79.656		0.4	101	0.00
48	TM	Dimethyl phthalate	80.000	76.287		4.6	96	0.00
49	TM	2,6-Dinitrotoluene	80.000	80.241		-0.3	97	0.00
50	TMC	Acenaphthene	80.000	77.809		2.7	95	0.00
51	TM	3-Nitroaniline	80.000	77.181		3.5	92	0.00
52	TPM	2,4-Dinitrophenol	80.000	69.873		12.7	83	0.00
53	TM	Dibenzofuran	80.000	76.199		4.8	94	0.00
54	TM	2,4-Dinitrotoluene	80.000	75.534		5.6	94	0.00
55	TMP	4-Nitrophenol	80.000	80.261		-0.3	100	0.00
56	TM	Fluorene	80.000	77.162		3.5	95	0.00
57	TM	4-Chlorophenyl-phenylether	80.000	75.841		5.2	94	0.00
58	TM	Diethylphthalate	80.000	75.545		5.6	97	0.00
59	TM	4-Nitroaniline	80.000	86.223		-7.8	106	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	80.000	77.265		3.4	98	0.00
61	IR	d10-Phenanthrene	40.000	40.000		0.0	95	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	-1.000	0.000		0.0	116	0.00
63	TM	4,6-Dinitro-2-methylphenol	80.000	78.882		1.4	92	0.00
64	TM	1,2 Diphenylhydrazine	80.000	84.552		-5.7	101	0.00
65	TCM	N-Nitrosodiphenylamine	80.000	77.557		3.1	96	0.00
66	TM	4-Bromophenyl-phenylether	80.000	77.239		3.5	90	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	-1.000	0.000		0.0	186	0.00
68	TM	Hexachlorobenzene	80.000	81.997		-2.5	96	0.00
69	TM	Atrazine	80.000	92.898		-16.1	133	0.00
70	TCM	Pentachlorophenol	80.000	81.744		-2.2	98	0.00
71	TM	Phenanthrene	80.000	78.463		1.9	94	0.00
72	TM	Anthracene	80.000	79.969		0.0	95	0.00
73	TM	Carbazole	80.000	84.155		-5.2	98	0.01
74	TM	Di-n-butylphthalate	80.000	84.334		-5.4	97	0.01
75	TCM	Fluoranthene	80.000	82.744		-3.4	95	0.00
76	IR	d12-Chrysene	40.000	40.000		0.0	94	0.01
77	TM	Benzidine	80.000	115.645	N.T	-44.6#	137	0.00
78	TM	Pyrene	80.000	81.739		-2.2	96	0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\070214\CZ293.D Vial: 1
Acq On : 2 Jul 2014 9:50 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700620.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Mon Jun 23 12:03:20 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	80.000	79.668	0.4	95	0.01
80	TM	Butyl benzyl phthalate	80.000	83.302	-4.1	98	0.01
81	TM	3,3'-Dichlorobenzidine	80.000	83.951	-4.9	101	0.01
82	TM	Benzo(a)anthracene	80.000	80.755	-0.9	96	0.01
83	TM	Chrysene	80.000	77.645	2.9	92	0.01
84	TM	bis(2-Ethylhexyl)phthalate	80.000	84.992	-6.2	98	0.01
85	IR	d12-Perylene	40.000	40.000	0.0	98	0.01
86	TCM	Di-n-octyl phthalate	80.000	85.934	-7.4	100	0.00
87	TM	Benzo(b)Fluoranthene	80.000	79.548	0.6	94	0.00
88	TM	Benzo(k)fluoranthene	80.000	81.421	-1.8	97	0.00
89	TCM	Benzo(a)pyrene	80.000	81.439	-1.8	98	0.01
90	TM	Indeno(1,2,3-cd)Pyrene	80.000	84.344	-5.4	97	0.00
91	TM	Dibenz(a,h)anthracene	80.000	81.577	-2.0	97	0.00
92	TM	Benzo(g,h,i)perylene	80.000	82.903	-3.6	101	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Preparation Information Benchsheet

Prep Run#: 211329
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/~~20~~ 25/14 12:31 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407208-01	MB		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/69705	
2	RQ1407208-02	LCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/69705; 1.0000 mL/70367; 1.0000 mL/71247	
3	RQ1407208-03	DLCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/70367; 1.0000 mL/71247; 1.0000 mL/69705	
4	R1404618-002 [redacted]	1406161403 200-SB-13 8/10'	.01	30.0g	8270D/SVO /BEHP+DN				1.00mL	light red-brown sand and gravel	1.0000 mL/69705	7/2/4 III. SJV
5	R1404618-004	1406161546 200-SB-13 30/32'	.01	30.0g	8270D/SVO				1.00mL	red-brown silty sand and gravel	1.0000 mL/69705	
6	RQ1407208-04	R1404618-004 MS	.01	30.0g	8270D/SVO				1.00mL	red-brown silty sand and gravel	1.0000 mL/71247; 1.0000 mL/70367; 1.0000 mL/69705	
7	RQ1407208-05	R1404618-004 DMS	.01	30.0g	8270D/SVO				1.00mL	red-brown silty sand and gravel	1.0000 mL/70367; 1.0000 mL/69705; 1.0000 mL/71247	
8	R1404656-01[redacted]	MAINT BLDG PIPE	.01	30.0g	8270D/SVO /TCL				10.00mL	oily dark gray silt	1.0000 mL/69705	7/3 I
9	R1404706-00[redacted]	14061936-001A	.03	30.0g	8270D/SVO 11904				10.00mL	gray-brown silt with organic matter	1.0000 mL/69705	7/7 II.
10	R1404727-00[redacted]	RC-SS-01	.02	30.0g	8270D/SVO /TCL				10.00mL	gray-brown silt/gravel/organic matter	1.0000 mL/69705	7/7 II.
11	R1404727-002	RC-SS-02	.01	30.0g	8270D/SVO				10.00mL	medium brown silt with organic matter	1.0000 mL/69705	
12	R1404727-003	RC-SS-03	.03	30.0g	8270D/SVO				10.00mL	medium brown sand/gravel/organic matter	1.0000 mL/69705	
13	R1404727-004	RC-SS-04	.03	30.0g	8270D/SVO				10.00mL	dark brown silt with organic matter	1.0000 mL/69705	
14	R1404727-005	RC-SS-05	.01	30.0g	8270D/SVO				10.00mL	medium brown silt with organic matter	1.0000 mL/69705	
15	R1404727-006	RC-SS-06	.03	30.0g	8270D/SVO				10.00mL	dark brown silt with organic matter	1.0000 mL/69705	

Spiking Solutions

Name:	8270 Soil Surrogate 100-200ppm	Inventory ID	69705	Logbook Ref:	8270 Soil Surrogate 100-200ppm	Expires On:	10/17/2014		
Name:	8270 LCS Mix1: 100 ug/mL	Inventory ID	70367	Logbook Ref:		Expires On:	10/31/2014	Lot #:	Lc027
Name:	OLM/SOM additionals Spike 100ppm	Inventory ID	71247	Logbook Ref:		Expires On:	09/01/2014		

Preparation Materials

Eppendorf Pipette Repeater	EXT #15 (67588)	2mL Graduated Vials	(71403)	50:50 Dichloromethane:Acetone	(72003)
Prepared Sodium Sulfate Na2SO4	(71956)	Sand Reagent Grade	SVOA (71055)		

Preparation Information Benchsheet

Prep Run#: 211329
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/20/14 12:31 PM

Preparation Steps

Step:	Extraction	Step:	Concentration	Step:	Extraction Complete
Started:	6/20/14 12:31	Started:	6/25/14 20:05	Started:	6/25/14 21:56
Finished:	6/25/14 19:00	Finished:	6/25/14 20:45	Finished:	6/25/14 21:56
By:	SGOLBERG	By:	SGOLBERG	By:	SGOLBERG
Comments		Comments		Comments	

Comments:

Reviewed By: Meg Pe Date: 6/26/14 Spike Witness: BALLGEIER Date:

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211771 **Prep WorkFlow:** OrgExtS(14) **Status:** Prepped
Team: Semivoa GCMS/SGOLBERG **Prep Method:** EPA 3541 **Prep Date/Time:** 7/1/14 12:30 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407476-01	MB		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/69705	
2	RQ1407476-02	LCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/70367; 1.0000 mL/69705; 1.0000 mL/72016	
3	RQ1407476-03	DLCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/70367; 1.0000 mL/69705; 1.0000 mL/72016	
4	R1404618-004RE [redacted]	1406161546 200-SB-13 30/32'	.01	30.0g	8270D/SVO /EBHP+DN				1.00mL	red-brown silty sand and gravel	1.0000 mL/69705	5+V
5	R1404885-00[redacted]	AST-SOIL	.01	30.0g	8270D/SVO /stays 11812				1.00mL	gray sandy clay with gravel	1.0000 mL/69705	filtered 7/10 I
6	R1404886-00[redacted]	AST SOIL	.01	30.0g	8270D/SVO V 11812				1.00mL	gray-brown sandy clay with gravel	1.0000 mL/69705	filtered 7/10 I
7	R1404907-00[redacted]	S1-14-1-0.0'-2.5'	.01	30.0g	8270D/SVO /TCL				1.00mL	gray-brown silt with gravel	1.0000 mL/69705	filtered 7/10 II
8	RQ1407476-04	R1404907-001 MS	.01	30.0g	8270D/SVO				1.00mL	gray-brown silt with gravel	1.0000 mL/69705; 1.0000 mL/70367; 1.0000 mL/72016	filtered
9	RQ1407476-05	R1404907-001 DMS	.01	30.0g	8270D/SVO				1.00mL	gray-brown silt with gravel	1.0000 mL/72016; 1.0000 mL/69705; 1.0000 mL/70367	filtered
10	R1404907-002	S1-14-6-2.0'-2.5'	.01	30.0g	8270D/SVO				1.00mL	gray-brown silt with gravel	1.0000 mL/69705	filtered
11	R1404907-003	S1-14-6-0.0'-5.0'	.01	30.0g	8270D/SVO				1.00mL	gray-brown silt with gravel	1.0000 mL/69705	filtered
12	R1404907-004	S1-14-8-2.0'-2.5'	.01	30.0g	8270D/SVO				1.00mL	gray-brown silt with gravel	1.0000 mL/69705	filtered
13	R1404907-005	S1-14-8-0.0'-6.0'	.01	30.0g	8270D/SVO				1.00mL	gray-brown silt with gravel	1.0000 mL/69705	filtered
14	R1404907-006	S1-14-9-3.0'-3.5'	.01	30.0g	8270D/SVO				1.00mL	gray-brown silt with gravel	1.0000 mL/69705	filtered
15	R1404907-007	S1-14-9-0.0'-3.0'	.01	30.0g	8270D/SVO				1.00mL	gray-brown silt with gravel	1.0000 mL/69705	filtered
16	R1404907-008 V	S1-14-QAQC-01-DUP	.01	30.0g	8270D/SVO				1.00mL	gray-brown silt with gravel	1.0000 mL/69705	filtered
17	R1404950-001 [redacted]	S1-14-3-0.0'-2.5'	.01	30.0g	8270D/SVO /TCL				1.00mL	gray-brown silt with gravel	1.0000 mL/69705	II 7/10

Spiking Solutions

Name:	8270 Soil Surrogate 100-200ppm	Inventory ID	69705	Logbook Ref:	8270 Soil Surrogate 100-200ppm	Expires On:	10/17/2014		
Name:	8270 LCS Mix1: 100 ug/mL	Inventory ID	70367	Logbook Ref:		Expires On:	10/31/2014	Lot #:	Lc02739
Name:	OLM/SOM additionals Spike 100ppm	Inventory ID	72016	Logbook Ref:		Expires On:	09/01/2014		

Preparation Materials

Eppendorf Pipette Repeater	EXT #15 (67588)	2mL Graduated Vials	(72060)	Prepared Sodium Sulfate Na2SO4	(71956)
50:50 Dichloromethane:Acetone	(72003)				

Preparation Information Benchsheet

Prep Run#: 211771
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 7/1/14 12:30 PM

Preparation Steps

Step:	Extraction	Step:	Concentration	Step:	Extraction Complete
Started:	7/1/14 12:30	Started:	7/1/14 17:40	Started:	7/1/14 19:55
Finished:	7/1/14 17:00	Finished:	7/1/14 19:35	Finished:	7/1/14 19:55
By:	SGOLBERG	By:	SGOLBERG	By:	SGOLBERG
Comments		Comments		Comments	

Comments:

Reviewed By: Meghan Pace Date: 7/2/14 Spike Witness: LPRUNOSKE Date:

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

LOG BOOK #

10 ML 4000 ppm ISTD 70 1.0 ml 70461 5973-A

6/26/14

	Tune	50ng DRSTPP	Tune Run #7063	CZ252 YT 12:03pm
1	CCV	80 ppm	82700620.m	53 YC
2	CCV	80 ppm	36E0310.m	54 YC
3	[redacted]	RQ1407208-01 BLC	6/25/14 5:21P	55 No Sur #3,4
4		-02 LLS		56 YQ
5		-03 LLSP		57 YQ
6		4618 - 002		58 Y
7		-004		59 Y Sur #5
8		-004 ms	RQ1407208-04	60 YQ
9		-004 msD	-05	61 No IS ↓
10	R-4656 BrL	4656-0013	82701C1	62 Y
11	[redacted]	R 4706-001	827011904	63 Y
12	[redacted]	R 4727-001	82701C1	64 Y
13		-002		65 Y
14		-003		66 Y
15		-004		67 Y
16		-005		68 Y
17		-006		69 Y
18		RQ14~~07208~~-01 BLC		70 Y m 8:56pm
19	[redacted]	R 4618-004 ms		71 YQ 4:05pm

Run #399219

ZK

LOG BOOK #

10 µL 4000 PPM STD to 1.0 mL
70461 5973-A

7/2/14 #70613

	Tune 50 ng DFTPP Tuned.m	CZ292	YT 9:29 Am
1	CCV 80 ppm 82700620.m	93	YC
2	CCV 80 ppm 360E0310.m	94	YC
3	CCV 50 ppm K00618.m	95	N
4	[redacted] R6140476-01 BLL 7/1/14 8270 DEHP	96	Ym
5	-02 LLS	97	YC
6	-03 LLSP	98	YC
7	4618-004 Ro.ex	99	Y
8	[redacted] R 4950-001 82701CL.	300	Y
9	[redacted] R 4907-001	01	Y
10	-001MS R6 7476-04	02	YC
11	-001MSD -05	03	YC
12	-002	04	Y Sw #4.5 ↓
13	-003	05	Y Sw #5 ↓
14	-004	06	Y Sw #4,5,6 ↓
15	-005	07	Y
16	-006	08	Y
17	-007	09	Y
18	-008	10	Y Sw #4.5 ↓
19	[redacted] R 4885 -006 82703 Jars	11	Y
20	[redacted] 4886 -004 ↓	312	Y 6:47 pm.
	Chile	13	—
	Chile	CZ 314	—

Rm: Z00112

July 11, 2014

Service Request No: R1404622

Ms. Carlyn Tufts
NASA/WSTF/Navarro
P.O. Box 20
Las Cruces, NM 88004

Laboratory Results for: White Sands Test Facility/13EC059B

Dear Ms. Tufts:

Enclosed are the results of the sample(s) submitted to our laboratory on June 19, 2014. For your reference, these analyses have been assigned our service request number **R1404622**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Janice Jaeger
Client Services Manager

ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623 PHONE 585-288-5380 | FAX 585-288-8475
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

Environmental | www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

CASE NARRATIVE

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	WSTF	**Project Number:**	
Sample Matrix:	Soil/Water	**Date Received:**	06/19/14

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II deliverables. When appropriate to the method, method blank and LCS results have been reported with each analytical test.

Sample Receipt

Samples were collected on 06/16/14 and received on 06/19/14 at cooler temperatures of 1.7-5.9 C in good condition except as noted on the cooler receipt and preservation check form. The samples were stored in a refrigerator at 1 - 6 °C upon receipt at the laboratory.

Inorganics

Water and soil samples were analyzed for a site specific list of inorganics. Please see attached data pages for method numbers.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was performed on 1406161550 200-SB-28 30/32' as requested. All MS recoveries are within limits except Cyanide and has been flagged with an "*". All RPD's were acceptable.

The Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries were acceptable. All RPD's were within limits.

The Method Blanks associated with these samples were free of contamination.

No analytical or QC problems were encountered.

Metals

Water and soil samples were analyzed for Metals by methods 6010C/6020A/7471 from SW-846.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was performed on 1406161550 200-SB-28 30/32' as requested. All MS recoveries are within limits except Antimony, Chromium, Copper, Manganese and Strontium and have been flagged with an "N". All RPD's were acceptable except Calcium, Strontium and Titanium and have been flagged with an "*". Please note: Various other RPD's appear to be outside limits but since the results are plus or minus the Method Reporting Limit (MRL), the data was accepted. The MS recoveries for Aluminum, Calcium, Iron, and Magnesium could not be accurately determined as the amount present in the sample was greater than four times the amount added as spike as noted by the "#".

All Internal Standards were within limits.

The Laboratory Control Sample recoveries were acceptable.

The Method Blanks associated with these samples were free of contamination except for Aluminum, Antimony, Barium, Chromium, Lead, Magesium, Molybdenum, Nickel, Selenium, Sodium, Thallium, Tin, Titanium and Zinc. All affected data has been flagged with a "B".

No analytical or QC problems were encountered.

Perchlorate

Water and soil samples were analyzed for Perchlorate by method 6850 from SW-846.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was requested on 1406161546 200-SB-28 30/32'. All MS/MSD recoveries and RPD's were acceptable.

All Internal Standards were within limits.

The Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries were acceptable. All RPD's were within limits.

The Method Blanks associated with these samples were free of contamination.

No analytical or QC problems were encountered.

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1404622

Lab ID	Client ID
R1404622-001	1406161346 200-SB-13
R1404622-002	1406161347 200-SB-13
R1404622-003	1406161348 200-SB-13
R1404622-004	1406161344 200-SB-13
R1404622-005	1406161403 200-SB-13 8/10'
R1404622-006	1406161546 200-SB-28 30/32'
R1404622-007	1406161405 200-SB-13 8/10'
R1404622-008	1406161550 200-SB-28 30/32'

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

\# Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404622
Date Collected: 6/16/14
Date Received: 6/19/14

Sample Name: 1406161346 200-SB-13
Lab Code: R1404622-001

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**0.10**		mg/L	0.10	0.03	1	6/24/14	6/27/14 17:29	
Antimony, Total	6020A	ND	U	mg/L	0.0010	0.0002	1	7/ 1/14	7/2/14 21:59	
Arsenic, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/24/14	6/27/14 17:29	
Barium, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/24/14	6/27/14 17:29	
Beryllium, Total	6010C	**0.0002**	J	mg/L	0.0030	0.0002	1	6/24/14	6/27/14 17:29	
Boron, Total	6010C	ND	U	mg/L	0.20	0.03	1	6/24/14	6/27/14 17:29	
Cadmium, Total	6010C	ND	U	mg/L	0.0050	0.0005	1	6/24/14	6/27/14 17:29	
Calcium, Total	6010C	**1.4**		mg/L	1.0	0.2	1	6/24/14	6/30/14 20:49	
Chromium, Total	6010C	**0.002**	J	mg/L	0.010	0.0009	1	6/24/14	6/27/14 17:29	
Cobalt, Total	6010C	ND	U	mg/L	0.050	0.002	1	6/24/14	6/27/14 17:29	
Copper, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/24/14	6/27/14 17:29	
Iron, Total	6010C	**0.34**		mg/L	0.10	0.02	1	6/24/14	6/27/14 17:29	
Lead, Total	6010C	ND	U	mg/L	0.0050	0.0014	1	6/24/14	6/27/14 17:29	
Magnesium, Total	6010C	**0.2**	J	mg/L	1.0	0.02	1	6/24/14	6/27/14 17:29	
Manganese, Total	6010C	**0.005**	J	mg/L	0.010	0.002	1	6/24/14	6/27/14 17:29	
Mercury, Total	7470A	**0.0001**	J	mg/L	0.00020	0.00003	1	6/25/14	6/26/14 12:24	
Molybdenum, Total	6010C	ND	U	mg/L	0.025	0.002	1	6/24/14	6/27/14 17:29	
Nickel, Total	6010C	ND	U	mg/L	0.040	0.002	1	6/24/14	6/27/14 17:29	
Potassium, Total	6010C	ND	U	mg/L	2.0	0.2	1	6/24/14	6/27/14 17:29	
Selenium, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/24/14	6/27/14 17:29	
Silver, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/24/14	6/27/14 17:29	
Sodium, Total	6010C	**0.2**	J	mg/L	1.0	0.09	1	6/24/14	6/30/14 20:49	
Strontium, Total	6010C	**0.006**	J	mg/L	0.10	0.002	1	6/24/14	6/27/14 17:29	
Thallium, Total	6020A	**0.0001**	BJ	mg/L	0.0010	0.00004	1	7/ 1/14	7/2/14 21:59	
Tin, Total	6010C	ND	U	mg/L	0.50	0.05	1	6/24/14	6/27/14 17:29	
Titanium, Total	6010C	**0.003**	J	mg/L	0.050	0.0008	1	6/24/14	6/27/14 17:29	
Uranium, Total	6020A	**0.00001**	J	mg/L	0.0010	0.000003	1	7/ 1/14	7/2/14 21:59	
Vanadium, Total	6010C	ND	U	mg/L	0.050	0.0007	1	6/24/14	6/27/14 17:29	
Zinc, Total	6010C	**0.006**	J	mg/L	0.020	0.005	1	6/24/14	6/27/14 17:29	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404622

Sample Name: 1406161346 200-SB-13
Lab Code: R1404622-001
Matrix: Water

Date Collected: 6/16/14
Date Received: 6/19/14

Analysis Method	Extracted/Digested By	Analyzed By
6010C	CWINKSTERN	TCHRIST
6010C	CWINKSTERN	DBOND
6020A	MCRIBBIN	CWINKSTERN
7470A	CWINKSTERN	CWINKSTERN

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Water	**Date Received:**	6/19/14
Sample Name:	1406161347 200-SB-13		
Lab Code:	R1404622-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Cyanide, Total	9012B	ND	U	mg/L	0.010	0.003	1	6/24/14	6/24/14 12:55	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406161347 200-SB-13	**Date Collected:**	6/16/14
Lab Code:	R1404622-002	**Date Received:**	6/19/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
9012B	GNITAJOUPPI	GNITAJOUPPI

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Water	**Date Received:**	6/19/14
Sample Name:	1406161348 200-SB-13		
Lab Code:	R1404622-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**1.0**	J	mg/L	2.0	0.3	10	NA	6/24/14 22:35	
Nitrate+Nitrite as Nitrogen	353.2	**0.019**	J	mg/L	0.050	0.002	1	NA	6/24/14 12:46	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406161348 200-SB-13	**Date Collected:**	6/16/14
Lab Code:	R1404622-003	**Date Received:**	6/19/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
353.2		LDOLGOS
9056A		LDRESSEL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Extracted:	6/23/14
		Date Analyzed:	6/23/14 11:48
Sample Name:	1406161344 200-SB-13	**Units:**	µg/L
Lab Code:	R1404622-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398569
Prep Method:	Method	**Extraction Lot:**	211378
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062314\B0031539.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	0.20	0.026	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406161344 200-SB-13	**Date Collected:**	6/16/14
Lab Code:	R1404622-004	**Date Received:**	6/19/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161403 200-SB-13 8/10'		
Lab Code:	R1404622-005	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**97.1**		Percent	1.0	1	NA	6/23/14 13:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 19:24
Sample Name:	1406161403 200-SB-13 8/10'	**Units:**	µg/Kg
Lab Code:	R1404622-005	**Basis:**	Dry
		Percent Solids:	97.1

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031560.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.1	0.33	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406161403 200-SB-13 8/10'	**Date Collected:**	6/16/14
Lab Code:	R1404622-005	**Date Received:**	6/19/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161546 200-SB-28 30/32'		
Lab Code:	R1404622-006	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**92.8**		Percent	1.0	1	NA	6/23/14 13:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 19:38
Sample Name:	1406161546 200-SB-28 30/32'	**Units:**	µg/Kg
Lab Code:	R1404622-006	**Basis:**	Dry
		Percent Solids:	92.8

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031561.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.2	0.35	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406161546 200-SB-28 30/32'	**Date Collected:**	6/16/14
Lab Code:	R1404622-006	**Date Received:**	6/19/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161405 200-SB-13 8/10'		
Lab Code:	R1404622-007	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**96.3**		Percent	1.0	1	NA	6/24/14 12:38	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161405 200-SB-13 8/10'		
Lab Code:	R1404622-007	**Basis:**	Dry
		Percent Solids:	96.3

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**13**	J	mg/Kg	31	6	1	6/23/14	6/23/14 13:56	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 19:25	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.41	0.03	1	6/20/14	6/23/14 19:17	
Cyanide, Total	9012B	ND	U	mg/Kg	0.096	0.015	1	6/24/14	6/25/14 11:21	
Nitrate+Nitrite as Nitrogen	353.2M	**7.4**		mg/Kg	5.2	0.6	1	7/ 3/14	7/3/14 15:56	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Collected: 6/16/14
Date Received: 6/19/14

Sample Name: 1406161405 200-SB-13 8/10'
Lab Code: R1404622-007

Basis: Dry
Percent Solids: 96.3

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**4640**		mg/Kg	10	2.2	1	6/27/14	7/2/14 12:36	
Antimony, Total	6010C	**0.9**	BJ	mg/Kg	6.0	0.3	1	6/27/14	6/30/14 22:19	
Arsenic, Total	6010C	**4.06**		mg/Kg	1.0	0.29	1	6/27/14	7/2/14 12:36	
Barium, Total	6010C	**39.9**		mg/Kg	2.0	0.10	1	6/27/14	6/30/14 22:19	
Beryllium, Total	6020A	**0.38**	J	mg/Kg	0.49	0.02	5	6/27/14	7/1/14 17:41	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/27/14	6/30/14 22:19	
Cadmium, Total	6010C	**0.39**	J	mg/Kg	0.50	0.05	1	6/27/14	6/30/14 22:19	
Calcium, Total	6010C	**98900**		mg/Kg	5000	700	50	6/27/14	7/2/14 13:35	
Chromium, Total	6020A	**6.86**		mg/Kg	0.49	0.05	5	6/27/14	7/2/14 15:16	
Cobalt, Total	6020A	**3.44**		mg/Kg	0.49	0.04	5	6/27/14	7/1/14 17:41	
Copper, Total	6020A	**6.36**		mg/Kg	0.49	0.20	5	6/27/14	7/1/14 17:41	
Iron, Total	6010C	**11600**		mg/Kg	100	74	10	6/27/14	6/30/14 20:54	
Lead, Total	6010C	**6.9**		mg/Kg	5.0	0.03	1	6/27/14	6/30/14 22:19	
Magnesium, Total	6010C	**17400**		mg/Kg	100	2	1	6/27/14	6/30/14 22:19	
Manganese, Total	6010C	**218**		mg/Kg	1.0	0.12	1	6/27/14	6/30/14 22:19	
Mercury, Total	7471B	ND	U	mg/Kg	0.032	0.002	1	6/24/14	6/24/14 18:54	
Molybdenum, Total	6010C	**1.0**	J	mg/Kg	2.5	0.07	1	6/27/14	6/30/14 22:19	
Nickel, Total	6010C	**7.1**		mg/Kg	4.0	0.10	1	6/27/14	6/30/14 22:19	
Potassium, Total	6010C	**1350**		mg/Kg	200	20	1	6/27/14	6/30/14 22:19	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.57	1	6/27/14	6/30/14 22:19	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/27/14	6/30/14 22:19	
Sodium, Total	6010C	**148**		mg/Kg	100	7	1	6/27/14	6/30/14 22:19	
Strontium, Total	6010C	**250**		mg/Kg	10	0.05	1	6/27/14	6/30/14 22:19	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.75	1	6/27/14	6/30/14 22:19	
Tin, Total	6010C	ND	U	mg/Kg	50	2	1	6/27/14	6/30/14 22:19	
Titanium, Total	6010C	**99.8**		mg/Kg	5.0	0.10	1	6/27/14	6/30/14 22:19	
Uranium, Total	6020A	**1.45**		mg/Kg	0.49	0.0010	5	6/27/14	7/2/14 15:16	
Vanadium, Total	6010C	**25.9**		mg/Kg	5.0	0.2	1	6/27/14	6/30/14 22:19	
Zinc, Total	6010C	**31.6**		mg/Kg	2.0	0.2	1	6/27/14	6/30/14 22:19	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404622

Sample Name: 1406161405 200-SB-13 8/10'
Lab Code: R1404622-007
Matrix: Soil

Date Collected: 6/16/14
Date Received: 6/19/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	LDOLGOS	LDOLGOS
6010C	MCRIBBIN	TCHRIST
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	GNITAJOUPPI	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161550 200-SB-28 30/32'		
Lab Code:	R1404622-008	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**92.6**		Percent	1.0	1	NA	6/23/14 13:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161550 200-SB-28 30/32'		
Lab Code:	R1404622-008	**Basis:**	Dry
		Percent Solids:	92.6

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	32	7	1	6/24/14	6/24/14 21:24	
Chromium, Hexavalent	7199	**0.05**	J	mg/Kg	0.42	0.03	1	6/20/14	6/23/14 19:38	
Chromium, Hexavalent	7199	**0.05**	J	mg/Kg	0.42	0.03	1	6/20/14	6/23/14 19:31	
Cyanide, Total	9012B	ND	U	mg/Kg	0.32	0.05	1	6/24/14	6/25/14 11:22	
Nitrate+Nitrite as Nitrogen	353.2M	**4.0**	J	mg/Kg	5.4	0.6	1	7/ 3/14	7/3/14 15:57	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Collected: 6/16/14
Date Received: 6/19/14

Sample Name: 1406161550 200-SB-28 30/32'
Lab Code: R1404622-008

Basis: Dry
Percent Solids: 92.6

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**6040**		mg/Kg	11	3	1	6/27/14	7/2/14 12:43	
Antimony, Total	6010C	**0.9**	BJ	mg/Kg	6.4	0.3	1	6/27/14	6/30/14 22:25	
Arsenic, Total	6010C	**3.9**		mg/Kg	1.1	0.3	1	6/27/14	7/2/14 12:43	
Barium, Total	6010C	**30.1**		mg/Kg	2.1	0.10	1	6/27/14	6/30/14 22:25	
Beryllium, Total	6020A	**0.48**	J	mg/Kg	0.53	0.02	5	6/27/14	7/1/14 17:47	
Boron, Total	6010C	ND	U	mg/Kg	21	5	1	6/27/14	6/30/14 22:25	
Cadmium, Total	6010C	**0.41**	J	mg/Kg	0.53	0.05	1	6/27/14	6/30/14 22:25	
Calcium, Total	6010C	**91800**		mg/Kg	2100	300	20	6/27/14	7/2/14 13:41	
Chromium, Total	6020A	**7.47**		mg/Kg	0.53	0.05	5	6/27/14	7/2/14 15:23	
Cobalt, Total	6020A	**4.58**		mg/Kg	0.53	0.04	5	6/27/14	7/1/14 17:47	
Copper, Total	6020A	**6.65**		mg/Kg	0.53	0.21	5	6/27/14	7/1/14 17:47	
Iron, Total	6010C	**10200**		mg/Kg	110	80	10	6/27/14	6/30/14 21:00	
Lead, Total	6010C	**6.5**		mg/Kg	5.3	0.03	1	6/27/14	6/30/14 22:25	
Magnesium, Total	6010C	**7700**		mg/Kg	110	2	1	6/27/14	6/30/14 22:25	
Manganese, Total	6010C	**189**		mg/Kg	1.1	0.2	1	6/27/14	6/30/14 22:25	
Mercury, Total	7471B	ND	U	mg/Kg	0.035	0.003	1	6/24/14	6/24/14 18:56	
Molybdenum, Total	6010C	**0.8**	BJ	mg/Kg	2.6	0.07	1	6/27/14	6/30/14 22:25	
Nickel, Total	6010C	**6.9**		mg/Kg	4.2	0.10	1	6/27/14	6/30/14 22:25	
Potassium, Total	6010C	**2590**		mg/Kg	210	20	1	6/27/14	6/30/14 22:25	
Selenium, Total	6010C	ND	U	mg/Kg	1.1	0.6	1	6/27/14	6/30/14 22:25	
Silver, Total	6010C	ND	U	mg/Kg	1.1	0.08	1	6/27/14	6/30/14 22:25	
Sodium, Total	6010C	**80**	J	mg/Kg	110	7	1	6/27/14	6/30/14 22:25	
Strontium, Total	6010C	**311**		mg/Kg	11	0.06	1	6/27/14	6/30/14 22:25	
Thallium, Total	6010C	ND	U	mg/Kg	1.1	0.8	1	6/27/14	6/30/14 22:25	
Tin, Total	6010C	ND	U	mg/Kg	53	2	1	6/27/14	6/30/14 22:25	
Titanium, Total	6010C	**162**		mg/Kg	5.3	0.10	1	6/27/14	6/30/14 22:25	
Uranium, Total	6020A	**2.39**		mg/Kg	0.53	0.002	5	6/27/14	7/2/14 15:23	
Vanadium, Total	6010C	**15.6**		mg/Kg	5.3	0.3	1	6/27/14	6/30/14 22:25	
Zinc, Total	6010C	**26.4**		mg/Kg	2.1	0.2	1	6/27/14	6/30/14 22:25	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404622

Sample Name: 1406161550 200-SB-28 30/32'
Lab Code: R1404622-008
Matrix: Soil

Date Collected: 6/16/14
Date Received: 6/19/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	LDOLGOS	LDOLGOS
6010C	MCRIBBIN	TCHRIST
6020A	MCRIBBIN	TCHRIST
7199	CWOODS	CWOODS
7471B	CWINKSTERN	CWINKSTERN
9012B	GNITAJOUPPI	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404622-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/L	0.20	0.03	1	NA	6/24/14 19:30	
Cyanide, Total	9012B	ND	U	mg/L	0.010	0.003	1	6/24/14	6/24/14 12:49	
Nitrate+Nitrite as Nitrogen	353.2	ND	U	mg/L	0.050	0.002	1	NA	6/24/14 12:43	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404622-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/23/14 13:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404622-MB2	**Basis:**	Dry

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	30	6	1	6/23/14	6/23/14 11:35	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 16:41	
Chromium, Hexavalent	7199	ND	U	mg/Kg	0.40	0.03	1	6/20/14	6/23/14 16:49	
Cyanide, Total	9012B	ND	U	mg/Kg	0.10	0.02	1	6/24/14	6/25/14 11:12	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.0	0.5	1	7/ 3/14	7/3/14 15:53	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404622-MB3	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/24/14 12:38	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404622-MB3	**Basis:**	Dry

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	30	6	1	6/24/14	6/24/14 21:04	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404622-MB1	**Basis:**	NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	ND	U	mg/L	0.10	0.03	1	6/24/14	6/27/14 16:41	
Antimony, Total	6020A	ND	U	mg/L	0.0010	0.0002	1	7/ 1/14	7/2/14 21:32	
Arsenic, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/24/14	6/27/14 16:41	
Barium, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/24/14	6/27/14 16:41	
Beryllium, Total	6010C	ND	U	mg/L	0.0030	0.0002	1	6/24/14	6/27/14 16:41	
Boron, Total	6010C	ND	U	mg/L	0.20	0.03	1	6/24/14	6/27/14 16:41	
Cadmium, Total	6010C	ND	U	mg/L	0.0050	0.0005	1	6/24/14	6/27/14 16:41	
Calcium, Total	6010C	ND	U	mg/L	1.0	0.2	1	6/24/14	6/30/14 19:59	
Chromium, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/24/14	6/27/14 16:41	
Cobalt, Total	6010C	ND	U	mg/L	0.050	0.002	1	6/24/14	6/27/14 16:41	
Copper, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/24/14	6/27/14 16:41	
Iron, Total	6010C	ND	U	mg/L	0.10	0.02	1	6/24/14	6/27/14 16:41	
Lead, Total	6010C	ND	U	mg/L	0.0050	0.0014	1	6/24/14	6/27/14 16:41	
Magnesium, Total	6010C	ND	U	mg/L	1.0	0.02	1	6/24/14	6/27/14 16:41	
Manganese, Total	6010C	ND	U	mg/L	0.010	0.002	1	6/24/14	6/27/14 16:41	
Mercury, Total	7470A	ND	U	mg/L	0.00020	0.00003	1	6/25/14	6/26/14 12:14	
Molybdenum, Total	6010C	ND	U	mg/L	0.025	0.002	1	6/24/14	6/27/14 16:41	
Nickel, Total	6010C	ND	U	mg/L	0.040	0.002	1	6/24/14	6/27/14 16:41	
Potassium, Total	6010C	ND	U	mg/L	2.0	0.2	1	6/24/14	6/27/14 16:41	
Selenium, Total	6010C	**0.003**	J	mg/L	0.010	0.003	1	6/24/14	6/27/14 16:41	
Silver, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/24/14	6/27/14 16:41	
Sodium, Total	6010C	ND	U	mg/L	1.0	0.09	1	6/24/14	6/30/14 19:59	
Strontium, Total	6010C	ND	U	mg/L	0.10	0.002	1	6/24/14	6/27/14 16:41	
Thallium, Total	6020A	**0.00006**	J	mg/L	0.0010	0.00004	1	7/ 1/14	7/2/14 21:32	
Tin, Total	6010C	ND	U	mg/L	0.50	0.05	1	6/24/14	6/27/14 16:41	
Titanium, Total	6010C	ND	U	mg/L	0.050	0.0008	1	6/24/14	6/27/14 16:41	
Uranium, Total	6020A	ND	U	mg/L	0.0010	0.000003	1	7/ 1/14	7/2/14 21:32	
Vanadium, Total	6010C	ND	U	mg/L	0.050	0.0007	1	6/24/14	6/27/14 16:41	
Zinc, Total	6010C	ND	U	mg/L	0.020	0.005	1	6/24/14	6/27/14 16:41	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404622-MB2	**Basis:**	Dry

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	ND	U	mg/Kg	10	3	1	6/27/14	7/2/14 11:11	
Antimony, Total	6010C	**1.0**	J	mg/Kg	6.0	0.3	1	6/27/14	6/30/14 19:37	
Arsenic, Total	6010C	ND	U	mg/Kg	1.0	0.3	1	6/27/14	7/2/14 11:11	
Barium, Total	6010C	**0.1**	J	mg/Kg	2.0	0.10	1	6/27/14	6/30/14 19:37	
Beryllium, Total	6020A	ND	U	mg/Kg	0.50	0.02	5	6/27/14	7/1/14 17:29	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/27/14	6/30/14 19:37	
Cadmium, Total	6010C	ND	U	mg/Kg	0.50	0.05	1	6/27/14	6/30/14 19:37	
Calcium, Total	6010C	ND	U	mg/Kg	100	20	1	6/27/14	6/30/14 19:37	
Chromium, Total	6020A	**0.11**	J	mg/Kg	0.50	0.05	5	6/27/14	7/2/14 15:03	
Cobalt, Total	6020A	ND	U	mg/Kg	0.50	0.04	5	6/27/14	7/1/14 17:29	
Copper, Total	6020A	ND	U	mg/Kg	0.50	0.20	5	6/27/14	7/1/14 17:29	
Iron, Total	6010C	ND	U	mg/Kg	10	8	1	6/27/14	6/30/14 19:37	
Lead, Total	6010C	**0.03**	J	mg/Kg	5.0	0.03	1	6/27/14	6/30/14 19:37	
Magnesium, Total	6010C	**3**	J	mg/Kg	100	2	1	6/27/14	6/30/14 19:37	
Manganese, Total	6010C	ND	U	mg/Kg	1.0	0.2	1	6/27/14	6/30/14 19:37	
Mercury, Total	7471B	ND	U	mg/Kg	0.033	0.002	1	6/24/14	6/24/14 18:51	
Molybdenum, Total	6010C	**0.1**	J	mg/Kg	2.5	0.07	1	6/27/14	6/30/14 19:37	
Nickel, Total	6010C	**0.1**	J	mg/Kg	4.0	0.10	1	6/27/14	6/30/14 19:37	
Potassium, Total	6010C	ND	U	mg/Kg	200	20	1	6/27/14	6/30/14 19:37	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/27/14	6/30/14 19:37	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/27/14	6/30/14 19:37	
Sodium, Total	6010C	**8**	J	mg/Kg	100	7	1	6/27/14	6/30/14 19:37	
Strontium, Total	6010C	ND	U	mg/Kg	10	0.05	1	6/27/14	6/30/14 19:37	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/27/14	6/30/14 19:37	
Tin, Total	6010C	**3**	J	mg/Kg	50	2	1	6/27/14	6/30/14 19:37	
Titanium, Total	6010C	**0.1**	J	mg/Kg	5.0	0.10	1	6/27/14	6/30/14 19:37	
Uranium, Total	6020A	ND	U	mg/Kg	0.50	0.0010	5	6/27/14	7/2/14 15:03	
Vanadium, Total	6010C	ND	U	mg/Kg	5.0	0.2	1	6/27/14	6/30/14 19:37	
Zinc, Total	6010C	**0.2**	J	mg/Kg	2.0	0.2	1	6/27/14	6/30/14 19:37	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/23/14
		Date Analyzed:	6/23/14 08:53
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407014-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398569
Prep Method:	Method	**Extraction Lot:**	211378
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062314\B0031526.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	6/24/14
		Date Analyzed:	6/24/14 16:30
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1407129-01	**Basis:**	Dry

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398819
Prep Method:	Method	**Extraction Lot:**	211546
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062414\B0031547.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.32	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Collected: 6/16/14
Date Received: 6/19/14
Date Analyzed: 6/23/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name: 1406161550 200-SB-28 30/32'
Lab Code: R1404622-008

Units: Percent
Basis: As Received

Analyte Name	Method	MRL	Sample Result	1406161550 200-SB-28 30/32'DUP Duplicate Sample R1404622-008DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	1.0	92.6	92.5	92.6	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Collected: 6/16/14
Date Received: 6/19/14
Date Analyzed: 6/23/14 - 7/ 3/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name: 1406161550 200-SB-28 30/32'
Lab Code: R1404622-008

Units: mg/Kg
Basis: Dry

Analyte Name	Method	MRL	MDL	Sample Result	1406161550 200-SB-28 30/32'DUP Duplicate Sample R1404622-008DUP Result	Average	RPD	RPD Limit
Chloride	9056A	32	7	ND U	ND U	NC	NC	15
Chromium, Hexavalent	7199	0.42	0.03	0.05 J	0.05 J	0.0482	7	20
Chromium, Hexavalent	7199	0.42	0.03	0.05 J	0.04 J	0.0462	20	20
Cyanide, Total	9012B	0.26	0.04	ND U	ND U	NC	NC	30
Nitrate+Nitrite as Nitrogen	353.2M	5.4	0.6	4.0 J	4.3 J	4.16	7	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	6/23/14 - 7/ 3/14

Matrix Spike Summary
General Chemistry Parameters

Sample Name:	1406161550 200-SB-28 30/32'	**Units:**	mg/Kg
Lab Code:	R1404622-008	**Basis:**	Dry

			1406161550 200-SB-28 30/32'MS Matrix Spike R1404622-008MS1				
Analyte Name	**Method**	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**
Chloride	9056A	ND	253	216	117		63 - 136
Chromium, Hexavalent	7199	0.05	41.7	43.0	97		75 - 125
Chromium, Hexavalent	7199	0.05	45.8	43.0	106		75 - 125
Cyanide, Total	9012B	ND	1.26	3.21	39	*	46 - 159
Nitrate+Nitrite as Nitrogen	353.2M	4.0	55.4	54.0	95		76 - 128

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Collected: 6/16/14
Date Received: 6/19/14
Date Analyzed: 6/23/14

Matrix Spike Summary
General Chemistry Parameters

Sample Name: 1406161550 200-SB-28 30/32'
Lab Code: R1404622-008

Units: mg/Kg
Basis: Dry

Analytical Method: 7199
Prep Method: EPA 3060A

	1406161550 200-SB-28 30/32'MS Matrix Spike R1404622-008MS2				
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Chromium, Hexavalent	0.05	663	729	91	75 - 125
Chromium, Hexavalent	0.05	656	729	90	75 - 125

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Collected: 6/16/14
Date Received: 6/19/14
Date Analyzed: 6/24/14 - 7/ 2/14

Replicate Sample Summary
Inorganic Parameters

Sample Name: 1406161550 200-SB-28 30/32'
Lab Code: R1404622-008

Units: mg/Kg
Basis: Dry

Analyte Name	Method	MRL	MDL	Sample Result	1406161550 200-SB-28 30/32'DUP Duplicate Sample R1404622-008DUP Result	Average	RPD		RPD Limit
Aluminum, Total	6010C	11	3	6040	6560	6300	8		20
Antimony, Total	6010C	6.4	0.3	0.9 BJ	0.9 J	0.874	5		20
Arsenic, Total	6010C	1.1	0.3	3.9	3.6	3.74	8		20
Barium, Total	6010C	2.1	0.10	30.1	30.1	30.1	<1		20
Beryllium, Total	6020A	0.53	0.02	0.48 J	0.47 J	0.474	<1		20
Boron, Total	6010C	21	5	ND U	ND U	NC	NC		20
Cadmium, Total	6010C	0.53	0.05	0.41 J	0.30 J	0.354	29	*	20
Calcium, Total	6010C	2100	300	91800	55400	73600	49	*	20
Chromium, Total	6020A	0.53	0.05	7.47	7.83	7.65	5		20
Cobalt, Total	6020A	0.53	0.04	4.58	4.70	4.64	3		20
Copper, Total	6020A	0.53	0.21	6.65	6.34	6.49	5		20
Iron, Total	6010C	110	80	10200	10800	10500	5		20
Lead, Total	6010C	5.3	0.03	6.5	6.7	6.60	3		20
Magnesium, Total	6010C	110	2	7700	7390	7540	4		20
Manganese, Total	6010C	1.1	0.2	189	159	174	17		20
Mercury, Total	7471B	0.035	0.003	ND U	ND U	NC	NC		35
Molybdenum, Total	6010C	2.6	0.07	0.8 BJ	0.9 J	0.848	14		20
Nickel, Total	6010C	4.2	0.10	6.9	7.1	7.00	3		20
Potassium, Total	6010C	210	20	2590	2620	2600	1		20
Selenium, Total	6010C	1.1	0.6	ND U	ND U	NC	NC		20
Silver, Total	6010C	1.1	0.08	ND U	ND U	NC	NC		20
Sodium, Total	6010C	110	7	80 J	80 J	81.5	7		20
Strontium, Total	6010C	11	0.06	311	110	211	95	*	20
Thallium, Total	6010C	1.1	0.8	ND U	ND U	NC	NC		20
Tin, Total	6010C	53	2	ND U	ND U	NC	NC		20
Titanium, Total	6010C	5.3	0.10	162	122	142	28	*	20
Uranium, Total	6020A	0.53	0.002	2.39	2.25	2.32	6		20
Vanadium, Total	6010C	5.3	0.3	15.6	16.0	15.8	3		20
Zinc, Total	6010C	2.1	0.2	26.4	29.6	28.0	11		20

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Collected: 6/16/14
Date Received: 6/19/14
Date Analyzed: 6/24/14 - 7/ 2/14

Matrix Spike Summary
Inorganic Parameters

Sample Name: 1406161550 200-SB-28 30/32'
Lab Code: R1404622-008

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Sample Result	1406161550 200-SB-28 30/32'MS Matrix Spike R1404622-008MS Result	Spike Amount	% Rec		% Rec Limits
Aluminum, Total	6010C	6040	7010	216	449	#	75 - 125
Antimony, Total	6010C	0.9	40.2	54.0	73	N	75 - 125
Arsenic, Total	6010C	3.9	7.9	4.3	92		75 - 125
Barium, Total	6010C	30.1	240	216	97		75 - 125
Beryllium, Total	6020A	0.48	2.32	2.12	87		75 - 125
Boron, Total	6010C	ND	86	108	80		75 - 125
Cadmium, Total	6010C	0.41	4.71	5.40	80		75 - 125
Calcium, Total	6010C	91800	73400	200	-8499	#	75 - 125
Chromium, Total	6020A	7.47	8.90	2.12	67	N	75 - 125
Cobalt, Total	6020A	4.58	6.88	2.12	109		75 - 125
Copper, Total	6020A	6.65	7.99	2.12	64	N	75 - 125
Iron, Total	6010C	10200	10700	110	452	#	75 - 125
Lead, Total	6010C	6.5	53.4	54.0	87		75 - 125
Magnesium, Total	6010C	7700	8560	220	399	#	75 - 125
Manganese, Total	6010C	189	192	54.0	6	N	75 - 125
Mercury, Total	7471B	ND	0.182	0.180	101		75 - 125
Molybdenum, Total	6010C	0.8	47.0	54.0	86		75 - 125
Nickel, Total	6010C	6.9	52.4	54.0	84		75 - 125
Potassium, Total	6010C	2590	5150	2160	119		75 - 125
Selenium, Total	6010C	ND	86.2	109	79		75 - 125
Silver, Total	6010C	ND	4.6	5.4	85		75 - 125
Sodium, Total	6010C	80	2260	2160	101		75 - 125
Strontium, Total	6010C	311	347	216	17	N	75 - 125
Thallium, Total	6010C	ND	179	216	83		75 - 125
Tin, Total	6010C	ND	472	540	87		75 - 125
Titanium, Total	6010C	162	221	54.0	109		75 - 125
Uranium, Total	6020A	2.39	4.58	2.12	104		75 - 125
Vanadium, Total	6010C	15.6	64.3	54.0	90		75 - 125
Zinc, Total	6010C	26.4	72.5	54.0	85		75 - 125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404622
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	6/24/14

Matrix Spike Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name: 1406161546 200-SB-28 30/32'
Lab Code: R1404622-006

Units: µg/Kg
Basis: Dry

Analytical Method: 6850
Prep Method: Method

		1406161546 200-SB-28 30/32'MS Matrix Spike RQ1407129-06			1406161546 200-SB-28 30/32'DMS Duplicate Matrix Spike RQ1407129-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND	3.88	4.31	90	3.99	4.31	92	80 - 120	3	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Analyzed: 6/23/14 - 7/ 3/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404622-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Chloride	9056A	213	200	107	80 - 120
Chromium, Hexavalent	7199	625	656	95	80 - 120
Chromium, Hexavalent	7199	627	656	96	80 - 120
Cyanide, Total	9012B	1.01	1.00	100	85 - 115
Nitrate+Nitrite as Nitrogen	353.2M	48.2	50.0	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Analyzed: 6/24/14 - 6/25/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404622-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Chloride	9056A	215	200	108	80 - 120
Cyanide, Total	9012B	3.91	4.00	98	85 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404622
Date Analyzed: 6/24/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404622-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Chloride	9056A	1.99	2.00	99	80 - 120
Cyanide, Total	9012B	0.0979	0.100	98	85 - 115
Nitrate+Nitrite as Nitrogen	353.2	0.490	0.500	98	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404622
Date Analyzed: 6/24/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404622-LCS4 Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	9012B	0.379	0.400	95	85 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Analyzed: 6/24/14 - 7/ 2/14

Lab Control Sample Summary
Inorganic Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404622-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	183	200	91	80 - 120
Antimony, Total	6010C	44.1	50.0	88	80 - 120
Arsenic, Total	6010C	3.64	4.0	91	80 - 120
Barium, Total	6010C	191	200	95	80 - 120
Beryllium, Total	6020A	1.82	2.00	91	80 - 120
Boron, Total	6010C	87.9	100	88	80 - 120
Cadmium, Total	6010C	4.45	5.00	89	80 - 120
Calcium, Total	6010C	189	200	94	80 - 120
Chromium, Total	6020A	2.19	2.00	110	80 - 120
Cobalt, Total	6020A	1.71	2.00	85	80 - 120
Copper, Total	6020A	1.77	2.00	88	80 - 120
Iron, Total	6010C	98.7	100	99	80 - 120
Lead, Total	6010C	45.4	50.0	91	80 - 120
Magnesium, Total	6010C	191	200	95	80 - 120
Manganese, Total	6010C	47.5	50.0	95	80 - 120
Mercury, Total	7471B	0.167	0.167	100	80 - 120
Molybdenum, Total	6010C	46.5	50.0	93	80 - 120
Nickel, Total	6010C	47.7	50.0	95	80 - 120
Potassium, Total	6010C	1630	2000	82	80 - 120
Selenium, Total	6010C	81.0	101	80	80 - 120
Silver, Total	6010C	4.77	5.0	95	80 - 120
Sodium, Total	6010C	1810	2000	91	80 - 120
Strontium, Total	6010C	172	200	86	80 - 120
Thallium, Total	6010C	170	200	85	80 - 120
Tin, Total	6010C	481	500	96	80 - 120
Titanium, Total	6010C	48.5	50.0	97	80 - 120
Uranium, Total	6020A	2.06	2.00	103	80 - 120
Vanadium, Total	6010C	48.0	50.0	96	80 - 120
Zinc, Total	6010C	47.2	50.0	94	80 - 120

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404622
Date Analyzed: 6/26/14 - 7/ 2/14

Lab Control Sample Summary
Inorganic Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404622-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	1.70	2.00	85	80 - 120
Antimony, Total	6020A	0.0217	0.0200	108	80 - 120
Arsenic, Total	6010C	0.0361	0.040	90	80 - 120
Barium, Total	6010C	1.91	2.00	95	80 - 120
Beryllium, Total	6010C	0.0462	0.0500	92	80 - 120
Boron, Total	6010C	0.909	1.00	91	80 - 120
Cadmium, Total	6010C	0.0466	0.0500	93	80 - 120
Calcium, Total	6010C	2.00	2.0	100	80 - 120
Chromium, Total	6010C	0.195	0.200	98	80 - 120
Cobalt, Total	6010C	0.464	0.500	93	80 - 120
Copper, Total	6010C	0.235	0.250	94	80 - 120
Iron, Total	6010C	0.947	1.00	95	80 - 120
Lead, Total	6010C	0.470	0.500	94	80 - 120
Magnesium, Total	6010C	1.94	2.0	97	80 - 120
Manganese, Total	6010C	0.467	0.500	93	80 - 120
Mercury, Total	7470A	0.000890	0.00100	89	80 - 120
Molybdenum, Total	6010C	0.461	0.500	92	80 - 120
Nickel, Total	6010C	0.481	0.500	96	80 - 120
Potassium, Total	6010C	18.3	20.0	92	80 - 120
Selenium, Total	6010C	0.896	1.01	89	80 - 120
Silver, Total	6010C	0.0482	0.050	96	80 - 120
Sodium, Total	6010C	18.9	20.0	94	80 - 120
Strontium, Total	6010C	1.83	2.00	91	80 - 120
Thallium, Total	6020A	0.0216	0.0200	108	80 - 120
Tin, Total	6010C	4.90	5.00	98	80 - 120
Titanium, Total	6010C	0.473	0.500	95	80 - 120
Uranium, Total	6020A	0.0208	0.0200	104	80 - 120
Vanadium, Total	6010C	0.462	0.500	92	80 - 120
Zinc, Total	6010C	0.484	0.500	97	80 - 120

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404622
Date Analyzed: 6/23/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 211378

	Lab Control Sample RQ1407014-02			Duplicate Lab Control Sample RQ1407014-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.170	0.200	85	0.180	0.200	90	80 - 120	6	15

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404622
Date Analyzed: 6/23/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 211378

	Lab Control Sample RQ1407014-08			Duplicate Lab Control Sample RQ1407014-09					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.170	0.200	85	0.0900	0.100	90	80 - 120	62 *	15

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Analyzed: 6/24/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/Kg
Basis: Dry

Extraction Lot: 211546

	Lab Control Sample RQ1407129-02			Duplicate Lab Control Sample RQ1407129-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	1.80	2.00	90	1.80	2.00	90	80 - 120	<1	15

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404622
Date Analyzed: 6/24/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850

Units: µg/Kg
Basis: Dry

Analysis Lot: 398819

	Lab Control Sample RQ1407195-04			Duplicate Lab Control Sample RQ1407195-05						
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**		**RPD Limit**
Perchlorate	1.80	2.00	90	0.900	1.00	90	80 - 120	67	*	15

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Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number M4-4622.

Cooler received on 6/19/14 by: JES COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 6/19/14 Time: 0952 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	5.9	4.3	3.4				
Correction Factor (°C)	–	–	-1.7				
Corrected Temp (°C)	5.9	4.3	1.7				
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: ROOM by JES on 6/19/14 at 0952
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: JMS 6/19/14

Cooler Breakdown: Date: 6/20/14 Time: 1332 by: JES

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		check					
≤2	H_2SO_4	✓		check					
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: check

Other Comments:

SEE COC.

140616 1345 200-SB-13 - bottle for dioxin arrived broken

PC Secondary Review: JMS 7/8/14 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

SUPPORTING DOCUMENTATION

ALS Environmental · Rochester, NY
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro **Service Request:** R1404622
Project: White Sands Test Facility/13EC059B

Continuing Calibration Verification (CCV) Summary
Chloride

Analytical Method: 9056A **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398625	RQ1407218-04	6/23/14 11:15	3.25	3.39	104	90 - 110
CCV2	398625	RQ1407218-03	6/23/14 13:16	3.25	3.43	106	90 - 110
CCV3	398625	RQ1407218-02	6/23/14 15:16	3.25	3.46	106	90 - 110
CCV4	398625	RQ1407218-01	6/23/14 16:06	3.25	3.46	106	90 - 110
CCV5	398802	RQ1407187-06	6/24/14 19:17	3.25	3.34	103	90 - 110
CCV6	398840	RQ1407206-02	6/24/14 20:44	3.25	3.54	109	90 - 110
CCV7	398802	RQ1407187-07	6/24/14 21:46	3.25	3.37	104	90 - 110
CCV8	398840	RQ1407206-01	6/24/14 21:54	3.25	3.46	106	90 - 110
CCV9	398802	RQ1407187-08	6/24/14 23:50	3.25	3.38	104	90 - 110

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro **Service Request:** R1404622
Project: White Sands Test Facility/13EC059B

Continuing Calibration Verification (CCV) Summary
Chromium, Hexavalent

Analytical Method: 7199 **Units:** ppm

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398788	RQ1407180-01	6/23/14 16:10	0.500	0.502	100	90 - 110
CCV2	398788	RQ1407180-01	6/23/14 16:10	0.500	0.502	100	90 - 110
CCV3	398788	RQ1407180-02	6/23/14 17:36	0.500	0.504	101	90 - 110
CCV4	398788	RQ1407180-02	6/23/14 17:36	0.500	0.504	101	90 - 110
CCV5	398788	RQ1407180-03	6/23/14 19:03	0.500	0.503	101	90 - 110
CCV6	398788	RQ1407180-03	6/23/14 19:03	0.500	0.503	101	90 - 110
CCV7	398788	RQ1407180-04	6/23/14 20:26	0.500	0.501	100	90 - 110
CCV8	398788	RQ1407180-04	6/23/14 20:26	0.500	0.501	100	90 - 110
CCV9	398788	RQ1407180-05	6/23/14 21:50	0.500	0.497	99	90 - 110
CCV10	398788	RQ1407180-05	6/23/14 21:50	0.500	0.497	99	90 - 110

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404622

Continuing Calibration Verification (CCV) Summary
Cyanide, Total

Analytical Method: 9012B

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398677	RQ1407145-01	6/24/14 12:46	0.500	0.507	101	85 - 115
CCV2	398677	RQ1407145-03	6/24/14 12:56	0.500	0.507	101	85 - 115
CCV3	398677	RQ1407145-05	6/24/14 13:05	0.500	0.508	102	85 - 115
CCV4	398677	RQ1407145-07	6/24/14 13:09	0.500	0.511	102	85 - 115
CCV5	398677	RQ1407145-09	6/24/14 13:11	0.500	0.512	102	85 - 115
CCV6	398865	RQ1407215-01	6/25/14 11:07	0.500	0.525	105	85 - 115
CCV7	398865	RQ1407215-03	6/25/14 11:17	0.500	0.507	101	85 - 115
CCV8	398865	RQ1407215-05	6/25/14 11:26	0.500	0.510	102	85 - 115

Client: NASA/WSTF/Navarro **Service Request:** R1404622
Project: White Sands Test Facility/13EC059B

Continuing Calibration Verification (CCV) Summary
Nitrate+Nitrite as Nitrogen

Analytical Method: 353.2 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398635	RQ1407122-01	6/24/14 12:42	0.900	0.889	99	90 - 110
CCV2	398635	RQ1407122-08	6/24/14 13:00	0.900	0.885	98	90 - 110
CCV3	398635	RQ1407122-10	6/24/14 13:08	0.900	0.877	97	90 - 110

Client: NASA/WSTF/Navarro **Service Request:** R1404622
Project: White Sands Test Facility/13EC059B

Continuing Calibration Verification (CCV) Summary
Nitrate+Nitrite as Nitrogen

Analytical Method: 353.2M **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	400498	RQ1407711-01	7/3/14 15:51	0.900	0.875	97	90 - 110
CCV2	400498	RQ1407711-03	7/3/14 16:04	0.900	0.857	95	90 - 110

Preparation Information Benchsheet

Prep Run#: 211473
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 10:00 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407071-03	MB		1g	9056A/Chloride				100.00mL			
2	RQ1407071-04	LCS		1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
3	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1g	9056A/Chloride				100.00mL			
4	R1404421-009	1406091615 200-SB-21	.01	1g	9056A/Chloride				100.00mL			
5	R1404421-010	1406091750 200-SB-21	.01	1g	9056A/Chloride				100.00mL			
6	R1404273-005	1406041206 200-SB-20 30'	.01	1g	9056A/Chloride				100.00mL			
7	R1404273-006	1406041725 200-SB-20 50'	.01	1g	9056A/Chloride				100.00mL			
8	R1404507-006	1406111505 200-SB-7 8-10'	.02	1g	9056A/Chloride				100.00mL			
9	RQ1407071-01	R1404507-006 DUP	.02	1g	9056A/Chloride				100.00mL			
10	RQ1407071-02	R1404507-006 MS	.02	1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
11	R1404507-007	1406111635 200-SB-7 18-21'	.01	1g	9056A/Chloride				100.00mL			
12	R1404507-008	1406120935 200-SB-7 38-40'	.01	1g	9056A/Chloride				100.00mL			
13	R1404622-007	1406161405 200-SB-13 8/10'	.01	1g	9056A/Chloride				100.00mL			
14	R1404589-016	1406130805 200-SB-8 8/10'	.01	1g	9056A/Chloride				100.00mL			
15	R1404589-017	1406130815 200-SB-8 8/10'	.01	1g	9056A/Chloride				100.00mL			
16	R1404589-025	1406130945 200-SB-8 28/30'	.01	1g	9056A/Chloride				100.00mL			
17	R1404589-026	1406131305 200-SB-8 43/45'	.01	1g	9056A/Chloride				100.00mL			
18	R1404589-027	1406141705 200-SB-6 8/10'	.01	1g	9056A/Chloride				100.00mL			
19	R1404589-028	1406151130 200-SB-5 8/10'	.01	1g	9056A/Chloride				100.00mL			
20	R1404589-029	1406151146 200-SB-5 8/10'	.01	1g	9056A/Chloride				100.00mL			

Spiking Solutions

Name: 300.0 Calibration/LCS/MS Intermediate : Inventory ID 71260 Logbook Ref: WC118013A Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 6/23/14 10:00
Finished: 6/23/14 10:05
By: CWOODS
Comments

Preparation Information Benchsheet

Prep Run#: 211473
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 10:00 AM

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Schedule File: C:\PeakNet\Schedule\SCHEDULES\IC#6\6-062314.sch 06-23-14 IC#6

Line	Sample	Sample Type	Level	Method	Data File	Dilution	Comment
1	CCV	Sample		6-052814.met	623_001.dxd	1	300.0/9056A/26A
2	CCB	Sample		6-052814.met	623_002.dxd	1	300.0/9056A/26A
3	SOIL METHOD BLANK	Sample		6-052814.met	623_003.dxd	1	9056A C (1g SAMPLE -> 100g DI)
4	SOIL LCS	Sample		6-052814.met	623_004.dxd	1	9056A C (1g SAMPLE -> 100g DI)
5	R1404421-008	Sample		6-052814.met	623_005.dxd	1	9056A C (1g SAMPLE -> 100g DI)
6	R1404421-009	Sample		6-052814.met	623_006.dxd	1	9056A C (1g SAMPLE -> 100g DI)
7	R1404421-010	Sample		6-052814.met	623_007.dxd	1	9056A C (1g SAMPLE -> 100g DI)
8	R1404273-005	Sample		6-052814.met	623_008.dxd	1	9056A C (1g SAMPLE -> 100g DI)
9	R1404273-006	Sample		6-052814.met	623_009.dxd	1	9056A C (1g SAMPLE -> 100g DI)
10	R1404507-006	Sample		6-052814.met	623_010.dxd	1	9056A C (1g SAMPLE -> 100g DI)
11	R1404507-006 EXT DUP	Sample		6-052814.met	623_011.dxd	1	9056A C (1g SAMPLE -> 100g DI)
12	R1404507-006 EXT SPK	Sample		6-052814.met	623_012.dxd	1	9056A C (1g SAMPLE -> 100g DI)
13	CCV	Sample		6-052814.met	623_013.dxd	1	300.0/9056A/26A
14	CCB	Sample		6-052814.met	623_014.dxd	1	300.0/9056A/26A
15	R1404507-007	Sample		6-052814.met	623_015.dxd	1	9056A C (1g SAMPLE -> 100g DI)
16	R1404507-008	Sample		6-052814.met	623_016.dxd	1	9056A C (1g SAMPLE -> 100g DI)
17	R1404622-007	Sample		6-052814.met	623_017.dxd	1	9056A C (1g SAMPLE -> 100g DI)
18	R1404622-008	Sample		6-052814.met	623_018.dxd	1	9056A C (1g SAMPLE -> 100g DI)
19	R1404589-016	Sample		6-052814.met	623_019.dxd	1	9056A C (1g SAMPLE -> 100g DI)
20	R1404589-017	Sample		6-052814.met	623_020.dxd	1	9056A C (1g SAMPLE -> 100g DI)
21	R1404589-025	Sample		6-052814.met	623_021.dxd	1	9056A C (1g SAMPLE -> 100g DI)
22	R1404589-026	Sample		6-052814.met	623_022.dxd	1	9056A C (1g SAMPLE -> 100g DI)
23	R1404589-027	Sample		6-052814.met	623_023.dxd	1	9056A C (1g SAMPLE -> 100g DI)
24	R1404589-028	Sample		6-052814.met	623_024.dxd	1	9056A C (1g SAMPLE -> 100g DI)
25	CCV	Sample		6-052814.met	623_025.dxd	1	300.0/9056A/26A
26	CCB	Sample		6-052814.met	623_026.dxd	1	300.0/9056A/26A
27	R1404589-029	Sample		6-052814.met	623_027.dxd	1	9056A C (1g SAMPLE -> 100g DI)
28	CCV	Sample		6-052814.met	623_028.dxd	1	300.0/9056A/26A
29	CCB	Sample		6-052814.met	623_029.dxd	1	300.0/9056A/26A

Default Method Path: C:\PEAKNET\METHOD\IC#6\DI METHODS
Default Data Path: C:\PEAKNET\DATA\IC#6\062314
Comment:

Analyst: CWoods
Pipets: FRED
BARNEY

Tier II
~~R422~~
R4421
R4273
R4507
R4622
R4589

Reviewed & Approved
By: CW
Date: 6/25/14

06-24-14 IC#3 Analyst: GWoods Pipets: Barney FRED

System	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Level	Injections	Done	Sample Info 1	Sample Info 2
metrohm.smt	CCV	1	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	2	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	LCS	3	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404746-001	4	1.0	1.0	1.0	100.0	0	1	1	300.0 FCS	DRINKING WATER
metrohm.smt	R1404746-002	5	1.0	1.0	1.0	100.0	0	1	1	300.0 FCS	DRINKING WATER
metrohm.smt	R1404746-003	6	1.0	1.0	1.0	100.0	0	1	1	300.0 FCS	DRINKING WATER
metrohm.smt	R1404776-001	7	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-002	8	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003	9	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003 MS	10	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003 MSD	11	1.0	10.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404683-010	12	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	CCV	13	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	14	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	Tier III
metrohm.smt	R1404560-002	15	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404560-002	16	1.0	10.0	1.0	100.0	0	1	1	300.0 C	R4560
metrohm.smt	R1404560-002 MS	17	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404560-002 MSD	18	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404560-002	19	1.0	50.0	1.0	100.0	0	1	1	300.0 S	R4507
metrohm.smt	R1404564-009	20	1.0	40.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404564-011	21	1.0	40.0	1.0	100.0	0	1	1	300.0 C	R4622
metrohm.smt	R1404564-017	22	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404564-017 MS	23	1.0	20.0	1.0	100.0	0	1	1	300.0 C	R4589
metrohm.smt	R1404564-017 MSD	24	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	CCV	25	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	26	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404658-009	27	1.0	40.0	1.0	100.0	0	1	1	300.0 S	
metrohm.smt	R1404715-001	28	1.0	10.0	1.0	100.0	0	1	1	300.0 S	Tier IV
metrohm.smt	R1404582-001	29	1.0	200.0	1.0	100.0	0	1	1	300.0 S	
metrohm.smt	R1404429-009	30	1.0	10.0	1.0	100.0	0	1	1	300.0 S	R4564 — BA
metrohm.smt	R1404429-078	31	1.0	100.0	1.0	100.0	0	1	1	300.0 S	
metrohm.smt	LCS	32	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404413-001	33	1.0	10.0	1.0	100.0	0	1	1	9056A S	R4658 —
metrohm.smt	R1404507-003	34	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404776-001	35	1.0	20.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	R1404776-003	36	1.0	20.0	1.0	100.0	0	1	1	300.0 C	DRINKING WATER
metrohm.smt	CCV	37	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	38	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404444-001	39	1.0	10.0	1.0	100.0	0	1	1	9056A S	
metrohm.smt	R1404444-002	40	1.0	10.0	1.0	100.0	0	1	1	9056A S	
metrohm.smt	R1404622-003	41	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-003	42	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-009	43	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-014	44	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-014 MS	45	1.0	10.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404589-014 MSD	46	1.0	10.0	1.0	100.0	0	1	1	9056A C	

Reviewed & Approved

By: GL

Date: 6/25/14

00057

System	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Level	Injections	Done	Sample Info 1	Sample Info 2
metrolm.smt	*CCV*	47	1.0	1.0	1.0	100.0	0	1	1	*300.0:9056A:26A*	
metrolm.smt	*CCB*	48	1.0	1.0	1.0	100.0	0	1	1	*300.0:9056A:26A*	

00058

Preparation Information Benchsheet

Prep Run#: 211669
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 05:00 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407200-01	MB		1g	9056A/Chloride				100.00mL			
2	RQ1407200-02	LCS		1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
3	R1404622-008	1406161550 200-SB-28 30/32'	.01	1g	9056A/Chloride				100.00mL			
4	RQ1407200-03	R1404622-008 DUP	.01	1g	9056A/Chloride				100.00mL			
5	RQ1407200-04	R1404622-008 MS	.01	1g	9056A/Chloride				100.00mL		2.0000 mL/71260	

Spiking Solutions

Name: 300.0 Calibration/LCS/MS Intermediate Inventory ID 71260 Logbook Ref: WC118013A Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 6/24/14 17:00
Finished: 6/24/14 17:05
By: CWOODS
Comments

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Schedule File: C:\PeakNet\Schedule\SCHEDULES\IC#6\6-062414.sch 06-24-14 IC#6

Line	Sample	Sample Type	Level	Method	Data File	Dilution	Comment
1	CCV	Sample		6-052814.met	624_001.dxd	1	300.0/9056A/26A
2	CCB	Sample		6-052814.met	624_002.dxd	1	300.0/9056A/26A
3	LCS	Sample		6-052814.met	624_003.dxd	1	300.0/9056A/26A
4	R1404592-001	Sample		6-052814.met	624_004.dxd	200	300.0 B
5	R1404592-002	Sample		6-052814.met	624_005.dxd	200	300.0 B
6	R1404177-001	Sample		6-052814.met	624_006.dxd	10	300.0 B
7	R1404199-005	Sample		6-052814.met	624_007.dxd	10	300.0 B
8	R1404199-006	Sample		6-052814.met	624_008.dxd	10	300.0 B
9	R1404394-009	Sample		6-052814.met	624_009.dxd	10	300.0 B
10	R1404394-010	Sample		6-052814.met	624_010.dxd	10	300.0 B
11	R1404394-011	Sample		6-052814.met	624_011.dxd	10	300.0 B
12	R1404394-012	Sample		6-052814.met	624_012.dxd	10	300.0 B
13	CCV	Sample		6-052814.met	624_013.dxd	1	300.0/9056A/26A
14	CCB	Sample		6-052814.met	624_014.dxd	1	300.0/9056A/26A
15	R1404394-013	Sample		6-052814.met	624_015.dxd	10	300.0 B
16	R1404394-013 MS	Sample		6-052814.met	624_016.dxd	10	300.0 B
17	R1404394-013 MSD	Sample		6-052814.met	624_017.dxd	10	300.0 B
18	R1404394-014	Sample		6-052814.met	624_018.dxd	10	300.0 B
19	R1404394-015	Sample		6-052814.met	624_019.dxd	10	300.0 B
20	R1404394-016	Sample		6-052814.met	624_020.dxd	10	300.0 B
21	R1404394-017	Sample		6-052814.met	624_021.dxd	10	300.0 B
22	R1404394-017 MS	Sample		6-052814.met	624_022.dxd	10	300.0 B
23	R1404394-017 MSD	Sample		6-052814.met	624_023.dxd	10	300.0 B
24	R1404394-018	Sample		6-052814.met	624_024.dxd	10	300.0 B
25	CCV	Sample		6-052814.met	624_025.dxd	1	300.0/9056A/26A
26	CCB	Sample		6-052814.met	624_026.dxd	1	300.0/9056A/26A
27	R1404394-019	Sample		6-052814.met	624_027.dxd	10	300.0 B
28	R1404394-020	Sample		6-052814.met	624_028.dxd	10	300.0 B
29	R1404394-021	Sample		6-052814.met	624_029.dxd	10	300.0 B
30	R1404394-022	Sample		6-052814.met	624_030.dxd	10	300.0 B
31	R1404394-023	Sample		6-052814.met	624_031.dxd	10	300.0 B
32	R1404394-023 MS	Sample		6-052814.met	624_032.dxd	10	300.0 B
33	R1404394-023 MSD	Sample		6-052814.met	624_033.dxd	10	300.0 B
34	LCS	Sample		6-052814.met	624_034.dxd	1	300.0/9056A/26A
35	R1404551-006	Sample		6-052814.met	624_035.dxd	10	300.0 B
36	R1404551-020	Sample		6-052814.met	624_036.dxd	10	300.0 B
37	CCV	Sample		6-052814.met	624_037.dxd	1	300.0/9056A/26A
38	CCB	Sample		6-052814.met	624_038.dxd	1	300.0/9056A/26A
39	R1404486-001	Sample		6-052814.met	624_039.dxd	10	300.0 B
40	R1404544-001	Sample		6-052814.met	624_040.dxd	10	300.0 B
41	R1404106-003	Sample		6-052814.met	624_041.dxd	10	9056A B
42	R1404106-003 MS	Sample		6-052814.met	624_042.dxd	10	9056A B
43	R1404106-003 MSD	Sample		6-052814.met	624_043.dxd	10	9056A B
44	R1404106-011	Sample		6-052814.met	624_044.dxd	10	9056A B
45	R1404444-001	Sample		6-052814.met	624_045.dxd	10	9056A B
46	R1404444-002	Sample		6-052814.met	624_046.dxd	10	9056A B
47	R1404413-001	Sample		6-052814.met	624_047.dxd	40	9056A B
48	R1404592-002	Sample		6-052814.met	624_048.dxd	1000	300.0 B
49	CCV	Sample		6-052814.met	624_049.dxd	1	300.0/9056A/26A
50	CCB	Sample		6-052814.met	624_050.dxd	1	300.0/9056A/26A
51	SOIL METHOD BLANK	Sample		6-052814.met	624_051.dxd	1	9056A C (1g-->100g DI)
52	SOIL LCS	Sample		6-052814.met	624_052.dxd	1	9056A C (1g-->100g DI)
53	R1404622-008	Sample		6-052814.met	624_053.dxd	1	9056A C (1g-->100g DI)
54	R1404622-008 EXT DUP	Sample		6-052814.met	624_054.dxd	1	9056A C (1g-->100g DI)
55	R1404622-008 EXT SPK	Sample		6-052814.met	624_055.dxd	1	9056A C (1g-->100g DI)

Analyst: CWoods
Pipets: Barney
FRED

Iter II VMR
R4406

Iter III
R4622

Reviewed & Approved
By: CK
Date: 6/25/14

Schedule File: C:\PeakNet\Schedule\SCHEDULES\IC#6\6-062414.sch

Line	Sample	Sample Type	Level	Method	Data File	Dilution	Comment
56	CCV	Sample		6-052814.met	624_056.dxd	1	300.0/9056A/26A
57	CCB	Sample		6-052814.met	624_057.dxd	1	300.0/9056A/26A
58	END	Sample		shutdown.met	624	1	300.0/9056A/26A

Default Method Path: C:\PEAKNET\METHOD\IC#6\DI METHODS
Default Data Path: C:\PEAKNET\DATA\IC#6\062414
Comment:

Preparation Information Benchsheet

Prep Run#: 211351
Team: GenChem/CWOODS

Prep WorkFlow: Gen Dig Cr6
Prep Method: EPA 3060A

Status: Prepped
Prep Date/Time: 6/20/14 06:35 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406993-04	MB		2.5g	7199/Cr6				100.00mL			
2	RQ1406993-05	LCS		2.5g	7199/Cr6				100.00mL		10.2000 mg/54146	
3	R1404589-016	1406130805 200-SB-8 8/10'	.01	2.6000g	7199/Cr6				100.00mL			
4	R1404589-017	1406130815 200-SB-8 8/10'	.01	2.5700g	7199/Cr6				100.00mL			
5	R1404589-025	1406130945 200-SB-8 28/30'	.01	2.5g	7199/Cr6				100.00mL			
6	R1404589-026	1406131305 200-SB-8 43/45'	.01	2.5100g	7199/Cr6				100.00mL			
7	R1404589-027	1406141705 200-SB-6 8/10'	.01	2.6000g	7199/Cr6				100.00mL			
8	R1404589-028	1406151130 200-SB-5 8/10'	.01	2.6000g	7199/Cr6				100.00mL			
9	R1404589-029	1406151146 200-SB-5 8/10'	.01	2.5000g	7199/Cr6				100.00mL			
10	R1404622-007	1406161405 200-SB-13 8/10'	.01	2.5400g	7199/Cr6				100.00mL			
11	R1404622-008	1406161550 200-SB-28 30/32'	.01	2.5500g	7199/Cr6				100.00mL			
12	RQ1406993-01	R1404622-008 DUP	.01	2.6000g	7199/Cr6				100.00mL			
13	RQ1406993-02	R1404622-008 MS	.01	2.5100g	7199/Cr6				100.00mL		1.0000 mL/60022	
14	RQ1406993-03	R1404622-008 MS	.01	2.5g	7199/Cr6				100.00mL		10.5000 mg/54146	
15	R1404633-001	IDW-SO-061714-01	.03	2.5200g	7199/Cr6				100.00mL			
16	R1404691-001	277990	.01	2.5g	7199/Cr6				100.00mL			

Spiking Solutions

Name:	Lead (11) Chromate	Inventory ID	54146	Logbook Ref:	WC112202F	Expires On:	01/18/2018	Lot #:	10160715
Name:	Chromium (VI) (Hexavalent) 100 ppm Cr	Inventory ID	60022	Logbook Ref:	Fresh Daily	Expires On:	09/30/2014		

Preparation Steps

Step: Digestion
Started: 6/20/14 18:35
Finished: 6/20/14 19:35
By: CWOODS
Comments

Preparation Information Benchsheet

Prep Run#: 211351
Team: GenChem/CWOODS

Prep WorkFlow: Gen Dig Cr6
Prep Method: EPA 3060A

Status: Prepped
Prep Date/Time: 6/20/14 06:35 PM

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: LDRESSEL Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

06-23-14 IC#8 7199/218.6RL Analyst: CWoods Pipets: Barney FRED
06-24-14

Injection Number	Injection Name	Type	Level	Processing Method	Inject Time	Dilution	Comment
1	STANDARD 1	Calibration Standard	01	8-062314RL	23/06/14 12:37	1.0	7199/218.6 RL
2	STANDARD 2	Calibration Standard	02	8-062314RL	23/06/14 12:44	1.0	7199/218.6 RL
3	STANDARD 3	Calibration Standard	03	8-062314RL	23/06/14 12:51	1.0	7199/218.6 RL
4	STANDARD 4	Calibration Standard	04	8-062314RL	23/06/14 12:59	1.0	7199/218.6 RL
5	STANDARD 5	Calibration Standard	05	8-062314RL	23/06/14 13:06	1.0	7199/218.6 RL
6	ICV	Unknown		8-062314RL	23/06/14 13:14	1.0	7199/218.6 RL
7	ICB	Unknown		8-062314RL	23/06/14 13:21	1.0	7199/218.6 RL
8	WATER LCS	Unknown		8-062314RL	23/06/14 13:29	1.0	7199/218.6 RL
9	R1404720-001	Unknown		8-062314RL	23/06/14 13:36	200.0	218.6 RL
10	R1404720-001 MS	Unknown		8-062314RL	23/06/14 13:43	200.0	218.6 RL
11	R1404720-001 MSD	Unknown		8-062314RL	23/06/14 13:51	200.0	218.6 RL
12	R1404720-002	Unknown		8-062314RL	23/06/14 13:57	200.0	218.6 RL
13	R1404720-003	Unknown		8-062314RL	23/06/14 14:05	200.0	218.6 RL
14	R1404720-004	Unknown		8-062314RL	23/06/14 14:12	200.0	218.6 RL
15	R1404720-005	Unknown		8-062314RL	23/06/14 14:19	200.0	218.6 RL
16	R1404720-006	Unknown		8-062314RL	23/06/14 14:27	200.0	218.6 RL
17	AC-25-1	Unknown		8-062314RL	23/06/14 14:34	1.0	218.6 RL
18	CCV	Unknown		8-062314RL	23/06/14 14:41	1.0	7199/218.6 RL
19	CCB	Unknown		8-062314RL	23/06/14 14:49	1.0	7199/218.6 RL
20	AC-25-1 MS	Unknown		8-062314RL	23/06/14 14:57	1.0	218.6 RL
21	AC-25-1 MSD	Unknown		8-062314RL	23/06/14 15:05	1.0	218.6 RL
22	AC-25-2	Unknown		8-062314RL	23/06/14 15:11	1.0	218.6 RL
23	AC-25-3	Unknown		8-062314RL	23/06/14 15:18	1.0	218.6 RL
24	AC-25-4	Unknown		8-062314RL	23/06/14 15:26	1.0	218.6 RL
25	AC-25-5	Unknown		8-062314RL	23/06/14 15:33	1.0	218.6 RL
26	R1404720-001	Unknown		8-062314RL	23/06/14 15:40	100.0	218.6 RL
27	R1404720-002	Unknown		8-062314RL	23/06/14 15:48	100.0	218.6 RL
28	R1404720-003	Unknown		8-062314RL	23/06/14 15:55	200.0	218.6 RL
29	R1404720-004	Unknown		8-062314RL	23/06/14 16:03	300.0	218.6 RL
30	CCV	Unknown		8-062314RL	23/06/14 16:10	1.0	7199/218.6 RL
31	CCB	Unknown		8-062314RL	23/06/14 16:18	1.0	7199/218.6 RL
32	R1404720-005	Unknown		8-062314RL	23/06/14 16:27	300.0	218.6 RL
33	R1404720-006	Unknown		8-062314RL	23/06/14 16:34	300.0	218.6 RL
34	SOIL METHOD BLANK	Unknown		8-062314RL	23/06/14 16:41	1.0	7199
35	SOIL METHOD BLANK	Unknown		8-062314RL	23/06/14 16:49	1.0	7199 REPLICATE

Ter IV
R4720
R4736
R4633
R4632

Ter III
R4589
R4622

Reviewed & Approved
By: CK
Date: 6/25/14

0074

36	SOIL LCS	Unknown	8-062314RL	23/06/14 16:55	20.0	7199
37	SOIL LCS	Unknown	8-062314RL	23/06/14 17:03	20.0	7199 REPLICATE
38	R1404589-016	Unknown	8-062314RL	23/06/14 17:09	1.0	7199
39	R1404589-016	Unknown	8-062314RL	23/06/14 17:16	1.0	7199 REPLICATE
40	R1404589-017	Unknown	8-062314RL	23/06/14 17:23	1.0	7199
41	R1404589-017	Unknown	8-062314RL	23/06/14 17:30	1.0	7199 REPLICATE
42	CCV	Unknown	8-062314RL	23/06/14 17:36	1.0	7199/218.6 RL
43	CCB	Unknown	8-062314RL	23/06/14 17:44	1.0	7199/218.6 RL
44	R1404589-025	Unknown	8-062314RL	23/06/14 17:51	1.0	7199
45	R1404589-025	Unknown	8-062314RL	23/06/14 17:59	1.0	7199 REPLICATE
46	R1404589-026	Unknown	8-062314RL	23/06/14 18:05	1.0	7199
47	R1404589-026	Unknown	8-062314RL	23/06/14 18:12	1.0	7199 REPLICATE
48	R1404589-027	Unknown	8-062314RL	23/06/14 18:19	1.0	7199
49	R1404589-027	Unknown	8-062314RL	23/06/14 18:26	1.0	7199 REPLICATE
50	R1404589-028	Unknown	8-062314RL	23/06/14 18:32	1.0	7199
51	R1404589-028	Unknown	8-062314RL	23/06/14 18:40	1.0	7199 REPLICATE
52	R1404589-029	Unknown	8-062314RL	23/06/14 18:46	1.0	7199
53	R1404589-029	Unknown	8-062314RL	23/06/14 18:53	1.0	7199 REPLICATE
54	CCV	Unknown	8-062314RL	23/06/14 19:03	1.0	7199/218.6 RL
55	CCB	Unknown	8-062314RL	23/06/14 19:10	1.0	7199/218.6 RL
56	R1404622-007	Unknown	8-062314RL	23/06/14 19:17	1.0	7199
57	R1404622-007	Unknown	8-062314RL	23/06/14 19:25	1.0	7199 REPLICATE
58	R1404622-008	Unknown	8-062314RL	23/06/14 19:31	1.0	7199
59	R1404622-008	Unknown	8-062314RL	23/06/14 19:38	1.0	7199 REPLICATE
60	R1404622-008 DUP	Unknown	8-062314RL	23/06/14 19:45	1.0	7199
61	R1404622-008 DUP	Unknown	8-062314RL	23/06/14 19:52	1.0	7199 REPLICATE
62	R1404622-008 SOL	Unknown	8-062314RL	23/06/14 19:58	2.0	7199
63	R1404622-008 SOL	Unknown	8-062314RL	23/06/14 20:06	2.0	7199 REPLICATE
64	R1404622-008 INSOL	Unknown	8-062314RL	23/06/14 20:12	20.0	7199
65	R1404622-008 INSOL	Unknown	8-062314RL	23/06/14 20:19	20.0	7199 REPLICATE
66	CCV	Unknown	8-062314RL	23/06/14 20:26	1.0	7199/218.6 RL
67	CCB	Unknown	8-062314RL	23/06/14 20:34	1.0	7199/218.6 RL
68	R1404622-008 PVS	Unknown	8-062314RL	23/06/14 20:41	2.0	7199
69	R1404622-008 PVS	Unknown	8-062314RL	23/06/14 20:49	2.0	7199 REPLICATE
70	R1404633-001	Unknown	8-062314RL	23/06/14 20:55	1.0	7199
71	R1404633-001	Unknown	8-062314RL	23/06/14 21:03	1.0	7199 REPLICATE
72	R1404691-001	Unknown	8-062314RL	23/06/14 21:09	1.0	7199
73	R1404691-001	Unknown	8-062314RL	23/06/14 21:17	1.0	7199 REPLICATE
74	SOIL METHOD BLANK #2	Unknown	8-062314RL	23/06/14 21:23	1.0	7199

75	SOIL METHOD BLANK #2	Unknown	8-062314RL	23/06/14 21:30	1.0	7199 REPLICATE
76	SOIL LCS #2	Unknown	8-062314RL	23/06/14 21:37	20.0	7199
77	SOIL LCS #2	Unknown	8-062314RL	23/06/14 21:44	20.0	7199 REPLICATE
78	CCV	Unknown	8-062314RL	23/06/14 21:50	1.0	7199/218.6 RL
79	CCB	Unknown	8-062314RL	23/06/14 21:59	1.0	7199/218.6 RL
80	R1404635-001	Unknown	8-062314RL	23/06/14 22:07	1.0	7199
81	R1404635-001	Unknown	8-062314RL	23/06/14 22:15	1.0	7199 REPLICATE
82	R1404635-002	Unknown	8-062314RL	23/06/14 22:21	1.0	7199
83	R1404635-002	Unknown	8-062314RL	23/06/14 22:28	1.0	7199 REPLICATE
84	R1404635-003	Unknown	8-062314RL	23/06/14 22:35	1.0	7199
85	R1404635-003	Unknown	8-062314RL	23/06/14 22:42	1.0	7199 REPLICATE
86	R1404635-004	Unknown	8-062314RL	23/06/14 22:48	1.0	7199
87	R1404635-004	Unknown	8-062314RL	23/06/14 22:56	1.0	7199 REPLICATE
88	R1404635-005	Unknown	8-062314RL	23/06/14 23:02	1.0	7199
89	R1404635-005	Unknown	8-062314RL	23/06/14 23:10	1.0	7199 REPLICATE
90	CCV	Unknown	8-062314RL	23/06/14 23:16	1.0	7199/218.6 RL
91	CCB	Unknown	8-062314RL	23/06/14 23:23	1.0	7199/218.6 RL
92	R1404635-006	Unknown	8-062314RL	23/06/14 23:31	1.0	7199
93	R1404635-006	Unknown	8-062314RL	23/06/14 23:38	1.0	7199 REPLICATE
94	R1404635-007	Unknown	8-062314RL	23/06/14 23:44	1.0	7199
95	R1404635-007	Unknown	8-062314RL	23/06/14 23:52	1.0	7199 REPLICATE
96	R1404635-008	Unknown	8-062314RL	23/06/14 23:58	1.0	7199
97	R1404635-008	Unknown	8-062314RL	24/06/14 00:06	1.0	7199 REPLICATE
98	R1404635-009	Unknown	8-062314RL	24/06/14 00:12	1.0	7199
99	R1404635-009	Unknown	8-062314RL	24/06/14 00:19	1.0	7199 REPLICATE
100	R1404635-010	Unknown	8-062314RL	24/06/14 00:26	1.0	7199
101	R1404635-010	Unknown	8-062314RL	24/06/14 00:33	1.0	7199 REPLICATE
102	CCV	Unknown	8-062314RL	24/06/14 00:39	1.0	7199/218.6 RL
103	CCB	Unknown	8-062314RL	24/06/14 00:47	1.0	7199/218.6 RL
104	R1404635-010 DUP	Unknown	8-062314RL	24/06/14 00:55	1.0	7199
105	R1404635-010 DUP	Unknown	8-062314RL	24/06/14 01:03	1.0	7199 REPLICATE
106	R1404635-010 SOL	Unknown	8-062314RL	24/06/14 01:09	1.0	7199
107	R1404635-010 SOL	Unknown	8-062314RL	24/06/14 01:16	1.0	7199 REPLICATE
108	R1404635-010 INSOL	Unknown	8-062314RL	24/06/14 01:23	20.0	7199
109	R1404635-010 INSOL	Unknown	8-062314RL	24/06/14 01:30	20.0	7199 REPLICATE
110	R1404635-010 PVS	Unknown	8-062314RL	24/06/14 01:36	2.0	7199
111	R1404635-010 PVS	Unknown	8-062314RL	24/06/14 01:44	2.0	7199 REPLICATE
112	R1404635-011	Unknown	8-062314RL	24/06/14 01:50	1.0	7199
113	R1404635-011	Unknown	8-062314RL	24/06/14 01:58	1.0	7199 REPLICATE

114	CCV	Unknown	8-062314RL	24/06/14 02:04	1.0	7199/218.6 RL
115	CCB	Unknown	8-062314RL	24/06/14 02:12	1.0	7199/218.6 RL
116	R1404635-012	Unknown	8-062314RL	24/06/14 02:21	1.0	7199
117	R1404635-012	Unknown	8-062314RL	24/06/14 02:28	1.0	7199 REPLICATE
118	R1404635-013	Unknown	8-062314RL	24/06/14 02:35	1.0	7199
119	R1404679-013	Unknown	8-062314RL	24/06/14 02:42	1.0	7199 REPLICATE
120	R1404679-001	Unknown	8-062314RL	24/06/14 02:48	1.0	7199
121	R1404679-001	Unknown	8-062314RL	24/06/14 02:56	1.0	7199 REPLICATE
122	R1404679-002	Unknown	8-062314RL	24/06/14 03:02	1.0	7199
123	R1404679-002	Unknown	8-062314RL	24/06/14 03:10	1.0	7199 REPLICATE
124	CCV	Unknown	8-062314RL	24/06/14 03:16	1.0	7199/218.6 RL
125	CCB	Unknown	8-062314RL	24/06/14 03:23	1.0	7199/218.6 RL

06-24-14 IC#8 7199/218.6RL Analyst: Arbors Pipets: Barney FRED

Injection Number	Injection Name	Type	Level	Processing Method	Inject Time	Dilution	Comment
1	STANDARD 1	Calibration Standard	01	8-062314RL	23/06/14 12:37	1.0	7199/218.6 RL
2	STANDARD 2	Calibration Standard	02	8-062314RL	23/06/14 12:44	1.0	7199/218.6 RL
3	STANDARD 3	Calibration Standard	03	8-062314RL	23/06/14 12:51	1.0	7199/218.6 RL
4	STANDARD 4	Calibration Standard	04	8-062314RL	23/06/14 12:59	1.0	7199/218.6 RL
5	STANDARD 5	Calibration Standard	05	8-062314RL	23/06/14 13:06	1.0	7199/218.6 RL
6	CCV	Unknown		8-062314RL	24/06/14 11:57	1.0	7199/218.6 RL
7	CCB	Unknown		8-062314RL	24/06/14 12:04	1.0	7199/218.6 RL
8	R1404635-002	Unknown		8-062314RL	24/06/14 12:35	10.0	7199
9	R1404635-002	Unknown		8-062314RL	24/06/14 12:42	10.0	7199 REPLICATE
10	R1404635-008	Unknown		8-062314RL	24/06/14 12:49	4.0	7199
11	R1404635-008	Unknown		8-062314RL	24/06/14 12:56	4.0	7199 REPLICATE
12	R1404635-010	Unknown		8-062314RL	24/06/14 13:02	2.0	7199
13	R1404635-010	Unknown		8-062314RL	24/06/14 13:10	2.0	7199 REPLICATE
14	R1404635-010 DUP	Unknown		8-062314RL	24/06/14 13:16	2.0	7199
15	R1404635-010 DUP	Unknown		8-062314RL	24/06/14 13:23	2.0	7199 REPLICATE
16	R1404635-010 SOL	Unknown		8-062314RL	24/06/14 13:30	4.0	7199
17	R1404635-010 SOL	Unknown		8-062314RL	24/06/14 13:37	4.0	7199 REPLICATE
18	CCV	Unknown		8-062314RL	24/06/14 13:44	1.0	7199/218.6 RL
19	CCB	Unknown		8-062314RL	24/06/14 13:52	1.0	7199/218.6 RL
20	R1404635-010 INSOL	Unknown		8-062314RL	24/06/14 14:00	20.0	7199
21	R1404635-010 INSOL	Unknown		8-062314RL	24/06/14 14:07	20.0	7199 REPLICATE
22	R1404635-010 PVS	Unknown		8-062314RL	24/06/14 14:13	4.0	7199
23	R1404635-010 PVS	Unknown		8-062314RL	24/06/14 14:21	4.0	7199 REPLICATE
24	R1404635-011	Unknown		8-062314RL	24/06/14 14:27	5.0	7199
25	R1404635-011	Unknown		8-062314RL	24/06/14 14:35	5.0	7199 REPLICATE
26	R1404635-010 INSOL	Unknown		8-062314RL	24/06/14 14:45	20.0	7199 REPLICATE
27	CCV	Unknown		8-062314RL	24/06/14 14:53	1.0	7199/218.6 RL
28	CCB	Unknown		8-062314RL	24/06/14 15:02	1.0	7199/218.6 RL
29	WATER LCS	Unknown		8-062314RL	24/06/14 17:33	1.0	7199/218.6 RL
30	R1404632-001	Unknown		8-062314RL	24/06/14 17:47	100.0	218.6 RL
31	R1404632-001	Unknown		8-062314RL	24/06/14 17:57	300.0	218.6 RL
32	R1404632-001 MS	Unknown		8-062314RL	24/06/14 18:05	300.0	218.6 RL
33	R1404632-001 MSD	Unknown		8-062314RL	24/06/14 18:12	300.0	218.6 RL
34	CCV	Unknown		8-062314RL	24/06/14 18:19	1.0	218.6 RL
35	CCB	Unknown		8-062314RL	24/06/14 18:26	1.0	218.6 RL

Preparation Information Benchsheet

Prep Run#: 211563
Team: GenChem/GNITAJOUPPI

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 09:30 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407142-03	MB		0.6g	9012B/CN Tot				6.00mL			
2	RQ1407142-04	LCS		0.6g	9012B/CN Tot				6.00mL		0.0600 mL/71940	
3	RQ1407142-05	LCS		0.6g	9012B/CN Tot				6.00mL		0.2400 mL/71940	
4	R1404589-016	1406130805 200-SB-8 8/10'	.01	0.6376g	9012B/CN Tot				6.00mL			
5	R1404589-017	1406130815 200-SB-8 8/10'	.01	0.6497g	9012B/CN Tot				6.00mL			
6	R1404589-025	1406130945 200-SB-8 28/30'	.01	0.6261g	9012B/CN Tot				6.00mL			
7	R1404589-026	1406131305 200-SB-8 43/45'	.01	0.6418g	9012B/CN Tot				6.00mL			
8	R1404589-027	1406141705 200-SB-6 8/10'	.01	0.6250g	9012B/CN Tot				6.00mL			
9	R1404589-028	1406151130 200-SB-5 8/10'	.01	0.6484g	9012B/CN Tot				6.00mL			
10	R1404589-029	1406151146 200-SB-5 8/10'	.01	0.6083g	9012B/CN Tot				6.00mL			
11	R1404622-007	1406161405 200-SB-13 8/10'	.01	0.6468g	9012B/CN Tot				6.00mL			
12	R1404622-008	1406161550 200-SB-28 30/32'	.01	0.2020g	9012B/CN Tot				6.00mL			
13	RQ1407142-01	R1404622-008 DUP	.01	0.2466g	9012B/CN Tot				6.00mL			
14	RQ1407142-02	R1404622-008 MS	.01	0.2019g	9012B/CN Tot				6.00mL		0.0600 mL/71940	

Spiking Solutions

Name: Cyanide 10 ppm as CN Inventory ID 71940 Logbook Ref: FRESH DAILY Expires On: 07/27/2014

Preparation Steps

Step: Distillation
Started: 6/24/14 09:30
Finished: 6/24/14 15:07
By: AGRAHAM
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: KABBOTT Date: _____

Preparation Information Benchsheet

Prep Run#: 211563
Team: GenChem/GNITAJOUPPI

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 09:30 AM

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Creator : KABBOTT
Creation Date : 6/25/2014 9:59:31 AM
Last Modified : 6/25/2014 11:37:12 AM
Description :

Cup	Sample ID	MDF	Weight	Sample Type	Comments
S1	1.0 ppm CN			Calibration Standard	
S2	0.50 ppm CN			Calibration Standard	
S3	0.20 ppm CN			Calibration Standard	
S4	0.10 ppm CN			Calibration Standard	
S5	0.05 ppm CN			Calibration Standard	
S6	0.02 ppm CN			Calibration Standard	
S7	0.01 ppm CN			Calibration Standard	
S8	0.00 ppm CN			Calibration Standard	
1	ICV			Unknown	
2	ICB			Unknown	
3	CRDL - 0.0200			Unknown	
4	CRDL - 0.0100			Unknown	
5	CCV			Unknown	
6	CCB			Unknown	
7	MB-4			Unknown	
8	LCS-4 LL			Unknown	
9	LCS-4 HL			Unknown	
10	R1404429-053			Unknown	
11	R1404429-055			Unknown	
12	R1404429-057			Unknown	
13	R1404429-059	10.0000		Unknown	
14	R1404429-061			Unknown	
15	R1404429-063			Unknown	
16	R1404429-065			Unknown	
17	CCV			Unknown	
18	CCB			Unknown	
19	R1404429-067			Unknown	
20	R1404429-069			Unknown	
21	R1404429-071			Unknown	
22	R1404429-072			Unknown	
23	R1404429-074			Unknown	
24	4429-074 MS			Unknown	
25	4429-074 MSD			Unknown	
26	R1404429-076			Unknown	
27	R1404429-078			Unknown	
28	R1404429-080			Unknown	
29	CCV			Unknown	
30	CCB			Unknown	
31	4429-080 MS			Unknown	
32	4429-080 MSD			Unknown	

33	R1404594-001			Unknown	
34	R1404723-001	50.0000		Unknown	
35	R1404723-002			Unknown	
36	R1404723-003	10.0000		Unknown	
37	R1404723-004			Unknown	
38	MB 5			Unknown	
39	LCS 5 LL			Unknown	
40	LCS 5 HL			Unknown	
41	CCV			Unknown	
42	CCB			Unknown	
43	R1404723-005	2.00000		Unknown	
44	R1404723-006	10.0000		Unknown	
45	R1404723-007	20.0000		Unknown	
46	R1404723-008	10.0000		Unknown	
47	4723-008 MS	10.0000		Unknown	
48	4723-008 MSD	10.0000		Unknown	
49	R1404723-009	50.0000		Unknown	
50	R1404723-010	50.0000		Unknown	
51	R1404723-011	20.0000		Unknown	
52	R1404723-012	10.0000		Unknown	
53	CCV			Unknown	
54	CCB			Unknown	
55	R1404723-013	10.0000		Unknown	
56	R1404723-014	50.0000		Unknown	
57	MB WAD			Unknown	
58	LCS LL WAD			Unknown	
59	LCS HL WAD			Unknown	
60	R1404429-053			Unknown	
61	4429-053 MS			Unknown	
62	4429-053 MSD			Unknown	
63	R1404429-055			Unknown	
64	R1404429-057			Unknown	
65	CCV			Unknown	
66	CCB			Unknown	
67	R1404429-059			Unknown	
68	R1404429-061			Unknown	
69	R1404429-063			Unknown	
70	R1404429-065			Unknown	
71	R1404429-067			Unknown	
72	R1404429-069			Unknown	
73	R1404429-071			Unknown	
74	R1404429-072			Unknown	
75	R1404429-074			Unknown	
76	4429-074 MS			Unknown	
77	CCV			Unknown	

78	CCB			Unknown	
79	4429-074 MSD			Unknown	
80	R1404429-076			Unknown	
81	R1404429-078			Unknown	
82	R1404429-080			Unknown	
83	MB SOIL			Unknown	
84	LCS LL SOIL			Unknown	
85	LCS HL SOIL			Unknown	
86	R1404589-019			Unknown	
87	R1404589-017			Unknown	
88	R1404589-025			Unknown	
89	CCV			Unknown	
90	CCB			Unknown	
91	R1404589-026			Unknown	
92	R1404589-027			Unknown	
93	R1404589-028			Unknown	
94	R1404589-029			Unknown	
95	R1404622-007			Unknown	
96	R1404622-008			Unknown	
97	4622-008 DUP			Unknown	
98	4622-008 SPK			Unknown	
99	MB RES			Unknown	
100	LCS RES			Unknown	
101	CCV			Unknown	
102	CCB			Unknown	
103	R1404594-001			Unknown	
104	4594-001 DUP			Unknown	
105	4429-074 RPT			Unknown	
106	4723-002 RPT	5.00000		Unknown	
107	4723-005 RPT	4.00000		Unknown	
108	CCV			Unknown	
109	CCB			Unknown	
110	MB FILTER			Unknown	
111	LCS HL FILTER			Unknown	
112	CCV			Unknown	
113	CCB			Unknown	

Filter lot # R3SA46669

R4622

Creator: LDOLGOS
Creation Date: Jun 24, 2014 10:57:22
Last Modified: Jun 24, 2014 13:06:48
Description: QC 8000 353.2 TOTN - RUN LOG - 1406240B

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	1.00 NO3	1.0000	Unknown	
2	1.00 NO2	1.0000	Unknown	
3	ICV TV= 0.90	1.0000	Unknown	
4	ICB	1.0000	Unknown	
5	CRDL - 0.100	1.0000	Unknown	
6	CRDL - 0.050	1.0000	Unknown	
7	CCV	1.0000	Unknown	
8	CCB	1.0000	Unknown	
9	PB SOIL	1.0000	Unknown	
10	LCS SOIL	1.0000	Unknown	
11	R1404273-005	1.0000	Unknown	
12	R1404273-005 DUP	1.0000	Unknown	
13	R1404273-005 SPK	1.0000	Unknown	
14	R1404273-006	1.0000	Unknown	
15	R1404421-008	1.0000	Unknown	
16	R1404421-009	1.0000	Unknown	
17	R1404421-010	1.0000	Unknown	
18	R1404507-006	1.0000	Unknown	
19	CCV	1.0000	Unknown	
20	CCB	1.0000	Unknown	
21	R1404507-006 DUP	1.0000	Unknown	
22	R1404507-006 SPK	1.0000	Unknown	
23	R1404507-007	1.0000	Unknown	
24	R1404507-008	1.0000	Unknown	
25	R1404589-016	1.0000	Unknown	
26	R1404589-017	1.0000	Unknown	
27	R1404589-025	1.0000	Unknown	
28	R1404589-026	1.0000	Unknown	
29	R1404589-027	1.0000	Unknown	
30	R1404589-028	1.0000	Unknown	
31	CCV	1.0000	Unknown	

Cup #	Sample ID	Manual Dilution	Sample Type	
32	CCB	1.0000	Unknown	
33	R1404589-029	1.0000	Unknown	
34	LCSW	1.0000	Unknown	
35	R1404622-003	1.0000	Unknown	
36	R1404739-001	1.0000	Unknown	
37	R1404739-002	1.0000	Unknown	
38	R1404739-003	1.0000	Unknown	
39	R1404739-003 DUP	1.0000	Unknown	
40	R1404739-003 SPK	1.0000	Unknown	
41	R1404619-003	1.0000	Unknown	
42	R1404619-004	1.0000	Unknown	
43	CCV	1.0000	Unknown	
44	CCB	1.0000	Unknown	
45	R1404619-003 RPT 1/2	2.0000	Unknown	
46	R1404619-004 RPT 1/2	2.0000	Unknown	
47	R1404739-002 DUP	1.0000	Unknown	
48	R1404739-002 SPK	1.0000	Unknown	
49	CCV	1.0000	Unknown	
50	CCB	1.0000	Unknown	

Preparation Information Benchsheet

Prep Run#: 212457
Team: GenChem/LDOLGOS

Prep WorkFlow: GenExt28Day
Prep Method: CAS SOP

Status: Prepped
Prep Date/Time: 7/3/14 11:08 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407710-01	LCS		1g	353.2M/NO2 NO3				100.00mL		0.0500 mL/67499	
2	RQ1407710-02	MB		1g	353.2M/NO2 NO3				100.00mL			
3	R1404622-007	1406161405 200-SB-13 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
4	R1404622-008	1406161550 200-SB-28 30/32'	.01	1g	353.2M/NO2 NO3				100.00mL			
5	RQ1407710-03	R1404622-008 DUP	.01	1g	353.2M/NO2 NO3				100.00mL			
6	RQ1407710-04	R1404622-008 MS	.01	1g	353.2M/NO2 NO3				100.00mL		0.0500 mL/67499	
7	R1405035-002	1406281023 200-SB-10 (16'-18')	.01	1g	353.2M/NO2 NO3				100.00mL			
8	R1405035-004	1406281510 200-SB-10 (36'-38')	.01	1g	353.2M/NO2 NO3				100.00mL			
9	R1405035-006	1406281205 200-SB-10 (26'-28')	.01	1g	353.2M/NO2 NO3				100.00mL			
10	R1405035-008	1406301550 200-SB-09	.01	1g	353.2M/NO2 NO3				100.00mL			

Spiking Solutions

Name: Nitrate (NO3) 1000 ppm as N Inventory ID 67499 Logbook Ref: WC118001N Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 7/3/14 11:08
Finished: 7/3/14 11:13
By: LDOLGOS
Comments

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: 7/7/14

Received By: _____ Date: _____

Extracts Examined
Yes No

Creator: LDOLGOS
Creation Date: Jul 3, 2014 13:49:10
Last Modified: Jul 3, 2014 15:03:01
Description: QC 8000 353.2 TOTN - RUN LOG - 1407030B

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	1.00 NO3	1.0000	Unknown	
2	1.00 NO2	1.0000	Unknown	
3	ICV TV= 0.90	1.0000	Unknown	
4	ICB	1.0000	Unknown	
5	CRDL - 0.100	1.0000	Unknown	
6	CRDL - 0.050	1.0000	Unknown	
7	CCV	1.0000	Unknown	
8	CCB	1.0000	Unknown	
9	LCS	1.0000	Unknown	
10	R1404865-001	1.0000	Unknown	
11	R1404973-001	1.0000	Unknown	
12	R1404978-001	1.0000	Unknown	
13	4978-001 DUP	1.0000	Unknown	
14	4978-001 SPK	1.0000	Unknown	
15	R1404979-001	1.0000	Unknown	
16	R1404842-002	1.0000	Unknown	
17	4842-002 DUP	1.0000	Unknown	
18	4842-002 SPK	1.0000	Unknown	
19	CCV	1.0000	Unknown	
20	CCB	1.0000	Unknown	
21	R1404777-007	1.0000	Unknown	
22	R1405027-004	1.0000	Unknown	
23	R1405027-009	1.0000	Unknown	
24	4842-002 RPT	1.0000	Unknown	
25	4842-002 DUP RPT	1.0000	Unknown	
26	4842-002 SPK RPT	1.0000	Unknown	
27	R1404978-001 RPT	1.0000	Unknown	
28	4978-001 DUP RPT	1.0000	Unknown	
29	4978-001 SPK RPT	1.0000	Unknown	
30	CCV	1.0000	Unknown	
31	CCB	1.0000	Unknown	

Creator: LDOLGOS
Creation Date: Jul 3, 2014 15:15:59
Last Modified: Jul 3, 2014 15:58:26
Description: QC 8000 353.2 TOTN - RUN LOG - 140703B2

Cup #	Sample ID	Manual Dilution	Sample Type	
30	CCV	1.0000	Unknown	
31	CCB	1.0000	Unknown	
32	PB SOIL	1.0000	Unknown	
33	LCS SOIL	1.0000	Unknown	
34	R1404622-007	1.0000	Unknown	
35	R1404622-008	1.0000	Unknown	
36	4622-008 DUP	1.0000	Unknown	
37	4622-008 SPK	1.0000	Unknown	
38	R1405035-002	1.0000	Unknown	
39	R1405035-004	1.0000	Unknown	
40	R1405035-006	1.0000	Unknown	
41	R1405035-008	1.0000	Unknown	
42	CCV	1.0000	Unknown	
43	CCB	1.0000	Unknown	

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver	500	514	103	500	520	104	517	103	P
Aluminum	10000	9550	96	10000	9720	97	9620	96	P
Arsenic	1000	992	99	1000	1010	101	995	100	P
Boron	2500	2490	100	2500	2480	99	2470	99	P
Barium	10000	10200	102	10000	10400	104	10300	103	P
Beryllium	250	248	99	250	252	101	251	100	P
Calcium	25000	24400	98	25000	24800	99	24900	100	P
Cadmium	500	501	100	500	510	102	506	101	P
Cobalt	2500	2480	99	2500	2520	101	2500	100	P
Chromium	500	513	103	500	522	104	518	104	P
Copper	1250	1220	98	1250	1230	98	1230	98	P
Iron	5000	4980	100	5000	5090	102	5040	101	P
Potassium	25000	25300	101	25000	25800	103	25600	102	P
Magnesium	25000	25900	104	25000	26400	106	26200	105	P
Manganese	750	756	101	750	767	102	763	102	P
Mercury	3.00	3.07	102	3.00	3.03	101	3.06	102	CV
Molybdenum	2500	2430	97	2500	2460	98	2440	98	P
Sodium	25000	24400	98	25000	24500	98	24600	98	P
Nickel	2000	2020	101	2000	2050	102	2040	102	P
Lead	500	502	100	500	507	101	503	101	P
Selenium	500	499	100	500	505	101	507	101	P
Tin	5000	5170	103	5000	5220	104	5230	105	P
Titanium	2500.0	2500.00	100.0	2500.0	2530.00	101.2	2520.00	100.8	P
Vanadium	2500	2480	99	2500	2520	101	2480	99	P
Zinc	1000	1010	101	1000	1030	103	1020	102	P
Strontium	2500	2360	94	2500	2400	96	2400	96	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	506	101	507	101	P
Aluminum				10000	9320	93	9370	94	P
Arsenic				1000	974	97	978	98	P
Boron				2500	2420	97	2480	99	P
Barium				10000	10000	100	10100	101	P
Beryllium				250	244	98	246	98	P
Calcium				25000	24500	98	24500	98	P
Cadmium				500	494	99	498	100	P
Cobalt				2500	2430	97	2460	98	P
Chromium				500	504	101	510	102	P
Copper				1250	1190	95	1200	96	P
Iron				5000	4890	98	4940	99	P
Potassium				25000	25000	100	25300	101	P
Magnesium				25000	25500	102	25800	103	P
Manganese				750	742	99	749	100	P
Mercury				3.00	3.14	105			CV
Molybdenum				2500	2380	95	2400	96	P
Sodium				25000	24700	99	24300	97	P
Nickel				2000	1990	100	2000	100	P
Lead				500	492	98	496	99	P
Selenium				500	494	99	497	99	P
Tin				5000	5090	102	5130	103	P
Titanium				2500.0	2460.00	98.4	2460.00	98.4	P
Vanadium				2500	2420	97	2440	98	P
Zinc				1000	993	99	1010	101	P
Strontium				2500	2350	94	2430	97	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	509	102	518	104	P
Aluminum				10000	9370	94	9770	98	P
Arsenic				1000	980	98	1000	100	P
Boron				2500	2420	97	2490	100	P
Barium				10000	10100	101	10500	105	P
Beryllium				250	246	98	254	102	P
Calcium				25000	24700	99	24800	99	P
Cadmium				500	496	99	509	102	P
Cobalt				2500	2450	98	2540	102	P
Chromium				500	508	102	520	104	P
Copper				1250	1200	96	1250	100	P
Iron				5000	4920	98	5120	102	P
Potassium				25000	25300	101	26500	106	P
Magnesium				25000	25700	103	26600	106	P
Manganese				750	747	100	773	103	P
Molybdenum				2500	2390	96	2460	98	P
Sodium				25000	24000	96	24500	98	P
Nickel				2000	2000	100	2050	102	P
Lead				500	495	99	508	102	P
Selenium				500	494	99	520	104	P
Tin				5000	5140	103	5360	107	P
Titanium				2500.0	2470.00	98.8	2550.00	102.0	P
Vanadium				2500	2440	98	2440	98	P
Zinc				1000	1000	100	1030	103	P
Strontium				2500	2420	97	2660	106	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Silver				500	526	105	514	103	P
Aluminum				10000	9930	99	9600	96	P
Arsenic				1000	999	100	995	100	P
Boron				2500	2520	101	2450	98	P
Barium				10000	10600	106	10200	102	P
Beryllium				250	256	102	249	100	P
Calcium				25000	25200	101	24500	98	P
Cadmium				500	512	102	504	101	P
Cobalt				2500	2560	102	2490	100	P
Chromium				500	525	105	515	103	P
Copper				1250	1270	102	1220	98	P
Iron				5000	5160	103	5030	101	P
Potassium				25000	26100	104	25100	100	P
Magnesium				25000	26800	107	26100	104	P
Manganese				750	780	104	758	101	P
Molybdenum				2500	2490	100	2430	97	P
Sodium				25000	25200	101	24200	97	P
Nickel				2000	2070	104	2030	102	P
Lead				500	509	102	502	100	P
Selenium				500	516	103	505	101	P
Tin				5000	5390	108	5200	104	P
Titanium				2500.0	2580.00	103.2	2500.00	100.0	P
Vanadium				2500	2480	99	2470	99	P
Zinc				1000	1020	102	1020	102	P
Strontium				2500	2480	99	2400	96	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver	500	515	103	500	508	102	505	101	P
Aluminum	10000	10000	100	10000	10200	102	10100	101	P
Arsenic	1000	993	99	1000	995	100	997	100	P
Boron	2500	2500	100	2500	2410	96	2390	96	P
Beryllium	50	53	106	50	54	108	48	96	MS
Barium	10000	10000	100	10000	9780	98	9830	98	P
Calcium	25000	26300	105	25000	26600	106	27100	108	P
Cadmium	500	490	98	500	479	96	479	96	P
Cobalt	50	49	98	50	50	100	49	98	MS
Copper	50	51	102	50	47	94	51	102	MS
Iron	5000	4950	99	5000	4860	97	4810	96	P
Potassium	25000	24800	99	25000	24100	96	24200	97	P
Magnesium	25000	25800	103	25000	25400	102	25200	101	P
Manganese	750	750	100	750	731	97	730	97	P
Mercury	3.00	2.99	100	3.00	3.00	100	3.00	100	CV
Molybdenum	2500	2400	96	2500	2340	94	2330	93	P
Sodium	25000	25600	102	25000	25000	100	25100	100	P
Nickel	2000	1990	100	2000	1940	97	1940	97	P
Lead	500	494	99	500	481	96	482	96	P
Antimony	5000	4830	97	5000	4760	95	4750	95	P
Selenium	500	488	98	500	484	97	484	97	P
Tin	5000	5140	103	5000	5000	100	5100	102	P
Titanium	2500.0	2470.00	98.8	2500.0	2430.00	97.2	2430.00	97.2	P
Thallium	1000	1000	100	1000	971	97	969	97	P
Vanadium	2500	2480	99	2500	2430	97	2420	97	P
Zinc	1000	978	98	1000	955	96	959	96	P
Strontium	2500	2410	96	2500	2350	94	2370	95	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	508	102	503	101	P
Aluminum				10000	10200	102	10200	102	P
Arsenic				1000	1010	101	1030	103	P
Boron				2500	2480	99	2350	94	P
Beryllium				50	53	106	51	102	MS
Barium				10000	9850	98	9740	97	P
Calcium				25000	26600	106	26400	106	P
Cadmium				500	482	96	476	95	P
Cobalt				50	51	102	49	98	MS
Copper				50	50	100	50	100	MS
Iron				5000	4850	97	4820	96	P
Potassium				25000	24300	97	24300	97	P
Magnesium				25000	25500	102	25200	101	P
Manganese				750	735	98	726	97	P
Mercury				3.00	3.03	101	3.00	100	CV
Molybdenum				2500	2350	94	2320	93	P
Sodium				25000	25000	100	24900	100	P
Nickel				2000	1950	98	1930	96	P
Lead				500	487	97	478	96	P
Antimony				5000	4750	95	4690	94	P
Selenium				500	482	96	471	94	P
Tin				5000	5070	101	4970	99	P
Titanium				2500.0	2430.00	97.2	2410.00	96.4	P
Thallium				1000	975	98	960	96	P
Vanadium				2500	2420	97	2420	97	P
Zinc				1000	971	97	955	96	P
Strontium				2500	2340	94	2330	93	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	493	99	498	100	P
Aluminum				10000	10300	103			P
Arsenic				1000	1040	104			P
Boron				2500	2300	92	2340	94	P
Beryllium				50	51	102	53	106	MS
Barium				10000	9600	96	9660	97	P
Calcium				25000	26800	107			P
Cadmium				500	468	94	475	95	P
Cobalt				50	49	98	52	104	MS
Copper				50	51	102	50	100	MS
Iron				5000	4700	94	4790	96	P
Potassium				25000	23200	93	23500	94	P
Magnesium				25000	24600	98	25000	100	P
Manganese				750	714	95	721	96	P
Molybdenum				2500	2290	92	2310	92	P
Sodium				25000	24100	96	24400	98	P
Nickel				2000	1890	94	1920	96	P
Lead				500	473	95	477	95	P
Antimony				5000	4630	93	4690	94	P
Selenium				500	459	92	467	93	P
Tin				5000	4660	93	4710	94	P
Titanium				2500.0	2360.00	94.4	2380.00	95.2	P
Thallium				1000	952	95	959	96	P
Vanadium				2500	2380	95	2420	97	P
Zinc				1000	935	94	952	95	P
Strontium				2500	2230	89	2270	91	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	503	101	506	101	P
Boron				2500	2360	94	2370	95	P
Barium				10000	9690	97	9790	98	P
Cadmium				500	477	95	483	97	P
Iron				5000	4880	98	4840	97	P
Potassium				25000	24300	97	23800	95	P
Magnesium				25000	25200	101	25400	102	P
Manganese				750	726	97	731	97	P
Molybdenum				2500	2320	93	2340	94	P
Sodium				25000	24700	99	24600	98	P
Nickel				2000	1930	96	1950	98	P
Lead				500	484	97	485	97	P
Antimony				5000	4730	95	4740	95	P
Selenium				500	471	94	476	95	P
Tin				5000	4760	95	4800	96	P
Titanium				2500.0	2400.00	96.0	2420.00	96.8	P
Thallium				1000	962	96	970	97	P
Vanadium				2500	2420	97	2430	97	P
Zinc				1000	968	97	973	97	P
Strontium				2500	2310	92	2300	92	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium	50	51	102	50	50	100	52	104	MS
Uranium	50	47	94	50	47	94	47	94	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium				50	51	102	51	102	MS
Uranium				50	48	96	48	96	MS

Comments:

00098

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium				50	52	104	53	106	MS
Uranium				50	47	94	47	94	MS

Comments:

00099

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium				50	52	104			MS
Uranium				50	46	92			MS

Comments:

00100

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	50	50	100	50	49	98	50	100	MS
Thallium	50	53	106	50	52	104	51	102	MS
Uranium	50	53	106	50	51	102	54	108	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				50	52	104	52	104	MS
Thallium				50	55	110	54	108	MS
Uranium				50	51	102	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404622

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404622

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Antimony				50	51	102	51	102	MS
Thallium				50	54	108	53	106	MS
Uranium				50	52	104	51	102	MS

Comments:

Preparation Information Benchsheet

Prep Run#: 211594 **Prep WorkFlow:** MetDigAqICP **Status:** Prepped
Team: Metals/CWINKSTERN **Prep Method:** EPA 3010A **Prep Date/Time:** 6/24/14 04:19 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407164-01	MB		50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless-Clear		
2	RQ1407164-05	MB		50mL	200.7/Fe T, Mg T, Na T				50.00mL			
3	RQ1407164-02	LCS		50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless-Clear	0.2500 mL/69693; 0.0500 mL/57174; 0.5000 mL/65785; 0.1000 mL/59992; 0.5000 mL/65784	
4	RQ1407164-06	LCS		50mL	200.7/Fe T, Mg T, Na T				50.00mL		0.5000 mL/65785; 0.5000 mL/65784; 0.0500 mL/57174; 0.2500 mL/69693; 0.1000 mL/59992	
5	R1404619-001	1406160850A BLM-15-305	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless-Clear		TIER III
6	RQ1407164-03	R1404619-001 DUP	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless-Clear		
7	RQ1407164-04	R1404619-001 MS	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless-Clear	0.0500 mL/57174; 0.1000 mL/59992; 0.2500 mL/69693; 0.5000 mL/65785; 0.5000 mL/65784	
8	R1404619-002	1406161052A BLM-15-305	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless-Clear		
9	R1404622-001	1406161346 200-SB-13	.01	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless-Clear		TIER III
10	R1404683-001	1S	.10	50mL	6010C/As T, B T, Ba T, Ca T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
11	R1404683-002	1D	.10	50mL	6010C/As T, B T, Ba T, Ca T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
12	R1404683-003	2S	.10	50mL	6010C/As T, B T, Ba T, Ca T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
13	R1404683-004	2D	.10	50mL	6010C/As T, B T, Ba T, Ca T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
14	R1404683-005	3S	.10	50mL	6010C/As T, B T, Ba T, Ca T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		

Preparation Information Benchsheet

Prep Run#: 211594 **Prep WorkFlow:** MetDigAqICP **Status:** Prepped
Team: Metals/CWINKSTERN **Prep Method:** EPA 3010A **Prep Date/Time:** 6/24/14 04:19 PM

15	R1404683-006	3D	.10	50mL	6010C/As T, B T, Ba T, Ca T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
16	R1404683-007	4S	.10	50mL	6010C/As T, B T, Ba T, Ca T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
17	R1404683-008	4D	.10	50mL	6010C/As T, B T, Ba T, Ca T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
18	R1404683-009	5D	.10	50mL	6010C/As T, B T, Ba T, Ca T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
19	R1404683-010	DUP-1	.10	50mL	6010C/As T, B T, Ba T, Ca T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
20	R1404746-001	HANSON RAW WATER	.15	50mL	200.7/Fe T, Mg T, Na T	<2			50.00mL	Colorless-Clear		
21	R1404746-002	GREENSAND FINISHED WATER	.15	50mL	200.7/Fe T, Mg T, Na T	<2			50.00mL	Colorless-Clear		
22	R1404746-003	SANDY CREEK DINER	.15	50mL	200.7/Fe T, Mg T, Na T	<2			50.00mL	Colorless-Clear		
23	R1404746-004	HANSON RAW WATER	.03	50mL	200.7/K T				50.00mL			Same as R4946-001
24	R1404746-005	GREENSAND FINISHED WATER	.03	50mL	200.7/K T				50.00mL			-002
25	R1404746-006	SANDY CREEK DINER	.03	50mL	200.7/K T				50.00mL			-003

Spiking Solutions

Name:	Selenium 1000 ug/mL Se	Inventory ID	57174	Logbook Ref:	M5280028BB	Expires On:	10/04/2014	Lot #:	1233330
Name:	Strontium 1000 ug/mL Sr	Inventory ID	59992	Logbook Ref:	M5280031Q	Expires On:	01/08/2015	Lot #:	1208804
Name:	Custom LCS STD A Metals	Inventory ID	65784	Logbook Ref:	M5280035K	Expires On:	12/12/2014	Lot #:	13L138
Name:	Custom LCS STD B Metals	Inventory ID	65785	Logbook Ref:	M5280035L	Expires On:	12/12/2014	Lot #:	13L138
Name:	Tin 1000 ug/mL Sn	Inventory ID	69693	Logbook Ref:	M5280037P	Expires On:	10/04/2015	Lot #:	13H087

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	Hot Block Cups	50 mL Lot 1306159 (63960)	Nitric Acid Metals Grade HNO3	M5280038F (71729)
Thermometer	329 (42023)				

Preparation Steps

Step: Digestion
Started: 6/24/14 16:19
Finished: 6/25/14 13:20
By: DBOND
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 211594
Team: Metals/CWINKSTERN

Prep WorkFlow: MetDigAqICP
Prep Method: EPA 3010A

Status: Prepped
Prep Date/Time: 6/24/14 04:19 PM

Reviewed By: D Bond Date: 6/25/14 Spike Witness: SGOLBERG Date:

Chain of Custody

Relinquished By: [signature] Date: 6/25/14

Received By: R. Aoi Date: ↓

Extracts Examined
Yes No

Preparation Information Benchsheet

ep Run#: 211850
am: Metals/MCRIBBIN

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/27/14 09:07 AM

Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
RQ1407320-01	MB		1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	White, Coarse / Colorless, Clear		HB7 *RUSH* Therm=287 Well=A1 Temp=95
RQ1407320-02	LCS		1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	White, Coarse / Colorless, Clear	1.0000 mL/70002; 0.2000 mL/59992; 0.1000 mL/57174; 0.5000 mL/69693; 1.0000 mL/70003	
R1404600-001	CL-SED-1-TOP	.03	1.0300g	6010C/As T, Cd T, Cu T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
R1404600-002	CL-SED-2-TOP	.03	1.0200g	6010C/As T, Cd T, Cu T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
R1404600-003	CL-SED-3-TOP	.03	1.0300g	6010C/As T, Cd T, Cu T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
R1404600-004	CL-SED-4-TOP	.03	1.0300g	6010C/As T, Cd T, Cu T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
R1404600-005	AF-SED-1-TOP	.03	1.0200g	6010C/As T, Cd T, Cu T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
R1404600-006	AF-SED-2-TOP	.03	1.0300g	6010C/As T, Cd T, Cu T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
R1404600-007	AF-SED-3-TOP	.03	1.0200g	6010C/As T, Cd T, Cu T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
R1404600-008	AF-SED-4-TOP	.03	1.0200g	6010C/As T, Cd T, Cu T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
R1404600-009	AF-SED-4-BOT	.03	1.0400g	6010C/As T, Cd T, Cu T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
R1404622-007	1406161405 200-SB-13 8/10'	.02	1.0400g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Medium / Yellow, Clear		III NASA
R1404622-008	1406161550 200-SB-28 30/32'	.02	1.0200g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Red, Medium / Yellow, Clear		
RQ1407320-03	R1404622-008 DUP	.02	1.0200g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Red, Medium / Yellow, Clear		
RQ1407320-04	R1404622-008 MS	.02	1g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Red, Medium / Yellow, Clear	0.2000 mL/59992; 1.0000 mL/70003; 0.1000 mL/57174; 0.5000 mL/69693; 1.0000 mL/70002	
R1404656-013	MAINT BLDG PIPE	.04	1.0400g	6010C/Ag T, Al T, As T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Tl T, V T, Zn T	<2			100.00mL	Black, Medium / Yellow, Clear		

Preparation Information Benchsheet

p Run#: 211850
m: Metals/MCRIBBIN

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/27/14 09:07 AM

ting Solutions

lame:	Selenium 1000 ug/mL Se	Inventory ID	57174	Logbook Ref:	M5280028BB	Expires On:	10/04/2014	Lot #:	1233330
lame:	Strontium 1000 ug/mL Sr	Inventory ID	59992	Logbook Ref:	M5280031Q	Expires On:	01/08/2015	Lot #:	1208804
iame:	Tin 1000 ug/mL Sn	Inventory ID	69693	Logbook Ref:	M5280037P	Expires On:	10/04/2015	Lot #:	13H087
'ame:	Custom LCS STD A Metals	Inventory ID	70002	Logbook Ref:	M5280037CC	Expires On:	04/17/2015	Lot #:	14D125
'ame:	Custom LCS STD B Metals	Inventory ID	70003	Logbook Ref:	M5280037DD	Expires On:	10/18/2015	Lot #:	14D123

eparation Materials

HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Boiling Stones PTFE	M5280036N (67019)
Block Cups	50 mL Lot 1306159 (63960)	Filter Paper	Filter Paper (55693)	Hydrogen Peroxide 30% Reagent Grade H2O2	M5280033R (69313)
ic Acid Metals Grade HNO3	M5280037X (69879)	Thermometer	287 (12953)		

eparation Steps

):	Digestion
ted:	6/27/14 09:07
shed:	6/27/14 15:37
	MCRIBBIN

ıments

4600 Bergmann 7/1/14
4622 NASA 7/2/14
4656 B+L 7/3/14

nents:

wed By: [signature] Date: 6/30/14 Spike Witness: DBOND Date:

of Custody

nquished By: [signature] Date: 6/27/14 1556

ceived By: [signature] Date: 6/27/14 1556

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211858
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSMS
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/27/14 09:38 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407322-01	MB		1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	White, Coarse / Yellow, Clear		HB6 RUSH MS SOIL Therm=287 Well=I4 Temp=95
2	RQ1407322-02	LCS		1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	White, Coarse / Yellow, Clear	0.2000 mL/71751; 0.2000 mL/71752	
3	R1404622-007	1406161405 200-SB-13 8/10'	.02	1.0500g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Medium / Yellow, Clear		III NASA
4	R1404622-008	1406161550 200-SB-28 30/32'	.02	1.0200g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Red, Medium / Yellow, Clear		
5	RQ1407322-03	R1404622-008 DUP	.02	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Red, Medium / Yellow, Clear		
6	RQ1407322-04	R1404622-008 MS	.02	1.0200g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Red, Medium / Yellow, Clear	0.2000 mL/71751; 0.2000 mL/71752	

Spiking Solutions

Name:	ICPMS Calibration Standard 1 (10 ug/mL	Inventory ID	71751	Logbook Ref:	M5280038J	Expires On:	08/31/2015	Lot #:	21208507
Name:	ICPMS Calibration Standard 2 (10 ug/mL	Inventory ID	71752	Logbook Ref:	M5280038J	Expires On:	05/31/2016	Lot #:	21206511

Preparation Materials

1:1 Nitric Acid Metals Grade	M5280037X (63958)	Boiling Stones PTFE	M5280036N (67019)	Hot Block Cups	50 mL Lot 1306159 (63960)
Filter Paper	Filter Paper (55693)	Thermometer	287 (12953)	Hydrogen Peroxide 30% Reagent Grade H2O2	M5280033R (69313)
Nitric Acid Metals Grade HNO3	M5280037X (69879)				

Preparation Steps

Step: Digestion
Started: 6/27/14 09:38
Finished: 6/27/14 15:36
By: MCRIBBIN
Comments

Comments:

Reviewed By: [signature] Date: 6/30/14 Spike Witness: DBOND Date:

Preparation Information Benchsheet

Prep Run#: 211858
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSMS
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/27/14 09:38 AM

Chain of Custody

Relinquished By:		Date: 6/27/14 1556	Extracts Examined	
Received By:	RA01	Date: 6/27/14 1556	Yes	No

Preparation Information Benchsheet

Prep Run#: 212059 **Prep WorkFlow:** MetDigAqMS **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA CLP-METALS ILM05.3 **Prep Date/Time:** 7/1/14 08:21 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407460-01	MB		50mL	6020A/As T, Sb T, Tl T, U T	<2			50.00mL	Colorless, Clear		HB7 Therm=287 Well=B3 temp=95 RUSH
2	RQ1407460-03	MB		50mL	200.8/Cu T, Pb T	<2			50.00mL	Colorless, Clear		LIMs QC DW
3	RQ1407460-02	LCS		50mL	6020A/As T, Sb T, Tl T, U T	<2			50.00mL	Colorless, Clear	0.1000 mL/71751; 0.1000 mL/71752	
4	RQ1407460-04	LCS		50mL	200.8/Cu T, Pb T	<2			50.00mL	Colorless, Clear	0.1000 mL/71752; 0.1000 mL/71751	LIMs QC DW
5	R1404619-001	1406160850A BLM-15-305	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		III NASA
6	R1404619-002	1406161052A BLM-15-305	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		
7	R1404622-001	1406161346 200-SB-13	.01	50mL	6020A/Sb T, Tl T, U T	<2			50.00mL	Colorless, Clear		III NASA
8	R1404894-001	B316-1-P5 HYDRATION STATION	.01	50mL	200.8/Cu T, Pb T	<2			50.00mL	Colorless, Clear		
9	RQ1407460-05	R1404894-001 DUP	.01	50mL	200.8/Cu T, Pb T	<2			50.00mL	Colorless, Clear		
10	RQ1407460-06	R1404894-001 MS	.01	50mL	200.8/Cu T, Pb T	<2			50.00mL	Colorless, Clear	0.1000 mL/71751; 0.1000 mL/71752	
11	R1404894-002	B321-1-L7 HYDRATION STATION	.01	50mL	200.8/Cu T, Pb T	<2			50.00mL	Colorless, Clear		

Spiking Solutions

Name:	ICPMS Calibration Standard 1 (10 ug/mL	Inventory ID	71751	Logbook Ref:	M5280038J	Expires On:	08/31/2015	Lot #:	21208507
Name:	ICPMS Calibration Standard 2 (10 ug/mL	Inventory ID	71752	Logbook Ref:	M5280038J	Expires On:	05/31/2016	Lot #:	21206511

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Hot Block Cups	50 mL Lot 1306159 (63960)
Thermometer	287 (12953)				

Preparation Steps

Step: Digestion
Started: 7/1/14 08:21
Finished: 7/1/14 14:23
By: MCRIBBIN
Comments

Preparation Information Benchsheet

Prep Run#: 212059
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqMS
Prep Method: EPA CLP-METALS ILM05.3

Status: Prepped
Prep Date/Time: 7/1/14 08:21 AM

Comments:

Reviewed By: Tracy Christ Date: 7/2/14 Spike Witness: TCHRIST Date:

Chain of Custody

Relinquished By: Date: 7/1/14 1430

Received By: Date: 7/1/14 1430

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211562
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 03:30 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407140-01	MB		0.6g	7471B/Hg				100.00mL	White-Coarse		HB #3 temp =95C /94C Location = E2
2	RQ1407140-02	LCS		0.6g	7471B/Hg				100.00mL	White-Coarse	1.0000 mL/71967	
3	R1404622-007	1406161405 200-SB-13 8/10'	.02	0.6500g	7471B/Hg				100.00mL	Brown-Fine		TIER III
4	R1404622-008	1406161550 200-SB-28 30/32'	.02	0.6100g	7471B/Hg				100.00mL	Brown-Fine		
5	RQ1407140-03	R1404622-008 DUP	.02	0.6100g	7471B/Hg				100.00mL	Brown-Fine		
6	RQ1407140-04	R1404622-008 MS	.02	0.6000g	7471B/Hg				100.00mL	Brown-Fine	1.0000 mL/71967	
7	R1404727-001	RC-SS-01	.01	0.6500g	7471B/Hg				100.00mL	Brown-Coarse		
8	R1404727-002	RC-SS-02	.02	0.6400g	7471B/Hg				100.00mL	Brown-Coarse		
9	R1404727-003	RC-SS-03	.01	0.6g	7471B/Hg				100.00mL	Brown-Coarse		
10	R1404727-004	RC-SS-04	.01	0.6g	7471B/Hg				100.00mL	Brown-Coarse		
11	R1404727-005	RC-SS-05	.02	0.6100g	7471B/Hg				100.00mL	Brown-Coarse		
12	R1404727-006	RC-SS-06	.01	0.6500g	7471B/Hg				100.00mL	Brown-Coarse		
13	R1404734-001	KL SLUDG-06192014-SL	.03	0.6400g	7471B/Hg				100.00mL	Black-coarse		
14	R1404751-001	LCP2-5122-001	.01	0.6300g	7471B/Hg				100.00mL	Brown-Medium		TIER IV
15	R1404751-002	LCP2-5122-002	.01	0.6g	7471B/Hg				100.00mL	Brown-Medium		
16	R1404751-003	LCP2-5122-003	.01	0.6200g	7471B/Hg				100.00mL	Brown-Medium		
17	R1404751-004	LCP2-5122-004	.01	0.6000g	7471B/Hg				100.00mL	Brown-Medium		
18	R1404816-001	10021030_062014_SS	.02	0.6200g	7471B/Hg				100.00mL	Brown-Fine		TIER IV
19	R1404816-002	10032A01_062014_SS	.02	0.6400g	7471B/Hg				100.00mL	Brown-Fine		
20	R1404816-003	10042516_062014_SS	.02	0.6200g	7471B/Hg				100.00mL	Brown-Fine		
21	R1404816-004	10041230_062014_SS	.02	0.6100g	7471B/Hg				100.00mL	Brown-Fine		

Spiking Solutions

Name: Mercury LCSW Metals Hg Inventory ID 71967 Logbook Ref: M681008C Expires On: 06/25/2014

Preparation Materials

Boiling Stones PTFE	M5280036N (67019)	Hot Block Cups	125 mL 1308077 (65844)	Sulfuric Acid Reagent Grade H2SO4	M5280026S (53233)
Hydrochloric Acid (HCl) Metals Grade	M5280038D (70868)	Nitric Acid Metals Grade HNO3	M5280037X (69879)	Hydroxylamine Hydrochloride Reagent Grade	M5280034Z (65271)
Potassium Permanganate RG KMnO4	M5280037K (69039)	Potassium Persulfate RG K2S2O8	M5280037BB (70162)	Sodium Chloride Reagent Grade NaCl	WC126052C (61711)
Stannous Chloride SnCl2	M5280033p (63338)	Thermometer	294 (12954)		

Preparation Information Benchsheet

Prep Run#: 211562
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 03:30 PM

Preparation Steps

Step: Digestion
Started: 6/24/14 15:30
Finished: 6/24/14 16:00
By: CWINKSTERN
Comments

Comments:

Reviewed By: Tracy Christ Date: 10/25/14

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211703 **Prep WorkFlow:** HgDigAq **Status:** Prepped
Team: Metals/CWINKSTERN **Prep Method:** Method **Prep Date/Time:** 6/25/14 06:00 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407233-01	MB		25mL	245.1/Hg D, 7470A/Hg T				25.00mL	Colorless-Clear		HB #8 temp =95C/95C Location = C6
2	RQ1407233-07	MB		25mL	245.1/Hg T				25.00mL			
3	RQ1407233-02	LCS		25mL	245.1/Hg D, 7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/72009	
4	RQ1407233-08	LCS		25mL	245.1/Hg T				25.00mL		0.2500 mL/72009	
5	R1404619-001	1406160850A BLM-15-305	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
6	RQ1407233-03	R1404619-001 DUP	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
7	RQ1407233-04	R1404619-001 MS	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/72009	
8	R1404619-002	1406161052A BLM-15-305	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
9	R1404622-001	1406161346 200-SB-13	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
10	R1404726-001	WSP-7	.05	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
11	R1404746-001	HANSON RAW WATER	.02	25mL	245.1/Hg T				25.00mL	Colorless-Clear		
12	R1404746-002	GREENSAND FINISHED WATER	.02	25mL	245.1/Hg T				25.00mL	Colorless-Clear		
13	R1404746-003	SANDY CREEK DINER	.02	25mL	245.1/Hg T				25.00mL	Colorless-Clear		
14	R1404777-003	1406191018C BLM-40-517	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
15	R1404777-004	1406191019C BLM-40-517	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
16	R1404857-001	FILTER BLANK 6/25	.06	25mL	245.1/Hg D				25.00mL	Colorless-Clear		TIER IV
17	R1404857-002	BR-RW-062514-B3	.07	25mL	245.1/Hg D				25.00mL	Colorless-Clear		
18	R1404857-003	BR-RW-062514-B4	.07	25mL	245.1/Hg D				25.00mL	Colorless-Clear		
19	RQ1407233-05	R1404857-003 DUP	.07	25mL	245.1/Hg D				25.00mL	Colorless-Clear		
20	RQ1407233-06	R1404857-003 MS	.07	25mL	245.1/Hg D				25.00mL	Colorless-Clear	0.2500 mL/72009	

Spiking Solutions

Name: Mercury LCSW Metals Hg Inventory ID 72009 Logbook Ref: M681008D Expires On: 06/26/2014

Preparation Materials

Hot Block Cups	50 mL Lot 1306159 (63960)	Sulfuric Acid Reagent Grade H2SO4	M5280026S (53233)	Hydrochloric Acid (HCl) Metals Grade	M5280038D (70868)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Thermometer	293 (12952)	Hydroxylamine Hydrochloride Reagent Grade	M5280034Z (65271)
Potassium Permanganate RG KMnO4	M5280037K (69039)	Potassium Persulfate RG K2S2O8	M5280037BB (70162)	Sodium Chloride Reagent Grade NaCl	WC126052C (61711)
Stannous Chloride SnCl2	M5280033p (63338)				

Preparation Information Benchsheet

Prep Run#: 211703
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigAq
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/25/14 06:00 PM

Preparation Steps

Step: Digestion
Started: 6/25/14 18:00
Finished: 6/25/14 20:00
By: CWINKSTERN
Comments

Comments: _____

Reviewed By: Tracy Christ Date: 6/30/14

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

Analyst: DCB Date: 6/27/14 Data File: 3Jun27a

Prep Dates: MRL 6/12/14 ICSA 6/12/14 ICSAB 6/24/14 Int.Std 6/25/14

Cal Std 1 6/24/14 Cal Std 2 6/24/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/27/14

HLCCV2 6/27/14

Lot #: MRL M6700085A ICSA M6700119A ICSAB M6700137B Int.Std M6700158N

Cal Std 1 M6700013C Cal Std 2 M6700022E Cal Std 5 / HLCCV1 M6700037H ICV / CCV M5280058G

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M6700079G

Blank Prepared Daily Lot: HNO3 M5280038F HCL M5280058D

1	1		Calib Blank 1	34	3	QC	CCV	67	76		R1404746-002,005
2	9		Calib Std 1	35	1	QC	CCB	68	77		R1404746-003,006
3	10		Calib Std 2	36	6	QC	MRL	69	4	QC	CCV
4	11		Calib Std 3	37	7	QC	ICSA	70	5	QC	CCB
5	12		Calib Std 4	38	8	QC	ICSAB	71	6	QC	MRL
6	2		Calib Std 5	39	13	QC	HLCCV2	72	7	QC	ICSA
7	3	QC	ICV	40	2	QC	HLCCV1	73	8	QC	ICSAB
8	1	QC	ICB	41	3	QC	CCV	74	4	QC	CCV
9	6	QC	MRL	42	1	QC	CCB	75	5	QC	CCB
10	7	QC	ICSA	43	56		PBW-211594	76	78		R1404592-002 10X 6/27/14
11	8	QC	ICSAB	44	57		LCSW-211594	77	79		R1404592-001 10X
12	3	QC	CCV	45	58		R1404619-001	78	80		PBW-211794
13	1	QC	CCB	46	59		R1404619-001D	79	81		LCSW-211794
14	38		PBW-211220	47	60		R1404619-001S	80	82		R1404867-001
15	39		LCSW-211220	48	61		R1404619-001A	81	83		R1404883-001
16	40		R1404582-001 20X	49	62		R1404619-001L	82	84		R1404883-001D
17	41		R1404582-001L 20X	50	63		R1404619-002	83	85		R1404883-001S
18	42		PBW-211139	51	64		R1404622-001	84	86		R1404883-001A
19	43		LCSW-211139	52	65		R1404683-001	85	87		R1404883-001L
20	44		R1404551-006 10X	53	3	QC	CCV	86	4	QC	CCV
21	45		R1404551-008 10X	54	1	QC	CCB	87	5	QC	CCB
22	46		R1404551-009 10X	55	66		R1404683-002	88	88		R1404883-002
23	47		R1404551-012 10X	56	67		R1404683-003	89	89		R1404883-005
24	3	QC	CCV	57	68		R1404683-004	90	90		R1404889-001
25	1	QC	CCB	58	69		R1404683-005	91	4	QC	CCV
26	48		R1404551-017	59	70		R1404683-006	92	5	QC	CCB
27	49		R1404551-017L	60	71		R1404683-007	93	6	QC	MRL
28	50		PBW-211691	61	72		R1404683-008	94	7	QC	ICSA
29	51		LCSW-211691 6/27/14	62	73		R1404683-009	95	8	QC	ICSAB
30	52		LCSWD	63	74		R1404683-010	96	4	QC	CCV
31	53		R1404592-001 100~~0~~X	64	75		R1404746-001,004	97	5	QC	CCB
32	54		R1404592-002 200~~0~~X	65	4	QC	CCV	98	91		Sample091
33	55		R1404592-002L 200~~0~~X	66	5	QC	CCB				

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

Analyst: CJW Date: 6/30/14 Data File: 3Jun30

Prep Dates: MRL 6/12/14 ICSA 6/12/14 ICSAB 6/24/14 Int.Std 6/30/14

Cal Std 1 6/24/14 Cal Std 2 6/24/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/30/14

HLCCV2 6/27/14

Lot #: MRL M670015A ICSA M670119A ICSAB M670137B Int.Std M670158O

Cal Std 1 M670013C Cal Std 2 M670022E Cal Std 5 / HLCCV1 M670037H ICV / CCV M670058F

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670079C

Blank Prepared Daily Lot: HNO3 MS260035F HCL MS260036D

1	1		Calib Blank 1	33	48		PBW-211850
2	9		Calib Std 1	34	49		LCSW-211850
3	10		Calib Std 2	35	50		R1404600-001
4	11		Calib Std 3	36	51		R1404600-002
5	12		Calib Std 4	37	52		R1404600-003
6	2		Calib Std 5	38	53		R1404600-004
7	3	QC	ICV	39	54		R1404600-005
8	1	QC	ICB	40	55		R1404600-006
9	6	QC	MRL	41	56		R1404600-007
10	7	QC	ICSA	42	57		R1404600-008
11	8	QC	ICSAB	43	3	QC	CCV
12	3	QC	CCV	44	1	QC	CCB
13	1	QC	CCB	45	58		R1404600-009
14	38		PBS-211856	46	59		R1404622-007 10X
15	39		LCSS-211856	47	60		R1404622-008 10X
16	40		LCSD-211856	48	61		R1404622-008D 10X
17	41		R1404580-001	49	62		R1404622-008S 10X
18	42		R1404580-001L	50	63		R1404622-008A 10X
19	43		PBW-211965	51	64		R1404622-008L 10X
20	44		LCSW-211965	52	65		R1404656-013 10X
21	45		LCSD-211965	53	4	QC	CCV
22	46		R1404744-001	54	5	QC	CCB
23	47		R1404744-001L	55	6	QC	MRL
24	3	QC	CCV	56	7	QC	ICSA
25	1	QC	CCB	57	8	QC	ICSAB
26	6	QC	MRL	58	4	QC	CCV
27	7	QC	ICSA	59	5	QC	CCB
28	8	QC	ICSAB	60	66		R1404622-007
29	13	QC	HLCCV2	61	67		R1404622-008
30	2	QC	HLCCV1	62	68		R1404622-008D
31	3	QC	CCV	63	69		R1404622-008S
32	1	QC	CCB	64	70		R1404622-008A
				65	71		R1404622-008L
				66	72		R1404656-013
				67	4	QC	CCV
				68	5	QC	CCB
				69	6	QC	MRL
				70	7	QC	ICSA
				71	8	QC	ICSAB
				72	4	QC	CCV
				73	5	QC	CCB
				74	73		Sample073

CJW 6/30/14

OPTIMA 5300DV (#4) Run Log

Serial number: 077N6052202

Analyst: TJC Date: 6/30/14 Data File: 4Jun30

Prep Dates: MRL 6/12/14 ICSA 6/6/14 ICSAB 6/25/14 Int.Std 6/25/14

Cal Std 1 6/24/14 Cal Std 2 6/24/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 6/30/14

HLCCV2 6/27/14

Lot #: MRL M6700105A ICSA M670126B ICSAB M670146B Int.Std M670015BN

Cal Std 1 M670035C Cal Std 2 M670022E Cal Std 5 / HLCCV1 M670037H ICV / CCV M670050H

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670079C

Blank Prepared Daily Lot: HNO3 MS280035F HCL MS280036D

1	1		Calib Blank 1	38	51		PBW-211594
2	9		Calib Std 1	39	52		LCSW-211594
3	10		Calib Std 2	40	53		R1404619-001 5X
4	11		Calib Std 3	41	54		R1404619-001D 5X
5	12		Calib Std 4	42	55		R1404619-001S 5X
6	2		Calib Std 5	43	56		R1404619-001A 5X
7	3	OC	ICV	44	57		R1404619-001L 5X
8	1	OC	ICB	45	58		R1404619-002
9	6	OC	MRL	46	59		R1404622-001
10	7	OC	ICSA	47	60		R1404683-001 5X
11	8	OC	ICSAB	48	4	OC	CCV
12	3	OC	CCV	49	5	OC	CCB
13	1	OC	CCB	50	61		R1404683-001
14	38		PBW-211735	51	62		R1404683-002 5X
15	39		LCSW-211735	52	63		R1404683-002
16	40		R1404564-001 5X	53	64		R1404683-003 10X
17	41		R1404564-003 5X	54	65		R1404683-003
18	42		R1404564-005 5X	55	66		R1404683-004 5X
19	43		R1404564-009 10X	56	67		R1404683-004
20	3	OC	CCV	57	68		R1404683-005 5X
21	1	OC	CCB	58	69		R1404683-006 5X
22	44		R1404564-011 5X	59	70		R1404683-007 ~~5X~~ STR
23	45		R1404564-017 5X	60	4	OC	CCV
24	46		R1404564-027 2X	61	5	OC	CCB
25	47		R1404564-027D 2X	62	71		R1404683-007 5X
26	48		R1404564-027S 2X	63	72		R1404683-008 10X
27	49		R1404564-027A 2X	64	73		R1404683-008
28	50		R1404564-027L 5X	65	74		R1404683-009 2X
29	3	OC	CCV	66	75		R1404683-009
30	1	OC	CCB	67	76		R1404683-010 5X
31	6	OC	MRL	68	77		R1404683-010 2X
32	7	OC	ICSA	69	78		R1404746-001
33	8	OC	ICSAB	70	79		R1404746-002
34	13	OC	HLCCV2	71	80		R1404746-003
35	2	OC	HLCCV1	72	4	OC	CCV
36	3	OC	CCV	73	5	OC	CCB
37	1	OC	CCB	74	6	OC	MRL
				75	7	OC	ICSA
				76	8	OC	ICSAB
				77	4	OC	CCV
				78	5	OC	CCB
				79	81		Sample081

TC 7/1/14 03 not poured up

CCV CCB 6/30/14

TC 7/1/14

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC

Date: 7/1/14

Data File: 070114A

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510026B 7/1/14

Cal Std 2: M6510015H 7/1/14

Cal Std 3: M6510026I 7/1/14

ICV/CCV: M6510051G 7/1/14

HLCCV2: M6510050P 6/19/14

Internal Std: M6510109A 4/8/14

ICSA (6020A): M6510091N 7/1/14

ICSAB (6020A): M6510010 3B 7/1/14

Tuning Solution: M6510014 0B 4/29/14

HNO_3: M5240038F

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210334	PBS-210334_5
39	210334	LCSS-210334_5
40	210334	R1404273-005_5
41	210334	R1404273-005D_5
42	210334	R1404273-005S_5
43	210334	R1404273-005A_5
44	210334	R1404273-005L_5
45	210334	R1404273-006_5
46	210334	R1404421-008_5
47	210334	R1404421-009_5
48	210334	R1404421-010_5
9		HLCCV2 TC 7/1/14
49	211307	PBS-211307_5
50	211307	LCSS-211307_5
51	211307	R1404507-006_5
52	211307	R1404507-006D_5
53	211307	R1404507-006S_5
54	211307	R1404507-006A_5
55	211307	R1404507-006L_5
56	211307	R1404507-007_5
57	211307	R1404507-008_5
58	211307	R1404589-016_5
59	211307	R1404589-017_5
60	211307	R1404589-025_5
61	211307	R1404589-026_5
62	211307	R1404589-027_5
63	211307	R1404589-028_5
64	211307	R1404589-029_5
65	211858	PBS-211858_5
66	211858	LCSS-211858_5
67	211858	R1404622-007_5
68	211858	R1404622-008_5
69	211858	R1404622-008D_5
70	211858	R1404622-008S_5
71	211858	R1404622-008A_5
72	211858	R1404622-008L_5

OPTIMA 5300DV (#4) Run Log

Serial number: 077N6052202

Analyst: TC Date: 7/2/14 Data File: 4Jul02

Prep Dates: MRL 7/1/14 ICSA 6/12/14 ICSAB 6/24/14 Int.Std 6/30/14

Cal Std 1 7/2/14 Cal Std 2 7/2/14 Cal Std 5 / HLCCV1 6/23/14 ICV / CCV 7/2/14

HLCCV2 6/27/14

Lot #: MRL M6700 15B ICSA M6700119A ICSAB M6700 137B Int.Std M6700158 O

Cal Std 1 M6700 13D Cal Std 2 M6700 22F Cal Std 5 / HLCCV1 M6700 37H ICV / CCV M6700 58J

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M6700 79C

Blank Prepared Daily Lot: HNO3 M5280038F HCL M5280038D

1	1		Calib Blank 1	39	59		R1404622-008S 20X				
2	9		Calib Std 1	40	60		R1404688-008A 20X				
3	10		Calib Std 2	41	61		R1404688-008L 20X	77	4		CCV
4	11		Calib Std 3	42	3		CCV	78	5		CCB
5	12		Calib Std 4	43	1		CCB	79	81		R1404879-003
6	2		Calib Std 5	44	6		MRL	80	82		R1404879-005
7	3		ICV	45	7		ICSA	81	83		R1404879-006
8	1		ICB	46	8		ICSAB	82	84		R1404879-008
9	6		MRL	47	13		HLCCV2	83	85		R1404879-009
10	7		ICSA	48	2		HLCCV1	84	86		R1404892-001
11	8		ICSAB	49	3		CCV	85	87		R1404892-001D
12	3		CCV	50	1		CCB	86	88		R1404892-001S
13	1		CCB	51	62		PBW-211735	87	89		R1404892-001A
14	38		PBS-211850	52	63		LCSW-211735	88	90		R1404892-001L
15	39		LCSS-211850	53	64		R1404564-031 5X	89	4		CCV
16	40		R1404600-001	54	65		R1404564-031L 5X	90	5		CCB TC 7/2/14
17	41		R1404600-002	55	66		PBS-211965	91	91		R1404911-001
18	42		R1404600-003	56	67		LCSS-211965	92	92		R1404911-002
19	43		R1404600-004	57	68		LCSD-211965	93	93		R1404923-001
20	44		R1404600-005	58	69		R1404744-001	94	94		R1404931-001
21	45		R1404600-006	59	70		R1404744-001L	95	95		R1404931-001D
22	3		CCV	60	4		CCV	96	96		R1404931-001S
23	1		CCB	61	5		CCB	97	97		R1404931-001A
24	46		R1404600-007	62	6		MRL	98	98		R1404931-001L
25	47		R1404600-008	63	7		ICSA	99	99		R1404931-002
26	48		R1404600-009	64	8		ICSAB	100	4		CCV
27	49		R1404622-007	65	4		CCV	101	5		CCB
28	50		R1404622-008	66	5		CCB	102	6		MRL
29	51		R1404622-008D	67	71		PBW-211994	103	7		ICSA
30	52		R1404622-008S	68	72		LCSW-211994	104	8		ICSAB
31	53		R1404622-008A	69	73		R1404781-001	105	4		CCV
32	54		R1404622-008L	70	74		R1404821-001 10X	106	5		CCB
33	3		CCV	71	75		R1404843-001 10X	107	100		Sample100
34	1		CCB	72	76		R1404869-003				
35	55		R1404656-013	73	77		R1404873-001				
36	56		R1404622-007 50X	74	78		R1404874-001				
37	57		R1404622-008 20X	75	79		R1404876-001				
38	58		R1404622-008D 20X	76	80		R1404879-002				

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC

Date: 7/2/14

Data File: 070214B

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066B 7/1/14

Cal Std 2: M6510015H 7/1/14

Cal Std 3: M6510026B 7/1/14

ICV/CCV: M6510518 7/2/14

HLCCV2: M6510080P 6/19/14

Internal Std: M6510109A 4/18/14

ICSA (6020A): M6510091N 7/1/14

ICSAB (6020A): M6510010 3B 7/1/14

Tuning Solution: M6510014 0B 4/28/14

HNO_3:

TC 7/2/14

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210334	PBS-210334_5
39	210334	LCSS-210334_5
40	210334	R1404421-008_5
41	210334	R1404421-009_5
42	210334	R1404421-010_5
43	210334	R1404421-010L_5
9		HLCCV2
5		CCV
1		CCB
44	211307	PBS-211307_5
45	211307	LCSS-211307_5
46	211307	R1404507-006_5
47	211307	R1404507-006D_5
48	211307	R1404507-006S_5
49	211307	R1404507-006A_5
50	211307	R1404507-006L_5
51	211307	R1404507-007_5
52	211307	R1404507-008_5
53	211307	R1404589-016_5
54	211307	R1404589-017_5
55	211307	R1404589-025_5
56	211307	R1404589-026_5
57	211307	R1404589-027_5
58	211307	R1404589-028_5
59	211307	R1404589-029_5
6		MRL
5		CCV
1		CCB
60	211858	PBS-211858_5
61	211858	LCSS-211858_5
62	211858	R1404622-007_5
63	211858	R1404622-008_5
64	211858	R1404622-008D_5
65	211858	R1404622-008S_5
66	211858	R1404622-008A_5
67	211858	R1404622-008L_5

TC 7/2/14

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: CJW

Date: 7/2/14

Data File: 070214C

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066A 6/23/14

Cal Std 2: M6510015G 6/17/14

Cal Std 3: M6510026H 6/9/14

ICV/CCV: M6510051I 7/2/14

HLCCV2: M6510081A 6/25/14 TC 7/3/14 ~~M6510080 6/18/14~~

Internal Std: M6510109A 4/8/14

ICSA (6020A): M6510091O 7/2/14

ICSAB (6020A): M6510103A 6/30/14

Tuning Solution: M6510140B 4/29/14

HNO_3: M5280038F

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	211500	PBW-211500
39	211500	LCSW-211500
40	211500	R1404507-001
41	211500	R1404507-001L
9		HLCCV2
42	212057	PBW-212057
43	212057	LCSW-212057
44	212057	R1404746-001
45	212057	R1404746-002
46	212057	R1404746-003
47	212057	R1404777-003
48	212057	R1404777-004 TC 7/3/14
49	212057	R1404794-001
50	212057	R1404794-001D
51	212057	R1404794-001S
52	212057	R1404794-001A
53	212057	R1404794-001L
54	212057	R1404865-002
55	212057	R1404897-001
56	212059	PBW-212059
57	212059	LCSW-212059
58	212059	R1404619-001
59	212059	R1404619-002
60	212059	R1404622-001
61	212059	R1404894-001
62	212059	R1404894-001D
63	212059	R1404894-001S
64	212059	R1404894-001A
65	212059	R1404894-001L
66	212059	R1404894-002

Perkin Elmer FIMS Run Log

Serial number: 101S12110203

Analyst: CW

Data File: Jun-24S

Date Prepped: 6/24/14

Date Analyzed: 6/24/14

Lot #: Calibration/CRDL Source Standard: MS2800305

ICV/CCV/LCS/MS Source Standard: MS2800302

Cal/ CRDL 10ppm stock: M6610058A

ICV/CCV/LCS/MS 10ppm stock: M6610068A

Cal/ CRDL 0.1ppm stock: M6610056C

ICV/CCV/LCS/MS 0.1 ppm stock: M6610068C

1	1	■	Calib Blank
2	2	■	0.2ppb std
3	3	■	0.5ppb std
4	4	■	1.0ppb std
5	5	■	2.0ppb std
6	6	■	5.0ppb std
7	7	■	10.0ppb std
8	8	○	ICV
9	1	○	ICB
10	2	○	MRL
11	8	○	CCV
12	1	○	CCB
13	38	●	PBS-211562
14	39	●	LCSS
15	40	●	R1404622-007
16	41	●	R1404622-008
17	42	●	R1404622-008D
18	43	●	R1404622-008S
19	44	●	R1404727-001
20	45	●	R1404727-002
21	8	○	CCV
22	1	○	CCB
23	46	●	R1404727-003
24	47	●	R1404727-004
25	48	●	R1404727-005
26	49	●	R1404727-006
27	50	●	R1404734-001
28	51	●	R1404751-001
29	52	●	R1404751-002
30	53	●	R1404751-003
31	54	●	R1404751-004
32	8	○	CCV
33	1	○	CCB
34	55	●	R1404816-001
35	56	●	R1404816-002
36	57	●	R1404816-003
37	58	●	R1404816-004
38	2	○	MRL
39	8	○	CCV
40	1	○	CCB
41	59	●	SAMPLE

6/24/14

Perkin Elmer FIMS Run Log

Serial number: 101S12110203

Analyst: CJW

Data File: Jun-25W

Date Prepped: 6/25/14

Date Analyzed: 6/25/14

Lot #: Calibration/CRDL Source Standard: M52806305

ICV/CCV/LCS/MS Source Standard: M52600302

Cal/ CRDL 10ppm stock: M6810558A

ICV/CCV/LCS/MS 10ppm stock: M6810058A

Cal/ CRDL 0.1ppm stock: M6810058D

ICV/CCV/LCS/MS 0.1 ppm stock: M6810058D

1	1		Calib Blank
2	2		0.2ppb std
3	3		0.5ppb std
4	4		1.0ppb std
5	5		2.0ppb std
6	6		5.0ppb std
7	7		10.0ppb std
8	8		ICV
9	1		ICB
10	2		MRL
11	8		CCV
12	1		CCB
13	38		PBW-211703
14	39		LCSW
15	40		R1404619-001
16	41		R1404619-001D
17	42		R1404619-001S
18	43		R1404622-001
19	44		R1404726-001
20	45		R1404746-001
21	8		CCV
22	1		CCB
23	46		R1404746-002
24	47		R1404746-003
25	48		R1404777-003
26	49		R1404777-004
27	50		R1404857-001
28	51		R1404857-002
29	52		R1404857-003
30	53		R1404857-003D
31	54		R1404857-003S
32	2		MRL
33	8		CCV
34	1		CCB
35	55		SAMPLE

CJW

6/26/14

R1404619-002

R1404619-002 167

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

MP 1/29

00126

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030535.D PERC0129.M Wed Jan 29 13:54:02 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 29 13:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.84	89	182264	1.00 ug/L	0.00
Target Compounds					Qvalue
2) Perchlorate	7.84	83	195969	0.99 ug/L	100
3) #2 perc ion	7.84	85	64118	0.96 ug/L	100

Ratio
3.06

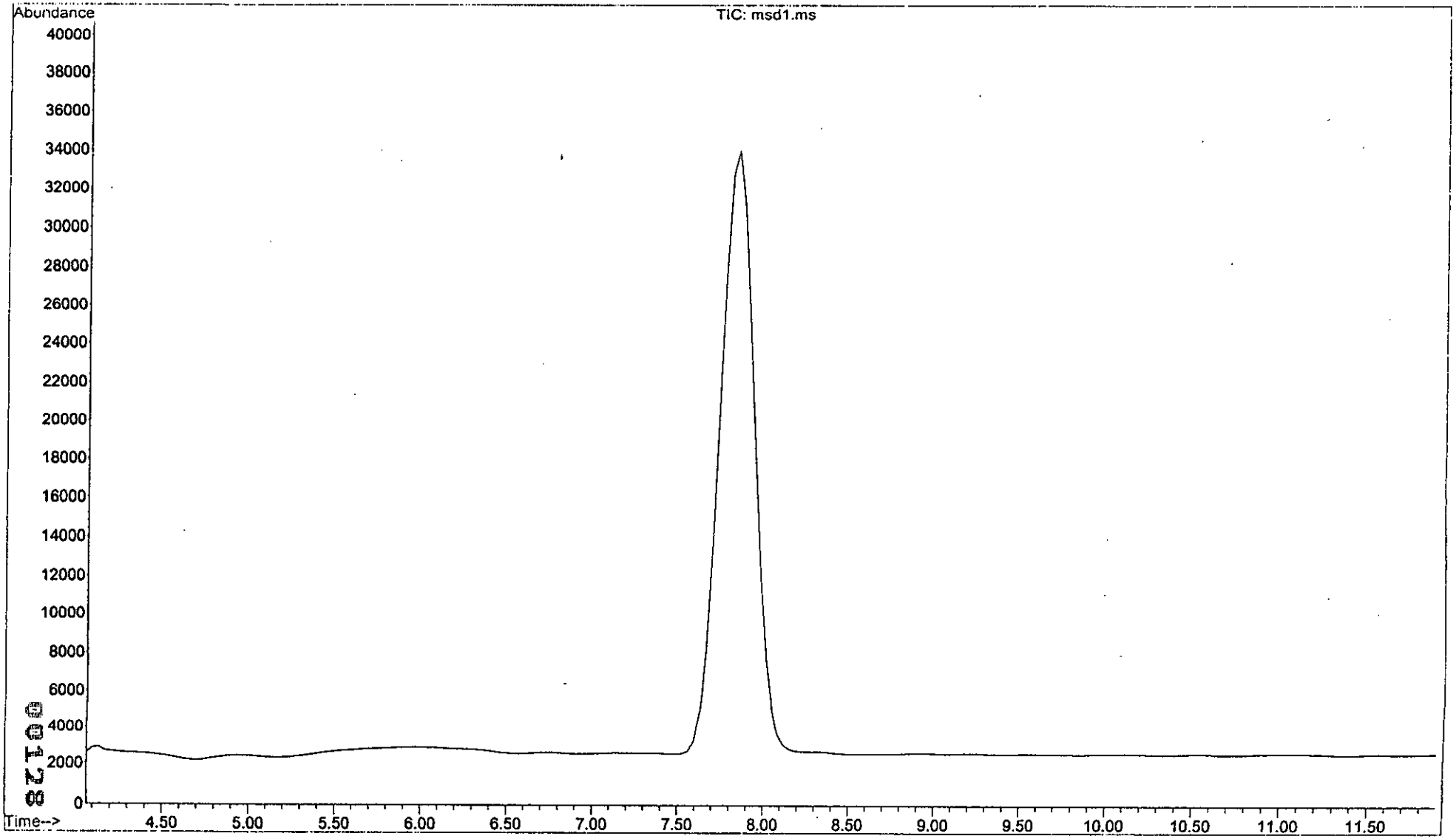
mf 1/29

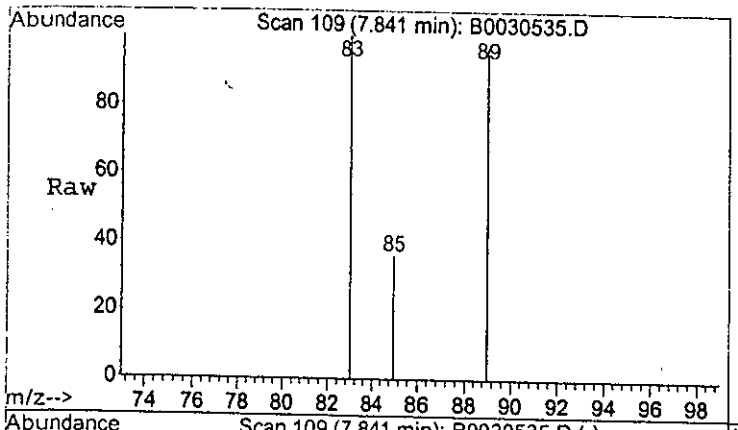
00127

(#) = qualifier out of range (m) = manual integration
B0030535.D PERC0129.M Wed Jan 29 13:54:06 2014

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 29 13:53 2014 Quant Results File: PERC0129.RES

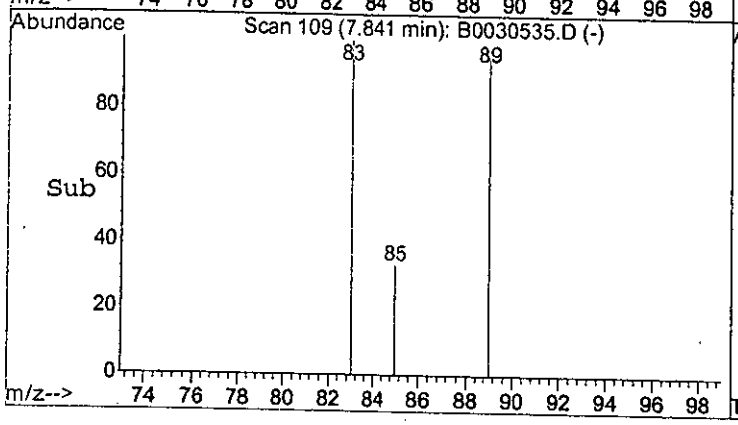
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Initial Calibration

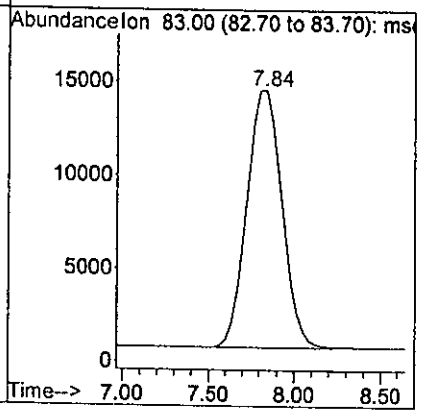


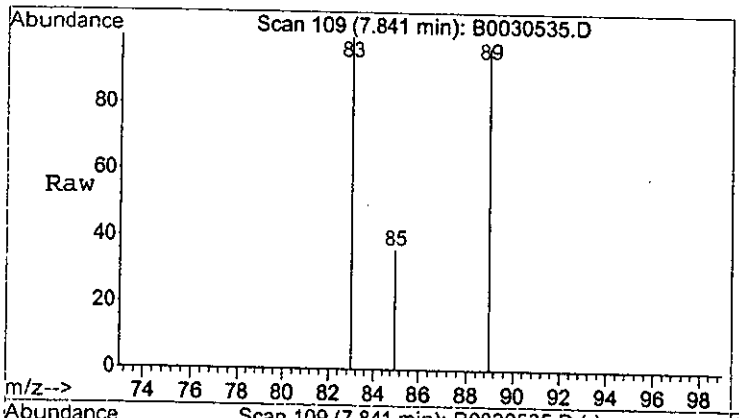


#2
Perchlorate
Concen: 0.99 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.04 min
Lab File: B0030535.D
Acq: 29 Jan 2014 10:56 am

Tgt Ion: 83 Resp: 195969

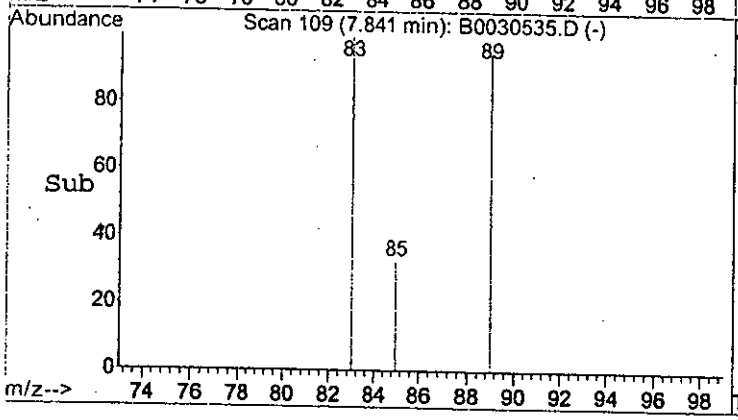


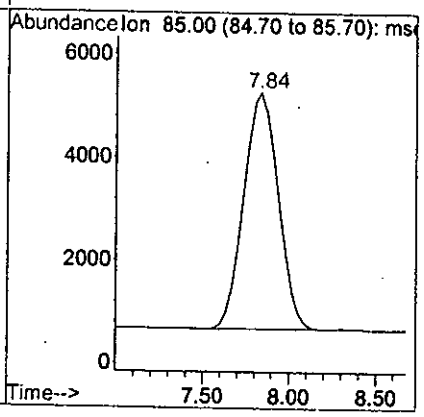




#3
#2 perc ion
Concen: 0.96 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.01 min
Lab File: B0030535.D
Acq: 29 Jan 2014 10:56 am

Tgt Ion: 85 Resp: 64118





00129

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031525.D Vial: 6
Acq On : 23 Jun 2014 8:40 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	108	0.00
2	Perchlorate	1.085	1.097	-1.1	103	0.00
3	#2 perc ion	0.366	0.327	10.7	95	0.00

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031525.D Vial: 6
Acq On : 23 Jun 2014 8:40 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.84	89	218007	1.00 ug/L	0.00

Target Compounds					Qvalue
2) Perchlorate	7.80	83	239102	1.01 ug/L	100
3) #2 perc ion	7.84	85	71357	0.89 ug/L	100

Ratio
3.35

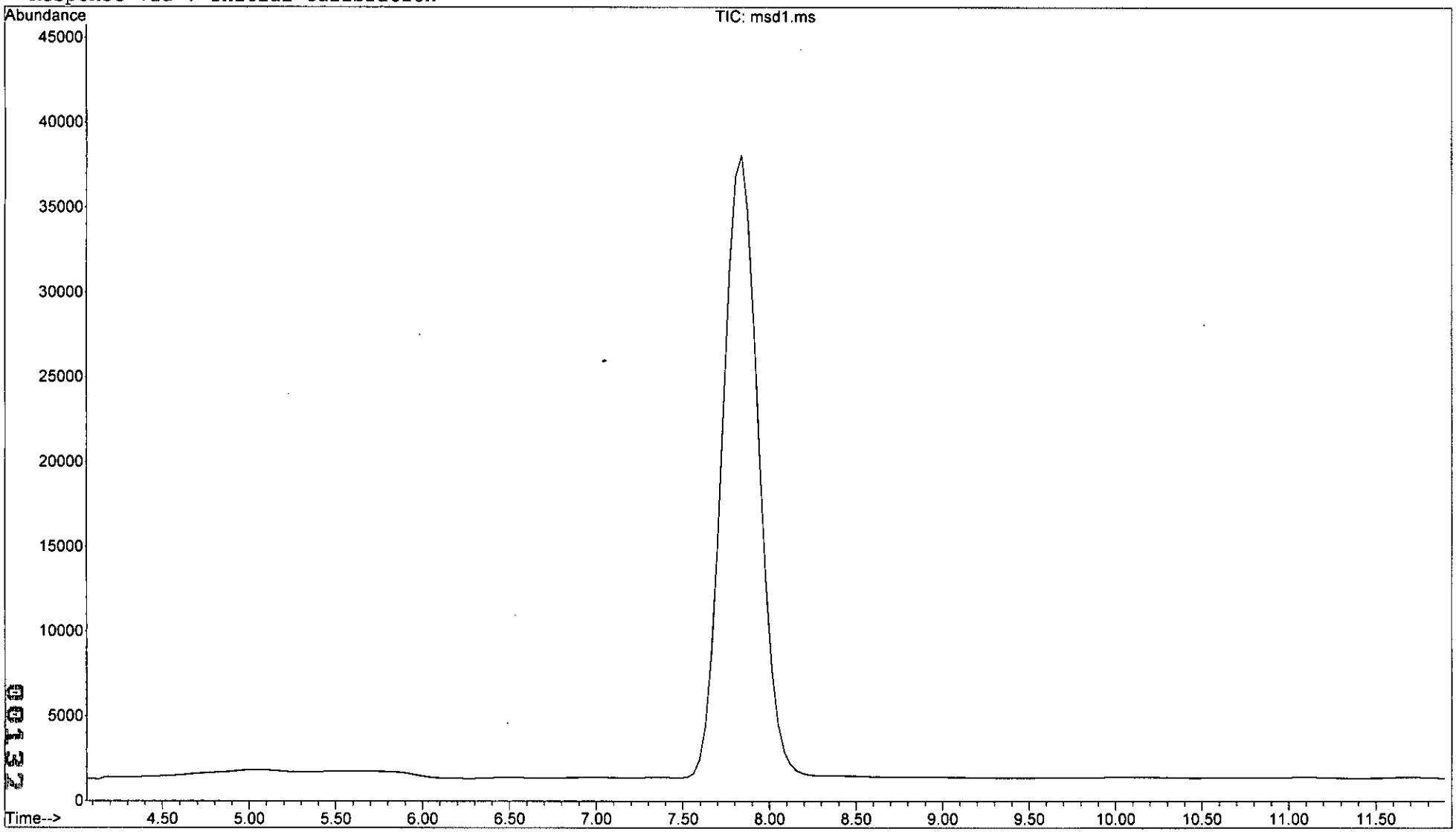
BA 6/24

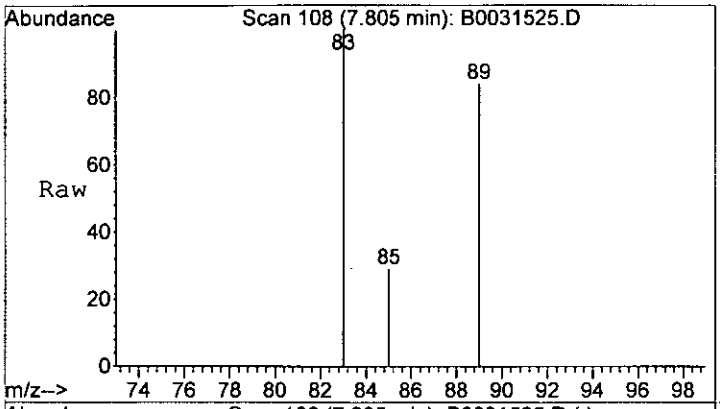
(#) = qualifier out of range (m) = manual integration
B0031525.D PERC0129.M Tue Jun 24 08:44:45 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031525.D Vial: 6
Acq On : 23 Jun 2014 8:40 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

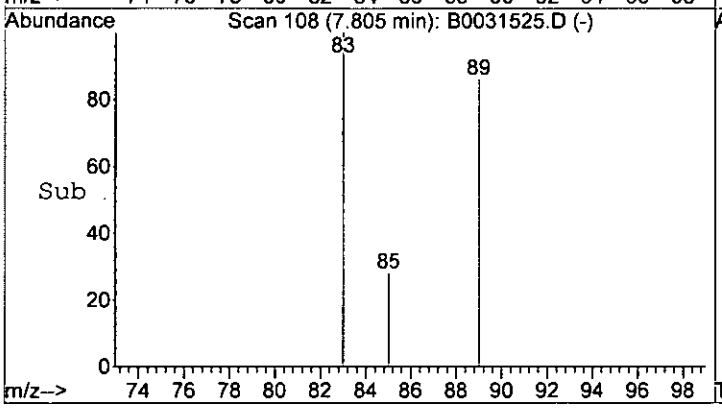
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

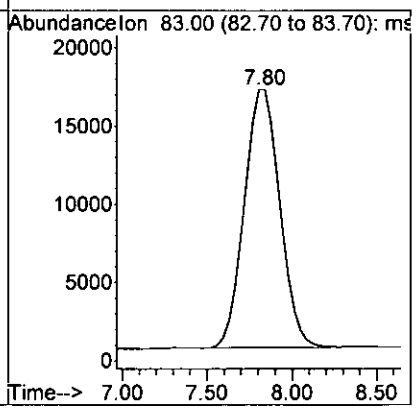


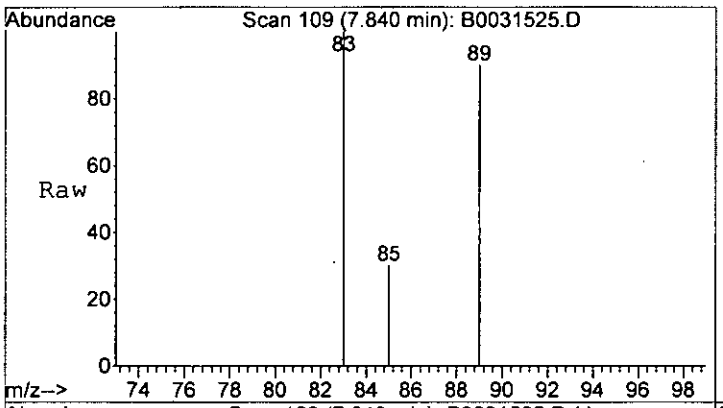


#2
Perchlorate
Concen: 1.01 ug/L
RT: 7.80 min Scan# 108
Delta R.T. -0.00 min
Lab File: B0031525.D
Acq: 23 Jun 2014 8:40 am

Tgt Ion: 83 Resp: 239102

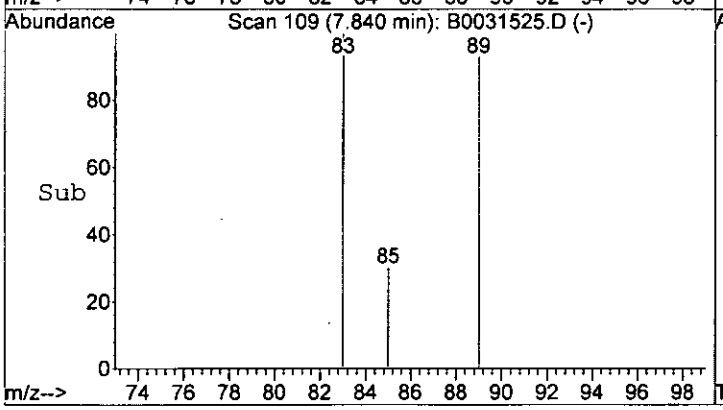


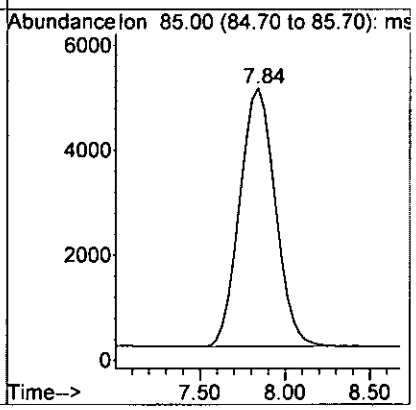




#3
#2 perc ion
Concen: 0.89 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.00 min
Lab File: B0031525.D
Acq: 23 Jun 2014 8:40 am

Tgt Ion: 85 Resp: 71357





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031536.D Vial: 6
Acq On : 23 Jun 2014 11:07 am Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	103	0.04
2	Perchlorate	1.085	1.106	-1.9	98	0.04
3	#2 perc ion	0.366	0.338	7.7	93	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031536.D PERC0129.M Tue Jun 24 08:50:28 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031536.D Vial: 6
Acq On : 23 Jun 2014 11:07 am Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) O18LP	7.88	89	206661	1.00	ug/L	0.04
Target Compounds						Qvalue
2) Perchlorate	7.84	83	228662	1.02	ug/L	100
3) #2 perc ion	7.88	85	69944	0.93	ug/L	100

Ratio
3.27

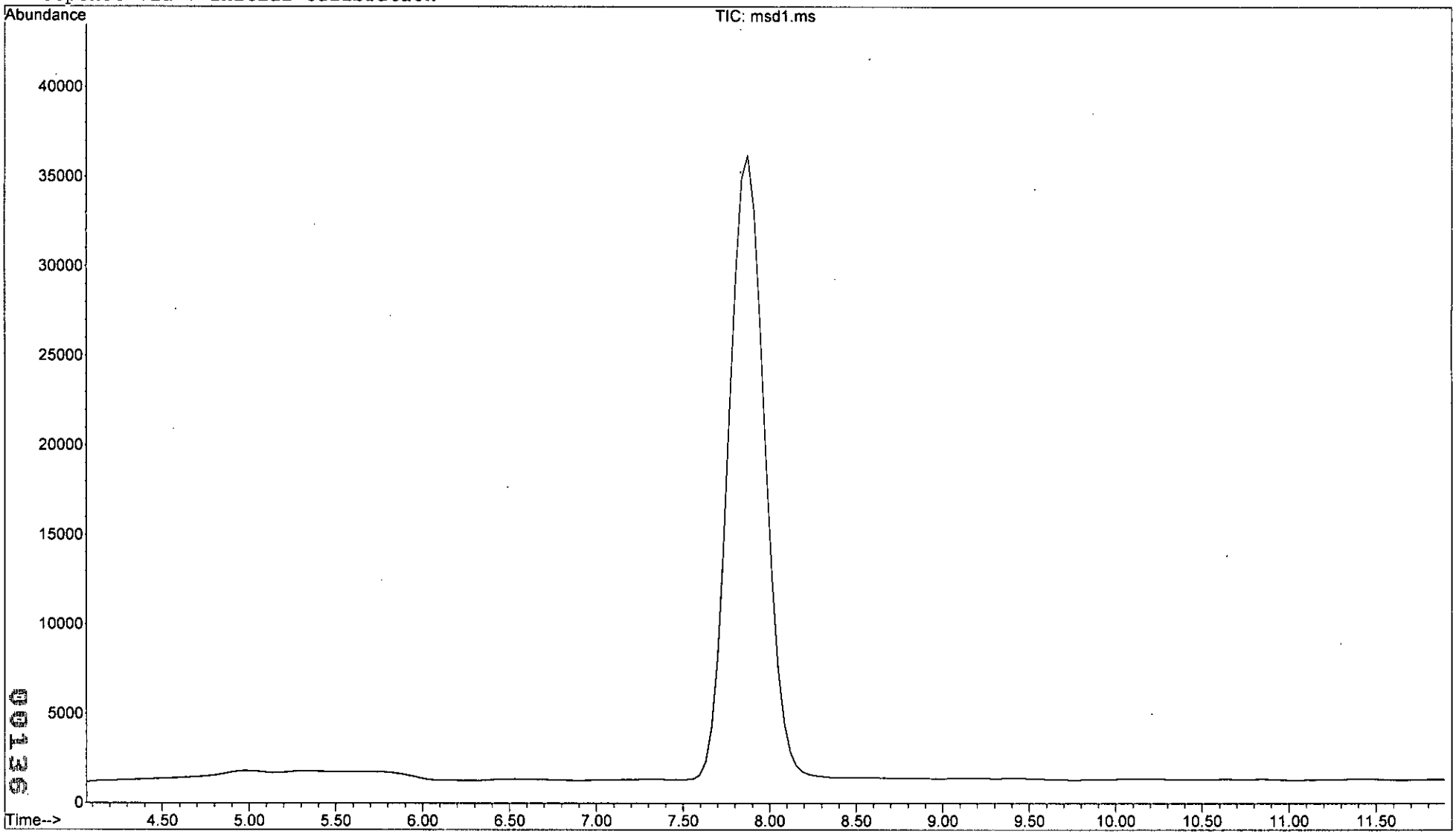
BA6/24

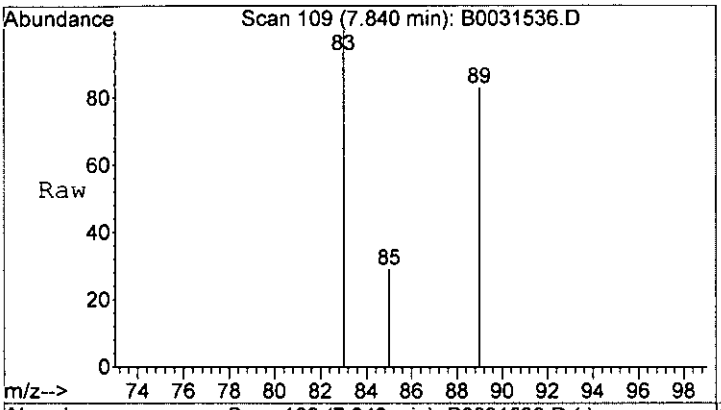
(#) = qualifier out of range (m) = manual integration
B0031536.D PERC0129.M Tue Jun 24 08:50:10 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031536.D Vial: 6
Acq On : 23 Jun 2014 11:07 am Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

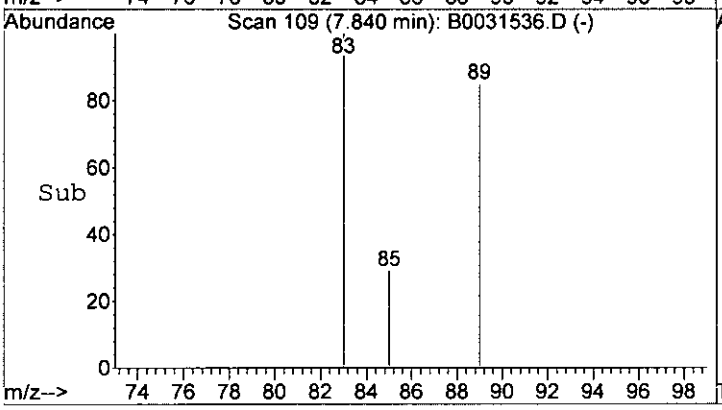
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

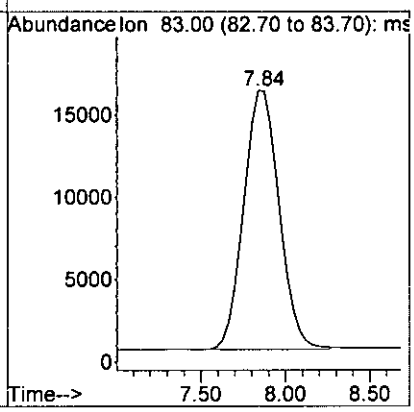


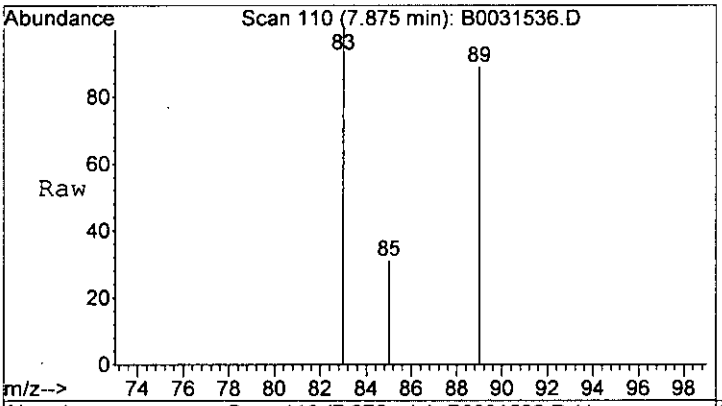


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.04 min
Lab File: B0031536.D
Acq: 23 Jun 2014 11:07 am

Tgt Ion: 83 Resp: 228662

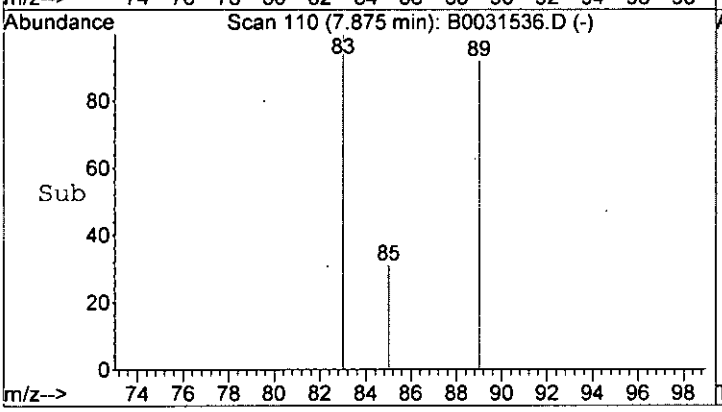


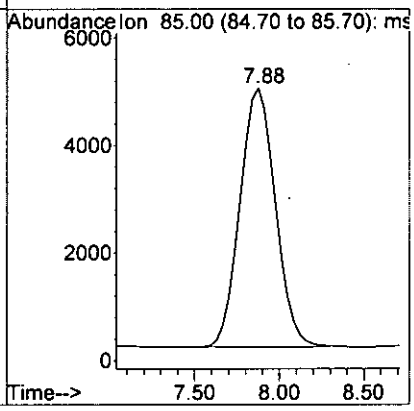




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.88 min Scan# 110
Delta R.T. 0.04 min
Lab File: B0031536.D
Acq: 23 Jun 2014 11:07 am

Tgt Ion: 85 Resp: 69944





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031543.D Vial: 6
Acq On : 23 Jun 2014 12:41 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	102	0.03
2	Perchlorate	1.085	1.126	-3.8	99	0.03
3	#2 perc ion	0.366	0.344	6.0	94	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031543.D PERC0129.M Tue Jun 24 09:04:01 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031543.D Vial: 6
Acq On : 23 Jun 2014 12:41 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) O18LP	7.87	89	204834	1.00	ug/L	0.03

Target Compounds						Qvalue
2) Perchlorate	7.84	83	230613	1.04	ug/L	100
3) #2 perc ion	7.87	85	70477	0.94	ug/L	100

Ratio
3.27

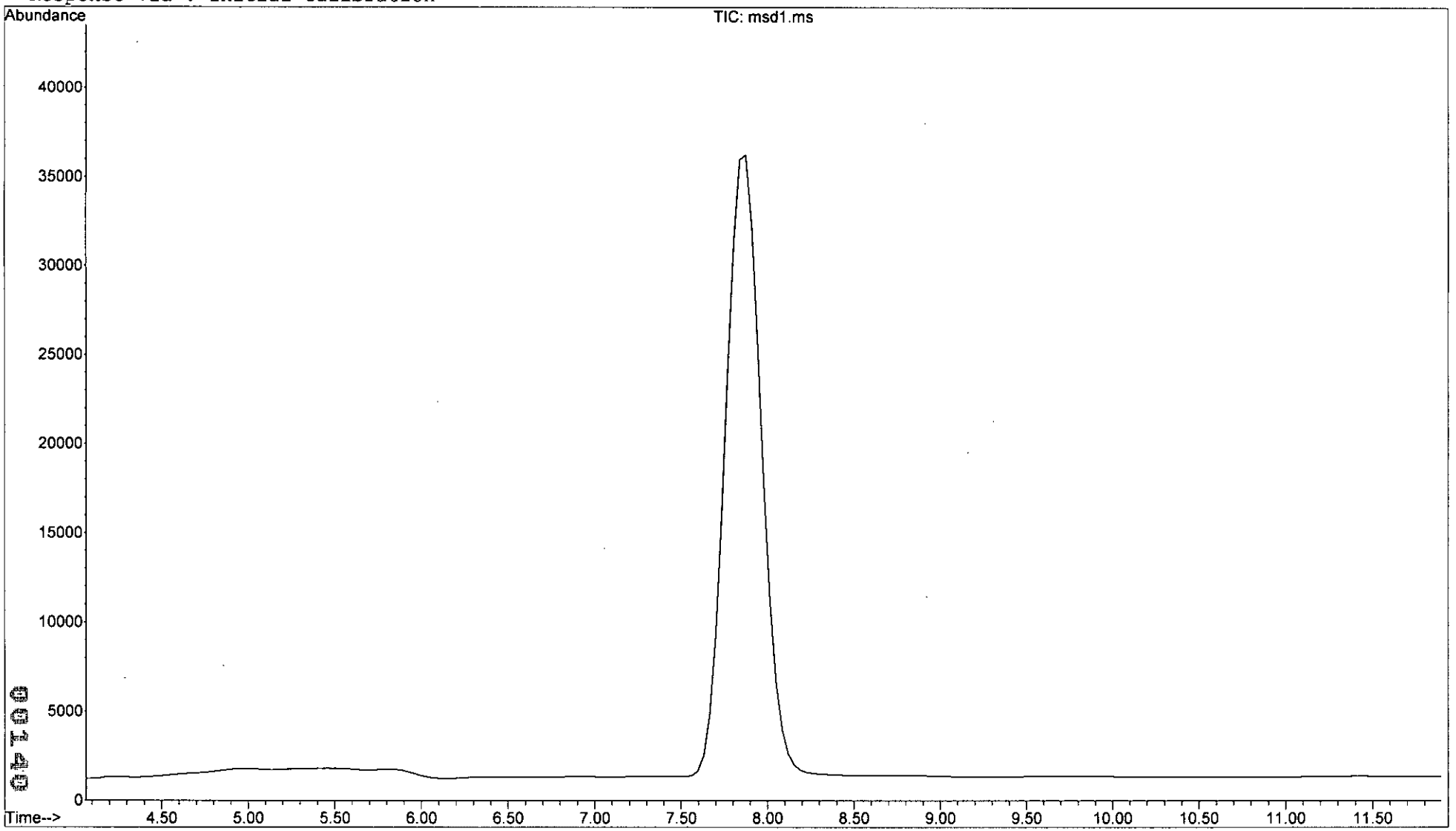
BA6/24

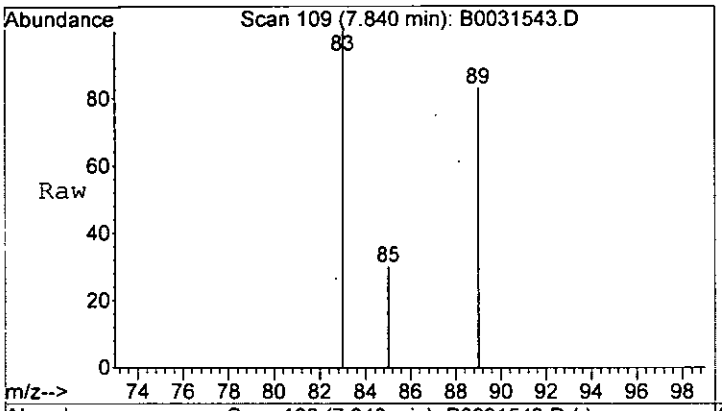
(#) = qualifier out of range (m) = manual integration
B0031543.D PERC0129.M Tue Jun 24 09:03:47 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031543.D Vial: 6
Acq On : 23 Jun 2014 12:41 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 24 8:44 2014 Quant Results File: PERC0129.RES

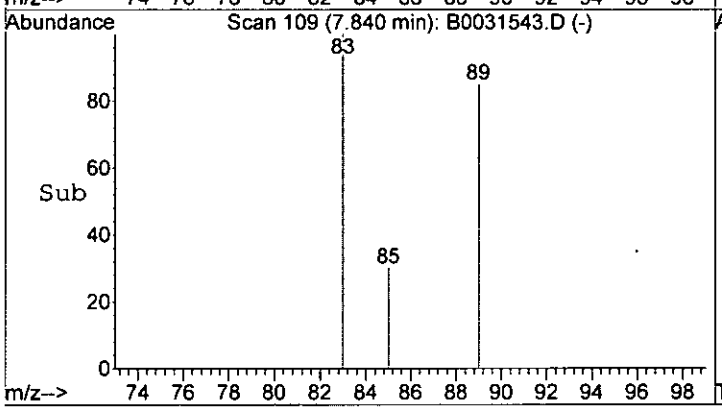
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

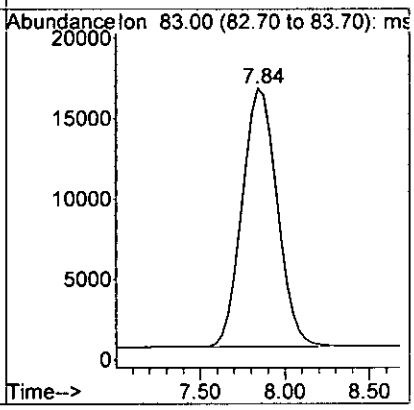


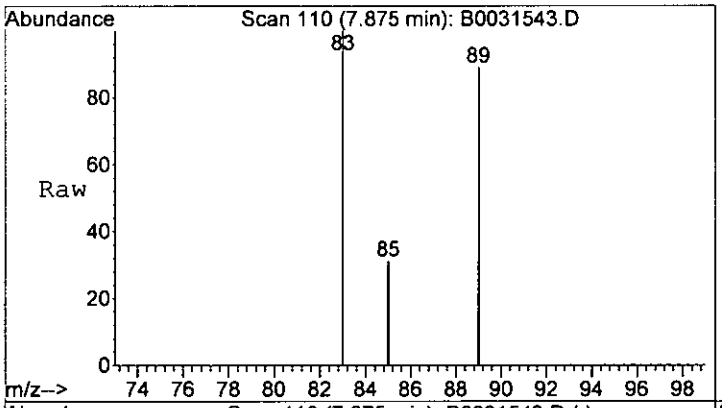


#2
Perchlorate
Concen: 1.04 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.03 min
Lab File: B0031543.D
Acq: 23 Jun 2014 12:41 pm

Tgt Ion: 83 Resp: 230613

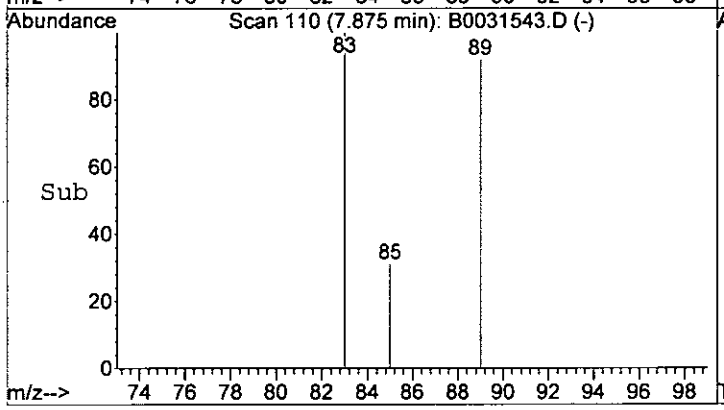


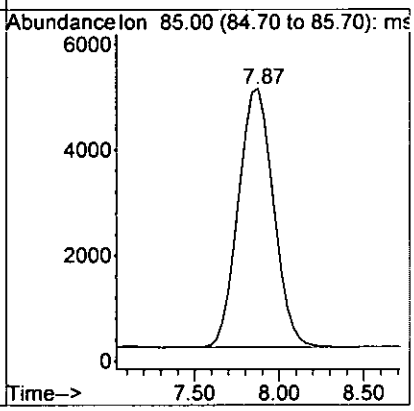




#3
#2 perc ion
Concen: 0.94 ug/L
RT: 7.87 min Scan# 110
Delta R.T. 0.04 min
Lab File: B0031543.D
Acq: 23 Jun 2014 12:41 pm

Tgt Ion: 85 Resp: 70477





Target Compound Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031546.D Vial: 6
Acq On : 24 Jun 2014 4:17 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	102	0.11
2	Perchlorate	1.085	1.136	-4.7	101	0.11
3	#2 perc ion	0.366	0.344	6.0	94	0.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031546.D PERC0129.M Wed Jun 25 10:51:19 2014

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031546.D Vial: 6
Acq On : 24 Jun 2014 4:17 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.95	89	206234	1.00 ug/L	0.11

Target Compounds					Qvalue
2) Perchlorate	7.91	83	234277	1.05 ug/L	100
3) #2 perc ion	7.95	85	70996	0.94 ug/L	100

Ratio
3.30

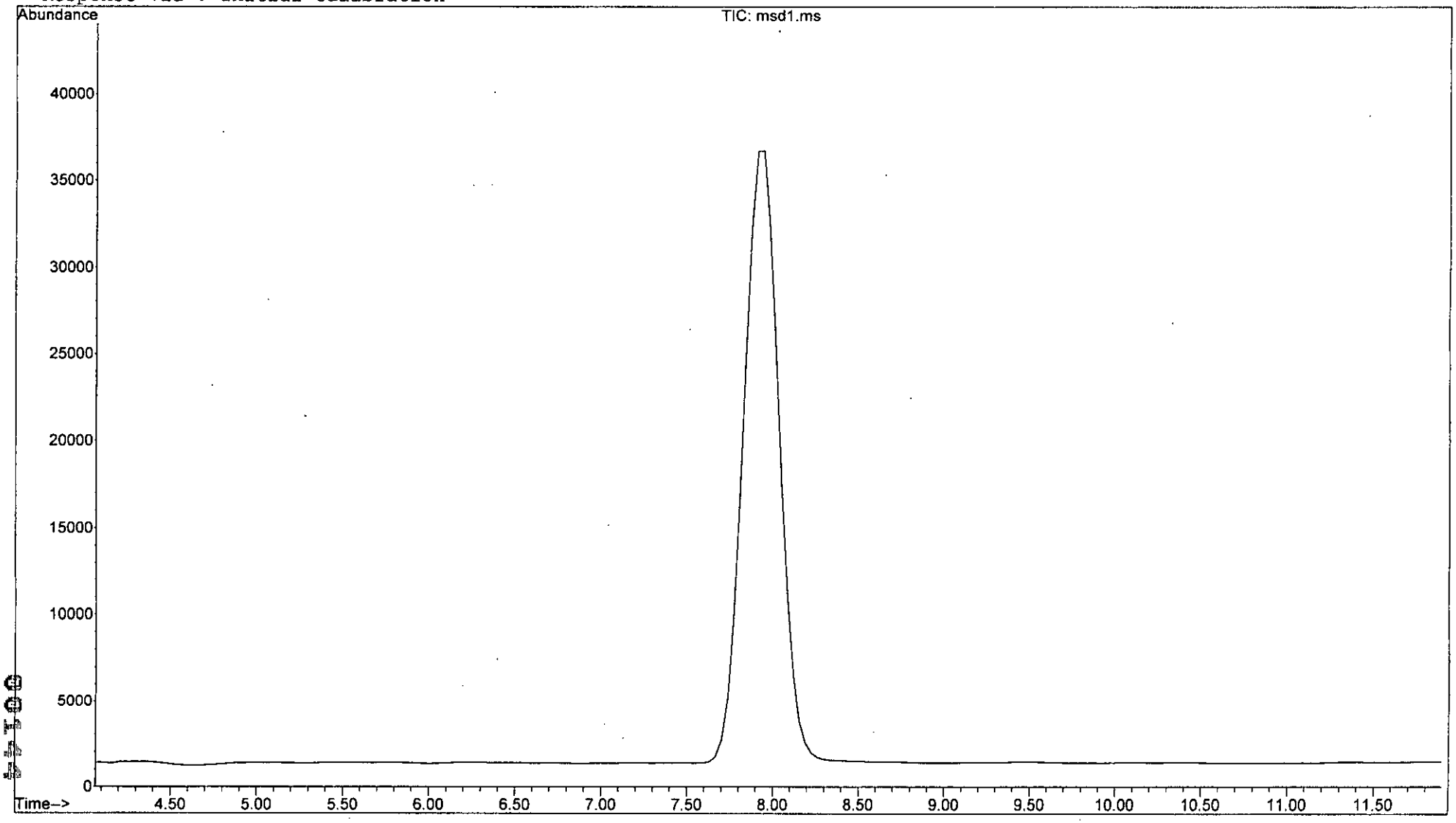
BA 6/24

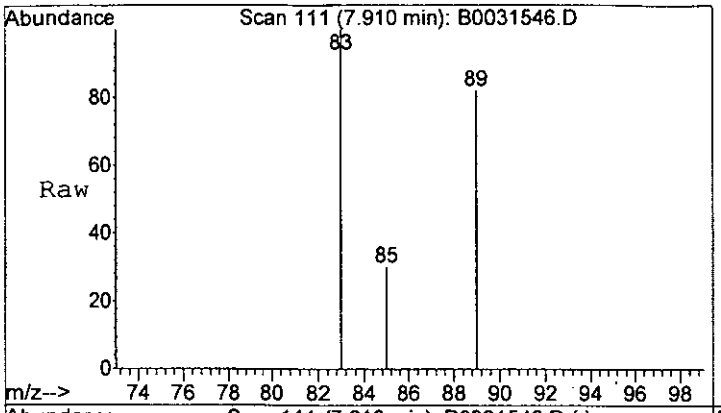
(#) = qualifier out of range (m) = manual integration
B0031546.D PERC0129.M Wed Jun 25 10:51:02 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031546.D Vial: 6
Acq On : 24 Jun 2014 4:17 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

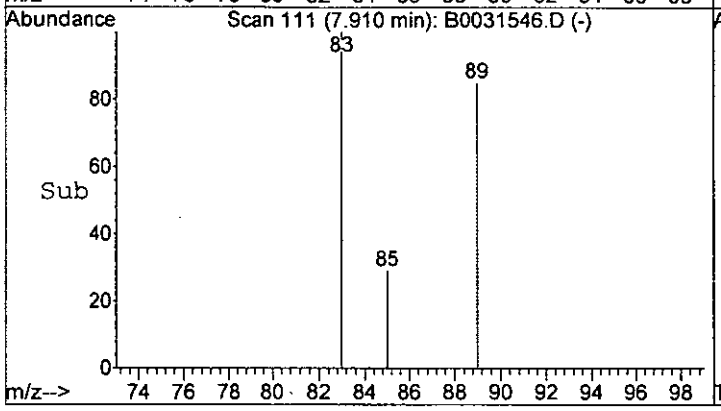
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

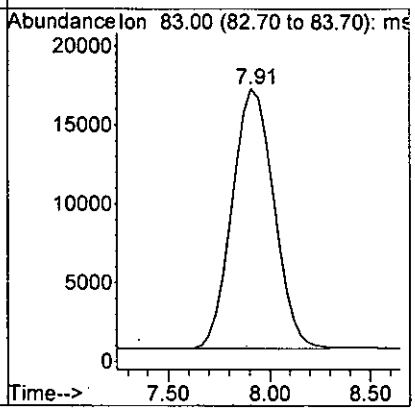


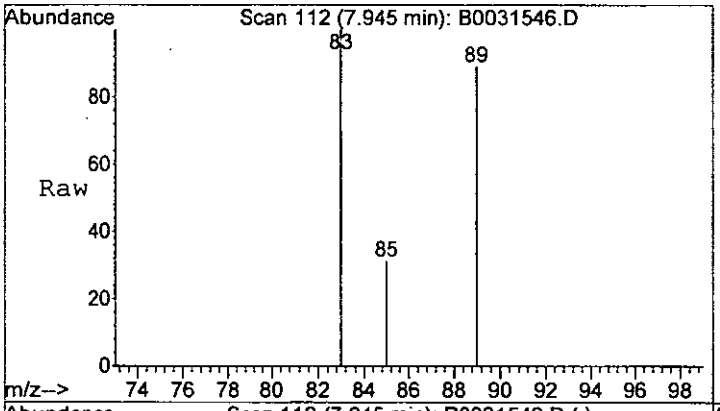


#2
Perchlorate
Concen: 1.05 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.11 min
Lab File: B0031546.D
Acq: 24 Jun 2014 4:17 pm

Tgt Ion: 83 Resp: 234277

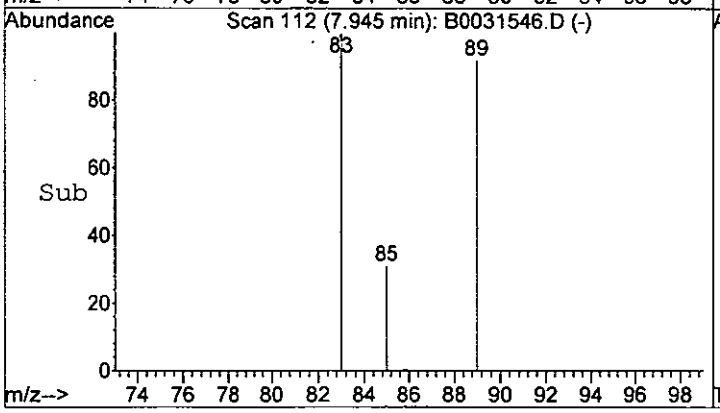


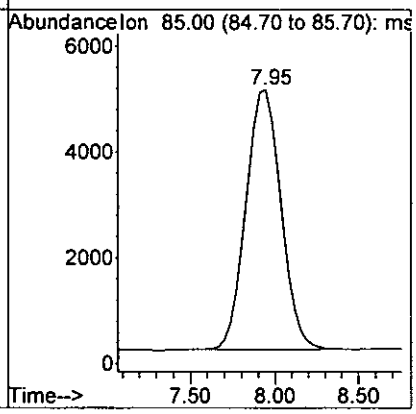




#3
#2 perc ion
Concen: 0.94 ug/L
RT: 7.95 min Scan# 112
Delta R.T. 0.11 min
Lab File: B0031546.D
Acq: 24 Jun 2014 4:17 pm

Tgt Ion: 85 Resp: 70996





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031557.D Vial: 6
Acq On : 24 Jun 2014 6:44 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	101	0.10
2	Perchlorate	1.085	1.085	0.0	95	0:14
3	#2 perc ion	0.366	0.337	7.9	91	0.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031557.D PERC0129.M Wed Jun 25 10:58:40 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031557.D Vial: 6
Acq On : 24 Jun 2014 6:44 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	204169	1.00 ug/L	0.10
Target Compounds					Qvalue
2) Perchlorate	7.94	83	221542	1.00 ug/L	100
3) #2 perc ion	7.94	85	68729	0.92 ug/L	100

Ratio
3.22

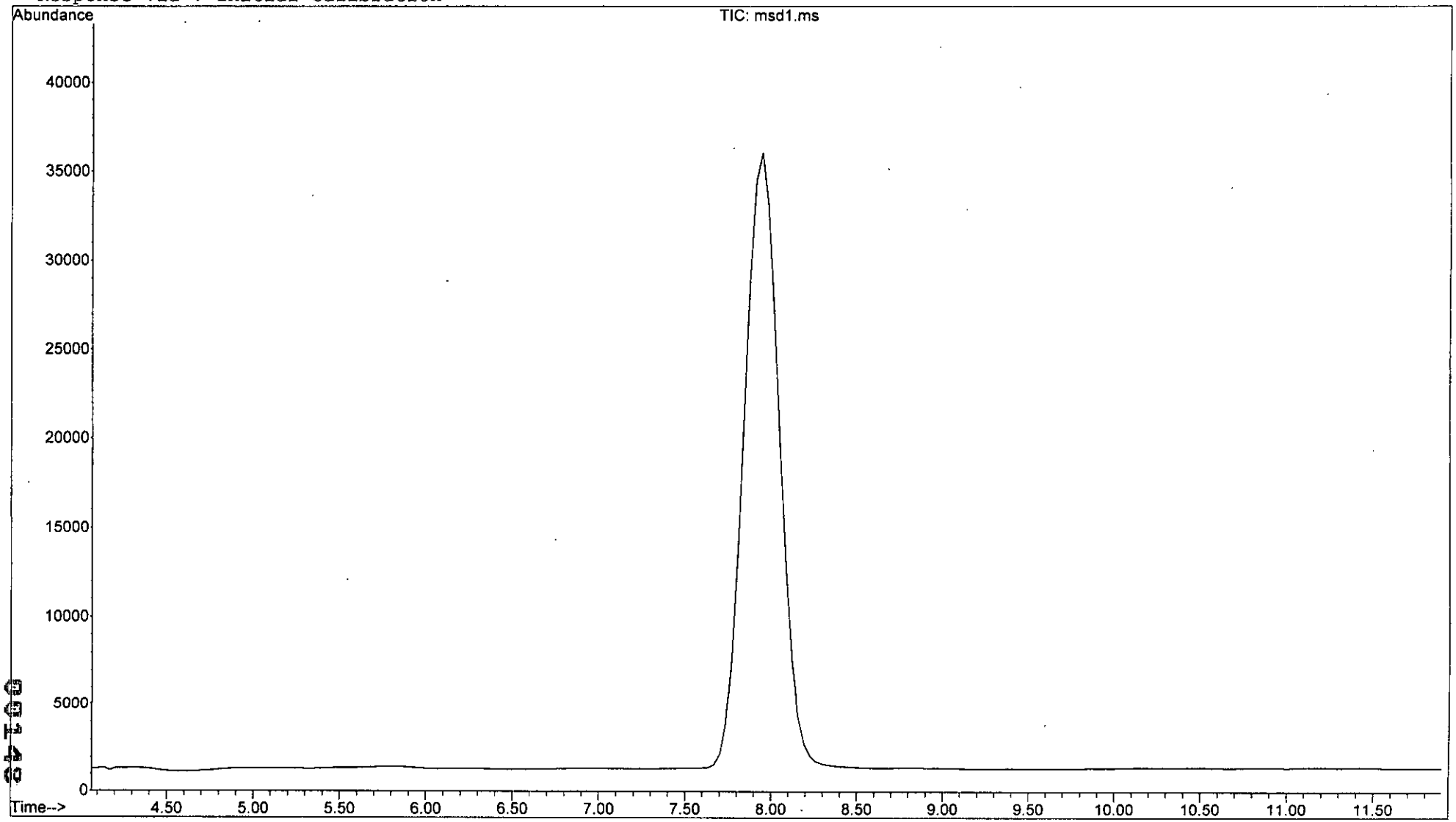
BA6/25

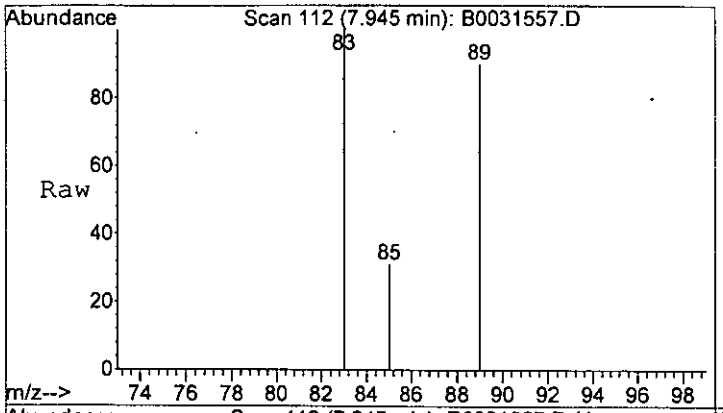
(#) = qualifier out of range (m) = manual integration
B0031557.D PERC0129.M Wed Jun 25 10:58:27 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031557.D Vial: 6
Acq On : 24 Jun 2014 6:44 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

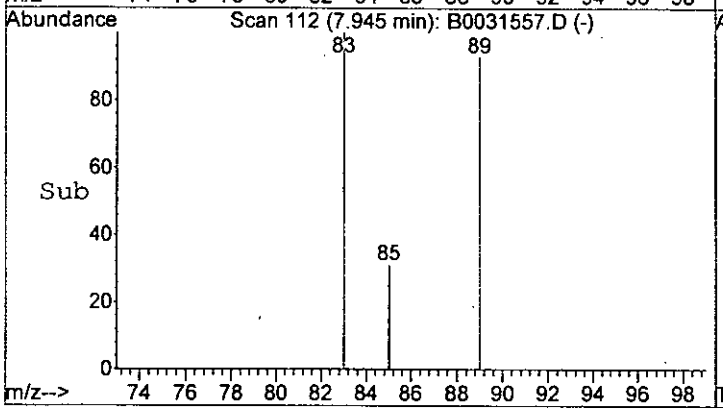
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

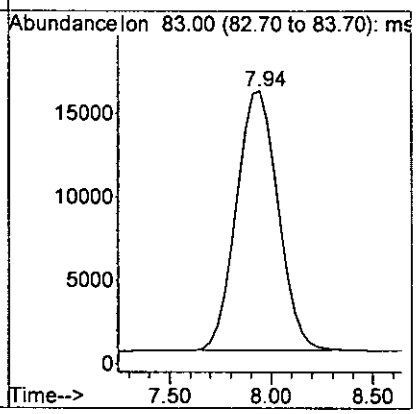


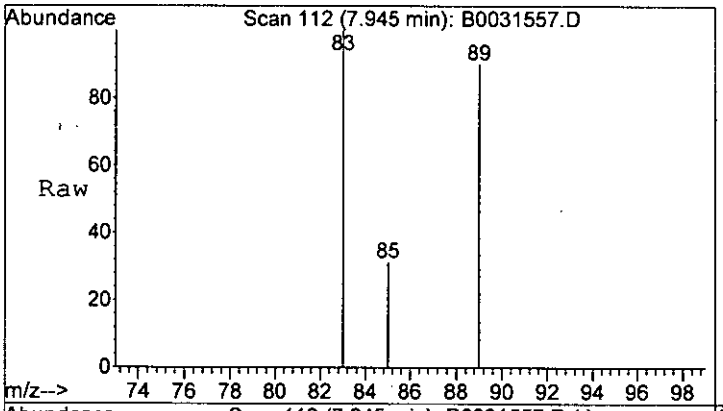


#2
Perchlorate
Concen: 1.00 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.14 min
Lab File: B0031557.D
Acq: 24 Jun 2014 6:44 pm

Tgt Ion: 83 Resp: 221542

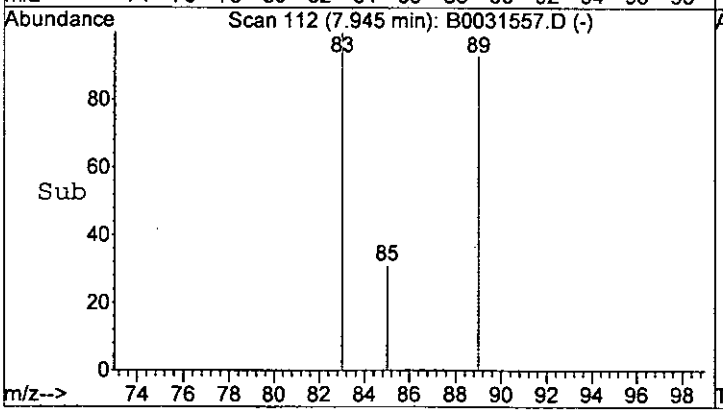


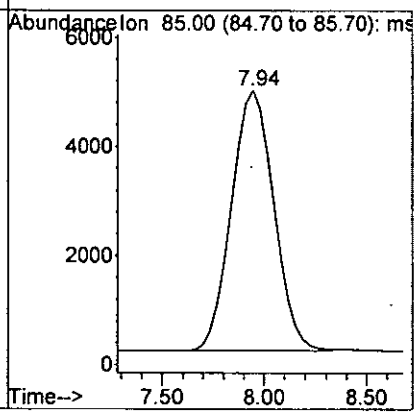




#3
#2 perc ion
Concen: 0.92 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.11 min
Lab File: B0031557.D
Acq: 24 Jun 2014 6:44 pm

Tgt Ion: 85 Resp: 68729





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031565.D Vial: 6
Acq On : 24 Jun 2014 8:32 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	100	0.14
2	Perchlorate	1.085	1.094	-0.8	94	0.14
3	#2 perc ion	0.366	0.338	7.7	90	0.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031565.D PERC0129.M Wed Jun 25 11:03:57 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031565.D Vial: 6
Acq On : 24 Jun 2014 8:32 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.98	89	200421	1.00 ug/L	0.14
Target Compounds					Qvalue
2) Perchlorate	7.94	83	219181	1.01 ug/L	100
3) #2 perc ion	7.94	85	67790	0.92 ug/L	100

Ratio
3.23

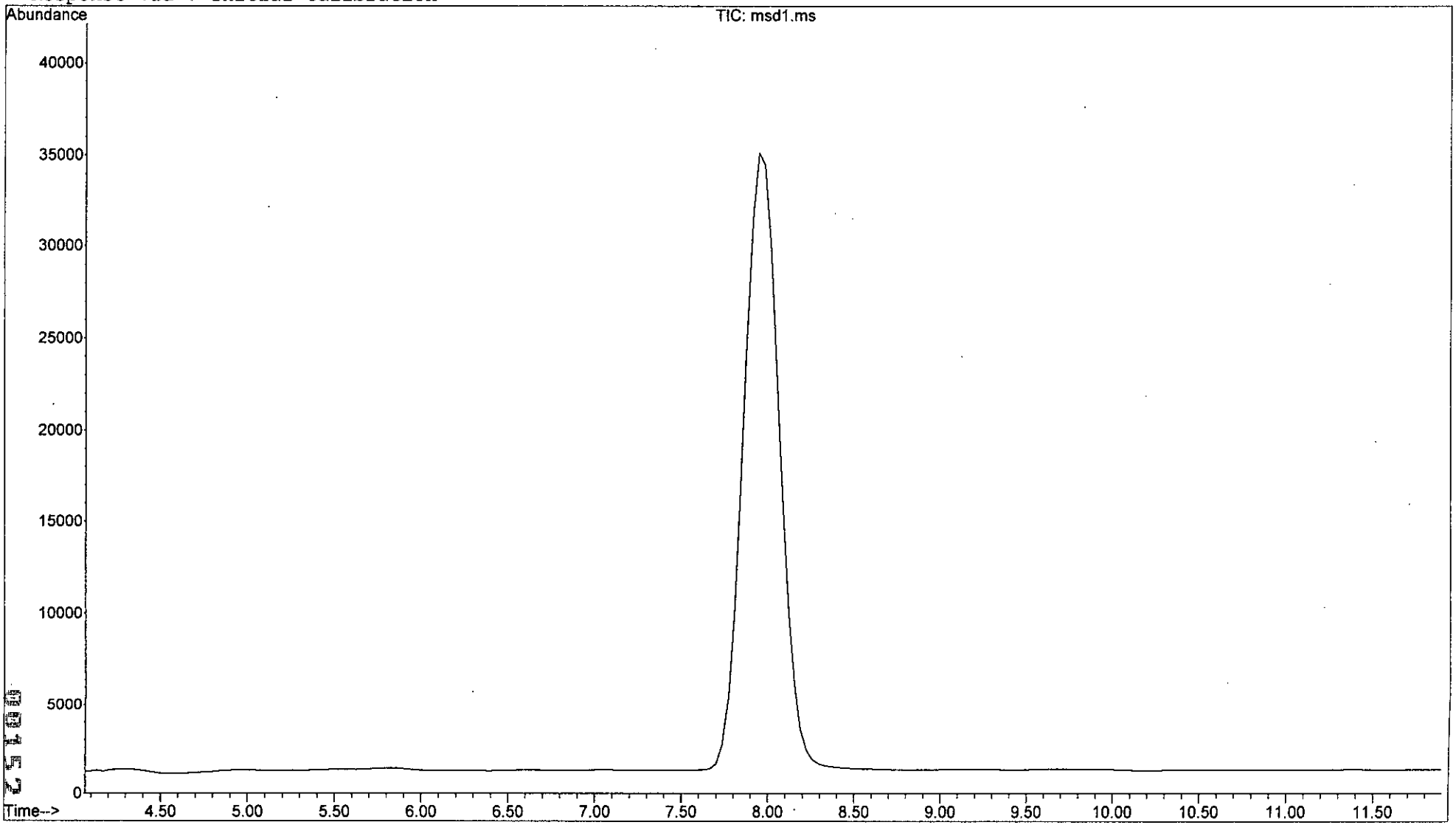
BA 6/25

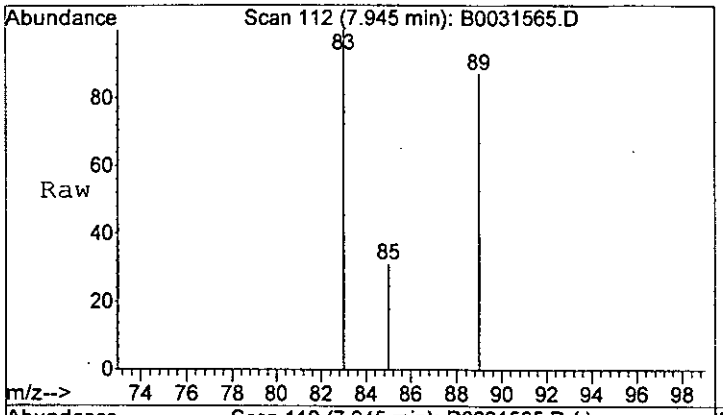
(#) = qualifier out of range (m) = manual integration
B0031565.D PERC0129.M Wed Jun 25 11:03:44 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\062414\B0031565.D Vial: 6
Acq On : 24 Jun 2014 8:32 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 25 10:45 2014 Quant Results File: PERC0129.RES

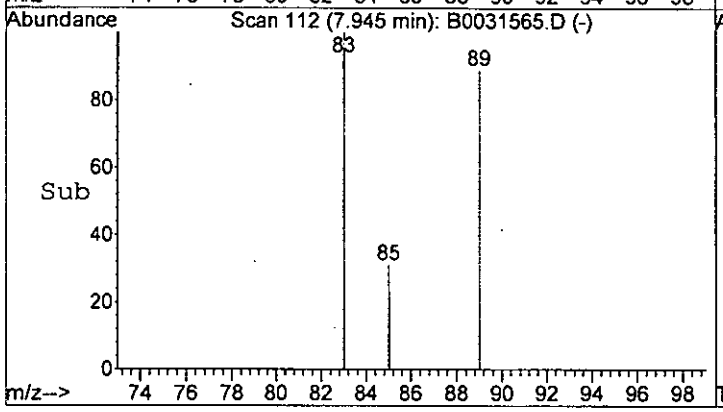
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

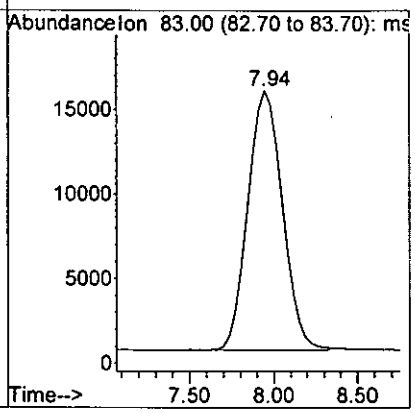


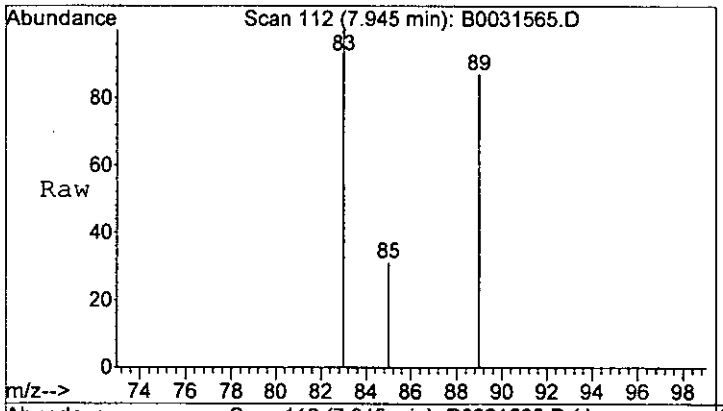


#2
Perchlorate
Concen: 1.01 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.14 min
Lab File: B0031565.D
Acq: 24 Jun 2014 8:32 pm

Tgt Ion: 83 Resp: 219181

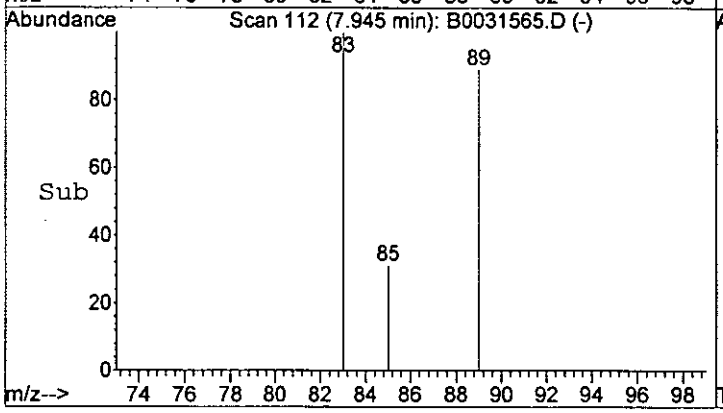


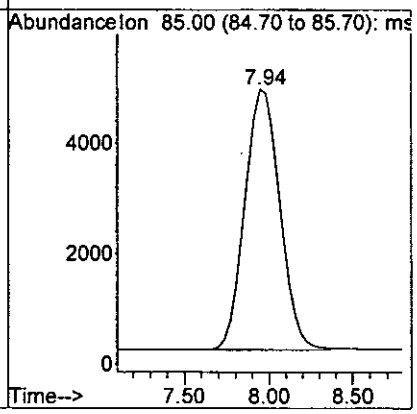




#3
#2 perc ion
Concen: 0.92 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.11 min
Lab File: B0031565.D
Acq: 24 Jun 2014 8:32 pm

Tgt Ion: 85 Resp: 67790





Preparation Information Benchsheet

Prep Run#: 211378 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 6/23/14 07:15 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407014-01	MB		10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1407014-02	LCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
3	RQ1407014-03	DLCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1407014-04	LODV		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 1.0000 uL/71223	
5	RQ1407014-05	ICS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
6	R1404658-015	MRC-MW-60A-061114	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
7	R1404658-016	MRC-MW-60B-061114	.03	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
8	R1404658-019	MRC-MW-90B-060914	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
9	R1404589-005	1406130724 200-SB-8	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
10	R1404589-010	1406141654 200-SB-6	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
11	R1404589-015	1406151114 200-SB-5	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
12	R1404622-004	1406161344 200-SB-13	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
13	RQ1407014-06	R1404622-004 MS	.01	10mL	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
14	RQ1407014-07	R1404622-004 DMS	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
15	R1404561-001	1406130857A 100-E-261	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
16	RQ1407014-08	LCS		10mL	6850/ClO4				10.00mL		2.0000 uL/71223; 10.0000 uL/68807	
17	RQ1407014-09	DLCS		10mL	6850/ClO4				10.00mL		2.0000 uL/71223; 10.0000 uL/68807	
18	R1404707-003	6850 W LODV	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	

Spiking Solutions

Name: O18 isotopic labeled perchlorate Inventory ID 68807 Logbook Ref: Expires On: 01/31/2016 Lot #: 122313

Name: Perchlorate 1000 ppb CLO4 Inventory ID 71223 Logbook Ref: Expires On: 11/30/2014

Preparation Materials

Water (71353)

interference check standard for perchlorate (63899)

Preparation Steps

Step: Extraction
Started: 6/23/14 07:15
Finished: 6/23/14 07:50
By: BALLGEIER
Comments

Preparation Information Benchsheet

Prep Run#: 211378
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 07:15 AM

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: LPRUNOSKE Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 211546
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 02:15 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407129-01	MB		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1407129-04	LODV		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 1.0000 uL/71223	
3	RQ1407129-02	LCS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1407129-03	DLCS		1.0g	6850/ClO4				10.00mL		2.0000 uL/71223; 10.0000 uL/68807	
5	RQ1407129-05	ICS		1.0g	6850/ClO4				10.00mL		2.0000 uL/71223; 10.0000 uL/68807	
6	R1404589-018	1406130803 200-SB-8 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
7	R1404589-019	1406130813 200-SB-8 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
8	R1404589-020	1406130943 200-SB-8 28/30'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
9	R1404589-021	1406131303 200-SB-8 43/45'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
10	R1404589-022	1406141703 200-SB-6 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
11	R1404589-023	1406151128 200-SB-5 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
12	R1404589-024	1406151144 200-SB-5 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
13	R1404622-005	1406161403 200-SB-13 8/10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
14	R1404622-006	1406161546 200-SB-28 30/32'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
15	RQ1407129-06	R1404622-006 MS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
16	RQ1407129-07	R1404622-006 DMS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
17	R1404707-004	6850 S LODV	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	

Spiking Solutions

Name:	O18 isotopic labeled perchlorate	Inventory ID	68807	Logbook Ref:		Expires On:	01/31/2016	Lot #:	122313
Name:	Perchlorate 1000 ppb CLO4	Inventory ID	71223	Logbook Ref:		Expires On:	11/30/2014		

Preparation Materials

Water	(71353)	interference check standard for perchlorate	(63899)	Sand Reagent Grade	SVOA (71055)

Preparation Information Benchsheet

Prep Run#: 211546
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/24/14 02:15 PM

Preparation Steps

Step: Extraction
Started: 6/24/14 14:15
Finished: 6/24/14 16:00
By: BALLGEIER
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: SGOLBERG Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analysis: 6850. Perc Analyst: BA Run Method: Perc.dadz
Date: 6/23/14 Instr. HPLC-02 Quant Method: Perc.0128
LIMS Run#: 398569
Setup: Column: K'Prime #2011 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 H2O/MeCN 0.1% HCOOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BUL			B0031523	—	
	ION/MASSCCU			24	YT	
	CCU 1.00PPB		70263	25	YC	
	RQ1407014-01			26	Y	
	-04			27	Y	
	-02			28	Y	
	-03			29	Y	
	-05			30	Y	
	R1404658-015			31	Y	
	-016			32	Y	
	-019			33	Y	
	R1404589-005			34	Y	
	-010			35	Y	
	CCU 1.00PPB		70263	36	YC	
	-015			37	Y	
	R1404561-001			38	Y	
	4622-004			39	Y	
	RQ1407014-06			40	Y	
	-07			41	Y	
	-04			42	Y	
	CCU 1.00PPB		70263	43	YC	
	$\bar{x}$ = 191901					
	high = 387852					
	Low = 95957					
	BA 6/24/14					

All samples = _____mL + _____uL Combined IS/Surr.;

Primary : 70263 exp: 11/3/14 Secondary : _____ exp:
Primary: _____ exp: Secondary : _____ exp:

Runlog HPLC02r1
1/10/13

Analysis: 6850.Perc Analyst: BA Run Method: Percdodz
Date: 6/24/14 Instr. HPLC-02 Quant Method: Perc0129
LIMS Run#: 398819
Setup: Column: K'PRIME Col.Temp: 30 Flow: 0.5 ml/min
Mobile Phase: 50/50 H_2O/MeOH 0.1 CH_3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BLK			R0031544	—	
	ION/MASS CCV			45	Y	
	CCV 1.00PPB		70263	46	YC	
	RQ1407129-01	MB		47	Y	
	-04	LOD		48	Y	
	-02	LCS		49	Y	
	-03	PLCS		50	Y	
	-05	ICS		51	Y	
	R1404589-018			52	Y	
	-019			53	Y	
	-020			54	Y	
	-021			55	Y	
	-022			56	Y	
	CCV 1.00PPB		70263	57	YC	
	-023			58	Y	
	-024			59	Y	
	4622-005			60	Y	
	-006			61	Y	
	RQ1407129-06	MS		62	Y	
	-07	MSD		63	Y	
	-04	LOD		64	Y	
	CCV 1.00PPB		70263	65	YC	
	$\bar{X}$ = 191901					
	High = 387852					
	Low = 95957					
		BA		6/24/14		

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 70263 exp: 11/3/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

Runlog HPLC02r1
1/10/13

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404316
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Analyzed:	6/18/14 12:12
Sample Name:	1406040940 200-SB-20 9-10'	**Units:**	µg/Kg
Lab Code:	R1404316-001	**Basis:**	Dry
		Percent Solids:	97.8

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9474.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.1	0.75	
79-00-5	1,1,2-Trichloroethane	ND	U	5.1	0.75	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.1	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.1	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.1	0.63	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.1	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.1	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.1	2.9	
71-43-2	Benzene	ND	U	5.1	0.30	
75-27-4	Bromodichloromethane	ND	U	5.1	0.63	
75-25-2	Bromoform	ND	U	5.1	0.96	
108-90-7	Chlorobenzene	ND	U	5.1	0.30	
67-66-3	Chloroform	ND	U	5.1	1.3	
74-87-3	Chloromethane	ND	U	5.1	0.41	
124-48-1	Dibromochloromethane	ND	U	5.1	0.75	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.1	1.6	
75-09-2	Dichloromethane	0.75	J	5.1	0.59	
100-41-4	Ethylbenzene	ND	U	5.1	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.1	0.97	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.1	0.90	
108-88-3	Toluene	ND	U	5.1	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.1	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.1	0.50	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.1	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	51-136	6/18/14 12:12	
Dibromofluoromethane	98	63-138	6/18/14 12:12	
Toluene-d8	101	66-138	6/18/14 12:12	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404316
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Analyzed:	6/18/14 12:49
Sample Name:	1406041200 200-SB-20 30'	**Units:**	µg/Kg
Lab Code:	R1404316-002	**Basis:**	Dry
		Percent Solids:	99.3

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9475.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.0	0.74	
79-00-5	1,1,2-Trichloroethane	ND	U	5.0	0.74	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.0	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.0	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.0	0.62	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	ND	U	5.0	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	**3.8**	J	5.0	2.9	
71-43-2	Benzene	ND	U	5.0	0.30	
75-27-4	Bromodichloromethane	ND	U	5.0	0.62	
75-25-2	Bromoform	ND	U	5.0	0.94	
108-90-7	Chlorobenzene	ND	U	5.0	0.30	
67-66-3	Chloroform	ND	U	5.0	1.3	
74-87-3	Chloromethane	ND	U	5.0	0.41	
124-48-1	Dibromochloromethane	ND	U	5.0	0.74	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.0	1.6	
75-09-2	Dichloromethane	ND	U	5.0	0.58	
100-41-4	Ethylbenzene	ND	U	5.0	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.0	0.95	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.0	0.89	
108-88-3	Toluene	ND	U	5.0	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.0	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.1	
95-47-6	o-Xylene	ND	U	5.0	0.49	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.0	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	51-136	6/18/14 12:49	
Dibromofluoromethane	100	63-138	6/18/14 12:49	
Toluene-d8	99	66-138	6/18/14 12:49	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404316
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Analyzed:	6/18/14 13:27
Sample Name:	1406041720 200-SB-20 50'	**Units:**	µg/Kg
Lab Code:	R1404316-003	**Basis:**	Dry
		Percent Solids:	99.2

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9476.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.0	0.74	
79-00-5	1,1,2-Trichloroethane	ND	U	5.0	0.74	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.0	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.0	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.0	0.62	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.0	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.0	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.0	2.9	
71-43-2	Benzene	ND	U	5.0	0.30	
75-27-4	Bromodichloromethane	ND	U	5.0	0.62	
75-25-2	Bromoform	ND	U	5.0	0.94	
108-90-7	Chlorobenzene	ND	U	5.0	0.30	
67-66-3	Chloroform	ND	U	5.0	1.3	
74-87-3	Chloromethane	ND	U	5.0	0.41	
124-48-1	Dibromochloromethane	ND	U	5.0	0.74	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.0	1.6	
75-09-2	Dichloromethane	ND	U	5.0	0.58	
100-41-4	Ethylbenzene	ND	U	5.0	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.0	0.95	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.0	0.89	
108-88-3	Toluene	ND	U	5.0	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.0	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.1	
95-47-6	o-Xylene	ND	U	5.0	0.49	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.0	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 13:27	
Dibromofluoromethane	100	63-138	6/18/14 13:27	
Toluene-d8	101	66-138	6/18/14 13:27	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404316
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 15:32
Sample Name:	1406041204 200-SB-20 30'	**Units:**	µg/Kg
Lab Code:	R1404316-004	**Basis:**	Dry
		Percent Solids:	99.7

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ133.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	**340**		330	43	
84-74-2	Di-n-butyl Phthalate	ND	U	330	51	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	55	47-126	6/16/14 15:32	
Nitrobenzene-d5	50	39-136	6/16/14 15:32	
p-Terphenyl-d14	58	35-152	6/16/14 15:32	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404316
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 16:53
Sample Name:	1406041723 200-SB-20 50'	**Units:**	µg/Kg
Lab Code:	R1404316-005	**Basis:**	Dry
		Percent Solids:	99.4

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ136.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	330	43	
84-74-2	Di-n-butyl Phthalate	ND	U	330	52	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	55	47-126	6/16/14 16:53	
Nitrobenzene-d5	50	39-136	6/16/14 16:53	
p-Terphenyl-d14	61	35-152	6/16/14 16:53	

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number L14-4316

Cooler received on 6/6/14 by: [illegible]

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	(Y) N
2	Custody papers properly completed (ink, signed)?	(Y) N
3	Did all bottles arrive in good condition (unbroken)?	(Y) N
4	Circle: (Wet Ice) Dry Ice (Gel packs) present?	(Y) N

5a	Perchlorate samples have required headspace?	(Y) N NA
5b	Did (VOA vials) Alk or Sulfide have sig* bubbles?	Y (N) NA
6	Where did the bottles originate?	(ALS/ROC) (CLIENT)
7	Soil VOA received as:	(Bulk) Encore 5035set NA

8. Temperature Readings Date: 6/6/14 Time: 1033 ID: IR#3 (IR#4) From: Temp Blank (Sample Bottle)

Observed Temp (°C)	4.1						
Correction Factor (°C)	-1.7°						
Corrected Temp (°C)	2.4°						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by [illegible] on 6/6/14 at 1037

5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: JMS 6/9/14

Cooler Breakdown: Date: 6/9/14 Time: 1258 by: JCB

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
2. Did all bottle labels and tags agree with custody papers? (YES) NO
3. Were correct containers used for the tests indicated? (YES) NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: Client

Other Comments:

PC Secondary Review: JMS 6/24/14

significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

SUPPORTING DOCUMENTATION

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001
Sample Matrix: Soil

Service Request: R1404316
Date Analyzed: 6/18/14 11:31

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1406804-04
Instrument ID: R-MS-07
File ID: I:\ACQUDATA\MSVOA7\DATA\061814\K9473.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406804-03	I:\ACQUDATA\MSVOA7\DATA\061814\K9471.D\	6/18/14 10:15
1406040940 200-SB-20 9-10'	R1404316-001	I:\ACQUDATA\MSVOA7\DATA\061814\K9474.D\	6/18/14 12:12
1406041200 200-SB-20 30'	R1404316-002	I:\ACQUDATA\MSVOA7\DATA\061814\K9475.D\	6/18/14 12:49
1406041720 200-SB-20 50'	R1404316-003	I:\ACQUDATA\MSVOA7\DATA\061814\K9476.D\	6/18/14 13:27

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404316
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

#	File Location	Acquisition Date	#	File Location	Acquisition Date
01	I:\ACQUDATA\MSVOA7\DATA\052914\K9081	5/29/14 13:54	02	I:\ACQUDATA\MSVOA7\DATA\052914\K9082	5/29/14 14:31
03	I:\ACQUDATA\MSVOA7\DATA\052914\K9083	5/29/14 15:09	04	I:\ACQUDATA\MSVOA7\DATA\052914\K9084	5/29/14 15:47
05	I:\ACQUDATA\MSVOA7\DATA\052914\K9085	5/29/14 16:24	06	I:\ACQUDATA\MSVOA7\DATA\052914\K9086	5/29/14 17:02
07	I:\ACQUDATA\MSVOA7\DATA\052914\K9087	5/29/14 17:39	08	I:\ACQUDATA\MSVOA7\DATA\052914\K9088	5/29/14 18:16

Analyte

1,1,1-Trichloroethane (TCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.7839	02	5.000	0.7509	03	10.000	0.7284	04	20.000	0.6127
05	50.000	0.6606	06	100.000	0.6772	07	150.000	0.7145	08	200.000	0.7320

1,1,2-Trichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3874	02	5.000	0.3495	03	10.000	0.3341	04	20.000	0.3176
05	50.000	0.3329	06	100.000	0.3427	07	150.000	0.3360	08	200.000	0.3308

1,1,2-Trichlorotrifluoroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5947	02	5.000	0.5106	03	10.000	0.4949	04	20.000	0.4003
05	50.000	0.4170	06	100.000	0.4406	07	150.000	0.5023	08	200.000	0.4958

1,1-Dichloroethene (1,1-DCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4287	02	5.000	0.4345	03	10.000	0.4227	04	20.000	0.4036
05	50.000	0.4110	06	100.000	0.3927	07	150.000	0.4180	08	200.000	0.4236

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5482	02	5.000	0.5030	03	10.000	0.5071	04	20.000	0.4618
05	50.000	0.4971	06	100.000	0.4830	07	150.000	0.4706	08	200.000	0.4654

2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9132	02	5.000	0.8478	03	10.000	0.8259	04	20.000	0.8460
05	50.000	0.8658	06	100.000	0.7603	07	150.000	0.8231	08	200.000	0.8096

2-Butanone (MEK)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8520	02	5.000	0.8114	03	10.000	0.8282	04	20.000	0.6699
05	50.000	0.7465	06	100.000	0.7626	07	150.000	0.7310	08	200.000	0.7234

Isopropanol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20.000	0.09561	02	100.000	0.08746	03	200.000	0.08773	04	400.000	0.08729
05	1000.000	0.08880	06	2000.000	0.08603	07	3000.000	0.08103	08	4000.000	0.07884

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404316
Date Analyzed: 6/18/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA7\DATA\061814\K9470.D\

Calibration Date: 5/29/14
Calibration ID: RC1400043
Analysis Lot: 397732
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1-Trichloroethane (TCA)	50.0	42.6	0.7075	0.6034	-14.7	NA	± 20 %	Average RF
1,1,2-Trichloroethane	50.0	49.7	0.3414	0.3396	-0.5	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	41.9	0.4820	0.4036	-16.3	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	47.2	0.4169	0.3938	-5.5	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	49.5	0.4920	0.4875	-0.9	NA	± 20 %	Average RF
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	50.0	54.6	0.8365	0.9125	9.1	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	49.8	0.7656	0.7621	-0.5	NA	± 20 %	Average RF
Isopropanol	1000	1130	0.08660	0.09777	12.9	NA	± 20 %	Average RF
Acetone	50.0	42.8	0.6020	0.5150	-14.4	NA	± 20 %	Average RF
Benzene	50.0	47.9	1.440	1.378	-4.3	NA	± 20 %	Average RF
Bromodichloromethane	50.0	47.8	0.4660	0.4458	-4.3	NA	± 20 %	Average RF
Bromoform	50.0	50.2	0.2458	0.2469	0.5	NA	± 20 %	Average RF
Chlorobenzene	50.0	46.8	0.9166	0.8578	-6.4	NA	± 20 %	Average RF
Chloroform	50.0	47.8	1.049	1.003	-4.3	NA	± 20 %	Average RF
Chloromethane	50.0	52.8	1.118	1.180	5.6	NA	± 20 %	Average RF
Dibromochloromethane	50.0	48.5	0.3859	0.3743	-3.0	NA	± 20 %	Average RF
Dichlorofluoromethane (CFC 21)	50.0	53.7	1.436	1.541	7.3	NA	± 20 %	Average RF
Dichloromethane	50.0	48.8	0.6951	0.6779	-2.5	NA	± 20 %	Average RF
Ethylbenzene	50.0	43.5	1.608	1.400	-12.9	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	50.9	1.847	1.880	1.8	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	42.2	0.3262	0.2750	-15.7	NA	± 20 %	Average RF
Toluene	50.0	45.4	1.479	1.344	-9.1	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	43.8	0.3311	0.2898	-12.5	NA	± 20 %	Average RF
m,p-Xylenes	100	88.3	0.5809	0.5128	-11.7	NA	± 20 %	Average RF
o-Xylene	50.0	44.9	0.5852	0.5255	-10.2	NA	± 20 %	Average RF
1,2-Dichloro-1,1,2-trifluoroethane (CFC	50.0	56.5	0.8761	0.9906	13.1	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	49.0	0.4853	0.4757	-2.0	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	49.9	0.3338	0.3332	-0.2	NA	± 20 %	Average RF
Toluene-d8	50.0	51.7	1.294	1.339	3.5	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404316
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Acetone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7647	03	10.000	0.7579	04	20.000	0.5490	05	50.000	0.5746
06	100.000	0.5454	07	150.000	0.5177	08	200.000	0.5047			

Benzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.596	02	5.000	1.535	03	10.000	1.466	04	20.000	1.318
05	50.000	1.382	06	100.000	1.388	07	150.000	1.402	08	200.000	1.431

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4916	02	5.000	0.4571	03	10.000	0.4730	04	20.000	0.4355
05	50.000	0.4643	06	100.000	0.4670	07	150.000	0.4646	08	200.000	0.4746

Bromoform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2226	02	5.000	0.2401	03	10.000	0.2401	04	20.000	0.2204
05	50.000	0.2512	06	100.000	0.2653	07	150.000	0.2634	08	200.000	0.2633

Chlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.046	02	5.000	0.9396	03	10.000	0.9567	04	20.000	0.7815
05	50.000	0.8522	06	100.000	0.8984	07	150.000	0.9364	08	200.000	0.9222

Chloroform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.206	02	5.000	1.120	03	10.000	1.016	04	20.000	1.017
05	50.000	1.023	06	100.000	0.9987	07	150.000	1.003	08	200.000	1.006

Chloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.395	02	5.000	1.091	03	10.000	1.020	04	20.000	1.109
05	50.000	1.074	06	100.000	1.055	07	150.000	1.105	08	200.000	1.093

Dibromochloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4190	02	5.000	0.3982	03	10.000	0.3683	04	20.000	0.3414
05	50.000	0.3785	06	100.000	0.3915	07	150.000	0.3938	08	200.000	0.3963

Dichlorofluoromethane (CFC 21)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.487	02	5.000	1.460	03	10.000	1.400	04	20.000	1.420
05	50.000	1.497	06	100.000	1.357	07	150.000	1.436	08	200.000	1.432

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404316
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Dichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7799	03	10.000	0.7323	04	20.000	0.6584	05	50.000	0.6868
06	100.000	0.6674	07	150.000	0.6625	08	200.000	0.6782			

Ethylbenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.782	02	5.000	1.803	03	10.000	1.701	04	20.000	1.348
05	50.000	1.426	06	100.000	1.560	07	150.000	1.647	08	200.000	1.599

Methyl tert-Butyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.982	02	5.000	1.860	03	10.000	1.863	04	20.000	1.734
05	50.000	1.877	06	100.000	1.843	07	150.000	1.812	08	200.000	1.801

Tetrachloroethene (PCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4071	02	5.000	0.3694	03	10.000	0.3436	04	20.000	0.2614
05	50.000	0.2735	06	100.000	0.3000	07	150.000	0.3294	08	200.000	0.3249

Toluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.670	02	5.000	1.584	03	10.000	1.537	04	20.000	1.282
05	50.000	1.376	06	100.000	1.432	07	150.000	1.484	08	200.000	1.468

Trichloroethene (TCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4316	02	5.000	0.3414	03	10.000	0.3265	04	20.000	0.2828
05	50.000	0.2997	06	100.000	0.3152	07	150.000	0.3251	08	200.000	0.3265

m,p-Xylenes

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.6838	02	10.000	0.6233	03	20.000	0.6206	04	40.000	0.4834
05	100.000	0.5118	06	200.000	0.5540	07	300.000	0.5902	08	400.000	0.5802

o-Xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.6621	02	5.000	0.6233	03	10.000	0.6266	04	20.000	0.4869
05	50.000	0.5256	06	100.000	0.5698	07	150.000	0.5983	08	200.000	0.5890

1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9808	02	5.000	0.8778	03	10.000	0.8576	04	20.000	0.8867
05	50.000	0.9405	06	100.000	0.7860	07	150.000	0.8413	08	200.000	0.8382

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404316
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	50.000	0.4756	03	50.000	0.4875	01	50.000	0.4940	04	50.000	0.4931
02	50.000	0.4893	07	50.000	0.4775	06	50.000	0.4833	05	50.000	0.4819

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	50.000	0.3361	06	50.000	0.3295	07	50.000	0.3245	02	50.000	0.3390
04	50.000	0.3406	01	50.000	0.3368	03	50.000	0.3344	08	50.000	0.3299

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	50.000	1.276	07	50.000	1.289	02	50.000	1.305	04	50.000	1.306
01	50.000	1.307	03	50.000	1.291	08	50.000	1.289	05	50.000	1.291

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404316
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

		Calibration Evaluation					RRF Evaluation		
Analyte Name	**Compound Type**	**Fit Type**	**Eval.**	**Eval. Result**	**Q**	**Control Criteria**	**Average RRF**	**Q**	**Minimum RRF**
1,1,1-Trichloroethane (TCA)	TRG	Average RF	% RSD	7.7		≤ 20	0.7075		0.100
1,1,2-Trichloroethane	TRG	Average RF	% RSD	6.1		≤ 20	0.3414		0.100
1,1,2-Trichlorotrifluoroethane	TRG	Average RF	% RSD	12.9		≤ 20	0.4820		0.100
1,1-Dichloroethene (1,1-DCE)	TRG	Average RF	% RSD	3.3		≤ 20	0.4169		0.100
1,2-Dichloroethane	TRG	Average RF	% RSD	5.8		≤ 20	0.4920		0.100
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	TRG	Average RF	% RSD	5.3		≤ 20	0.8365		
2-Butanone (MEK)	TRG	Average RF	% RSD	8.0		≤ 20	0.7656		0.05
Isopropanol	TRG	Average RF	% RSD	5.9		≤ 20	0.08660		
Acetone	TRG	Average RF	% RSD	18.5		≤ 20	0.6020		0.05
Benzene	TRG	Average RF	% RSD	6.2		≤ 20	1.440		0.500
Bromodichloromethane	TRG	Average RF	% RSD	3.4		≤ 20	0.4660		0.200
Bromoform	TRG	Average RF	% RSD	7.3		≤ 20	0.2458		0.100
Chlorobenzene	TRG	Average RF	% RSD	8.4		≤ 20	0.9166		0.500
Chloroform	TRG	Average RF	% RSD	7.1		≤ 20	1.049		0.200
Chloromethane	TRG	Average RF	% RSD	10.4		≤ 20	1.118		0.100
Dibromochloromethane	TRG	Average RF	% RSD	6.0		≤ 20	0.3859		0.100
Dichlorofluoromethane (CFC 21)	TRG	Average RF	% RSD	3.2		≤ 20	1.436		
Dichloromethane	TRG	Average RF	% RSD	6.5		≤ 20	0.6951		0.100
Ethylbenzene	TRG	Average RF	% RSD	10.0		≤ 20	1.608		0.100
Methyl tert-Butyl Ether	TRG	Average RF	% RSD	3.9		≤ 20	1.847		0.100
Tetrachloroethene (PCE)	TRG	Average RF	% RSD	14.8		≤ 20	0.3262		0.200
Toluene	TRG	Average RF	% RSD	8.2		≤ 20	1.479		0.400
Trichloroethene (TCE)	TRG	Average RF	% RSD	13.4		≤ 20	0.3311		0.200
m,p-Xylenes	TRG	Average RF	% RSD	11.1		≤ 20	0.5809		0.100
o-Xylene	TRG	Average RF	% RSD	9.7		≤ 20	0.5852		0.300
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	TRG	Average RF	% RSD	7.0		≤ 20	0.8761		
4-Bromofluorobenzene	SURR	Average RF	% RSD	1.4		≤ 20	0.4853		
Dibromofluoromethane	SURR	Average RF	% RSD	1.6		≤ 20	0.3338		
Toluene-d8	SURR	Average RF	% RSD	0.8		≤ 20	1.294		

Analysis: 8260-soil	Analyst: Ben Wojtowicz	Tune Method: T0529M.M	
Date: 06/18/14	Data Path: j:\acqudata\msvoa7\DATA\061814	Run Method: S0529M.M	
Instr. MS #7		LIMS Run#: 397732	

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
1	Blank	-				-	1	-	K9467	-	
2	↓	-				-	2	-	68	-	
3	Tune	-				-	1	-	69	YT	
4	CCV	-				-	1	-	70	YC	
5	LCS	-				-	1	-	71	YC	
6	MBlank	-				-	1	-	72	YD	ok for c/o
7	MBlank	-				-	2	-	73	YA	
8	R1404316-001	1	5g	[redacted]	11913	3	2	NA	74	Y	
9	↓ -002	1	↓	↓	↓	↓	2	↓	75	Y	
10	↓ -003	1					2		76	Y	
11	R1404425-001	1					2		77	Y	
12	↓ -002	1					2		78	Y	
13	↓ -003	1					2		79	Y	
14	R1404150-004	1					1		80	Y	
15	↓ -005	1					1		81	Y	
16	↓ -006	1					1		82	Y	
17	↓ -004MS	1					2		83	Y	
18	↓ -004DMS	1	↓	↓	↓	↓	3	↓	84	Y	
19	Blank	-				-	1	-	85	-	
20	↓	-				-	2	-	86	-	

SZ 06/19/14

All samples = 5 mL + 1 uL combined IS/Surr. 10 mL purged

500 Primary TG : 71498 5mL
Primary MBD : 71034
Primary MSL : 71505
Primary EM : 71500
Primary :
50mL = CCV

500 Secondary TG : 71184 2mL
Secondary MBD : 71524
Secondary MSL : 71067
200 Secondary EM : 71591 5mL
Secondary :
50g = LCS
5mL → 12.5mL
50g = MS, DMS

Combined IS/Surr 250: 71597
Surrogate :
Internal Std :

Response Factor Report 5973-A

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Initial Calibration

Calibration Files
5 =CY822.D 10 =CY823.D 50 =CY824.D
80 =CY825.D 100 =CY826.D 120 =CY827.D 160=CY828.D

		Compound	5	10	50	80	100	120	Avg	%RSD
1)	IR	d4-1,4-Dichlorobenzen	----------ISTD----------							
2)	TM	Pyridine			1.435	1.493	1.544	1.383	1.467	4.16
3)	TM	N-Nitrosodimethylam	0.752	0.771	0.862	0.905	0.922	0.829	0.847	7.80
4)	S	SURR1,2-FLUOROPHENO	1.353	1.367	1.396	1.445	1.455	1.326	1.391	3.39
5)	TM	Benzaldehyde			0.441	0.345	0.356	0.242	0.317	30.19 AV
6)	TM	Aniline	2.000	1.976	1.819	1.808	1.782	1.549	1.780	10.44
7)	S	SURR2,PHENOL-D6	1.565	1.611	1.614	1.645	1.655	1.537	1.601	2.69
8)	TMC	Phenol	1.581	1.601	1.602	1.669	1.667	1.525	1.600	3.34
9)	TM	bis(2-Clethyl)Ether	1.415	1.165	1.278	1.252	1.200	1.200	1.251	6.54
10)	TM	2-Chlorophenol	1.471	1.378	1.433	1.440	1.454	1.312	1.407	4.14
11)	TM	1,3-Diclbenzene	1.585	1.597	1.515	1.501	1.548	1.411	1.509	5.11
12)	TMC	1,4-Dichlorobenzene	1.488	1.547	1.523	1.489	1.507	1.391	1.477	4.16
13)	TM	1,2-Diclbenzene	1.478	1.587	1.472	1.435	1.467	1.341	1.444	6.11
14)	TM	Benzyl Alcohol	0.981	0.919	1.022	1.053	1.038	0.966	0.998	4.62
15)	TM	2,2'-oxybis(1-Chlor	1.465	1.372	1.413	1.438	1.407	1.311	1.397	3.62
16)	TM	2-Methylphenol	1.166	1.251	1.256	1.296	1.295	1.212	1.245	3.68
17)	TM	Acetophenone	1.737	1.713	1.689	1.655	1.624	1.492	1.627	6.35
18)	TMP	N-Nitroso-Di-n-prop	0.964	0.931	0.928	0.933	0.909	0.840	0.910	4.75
19)	TM	Hexachloroethane	0.602	0.584	0.567	0.578	0.578	0.535	0.570	3.94
20)	TM	3+4-Methylphenol	1.278	1.350	1.396	1.394	1.376	1.276	1.336	4.18
21)	T	1-Methyl-2-pyrrolid		0.917	0.953	0.940	0.962	0.905	0.935	2.30
22)	IR	d8-Naphthalene	----------ISTD----------							
23)	S	SURR4,NITROBENZENE-	0.386	0.412	0.402	0.398	0.378	0.382	0.390	3.47
24)	TM	Nitrobenzene	0.345	0.363	0.358	0.358	0.334	0.339	0.346	4.06
25)	TM	Isophorone	0.649	0.673	0.700	0.666	0.629	0.618	0.647	5.62
26)	TCM	2-Nitrophenol	0.202	0.200	0.220	0.219	0.214	0.208	0.210	3.68
27)	TM	Benzoic Acid			0.334	0.361	0.342	0.359	0.351	3.45
28)	TM	2,4-Dimethylphenol	0.338	0.346	0.356	0.346	0.332	0.326	0.338	3.63
29)	TM	bis(-2-Chloroethoxy	0.382	0.404	0.403	0.400	0.380	0.381	0.388	3.67
30)	TCM	2,4-Dichlorophenol	0.699	0.697	0.654	0.602	0.583	0.568	0.617	11.08
31)	TM	1,2,4-Trichlorobenz	0.350	0.355	0.338	0.335	0.328	0.310	0.331	5.81
32)	TM	Naphthalene	1.044	1.088	0.969	0.976	0.903	0.839	0.942	11.81
33)	TM	4-Chloroaniline	0.385	0.443	0.422	0.412	0.387	0.370	0.398	7.21
34)	TCM	Hexachlorobutadiene	0.182	0.198	0.193	0.190	0.182	0.183	0.186	4.00
35)	TMC	4-Chloro-3-methylph	0.275	0.289	0.303	0.304	0.288	0.292	0.290	3.75
36)	TM	Caprolactam		0.118	0.115	0.119	0.112	0.128	0.116	6.39
37)	TM	2-Methylnaphthalene	0.726	0.732	0.718	0.686	0.671	0.649	0.683	6.82
38)	TM	1-Methylnaphthalene	0.666	0.675	0.662	0.629	0.618	0.604	0.629	6.92
39)	IR	d10-Acenaphthene	----------ISTD----------							
40)	TPM	Hexachlorocyclopent	0.196	0.238	0.324	0.341	0.353	0.358	0.306	20.67 &R
41)	TCM	2,4,6-Trichlorophen	0.359	0.370	0.392	0.379	0.405	0.382	0.380	4.00

(#) = Out of Range ### Number of calibration levels exceeded format ### 7M

Response Factor Report 5973-A

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Initial Calibration

Calibration Files
5 =CY822.D 10 =CY823.D 50 =CY824.D
80 =CY825.D 100 =CY826.D 120 =CY827.D

		Compound	5	10	50	80	100	120	Avg	%RSD
42)	TM	2,4,5-Trichlorophen	0.459	0.440	0.400	0.397	0.396	0.393	0.408	7.28
43)	S	SURR5,2-FLUOROBIPHE	1.381	1.416	1.290	1.226	1.204	1.147	1.251	9.52
44)	TM	1,1'-Biphenyl	1.471	1.447	1.382	1.289	1.326	1.206	1.323	9.28
45)	TM	2-Chloronaphthalene	1.178	1.162	1.079	1.027	1.049	0.982	1.059	8.45
46)	TM	2-Nitroaniline			0.311	0.321	0.318	0.305	0.315	2.01
47)	TM	Acenaphthylene	1.883	1.852	1.691	1.598	1.613	1.475	1.640	11.45
48)	TM	Dimethyl phthalate	1.307	1.292	1.210	1.132	1.149	1.067	1.165	9.76
49)	TM	2,6-Dinitrotoluene	0.312	0.324	0.309	0.298	0.306	0.295	0.304	4.12
50)	TMC	Acenaphthene	1.154	1.165	1.100	1.049	1.065	0.989	1.067	7.50
51)	TM	3-Nitroaniline			0.331	0.325	0.326	0.334	0.329	1.18
52)	TPM	2,4-Dinitrophenol			0.174	0.186	0.193	0.201	0.191	5.80
53)	TM	Dibenzofuran	1.739	1.711	1.538	1.429	1.452	1.324	1.489	12.70
54)	TM	2,4-Dinitrotoluene	0.360	0.398	0.384	0.379	0.384	0.389	0.382	3.03
55)	TMP	4-Nitrophenol			0.204	0.214	0.216	0.221	0.217	4.50
56)	TM	Fluorene	1.330	1.387	1.230	1.162	1.198	1.089	1.201	10.89
57)	TM	4-Chlorophenyl-phen	0.643	0.670	0.629	0.591	0.628	0.582	0.612	7.12
58)	TM	Diethylphthalate	1.168	1.182	1.080	1.032	1.059	1.001	1.070	7.48
59)	TM	4-Nitroaniline			0.326	0.323	0.341	0.342	0.333	2.65
60)	S	SURR3,2,4,6-TRIBROM	0.323	0.331	0.313	0.296	0.298	0.305	0.309	4.29
61)	IR	d10-Phenanthrene	----------ISTD----------							
62)	T	1-Phenyl-1(4-methyl							0.000#	-1.00
63)	TM	4,6-Dinitro-2-methy			0.163	0.172	0.161	0.168	0.166	2.54
64)	TM	1,2 Diphenylhydrazi	0.755	0.813	0.744	0.756	0.701	0.633	0.718	9.79
65)	TCM	N-Nitrosodiphenylam	0.621	0.672	0.560	0.527	0.495	0.508	0.554	12.44
66)	TM	4-Bromophenyl-pheny	0.295	0.290	0.266	0.250	0.240	0.235	0.258	10.40
67)	T	1-Phenyl-1(2,4-dime							0.000#	-1.00
68)	TM	Hexachlorobenzene	0.354	0.383	0.355	0.332	0.322	0.310	0.337	8.58
69)	TM	Atrazine	0.104	0.102	0.104	0.090	0.083	0.084	0.092	12.27
70)	TCM	Pentachlorophenol			0.207	0.211	0.213	0.211	0.211	1.06
71)	TM	Phenanthrene	1.147	1.103	0.992	0.968	0.943	0.866	0.979	11.83
72)	TM	Anthracene	1.116	1.188	1.061	1.030	1.000	0.929	1.026	10.82
73)	TM	Carbazole	1.056	1.122	1.078	1.048	1.013	0.921	1.015	8.87
74)	TM	Di-n-butylphthalate	1.169	1.205	1.262	1.185	1.130	1.052	1.138	8.87
75)	TCM	Fluoranthene	1.121	1.260	1.276	1.231	1.197	1.080	1.173	7.80
76)	IR	d12-Chrysene	----------ISTD----------							
77)	TM	Benzidine			0.416	0.312	0.302	0.239	0.300	24.85 Avg
78)	TM	Pyrene	1.015	1.134	1.238	1.058	1.121	0.955	1.068	9.76
79)	S	SURR6,TERPHENYL-D14	0.824	0.846	0.900	0.792	0.814	0.716	0.804	7.92
80)	TM	Butyl benzyl phthal	0.531	0.510	0.577	0.520	0.538	0.509	0.528	4.62
81)	TM	3,3'-Dichlorobenzid	0.464	0.491	0.467	0.455	0.474	0.439	0.459	4.92
82)	TM	Benzo(a)anthracene	1.198	1.194	1.131	1.093	1.095	1.028	1.106	6.78
83)	TM	Chrysene	1.104	1.117	1.032	0.977	1.005	0.920	1.006	8.59

(#) = Out of Range ### Number of calibration levels exceeded format ###

Response Factor Report 5973-A

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Initial Calibration

Calibration Files

5	=CY822.D	10	=CY823.D	50	=CY824.D
80	=CY825.D	100	=CY826.D	120	=CY827.D

		Compound	5	10	50	80	100	120	Avg	%RSD
84)	TM	bis(2-Ethylhexyl)ph	0.665	0.633	0.691	0.651	0.656	0.645	0.654	3.03
85)	IR	d12-Perylene	----------	----------	----------	ISTD	----------	----------	----------	
86)	TCM	Di-n-octyl phthalat	1.017	0.856	1.126	1.033	0.933	1.039	0.994	8.83
87)	TM	Benzo(b)Fluoranthen	1.060	0.972	1.081	1.068	1.016	1.054	1.033	4.21
88)	TM	Benzo(k)fluoranthen	1.105	1.015	1.090	1.019	1.010	1.000	1.020	6.63
89)	TCM	Benzo(a)pyrene	1.037	1.064	1.054	1.033	1.010	1.006	1.024	3.24
90)	TM	Indeno(1,2,3-cd)Pyr	0.917	0.975	1.002	1.029	1.022	0.980	0.999	4.75
91)	TM	Dibenz(a,h)anthrace	1.039	1.004	0.998	0.992	0.984	0.933	0.993	3.20
92)	TM	Benzo(g,h,i)perylen	1.031	1.000	0.963	0.943	0.945	0.911	0.962	4.20

(#) = Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\040914\CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	100	0.00
2	TM	Pyridine	1.467	1.493	-1.8	100	0.00
3	TM	N-Nitrosodimethylamine	0.847	0.905	-6.8	100	0.00
4	S	SURR1,2-FLUOROPHENOL	1.391	1.445	-3.9	100	0.00
5	TM	Benzaldehyde	0.317	0.345	-8.8	100	0.00
6	TM	Aniline	1.780	1.808	-1.6	100	0.00
7	S	SURR2,PHENOL-D6	1.601	1.645	-2.7	100	0.00
8	TMC	Phenol	1.600	1.669	-4.3	100	0.00
9	TM	bis(2-Clethyl)Ether	1.251	1.252	-0.1	100	0.00
10	TM	2-Chlorophenol	1.407	1.440	-2.3	100	0.00
11	TM	1,3-Diclbenzene	1.509	1.501	0.5	100	0.00
12	TMC	1,4-Dichlorobenzene	1.477	1.489	-0.8	100	0.00
13	TM	1,2-Diclbenzene	1.444	1.435	0.6	100	0.00
14	TM	Benzyl Alcohol	0.998	1.053	-5.5	100	0.00
15	TM	2,2'-oxybis(1-Chloropropane	1.397	1.438	-2.9	100	0.00
16	TM	2-Methylphenol	1.245	1.296	-4.1	100	0.00
17	TM	Acetophenone	1.627	1.655	-1.7	100	0.00
18	TMP	N-Nitroso-Di-n-propylamine	0.910	0.933	-2.5	100	0.00
19	TM	Hexachloroethane	0.570	0.578	-1.4	100	0.00
20	TM	3+4-Methylphenol	1.336	1.394	-4.3	100	0.00
21	T	1-Methyl-2-pyrrolidinone	0.935	0.940	-0.5	100	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	100	0.00
23	S	SURR4,NITROBENZENE-D5	0.390	0.398	-2.1	100	0.00
24	TM	Nitrobenzene	0.346	0.358	-3.5	100	0.00
25	TM	Isophorone	0.647	0.666	-2.9	100	0.00
26	TCM	2-Nitrophenol	0.210	0.219	-4.3	100	0.00
27	TM	Benzoic Acid	0.351	0.361	-2.8	100	0.00
28	TM	2,4-Dimethylphenol	0.338	0.346	-2.4	100	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.388	0.400	-3.1	100	0.00
30	TCM	2,4-Dichlorophenol	0.617	0.602	2.4	100	0.00
31	TM	1,2,4-Trichlorobenzene	0.331	0.335	-1.2	100	0.00
32	TM	Naphthalene	0.942	0.976	-3.6	100	0.00
33	TM	4-Chloroaniline	0.398	0.412	-3.5	100	0.00
34	TCM	Hexachlorobutadiene	0.186	0.190	-2.2	100	0.00
35	TMC	4-Chloro-3-methylphenol	0.290	0.304	-4.8	100	0.00
36	TM	Caprolactam	0.116	0.119	-2.6	100	0.00
37	TM	2-Methylnaphthalene	0.683	0.686	-0.4	100	0.00
38	TM	1-Methylnaphthalene	0.629	0.629	0.0	100	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	100	0.00

(#) = Out of Range

Evaluate continuing calibration report

Data File : I:\ACQUDATA\5973A\DATA\040914\CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	0.306	0.341	-11.4	100	0.00
41	TCM	2,4,6-Trichlorophenol	0.380	0.379	0.3	100	0.00
42	TM	2,4,5-Trichlorophenol	0.408	0.397	2.7	100	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.251	1.226	2.0	100	0.00
44	TM	1,1'-Biphenyl	1.323	1.289	2.6	100	0.00
45	TM	2-Chloronaphthalene	1.059	1.027	3.0	100	0.00
46	TM	2-Nitroaniline	0.315	0.321	-1.9	100	0.00
47	TM	Acenaphthylene	1.640	1.598	2.6	100	0.00
48	TM	Dimethyl phthalate	1.165	1.132	2.8	100	0.00
49	TM	2,6-Dinitrotoluene	0.304	0.298	2.0	100	0.00
50	TMC	Acenaphthene	1.067	1.049	1.7	100	0.00
51	TM	3-Nitroaniline	0.329	0.325	1.2	100	0.00
52	TPM	2,4-Dinitrophenol	0.191	0.186	2.6	100	0.00
53	TM	Dibenzofuran	1.489	1.429	4.0	100	0.00
54	TM	2,4-Dinitrotoluene	0.382	0.379	0.8	100	0.00
55	TMP	4-Nitrophenol	0.217	0.214	1.4	100	0.00
56	TM	Fluorene	1.201	1.162	3.2	100	0.00
57	TM	4-Chlorophenyl-phenylether	0.612	0.591	3.4	100	0.00
58	TM	Diethylphthalate	1.070	1.032	3.6	100	0.00
59	TM	4-Nitroaniline	0.333	0.323	3.0	100	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.309	0.296	4.2	100	0.00
61	IR	d10-Phenanthrene	1.000	1.000	0.0	100	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	100	0.00
63	TM	4,6-Dinitro-2-methylphenol	0.166	0.172	-3.6	100	0.00
64	TM	1,2 Diphenylhydrazine	0.718	0.756	-5.3	100	0.00
65	TCM	N-Nitrosodiphenylamine	0.554	0.527	4.9	100	0.00
66	TM	4-Bromophenyl-phenylether	0.258	0.250	3.1	100	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	100	0.00
68	TM	Hexachlorobenzene	0.337	0.332	1.5	100	0.00
69	TM	Atrazine	0.092	0.090	2.2	100	0.00
70	TCM	Pentachlorophenol	0.211	0.211	0.0	100	0.00
71	TM	Phenanthrene	0.979	0.968	1.1	100	0.00
72	TM	Anthracene	1.026	1.030	-0.4	100	0.00
73	TM	Carbazole	1.015	1.048	-3.3	100	0.00
74	TM	Di-n-butylphthalate	1.138	1.185	-4.1	100	0.00
75	TCM	Fluoranthene	1.173	1.231	-4.9	100	0.00
76	IR	d12-Chrysene	1.000	1.000	0.0	100	0.00
77	TM	Benzidine	0.300	0.312	-4.0	100	0.00
78	TM	Pyrene	1.068	1.058	0.9	100	0.00

(#) = Out of Range

Evaluate continuing calibration report

Data File : I:\ACQUDATA\5973A\DATA\040914\CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	0.804	0.792	1.5	100	0.00
80	TM	Butyl benzyl phthalate	0.528	0.520	1.5	100	0.00
81	TM	3,3'-Dichlorobenzidine	0.459	0.455	0.9	100	0.00
82	TM	Benzo(a)anthracene	1.106	1.093	1.2	100	0.00
83	TM	Chrysene	1.006	0.977	2.9	100	0.00
84	TM	bis(2-Ethylhexyl)phthalate	0.654	0.651	0.5	100	0.00
85	IR	d12-Perylene	1.000	1.000	0.0	100	0.00
86	TCM	Di-n-octyl phthalate	0.994	1.033	-3.9	100	0.00
87	TM	Benzo(b)Fluoranthene	1.033	1.068	-3.4	100	0.00
88	TM	Benzo(k)fluoranthene	1.020	1.019	0.1	100	0.00
89	TCM	Benzo(a)pyrene	1.024	1.033	-0.9	100	0.00
90	TM	Indeno(1,2,3-cd)Pyrene	0.999	1.029	-3.0	100	0.00
91	TM	Dibenz(a,h)anthracene	0.993	0.992	0.1	100	0.00
92	TM	Benzo(g,h,i)perylene	0.962	0.943	2.0	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data File : I:\ACQUDATA\5973A\DATA\040914\COPY OF CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	40.000	40.000	0.0	100	0.00
2	TM	Pyridine	80.000	81.427	-1.8	100	0.00
3	TM	N-Nitrosodimethylamine	80.000	85.413	-6.8	100	0.00
4	S	SURR1,2-FLUOROPHENOL	80.000	83.145	-3.9	100	0.00
5	TM	Benzaldehyde	80.000	87.095	-8.9	100	0.00
6	TM	Aniline	80.000	81.245	-1.6	100	0.00
7	S	SURR2,PHENOL-D6	80.000	82.228	-2.8	100	0.00
8	TMC	Phenol	80.000	83.448	-4.3	100	0.00
9	TM	bis(2-Clethyl)Ether	80.000	80.045	-0.1	100	0.00
10	TM	2-Chlorophenol	80.000	81.895	-2.4	100	0.00
11	TM	1,3-Diclbenzene	80.000	79.578	0.5	100	0.00
12	TMC	1,4-Dichlorobenzene	80.000	80.644	-0.8	100	0.00
13	TM	1,2-Diclbenzene	80.000	79.479	0.7	100	0.00
14	TM	Benzyl Alcohol	80.000	84.381	-5.5	100	0.00
15	TM	2,2'-oxybis(1-Chloropropane	80.000	82.354	-2.9	100	0.00
16	TM	2-Methylphenol	80.000	83.298	-4.1	100	0.00
17	TM	Acetophenone	80.000	81.365	-1.7	100	0.00
18	TMP	N-Nitroso-Di-n-propylamine	80.000	82.037	-2.5	100	0.00
19	TM	Hexachloroethane	80.000	81.017	-1.3	100	0.00
20	TM	3+4-Methylphenol	80.000	83.466	-4.3	100	0.00
21	T	1-Methyl-2-pyrrolidinone	80.000	80.465	-0.6	100	0.00
22	IR	d8-Naphthalene	40.000	40.000	0.0	100	0.00
23	S	SURR4,NITROBENZENE-D5	80.000	81.551	-1.9	100	0.00
24	TM	Nitrobenzene	80.000	82.764	-3.5	100	0.00
25	TM	Isophorone	80.000	82.368	-3.0	100	0.00
26	TCM	2-Nitrophenol	80.000	83.228	-4.0	100	0.00
27	TM	Benzoic Acid	80.000	82.278	-2.8	100	0.00
28	TM	2,4-Dimethylphenol	80.000	81.936	-2.4	100	0.00
29	TM	bis(-2-Chloroethoxy)Methane	80.000	82.392	-3.0	100	0.00
30	TCM	2,4-Dichlorophenol	80.000	78.047	2.4	100	0.00
31	TM	1,2,4-Trichlorobenzene	80.000	80.803	-1.0	100	0.00
32	TM	Naphthalene	80.000	82.923	-3.7	100	0.00
33	TM	4-Chloroaniline	80.000	82.903	-3.6	100	0.00
34	TCM	Hexachlorobutadiene	80.000	81.549	-1.9	100	0.00
35	TMC	4-Chloro-3-methylphenol	80.000	83.968	-5.0	100	0.00
36	TM	Caprolactam	80.000	81.863	-2.3	100	0.00
37	TM	2-Methylnaphthalene	80.000	80.270	-0.3	100	0.00
38	TM	1-Methylnaphthalene	80.000	79.956	0.1	100	0.00
39	IR	d10-Acenaphthene	40.000	40.000	0.0	100	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\040914\COPY OF CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm
Sample : SSAT080
Misc : 80 PPM STD 8270/625
MS Integration Params: RTEINT.P

Operator: Z.Miao
Inst : 5973-A
Multiplr: 1.00

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	80.000	81.379	-1.7	100	0.00
41	TCM	2,4,6-Trichlorophenol	80.000	79.752	0.3	100	0.00
42	TM	2,4,5-Trichlorophenol	80.000	77.814	2.7	100	0.00
43	S	SURR5,2-FLUOROBIPHENYL	80.000	78.405	2.0	100	0.00
44	TM	1,1'-Biphenyl	80.000	77.942	2.6	100	0.00
45	TM	2-Chloronaphthalene	80.000	77.625	3.0	100	0.00
46	TM	2-Nitroaniline	80.000	81.698	-2.1	100	0.00
47	TM	Acenaphthylene	80.000	77.982	2.5	100	0.00
48	TM	Dimethyl phthalate	80.000	77.774	2.8	100	0.00
49	TM	2,6-Dinitrotoluene	80.000	78.384	2.0	100	0.00
50	TMC	Acenaphthene	80.000	78.641	1.7	100	0.00
51	TM	3-Nitroaniline	80.000	79.234	1.0	100	0.00
52	TPM	2,4-Dinitrophenol	80.000	77.979	2.5	100	0.00
53	TM	Dibenzofuran	80.000	76.792	4.0	100	0.00
54	TM	2,4-Dinitrotoluene	80.000	79.414	0.7	100	0.00
55	TMP	4-Nitrophenol	80.000	79.055	1.2	100	0.00
56	TM	Fluorene	80.000	77.435	3.2	100	0.00
57	TM	4-Chlorophenyl-phenylether	80.000	77.260	3.4	100	0.00
58	TM	Diethylphthalate	80.000	77.124	3.6	100	0.00
59	TM	4-Nitroaniline	80.000	77.522	3.1	100	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	80.000	76.440	4.5	100	0.00
61	IR	d10-Phenanthrene	40.000	40.000	0.0	100	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	-1.000	0.000	0.0	100	0.00
63	TM	4,6-Dinitro-2-methylphenol	80.000	82.877	-3.6	100	0.00
64	TM	1,2 Diphenylhydrazine	80.000	84.332	-5.4	100	0.00
65	TCM	N-Nitrosodiphenylamine	80.000	76.108	4.9	100	0.00
66	TM	4-Bromophenyl-phenylether	80.000	77.736	2.8	100	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	-1.000	0.000	0.0	100	0.00
68	TM	Hexachlorobenzene	80.000	78.938	1.3	100	0.00
69	TM	Atrazine	80.000	77.886	2.6	100	0.00
70	TCM	Pentachlorophenol	80.000	80.123	-0.2	100	0.00
71	TM	Phenanthrene	80.000	79.152	1.1	100	0.00
72	TM	Anthracene	80.000	80.285	-0.4	100	0.00
73	TM	Carbazole	80.000	82.609	-3.3	100	0.00
74	TM	Di-n-butylphthalate	80.000	83.299	-4.1	100	0.00
75	TCM	Fluoranthene	80.000	83.987	-5.0	100	0.00
76	IR	d12-Chrysene	40.000	40.000	0.0	100	0.00
77	TM	Benzidine	80.000	83.311	-4.1	100	0.00
78	TM	Pyrene	80.000	79.291	0.9	100	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\040914\COPY OF CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	80.000	78.818	1.5	100	0.00
80	TM	Butyl benzyl phthalate	80.000	78.753	1.6	100	0.00
81	TM	3,3'-Dichlorobenzidine	80.000	79.334	0.8	100	0.00
82	TM	Benzo(a)anthracene	80.000	79.028	1.2	100	0.00
83	TM	Chrysene	80.000	77.734	2.8	100	0.00
84	TM	bis(2-Ethylhexyl)phthalate	80.000	79.611	0.5	100	0.00
85	IR	d12-Perylene	40.000	40.000	0.0	100	0.00
86	TCM	Di-n-octyl phthalate	80.000	83.186	-4.0	100	0.00
87	TM	Benzo(b)Fluoranthene	80.000	82.686	-3.4	100	0.00
88	TM	Benzo(k)fluoranthene	80.000	79.920	0.1	100	0.00
89	TCM	Benzo(a)pyrene	80.000	80.691	-0.9	100	0.00
90	TM	Indeno(1,2,3-cd)Pyrene	80.000	82.403	-3.0	100	0.00
91	TM	Dibenz(a,h)anthracene	80.000	79.929	0.1	100	0.00
92	TM	Benzo(g,h,i)perylene	80.000	78.399	2.0	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 LR:#40 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	90	-0.01
2	TM	Pyridine	1.467	1.574	-7.3	95	-0.02
3	TM	N-Nitrosodimethylamine	0.847	0.957	-13.0	96	-0.02
4	S	SURR1,2-FLUOROPHENOL	1.391	1.460	-5.0	91	0.00
5	TM	Benzaldehyde	0.317	0.457	-44.2#	120	-0.01
6	TM	Aniline	1.780	1.605	9.8	80	-0.01
7	S	SURR2,PHENOL-D6	1.601	1.710	-6.8	94	0.00
8	TMC	Phenol	1.600	1.822	-13.9	99	0.00
9	TM	bis(2-Clethyl)Ether	1.251	1.325	-5.9	96	-0.01
10	TM	2-Chlorophenol	1.407	1.452	-3.2	91	-0.01
11	TM	1,3-Diclbenzene	1.509	1.500	0.6	90	-0.01
12	TMC	1,4-Dichlorobenzene	1.477	1.525	-3.2	93	-0.01
13	TM	1,2-Diclbenzene	1.444	1.437	0.5	91	-0.01
14	TM	Benzyl Alcohol	0.998	1.130	-13.2	97	-0.01
15	TM	2,2'-oxybis(1-Chloropropane	1.397	1.689	-20.9#	106	-0.02
16	TM	2-Methylphenol	1.245	1.283	-3.1	90	0.00
17	TM	Acetophenone	1.627	1.675	-3.0	92	-0.01
18	TMP	N-Nitroso-Di-n-propylamine	0.910	1.046	-14.9	101	-0.01
19	TM	Hexachloroethane	0.570	0.609	-6.8	95	-0.01
20	TM	3+4-Methylphenol	1.336	1.372	-2.7	89	0.00
21	T	1-Methyl-2-pyrrolidinone	0.935	0.985	-5.3	95	-0.01
22	IR	d8-Naphthalene	1.000	1.000	0.0	93	-0.01
23	S	SURR4,NITROBENZENE-D5	0.390	0.415	-6.4	97	0.00
24	TM	Nitrobenzene	0.346	0.371	-7.2	96	-0.01
25	TM	Isophorone	0.647	0.693	-7.1	96	-0.01
26	TCM	2-Nitrophenol	0.210	0.213	-1.4	90	-0.01
27	TM	Benzoic Acid	0.351	0.347	1.1	89	0.00
28	TM	2,4-Dimethylphenol	0.338	0.350	-3.6	94	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.388	0.416	-7.2	96	0.00
30	TCM	2,4-Dichlorophenol	0.617	0.586	5.0	90	-0.01
31	TM	1,2,4-Trichlorobenzene	0.331	0.320	3.3	89	-0.01
32	TM	Naphthalene	0.942	0.913	3.1	87	-0.01
33	TM	4-Chloroaniline	0.398	0.379	4.8	85	-0.01
34	TCM	Hexachlorobutadiene	0.186	0.185	0.5	90	-0.02
35	TMC	4-Chloro-3-methylphenol	0.290	0.296	-2.1	90	0.00
36	TM	Caprolactam	0.116	0.110	5.2	85	-0.01
37	TM	2-Methylnaphthalene	0.683	0.676	1.0	91	-0.01
38	TM	1-Methylnaphthalene	0.629	0.625	0.6	92	-0.01
39	IR	d10-Acenaphthene	1.000	1.000	0.0	86	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	0.306	0.298		2.6	75	-0.02
41	TCM	2,4,6-Trichlorophenol	0.380	0.392		-3.2	89	-0.01
42	TM	2,4,5-Trichlorophenol	0.408	0.417		-2.2	91	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.251	1.262		-0.9	89	-0.01
44	TM	1,1'-Biphenyl	1.323	1.382		-4.5	93	-0.01
45	TM	2-Chloronaphthalene	1.059	1.073		-1.3	90	-0.01
46	TM	2-Nitroaniline	0.315	0.366		-16.2	98	-0.01
47	TM	Acenaphthylene	1.640	1.706		-4.0	92	-0.02
48	TM	Dimethyl phthalate	1.165	1.178		-1.1	90	-0.01
49	TM	2,6-Dinitrotoluene	0.304	0.307		-1.0	89	0.00
50	TMC	Acenaphthene	1.067	1.118		-4.8	92	-0.01
51	TM	3-Nitroaniline	0.329	0.324		1.5	86	0.00
52	TPM	2,4-Dinitrophenol	0.191	0.182		4.7	85	-0.01
53	TM	Dibenzofuran	1.489	1.493		-0.3	90	-0.01
54	TM	2,4-Dinitrotoluene	0.382	0.392		-2.6	89	0.00
55	TMP	4-Nitrophenol	0.217	0.240		-10.6	96	0.00
56	TM	Fluorene	1.201	1.243		-3.5	92	-0.01
57	TM	4-Chlorophenyl-phenylether	0.612	0.618		-1.0	90	-0.01
58	TM	Diethylphthalate	1.070	1.136		-6.2	95	-0.01
59	TM	4-Nitroaniline	0.333	0.348		-4.5	93	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.309	0.303		1.9	88	-0.01
61	IR	d10-Phenanthrene	1.000	1.000		0.0	89	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#		0.0	107	0.00
63	TM	4,6-Dinitro-2-methylphenol	0.166	0.165		0.6	86	0.00
64	TM	1,2 Diphenylhydrazine	0.718	0.844		-17.5	99	-0.02
65	TCM	N-Nitrosodiphenylamine	0.554	0.537		3.1	91	-0.01
66	TM	4-Bromophenyl-phenylether	0.258	0.250		3.1	89	-0.01
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#		0.0	87	0.03
68	TM	Hexachlorobenzene	0.337	0.333		1.2	89	-0.01
69	TM	Atrazine	0.092	0.066	N.T	28.3#	66	-0.01
70	TCM	Pentachlorophenol	0.211	0.193		8.5	81	0.00
71	TM	Phenanthrene	0.979	0.990		-1.1	91	-0.01
72	TM	Anthracene	1.026	1.046		-1.9	90	-0.01
73	TM	Carbazole	1.015	1.094		-7.8	93	0.00
74	TM	Di-n-butylphthalate	1.138	1.303		-14.5	98	-0.01
75	TCM	Fluoranthene	1.173	1.284		-9.5	93	-0.01
76	IR	d12-Chrysene	1.000	1.000		0.0	92	-0.01
77	TM	Benzidine	0.300	0.258		14.0	76	-0.01
78	TM	Pyrene	1.068	1.058		0.9	92	-0.01

(#) = Out of Range

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	0.804	0.784	2.5	91	-0.02
80	TM	Butyl benzyl phthalate	0.528	0.573	-8.5	102	-0.02
81	TM	3,3'-Dichlorobenzidine	0.459	0.453	1.3	92	-0.02
82	TM	Benzo(a)anthracene	1.106	1.113	-0.6	94	-0.02
83	TM	Chrysene	1.006	0.977	2.9	92	-0.02
84	TM	bis(2-Ethylhexyl)phthalate	0.654	0.733	-12.1	104	-0.02
85	IR	d12-Perylene	1.000	1.000	0.0	97	-0.02
86	TCM	Di-n-octyl phthalate	0.994	1.127	-13.4	106	-0.02
87	TM	Benzo(b)Fluoranthene	1.033	1.071	-3.7	97	-0.02
88	TM	Benzo(k)fluoranthene	1.020	1.025	-0.5	98	-0.02
89	TCM	Benzo(a)pyrene	1.024	1.044	-2.0	98	-0.02
90	TM	Indeno(1,2,3-cd)Pyrene	0.999	1.149	-15.0	108	-0.02
91	TM	Dibenz(a,h)anthracene	0.993	1.081	-8.9	106	-0.02
92	TM	Benzo(g,h,i)perylene	0.962	1.026	-6.7	106	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	40.000	40.000	0.0	90	-0.01
2	TM	Pyridine	80.000	85.830	-7.3	95	-0.02
3	TM	N-Nitrosodimethylamine	80.000	90.392	-13.0	96	-0.02
4	S	SURR1,2-FLUOROPHENOL	80.000	83.972	-5.0	91	0.00
5	TM	Benzaldehyde	80.000	115.224	-44.0#	120	-0.01
6	TM	Aniline	80.000	72.141	9.8	80	-0.01
7	S	SURR2,PHENOL-D6	80.000	85.454	-6.8	94	0.00
8	TMC	Phenol	80.000	91.116	-13.9	99	0.00
9	TM	bis(2-Clethyl)Ether	80.000	84.716	-5.9	96	-0.01
10	TM	2-Chlorophenol	80.000	82.576	-3.2	91	-0.01
11	TM	1,3-Diclbenzene	80.000	79.546	0.6	90	-0.01
12	TMC	1,4-Dichlorobenzene	80.000	82.575	-3.2	93	-0.01
13	TM	1,2-Diclbenzene	80.000	79.589	0.5	91	-0.01
14	TM	Benzyl Alcohol	80.000	90.548	-13.2	97	-0.01
15	TM	2,2'-oxybis(1-Chloropropane	80.000	96.731	-20.9#	106	-0.02
16	TM	2-Methylphenol	80.000	82.460	-3.1	90	0.00
17	TM	Acetophenone	80.000	82.341	-2.9	92	-0.01
18	TMP	N-Nitroso-Di-n-propylamine	80.000	92.008	-15.0	101	-0.01
19	TM	Hexachloroethane	80.000	85.463	-6.8	95	-0.01
20	TM	3+4-Methylphenol	80.000	82.153	-2.7	89	0.00
21	T	1-Methyl-2-pyrrolidinone	80.000	84.258	-5.3	95	-0.01
22	IR	d8-Naphthalene	40.000	40.000	0.0	93	-0.01
23	S	SURR4,NITROBENZENE-D5	80.000	85.015	-6.3	97	0.00
24	TM	Nitrobenzene	80.000	85.903	-7.4	96	-0.01
25	TM	Isophorone	80.000	85.709	-7.1	96	-0.01
26	TCM	2-Nitrophenol	80.000	81.037	-1.3	90	-0.01
27	TM	Benzoic Acid	80.000	79.088	1.1	89	0.00
28	TM	2,4-Dimethylphenol	80.000	82.992	-3.7	94	0.00
29	TM	bis(-2-Chloroethoxy)Methane	80.000	85.801	-7.3	96	0.00
30	TCM	2,4-Dichlorophenol	80.000	75.897	5.1	90	-0.01
31	TM	1,2,4-Trichlorobenzene	80.000	77.343	3.3	89	-0.01
32	TM	Naphthalene	80.000	77.525	3.1	87	-0.01
33	TM	4-Chloroaniline	80.000	76.207	4.7	85	-0.01
34	TCM	Hexachlorobutadiene	80.000	79.494	0.6	90	-0.02
35	TMC	4-Chloro-3-methylphenol	80.000	81.548	-1.9	90	0.00
36	TM	Caprolactam	80.000	75.477	5.7	85	-0.01
37	TM	2-Methylnaphthalene	80.000	79.084	1.1	91	-0.01
38	TM	1-Methylnaphthalene	80.000	79.420	0.7	92	-0.01
39	IR	d10-Acenaphthene	40.000	40.000	0.0	86	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D
Acq On : 16 Jun 2014 11:12 am
Sample : CCV
Misc : 80 PPM STD 8270/625
MS Integration Params: RTEINT.P

Vial: 2
Operator: Z.Miao
Inst : 5973-A
Multiplr: 1.00

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.		%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	80.000	71.750		10.3	75	-0.02
41	TCM	2,4,6-Trichlorophenol	80.000	82.532		-3.2	89	-0.01
42	TM	2,4,5-Trichlorophenol	80.000	81.656		-2.1	91	0.00
43	S	SURR5,2-FLUOROBIPHENYL	80.000	80.728		-0.9	89	-0.01
44	TM	1,1'-Biphenyl	80.000	83.610		-4.5	93	-0.01
45	TM	2-Chloronaphthalene	80.000	81.101		-1.4	90	-0.01
46	TM	2-Nitroaniline	80.000	92.982		-16.2	98	-0.01
47	TM	Acenaphthylene	80.000	83.208		-4.0	92	-0.02
48	TM	Dimethyl phthalate	80.000	80.919		-1.1	90	-0.01
49	TM	2,6-Dinitrotoluene	80.000	80.696		-0.9	89	0.00
50	TMC	Acenaphthene	80.000	83.778		-4.7	92	-0.01
51	TM	3-Nitroaniline	80.000	78.881		1.4	86	0.00
52	TPM	2,4-Dinitrophenol	80.000	76.417		4.5	85	-0.01
53	TM	Dibenzofuran	80.000	80.248		-0.3	90	-0.01
54	TM	2,4-Dinitrotoluene	80.000	82.090		-2.6	89	0.00
55	TMP	4-Nitrophenol	80.000	88.432		-10.5	96	0.00
56	TM	Fluorene	80.000	82.830		-3.5	92	-0.01
57	TM	4-Chlorophenyl-phenylether	80.000	80.814		-1.0	90	-0.01
58	TM	Diethylphthalate	80.000	84.946		-6.2	95	-0.01
59	TM	4-Nitroaniline	80.000	83.626		-4.5	93	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	80.000	78.264		2.2	88	-0.01
61	IR	d10-Phenanthrene	40.000	40.000		0.0	89	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	-1.000	0.000		0.0	107	0.00
63	TM	4,6-Dinitro-2-methylphenol	80.000	79.850		0.2	86	0.00
64	TM	1,2 Diphenylhydrazine	80.000	94.102		-17.6	99	-0.02
65	TCM	N-Nitrosodiphenylamine	80.000	77.640		2.9	91	-0.01
66	TM	4-Bromophenyl-phenylether	80.000	77.581		3.0	89	-0.01
67	T	1-Phenyl-1(2,4-dimethylphen	-1.000	0.000		0.0	87	0.03
68	TM	Hexachlorobenzene	80.000	79.195		1.0	89	-0.01
69	TM	Atrazine	80.000	57.524	N.T	28.1#	66	-0.01
70	TCM	Pentachlorophenol	80.000	73.347		8.3	81	0.00
71	TM	Phenanthrene	80.000	80.910		-1.1	91	-0.01
72	TM	Anthracene	80.000	81.559		-1.9	90	-0.01
73	TM	Carbazole	80.000	86.207		-7.8	93	0.00
74	TM	Di-n-butylphthalate	80.000	91.590		-14.5	98	-0.01
75	TCM	Fluoranthene	80.000	87.566		-9.5	93	-0.01
76	IR	d12-Chrysene	40.000	40.000		0.0	92	-0.01
77	TM	Benzidine	80.000	68.775		14.0	76	-0.01
78	TM	Pyrene	80.000	79.293		0.9	92	-0.01

(#) = Out of Range

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	80.000	78.080	2.4	91	-0.02
80	TM	Butyl benzyl phthalate	80.000	86.752	-8.4	102	-0.02
81	TM	3,3'-Dichlorobenzidine	80.000	78.945	1.3	92	-0.02
82	TM	Benzo(a)anthracene	80.000	80.479	-0.6	94	-0.02
83	TM	Chrysene	80.000	77.735	2.8	92	-0.02
84	TM	bis(2-Ethylhexyl)phthalate	80.000	89.651	-12.1	104	-0.02
85	IR	d12-Perylene	40.000	40.000	0.0	97	-0.02
86	TCM	Di-n-octyl phthalate	80.000	90.744	-13.4	106	-0.02
87	TM	Benzo(b)Fluoranthene	80.000	82.934	-3.7	97	-0.02
88	TM	Benzo(k)fluoranthene	80.000	80.388	-0.5	98	-0.02
89	TCM	Benzo(a)pyrene	80.000	81.570	-2.0	98	-0.02
90	TM	Indeno(1,2,3-cd)Pyrene	80.000	92.013	-15.0	108	-0.02
91	TM	Dibenz(a,h)anthracene	80.000	87.092	-8.9	106	-0.02
92	TM	Benzo(g,h,i)perylene	80.000	85.311	-6.6	106	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Preparation Information Benchsheet

Prep Run#: 210493
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/12/14 12:30 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406497-01	MB		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/69705	
2	RQ1406497-02	LCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/70367; 1.0000 mL/71247; 1.0000 mL/69705	
3	RQ1406497-03	DLCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/71247; 1.0000 mL/69705; 1.0000 mL/70367	
4	R1404316-004 [redacted]	1406041204 200-SB-20 30'	.01	30.0g	8270D/SVO BEPH DNPB 6978				1.00mL	light brown/gray sand and gravel	1.0000 mL/69705	6/23 III . 57V
5	RQ1406497-04	R1404316-004 MS	.01	30.0g	8270D/SVO				1.00mL	light brown/gray sand and gravel	1.0000 mL/70367; 1.0000 mL/69705; 1.0000 mL/71247	
6	RQ1406497-05	R1404316-004 DMS	.01	30.0g	8270D/SVO				1.00mL	light brown/gray sand and gravel	1.0000 mL/69705; 1.0000 mL/70367; 1.0000 mL/71247	
7	R1404316-005	1406041723 200-SB-20 50'	.01	30.0g	8270D/SVO				1.00mL	light brown/gray sand and gravel	1.0000 mL/69705	
8	R1404317-001 [redacted]	RM-SS-1A	.02	30.0g	8270D/SVO /TCL .				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	II 6/20
9	R1404317-002	RM-SS-2B	.02	30.0g	8270D/SVO				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	
10	R1404317-003	RM-SS-3C	.02	30.0g	8270D/SVO				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	
11	R1404342-001 [redacted]	SVP-3-4/5	.01	30.0g	8270D/SVO /Short TCL 7001				1.00mL	medium brown sand/silt with gravel	1.0000 mL/69705	II 6/24
12	R1404342-003	SVP-5-3/5	.01	30.0g	8270D/SVO				1.00mL	medium brown sand/silt with gravel	1.0000 mL/69705	
13	R1404425-004 [redacted]	1406091138 200-SB-21 7.5-10'	.01	30.0g	8270D/SVO /BEPH+DNPB				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705	6/25 II
14	R1404425-005	1406091613 200-SB-21	.01	30.0g	8270D/SVO				1.00mL	light brown/gray gravel	1.0000 mL/69705	
15	R1404425-006	1406091748 200-SB-21	.01	30.0g	8270D/SVO				1.00mL	light reddish-brown sand and gravel	1.0000 mL/69705	

Spiking Solutions

Name:	8270 Soil Surrogate 100-200ppm	Inventory ID	69705	Logbook Ref:	8270 Soil Surrogate 100-200ppm	Expires On:	10/17/2014		
Name:	8270 LCS Mix1: 100 ug/mL	Inventory ID	70367	Logbook Ref:		Expires On:	10/31/2014	Lot #:	Lc02739
Name:	OLM/SOM additionals Spike 100ppm	Inventory ID	71247	Logbook Ref:		Expires On:	09/01/2014		

Preparation Materials

Eppendorf Pipette Repeater	EXT #15 (67588)	2mL Graduated Vials	(71404)	50:50 Dichloromethane:Acetone (71513)
Sand Reagent Grade	SVOA (71055)	Prepared Sodium Sulfate Na2SO4	(70845)	

9
9
5
2

Preparation Information Benchsheet

Prep Run#: 210493
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/12/14 12:30 PM

Preparation Steps

Step:	Extraction	Step:	Concentration	Step:	Extraction Complete
Started:	6/12/14 12:30	Started:	6/12/14 19:20	Started:	6/12/14 20:24
Finished:	6/12/14 17:10	Finished:	6/12/14 20:05	Finished:	6/12/14 20:24
By:	SGOLBERG	By:	SGOLBERG	By:	SGOLBERG
Comments		Comments		Comments	

Comments:

Reviewed By: Date: 6/13 Spike Witness: LPRUNOSKE Date:

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

LOG BOOK #

10 ml 4000 ppm 1ST D to 10 ml 70461 5973-A

6/16/14 #70613

	Tue	50 ng	VPTPP Tue 8.m	C2122	YT 10:17
1	CCV	80 ppm	82700409.m	23	NO
2	CCV	80 ppm	82700409.m	24	YC
3	[redacted]	R01406530-01 BHC	6/13/14 82701645 m	25	Ym
4		-02 LCS	R-4156 65 ppb	26	YQ
5		-03 LCSP	4466 4479 ↓	27	YQ
6		4315-001	4483 65 R4315 8270TCLP	28	Y
7		R01406399-01 SGBHC		29	Ym
8	[redacted]	R01406497-01 BHC 8270BEPH	6/12/14	30	Ym
9		-02 LCS	R4316 8270BEHP+PN	31	YQ
10		-03 LCSP	R4317 8270TCL R4342 8270Short	32	YQ
11		43X16-004	R4425 8270BEHP+PN	33	Y
12		-004MS	R6649204	34	YQ
13		-004MSP	-05	35	YQ
14		-005		36	Y
15	[redacted]	R4317-001	8270TCL	37	Y
16		-002		38	Y
17		-003		39	Y
18	[redacted]	R4342-001	8270 Short TCL	40	Y
19		-003		41	Y
20	[redacted]	R4425-004	8270BEHP	42	Y
21		-005		43	Y
22		-006		44	Y
23	[redacted]	R4156-001	Re-ex 6/13/14 65 ppb	45	Y
24	[redacted]	R4466-001	65 ppb	46	Y
25	[redacted]	R4479-003	65 ppb	47	Y
26	[redacted]	R4483-001	65	48	No IS↓
27	[redacted]	R4483-001	65 1/2	49	NO IS↓

Run # 397532

ZM

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404273
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
Sample Name:	1406041206 200-SB-20 30'		
Lab Code:	R1404273-005	**Basis:**	Dry
		Percent Solids:	99.5

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**56**		mg/Kg	30	6	1	6/23/14	6/23/14 12:25	
Cyanide, Total	9012B	**0.015**	J	mg/Kg	0.095	0.015	1	6/10/14	6/11/14 11:52	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404273
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
Sample Name:	1406041725 200-SB-20 50'		
Lab Code:	R1404273-006	**Basis:**	Dry
		Percent Solids:	99.5

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**28**	J	mg/Kg	30	6	1	6/23/14	6/23/14 12:35	
Cyanide, Total	9012B	ND	U	mg/Kg	0.10	0.02	1	6/10/14	6/11/14 11:54	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:24	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Sample Name: 1406041206 200-SB-20 30'
Lab Code: R1404273-005

Service Request: R1404273
Date Collected: 6/ 4/14
Date Received: 6/ 6/14

Basis: Dry
Percent Solids: 99.5

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**2710**		mg/Kg	10	2.2	1	6/13/14	6/18/14 14:41	
Antimony, Total	6010C	**1.4**	BJ	mg/Kg	6.0	0.3	1	6/13/14	6/17/14 23:41	
Arsenic, Total	6010C	**3.73**		mg/Kg	1.0	0.29	1	6/13/14	6/18/14 14:41	
Barium, Total	6010C	**20.0**		mg/Kg	2.0	0.10	1	6/13/14	6/17/14 23:41	
Beryllium, Total	6020A	**0.28**	J	mg/Kg	0.50	0.02	5	6/13/14	6/20/14 15:50	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/17/14 23:41	
Cadmium, Total	6010C	ND	U	mg/Kg	0.50	0.05	1	6/13/14	6/17/14 23:41	
Calcium, Total	6010C	**65800**		mg/Kg	2000	300	20	6/13/14	6/18/14 20:40	
Chromium, Total	6020A	**6.52**		mg/Kg	0.50	0.05	5	6/13/14	6/20/14 15:50	
Cobalt, Total	6020A	**2.33**		mg/Kg	0.50	0.04	5	6/13/14	6/20/14 15:50	
Copper, Total	6020A	**5.43**		mg/Kg	0.50	0.20	5	6/13/14	6/20/14 15:50	
Iron, Total	6010C	**9940**		mg/Kg	200	150	20	6/13/14	6/18/14 20:40	
Lead, Total	6010C	**4.9**	J	mg/Kg	5.0	0.03	1	6/13/14	6/17/14 23:41	
Magnesium, Total	6010C	**16500**		mg/Kg	100	2	1	6/13/14	6/17/14 23:41	
Manganese, Total	6010C	**207**		mg/Kg	1.0	0.12	1	6/13/14	6/17/14 23:41	
Mercury, Total	7471B	ND	U	mg/Kg	0.032	0.002	1	6/10/14	6/10/14 15:00	
Molybdenum, Total	6010C	**1.1**	J	mg/Kg	2.5	0.07	1	6/13/14	6/17/14 23:41	
Nickel, Total	6010C	**6.1**		mg/Kg	4.0	0.10	1	6/13/14	6/17/14 23:41	
Potassium, Total	6010C	**600**		mg/Kg	200	20	1	6/13/14	6/17/14 23:41	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.57	1	6/13/14	6/17/14 23:41	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/13/14	6/17/14 23:41	
Sodium, Total	6010C	**129**		mg/Kg	100	7	1	6/13/14	6/17/14 23:41	
Strontium, Total	6010C	**115**		mg/Kg	10	0.05	1	6/13/14	6/18/14 14:41	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.75	1	6/13/14	6/17/14 23:41	
Tin, Total	6010C	ND	U	mg/Kg	50	2	1	6/13/14	6/17/14 23:41	
Titanium, Total	6010C	**34.7**		mg/Kg	5.0	0.10	1	6/13/14	6/17/14 23:41	
Uranium, Total	6020A	**1.49**		mg/Kg	0.50	0.0010	5	6/13/14	6/20/14 15:50	
Vanadium, Total	6010C	**15.3**		mg/Kg	5.0	0.2	1	6/13/14	6/17/14 23:41	
Zinc, Total	6010C	**37.8**		mg/Kg	2.0	0.2	1	6/13/14	6/17/14 23:41	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404273
Date Collected: 6/ 4/14
Date Received: 6/ 6/14

Sample Name: 1406041725 200-SB-20 50'
Lab Code: R1404273-006

Basis: Dry
Percent Solids: 99.5

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**2520**		mg/Kg	9.8	2.2	1	6/13/14	6/18/14 14:48	
Antimony, Total	6010C	**1.3**	BJ	mg/Kg	5.9	0.3	1	6/13/14	6/17/14 23:47	
Arsenic, Total	6010C	**3.98**		mg/Kg	0.98	0.29	1	6/13/14	6/18/14 14:48	
Barium, Total	6010C	**51.8**		mg/Kg	2.0	0.10	1	6/13/14	6/17/14 23:47	
Beryllium, Total	6020A	**0.40**	J	mg/Kg	0.48	0.02	5	6/13/14	6/20/14 16:35	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/17/14 23:47	
Cadmium, Total	6010C	ND	U	mg/Kg	0.49	0.05	1	6/13/14	6/17/14 23:47	
Calcium, Total	6010C	**154000**		mg/Kg	4900	700	50	6/13/14	6/18/14 20:46	
Chromium, Total	6020A	**7.72**		mg/Kg	0.48	0.05	5	6/13/14	6/20/14 16:35	
Cobalt, Total	6020A	**2.90**		mg/Kg	0.48	0.04	5	6/13/14	6/20/14 16:35	
Copper, Total	6020A	**5.68**		mg/Kg	0.48	0.20	5	6/13/14	6/20/14 16:35	
Iron, Total	6010C	**8850**		mg/Kg	98	74	10	6/13/14	6/18/14 20:52	
Lead, Total	6010C	**5.6**		mg/Kg	4.9	0.03	1	6/13/14	6/17/14 23:47	
Magnesium, Total	6010C	**23700**		mg/Kg	98	2	1	6/13/14	6/17/14 23:47	
Manganese, Total	6010C	**303**		mg/Kg	0.98	0.12	1	6/13/14	6/17/14 23:47	
Mercury, Total	7471B	**0.003**	J	mg/Kg	0.031	0.002	1	6/10/14	6/10/14 15:01	
Molybdenum, Total	6010C	**1.5**	J	mg/Kg	2.4	0.07	1	6/13/14	6/17/14 23:47	
Nickel, Total	6010C	**6.1**		mg/Kg	3.9	0.10	1	6/13/14	6/17/14 23:47	
Potassium, Total	6010C	**720**		mg/Kg	200	20	1	6/13/14	6/17/14 23:47	
Selenium, Total	6010C	ND	U	mg/Kg	0.98	0.57	1	6/13/14	6/17/14 23:47	
Silver, Total	6010C	ND	U	mg/Kg	0.98	0.08	1	6/13/14	6/17/14 23:47	
Sodium, Total	6010C	**161**		mg/Kg	98	7	1	6/13/14	6/17/14 23:47	
Strontium, Total	6010C	**249**		mg/Kg	9.8	0.05	1	6/13/14	6/18/14 14:48	
Thallium, Total	6010C	ND	U	mg/Kg	0.98	0.75	1	6/13/14	6/17/14 23:47	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/13/14	6/17/14 23:47	
Titanium, Total	6010C	**39.0**		mg/Kg	4.9	0.10	1	6/13/14	6/17/14 23:47	
Uranium, Total	6020A	**1.36**		mg/Kg	0.48	0.0010	5	6/13/14	6/20/14 16:35	
Vanadium, Total	6010C	**9.8**		mg/Kg	4.9	0.2	1	6/13/14	6/17/14 23:47	
Zinc, Total	6010C	**28.1**		mg/Kg	2.0	0.2	1	6/13/14	6/17/14 23:47	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404273
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 22:56
Sample Name:	1406041204 200-SB-20 30'	**Units:**	µg/Kg
Lab Code:	R1404273-007	**Basis:**	Dry
		Percent Solids:	99.7

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031471.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404273
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/ 6/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 23:10
Sample Name:	1406041723 200-SB-20 50'	**Units:**	µg/Kg
Lab Code:	R1404273-008	**Basis:**	Dry
		Percent Solids:	99.4

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031472.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.33	

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number 14-4273

Cooler received on 6/6/14 by: [illegible]

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N
2	Custody papers properly completed (ink, signed)?	Y N
3	Did all bottles arrive in good condition (unbroken)?	Y N
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N

5a	Perchlorate samples have required headspace?	Y N NA
5b	Did VOA vials, Alk or Sulfide have sig* bubbles?	Y N NA
6	Where did the bottles originate?	ALS/ROC CLIENT
7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 6/6/14 Time: 1033 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	4.1						
Correction Factor (°C)	-1.7°						
Corrected Temp (°C)	2.4°						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by [illegible] on 6/6/14 at 1037

5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [illegible] 6/6/14

Cooler Breakdown: Date: 6/6/14 Time: 1547 by: JS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: [illegible]

Other Comments:

PC Secondary Review: [illegible] 6/27/14

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

SUPPORTING DOCUMENTATION

ALS Environmental - Rochester, NY
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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404273

Continuing Calibration Verification (CCV) Summary
Chloride

Analytical Method: 9056A

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	396965	RQ1406537-09	6/12/14 14:17	3.25	3.33	102	90 - 110
CCV2	396965	RQ1406537-10	6/12/14 16:12	3.25	3.34	103	90 - 110
CCV3	396965	RQ1406537-11	6/12/14 18:07	3.25	3.34	103	90 - 110
CCV4	396965	RQ1406537-12	6/12/14 19:24	3.25	3.35	103	90 - 110
CCV5	398625	RQ1407218-04	6/23/14 11:15	3.25	3.39	104	90 - 110
CCV6	398625	RQ1407218-03	6/23/14 13:16	3.25	3.43	106	90 - 110
CCV7	398625	RQ1407218-02	6/23/14 15:16	3.25	3.46	106	90 - 110
CCV8	398625	RQ1407218-01	6/23/14 16:06	3.25	3.46	106	90 - 110

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404273

Continuing Calibration Verification (CCV) Summary
Cyanide, Total

Analytical Method: 9012B

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	396654	RQ1406438-01	6/11/14 11:21	0.500	0.519	104	85 - 115
CCV2	396654	RQ1406438-03	6/11/14 11:31	0.500	0.520	104	85 - 115
CCV3	396654	RQ1406438-05	6/11/14 11:40	0.500	0.530	106	85 - 115
CCV4	396668	RQ1406445-01	6/11/14 11:40	0.500	0.530	106	85 - 115
CCV5	396654	RQ1406438-07	6/11/14 11:49	0.500	0.528	106	85 - 115
CCV6	396668	RQ1406445-03	6/11/14 11:49	0.500	0.528	106	85 - 115
CCV7	396668	RQ1406445-05	6/11/14 11:59	0.500	0.517	103	85 - 115

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404273

Continuing Calibration Verification (CCV) Summary
Nitrate+Nitrite as Nitrogen

Analytical Method: 353.2

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397880	RQ1406871-01	6/19/14 08:19	0.900	0.875	97	90 - 110
CCV2	397880	RQ1406871-06	6/19/14 08:31	0.900	0.862	96	90 - 110
CCV3	397880	RQ1406871-11	6/19/14 08:44	0.900	0.867	96	90 - 110
CCV4	397880	RQ1406871-14	6/19/14 08:57	0.900	0.834	93	90 - 110

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404273

Continuing Calibration Verification (CCV) Summary
Nitrate+Nitrite as Nitrogen

Analytical Method: 353.2M

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398613	RQ1407113-01	6/24/14 12:17	0.900	0.899	100	90 - 110
CCV2	398613	RQ1407113-04	6/24/14 12:30	0.900	0.886	98	90 - 110
CCV3	398613	RQ1407113-06	6/24/14 12:42	0.900	0.889	99	90 - 110
CCV4	398613	RQ1407113-08	6/24/14 13:00	0.900	0.885	98	90 - 110

Preparation Information Benchsheet

Prep Run#: 211473
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 10:00 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407071-03	MB		1g	9056A/Chloride				100.00mL			
2	RQ1407071-04	LCS		1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
3	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1g	9056A/Chloride				100.00mL			
4	R1404421-009	1406091615 200-SB-21	.01	1g	9056A/Chloride				100.00mL			
5	R1404421-010	1406091750 200-SB-21	.01	1g	9056A/Chloride				100.00mL			
6	R1404273-005	1406041206 200-SB-20 30'	.01	1g	9056A/Chloride				100.00mL			
7	R1404273-006	1406041725 200-SB-20 50'	.01	1g	9056A/Chloride				100.00mL			
8	R1404507-006	1406111505 200-SB-7 8-10'	.02	1g	9056A/Chloride				100.00mL			
9	RQ1407071-01	R1404507-006 DUP	.02	1g	9056A/Chloride				100.00mL			
10	RQ1407071-02	R1404507-006 MS	.02	1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
11	R1404507-007	1406111635 200-SB-7 18-21'	.01	1g	9056A/Chloride				100.00mL			
12	R1404507-008	1406120935 200-SB-7 38-40'	.01	1g	9056A/Chloride				100.00mL			
13	R1404622-007	1406161405 200-SB-13 8/10'	.01	1g	9056A/Chloride				100.00mL			
14	R1404589-016	1406130805 200-SB-8 8/10'	.01	1g	9056A/Chloride				100.00mL			
15	R1404589-017	1406130815 200-SB-8 8/10'	.01	1g	9056A/Chloride				100.00mL			
16	R1404589-025	1406130945 200-SB-8 28/30'	.01	1g	9056A/Chloride				100.00mL			
17	R1404589-026	1406131305 200-SB-8 43/45'	.01	1g	9056A/Chloride				100.00mL			
18	R1404589-027	1406141705 200-SB-6 8/10'	.01	1g	9056A/Chloride				100.00mL			
19	R1404589-028	1406151130 200-SB-5 8/10'	.01	1g	9056A/Chloride				100.00mL			
20	R1404589-029	1406151146 200-SB-5 8/10'	.01	1g	9056A/Chloride				100.00mL			

Spiking Solutions

Name: 300.0 Calibration/LCS/MS Intermediate 1 Inventory ID 71260 Logbook Ref: WC118013A Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 6/23/14 10:00
Finished: 6/23/14 10:05
By: CWOODS
Comments

Preparation Information Benchsheet

Prep Run#: 211473
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 10:00 AM

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

6/12/14 Analyst: Lindsay Dressel IC#3 Pipettes: Barney Ferb

System	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Level	Injections	Done	Sample Info 1	Sample Info 2
metrohm.smt	CCV	1	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	2	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	LCS	3	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404413-001	4	1.0	10.0	1.0	100.0	0	1	1	9056A N	
metrohm.smt	R1404413-001	5	1.0	100.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404439-001	6	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	GW-3DA	7	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	P-3S	8	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	P-3D	9	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	P-3D MS	10	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	P-3D MSD	11	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	P-2D	12	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	CCV	13	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	14	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404444-001	15	1.0	10.0	1.0	100.0	0	1	1	9056A CN	
metrohm.smt	R1404444-002	16	1.0	10.0	1.0	100.0	0	1	1	9056A CN	
metrohm.smt	DOWNSTREAM	17	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	DOWNSTREAM MS	18	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	DOWNSTREAM MSD	19	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	UPSTREAM	20	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	NW-3	21	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	NW-4	22	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	Tier III
metrohm.smt	NW-2	23	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	NW-5	24	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	R4421
metrohm.smt	CCV	25	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	26	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404428-001	27	1.0	10.0	1.0	100.0	0	1	1	300.0 CF	
metrohm.smt	R1404428-006	28	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404428-007	29	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404428-007 MS	30	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404428-007 MSD	31	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404428-008	32	1.0	4.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404163-001	33	1.0	100.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	LCS	34	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404216-001	35	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404173-002	36	1.0	100.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	CCV	37	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	38	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404428-009	39	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404428-009 MS	40	1.0	1.0	1.0	100.0	0	1	1	300.0 F	Reviewed & Approved
metrohm.smt	R1404429-009 MSD	41	1.0	1.0	1.0	100.0	0	1	1	300.0 F	By: CK
metrohm.smt	R1404163-002	42	1.0	100.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404107-001	43	1.0	10.0	1.0	100.0	0	1	1	300.0 F	Date: 6/16/14
metrohm.smt	R1404137-001	44	1.0	4.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404320-001	45	1.0	10000.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404320-002	46	1.0	10000.0	1.0	100.0	0	1	1	300.0 C	

System	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Level	Injections	Done	Sample Info 1	Sample Info 2
metrohm.smt	R1404023-001	47	1.0	1.0	1.0	100.0	0	1	1	9056A F	
metrohm.smt	R1403925-010	48	1.0	20.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	CCV	49	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	50	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404023-002	51	1.0	1.0	1.0	100.0	0	1	1	9056A F	
metrohm.smt	R1404421-004	52	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404421-004 MS	53	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404421-004 MSD	54	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404273-003	55	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	INTAKE WATER	56	1.0	10.0	1.0	100.0	0	1	1	300.0 NN	
metrohm.smt	CCV	57	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	58	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	BLANK	59	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	60	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	61	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	62	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	63	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	64	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	65	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	66	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	67	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	68	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	69	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	70	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	71	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	72	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	73	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	74	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	75	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	76	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	77	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	78	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	79	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	80	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	81	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	82	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	83	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	84	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	85	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	86	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	87	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	88	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	89	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	90	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	91	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	92	1.0	1.0	1.0	100.0	0	1	1		

Schedule File: C:\PeakNet\Schedule\SCHEDULES\IC#6\6-062314.sch 06-23-14 IC#6

Line	Sample	Sample Type	Level	Method	Data File	Dilution	Comment
1	CCV	Sample		6-052814.met	623_001.dxd	1	300.0/9056A/26A
2	CCB	Sample		6-052814.met	623_002.dxd	1	300.0/9056A/26A
3	SOIL METHOD BLANK	Sample		6-052814.met	623_003.dxd	1	9056A C (1g SAMPLE -> 100g DI)
4	SOIL LCS	Sample		6-052814.met	623_004.dxd	1	9056A C (1g SAMPLE -> 100g DI)
5	R1404421-008	Sample		6-052814.met	623_005.dxd	1	9056A C (1g SAMPLE -> 100g DI)
6	R1404421-009	Sample		6-052814.met	623_006.dxd	1	9056A C (1g SAMPLE -> 100g DI)
7	R1404421-010	Sample		6-052814.met	623_007.dxd	1	9056A C (1g SAMPLE -> 100g DI)
8	R1404273-005	Sample		6-052814.met	623_008.dxd	1	9056A C (1g SAMPLE -> 100g DI)
9	R1404273-006	Sample		6-052814.met	623_009.dxd	1	9056A C (1g SAMPLE -> 100g DI)
10	R1404507-006	Sample		6-052814.met	623_010.dxd	1	9056A C (1g SAMPLE -> 100g DI)
11	R1404507-006 EXT DUP	Sample		6-052814.met	623_011.dxd	1	9056A C (1g SAMPLE -> 100g DI)
12	R1404507-006 EXT SPK	Sample		6-052814.met	623_012.dxd	1	9056A C (1g SAMPLE -> 100g DI)
13	CCV	Sample		6-052814.met	623_013.dxd	1	300.0/9056A/26A
14	CCB	Sample		6-052814.met	623_014.dxd	1	300.0/9056A/26A
15	R1404507-007	Sample		6-052814.met	623_015.dxd	1	9056A C (1g SAMPLE -> 100g DI)
16	R1404507-008	Sample		6-052814.met	623_016.dxd	1	9056A C (1g SAMPLE -> 100g DI)
17	R1404622-007	Sample		6-052814.met	623_017.dxd	1	9056A C (1g SAMPLE -> 100g DI)
18	R1404622-008	Sample		6-052814.met	623_018.dxd	1	9056A C (1g SAMPLE -> 100g DI)
19	R1404589-016	Sample		6-052814.met	623_019.dxd	1	9056A C (1g SAMPLE -> 100g DI)
20	R1404589-017	Sample		6-052814.met	623_020.dxd	1	9056A C (1g SAMPLE -> 100g DI)
21	R1404589-025	Sample		6-052814.met	623_021.dxd	1	9056A C (1g SAMPLE -> 100g DI)
22	R1404589-026	Sample		6-052814.met	623_022.dxd	1	9056A C (1g SAMPLE -> 100g DI)
23	R1404589-027	Sample		6-052814.met	623_023.dxd	1	9056A C (1g SAMPLE -> 100g DI)
24	R1404589-028	Sample		6-052814.met	623_024.dxd	1	9056A C (1g SAMPLE -> 100g DI)
25	CCV	Sample		6-052814.met	623_025.dxd	1	300.0/9056A/26A
26	CCB	Sample		6-052814.met	623_026.dxd	1	300.0/9056A/26A
27	R1404589-029	Sample		6-052814.met	623_027.dxd	1	9056A C (1g SAMPLE -> 100g DI)
28	CCV	Sample		6-052814.met	623_028.dxd	1	300.0/9056A/26A
29	CCB	Sample		6-052814.met	623_029.dxd	1	300.0/9056A/26A

Default Method Path: C:\PEAKNET\METHOD\IC#6\DI METHODS
Default Data Path: C:\PEAKNET\DATA\IC#6\062314
Comment:

Analyst: CWoods
Pipets: FRED
BARNEY

Tier II
~~R4202~~
R4421
R4273
R4507
R4622
R4589

Reviewed & Approved
By: CW
Date: 6/25/14

Preparation Information Benchsheet

Prep Run#: 210600
Team: GenChem/GNITAJOUPPI

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/10/14 01:00 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406443-01	MB		0.6g	9012B/CN Tot				6.00mL			
2	RQ1406443-02	LCS		0.6g	9012B/CN Tot				6.00mL		0.0600 mL/59557	
3	RQ1406443-03	LCS		0.6g	9012B/CN Tot				6.00mL		0.2400 mL/59557	
4	R1404273-005	1406041206 200-SB-20 30'	.01	0.6370g	9012B/CN Tot				6.00mL			
5	RQ1406443-05	R1404273-005 DUP	.01	0.6455g	9012B/CN Tot				6.00mL			
6	RQ1406443-04	R1404273-005 MS	.01	0.6007g	9012B/CN Tot				6.00mL		0.0600 mL/59557	
7	R1404273-006	1406041725 200-SB-20 50'	.01	0.6025g	9012B/CN Tot				6.00mL			
8	R1404315-001	LagoonSED-0614	.03	0.6830g	9012B/CN Tot				6.00mL			

Spiking Solutions

Name: Cyanide 10 ppm as CN Inventory ID 59557 Logbook Ref: Fresh daily Expires On: 06/19/2014

Preparation Steps

Step: Distillation
Started: 6/10/14 13:00
Finished: 6/10/14 16:00
By: GNITAJOUPPI
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: KABBOTT Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Creator : GABRIELA NITA-JOUPPI
Creation Date : 6/11/2014 10:39:47 AM
Last Modified : 6/11/2014 12:27:21 PM
Description :

Cup	Sample ID	MDF	Weight	Sample Type	Comments
1	ICV			Unknown	
2	ICB			Unknown	
3	CRDL - 0.0200			Unknown	
4	CRDL - 0.0100			Unknown	
5	CCV			Unknown	
6	CCB			Unknown	
7	MB-1			Unknown	
8	LCS-1 LL			Unknown	
9	LCS-1 HL			Unknown	
10	R1404131-001			Unknown	
11	R1404131-004			Unknown	
12	R1404131-007			Unknown	
13	R1404131-008			Unknown	
14	R1404131-009			Unknown	
15	R1404145-005			Unknown	
16	R1404145-012			Unknown	
17	CCV			Unknown	
18	CCB			Unknown	
19	4145-012 MS			Unknown	
20	4145-012 MSD			Unknown	
21	R1404145-014			Unknown	
22	R1404203-001			Unknown	
23	R1404221-001			Unknown	
24	R1404167-001			Unknown	
25	R1404167-002			Unknown	
26	R1404167-003			Unknown	
27	R1404167-004			Unknown	
28	R1404144-001			Unknown	
29	CCV			Unknown	
30	CCB			Unknown	
31	R1404243-001			Unknown	
32	R1404259-001			Unknown	
33	R1404314-001			Unknown	
34	4314-001 DUP			Unknown	
35	4314-001 SPK			Unknown	
36	R1404314-002			Unknown	
37	R1404314-003			Unknown	
38	MB 2			Unknown	
39	LCS-LL2			Unknown	
40	LCS-HL2			Unknown	

41	CCV			Unknown	
42	CCB			Unknown	
43	R1404314-004			Unknown	
44	4314-004 DUP			Unknown	
45	4314-004 SPK			Unknown	
46	R1404096-001			Unknown	
47	R1404096-002			Unknown	
48	R1404239-001			Unknown	
49	R1404179-001			Unknown	
50	R1404179-002			Unknown	
51	R1404179-003			Unknown	
52	R1404179-007			Unknown	
53	CCV			Unknown	
54	CCB			Unknown	
55	R1404199-002			Unknown	
56	R1404199-003			Unknown	
57	MB 3			Unknown	
58	LCS-LL 3			Unknown	
59	LCS-HL 3			Unknown	
60	R1404199-004			Unknown	
61	R1404199-005			Unknown	
62	R1404199-006			Unknown	
63	R1404201-002			Unknown	
64	4201-002 DUP			Unknown	
65	CCV			Unknown	
66	CCB			Unknown	
67	4201-002 SPK			Unknown	
68	R1404201-003			Unknown	
69	R1404201-004			Unknown	
70	R1404201-005			Unknown	
71	R1404201-006			Unknown	
72	R1404273-002			Unknown	
73	4273-002 DUP			Unknown	
74	4273-002 SPK			Unknown	
75	R1404262-002			Unknown	
76	R1404262-003			Unknown	
77	CCV			Unknown	
78	CCB			Unknown	
79	R1404262-004			Unknown	
80	R1404285-001			Unknown	
81	R1404106-001			Unknown	
82	R1404106-003			Unknown	
83	R1404106-005			Unknown	
84	R1404106-007			Unknown	
85	R1404106-009			Unknown	

86	R1404106-011			Unknown	
87	MB			Unknown	
88	LCS-LL S			Unknown	
89	CCV			Unknown	
90	CCB			Unknown	
91	LCS-HL S			Unknown	
92	R1404273-005			Unknown	
93	4273-005 DUP			Unknown	
94	4273-005 SPK			Unknown	
95	R1404273-006			Unknown	
96	R1404315*001			Unknown	
97	MB RES			Unknown	
98	LCS RES			Unknown	
99	R1404135-002 RES			Unknown	
100	4135-002 DUP RES			Unknown	
101	CCV			Unknown	
102	CCB			Unknown	
103	R1404216-001 RES			Unknown	
104	MB 4			Unknown	
105	LCS-LL 4			Unknown	
106	LCS-HL 4			Unknown	
107	R1404181-002			Unknown	
108	4181-002 DUP			Unknown	
109	4181-002 SPK			Unknown	
110	R1404135-002			Unknown	
111	R1404228-001			Unknown	
112	R1404228-002			Unknown	
113	CCV			Unknown	
114	CCB			Unknown	
115	R1404228-003			Unknown	
116	R1404228-004			Unknown	
117	R1404228-005			Unknown	
118	R1404228-006			Unknown	
119	R1404228-007			Unknown	
120	R1404228-008			Unknown	
121	R1404228-009			Unknown	
122	R1404228-010			Unknown	
123	R1404228-011			Unknown	
124	R1404228-012			Unknown	
125	CCV			Unknown	
126	CCB			Unknown	
127	R1404228-013			Unknown	
128	R1404228-014			Unknown	
129	4228-014 MS			Unknown	
130	4228-014 MSD			Unknown	

131	R1404216-001			Unknown	
132	R1404145-005 RPT			Unknown	
133	LCS RES RPT			Unknown	
134	CCV			Unknown	
135	CCB			Unknown	

Analyte Table

Cyanide 9012B/SM450
(mg CN/L)

Preparation Information Benchsheet

Run 398613

Prep Run#: 211514
Team: GenChem/TPULS

Prep WorkFlow: GenExt28Day
Prep Method: CAS SOP

Status: Prepped
Prep Date/Time: 6/24/14 10:30 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407109-01	MB		1g	353.2M/NO2 NO3				100.00mL			
2	RQ1407109-02	LCS		1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
3	R1404273-005	1406041206 200-SB-20 30'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
4	RQ1407109-03	R1404273-005 DUP	.01	1g	353.2M/NO2 NO3				100.00mL			
5	RQ1407109-04	R1404273-005 MS	.01	1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
6	R1404273-006	1406041725 200-SB-20 50'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
7	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1g	353.2M/NO2 NO3				100.00mL			
8	R1404421-009	1406091615 200-SB-21	.01	1.0500g	353.2M/NO2 NO3				100.00mL			
9	R1404421-010	1406091750 200-SB-21	.01	1g	353.2M/NO2 NO3				100.00mL			
10	R1404507-006	1406111505 200-SB-7 8-10'	.02	1g	353.2M/NO2 NO3				100.00mL			
11	RQ1407109-05	R1404507-006 DUP	.02	1g	353.2M/NO2 NO3				100.00mL			
12	RQ1407109-06	R1404507-006 MS	.02	1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
13	R1404507-007	1406111635 200-SB-7 18-21'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
14	R1404507-008	1406120935 200-SB-7 38-40'	.01	1g	353.2M/NO2 NO3				100.00mL			
15	R1404589-016	1406130805 200-SB-8 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
16	R1404589-017	1406130815 200-SB-8 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
17	R1404589-025	1406130945 200-SB-8 28/30'	.01	1g	353.2M/NO2 NO3				100.00mL			
18	R1404589-026	1406131305 200-SB-8 43/45'	.01	1g	353.2M/NO2 NO3				100.00mL			
19	R1404589-027	1406141705 200-SB-6 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
20	R1404589-028	1406151130 200-SB-5 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
21	R1404589-029	1406151146 200-SB-5 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			

Spiking Solutions

Name: Nitrate (NO3) 1000 ppm as N Inventory ID 67499 Logbook Ref: WC118001N Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 6/24/14 10:30
Finished: 6/24/14 10:35
By: MKSMITH
Comments

Preparation Information Benchsheet

Prep Run#: 211514
Team: GenChem/TPULS

Prep WorkFlow: GenExt28Day
Prep Method: CAS SOP

Status: Prepped
Prep Date/Time: 6/24/14 10:30 AM

Comments:

Reviewed By: _____ Date: _____ Spike Witness: LDOLGOS Date: _____

Chain of Custody

Relinquished By: _____ Date: 6-24-14

Received By: _____ Date: 6/24/14

Extracts Examined: Yes No

Creator: LDOLGOS
Creation Date: Jun 19, 2014 7:58:24
Last Modified: Jun 19, 2014 9:02:26
Description: QC 8000 353.2 TOTN - RUN LOG - 1406190A

R4273

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	1.00 NO3	1.0000	Unknown	
2	1.00 NO2	1.0000	Unknown	
3	ICV TV= 0.90	1.0000	Unknown	
4	ICB	1.0000	Unknown	
5	CRDL - 0.100	1.0000	Unknown	
6	CRDL - 0.050	1.0000	Unknown	
7	CCV	1.0000	Unknown	
8	CCB	1.0000	Unknown	
9	LCS	1.0000	Unknown	
10	AIR	1.0000	Unknown	
11	R1404274-004	1.0000	Unknown	
12	R1404335-004 1/2	2.0000	Unknown	
13	R1404335-013 1/2	2.0000	Unknown	
14	R1404335-018	1.0000	Unknown	
15	R1404335-025	1.0000	Unknown	
16	R1404335-029 1/4	4.0000	Unknown	
17	R1404421-004	1.0000	Unknown	
18	R1404273-003	1.0000	Unknown	
19	CCV	1.0000	Unknown	
20	CCB	1.0000	Unknown	
21	R1404448-001	1.0000	Unknown	
22	4335-025 DUP	1.0000	Unknown	
23	4335-025 SPK	1.0000	Unknown	
24	R1404443-001 1/2	2.0000	Unknown	
25	R1404492-002	1.0000	Unknown	
26	R1404493-002	1.0000	Unknown	
27	R1404557-001	1.0000	Unknown	
28	R1404611-001	1.0000	Unknown	
29	R1404492-002 DUP	1.0000	Unknown	
30	R1404492-002 SPK	1.0000	Unknown	
31	CCV	1.0000	Unknown	

Cup #	Sample ID	Manual Dilution	Sample Type	
32	CCB	1.0000	Unknown	
33	R1404589-003	1.0000	Unknown	
34	R1404589-009	1.0000	Unknown	
35	R1404589-014	1.0000	Unknown	
36	R1404486-001 1/2	2.0000	Unknown	
37	R1404507-003	1.0000	Unknown	
38	LCS	1.0000	Unknown	
39	R1404560-004	1.0000	Unknown	
40	R1404516-001 1/5	5.0000	Unknown	
41	R1404516-002 1/5	5.0000	Unknown	
42	BLK	1.0000	Unknown	
43	CCV	1.0000	Unknown	
44	CCB	1.0000	Unknown	
45	R1404560-004 DUP	1.0000	Unknown	
46	R1404560-004 SPK	1.0000	Unknown	
47	CCV	1.0000	Unknown	
48	CCB	1.0000	Unknown	

Creator: LDOLGOS
Creation Date: Jun 24, 2014 10:57:22
Last Modified: Jun 24, 2014 13:06:48
Description: QC 8000 353.2 TOTN - RUN LOG - 1406240B

R4273

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	1.00 NO3	1.0000	Unknown	
2	1.00 NO2	1.0000	Unknown	
3	ICV TV= 0.90	1.0000	Unknown	
4	ICB	1.0000	Unknown	
5	CRDL - 0.100	1.0000	Unknown	
6	CRDL - 0.050	1.0000	Unknown	
7	CCV	1.0000	Unknown	
8	CCB	1.0000	Unknown	
9	PB SOIL	1.0000	Unknown	
10	LCS SOIL	1.0000	Unknown	
11	R1404273-005	1.0000	Unknown	
12	R1404273-005 DUP	1.0000	Unknown	
13	R1404273-005 SPK	1.0000	Unknown	
14	R1404273-006	1.0000	Unknown	
15	R1404421-008	1.0000	Unknown	
16	R1404421-009	1.0000	Unknown	
17	R1404421-010	1.0000	Unknown	
18	R1404507-006	1.0000	Unknown	
19	CCV	1.0000	Unknown	
20	CCB	1.0000	Unknown	
21	R1404507-006 DUP	1.0000	Unknown	
22	R1404507-006 SPK	1.0000	Unknown	
23	R1404507-007	1.0000	Unknown	
24	R1404507-008	1.0000	Unknown	
25	R1404589-016	1.0000	Unknown	
26	R1404589-017	1.0000	Unknown	
27	R1404589-025	1.0000	Unknown	
28	R1404589-026	1.0000	Unknown	
29	R1404589-027	1.0000	Unknown	
30	R1404589-028	1.0000	Unknown	
31	CCV	1.0000	Unknown	

Cup #	Sample ID	Manual Dilution	Sample Type	
32	CCB	1.0000	Unknown	
33	R1404589-029	1.0000	Unknown	
34	LCSW	1.0000	Unknown	
35	R1404622-003	1.0000	Unknown	
36	R1404739-001	1.0000	Unknown	
37	R1404739-002	1.0000	Unknown	
38	R1404739-003	1.0000	Unknown	
39	R1404739-003 DUP	1.0000	Unknown	
40	R1404739-003 SPK	1.0000	Unknown	
41	R1404619-003	1.0000	Unknown	
42	R1404619-004	1.0000	Unknown	
43	CCV	1.0000	Unknown	
44	CCB	1.0000	Unknown	
45	R1404619-003 RPT 1/2	2.0000	Unknown	
46	R1404619-004 RPT 1/2	2.0000	Unknown	
47	R1404739-002 DUP	1.0000	Unknown	
48	R1404739-002 SPK	1.0000	Unknown	
49	CCV	1.0000	Unknown	
50	CCB	1.0000	Unknown	

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver	500	508	102	500	518	104	511	102	P
Boron	2500	2480	99	2500	2490	100	2450	98	P
Barium	10000	10300	103	10000	10400	104	10200	102	P
Beryllium	250	254	102	250	258	103	254	102	P
Calcium	25000	24900	100	25000	24900	100	24600	98	P
Cadmium	500	498	100	500	507	101	493	99	P
Cobalt	2500	2520	101	2500	2570	103	2510	100	P
Chromium	500	515	103	500	525	105	512	102	P
Copper	1250	1250	100	1250	1280	102	1260	101	P
Iron	5000	5060	101	5000	5200	104	5060	101	P
Potassium	25000	25100	100	25000	25200	101	24900	100	P
Magnesium	25000	25400	102	25000	26000	104	25400	102	P
Manganese	750	760	101	750	774	103	757	101	P
Mercury	3.00	3.10	103	3.00	3.09	103	3.11	104	CV
Molybdenum	2500	2430	97	2500	2470	99	2420	97	P
Sodium	25000	25400	102	25000	25500	102	25000	100	P
Nickel	2000	2030	102	2000	2070	104	2020	101	P
Lead	500	497	99	500	502	100	491	98	P
Antimony	5000	4950	99	5000	4960	99	4870	97	P
Selenium	500	498	100	500	510	102	494	99	P
Tin	5000	4960	99	5000	5030	101	4920	98	P
Thallium	1000	989	99	1000	997	100	970	97	P
Vanadium	2500	2530	101	2500	2560	102	2510	100	P
Zinc	1000	1020	102	1000	1030	103	1000	100	P
Strontium	2500	2460	98	2500	2480	99	2400	96	P
Uranium	50	47	94	50	48	96	49	98	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	505	101	509	102	P
Boron				2500	2470	99	2440	98	P
Barium				10000	10300	103	10200	102	P
Beryllium				250	255	102	254	102	P
Calcium				25000	24400	98	24400	98	P
Cadmium				500	490	98	492	98	P
Cobalt				2500	2490	100	2500	100	P
Chromium				500	509	102	511	102	P
Copper				1250	1250	100	1250	100	P
Iron				5000	5030	101	5040	101	P
Potassium				25000	25400	102	25300	101	P
Magnesium				25000	25300	101	25300	101	P
Manganese				750	751	100	754	101	P
Mercury				3.00	3.17	106	3.18	106	CV
Molybdenum				2500	2390	96	2400	96	P
Sodium				25000	25200	101	25500	102	P
Nickel				2000	2000	100	2010	100	P
Lead				500	492	98	487	97	P
Antimony				5000	4850	97	4820	96	P
Selenium				500	495	99	493	99	P
Tin				5000	4850	97	4810	96	P
Thallium				1000	975	98	963	96	P
Vanadium				2500	2470	99	2490	100	P
Zinc				1000	999	100	999	100	P
Strontium				2500	2400	96	2440	98	P
Uranium				50	46	92			MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	508	102	506	101	P
Boron				2500	2410	96	2350	94	P
Barium				10000	10100	101	9960	100	P
Beryllium				250	250	100	249	100	P
Calcium				25000	24400	98	24900	100	P
Cadmium				500	489	98	481	96	P
Cobalt				2500	2480	99	2430	97	P
Chromium				500	508	102	501	100	P
Copper				1250	1240	99	1220	98	P
Iron				5000	4990	100	4850	97	P
Potassium				25000	25000	100	24400	98	P
Magnesium				25000	25200	101	24300	97	P
Manganese				750	748	100	724	97	P
Molybdenum				2500	2390	96	2350	94	P
Sodium				25000	24800	99	24200	97	P
Nickel				2000	2000	100	1960	98	P
Lead				500	487	97	485	97	P
Antimony				5000	4830	97	5040	101	P
Selenium				500	486	97	473	95	P
Tin				5000	4880	98	4770	95	P
Thallium				1000	963	96	963	96	P
Vanadium				2500	2490	100	2620	105	P
Zinc				1000	992	99	971	97	P
Strontium				2500	2360	94	2280	91	P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	514	103	519	104	P
Boron				2500	2410	96	2450	98	P
Barium				10000	10100	101	10300	103	P
Beryllium				250	252	101	259	104	P
Calcium				25000	24900	100	24600	98	P
Cadmium				500	497	99	504	101	P
Cobalt				2500	2500	100	2560	102	P
Chromium				500	515	103	522	104	P
Copper				1250	1250	100	1270	102	P
Iron				5000	5020	100	5230	105	P
Potassium				25000	24700	99	25300	101	P
Magnesium				25000	25100	100	25900	104	P
Manganese				750	745	99	767	102	P
Molybdenum				2500	2400	96	2430	97	P
Sodium				25000	24400	98	24800	99	P
Nickel				2000	2020	101	2050	102	P
Lead				500	493	99	498	100	P
Antimony				5000	5060	101	4960	99	P
Selenium				500	481	96	492	98	P
Tin				5000	4900	98	4960	99	P
Thallium				1000	973	97	980	98	P
Vanadium				2500	2660	106	2550	102	P
Zinc				1000	1000	100	1020	102	P
Strontium				2500	2320	93	2350	94	P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	511	102	510	102	P
Boron				2500	2380	95	2410	96	P
Barium				10000	10200	102	10300	103	P
Beryllium				250	255	102	257	103	P
Calcium				25000	24500	98	24400	98	P
Cadmium				500	497	99	501	100	P
Cobalt				2500	2510	100	2540	102	P
Chromium				500	515	103	516	103	P
Copper				1250	1240	99	1250	100	P
Iron				5000	5080	102	5130	103	P
Potassium				25000	24300	97	24500	98	P
Magnesium				25000	25300	101	25600	102	P
Manganese				750	750	100	758	101	P
Molybdenum				2500	2380	95	2390	96	P
Sodium				25000	23600	94	23900	96	P
Nickel				2000	2020	101	2030	102	P
Lead				500	490	98	496	99	P
Antimony				5000	4920	98	4920	98	P
Selenium				500	477	95	485	97	P
Tin				5000	4760	95	4910	98	P
Thallium				1000	964	96	973	97	P
Vanadium				2500	2580	103	2550	102	P
Zinc				1000	1010	101	1010	101	P
Strontium				2500	2210	88	2260	90	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	10000	9880	99	10000	9970	100	10100	101	P
Arsenic	1000	988	99	1000	998	100	1020	102	P
Beryllium	50	53	106	50	47	94	60	120	MS
Chromium	50	52	104	50	51	102	51	102	MS
Cobalt	50	52	104	50	51	102	55	110	MS
Copper	50	52	104	50	51	102	55	110	MS
Strontium	2500	2440	98	2500	2460	98	2420	97	P
Uranium	50	55	110	50	54	108	53	106	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				10000	10100	101	10100	101	P
Arsenic				1000	1020	102	1030	103	P
Beryllium				50	58	116			MS
Chromium				50	53	106			MS
Cobalt				50	53	106			MS
Copper				50	54	108			MS
Strontium				2500	2410	96	2370	95	P
Uranium				50	52	104			MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum				10000	10300	103			P
Arsenic				1000	1050	105			P
Strontium				2500	2410	96			P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Calcium	25000	24500	98	25000	24500	98	24800	99	P
Iron	5000	5080	102	5000	5050	101	4970	99	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Calcium				25000	24900	100	25000	100	P
Iron				5000	4970	99	4960	99	P

Comments:

00077

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Calcium				25000	24800	99	25200	101	P
Iron				5000	4960	99	4970	99	P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Calcium				25000	25100	100	25000	100	P
Iron				5000	4940	99	4940	99	P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404273

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404273

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Calcium				25000	25000	100			P
Iron				5000	4950	99			P

Comments:

Preparation Information Benchsheet

Prep Run#: 210823 **Prep WorkFlow:** MetDigAqICP **Status:** Prepped
Team: Metals/CWINKSTERN **Prep Method:** EPA 3010A **Prep Date/Time:** 6/13/14 06:24 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406573-01	MB		50mL	200.7/Ba T, Be T, Ca T, Cd T, K T, Mg T, Mn T, Sb T, Se T, Tl T, 6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			50.00mL	Colorless-Clear		HB #6 temp 95C Location E3
2	RQ1406573-02	LCS		50mL	200.7/Ba T, Be T, Ca T, Cd T, K T, Mg T, Mn T, Sb T, Se T, Tl T, 6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			50.00mL	Colorless-Clear	0.5000 mL/65784; 0.2500 mL/69693; 0.0500 mL/57174; 0.5000 mL/65785; 0.1000 mL/59992	
3	R1404201-002	L-1S	.22	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Tl T, V T, Zn T	<2			50.00mL	Colorless-Clear		
4	RQ1406573-03	R1404201-002 DUP	.22	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Tl T, V T, Zn T	<2			50.00mL	Colorless-Clear		
5	RQ1406573-04	R1404201-002 MS	.22	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Tl T, V T, Zn T	<2			50.00mL	Colorless-Clear	0.5000 mL/65784; 0.0500 mL/57174; 0.5000 mL/65785; 0.2500 mL/69693; 0.1000 mL/59992	
6	R1404201-003	L-2S	.22	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Tl T, V T, Zn T	<2			50.00mL	Colorless-Clear		
7	R1404201-004	SMH-1	.22	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Tl T, V T, Zn T	<2			50.00mL	Colorless-Clear		
8	R1404201-005	SMH-3	.22	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Tl T, V T, Zn T	<2			50.00mL	Colorless-Clear		
9	R1404201-006	SMH-5	.22	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Tl T, V T, Zn T	<2			50.00mL	Colorless-Clear		

Preparation Information Benchsheet

Prep Run#: 210823 **Prep WorkFlow:** MetDigAqICP **Status:** Prepped
Team: Metals/CWINKSTERN **Prep Method:** EPA 3010A **Prep Date/Time:** 6/13/14 06:24 PM

10	R1404260-001	S-4	.07	50mL	6010C/Ca T, Cd T, Cr T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
11	R1404260-002	S-2	.07	50mL	6010C/Ca T, Cd T, Cr T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
12	R1404260-003	S-6	.07	50mL	6010C/Ca T, Cd T, Cr T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
13	R1404260-004	S-3	.07	50mL	6010C/Ca T, Cd T, Cr T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
14	R1404260-005	S-1	.07	50mL	6010C/Ca T, Cd T, Cr T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
15	R1404260-006	S-5	.07	50mL	6010C/Ca T, Cd T, Cr T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
16	R1404260-007	SW-1A	.07	50mL	6010C/Ca T, Cd T, Cr T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless-Clear		
17	R1404273-001	1406040816 200-SB-20	.01	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless-Clear		TIER III
18	R1404274-001	1406031016C ST-3-586	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless-Clear		TIER III
19	R1404274-005	1406040856C ST-3-486	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless-Clear		
20	RQ1406573-05	R1404274-005 DUP	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless-Clear		
21	RQ1406573-06	R1404274-005 MS	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless-Clear	0.0500 mL/57174; 0.1000 mL/59992; 0.5000 mL/65784; 0.2500 mL/69693; 0.5000 mL/65785	
22	R1404274-008	1406050918C ST-3-666	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless-Clear		
23	R1404274-009	1406050919C ST-3-666	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless-Clear		
24	R1404282-003	PW140604 270	.09	50mL	6010C/As T, Cr T	<2			50.00mL	Colorless-Clear		
25	R1404282-004	NR140604 310	.09	50mL	6010C/As T, Cr T	<2			50.00mL	Colorless-Clear		

Preparation Information Benchsheet

Prep Run#: 210823
Team: Metals/CWINKSTERN

Prep WorkFlow: MetDigAqICP
Prep Method: EPA 3010A

Status: Prepped
Prep Date/Time: 6/13/14 06:24 PM

Spiking Solutions

Name:	Selenium 1000 ug/mL Se	Inventory ID	57174	Logbook Ref:	M5280028BB	Expires On:	10/04/2014	Lot #:	1233330
Name:	Strontium 1000 ug/mL Sr	Inventory ID	59992	Logbook Ref:	M5280031Q	Expires On:	01/08/2015	Lot #:	1208804
Name:	Custom LCS STD A Metals	Inventory ID	65784	Logbook Ref:	M5280035K	Expires On:	12/12/2014	Lot #:	13L138
Name:	Custom LCS STD B Metals	Inventory ID	65785	Logbook Ref:	M5280035L	Expires On:	12/12/2014	Lot #:	13L138
Name:	Tin 1000 ug/mL Sn	Inventory ID	69693	Logbook Ref:	M5280037P	Expires On:	10/04/2015	Lot #:	13H087

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	Hot Block Cups	50 mL Lot 1306159 (63960)	Nitric Acid Metals Grade HNO3 M5280037X (69879)
Thermometer	293 (12952)			

Preparation Steps

Step: Digestion
Started: 6/13/14 18:24
Finished: 6/14/14 06:44
By: DBOND
Comments

Comments:

Reviewed By: DBond Date: 6/14/14 Spike Witness: DWARD Date:

Chain of Custody

Relinquished By: DBond Date: 6/14/14 730 Extracts Examined

Received By: R-AOL Date: 6/14/14 730 Yes No

Preparation Information Benchsheet

Prep Run#: 210765
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/13/14 08:56 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406534-01	MB		1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	White, Coarse / Colorless, Clear		HB8 Therm=293 Well=A2 Temp=95
2	RQ1406534-04	LCS		1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	White, Coarse / Colorless, Clear	1.0000 mL/70002; 0.1000 mL/57174; 0.2000 mL/59992; 0.5000 mL/69693; 1.0000 mL/70003	
3	R1404261-001	S-4	.01	1.0300g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
4	RQ1406534-02	R1404261-001 DUP	.01	1.0g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
5	RQ1406534-03	R1404261-001 MS	.01	1.0g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear	0.5000 mL/69693; 1.0000 mL/70002; 1.0000 mL/70003; 0.1000 mL/57174; 0.2000 mL/59992	
6	R1404261-002	S-2	.01	1.0500g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
7	R1404261-003	S-6	.01	1.0200g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
8	R1404261-004	S-3	.01	1.0100g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
9	R1404261-005	S-1	.01	1.0500g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
10	R1404261-006	S-5	.01	1.0100g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
11	R1404261-007	SW-1A	.01	1g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
12	R1404273-005	1406041206 200-SB-20 30'	.02	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Coarse / Yellow, Clear		III NASA
13	R1404273-006	1406041725 200-SB-20 50'	.02	1.0300g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Coarse / Yellow, Clear		
14	R1404317-001	RM-SS-1A	.01	1.0500g	6010C/Ag T, As T, Ba T, Cd T, Cr T, Pb T, Se T	<2			100.00mL	Brown, Medium / Yellow, Clear		
15	R1404317-002	RM-SS-2B	.01	1.0300g	6010C/Ag T, As T, Ba T, Cd T, Cr T, Pb T, Se T	<2			100.00mL	Brown, Medium / Yellow, Clear		
16	R1404317-003	RM-SS-3C	.01	1.0200g	6010C/Ag T, As T, Ba T, Cd T, Cr T, Pb T, Se T	<2			100.00mL	Brown, Medium / Yellow, Clear		
17	R1404329-001	Centrifuge Sludge	.02	1.0300g	6010C/As T, Cd T, Cr T, Cu T, K T, Mo T, Ni T, Pb T, Se T, Zn T	<2			100.00mL	Black, Medium / Yellow, Clear		
18	R1404359-001	GRANULATED NaCL, 5/2/14	.01	1.0500g	6010C/Ca T, Mg T	<2			100.00mL	White, Fine / Colorless, Clear		

Preparation Information Benchsheet

Prep Run#: 210765 **Prep WorkFlow:** MetDigSICP **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3050B **Prep Date/Time:** 6/13/14 08:56 AM

19	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1.0500g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Red, Medium / Yellow, Clear		III NASA
20	R1404421-009	1406091615 200-SB-21	.01	1.0200g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Coarse / Yellow, Clear		
21	R1404421-010	1406091750 200-SB-21	.01	1.0300g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Coarse / Yellow, Clear		

Spiking Solutions

Name:	Selenium 1000 ug/mL Se	Inventory ID	57174	Logbook Ref:	M5280028BB	Expires On:	10/04/2014	Lot #:	1233330
Name:	Strontium 1000 ug/mL Sr	Inventory ID	59992	Logbook Ref:	M5280031Q	Expires On:	01/08/2015	Lot #:	1208804
Name:	Tin 1000 ug/mL Sn	Inventory ID	69693	Logbook Ref:	M5280037P	Expires On:	10/04/2015	Lot #:	13H087
Name:	Custom LCS STD A Metals	Inventory ID	70002	Logbook Ref:	M5280037CC	Expires On:	04/17/2015	Lot #:	14D125
Name:	Custom LCS STD B Metals	Inventory ID	70003	Logbook Ref:	M5280037DD	Expires On:	10/18/2015	Lot #:	14D123

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Boiling Stones PTFE	M5280036N (67019)
Hot Block Cups	50 mL Lot 1306159 (63960)	Filter Paper	Filter Paper (55693)	Hydrogen Peroxide 30% Reagent Grade H2O2	M5280033R (69313)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Thermometer	293 (12952)		

Preparation Steps

Step: Digestion
Started: 6/13/14 08:56
Finished: 6/13/14 14:06
By: MCRIBBIN
Comments

Comments:

Reviewed By: DBond Date: 6/14/14 Spike Witness: DBOND Date:

Preparation Information Benchsheet

Prep Run#: 210765
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/13/14 08:56 AM

hain of Custody

Relinquished By:		Date: 6/13/14 1420	Extracts Examined	
Received By:	RBOI	Date: 6/13/14 1420	Yes	No

Preparation Information Benchsheet

Prep Run#: 210862 **Prep WorkFlow:** MetDigAqMS **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA CLP-METALS ILM05.3 **Prep Date/Time:** 6/16/14 08:59 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406595-01	MB		50mL	200.8/As T, 6020A/As T, Sb T, Tl T, U T	<2			50.00mL	Colorless, Clear		HB8 Therm=287 Well=A1 Temp=95
2	RQ1406595-03	MB		50mL	200.8/As T, Pb T	<2			50.00mL	Colorless, Clear		LIMS QC DW
3	RQ1406595-02	LCS		50mL	200.8/As T, 6020A/As T, Sb T, Tl T, U T	<2			50.00mL	Colorless, Clear	0.1000 mL/65805; 0.1000 mL/65804	
4	RQ1406595-04	LCS		50mL	200.8/As T, Pb T	<2			50.00mL	Colorless, Clear	0.1000 mL/65804; 0.1000 mL/65805	LIMS QC DW
5	R1404273-001	1406040816 200-SB-20	.01	50mL	6020A/Sb T, Tl T, U T	<2			50.00mL	Colorless, Clear		III NASA
6	R1404274-001	1406031016C ST-3-586	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		III NASA
7	R1404274-005	1406040856C ST-3-486	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		
8	R1404274-008	1406050918C ST-3-666	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		
9	R1404274-009	1406050919C ST-3-666	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		
10	R1404330-001	#10	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
11	R1404330-002	#11	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
12	R1404330-003	#13	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
13	R1404330-004	#17	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
14	R1404330-005	#20	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
15	R1404330-006	#23	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
16	RQ1406595-07	R1404330-006 DUP	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
17	RQ1406595-08	R1404330-006 MS	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear	0.1000 mL/65805; 0.1000 mL/65804	
18	R1404330-007	#28	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
19	R1404330-008	#19	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
20	R1404330-009	DUPE	.13	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
21	R1404331-001	RW 2	.10	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
22	R1404331-002	RW 7	.10	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
23	RQ1406595-05	R1404331-002 DUP	.10	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
24	RQ1406595-06	R1404331-002 MS	.10	50mL	200.8/As T	<2			50.00mL	Colorless, Clear	0.1000 mL/65805; 0.1000 mL/65804	
25	R1404441-001	M14881	.04	50mL	200.8/As T	<2			50.00mL	Colorless, Clear		
26	R1404492-001	M14900-2	.01	50mL	200.8/Pb T	<2			50.00mL	Colorless, Clear		
27	R1404493-001	M14899-2	.01	50mL	200.8/Pb T	<2			50.00mL	Colorless, Clear		

Spiking Solutions

Name:	ICPMS Calibration Standard 1 (10 ug/mL	Inventory ID	65804	Logbook Ref:	M5280035O	Expires On:	06/30/2015	Lot #:	21206511
Name:	ICPMS Calibration Standard 2 (10 ug/mL	Inventory ID	65805	Logbook Ref:	M5280035P	Expires On:	08/31/2015	Lot #:	21208507

Preparation Information Benchsheet

Prep Run#: 210862
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqMS
Prep Method: EPA CLP-METALS ILM05.3

Status: Prepped
Prep Date/Time: 6/16/14 08:59 AM

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Hot Block Cups	50 mL Lot 1306159 (63960)
Thermometer	287 (12953)				

Preparation Steps

Step: Digestion
Started: 6/16/14 08:59
Finished: 6/16/14 16:04
By: MCRIBBIN
Comments

Comments:

Reviewed By: Tracy Christ Date: 6/17/14 Spike Witness: TCHRIST Date:

Chain of Custody

Relinquished By: Date: 6/16/14 1605 Extracts Examined

Received By: RE601 Date: 6/16/14 1605 Yes No

Preparation Information Benchsheet

Prep Run#: 210741 **Prep WorkFlow:** HgDigAq **Status:** Prepped
Team: Metals/CWINKSTERN **Prep Method:** Method **Prep Date/Time:** 6/13/14 09:00 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406522-01	MB		25mL	245.1/Hg T, 7470A/Hg T				25.00mL	Colorless-Clear		HB #5 temp =95C /95C Location = E2
2	RQ1406522-02	LCS		25mL	245.1/Hg T, 7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/71584	
3	R1404273-001	1406040816 200-SB-20	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
4	RQ1406522-03	R1404273-001 DUP	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
5	RQ1406522-04	R1404273-001 MS	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/71584	
6	R1404274-001	1406031016C ST-3-586	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
7	R1404274-005	1406040856C ST-3-486	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
8	R1404274-008	1406050918C ST-3-666	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
9	R1404274-009	1406050919C ST-3-666	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
10	R1404285-001	PPRS-1	.13	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER IV
11	R1404314-001	MW-2B	.16	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
12	R1404314-002	MW-3S	.16	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
13	R1404314-003	MW-3D	.16	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
14	R1404314-004	MW-1S	.16	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
15	R1404388-001	LT-2	.15	25mL	245.1/Hg T				25.00mL	Colorless-Clear		
16	R1404394-022	P-8D	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
17	RQ1406522-05	R1404394-022 DUP	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
18	RQ1406522-06	R1404394-022 MS	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/71584	
19	R1404394-023	P-1D	.14	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
20	R1404439-001	T-2	.10	25mL	245.1/Hg T				25.00mL	Colorless-Clear		

Spiking Solutions

Name: Mercury LCSW Metals Hg Inventory ID 71584 Logbook Ref: M681007B Expires On: 06/14/2014

Preparation Materials

Hot Block Cups	50 mL Lot 1306159 (63960)	Sulfuric Acid Reagent Grade H2SO4	M5280026S (53233)	Hydrochloric Acid (HCl) Metals Grade	M5280038D (70868)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Hydroxylamine Hydrochloride Reagent Grade	M5280034Z (65271)	Thermometer	293 (12952)
Potassium Permanganate RG KMnO4	M5280037K (69039)	Potassium Persulfate RG K2S2O8	M5280026F (52494)	Sodium Chloride Reagent Grade NaCl	WC126052C (61711)
Stannous Chloride SnCl2	M5280033p (63338)				

Preparation Steps

Step: Digestion
Started: 6/13/14 09:00
Finished: 6/13/14 11:00
By: MCRIBBIN
Comments

Preparation Information Benchsheet

Prep Run#: 210741
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigAq
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/13/14 09:00 AM

Comments:

Reviewed By: Stacey Christ Date: 6/16/14

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 210334
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSMS
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/13/14 09:15 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406533-01	MB		1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	White, Coarse / Colorless, Clear		HB7 Therm=287 Well=A4 Temp=95
2	RQ1406533-02	LCS		1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	White, Coarse / Colorless, Clear	0.2000 mL/65804; 0.2000 mL/65805	
3	R1404273-005	1406041206 200-SB-20 30'	.02	1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear		
4	RQ1406533-03	R1404273-005 DUP	.02	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear		
5	RQ1406533-04	R1404273-005 MS	.02	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear	0.2000 mL/65804; 0.2000 mL/65805	
6	R1404273-006	1406041725 200-SB-20 50'	.02	1.0400g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear		
7	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Red, Medium / Colorless, Clear		
8	R1404421-009	1406091615 200-SB-21	.01	1.0400g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear		
9	R1404421-010	1406091750 200-SB-21	.01	1.0400g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear		

Spiking Solutions

Name:	ICPMS Calibration Standard 1 (10 ug/mL	Inventory ID	65804	Logbook Ref:	M5280035O	Expires On:	06/30/2015	Lot #:	21206511
Name:	ICPMS Calibration Standard 2 (10 ug/mL	Inventory ID	65805	Logbook Ref:	M5280035P	Expires On:	08/31/2015	Lot #:	21208507

Preparation Materials

1:1 Nitric Acid Metals Grade	M5280037X (63958)	Boiling Stones PTFE	M5280036N (67019)	Hot Block Cups	50 mL Lot 1306159 (63960)
Filter Paper	Filter Paper (55693)	Hydrogen Peroxide 30% Reagent Grade H2O2	M5280033R (69313)	Nitric Acid Metals Grade HNO3	M5280037X (69879)
Thermometer	329 (42023)				

Preparation Steps

Step: Digestion
Started: 6/9/14 12:26
Finished: 6/13/14 14:17
By: MCRIBBIN
Comments

T6000

Comments: _____

Preparation Information Benchsheet

'rep Run#: 210334
'eam: Metals/MCRIBBIN

Prep WorkFlow: MetDigSMS
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/13/14 09:15 AM

viewed By: DBond Date: 6/14/14 Spike Witness: DBOND Date:

:ain of Custody

Relinquished By: [signature] Date: 6/13/14 1420

Received By: RABI Date: 6/13/14 1420

Extracts Examined
Yes No

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

R4273

Analyst: CJW Date: 6/17/14 Data File: 3Jun17A

Prep Dates: MRL 6/12/14 ICSA 6/12/14 ICSAB 6/9/14 Int.Std 6/17/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/16/14 ICV / CCV 6/17/14

HLCCV2 6/9/14

Lot #: MRL M670105A ICSA M670119A ICSAB M670137A Int.Std M670156K

Cal Std 1 M670003B Cal Std 2 M670022D Cal Std 5 / HLCCV1 M670037G ICV / CCV M670057N

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670079A

Blank Prepared Daily Lot: HNO3 M5280037X HCL M5260038D

1	1		Calib Blank 1	30	45		PBW-210823	70	74		PBS-210765
2	9		Calib Std 1	31	46		LCSW-210823	71	75		LCSS-210765
3	10		Calib Std 2	32	47		R1404201-002	72	76		R1404261-001
4	11		Calib Std 3	33	48		R1404201-002D	73	77		R1404261-001D
5	12		Calib Std 4	34	49		R1404201-002S	74	78		R1404261-001S
6	2		Calib Std 5	35	50		R1404201-002A	75	79		R1404261-001A
7	3	QC	ICV	36	51		R1404201-002L	76	80		R1404261-001L
8	1	QC	ICB	37	52		R1404201-003	77	81		R1404261-002
9	6	QC	MRL	38	53		R1404201-004	78	82		R1404261-003
10	7	QC	ICSA	39	54		R1404201-005	79	83		R1404261-004
11	8	QC	ICSAB	40	3	QC	CCV	80	4	QC	CCV
12	3	QC	CCV	41	1	QC	CCB	81	5	QC	CCB
13	1	QC	CCB	42	55		R1404201-006	82	84		R1404261-005
14	38		PBW-210870	43	56		R1404260-001	83	85		R1404261-006
15	39		LCSW-210870	44	57		R1404260-002	84	86		R1404261-007
16	40		R1404525-001	45	58		R1404260-003	85	87		R1404273-005
17	41		R1404525-001D	46	59		R1404260-004	86	88		R1404273-006
18	42		R1404525-001S	47	60		R1404260-005	87	89		R1404329-001
19	43		R1404525-001L	48	61		R1404260-006	88	90		R1404421-008
20	44		LR2	49	62		R1404260-007	89	91		R1404421-009
21	3	QC	CCV	50	63		R1404273-001	90	92		R1404421-010
22	1	QC	CCB	51	64		R1404274-001	91	4	QC	CCV
23	6	QC	MRL	52	3	QC	CCV	92	5	QC	CCB
24	7	QC	ICSA	53	1	QC	CCB	93	6	QC	MRL
25	8	QC	ICSAB	54	65		R1404274-005	94	7	QC	ICSA
26	13	QC	HLCCV2	55	66		R1404274-005D	95	8	QC	ICSAB
27	2	QC	HLCCV1	56	67		R1404274-005S	96	4	QC	CCV
28	3	QC	CCV	57	68		R1404274-005A	97	5	QC	CCB
29	1	QC	CCB	58	69		R1404274-005L	98	93		R1404317-001
				59	70		R1404274-008	99	94		R1404317-002
				60	71		R1404274-009	100	95		R1404317-003
				61	72		R1404282-003	101	96		R1404359-001
				62	73		R1404282-004	102	4	QC	CCV
				63	4	QC	CCV	103	5	QC	CCB
				64	5	QC	CCB	104	6	QC	MRL
				65	6	QC	MRL	105	7	QC	ICSA
				66	7	QC	ICSA	106	8	QC	ICSAB
				67	8	QC	ICSAB	107	4	QC	CCV
				68	4	QC	CCV	108	5	QC	CCB
				69	5	QC	CCB	109	97		Sample097

CJW 6/17/14

OPTIMA 8000 ICP-OES(#5) Run Log

Serial number: 078N2072408C

Analyst: DCB Date: 6/18/14 Data File: 5 Jun 18

Prep Dates: MRL 6/12/14 ICSA 6/12/14 ICSAB 6/9/14 Int.Std 6/13/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/16/14 ICV / CCV 6/18/14

HLCCV2 6/6/14

Lot #: MRL M670105A ICSA M670119A ICSAB M670132A Int.Std M670159A

Cal Std 1 M670013B Cal Std 2 M670022D Cal Std 5 / HLCCV1 M670037G ICV / CCV M670035T0

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670091C

Blank Prepared Daily Lot: HNO3 M5280037A HCL M5280038A

1	1		Calib Blank 1	41	61		R1404516-001L 200X	81	88		R1404421-010 5X
2	9		Calib Std 1	42	62		R1404516-001 50X	82	4	QC	CCV
3	10		Calib Std 2	43	63		R1404516-001L 50X	83	5	QC	CCB
4	11		Calib Std 3	44	64		R1404516-002 200X	84	6	QC	MRL
5	12		Calib Std 4	45	65		R1404516-002 100X	85	7	QC	ICSA
6	2		Calib Std 5	46	66		R1404516-002 50X	86	8	QC	ICSAB
7	3	QC	ICV	47	3	QC	CCV	87	4	QC	CCV
8	1	QC	ICB	48	1	QC	CCB	88	5	QC	CCB
9	6	QC	MRL	49	6	QC	MRL	89	89		PBW-210827
10	7	QC	ICSA	50	7	QC	ICSA	90	90		LCSW-210827
11	8	QC	ICSAB	51	8	QC	ICSAB	91	91		R1404314-001
12	3	QC	CCV	52	13	QC	HLCCV2	92	92		R1404314-002
13	1	QC	CCB	53	2	QC	HLCCV1	93	93		R1404314-002D
14	38		PBW-210823	54	3	QC	CCV	94	94		R1404314-002S
15	39		LCSW-210823	55	1	QC	CCB	95	95		R1404314-002A
16	40		R1404201-002 5X	56	67		PBS-210765	96	96		R1404314-002L
17	41		R1404201-002D 5X	57	68		LCSS-210765	97	97		R1404314-003
18	42		R1404201-002S 5X	58	69		R1404261-001 10X	98	98		R1404314-004
19	43		R1404201-002A 5X	59	70		R1404261-001D 10X	99	4	QC	CCV
20	44		R1404201-002L 5X	60	71		R1404261-001S 10X	100	5	QC	CCB
21	45		R1404201-003 5X	61	72		R1404261-001A 10X	101	99		R1404330-001
22	46		R1404201-004 5X	62	73		R1404261-001L 10X	102	100		R1404330-002 20X
23	47		R1404201-005 5X	63	74		R1404261-002 10X	103	101		R1404330-003
24	3	QC	CCV	64	75		R1404261-003 10X	104	102		R1404330-004
25	1	QC	CCB	65	76		R1404261-004 10X	105	103		R1404330-005
26	48		R1404201-006 5X	66	3	QC	CCV	106	104		R1404330-006 10X
27	49		R1404260-002 5X	67	1	QC	CCB	107	105		R1404330-007 5X
28	50		R1404274-001 5X	68	77		R1404261-005 10X	108	106		R1404330-008
29	51		R1404274-005 5X	69	78		R1404261-006 10X	109	107		R1404330-009 5X
30	52		R1404274-005D 5X	70	79		R1404261-007 10X	110	108		R1404331-001
31	53		R1404274-005S 5X	71	80		R1404273-005 20X	111	4	QC	CCV
32	54		R1404274-005A 5X	72	81		R1404273-006 50X	112	5	QC	CCB
33	55		R1404274-005L 5X	73	82		R1404273-006 10X	113	109		R1404331-001D
34	56		R1404274-008 5X	74	83		R1404421-008 50X	114	110		R1404331-001S
35	57		R1404274-009 5X	75	84		R1404273-008 5X	115	111		R1404331-001A
36	3	QC	CCV	76	85		R1404421-009 50X	116	112		R1404331-001L
37	1	QC	CCB	77	86		R1404421-009 5X	117	113		R1404331-002
38	58		PBW-210903	78	4	QC	CCV	118	114		R1404394-022 5X
39	59		LCSW-210903	79	5	QC	CCB				
40	60		R1404516-001 200X	80	87		R1404421-010 50X				

119	115		R1404394-022
120	116		R1404394-023
121	4	QC	CCV
122	5	QC	CCB
123	6	QC	MRL

124	7	QC	ICSA
125	8	QC	ICSAB
126	4	QC	CCV
127	5	QC	CCB
128	117		Sample117

4/1/13

00094

R4273

OPTIMA 5300DV (#4) Run Log

Serial number: 077N6052202

Analyst: DCB Date: 6/18/14 Data File: 4 Jun 18

Prep Dates: MRL 6/12/14 ICSA 6/6/14 ICSAB 6/6/14 Int.Std 6/17/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/16/14 ICV / CCV 6/16/14

HLCCV2 6/16/14

Lot #: MRL M6760105A ICSA M6760126B ICSAB M6760146A Int.Std M6761562K

Cal Std 1 M6760613B Cal Std 2 M6760220 Cal Std 5 / HLCCV1 M6760376 ICV / CCV M6760057O

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M6760749B

Blank Prepared Daily Lot: HNO3 M5280037A HCL M5280038O

1	1		Calib Blank 1	39	59		R1404201-005	77	5		CCB
2	9	✓	Calib Std 1	40	60		R1404201-006	78	80		PBW-210895
3	10	✓	Calib Std 2	41	61		R1404273-001	79	81		LCSW-210895
4	11	✓	Calib Std 3	42	62		R1404274-001	80	82		R1404360-001
5	12	✓	Calib Std 4	43	63		R1404274-005	81	83		R1404364-001
6	2	✓	Calib Std 5	44	64		R1404274-005D	82	84		R1404364-001D
7	3		ICV	45	65		R1404274-005S	83	85		R1404364-001S
8	1		ICB	46	66		R1404274-005A	84	86		R1404364-001A
9	6		MRL	47	67		R1404274-005L	85	87		R1404364-001L
10	7		ICSA	48	3		CCV	86	88		R1404388-001
11	8		ICSAB	49	1		CCB	87	89		R1404388-001D
12	3		CCV	50	6		MRL	88	4		CCV
13	1		CCB	51	7		ICSA	89	5		CCB
14	38		PBS-210765	52	8		ICSAB	90	90		R1404388-001S
15	39		LCSS-210765	53	13		HLCCV2	91	91		R1404388-001A
16	40		R1404273-005	54	2		HLCCV1	92	92		R1404388-001L
17	41		R1404273-006	55	3		CCV	93	93		R1404408-001 10X
18	42		R1404317-001	56	1		CCB	94	94		R1404444-001
19	43		R1404317-002	57	68		R1404274-008	95	95		R140444-002
20	44		R1404317-003	58	69		R1404274-009	96	96		R140444-003
21	45		R1404329-001	59	70		R1404282-003	97	97		R140444-004
22	46		R1404421-008	60	71		R1404282-004	98	98		R140444-005
23	47		R1404421-009	61	72		PBW-211012	99	99		R140444-006
24	3		CCV	62	73		LCSW-211012	100	4		CCV
25	1		CCB	63	74		R1404526-001	101	5		CCB
26	48		R1404421-010	64	75		R1404526-001D	102	100		R140444-007
27	49		R1404421-010L	65	76		R1404526-001S	103	101		R1404486-001
28	50		PBW-210823	66	77		R1404526-001A	104	102		R1404502-001
29	51		LCSW-210823	67	3		CCV	105	4		CCV
30	52		R1404201-002	68	1		CCB	106	5		CCB
31	53		R1404201-002D	69	78		R1404526-001L	107	6		MRL
32	54		R1404201-002S	70	79		R1404544-001	108	7		ICSA
33	55		R1404201-002A	71	4		CCV	109	8		ICSAB
34	56		R1404201-002L	72	5		CCB	110	4		CCV
35	57		R1404201-003	73	6		MRL	111	5		CCB
36	3		CCV	74	7		ICSA	112	103		Sample103
37	1		CCB	75	8		ICSAB				
38	58		R1404201-004	76	4		CCV				

CJ 6/18/14

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC Date: 6/20/14

Data File: 062014 Method: 6020A / 200.8

TC 6/20/14 **Standard Lot #s and Prep Dates:**

MRL/Cal Std 1: M6570065L 6/18/14 Cal Std 2: M6510015G 6/17/15

Cal Std 3: M6510026H 6/9/14 ICV/CCV: M6510050I 6/20/14

HLCCV2: M6570080O 6/18/14 Internal Std: M6510010 9A 4/8/14

ICSA (6020A): M6510091K 6/16/14 ICSAB (6020A): M6510010 2F 6/16/14

Tuning Solution: M6510140B 4/29/14 HNO_3: M5280037X

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std.6 = CCV	

38	210862	PBW-210862
39	210862	LCSW-210862
40	210862	R1404273-001
41	210862	R1404274-001
42	210862	R1404274-005 TC 6/20/14
43	210862	R1404274-008
44	210862	R1404274-009
45	210862	R1404274-009L
9		HLCCV2

R4273

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TJC

Date: 6/20/14

Data File: 062014

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: 6/6/14 M6510065J

Cal Std 2: 6/6/14 M6510015F

Cal Std 3: 6/6/14 M6510026G

ICV/CCV: 6/20/14 M6510050K

HLCCV2: 6/19/14 M6510060P

Internal Std: 4/8/14 M6510109A

ICSA (6020A): 6/19/14 M6510091L

ICSAB (6020A): 6/19/14 M6510162G

Tuning Solution: 4/29/14 M6510140B

HNO_3: M5280037X

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210334	PBW-210334
39	210334	LCSW-210334
40	210334	R1404273-005
41	210334	R1404273-005D
42	210334	R1404273-005S
43	210334	R1404273-005A
44	210334	R1404273-005L
45	210334	R1404273-006
9		HLCCV2
46	210334	R1404421-008
47	210334	R1404421-009
48	210334	R1404421-010

C-7

6/20/14

R4273

Perkin Elmer FIMS Run Log

Serial number: 101S12110203

Analyst: CJW

Data File: Jm-13W

Date Prepped: 6/13/14

Date Analyzed: 6/13/14

Lot #: Calibration/CRDL Source Standard: M5080805

ICV/CCV/LCS/MS Source Standard: M5280038R

Cal/ CRDL 10ppm stock: M6810007B

ICV/CCV/LCS/MS 10ppm stock: M6810007B

Cal/ CRDL 0.1ppm stock: M6810057B

ICV/CCV/LCS/MS 0.1 ppm stock: M6810007B

1	1		Calib Blank	42	60	R1404394-002
2	2		0.2ppb std	43	61	R1404394-003
3	3		0.5ppb std	44	62	R1404394-004
4	4		1.0ppb std	45	63	R1404394-005
5	5		2.0ppb std	46	64	R1404394-006
6	6		5.0ppb std	47	65	R1404394-007
7	7		10.0ppb std	48	66	R1404394-008
8	8		ICV	49	8	CCV
9	1		ICB	50	1	CCB
10	2		MRL	51	67	R1404394-009
11	8		CCV	52	68	R1404394-010
12	1		CCB	53	69	R1404394-011
13	38		PBW-210741	54	70	R1404394-012
14	39		LCSW	55	71	R1404394-013
15	40		R1404273-001	56	72	R1404394-014
16	41		R1404273-001D	57	73	R1404394-015
17	42		R1404273-001S	58	74	R1404394-016
18	43		R1404274-001	59	8	CCV
19	44		R1404274-005	60	1	CCB
20	45		R1404274-008	61	75	R1404394-017
21	8		CCV	62	76	R1404394-017D
22	1		CCB	63	77	R1404394-017S
23	46		R1404274-009	64	78	R1404394-018
24	47		R1404285-001	65	79	R1404394-019
25	48		R1404314-001	66	80	R1404394-020
26	49		R1404314-002	67	81	R1404394-021
27	50		R1404314-003	68	82	Blank ~~R1404394-022~~
28	51		R1404314-004	69	2	MRL
29	52		R1404388-001	70	8	CCV
30	53		R1404394-022	71	1	CCB
31	8		CCV	72	83	SAMPLE
32	1		CCB			
33	54		R1404394-022D			
34	55		R1404394-022S			
35	56		R1404394-023			
36	57		R1404439-001			
37	2		MRL			
38	8		CCV			
39	1		CCB			
40	58		PBW-210742			
41	59		LCSW			

CJW 6/13/14

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

M 1/29

00099

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 29 13:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.84	89	182264	1.00 ug/L	0.00
Target Compounds					Qvalue
2) Perchlorate	7.84	83	195969	0.99 ug/L	100
3) #2 perc ion	7.84	85	64118	0.96 ug/L	100

Ratio
3.06

mf 1/29

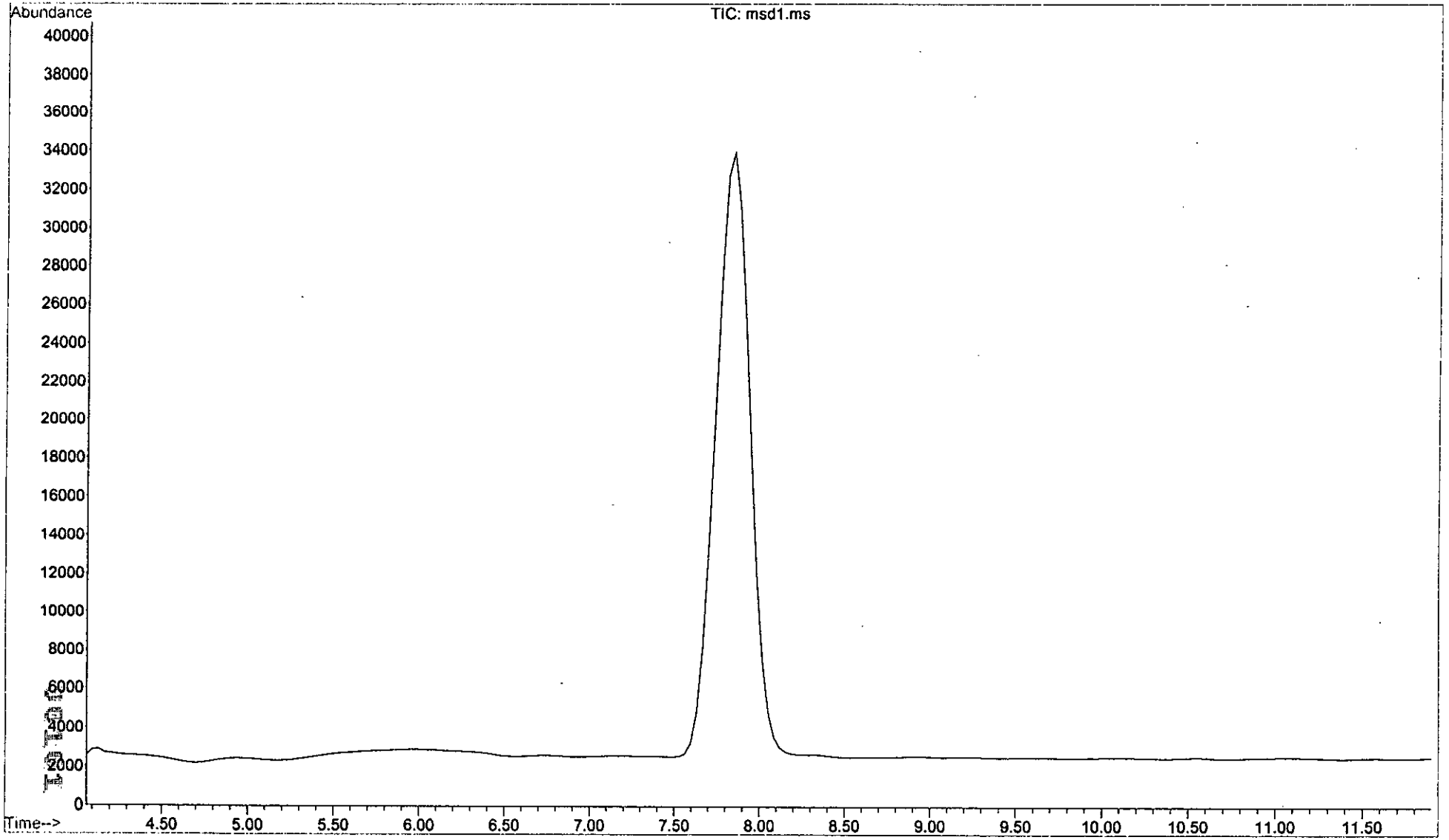
00100

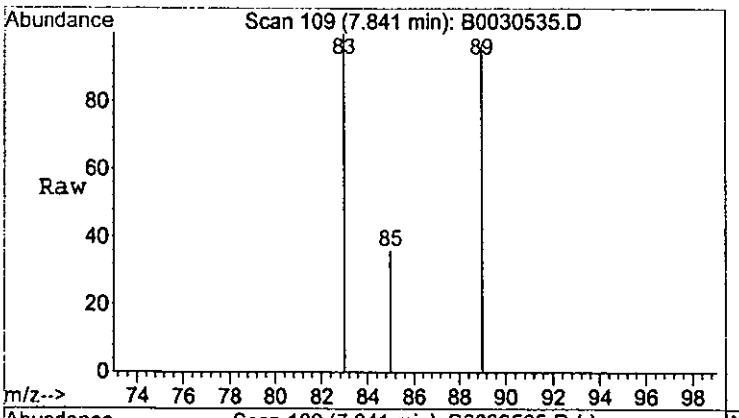
(#) = qualifier out of range (m) = manual integration
B0030535.D PERC0129.M Wed Jan 29 13:54:06 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 29 13:53 2014 Quant Results File: PERC0129.RES

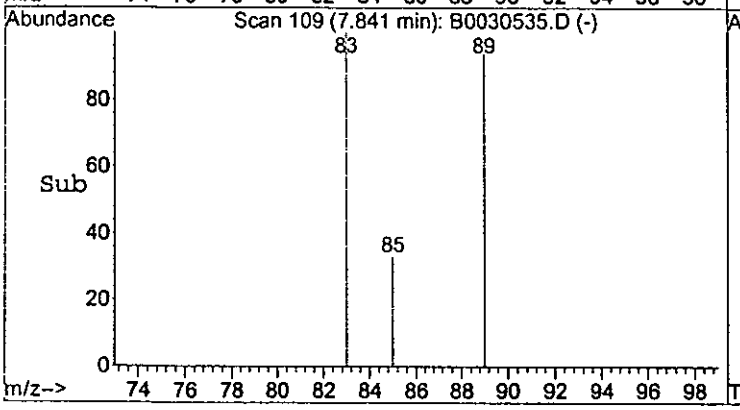
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Initial Calibration

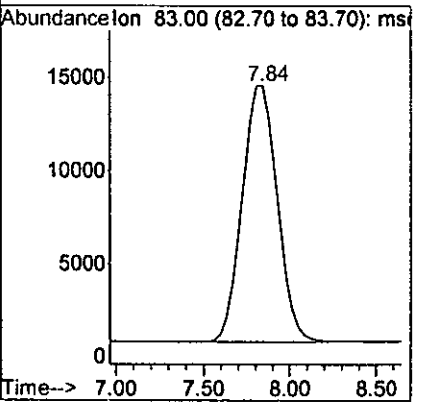


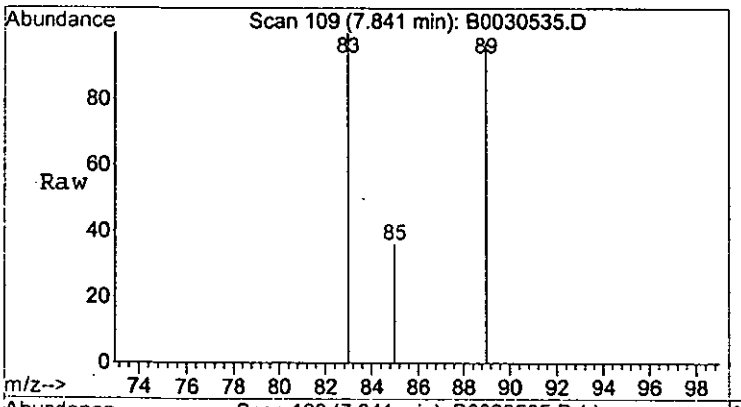


#2
Perchlorate
Concen: 0.99 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.04 min
Lab File: B0030535.D
Acq: 29 Jan 2014 10:56 am

Tgt Ion: 83 Resp: 195969

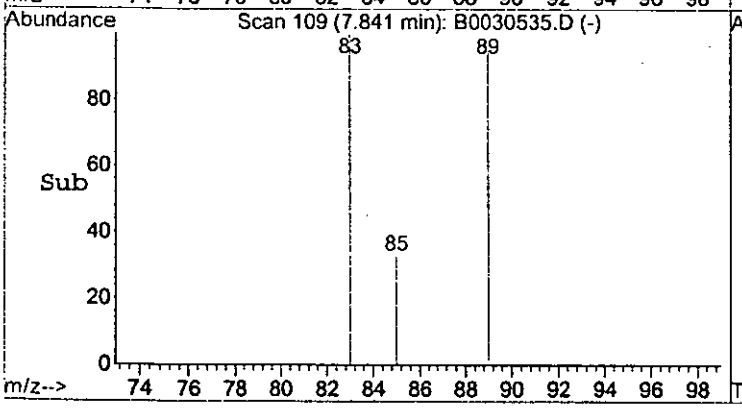


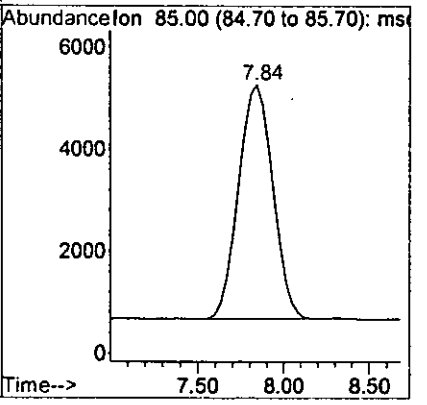




#3
#2 perc ion
Concen: 0.96 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.01 min
Lab File: B0030535.D
Acq: 29 Jan 2014 10:56 am

Tgt Ion: 85 Resp: 64118





00102

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031217.D Vial: 6
Acq On : 9 Jun 2014 3:03 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000, Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	90	0.35
2	Perchlorate	1.085	1.069	1.5	83	0.35
3	#2 perc ion	0.366	0.333	9.0	80	0.35

uf 6/10

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031217.D PERC0129.M Tue Jun 10 13:25:34 2014

00103

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031217.D Vial: 6
Acq On : 9 Jun 2014 3:03 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 10 13:25 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	8.19	89	181211	1.00 ug/L	0.35
Target Compounds					Qvalue
2) Perchlorate	8.15	83	193781	0.99 ug/L	100
3) #2 perc ion	8.19	85	60376	0.91 ug/L	100

Ratio
3.21

MP 6/10

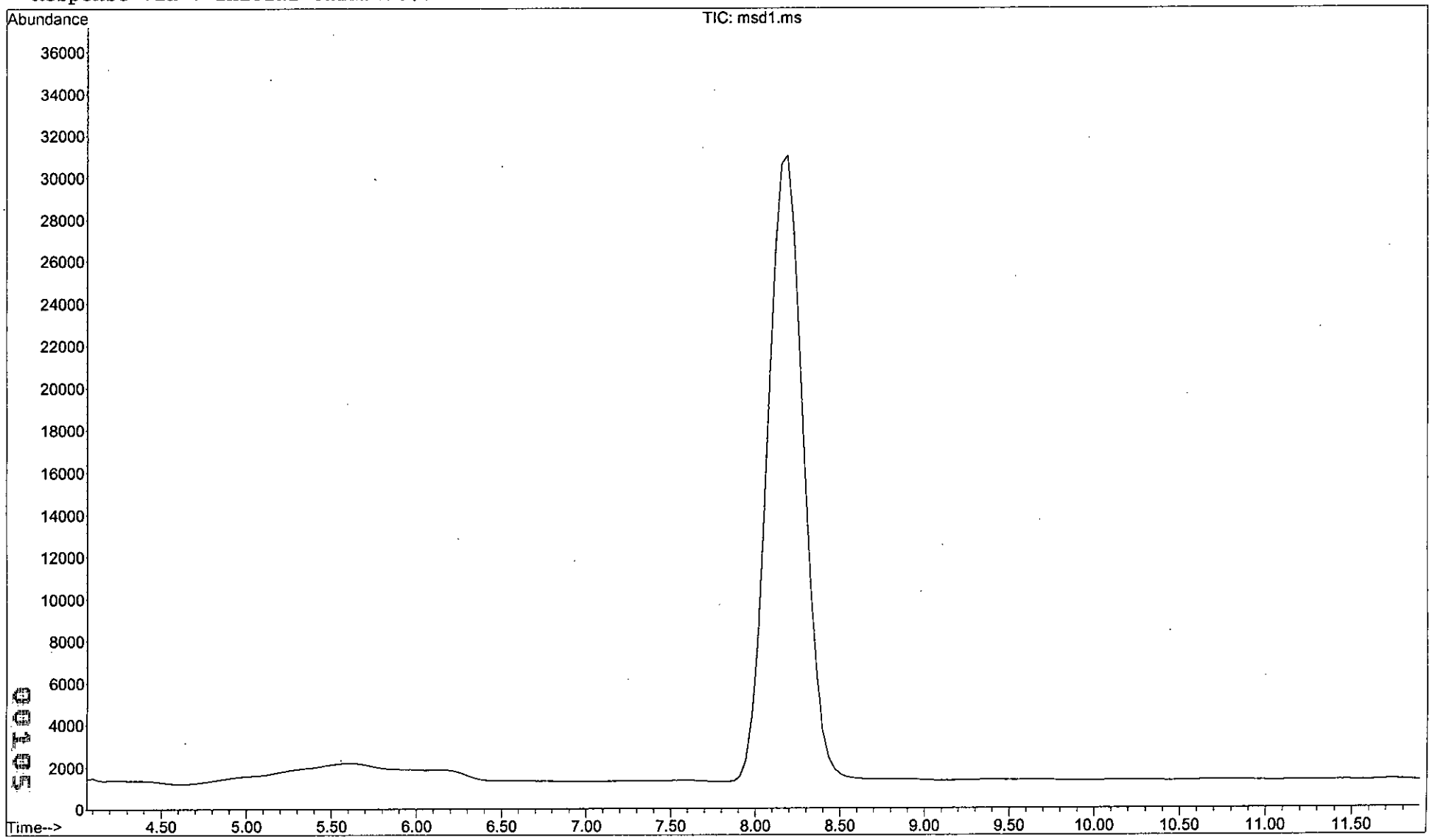
(#) = qualifier out of range (m) = manual integration
B0031217.D PERC0129.M Tue Jun 10 13:25:38 2014

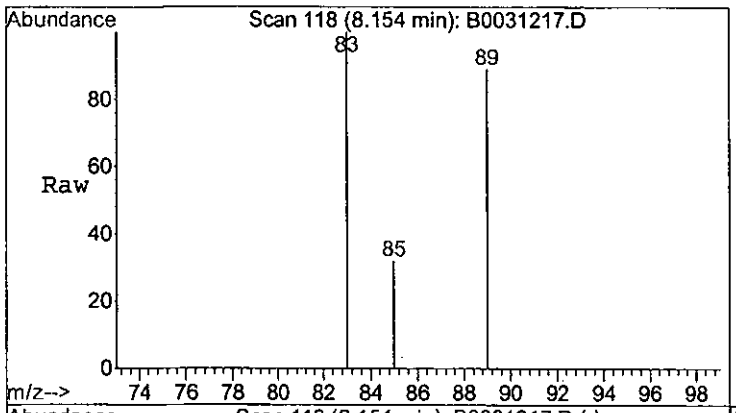
00104

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031217.D Vial: 6
Acq On : 9 Jun 2014 3:03 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 10 13:25 2014 Quant Results File: PERC0129.RES

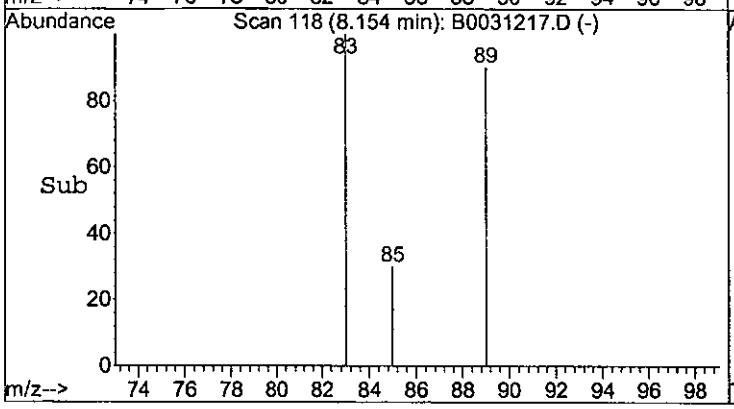
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

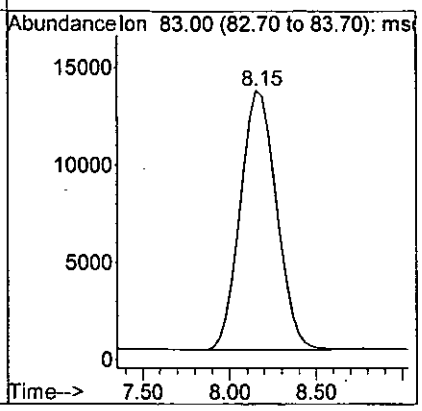


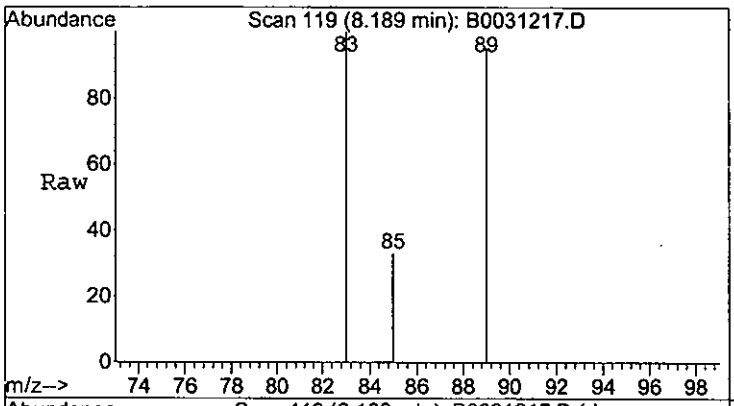


#2
Perchlorate
Concen: 0.99 ug/L
RT: 8.15 min Scan# 118
Delta R.T. 0.35 min
Lab File: B0031217.D
Acq: 9 Jun 2014 3:03 pm

Tgt Ion: 83 Resp: 193781

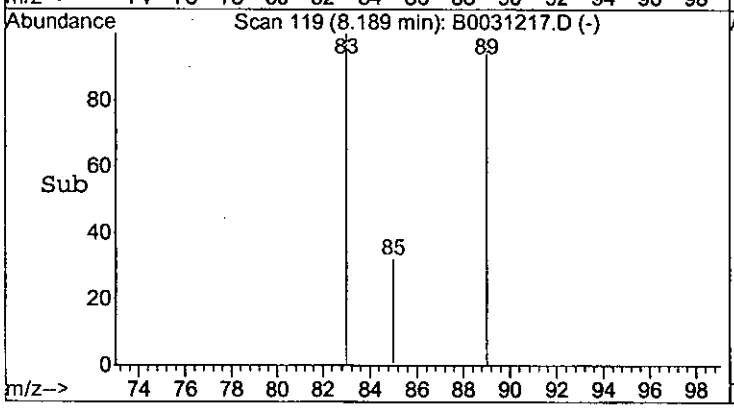


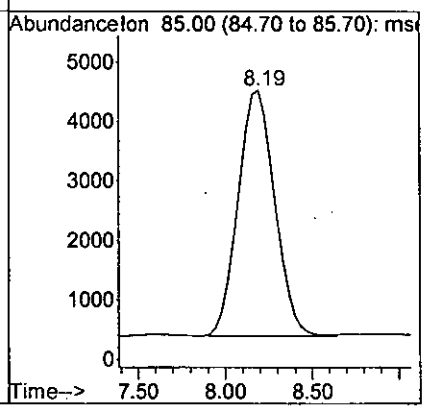




#3
#2 perc ion
Concen: 0.91 ug/L
RT: 8.19 min Scan# 119
Delta R.T. 0.35 min
Lab File: B0031217.D
Acq: 9 Jun 2014 3:03 pm

Tgt Ion: 85 Resp: 60376





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031228.D Vial: 6
Acq On : 9 Jun 2014 5:31 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	82	0.38
2	Perchlorate	1.085	1.127	-3.9	80	0.38
3	#2 perc ion	0.366	0.347	5.2	76	0.35

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031228.D Vial: 6
Acq On : 9 Jun 2014 5:31 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 10 13:26 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	8.22	89	165396	1.00 ug/L	0.38
Target Compounds					Qvalue
2) Perchlorate	8.19	83	186369	1.04 ug/L	100
3) #2 perc ion	8.19	85	57369	0.95 ug/L	100

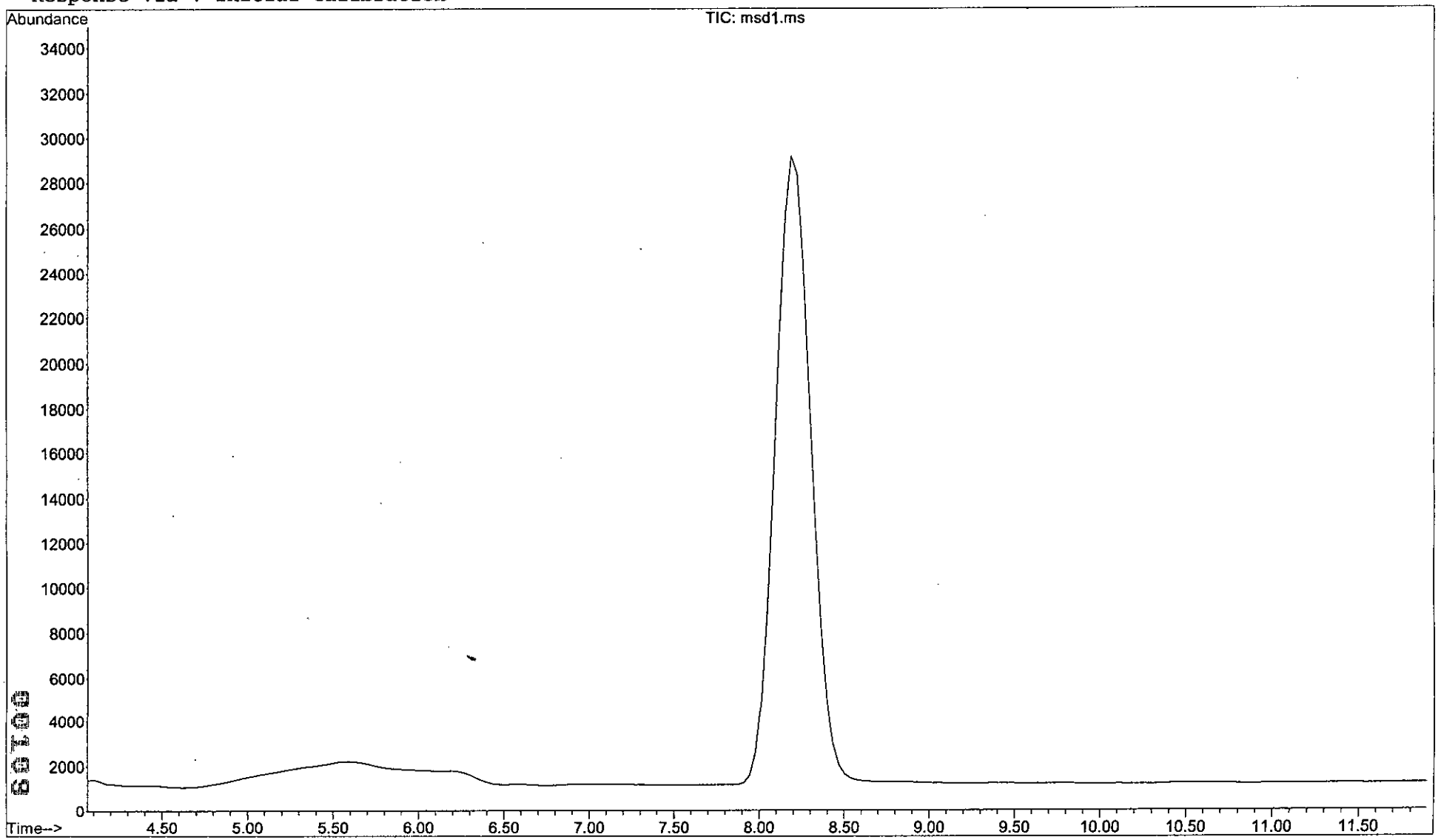
Ratio
3.25

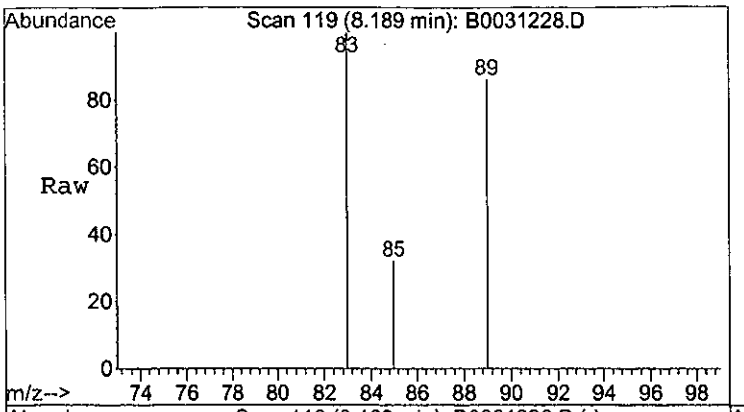
(#) = qualifier out of range (m) = manual integration
B0031228.D PERC0129.M Tue Jun 10 13:30:44 2014

00198

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031228.D Vial: 6
Acq On : 9 Jun 2014 5:31 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 10 13:26 2014 Quant Results File: PERC0129.RES

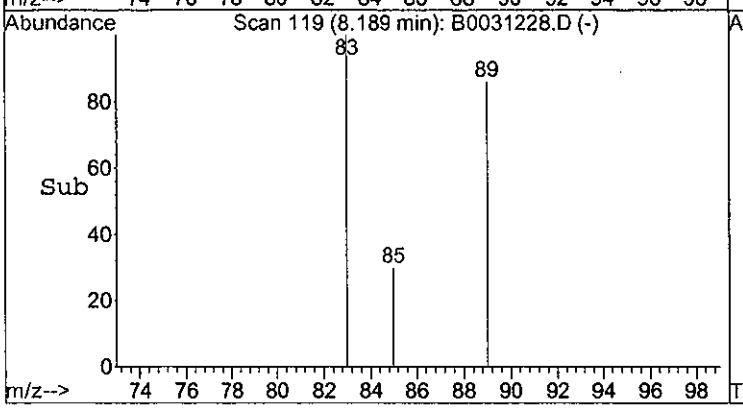
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

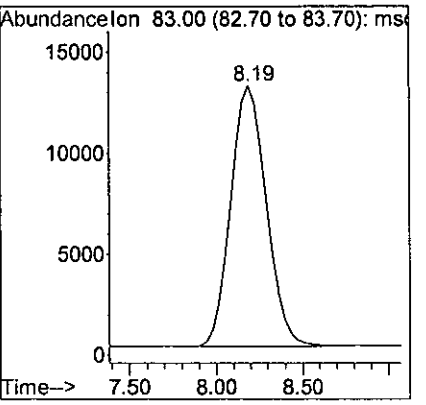


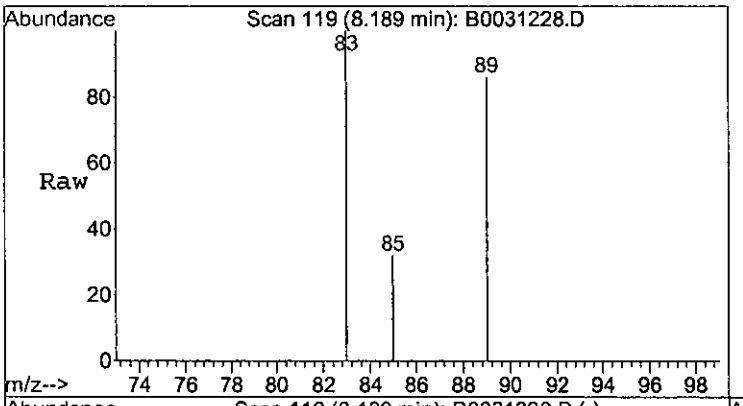


#2
Perchlorate
Concen: 1.04 ug/L
RT: 8.19 min Scan# 119
Delta R.T. 0.38 min
Lab File: B0031228.D
Acq: 9 Jun 2014 5:31 pm

Tgt Ion: 83 Resp: 186369

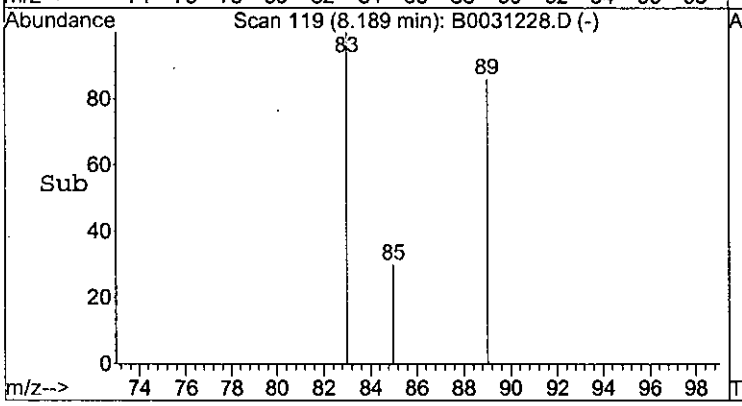


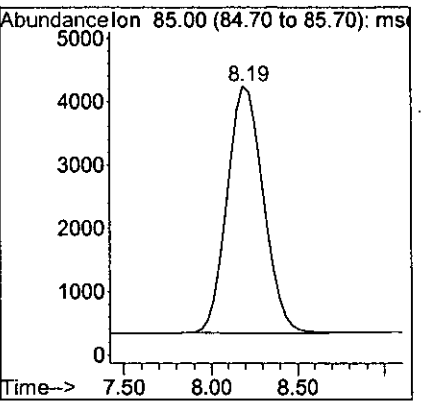




#3
#2 perc ion
Concen: 0.95 ug/L
RT: 8.19 min Scan# 119
Delta R.T. 0.35 min
Lab File: B0031228.D
Acq: 9 Jun 2014 5:31 pm

Tgt Ion: 85 Resp: 57369





00110

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031235.D Vial: 6
Acq On : 9 Jun 2014 7:05 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	86	0.38
2	Perchlorate	1.085	1.087	-0.2	80	0.38
3	#2 perc ion	0.366	0.344	6.0	78	0.39

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031235.D Vial: 6
Acq On : 9 Jun 2014 7:05 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 10 13:26 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	8.22	89	172114	1.00 ug/L	0.38
Target Compounds					Qvalue
2) Perchlorate	8.19	83	187092	1.00 ug/L	100
3) #2 perc ion	8.22	85	59135	0.94 ug/L	100

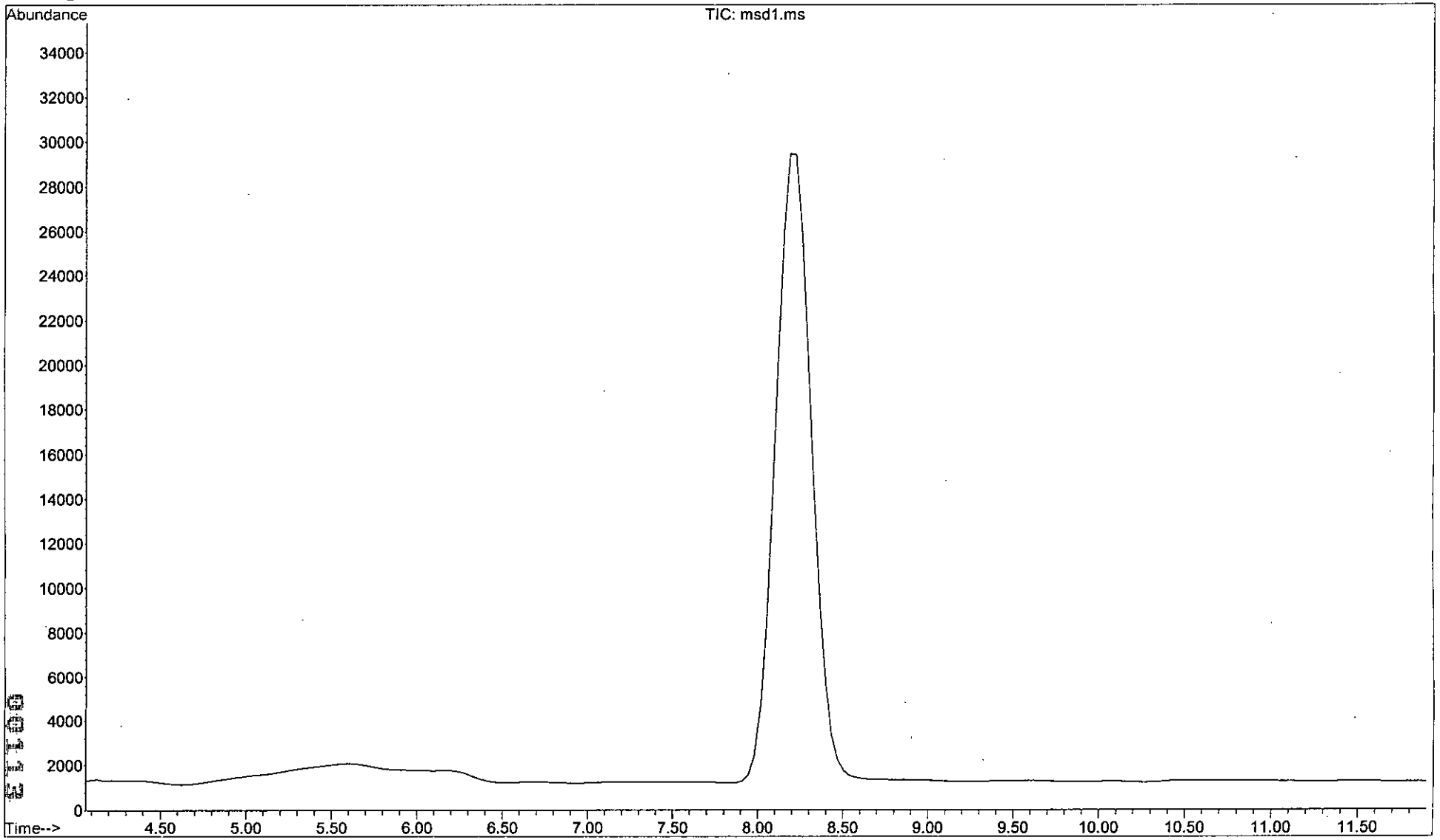
Ratio
3.16

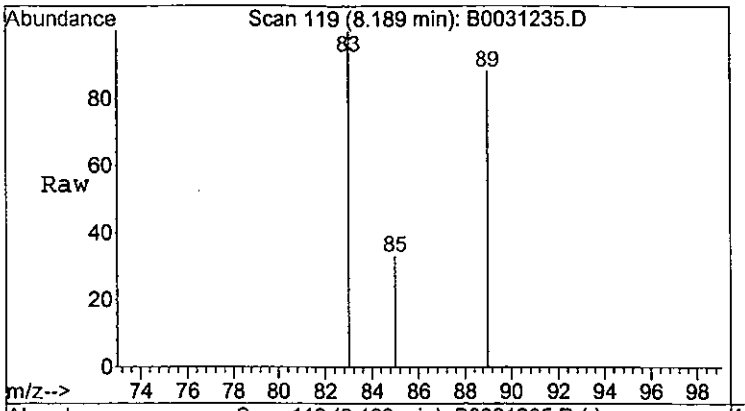
WP 6/10/14

(#) = qualifier out of range (m) = manual integration
B0031235.D PERC0129.M Tue Jun 10 13:34:11 2014

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031235.D Vial: 6
Acq On : 9 Jun 2014 7:05 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 10 13:26 2014 Quant Results File: PERC0129.RES

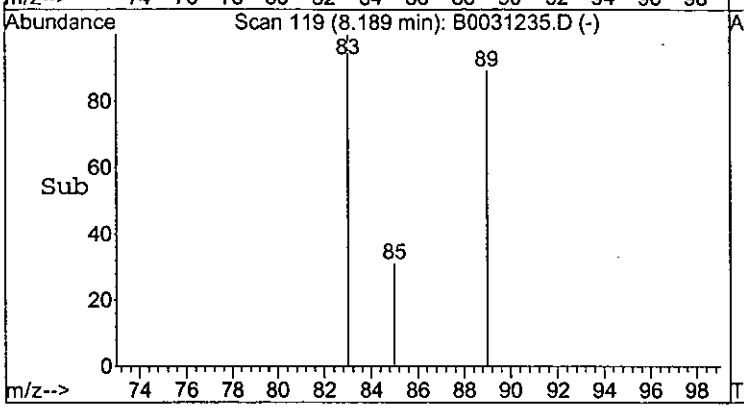
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

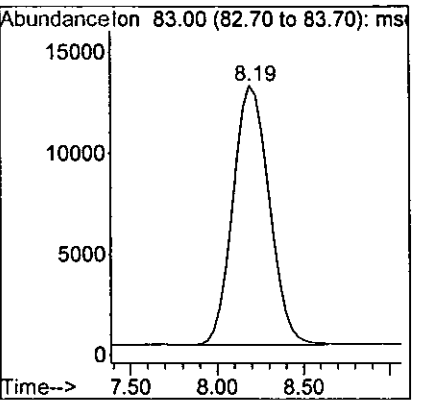


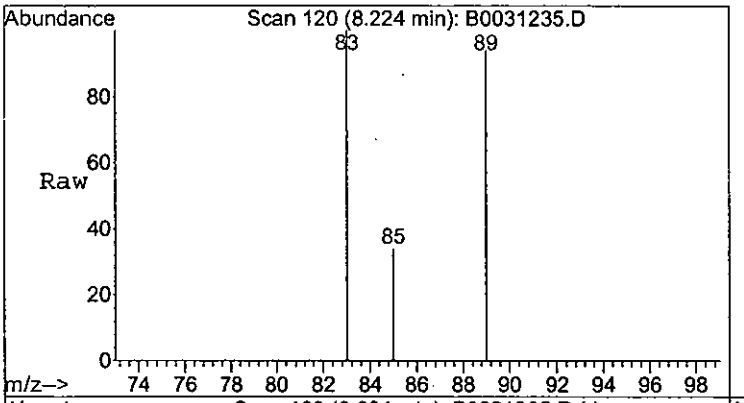


#2
Perchlorate
Concen: 1.00 ug/L
RT: 8.19 min Scan# 119
Delta R.T. 0.38 min
Lab File: B0031235.D
Acq: 9 Jun 2014 7:05 pm

Tgt Ion: 83 Resp: 187092

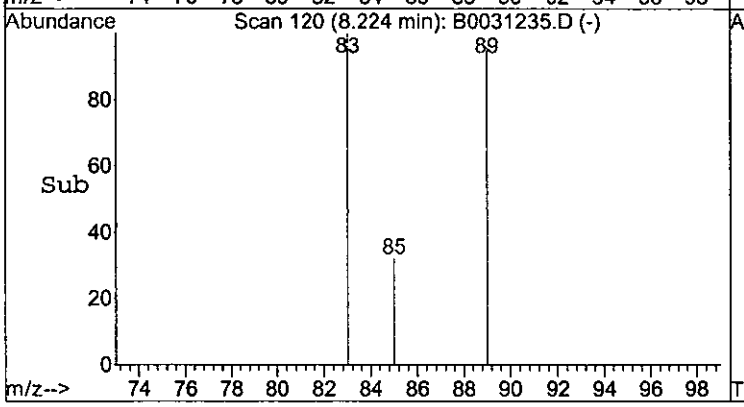


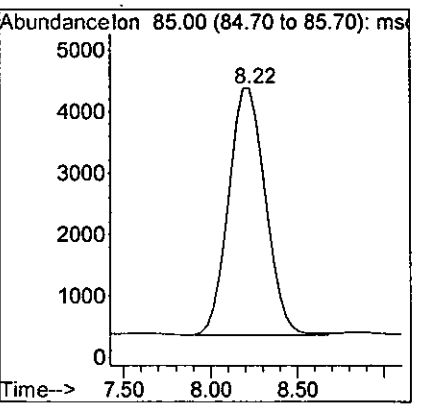




#3
#2 perc ion
Concen: 0.94 ug/L
RT: 8.22 min Scan# 120
Delta R.T. 0.39 min
Lab File: B0031235.D
Acq: 9 Jun 2014 7:05 pm

Tgt Ion: 85 Resp: 59135





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031447.D Vial: 6
Acq On : 17 Jun 2014 5:34 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	95	0.10
2	Perchlorate	1.085	1.125	-3.7	93	0.10
3	#2 perc ion	0.366	0.342	6.6	87	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031447.D Vial: 6
Acq On : 17 Jun 2014 5:34 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	192056	1.00 ug/L	0.10
Target Compounds					Qvalue
2) Perchlorate	7.91	83	216010	1.04 ug/L	100
3) #2 perc ion	7.91	85	65717	0.94 ug/L	100

Ratio
3.29

BA6/18

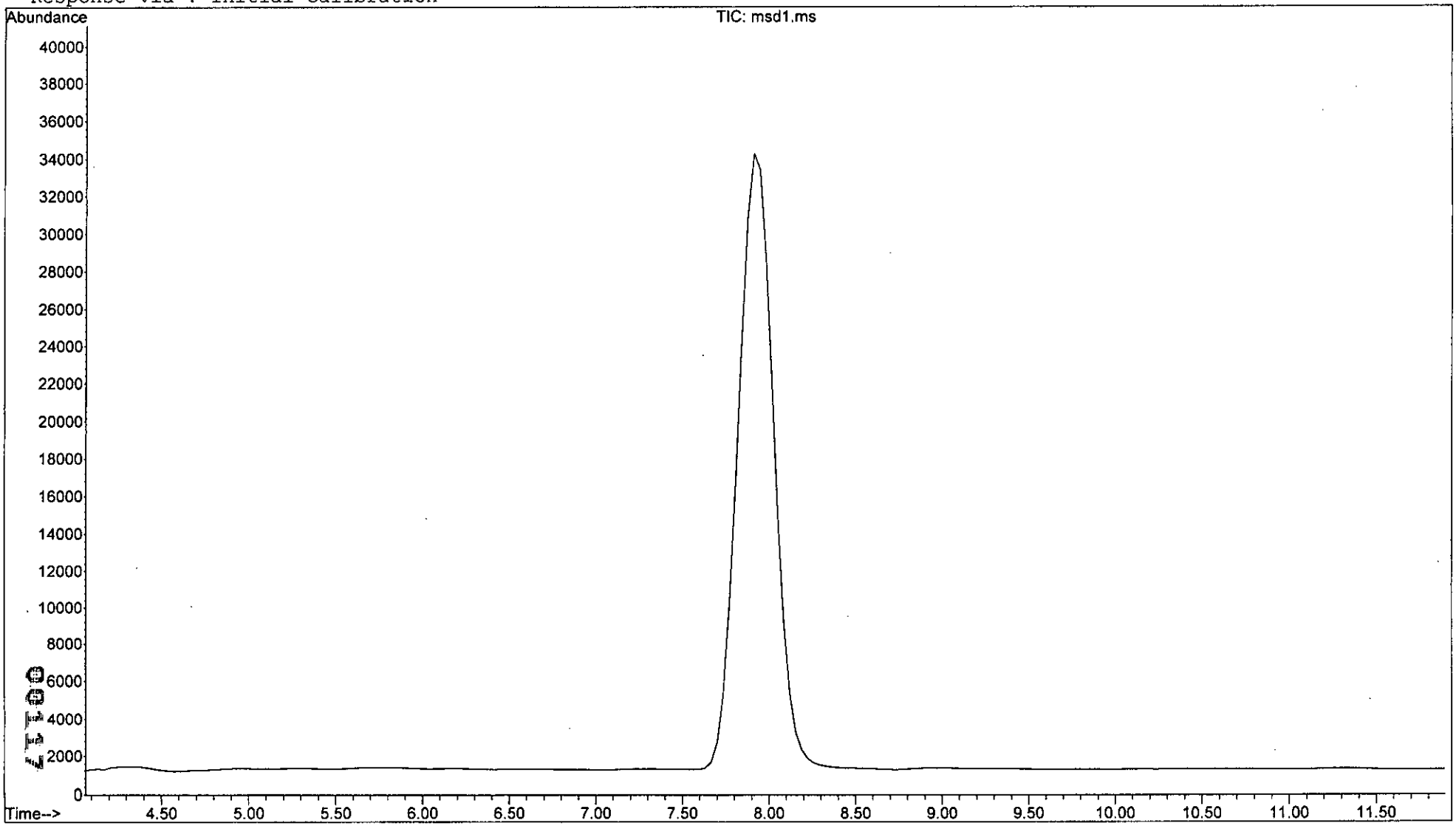
(#) = qualifier out of range (m) = manual integration
B0031447.D PERC0129.M Wed Jun 18 09:06:36 2014

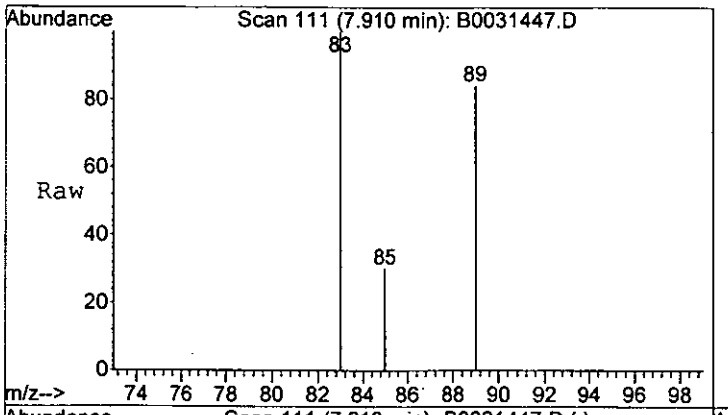
00116

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031447.D Vial: 6
Acq On : 17 Jun 2014 5:34 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

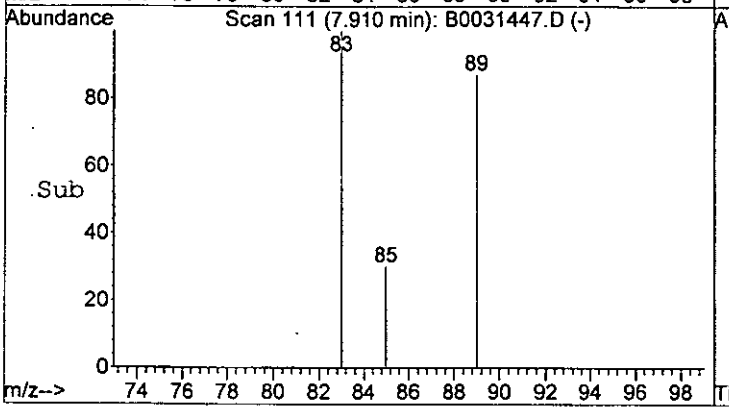
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

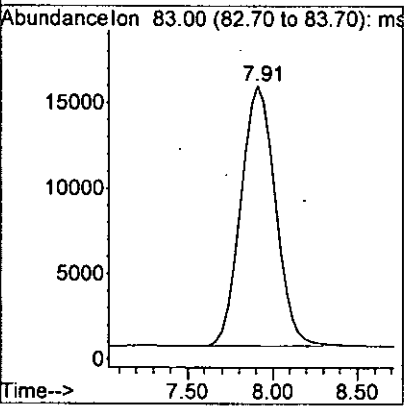


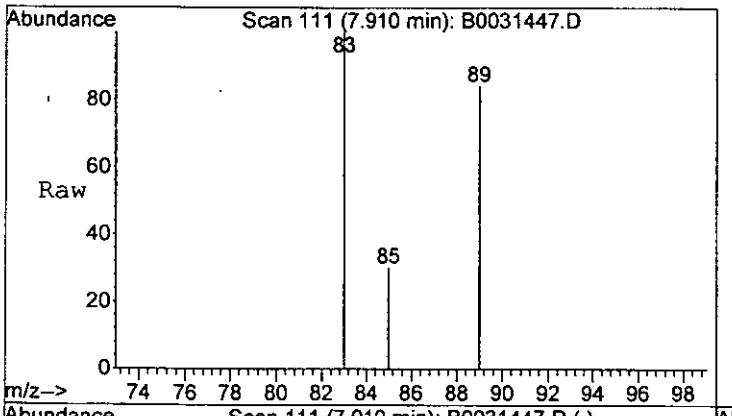


#2
Perchlorate
Concen: 1.04 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031447.D
Acq: 17 Jun 2014 5:34 pm

Tgt Ion: 83 Resp: 216010

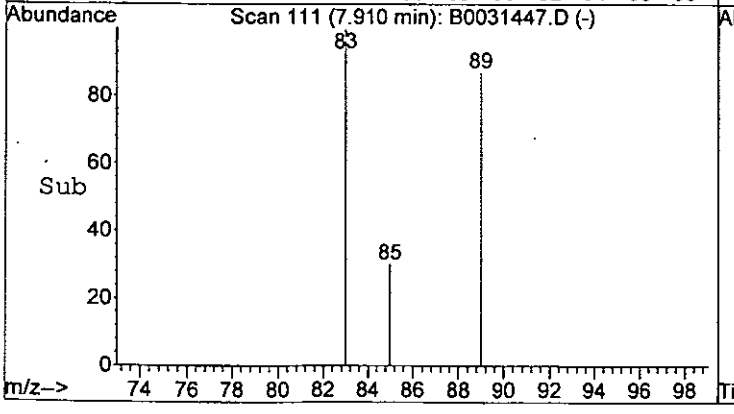


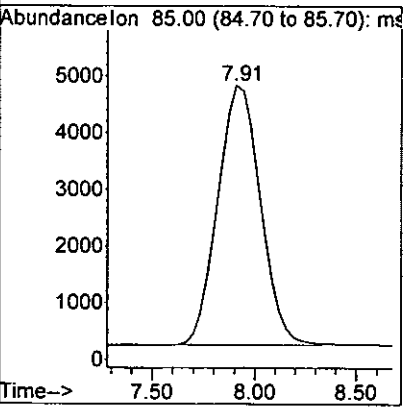




#3
#2 perc ion
Concen: 0.94 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031447.D
Acq: 17 Jun 2014 5:34 pm

Tgt Ion: 85 Resp: 65717





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031458.D Vial: 6
Acq On : 17 Jun 2014 8:02 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	92	0.10
2	Perchlorate	1.085	1.101	-1.5	87	0.10
3	#2 perc ion	0.366	0.335	8.5	82	0.11

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031458.D Vial: 6
Acq On : 17 Jun 2014 8:02 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	184216	1.00 ug/L	0.10
Target Compounds					Qvalue
2) Perchlorate	7.91	83	202898	1.02 ug/L	100
3) #2 perc ion	7.94	85	61745	0.92 ug/L	100

Ratio
3.29

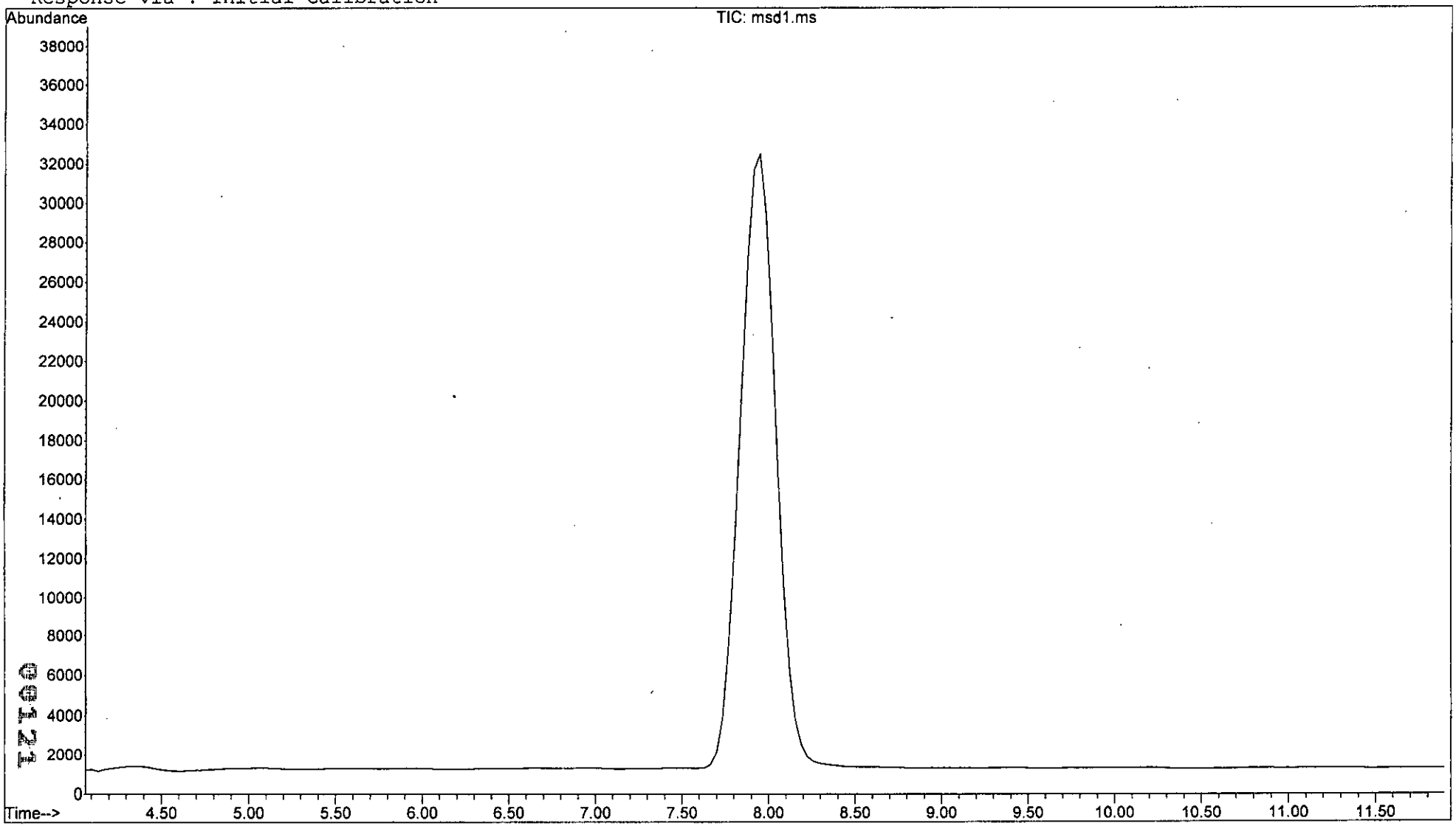
BA6/18

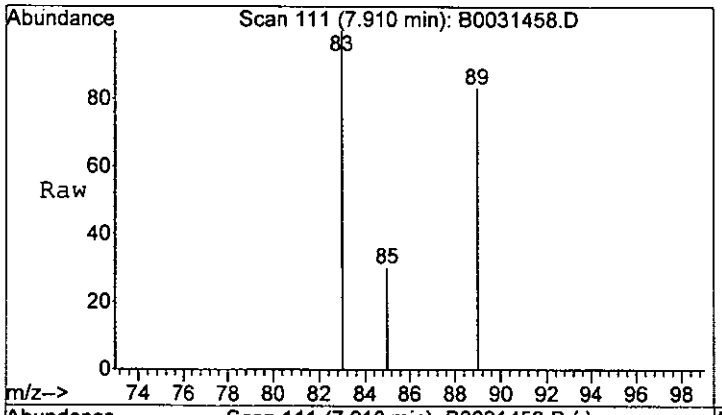
(#) = qualifier out of range (m) = manual integration
B0031458.D PERC0129.M Wed Jun 18 09:18:14 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031458.D Vial: 6
Acq On : 17 Jun 2014 8:02 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

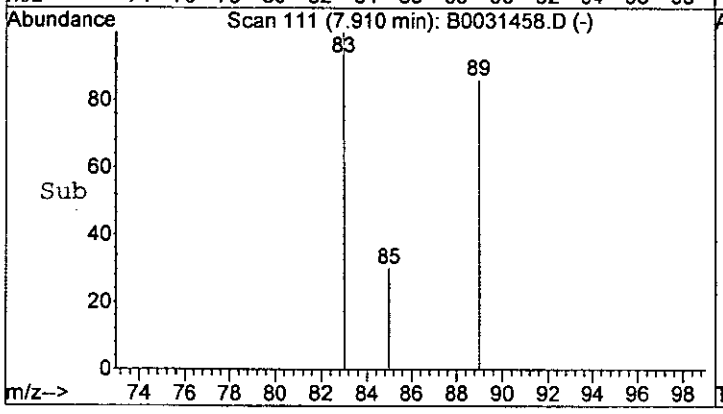
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

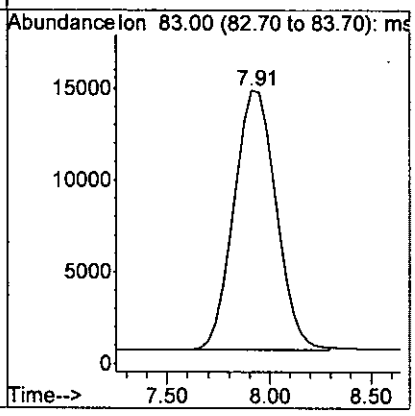


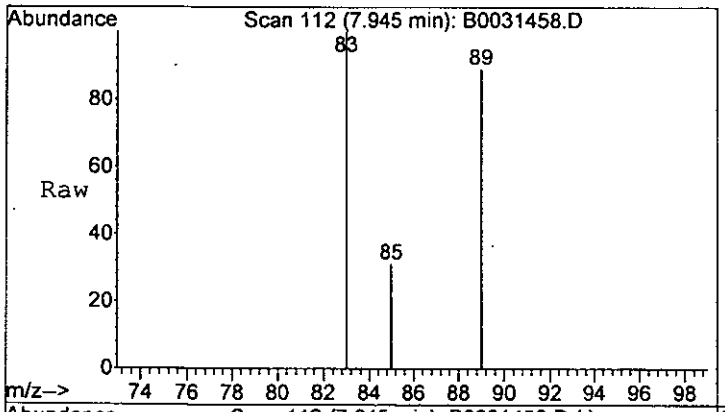


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031458.D
Acq: 17 Jun 2014 8:02 pm

Tgt Ion: 83 Resp: 202898

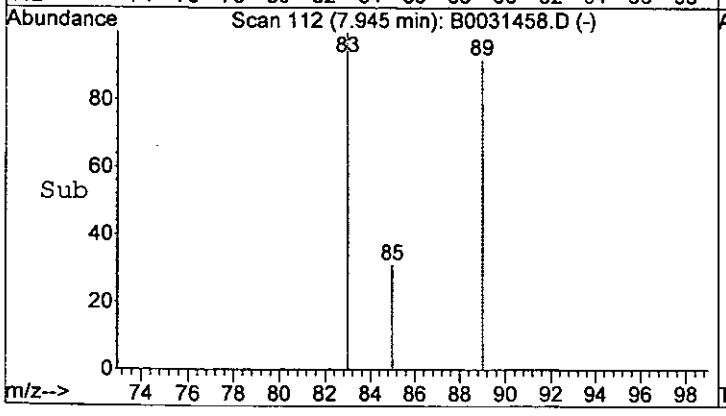


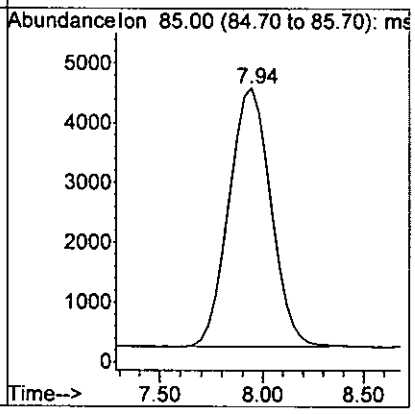




#3
#2 perc ion
Concen: 0.92 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.11 min
Lab File: B0031458.D
Acq: 17 Jun 2014 8:02 pm

Tgt Ion: 85 Resp: 61745





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031469.D Vial: 6
Acq On : 17 Jun 2014 10:29 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	87	0.14
2	Perchlorate	1.085	1.119	-3.1	84	0.14
3	#2 perc ion	0.366	0.339	7.4	78	0.14

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031469.D PERC0129.M Wed Jun 18 09:24:26 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031469.D Vial: 6
Acq On : 17 Jun 2014 10:29 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.98	89	174390	1.00 ug/L	0.14
Target Compounds					Qvalue
2) Perchlorate	7.94	83	195112	1.03 ug/L	100
3) #2 perc ion	7.98	85	59051	0.93 ug/L	100

Ratio
3.30

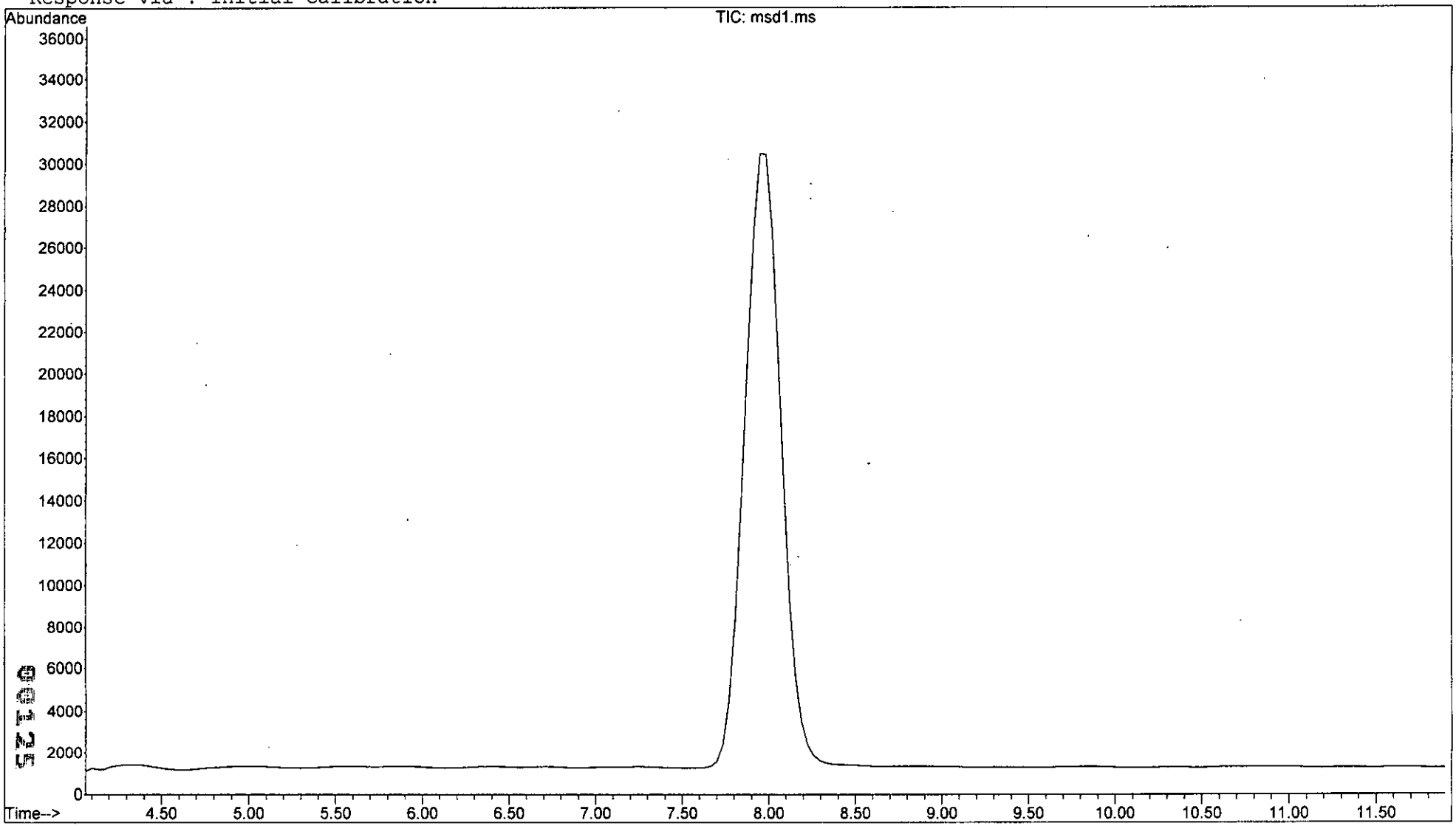
BA6/18

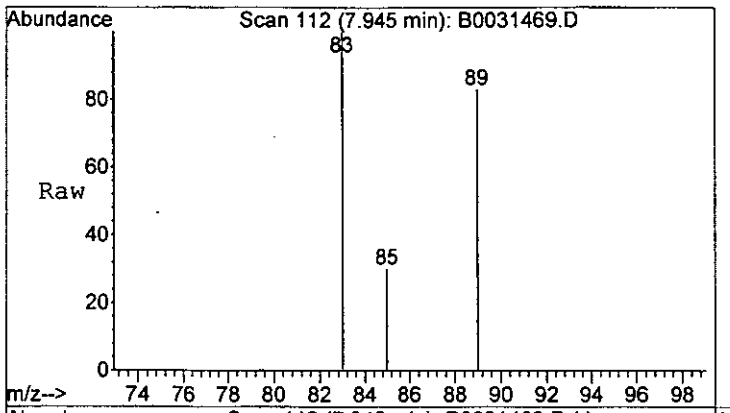
(#) = qualifier out of range (m) = manual integration
B0031469.D PERC0129.M Wed Jun 18 09:24:13 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031469.D Vial: 6
Acq On : 17 Jun 2014 10:29 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

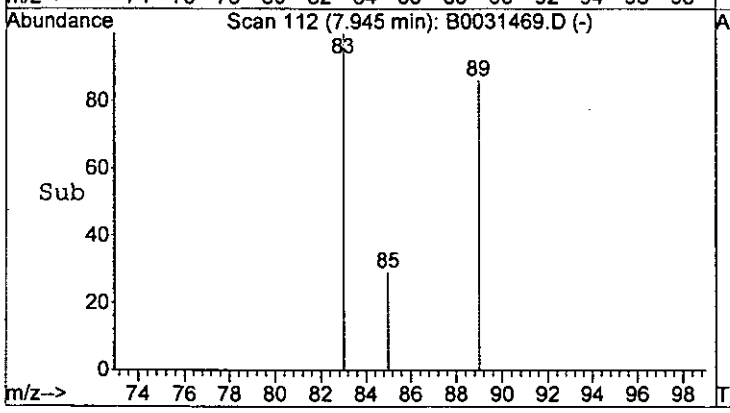
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

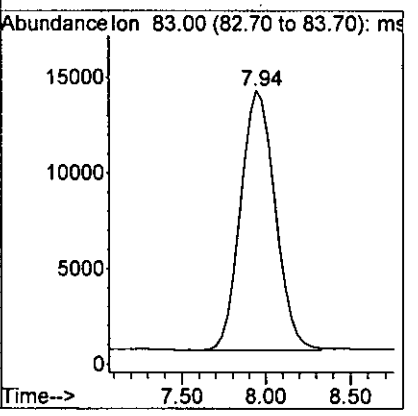


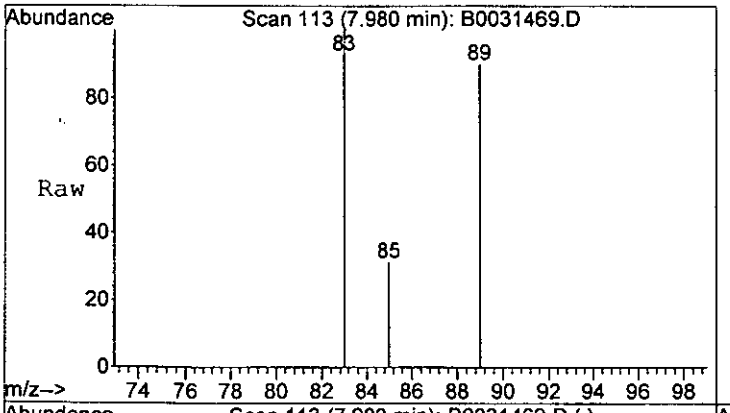


#2
Perchlorate
Concen: 1.03 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.14 min
Lab File: B0031469.D
Acq: 17 Jun 2014 10:29 pm

Tgt Ion: 83 Resp: 195112

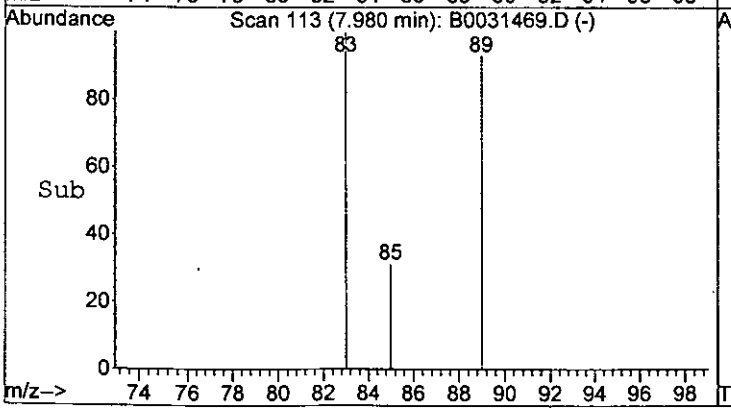


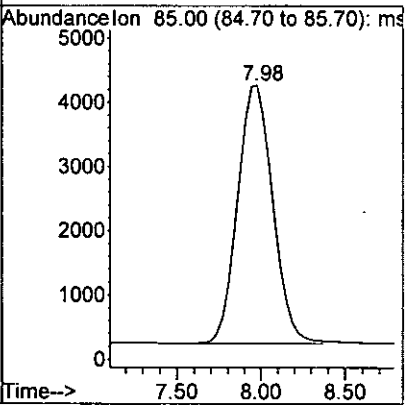




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.98 min Scan# 113
Delta R.T. 0.14 min
Lab File: B0031469.D
Acq: 17 Jun 2014 10:29 pm

Tgt Ion: 85 Resp: 59051





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031480.D Vial: 6
Acq On : 18 Jun 2014 12:57 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	89	0.07
2	Perchlorate	1.085	1.129	-4.1	87	0.10
3	#2 perc ion	0.366	0.340	7.1	81	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031480.D PERC0129.M Wed Jun 18 09:31:37 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031480.D Vial: 6
Acq On : 18 Jun 2014 12:57 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.91	89	179955	1.00 ug/L	0.07
Target Compounds					Qvalue
2) Perchlorate	7.91	83	203192	1.04 ug/L	100
3) #2 perc ion	7.91	85	61234	0.93 ug/L	100

Ratio
3.32

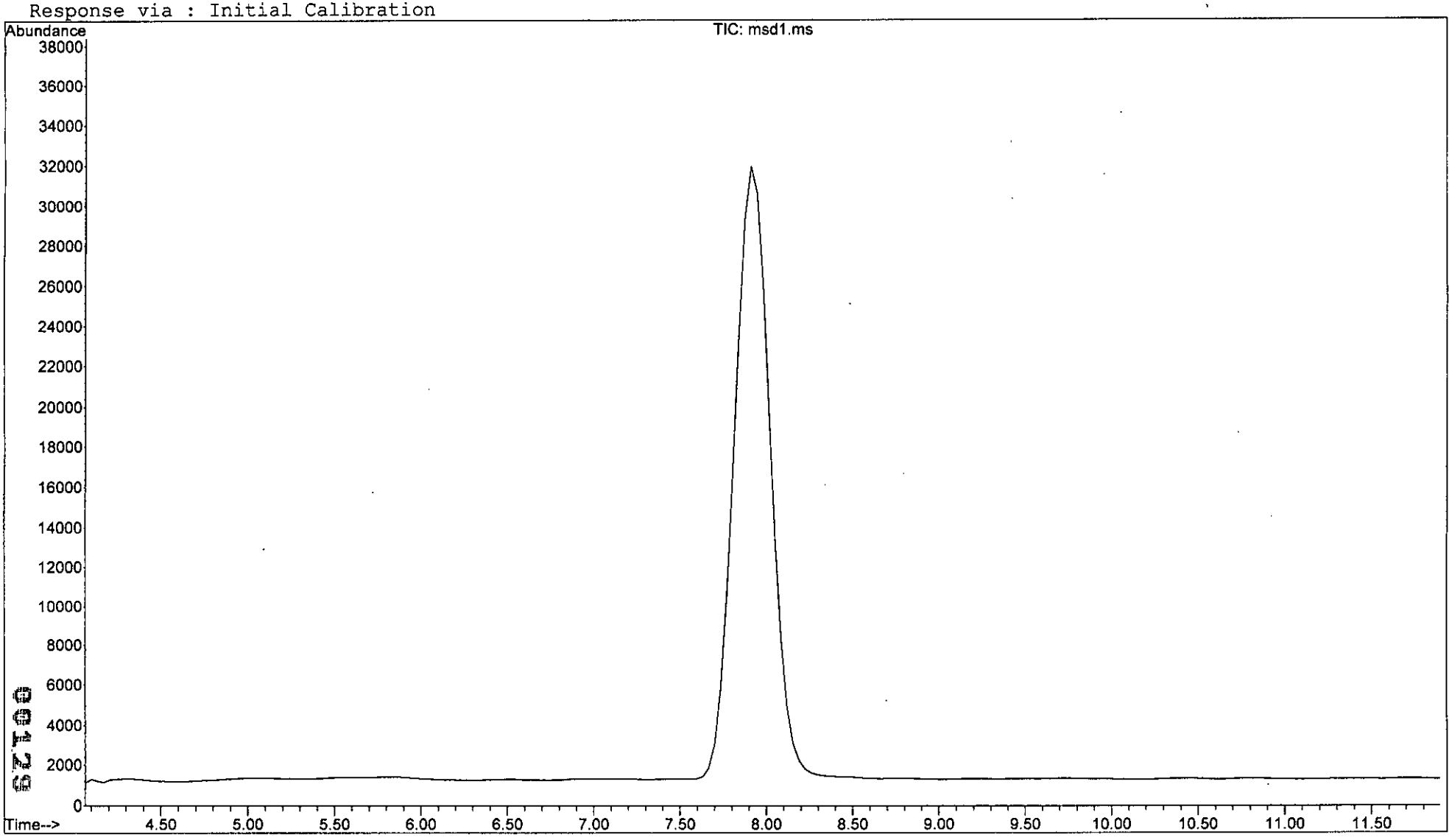
BA 6/16

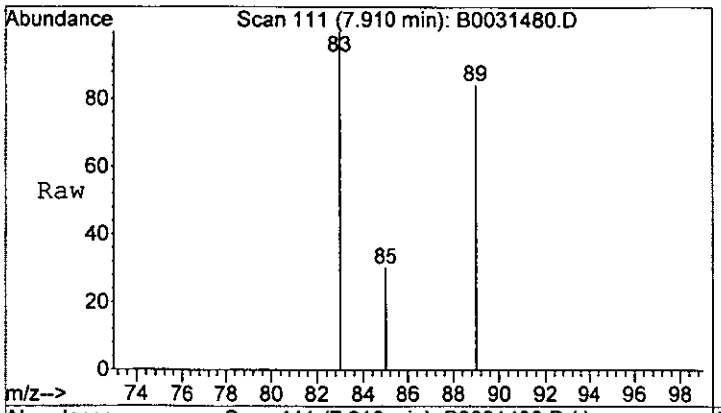
(#) = qualifier out of range (m) = manual integration
B0031480.D PERC0129.M Wed Jun 18 09:31:23 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031480.D Vial: 6
Acq On : 18 Jun 2014 12:57 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

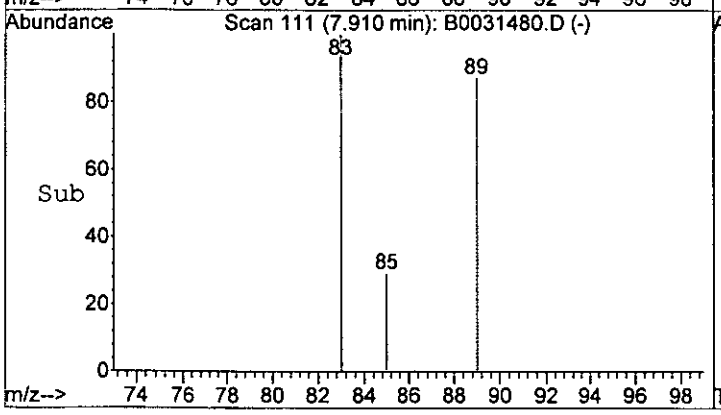
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

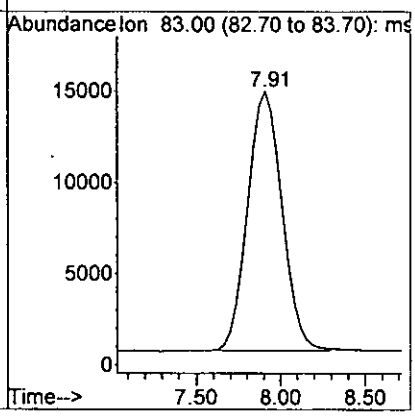


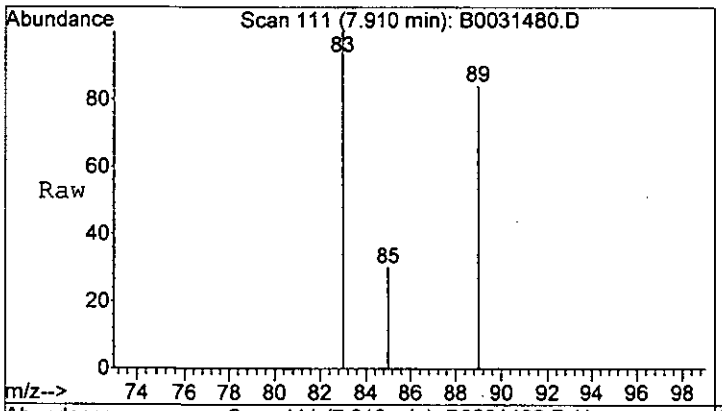


#2
Perchlorate
Concen: 1.04 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031480.D
Acq: 18 Jun 2014 12:57 am

Tgt Ion: 83 Resp: 203192

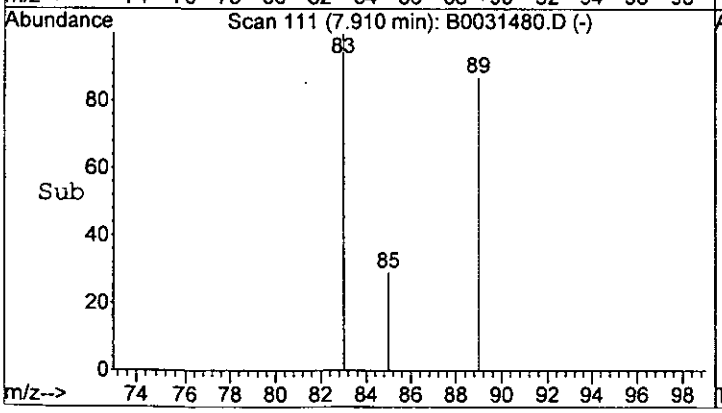


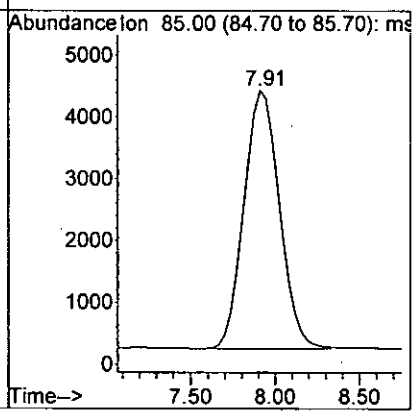




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031480.D
Acq: 18 Jun 2014 12:57 am

Tgt Ion: 85 Resp: 61234





Preparation Information Benchsheet

Prep Run#: 210291 **Prep WorkFlow:** Org CLO4 **Status:** Draft
Team: Semivoa GC/MPEDRO **Prep Method:** Method **Prep Date/Time:** 6/9/14 07:45 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406254-01	MB		10mL	6850/ClO4						10.0000 uL/68807	
2	RQ1406254-02	LCS		10mL	6850/ClO4						2.0000 uL/71223; 10.0000 uL/68807	
3	RQ1406254-03	DLCS		10mL	6850/ClO4						10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1406254-04	LODV		10mL	6850/ClO4						10.0000 uL/68807; 1.0000 uL/71223	
5	RQ1406254-05	ICS		10mL	6850/ClO4						2.0000 uL/71223; 10.0000 uL/68807	
6	R1404072-001	1405291009C JP-3-509	.01	10mL	6850/ClO4						10.0000 uL/68807	
7	RQ1406254-06	R1404072-001 MS	.01	10mL	6850/ClO4						10.0000 uL/68807; 4.0000 uL/71223	
8	RQ1406254-07	R1404072-001 DMS	.01	10mL	6850/ClO4						4.0000 uL/71223; 10.0000 uL/68807	
9	R1404155-006	MRC-MW-52A-060314	.07	10mL	6850/ClO4						10.0000 uL/68807	
10	R1404155-007	MRC-MW-110A-060314	.07	10mL	6850/ClO4						10.0000 uL/68807	
11	R1404155-008	MRC-MW-110B-060314	.07	10mL	6850/ClO4						10.0000 uL/68807	
12	R1404155-010	MRC-MW-116A-060214	.07	10mL	6850/ClO4						10.0000 uL/68807	
13	R1404155-011	MRC-MW-115A-060214	.07	10mL	6850/ClO4						10.0000 uL/68807	
14	R1404155-016	MRC-MW-21B-060314	.11	10mL	6850/ClO4						10.0000 uL/68807	
15	R1404273-004	1406040814 200-SB-20	.01	10mL	6850/ClO4						10.0000 uL/68807	

Spiking Solutions

Name: O18 isotopic labeled perchlorate Inventory ID 68807 Logbook Ref: Expires On: 01/31/2016 Lot #: 122313

Name: Perchlorate 1000 ppb CLO4 Inventory ID 71223 Logbook Ref: Expires On: 11/30/2014

Preparation Steps

Step:
Started:
Finished:
By:
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 210291
Team: Semivoa GC/MPEDRO

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Draft
Prep Date/Time: 6/9/14 07:45 AM

Reviewed By: _____ Date: _____ Spike Witness: JMISIUREWICZ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211029 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 6/17/14 02:51 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406734-01	MB		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1406734-04	LODV		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 1.0000 uL/71223	
3	RQ1406734-02	LCS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1406734-03	DLCS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
5	RQ1406734-05	ICS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
6	R1404437-001	18CPTPB13(8-9)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
7	RQ1406734-06	R1404437-001 MS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
8	RQ1406734-07	R1404437-001 DMS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
9	R1404437-002	18CPTPB13(13.5-14.5)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
10	RQ1406734-08	R1404437-002 MS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
11	RQ1406734-09	R1404437-002 DMS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
12	R1404437-003	18CPTPB13(18-19)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
13	RQ1406734-10	R1404437-003 MS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
14	RQ1406734-11	R1404437-003 DMS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
15	R1404437-004	18CPTPB13(22-23)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
16	RQ1406734-12	R1404437-004 MS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
17	RQ1406734-13	R1404437-004 DMS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
18	R1404437-005	18CPTPB14(6-7)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
19	R1404437-006	18CPTPB14(18-19)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
20	R1404437-007	18CPTPB14(22-23)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
21	R1404437-008	18CPTPB14(25-26)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
22	R1404273-007	1406041204 200-SB-20 30'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
23	R1404273-008	1406041723 200-SB-20 50'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
24	R1404421-005	1406091138 200-SB-21 7.5-10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
25	R1404421-006	1406091613 200-SB-21	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
26	R1404421-007	1406091748 200-SB-21	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
27	R1404507-009	1406111501 200-SB-7 8-10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	

Preparation Information Benchsheet

Prep Run#: 211029 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 6/17/14 02:51 PM

28	R1404507-010	1406111633 200-SB-7 18-21'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
29	R1404507-011	1406120923 200-SB-7 38-40'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	

Spiking Solutions

Name:	O18 isotopic labeled perchlorate	Inventory ID	68807	Logbook Ref:		Expires On:	01/31/2016	Lot #:	122313
Name:	Perchlorate 1000 ppb CLO4	Inventory ID	71223	Logbook Ref:		Expires On:	11/30/2014		

Preparation Materials

Water	(71353)	interference check standard for perchlorate	(63899)	Sand Reagent Grade	SVOA (71055)

Preparation Steps

Step: Extraction
Started: 6/17/14 14:51
Finished: 6/18/14 10:23
By: BALLGEIER
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: SGOLBERG Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analysis: 1080D Analyst: MPINTO Run Method: Decaloxe
Date: 1/29/14 Instr. HPLC-02 Quant Method: Dec0129
LIMS Run#:

Setup: Column: Kprime # 2100 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 MeCN/H2O 0.1 CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	AMBLK			B030524	—	
	↓			525	—	
	CCV Ion/MSS			526	Y	
	RWL			527	Y	
	.1ppb	1ml/10ml	66006	528	Y	
	.2ppb	2ml/10m		529	Y	
	.5ppb	5ml/10ml		530	Y	
	.75ppb	7.5ml/10ml		531	Y	
	1.0ppb	10ml/10ml		532	Y	
	2.0ppb	20ml/10ml		533	Y	
	5.0ppb	50ml/10ml		534	Y	
	ICV	10ml/10ml	66005	535	Y IV	exp 5/31/14
	CCV 1.0ppb		66007	536	YC	
	RQ1400131-01			537	Y	
	04			538	Y	
	02			539	Y	
	03			540	Y	
	05			541	Y	
	R1400128-001			542	Y	
	RQ1400131-06			543	Y	
	07			544	Y	
	R1400128-002			545	Y	
	003			546	Y	
	CCV 1.0ppb		66007	547	YC	
	R1400128-004			548	Y	
	R1400205-001			549	Y	
	R1400119-001			550	Y	
	001	10.0		551	Y	
	RQ1400431-04			552	Y	
	CCV 1.0ppb		66007	553	YC	
	RQ1400826-01			554	Y	
	04			555	Y	
	02			556	N	OUT
	03			557	Y	

All samples = _____ mL + _____ uL Combined IS/Surr.;

Primary: 66007 exp: 4/30/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

Runlog HPLC02r1
1/10/13

Analysis: 6850 Analyst: LLRQA Run Method: Rendodz
Date: 6/9/14 Instr. HPLC-02 Quant Method: RelC0129
LIMS Run#:

Setup: Column: K'Prime #2011 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 H_2O/MeCN 0.1% CH_3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BLK			B003.214	Y	
	↓			215	Y	
	Im mass CCV			216	Y	
	CCV 1.0		70263	217	Y	
	RQ1406254-01			218	Y	
	04			219	Y	
	02			220	Y	
	03			221	Y	
	05			222	Y	
	R1404072-001			223	Y	
	RQ1406254-06			224	Y	
	-07			225	Y	
	R1404155-006			226	Y	
	007			227	Y	
	CCV 1.0ppb		70263	228	Y	
	R1404155-008			229	Y	
	010			230	Y	
	011			231	Y	
	014			232	Y	
	R1404273-004			233	Y	
	RQ1406254-04			234	Y	
	CCV 1.0		70263	235	Y	
	X̄ = 191901					
	High = 357852					
	Low 95957					

Primary: 70263 exp: 11/9/14 All samples = _____mL + _____uL Combined IS/Surr.;
Primary: _____ exp: Secondary: _____ exp:
Secondary: _____ exp:

Analysis: 6850. Perc Analyst: BA Run Method: Percdodz
Date: 6/17/14 Instr. HPLC-02 Quant Method: Perc0129
LIMS Run#:
Setup: Column: K 'Prime #2011 Col.Temp: 30 Flow: 0.5 ml/min
Mobile Phase: 50/50 H2O/MeCN 0.1CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BLK			B0031428	—	
	IDN/MASS CCV			2528	YT	
	CCV 1.00 PPB		70263	2630	YC	
	RQ1406555-04	LOD		2731	Y	
	R1404434-004	10.0		2832	Y	
	RQ1406555-04	LOD		2933	Y	
	6558-04	LOD		3034	Y	
	R1404435-015	500		3135	Y	
	RQ1406558-04	LOD		3236	Y	
	CCV 1.00 PPB		70263	3337	YC	
	RQ1406647-04	LOD		3438	Y	
	R1404436-001	5.0		3539	Y	
	-003			3640	N	BPT 1/25
	-004	50.0		3744	Y	
	-005	25.0		3842	Y	
	-006	20.0		3943	Y	
	RQ1406647-06	20.0		4044	Y	DILUTED OUT
	-07	20.0		4145	Y	
	R1404436-007	100.0		4246	Y	
	-008	50.0		4347	Y	
	CCV 1.00 PPB			4448	YC	
	-013	1000		4548	Y	
	RQ1406647-04	LOD		4650	Y	
	CCV 1.00 PPB		70263	4751	YC	
	RQ1406734-01	MB		4852	Y	
	-04	LOD		4953	Y	
	-02	LCS		5054	Y	
	-03	DLCS		5155	Y	
	-05	ICS		5256	Y	
	R1404437-001			5357	Y	
	-06	MS		5458	Y	
	-07	MSD		5558	Y	
	4437-002			5660	Y	

All samples = _____ mL (+ _____ uL Combined IS/Surr.;

Primary: 70263 exp: 11/3/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

BA 6/18

Runlog HPLC02r1
1/10/13

Analysis: 6850.Perc Analyst: BA Run Method: Percdoolz
Date: 6/17/14 Instr. HPLC-02 Quant Method: Perc0125
LIMS Run#:

Setup: Column: K 'PRIME #2011 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 H2O/MeCN 0.1CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	RQ1406734-08	MS		R0031401	Y	
	CCV 1.00PPB		70263	5802	YC	
	-09	MSD		5903	Y	
	R1404437-003			6004	Y	
	-10	MS		6105	Y	
	-11	MSD		6206	Y	
	4437-004			6307	Y	
	-12	MS		6408	Y	
	-13	MSD		6509	Y	
	4437-005			6610	Y	
	-006			6711	N	RPT 1/5
	-007			6812	N	RPT 1/50
	CCV 1.00PPB		70263	6913	YC	
	-008			7014	N	RPT 1/100
	4421-005			7115	Y	
	-006			7216	Y	
	-007			7317	Y	
	4507-009			7418	Y	
	-010			7519	Y	
	-011			7620	Y	
	RQ1406734-04	LOD		7721	Y	
	CCV 1.00PPB		70263	7822	YC	
	R1404273-007			7923	Y	
	-008			8024	YC	
	$\bar{X}$ = 191901					
	high = 387852			BA 6/18		
	low = 95957					

BA 6/17/14

All samples = _____mL + _____uL Combined IS/Surr.;

Primary : 70263 exp: 11/3/14 Secondary : _____ exp:
Primary: _____ exp: Secondary : _____ exp:

Runlog HPLC02r1
1/10/13

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number AU-4425

Cooler received on 6/11/14 by: CW

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	(Y) N	5a	Perchlorate samples have required headspace?	(Y) N NA
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	(Y) N NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: (Bulk) Encore 5035set NA	

8. Temperature Readings Date: 6/11/14 Time: 1020 ID: (IR#3) IR#4 From: Temp Blank (Sample Bottle)

Observed Temp (°C)	3.5						
Correction Factor (°C)	0.0						
Corrected Temp (°C)	3.5						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by CW on 6/11/14 at 1030

5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: JMM 6/11/14

Cooler Breakdown: Date: 6/11/14 Time: 1830 by: JB

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
2. Did all bottle labels and tags agree with custody papers? (YES) NO
3. Were correct containers used for the tests indicated? (YES) NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: check

Other Comments:

VOA HEADSPACE 200-SB-21

VOA HEADSPACE WW-4-594

VOA HEADSPACE WW-4-594

PC Secondary Review: JMM 6/25/14

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

SUPPORTING DOCUMENTATION

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001
Sample Matrix: Soil

Service Request: R1404425
Date Analyzed: 6/18/14 11:31

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1406804-04
Instrument ID: R-MS-07
File ID: I:\ACQUDATA\MSVOA7\DATA\061814\K9473.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406804-03	I:\ACQUDATA\MSVOA7\DATA\061814\K9471.D\	6/18/14 10:15
1406091135 200-SB-21 7.5-10'	R1404425-001	I:\ACQUDATA\MSVOA7\DATA\061814\K9477.D\	6/18/14 14:05
1406091610 200-SB-21	R1404425-002	I:\ACQUDATA\MSVOA7\DATA\061814\K9478.D\	6/18/14 14:42
1406091745 200-SB-21	R1404425-003	I:\ACQUDATA\MSVOA7\DATA\061814\K9479.D\	6/18/14 15:20

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Date Analyzed: 6/18/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA7\DATA\061814\K9470.D\

Calibration Date: 5/29/14
Calibration ID: RC1400043
Analysis Lot: 397732
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1-Trichloroethane (TCA)	50.0	42.6	0.7075	0.6034	-14.7	NA	± 20 %	Average RF
1,1,2-Trichloroethane	50.0	49.7	0.3414	0.3396	-0.5	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	41.9	0.4820	0.4036	-16.3	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	47.2	0.4169	0.3938	-5.5	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	49.5	0.4920	0.4875	-0.9	NA	± 20 %	Average RF
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	50.0	54.6	0.8365	0.9125	9.1	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	49.8	0.7656	0.7621	-0.5	NA	± 20 %	Average RF
Isopropanol	1000	1130	0.08660	0.09777	12.9	NA	± 20 %	Average RF
Acetone	50.0	42.8	0.6020	0.5150	-14.4	NA	± 20 %	Average RF
Benzene	50.0	47.9	1.440	1.378	-4.3	NA	± 20 %	Average RF
Bromodichloromethane	50.0	47.8	0.4660	0.4458	-4.3	NA	± 20 %	Average RF
Bromoform	50.0	50.2	0.2458	0.2469	0.5	NA	± 20 %	Average RF
Chlorobenzene	50.0	46.8	0.9166	0.8578	-6.4	NA	± 20 %	Average RF
Chloroform	50.0	47.8	1.049	1.003	-4.3	NA	± 20 %	Average RF
Chloromethane	50.0	52.8	1.118	1.180	5.6	NA	± 20 %	Average RF
Dibromochloromethane	50.0	48.5	0.3859	0.3743	-3.0	NA	± 20 %	Average RF
Dichlorofluoromethane (CFC 21)	50.0	53.7	1.436	1.541	7.3	NA	± 20 %	Average RF
Dichloromethane	50.0	48.8	0.6951	0.6779	-2.5	NA	± 20 %	Average RF
Ethylbenzene	50.0	43.5	1.608	1.400	-12.9	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	50.9	1.847	1.880	1.8	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	42.2	0.3262	0.2750	-15.7	NA	± 20 %	Average RF
Toluene	50.0	45.4	1.479	1.344	-9.1	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	43.8	0.3311	0.2898	-12.5	NA	± 20 %	Average RF
m,p-Xylenes	100	88.3	0.5809	0.5128	-11.7	NA	± 20 %	Average RF
o-Xylene	50.0	44.9	0.5852	0.5255	-10.2	NA	± 20 %	Average RF
1,2-Dichloro-1,1,2-trifluoroethane (CFC	50.0	56.5	0.8761	0.9906	13.1	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	49.0	0.4853	0.4757	-2.0	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	49.9	0.3338	0.3332	-0.2	NA	± 20 %	Average RF
Toluene-d8	50.0	51.7	1.294	1.339	3.5	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

#	File Location	Acquisition Date	#	File Location	Acquisition Date
01	I:\ACQUDATA\MSVOA7\DATA\052914\K9081	5/29/14 13:54	02	I:\ACQUDATA\MSVOA7\DATA\052914\K9082	5/29/14 14:31
03	I:\ACQUDATA\MSVOA7\DATA\052914\K9083	5/29/14 15:09	04	I:\ACQUDATA\MSVOA7\DATA\052914\K9084	5/29/14 15:47
05	I:\ACQUDATA\MSVOA7\DATA\052914\K9085	5/29/14 16:24	06	I:\ACQUDATA\MSVOA7\DATA\052914\K9086	5/29/14 17:02
07	I:\ACQUDATA\MSVOA7\DATA\052914\K9087	5/29/14 17:39	08	I:\ACQUDATA\MSVOA7\DATA\052914\K9088	5/29/14 18:16

Analyte

1,1,1-Trichloroethane (TCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.7839	02	5.000	0.7509	03	10.000	0.7284	04	20.000	0.6127
05	50.000	0.6606	06	100.000	0.6772	07	150.000	0.7145	08	200.000	0.7320

1,1,2-Trichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3874	02	5.000	0.3495	03	10.000	0.3341	04	20.000	0.3176
05	50.000	0.3329	06	100.000	0.3427	07	150.000	0.3360	08	200.000	0.3308

1,1,2-Trichlorotrifluoroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5947	02	5.000	0.5106	03	10.000	0.4949	04	20.000	0.4003
05	50.000	0.4170	06	100.000	0.4406	07	150.000	0.5023	08	200.000	0.4958

1,1-Dichloroethene (1,1-DCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4287	02	5.000	0.4345	03	10.000	0.4227	04	20.000	0.4036
05	50.000	0.4110	06	100.000	0.3927	07	150.000	0.4180	08	200.000	0.4236

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5482	02	5.000	0.5030	03	10.000	0.5071	04	20.000	0.4618
05	50.000	0.4971	06	100.000	0.4830	07	150.000	0.4706	08	200.000	0.4654

2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9132	02	5.000	0.8478	03	10.000	0.8259	04	20.000	0.8460
05	50.000	0.8658	06	100.000	0.7603	07	150.000	0.8231	08	200.000	0.8096

2-Butanone (MEK)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8520	02	5.000	0.8114	03	10.000	0.8282	04	20.000	0.6699
05	50.000	0.7465	06	100.000	0.7626	07	150.000	0.7310	08	200.000	0.7234

Isopropanol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20.000	0.09561	02	100.000	0.08746	03	200.000	0.08773	04	400.000	0.08729
05	1000.000	0.08880	06	2000.000	0.08603	07	3000.000	0.08103	08	4000.000	0.07884

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Acetone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7647	03	10.000	0.7579	04	20.000	0.5490	05	50.000	0.5746
06	100.000	0.5454	07	150.000	0.5177	08	200.000	0.5047			

Benzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.596	02	5.000	1.535	03	10.000	1.466	04	20.000	1.318
05	50.000	1.382	06	100.000	1.388	07	150.000	1.402	08	200.000	1.431

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4916	02	5.000	0.4571	03	10.000	0.4730	04	20.000	0.4355
05	50.000	0.4643	06	100.000	0.4670	07	150.000	0.4646	08	200.000	0.4746

Bromoform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2226	02	5.000	0.2401	03	10.000	0.2401	04	20.000	0.2204
05	50.000	0.2512	06	100.000	0.2653	07	150.000	0.2634	08	200.000	0.2633

Chlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.046	02	5.000	0.9396	03	10.000	0.9567	04	20.000	0.7815
05	50.000	0.8522	06	100.000	0.8984	07	150.000	0.9364	08	200.000	0.9222

Chloroform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.206	02	5.000	1.120	03	10.000	1.016	04	20.000	1.017
05	50.000	1.023	06	100.000	0.9987	07	150.000	1.003	08	200.000	1.006

Chloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.395	02	5.000	1.091	03	10.000	1.020	04	20.000	1.109
05	50.000	1.074	06	100.000	1.055	07	150.000	1.105	08	200.000	1.093

Dibromochloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4190	02	5.000	0.3982	03	10.000	0.3683	04	20.000	0.3414
05	50.000	0.3785	06	100.000	0.3915	07	150.000	0.3938	08	200.000	0.3963

Dichlorofluoromethane (CFC 21)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.487	02	5.000	1.460	03	10.000	1.400	04	20.000	1.420
05	50.000	1.497	06	100.000	1.357	07	150.000	1.436	08	200.000	1.432

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

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Instrument ID: R-MS-07

Signal ID: 1

Analyte

Dichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7799	03	10.000	0.7323	04	20.000	0.6584	05	50.000	0.6868
06	100.000	0.6674	07	150.000	0.6625	08	200.000	0.6782			

Ethylbenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.782	02	5.000	1.803	03	10.000	1.701	04	20.000	1.348
05	50.000	1.426	06	100.000	1.560	07	150.000	1.647	08	200.000	1.599

Methyl tert-Butyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.982	02	5.000	1.860	03	10.000	1.863	04	20.000	1.734
05	50.000	1.877	06	100.000	1.843	07	150.000	1.812	08	200.000	1.801

Tetrachloroethene (PCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4071	02	5.000	0.3694	03	10.000	0.3436	04	20.000	0.2614
05	50.000	0.2735	06	100.000	0.3000	07	150.000	0.3294	08	200.000	0.3249

Toluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.670	02	5.000	1.584	03	10.000	1.537	04	20.000	1.282
05	50.000	1.376	06	100.000	1.432	07	150.000	1.484	08	200.000	1.468

Trichloroethene (TCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4316	02	5.000	0.3414	03	10.000	0.3265	04	20.000	0.2828
05	50.000	0.2997	06	100.000	0.3152	07	150.000	0.3251	08	200.000	0.3265

m,p-Xylenes

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.6838	02	10.000	0.6233	03	20.000	0.6206	04	40.000	0.4834
05	100.000	0.5118	06	200.000	0.5540	07	300.000	0.5902	08	400.000	0.5802

o-Xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.6621	02	5.000	0.6233	03	10.000	0.6266	04	20.000	0.4869
05	50.000	0.5256	06	100.000	0.5698	07	150.000	0.5983	08	200.000	0.5890

1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9808	02	5.000	0.8778	03	10.000	0.8576	04	20.000	0.8867
05	50.000	0.9405	06	100.000	0.7860	07	150.000	0.8413	08	200.000	0.8382

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	50.000	0.4833	07	50.000	0.4775	02	50.000	0.4893	04	50.000	0.4931
01	50.000	0.4940	03	50.000	0.4875	08	50.000	0.4756	05	50.000	0.4819

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	50.000	0.3361	06	50.000	0.3295	07	50.000	0.3245	02	50.000	0.3390
04	50.000	0.3406	01	50.000	0.3368	03	50.000	0.3344	08	50.000	0.3299

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	50.000	1.289	03	50.000	1.291	01	50.000	1.307	04	50.000	1.306
02	50.000	1.305	07	50.000	1.289	06	50.000	1.276	05	50.000	1.291

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation					RRF Evaluation		
		Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
1,1,1-Trichloroethane (TCA)	TRG	Average RF	% RSD	7.7		≤ 20	0.7075		0.100
1,1,2-Trichloroethane	TRG	Average RF	% RSD	6.1		≤ 20	0.3414		0.100
1,1,2-Trichlorotrifluoroethane	TRG	Average RF	% RSD	12.9		≤ 20	0.4820		0.100
1,1-Dichloroethene (1,1-DCE)	TRG	Average RF	% RSD	3.3		≤ 20	0.4169		0.100
1,2-Dichloroethane	TRG	Average RF	% RSD	5.8		≤ 20	0.4920		0.100
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	TRG	Average RF	% RSD	5.3		≤ 20	0.8365		
2-Butanone (MEK)	TRG	Average RF	% RSD	8.0		≤ 20	0.7656		0.05
Isopropanol	TRG	Average RF	% RSD	5.9		≤ 20	0.08660		
Acetone	TRG	Average RF	% RSD	18.5		≤ 20	0.6020		0.05
Benzene	TRG	Average RF	% RSD	6.2		≤ 20	1.440		0.500
Bromodichloromethane	TRG	Average RF	% RSD	3.4		≤ 20	0.4660		0.200
Bromoform	TRG	Average RF	% RSD	7.3		≤ 20	0.2458		0.100
Chlorobenzene	TRG	Average RF	% RSD	8.4		≤ 20	0.9166		0.500
Chloroform	TRG	Average RF	% RSD	7.1		≤ 20	1.049		0.200
Chloromethane	TRG	Average RF	% RSD	10.4		≤ 20	1.118		0.100
Dibromochloromethane	TRG	Average RF	% RSD	6.0		≤ 20	0.3859		0.100
Dichlorofluoromethane (CFC 21)	TRG	Average RF	% RSD	3.2		≤ 20	1.436		
Dichloromethane	TRG	Average RF	% RSD	6.5		≤ 20	0.6951		0.100
Ethylbenzene	TRG	Average RF	% RSD	10.0		≤ 20	1.608		0.100
Methyl tert-Butyl Ether	TRG	Average RF	% RSD	3.9		≤ 20	1.847		0.100
Tetrachloroethene (PCE)	TRG	Average RF	% RSD	14.8		≤ 20	0.3262		0.200
Toluene	TRG	Average RF	% RSD	8.2		≤ 20	1.479		0.400
Trichloroethene (TCE)	TRG	Average RF	% RSD	13.4		≤ 20	0.3311		0.200
m,p-Xylenes	TRG	Average RF	% RSD	11.1		≤ 20	0.5809		0.100
o-Xylene	TRG	Average RF	% RSD	9.7		≤ 20	0.5852		0.300
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	TRG	Average RF	% RSD	7.0		≤ 20	0.8761		
4-Bromofluorobenzene	SURR	Average RF	% RSD	1.4		≤ 20	0.4853		
Dibromofluoromethane	SURR	Average RF	% RSD	1.6		≤ 20	0.3338		
Toluene-d8	SURR	Average RF	% RSD	0.8		≤ 20	1.294		

Analysis: 8260-soil	Analyst: Ben Wojtasiewicz	Tune Method: T0529 14.m	
Date: 06/18/14	Data Path: j:\acqudata\msvoa7\DATA\061814	Run Method: S0529 14.m	
Instr. MS #7		LIMS Run#: 397732	

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
1	Blank	-				-	1	-	K5467	-	
2	↓	-				-	2	-	68	-	
3	Tune	-				-	1	-	69	YT	
4	CCV	-				-	1	-	70	YC	
5	LCS	-				-	1	-	71	YC	
6	MBlank	-				-	1	-	72	ND	per for c/o
7	MBlank	-				-	2	-	73	YA	
8	R1404316-001	1	5g	[redacted]	11913	3	2	NA	74	Y	
9	↓ -002	1					2		75	Y	
10	↓ -003	1					2		76	Y	
11	R1404425-001	1					2		77	Y	
12	↓ -002	1					2		78	Y	
13	↓ -003	1					2		79	Y	
14	R1404150-004	1					1		80	Y	
15	↓ -005	1					1		81	Y	
16	↓ -006	1					1		82	Y	
17	↓ -004MS	1					2		83	Y	
18	↓ -004DMS	1	↓	↓	↓	↓	3	↓	84	Y	
19	Blank	-				-	1	-	85	-	
20	↓	-				-	2	-	86	-	

SL 06/19/14

All samples = 5 mL + 1 uL combined IS/Surr. 10 mL purged

500 Primary TG : 71498 5mL
Primary HBO : 71634
Primary MSL : 71585
Primary EM : 71500
Primary :
50mL = CCV

500 Secondary TG : 71184 2mL
Secondary HBO : 71564
Secondary MSL : 71667
200 Secondary EM : 71591 5mL
Secondary :
50g = LCS

5mL → 12.5mL
50g = MS, DMS

Combined IS/Surr 250: 71597
Surrogate :
Internal Std :

Response Factor Report 5973-A

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Initial Calibration

Calibration Files

5	=CY822.D	10	=CY823.D	50	=CY824.D
80	=CY825.D	100	=CY826.D	120	=CY827.D

160 = CY828.D

		Compound	5	10	50	80	100	120	Avg	%RSD
1)	IR	d4-1,4-Dichlorobenzen	----------ISTD----------							
2)	TM	Pyridine			1.435	1.493	1.544	1.383	1.467	4.16
3)	TM	N-Nitrosodimethylam	0.752	0.771	0.862	0.905	0.922	0.829	0.847	7.80
4)	S	SURR1,2-FLUOROPHENO	1.353	1.367	1.396	1.445	1.455	1.326	1.391	3.39
5)	TM	Benzaldehyde			0.441	0.345	0.356	0.242	0.317	30.19 AV
6)	TM	Aniline	2.000	1.976	1.819	1.808	1.782	1.549	1.780	10.44
7)	S	SURR2,PHENOL-D6	1.565	1.611	1.614	1.645	1.655	1.537	1.601	2.69
8)	TMC	Phenol	1.581	1.601	1.602	1.669	1.667	1.525	1.600	3.34
9)	TM	bis(2-Clethyl)Ether	1.415	1.165	1.278	1.252	1.200	1.200	1.251	6.54
10)	TM	2-Chlorophenol	1.471	1.378	1.433	1.440	1.454	1.312	1.407	4.14
11)	TM	1,3-Diclbenzene	1.585	1.597	1.515	1.501	1.548	1.411	1.509	5.11
12)	TMC	1,4-Dichlorobenzene	1.488	1.547	1.523	1.489	1.507	1.391	1.477	4.16
13)	TM	1,2-Diclbenzene	1.478	1.587	1.472	1.435	1.467	1.341	1.444	6.11
14)	TM	Benzyl Alcohol	0.981	0.919	1.022	1.053	1.038	0.966	0.998	4.62
15)	TM	2,2'-oxybis(1-Chlor	1.465	1.372	1.413	1.438	1.407	1.311	1.397	3.62
16)	TM	2-Methylphenol	1.166	1.251	1.256	1.296	1.295	1.212	1.245	3.68
17)	TM	Acetophenone	1.737	1.713	1.689	1.655	1.624	1.492	1.627	6.35
18)	TMP	N-Nitroso-Di-n-prop	0.964	0.931	0.928	0.933	0.909	0.840	0.910	4.75
19)	TM	Hexachloroethane	0.602	0.584	0.567	0.578	0.578	0.535	0.570	3.94
20)	TM	3+4-Methylphenol	1.278	1.350	1.396	1.394	1.376	1.276	1.336	4.18
21)	T	1-Methyl-2-pyrrolid		0.917	0.953	0.940	0.962	0.905	0.935	2.30
22)	IR	d8-Naphthalene	----------ISTD----------							
23)	S	SURR4,NITROBENZENE-	0.386	0.412	0.402	0.398	0.378	0.382	0.390	3.47
24)	TM	Nitrobenzene	0.345	0.363	0.358	0.358	0.334	0.339	0.346	4.06
25)	TM	Isophorone	0.649	0.673	0.700	0.666	0.629	0.618	0.647	5.62
26)	TCM	2-Nitrophenol	0.202	0.200	0.220	0.219	0.214	0.208	0.210	3.68
27)	TM	Benzoic Acid			0.334	0.361	0.342	0.359	0.351	3.45
28)	TM	2,4-Dimethylphenol	0.338	0.346	0.356	0.346	0.332	0.326	0.338	3.63
29)	TM	bis(-2-Chloroethoxy	0.382	0.404	0.403	0.400	0.380	0.381	0.388	3.67
30)	TCM	2,4-Dichlorophenol	0.699	0.697	0.654	0.602	0.583	0.568	0.617	11.08
31)	TM	1,2,4-Trichlorobenz	0.350	0.355	0.338	0.335	0.328	0.310	0.331	5.81
32)	TM	Naphthalene	1.044	1.088	0.969	0.976	0.903	0.839	0.942	11.81
33)	TM	4-Chloroaniline	0.385	0.443	0.422	0.412	0.387	0.370	0.398	7.21
34)	TCM	Hexachlorobutadiene	0.182	0.198	0.193	0.190	0.182	0.183	0.186	4.00
35)	TMC	4-Chloro-3-methylph	0.275	0.289	0.303	0.304	0.288	0.292	0.290	3.75
36)	TM	Caprolactam		0.118	0.115	0.119	0.112	0.128	0.116	6.39
37)	TM	2-Methylnaphthalene	0.726	0.732	0.718	0.686	0.671	0.649	0.683	6.82
38)	TM	1-Methylnaphthalene	0.666	0.675	0.662	0.629	0.618	0.604	0.629	6.92
39)	IR	d10-Acenaphthene	----------ISTD----------							
40)	TPM	Hexachlorocyclopent	0.196	0.238	0.324	0.341	0.353	0.358	0.306	20.67 &R
41)	TCM	2,4,6-Trichlorophen	0.359	0.370	0.392	0.379	0.405	0.382	0.380	4.00

(#) = Out of Range ### Number of calibration levels exceeded format ### 7M

Response Factor Report 5973-A

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Initial Calibration

Calibration Files
5 =CY822.D 10 =CY823.D 50 =CY824.D
80 =CY825.D 100 =CY826.D 120 =CY827.D

		Compound	5	10	50	80	100	120	Avg	%RSD
42)	TM	2,4,5-Trichlorophen	0.459	0.440	0.400	0.397	0.396	0.393	0.408	7.28
43)	S	SURR5,2-FLUOROBIPHE	1.381	1.416	1.290	1.226	1.204	1.147	1.251	9.52
44)	TM	1,1'-Biphenyl	1.471	1.447	1.382	1.289	1.326	1.206	1.323	9.28
45)	TM	2-Chloronaphthalene	1.178	1.162	1.079	1.027	1.049	0.982	1.059	8.45
46)	TM	2-Nitroaniline			0.311	0.321	0.318	0.305	0.315	2.01
47)	TM	Acenaphthylene	1.883	1.852	1.691	1.598	1.613	1.475	1.640	11.45
48)	TM	Dimethyl phthalate	1.307	1.292	1.210	1.132	1.149	1.067	1.165	9.76
49)	TM	2,6-Dinitrotoluene	0.312	0.324	0.309	0.298	0.306	0.295	0.304	4.12
50)	TMC	Acenaphthene	1.154	1.165	1.100	1.049	1.065	0.989	1.067	7.50
51)	TM	3-Nitroaniline			0.331	0.325	0.326	0.334	0.329	1.18
52)	TPM	2,4-Dinitrophenol			0.174	0.186	0.193	0.201	0.191	5.80
53)	TM	Dibenzofuran	1.739	1.711	1.538	1.429	1.452	1.324	1.489	12.70
54)	TM	2,4-Dinitrotoluene	0.360	0.398	0.384	0.379	0.384	0.389	0.382	3.03
55)	TMP	4-Nitrophenol			0.204	0.214	0.216	0.221	0.217	4.50
56)	TM	Fluorene	1.330	1.387	1.230	1.162	1.198	1.089	1.201	10.89
57)	TM	4-Chlorophenyl-phen	0.643	0.670	0.629	0.591	0.628	0.582	0.612	7.12
58)	TM	Diethylphthalate	1.168	1.182	1.080	1.032	1.059	1.001	1.070	7.48
59)	TM	4-Nitroaniline			0.326	0.323	0.341	0.342	0.333	2.65
60)	S	SURR3,2,4,6-TRIBROM	0.323	0.331	0.313	0.296	0.298	0.305	0.309	4.29
61)	IR	d10-Phenanthrene	----------ISTD----------							
62)	T	1-Phenyl-1(4-methyl							0.000#	-1.00
63)	TM	4,6-Dinitro-2-methy			0.163	0.172	0.161	0.168	0.166	2.54
64)	TM	1,2 Diphenylhydrazi	0.755	0.813	0.744	0.756	0.701	0.633	0.718	9.79
65)	TCM	N-Nitrosodiphenylam	0.621	0.672	0.560	0.527	0.495	0.508	0.554	12.44
66)	TM	4-Bromophenyl-pheny	0.295	0.290	0.266	0.250	0.240	0.235	0.258	10.40
67)	T	1-Phenyl-1(2,4-dime							0.000#	-1.00
68)	TM	Hexachlorobenzene	0.354	0.383	0.355	0.332	0.322	0.310	0.337	8.58
69)	TM	Atrazine	0.104	0.102	0.104	0.090	0.083	0.084	0.092	12.27
70)	TCM	Pentachlorophenol			0.207	0.211	0.213	0.211	0.211	1.06
71)	TM	Phenanthrene	1.147	1.103	0.992	0.968	0.943	0.866	0.979	11.83
72)	TM	Anthracene	1.116	1.188	1.061	1.030	1.000	0.929	1.026	10.82
73)	TM	Carbazole	1.056	1.122	1.078	1.048	1.013	0.921	1.015	8.87
74)	TM	Di-n-butylphthalate	1.169	1.205	1.262	1.185	1.130	1.052	1.138	8.87
75)	TCM	Fluoranthene	1.121	1.260	1.276	1.231	1.197	1.080	1.173	7.80
76)	IR	d12-Chrysene	----------ISTD----------							
77)	TM	Benzidine			0.416	0.312	0.302	0.239	0.300	24.85 Avg
78)	TM	Pyrene	1.015	1.134	1.238	1.058	1.121	0.955	1.068	9.76
79)	S	SURR6,TERPHENYL-D14	0.824	0.846	0.900	0.792	0.814	0.716	0.804	7.92
80)	TM	Butyl benzyl phthal	0.531	0.510	0.577	0.520	0.538	0.509	0.528	4.62
81)	TM	3,3'-Dichlorobenzid	0.464	0.491	0.467	0.455	0.474	0.439	0.459	4.92
82)	TM	Benzo(a)anthracene	1.198	1.194	1.131	1.093	1.095	1.028	1.106	6.78
83)	TM	Chrysene	1.104	1.117	1.032	0.977	1.005	0.920	1.006	8.59

(#) = Out of Range ### Number of calibration levels exceeded format ###

Response Factor Report 5973-A

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Initial Calibration

Calibration Files

5	=CY822.D	10	=CY823.D	50	=CY824.D
80	=CY825.D	100	=CY826.D	120	=CY827.D

		Compound	5	10	50	80	100	120	Avg	%RSD
84)	TM	bis(2-Ethylhexyl)ph	0.665	0.633	0.691	0.651	0.656	0.645	0.654	3.03
85)	IR	d12-Perylene	----------ISTD----------							
86)	TCM	Di-n-octyl phthalat	1.017	0.856	1.126	1.033	0.933	1.039	0.994	8.83
87)	TM	Benzo(b)Fluoranthen	1.060	0.972	1.081	1.068	1.016	1.054	1.033	4.21
88)	TM	Benzo(k)fluoranthen	1.105	1.015	1.090	1.019	1.010	1.000	1.020	6.63
89)	TCM	Benzo(a)pyrene	1.037	1.064	1.054	1.033	1.010	1.006	1.024	3.24
90)	TM	Indeno(1,2,3-cd)Pyr	0.917	0.975	1.002	1.029	1.022	0.980	0.999	4.75
91)	TM	Dibenz(a,h)anthrace	1.039	1.004	0.998	0.992	0.984	0.933	0.993	3.20
92)	TM	Benzo(g,h,i)perylen	1.031	1.000	0.963	0.943	0.945	0.911	0.962	4.20

(#) = Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\040914\CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	100	0.00
2	TM	Pyridine	1.467	1.493	-1.8	100	0.00
3	TM	N-Nitrosodimethylamine	0.847	0.905	-6.8	100	0.00
4	S	SURR1,2-FLUOROPHENOL	1.391	1.445	-3.9	100	0.00
5	TM	Benzaldehyde	0.317	0.345	-8.8	100	0.00
6	TM	Aniline	1.780	1.808	-1.6	100	0.00
7	S	SURR2,PHENOL-D6	1.601	1.645	-2.7	100	0.00
8	TMC	Phenol	1.600	1.669	-4.3	100	0.00
9	TM	bis(2-Clethyl)Ether	1.251	1.252	-0.1	100	0.00
10	TM	2-Chlorophenol	1.407	1.440	-2.3	100	0.00
11	TM	1,3-Diclbenzene	1.509	1.501	0.5	100	0.00
12	TMC	1,4-Dichlorobenzene	1.477	1.489	-0.8	100	0.00
13	TM	1,2-Diclbenzene	1.444	1.435	0.6	100	0.00
14	TM	Benzyl Alcohol	0.998	1.053	-5.5	100	0.00
15	TM	2,2'-oxybis(1-Chloropropane	1.397	1.438	-2.9	100	0.00
16	TM	2-Methylphenol	1.245	1.296	-4.1	100	0.00
17	TM	Acetophenone	1.627	1.655	-1.7	100	0.00
18	TMP	N-Nitroso-Di-n-propylamine	0.910	0.933	-2.5	100	0.00
19	TM	Hexachloroethane	0.570	0.578	-1.4	100	0.00
20	TM	3+4-Methylphenol	1.336	1.394	-4.3	100	0.00
21	T	1-Methyl-2-pyrrolidinone	0.935	0.940	-0.5	100	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	100	0.00
23	S	SURR4,NITROBENZENE-D5	0.390	0.398	-2.1	100	0.00
24	TM	Nitrobenzene	0.346	0.358	-3.5	100	0.00
25	TM	Isophorone	0.647	0.666	-2.9	100	0.00
26	TCM	2-Nitrophenol	0.210	0.219	-4.3	100	0.00
27	TM	Benzoic Acid	0.351	0.361	-2.8	100	0.00
28	TM	2,4-Dimethylphenol	0.338	0.346	-2.4	100	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.388	0.400	-3.1	100	0.00
30	TCM	2,4-Dichlorophenol	0.617	0.602	2.4	100	0.00
31	TM	1,2,4-Trichlorobenzene	0.331	0.335	-1.2	100	0.00
32	TM	Naphthalene	0.942	0.976	-3.6	100	0.00
33	TM	4-Chloroaniline	0.398	0.412	-3.5	100	0.00
34	TCM	Hexachlorobutadiene	0.186	0.190	-2.2	100	0.00
35	TMC	4-Chloro-3-methylphenol	0.290	0.304	-4.8	100	0.00
36	TM	Caprolactam	0.116	0.119	-2.6	100	0.00
37	TM	2-Methylnaphthalene	0.683	0.686	-0.4	100	0.00
38	TM	1-Methylnaphthalene	0.629	0.629	0.0	100	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	100	0.00

(#) = Out of Range

Finnigan Scientific Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\040914\CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	0.306	0.341	-11.4	100	0.00
41	TCM	2,4,6-Trichlorophenol	0.380	0.379	0.3	100	0.00
42	TM	2,4,5-Trichlorophenol	0.408	0.397	2.7	100	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.251	1.226	2.0	100	0.00
44	TM	1,1'-Biphenyl	1.323	1.289	2.6	100	0.00
45	TM	2-Chloronaphthalene	1.059	1.027	3.0	100	0.00
46	TM	2-Nitroaniline	0.315	0.321	-1.9	100	0.00
47	TM	Acenaphthylene	1.640	1.598	2.6	100	0.00
48	TM	Dimethyl phthalate	1.165	1.132	2.8	100	0.00
49	TM	2,6-Dinitrotoluene	0.304	0.298	2.0	100	0.00
50	TMC	Acenaphthene	1.067	1.049	1.7	100	0.00
51	TM	3-Nitroaniline	0.329	0.325	1.2	100	0.00
52	TPM	2,4-Dinitrophenol	0.191	0.186	2.6	100	0.00
53	TM.	Dibenzofuran	1.489	1.429	4.0	100	0.00
54	TM	2,4-Dinitrotoluene	0.382	0.379	0.8	100	0.00
55	TMP	4-Nitrophenol	0.217	0.214	1.4	100	0.00
56	TM	Fluorene	1.201	1.162	3.2	100	0.00
57	TM	4-Chlorophenyl-phenylether	0.612	0.591	3.4	100	0.00
58	TM	Diethylphthalate	1.070	1.032	3.6	100	0.00
59	TM	4-Nitroaniline	0.333	0.323	3.0	100	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.309	0.296	4.2	100	0.00
61	IR	d10-Phenanthrene	1.000	1.000	0.0	100	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	100	0.00
63	TM	4,6-Dinitro-2-methylphenol	0.166	0.172	-3.6	100	0.00
64	TM	1,2 Diphenylhydrazine	0.718	0.756	-5.3	100	0.00
65	TCM	N-Nitrosodiphenylamine	0.554	0.527	4.9	100	0.00
66	TM	4-Bromophenyl-phenylether	0.258	0.250	3.1	100	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	100	0.00
68	TM	Hexachlorobenzene	0.337	0.332	1.5	100	0.00
69	TM	Atrazine	0.092	0.090	2.2	100	0.00
70	TCM	Pentachlorophenol	0.211	0.211	0.0	100	0.00
71	TM	Phenanthrene	0.979	0.968	1.1	100	0.00
72	TM	Anthracene	1.026	1.030	-0.4	100	0.00
73	TM	Carbazole	1.015	1.048	-3.3	100	0.00
74	TM	Di-n-butylphthalate	1.138	1.185	-4.1	100	0.00
75	TCM	Fluoranthene	1.173	1.231	-4.9	100	0.00
76	IR	d12-Chrysene	1.000	1.000	0.0	100	0.00
77	TM	Benzidine	0.300	0.312	-4.0	100	0.00
78	TM	Pyrene	1.068	1.058	0.9	100	0.00

(#) = Out of Range

Evaluate continuing calibration report

Data File : I:\ACQUDATA\5973A\DATA\040914\CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	0.804	0.792	1.5	100	0.00
80	TM	Butyl benzyl phthalate	0.528	0.520	1.5	100	0.00
81	TM	3,3'-Dichlorobenzidine	0.459	0.455	0.9	100	0.00
82	TM	Benzo(a)anthracene	1.106	1.093	1.2	100	0.00
83	TM	Chrysene	1.006	0.977	2.9	100	0.00
84	TM	bis(2-Ethylhexyl)phthalate	0.654	0.651	0.5	100	0.00
85	IR	d12-Perylene	1.000	1.000	0.0	100	0.00
86	TCM	Di-n-octyl phthalate	0.994	1.033	-3.9	100	0.00
87	TM	Benzo(b)Fluoranthene	1.033	1.068	-3.4	100	0.00
88	TM	Benzo(k)fluoranthene	1.020	1.019	0.1	100	0.00
89	TCM	Benzo(a)pyrene	1.024	1.033	-0.9	100	0.00
90	TM	Indeno(1,2,3-cd)Pyrene	0.999	1.029	-3.0	100	0.00
91	TM	Dibenz(a,h)anthracene	0.993	0.992	0.1	100	0.00
92	TM	Benzo(g,h,i)perylene	0.962	0.943	2.0	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data File : I:\ACQUDATA\5973A\DATA\040914\COPY OF CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	40.000	40.000	0.0	100	0.00
2	TM	Pyridine	80.000	81.427	-1.8	100	0.00
3	TM	N-Nitrosodimethylamine	80.000	85.413	-6.8	100	0.00
4	S	SURR1,2-FLUOROPHENOL	80.000	83.145	-3.9	100	0.00
5	TM	Benzaldehyde	80.000	87.095	-8.9	100	0.00
6	TM	Aniline	80.000	81.245	-1.6	100	0.00
7	S	SURR2,PHENOL-D6	80.000	82.228	-2.8	100	0.00
8	TMC	Phenol	80.000	83.448	-4.3	100	0.00
9	TM	bis(2-Clethyl)Ether	80.000	80.045	-0.1	100	0.00
10	TM	2-Chlorophenol	80.000	81.895	-2.4	100	0.00
11	TM	1,3-Diclbenzene	80.000	79.578	0.5	100	0.00
12	TMC	1,4-Dichlorobenzene	80.000	80.644	-0.8	100	0.00
13	TM	1,2-Diclbenzene	80.000	79.479	0.7	100	0.00
14	TM	Benzyl Alcohol	80.000	84.381	-5.5	100	0.00
15	TM	2,2'-oxybis(1-Chloropropane	80.000	82.354	-2.9	100	0.00
16	TM	2-Methylphenol	80.000	83.298	-4.1	100	0.00
17	TM	Acetophenone	80.000	81.365	-1.7	100	0.00
18	TMP	N-Nitroso-Di-n-propylamine	80.000	82.037	-2.5	100	0.00
19	TM	Hexachloroethane	80.000	81.017	-1.3	100	0.00
20	TM	3+4-Methylphenol	80.000	83.466	-4.3	100	0.00
21	T	1-Methyl-2-pyrrolidinone	80.000	80.465	-0.6	100	0.00
22	IR	d8-Naphthalene	40.000	40.000	0.0	100	0.00
23	S	SURR4,NITROBENZENE-D5	80.000	81.551	-1.9	100	0.00
24	TM	Nitrobenzene	80.000	82.764	-3.5	100	0.00
25	TM	Isophorone	80.000	82.368	-3.0	100	0.00
26	TCM	2-Nitrophenol	80.000	83.228	-4.0	100	0.00
27	TM	Benzoic Acid	80.000	82.278	-2.8	100	0.00
28	TM	2,4-Dimethylphenol	80.000	81.936	-2.4	100	0.00
29	TM	bis(-2-Chloroethoxy)Methane	80.000	82.392	-3.0	100	0.00
30	TCM	2,4-Dichlorophenol	80.000	78.047	2.4	100	0.00
31	TM	1,2,4-Trichlorobenzene	80.000	80.803	-1.0	100	0.00
32	TM	Naphthalene	80.000	82.923	-3.7	100	0.00
33	TM	4-Chloroaniline	80.000	82.903	-3.6	100	0.00
34	TCM	Hexachlorobutadiene	80.000	81.549	-1.9	100	0.00
35	TMC	4-Chloro-3-methylphenol	80.000	83.968	-5.0	100	0.00
36	TM	Caprolactam	80.000	81.863	-2.3	100	0.00
37	TM	2-Methylnaphthalene	80.000	80.270	-0.3	100	0.00
38	TM	1-Methylnaphthalene	80.000	79.956	0.1	100	0.00
39	IR	d10-Acenaphthene	40.000	40.000	0.0	100	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\040914\COPY OF CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm
Sample : SSAT080
Misc : 80 PPM STD 8270/625
MS Integration Params: RTEINT.P

Operator: Z.Miao
Inst : 5973-A
Multiplr: 1.00

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	80.000	81.379	-1.7	100	0.00
41	TCM	2,4,6-Trichlorophenol	80.000	79.752	0.3	100	0.00
42	TM	2,4,5-Trichlorophenol	80.000	77.814	2.7	100	0.00
43	S	SURR5,2-FLUOROBIPHENYL	80.000	78.405	2.0	100	0.00
44	TM	1,1'-Biphenyl	80.000	77.942	2.6	100	0.00
45	TM	2-Chloronaphthalene	80.000	77.625	3.0	100	0.00
46	TM	2-Nitroaniline	80.000	81.698	-2.1	100	0.00
47	TM	Acenaphthylene	80.000	77.982	2.5	100	0.00
48	TM	Dimethyl phthalate	80.000	77.774	2.8	100	0.00
49	TM	2,6-Dinitrotoluene	80.000	78.384	2.0	100	0.00
50	TMC	Acenaphthene	80.000	78.641	1.7	100	0.00
51	TM	3-Nitroaniline	80.000	79.234	1.0	100	0.00
52	TPM	2,4-Dinitrophenol	80.000	77.979	2.5	100	0.00
53	TM	Dibenzofuran	80.000	76.792	4.0	100	0.00
54	TM	2,4-Dinitrotoluene	80.000	79.414	0.7	100	0.00
55	TMP	4-Nitrophenol	80.000	79.055	1.2	100	0.00
56	TM	Fluorene	80.000	77.435	3.2	100	0.00
57	TM	4-Chlorophenyl-phenylether	80.000	77.260	3.4	100	0.00
58	TM	Diethylphthalate	80.000	77.124	3.6	100	0.00
59	TM	4-Nitroaniline	80.000	77.522	3.1	100	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	80.000	76.440	4.5	100	0.00
61	IR	d10-Phenanthrene	40.000	40.000	0.0	100	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	-1.000	0.000	0.0	100	0.00
63	TM	4,6-Dinitro-2-methylphenol	80.000	82.877	-3.6	100	0.00
64	TM	1,2 Diphenylhydrazine	80.000	84.332	-5.4	100	0.00
65	TCM	N-Nitrosodiphenylamine	80.000	76.108	4.9	100	0.00
66	TM	4-Bromophenyl-phenylether	80.000	77.736	2.8	100	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	-1.000	0.000	0.0	100	0.00
68	TM	Hexachlorobenzene	80.000	78.938	1.3	100	0.00
69	TM	Atrazine	80.000	77.886	2.6	100	0.00
70	TCM	Pentachlorophenol	80.000	80.123	-0.2	100	0.00
71	TM	Phenanthrene	80.000	79.152	1.1	100	0.00
72	TM	Anthracene	80.000	80.285	-0.4	100	0.00
73	TM	Carbazole	80.000	82.609	-3.3	100	0.00
74	TM	Di-n-butylphthalate	80.000	83.299	-4.1	100	0.00
75	TCM	Fluoranthene	80.000	83.987	-5.0	100	0.00
76	IR	d12-Chrysene	40.000	40.000	0.0	100	0.00
77	TM	Benzidine	80.000	83.311	-4.1	100	0.00
78	TM	Pyrene	80.000	79.291	0.9	100	0.00

(#) = Out of Range

Data File : I:\ACQUDATA\5973A\DATA\040914\COPY OF CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	80.000	78.818	1.5	100	0.00
80	TM	Butyl benzyl phthalate	80.000	78.753	1.6	100	0.00
81	TM	3,3'-Dichlorobenzidine	80.000	79.334	0.8	100	0.00
82	TM	Benzo(a)anthracene	80.000	79.028	1.2	100	0.00
83	TM	Chrysene	80.000	77.734	2.8	100	0.00
84	TM	bis(2-Ethylhexyl)phthalate	80.000	79.611	0.5	100	0.00
85	IR	d12-Perylene	40.000	40.000	0.0	100	0.00
86	TCM	Di-n-octyl phthalate	80.000	83.186	-4.0	100	0.00
87	TM	Benzo(b)Fluoranthene	80.000	82.686	-3.4	100	0.00
88	TM	Benzo(k)fluoranthene	80.000	79.920	0.1	100	0.00
89	TCM	Benzo(a)pyrene	80.000	80.691	-0.9	100	0.00
90	TM	Indeno(1,2,3-cd)Pyrene	80.000	82.403	-3.0	100	0.00
91	TM	Dibenz(a,h)anthracene	80.000	79.929	0.1	100	0.00
92	TM	Benzo(g,h,i)perylene	80.000	78.399	2.0	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

LK #40

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	90	-0.01
2	TM	Pyridine	1.467	1.574	-7.3	95	-0.02
3	TM	N-Nitrosodimethylamine	0.847	0.957	-13.0	96	-0.02
4	S	SURR1,2-FLUOROPHENOL	1.391	1.460	-5.0	91	0.00
5	TM	Benzaldehyde	0.317	0.457	-44.2#	120	-0.01
6	TM	Aniline	1.780	1.605	9.8	80	-0.01
7	S	SURR2,PHENOL-D6	1.601	1.710	-6.8	94	0.00
8	TMC	Phenol	1.600	1.822	-13.9	99	0.00
9	TM	bis(2-Clethyl)Ether	1.251	1.325	-5.9	96	-0.01
10	TM	2-Chlorophenol	1.407	1.452	-3.2	91	-0.01
11	TM	1,3-Diclbenzene	1.509	1.500	0.6	90	-0.01
12	TMC	1,4-Dichlorobenzene	1.477	1.525	-3.2	93	-0.01
13	TM	1,2-Diclbenzene	1.444	1.437	0.5	91	-0.01
14	TM	Benzyl Alcohol	0.998	1.130	-13.2	97	-0.01
15	TM	2,2'-oxybis(1-Chloropropane	1.397	1.689	-20.9#	106	-0.02
16	TM	2-Methylphenol	1.245	1.283	-3.1	90	0.00
17	TM	Acetophenone	1.627	1.675	-3.0	92	-0.01
18	TMP	N-Nitroso-Di-n-propylamine	0.910	1.046	-14.9	101	-0.01
19	TM	Hexachloroethane	0.570	0.609	-6.8	95	-0.01
20	TM	3+4-Methylphenol	1.336	1.372	-2.7	89	0.00
21	T	1-Methyl-2-pyrrolidinone	0.935	0.985	-5.3	95	-0.01
22	IR	d8-Naphthalene	1.000	1.000	0.0	93	-0.01
23	S	SURR4,NITROBENZENE-D5	0.390	0.415	-6.4	97	0.00
24	TM	Nitrobenzene	0.346	0.371	-7.2	96	-0.01
25	TM	Isophorone	0.647	0.693	-7.1	96	-0.01
26	TCM	2-Nitrophenol	0.210	0.213	-1.4	90	-0.01
27	TM	Benzoic Acid	0.351	0.347	1.1	89	0.00
28	TM	2,4-Dimethylphenol	0.338	0.350	-3.6	94	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.388	0.416	-7.2	96	0.00
30	TCM	2,4-Dichlorophenol	0.617	0.586	5.0	90	-0.01
31	TM	1,2,4-Trichlorobenzene	0.331	0.320	3.3	89	-0.01
32	TM	Naphthalene	0.942	0.913	3.1	87	-0.01
33	TM	4-Chloroaniline	0.398	0.379	4.8	85	-0.01
34	TCM	Hexachlorobutadiene	0.186	0.185	0.5	90	-0.02
35	TMC	4-Chloro-3-methylphenol	0.290	0.296	-2.1	90	0.00
36	TM	Caprolactam	0.116	0.110	5.2	85	-0.01
37	TM	2-Methylnaphthalene	0.683	0.676	1.0	91	-0.01
38	TM	1-Methylnaphthalene	0.629	0.625	0.6	92	-0.01
39	IR	d10-Acenaphthene	1.000	1.000	0.0	86	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	0.306	0.298		2.6	75	-0.02
41	TCM	2,4,6-Trichlorophenol	0.380	0.392		-3.2	89	-0.01
42	TM	2,4,5-Trichlorophenol	0.408	0.417		-2.2	91	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.251	1.262		-0.9	89	-0.01
44	TM	1,1'-Biphenyl	1.323	1.382		-4.5	93	-0.01
45	TM	2-Chloronaphthalene	1.059	1.073		-1.3	90	-0.01
46	TM	2-Nitroaniline	0.315	0.366		-16.2	98	-0.01
47	TM	Acenaphthylene	1.640	1.706		-4.0	92	-0.02
48	TM	Dimethyl phthalate	1.165	1.178		-1.1	90	-0.01
49	TM	2,6-Dinitrotoluene	0.304	0.307		-1.0	89	0.00
50	TMC	Acenaphthene	1.067	1.118		-4.8	92	-0.01
51	TM	3-Nitroaniline	0.329	0.324		1.5	86	0.00
52	TPM	2,4-Dinitrophenol	0.191	0.182		4.7	85	-0.01
53	TM	Dibenzofuran	1.489	1.493		-0.3	90	-0.01
54	TM	2,4-Dinitrotoluene	0.382	0.392		-2.6	89	0.00
55	TMP	4-Nitrophenol	0.217	0.240		-10.6	96	0.00
56	TM	Fluorene	1.201	1.243		-3.5	92	-0.01
57	TM	4-Chlorophenyl-phenylether	0.612	0.618		-1.0	90	-0.01
58	TM	Diethylphthalate	1.070	1.136		-6.2	95	-0.01
59	TM	4-Nitroaniline	0.333	0.348		-4.5	93	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.309	0.303		1.9	88	-0.01
61	IR	d10-Phenanthrene	1.000	1.000		0.0	89	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#		0.0	107	0.00
63	TM	4,6-Dinitro-2-methylphenol	0.166	0.165		0.6	86	0.00
64	TM	1,2 Diphenylhydrazine	0.718	0.844		-17.5	99	-0.02
65	TCM	N-Nitrosodiphenylamine	0.554	0.537		3.1	91	-0.01
66	TM	4-Bromophenyl-phenylether	0.258	0.250		3.1	89	-0.01
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#		0.0	87	0.03
68	TM	Hexachlorobenzene	0.337	0.333		1.2	89	-0.01
69	TM	Atrazine	0.092	0.066	NT	28.3#	66	-0.01
70	TCM	Pentachlorophenol	0.211	0.193		8.5	81	0.00
71	TM	Phenanthrene	0.979	0.990		-1.1	91	-0.01
72	TM	Anthracene	1.026	1.046		-1.9	90	-0.01
73	TM	Carbazole	1.015	1.094		-7.8	93	0.00
74	TM	Di-n-butylphthalate	1.138	1.303		-14.5	98	-0.01
75	TCM	Fluoranthene	1.173	1.284		-9.5	93	-0.01
76	IR	d12-Chrysene	1.000	1.000		0.0	92	-0.01
77	TM	Benzidine	0.300	0.258		14.0	76	-0.01
78	TM	Pyrene	1.068	1.058		0.9	92	-0.01

(#) = Out of Range

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	0.804	0.784	2.5	91	-0.02
80	TM	Butyl benzyl phthalate	0.528	0.573	-8.5	102	-0.02
81	TM	3,3'-Dichlorobenzidine	0.459	0.453	1.3	92	-0.02
82	TM	Benzo(a)anthracene	1.106	1.113	-0.6	94	-0.02
83	TM	Chrysene	1.006	0.977	2.9	92	-0.02
84	TM	bis(2-Ethylhexyl)phthalate	0.654	0.733	-12.1	104	-0.02
85	IR	d12-Perylene	1.000	1.000	0.0	97	-0.02
86	TCM	Di-n-octyl phthalate	0.994	1.127	-13.4	106	-0.02
87	TM	Benzo(b)Fluoranthene	1.033	1.071	-3.7	97	-0.02
88	TM	Benzo(k)fluoranthene	1.020	1.025	-0.5	98	-0.02
89	TCM	Benzo(a)pyrene	1.024	1.044	-2.0	98	-0.02
90	TM	Indeno(1,2,3-cd)Pyrene	0.999	1.149	-15.0	108	-0.02
91	TM	Dibenz(a,h)anthracene	0.993	1.081	-8.9	106	-0.02
92	TM	Benzo(g,h,i)perylene	0.962	1.026	-6.7	106	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	40.000	40.000	0.0	90	-0.01
2	TM	Pyridine	80.000	85.830	-7.3	95	-0.02
3	TM	N-Nitrosodimethylamine	80.000	90.392	-13.0	96	-0.02
4	S	SURR1,2-FLUOROPHENOL	80.000	83.972	-5.0	91	0.00
5	TM	Benzaldehyde	80.000	115.224	-44.0#	120	-0.01
6	TM	Aniline	80.000	72.141	9.8	80	-0.01
7	S	SURR2,PHENOL-D6	80.000	85.454	-6.8	94	0.00
8	TMC	Phenol	80.000	91.116	-13.9	99	0.00
9	TM	bis(2-Clethyl)Ether	80.000	84.716	-5.9	96	-0.01
10	TM	2-Chlorophenol	80.000	82.576	-3.2	91	-0.01
11	TM	1,3-Diclbenzene	80.000	79.546	0.6	90	-0.01
12	TMC	1,4-Dichlorobenzene	80.000	82.575	-3.2	93	-0.01
13	TM	1,2-Diclbenzene	80.000	79.589	0.5	91	-0.01
14	TM	Benzyl Alcohol	80.000	90.548	-13.2	97	-0.01
15	TM	2,2'-oxybis(1-Chloropropane	80.000	96.731	-20.9#	106	-0.02
16	TM	2-Methylphenol	80.000	82.460	-3.1	90	0.00
17	TM	Acetophenone	80.000	82.341	-2.9	92	-0.01
18	TMP	N-Nitroso-Di-n-propylamine	80.000	92.008	-15.0	101	-0.01
19	TM	Hexachloroethane	80.000	85.463	-6.8	95	-0.01
20	TM	3+4-Methylphenol	80.000	82.153	-2.7	89	0.00
21	T	1-Methyl-2-pyrrolidinone	80.000	84.258	-5.3	95	-0.01
22	IR	d8-Naphthalene	40.000	40.000	0.0	93	-0.01
23	S	SURR4,NITROBENZENE-D5	80.000	85.015	-6.3	97	0.00
24	TM	Nitrobenzene	80.000	85.903	-7.4	96	-0.01
25	TM	Isophorone	80.000	85.709	-7.1	96	-0.01
26	TCM	2-Nitrophenol	80.000	81.037	-1.3	90	-0.01
27	TM	Benzoic Acid	80.000	79.088	1.1	89	0.00
28	TM	2,4-Dimethylphenol	80.000	82.992	-3.7	94	0.00
29	TM	bis(-2-Chloroethoxy)Methane	80.000	85.801	-7.3	96	0.00
30	TCM	2,4-Dichlorophenol	80.000	75.897	5.1	90	-0.01
31	TM	1,2,4-Trichlorobenzene	80.000	77.343	3.3	89	-0.01
32	TM	Naphthalene	80.000	77.525	3.1	87	-0.01
33	TM	4-Chloroaniline	80.000	76.207	4.7	85	-0.01
34	TCM	Hexachlorobutadiene	80.000	79.494	0.6	90	-0.02
35	TMC	4-Chloro-3-methylphenol	80.000	81.548	-1.9	90	0.00
36	TM	Caprolactam	80.000	75.477	5.7	85	-0.01
37	TM	2-Methylnaphthalene	80.000	79.084	1.1	91	-0.01
38	TM	1-Methylnaphthalene	80.000	79.420	0.7	92	-0.01
39	IR	d10-Acenaphthene	40.000	40.000	0.0	86	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D
Acq On : 16 Jun 2014 11:12 am
Sample : CCV
Misc : 80 PPM STD 8270/625
MS Integration Params: RTEINT.P

Vial: 2
Operator: Z.Miao
Inst : 5973-A
Multiplr: 1.00

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.		%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	80.000	71.750		10.3	75	-0.02
41	TCM	2,4,6-Trichlorophenol	80.000	82.532		-3.2	89	-0.01
42	TM	2,4,5-Trichlorophenol	80.000	81.656		-2.1	91	0.00
43	S	SURR5,2-FLUOROBIPHENYL	80.000	80.728		-0.9	89	-0.01
44	TM	1,1'-Biphenyl	80.000	83.610		-4.5	93	-0.01
45	TM	2-Chloronaphthalene	80.000	81.101		-1.4	90	-0.01
46	TM	2-Nitroaniline	80.000	92.982		-16.2	98	-0.01
47	TM	Acenaphthylene	80.000	83.208		-4.0	92	-0.02
48	TM	Dimethyl phthalate	80.000	80.919		-1.1	90	-0.01
49	TM	2,6-Dinitrotoluene	80.000	80.696		-0.9	89	0.00
50	TMC	Acenaphthene	80.000	83.778		-4.7	92	-0.01
51	TM	3-Nitroaniline	80.000	78.881		1.4	86	0.00
52	TPM	2,4-Dinitrophenol	80.000	76.417		4.5	85	-0.01
53	TM	Dibenzofuran	80.000	80.248		-0.3	90	-0.01
54	TM	2,4-Dinitrotoluene	80.000	82.090		-2.6	89	0.00
55	TMP	4-Nitrophenol	80.000	88.432		-10.5	96	0.00
56	TM	Fluorene	80.000	82.830		-3.5	92	-0.01
57	TM	4-Chlorophenyl-phenylether	80.000	80.814		-1.0	90	-0.01
58	TM	Diethylphthalate	80.000	84.946		-6.2	95	-0.01
59	TM	4-Nitroaniline	80.000	83.626		-4.5	93	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	80.000	78.264		2.2	88	-0.01
61	IR	d10-Phenanthrene	40.000	40.000		0.0	89	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	-1.000	0.000		0.0	107	0.00
63	TM	4,6-Dinitro-2-methylphenol	80.000	79.850		0.2	86	0.00
64	TM	1,2 Diphenylhydrazine	80.000	94.102		-17.6	99	-0.02
65	TCM"	N-Nitrosodiphenylamine	80.000	77.640		2.9	91	-0.01
66	TM	4-Bromophenyl-phenylether	80.000	77.581		3.0	89	-0.01
67	T	1-Phenyl-1(2,4-dimethylphen	-1.000	0.000		0.0	87	0.03
68	TM	Hexachlorobenzene	80.000	79.195		1.0	89	-0.01
69	TM	Atrazine	80.000	57.524	N.T	28.1#	66	-0.01
70	TCM	Pentachlorophenol	80.000	73.347		8.3	81	0.00
71	TM	Phenanthrene	80.000	80.910		-1.1	91	-0.01
72	TM	Anthracene	80.000	81.559		-1.9	90	-0.01
73	TM	Carbazole	80.000	86.207		-7.8	93	0.00
74	TM	Di-n-butylphthalate	80.000	91.590		-14.5	98	-0.01
75	TCM	Fluoranthene	80.000	87.566		-9.5	93	-0.01
76	IR	d12-Chrysene	40.000	40.000		0.0	92	-0.01
77	TM	Benzidine	80.000	68.775		14.0	76	-0.01
78	TM	Pyrene	80.000	79.293		0.9	92	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	80.000	78.080	2.4	91	-0.02
80	TM	Butyl benzyl phthalate	80.000	86.752	-8.4	102	-0.02
81	TM	3,3'-Dichlorobenzidine	80.000	78.945	1.3	92	-0.02
82	TM	Benzo(a)anthracene	80.000	80.479	-0.6	94	-0.02
83	TM	Chrysene	80.000	77.735	2.8	92	-0.02
84	TM	bis(2-Ethylhexyl)phthalate	80.000	89.651	-12.1	104	-0.02
85	IR	d12-Perylene	40.000	40.000	0.0	97	-0.02
86	TCM	Di-n-octyl phthalate	80.000	90.744	-13.4	106	-0.02
87	TM	Benzo(b)Fluoranthene	80.000	82.934	-3.7	97	-0.02
88	TM	Benzo(k)fluoranthene	80.000	80.388	-0.5	98	-0.02
89	TCM	Benzo(a)pyrene	80.000	81.570	-2.0	98	-0.02
90	TM	Indeno(1,2,3-cd)Pyrene	80.000	92.013	-15.0	108	-0.02
91	TM	Dibenz(a,h)anthracene	80.000	87.092	-8.9	106	-0.02
92	TM	Benzo(g,h,i)perylene	80.000	85.311	-6.6	106	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Preparation Information Benchsheet

Prep Run#: 210493
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/12/14 12:30 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406497-01	MB		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/69705	
2	RQ1406497-02	LCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/70367; 1.0000 mL/71247; 1.0000 mL/69705	
3	RQ1406497-03	DLCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/71247; 1.0000 mL/69705; 1.0000 mL/70367	
4	R1404316-004 [redacted]	1406041204 200-SB-20 30'	.01	30.0g	8270D/SVO BEPH DNPB 6978				1.00mL	light brown/gray sand and gravel	1.0000 mL/69705	6/23 II
5	RQ1406497-04	R1404316-004 MS	.01	30.0g	8270D/SVO				1.00mL	light brown/gray sand and gravel	1.0000 mL/70367; 1.0000 mL/69705; 1.0000 mL/71247	
6	RQ1406497-05	R1404316-004 DMS	.01	30.0g	8270D/SVO				1.00mL	light brown/gray sand and gravel	1.0000 mL/69705; 1.0000 mL/70367; 1.0000 mL/71247	
7	R1404316-005	1406041723 200-SB-20 50'	.01	30.0g	8270D/SVO				1.00mL	light brown/gray sand and gravel	1.0000 mL/69705	
8	R1404317-001 [redacted]	RM-SS-1A	.02	30.0g	8270D/SVO /TCL				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	II 6/25
9	R1404317-002	RM-SS-2B	.02	30.0g	8270D/SVO				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	
10	R1404317-003	RM-SS-3C	.02	30.0g	8270D/SVO				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	
11	R1404342-001 [redacted]	SVP-3-4/5	.01	30.0g	8270D/SVO /Short TCL 7001				1.00mL	medium brown sand/silt with gravel	1.0000 mL/69705	II 6/24
12	R1404342-003	SVP-5-3/5	.01	30.0g	8270D/SVO				1.00mL	medium brown sand/silt with gravel	1.0000 mL/69705	
13	R1404425-004 [redacted]	1406091138 200-SB-21 7.5-10'	.01	30.0g	8270D/SVO /BEPH+DNPB				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705	6/25 II Stv
14	R1404425-005	1406091613 200-SB-21	.01	30.0g	8270D/SVO				1.00mL	light brown/gray gravel	1.0000 mL/69705	
15	R1404425-006	1406091748 200-SB-21	.01	30.0g	8270D/SVO				1.00mL	light reddish-brown sand and gravel	1.0000 mL/69705	

Spiking Solutions

Name:	8270 Soil Surrogate 100-200ppm	Inventory ID	69705	Logbook Ref:	8270 Soil Surrogate 100-200ppm	Expires On:	10/17/2014		
Name:	8270 LCS Mix1: 100 ug/mL	Inventory ID	70367	Logbook Ref:		Expires On:	10/31/2014	Lot #:	Lc02739
Name:	OLM/SOM additionals Spike 100ppm	Inventory ID	71247	Logbook Ref:		Expires On:	09/01/2014		

Preparation Materials

Eppendorf Pipette Repeater	EXT #15 (67588)	2mL Graduated Vials	(71404)	50:50 Dichloromethane:Acetone	(71513)
Sand Reagent Grade	SVOA (71055)	Prepared Sodium Sulfate Na2SO4	(70845)		

9
9
5
6

Preparation Information Benchsheet

Prep Run#: 210493
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/12/14 12:30 PM

Preparation Steps

Step:	Extraction	Step:	Concentration	Step:	Extraction Complete
Started:	6/12/14 12:30	Started:	6/12/14 19:20	Started:	6/12/14 20:24
Finished:	6/12/14 17:10	Finished:	6/12/14 20:05	Finished:	6/12/14 20:24
By:	SGOLBERG	By:	SGOLBERG	By:	SGOLBERG
Comments		Comments		Comments	

Comments: _____

Reviewed By: [illegible] Date: 6/13 Spike Witness: LPRUNOSKE Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

LOG BOOK #

10 µL 4000 ppm 1ST D to 10 mL 70461 5973-A

6/16/14 #70613

	Tue	50 ng	DPTPP Tune 0.m	C2122	YT 10:17
1/2	CCV	80 ppm	82700409.m	23	NO
1/2	CCV	80 ppm	82700409.m	24	YC
3	[redacted]	R01406530-01 BKC	6/13/14 82701615 m	25	Ym
4		-02 LL	R-4156 6x5 PPL	26	YC
5		-03 LLSP	4466 4479 ↓	27	YC
6		4315-001	4483 6x5 R4315 8270TCLP	28	Y
7		R01406399-01 SOBKC		29	Ym
8	[redacted]	R01406497-01 BKC	8270BEPH 6/21/14	30	Ym
9		-02 LL	R4316 8270BEHP+PN	31	YC
10		-03 LLSP	R4317 8270TCL R4342 8270 Short	32	YC
11		4316-004	R4425 8270BEHP+PN	33	Y
12		-004ms	R6649204	34	YO
13		-004msp	-05	35	YC
14		-005		36	Y
15	[redacted]	R4317-001	8270TCL	37	Y
16		-002		38	Y
17		-003		39	Y
18	[redacted]	R4342-001	8270 Short TCL	40	Y
19		-003		41	Y
20	[redacted]	R4425-004	8270BEHP	42	Y
21		-005		43	Y
22		-006		44	Y
23	[redacted]	R4156-001	Re-ex 6/13/14 6x5 PPL	45	Y
24	[redacted]	R4466-001	6x5 PPL	46	Y
25	[redacted]	R4479-003	6x5 PPL	47	Y
26	[redacted]	R4483-001	6x5	48	No IS↓
27	[redacted]	R4483-001	6x5 Y2	49	NO IS↓

Rm # 397532

ZM

June 26, 2014

Service Request No: R1404425

Ms. Carlyn Tufts
NASA/WSTF/Navarro
P.O. Box 20
Las Cruces, NM 88004

Laboratory Results for: White Sands Test Facility/14EC001

Dear Ms. Tufts:

Enclosed are the results of the sample(s) submitted to our laboratory on June 11, 2014. For your reference, these analyses have been assigned our service request number **R1404425**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Janice Jaeger
Client Services Manager

ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623 PHONE 585-288-5380 | FAX 585-288-8475
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

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RIGHT SOLUTIONS RIGHT PARTNER

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1404425

Lab ID	Client ID
R1404425-001	1406091135 200-SB-21 7.5-10'
R1404425-002	1406091610 200-SB-21
R1404425-003	1406091745 200-SB-21
R1404425-004	1406091138 200-SB-21 7.5-10'
R1404425-005	1406091613 200-SB-21
R1404425-006	1406091748 200-SB-21

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

\# Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091135 200-SB-21 7.5-10'		
Lab Code:	R1404425-001	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**95.5**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Analyzed:	6/18/14 14:05
Sample Name:	1406091135 200-SB-21 7.5-10'	**Units:**	µg/Kg
Lab Code:	R1404425-001	**Basis:**	Dry
		Percent Solids:	95.5

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9477.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.2	0.77	
79-00-5	1,1,2-Trichloroethane	ND	U	5.2	0.77	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.2	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.2	1.4	
107-06-2	1,2-Dichloroethane	ND	U	5.2	0.64	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.2	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.2	2.4	
67-63-0	Isopropanol	ND	U	100	30	
67-64-1	Acetone	ND	U	5.2	3.0	
71-43-2	Benzene	ND	U	5.2	0.31	
75-27-4	Bromodichloromethane	ND	U	5.2	0.64	
75-25-2	Bromoform	ND	U	5.2	0.98	
108-90-7	Chlorobenzene	ND	U	5.2	0.31	
67-66-3	Chloroform	ND	U	5.2	1.4	
74-87-3	Chloromethane	ND	U	5.2	0.42	
124-48-1	Dibromochloromethane	ND	U	5.2	0.77	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.2	1.6	
75-09-2	Dichloromethane	ND	U	5.2	0.60	
100-41-4	Ethylbenzene	ND	U	5.2	0.25	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.2	0.99	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.2	0.93	
108-88-3	Toluene	ND	U	5.2	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.2	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.2	0.51	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.2	1.5	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 14:05	
Dibromofluoromethane	101	63-138	6/18/14 14:05	
Toluene-d8	101	66-138	6/18/14 14:05	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001		
Sample Name:	1406091135 200-SB-21 7.5-10'	**Date Collected:**	6/9/14
Lab Code:	R1404425-001	**Date Received:**	6/11/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
8260C		BWOJTASIEWICZ

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091610 200-SB-21		
Lab Code:	R1404425-002	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**99.7**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Analyzed:	6/18/14 14:42
Sample Name:	1406091610 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404425-002	**Basis:**	Dry
		Percent Solids:	99.7

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9478.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.0	0.74	
79-00-5	1,1,2-Trichloroethane	ND	U	5.0	0.74	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.0	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.0	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.0	0.62	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	ND	U	5.0	2.3	
67-63-0	Isopropanol	ND	U	100	28	
67-64-1	Acetone	ND	U	5.0	2.9	
71-43-2	Benzene	ND	U	5.0	0.30	
75-27-4	Bromodichloromethane	ND	U	5.0	0.62	
75-25-2	Bromoform	ND	U	5.0	0.94	
108-90-7	Chlorobenzene	ND	U	5.0	0.30	
67-66-3	Chloroform	ND	U	5.0	1.3	
74-87-3	Chloromethane	ND	U	5.0	0.41	
124-48-1	Dibromochloromethane	ND	U	5.0	0.74	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.0	1.6	
75-09-2	Dichloromethane	ND	U	5.0	0.58	
100-41-4	Ethylbenzene	ND	U	5.0	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.0	0.95	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.0	0.89	
108-88-3	Toluene	ND	U	5.0	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.0	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.1	
95-47-6	o-Xylene	ND	U	5.0	0.49	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.0	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	51-136	6/18/14 14:42	
Dibromofluoromethane	102	63-138	6/18/14 14:42	
Toluene-d8	101	66-138	6/18/14 14:42	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001		
Sample Name:	1406091610 200-SB-21	**Date Collected:**	6/9/14
Lab Code:	R1404425-002	**Date Received:**	6/11/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
8260C		BWOJTASIEWICZ

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091745 200-SB-21		
Lab Code:	R1404425-003	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**99.0**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Analyzed:	6/18/14 15:20
Sample Name:	1406091745 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404425-003	**Basis:**	Dry
		Percent Solids:	99.0

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9479.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.1	0.74	
79-00-5	1,1,2-Trichloroethane	ND	U	5.1	0.74	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.1	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.1	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.1	0.62	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.1	1.5	
78-93-3	2-Butanone (MEK)	ND	U	5.1	2.4	
67-63-0	Isopropanol	ND	U	100	29	
67-64-1	Acetone	ND	U	5.1	2.9	
71-43-2	Benzene	ND	U	5.1	0.30	
75-27-4	Bromodichloromethane	ND	U	5.1	0.62	
75-25-2	Bromoform	ND	U	5.1	0.94	
108-90-7	Chlorobenzene	ND	U	5.1	0.30	
67-66-3	Chloroform	ND	U	5.1	1.3	
74-87-3	Chloromethane	ND	U	5.1	0.41	
124-48-1	Dibromochloromethane	ND	U	5.1	0.74	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.1	1.6	
75-09-2	Dichloromethane	ND	U	5.1	0.58	
100-41-4	Ethylbenzene	ND	U	5.1	0.24	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.1	0.95	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.1	0.89	
108-88-3	Toluene	ND	U	5.1	1.1	
79-01-6	Trichloroethene (TCE)	ND	U	5.1	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.2	
95-47-6	o-Xylene	ND	U	5.1	0.49	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.1	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	51-136	6/18/14 15:20	
Dibromofluoromethane	101	63-138	6/18/14 15:20	
Toluene-d8	101	66-138	6/18/14 15:20	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001		
Sample Name:	1406091745 200-SB-21	**Date Collected:**	6/9/14
Lab Code:	R1404425-003	**Date Received:**	6/11/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
8260C		BWOJTASIEWICZ

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091138 200-SB-21 7.5-10'		
Lab Code:	R1404425-004	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**94.1**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 19:33
Sample Name:	1406091138 200-SB-21 7.5-10'	**Units:**	µg/Kg
Lab Code:	R1404425-004	**Basis:**	Dry
		Percent Solids:	94.1

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ142.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	350	46	
84-74-2	Di-n-butyl Phthalate	ND	U	350	54	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	47	47-126	6/16/14 19:33	
Nitrobenzene-d5	43	39-136	6/16/14 19:33	
p-Terphenyl-d14	52	35-152	6/16/14 19:33	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001		
Sample Name:	1406091138 200-SB-21 7.5-10'	**Date Collected:**	6/9/14
Lab Code:	R1404425-004	**Date Received:**	6/11/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
8270D	SGOLBERG	ZMIAO

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091613 200-SB-21		
Lab Code:	R1404425-005	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**99.6**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 20:00
Sample Name:	1406091613 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404425-005	**Basis:**	Dry
		Percent Solids:	99.6

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ143.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	330	43	
84-74-2	Di-n-butyl Phthalate	ND	U	330	51	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	48	47-126	6/16/14 20:00	
Nitrobenzene-d5	46	39-136	6/16/14 20:00	
p-Terphenyl-d14	52	35-152	6/16/14 20:00	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001		
Sample Name:	1406091613 200-SB-21	**Date Collected:**	6/9/14
Lab Code:	R1404425-005	**Date Received:**	6/11/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
8270D	SGOLBERG	ZMIAO

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001
Sample Matrix: Soil

Service Request: R1404425
Date Collected: 6/ 9/14
Date Received: 6/11/14

Sample Name: 1406091748 200-SB-21
Lab Code: R1404425-006

Basis: As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**80.9**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 20:26
Sample Name:	1406091748 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404425-006	**Basis:**	Dry
		Percent Solids:	80.9

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ144.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	410	53	
84-74-2	Di-n-butyl Phthalate	ND	U	410	63	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	48	47-126	6/16/14 20:26	
Nitrobenzene-d5	45	39-136	6/16/14 20:26	
p-Terphenyl-d14	52	35-152	6/16/14 20:26	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001		
Sample Name:	1406091748 200-SB-21	**Date Collected:**	6/9/14
Lab Code:	R1404425-006	**Date Received:**	6/11/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
8270D	SGOLBERG	ZMIAO

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404425-MB1	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404425-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Analyzed:	6/18/14 11:31
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1406804-04	**Basis:**	Dry

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397732
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061814\K9473.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND	U	5.0	0.73	
79-00-5	1,1,2-Trichloroethane	ND	U	5.0	0.73	
76-13-1	1,1,2-Trichlorotrifluoroethane	ND	U	5.0	1.3	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND	U	5.0	1.3	
107-06-2	1,2-Dichloroethane	ND	U	5.0	0.61	
306-83-2	2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	ND	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	ND	U	5.0	2.3	
67-63-0	Isopropanol	ND	U	100	28	
67-64-1	Acetone	ND	U	5.0	2.9	
71-43-2	Benzene	ND	U	5.0	0.29	
75-27-4	Bromodichloromethane	ND	U	5.0	0.61	
75-25-2	Bromoform	ND	U	5.0	0.93	
108-90-7	Chlorobenzene	ND	U	5.0	0.29	
67-66-3	Chloroform	ND	U	5.0	1.3	
74-87-3	Chloromethane	ND	U	5.0	0.40	
124-48-1	Dibromochloromethane	ND	U	5.0	0.73	
75-43-4	Dichlorofluoromethane (CFC 21)	ND	U	5.0	1.5	
75-09-2	Dichloromethane	ND	U	5.0	0.57	
100-41-4	Ethylbenzene	ND	U	5.0	0.23	
1634-04-4	Methyl tert-Butyl Ether	ND	U	5.0	0.94	
127-18-4	Tetrachloroethene (PCE)	ND	U	5.0	0.88	
108-88-3	Toluene	ND	U	5.0	1.0	
79-01-6	Trichloroethene (TCE)	ND	U	5.0	1.1	
179601-23-1	m,p-Xylenes	ND	U	10	1.1	
95-47-6	o-Xylene	ND	U	5.0	0.48	
354-23-4	1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	ND	U	5.0	1.4	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	51-136	6/18/14 11:31	
Dibromofluoromethane	99	63-138	6/18/14 11:31	
Toluene-d8	101	66-138	6/18/14 11:31	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404425
Project:	White Sands Test Facility/14EC001	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	6/12/14
		Date Analyzed:	6/16/14 14:11
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1406497-01	**Basis:**	Dry

Semivolatile Organic Compounds by GC/MS

Analytical Method:	8270D	**Analysis Lot:**	397532
Prep Method:	EPA 3541	**Extraction Lot:**	210493
Data File Name:	I:\ACQUDATA\5973A\DATA\061614\CZ130.D\	**Instrument Name:**	R-MS-51
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
117-81-7	Bis(2-ethylhexyl) Phthalate	ND	U	330	43	
84-74-2	Di-n-butyl Phthalate	ND	U	330	51	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2-Fluorobiphenyl	68	47-126	6/16/14 14:11	
Nitrobenzene-d5	56	39-136	6/16/14 14:11	
p-Terphenyl-d14	70	35-152	6/16/14 14:11	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001
Sample Matrix: Soil

Service Request: R1404425
Date Analyzed: 6/18/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/Kg
Basis: Dry

Analysis Lot: 397732

Analyte Name	Lab Control Sample RQ1406804-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	17.7	20.0	88	64 - 127
1,1,2-Trichloroethane	19.9	20.0	99	76 - 123
1,1,2-Trichlorotrifluoroethane	17.9	20.0	89	59 - 146
1,1-Dichloroethene (1,1-DCE)	23.0	20.0	115	75 - 151
1,2-Dichloroethane	19.7	20.0	98	66 - 123
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	22.6	20.0	113	61 - 138
2-Butanone (MEK)	19.5	20.0	97	62 - 128
Isopropanol	446	400	111	62 - 142
Acetone	17.4	20.0	87	53 - 143
Benzene	19.6	20.0	98	74 - 123
Bromodichloromethane	19.9	20.0	99	77 - 127
Bromoform	19.5	20.0	97	65 - 133
Chlorobenzene	19.9	20.0	100	77 - 124
Chloroform	19.8	20.0	99	73 - 125
Chloromethane	21.5	20.0	107	56 - 154
Dibromochloromethane	19.7	20.0	99	77 - 124
Dichlorofluoromethane (CFC 21)	19.1	20.0	95	79 - 142
Dichloromethane	21.0	20.0	105	77 - 126
Ethylbenzene	17.6	20.0	88	73 - 123
Methyl tert-Butyl Ether	21.0	20.0	105	72 - 131
Tetrachloroethene (PCE)	18.0	20.0	90	65 - 133
Toluene	19.0	20.0	95	72 - 127
Trichloroethene (TCE)	19.1	20.0	95	72 - 129
m,p-Xylenes	37.0	40.0	92	77 - 125
o-Xylene	18.8	20.0	94	75 - 124
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	26.9	20.0	134	56 - 154

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001
Sample Matrix: Soil

Service Request: R1404425
Date Analyzed: 6/16/14

Lab Control Sample Summary
Semivolatile Organic Compounds by GC/MS

Analytical Method: 8270D
Prep Method: EPA 3541

Units: µg/Kg
Basis: Dry

Extraction Lot: 210493

	Lab Control Sample RQ1406497-02			Duplicate Lab Control Sample RQ1406497-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Bis(2-ethylhexyl) Phthalate	2170	3330	65	1840	3330	55	50 - 142	16	30
Di-n-butyl Phthalate	2320	3330	70	2050	3330	61	36 - 164	13	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number AU-4425

Cooler received on 6/11/14 by: CW

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	(Y) N	5a	Perchlorate samples have required headspace?	(Y) N NA
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	(Y) N NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: (Bulk) Encore 5035set NA	

8. Temperature Readings Date: 6/11/14 Time: 1020 ID: (IR#3) IR#4 From: Temp Blank (Sample Bottle)

Observed Temp (°C)	3.5						
Correction Factor (°C)	0.0						
Corrected Temp (°C)	3.5						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by CW on 6/11/14 at 1030

5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: JMM 6/11/14

Cooler Breakdown: Date: 6/11/14 Time: 1830 by: JB

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
2. Did all bottle labels and tags agree with custody papers? (YES) NO
3. Were correct containers used for the tests indicated? (YES) NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: check

Other Comments:

VOA HEADSPACE 200-SB-21

VOA HEADSPACE WW-4-594

VOA HEADSPACE WW-4-594

PC Secondary Review: JMM 6/25/14

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

SUPPORTING DOCUMENTATION

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001
Sample Matrix: Soil

Service Request: R1404425
Date Analyzed: 6/18/14 11:31

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1406804-04
Instrument ID: R-MS-07
File ID: I:\ACQUDATA\MSVOA7\DATA\061814\K9473.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406804-03	I:\ACQUDATA\MSVOA7\DATA\061814\K9471.D\	6/18/14 10:15
1406091135 200-SB-21 7.5-10'	R1404425-001	I:\ACQUDATA\MSVOA7\DATA\061814\K9477.D\	6/18/14 14:05
1406091610 200-SB-21	R1404425-002	I:\ACQUDATA\MSVOA7\DATA\061814\K9478.D\	6/18/14 14:42
1406091745 200-SB-21	R1404425-003	I:\ACQUDATA\MSVOA7\DATA\061814\K9479.D\	6/18/14 15:20

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Date Analyzed: 6/18/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA7\DATA\061814\K9470.D\

Calibration Date: 5/29/14
Calibration ID: RC1400043
Analysis Lot: 397732
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1-Trichloroethane (TCA)	50.0	42.6	0.7075	0.6034	-14.7	NA	± 20 %	Average RF
1,1,2-Trichloroethane	50.0	49.7	0.3414	0.3396	-0.5	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	41.9	0.4820	0.4036	-16.3	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	47.2	0.4169	0.3938	-5.5	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	49.5	0.4920	0.4875	-0.9	NA	± 20 %	Average RF
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	50.0	54.6	0.8365	0.9125	9.1	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	49.8	0.7656	0.7621	-0.5	NA	± 20 %	Average RF
Isopropanol	1000	1130	0.08660	0.09777	12.9	NA	± 20 %	Average RF
Acetone	50.0	42.8	0.6020	0.5150	-14.4	NA	± 20 %	Average RF
Benzene	50.0	47.9	1.440	1.378	-4.3	NA	± 20 %	Average RF
Bromodichloromethane	50.0	47.8	0.4660	0.4458	-4.3	NA	± 20 %	Average RF
Bromoform	50.0	50.2	0.2458	0.2469	0.5	NA	± 20 %	Average RF
Chlorobenzene	50.0	46.8	0.9166	0.8578	-6.4	NA	± 20 %	Average RF
Chloroform	50.0	47.8	1.049	1.003	-4.3	NA	± 20 %	Average RF
Chloromethane	50.0	52.8	1.118	1.180	5.6	NA	± 20 %	Average RF
Dibromochloromethane	50.0	48.5	0.3859	0.3743	-3.0	NA	± 20 %	Average RF
Dichlorofluoromethane (CFC 21)	50.0	53.7	1.436	1.541	7.3	NA	± 20 %	Average RF
Dichloromethane	50.0	48.8	0.6951	0.6779	-2.5	NA	± 20 %	Average RF
Ethylbenzene	50.0	43.5	1.608	1.400	-12.9	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	50.9	1.847	1.880	1.8	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	42.2	0.3262	0.2750	-15.7	NA	± 20 %	Average RF
Toluene	50.0	45.4	1.479	1.344	-9.1	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	43.8	0.3311	0.2898	-12.5	NA	± 20 %	Average RF
m,p-Xylenes	100	88.3	0.5809	0.5128	-11.7	NA	± 20 %	Average RF
o-Xylene	50.0	44.9	0.5852	0.5255	-10.2	NA	± 20 %	Average RF
1,2-Dichloro-1,1,2-trifluoroethane (CFC	50.0	56.5	0.8761	0.9906	13.1	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	49.0	0.4853	0.4757	-2.0	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	49.9	0.3338	0.3332	-0.2	NA	± 20 %	Average RF
Toluene-d8	50.0	51.7	1.294	1.339	3.5	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

#	File Location	Acquisition Date	#	File Location	Acquisition Date
01	I:\ACQUDATA\MSVOA7\DATA\052914\K9081	5/29/14 13:54	02	I:\ACQUDATA\MSVOA7\DATA\052914\K9082	5/29/14 14:31
03	I:\ACQUDATA\MSVOA7\DATA\052914\K9083	5/29/14 15:09	04	I:\ACQUDATA\MSVOA7\DATA\052914\K9084	5/29/14 15:47
05	I:\ACQUDATA\MSVOA7\DATA\052914\K9085	5/29/14 16:24	06	I:\ACQUDATA\MSVOA7\DATA\052914\K9086	5/29/14 17:02
07	I:\ACQUDATA\MSVOA7\DATA\052914\K9087	5/29/14 17:39	08	I:\ACQUDATA\MSVOA7\DATA\052914\K9088	5/29/14 18:16

Analyte

1,1,1-Trichloroethane (TCA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.7839	02	5.000	0.7509	03	10.000	0.7284	04	20.000	0.6127
05	50.000	0.6606	06	100.000	0.6772	07	150.000	0.7145	08	200.000	0.7320

1,1,2-Trichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.3874	02	5.000	0.3495	03	10.000	0.3341	04	20.000	0.3176
05	50.000	0.3329	06	100.000	0.3427	07	150.000	0.3360	08	200.000	0.3308

1,1,2-Trichlorotrifluoroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5947	02	5.000	0.5106	03	10.000	0.4949	04	20.000	0.4003
05	50.000	0.4170	06	100.000	0.4406	07	150.000	0.5023	08	200.000	0.4958

1,1-Dichloroethene (1,1-DCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4287	02	5.000	0.4345	03	10.000	0.4227	04	20.000	0.4036
05	50.000	0.4110	06	100.000	0.3927	07	150.000	0.4180	08	200.000	0.4236

1,2-Dichloroethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.5482	02	5.000	0.5030	03	10.000	0.5071	04	20.000	0.4618
05	50.000	0.4971	06	100.000	0.4830	07	150.000	0.4706	08	200.000	0.4654

2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9132	02	5.000	0.8478	03	10.000	0.8259	04	20.000	0.8460
05	50.000	0.8658	06	100.000	0.7603	07	150.000	0.8231	08	200.000	0.8096

2-Butanone (MEK)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.8520	02	5.000	0.8114	03	10.000	0.8282	04	20.000	0.6699
05	50.000	0.7465	06	100.000	0.7626	07	150.000	0.7310	08	200.000	0.7234

Isopropanol

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	20.000	0.09561	02	100.000	0.08746	03	200.000	0.08773	04	400.000	0.08729
05	1000.000	0.08880	06	2000.000	0.08603	07	3000.000	0.08103	08	4000.000	0.07884

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Acetone

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7647	03	10.000	0.7579	04	20.000	0.5490	05	50.000	0.5746
06	100.000	0.5454	07	150.000	0.5177	08	200.000	0.5047			

Benzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.596	02	5.000	1.535	03	10.000	1.466	04	20.000	1.318
05	50.000	1.382	06	100.000	1.388	07	150.000	1.402	08	200.000	1.431

Bromodichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4916	02	5.000	0.4571	03	10.000	0.4730	04	20.000	0.4355
05	50.000	0.4643	06	100.000	0.4670	07	150.000	0.4646	08	200.000	0.4746

Bromoform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.2226	02	5.000	0.2401	03	10.000	0.2401	04	20.000	0.2204
05	50.000	0.2512	06	100.000	0.2653	07	150.000	0.2634	08	200.000	0.2633

Chlorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.046	02	5.000	0.9396	03	10.000	0.9567	04	20.000	0.7815
05	50.000	0.8522	06	100.000	0.8984	07	150.000	0.9364	08	200.000	0.9222

Chloroform

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.206	02	5.000	1.120	03	10.000	1.016	04	20.000	1.017
05	50.000	1.023	06	100.000	0.9987	07	150.000	1.003	08	200.000	1.006

Chloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.395	02	5.000	1.091	03	10.000	1.020	04	20.000	1.109
05	50.000	1.074	06	100.000	1.055	07	150.000	1.105	08	200.000	1.093

Dibromochloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4190	02	5.000	0.3982	03	10.000	0.3683	04	20.000	0.3414
05	50.000	0.3785	06	100.000	0.3915	07	150.000	0.3938	08	200.000	0.3963

Dichlorofluoromethane (CFC 21)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.487	02	5.000	1.460	03	10.000	1.400	04	20.000	1.420
05	50.000	1.497	06	100.000	1.357	07	150.000	1.436	08	200.000	1.432

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

Dichloromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	5.000	0.7799	03	10.000	0.7323	04	20.000	0.6584	05	50.000	0.6868
06	100.000	0.6674	07	150.000	0.6625	08	200.000	0.6782			

Ethylbenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.782	02	5.000	1.803	03	10.000	1.701	04	20.000	1.348
05	50.000	1.426	06	100.000	1.560	07	150.000	1.647	08	200.000	1.599

Methyl tert-Butyl Ether

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.982	02	5.000	1.860	03	10.000	1.863	04	20.000	1.734
05	50.000	1.877	06	100.000	1.843	07	150.000	1.812	08	200.000	1.801

Tetrachloroethene (PCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4071	02	5.000	0.3694	03	10.000	0.3436	04	20.000	0.2614
05	50.000	0.2735	06	100.000	0.3000	07	150.000	0.3294	08	200.000	0.3249

Toluene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	1.670	02	5.000	1.584	03	10.000	1.537	04	20.000	1.282
05	50.000	1.376	06	100.000	1.432	07	150.000	1.484	08	200.000	1.468

Trichloroethene (TCE)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.4316	02	5.000	0.3414	03	10.000	0.3265	04	20.000	0.2828
05	50.000	0.2997	06	100.000	0.3152	07	150.000	0.3251	08	200.000	0.3265

m,p-Xylenes

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.6838	02	10.000	0.6233	03	20.000	0.6206	04	40.000	0.4834
05	100.000	0.5118	06	200.000	0.5540	07	300.000	0.5902	08	400.000	0.5802

o-Xylene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.6621	02	5.000	0.6233	03	10.000	0.6266	04	20.000	0.4869
05	50.000	0.5256	06	100.000	0.5698	07	150.000	0.5983	08	200.000	0.5890

1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	1.000	0.9808	02	5.000	0.8778	03	10.000	0.8576	04	20.000	0.8867
05	50.000	0.9405	06	100.000	0.7860	07	150.000	0.8413	08	200.000	0.8382

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte

4-Bromofluorobenzene

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
06	50.000	0.4833	07	50.000	0.4775	02	50.000	0.4893	04	50.000	0.4931
01	50.000	0.4940	03	50.000	0.4875	08	50.000	0.4756	05	50.000	0.4819

Dibromofluoromethane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	50.000	0.3361	06	50.000	0.3295	07	50.000	0.3245	02	50.000	0.3390
04	50.000	0.3406	01	50.000	0.3368	03	50.000	0.3344	08	50.000	0.3299

Toluene-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
08	50.000	1.289	03	50.000	1.291	01	50.000	1.307	04	50.000	1.306
02	50.000	1.305	07	50.000	1.289	06	50.000	1.276	05	50.000	1.291

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/14EC001

Service Request: R1404425
Calibration Date: 5/29/14

Initial Calibration Summary
Volatile Organic Compounds by GC/MS

Calibration ID: RC1400043
Instrument ID: R-MS-07

Signal ID: 1

Analyte Name	Compound Type	Calibration Evaluation					RRF Evaluation		
		Fit Type	Eval.	Eval. Result	Q	Control Criteria	Average RRF	Q	Minimum RRF
1,1,1-Trichloroethane (TCA)	TRG	Average RF	% RSD	7.7		≤ 20	0.7075		0.100
1,1,2-Trichloroethane	TRG	Average RF	% RSD	6.1		≤ 20	0.3414		0.100
1,1,2-Trichlorotrifluoroethane	TRG	Average RF	% RSD	12.9		≤ 20	0.4820		0.100
1,1-Dichloroethene (1,1-DCE)	TRG	Average RF	% RSD	3.3		≤ 20	0.4169		0.100
1,2-Dichloroethane	TRG	Average RF	% RSD	5.8		≤ 20	0.4920		0.100
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123)	TRG	Average RF	% RSD	5.3		≤ 20	0.8365		
2-Butanone (MEK)	TRG	Average RF	% RSD	8.0		≤ 20	0.7656		0.05
Isopropanol	TRG	Average RF	% RSD	5.9		≤ 20	0.08660		
Acetone	TRG	Average RF	% RSD	18.5		≤ 20	0.6020		0.05
Benzene	TRG	Average RF	% RSD	6.2		≤ 20	1.440		0.500
Bromodichloromethane	TRG	Average RF	% RSD	3.4		≤ 20	0.4660		0.200
Bromoform	TRG	Average RF	% RSD	7.3		≤ 20	0.2458		0.100
Chlorobenzene	TRG	Average RF	% RSD	8.4		≤ 20	0.9166		0.500
Chloroform	TRG	Average RF	% RSD	7.1		≤ 20	1.049		0.200
Chloromethane	TRG	Average RF	% RSD	10.4		≤ 20	1.118		0.100
Dibromochloromethane	TRG	Average RF	% RSD	6.0		≤ 20	0.3859		0.100
Dichlorofluoromethane (CFC 21)	TRG	Average RF	% RSD	3.2		≤ 20	1.436		
Dichloromethane	TRG	Average RF	% RSD	6.5		≤ 20	0.6951		0.100
Ethylbenzene	TRG	Average RF	% RSD	10.0		≤ 20	1.608		0.100
Methyl tert-Butyl Ether	TRG	Average RF	% RSD	3.9		≤ 20	1.847		0.100
Tetrachloroethene (PCE)	TRG	Average RF	% RSD	14.8		≤ 20	0.3262		0.200
Toluene	TRG	Average RF	% RSD	8.2		≤ 20	1.479		0.400
Trichloroethene (TCE)	TRG	Average RF	% RSD	13.4		≤ 20	0.3311		0.200
m,p-Xylenes	TRG	Average RF	% RSD	11.1		≤ 20	0.5809		0.100
o-Xylene	TRG	Average RF	% RSD	9.7		≤ 20	0.5852		0.300
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123a)	TRG	Average RF	% RSD	7.0		≤ 20	0.8761		
4-Bromofluorobenzene	SURR	Average RF	% RSD	1.4		≤ 20	0.4853		
Dibromofluoromethane	SURR	Average RF	% RSD	1.6		≤ 20	0.3338		
Toluene-d8	SURR	Average RF	% RSD	0.8		≤ 20	1.294		

Analysis: 8260-soil	Analyst: Ben Wojtasiewicz	Tune Method: T0529 14.m	
Date: 06/18/14	Data Path: j:\acqudata\msvoa7\DATA\061814	Run Method: S0529 14.m	
Instr. MS #7		LIMS Run#: 397732	

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
1	Blank	-				-	1	-	K5467	-	
2	↓	-				-	2	-	68	-	
3	Tune	-				-	1	-	69	YT	
4	CCV	-				-	1	-	70	YC	
5	LCS	-				-	1	-	71	YC	
6	MBlank	-				-	1	-	72	ND	per for c/o
7	MBlank	-				-	2	-	73	YA	
8	R1404316-001	1	5g	[redacted]	11913	3	2	NA	74	Y	
9	↓ -002	1					2		75	Y	
10	↓ -003	1					2		76	Y	
11	R1404425-001	1					2		77	Y	
12	↓ -002	1					2		78	Y	
13	↓ -003	1					2		79	Y	
14	R1404150-004	1					1		80	Y	
15	↓ -005	1					1		81	Y	
16	↓ -006	1					1		82	Y	
17	↓ -004MS	1					2		83	Y	
18	↓ -004DMS	1	↓	↓	↓	↓	3	↓	84	Y	
19	Blank	-				-	1	-	85	-	
20	↓	-				-	2	-	86	-	

SL 06/19/14

All samples = 5 mL + 1 uL combined IS/Surr. 10 mL purged

500 Primary TG : 71498 5mL
Primary HBO : 71634
Primary MSL : 71585
Primary EM : 71500
Primary :
50mL = CCV

500 Secondary TG : 71184 2mL
Secondary HBO : 71564
Secondary MSL : 71667
200 Secondary EM : 71591 5mL
Secondary :
50g = LCS

5mL → 12.5mL
50g = MS, DMS

Combined IS/Surr 250: 71597
Surrogate :
Internal Std :

Response Factor Report 5973-A

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Initial Calibration

Calibration Files

5	=CY822.D	10	=CY823.D	50	=CY824.D
80	=CY825.D	100	=CY826.D	120	=CY827.D

160 = CY828.D

		Compound	5	10	50	80	100	120	Avg	%RSD
1)	IR	d4-1,4-Dichlorobenzen	----------ISTD----------							
2)	TM	Pyridine			1.435	1.493	1.544	1.383	1.467	4.16
3)	TM	N-Nitrosodimethylam	0.752	0.771	0.862	0.905	0.922	0.829	0.847	7.80
4)	S	SURR1,2-FLUOROPHENO	1.353	1.367	1.396	1.445	1.455	1.326	1.391	3.39
5)	TM	Benzaldehyde			0.441	0.345	0.356	0.242	0.317	30.19 AV
6)	TM	Aniline	2.000	1.976	1.819	1.808	1.782	1.549	1.780	10.44
7)	S	SURR2,PHENOL-D6	1.565	1.611	1.614	1.645	1.655	1.537	1.601	2.69
8)	TMC	Phenol	1.581	1.601	1.602	1.669	1.667	1.525	1.600	3.34
9)	TM	bis(2-Clethyl)Ether	1.415	1.165	1.278	1.252	1.200	1.200	1.251	6.54
10)	TM	2-Chlorophenol	1.471	1.378	1.433	1.440	1.454	1.312	1.407	4.14
11)	TM	1,3-Diclbenzene	1.585	1.597	1.515	1.501	1.548	1.411	1.509	5.11
12)	TMC	1,4-Dichlorobenzene	1.488	1.547	1.523	1.489	1.507	1.391	1.477	4.16
13)	TM	1,2-Diclbenzene	1.478	1.587	1.472	1.435	1.467	1.341	1.444	6.11
14)	TM	Benzyl Alcohol	0.981	0.919	1.022	1.053	1.038	0.966	0.998	4.62
15)	TM	2,2'-oxybis(1-Chlor	1.465	1.372	1.413	1.438	1.407	1.311	1.397	3.62
16)	TM	2-Methylphenol	1.166	1.251	1.256	1.296	1.295	1.212	1.245	3.68
17)	TM	Acetophenone	1.737	1.713	1.689	1.655	1.624	1.492	1.627	6.35
18)	TMP	N-Nitroso-Di-n-prop	0.964	0.931	0.928	0.933	0.909	0.840	0.910	4.75
19)	TM	Hexachloroethane	0.602	0.584	0.567	0.578	0.578	0.535	0.570	3.94
20)	TM	3+4-Methylphenol	1.278	1.350	1.396	1.394	1.376	1.276	1.336	4.18
21)	T	1-Methyl-2-pyrrolid		0.917	0.953	0.940	0.962	0.905	0.935	2.30
22)	IR	d8-Naphthalene	----------ISTD----------							
23)	S	SURR4,NITROBENZENE-	0.386	0.412	0.402	0.398	0.378	0.382	0.390	3.47
24)	TM	Nitrobenzene	0.345	0.363	0.358	0.358	0.334	0.339	0.346	4.06
25)	TM	Isophorone	0.649	0.673	0.700	0.666	0.629	0.618	0.647	5.62
26)	TCM	2-Nitrophenol	0.202	0.200	0.220	0.219	0.214	0.208	0.210	3.68
27)	TM	Benzoic Acid			0.334	0.361	0.342	0.359	0.351	3.45
28)	TM	2,4-Dimethylphenol	0.338	0.346	0.356	0.346	0.332	0.326	0.338	3.63
29)	TM	bis(-2-Chloroethoxy	0.382	0.404	0.403	0.400	0.380	0.381	0.388	3.67
30)	TCM	2,4-Dichlorophenol	0.699	0.697	0.654	0.602	0.583	0.568	0.617	11.08
31)	TM	1,2,4-Trichlorobenz	0.350	0.355	0.338	0.335	0.328	0.310	0.331	5.81
32)	TM	Naphthalene	1.044	1.088	0.969	0.976	0.903	0.839	0.942	11.81
33)	TM	4-Chloroaniline	0.385	0.443	0.422	0.412	0.387	0.370	0.398	7.21
34)	TCM	Hexachlorobutadiene	0.182	0.198	0.193	0.190	0.182	0.183	0.186	4.00
35)	TMC	4-Chloro-3-methylph	0.275	0.289	0.303	0.304	0.288	0.292	0.290	3.75
36)	TM	Caprolactam		0.118	0.115	0.119	0.112	0.128	0.116	6.39
37)	TM	2-Methylnaphthalene	0.726	0.732	0.718	0.686	0.671	0.649	0.683	6.82
38)	TM	1-Methylnaphthalene	0.666	0.675	0.662	0.629	0.618	0.604	0.629	6.92
39)	IR	d10-Acenaphthene	----------ISTD----------							
40)	TPM	Hexachlorocyclopent	0.196	0.238	0.324	0.341	0.353	0.358	0.306	20.67 &R
41)	TCM	2,4,6-Trichlorophen	0.359	0.370	0.392	0.379	0.405	0.382	0.380	4.00

(#) = Out of Range ### Number of calibration levels exceeded format ### 7M

Response Factor Report 5973-A

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Initial Calibration

Calibration Files
5 =CY822.D 10 =CY823.D 50 =CY824.D
80 =CY825.D 100 =CY826.D 120 =CY827.D

		Compound	5	10	50	80	100	120	Avg	%RSD
42)	TM	2,4,5-Trichlorophen	0.459	0.440	0.400	0.397	0.396	0.393	0.408	7.28
43)	S	SURR5,2-FLUOROBIPHE	1.381	1.416	1.290	1.226	1.204	1.147	1.251	9.52
44)	TM	1,1'-Biphenyl	1.471	1.447	1.382	1.289	1.326	1.206	1.323	9.28
45)	TM	2-Chloronaphthalene	1.178	1.162	1.079	1.027	1.049	0.982	1.059	8.45
46)	TM	2-Nitroaniline			0.311	0.321	0.318	0.305	0.315	2.01
47)	TM	Acenaphthylene	1.883	1.852	1.691	1.598	1.613	1.475	1.640	11.45
48)	TM	Dimethyl phthalate	1.307	1.292	1.210	1.132	1.149	1.067	1.165	9.76
49)	TM	2,6-Dinitrotoluene	0.312	0.324	0.309	0.298	0.306	0.295	0.304	4.12
50)	TMC	Acenaphthene	1.154	1.165	1.100	1.049	1.065	0.989	1.067	7.50
51)	TM	3-Nitroaniline			0.331	0.325	0.326	0.334	0.329	1.18
52)	TPM	2,4-Dinitrophenol			0.174	0.186	0.193	0.201	0.191	5.80
53)	TM	Dibenzofuran	1.739	1.711	1.538	1.429	1.452	1.324	1.489	12.70
54)	TM	2,4-Dinitrotoluene	0.360	0.398	0.384	0.379	0.384	0.389	0.382	3.03
55)	TMP	4-Nitrophenol			0.204	0.214	0.216	0.221	0.217	4.50
56)	TM	Fluorene	1.330	1.387	1.230	1.162	1.198	1.089	1.201	10.89
57)	TM	4-Chlorophenyl-phen	0.643	0.670	0.629	0.591	0.628	0.582	0.612	7.12
58)	TM	Diethylphthalate	1.168	1.182	1.080	1.032	1.059	1.001	1.070	7.48
59)	TM	4-Nitroaniline			0.326	0.323	0.341	0.342	0.333	2.65
60)	S	SURR3,2,4,6-TRIBROM	0.323	0.331	0.313	0.296	0.298	0.305	0.309	4.29
61)	IR	d10-Phenanthrene	----------ISTD----------							
62)	T	1-Phenyl-1(4-methyl							0.000#	-1.00
63)	TM	4,6-Dinitro-2-methy			0.163	0.172	0.161	0.168	0.166	2.54
64)	TM	1,2 Diphenylhydrazi	0.755	0.813	0.744	0.756	0.701	0.633	0.718	9.79
65)	TCM	N-Nitrosodiphenylam	0.621	0.672	0.560	0.527	0.495	0.508	0.554	12.44
66)	TM	4-Bromophenyl-pheny	0.295	0.290	0.266	0.250	0.240	0.235	0.258	10.40
67)	T	1-Phenyl-1(2,4-dime							0.000#	-1.00
68)	TM	Hexachlorobenzene	0.354	0.383	0.355	0.332	0.322	0.310	0.337	8.58
69)	TM	Atrazine	0.104	0.102	0.104	0.090	0.083	0.084	0.092	12.27
70)	TCM	Pentachlorophenol			0.207	0.211	0.213	0.211	0.211	1.06
71)	TM	Phenanthrene	1.147	1.103	0.992	0.968	0.943	0.866	0.979	11.83
72)	TM	Anthracene	1.116	1.188	1.061	1.030	1.000	0.929	1.026	10.82
73)	TM	Carbazole	1.056	1.122	1.078	1.048	1.013	0.921	1.015	8.87
74)	TM	Di-n-butylphthalate	1.169	1.205	1.262	1.185	1.130	1.052	1.138	8.87
75)	TCM	Fluoranthene	1.121	1.260	1.276	1.231	1.197	1.080	1.173	7.80
76)	IR	d12-Chrysene	----------ISTD----------							
77)	TM	Benzidine			0.416	0.312	0.302	0.239	0.300	24.85 Avg
78)	TM	Pyrene	1.015	1.134	1.238	1.058	1.121	0.955	1.068	9.76
79)	S	SURR6,TERPHENYL-D14	0.824	0.846	0.900	0.792	0.814	0.716	0.804	7.92
80)	TM	Butyl benzyl phthal	0.531	0.510	0.577	0.520	0.538	0.509	0.528	4.62
81)	TM	3,3'-Dichlorobenzid	0.464	0.491	0.467	0.455	0.474	0.439	0.459	4.92
82)	TM	Benzo(a)anthracene	1.198	1.194	1.131	1.093	1.095	1.028	1.106	6.78
83)	TM	Chrysene	1.104	1.117	1.032	0.977	1.005	0.920	1.006	8.59

(#) = Out of Range ### Number of calibration levels exceeded format ###

Response Factor Report 5973-A

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Initial Calibration

Calibration Files

5	=CY822.D	10	=CY823.D	50	=CY824.D
80	=CY825.D	100	=CY826.D	120	=CY827.D

		Compound	5	10	50	80	100	120	Avg	%RSD
84)	TM	bis(2-Ethylhexyl)ph	0.665	0.633	0.691	0.651	0.656	0.645	0.654	3.03
85)	IR	d12-Perylene	----------ISTD----------							
86)	TCM	Di-n-octyl phthalat	1.017	0.856	1.126	1.033	0.933	1.039	0.994	8.83
87)	TM	Benzo(b)Fluoranthen	1.060	0.972	1.081	1.068	1.016	1.054	1.033	4.21
88)	TM	Benzo(k)fluoranthen	1.105	1.015	1.090	1.019	1.010	1.000	1.020	6.63
89)	TCM	Benzo(a)pyrene	1.037	1.064	1.054	1.033	1.010	1.006	1.024	3.24
90)	TM	Indeno(1,2,3-cd)Pyr	0.917	0.975	1.002	1.029	1.022	0.980	0.999	4.75
91)	TM	Dibenz(a,h)anthrace	1.039	1.004	0.998	0.992	0.984	0.933	0.993	3.20
92)	TM	Benzo(g,h,i)perylen	1.031	1.000	0.963	0.943	0.945	0.911	0.962	4.20

(#) = Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\040914\CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	100	0.00
2	TM	Pyridine	1.467	1.493	-1.8	100	0.00
3	TM	N-Nitrosodimethylamine	0.847	0.905	-6.8	100	0.00
4	S	SURR1,2-FLUOROPHENOL	1.391	1.445	-3.9	100	0.00
5	TM	Benzaldehyde	0.317	0.345	-8.8	100	0.00
6	TM	Aniline	1.780	1.808	-1.6	100	0.00
7	S	SURR2,PHENOL-D6	1.601	1.645	-2.7	100	0.00
8	TMC	Phenol	1.600	1.669	-4.3	100	0.00
9	TM	bis(2-Clethyl)Ether	1.251	1.252	-0.1	100	0.00
10	TM	2-Chlorophenol	1.407	1.440	-2.3	100	0.00
11	TM	1,3-Diclbenzene	1.509	1.501	0.5	100	0.00
12	TMC	1,4-Dichlorobenzene	1.477	1.489	-0.8	100	0.00
13	TM	1,2-Diclbenzene	1.444	1.435	0.6	100	0.00
14	TM	Benzyl Alcohol	0.998	1.053	-5.5	100	0.00
15	TM	2,2'-oxybis(1-Chloropropane	1.397	1.438	-2.9	100	0.00
16	TM	2-Methylphenol	1.245	1.296	-4.1	100	0.00
17	TM	Acetophenone	1.627	1.655	-1.7	100	0.00
18	TMP	N-Nitroso-Di-n-propylamine	0.910	0.933	-2.5	100	0.00
19	TM	Hexachloroethane	0.570	0.578	-1.4	100	0.00
20	TM	3+4-Methylphenol	1.336	1.394	-4.3	100	0.00
21	T	1-Methyl-2-pyrrolidinone	0.935	0.940	-0.5	100	0.00
22	IR	d8-Naphthalene	1.000	1.000	0.0	100	0.00
23	S	SURR4,NITROBENZENE-D5	0.390	0.398	-2.1	100	0.00
24	TM	Nitrobenzene	0.346	0.358	-3.5	100	0.00
25	TM	Isophorone	0.647	0.666	-2.9	100	0.00
26	TCM	2-Nitrophenol	0.210	0.219	-4.3	100	0.00
27	TM	Benzoic Acid	0.351	0.361	-2.8	100	0.00
28	TM	2,4-Dimethylphenol	0.338	0.346	-2.4	100	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.388	0.400	-3.1	100	0.00
30	TCM	2,4-Dichlorophenol	0.617	0.602	2.4	100	0.00
31	TM	1,2,4-Trichlorobenzene	0.331	0.335	-1.2	100	0.00
32	TM	Naphthalene	0.942	0.976	-3.6	100	0.00
33	TM	4-Chloroaniline	0.398	0.412	-3.5	100	0.00
34	TCM	Hexachlorobutadiene	0.186	0.190	-2.2	100	0.00
35	TMC	4-Chloro-3-methylphenol	0.290	0.304	-4.8	100	0.00
36	TM	Caprolactam	0.116	0.119	-2.6	100	0.00
37	TM	2-Methylnaphthalene	0.683	0.686	-0.4	100	0.00
38	TM	1-Methylnaphthalene	0.629	0.629	0.0	100	0.00
39	IR	d10-Acenaphthene	1.000	1.000	0.0	100	0.00

(#) = Out of Range

Finnigan Scientific Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\040914\CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	0.306	0.341	-11.4	100	0.00
41	TCM	2,4,6-Trichlorophenol	0.380	0.379	0.3	100	0.00
42	TM	2,4,5-Trichlorophenol	0.408	0.397	2.7	100	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.251	1.226	2.0	100	0.00
44	TM	1,1'-Biphenyl	1.323	1.289	2.6	100	0.00
45	TM	2-Chloronaphthalene	1.059	1.027	3.0	100	0.00
46	TM	2-Nitroaniline	0.315	0.321	-1.9	100	0.00
47	TM	Acenaphthylene	1.640	1.598	2.6	100	0.00
48	TM	Dimethyl phthalate	1.165	1.132	2.8	100	0.00
49	TM	2,6-Dinitrotoluene	0.304	0.298	2.0	100	0.00
50	TMC	Acenaphthene	1.067	1.049	1.7	100	0.00
51	TM	3-Nitroaniline	0.329	0.325	1.2	100	0.00
52	TPM	2,4-Dinitrophenol	0.191	0.186	2.6	100	0.00
53	TM.	Dibenzofuran	1.489	1.429	4.0	100	0.00
54	TM	2,4-Dinitrotoluene	0.382	0.379	0.8	100	0.00
55	TMP	4-Nitrophenol	0.217	0.214	1.4	100	0.00
56	TM	Fluorene	1.201	1.162	3.2	100	0.00
57	TM	4-Chlorophenyl-phenylether	0.612	0.591	3.4	100	0.00
58	TM	Diethylphthalate	1.070	1.032	3.6	100	0.00
59	TM	4-Nitroaniline	0.333	0.323	3.0	100	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.309	0.296	4.2	100	0.00
61	IR	d10-Phenanthrene	1.000	1.000	0.0	100	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#	0.0	100	0.00
63	TM	4,6-Dinitro-2-methylphenol	0.166	0.172	-3.6	100	0.00
64	TM	1,2 Diphenylhydrazine	0.718	0.756	-5.3	100	0.00
65	TCM	N-Nitrosodiphenylamine	0.554	0.527	4.9	100	0.00
66	TM	4-Bromophenyl-phenylether	0.258	0.250	3.1	100	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#	0.0	100	0.00
68	TM	Hexachlorobenzene	0.337	0.332	1.5	100	0.00
69	TM	Atrazine	0.092	0.090	2.2	100	0.00
70	TCM	Pentachlorophenol	0.211	0.211	0.0	100	0.00
71	TM	Phenanthrene	0.979	0.968	1.1	100	0.00
72	TM	Anthracene	1.026	1.030	-0.4	100	0.00
73	TM	Carbazole	1.015	1.048	-3.3	100	0.00
74	TM	Di-n-butylphthalate	1.138	1.185	-4.1	100	0.00
75	TCM	Fluoranthene	1.173	1.231	-4.9	100	0.00
76	IR	d12-Chrysene	1.000	1.000	0.0	100	0.00
77	TM	Benzidine	0.300	0.312	-4.0	100	0.00
78	TM	Pyrene	1.068	1.058	0.9	100	0.00

(#) = Out of Range

Evaluate continuing calibration report

Data File : I:\ACQUDATA\5973A\DATA\040914\CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	0.804	0.792	1.5	100	0.00
80	TM	Butyl benzyl phthalate	0.528	0.520	1.5	100	0.00
81	TM	3,3'-Dichlorobenzidine	0.459	0.455	0.9	100	0.00
82	TM	Benzo(a)anthracene	1.106	1.093	1.2	100	0.00
83	TM	Chrysene	1.006	0.977	2.9	100	0.00
84	TM	bis(2-Ethylhexyl)phthalate	0.654	0.651	0.5	100	0.00
85	IR	d12-Perylene	1.000	1.000	0.0	100	0.00
86	TCM	Di-n-octyl phthalate	0.994	1.033	-3.9	100	0.00
87	TM	Benzo(b)Fluoranthene	1.033	1.068	-3.4	100	0.00
88	TM	Benzo(k)fluoranthene	1.020	1.019	0.1	100	0.00
89	TCM	Benzo(a)pyrene	1.024	1.033	-0.9	100	0.00
90	TM	Indeno(1,2,3-cd)Pyrene	0.999	1.029	-3.0	100	0.00
91	TM	Dibenz(a,h)anthracene	0.993	0.992	0.1	100	0.00
92	TM	Benzo(g,h,i)perylene	0.962	0.943	2.0	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data File : I:\ACQUDATA\5973A\DATA\040914\COPY OF CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	40.000	40.000	0.0	100	0.00
2	TM	Pyridine	80.000	81.427	-1.8	100	0.00
3	TM	N-Nitrosodimethylamine	80.000	85.413	-6.8	100	0.00
4	S	SURR1,2-FLUOROPHENOL	80.000	83.145	-3.9	100	0.00
5	TM	Benzaldehyde	80.000	87.095	-8.9	100	0.00
6	TM	Aniline	80.000	81.245	-1.6	100	0.00
7	S	SURR2,PHENOL-D6	80.000	82.228	-2.8	100	0.00
8	TMC	Phenol	80.000	83.448	-4.3	100	0.00
9	TM	bis(2-Clethyl)Ether	80.000	80.045	-0.1	100	0.00
10	TM	2-Chlorophenol	80.000	81.895	-2.4	100	0.00
11	TM	1,3-Diclbenzene	80.000	79.578	0.5	100	0.00
12	TMC	1,4-Dichlorobenzene	80.000	80.644	-0.8	100	0.00
13	TM	1,2-Diclbenzene	80.000	79.479	0.7	100	0.00
14	TM	Benzyl Alcohol	80.000	84.381	-5.5	100	0.00
15	TM	2,2'-oxybis(1-Chloropropane	80.000	82.354	-2.9	100	0.00
16	TM	2-Methylphenol	80.000	83.298	-4.1	100	0.00
17	TM	Acetophenone	80.000	81.365	-1.7	100	0.00
18	TMP	N-Nitroso-Di-n-propylamine	80.000	82.037	-2.5	100	0.00
19	TM	Hexachloroethane	80.000	81.017	-1.3	100	0.00
20	TM	3+4-Methylphenol	80.000	83.466	-4.3	100	0.00
21	T	1-Methyl-2-pyrrolidinone	80.000	80.465	-0.6	100	0.00
22	IR	d8-Naphthalene	40.000	40.000	0.0	100	0.00
23	S	SURR4,NITROBENZENE-D5	80.000	81.551	-1.9	100	0.00
24	TM	Nitrobenzene	80.000	82.764	-3.5	100	0.00
25	TM	Isophorone	80.000	82.368	-3.0	100	0.00
26	TCM	2-Nitrophenol	80.000	83.228	-4.0	100	0.00
27	TM	Benzoic Acid	80.000	82.278	-2.8	100	0.00
28	TM	2,4-Dimethylphenol	80.000	81.936	-2.4	100	0.00
29	TM	bis(-2-Chloroethoxy)Methane	80.000	82.392	-3.0	100	0.00
30	TCM	2,4-Dichlorophenol	80.000	78.047	2.4	100	0.00
31	TM	1,2,4-Trichlorobenzene	80.000	80.803	-1.0	100	0.00
32	TM	Naphthalene	80.000	82.923	-3.7	100	0.00
33	TM	4-Chloroaniline	80.000	82.903	-3.6	100	0.00
34	TCM	Hexachlorobutadiene	80.000	81.549	-1.9	100	0.00
35	TMC	4-Chloro-3-methylphenol	80.000	83.968	-5.0	100	0.00
36	TM	Caprolactam	80.000	81.863	-2.3	100	0.00
37	TM	2-Methylnaphthalene	80.000	80.270	-0.3	100	0.00
38	TM	1-Methylnaphthalene	80.000	79.956	0.1	100	0.00
39	IR	d10-Acenaphthene	40.000	40.000	0.0	100	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\040914\COPY OF CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm
Sample : SSAT080
Misc : 80 PPM STD 8270/625
MS Integration Params: RTEINT.P

Operator: Z.Miao
Inst : 5973-A
Multiplr: 1.00

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	80.000	81.379	-1.7	100	0.00
41	TCM	2,4,6-Trichlorophenol	80.000	79.752	0.3	100	0.00
42	TM	2,4,5-Trichlorophenol	80.000	77.814	2.7	100	0.00
43	S	SURR5,2-FLUOROBIPHENYL	80.000	78.405	2.0	100	0.00
44	TM	1,1'-Biphenyl	80.000	77.942	2.6	100	0.00
45	TM	2-Chloronaphthalene	80.000	77.625	3.0	100	0.00
46	TM	2-Nitroaniline	80.000	81.698	-2.1	100	0.00
47	TM	Acenaphthylene	80.000	77.982	2.5	100	0.00
48	TM	Dimethyl phthalate	80.000	77.774	2.8	100	0.00
49	TM	2,6-Dinitrotoluene	80.000	78.384	2.0	100	0.00
50	TMC	Acenaphthene	80.000	78.641	1.7	100	0.00
51	TM	3-Nitroaniline	80.000	79.234	1.0	100	0.00
52	TPM	2,4-Dinitrophenol	80.000	77.979	2.5	100	0.00
53	TM	Dibenzofuran	80.000	76.792	4.0	100	0.00
54	TM	2,4-Dinitrotoluene	80.000	79.414	0.7	100	0.00
55	TMP	4-Nitrophenol	80.000	79.055	1.2	100	0.00
56	TM	Fluorene	80.000	77.435	3.2	100	0.00
57	TM	4-Chlorophenyl-phenylether	80.000	77.260	3.4	100	0.00
58	TM	Diethylphthalate	80.000	77.124	3.6	100	0.00
59	TM	4-Nitroaniline	80.000	77.522	3.1	100	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	80.000	76.440	4.5	100	0.00
61	IR	d10-Phenanthrene	40.000	40.000	0.0	100	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	-1.000	0.000	0.0	100	0.00
63	TM	4,6-Dinitro-2-methylphenol	80.000	82.877	-3.6	100	0.00
64	TM	1,2 Diphenylhydrazine	80.000	84.332	-5.4	100	0.00
65	TCM	N-Nitrosodiphenylamine	80.000	76.108	4.9	100	0.00
66	TM	4-Bromophenyl-phenylether	80.000	77.736	2.8	100	0.00
67	T	1-Phenyl-1(2,4-dimethylphen	-1.000	0.000	0.0	100	0.00
68	TM	Hexachlorobenzene	80.000	78.938	1.3	100	0.00
69	TM	Atrazine	80.000	77.886	2.6	100	0.00
70	TCM	Pentachlorophenol	80.000	80.123	-0.2	100	0.00
71	TM	Phenanthrene	80.000	79.152	1.1	100	0.00
72	TM	Anthracene	80.000	80.285	-0.4	100	0.00
73	TM	Carbazole	80.000	82.609	-3.3	100	0.00
74	TM	Di-n-butylphthalate	80.000	83.299	-4.1	100	0.00
75	TCM	Fluoranthene	80.000	83.987	-5.0	100	0.00
76	IR	d12-Chrysene	40.000	40.000	0.0	100	0.00
77	TM	Benzidine	80.000	83.311	-4.1	100	0.00
78	TM	Pyrene	80.000	79.291	0.9	100	0.00

(#) = Out of Range

Data File : I:\ACQUDATA\5973A\DATA\040914\COPY OF CY825.D Vial: 7
Acq On : 9 Apr 2014 2:36 pm Operator: Z.Miao
Sample : SSAT080 Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	80.000	78.818	1.5	100	0.00
80	TM	Butyl benzyl phthalate	80.000	78.753	1.6	100	0.00
81	TM	3,3'-Dichlorobenzidine	80.000	79.334	0.8	100	0.00
82	TM	Benzo(a)anthracene	80.000	79.028	1.2	100	0.00
83	TM	Chrysene	80.000	77.734	2.8	100	0.00
84	TM	bis(2-Ethylhexyl)phthalate	80.000	79.611	0.5	100	0.00
85	IR	d12-Perylene	40.000	40.000	0.0	100	0.00
86	TCM	Di-n-octyl phthalate	80.000	83.186	-4.0	100	0.00
87	TM	Benzo(b)Fluoranthene	80.000	82.686	-3.4	100	0.00
88	TM	Benzo(k)fluoranthene	80.000	79.920	0.1	100	0.00
89	TCM	Benzo(a)pyrene	80.000	80.691	-0.9	100	0.00
90	TM	Indeno(1,2,3-cd)Pyrene	80.000	82.403	-3.0	100	0.00
91	TM	Dibenz(a,h)anthracene	80.000	79.929	0.1	100	0.00
92	TM	Benzo(g,h,i)perylene	80.000	78.399	2.0	100	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

LK #40

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	1.000	1.000	0.0	90	-0.01
2	TM	Pyridine	1.467	1.574	-7.3	95	-0.02
3	TM	N-Nitrosodimethylamine	0.847	0.957	-13.0	96	-0.02
4	S	SURR1,2-FLUOROPHENOL	1.391	1.460	-5.0	91	0.00
5	TM	Benzaldehyde	0.317	0.457	-44.2#	120	-0.01
6	TM	Aniline	1.780	1.605	9.8	80	-0.01
7	S	SURR2,PHENOL-D6	1.601	1.710	-6.8	94	0.00
8	TMC	Phenol	1.600	1.822	-13.9	99	0.00
9	TM	bis(2-Clethyl)Ether	1.251	1.325	-5.9	96	-0.01
10	TM	2-Chlorophenol	1.407	1.452	-3.2	91	-0.01
11	TM	1,3-Diclbenzene	1.509	1.500	0.6	90	-0.01
12	TMC	1,4-Dichlorobenzene	1.477	1.525	-3.2	93	-0.01
13	TM	1,2-Diclbenzene	1.444	1.437	0.5	91	-0.01
14	TM	Benzyl Alcohol	0.998	1.130	-13.2	97	-0.01
15	TM	2,2'-oxybis(1-Chloropropane	1.397	1.689	-20.9#	106	-0.02
16	TM	2-Methylphenol	1.245	1.283	-3.1	90	0.00
17	TM	Acetophenone	1.627	1.675	-3.0	92	-0.01
18	TMP	N-Nitroso-Di-n-propylamine	0.910	1.046	-14.9	101	-0.01
19	TM	Hexachloroethane	0.570	0.609	-6.8	95	-0.01
20	TM	3+4-Methylphenol	1.336	1.372	-2.7	89	0.00
21	T	1-Methyl-2-pyrrolidinone	0.935	0.985	-5.3	95	-0.01
22	IR	d8-Naphthalene	1.000	1.000	0.0	93	-0.01
23	S	SURR4,NITROBENZENE-D5	0.390	0.415	-6.4	97	0.00
24	TM	Nitrobenzene	0.346	0.371	-7.2	96	-0.01
25	TM	Isophorone	0.647	0.693	-7.1	96	-0.01
26	TCM	2-Nitrophenol	0.210	0.213	-1.4	90	-0.01
27	TM	Benzoic Acid	0.351	0.347	1.1	89	0.00
28	TM	2,4-Dimethylphenol	0.338	0.350	-3.6	94	0.00
29	TM	bis(-2-Chloroethoxy)Methane	0.388	0.416	-7.2	96	0.00
30	TCM	2,4-Dichlorophenol	0.617	0.586	5.0	90	-0.01
31	TM	1,2,4-Trichlorobenzene	0.331	0.320	3.3	89	-0.01
32	TM	Naphthalene	0.942	0.913	3.1	87	-0.01
33	TM	4-Chloroaniline	0.398	0.379	4.8	85	-0.01
34	TCM	Hexachlorobutadiene	0.186	0.185	0.5	90	-0.02
35	TMC	4-Chloro-3-methylphenol	0.290	0.296	-2.1	90	0.00
36	TM	Caprolactam	0.116	0.110	5.2	85	-0.01
37	TM	2-Methylnaphthalene	0.683	0.676	1.0	91	-0.01
38	TM	1-Methylnaphthalene	0.629	0.625	0.6	92	-0.01
39	IR	d10-Acenaphthene	1.000	1.000	0.0	86	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF		%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	0.306	0.298		2.6	75	-0.02
41	TCM	2,4,6-Trichlorophenol	0.380	0.392		-3.2	89	-0.01
42	TM	2,4,5-Trichlorophenol	0.408	0.417		-2.2	91	0.00
43	S	SURR5,2-FLUOROBIPHENYL	1.251	1.262		-0.9	89	-0.01
44	TM	1,1'-Biphenyl	1.323	1.382		-4.5	93	-0.01
45	TM	2-Chloronaphthalene	1.059	1.073		-1.3	90	-0.01
46	TM	2-Nitroaniline	0.315	0.366		-16.2	98	-0.01
47	TM	Acenaphthylene	1.640	1.706		-4.0	92	-0.02
48	TM	Dimethyl phthalate	1.165	1.178		-1.1	90	-0.01
49	TM	2,6-Dinitrotoluene	0.304	0.307		-1.0	89	0.00
50	TMC	Acenaphthene	1.067	1.118		-4.8	92	-0.01
51	TM	3-Nitroaniline	0.329	0.324		1.5	86	0.00
52	TPM	2,4-Dinitrophenol	0.191	0.182		4.7	85	-0.01
53	TM	Dibenzofuran	1.489	1.493		-0.3	90	-0.01
54	TM	2,4-Dinitrotoluene	0.382	0.392		-2.6	89	0.00
55	TMP	4-Nitrophenol	0.217	0.240		-10.6	96	0.00
56	TM	Fluorene	1.201	1.243		-3.5	92	-0.01
57	TM	4-Chlorophenyl-phenylether	0.612	0.618		-1.0	90	-0.01
58	TM	Diethylphthalate	1.070	1.136		-6.2	95	-0.01
59	TM	4-Nitroaniline	0.333	0.348		-4.5	93	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	0.309	0.303		1.9	88	-0.01
61	IR	d10-Phenanthrene	1.000	1.000		0.0	89	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	0.000	0.000#		0.0	107	0.00
63	TM	4,6-Dinitro-2-methylphenol	0.166	0.165		0.6	86	0.00
64	TM	1,2 Diphenylhydrazine	0.718	0.844		-17.5	99	-0.02
65	TCM	N-Nitrosodiphenylamine	0.554	0.537		3.1	91	-0.01
66	TM	4-Bromophenyl-phenylether	0.258	0.250		3.1	89	-0.01
67	T	1-Phenyl-1(2,4-dimethylphen	0.000	0.000#		0.0	87	0.03
68	TM	Hexachlorobenzene	0.337	0.333		1.2	89	-0.01
69	TM	Atrazine	0.092	0.066	NT	28.3#	66	-0.01
70	TCM	Pentachlorophenol	0.211	0.193		8.5	81	0.00
71	TM	Phenanthrene	0.979	0.990		-1.1	91	-0.01
72	TM	Anthracene	1.026	1.046		-1.9	90	-0.01
73	TM	Carbazole	1.015	1.094		-7.8	93	0.00
74	TM	Di-n-butylphthalate	1.138	1.303		-14.5	98	-0.01
75	TCM	Fluoranthene	1.173	1.284		-9.5	93	-0.01
76	IR	d12-Chrysene	1.000	1.000		0.0	92	-0.01
77	TM	Benzidine	0.300	0.258		14.0	76	-0.01
78	TM	Pyrene	1.068	1.058		0.9	92	-0.01

(#) = Out of Range

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	0.804	0.784	2.5	91	-0.02
80	TM	Butyl benzyl phthalate	0.528	0.573	-8.5	102	-0.02
81	TM	3,3'-Dichlorobenzidine	0.459	0.453	1.3	92	-0.02
82	TM	Benzo(a)anthracene	1.106	1.113	-0.6	94	-0.02
83	TM	Chrysene	1.006	0.977	2.9	92	-0.02
84	TM	bis(2-Ethylhexyl)phthalate	0.654	0.733	-12.1	104	-0.02
85	IR	d12-Perylene	1.000	1.000	0.0	97	-0.02
86	TCM	Di-n-octyl phthalate	0.994	1.127	-13.4	106	-0.02
87	TM	Benzo(b)Fluoranthene	1.033	1.071	-3.7	97	-0.02
88	TM	Benzo(k)fluoranthene	1.020	1.025	-0.5	98	-0.02
89	TCM	Benzo(a)pyrene	1.024	1.044	-2.0	98	-0.02
90	TM	Indeno(1,2,3-cd)Pyrene	0.999	1.149	-15.0	108	-0.02
91	TM	Dibenz(a,h)anthracene	0.993	1.081	-8.9	106	-0.02
92	TM	Benzo(g,h,i)perylene	0.962	1.026	-6.7	106	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d4-1,4-Dichlorobenzene	40.000	40.000	0.0	90	-0.01
2	TM	Pyridine	80.000	85.830	-7.3	95	-0.02
3	TM	N-Nitrosodimethylamine	80.000	90.392	-13.0	96	-0.02
4	S	SURR1,2-FLUOROPHENOL	80.000	83.972	-5.0	91	0.00
5	TM	Benzaldehyde	80.000	115.224	-44.0#	120	-0.01
6	TM	Aniline	80.000	72.141	9.8	80	-0.01
7	S	SURR2,PHENOL-D6	80.000	85.454	-6.8	94	0.00
8	TMC	Phenol	80.000	91.116	-13.9	99	0.00
9	TM	bis(2-Clethyl)Ether	80.000	84.716	-5.9	96	-0.01
10	TM	2-Chlorophenol	80.000	82.576	-3.2	91	-0.01
11	TM	1,3-Diclbenzene	80.000	79.546	0.6	90	-0.01
12	TMC	1,4-Dichlorobenzene	80.000	82.575	-3.2	93	-0.01
13	TM	1,2-Diclbenzene	80.000	79.589	0.5	91	-0.01
14	TM	Benzyl Alcohol	80.000	90.548	-13.2	97	-0.01
15	TM	2,2'-oxybis(1-Chloropropane	80.000	96.731	-20.9#	106	-0.02
16	TM	2-Methylphenol	80.000	82.460	-3.1	90	0.00
17	TM	Acetophenone	80.000	82.341	-2.9	92	-0.01
18	TMP	N-Nitroso-Di-n-propylamine	80.000	92.008	-15.0	101	-0.01
19	TM	Hexachloroethane	80.000	85.463	-6.8	95	-0.01
20	TM	3+4-Methylphenol	80.000	82.153	-2.7	89	0.00
21	T	1-Methyl-2-pyrrolidinone	80.000	84.258	-5.3	95	-0.01
22	IR	d8-Naphthalene	40.000	40.000	0.0	93	-0.01
23	S	SURR4,NITROBENZENE-D5	80.000	85.015	-6.3	97	0.00
24	TM	Nitrobenzene	80.000	85.903	-7.4	96	-0.01
25	TM	Isophorone	80.000	85.709	-7.1	96	-0.01
26	TCM	2-Nitrophenol	80.000	81.037	-1.3	90	-0.01
27	TM	Benzoic Acid	80.000	79.088	1.1	89	0.00
28	TM	2,4-Dimethylphenol	80.000	82.992	-3.7	94	0.00
29	TM	bis(-2-Chloroethoxy)Methane	80.000	85.801	-7.3	96	0.00
30	TCM	2,4-Dichlorophenol	80.000	75.897	5.1	90	-0.01
31	TM	1,2,4-Trichlorobenzene	80.000	77.343	3.3	89	-0.01
32	TM	Naphthalene	80.000	77.525	3.1	87	-0.01
33	TM	4-Chloroaniline	80.000	76.207	4.7	85	-0.01
34	TCM	Hexachlorobutadiene	80.000	79.494	0.6	90	-0.02
35	TMC	4-Chloro-3-methylphenol	80.000	81.548	-1.9	90	0.00
36	TM	Caprolactam	80.000	75.477	5.7	85	-0.01
37	TM	2-Methylnaphthalene	80.000	79.084	1.1	91	-0.01
38	TM	1-Methylnaphthalene	80.000	79.420	0.7	92	-0.01
39	IR	d10-Acenaphthene	40.000	40.000	0.0	86	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D
Acq On : 16 Jun 2014 11:12 am
Sample : CCV
Misc : 80 PPM STD 8270/625
MS Integration Params: RTEINT.P

Vial: 2
Operator: Z.Miao
Inst : 5973-A
Multiplr: 1.00

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.		%Dev	Area%	Dev(min)
40	TPM	Hexachlorocyclopentadiene	80.000	71.750		10.3	75	-0.02
41	TCM	2,4,6-Trichlorophenol	80.000	82.532		-3.2	89	-0.01
42	TM	2,4,5-Trichlorophenol	80.000	81.656		-2.1	91	0.00
43	S	SURR5,2-FLUOROBIPHENYL	80.000	80.728		-0.9	89	-0.01
44	TM	1,1'-Biphenyl	80.000	83.610		-4.5	93	-0.01
45	TM	2-Chloronaphthalene	80.000	81.101		-1.4	90	-0.01
46	TM	2-Nitroaniline	80.000	92.982		-16.2	98	-0.01
47	TM	Acenaphthylene	80.000	83.208		-4.0	92	-0.02
48	TM	Dimethyl phthalate	80.000	80.919		-1.1	90	-0.01
49	TM	2,6-Dinitrotoluene	80.000	80.696		-0.9	89	0.00
50	TMC	Acenaphthene	80.000	83.778		-4.7	92	-0.01
51	TM	3-Nitroaniline	80.000	78.881		1.4	86	0.00
52	TPM	2,4-Dinitrophenol	80.000	76.417		4.5	85	-0.01
53	TM	Dibenzofuran	80.000	80.248		-0.3	90	-0.01
54	TM	2,4-Dinitrotoluene	80.000	82.090		-2.6	89	0.00
55	TMP	4-Nitrophenol	80.000	88.432		-10.5	96	0.00
56	TM	Fluorene	80.000	82.830		-3.5	92	-0.01
57	TM	4-Chlorophenyl-phenylether	80.000	80.814		-1.0	90	-0.01
58	TM	Diethylphthalate	80.000	84.946		-6.2	95	-0.01
59	TM	4-Nitroaniline	80.000	83.626		-4.5	93	0.00
60	S	SURR3,2,4,6-TRIBROMOPHENOL	80.000	78.264		2.2	88	-0.01
61	IR	d10-Phenanthrene	40.000	40.000		0.0	89	0.00
62	T	1-Phenyl-1(4-methyl-phenyl)	-1.000	0.000		0.0	107	0.00
63	TM	4,6-Dinitro-2-methylphenol	80.000	79.850		0.2	86	0.00
64	TM	1,2 Diphenylhydrazine	80.000	94.102		-17.6	99	-0.02
65	TCM"	N-Nitrosodiphenylamine	80.000	77.640		2.9	91	-0.01
66	TM	4-Bromophenyl-phenylether	80.000	77.581		3.0	89	-0.01
67	T	1-Phenyl-1(2,4-dimethylphen	-1.000	0.000		0.0	87	0.03
68	TM	Hexachlorobenzene	80.000	79.195		1.0	89	-0.01
69	TM	Atrazine	80.000	57.524	N.T	28.1#	66	-0.01
70	TCM	Pentachlorophenol	80.000	73.347		8.3	81	0.00
71	TM	Phenanthrene	80.000	80.910		-1.1	91	-0.01
72	TM	Anthracene	80.000	81.559		-1.9	90	-0.01
73	TM	Carbazole	80.000	86.207		-7.8	93	0.00
74	TM	Di-n-butylphthalate	80.000	91.590		-14.5	98	-0.01
75	TCM	Fluoranthene	80.000	87.566		-9.5	93	-0.01
76	IR	d12-Chrysene	40.000	40.000		0.0	92	-0.01
77	TM	Benzidine	80.000	68.775		14.0	76	-0.01
78	TM	Pyrene	80.000	79.293		0.9	92	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973A\DATA\061614\CZ124.D Vial: 2
Acq On : 16 Jun 2014 11:12 am Operator: Z.Miao
Sample : CCV Inst : 5973-A
Misc : 80 PPM STD 8270/625 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\5973A\METHODS\82700409.M (RTE Integrator)
Title : 8270 BNA ANALYSIS
Last Update : Thu Apr 10 09:31:09 2014
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
79	S	SURR6,TERPHENYL-D14	80.000	78.080	2.4	91	-0.02
80	TM	Butyl benzyl phthalate	80.000	86.752	-8.4	102	-0.02
81	TM	3,3'-Dichlorobenzidine	80.000	78.945	1.3	92	-0.02
82	TM	Benzo(a)anthracene	80.000	80.479	-0.6	94	-0.02
83	TM	Chrysene	80.000	77.735	2.8	92	-0.02
84	TM	bis(2-Ethylhexyl)phthalate	80.000	89.651	-12.1	104	-0.02
85	IR	d12-Perylene	40.000	40.000	0.0	97	-0.02
86	TCM	Di-n-octyl phthalate	80.000	90.744	-13.4	106	-0.02
87	TM	Benzo(b)Fluoranthene	80.000	82.934	-3.7	97	-0.02
88	TM	Benzo(k)fluoranthene	80.000	80.388	-0.5	98	-0.02
89	TCM	Benzo(a)pyrene	80.000	81.570	-2.0	98	-0.02
90	TM	Indeno(1,2,3-cd)Pyrene	80.000	92.013	-15.0	108	-0.02
91	TM	Dibenz(a,h)anthracene	80.000	87.092	-8.9	106	-0.02
92	TM	Benzo(g,h,i)perylene	80.000	85.311	-6.6	106	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Preparation Information Benchsheet

Prep Run#: 210493
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/12/14 12:30 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406497-01	MB		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/69705	
2	RQ1406497-02	LCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/70367; 1.0000 mL/71247; 1.0000 mL/69705	
3	RQ1406497-03	DLCS		30.0g	8270D/SVO				1.00mL	sand/sulfate	1.0000 mL/71247; 1.0000 mL/69705; 1.0000 mL/70367	
4	R1404316-004 [redacted]	1406041204 200-SB-20 30'	.01	30.0g	8270D/SVO BEPH DNPB 6978				1.00mL	light brown/gray sand and gravel	1.0000 mL/69705	6/23 II
5	RQ1406497-04	R1404316-004 MS	.01	30.0g	8270D/SVO				1.00mL	light brown/gray sand and gravel	1.0000 mL/70367; 1.0000 mL/69705; 1.0000 mL/71247	
6	RQ1406497-05	R1404316-004 DMS	.01	30.0g	8270D/SVO				1.00mL	light brown/gray sand and gravel	1.0000 mL/69705; 1.0000 mL/70367; 1.0000 mL/71247	
7	R1404316-005	1406041723 200-SB-20 50'	.01	30.0g	8270D/SVO				1.00mL	light brown/gray sand and gravel	1.0000 mL/69705	
8	R1404317-001 [redacted]	RM-SS-1A	.02	30.0g	8270D/SVO /TCL				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	II 6/25
9	R1404317-002	RM-SS-2B	.02	30.0g	8270D/SVO				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	
10	R1404317-003	RM-SS-3C	.02	30.0g	8270D/SVO				1.00mL	medium brown silt with organic matter	1.0000 mL/69705	
11	R1404342-001 [redacted]	SVP-3-4/5	.01	30.0g	8270D/SVO /Short TCL 7001				1.00mL	medium brown sand/silt with gravel	1.0000 mL/69705	II 6/24
12	R1404342-003	SVP-5-3/5	.01	30.0g	8270D/SVO				1.00mL	medium brown sand/silt with gravel	1.0000 mL/69705	
13	R1404425-004 [redacted]	1406091138 200-SB-21 7.5-10'	.01	30.0g	8270D/SVO /BEPH+DNPB				1.00mL	reddish-brown sand and gravel	1.0000 mL/69705	6/25 II Stv
14	R1404425-005	1406091613 200-SB-21	.01	30.0g	8270D/SVO				1.00mL	light brown/gray gravel	1.0000 mL/69705	
15	R1404425-006	1406091748 200-SB-21	.01	30.0g	8270D/SVO				1.00mL	light reddish-brown sand and gravel	1.0000 mL/69705	

Spiking Solutions

Name:	8270 Soil Surrogate 100-200ppm	Inventory ID	69705	Logbook Ref:	8270 Soil Surrogate 100-200ppm	Expires On:	10/17/2014		
Name:	8270 LCS Mix1: 100 ug/mL	Inventory ID	70367	Logbook Ref:		Expires On:	10/31/2014	Lot #:	Lc02739
Name:	OLM/SOM additionals Spike 100ppm	Inventory ID	71247	Logbook Ref:		Expires On:	09/01/2014		

Preparation Materials

Eppendorf Pipette Repeater	EXT #15 (67588)	2mL Graduated Vials	(71404)	50:50 Dichloromethane:Acetone	(71513)
Sand Reagent Grade	SVOA (71055)	Prepared Sodium Sulfate Na2SO4	(70845)		

9
9
5
6

Preparation Information Benchsheet

Prep Run#: 210493
Team: Semivoa GCMS/SGOLBERG

Prep WorkFlow: OrgExtS(14)
Prep Method: EPA 3541

Status: Prepped
Prep Date/Time: 6/12/14 12:30 PM

Preparation Steps

Step:	Extraction	Step:	Concentration	Step:	Extraction Complete
Started:	6/12/14 12:30	Started:	6/12/14 19:20	Started:	6/12/14 20:24
Finished:	6/12/14 17:10	Finished:	6/12/14 20:05	Finished:	6/12/14 20:24
By:	SGOLBERG	By:	SGOLBERG	By:	SGOLBERG
Comments		Comments		Comments	

Comments: _____

Reviewed By: [illegible] Date: 6/13 Spike Witness: LPRUNOSKE Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

LOG BOOK #

10 µL 4000 ppm 1ST D to 10 mL 70461 5973-A

6/16/14 #70613

	Tue	50 ng	DPTPP Tune 0.m	C2122	YT 10:17
1/2	CCV	80 ppm	82700409.m	23	NO
1/2	CCV	80 ppm	82700409.m	24	YC
3	[redacted]	R01406530-01 BKC	6/13/14 82701615 m	25	Ym
4		-02 LL	R-4156 6x5 PPL	26	YC
5		-03 LLSP	4466 4479 ↓	27	YC
6		4315-001	4483 6x5 R4315 8270TCLP	28	Y
7		R01406399-01 SOBKC		29	Ym
8	[redacted]	R01406497-01 BKC	8270BEPH 6/21/14	30	Ym
9		-02 LL	R4316 8270BEHP+PN	31	YC
10		-03 LLSP	R4317 8270TCL R4342 8270 Short	32	YC
11		4316-004	R4425 8270BEHP+PN	33	Y
12		-004ms	R6649204	34	YO
13		-004msp	-05	35	YC
14		-005		36	Y
15	[redacted]	R4317-001	8270TCL	37	Y
16		-002		38	Y
17		-003		39	Y
18	[redacted]	R4342-001	8270 Short TCL	40	Y
19		-003		41	Y
20	[redacted]	R4425-004	8270BEHP	42	Y
21		-005		43	Y
22		-006		44	Y
23	[redacted]	R4156-001	Re-ex 6/13/14 6x5 PPL	45	Y
24	[redacted]	R4466-001	6x5 PPL	46	Y
25	[redacted]	R4479-003	6x5 PPL	47	Y
26	[redacted]	R4483-001	6x5	48	No IS↓
27	[redacted]	R4483-001	6x5 Y2	49	NO IS↓

Rm # 397532

ZM

July 10, 2014

Service Request No: R1404421

Ms. Carlyn Tufts
NASA/WSTF/Navarro
P.O. Box 20
Las Cruces, NM 88004

Laboratory Results for: White Sands Test Facility/13EC059B

Dear Ms. Tufts:

Enclosed are the results of the sample(s) submitted to our laboratory on June 11, 2014. For your reference, these analyses have been assigned our service request number **R1404421**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Janice Jaeger
Client Services Manager

ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623 PHONE 585-288-5380 | FAX 585-288-8475
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company

environmental | www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

CASE NARRATIVE

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	WSTF	**Project Number:**	
Sample Matrix:	Soil/Water	**Date Received:**	06/11/14

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II deliverables. When appropriate to the method, method blank and LCS results have been reported with each analytical test.

Sample Receipt

Samples were collected on 06/09/14 and received on 06/11/14 at a cooler temperature of 3.5 C in good condition except as noted on the cooler receipt and preservation check form. The samples were stored in a refrigerator at 1 - 6 °C upon receipt at the laboratory.

Inorganics

Water and soil samples were analyzed for a site specific list of inorganics. Please see attached data pages for method numbers.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was not requested on these samples.

The Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries were acceptable. All RPD's were within limits.

The Method Blanks associated with these samples were free of contamination.

No analytical or QC problems were encountered.

Metals

Water and soil samples were analyzed for Metals by methods 6010C/6020A/7471 from SW-846.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was not requested n these samples.

All Internal Standards were within limits.

The Laboratory Control Sample recoveries were acceptable.

The Method Blanks associated with these samples were free of contamination except for Aluminum, Antimony, Beryllium, Chromium, Magnesium, Tin and Titanium. All affected data has been flagged with a "B".

No analytical or QC problems were encountered.

Perchlorate

Water and soil samples were analyzed for Perchlorate by method 6850 from SW-846.

All the initial and continuing calibration criteria were met for all analytes.

Site specific QC was not requested on these samples.

All Internal Standards were within limits.

The Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries were acceptable. All RPD's were within limits.

The Method Blanks associated with these samples were free of contamination.

No analytical or QC problems were encountered.

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1404421

Lab ID	Client ID
R1404421-001	1406090817 200-SB-21
R1404421-002	1406090815 200-SB-21
R1404421-003	1406090818 200-SB-21
R1404421-004	1406090819 200-SB-21
R1404421-005	1406091138 200-SB-21 7.5-10'
R1404421-006	1406091613 200-SB-21
R1404421-007	1406091748 200-SB-21
R1404421-008	1406091140 200-SB-21 7.5-10'
R1404421-009	1406091615 200-SB-21
R1404421-010	1406091750 200-SB-21

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

\# Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404421
Date Collected: 6/ 9/14
Date Received: 6/11/14

Sample Name: 1406090817 200-SB-21
Lab Code: R1404421-001

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**0.23**	B	mg/L	0.10	0.03	1	6/16/14	6/20/14 16:58	
Antimony, Total	6020A	ND	U	mg/L	0.0010	0.0002	1	6/17/14	6/25/14 03:02	
Arsenic, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/16/14	6/19/14 03:32	
Barium, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/16/14	6/19/14 03:32	
Beryllium, Total	6010C	**0.0004**	BJ	mg/L	0.0030	0.0002	1	6/16/14	6/19/14 03:32	
Boron, Total	6010C	**0.09**	J	mg/L	0.20	0.03	1	6/16/14	6/19/14 03:32	
Cadmium, Total	6010C	ND	U	mg/L	0.0050	0.0005	1	6/16/14	6/19/14 03:32	
Calcium, Total	6010C	**0.5**	J	mg/L	1.0	0.2	1	6/16/14	6/20/14 16:58	
Chromium, Total	6010C	**0.003**	J	mg/L	0.010	0.0009	1	6/16/14	6/19/14 03:32	
Cobalt, Total	6010C	ND	U	mg/L	0.050	0.002	1	6/16/14	6/19/14 03:32	
Copper, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/16/14	6/19/14 03:32	
Iron, Total	6010C	**0.74**		mg/L	0.10	0.02	1	6/16/14	6/19/14 03:32	
Lead, Total	6010C	ND	U	mg/L	0.0050	0.0014	1	6/16/14	6/19/14 03:32	
Magnesium, Total	6010C	**0.2**	BJ	mg/L	1.0	0.02	1	6/16/14	6/19/14 03:32	
Manganese, Total	6010C	**0.009**	J	mg/L	0.010	0.002	1	6/16/14	6/19/14 03:32	
Mercury, Total	7470A	ND	U	mg/L	0.00020	0.00003	1	6/18/14	6/19/14 12:13	
Molybdenum, Total	6010C	**0.002**	J	mg/L	0.025	0.002	1	6/16/14	6/19/14 03:32	
Nickel, Total	6010C	ND	U	mg/L	0.040	0.002	1	6/16/14	6/19/14 03:32	
Potassium, Total	6010C	ND	U	mg/L	2.0	0.2	1	6/16/14	6/21/14 19:45	
Selenium, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/16/14	6/19/14 03:32	
Silver, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/16/14	6/19/14 03:32	
Sodium, Total	6010C	**0.4**	J	mg/L	1.0	0.09	1	6/16/14	6/20/14 16:58	
Strontium, Total	6010C	**0.005**	J	mg/L	0.10	0.002	1	6/16/14	6/19/14 03:32	
Thallium, Total	6020A	ND	U	mg/L	0.0010	0.00004	1	6/17/14	6/25/14 03:02	
Tin, Total	6010C	ND	U	mg/L	0.50	0.05	1	6/16/14	6/19/14 03:32	
Titanium, Total	6010C	**0.009**	J	mg/L	0.050	0.0008	1	6/16/14	6/19/14 03:32	
Uranium, Total	6020A	**0.00001**	J	mg/L	0.0010	0.000003	1	6/17/14	6/25/14 03:02	
Vanadium, Total	6010C	ND	U	mg/L	0.050	0.0007	1	6/16/14	6/19/14 03:32	
Zinc, Total	6010C	**0.012**	J	mg/L	0.020	0.005	1	6/16/14	6/19/14 03:32	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Sample Name: 1406090817 200-SB-21
Lab Code: R1404421-001
Matrix: Water

Date Collected: 6/9/14
Date Received: 6/11/14

Analysis Method	Extracted/Digested By	Analyzed By
6010C	MCRIBBIN	CWINKSTERN
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7470A	CWINKSTERN	CWINKSTERN

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 19:40
Sample Name:	1406090815 200-SB-21	**Units:**	µg/L
Lab Code:	R1404421-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031509.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	0.20	0.026	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406090815 200-SB-21	**Date Collected:**	6/9/14
Lab Code:	R1404421-002	**Date Received:**	6/11/14
Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Water	**Date Received:**	6/11/14
Sample Name:	1406090818 200-SB-21		
Lab Code:	R1404421-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Cyanide, Total	9012B	**0.013**		mg/L	0.010	0.003	1	6/16/14	6/18/14 10:28	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Sample Name: 1406090818 200-SB-21
Lab Code: R1404421-003
Matrix: Water

Date Collected: 6/9/14
Date Received: 6/11/14

Analysis Method	Extracted/Digested By	Analyzed By
9012B	GNITAJOUPPI	GNITAJOUPPI

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Water	**Date Received:**	6/11/14
Sample Name:	1406090819 200-SB-21		
Lab Code:	R1404421-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**4.3**		mg/L	2.0	0.3	10	NA	6/12/14 18:36	
Nitrate+Nitrite as Nitrogen	353.2	**0.020**	**J**	mg/L	0.050	0.002	1	NA	6/19/14 08:29	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Sample Name: 1406090819 200-SB-21
Lab Code: R1404421-004
Matrix: Water

Date Collected: 6/9/14
Date Received: 6/11/14

Analysis Method	Extracted/Digested By	Analyzed By
353.2		LDOLGOS
9056A		LDRESSEL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Collected: 6/ 9/14
Date Received: 6/11/14

Sample Name: 1406091138 200-SB-21 7.5-10'
Lab Code: R1404421-005

Basis: As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**94.1**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 23:23
Sample Name:	1406091138 200-SB-21 7.5-10'	**Units:**	µg/Kg
Lab Code:	R1404421-005	**Basis:**	Dry
		Percent Solids:	94.1

Perchlorates in Water, Soils, Solid Wastes Using High Performahce LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031473.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**0.64**	J	2.1	0.35	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406091138 200-SB-21 7.5-10'	**Date Collected:**	6/9/14
Lab Code:	R1404421-005	**Date Received:**	6/11/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091613 200-SB-21		
Lab Code:	R1404421-006	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**99.6**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 23:36
Sample Name:	1406091613 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404421-006	**Basis:**	Dry
		Percent Solids:	99.6

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031474.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.33	

ALS ENVIRONMENTAL

Analyst Summary Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B		
Sample Name:	1406091613 200-SB-21	**Date Collected:**	6/9/14
Lab Code:	R1404421-006	**Date Received:**	6/11/14
Matrix:	Soil		

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091748 200-SB-21		
Lab Code:	R1404421-007	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**98.9**		Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 23:50
Sample Name:	1406091748 200-SB-21	**Units:**	µg/Kg
Lab Code:	R1404421-007	**Basis:**	Dry
		Percent Solids:	98.9

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031475.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.33	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Sample Name: 1406091748 200-SB-21
Lab Code: R1404421-007
Matrix: Soil

Date Collected: 6/9/14
Date Received: 6/11/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
6850	BALLGEIER	BALLGEIER

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091140 200-SB-21 7.5-10'		
Lab Code:	R1404421-008	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**96.4**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091140 200-SB-21 7.5-10'		
Lab Code:	R1404421-008	**Basis:**	Dry
		Percent Solids:	96.4

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**142**		mg/Kg	31	6	1	6/23/14	6/23/14 11:55	
Cyanide, Total	9012B	ND	U	mg/Kg	0.094	0.015	1	6/17/14	6/18/14 11:35	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.2	0.6	1	6/24/14	6/24/14 12:25	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Collected: 6/ 9/14
Date Received: 6/11/14

Sample Name: 1406091140 200-SB-21 7.5-10'
Lab Code: R1404421-008

Basis: Dry
Percent Solids: 96.4

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**4460**		mg/Kg	9.9	2.2	1	6/13/14	6/18/14 15:21	
Antimony, Total	6010C	**1.2**	BJ	mg/Kg	5.9	0.3	1	6/13/14	6/18/14 00:00	
Arsenic, Total	6010C	**4.74**		mg/Kg	0.99	0.29	1	6/13/14	6/18/14 15:21	
Barium, Total	6010C	**36.4**		mg/Kg	2.0	0.10	1	6/13/14	6/18/14 00:00	
Beryllium, Total	6020A	**0.36**	J	mg/Kg	0.52	0.02	5	6/13/14	7/1/14 14:50	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/18/14 00:00	
Cadmium, Total	6010C	ND	U	mg/Kg	0.49	0.05	1	6/13/14	6/18/14 00:00	
Calcium, Total	6010C	**97400**		mg/Kg	4900	700	50	6/13/14	6/18/14 20:58	
Chromium, Total	6020A	**7.12**		mg/Kg	0.52	0.05	5	6/13/14	7/1/14 14:50	
Cobalt, Total	6020A	**3.88**		mg/Kg	0.52	0.04	5	6/13/14	7/1/14 14:50	
Copper, Total	6020A	**5.37**		mg/Kg	0.52	0.20	5	6/13/14	7/1/14 14:50	
Iron, Total	6010C	**11600**		mg/Kg	49	37	5	6/13/14	6/18/14 21:04	
Lead, Total	6010C	**7.4**		mg/Kg	4.9	0.03	1	6/13/14	6/18/14 00:00	
Magnesium, Total	6010C	**14200**		mg/Kg	99	2	1	6/13/14	6/18/14 00:00	
Manganese, Total	6010C	**220**		mg/Kg	0.99	0.12	1	6/13/14	6/18/14 00:00	
Mercury, Total	7471B	ND	U	mg/Kg	0.032	0.002	1	6/18/14	6/19/14 16:57	
Molybdenum, Total	6010C	**1.1**	J	mg/Kg	2.5	0.07	1	6/13/14	6/18/14 00:00	
Nickel, Total	6010C	**8.3**		mg/Kg	4.0	0.10	1	6/13/14	6/18/14 00:00	
Potassium, Total	6010C	**1060**		mg/Kg	200	20	1	6/13/14	6/18/14 00:00	
Selenium, Total	6010C	ND	U	mg/Kg	0.99	0.57	1	6/13/14	6/18/14 00:00	
Silver, Total	6010C	ND	U	mg/Kg	0.99	0.08	1	6/13/14	6/18/14 00:00	
Sodium, Total	6010C	**229**		mg/Kg	99	7	1	6/13/14	6/18/14 00:00	
Strontium, Total	6010C	**182**		mg/Kg	9.9	0.05	1	6/13/14	6/18/14 15:21	
Thallium, Total	6010C	ND	U	mg/Kg	0.99	0.75	1	6/13/14	6/18/14 00:00	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/13/14	6/18/14 00:00	
Titanium, Total	6010C	**94.5**		mg/Kg	4.9	0.10	1	6/13/14	6/18/14 00:00	
Uranium, Total	6020A	**0.95**		mg/Kg	0.52	0.0010	5	6/13/14	7/2/14 11:17	
Vanadium, Total	6010C	**32.0**		mg/Kg	4.9	0.2	1	6/13/14	6/18/14 00:00	
Zinc, Total	6010C	**30.7**		mg/Kg	2.0	0.2	1	6/13/14	6/18/14 00:00	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Sample Name: 1406091140 200-SB-21 7.5-10'
Lab Code: R1404421-008
Matrix: Soil

Date Collected: 6/9/14
Date Received: 6/11/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	DBOND
6010C	MCRIBBIN	CWINKSTERN
6020A	MCRIBBIN	TCHRIST
7471B	CWINKSTERN	CWINKSTERN
9012B	KABBOTT	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091615 200-SB-21		
Lab Code:	R1404421-009	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**99.6**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091615 200-SB-21		
Lab Code:	R1404421-009	**Basis:**	Dry
		Percent Solids:	99.6

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	30	6	1	6/23/14	6/23/14 12:05	
Cyanide, Total	9012B	**0.019**	J	mg/Kg	0.097	0.015	1	6/17/14	6/18/14 11:36	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	4.8	0.5	1	6/24/14	6/24/14 12:26	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Collected: 6/ 9/14
Date Received: 6/11/14

Sample Name: 1406091615 200-SB-21
Lab Code: R1404421-009

Basis: Dry
Percent Solids: 99.6

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**1380**		mg/Kg	9.8	2.2	1	6/13/14	6/18/14 15:28	
Antimony, Total	6010C	**0.9**	BJ	mg/Kg	5.9	0.3	1	6/13/14	6/18/14 00:06	
Arsenic, Total	6010C	**1.24**		mg/Kg	0.98	0.29	1	6/13/14	6/18/14 15:28	
Barium, Total	6010C	**9.3**		mg/Kg	2.0	0.10	1	6/13/14	6/18/14 00:06	
Beryllium, Total	6020A	**0.30**	J	mg/Kg	0.48	0.02	5	6/13/14	7/1/14 14:56	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/18/14 00:06	
Cadmium, Total	6010C	ND	U	mg/Kg	0.49	0.05	1	6/13/14	6/18/14 00:06	
Calcium, Total	6010C	**116000**		mg/Kg	4900	700	50	6/13/14	6/18/14 21:10	
Chromium, Total	6020A	**5.46**		mg/Kg	0.48	0.05	5	6/13/14	7/1/14 14:56	
Cobalt, Total	6020A	**2.55**		mg/Kg	0.48	0.04	5	6/13/14	7/1/14 14:56	
Copper, Total	6020A	**4.11**		mg/Kg	0.48	0.20	5	6/13/14	7/1/14 14:56	
Iron, Total	6010C	**3760**		mg/Kg	49	37	5	6/13/14	6/18/14 21:16	
Lead, Total	6010C	**3.1**	J	mg/Kg	4.9	0.03	1	6/13/14	6/18/14 00:06	
Magnesium, Total	6010C	**31100**		mg/Kg	98	2	1	6/13/14	6/18/14 00:06	
Manganese, Total	6010C	**169**		mg/Kg	0.98	0.12	1	6/13/14	6/18/14 00:06	
Mercury, Total	7471B	ND	U	mg/Kg	0.033	0.003	1	6/18/14	6/19/14 16:59	
Molybdenum, Total	6010C	**0.5**	J	mg/Kg	2.5	0.07	1	6/13/14	6/18/14 00:06	
Nickel, Total	6010C	**4.7**		mg/Kg	3.9	0.10	1	6/13/14	6/18/14 00:06	
Potassium, Total	6010C	**340**		mg/Kg	200	20	1	6/13/14	6/18/14 00:06	
Selenium, Total	6010C	ND	U	mg/Kg	0.98	0.57	1	6/13/14	6/18/14 00:06	
Silver, Total	6010C	ND	U	mg/Kg	0.98	0.08	1	6/13/14	6/18/14 00:06	
Sodium, Total	6010C	**126**		mg/Kg	98	7	1	6/13/14	6/18/14 00:06	
Strontium, Total	6010C	**108**		mg/Kg	9.8	0.05	1	6/13/14	6/18/14 15:28	
Thallium, Total	6010C	ND	U	mg/Kg	0.98	0.75	1	6/13/14	6/18/14 00:06	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/13/14	6/18/14 00:06	
Titanium, Total	6010C	**15.3**		mg/Kg	4.9	0.10	1	6/13/14	6/18/14 00:06	
Uranium, Total	6020A	**1.79**		mg/Kg	0.48	0.0010	5	6/13/14	7/2/14 11:23	
Vanadium, Total	6010C	**4.2**	J	mg/Kg	4.9	0.2	1	6/13/14	6/18/14 00:06	
Zinc, Total	6010C	**18.5**		mg/Kg	2.0	0.2	1	6/13/14	6/18/14 00:06	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Sample Name: 1406091615 200-SB-21
Lab Code: R1404421-009
Matrix: Soil

Date Collected: 6/9/14
Date Received: 6/11/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	CWINKSTERN
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7471B	CWINKSTERN	CWINKSTERN
9012B	KABBOTT	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091750 200-SB-21		
Lab Code:	R1404421-010	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	**99.4**		Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/11/14
Sample Name:	1406091750 200-SB-21		
Lab Code:	R1404421-010	**Basis:**	Dry
		Percent Solids:	99.4

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	**62**		mg/Kg	30	6	1	6/23/14	6/23/14 12:15	
Cyanide, Total	9012B	ND	U	mg/Kg	0.093	0.015	1	6/17/14	6/18/14 11:37	
Nitrate+Nitrite as Nitrogen	353.2M	**1.8**	J	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:27	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Collected: 6/ 9/14
Date Received: 6/11/14

Sample Name: 1406091750 200-SB-21
Lab Code: R1404421-010

Basis: Dry
Percent Solids: 99.4

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**3510**		mg/Kg	9.8	2.2	1	6/13/14	6/18/14 15:47	
Antimony, Total	6010C	**1.2**	BJ	mg/Kg	5.9	0.3	1	6/13/14	6/18/14 00:12	
Arsenic, Total	6010C	**3.75**		mg/Kg	0.98	0.29	1	6/13/14	6/18/14 15:47	
Barium, Total	6010C	**40.3**		mg/Kg	2.0	0.10	1	6/13/14	6/18/14 00:12	
Beryllium, Total	6020A	**0.36**	J	mg/Kg	0.48	0.02	5	6/13/14	7/1/14 15:01	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/18/14 00:12	
Cadmium, Total	6010C	**0.1**	J	mg/Kg	0.49	0.05	1	6/13/14	6/18/14 00:12	
Calcium, Total	6010C	**94500**		mg/Kg	4900	700	50	6/13/14	6/18/14 21:34	
Chromium, Total	6020A	**6.18**		mg/Kg	0.48	0.05	5	6/13/14	7/1/14 15:01	
Cobalt, Total	6020A	**3.36**		mg/Kg	0.48	0.04	5	6/13/14	7/1/14 15:01	
Copper, Total	6020A	**4.87**		mg/Kg	0.48	0.20	5	6/13/14	7/1/14 15:01	
Iron, Total	6010C	**11100**		mg/Kg	49	37	5	6/13/14	6/18/14 21:40	
Lead, Total	6010C	**11.5**		mg/Kg	4.9	0.03	1	6/13/14	6/18/14 00:12	
Magnesium, Total	6010C	**25000**		mg/Kg	98	2	1	6/13/14	6/18/14 00:12	
Manganese, Total	6010C	**366**		mg/Kg	0.98	0.12	1	6/13/14	6/18/14 00:12	
Mercury, Total	7471B	ND	U	mg/Kg	0.031	0.002	1	6/18/14	6/19/14 17:01	
Molybdenum, Total	6010C	**1.1**	J	mg/Kg	2.4	0.07	1	6/13/14	6/18/14 00:12	
Nickel, Total	6010C	**9.7**		mg/Kg	3.9	0.10	1	6/13/14	6/18/14 00:12	
Potassium, Total	6010C	**770**		mg/Kg	200	20	1	6/13/14	6/18/14 00:12	
Selenium, Total	6010C	ND	U	mg/Kg	0.98	0.57	1	6/13/14	6/18/14 00:12	
Silver, Total	6010C	ND	U	mg/Kg	0.98	0.08	1	6/13/14	6/18/14 00:12	
Sodium, Total	6010C	**195**		mg/Kg	98	7	1	6/13/14	6/18/14 00:12	
Strontium, Total	6010C	**141**		mg/Kg	9.8	0.05	1	6/13/14	6/18/14 15:47	
Thallium, Total	6010C	ND	U	mg/Kg	0.98	0.75	1	6/13/14	6/18/14 00:12	
Tin, Total	6010C	ND	U	mg/Kg	49	2	1	6/13/14	6/18/14 00:12	
Titanium, Total	6010C	**56.9**		mg/Kg	4.9	0.10	1	6/13/14	6/18/14 00:12	
Uranium, Total	6020A	**1.63**		mg/Kg	0.48	0.0010	5	6/13/14	7/2/14 11:30	
Vanadium, Total	6010C	**15.8**		mg/Kg	4.9	0.2	1	6/13/14	6/18/14 00:12	
Zinc, Total	6010C	**50.4**		mg/Kg	2.0	0.2	1	6/13/14	6/18/14 00:12	

ALS ENVIRONMENTAL

Analyst Summary Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Sample Name: 1406091750 200-SB-21
Lab Code: R1404421-010
Matrix: Soil

Date Collected: 6/9/14
Date Received: 6/11/14

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		MKSMITH
353.2M	TPULS	LDOLGOS
6010C	MCRIBBIN	CWINKSTERN
6010C	MCRIBBIN	DBOND
6020A	MCRIBBIN	TCHRIST
7471B	CWINKSTERN	CWINKSTERN
9012B	KABBOTT	KABBOTT
9056A	CWOODS	CWOODS

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404421-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/L	0.20	0.03	1	NA	6/12/14 14:26	
Cyanide, Total	9012B	ND	U	mg/L	0.010	0.003	1	6/16/14	6/18/14 10:15	
Nitrate+Nitrite as Nitrogen	353.2	ND	U	mg/L	0.050	0.002	1	NA	6/19/14 08:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404421-MB2	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404421-MB2	**Basis:**	Dry

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	9056A	ND	U	mg/Kg	30	6	1	6/23/14	6/23/14 11:35	
Cyanide, Total	9012B	ND	U	mg/Kg	0.10	0.02	1	6/17/14	6/18/14 11:30	
Nitrate+Nitrite as Nitrogen	353.2M	ND	U	mg/Kg	5.0	0.5	1	6/24/14	6/24/14 12:19	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404421-MB3	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/17/14 08:00	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404421-MB4	**Basis:**	As Received

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Solids, Total	160.3 Modified	ND	U	Percent	1.0	1	NA	6/20/14 10:28	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404421
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: R1404421-MB1

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	**0.05**	J	mg/L	0.10	0.03	1	6/16/14	6/20/14 14:19	
Antimony, Total	6020A	ND	U	mg/L	0.0010	0.0002	1	6/17/14	6/24/14 20:11	
Arsenic, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/16/14	6/19/14 00:47	
Barium, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/16/14	6/19/14 00:47	
Beryllium, Total	6010C	**0.0004**	J	mg/L	0.0030	0.0002	1	6/16/14	6/19/14 00:47	
Boron, Total	6010C	ND	U	mg/L	0.20	0.03	1	6/16/14	6/19/14 00:47	
Cadmium, Total	6010C	ND	U	mg/L	0.0050	0.0005	1	6/16/14	6/19/14 00:47	
Calcium, Total	6010C	ND	U	mg/L	1.0	0.2	1	6/16/14	6/20/14 14:19	
Chromium, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/16/14	6/19/14 00:47	
Cobalt, Total	6010C	ND	U	mg/L	0.050	0.002	1	6/16/14	6/19/14 00:47	
Copper, Total	6010C	ND	U	mg/L	0.020	0.004	1	6/16/14	6/19/14 00:47	
Iron, Total	6010C	ND	U	mg/L	0.10	0.02	1	6/16/14	6/19/14 00:47	
Lead, Total	6010C	ND	U	mg/L	0.0050	0.0014	1	6/16/14	6/19/14 00:47	
Magnesium, Total	6010C	**0.04**	J	mg/L	1.0	0.02	1	6/16/14	6/19/14 00:47	
Manganese, Total	6010C	ND	U	mg/L	0.010	0.002	1	6/16/14	6/19/14 00:47	
Mercury, Total	7470A	ND	U	mg/L	0.00020	0.00003	1	6/18/14	6/19/14 12:09	
Molybdenum, Total	6010C	ND	U	mg/L	0.025	0.002	1	6/16/14	6/19/14 00:47	
Nickel, Total	6010C	ND	U	mg/L	0.040	0.002	1	6/16/14	6/19/14 00:47	
Potassium, Total	6010C	ND	U	mg/L	2.0	0.2	1	6/16/14	6/21/14 17:43	
Selenium, Total	6010C	ND	U	mg/L	0.010	0.003	1	6/16/14	6/19/14 00:47	
Silver, Total	6010C	ND	U	mg/L	0.010	0.0009	1	6/16/14	6/19/14 00:47	
Sodium, Total	6010C	ND	U	mg/L	1.0	0.09	1	6/16/14	6/20/14 14:19	
Strontium, Total	6010C	ND	U	mg/L	0.10	0.002	1	6/16/14	6/19/14 00:47	
Thallium, Total	6020A	ND	U	mg/L	0.0010	0.00004	1	6/17/14	6/24/14 20:11	
Tin, Total	6010C	ND	U	mg/L	0.50	0.05	1	6/16/14	6/19/14 00:47	
Titanium, Total	6010C	ND	U	mg/L	0.050	0.0008	1	6/16/14	6/19/14 00:47	
Uranium, Total	6020A	ND	U	mg/L	0.0010	0.000003	1	6/17/14	6/24/14 20:11	
Vanadium, Total	6010C	ND	U	mg/L	0.050	0.0007	1	6/16/14	6/19/14 00:47	
Zinc, Total	6010C	ND	U	mg/L	0.020	0.005	1	6/16/14	6/19/14 00:47	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404421-MB2	**Basis:**	Dry

Inorganic Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	ND	U	mg/Kg	10	3	1	6/13/14	6/18/14 14:29	
Antimony, Total	6010C	**0.9**	J	mg/Kg	6.0	0.3	1	6/13/14	6/17/14 22:10	
Arsenic, Total	6010C	ND	U	mg/Kg	1.0	0.3	1	6/13/14	6/18/14 14:29	
Barium, Total	6010C	ND	U	mg/Kg	2.0	0.10	1	6/13/14	6/17/14 22:10	
Beryllium, Total	6020A	ND	U	mg/Kg	0.50	0.02	5	6/13/14	6/20/14 15:37	
Boron, Total	6010C	ND	U	mg/Kg	20	4	1	6/13/14	6/17/14 22:10	
Cadmium, Total	6010C	ND	U	mg/Kg	0.50	0.05	1	6/13/14	6/17/14 22:10	
Calcium, Total	6010C	ND	U	mg/Kg	100	20	1	6/13/14	6/17/14 22:10	
Chromium, Total	6020A	**0.05**	J	mg/Kg	0.50	0.05	5	6/13/14	6/20/14 15:37	
Cobalt, Total	6020A	ND	U	mg/Kg	0.50	0.04	5	6/13/14	6/20/14 15:37	
Copper, Total	6020A	ND	U	mg/Kg	0.50	0.20	5	6/13/14	6/20/14 15:37	
Iron, Total	6010C	ND	U	mg/Kg	10	8	1	6/13/14	6/18/14 19:11	
Lead, Total	6010C	ND	U	mg/Kg	5.0	0.03	1	6/13/14	6/17/14 22:10	
Magnesium, Total	6010C	ND	U	mg/Kg	100	2	1	6/13/14	6/17/14 22:10	
Manganese, Total	6010C	ND	U	mg/Kg	1.0	0.2	1	6/13/14	6/17/14 22:10	
Mercury, Total	7471B	ND	U	mg/Kg	0.033	0.002	1	6/18/14	6/19/14 16:41	
Molybdenum, Total	6010C	ND	U	mg/Kg	2.5	0.07	1	6/13/14	6/17/14 22:10	
Nickel, Total	6010C	ND	U	mg/Kg	4.0	0.10	1	6/13/14	6/17/14 22:10	
Potassium, Total	6010C	ND	U	mg/Kg	200	20	1	6/13/14	6/17/14 22:10	
Selenium, Total	6010C	ND	U	mg/Kg	1.0	0.6	1	6/13/14	6/17/14 22:10	
Silver, Total	6010C	ND	U	mg/Kg	1.0	0.08	1	6/13/14	6/17/14 22:10	
Sodium, Total	6010C	ND	U	mg/Kg	100	7	1	6/13/14	6/17/14 22:10	
Strontium, Total	6010C	ND	U	mg/Kg	10	0.05	1	6/13/14	6/18/14 14:29	
Thallium, Total	6010C	ND	U	mg/Kg	1.0	0.8	1	6/13/14	6/17/14 22:10	
Tin, Total	6010C	**3**	J	mg/Kg	50	2	1	6/13/14	6/17/14 22:10	
Titanium, Total	6010C	**0.1**	J	mg/Kg	5.0	0.10	1	6/13/14	6/17/14 22:10	
Uranium, Total	6020A	ND	U	mg/Kg	0.50	0.0010	5	6/13/14	6/20/14 15:37	
Vanadium, Total	6010C	ND	U	mg/Kg	5.0	0.2	1	6/13/14	6/17/14 22:10	
Zinc, Total	6010C	ND	U	mg/Kg	2.0	0.2	1	6/13/14	6/17/14 22:10	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	6/17/14
		Date Analyzed:	6/17/14 17:47
Sample Name:	Method Blank	**Units:**	µg/Kg
Lab Code:	RQ1406734-01	**Basis:**	Dry

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397658
Prep Method:	Method	**Extraction Lot:**	211029
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061714\B0031448.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	2.0	0.32	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404421
Project:	White Sands Test Facility/13EC059B	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 16:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406802-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031493.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	ND	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Analyzed: 6/18/14 - 6/24/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404421-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Chloride	9056A	213	200	107	80 - 120
Cyanide, Total	9012B	0.898	1.00	90	85 - 115
Nitrate+Nitrite as Nitrogen	353.2M	48.2	50.0	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Analyzed: 6/18/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404421-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	9012B	3.60	4.00	90	85 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404421
Date Analyzed: 6/12/14 - 6/19/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404421-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Chloride	9056A	1.96	2.00	98	80 - 120
Cyanide, Total	9012B	0.102	0.100	102	85 - 115
Nitrate+Nitrite as Nitrogen	353.2	0.487	0.500	97	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404421
Date Analyzed: 6/18/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404421-LCS4 Result	Spike Amount	% Rec	% Rec Limits
Cyanide, Total	9012B	0.391	0.400	98	85 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Analyzed: 6/17/14 - 6/20/14

Lab Control Sample Summary
Inorganic Parameters

Units: mg/Kg
Basis: Dry

Analyte Name	Method	Lab Control Sample R1404421-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	179	200	89	80 - 120
Antimony, Total	6010C	45.9	50.0	92	80 - 120
Arsenic, Total	6010C	3.43	4.0	86	80 - 120
Barium, Total	6010C	188	200	94	80 - 120
Beryllium, Total	6020A	1.86	2.00	93	80 - 120
Boron, Total	6010C	86.3	100	86	80 - 120
Cadmium, Total	6010C	4.46	5.00	89	80 - 120
Calcium, Total	6010C	186	200	93	80 - 120
Chromium, Total	6020A	2.03	2.00	101	80 - 120
Cobalt, Total	6020A	2.13	2.00	106	80 - 120
Copper, Total	6020A	2.16	2.00	108	80 - 120
Iron, Total	6010C	97.9	100	98	80 - 120
Lead, Total	6010C	46.0	50.0	92	80 - 120
Magnesium, Total	6010C	184	200	92	80 - 120
Manganese, Total	6010C	46.2	50.0	92	80 - 120
Mercury, Total	7471B	0.161	0.167	97	80 - 120
Molybdenum, Total	6010C	45.6	50.0	91	80 - 120
Nickel, Total	6010C	48.9	50.0	98	80 - 120
Potassium, Total	6010C	1800	2000	90	80 - 120
Selenium, Total	6010C	82.6	101	82	80 - 120
Silver, Total	6010C	4.83	5.0	97	80 - 120
Sodium, Total	6010C	1820	2000	91	80 - 120
Strontium, Total	6010C	220	200	110	80 - 120
Thallium, Total	6010C	171	200	86	80 - 120
Tin, Total	6010C	473	500	95	80 - 120
Titanium, Total	6010C	47.6	50.0	95	80 - 120
Uranium, Total	6020A	2.18	2.00	109	80 - 120
Vanadium, Total	6010C	49.4	50.0	99	80 - 120
Zinc, Total	6010C	46.2	50.0	92	80 - 120

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404421
Date Analyzed: 6/19/14 - 6/24/14

Lab Control Sample Summary
Inorganic Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404421-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	1.94	2.00	97	80 - 120
Antimony, Total	6020A	0.0218	0.0200	109	80 - 120
Arsenic, Total	6010C	0.0379	0.040	95	80 - 120
Barium, Total	6010C	2.06	2.00	103	80 - 120
Beryllium, Total	6010C	0.0505	0.0500	101	80 - 120
Boron, Total	6010C	0.957	1.00	96	80 - 120
Cadmium, Total	6010C	0.0500	0.0500	100	80 - 120
Calcium, Total	6010C	2.01	2.0	101	80 - 120
Chromium, Total	6010C	0.211	0.200	105	80 - 120
Cobalt, Total	6010C	0.508	0.500	102	80 - 120
Copper, Total	6010C	0.265	0.250	106	80 - 120
Iron, Total	6010C	1.04	1.00	104	80 - 120
Lead, Total	6010C	0.506	0.500	101	80 - 120
Magnesium, Total	6010C	2.05	2.0	103	80 - 120
Manganese, Total	6010C	0.503	0.500	101	80 - 120
Mercury, Total	7470A	0.000966	0.00100	97	80 - 120
Molybdenum, Total	6010C	0.502	0.500	100	80 - 120
Nickel, Total	6010C	0.523	0.500	105	80 - 120
Potassium, Total	6010C	19.2	20.0	96	80 - 120
Selenium, Total	6010C	0.960	1.01	95	80 - 120
Silver, Total	6010C	0.0522	0.050	104	80 - 120
Sodium, Total	6010C	18.5	20.0	93	80 - 120
Strontium, Total	6010C	2.05	2.00	103	80 - 120
Thallium, Total	6020A	0.0215	0.0200	107	80 - 120
Tin, Total	6010C	5.45	5.00	109	80 - 120
Titanium, Total	6010C	0.508	0.500	102	80 - 120
Uranium, Total	6020A	0.0223	0.0200	112	80 - 120
Vanadium, Total	6010C	0.538	0.500	108	80 - 120
Zinc, Total	6010C	0.518	0.500	104	80 - 120

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Soil

Service Request: R1404421
Date Analyzed: 6/17/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/Kg
Basis: Dry

Extraction Lot: 211029

	Lab Control Sample RQ1406734-02			Duplicate Lab Control Sample RQ1406734-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	1.80	2.00	90	1.70	2.00	85	80 - 120	6	15

Results flagged with an asterisk (*) indicate values outside control criteria.

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B
Sample Matrix: Water

Service Request: R1404421
Date Analyzed: 6/18/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 211135

	Lab Control Sample RQ1406802-02			Duplicate Lab Control Sample RQ1406802-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.180	0.200	90	0.180	0.200	90	80 - 120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number 1404-4421

Cooler received on 6/11/14 by: CW COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set NA	

8. Temperature Readings Date: 6/11/14 Time: 1020 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	3.5						
Correction Factor (°C)	0.0						
Corrected Temp (°C)	3.5						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by CW on 6/11/14 at 1030

5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: JMW 6/11/14

Cooler Breakdown: Date: _____ Time: _____ by: _____

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH	✓		check					
≤2	HNO_3	✓		check					
≤2	H_2SO_4	✓		check					
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: check

Other Comments:

VOA HEADSPACE 200-SB-21

VOA HEADSPACE WW-4-594

VOA HEADSPACE WW-4-594

PC Secondary Review: JMW 7/2/14 *significant air bubbles: VOA > 5-6 mm : WC >1 in diameter

ALS Environmental

SUPPORTING DOCUMENTATION

ALS Environmental - Rochester, NY
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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Continuing Calibration Verification (CCV) Summary
Chloride

Analytical Method: 9056A

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	396965	RQ1406537-09	6/12/14 14:17	3.25	3.33	102	90 - 110
CCV2	396965	RQ1406537-10	6/12/14 16:12	3.25	3.34	103	90 - 110
CCV3	396965	RQ1406537-11	6/12/14 18:07	3.25	3.34	103	90 - 110
CCV4	396965	RQ1406537-12	6/12/14 19:24	3.25	3.35	103	90 - 110
CCV5	398625	RQ1407218-04	6/23/14 11:15	3.25	3.39	104	90 - 110
CCV6	398625	RQ1407218-03	6/23/14 13:16	3.25	3.43	106	90 - 110
CCV7	398625	RQ1407218-02	6/23/14 15:16	3.25	3.46	106	90 - 110
CCV8	398625	RQ1407218-01	6/23/14 16:06	3.25	3.46	106	90 - 110

Client: NASA/WSTF/Navarro

Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Continuing Calibration Verification (CCV) Summary
Cyanide, Total

Analytical Method: 9012B

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397686	RQ1406782-01	6/18/14 10:08	0.500	0.505	101	85 - 115
CCV2	397686	RQ1406782-03	6/18/14 10:17	0.500	0.507	101	85 - 115
CCV3	397686	RQ1406782-05	6/18/14 10:27	0.500	0.510	102	85 - 115
CCV4	397686	RQ1406782-07	6/18/14 10:36	0.500	0.502	100	85 - 115
CCV5	397743	RQ1406811-01	6/18/14 11:23	0.500	0.484	97	85 - 115
CCV6	397743	RQ1406811-03	6/18/14 11:32	0.500	0.489	98	85 - 115
CCV7	397743	RQ1406811-05	6/18/14 11:42	0.500	0.482	96	85 - 115

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Continuing Calibration Verification (CCV) Summary
Nitrate+Nitrite as Nitrogen

Analytical Method: 353.2

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397880	RQ1406871-01	6/19/14 08:19	0.900	0.875	97	90 - 110
CCV2	397880	RQ1406871-06	6/19/14 08:31	0.900	0.862	96	90 - 110
CCV3	397880	RQ1406871-11	6/19/14 08:44	0.900	0.867	96	90 - 110
CCV4	397880	RQ1406871-14	6/19/14 08:57	0.900	0.834	93	90 - 110

Client: NASA/WSTF/Navarro
Project: White Sands Test Facility/13EC059B

Service Request: R1404421

Continuing Calibration Verification (CCV) Summary
Nitrate+Nitrite as Nitrogen

Analytical Method: 353.2M

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398613	RQ1407113-01	6/24/14 12:17	0.900	0.899	100	90 - 110
CCV2	398613	RQ1407113-04	6/24/14 12:30	0.900	0.886	98	90 - 110
CCV3	398613	RQ1407113-06	6/24/14 12:42	0.900	0.889	99	90 - 110
CCV4	398613	RQ1407113-08	6/24/14 13:00	0.900	0.885	98	90 - 110

6/12/14 Analyst: Lindsay Dressel IC#3 Pipettes: Barney Ferb R4421

System	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Level	Injections	Done	Sample Info 1	Sample Info 2
metrohm.smt	CCV	1	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	2	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	LCS	3	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404413-001	4	1.0	10.0	1.0	100.0	0	1	1	9056A N	
metrohm.smt	R1404413-001	5	1.0	100.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	R1404439-001	6	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	GW-3DA	7	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	P-3S	8	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	P-3D	9	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	P-3D MS	10	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	P-3D MSD	11	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	P-2D	12	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	CCV	13	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	14	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404444-001	15	1.0	10.0	1.0	100.0	0	1	1	9056A CN	
metrohm.smt	R1404444-002	16	1.0	10.0	1.0	100.0	0	1	1	9056A CN	
metrohm.smt	DOWNSTREAM	17	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	DOWNSTREAM MS	18	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	DOWNSTREAM MSD	19	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	UPSTREAM	20	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	NW-3	21	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	NW-4	22	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	Per III
metrohm.smt	NW-2	23	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	
metrohm.smt	NW-5	24	1.0	10.0	1.0	100.0	0	1	1	300.0 CN	R4421
metrohm.smt	CCV	25	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	26	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404428-001	27	1.0	10.0	1.0	100.0	0	1	1	300.0 CF	
metrohm.smt	R1404428-006	28	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404428-007	29	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404428-007 MS	30	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404428-007 MSD	31	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404428-008	32	1.0	4.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404163-001	33	1.0	100.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	LCS	34	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404216-001	35	1.0	20.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404173-002	36	1.0	100.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	CCV	37	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	38	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404428-009	39	1.0	1.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404428-009 MS	40	1.0	1.0	1.0	100.0	0	1	1	300.0 F	Reviewed & Approved
metrohm.smt	R1404429-009 MSD	41	1.0	1.0	1.0	100.0	0	1	1	300.0 F	By: CK
metrohm.smt	R1404163-002	42	1.0	100.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404107-001	43	1.0	10.0	1.0	100.0	0	1	1	300.0 F	Date: 6/16/14
metrohm.smt	R1404137-001	44	1.0	4.0	1.0	100.0	0	1	1	300.0 F	
metrohm.smt	R1404320-001	45	1.0	10000.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404320-002	46	1.0	10000.0	1.0	100.0	0	1	1	300.0 C	

System	Ident	Vial	Volume	Dilution	Amount	Internal Standard Amount	Level	Injections	Done	Sample Info 1	Sample Info 2
metrohm.smt	R1404023-001	47	1.0	1.0	1.0	100.0	0	1	1	9056A F	
metrohm.smt	R1403925-010	48	1.0	20.0	1.0	100.0	0	1	1	9056A C	
metrohm.smt	CCV	49	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	50	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	R1404023-002	51	1.0	1.0	1.0	100.0	0	1	1	9056A F	
metrohm.smt	R1404421-004	52	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404421-004 MS	53	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404421-004 MSD	54	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	R1404273-003	55	1.0	10.0	1.0	100.0	0	1	1	300.0 C	
metrohm.smt	INTAKE WATER	56	1.0	10.0	1.0	100.0	0	1	1	300.0 NN	
metrohm.smt	CCV	57	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	CCB	58	1.0	1.0	1.0	100.0	0	1	1	300.0/9056A/26A	
metrohm.smt	BLANK	59	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	60	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	61	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	62	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	63	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	64	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	65	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	66	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	67	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	68	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	69	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	70	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	71	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	72	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	73	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	74	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	75	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	76	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	77	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	78	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	79	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	80	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	81	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	82	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	83	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	84	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	85	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	86	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	87	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	88	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	89	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	90	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	91	1.0	1.0	1.0	100.0	0	1	1		
metrohm.smt	BLANK	92	1.0	1.0	1.0	100.0	0	1	1		

Preparation Information Benchsheet

Prep Run#: 211473
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 10:00 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407071-03	MB		1g	9056A/Chloride				100.00mL			
2	RQ1407071-04	LCS		1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
3	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1g	9056A/Chloride				100.00mL			
4	R1404421-009	1406091615 200-SB-21	.01	1g	9056A/Chloride				100.00mL			
5	R1404421-010	1406091750 200-SB-21	.01	1g	9056A/Chloride				100.00mL			
6	R1404273-005	1406041206 200-SB-20 30'	.01	1g	9056A/Chloride				100.00mL			
7	R1404273-006	1406041725 200-SB-20 50'	.01	1g	9056A/Chloride				100.00mL			
8	R1404507-006	1406111505 200-SB-7 8-10'	.02	1g	9056A/Chloride				100.00mL			
9	RQ1407071-01	R1404507-006 DUP	.02	1g	9056A/Chloride				100.00mL			
10	RQ1407071-02	R1404507-006 MS	.02	1g	9056A/Chloride				100.00mL		2.0000 mL/71260	
11	R1404507-007	1406111635 200-SB-7 18-21'	.01	1g	9056A/Chloride				100.00mL			
12	R1404507-008	1406120935 200-SB-7 38-40'	.01	1g	9056A/Chloride				100.00mL			
13	R1404622-007	1406161405 200-SB-13 8/10'	.01	1g	9056A/Chloride				100.00mL			
14	R1404589-016	1406130805 200-SB-8 8/10'	.01	1g	9056A/Chloride				100.00mL			
15	R1404589-017	1406130815 200-SB-8 8/10'	.01	1g	9056A/Chloride				100.00mL			
16	R1404589-025	1406130945 200-SB-8 28/30'	.01	1g	9056A/Chloride				100.00mL			
17	R1404589-026	1406131305 200-SB-8 43/45'	.01	1g	9056A/Chloride				100.00mL			
18	R1404589-027	1406141705 200-SB-6 8/10'	.01	1g	9056A/Chloride				100.00mL			
19	R1404589-028	1406151130 200-SB-5 8/10'	.01	1g	9056A/Chloride				100.00mL			
20	R1404589-029	1406151146 200-SB-5 8/10'	.01	1g	9056A/Chloride				100.00mL			

Spiking Solutions

Name: 300.0 Calibration/LCS/MS Intermediate : Inventory ID 71260 Logbook Ref: WC118013A Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 6/23/14 10:00
Finished: 6/23/14 10:05
By: CWOODS
Comments

Preparation Information Benchsheet

Prep Run#: 211473
Team: GenChem/CWOODS

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/23/14 10:00 AM

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By:	_____	Date:	_____	Extracts Examined
Received By:	_____	Date:	_____	Yes No

Schedule File: C:\PeakNet\Schedule\SCHEDULES\IC#6\6-062314.sch 06-23-14 IC#6

Line	Sample	Sample Type	Level	Method	Data File	Dilution	Comment
1	CCV	Sample		6-052814.met	623_001.dxd	1	300.0/9056A/26A
2	CCB	Sample		6-052814.met	623_002.dxd	1	300.0/9056A/26A
3	SOIL METHOD BLANK	Sample		6-052814.met	623_003.dxd	1	9056A C (1g SAMPLE -> 100g DI)
4	SOIL LCS	Sample		6-052814.met	623_004.dxd	1	9056A C (1g SAMPLE -> 100g DI)
5	R1404421-008	Sample		6-052814.met	623_005.dxd	1	9056A C (1g SAMPLE -> 100g DI)
6	R1404421-009	Sample		6-052814.met	623_006.dxd	1	9056A C (1g SAMPLE -> 100g DI)
7	R1404421-010	Sample		6-052814.met	623_007.dxd	1	9056A C (1g SAMPLE -> 100g DI)
8	R1404273-005	Sample		6-052814.met	623_008.dxd	1	9056A C (1g SAMPLE -> 100g DI)
9	R1404273-006	Sample		6-052814.met	623_009.dxd	1	9056A C (1g SAMPLE -> 100g DI)
10	R1404507-006	Sample		6-052814.met	623_010.dxd	1	9056A C (1g SAMPLE -> 100g DI)
11	R1404507-006 EXT DUP	Sample		6-052814.met	623_011.dxd	1	9056A C (1g SAMPLE -> 100g DI)
12	R1404507-006 EXT SPK	Sample		6-052814.met	623_012.dxd	1	9056A C (1g SAMPLE -> 100g DI)
13	CCV	Sample		6-052814.met	623_013.dxd	1	300.0/9056A/26A
14	CCB	Sample		6-052814.met	623_014.dxd	1	300.0/9056A/26A
15	R1404507-007	Sample		6-052814.met	623_015.dxd	1	9056A C (1g SAMPLE -> 100g DI)
16	R1404507-008	Sample		6-052814.met	623_016.dxd	1	9056A C (1g SAMPLE -> 100g DI)
17	R1404622-007	Sample		6-052814.met	623_017.dxd	1	9056A C (1g SAMPLE -> 100g DI)
18	R1404622-008	Sample		6-052814.met	623_018.dxd	1	9056A C (1g SAMPLE -> 100g DI)
19	R1404589-016	Sample		6-052814.met	623_019.dxd	1	9056A C (1g SAMPLE -> 100g DI)
20	R1404589-017	Sample		6-052814.met	623_020.dxd	1	9056A C (1g SAMPLE -> 100g DI)
21	R1404589-025	Sample		6-052814.met	623_021.dxd	1	9056A C (1g SAMPLE -> 100g DI)
22	R1404589-026	Sample		6-052814.met	623_022.dxd	1	9056A C (1g SAMPLE -> 100g DI)
23	R1404589-027	Sample		6-052814.met	623_023.dxd	1	9056A C (1g SAMPLE -> 100g DI)
24	R1404589-028	Sample		6-052814.met	623_024.dxd	1	9056A C (1g SAMPLE -> 100g DI)
25	CCV	Sample		6-052814.met	623_025.dxd	1	300.0/9056A/26A
26	CCB	Sample		6-052814.met	623_026.dxd	1	300.0/9056A/26A
27	R1404589-029	Sample		6-052814.met	623_027.dxd	1	9056A C (1g SAMPLE -> 100g DI)
28	CCV	Sample		6-052814.met	623_028.dxd	1	300.0/9056A/26A
29	CCB	Sample		6-052814.met	623_029.dxd	1	300.0/9056A/26A

Default Method Path: C:\PEAKNET\METHOD\IC#6\DI METHODS
Default Data Path: C:\PEAKNET\DATA\IC#6\062314
Comment:

Analyst: CWoodle
Pipets: FRED
BARNEY

Tier II
~~R422~~
R4421
R4273
R4507
R4622
R4589

Reviewed & Approved
By: CW
Date: 6/25/14

Preparation Information Benchsheet

Prep Run#: 211140
Team: GenChem/KABBOTT

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/17/14 12:00 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406808-03	MB		0.6g	9012B/CN Tot				6.00mL			
2	RQ1406808-04	LCS		0.6g	9012B/CN Tot				6.00mL		0.0600 mL/59557	
3	RQ1406808-05	LCS		0.6g	9012B/CN Tot				6.00mL		0.2400 mL/59557	
4	R1404342-001	SVP-3-4/5	.01	0.6706g	9012B/CN Tot				6.00mL			
5	R1404342-003	SVP-5-3/5	.01	0.6881g	9012B/CN Tot				6.00mL			
6	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	0.6642g	9012B/CN Tot				6.00mL			
7	R1404421-009	1406091615 200-SB-21	.01	0.6181g	9012B/CN Tot				6.00mL			
8	R1404421-010	1406091750 200-SB-21	.01	0.6490g	9012B/CN Tot				6.00mL			
9	R1404507-006	1406111505 200-SB-7 8-10'	.02	0.6421g	9012B/CN Tot				6.00mL			
10	RQ1406808-01	R1404507-006 DUP	.02	0.6429g	9012B/CN Tot				6.00mL			
11	RQ1406808-02	R1404507-006 MS	.02	0.6266g	9012B/CN Tot				6.00mL		0.0600 mL/59557	
12	R1404507-007	1406111635 200-SB-7 18-21'	.01	0.6759g	9012B/CN Tot				6.00mL			
13	R1404507-008	1406120935 200-SB-7 38-40'	.01	0.6193g	9012B/CN Tot				6.00mL			

Spiking Solutions

Name: Cyanide 10 ppm as CN Inventory ID 59557 Logbook Ref: Fresh daily Expires On: 06/19/2014

Preparation Steps

Step: Distillation
Started: 6/17/14 12:00
Finished: 6/17/14 14:00
By: NMUEHLEISEN
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: KMENGS Date: _____

Preparation Information Benchsheet

Prep Run#: 211140
Team: GenChem/KABBOTT

Prep WorkFlow: Gen Dist CN
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/17/14 12:00 PM

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Creator : KABBOTT
Creation Date : 6/18/2014 9:37:18 AM
Last Modified : 6/18/2014 11:49:23 AM
Description :

R4421

Cup	Sample ID	MDF	Weight	Sample Type	Comments
S1	1.0 ppm CN			Calibration Standard	
S2	0.50 ppm CN			Calibration Standard	
S3	0.20 ppm CN			Calibration Standard	
S4	0.10 ppm CN			Calibration Standard	
S5	0.05 ppm CN			Calibration Standard	
S6	0.02 ppm CN			Calibration Standard	
S7	0.01 ppm CN			Calibration Standard	
S8	0.00 ppm CN			Calibration Standard	
1	ICV			Unknown	
2	ICB			Unknown	
3	CRDL - 0.0200			Unknown	
4	CRDL - 0.0100			Unknown	
5	CCV			Unknown	
6	CCB			Unknown	
7	MB-1 6-16-14			Unknown	
8	LCS-1 LL 6-16-14			Unknown	
9	LCS-1 HL 6-16-14			Unknown	
10	R1404428-006			Unknown	
11	R1404428-007			Unknown	
12	4428-007 MS			Unknown	
13	4428-007 MSD			Unknown	
14	R1404428-008			Unknown	
15	R1404428-009			Unknown	
16	R1404454-001			Unknown	
17	CCV			Unknown	
18	CCB			Unknown	
19	R1404475-001			Unknown	
20	R1404394-002			Unknown	
21	4394-002 DUP			Unknown	
22	4394-002 SPK			Unknown	
23	R1404394-003			Unknown	
24	R1404394-004			Unknown	
25	R1404394-005			Unknown	
26	R1404394-006			Unknown	
27	R1404394-007			Unknown	
28	R1404394-008			Unknown	
29	CCV			Unknown	
30	CCB			Unknown	
31	R1404394-009			Unknown	
32	R1404394-010			Unknown	

33	R1404394-011			Unknown	
34	R1404394-012			Unknown	
35	R1404394-013			Unknown	
36	R1404394-014			Unknown	
37	R1404394-015			Unknown	
38	MB 2 6-16-14			Unknown	
39	LCS 2 LL 6-16-14			Unknown	
40	LCS 2 HL 6-16-14			Unknown	
41	CCV			Unknown	
42	CCB			Unknown	
43	R1404394-016			Unknown	
44	R1404394-017			Unknown	
45	4394-017 DUP			Unknown	
46	4394-017 SPK			Unknown	
47	R1404394-018			Unknown	
48	R1404394-019			Unknown	
49	R1404394-020			Unknown	
50	R1404394-021			Unknown	
51	R1404394-022			Unknown	
52	R1404394-023			Unknown	
53	CCV			Unknown	
54	CCB			Unknown	
55	R1404421-003			Unknown	
56	R1404438-001			Unknown	
57	MB 3 6-16-14			Unknown	
58	LCS 3 LL 6-16-14			Unknown	
59	LCS 3 HL 6-16-14			Unknown	
60	R1404438-002			Unknown	
61	4438-002 DUP			Unknown	
62	4438-002 SPK			Unknown	
63	R1404438-003			Unknown	
64	R1404438-004			Unknown	
65	CCV			Unknown	
66	CCB			Unknown	
67	R1404438-005			Unknown	
68	R1404438-006			Unknown	
69	R1404438-007			Unknown	
70	R1404438-008			Unknown	
71	R1404438-009			Unknown	
72	R1404438-010			Unknown	
73	R1404438-011			Unknown	
74	R1404438-012			Unknown	
75	R1404438-013			Unknown	
76	R1404429-001			Unknown	
77	CCV			Unknown	

78	CCB			Unknown	
79	4429-001 MS			Unknown	
80	4429-001 MSD			Unknown	
81	R1404429-003			Unknown	
82	R1404429-005			Unknown	
83	R1404429-007			Unknown	
84	R1404429-009			Unknown	
85	R1404429-011			Unknown	
86	R1404429-013			Unknown	
87	R1404429-015			Unknown	
88	MB 1 6-17-14			Unknown	
89	CCV			Unknown	
90	CCB			Unknown	
91	LCS 1 LL 6-17-14			Unknown	
92	LCS 1 HL 6-17-14			Unknown	
93	R1404507-004			Unknown	
94	R1404544-001			Unknown	
95	R1404388-001			Unknown	
96	R1404429-017			Unknown	
97	R1404429-019			Unknown	
98	R1404429-020			Unknown	
99	4429-020 MS			Unknown	
100	4429-020 MSD			Unknown	
101	CCV			Unknown	
102	CCB			Unknown	
103	R1404429-022			Unknown	
104	R1404429-023			Unknown	
105	R1404429-024			Unknown	
106	R1404429-025			Unknown	
107	R1404429-027			Unknown	
108	R1404429-029			Unknown	
109	R1404429-031			Unknown	
110	R1404429-033			Unknown	
111	R1404429-035			Unknown	
112	R1404429-037			Unknown	
113	CCV			Unknown	
114	CCB			Unknown	
115	R1404429-039			Unknown	
116	4429-039 MS			Unknown	
117	4429-039 MSD			Unknown	
118	R1404429-041			Unknown	
119	R1404429-043			Unknown	
120	R1404429-045			Unknown	
121	MB 2 6-17-14			Unknown	
122	LCS 2 LL 6-17-14			Unknown	

123	LCS 2 HL 6-17-14			Unknown	
124	R1404429-047			Unknown	
125	CCV			Unknown	
126	CCB			Unknown	
127	R1404429-049			Unknown	
128	R1404429-051			Unknown	
129	R1404491-002			Unknown	
130	R1404491-003			Unknown	
131	4491-003 DUP			Unknown	
132	4491-003 SPK			Unknown	
133	R1404506-001			Unknown	
134	MB SOIL			Unknown	
135	LCS SOIL LL			Unknown	
136	LCS SOIL HL			Unknown	
137	CCV			Unknown	
138	CCB			Unknown	
139	R1404342-001			Unknown	
140	R1404342-003			Unknown	
141	R1404421-008			Unknown	
142	R1404421-009			Unknown	
143	R1404421-010			Unknown	
144	R1404507-006			Unknown	
145	4507-006 DUP			Unknown	
146	4507-006 SPK			Unknown	
147	R1404507-007			Unknown	
148	R1404507-008			Unknown	
149	CCV			Unknown	
150	CCB			Unknown	
151	MB RES			Unknown	
152	LCS RES			Unknown	
153	R1404491-002			Unknown	
154	4491-002 DUP			Unknown	
155	R1404491-003			Unknown	
156	R1404506-001			Unknown	
157	MB FILTER			Unknown	
158	LCS FILTER			Unknown	
159	4429-017 RPT	4.00000		Unknown	
160	4429-027 RPT			Unknown	
161	CCV			Unknown	
162	CCB			Unknown	

Creator: LDOLGOS
Creation Date: Jun 19, 2014 7:58:24
Last Modified: Jun 19, 2014 9:02:26
Description: QC 8000 353.2 TOTN - RUN LOG - 1406190A

R4421

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	1.00 NO3	1.0000	Unknown	
2	1.00 NO2	1.0000	Unknown	
3	ICV TV= 0.90	1.0000	Unknown	
4	ICB	1.0000	Unknown	
5	CRDL - 0.100	1.0000	Unknown	
6	CRDL - 0.050	1.0000	Unknown	
7	CCV	1.0000	Unknown	
8	CCB	1.0000	Unknown	
9	LCS	1.0000	Unknown	
10	AIR	1.0000	Unknown	
11	R1404274-004	1.0000	Unknown	
12	R1404335-004 1/2	2.0000	Unknown	
13	R1404335-013 1/2	2.0000	Unknown	
14	R1404335-018	1.0000	Unknown	
15	R1404335-025	1.0000	Unknown	
16	R1404335-029 1/4	4.0000	Unknown	
17	R1404421-004	1.0000	Unknown	
18	R1404273-003	1.0000	Unknown	
19	CCV	1.0000	Unknown	
20	CCB	1.0000	Unknown	
21	R1404448-001	1.0000	Unknown	
22	4335-025 DUP	1.0000	Unknown	
23	4335-025 SPK	1.0000	Unknown	
24	R1404443-001 1/2	2.0000	Unknown	
25	R1404492-002	1.0000	Unknown	
26	R1404493-002	1.0000	Unknown	
27	R1404557-001	1.0000	Unknown	
28	R1404611-001	1.0000	Unknown	
29	R1404492-002 DUP	1.0000	Unknown	
30	R1404492-002 SPK	1.0000	Unknown	
31	CCV	1.0000	Unknown	

Cup #	Sample ID	Manual Dilution	Sample Type	
32	CCB	1.0000	Unknown	
33	R1404589-003	1.0000	Unknown	
34	R1404589-009	1.0000	Unknown	
35	R1404589-014	1.0000	Unknown	
36	R1404486-001 1/2	2.0000	Unknown	
37	R1404507-003	1.0000	Unknown	
38	LCS	1.0000	Unknown	
39	R1404560-004	1.0000	Unknown	
40	R1404516-001 1/5	5.0000	Unknown	
41	R1404516-002 1/5	5.0000	Unknown	
42	BLK	1.0000	Unknown	
43	CCV	1.0000	Unknown	
44	CCB	1.0000	Unknown	
45	R1404560-004 DUP	1.0000	Unknown	
46	R1404560-004 SPK	1.0000	Unknown	
47	CCV	1.0000	Unknown	
48	CCB	1.0000	Unknown	

Preparation Information Benchsheet

Run 398613

Prep Run#: 211514
Team: GenChem/TPULS

Prep WorkFlow: GenExt28Day
Prep Method: CAS SOP

Status: Prepped
Prep Date/Time: 6/24/14 10:30 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1407109-01	MB		1g	353.2M/NO2 NO3				100.00mL			
2	RQ1407109-02	LCS		1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
3	R1404273-005	1406041206 200-SB-20 30'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
4	RQ1407109-03	R1404273-005 DUP	.01	1g	353.2M/NO2 NO3				100.00mL			
5	RQ1407109-04	R1404273-005 MS	.01	1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
6	R1404273-006	1406041725 200-SB-20 50'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
7	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1g	353.2M/NO2 NO3				100.00mL			
8	R1404421-009	1406091615 200-SB-21	.01	1.0500g	353.2M/NO2 NO3				100.00mL			
9	R1404421-010	1406091750 200-SB-21	.01	1g	353.2M/NO2 NO3				100.00mL			
10	R1404507-006	1406111505 200-SB-7 8-10'	.02	1g	353.2M/NO2 NO3				100.00mL			
11	RQ1407109-05	R1404507-006 DUP	.02	1g	353.2M/NO2 NO3				100.00mL			
12	RQ1407109-06	R1404507-006 MS	.02	1g	353.2M/NO2 NO3				100.00mL		~~0.0050~~ mL/67499	
13	R1404507-007	1406111635 200-SB-7 18-21'	.01	1g	353.2M/NO2 NO3				100.00mL		0.050	
14	R1404507-008	1406120935 200-SB-7 38-40'	.01	1g	353.2M/NO2 NO3				100.00mL			
15	R1404589-016	1406130805 200-SB-8 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
16	R1404589-017	1406130815 200-SB-8 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
17	R1404589-025	1406130945 200-SB-8 28/30'	.01	1g	353.2M/NO2 NO3				100.00mL			
18	R1404589-026	1406131305 200-SB-8 43/45'	.01	1g	353.2M/NO2 NO3				100.00mL			
19	R1404589-027	1406141705 200-SB-6 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
20	R1404589-028	1406151130 200-SB-5 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			
21	R1404589-029	1406151146 200-SB-5 8/10'	.01	1g	353.2M/NO2 NO3				100.00mL			

Spiking Solutions

Name: Nitrate (NO3) 1000 ppm as N Inventory ID 67499 Logbook Ref: WC118001N Expires On: 08/18/2014

Preparation Steps

Step: Extraction
Started: 6/24/14 10:30
Finished: 6/24/14 10:35
By: MKSMITH
Comments

Preparation Information Benchsheet

Prep Run#: 211514
Team: GenChem/TPULS

Prep WorkFlow: GenExt28Day
Prep Method: CAS SOP

Status: Prepped
Prep Date/Time: 6/24/14 10:30 AM

Comments:

Reviewed By: Date: Spike Witness: LDOLGOS Date:

Chain of Custody

Relinquished By:		Date: 6-24-14	Extracts Examined	
Received By:		Date: 6/24/14	Yes	No

Creator: LDOLGOS
Creation Date: Jun 24, 2014 10:57:22
Last Modified: Jun 24, 2014 13:06:48
Description: QC 8000 353.2 TOTN - RUN LOG - 1406240B

R442

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	1.00 NO3	1.0000	Unknown	
2	1.00 NO2	1.0000	Unknown	
3	ICV TV= 0.90	1.0000	Unknown	
4	ICB	1.0000	Unknown	
5	CRDL - 0.100	1.0000	Unknown	
6	CRDL - 0.050	1.0000	Unknown	
7	CCV	1.0000	Unknown	
8	CCB	1.0000	Unknown	
9	PB SOIL	1.0000	Unknown	
10	LCS SOIL	1.0000	Unknown	
11	R1404273-005	1.0000	Unknown	
12	R1404273-005 DUP	1.0000	Unknown	
13	R1404273-005 SPK	1.0000	Unknown	
14	R1404273-006	1.0000	Unknown	
15	R1404421-008	1.0000	Unknown	
16	R1404421-009	1.0000	Unknown	
17	R1404421-010	1.0000	Unknown	
18	R1404507-006	1.0000	Unknown	
19	CCV	1.0000	Unknown	
20	CCB	1.0000	Unknown	
21	R1404507-006 DUP	1.0000	Unknown	
22	R1404507-006 SPK	1.0000	Unknown	
23	R1404507-007	1.0000	Unknown	
24	R1404507-008	1.0000	Unknown	
25	R1404589-016	1.0000	Unknown	
26	R1404589-017	1.0000	Unknown	
27	R1404589-025	1.0000	Unknown	
28	R1404589-026	1.0000	Unknown	
29	R1404589-027	1.0000	Unknown	
30	R1404589-028	1.0000	Unknown	
31	CCV	1.0000	Unknown	

Cup #	Sample ID	Manual Dilution	Sample Type	
32	CCB	1.0000	Unknown	
33	R1404589-029	1.0000	Unknown	
34	LCSW	1.0000	Unknown	
35	R1404622-003	1.0000	Unknown	
36	R1404739-001	1.0000	Unknown	
37	R1404739-002	1.0000	Unknown	
38	R1404739-003	1.0000	Unknown	
39	R1404739-003 DUP	1.0000	Unknown	
40	R1404739-003 SPK	1.0000	Unknown	
41	R1404619-003	1.0000	Unknown	
42	R1404619-004	1.0000	Unknown	
43	CCV	1.0000	Unknown	
44	CCB	1.0000	Unknown	
45	R1404619-003 RPT 1/2	2.0000	Unknown	
46	R1404619-004 RPT 1/2	2.0000	Unknown	
47	R1404739-002 DUP	1.0000	Unknown	
48	R1404739-002 SPK	1.0000	Unknown	
49	CCV	1.0000	Unknown	
50	CCB	1.0000	Unknown	

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver	500	508	102	500	518	104	511	102	P
Aluminum	10000	9880	99	10000	9970	100	10100	101	P
Arsenic	1000	988	99	1000	998	100	1020	102	P
Boron	2500	2480	99	2500	2490	100	2450	98	P
Barium	10000	10300	103	10000	10400	104	10200	102	P
Beryllium	250	254	102	250	258	103	254	102	P
Calcium	25000	24500	98	25000	24500	98	24800	99	P
Cadmium	500	498	100	500	507	101	493	99	P
Cobalt	2500	2520	101	2500	2570	103	2510	100	P
Chromium	500	515	103	500	525	105	512	102	P
Copper	1250	1250	100	1250	1280	102	1260	101	P
Iron	5000	5080	102	5000	5050	101	4970	99	P
Potassium	25000	25100	100	25000	25200	101	24900	100	P
Magnesium	25000	25400	102	25000	26000	104	25400	102	P
Manganese	750	760	101	750	774	103	757	101	P
Mercury	3.00	3.06	102	3.00	3.05	102	3.07	102	CV
Molybdenum	2500	2430	97	2500	2470	99	2420	97	P
Sodium	25000	25400	102	25000	25500	102	25000	100	P
Nickel	2000	2030	102	2000	2070	104	2020	101	P
Lead	500	497	99	500	502	100	491	98	P
Antimony	5000	4950	99	5000	4960	99	4870	97	P
Selenium	500	498	100	500	510	102	494	99	P
Tin	5000	4960	99	5000	5030	101	4920	98	P
Titanium	2500.0	2500.00	100.0	2500.0	2520.00	100.8	2490.00	99.6	P
Thallium	1000	989	99	1000	997	100	970	97	P
Vanadium	2500	2530	101	2500	2560	102	2510	100	P
Zinc	1000	1020	102	1000	1030	103	1000	100	P
Strontium	2500	2440	98	2500	2460	98	2420	97	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	505	101	509	102	P
Aluminum				10000	10100	101	10100	101	P
Arsenic				1000	1020	102	1030	103	P
Boron				2500	2470	99	2440	98	P
Barium				10000	10300	103	10200	102	P
Beryllium				250	255	102	254	102	P
Calcium				25000	24900	100	25000	100	P
Cadmium				500	490	98	492	98	P
Cobalt				2500	2490	100	2500	100	P
Chromium				500	509	102	511	102	P
Copper				1250	1250	100	1250	100	P
Iron				5000	4970	99	4960	99	P
Potassium				25000	25400	102	25300	101	P
Magnesium				25000	25300	101	25300	101	P
Manganese				750	751	100	754	101	P
Mercury				3.00	3.11	104	3.17	106	CV
Molybdenum				2500	2390	96	2400	96	P
Sodium				25000	25200	101	25500	102	P
Nickel				2000	2000	100	2010	100	P
Lead				500	492	98	487	97	P
Antimony				5000	4850	97	4820	96	P
Selenium				500	495	99	493	99	P
Tin				5000	4850	97	4810	96	P
Titanium				2500.0	2490.00	99.6	2490.00	99.6	P
Thallium				1000	975	98	963	96	P
Vanadium				2500	2470	99	2490	100	P
Zinc				1000	999	100	999	100	P
Strontium				2500	2410	96	2370	95	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	508	102	506	101	P
Aluminum				10000	10300	103			P
Arsenic				1000	1050	105			P
Boron				2500	2410	96	2350	94	P
Barium				10000	10100	101	9960	100	P
Beryllium				250	250	100	249	100	P
Calcium				25000	24800	99	25200	101	P
Cadmium				500	489	98	481	96	P
Cobalt				2500	2480	99	2430	97	P
Chromium				500	508	102	501	100	P
Copper				1250	1240	99	1220	98	P
Iron				5000	4960	99	4970	99	P
Potassium				25000	25000	100	24400	98	P
Magnesium				25000	25200	101	24300	97	P
Manganese				750	748	100	724	97	P
Molybdenum				2500	2390	96	2350	94	P
Sodium				25000	24800	99	24200	97	P
Nickel				2000	2000	100	1960	98	P
Lead				500	487	97	485	97	P
Antimony				5000	4830	97	5040	101	P
Selenium				500	486	97	473	95	P
Tin				5000	4880	98	4770	95	P
Titanium				2500.0	2460.00	98.4	2450.00	98.0	P
Thallium				1000	963	96	963	96	P
Vanadium				2500	2490	100	2620	105	P
Zinc				1000	992	99	971	97	P
Strontium				2500	2410	96			P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	514	103	519	104	P
Boron				2500	2410	96	2450	98	P
Barium				10000	10100	101	10300	103	P
Beryllium				250	252	101	259	104	P
Calcium				25000	25100	100	25000	100	P
Cadmium				500	497	99	504	101	P
Cobalt				2500	2500	100	2560	102	P
Chromium				500	515	103	522	104	P
Copper				1250	1250	100	1270	102	P
Iron				5000	4940	99	4940	99	P
Potassium				25000	24700	99	25300	101	P
Magnesium				25000	25100	100	25900	104	P
Manganese				750	745	99	767	102	P
Molybdenum				2500	2400	96	2430	97	P
Sodium				25000	24400	98	24800	99	P
Nickel				2000	2020	101	2050	102	P
Lead				500	493	99	498	100	P
Antimony				5000	5060	101	4960	99	P
Selenium				500	481	96	492	98	P
Tin				5000	4900	98	4960	99	P
Titanium				2500.0	2460.00	98.4	2500.00	100.0	P
Thallium				1000	973	97	980	98	P
Vanadium				2500	2660	106	2550	102	P
Zinc				1000	1000	100	1020	102	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	511	102	510	102	P
Boron				2500	2380	95	2410	96	P
Barium				10000	10200	102	10300	103	P
Beryllium				250	255	102	257	103	P
Calcium				25000	25000	100			P
Cadmium				500	497	99	501	100	P
Cobalt				2500	2510	100	2540	102	P
Chromium				500	515	103	516	103	P
Copper				1250	1240	99	1250	100	P
Iron				5000	4950	99			P
Potassium				25000	24300	97	24500	98	P
Magnesium				25000	25300	101	25600	102	P
Manganese				750	750	100	758	101	P
Molybdenum				2500	2380	95	2390	96	P
Sodium				25000	23600	94	23900	96	P
Nickel				2000	2020	101	2030	102	P
Lead				500	490	98	496	99	P
Antimony				5000	4920	98	4920	98	P
Selenium				500	477	95	485	97	P
Tin				5000	4760	95	4910	98	P
Titanium				2500.0	2470.00	98.8	2480.00	99.2	P
Thallium				1000	964	96	973	97	P
Vanadium				2500	2580	103	2550	102	P
Zinc				1000	1010	101	1010	101	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver	500	514	103	500	510	102	512	102	P
Antimony	50	49	98	50	49	98	49	98	MS
Aluminum	10000	9830	98	10000	9770	98	9760	98	P
Arsenic	1000	998	100	1000	1010	101	1000	100	P
Boron	2500	2500	100	2500	2420	97	2430	97	P
Barium	10000	10400	104	10000	10400	104	10300	103	P
Beryllium	250	258	103	250	256	102	254	102	P
Calcium	25000	25100	100	25000	24700	99	25000	100	P
Cadmium	500	508	102	500	503	101	502	100	P
Cobalt	2500	2560	102	2500	2520	101	2520	101	P
Chromium	500	523	105	500	518	104	518	104	P
Copper	1250	1270	102	1250	1250	100	1250	100	P
Iron	5000	5160	103	5000	5060	101	5050	101	P
Potassium	25000	23400	94	25000	23100	92	24300	97	P
Magnesium	25000	25700	103	25000	25200	101	25200	101	P
Manganese	750	769	103	750	755	101	757	101	P
Mercury	3.00	3.04	101	3.00	3.07	102	3.09	103	CV
Molybdenum	2500	2450	98	2500	2420	97	2410	96	P
Sodium	25000	24500	98	25000	24300	97	25200	101	P
Nickel	2000	2060	103	2000	2040	102	2040	102	P
Lead	500	500	100	500	499	100	500	100	P
Selenium	500	501	100	500	491	98	489	98	P
Tin	5000	4960	99	5000	4910	98	4920	98	P
Thallium	50	51	102	50	49	98	50	100	MS
Titanium	2500.0	2500.00	100.0	2500.0	2500.00	100.0	2490.00	99.6	P
Vanadium	2500	2600	104	2500	2650	106	2650	106	P
Zinc	1000	1020	102	1000	1020	102	1010	101	P
Strontium	2500	2520	101	2500	2410	96	2320	93	P
Uranium	50	47	94	50	50	100	50	100	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	512	102	515	103	P
Antimony				50	49	98	48	96	MS
Aluminum				10000	9590	96	9840	98	P
Arsenic				1000	1010	101	1020	102	P
Boron				2500	2440	98	2500	100	P
Barium				10000	10400	104	10400	104	P
Beryllium				250	257	103	258	103	P
Calcium				25000	24400	98	25000	100	P
Cadmium				500	505	101	507	101	P
Cobalt				2500	2540	102	2540	102	P
Chromium				500	519	104	523	105	P
Copper				1250	1260	101	1270	102	P
Iron				5000	5100	102	5110	102	P
Potassium				25000	24500	98	25000	100	P
Magnesium				25000	25400	102	25500	102	P
Manganese				750	763	102	764	102	P
Mercury				3.00	3.03	101			CV
Molybdenum				2500	2440	98	2440	98	P
Sodium				25000	24600	98	25300	101	P
Nickel				2000	2050	102	2060	103	P
Lead				500	503	101	507	101	P
Selenium				500	499	100	497	99	P
Tin				5000	4990	100	4980	100	P
Thallium				50	50	100	50	100	MS
Titanium				2500.0	2500.00	100.0	2510.00	100.4	P
Vanadium				2500	2630	105	2650	106	P
Zinc				1000	1020	102	1030	103	P
Strontium				2500	2520	101	2480	99	P
Uranium				50	48	96	47	94	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silver				500	514	103	523	105	P
Antimony				50	48	96	49	98	MS
Aluminum				10000	9750	98			P
Arsenic				1000	1000	100	1030	103	P
Boron				2500	2430	97	2460	98	P
Barium				10000	10300	103	10400	104	P
Beryllium				250	252	101	254	102	P
Calcium				25000	24400	98			P
Cadmium				500	501	100	511	102	P
Cobalt				2500	2520	101	2560	102	P
Chromium				500	518	104	527	105	P
Copper				1250	1260	101	1280	102	P
Iron				5000	5040	101	5120	102	P
Potassium				25000	24300	97			P
Magnesium				25000	25200	101	25600	102	P
Manganese				750	756	101	768	102	P
Molybdenum				2500	2430	97	2470	99	P
Sodium				25000	24200	97			P
Nickel				2000	2040	102	2080	104	P
Lead				500	499	100	508	102	P
Selenium				500	489	98	496	99	P
Tin				5000	4910	98	4990	100	P
Thallium				50	49	98	52	104	MS
Titanium				2500.0	2480.00	99.2	2500.00	100.0	P
Vanadium				2500	2690	108	2750	110	P
Zinc				1000	1000	100	1020	102	P
Strontium				2500	2370	95	2370	95	P
Uranium				50	48	96	50	100	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Silver				500	517	103	514	103	P
Antimony				50	47	94	48	96	MS
Arsenic				1000	1020	102	1020	102	P
Boron				2500	2450	98	2420	97	P
Barium				10000	10400	104	10300	103	P
Beryllium				250	257	103	255	102	P
Cadmium				500	508	102	506	101	P
Cobalt				2500	2550	102	2520	101	P
Chromium				500	523	105	520	104	P
Copper				1250	1270	102	1250	100	P
Iron				5000	5100	102	5060	101	P
Magnesium				25000	25500	102	25300	101	P
Manganese				750	764	102	757	101	P
Molybdenum				2500	2450	98	2430	97	P
Nickel				2000	2060	103	2050	102	P
Lead				500	502	100	503	101	P
Selenium				500	493	99	488	98	P
Tin				5000	4960	99	4950	99	P
Thallium				50	50	100	49	98	MS
Titanium				2500.0	2510.00	100.4	2490.00	99.6	P
Vanadium				2500	2690	108	2700	108	P
Zinc				1000	1020	102	1020	102	P
Strontium				2500	2570	103	2530	101	P
Uranium				50	51	102	50	100	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	521	104	525	105	P
Antimony				50	48	96	46	92	MS
Arsenic				1000	1020	102	1030	103	P
Boron				2500	2500	100	2510	100	P
Barium				10000	10500	105	10600	106	P
Beryllium				250	259	104	261	104	P
Cadmium				500	515	103	519	104	P
Cobalt				2500	2590	104	2620	105	P
Chromium				500	529	106	534	107	P
Copper				1250	1290	103	1300	104	P
Iron				5000	5200	104	5240	105	P
Magnesium				25000	26000	104	26200	105	P
Manganese				750	780	104	788	105	P
Molybdenum				2500	2480	99	2500	100	P
Nickel				2000	2090	104	2110	106	P
Lead				500	506	101	516	103	P
Selenium				500	504	101	514	103	P
Tin				5000	5140	103	5120	102	P
Thallium				50	49	98	50	100	MS
Titanium				2500.0	2520.00	100.8	2540.00	101.6	P
Vanadium				2500	2670	107	2690	108	P
Zinc				1000	1050	105	1040	104	P
Strontium				2500	2630	105	2610	104	P
Uranium				50	49	98	51	102	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	521	104	520	104	P
Antimony				50	47	94			MS
Arsenic				1000	1020	102	1040	104	P
Boron				2500	2470	99	2480	99	P
Barium				10000	10700	107	10500	105	P
Beryllium				250	261	104	262	105	P
Cadmium				500	514	103	516	103	P
Cobalt				2500	2600	104	2570	103	P
Chromium				500	529	106	529	106	P
Copper				1250	1290	103	1270	102	P
Iron				5000	5190	104	5150	103	P
Magnesium				25000	25900	104	25900	104	P
Manganese				750	781	104	772	103	P
Molybdenum				2500	2480	99	2460	98	P
Nickel				2000	2090	104	2090	104	P
Lead				500	512	102	511	102	P
Selenium				500	504	101	510	102	P
Tin				5000	5120	102	5100	102	P
Thallium				50	52	104			MS
Titanium				2500.0	2550.00	102.0	2530.00	101.2	P
Vanadium				2500	2690	108	2710	108	P
Zinc				1000	1040	104	1060	106	P
Strontium				2500	2490	100	2540	102	P
Uranium				50	50	100			MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Silver				500	520	104	519	104	P
Arsenic				1000	1030	103	1030	103	P
Boron				2500	2450	98	2400	96	P
Barium				10000	10700	107	10500	105	P
Beryllium				250	262	105	258	103	P
Cadmium				500	520	104	517	103	P
Cobalt				2500	2600	104	2590	104	P
Chromium				500	533	107	529	106	P
Copper				1250	1270	102	1270	102	P
Iron				5000	5180	104	5130	103	P
Magnesium				25000	26000	104	25900	104	P
Manganese				750	779	104	773	103	P
Molybdenum				2500	2480	99	2470	99	P
Nickel				2000	2100	105	2100	105	P
Lead				500	517	103	511	102	P
Selenium				500	508	102	503	101	P
Tin				5000	5150	103	5180	104	P
Titanium				2500.0	2550.00	102.0	2510.00	100.4	P
Vanadium				2500	2720	109	2720	109	P
Zinc				1000	1060	106	1050	105	P
Strontium				2500	2380	95	2410	96	P

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Silver				500	517	103	518	104	P
Arsenic				1000	1040	104	1040	104	P
Boron				2500	2430	97	2380	95	P
Barium				10000	10400	104	10400	104	P
Beryllium				250	256	102	258	103	P
Cadmium				500	506	101	515	103	P
Cobalt				2500	2550	102	2570	103	P
Chromium				500	521	104	529	106	P
Copper				1250	1260	101	1250	100	P
Iron				5000	5030	101	5100	102	P
Magnesium				25000	25600	102	25700	103	P
Manganese				750	760	101	769	103	P
Molybdenum				2500	2450	98	2460	98	P
Nickel				2000	2070	104	2090	104	P
Lead				500	507	101	513	103	P
Selenium				500	502	100	495	99	P
Tin				5000	5150	103	5090	102	P
Titanium				2500.0	2500.00	100.0	2500.00	100.0	P
Vanadium				2500	2720	109	2740	110	P
Zinc				1000	1030	103	1050	105	P
Strontium				2500	2380	95	2250	90	P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Beryllium	50	53	106	50	54	108	48	96	MS
Chromium	50	46	92	50	48	96	46	92	MS
Cobalt	50	49	98	50	50	100	49	98	MS
Copper	50	51	102	50	47	94	51	102	MS
Uranium	50	47	94	50	47	94	47	94	MS

Comments:

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404421

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: R1404421

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Beryllium				50	53	106			MS
Chromium				50	47	94			MS
Cobalt				50	51	102			MS
Copper				50	50	100			MS
Uranium				50	48	96			MS

Comments:

Preparation Information Benchsheet

Prep Run#: 210765 **Prep WorkFlow:** MetDigSICP **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3050B **Prep Date/Time:** 6/13/14 08:56 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406534-01	MB		1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	White, Coarse / Colorless, Clear		HB8 Therm=293 Well=A2 Temp=95
2	RQ1406534-04	LCS		1.0g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	White, Coarse / Colorless, Clear	1.0000 mL/70002; 0.1000 mL/57174; 0.2000 mL/59992; 0.5000 mL/69693; 1.0000 mL/70003	
3	R1404261-001	S-4	.01	1.0300g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
4	RQ1406534-02	R1404261-001 DUP	.01	1.0g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
5	RQ1406534-03	R1404261-001 MS	.01	1.0g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear	0.5000 mL/69693; 1.0000 mL/70002; 1.0000 mL/70003; 0.1000 mL/57174; 0.2000 mL/59992	
6	R1404261-002	S-2	.01	1.0500g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
7	R1404261-003	S-6	.01	1.0200g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
8	R1404261-004	S-3	.01	1.0100g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
9	R1404261-005	S-1	.01	1.0500g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
10	R1404261-006	S-5	.01	1.0100g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
11	R1404261-007	SW-1A	.01	1g	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			100.00mL	Brown, Medium / Yellow, Clear		
12	R1404273-005	1406041206 200-SB-20 30'	.02	1.0100g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Coarse / Yellow, Clear		III NASA
13	R1404273-006	1406041725 200-SB-20 50'	.02	1.0300g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Coarse / Yellow, Clear		
14	R1404317-001	RM-SS-1A	.01	1.0500g	6010C/Ag T, As T, Ba T, Cd T, Cr T, Pb T, Se T	<2			100.00mL	Brown, Medium / Yellow, Clear		
15	R1404317-002	RM-SS-2B	.01	1.0300g	6010C/Ag T, As T, Ba T, Cd T, Cr T, Pb T, Se T	<2			100.00mL	Brown, Medium / Yellow, Clear		
16	R1404317-003	RM-SS-3C	.01	1.0200g	6010C/Ag T, As T, Ba T, Cd T, Cr T, Pb T, Se T	<2			100.00mL	Brown, Medium / Yellow, Clear		
17	R1404329-001	Centrifuge Sludge	.02	1.0300g	6010C/As T, Cd T, Cr T, Cu T, K T, Mo T, Ni T, Pb T, Se T, Zn T	<2			100.00mL	Black, Medium / Yellow, Clear		
18	R1404359-001	GRANULATED NaCL, 5/2/14	.01	1.0500g	6010C/Ca T, Mg T	<2			100.00mL	White, Fine / Colorless, Clear		

Preparation Information Benchsheet

Prep Run#: 210765 **Prep WorkFlow:** MetDigSICP **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3050B **Prep Date/Time:** 6/13/14 08:56 AM

19	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1.0500g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Red, Medium / Yellow, Clear		III NASA
20	R1404421-009	1406091615 200-SB-21	.01	1.0200g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Coarse / Yellow, Clear		
21	R1404421-010	1406091750 200-SB-21	.01	1.0300g	6010C/Ag T, Al T, As T, B T, Ba T, Ca T, Cd T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Sb T, Se T, Sn T, Sr T, Ti T, Tl T, V T, Zn T	<2			100.00mL	Brown, Coarse / Yellow, Clear		

Spiking Solutions

Name:	Selenium 1000 ug/mL Se	Inventory ID	57174	Logbook Ref:	M5280028BB	Expires On:	10/04/2014	Lot #:	1233330
Name:	Strontium 1000 ug/mL Sr	Inventory ID	59992	Logbook Ref:	M5280031Q	Expires On:	01/08/2015	Lot #:	1208804
Name:	Tin 1000 ug/mL Sn	Inventory ID	69693	Logbook Ref:	M5280037P	Expires On:	10/04/2015	Lot #:	13H087
Name:	Custom LCS STD A Metals	Inventory ID	70002	Logbook Ref:	M5280037CC	Expires On:	04/17/2015	Lot #:	14D125
Name:	Custom LCS STD B Metals	Inventory ID	70003	Logbook Ref:	M5280037DD	Expires On:	10/18/2015	Lot #:	14D123

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Boiling Stones PTFE	M5280036N (67019)
Hot Block Cups	50 mL Lot 1306159 (63960)	Filter Paper	Filter Paper (55693)	Hydrogen Peroxide 30% Reagent Grade H2O2	M5280033R (69313)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Thermometer	293 (12952)		

Preparation Steps

Step: Digestion
Started: 6/13/14 08:56
Finished: 6/13/14 14:06
By: MCRIBBIN
Comments

Comments: _____

Reviewed By: DBond Date: 6/14/14 Spike Witness: DBOND Date: _____

Preparation Information Benchsheet

Prep Run#: 210765
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/13/14 08:56 AM

Chain of Custody

Relinquished By:	[signature]	Date:	6/13/14 1420	Extracts Examined
Received By:	RAOI	Date:	6/13/14 1420	Yes No

Preparation Information Benchsheet

Prep Run#: *210334*
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSMS
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/13/14 09:15 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406533-01	MB		1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	White, Coarse / Colorless, Clear		HB7 Therm=287 Well=A4 Temp=95
2	RQ1406533-02	LCS		1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	White, Coarse / Colorless, Clear	0.2000 mL/65804; 0.2000 mL/65805	
3	R1404273-005	1406041206 200-SB-20 30'	.02	1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear		
4	RQ1406533-03	R1404273-005 DUP	.02	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear		
5	RQ1406533-04	R1404273-005 MS	.02	1.0100g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear	0.2000 mL/65804; 0.2000 mL/65805	
6	R1404273-006	1406041725 200-SB-20 50'	.02	1.0400g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear		
7	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	1.0g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Red, Medium / Colorless, Clear		
8	R1404421-009	1406091615 200-SB-21	.01	1.0400g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear		
9	R1404421-010	1406091750 200-SB-21	.01	1.0400g	6020A/Be T, Co T, Cr T, Cu T, U T	<2			100.00mL	Brown, Coarse / Colorless, Clear		

Spiking Solutions

Name:	ICPMS Calibration Standard 1 (10 ug/mL	Inventory ID	65804	Logbook Ref:	M5280035O	Expires On:	06/30/2015	Lot #:	21206511
Name:	ICPMS Calibration Standard 2 (10 ug/mL	Inventory ID	65805	Logbook Ref:	M5280035P	Expires On:	08/31/2015	Lot #:	21208507

Preparation Materials

1:1 Nitric Acid Metals Grade	M5280037X (63958)	Boiling Stones PTFE	M5280036N (67019)	Hot Block Cups	50 mL Lot 1306159 (63960)
Filter Paper	Filter Paper (55693)	Hydrogen Peroxide 30% Reagent Grade H2O2	M5280033R (69313)	Nitric Acid Metals Grade HNO3	M5280037X (69879)
Thermometer	329 (42023)				

Preparation Steps

Step: Digestion
Started: 6/9/14 12:26
Finished: 6/13/14 14:17
By: MCRIBBIN
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 210334
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigSMS
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 6/13/14 09:15 AM

Reviewed By: DBond Date: 6/14/14 Spike Witness: DBOND Date:

Chain of Custody

Relinquished By: [illegible] Date: 6/13/14 - 1420

Received By: RABI Date: 6/13/14 1420

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 210891
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqICP
Prep Method: EPA 3010A

Status: Prepped
Prep Date/Time: 6/16/14 12:37 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406615-01	MB		50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless, Clear		HB6 Therm=287 Well=E5 Temp=95
2	RQ1406615-02	LCS		50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless, Clear	0.1000 mL/59992; 0.2500 mL/69693; 0.5000 mL/70002; 0.0500 mL/57174; 0.5000 mL/70003	
3	R1404333-001	FARMERSVILLE WELL	.05	50mL	6010C/Ba T, Ca T, Fe T, Mg T, Na T, Pb T	<2			50.00mL	Colorless, Clear / Yellow, Clear		
4	R1404335-001	1406051417C ST-3-735	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless, Clear		III NASA
5	R1404335-007	1406060812C WW-2-489	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless, Clear		
6	R1404335-014	1406060732X WW-5-814	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless, Clear		
7	R1404335-015	1406061000X WW-5-814	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless, Clear		
8	R1404335-021	1406061041C WW-2-664	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless, Clear		
9	R1404335-022	1406061042C WW-2-664	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless, Clear		
10	R1404335-026	1406071030X WW-5-912	.01	50mL	6010C/Ag T, Al T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, V T, Zn T	<2			50.00mL	Colorless, Clear		
11	R1404338-001	MW-32	.02	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
12	RQ1406615-03	R1404338-001 DUP	.02	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		

Preparation Information Benchsheet

Prep Run#: 210891 **Prep WorkFlow:** MetDigAqICP **Status:** Prepped
Team: Metals/MCRIBBIN **Prep Method:** EPA 3010A **Prep Date/Time:** 6/16/14 12:37 PM

13	RQ1406615-04	R1404338-001 MS	.02	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear	0.5000 mL/70003; 0.2500 mL/69693; 0.0500 mL/57174; 0.1000 mL/59992; 0.5000 mL/70002	
14	R1404338-002	MW-1D	.02	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
15	R1404338-003	MW-16D	.02	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
16	R1404338-004	MW-8D	.02	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
17	R1404393-002	14RC105714	.01	50mL	6010C/Ag T, As T, Ba T, Cd T, Co T, Cr T, Ni T, Pb T, Se T	<2			50.00mL	Yellow, Clear / Brown, Opaque		
18	R1404393-004	14RC120830	.01	50mL	6010C/Ag T, As T, Ba T, Cd T, Co T, Cr T, Ni T, Pb T, Se T	<2			50.00mL	Yellow, Clear / Brown, Opaque		
19	R1404393-005	14RC125858	.01	50mL	6010C/Ag T, As T, Ba T, Cd T, Co T, Cr T, Ni T, Pb T, Se T	<2			50.00mL	Yellow, Clear		
20	R1404393-006	14RC127883	.01	50mL	6010C/Ag T, As T, Ba T, Cd T, Co T, Cr T, Ni T, Pb T, Se T	<2			50.00mL	Yellow, Clear / Brown, Opaque		
21	R1404413-001	Leachate Tank	.09	50mL	6010C/Ca T, Cd T, Fe T, K T, Mg T, Mn T, Na T, Pb T	<2			50.00mL	Colorless, Clear		
22	R1404421-001	1406090817 200-SB-21	.01	50mL	6010C/Ag T, Al T, As T, B T, Ba T, Be T, Ca T, Cd T, Co T, Cr T, Cu T, Fe T, K T, Mg T, Mn T, Mo T, Na T, Ni T, Pb T, Se T, Sn T, Sr T, Ti T, V T, Zn T	<2			50.00mL	Colorless, Clear		III NASA
23	R1404433-001	SIVKO	.04	50mL	6010C/Al T, Na T	<2			50.00mL	Colorless, Clear		

Spiking Solutions

Name:	Selenium 1000 ug/mL Se	Inventory ID	57174	Logbook Ref:	M5280028BB	Expires On:	10/04/2014	Lot #:	1233330
Name:	Strontium 1000 ug/mL Sr	Inventory ID	59992	Logbook Ref:	M5280031Q	Expires On:	01/08/2015	Lot #:	1208804
Name:	Tin 1000 ug/mL Sn	Inventory ID	69693	Logbook Ref:	M5280037P	Expires On:	10/04/2015	Lot #:	13H087
Name:	Custom LCS STD A Metals	Inventory ID	70002	Logbook Ref:	M5280037CC	Expires On:	04/17/2015	Lot #:	14D125
Name:	Custom LCS STD B Metals	Inventory ID	70003	Logbook Ref:	M5280037DD	Expires On:	10/18/2015	Lot #:	14D123

Preparation Materials

1:1 HCl Metals Grade M5280036X (63957) Hot Block Cups 50 mL Lot 1306159 (63960) Nitric Acid Metals Grade HNO3 M5280037X (69879)
Thermometer 287 (12953)

Preparation Steps

Step: Digestion
Started: 6/16/14 12:37
Finished: 6/17/14 08:45
By: MCRIBBIN
Comments

Preparation Information Benchsheet

Prep Run#: 210891
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqICP
Prep Method: EPA 3010A

Status: Prepped
Prep Date/Time: 6/16/14 12:37 PM

Comments:

Reviewed By: DBrd Date: 6/17/14 Spike Witness: TCHRIST Date:

Chain of Custody

Relinquished By: M Date: 6/17/14 910

Received By: RKO1 Date: 6/17/14 910

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 210970
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqMS
Prep Method: EPA CLP-METALS ILM05.3

Status: Prepped
Prep Date/Time: 6/17/14 09:28 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406673-01	MB		50mL	200.8/Ag T, As T, Cd T, Cr T, Cu T, Mo T, Ni T, Pb T, Se T, Zn T, 6020A/Ag T, As T, Ba T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T, U T, V T, Zn T	<2			50.00mL	Colorless, Clear		MS HB6 Therm=287 Well=H4 Temp=95
2	RQ1406673-02	LCS		50mL	200.8/Ag T, As T, Cd T, Cr T, Cu T, Mo T, Ni T, Pb T, Se T, Zn T, 6020A/Ag T, As T, Ba T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T, U T, V T, Zn T	<2			50.00mL	Colorless, Clear	0.1000 mL/65804; 0.1000 mL/65805	
3	R1404335-001	1406051417C ST-3-735	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		III NASA
4	R1404335-007	1406060812C WW-2-489	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		
5	R1404335-014	1406060732X WW-5-814	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		
6	R1404335-015	1406061000X WW-5-814	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		
7	R1404335-021	1406061041C WW-2-664	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		
8	R1404335-022	1406061042C WW-2-664	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		
9	R1404335-026	1406071030X WW-5-912	.01	50mL	6020A/As T, Sb T, Tl T	<2			50.00mL	Colorless, Clear		
10	R1404353-001	MRC-MW-14A-060414	.02	50mL	6020A/Ag T, As T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T	<2			50.00mL	Colorless, Clear		IV
11	R1404353-002	MRC-MW-14C-060414	.02	50mL	6020A/Ag T, As T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T	<2			50.00mL	Colorless, Clear		
12	RQ1406673-03	R1404353-002 DUP	.02	50mL	6020A/Ag T, As T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T	<2			50.00mL	Colorless, Clear		
13	RQ1406673-04	R1404353-002 MS	.02	50mL	6020A/Ag T, As T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T	<2			50.00mL	Colorless, Clear	0.1000 mL/65805; 0.1000 mL/65804	
14	R1404353-003	MRC-MW-14B-060514	.02	50mL	6020A/Ag T, As T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T	<2			50.00mL	Colorless, Clear		
15	R1404353-007	MRC-MW-112A-060514	.02	50mL	6020A/Ag T, As T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T	<2			50.00mL	Colorless, Clear		
16	R1404353-009	MRC-MW-17A-060514	.01	50mL	6020A/Ag T, As T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T	<2			50.00mL	Colorless, Clear		
17	R1404353-010	MRC-MW-109A-060514	.01	50mL	6020A/Ag T, As T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T	<2			50.00mL	Colorless, Clear		
18	R1404353-011	MRC-MW-109B-060514	.01	50mL	6020A/Ag T, As T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T	<2			50.00mL	Colorless, Clear		

Preparation Information Benchsheet

Prep Run#: 210970
Team: Metals/MCRIBBIN

Prep WorkFlow: MetDigAqMS
Prep Method: EPA CLP-METALS ILM05.3

Status: Prepped
Prep Date/Time: 6/17/14 09:28 AM

19	R1404412-004	MRC-MW-61A-060614	.01	50mL	6020A/Ag T, As T, Ba T, Be T, Cd T, Co T, Cr T, Cu T, Mo T, Ni T, Pb T, Sb T, Se T, Tl T, V T, Zn T	<2			50.00mL	Colorless, Clear		IV
20	R1404421-001	1406090817 200-SB-21	.01	50mL	6020A/Sb T, Tl T, U T	<2			50.00mL	Colorless, Clear		III NASA
21	R1404506-001	OUTFALL TO SEWER-COMPOSITE	.04	50mL	200.8/Ag T, As T, Cd T, Cr T, Cu T, Mo T, Ni T, Pb T, Se T, Zn T	<2			50.00mL	Colorless, Clear		
22	R1404540-001	64G-A10261TM	.01	50mL	200.8/Cd T, Cu T, Ni T, Pb T, Zn T	<2			50.00mL	Colorless, Clear		
23	RQ1406673-05	R1404540-001 DUP	.01	50mL	200.8/Cd T, Cu T, Ni T, Pb T, Zn T	<2			50.00mL	Colorless, Clear		
24	RQ1406673-06	R1404540-001 MS	.01	50mL	200.8/Cd T, Cu T, Ni T, Pb T, Zn T	<2			50.00mL	Colorless, Clear	0.1000 mL/65805; 0.1000 mL/65804	
25	R1404540-002	A10262RTM	.01	50mL	200.8/Cd T, Cu T, Ni T, Pb T, Zn T	<2			50.00mL	Colorless, Clear		

Spiking Solutions

Name:	ICPMS Calibration Standard 1 (10 ug/mL	Inventory ID	65804	Logbook Ref:	M5280035O	Expires On:	06/30/2015	Lot #:	21206511
Name:	ICPMS Calibration Standard 2 (10 ug/mL	Inventory ID	65805	Logbook Ref:	M5280035P	Expires On:	08/31/2015	Lot #:	21208507

Preparation Materials

1:1 HCl Metals Grade	M5280036X (63957)	1:1 Nitric Acid Metals Grade	M5280037X (63958)	Hot Block Cups	50 mL Lot 1306159 (63960)
Thermometer	287 (12953)				

Preparation Steps

Step: Digestion
Started: 6/17/14 09:28
Finished: 6/17/14 15:45
By: MCRIBBIN
Comments

Comments:

Reviewed By: D Bud Date: 6/18/14 Spike Witness: TCHRIST Date:

Chain of Custody

Relinquished By: Date: 6/17/14 1545
Received By: Date: 6/17/14 1545

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211149
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigAq
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/18/14 06:00 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406825-01	MB		25mL	245.1/Hg D, 7470A/Hg T				25.00mL	Colorless-Clear		HB #1 temp =95C ?95C Location = C6
2	RQ1406825-02	LCS		25mL	245.1/Hg D, 7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/71746	
3	R1404421-001	1406090817 200-SB-21	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
4	R1404507-001	1406111441 200-SB-7	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
5	R1404509-001	1406110918A BW-7-211	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER III
6	R1404544-001	LPS	.18	25mL	7470A/Hg T				25.00mL	Yellow-Clear		
7	R1404562-001	TBC4-0614	.17	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
8	R1404565-002	MRC-MW-100B-061214	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		TIER IV
9	RQ1406825-03	R1404565-002 DUP	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
10	RQ1406825-04	R1404565-002 MS	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear	0.2500 mL/71746	
11	R1404565-005	MRC-MW-80A-061214	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
12	R1404565-007	MRC-MW-57A-061214	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
13	R1404565-008	MRC-MW-41A-061314	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
14	R1404565-009	MRC-MW-42A-061314	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
15	R1404565-012	DUP-05-061314	.02	25mL	7470A/Hg T				25.00mL	Colorless-Clear		
16	R1404597-001	BR-RB-061414-B3	.07	25mL	245.1/Hg D				25.00mL	Colorless-Clear		TIER IV
17	R1404598-001	FILTER BLANK 6/17	.07	25mL	245.1/Hg D				25.00mL	Colorless-Clear		TIER IV
18	R1404598-002	BR-RW-061714-B3	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
19	R1404598-003	BR-RW-061714-B4	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
20	RQ1406825-05	R1404598-003 DUP	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
21	RQ1406825-06	R1404598-003 MS	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear	0.2500 mL/71746	
22	R1404642-001	FILTER BLANK 6/18	.07	25mL	245.1/Hg D				25.00mL	Colorless-Clear		TIER IV
23	R1404642-002	BR-RW-061814-B1	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
24	R1404642-003	BR-RW-061814-B2	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		
25	R1404642-004	BR-RW-061814-B52	.07	25mL	245.1/Hg D				25.00mL	Yellow-Clear		

Spiking Solutions

Name: Mercury LCSW Metals Hg Inventory ID 71746 Logbook Ref: M681007D Expires On: 06/19/2014

Preparation Materials

Hot Block Cups	50 mL Lot 1306159 (63960)	Sulfuric Acid Reagent Grade H2SO4	M5280026S (53233)	Hydrochloric Acid (HCl) Metals Grade	M5280038D (70868)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Hydroxylamine Hydrochloride Reagent Grade	M5280034Z (65271)	Sodium Chloride Reagent Grade NaCl	WC126052C (61711)
Thermometer	293 (12952)	Potassium Permanganate RG KMnO4	M5280037K (69039)	Potassium Persulfate RG K2S2O8	M5280026F (52494)
Stannous Chloride SnCl2	M5280033p (63338)				

Preparation Information Benchsheet

Prep Run#: 211149
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigAq
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/18/14 06:00 PM

Preparation Steps

Step: Digestion
Started: 6/18/14 18:00
Finished: 6/18/14 20:00
By: CWINKSTERN
Comments

Comments:

Reviewed By: Tracy Christ Date: 6/19/14

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

Preparation Information Benchsheet

Prep Run#: 211173
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/18/14 08:15 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406836-01	MB		0.6g	7471B/Hg				100.00mL	White-Coarse		HB #3 temp =95C/95C Location = A5
2	RQ1406836-05	MB		0.6g	7471B/Hg				100.00mL			
3	RQ1406836-02	LCS		0.6g	7471B/Hg				100.00mL	White-Coarse	1.0000 mL/71746	
4	RQ1406836-06	LCS		0.6g	7471B/Hg				100.00mL		1.0000 mL/71746	
5	R1404329-001	Centrifuge Sludge	.02	0.6400g	7471B/Hg				100.00mL	Brown-Coarse		
6	R1404342-001	SVP-3-4/5	.01	0.6500g	7471B/Hg				100.00mL	Brown-Fine		
7	R1404342-003	SVP-5-3/5	.01	0.6500g	7471B/Hg				100.00mL	Brown-Fine		
8	R1404393-001	14RC104698	.01	0.6200g	7471B/Hg				100.00mL	Yellow-Clear		
9	R1404393-003	14RC119823	.01	0.6000g	7471B/Hg				100.00mL	Yellow-Clear		
10	R1404393-007	14RC156057	.01	0.6400g	7471B/Hg				100.00mL	Red-Clear		
11	R1404421-008	1406091140 200-SB-21 7.5-10'	.01	0.6500g	7471B/Hg				100.00mL	Brown-Medium		TIER III
12	R1404421-009	1406091615 200-SB-21	.01	0.6g	7471B/Hg				100.00mL	Brown-Coarse		
13	R1404421-010	1406091750 200-SB-21	.01	0.6500g	7471B/Hg				100.00mL	Brown-Medium		
14	R1404507-006	1406111505 200-SB-7 3-10'	.01	0.6g	7471B/Hg				100.00mL	Brown-Medium		TIER III
15	RQ1406836-03	R1404507-006 DUP	.01	0.6400g	7471B/Hg				100.00mL	Brown-Medium		
16	RQ1406836-04	R1404507-006 MS	.01	0.6000g	7471B/Hg				100.00mL	Brown-Medium	1.0000 mL/71746	
17	R1404507-007	1406111635 200-SB-7 18-21'	.02	0.6200g	7471B/Hg				100.00mL	Brown-Medium		
18	R1404507-008	1406120935 200-SB-7 38-40'	.02	0.6000g	7471B/Hg				100.00mL	Brown-Fine		

Spiking Solutions

Name: Mercury LCSW Metals Hg Inventory ID 71746 Logbook Ref: M681007D Expires On: 06/19/2014

Preparation Materials

Boiling Stones PTFE	M5280036N (67019)	Hot Block Cups	125 mL 1308077 (65844)	Hydrochloric Acid (HCl) Metals Grade	M5280038D (70868)
Nitric Acid Metals Grade HNO3	M5280037X (69879)	Hydroxylamine Hydrochloride Reagent Grade	M5280034Z (65271)	Potassium Permanganate RG KMnO4	M5280037K (69039)
Sodium Chloride Reagent Grade NaCl	WC126052C (61711)	Stannous Chloride SnCl2	M5280033p (63338)	Thermometer	294 (12954)

Preparation Steps

Step: Digestion
Started: 6/18/14 20:15
Finished: 6/18/14 20:45
By: CWINKSTERN
Comments

Preparation Information Benchsheet

Prep Run#: 211173
Team: Metals/CWINKSTERN

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/18/14 08:15 PM

Comments:

Reviewed By: Tracy Christ Date: 6/20/14

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

R4421

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

Analyst: CTW Date: 6/17/14 Data File: 3Jun17A

Prep Dates: MRL 6/12/14 ICSA 6/12/14 ICSAB 6/9/14 Int.Std 6/17/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/16/14 ICV / CCV 6/17/14

HLCCV2 6/9/14

Lot #: MRL M670105A ICSA M670119A ICSAB M670137A Int.Std M670158K

Cal Std 1 M670033B Cal Std 2 M670022D Cal Std 5 / HLCCV1 M670037G ICV / CCV M670057N

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670079A

Blank Prepared Daily Lot: HNO3 M5280037X HCL M5280038D

1	1		Calib Blank 1	30	45		PBW-210823	70	74		PBS-210765
2	9		Calib Std 1	31	46		LCSW-210823	71	75		LCSS-210765
3	10		Calib Std 2	32	47		R1404201-002	72	76		R1404261-001
4	11		Calib Std 3	33	48		R1404201-002D	73	77		R1404261-001D
5	12		Calib Std 4	34	49		R1404201-002S	74	78		R1404261-001S
6	2		Calib Std 5	35	50		R1404201-002A	75	79		R1404261-001A
7	3	QC	ICV	36	51		R1404201-002L	76	80		R1404261-001L
8	1	QC	ICB	37	52		R1404201-003	77	81		R1404261-002
9	6	QC	MRL	38	53		R1404201-004	78	82		R1404261-003
10	7	QC	ICSA	39	54		R1404201-005	79	83		R1404261-004
11	8	QC	ICSAB	40	3	QC	CCV	80	4	QC	CCV
12	3	QC	CCV	41	1	QC	CCB	81	5	QC	CCB
13	1	QC	CCB	42	55		R1404201-006	82	84		R1404261-005
14	38		PBW-210870	43	56		R1404260-001	83	85		R1404261-006
15	39		LCSW-210870	44	57		R1404260-002	84	86		R1404261-007
16	40		R1404525-001	45	58		R1404260-003	85	87		R1404273-005
17	41		R1404525-001D	46	59		R1404260-004	86	88		R1404273-006
18	42		R1404525-001S	47	60		R1404260-005	87	89		R1404329-001
19	43		R1404525-001L	48	61		R1404260-006	88	90		R1404421-008
20	44		LR2	49	62		R1404260-007	89	91		R1404421-009
21	3	QC	CCV	50	63		R1404273-001	90	92		R1404421-010
22	1	QC	CCB	51	64		R1404274-001	91	4	QC	CCV
23	6	QC	MRL	52	3	QC	CCV	92	5	QC	CCB
24	7	QC	ICSA	53	1	QC	CCB	93	6	QC	MRL
25	8	QC	ICSAB	54	65		R1404274-005	94	7	QC	ICSA
26	13	QC	HLCCV2	55	66		R1404274-005D	95	8	QC	ICSAB
27	2	QC	HLCCV1	56	67		R1404274-005S	96	4	QC	CCV
28	3	QC	CCV	57	68		R1404274-005A	97	5	QC	CCB
29	1	QC	CCB	58	69		R1404274-005L	98	93		R1404317-001
				59	70		R1404274-008	99	94		R1404317-002
				60	71		R1404274-009	100	95		R1404317-003
				61	72		R1404282-003	101	96		R1404359-001
				62	73		R1404282-004	102	4	QC	CCV
				63	4	QC	CCV	103	5	QC	CCB
				64	5	QC	CCB	104	6	QC	MRL
				65	6	QC	MRL	105	7	QC	ICSA
				66	7	QC	ICSA	106	8	QC	ICSAB
				67	8	QC	ICSAB	107	4	QC	CCV
				68	4	QC	CCV	108	5	QC	CCB
				69	5	QC	CCB	109	97		Sample097

CTW 6/17/14

R4421

OPTIMA 8000 ICP-OES(#5) Run Log

Serial number: 078N2072408C

Analyst: DCB Date: 6/18/14 Data File: 5 Jun 18

Prep Dates: MRL 6/12/14 ICSA 6/12/14 ICSAB 6/9/14 Int.Std 6/13/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/16/14 ICV / CCV 6/16/14

HLCCV2 6/16/14

Lot #: MRL M670105A ICSA M676119A ICSAB M670137A Int.Std M670159A

Cal Std 1 M670013B Cal Std 2 M670022D Cal Std 5 / HLCCV1 M670037G ICV / CCV M670057O

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670091C

Blank Prepared Daily Lot: HNO3 M5280037A HCL M5280036A

1	1		Calib Blank 1	41	61		R1404516-001L 200X	81	88		R1404421-010 5X
2	9		Calib Std 1	42	62		R1404516-001 50X	82	4	QC	CCV
3	10		Calib Std 2	43	63		R1404516-001L 50X	83	5	QC	CCB
4	11		Calib Std 3	44	64		R1404516-002 200X	84	6	QC	MRL
5	12		Calib Std 4	45	65		R1404516-002 100X	85	7	QC	ICSA
6	2		Calib Std 5	46	66		R1404516-002 50X	86	8	QC	ICSAB
7	3	QC	ICV	47	3	QC	CCV	87	4	QC	CCV
8	1	QC	ICB	48	1	QC	CCB	88	5	QC	CCB
9	6	QC	MRL	49	6	QC	MRL	89	89		PBW-210827
10	7	QC	ICSA	50	7	QC	ICSA	90	90		LCSW-210827
11	8	QC	ICSAB	51	8	QC	ICSAB	91	91		R1404314-001
12	3	QC	CCV	52	13	QC	HLCCV2	92	92		R1404314-002
13	1	QC	CCB	53	2	QC	HLCCV1	93	93		R1404314-002D
14	38		PBW-210823	54	3	QC	CCV	94	94		R1404314-002S
15	39		LCSW-210823	55	1	QC	CCB	95	95		R1404314-002A
16	40		R1404201-002 5X	56	67		PBS-210765	96	96		R1404314-002L
17	41		R1404201-002D 5X	57	68		LCSS-210765	97	97		R1404314-003
18	42		R1404201-002S 5X	58	69		R1404261-001 10X	98	98		R1404314-004
19	43		R1404201-002A 5X	59	70		R1404261-001D 10X	99	4	QC	CCV
20	44		R1404201-002L 5X	60	71		R1404261-001S 10X	100	5	QC	CCB
21	45		R1404201-003 5X	61	72		R1404261-001A 10X	101	99		R1404330-001
22	46		R1404201-004 5X	62	73		R1404261-001L 10X	102	100		R1404330-002 20X
23	47		R1404201-005 5X	63	74		R1404261-002 10X	103	101		R1404330-003
24	3	QC	CCV	64	75		R1404261-003 10X	104	102		R1404330-004
25	1	QC	CCB	65	76		R1404261-004 10X	105	103		R1404330-005
26	48		R1404201-006 5X	66	3	QC	CCV	106	104		R1404330-006 10X
27	49		R1404260-002 5X	67	1	QC	CCB	107	105		R1404330-007 5X
28	50		R1404274-001 5X	68	77		R1404261-005 10X	108	106		R1404330-008
29	51		R1404274-005 5X	69	78		R1404261-006 10X	109	107		R1404330-009 5X
30	52		R1404274-005D 5X	70	79		R1404261-007 10X	110	108		R1404331-001
31	53		R1404274-005S 5X	71	80		R1404273-005 20X	111	4	QC	CCV
32	54		R1404274-005A 5X	72	81		R1404273-006 50X	112	5	QC	CCB
33	55		R1404274-005L 5X	73	82		R1404273-006 10X	113	109		R1404331-001D
34	56		R1404274-008 5X	74	83		R1404421-008 50X	114	110		R1404331-001S
35	57		R1404274-009 5X	75	84		R1404273-008 5X	115	111		R1404331-001A
36	3	QC	CCV	76	85		R1404421-009 50X	116	112		R1404331-001L
37	1	QC	CCB	77	86		R1404421-009 5X	117	113		R1404331-002
38	58		PBW-210903	78	4	QC	CCV	118	114		R1404394-022 5X
39	59		LCSW-210903	79	5	QC	CCB				
40	60		R1404516-001 200X	80	87		R1404421-010 50X				

119	115		R1404394-022	124	7		ICSA
120	116		R1404394-023	125	8		ICSAB
121	4	QC	CCV	126	4		CCV
122	5	QC	CCB	127	5		CCB
123	6	QC	MRL	128	117		Sample117

4/1/13

00108

R4421

OPTIMA 5300DV (#4) Run Log

Serial number: 077N6052202

Analyst: DCB Date: 6/18/14 Data File: 4 Jun 18

Prep Dates: MRL 6/12/14 ICSA 6/6/14 ICSAB 6/6/14 Int.Std 6/17/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/16/14 ICV / CCV 6/18/14

HLCCV2 6/18/14

Lot #: MRL M6760105A ICSA M6760126B ICSAB M6760146A Int.Std M6760158K

Cal Std 1 M6760613B Cal Std 2 M6060220 Cal Std 5 / HLCCV1 M6700376 ICV / CCV M6700570

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M6700798

Blank Prepared Daily Lot: HNO3 M5280037 HCL M5280038

1	1		Calib Blank 1	39	59		R1404201-005	77	5		CCB
2	9		Calib Std 1	40	60		R1404201-006	78	80		PBW-210895
3	10		Calib Std 2	41	61		R1404273-001	79	81		LCSW-210895
4	11		Calib Std 3	42	62		R1404274-001	80	82		R1404360-001
5	12		Calib Std 4	43	63		R1404274-005	81	83		R1404364-001
6	2		Calib Std 5	44	64		R1404274-005D	82	84		R1404364-001D
7	3		ICV	45	65		R1404274-005S	83	85		R1404364-001S
8	1		ICB	46	66		R1404274-005A	84	86		R1404364-001A
9	6		MRL	47	67		R1404274-005L	85	87		R1404364-001L
10	7		ICSA	48	3		CCV	86	88		R1404388-001
11	8		ICSAB	49	1		CCB	87	89		R1404388-001D
12	3		CCV	50	6		MRL	88	4		CCV
13	1		CCB	51	7		ICSA	89	5		CCB
14	38		PBS-210765	52	8		ICSAB	90	90		R1404388-001S
15	39		LCSS-210765	53	13		HLCCV2	91	91		R1404388-001A
16	40		R1404273-005	54	2		HLCCV1	92	92		R1404388-001L
17	41		R1404273-006	55	3		CCV	93	93		R1404408-001 10X
18	42		R1404317-001	56	1		CCB	94	94		R1404444-001
19	43		R1404317-002	57	68		R1404274-008	95	95		R140444-002
20	44		R1404317-003	58	69		R1404274-009	96	96		R140444-003
21	45		R1404329-001	59	70		R1404282-003	97	97		R140444-004
22	46		R1404421-008	60	71		R1404282-004	98	98		R140444-005
23	47		R1404421-009	61	72		PBW-211012	99	99		R140444-006
24	3		CCV	62	73		LCSW-211012	100	4		CCV
25	1		CCB	63	74		R1404526-001	101	5		CCB
26	48		R1404421-010	64	75		R1404526-001D	102	100		R140444-007
27	49		R1404421-010L	65	76		R1404526-001S	103	101		R1404486-001
28	50		PBW-210823	66	77		R1404526-001A	104	102		R1404502-001
29	51		LCSW-210823	67	3		CCV	105	4		CCV
30	52		R1404201-002	68	1		CCB	106	5		CCB
31	53		R1404201-002D	69	78		R1404526-001L	107	6		MRL
32	54		R1404201-002S	70	79		R1404544-001	108	7		ICSA
33	55		R1404201-002A	71	4		CCV	109	8		ICSAB
34	56		R1404201-002L	72	5		CCB	110	4		CCV
35	57		R1404201-003	73	6		MRL	111	5		CCB
36	3		CCV	74	7		ICSA	112	103		Sample103
37	1		CCB	75	8		ICSAB				
38	58		R1404201-004	76	4		CCV				

6/18/14

OPTIMA 5300DV (#3) Run Log

Serial number: 077N6051602

Analyst: CJW/OCB   Date: 6/18/14   Data File: 3Jun18

Prep Dates: MRL 6/12/14   ICSA 6/12/14   ICSAB 6/9/14   Int.Std 6/17/14

Cal Std 1 6/18/14   Cal Std 2 6/18/14   Cal Std 5 / HLCCV1 6/18/14   ICV / CCV 6/18/14

HLCCV2 6/18/14

Lot #: MRL M6701056A   ICSA M67019A   ICSAB M670137A   Int.Std M670156K

Cal Std 1 M670013B   Cal Std 2 M670022D   Cal Std 5 / HLCCV1 M6706376   ICV / CCV M670057 0

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670679B

Blank Prepared Daily Lot: HNO3 M528e037x   HCL M528e038D

1	1	Calib Blank 1	44	57	R1404329-001 5X	87	85	R1404394-007
2	9	Calib Std 1	45	58	R1404329-001L 5X	88	86	R1404394-008
3	10	Calib Std 2	46	59	PBW-211016	89	87	R1404394-009
4	11	Calib Std 3	47	60	LCSW-211016	90	4	CCV
5	12	Calib Std 4	48	61	R1404552-002	91	5	CCB
6	2	Calib Std 5	49	62	R1404556-001	92	88	R1404394-010
7	3	ICV	50	63	R1404573-001	93	89	R1404394-011
8	1	ICB	51	64	R1404573-001S	94	90	R1404394-012
9	6	MRL	52	3	CCV	95	91	R1404394-013
10	7	ICSA	53	1	CCB	96	92	R1404394-014
11	8	ICSAB	54	65	R1404573-001SD	97	93	R1404394-015
12	3	CCV	55	66	R1404573-001A	98	94	R1404394-016
13	1	CCB	56	67	R1404573-001L	99	95	R1404394-017
14	38	PBW-210903	57	68	PBW-211057	100	96	R1404394-017D
15	39	LCSW-210903	58	69	LCSW-211057	101	97	R1404394-017S
16	40	R1404516-001 10X	59	70	R1404597-001	102	4	CCV
17	41	R1404516-002 20X	60	71	R1404598-001	103	5	CCB
18	42	R1404516-002L 20X	61	3	CCV	104	98	R1404394-017A
19	43	PBW-210827	62	1	CCB	105	99	R1404394-017L
20	44	LCSW-210827	63	72	R1402598-002	106	100	R1404394-018
21	45	R1404314-001	64	73	R1402598-002D	107	101	R1404394-019
22	46	R1404314-002	65	74	R1402598-002S	108	102	R1404394-020
23	47	R1404314-002D	66	75	R1402598-002A	109	103	R1404394-021
24	3	CCV	67	76	R1402598-002L	110	4	CCV
25	1	CCB	68	77	R1402598-003	111	5	CCB
26	48	R1404314-002S	69	134	PBW-208940	112	6	MRL
27	49	R1404314-002A	70	135	LCSW-208940	113	7	ICSA
28	50	R1404314-002L	71	136	R1403489-015 10X	114	8	ICSAB
29	51	R1404314-003	72	137	R1403489-015L 10X	115	4	CCV
30	52	R1404314-004	73	3	CCV	116	5	CCB
31	53	R1404394-022	74	1	CCB	117	104	PBW-210891
32	54	R1404394-023	75	6	MRL	118	105	LCSW-210891
33	3	CCV	76	7	ICSA	119	106	R1404333-001
34	1	CCB	77	8	ICSAB	120	107	R1404335-001
35	6	MRL	78	3	CCV	121	108	R1404335-007
36	7	ICSA	79	1	CCB	122	109	R1404335-014
37	8	ICSAB	80	78	PBW-210826	123	110	R1404335-015
38	13	HLCCV2	81	79	LCSW-210826	124	111	R1404335-021
39	2	HLCCV1	82	80	R1404394-002	125	112	R1404335-022
40	3	CCV	83	81	R1404394-003	126	113	R1404335-026
41	1	CCB	84	82	R1404394-004	127	4	CCV
42	55	PBS-210765	85	83	R1404394-005	128	5	CCB
43	56	LCSS-210765	86	84	R1404394-006	129	114	R1404338-001

130	115	R1404338-001D
131	116	R1404338-001S
132	117	R1404338-001A
133	118	R1404338-001L
134	119	R1404338-002
135	120	R1404338-003
136	121	R1404338-004
137	122	R1404393-002 5X
138	123	R1404393-004 5X
139	4	CCV
140	5	CCB
141	124	R1404393-005 5X
142	125	R1404393-006 5X
143	126	R1404413-001
144	127	R1404421-001
145	128	R1404433-001
146	4	CCV
147	5	CCB
148	6	MRL
149	7	ICSA
150	8	ICSAB
151	4	CCV
152	5	CCB
153	129	Sample129

CJW 6/18/14

OPTIMA 5300DV (#4) Run Log

CJW 6/20/14 Serial number: 077N6052202

Analyst: CJW DCB Date: 6/20/14 Data File: 4Jun20A

Prep Dates: MRL 6/12/14 ICSA 6/16/14 ICSAB 6/16/14 Int.Std 6/17/14

Cal Std 1 6/16/14 Cal Std 2 6/16/14 Cal Std 5 / HLCCV1 6/16/14 ICV / CCV 6/20/14

HLCCV2 6/16/14

Lot #: MRL M676005A ICSA M670126B ICSAB M670146A Int.Std M670156X

Cal Std 1 M670013B Cal Std 2 M670022D Cal Std 5 / HLCCV1 M676037G ICV / CCV M670058A

(Cal Std 4 is a 1/5 and Cal Std 3 is a 1/100 dilution of Cal Std 5)

HLCCV2 M670079B

Blank Prepared Daily Lot: HNO3 M5260037x HCL M5260380

1	1		Calib Blank 1	41	3		CCV	80	4		CCV
2	9		Calib Std 1	42	1		CCB	81	5		CCB
3	10		Calib Std 2	43	6		MRL	82	6		MRL
4	11		Calib Std 3	44	7		ICSA	83	7		ICSA
5	12		Calib Std 4	45	8		ICSAB	84	8		ICSAB
6	2		Calib Std 5	46	13		HLCCV2	85	4		CCV
7	3		ICV	47	2		HLCCV1	86	5		CCB
8	1		ICB	48	3		CCV	87	87		PBW-211000
9	6		MRL	49	1		CCB	88	88		LCSW-211000
10	7		ICSA	50	61		PBW-211005	89	89		FBLK 6704-03
11	8		ICSAB	51	62		LCSW-211005	90	90		R1404433-001 10X
12	3		CCV	52	63		R1404444-008	91	91		R1404429-045
13	1		CCB	53	64		R1404444-009	92	92		R1404429-046
14	38		PBW-210891	54	65		R1404444-010	93	93		R1404429-047
15	39		LCSW-210891	55	66		R1404444-011	94	94		R1404429-048
16	40		R1404333-001 500X	56	67		R1404487-001	95	95		R1404429-049
17	41		R1404333-001 200X	57	68		R1404487-002	96	96		R1404429-050
18	42		R1404333-001 10X	58	69		R1404487-003	97	4		CCV
19	43		R1404335-001	59	70		R1404487-004	98	5		CCB
20	44		R1404335-007	60	3		CCV	99	97		R1404429-051
21	45		R1404335-014	61	1		CCB	100	98		R1404429-051S
22	46		R1404335-015	62	71		R1404487-005	101	99		R1404429-051SD
23	47		R1404335-021	63	72		R1404487-005D	102	100		R1404429-051A
24	3		CCV	64	73		R1404487-005S	103	101		R1404429-051L
25	1		CCB	65	74		R1404487-005A	104	102		R1404429-052
26	48		R1404335-022	66	75		R1404487-005L	105	4		CCV
27	49		R1404335-026	67	76		R1404487-006	106	5		CCB
28	50		R1404338-001	68	77		R1404487-007	107	6		MRL
29	51		R1404338-001D	69	78		R1404487-008	108	7		ICSA
30	52		R1404338-001S	70	79		R1404487-009	109	8		ICSAB
31	53		R1404338-001A	71	80		R1404487-010	110	4		CCV
32	54		R1404338-001L	72	4		CCV	111	5		CCB
33	55		R1404338-002	73	5		CCB	112	103		Sample103
34	56		R1404338-003	74	81		R1404487-011				
35	57		R1404338-004	75	82		R1404487-012				
36	3		CCV	76	83		R1404487-013				
37	1		CCB	77	84		R1404507-001				
38	58		R1404413-001 20X	78	85		R1404509-001				
39	59		R1404421-001	79	86		R1404542-001				
40	60		R1404433-001 1000X								

CJW 6/20/14

ELAN 9000 ICP-MS Run Log

R 4421

Serial Number: PO370203

Analyst: TC Date: 6/24/14

Data File: 0624/14C Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066A- 6/23/14 Cal Std 2: M6510015G 6/17/15

Cal Std 3: M6510026H 6/9/14 ICV/CCV: M6510051B 6/24/14

HLCCV2: M6510080PO 6/18/14 Internal Std: M6510109A 4/8/14

ICSA (6020A): ~~M5280010214 6/24/14~~ M6510097M 6/24/14 ICSAB (6020A): ~~M5280010T~~ M6510010 2H 6/24/14

Tuning Solution: M5280014OB 4/29/14 HNO_3: M5280D37X

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

98	211306	PBW-211306
99	211306	LCSW-211306
100	211306	LCSD-211306
101	211306	R1404331-004
102	211306	R1404331-004L
9		HLCCV2
38	210970	PBW-210970
39	210970	LCSW-210970
103	210970	R1404506-001
104	210970	R1404506-001L
40	210970	R1404335-001
41	210970	R1404335-007
42	210970	R1404335-014
43	210970	R1404335-015
44	210970	R1404335-021
45	210970	R1404335-022
46	210970	R1404335-026
97	210970	R1404335-026L
47	210311	PBW-210311
48	210311	LCSW-210311
49	210311	R1404155-001_2
50	210311	R1404155-001D_2
51	210311	R1404155-001S_2
52	210311	R1404155-001A_2
53	210311	R1404155-001L_2
54	210311	R1404155-002_2
55	210311	R1404155-003_2
56	210311	R1404155-005_2
57	210311	R1404155-006_2
58	210311	R1404155-007_2
59	210311	R1404155-008_2
60	210311	R1404155-010_2
61	210311	R1404155-011_2
62	210311	R1404155-012_2
63	210311	R1404155-013_2
64	210311	R1404155-014_2
65	210311	R1404155-015_2
66	210311	R1404155-016_2
67	210311	R1404155-017_2
68	210970	R1404353-001_5
69	210970	R1404353-002_5
70	210970	R1404353-002D_5
71	210970	R1404353-002S_5
72	210970	R1404353-002A_5
73	210970	R1404353-002L_5
74	210970	R1404353-003_5
75	210970	R1404353-007_5
76	210970	R1404343-009_5
77	210970	R1404353-010_5
78	210970	R1404353-011_5
79	210970	R1404412-004
80	210970	R1404421-001
81	210970	R1404353-001
82	210970	R1404353-002 TC 6/24/14
83	210970	R1404353-002D
84	210970	R1404353-002S
85	210970	R1404353-002A
86	210970	R1404353-002L
87	210970	R1404353-003
88	210970	R1404353-007
89	210970	R1404353-009
90	210970	R1404353-010
91	210970	R1404353-011

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC

Date: 7/1/14

Data File: 070114A

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066B 7/1/14

Cal Std 2: M6510015H 7/1/14

Cal Std 3: M6510026I 7/1/14

ICV/CCV: M6510051G 7/1/14

HLCCV2: M6510080P 6/19/14

Internal Std: M6510109A 4/8/14

ICSA (6020A): M6510091N 7/1/14

ICSAB (6020A): M6510103B 7/1/14

Tuning Solution: M6510014OB 4/29/14

HNO_3: MS280038F

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210334	PBS-210334_5
39	210334	LCSS-210334_5
40	210334	R1404273-005_5
41	210334	R1404273-005D_5
42	210334	R1404273-005S_5
43	210334	R1404273-005A_5
44	210334	R1404273-005L_5
45	210334	R1404273-006_5
46	210334	R1404421-008_5
47	210334	R1404421-009_5
48	210334	R1404421-010_5
9		HLCCV2 TC 7/1/14
49	211307	PBS-211307_5
50	211307	LCSS-211307_5
51	211307	R1404507-006_5
52	211307	R1404507-006D_5
53	211307	R1404507-006S_5
54	211307	R1404507-006A_5
55	211307	R1404507-006L_5
56	211307	R1404507-007_5
57	211307	R1404507-008_5
58	211307	R1404589-016_5
59	211307	R1404589-017_5
60	211307	R1404589-025_5
61	211307	R1404589-026_5
62	211307	R1404589-027_5
63	211307	R1404589-028_5
64	211307	R1404589-029_5
65	211858	PBS-211858_5
66	211858	LCSS-211858_5
67	211858	R1404622-007_5
68	211858	R1404622-008_5
69	211858	R1404622-008D_5
70	211858	R1404622-008S_5
71	211858	R1404622-008A_5
72	211858	R1404622-008L_5

ELAN 9000 ICP-MS Run Log

Serial Number: PO370203

Analyst: TC

Date: 7/2/14

Data File: 070214B

Method: 6020A / 200.8

Standard Lot #s and Prep Dates:

MRL/Cal Std 1: M6510066B 7/1/14

Cal Std 2: M6510015J 7/1/14

Cal Std 3: M6510026 7/1/14

TC 7/2/14

ICV/CCV: M6510051H 7/2/14

HLCCV2: M6510080P 6/19/14

Internal Std: M6510109A 4/18/14

ICSA (6020A): M6510091N 7/1/14

ICSAB (6020A): M6510010 3B 7/1/14

Tuning Solution: M6510014 0B 4/28/14

HNO_3:

QC Std 1 = ICV	QC Std 4 = ICSA	QC Std 7 = CCB
QC Std 2 = ICB	QC Std 5 = ICSAB	QC Std 8 = HLCCV1
QC Std 3 = MRL	QC Std 6 = CCV	

38	210334	PBS-210334_5
39	210334	LCSS-210334_5
40	210334	R1404421-008_5
41	210334	R1404421-009_5
42	210334	R1404421-010_5
43	210334	R1404421-010L_5
9		HLCCV2
5		CCV
1		CCB
44	211307	PBS-211307_5
45	211307	LCSS-211307_5
46	211307	R1404507-006_5
47	211307	R1404507-006D_5
48	211307	R1404507-006S_5
49	211307	R1404507-006A_5
50	211307	R1404507-006L_5
51	211307	R1404507-007_5
52	211307	R1404507-008_5
53	211307	R1404589-016_5
54	211307	R1404589-017_5
55	211307	R1404589-025_5
56	211307	R1404589-026_5
57	211307	R1404589-027_5
58	211307	R1404589-028_5
59	211307	R1404589-029_5
6		MRL
5		CCV
1		CCB
60	211858	PBS-211858_5
61	211858	LCSS-211858_5
62	211858	R1404622-007_5
63	211858	R1404622-008_5
64	211858	R1404622-008D_5
65	211858	R1404622-008S_5
66	211858	R1404622-008A_5
67	211858	R1404622-008L_5

TC 7/2/14

Perkin Elmer FIMS Run Log

Serial number: 101S12110203

Analyst: CZ

Data File: Jun-19W

Date Prepped: 6/18/14

Date Analyzed: 6/19/14

Lot #:

Calibration/CRDL Source Standard: MS2600303

ICV/CCV/LCS/MS Source Standard: MS2600302

Cal/ CRDL 10ppm stock: M6810577A

ICV/CCV/LCS/MS 10ppm stock: M6810077A

Cal/ CRDL 0.1ppm stock: M6810570

ICV/CCV/LCS/MS 0.1 ppm stock: M6810070

1	1	Calib Blank	45	63	PBW-211150
2	2	0.2ppb std	46	64	LCSW
3	3	0.5ppb std	47	65	R1404438-001
4	4	1.0ppb std	48	66	R1404438-001D
5	5	2.0ppb std	49	67	R1404438-001S
6	6	5.0ppb std	50	68	R1404438-002
7	7	10.0ppb std	51	8	CCV
8	8	ICV	52	1	CCB
9	1	ICB	53	69	R1404438-003
10	2	MRL	54	70	R1404438-004
11	8	CCV	55	71	R1404438-005
12	1	CCB	56	72	R1404438-006
13	38	PBW-211149	57	73	R1404438-007
14	39	LCSW	58	74	R1404438-008
15	40	R1404421-001	59	75	R1404438-009
16	41	R1404507-001	60	76	R1404438-010
17	42	R1404509-001	61	8	CCV
18	43	R1404544-001	62	1	CCB
19	44	R1404562-001	63	77	R1404438-011
20	45	R1404565-002	64	78	R1404438-012
21	8	CCV	65	79	R1404438-013
22	1	CCB	66	80	R1404508-004
23	46	R1404565-002D	67	81	R1404508-011
24	47	R1404565-002S	68	82	R1404508-013
25	48	R1404565-005	69	2	MRL
26	49	R1404565-007	70	8	CCV
27	50	R1404565-008	71	1	CCB
28	51	R1404565-009	72	83	R1404393-002
29	52	R1404565-012	73	84	R1404393-004
30	53	R1404597-001	74	85	R1404393-005
31	8	CCV	75	86	R1404393-006
32	1	CCB	76	2	MRL
33	54	R1404598-001	77	8	CCV
34	55	R1404598-002	78	1	CCB
35	56	R1404598-003	79	87	SAMPLE
36	57	R1404598-003D			
37	58	R1404598-003S			
38	59	R1404642-001			
39	60	R1404642-002			
40	61	R1404642-003			
41	62	R1404642-004			
42	2	MRL			
43	8	CCV			
44	1	CCB			

CZ 6/19/14

Perkin Elmer FIMS Run Log

Serial number: 101S12110203

Analyst: CJW

Data File: Jun.19S

Date Prepped: 6/18/14

Date Analyzed: 6/19/14

Lot #: Calibration/CRDL Source Standard: M5280036S

ICV/CCV/LCS/MS Source Standard: M5280030

Cal/ CRDL 10ppm stock: M6810057A

ICV/CCV/LCS/MS 10ppm stock: M6810057A

Cal/ CRDL 0.1ppm stock: M6810057D

ICV/CCV/LCS/MS 0.1 ppm stock: M6810057D

1	1		Calib Blank
2	2	✓	0.2ppb std
3	3	✓	0.5ppb std
4	4	✓	1.0ppb std
5	5	✓	2.0ppb std
6	6	✓	5.0ppb std
7	7	✓	10.0ppb std
8	8	QC	ICV
9	1	QC	ICB
10	2	QC	MRL
11	8	QC	CCV
12	1	QC	CCB
13	38		PBS-211173
14	39		LCSS
15	40		R1404329-001
16	41		R1404342-001
17	42		R1404342-003
18	43		R1404393-001
19	44		R1404393-003
20	45		R1404393-007
21	8	QC	CCV
22	1	QC	CCB
23	46		R1404221-008
24	47		R1404221-009
25	48		R1404221-010
26	49		R1404507-006
27	50		R1404507-006D
28	51		R1404507-006S
29	52		R1404507-007
30	53		R1404507-008
31	2	QC	MRL
32	8	QC	CCV
33	1	QC	CCB
34	54		SAMPLE

6/19/14

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

M 1/29

00117

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 29 13:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.84	89	182264	1.00 ug/L	0.00
Target Compounds					Qvalue
2) Perchlorate	7.84	83	195969	0.99 ug/L	100
3) #2 perc ion	7.84	85	64118	0.96 ug/L	100

Ratio
3.06

mf 1/29

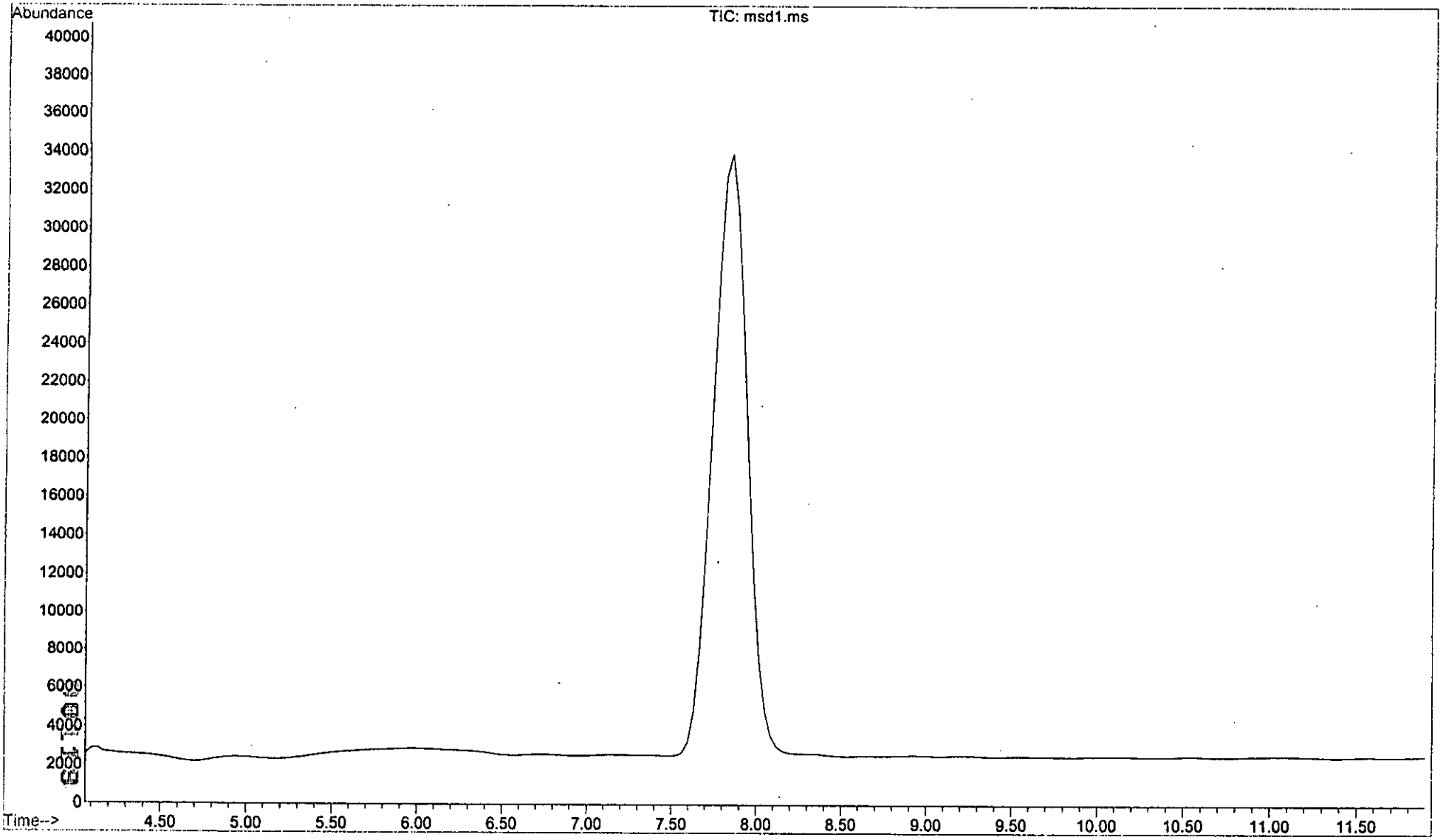
00118

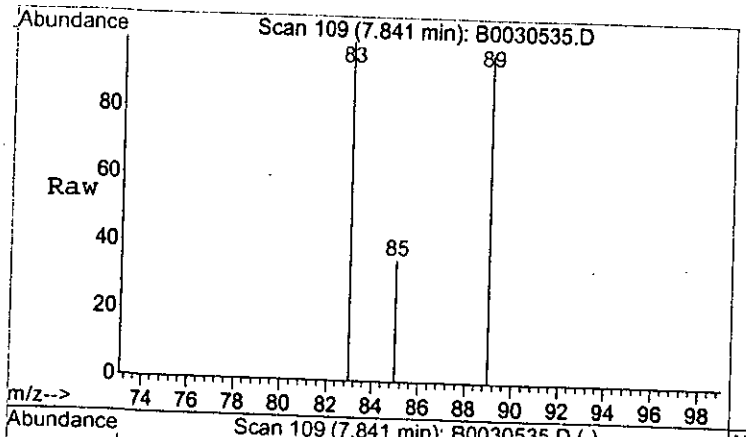
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jan 29 13:53 2014 Quant Results File: PERC0129.RES

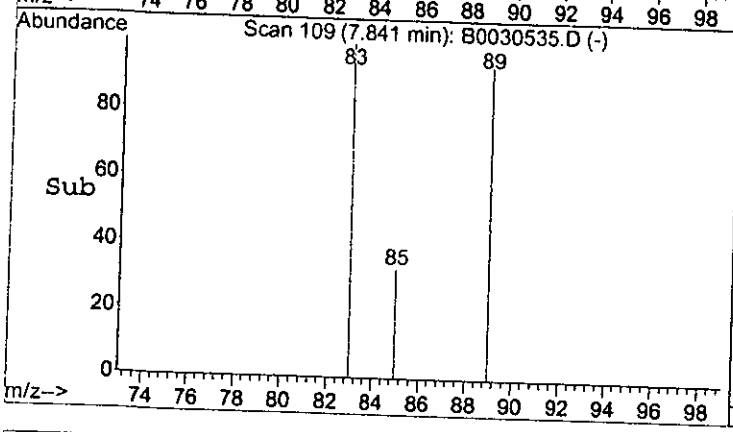
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Initial Calibration

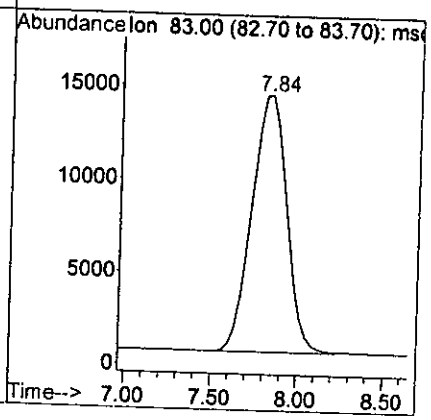


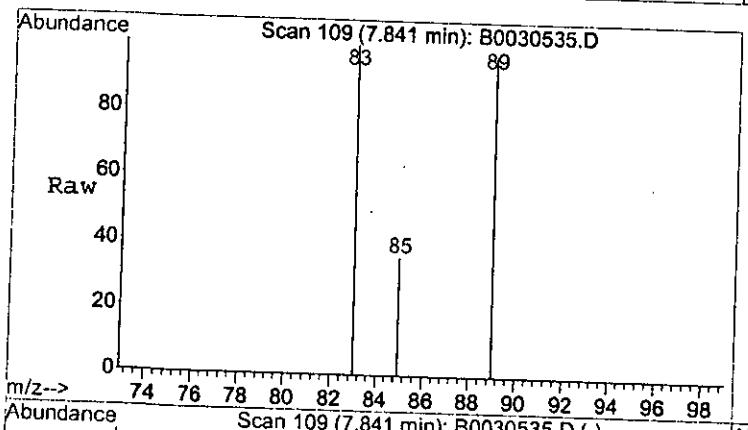


#2
Perchlorate
Concen: 0.99 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.04 min
Lab File: B0030535.D
Acq: 29 Jan 2014 10:56 am

Tgt Ion: 83 Resp: 195969

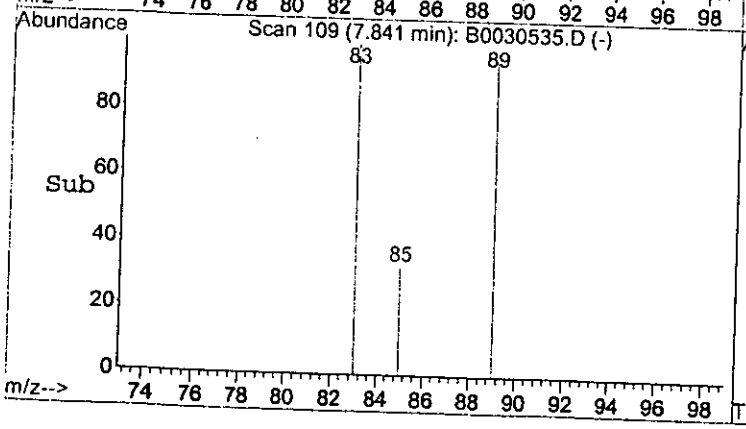


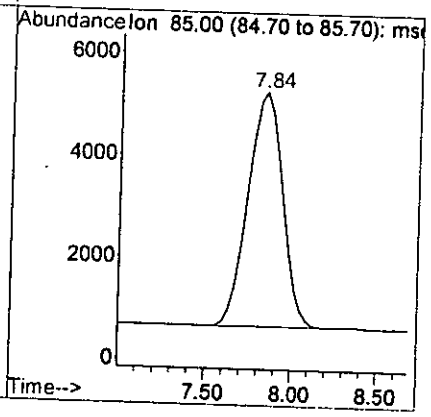




#3
#2 perc ion
Concen: 0.96 ug/L
RT: 7.84 min Scan# 109
Delta R.T. 0.01 min
Lab File: B0030535.D
Acq: 29 Jan 2014 10:56 am

Tgt Ion: 85 Resp: 64118





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031447.D Vial: 6
Acq On : 17 Jun 2014 5:34 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	95	0.10
2	Perchlorate	1.085	1.125	-3.7	93	0.10
3	#2 perc ion	0.366	0.342	6.6	87	0.07

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031447.D Vial: 6
Acq On : 17 Jun 2014 5:34 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	192056	1.00 ug/L	0.10
Target Compounds					Qvalue
2) Perchlorate	7.91	83	216010	1.04 ug/L	100
3) #2 perc ion	7.91	85	65717	0.94 ug/L	100

Ratio
3.29

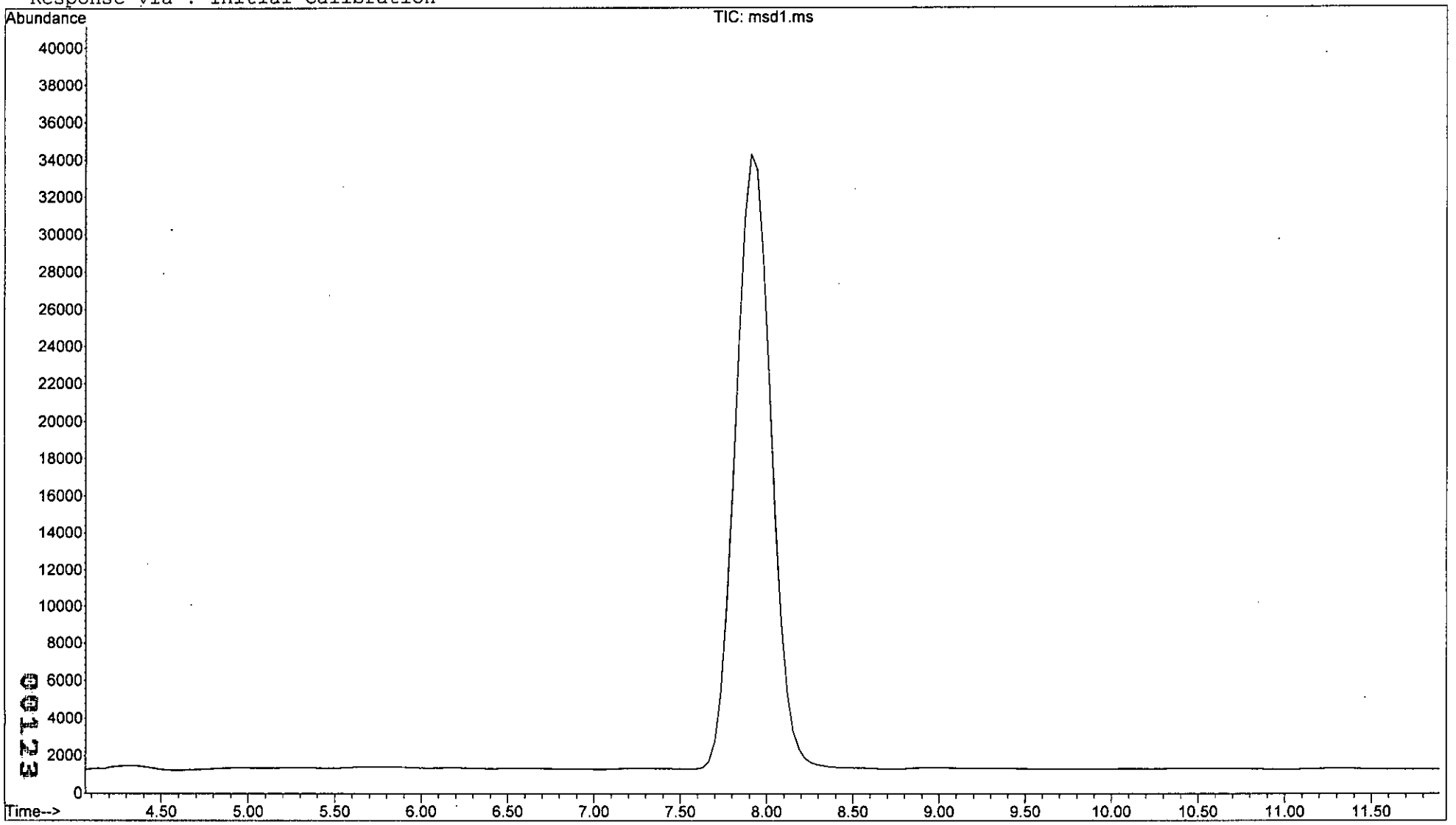
BA6/13

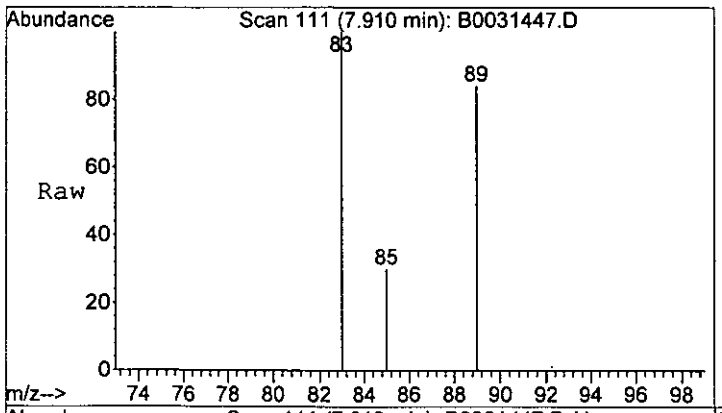
(#) = qualifier out of range (m) = manual integration
B0031447.D PERC0129.M Wed Jun 18 09:06:36 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031447.D Vial: 6
Acq On : 17 Jun 2014 5:34 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

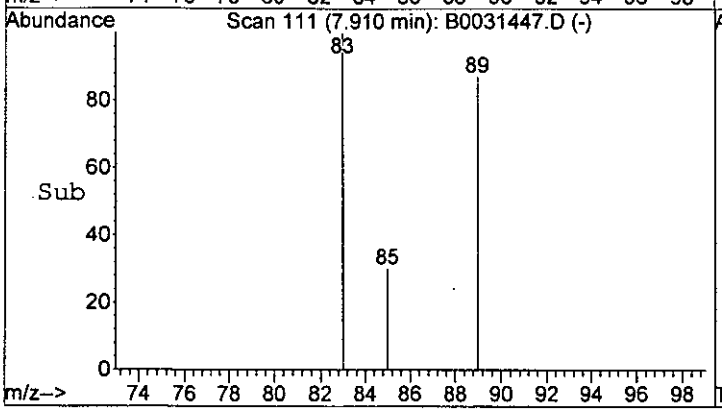
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

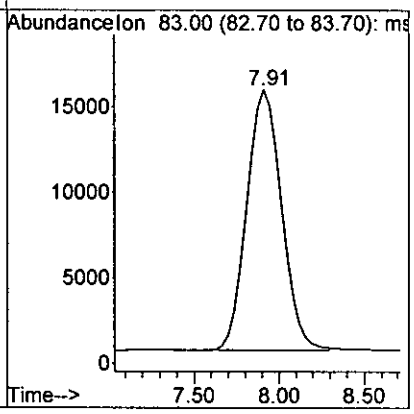


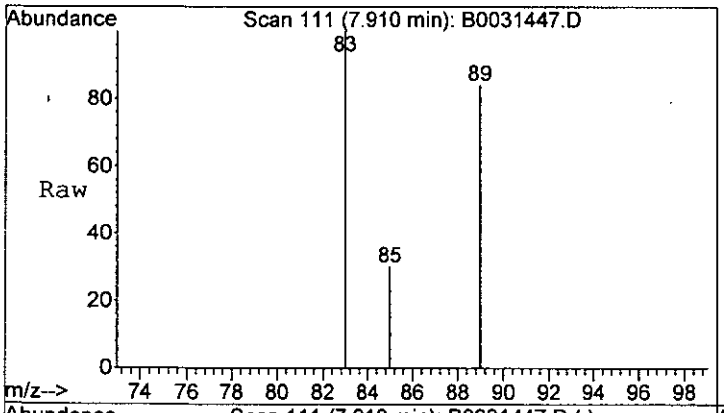


#2
Perchlorate
Concen: 1.04 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031447.D
Acq: 17 Jun 2014 5:34 pm

Tgt Ion: 83 Resp: 216010

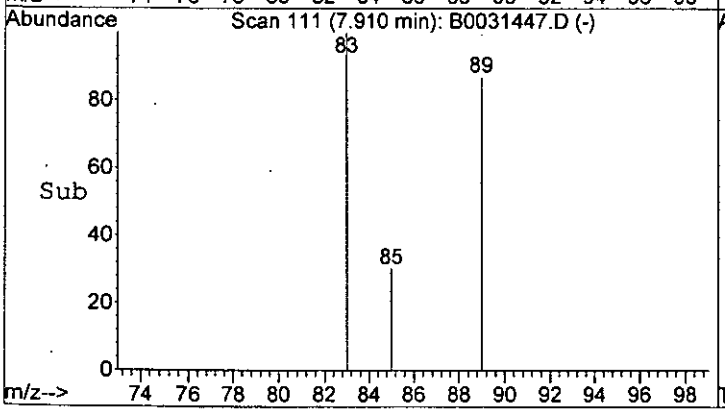


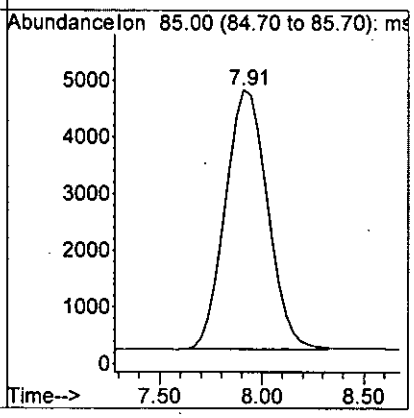




#3
#2 perc ion
Concen: 0.94 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031447.D
Acq: 17 Jun 2014 5:34 pm

Tgt Ion: 85 Resp: 65717





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031458.D Vial: 6
Acq On : 17 Jun 2014 8:02 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	92	0.10
2	Perchlorate	1.085	1.101	-1.5	87	0.10
3	#2 perc ion	0.366	0.335	8.5	82	0.11

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031458.D PERC0129.M Wed Jun 18 09:18:31 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031458.D Vial: 6
Acq On : 17 Jun 2014 8:02 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	184216	1.00 ug/L	0.10

Target Compounds					Qvalue
2) Perchlorate	7.91	83	202898	1.02 ug/L	100
3) #2 perc ion	7.94	85	61745	0.92 ug/L	100

Ratio
3.29

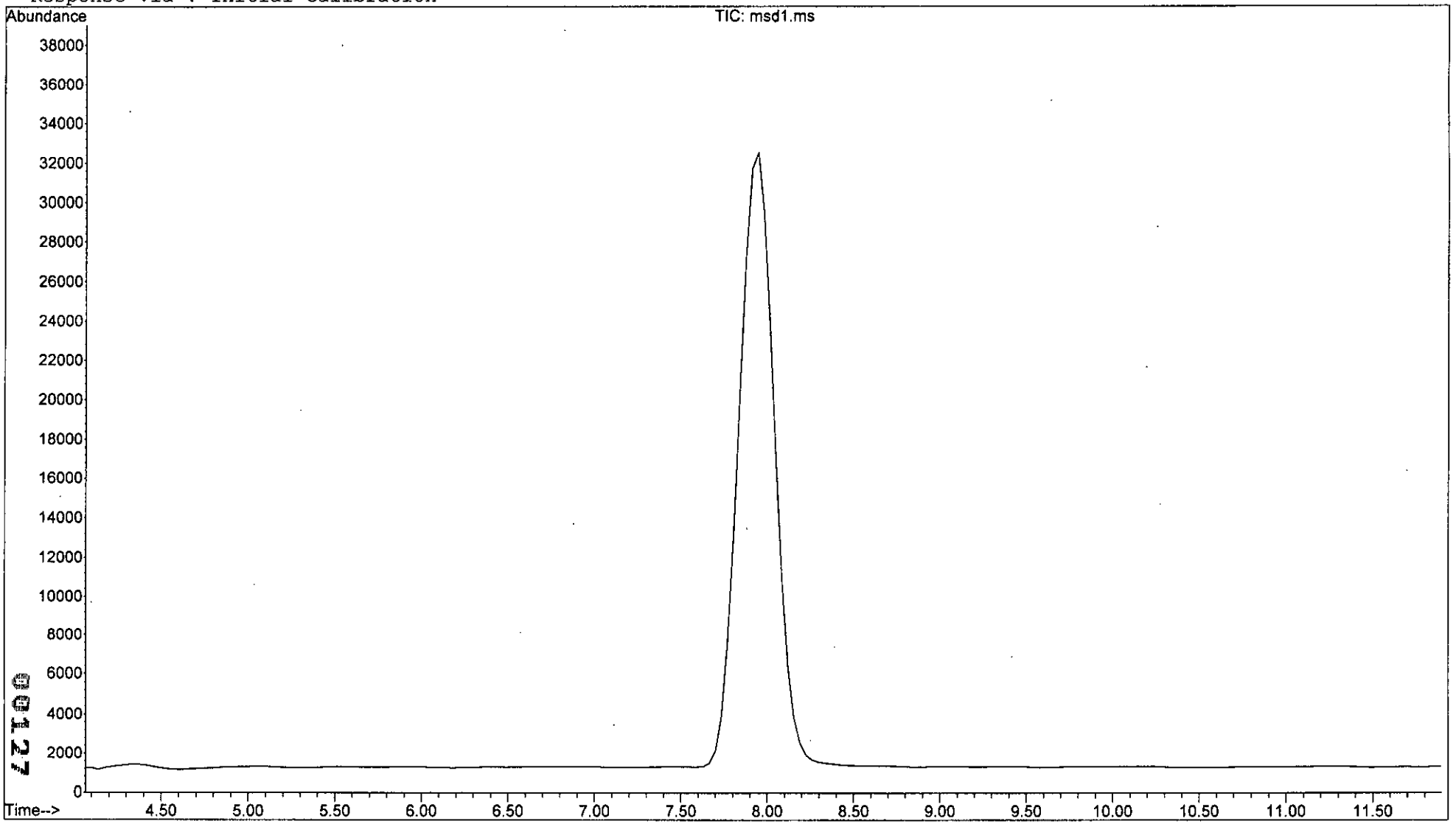
BAG 6/18

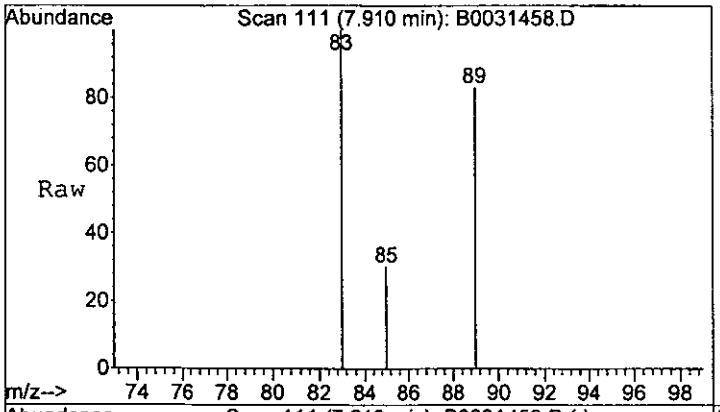
(#) = qualifier out of range (m) = manual integration
B0031458.D PERC0129.M Wed Jun 18 09:18:14 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031458.D Vial: 6
Acq On : 17 Jun 2014 8:02 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

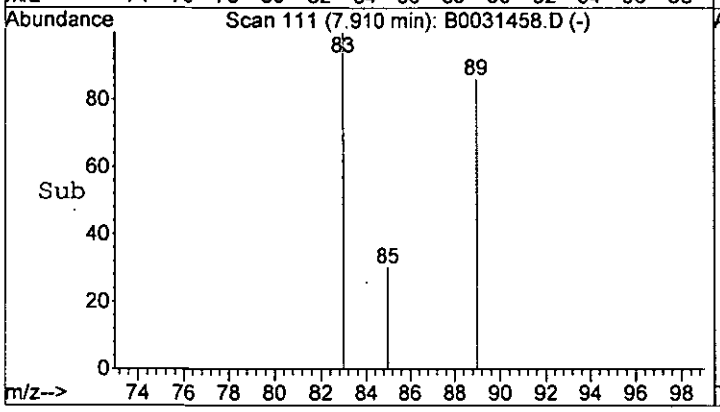
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

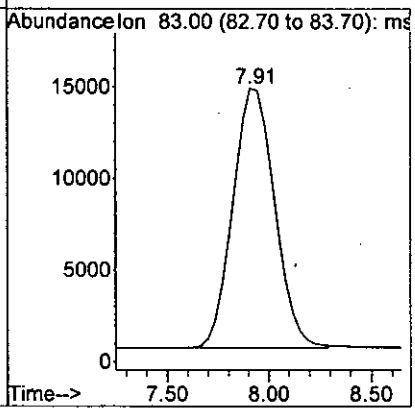


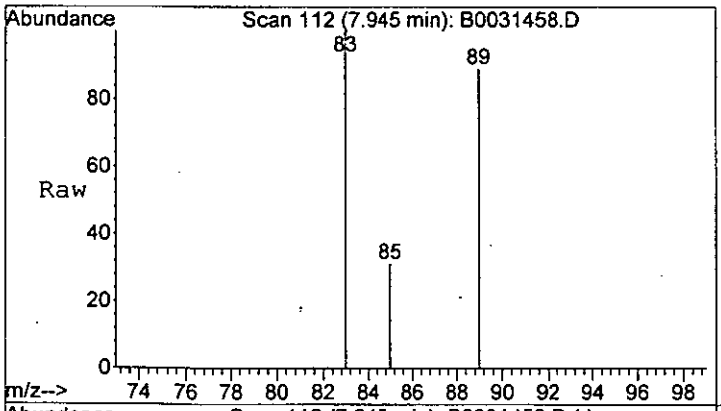


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031458.D
Acq: 17 Jun 2014 8:02 pm

Tgt Ion: 83 Resp: 202898

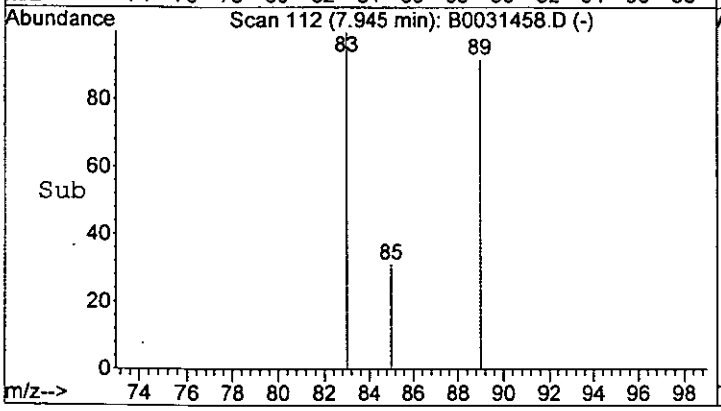


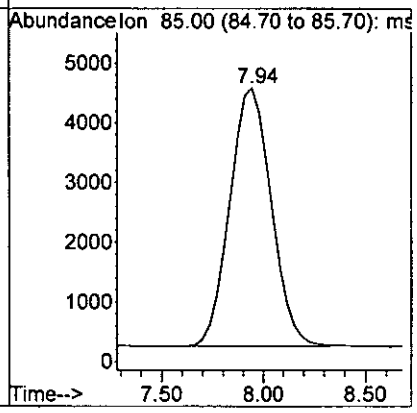




#3
#2 perc ion
Concen: 0.92 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.11 min
Lab File: B0031458.D
Acq: 17 Jun 2014 8:02 pm

Tgt Ion: 85 Resp: 61745





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031469.D Vial: 6
Acq On : 17 Jun 2014 10:29 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	87	0.14
2	Perchlorate	1.085	1.119	-3.1	84	0.14
3	#2 perc ion	0.366	0.339	7.4	78	0.14

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031469.D Vial: 6
Acq On : 17 Jun 2014 10:29 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.98	89	174390	1.00 ug/L	0.14
Target Compounds					Qvalue
2) Perchlorate	7.94	83	195112	1.03 ug/L	100
3) #2 perc ion	7.98	85	59051	0.93 ug/L	100

Ratio
3.30

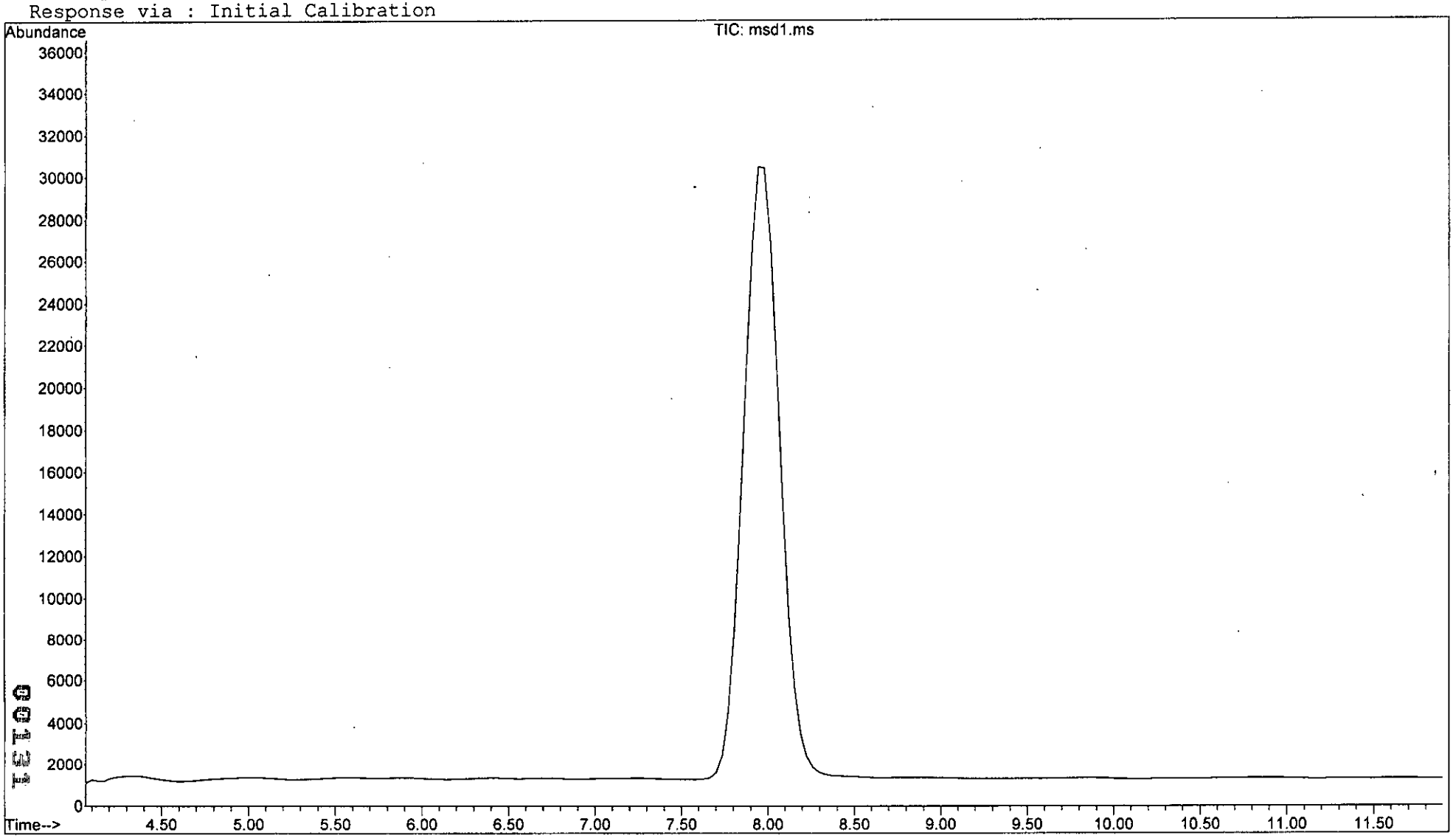
BA 6/18

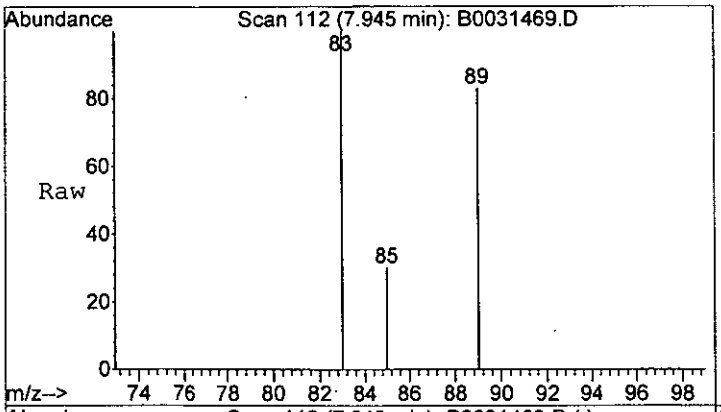
(#) = qualifier out of range (m) = manual integration
B0031469.D PERC0129.M Wed Jun 18 09:24:13 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031469.D Vial: 6
Acq On : 17 Jun 2014 10:29 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

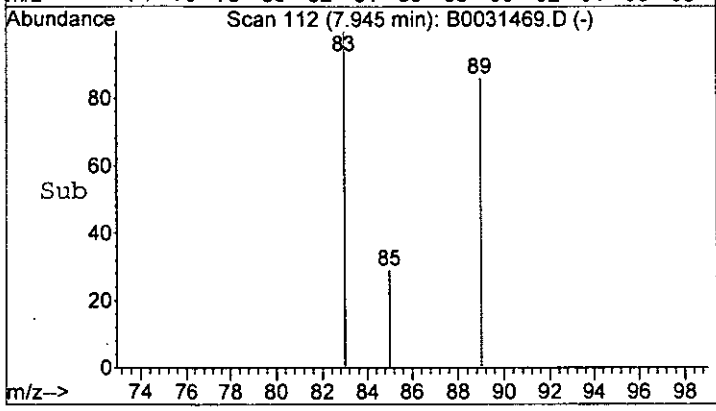
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

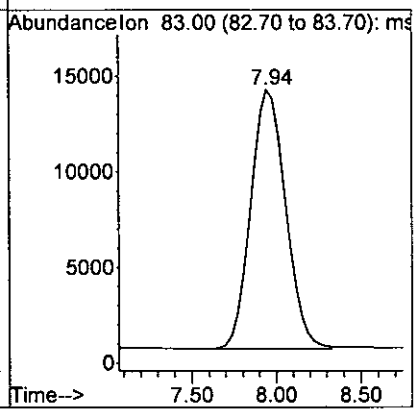


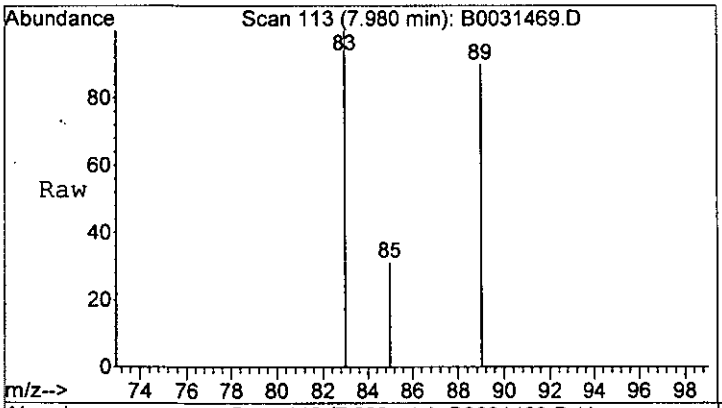


#2
Perchlorate
Concen: 1.03 ug/L
RT: 7.94 min Scan# 112
Delta R.T. 0.14 min
Lab File: B0031469.D
Acq: 17 Jun 2014 10:29 pm

Tgt Ion: 83 Resp: 195112

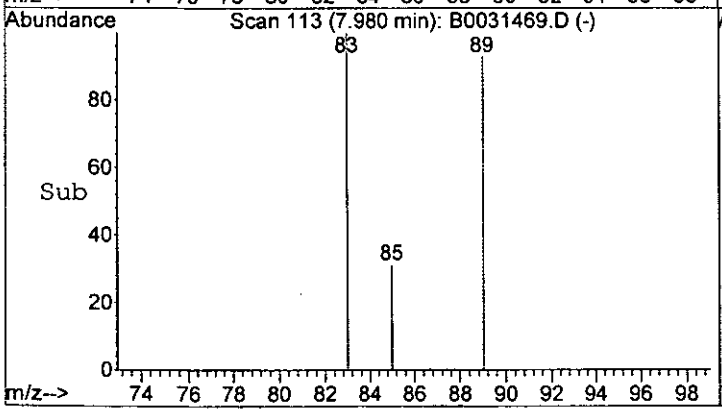


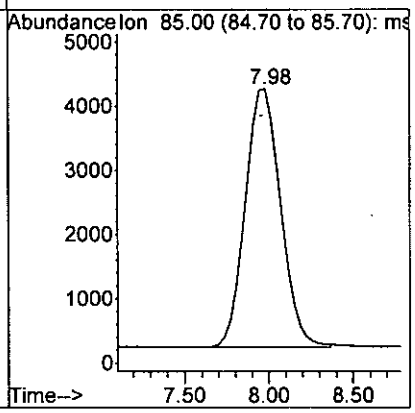




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.98 min Scan# 113
Delta R.T. 0.14 min
Lab File: B0031469.D
Acq: 17 Jun 2014 10:29 pm

Tgt Ion: 85 Resp: 59051





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031480.D Vial: 6
Acq On : 18 Jun 2014 12:57 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	89	0.07
2	Perchlorate	1.085	1.129	-4.1	87	0.10
3	#2 perc ion	0.366	0.340	7.1	81	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031480.D PERC0129.M Wed Jun 18 09:31:37 2014

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031480.D Vial: 6
Acq On : 18 Jun 2014 12:57 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.91	89	179955	1.00 ug/L	0.07
Target Compounds					Qvalue
2) Perchlorate	7.91	83	203192	1.04 ug/L	100
3) #2 perc ion	7.91	85	61234	0.93 ug/L	100

Ratio
3.32

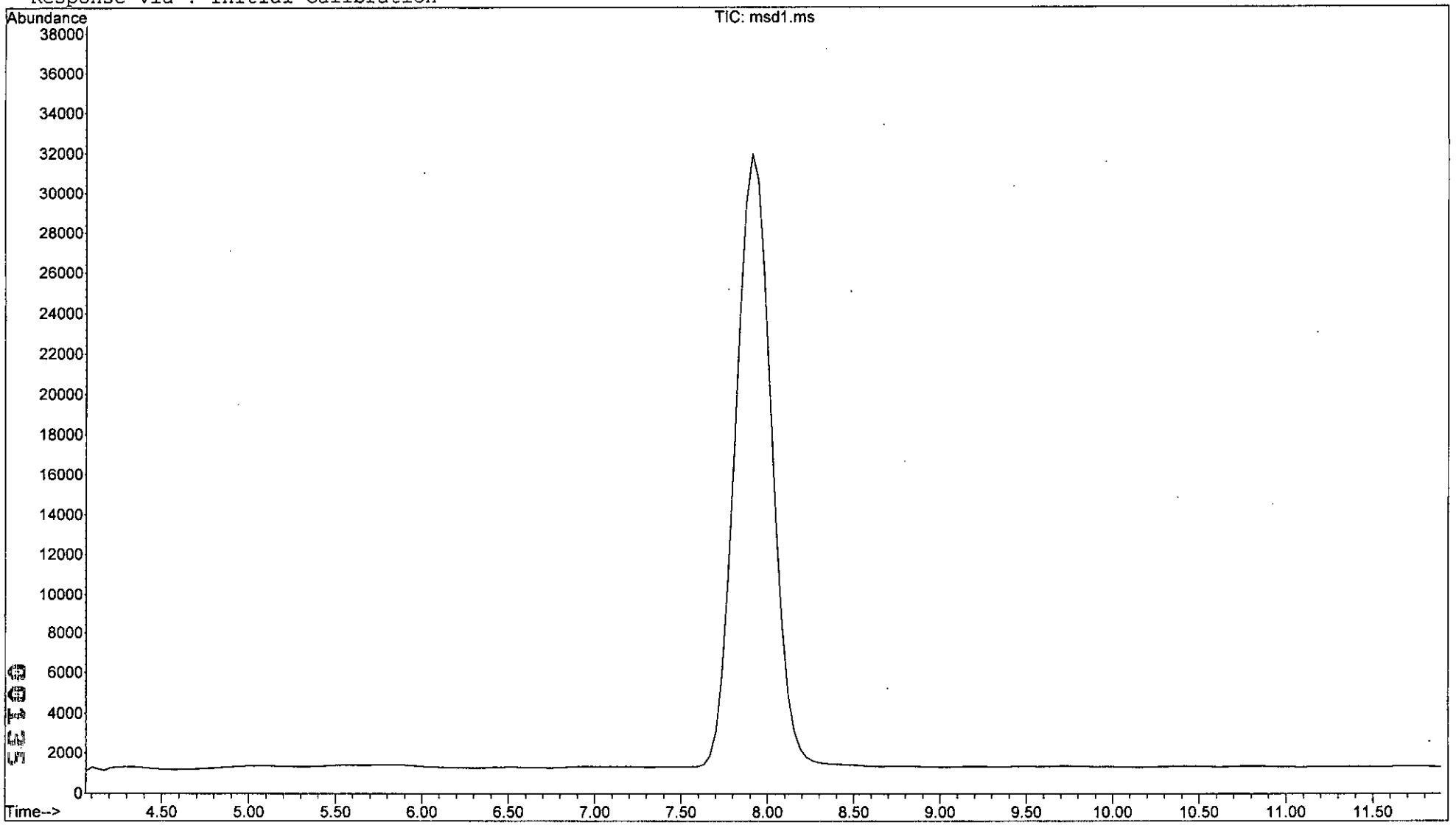
BA6/16

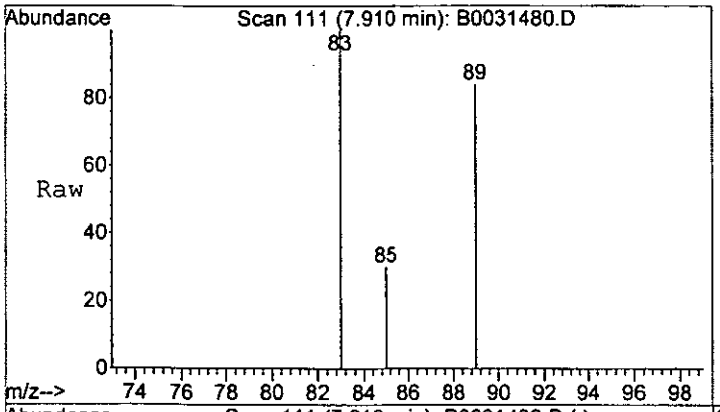
(#) = qualifier out of range (m) = manual integration
B0031480.D PERC0129.M Wed Jun 18 09:31:23 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061714\B0031480.D Vial: 6
Acq On : 18 Jun 2014 12:57 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 18 8:53 2014 Quant Results File: PERC0129.RES

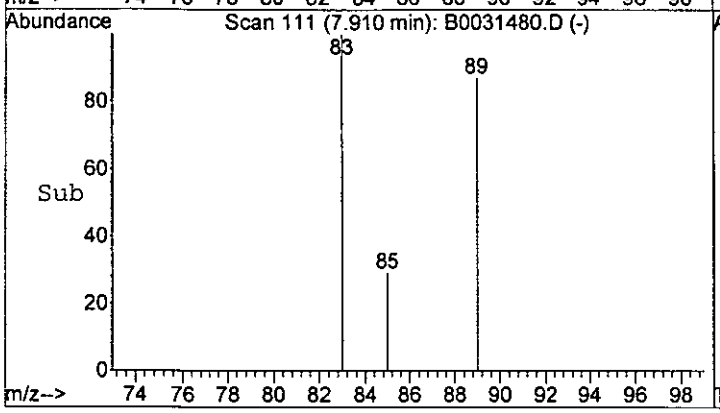
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

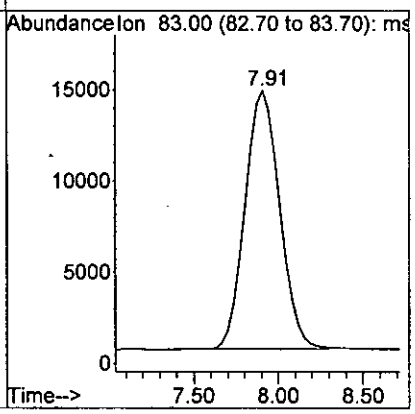


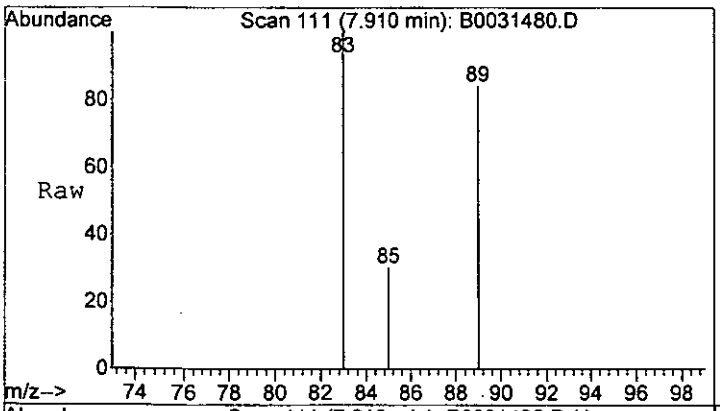


#2
Perchlorate
Concen: 1.04 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031480.D
Acq: 18 Jun 2014 12:57 am

Tgt Ion: 83 Resp: 203192

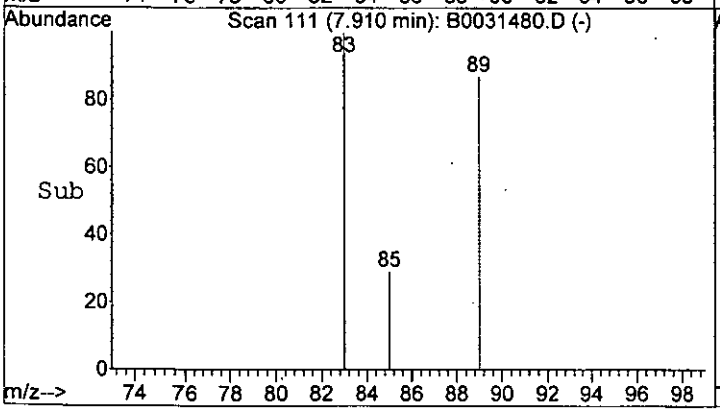


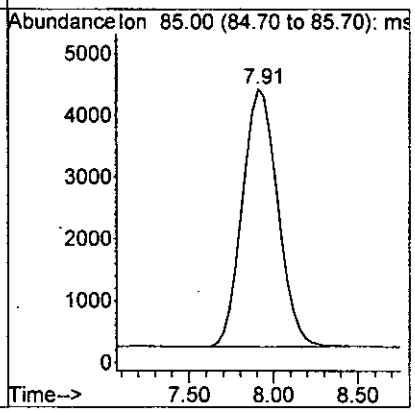




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031480.D
Acq: 18 Jun 2014 12:57 am

Tgt Ion: 85 Resp: 61234





Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031492.D Vial: 6
Acq On : 18 Jun 2014 3:52 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.10
2	Perchlorate	1.085	1.104	-1.8	87	0.10
3	#2 perc ion	0.366	0.335	8.5	81	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031492.D Vial: 6
Acq On : 18 Jun 2014 3:52 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 10:30 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	182894	1.00 ug/L	0.10
Target Compounds					Qvalue
2) Perchlorate	7.91	83	201841	1.02 ug/L	100
3) #2 perc ion	7.91	85	61269	0.92 ug/L	100

Ratio
3.29

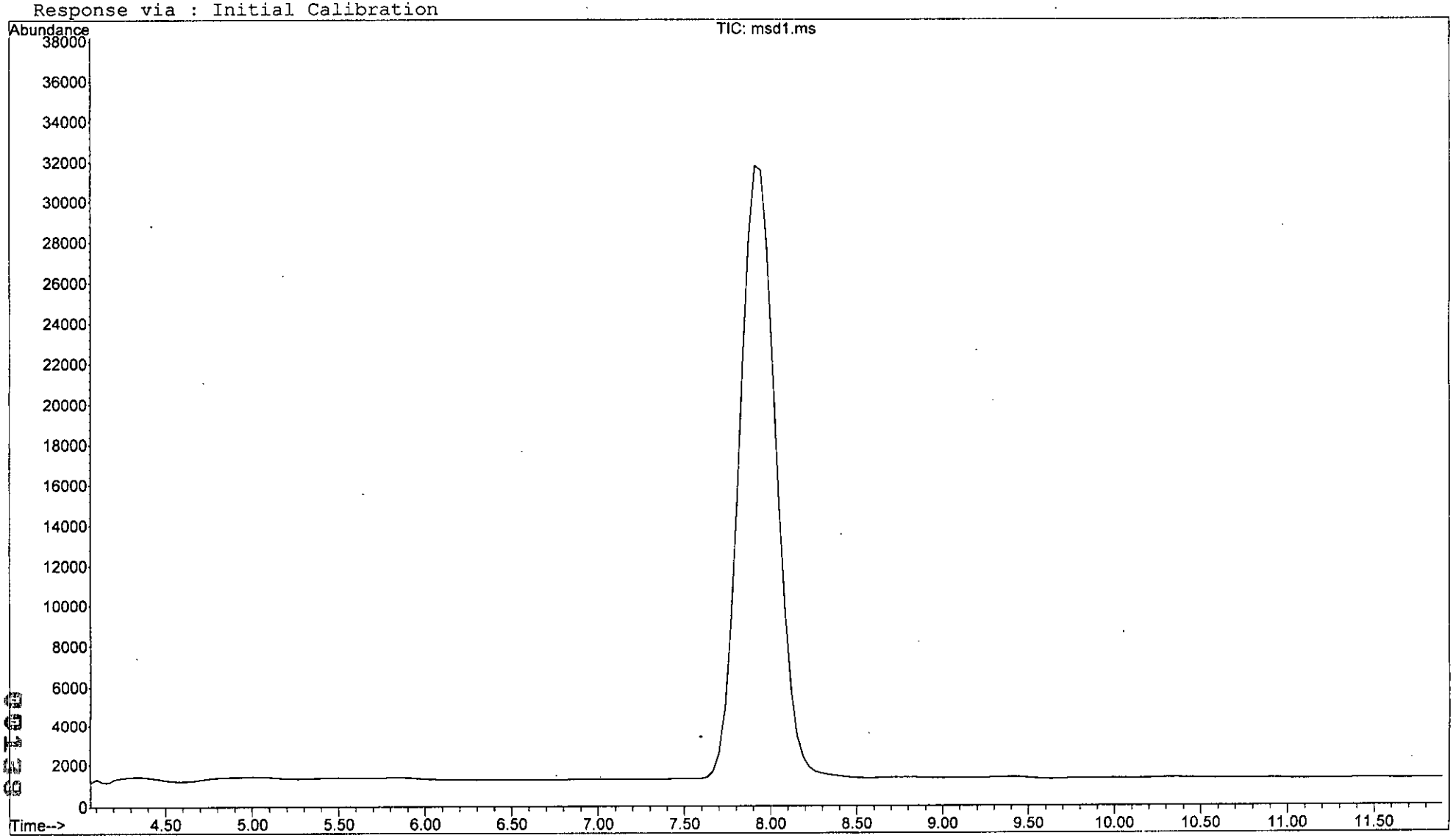
BA6/19

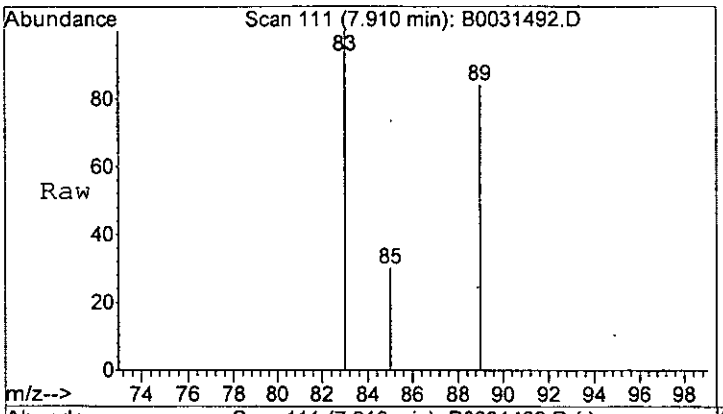
(#) = qualifier out of range (m) = manual integration
B0031492.D PERC0129.M Thu Jun 19 11:12:23 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031492.D Vial: 6
Acq On : 18 Jun 2014 3:52 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 10:30 2014 Quant Results File: PERC0129.RES

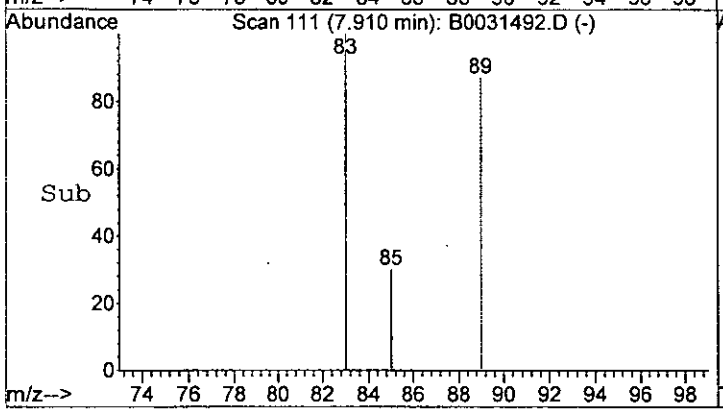
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

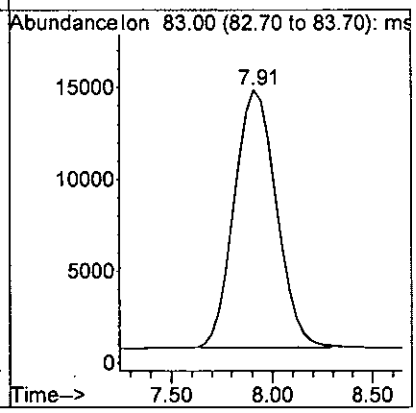


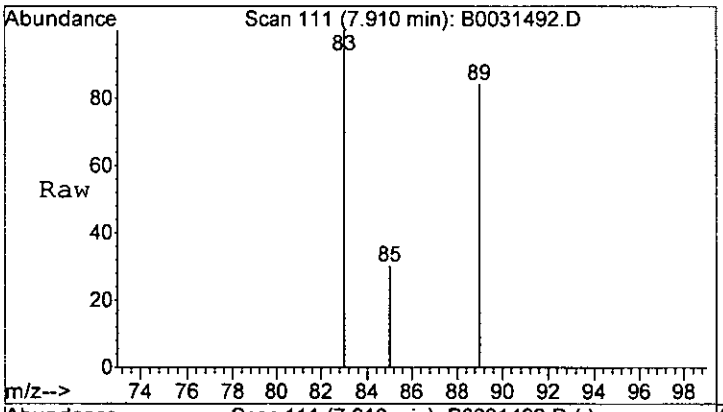


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031492.D
Acq: 18 Jun 2014 3:52 pm

Tgt Ion: 83 Resp: 201841

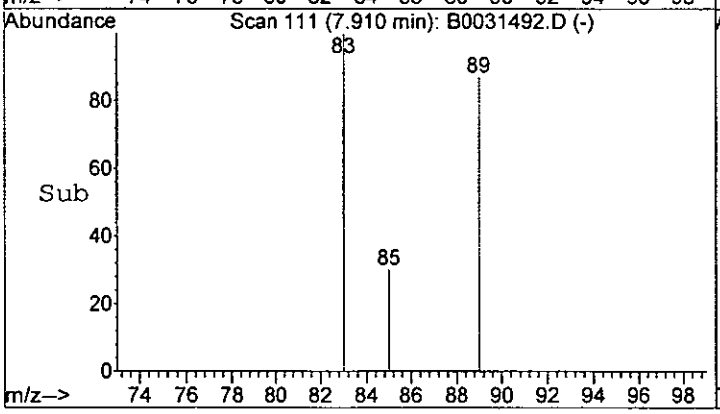


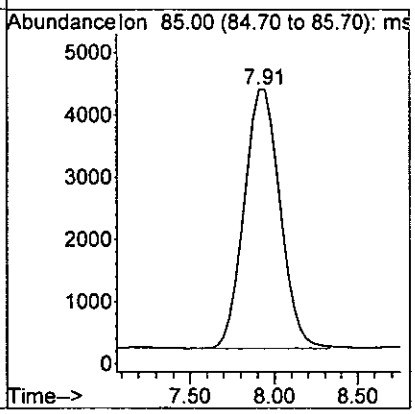




#3
#2 perc ion
Concen: 0.92 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031492.D
Acq: 18 Jun 2014 3:52 pm

Tgt Ion: 85 Resp: 61269





Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031503.D Vial: 6
Acq On : 18 Jun 2014 6:20 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	93	0.10
2	Perchlorate	1.085	1.108	-2.1	89	0.10
3	#2 perc ion	0.366	0.348	4.9	86	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031503.D PERC0129.M Thu Jun 19 12:56:36 2014

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031503.D Vial: 6
Acq On : 18 Jun 2014 6:20 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.94	89	187082	1.00 ug/L	0.10
Target Compounds					Qvalue
2) Perchlorate	7.91	83	207202	1.02 ug/L	100
3) #2 perc ion	7.91	85	65069	0.95 ug/L	100

Ratio
3.18

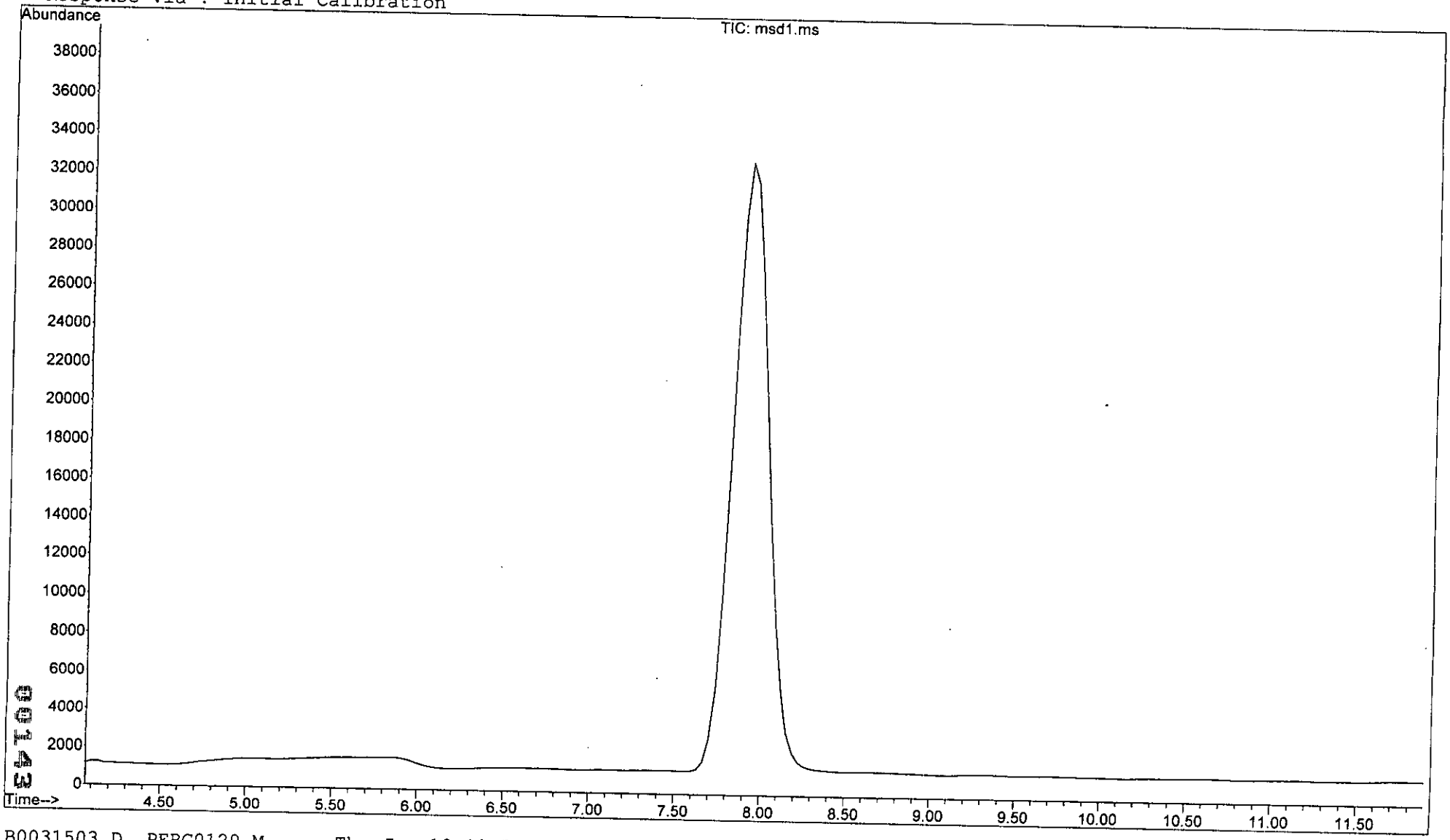
BAG/19

(#) = qualifier out of range (m) = manual integration
B0031503.D PERC0129.M Thu Jun 19 12:56:23 2014

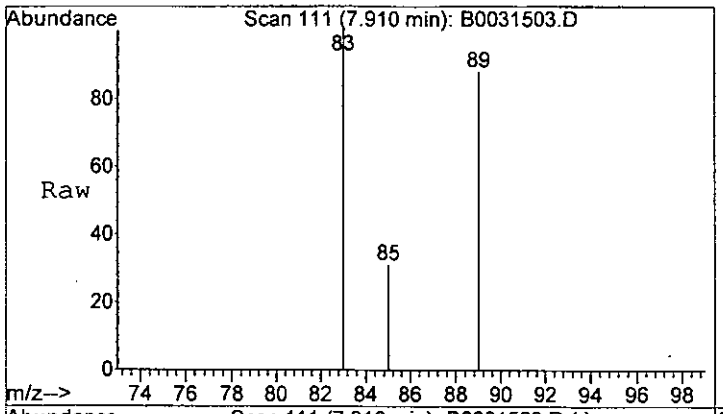
Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031503.D Vial: 6
Acq On : 18 Jun 2014 6:20 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

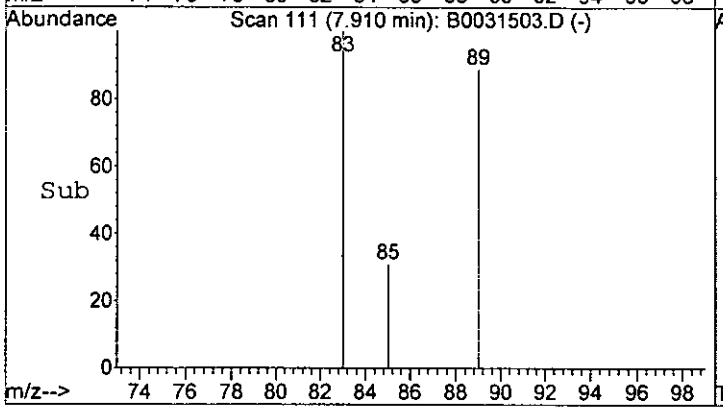


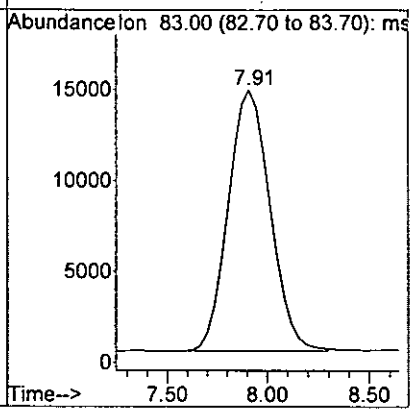
B0031503.D PERC0129.M Thu Jun 19 12:56:26 2014

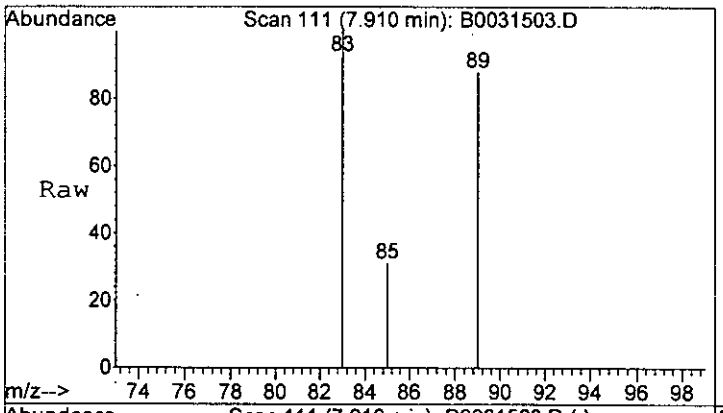


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031503.D
Acq: 18 Jun 2014 6:20 pm

Tgt Ion: 83 Resp: 207202

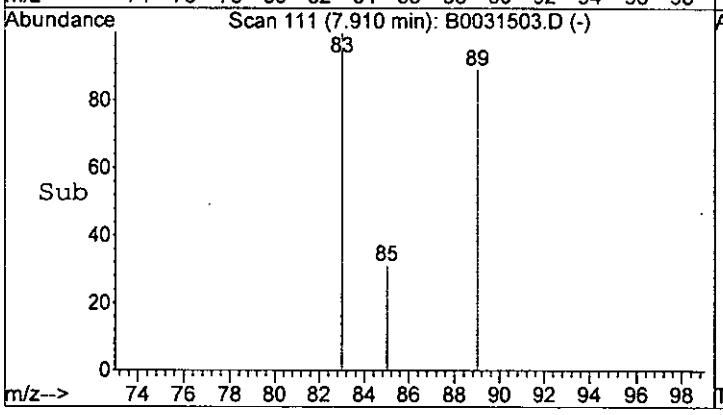


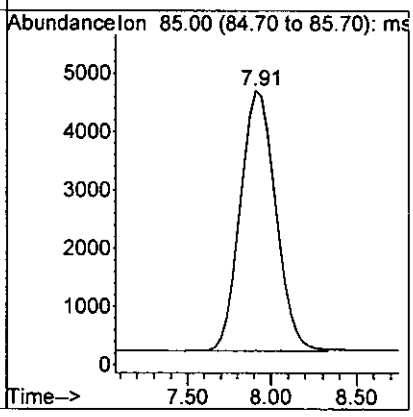




#3
#2 perc ion
Concen: 0.95 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031503.D
Acq: 18 Jun 2014 6:20 pm

Tgt Ion: 85 Resp: 65069





Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031514.D Vial: 6
Acq On : 18 Jun 2014 8:47 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	93	0.07
2	Perchlorate	1.085	1.098	-1.2	88	0.10
3	#2 perc ion	0.366	0.341	6.8	84	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031514.D PERC0129.M Thu Jun 19 13:03:34 2014

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031514.D Vial: 6
Acq On : 18 Jun 2014 8:47 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.91	89	186397	1.00 ug/L	0.07
Target Compounds					Qvalue
2) Perchlorate	7.91	83	204626	1.01 ug/L	100
3) #2 perc ion	7.91	85	63643	0.93 ug/L	100

Ratio
3.22

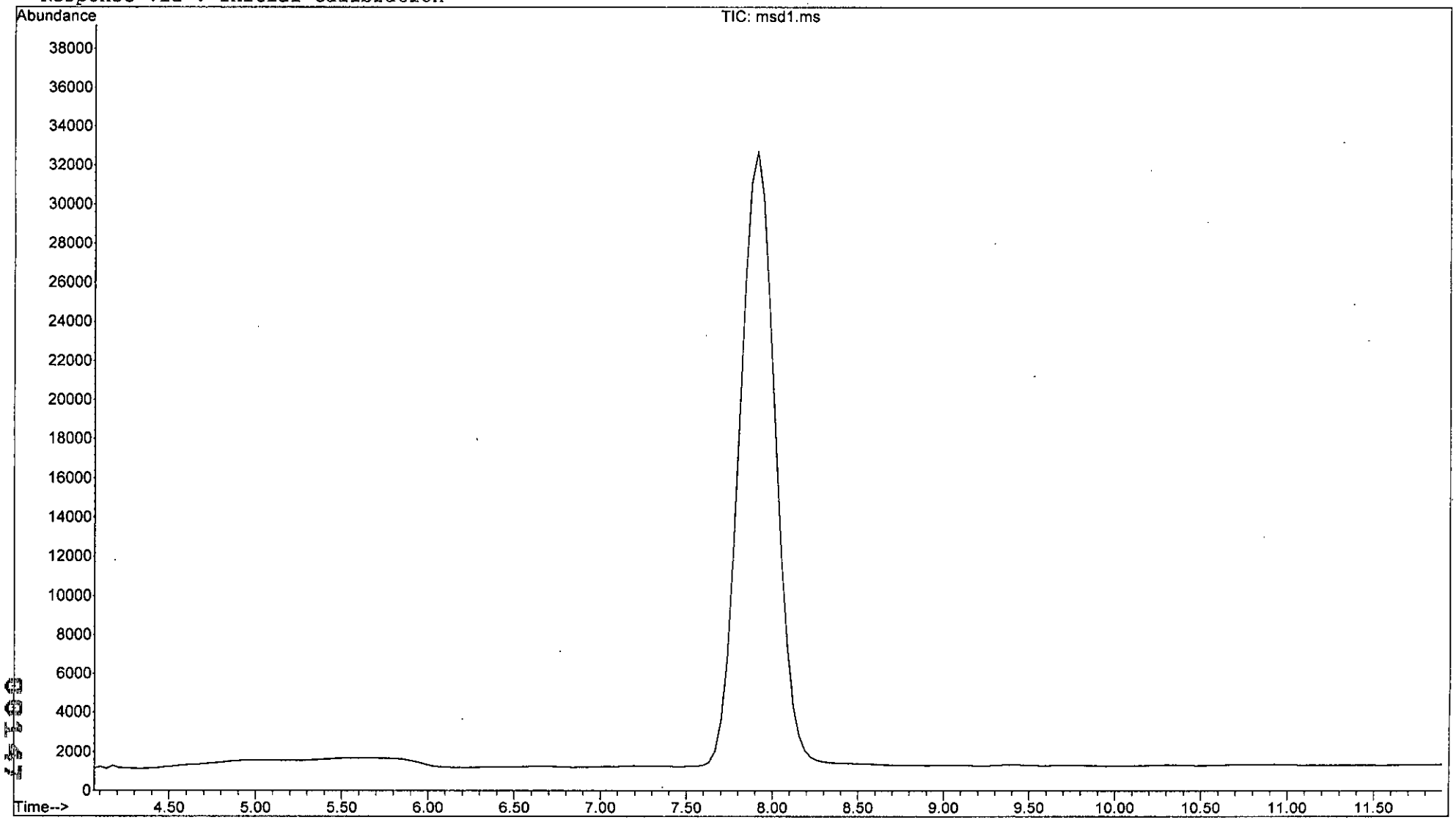
BAG/19

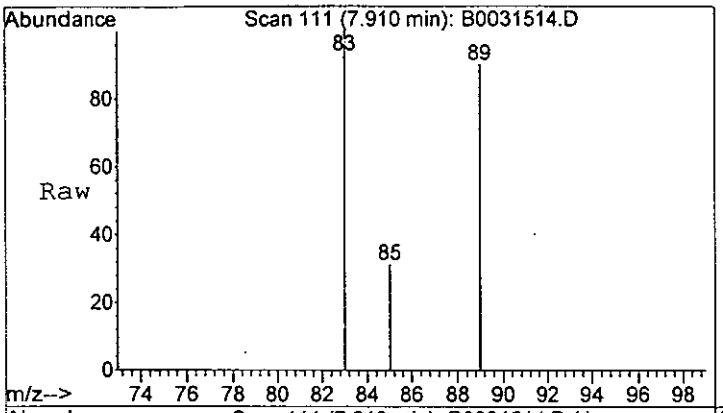
(#) = qualifier out of range (m) = manual integration
B0031514.D PERC0129.M Thu Jun 19 13:03:20 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031514.D Vial: 6
Acq On : 18 Jun 2014 8:47 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

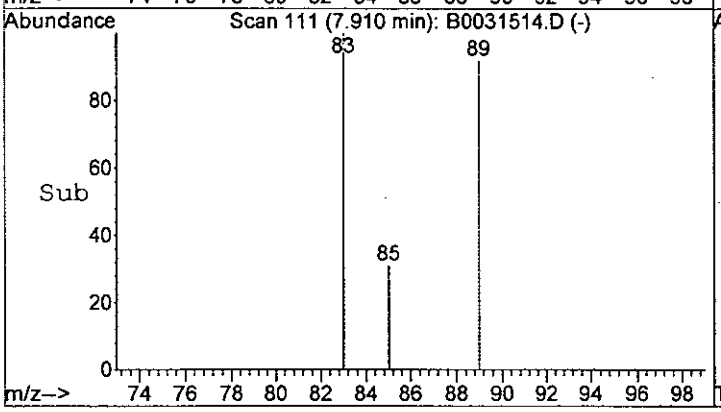
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

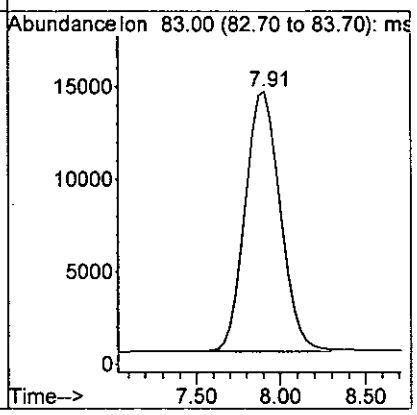


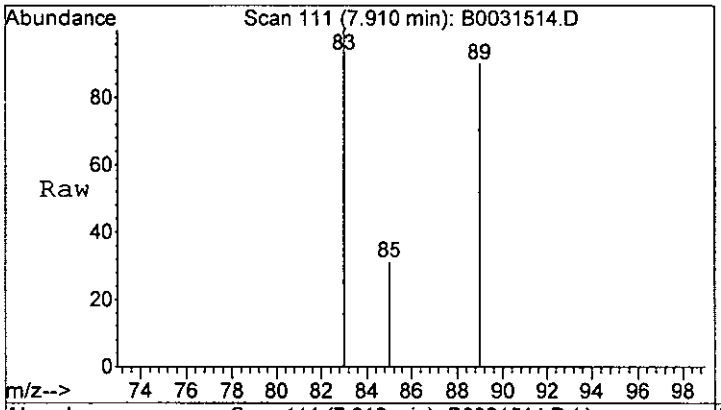


#2
Perchlorate
Concen: 1.01 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.10 min
Lab File: B0031514.D
Acq: 18 Jun 2014 8:47 pm

Tgt Ion: 83 Resp: 204626

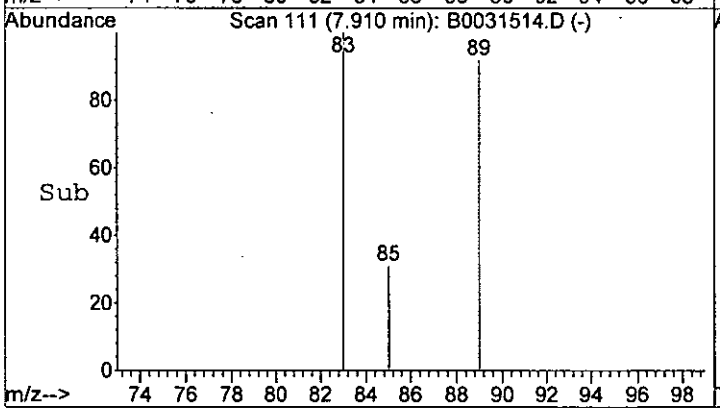


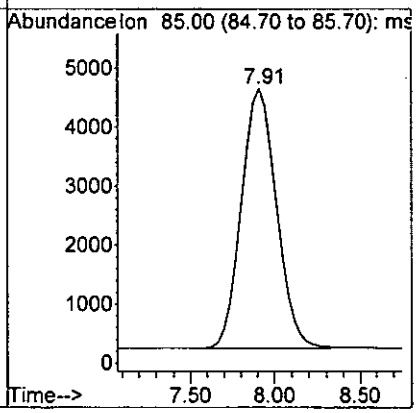




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.91 min Scan# 111
Delta R.T. 0.07 min
Lab File: B0031514.D
Acq: 18 Jun 2014 8:47 pm

Tgt Ion: 85 Resp: 63643





Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031522.D Vial: 6
Acq On : 18 Jun 2014 10:35 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	93	0.07
2	Perchlorate	1.085	1.110	-2.3	90	0.07
3	#2 perc ion	0.366	0.340	7.1	85	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031522.D PERC0129.M Thu Jun 19 13:07:43 2014

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031522.D Vial: 6
Acq On : 18 Jun 2014 10:35 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) O18LP	7.91	89	188109	1.00 ug/L	0.07

Target Compounds					Qvalue
2) Perchlorate	7.88	83	208826	1.02 ug/L	100
3) #2 perc ion	7.88	85	63876	0.93 ug/L	100

Ratio
3.27

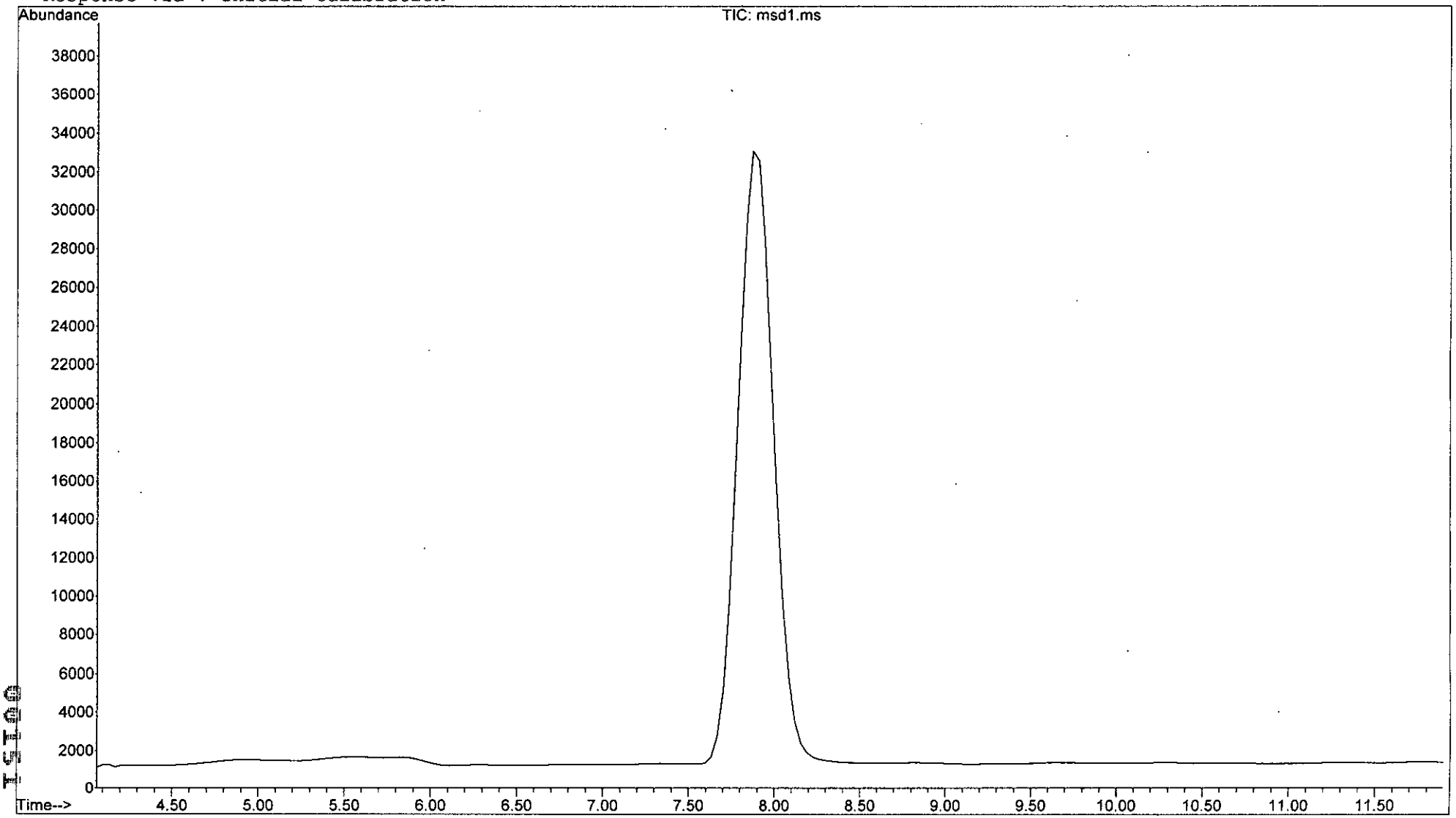
BA6/19

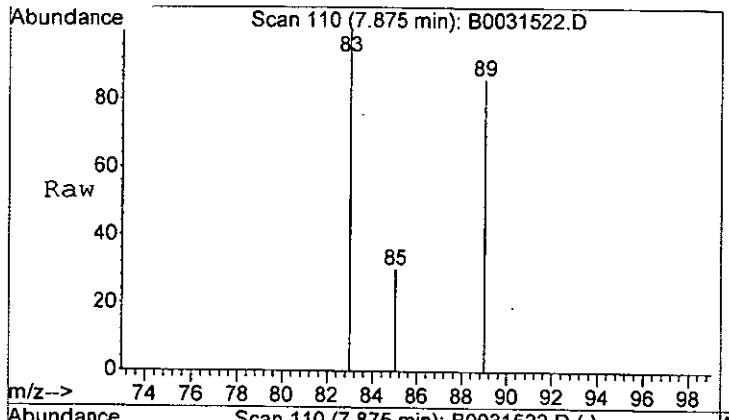
(#) = qualifier out of range (m) = manual integration
B0031522.D PERC0129.M Thu Jun 19 13:07:25 2014

Quantitation Report

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031522.D Vial: 6
Acq On : 18 Jun 2014 10:35 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 19 11:53 2014 Quant Results File: PERC0129.RES

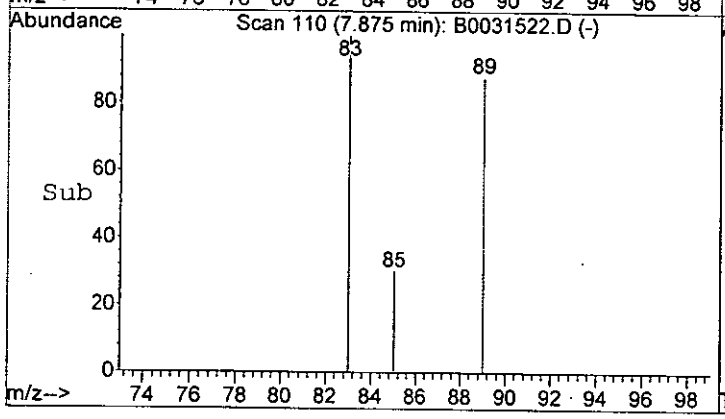
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration

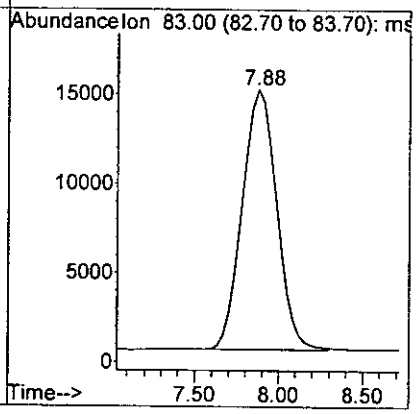


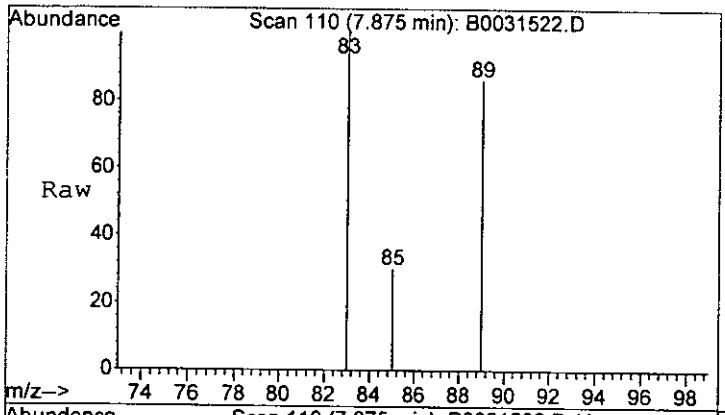


#2
Perchlorate
Concen: 1.02 ug/L
RT: 7.88 min Scan# 110
Delta R.T. 0.07 min
Lab File: B0031522.D
Acq: 18 Jun 2014 10:35 pm

Tgt Ion: 83 Resp: 208826

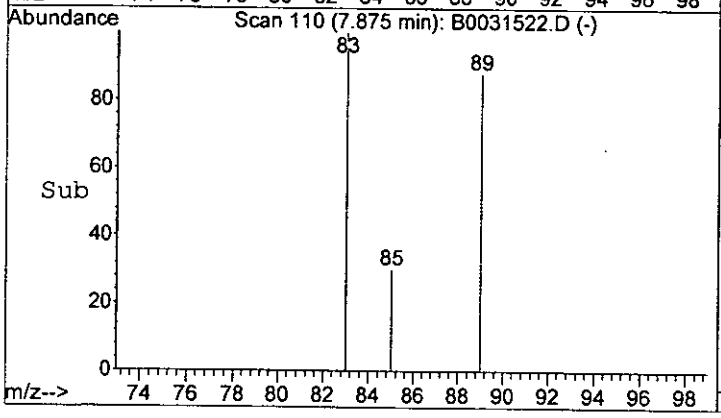


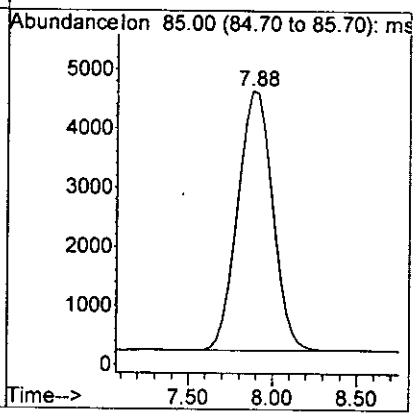




#3
#2 perc ion
Concen: 0.93 ug/L
RT: 7.88 min Scan# 110
Delta R.T. 0.04 min
Lab File: B0031522.D
Acq: 18 Jun 2014 10:35 pm

Tgt Ion: 85 Resp: 63876





Preparation Information Benchsheet

Prep Run#: 211029
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/17/14 02:51 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406734-01	MB		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1406734-04	LODV		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 1.0000 uL/71223	
3	RQ1406734-02	LCS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1406734-03	DLCS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
5	RQ1406734-05	ICS		1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
6	R1404437-001	18CPTPB13(8-9)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
7	RQ1406734-06	R1404437-001 MS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
8	RQ1406734-07	R1404437-001 DMS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
9	R1404437-002	18CPTPB13(13.5-14.5)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
10	RQ1406734-08	R1404437-002 MS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
11	RQ1406734-09	R1404437-002 DMS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
12	R1404437-003	18CPTPB13(18-19)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
13	RQ1406734-10	R1404437-003 MS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
14	RQ1406734-11	R1404437-003 DMS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
15	R1404437-004	18CPTPB13(22-23)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
16	RQ1406734-12	R1404437-004 MS	.01	1.0g	6850/ClO4				10.00mL		4.0000 uL/71223; 10.0000 uL/68807	
17	RQ1406734-13	R1404437-004 DMS	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
18	R1404437-005	18CPTPB14(6-7)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
19	R1404437-006	18CPTPB14(18-19)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
20	R1404437-007	18CPTPB14(22-23)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
21	R1404437-008	18CPTPB14(25-26)280514	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
22	R1404273-007	1406041204 200-SB-20 30'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
23	R1404273-008	1406041723 200-SB-20 50'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
24	R1404421-005	1406091138 200-SB-21 7.5-10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
25	R1404421-006	1406091613 200-SB-21	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
26	R1404421-007	1406091748 200-SB-21	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
27	R1404507-009	1406111501 200-SB-7 8-10'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	

Preparation Information Benchsheet

Prep Run#: 211029 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 6/17/14 02:51 PM

28	R1404507-010	1406111633 200-SB-7 18-21'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	
29	R1404507-011	1406120923 200-SB-7 38-40'	.01	1.0g	6850/ClO4				10.00mL		10.0000 uL/68807	

Spiking Solutions

Name:	O18 isotopic labeled perchlorate	Inventory ID	68807	Logbook Ref:		Expires On:	01/31/2016	Lot #:	122313
Name:	Perchlorate 1000 ppb CLO4	Inventory ID	71223	Logbook Ref:		Expires On:	11/30/2014		

Preparation Materials

Water	(71353)	interference check standard for perchlorate	(63899)	Sand Reagent Grade	SVOA (71055)

Preparation Steps

Step: Extraction
Started: 6/17/14 14:51
Finished: 6/18/14 10:23
By: BALLGEIER
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: SGOLBERG Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Preparation Information Benchsheet

Prep Run#: 211135 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 6/18/14 02:29 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406802-01	MB		10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1406802-04	LODV		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 1.0000 uL/71223	
3	RQ1406802-02	LCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1406802-03	DLCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
5	RQ1406802-05	ICS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/71223	
6	R1404568-001	1406673-01D	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
7	R1404568-002	1406673-02D	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
8	R1404568-003	1406673-03D	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
9	R1404353-009	MRC-MW-17A-060514	.09	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
10	RQ1406802-06	R1404353-009 MS	.09	10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
11	RQ1406802-07	R1404353-009 DMS	.09	10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 4.0000 uL/71223	
12	R1404353-010	MRC-MW-109A-060514	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
13	R1404353-011	MRC-MW-109B-060514	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
14	R1404412-001	MRC-MW-74A-060614	.04	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
15	R1404412-002	MRC-MW-74B-060614	.04	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
16	R1404421-002	1406090815 200-SB-21	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
17	R1404507-005	1406111439 200-SB-7	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
18	R1404548-001	S/N 002 (South)	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
19	R1404354-001	1406060815C WW-2-489	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
20	R1404354-002	1406061011X WW-5-814	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
21	R1404354-003	1406061045C WW-2-664	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
22	R1404354-004	1406071033X WW-5-912	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
23	R1404565-003	MRC-MW-08B-061214	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
24	R1404565-008	MRC-MW-41A-061314	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
25	R1404565-010	MRC-MW-01A-061314	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
26	R1404565-013	DUP-06-061314	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	

Spiking Solutions

Name: O18 isotopic labeled perchlorate Inventory ID 68807 Logbook Ref: Expires On: 01/31/2016 Lot #: 122

Name: Perchlorate 1000 ppb CLO4 Inventory ID 71223 Logbook Ref: Expires On: 11/30/2014

Preparation Materials

Water (71353) interference check standard for perchlorate (63899)

Preparation Information Benchsheet

Prep Run#: 211135
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/18/14 02:29 PM

Preparation Steps

Step: Extraction
Started: 6/18/14 14:29
Finished: 6/18/14 15:00
By: BALLGEIER
Comments

Comments: _____

Reviewed By: _____ Date: _____ Spike Witness: SGOLBERG Date: _____

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analysis: 1,4-Dioxane Analyst: M Pinto Run Method: Decaloade
Date: 1/28/14 Instr. HPLC-02 Quant Method: Decal29
LIMS Run#:

Setup: Column: Kprime # 2100 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 MeCN/H2O 0.1 Ch3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	AMBLK			B0030524	—	
	↓			525	—	
	CCV Ion/MSS			526	Y	
	RWL			527	Y	
	.1ppb	1ml/10ml	66006	528	Y	
	.2ppb	2ml/10ml		529	Y	
	.5ppb	5ml/10ml		530	Y	
	.75ppb	7.5ml/10ml		531	Y	
	1.0ppb	10ml/10ml		532	Y	
	2.0ppb	20ml/10ml		533	Y	
	5.0ppb	50ml/10ml	↓	534	Y	
	ICV	10ml/10ml	66005	535	Y ICV	exp 5/31/14
	CCV 1.0ppb		66007	536	YC	
	RQ1400131-01			537	Y	
	04			538	Y	
	02			539	Y	
	03			540	Y	
	↓ 05			541	Y	
	R1400128-001			542	Y	
	RQ1400131-06			543	Y	
	07			544	Y	
	R1400128-002			545	Y	
	003			546	Y	
	CCV 1.0ppb		66007	547	YC	
	R1400128-004			548	Y	
	R1400205-001			549	Y	
	R1400119-001			550	Y	
	↓ 001	10.0		551	Y	
	RQ1400131-04			552	Y	
	CCV 1.0ppb		66007	553	YC	
	RQ1400826-01			554	Y	
	04			555	Y	
	02			556	N	OUT
	03			557	Y	

All samples = _____mL + _____uL Combined IS/Surr.:

Primary: 66007 exp: 4/30/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

Runlog HPLC02r1
1/10/13

Analysis: 6850. Perc Analyst: BA Run Method: Percdodz

Date: 6/17/14 Instr. HPLC-02 Quant Method: Perc0129

LIMS Run#:

Setup: Column: K 'Prime #2011 Col.Temp: 30 Flow: 0.5 ml/min

Mobile Phase: 50/50 H_2O/MeCN 0.1% CH_3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BLK			B0031428	—	
	ION/MASS CCV			2528	YT	
	CCV 1.00 PPB		70263	2630	YC	
	RQ1406555-04	LOD		2731	Y	
	R1404434-004	10.0		2832	Y	
	RQ1406555-04	LOD		2933	Y	
	6558-04	LOD		3034	Y	
	R1404435-015	500		3135	Y	
	RQ1406558-04	LOD		3236	Y	
	CCV 1.00 PPB		70263	3337	YC	
	RQ1406647-04	LOD		3438	Y	
	R1404436-001	5.0		3539	Y	
	-003			3640	N	RPT 1/25
	-004	50.0		3741	Y	
	-005	25.0		3842	Y	
	-006	20.0		3943	Y	
	RQ1406647-06	20.0		4044	Y	DILUTED OUT
	-07	20.0		4145	Y	
	R1404436-007	100.0		4246	Y	
	-008	50.0		4347	Y	
	CCV 1.00 PPB			4448	YC	
	-013	1000		4549	Y	
	RQ1406647-04	LOD		4650	Y	
	CCV 1.00 PPB		70263	4751	YC	
	RQ1406734-01	MB		4852	Y	
	-04	LOD		4953	Y	
	-02	LCS		5054	Y	
	-03	DLCS		5155	Y	
	-05	ICS		5256	Y	
	R1404437-001			5357	Y	
	-06	MS		5458	Y	
	-07	MSD		5559	Y	
	4437-002			5660	Y	

All samples = _____mL (+ _____uL Combined IS/Surr.;

Primary: 70263 exp: 11/3/14 Secondary: _____ exp:

Primary: _____ exp: Secondary: _____ exp:

BA 6/18

Runlog HPLC02r1
1/10/13

Analysis: 6850.Perc Analyst: BA Run Method: Percdoolz
Date: 6/17/14 Instr. HPLC-02 Quant Method: Perc.0125
LIMS Run#:

Setup: Column: K'PRIME #2011 Col.Temp: 30 Flow: 0.5ml/min
Mobile Phase: 50/50 H2O/MeCN 0.1CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	RQ1406734-08	MS		B0031481	Y	
	CCV 1.00PPB		70263	5862	YC	
	-09	MSD		5963	Y	
	R1404437-003			6064	Y	
	-10	MS		6165	Y	
	-11	MSD		6266	Y	
	4437-004			6367	Y	
	-12	MS		6468	Y	
	-13	MSD		6569	Y	
	4437-005			6670	Y	
	-006			6771	N	RPT 1/5
	-007			6872	N	RPT 1/50
	CCV 1.00PPB		70263	6973	YC	
	-008			7074	N	RPT 1/100
	4471-005			7175	Y	
	-006			7276	Y	
	-007			7377	Y	
	4507-009			7478	Y	
	-010			7579	Y	
	-011			7686	Y	
	RQ1406734-04	LOD		7781	Y	
	CCV 1.00PPB		70263	7882	YC	
	R1404273-007			7983	Y	
	-008			8084	YC	
	$\bar{X}$ = 191901					
	high = 387852			BAC/13		
	low = 95957					

BA 6/17/14

All samples = _____mL + _____uL Combined IS/Surr.;

Primary : 70263 exp: 11/3/14 Secondary : _____ exp:
Primary: _____ exp: Secondary : _____ exp:

Runlog HPLC02r1
1/10/13

Analysis: 6850. Perc Analyst: BA Run Method: Percdoolz
Date: 6/18/14 Instr. HPLC-02 Quant Method: Perc0129
LIMS Run#:

Setup: Column: K' Prime #2011 Col.Temp: 30 Flow: 0.5 ml/min
Mobile Phase: 50/50 H2O/MeCN 0.1ml/3 COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BLL			B0031481	—	
	ION/MASS CCV			82		
	PCV 1.00 PPB		70263	83	YC	
	RQ1406647-04	LOD		84	Y	
	R1404436-003	25.0		85	Y	
	RQ1406647-04	LOD		86	Y	
	RQ1406734-04	LOD		87	Y	
	R1404437-006	5.0		88		
	~~RQ1406734-04~~	~~LOD~~				
	-007	50.0		89	Y	
	-008	100.0		90	Y	
	RQ1406734-04	LOD		91	Y	
	CCV 1.00 PPB		70263	92	YC	
	RQ1406802.01			93	Y	
	-04			94	Y	
	-02			95	Y	
	-03			96	Y	
	-05			97	Y	
	R1404568-001			98	Y	
	-002			99	Y	
	-003			500	Y	
	4353-009			01	Y	
	~~RQ1406802-01~~ ~~CCV 1.00 PPB~~	MS		02	Y	
	CCV 1.00 PPB		70263	03	YC	
	-07	MSD		04	Y	
	4353-010			05	Y	
	-011			06	Y	
	4412-001			07	Y	
	-002			08	Y	
	4421-002			09	Y	
	4507-005			10	Y	
	4548-001			11	Y	
	4354-001			12	Y	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 70263 exp: 11/3/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

Runlog HPLC02r1
1/10/13

Analysis: 6850.PARC Analyst: BA Run Method: Perchlorate

Date: 6/18/14 Instr. HPLC-02 Quant Method: Perc0129

LIMS Run#:

Setup: Column: K' Prime # 2011 Col.Temp: 30 Flow: 0.5 ml/min

Mobile Phase: 50/50 H_2O/MeCN 0.1% CH_3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	R1404354-002			B0031513	Y	
	CCV 1.00 PPB		70263	14	YC	
	-003			15	Y	
	-004			16	Y	
	4565-003			17	Y	
	-008			18	Y	
	-010			19	Y	
	-013			20	Y	
	RQ1406302-04	LOD		21	Y	
	CCV 1.00 PPB		70263	22	YC	
	$\bar{x}$ = 191901					
	High = 387852					
	Low = 95957					

6/18/14

BA

All samples = _____mL + _____uL Combined IS/Surr.;

Primary : 70263 exp: 11/3/14 Secondary : _____ exp:

Primary: _____ exp: Secondary : _____ exp:

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July 11, 2014

Ms. Carlyn Tufts
NASA/WSTF/Navarro
P.O. Box 20
Las Cruces, NM 88004

Re: **Laboratory Results for: White Sands Test Facility**

Dear Ms. Tufts:

Enclosed are the results of the sample(s) submitted to our laboratory on June 19, 2014. For your reference, these analyses have been assigned our service request number **R1404651.** All samples were subcontracted to ALS-Houston for analysis and their complete report has been included.

All results are intended to be considered in their entirety, and ALS is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Environmental

Janice Jaeger
Client Services Manager

Cooler Receipt and Preservation Check Form

Project/Client NASA Folder Number A14-4651.

Cooler received on 6/19/14 by: JPS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y N	5a	**Perchlorate** samples have required headspace?	Y N NA
2	**Custody papers** properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N NA
3	Did all bottles arrive in good **condition** (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: **Wet Ice Dry Ice Gel packs** present?	Y N	7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 6/19/14 Time: 0952 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	5.9	4.3	3.4				
Correction Factor (°C)	–	–	-1.7				
Corrected Temp (°C)	5.9	4.3	1.7				
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: room by JPS on 6/19/14 at 0952
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: JMS 6/19/14

Cooler Breakdown: Date: 6/20/14 Time: 1540 by: JPS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated NA

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: client

Other Comments:

* SEE COC.

140616 1345 200-SB-13 - bottle for dioxin arrived broken

** Jars for last location appear to be completely different samples (look different based on color) 140616 1548 200-SB-13 @ 28-30/32 is light brown in color.
140616 1549 200-SB-13 @ 28-30/32 is a sandy ash color.

PC Secondary Review: JMS 7/11/14 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

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www.alsglobal.com

July 08, 2014 Service Request No: R1404651

Janice Jaeger
ALS Group USA, Corp.
1565 Jefferson Road
Building 300, Suite 360
Rochester, NY 14623

Laboratory Results for: NASA/WSTF/Navarro.

Dear Janice:

Enclosed are the results of the sample(s) submitted to our laboratory on June 24, 2013. For your reference, these analyses have been assigned our service request number **R1404651**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided.
All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the 2009 TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My direct line is 281-575-2279. You may also contact me via email at Arthi.Kodur@alsglobal.com

Respectfully submitted,

ALS Group USA Corp., dba ALS Environmental

Arthi Kodur
Project Manager

For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com

RIGHT SOLUTIONS | RIGHT PARTNER

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL

Client:	NASA/WSTF/Navarro	**Service Request No.:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Received:**	6/24/14
Sample Matrix:	Soil		

ALS ENVIRONMENTAL NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Seventeen soil samples were received for analysis at ALS Environmental on 6/24/14.

Please note the reporting forms are currently referencing the date ALS Environmental-Rochester received the samples (6/19/14) and not the date ALS Environmental-Houston received the samples (6/24/14).

The samples were received at 0°C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

EDD

The EDD and hardcopy match with correctness and completeness.

Data Validation Notes and Discussion

Extraction

Sample R1404651-004 (1406091614 200-SB-21 7.5/10') consisted of only rocks. The client was contacted and instructed the laboratory to extract the sample as is.

MS/MSD

EQ1400342: Laboratory Control Spike (LCS) sample was analyzed and reported in addition to an MS/MSD for this extraction batch. 12378 PeCDF was outside the percent recovery for EQ1400342-02 (LCS). All samples, except R1404651-017 (1406161548 200-SB-13 28-30/32'), were non-detect for 12378 PeCDF. Sample R1404651-017 (1406161548 200-SB-13 28-30/32') has a result for 12378 PeCDF, however qualified with a J flag.

Several analytes were slightly above the flagging limits for EQ1400342-03 (MS), 04 (MSD), 05 (MS) and 06 (MSD). Control charting of the standard indicates that the standard is trending high but within the laboratory's process control limits. This bias has been determined to be due to a concentration of the spiking standard, has been removed from use and addressed in the laboratory's corrective action system (HE0219). Since this spike is only used to fortify control samples, the associated sample results should not be impacted.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions were sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

Manual Integrations

For this type of instrumentation and software, manual integration may be required frequently to correct inaccurate integrations performed by the processing software. These manual integrations are indicated in the raw data with a before and after chromatogram and are stamped with the reason for integration.

The TEQ Summary results for each sample have been calculated by ALS ENVIRONMENTAL/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Service Request Summary

Folder #: **R1404651**
Client Name: NASA/WSTF/Navarro
Project Name: White Sands Test Facility
Project Number: 14EC011B

Report To: Carlyn Tufts
NASA/WSTF/Navarro
P.O. Box 20
Las Cruces, NM 88004
Phone Number: 575-524-5452
Cell Number:
Fax Number:
E-mail: carlyn.a.tufts@nasa.gov

Project Chemist: Arthi Kodur
Originating Lab: ROCHESTER
Logged By: GLAFORCE
Date Received: 6/19/14
Internal Due Date: 7/3/14
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number: 14EC011B
EDD: Honeywell WSTF

19 _ 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 3E

Lab Samp No.	Client Samp No.	Matrix	Collected	SVM 8290A/ PCDD PCDF	SVM CAS SOP/ Total Solids
R1404651-001	1406041205 200-SB-20 30'	Soil	6/4/14	III	III
R1404651-002	1406041724 200-SB-20 50'	Soil	6/4/14	III	III
R1404651-003	1406091139 200-SB-21 7.5/10'	Soil	6/9/14	III	III
R1404651-004	1406091614 200-SB-21 7.5/10'	Soil	6/9/14	III	III
R1404651-005	1406091749 200-SB-21 7.5/10'	Soil	6/9/14	III	III
R1404651-006	1406111503 200-SB-7 8/10'	Soil	6/11/14	III	III
R1404651-007	1406111634 200-SB-7 18/21'	Soil	6/11/14	III	III
R1404651-008	1406120934 200-SB-7 38-40'	Soil	6/12/14	III	III
R1404651-009	1406130804 200-SB-8 8/10'	Soil	6/13/14	III	III
R1404651-010	1406130814 200-SB-8 8/10'	Soil	6/13/14	III	III
R1404651-011	1406130944 200-SB-8 28/30'	Soil	6/13/14	III	III
R1404651-012	1406131304 200-SB-8 43/45'	Soil	6/13/14	III	III
R1404651-013	1406141704 200-SB-6 8/10'	Soil	6/14/14	III	III
R1404651-014	1406151129 200-SB-5 8/10'	Soil	6/15/14	III	III
R1404651-015	1406151145 200-SB-5 8/10'	Soil	6/15/14	III	III
R1404651-016	1406161404 200-SB-13 8/10'	Soil	6/16/14	III	III
R1404651-017	1406161548 200-SB-13 28-30/32'	Soil	6/16/14	III	III

Run QC on sample R1404651-006 for 8290A/PCDD PCDF, CAS SOP/Total Solids
Run QC on sample R1404651-017 for 8290A/PCDD PCDF, CAS SOP/Total Solids

Service Request Summary

Folder #:	**R1404651**	Project Chemist:	Arthi Kodur
Client Name:	NASA/WSTF/Navarro	Originating Lab:	ROCHESTER
Project Name:	White Sands Test Facility	Logged By:	GLAFORCE
Project Number:	14EC011B	Date Received:	6/19/14
Report To:	Carlyn Tufts	Internal Due Date:	7/3/14
	NASA/WSTF/Navarro	QAP:	LAB QAP
	P.O. Box 20	Qualifier Set:	Lab Standard
	Las Cruces, NM 88004	Formset:	Lab Standard
Phone Number:	575-524-5452	Merged?:	N
Cell Number:		Report to MDL?:	Y
Fax Number:		P.O. Number:	14EC011B
E-mail:	carlyn.a.tufts@nasa.gov	EDD:	Honeywell WSTF

19 - 4 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: EHRMS-WIC 3E

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	PCDD PCDF/8290A	1-17	full list MS/MSD on samples 006 and 017 client due date of 7/10 is correct (ak 6/24/14)
Semivoa GCMS	Total Solids/CAS SOP	1-17	full list MS/MSD on samples 006 and 017 client due date of 7/10 is correct (ak 6/24/14)

Client: NASA/WSTF/Navarro **Service Request:** R1404651
Project: White Sands Test Facility/14EC011B

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1404651-001	1406041205 200-SB-20 30'	6/4/14	
R1404651-002	1406041724 200-SB-20 50'	6/4/14	
R1404651-003	1406091139 200-SB-21 7.5/10'	6/9/14	
R1404651-004	1406091614 200-SB-21 7.5/10'	6/9/14	
R1404651-005	1406091749 200-SB-21 7.5/10'	6/9/14	
R1404651-006	1406111503 200-SB-7 8/10'	6/11/14	
R1404651-007	1406111634 200-SB-7 18/21'	6/11/14	
R1404651-008	1406120934 200-SB-7 38-40'	6/12/14	
R1404651-009	1406130804 200-SB-8 8/10'	6/13/14	
R1404651-010	1406130814 200-SB-8 8/10'	6/13/14	
R1404651-011	1406130944 200-SB-8 28/30'	6/13/14	
R1404651-012	1406131304 200-SB-8 43/45'	6/13/14	
R1404651-013	1406141704 200-SB-6 8/10'	6/14/14	
R1404651-014	1406151129 200-SB-5 8/10'	6/15/14	
R1404651-015	1406151145 200-SB-5 8/10'	6/15/14	
R1404651-016	1406161404 200-SB-13 8/10'	6/16/14	
R1404651-017	1406161548 200-SB-13 28-30/32'	6/16/14	

Superset Summary

Service Request: R1404651 **SuperSet Reference:** 14-0000294459 rev 00

8290A/PCDD PCDF

Calibrations: 05/21/2014 02/01/14

Data Files:

Raw Data	*Begin CCAL*	*Method Blank*	*Lab ID*
P229927	P229921	U149804	R1404651-012
P229928	P229921	U149804	R1404651-013
P229929	P229921	U149804	R1404651-014
P229937	P229934	U149804	R1404651-015
P229938	P229934	U149804	R1404651-016
P229939	P229934	U149804	R1404651-017
P229940	P229934	U149804	EQ1400342-03
P229941	P229934	U149804	EQ1400342-04
P229942	P229934	U149804	EQ1400342-05
P229943	P229934	U149804	EQ1400342-06
U149804	U149801	U149804	EQ1400342-01
U149805	U149801	U149804	R1404651-001
U149806	U149801	U149804	R1404651-002
U149807	U149801	U149804	R1404651-003
U149808	U149801	U149804	R1404651-004
U149809	U149801	U149804	R1404651-005
U149810	U149801	U149804	R1404651-006
U149816	U149813	U149804	R1404651-007
U149817	U149813	U149804	R1404651-008
U149818	U149813	U149804	R1404651-009
U149819	U149813	U149804	R1404651-010
U149820	U149813	U149804	R1404651-011
U149829	U149821	U149804	EQ1400342-02

Laboratory Certifications
2014-2015

STATE/PROGRAM	AGENCY	CERT#	EXP DATE	CERTIFIED?
ARIZONA	AZ-DHS	AZ0725	05/27/14	Yes
ARKANSAS	ADEQ	12-035-0	06/16/14	Yes
CALIFORNIA	CA-ELAP	2452	02/28/15	Yes
DOD ELAP	A2LA	2897.01	11/30/14	Yes
FLORIDA/NELAP	FL-DOHS	E87611	06/30/14	Yes
HAWAII	HI-DOH	N/A	06/30/14	Yes
ILLINOIS/NELAP	IL-EPA	003004	10/06/14	Yes
ISO 17025	A2LA	2897.01	01/31/14	Yes
KANSAS	KS-DHE	E-10406	11/30/14	Yes
LOUISIANA/NELAP	LELAP	03048	06/30/14	Yes
LOUISIANA/NELAP	LDHH	LA120014	12/31/14	Yes
MAINE	ME-DOHS	2012017	06/05/14	Yes
MARYLAND	MDE	343	06/30/14	Yes
MICHIGAN	MIDEQ	9971	06/30/14	Yes
MINNESOTA	MDH	048-999-427	12/31/14	Yes
NEVADA	NDEP	TX014112013A	07/31/14	Yes
NEW JERSEY	NJDEP	TX008	06/30/14	Yes
NEW MEXICO	NMED-DWB	N/A	06/30/14	Yes
NEW YORK/NELAP	NY-DOH	11707	04/01/14	Yes
OKLAHOMA	OKDEQ	2012-133	08/31/14	Yes
OREGON/NELAP	ORELAP	TX200002-009	03/24/14	Yes
PENNSYLVANIA/NELAP	PLAP	68-03441	06/30/14	Yes
SOIL IMPORT PERMIT	USDA	P330-12-00002	01/13/15	Yes
TENNESSEE	TNDEC	TN04016	06/30/14	Yes
TEXAS/NELAP	TCEQ	T104704216-12-3	06/30/14	Yes
UTAH/NELAP	UTELCP	TX014112013-2	06/30/14	Yes
WASHINGTON/NELAP	WA-Ecology	C819-12	11/14/14	Yes
WEST VIRGINIA	WVDEP	347	07/31/14	Yes

Abbreviations, Acronyms & Definitions

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

Data Qualifier Flags – Dioxin/Furans

B Indicates the associated analyte is found in the method blank, as well as in the sample

C 2378-TCDF is detected on the DB-5 column above the MRL, confirmation analysis was performed on a second column (DB-225.) The results from both the DB-5 column and the DB-225 column are included in this data package. The results from the DB-225 analyses should be used to evaluate the 2378-TCDF in the samples. The confirmed result are used in determining the TEQ value for TCDF.

E The reported result is above the instrument calibration range and is an estimated value.

J Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL)

K Ion abundance ratios between the primary and secondary ions were outside of theoretical acceptance limits. The reported result is an estimated maximum possible concentration (EMPC)

i The associated MRL/MDL has been elevated due to matrix interference.

U Indicates the compound was analyzed for, but not detected (ND)

Y C13-Labeled standard percent recoveries are outside of method acceptance limits

S Peak is saturated; data not reportable

P Indicates chlorodiphenyl ether interference present at the retention time of the target compound.

X See case narrative

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID R1404651 DB-5 DB-5MSUI DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
7/2/14	[illegible]	1-6

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
07/03/14	UM	001-006

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID R1404651 DB-5 DB-5MSUI DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 07/03/14	Analyst:	Samples: 007-011

Second Level - Data Review – to be filled by person doing peer review

Date: 07/07/14	Analyst:	Samples: 007-011

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID R1404651 DB-5 DB-5MSUI DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
07/07/14	JC	012-014

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
07/07/14	UM	012-014

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID R1404651 DB-5 DB-5MSUI DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
07/07/14	JC	015-017, EQ1400342-03, EQ1400342-04, EQ1400342-05, EQ1400342-06

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
07/08/14	UU	015-017 EQ1400342-03,04,05,06

PEER REVIEW PAGE.DOC

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041205 200-SB-20 30'	**Units:**	ng/Kg
Lab Code:	R1404651-001	**Basis:**	Dry
		Percent Solids:	99.4

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2139
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.230g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149805	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.369	0.492			1
1,2,3,7,8-PeCDD	ND	U	0.548	2.46			1
1,2,3,6,7,8-HxCDD	ND	U	0.277	2.46			1
1,2,3,4,7,8-HxCDD	ND	U	0.254	2.46			1
1,2,3,7,8,9-HxCDD	ND	U	0.244	2.46			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.311	2.46			1
OCDD	**1.03**	JK	0.635	4.92	0.47	1.000	1
2,3,7,8-TCDF	ND	U	0.384	0.492			1
1,2,3,7,8-PeCDF	ND	U	0.261	2.46			1
2,3,4,7,8-PeCDF	ND	U	0.265	2.46			1
1,2,3,6,7,8-HxCDF	ND	U	0.174	2.46			1
1,2,3,7,8,9-HxCDF	ND	U	0.244	2.46			1
1,2,3,4,7,8-HxCDF	ND	U	0.209	2.46			1
2,3,4,6,7,8-HxCDF	ND	U	0.185	2.46			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.256	2.46			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.313	2.46			1
OCDF	ND	U	0.529	4.92			1
Total Tetra-Dioxins	ND	U	0.369	0.492			1
Total Penta-Dioxins	ND	U	0.548	2.46			1
Total Hexa-Dioxins	**0.380**	J	0.258	2.46	1.17		1
Total Hepta-Dioxins	ND	U	0.311	2.46			1
Total Tetra-Furans	**0.656**		0.384	0.492	0.87		1
Total Penta-Furans	ND	U	0.250	2.46			1
Total Hexa-Furans	ND	U	0.200	2.46			1
Total Hepta-Furans	ND	U	0.283	2.46			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041205 200-SB-20 30'	**Units:**	Percent
Lab Code:	R1404651-001	**Basis:**	Dry
		Percent Solids:	99.4

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2139
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.230g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149805	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	973.472	49		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1142.841	57		40-135	1.57	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1203.396	60		40-135	1.35	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1154.561	58		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1208.789	60		40-135	1.09	1.067
13C-OCDD	4000	1877.035	47		40-135	0.91	1.145
13C-2,3,7,8-TCDF	2000	971.324	49		40-135	0.82	0.994
13C-1,2,3,7,8-PeCDF	2000	1035.333	52		40-135	1.56	1.137
13C-2,3,4,7,8-PeCDF	2000	1014.402	51		40-135	1.60	1.168
13C-1,2,3,4,7,8-HxCDF	2000	1050.331	53		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1279.063	64		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1082.310	54		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1207.591	60		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1040.808	52		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1116.953	56		40-135	0.45	1.081
37Cl-2,3,7,8-TCDD	800	324.696	41		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041205 200-SB-20 30'	**Units:**	ng/Kg
Lab Code:	R1404651-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.369	0.492	1	1	
1,2,3,7,8-PeCDD	ND	0.548	2.46	1	1	
1,2,3,6,7,8-HxCDD	ND	0.277	2.46	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.254	2.46	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.244	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.311	2.46	1	0.01	
OCDD	**1.03**	0.635	4.92	1	0.0003	0.000309
2,3,7,8-TCDF	ND	0.384	0.492	1	0.1	
1,2,3,7,8-PeCDF	ND	0.261	2.46	1	0.03	
2,3,4,7,8-PeCDF	ND	0.265	2.46	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.174	2.46	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.244	2.46	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.209	2.46	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.185	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.256	2.46	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.313	2.46	1	0.01	
OCDF	ND	0.529	4.92	1	0.0003	
		Total TEQ				0.000309

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406041205 200-SB-20 30'	**Units:**	Percent
Lab Code:	R1404651-001	**Basis:**	Dry
		Percent Solids:	99.4

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	99.4				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041724 200-SB-20 50'	**Units:**	ng/Kg
Lab Code:	R1404651-002	**Basis:**	Dry
		Percent Solids:	99.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2228
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.324g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149806	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.384	0.486			1
1,2,3,7,8-PeCDD	ND	U	0.535	2.43			1
1,2,3,6,7,8-HxCDD	ND	U	0.353	2.43			1
1,2,3,4,7,8-HxCDD	ND	U	0.329	2.43			1
1,2,3,7,8,9-HxCDD	ND	U	0.314	2.43			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.290	2.43			1
OCDD	ND	U	0.594	4.86			1
2,3,7,8-TCDF	ND	U	0.319	0.486			1
1,2,3,7,8-PeCDF	ND	U	0.317	2.43			1
2,3,4,7,8-PeCDF	ND	U	0.327	2.43			1
1,2,3,6,7,8-HxCDF	ND	U	0.188	2.43			1
1,2,3,7,8,9-HxCDF	ND	U	0.275	2.43			1
1,2,3,4,7,8-HxCDF	ND	U	0.236	2.43			1
2,3,4,6,7,8-HxCDF	ND	U	0.206	2.43			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.231	2.43			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.269	2.43			1
OCDF	ND	U	0.582	4.86			1
Total Tetra-Dioxins	ND	U	0.384	0.486			1
Total Penta-Dioxins	ND	U	0.535	2.43			1
Total Hexa-Dioxins	ND	U	0.332	2.43			1
Total Hepta-Dioxins	ND	U	0.290	2.43			1
Total Tetra-Furans	**0.392**	J	0.319	0.486	0.70		1
Total Penta-Furans	ND	U	0.207	2.43			1
Total Hexa-Furans	ND	U	0.222	2.43			1
Total Hepta-Furans	ND	U	0.249	2.43			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041724 200-SB-20 50'	**Units:**	Percent
Lab Code:	R1404651-002	**Basis:**	Dry
		Percent Solids:	99.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2228
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.324g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149806	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	949.882	47		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1172.276	59		40-135	1.57	1.177
13C-1,2,3,4,7,8-HxCDD	2000	1223.723	61		40-135	1.28	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1179.518	59		40-135	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1190.551	60		40-135	1.08	1.067
13C-OCDD	4000	1769.944	44		40-135	0.93	1.145
13C-2,3,7,8-TCDF	2000	980.340	49		40-135	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1071.473	54		40-135	1.57	1.137
13C-2,3,4,7,8-PeCDF	2000	1019.867	51		40-135	1.58	1.168
13C-1,2,3,4,7,8-HxCDF	2000	1064.734	53		40-135	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1319.598	66		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1091.625	55		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1256.752	63		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1079.410	54		40-135	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1153.153	58		40-135	0.43	1.080
37Cl-2,3,7,8-TCDD	800	345.304	43		40-135	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406041724 200-SB-20 50'	**Units:**	ng/Kg
Lab Code:	R1404651-002	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.384	0.486	1	1	
1,2,3,7,8-PeCDD	ND	0.535	2.43	1	1	
1,2,3,6,7,8-HxCDD	ND	0.353	2.43	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.329	2.43	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.314	2.43	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.290	2.43	1	0.01	
OCDD	ND	0.594	4.86	1	0.0003	
2,3,7,8-TCDF	ND	0.319	0.486	1	0.1	
1,2,3,7,8-PeCDF	ND	0.317	2.43	1	0.03	
2,3,4,7,8-PeCDF	ND	0.327	2.43	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.188	2.43	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.275	2.43	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.236	2.43	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.206	2.43	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.231	2.43	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.269	2.43	1	0.01	
OCDF	ND	0.582	4.86	1	0.0003	
		Total TEQ				0.00

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 4/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406041724 200-SB-20 50'	**Units:**	Percent
Lab Code:	R1404651-002	**Basis:**	Dry
		Percent Solids:	99.7

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	99.7				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091139 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-003	**Basis:**	Dry
		Percent Solids:	93.8

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2317
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.009g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149807	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.440	0.533			1
1,2,3,7,8-PeCDD	ND	U	0.631	2.66			1
1,2,3,6,7,8-HxCDD	ND	U	0.316	2.66			1
1,2,3,4,7,8-HxCDD	ND	U	0.306	2.66			1
1,2,3,7,8,9-HxCDD	ND	U	0.286	2.66			1
1,2,3,4,6,7,8-HpCDD	**1.03**	JK	0.446	2.66	0.62	1.000	1
OCDD	**6.36**		0.564	5.33	0.95	1.000	1
2,3,7,8-TCDF	ND	U	0.373	0.533			1
1,2,3,7,8-PeCDF	ND	U	0.313	2.66			1
2,3,4,7,8-PeCDF	ND	U	0.327	2.66			1
1,2,3,6,7,8-HxCDF	ND	U	0.213	2.66			1
1,2,3,7,8,9-HxCDF	ND	U	0.294	2.66			1
1,2,3,4,7,8-HxCDF	ND	U	0.260	2.66			1
2,3,4,6,7,8-HxCDF	ND	U	0.234	2.66			1
1,2,3,4,6,7,8-HpCDF	**0.348**	JK	0.274	2.66	1.85	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.347	2.66			1
OCDF	**2.06**	J	0.625	5.33	0.92	1.005	1
Total Tetra-Dioxins	ND	U	0.440	0.533			1
Total Penta-Dioxins	ND	U	0.631	2.66			1
Total Hexa-Dioxins	ND	U	0.303	2.66			1
Total Hepta-Dioxins	ND	U	0.446	2.66			1
Total Tetra-Furans	ND	U	0.373	0.533			1
Total Penta-Furans	ND	U	0.303	2.66			1
Total Hexa-Furans	ND	U	0.246	2.66			1
Total Hepta-Furans	ND	U	0.308	2.66			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091139 200-SB-21 7.5/10'	**Units:**	Percent
Lab Code:	R1404651-003	**Basis:**	Dry
		Percent Solids:	93.8

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2317
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.009g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149807	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	926.091	46		40-135	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1134.480	57		40-135	1.58	1.177
13C-1,2,3,4,7,8-HxCDD	2000	1126.446	56		40-135	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1148.703	57		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1173.962	59		40-135	1.08	1.067
13C-OCDD	4000	1878.915	47		40-135	0.91	1.145
13C-2,3,7,8-TCDF	2000	953.304	48		40-135	0.82	0.994
13C-1,2,3,7,8-PeCDF	2000	1048.951	52		40-135	1.55	1.137
13C-2,3,4,7,8-PeCDF	2000	997.903	50		40-135	1.55	1.168
13C-1,2,3,4,7,8-HxCDF	2000	1015.097	51		40-135	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1253.247	63		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1073.099	54		40-135	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1195.358	60		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1057.453	53		40-135	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1082.947	54		40-135	0.45	1.080
37Cl-2,3,7,8-TCDD	800	338.480	42		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091139 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-003	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.440	0.533	1	1	
1,2,3,7,8-PeCDD	ND	0.631	2.66	1	1	
1,2,3,6,7,8-HxCDD	ND	0.316	2.66	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.306	2.66	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.286	2.66	1	0.1	
1,2,3,4,6,7,8-HpCDD	**1.03**	0.446	2.66	1	0.01	0.0103
OCDD	**6.36**	0.564	5.33	1	0.0003	0.00191
2,3,7,8-TCDF	ND	0.373	0.533	1	0.1	
1,2,3,7,8-PeCDF	ND	0.313	2.66	1	0.03	
2,3,4,7,8-PeCDF	ND	0.327	2.66	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.213	2.66	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.294	2.66	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.260	2.66	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.234	2.66	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.348**	0.274	2.66	1	0.01	0.00348
1,2,3,4,7,8,9-HpCDF	ND	0.347	2.66	1	0.01	
OCDF	**2.06**	0.625	5.33	1	0.0003	0.000618
		Total TEQ				0.0163

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406091139 200-SB-21 7.5/10'	**Units:**	Percent
Lab Code:	R1404651-003	**Basis:**	Dry
		Percent Solids:	93.8

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	93.8				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091614 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-004	**Basis:**	Dry
		Percent Solids:	99.8

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0005
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.192g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149808	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.335	0.492			1
1,2,3,7,8-PeCDD	ND	U	0.535	2.46			1
1,2,3,6,7,8-HxCDD	ND	U	0.210	2.46			1
1,2,3,4,7,8-HxCDD	ND	U	0.203	2.46			1
1,2,3,7,8,9-HxCDD	ND	U	0.190	2.46			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.335	2.46			1
OCDD	ND	U	0.493	4.92			1
2,3,7,8-TCDF	ND	U	0.348	0.492			1
1,2,3,7,8-PeCDF	ND	U	0.233	2.46			1
2,3,4,7,8-PeCDF	ND	U	0.235	2.46			1
1,2,3,6,7,8-HxCDF	ND	U	0.162	2.46			1
1,2,3,7,8,9-HxCDF	ND	U	0.235	2.46			1
1,2,3,4,7,8-HxCDF	ND	U	0.202	2.46			1
2,3,4,6,7,8-HxCDF	ND	U	0.174	2.46			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.238	2.46			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.295	2.46			1
OCDF	ND	U	0.592	4.92			1
Total Tetra-Dioxins	ND	U	0.335	0.492			1
Total Penta-Dioxins	ND	U	0.535	2.46			1
Total Hexa-Dioxins	ND	U	0.201	2.46			1
Total Hepta-Dioxins	ND	U	0.335	2.46			1
Total Tetra-Furans	ND	U	0.348	0.492			1
Total Penta-Furans	ND	U	0.198	2.46			1
Total Hexa-Furans	ND	U	0.189	2.46			1
Total Hepta-Furans	ND	U	0.265	2.46			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091614 200-SB-21 7.5/10'	**Units:**	Percent
Lab Code:	R1404651-004	**Basis:**	Dry
		Percent Solids:	99.8

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0005
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.192g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149808	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1014.292	51		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1202.158	60		40-135	1.59	1.177
13C-1,2,3,4,7,8-HxCDD	2000	1256.244	63		40-135	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1247.355	62		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1212.741	61		40-135	1.11	1.067
13C-OCDD	4000	1820.579	46		40-135	0.91	1.145
13C-2,3,7,8-TCDF	2000	1044.925	52		40-135	0.83	0.994
13C-1,2,3,7,8-PeCDF	2000	1094.842	55		40-135	1.58	1.137
13C-2,3,4,7,8-PeCDF	2000	1070.556	54		40-135	1.61	1.168
13C-1,2,3,4,7,8-HxCDF	2000	1123.238	56		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1383.209	69		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1121.337	56		40-135	0.53	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1309.369	65		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1099.709	55		40-135	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1146.490	57		40-135	0.45	1.081
37Cl-2,3,7,8-TCDD	800	351.433	44		40-135	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091614 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-004	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.335	0.492	1	1	
1,2,3,7,8-PeCDD	ND	0.535	2.46	1	1	
1,2,3,6,7,8-HxCDD	ND	0.210	2.46	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.203	2.46	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.190	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.335	2.46	1	0.01	
OCDD	ND	0.493	4.92	1	0.0003	
2,3,7,8-TCDF	ND	0.348	0.492	1	0.1	
1,2,3,7,8-PeCDF	ND	0.233	2.46	1	0.03	
2,3,4,7,8-PeCDF	ND	0.235	2.46	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.162	2.46	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.235	2.46	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.202	2.46	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.174	2.46	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.238	2.46	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.295	2.46	1	0.01	
OCDF	ND	0.592	4.92	1	0.0003	
		Total TEQ				0.00

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406091614 200-SB-21 7.5/10'	**Units:**	Percent
Lab Code:	R1404651-004	**Basis:**	Dry
		Percent Solids:	99.8

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	99.8				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091749 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-005	**Basis:**	Dry
		Percent Solids:	98.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0054
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.001g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149809	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.400	0.506			1
1,2,3,7,8-PeCDD	ND	U	0.470	2.53			1
1,2,3,6,7,8-HxCDD	ND	U	0.271	2.53			1
1,2,3,4,7,8-HxCDD	ND	U	0.257	2.53			1
1,2,3,7,8,9-HxCDD	ND	U	0.243	2.53			1
1,2,3,4,6,7,8-HpCDD	**1.11**	J	0.318	2.53	1.17	1.001	1
OCDD	**6.91**		0.604	5.06	0.83	1.000	1
2,3,7,8-TCDF	ND	U	0.342	0.506			1
1,2,3,7,8-PeCDF	ND	U	0.295	2.53			1
2,3,4,7,8-PeCDF	ND	U	0.307	2.53			1
1,2,3,6,7,8-HxCDF	ND	U	0.168	2.53			1
1,2,3,7,8,9-HxCDF	ND	U	0.244	2.53			1
1,2,3,4,7,8-HxCDF	ND	U	0.209	2.53			1
2,3,4,6,7,8-HxCDF	ND	U	0.187	2.53			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.196	2.53			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.244	2.53			1
OCDF	ND	U	0.552	5.06			1
Total Tetra-Dioxins	ND	U	0.400	0.506			1
Total Penta-Dioxins	ND	U	0.470	2.53			1
Total Hexa-Dioxins	ND	U	0.257	2.53			1
Total Hepta-Dioxins	**1.11**	J	0.318	2.53	1.17		1
Total Tetra-Furans	ND	U	0.342	0.506			1
Total Penta-Furans	ND	U	0.228	2.53			1
Total Hexa-Furans	ND	U	0.197	2.53			1
Total Hepta-Furans	ND	U	0.219	2.53			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091749 200-SB-21 7.5/10'	**Units:**	Percent
Lab Code:	R1404651-005	**Basis:**	Dry
		Percent Solids:	98.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0054
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.001g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149809	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	933.169	47		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1147.807	57		40-135	1.61	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1181.012	59		40-135	1.29	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1190.484	60		40-135	1.32	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1175.509	59		40-135	1.06	1.067
13C-OCDD	4000	1817.479	45		40-135	0.89	1.145
13C-2,3,7,8-TCDF	2000	928.762	46		40-135	0.82	0.994
13C-1,2,3,7,8-PeCDF	2000	1057.258	53		40-135	1.61	1.137
13C-2,3,4,7,8-PeCDF	2000	1011.303	51		40-135	1.60	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1055.004	53		40-135	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1332.976	67		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1052.125	53		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1238.207	62		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1083.978	54		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1103.190	55		40-135	0.43	1.081
37Cl-2,3,7,8-TCDD	800	332.936	42		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406091749 200-SB-21 7.5/10'	**Units:**	ng/Kg
Lab Code:	R1404651-005	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.400	0.506	1	1	
1,2,3,7,8-PeCDD	ND	0.470	2.53	1	1	
1,2,3,6,7,8-HxCDD	ND	0.271	2.53	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.257	2.53	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.243	2.53	1	0.1	
1,2,3,4,6,7,8-HpCDD	**1.11**	0.318	2.53	1	0.01	0.0111
OCDD	**6.91**	0.604	5.06	1	0.0003	0.00207
2,3,7,8-TCDF	ND	0.342	0.506	1	0.1	
1,2,3,7,8-PeCDF	ND	0.295	2.53	1	0.03	
2,3,4,7,8-PeCDF	ND	0.307	2.53	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.168	2.53	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.244	2.53	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.209	2.53	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.187	2.53	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.196	2.53	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.244	2.53	1	0.01	
OCDF	ND	0.552	5.06	1	0.0003	
		Total TEQ				0.0132

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/ 9/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406091749 200-SB-21 7.5/10'	**Units:**	Percent
Lab Code:	R1404651-005	**Basis:**	Dry
		Percent Solids:	98.9

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	98.9				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-006	**Basis:**	Dry
		Percent Solids:	95.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0143
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.027g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149810	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.339	0.524			1
1,2,3,7,8-PeCDD	ND	U	0.397	2.62			1
1,2,3,6,7,8-HxCDD	ND	U	0.283	2.62			1
1,2,3,4,7,8-HxCDD	ND	U	0.275	2.62			1
1,2,3,7,8,9-HxCDD	ND	U	0.257	2.62			1
1,2,3,4,6,7,8-HpCDD	**1.37**	JK	0.272	2.62	0.84	1.000	1
OCDD	**17.1**		0.447	5.24	0.91	1.000	1
2,3,7,8-TCDF	ND	U	0.287	0.524			1
1,2,3,7,8-PeCDF	ND	U	0.231	2.62			1
2,3,4,7,8-PeCDF	ND	U	0.239	2.62			1
1,2,3,6,7,8-HxCDF	ND	U	0.159	2.62			1
1,2,3,7,8,9-HxCDF	ND	U	0.212	2.62			1
1,2,3,4,7,8-HxCDF	ND	U	0.199	2.62			1
2,3,4,6,7,8-HxCDF	ND	U	0.177	2.62			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.183	2.62			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.205	2.62			1
OCDF	ND	U	0.421	5.24			1
Total Tetra-Dioxins	ND	U	0.339	0.524			1
Total Penta-Dioxins	ND	U	0.397	2.62			1
Total Hexa-Dioxins	ND	U	0.272	2.62			1
Total Hepta-Dioxins	**1.21**	J	0.272	2.62	1.09		1
Total Tetra-Furans	ND	U	0.287	0.524			1
Total Penta-Furans	ND	U	0.232	2.62			1
Total Hexa-Furans	ND	U	0.184	2.62			1
Total Hepta-Furans	ND	U	0.194	2.62			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	Percent
Lab Code:	R1404651-006	**Basis:**	Dry
		Percent Solids:	95.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 0143
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.027g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149810	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1089.751	54		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1326.358	66		40-135	1.56	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1339.407	67		40-135	1.29	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1299.241	65		40-135	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1309.957	65		40-135	1.10	1.067
13C-OCDD	4000	1954.304	49		40-135	0.91	1.145
13C-2,3,7,8-TCDF	2000	1104.619	55		40-135	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1215.111	61		40-135	1.59	1.137
13C-2,3,4,7,8-PeCDF	2000	1170.930	59		40-135	1.59	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1169.326	58		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1448.061	72		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1295.479	65		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1361.439	68		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1162.202	58		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1270.340	64		40-135	0.45	1.081
37Cl-2,3,7,8-TCDD	800	382.458	48		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-006	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.339	0.524	1	1	
1,2,3,7,8-PeCDD	ND	0.397	2.62	1	1	
1,2,3,6,7,8-HxCDD	ND	0.283	2.62	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.275	2.62	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.257	2.62	1	0.1	
1,2,3,4,6,7,8-HpCDD	**1.37**	0.272	2.62	1	0.01	0.0137
OCDD	**17.1**	0.447	5.24	1	0.0003	0.00513
2,3,7,8-TCDF	ND	0.287	0.524	1	0.1	
1,2,3,7,8-PeCDF	ND	0.231	2.62	1	0.03	
2,3,4,7,8-PeCDF	ND	0.239	2.62	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.159	2.62	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.212	2.62	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.199	2.62	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.177	2.62	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.183	2.62	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.205	2.62	1	0.01	
OCDF	ND	0.421	5.24	1	0.0003	
		Total TEQ				0.0188

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	Percent
Lab Code:	R1404651-006	**Basis:**	Dry
		Percent Solids:	95.2

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	95.2				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111634 200-SB-7 18/21'	**Units:**	ng/Kg
Lab Code:	R1404651-007	**Basis:**	Dry
		Percent Solids:	91.3

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1059
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.280g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149816	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.390	0.533			1
1,2,3,7,8-PeCDD	ND	U	0.360	2.66			1
1,2,3,6,7,8-HxCDD	ND	U	0.346	2.66			1
1,2,3,4,7,8-HxCDD	ND	U	0.342	2.66			1
1,2,3,7,8,9-HxCDD	ND	U	0.316	2.66			1
1,2,3,4,6,7,8-HpCDD	**0.827**	J	0.290	2.66	1.11	1.001	1
OCDD	**8.88**		0.530	5.33	0.82	1.000	1
2,3,7,8-TCDF	ND	U	0.322	0.533			1
1,2,3,7,8-PeCDF	ND	U	0.217	2.66			1
2,3,4,7,8-PeCDF	ND	U	0.217	2.66			1
1,2,3,6,7,8-HxCDF	ND	U	0.205	2.66			1
1,2,3,7,8,9-HxCDF	ND	U	0.319	2.66			1
1,2,3,4,7,8-HxCDF	ND	U	0.240	2.66			1
2,3,4,6,7,8-HxCDF	ND	U	0.227	2.66			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.253	2.66			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.288	2.66			1
OCDF	ND	U	0.519	5.33			1
Total Tetra-Dioxins	ND	U	0.390	0.533			1
Total Penta-Dioxins	ND	U	0.360	2.66			1
Total Hexa-Dioxins	ND	U	0.334	2.66			1
Total Hepta-Dioxins	**0.827**	J	0.290	2.66	1.11		1
Total Tetra-Furans	ND	U	0.322	0.533			1
Total Penta-Furans	ND	U	0.227	2.66			1
Total Hexa-Furans	ND	U	0.242	2.66			1
Total Hepta-Furans	ND	U	0.270	2.66			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111634 200-SB-7 18/21'	**Units:**	Percent
Lab Code:	R1404651-007	**Basis:**	Dry
		Percent Solids:	91.3

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1059
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.280g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149816	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1108.536	55		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1348.643	67		40-135	1.57	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1313.275	66		40-135	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1402.609	70		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1352.812	68		40-135	1.10	1.067
13C-OCDD	4000	2081.196	52		40-135	0.94	1.145
13C-2,3,7,8-TCDF	2000	1117.911	56		40-135	0.82	0.994
13C-1,2,3,7,8-PeCDF	2000	1211.799	61		40-135	1.60	1.137
13C-2,3,4,7,8-PeCDF	2000	1171.880	59		40-135	1.57	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1203.575	60		40-135	0.53	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1450.944	73		40-135	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1142.083	57		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1382.224	69		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1172.188	59		40-135	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1220.389	61		40-135	0.48	1.080
37Cl-2,3,7,8-TCDD	800	390.061	49		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111634 200-SB-7 18/21'	**Units:**	ng/Kg
Lab Code:	R1404651-007	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.390	0.533	1	1	
1,2,3,7,8-PeCDD	ND	0.360	2.66	1	1	
1,2,3,6,7,8-HxCDD	ND	0.346	2.66	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.342	2.66	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.316	2.66	1	0.1	
1,2,3,4,6,7,8-HpCDD	**0.827**	0.290	2.66	1	0.01	0.00827
OCDD	**8.88**	0.530	5.33	1	0.0003	0.00266
2,3,7,8-TCDF	ND	0.322	0.533	1	0.1	
1,2,3,7,8-PeCDF	ND	0.217	2.66	1	0.03	
2,3,4,7,8-PeCDF	ND	0.217	2.66	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.205	2.66	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.319	2.66	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.240	2.66	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.227	2.66	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.253	2.66	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.288	2.66	1	0.01	
OCDF	ND	0.519	5.33	1	0.0003	
		Total TEQ				0.0109

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406111634 200-SB-7 18/21'	**Units:**	Percent
Lab Code:	R1404651-007	**Basis:**	Dry
		Percent Solids:	91.3

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	91.3				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406120934 200-SB-7 38-40'	**Units:**	ng/Kg
Lab Code:	R1404651-008	**Basis:**	Dry
		Percent Solids:	82.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1147
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.172g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149817	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.451	0.593			1
1,2,3,7,8-PeCDD	ND	U	0.470	2.96			1
1,2,3,6,7,8-HxCDD	ND	U	0.364	2.96			1
1,2,3,4,7,8-HxCDD	ND	U	0.353	2.96			1
1,2,3,7,8,9-HxCDD	ND	U	0.330	2.96			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.414	2.96			1
OCDD	**0.874**	J	0.573	5.93	0.90	1.000	1
2,3,7,8-TCDF	ND	U	0.374	0.593			1
1,2,3,7,8-PeCDF	ND	U	0.287	2.96			1
2,3,4,7,8-PeCDF	ND	U	0.288	2.96			1
1,2,3,6,7,8-HxCDF	ND	U	0.177	2.96			1
1,2,3,7,8,9-HxCDF	ND	U	0.257	2.96			1
1,2,3,4,7,8-HxCDF	ND	U	0.208	2.96			1
2,3,4,6,7,8-HxCDF	ND	U	0.181	2.96			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.316	2.96			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.409	2.96			1
OCDF	ND	U	0.655	5.93			1
Total Tetra-Dioxins	ND	U	0.451	0.593			1
Total Penta-Dioxins	ND	U	0.470	2.96			1
Total Hexa-Dioxins	ND	U	0.349	2.96			1
Total Hepta-Dioxins	ND	U	0.414	2.96			1
Total Tetra-Furans	ND	U	0.374	0.593			1
Total Penta-Furans	ND	U	0.296	2.96			1
Total Hexa-Furans	ND	U	0.201	2.96			1
Total Hepta-Furans	ND	U	0.360	2.96			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406120934 200-SB-7 38-40'	**Units:**	Percent
Lab Code:	R1404651-008	**Basis:**	Dry
		Percent Solids:	82.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1147
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.172g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149817	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1064.318	53		40-135	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1290.012	65		40-135	1.54	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1333.538	67		40-135	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1354.189	68		40-135	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1232.990	62		40-135	1.08	1.067
13C-OCDD	4000	1997.913	50		40-135	0.92	1.145
13C-2,3,7,8-TCDF	2000	1064.292	53		40-135	0.83	0.994
13C-1,2,3,7,8-PeCDF	2000	1167.598	58		40-135	1.58	1.137
13C-2,3,4,7,8-PeCDF	2000	1136.569	57		40-135	1.55	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1142.555	57		40-135	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1410.058	71		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1153.931	58		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1394.510	70		40-135	0.49	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1156.290	58		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1172.242	59		40-135	0.45	1.081
37Cl-2,3,7,8-TCDD	800	349.298	44		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406120934 200-SB-7 38-40'	**Units:**	ng/Kg
Lab Code:	R1404651-008	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.451	0.593	1	1	
1,2,3,7,8-PeCDD	ND	0.470	2.96	1	1	
1,2,3,6,7,8-HxCDD	ND	0.364	2.96	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.353	2.96	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.330	2.96	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.414	2.96	1	0.01	
OCDD	**0.874**	0.573	5.93	1	0.0003	0.000262
2,3,7,8-TCDF	ND	0.374	0.593	1	0.1	
1,2,3,7,8-PeCDF	ND	0.287	2.96	1	0.03	
2,3,4,7,8-PeCDF	ND	0.288	2.96	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.177	2.96	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.257	2.96	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.208	2.96	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.181	2.96	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.316	2.96	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.409	2.96	1	0.01	
OCDF	ND	0.655	5.93	1	0.0003	
		Total TEQ				0.000262

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/12/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406120934 200-SB-7 38-40'	**Units:**	Percent
Lab Code:	R1404651-008	**Basis:**	Dry
		Percent Solids:	82.9

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	82.9				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130804 200-SB-8 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-009	**Basis:**	Dry
		Percent Solids:	95.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1236
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.247g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149818	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.410	0.510			1
1,2,3,7,8-PeCDD	ND	U	0.323	2.55			1
1,2,3,6,7,8-HxCDD	ND	U	0.269	2.55			1
1,2,3,4,7,8-HxCDD	ND	U	0.254	2.55			1
1,2,3,7,8,9-HxCDD	ND	U	0.241	2.55			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.390	2.55			1
OCDD	**1.46**	JK	0.680	5.10	1.38	1.000	1
2,3,7,8-TCDF	ND	U	0.273	0.510			1
1,2,3,7,8-PeCDF	ND	U	0.211	2.55			1
2,3,4,7,8-PeCDF	ND	U	0.216	2.55			1
1,2,3,6,7,8-HxCDF	ND	U	0.157	2.55			1
1,2,3,7,8,9-HxCDF	ND	U	0.240	2.55			1
1,2,3,4,7,8-HxCDF	ND	U	0.200	2.55			1
2,3,4,6,7,8-HxCDF	ND	U	0.175	2.55			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.205	2.55			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.275	2.55			1
OCDF	ND	U	0.694	5.10			1
Total Tetra-Dioxins	ND	U	0.410	0.510			1
Total Penta-Dioxins	ND	U	0.323	2.55			1
Total Hexa-Dioxins	ND	U	0.254	2.55			1
Total Hepta-Dioxins	ND	U	0.390	2.55			1
Total Tetra-Furans	ND	U	0.273	0.510			1
Total Penta-Furans	ND	U	0.222	2.55			1
Total Hexa-Furans	ND	U	0.188	2.55			1
Total Hepta-Furans	ND	U	0.237	2.55			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130804 200-SB-8 8/10'	**Units:**	Percent
Lab Code:	R1404651-009	**Basis:**	Dry
		Percent Solids:	95.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1236
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.247g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149818	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1001.262	50		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1197.580	60		40-135	1.58	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1297.568	65		40-135	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1326.210	66		40-135	1.27	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1217.765	61		40-135	1.07	1.067
13C-OCDD	4000	1918.769	48		40-135	0.87	1.144
13C-2,3,7,8-TCDF	2000	1013.696	51		40-135	0.83	0.994
13C-1,2,3,7,8-PeCDF	2000	1093.908	55		40-135	1.61	1.137
13C-2,3,4,7,8-PeCDF	2000	1073.816	54		40-135	1.55	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1132.515	57		40-135	0.51	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1428.338	71		40-135	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1136.043	57		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1361.175	68		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1186.282	59		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1174.727	59		40-135	0.45	1.080
37Cl-2,3,7,8-TCDD	800	352.517	44		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130804 200-SB-8 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-009	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.410	0.510	1	1	
1,2,3,7,8-PeCDD	ND	0.323	2.55	1	1	
1,2,3,6,7,8-HxCDD	ND	0.269	2.55	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.254	2.55	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.241	2.55	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.390	2.55	1	0.01	
OCDD	**1.46**	0.680	5.10	1	0.0003	0.000438
2,3,7,8-TCDF	ND	0.273	0.510	1	0.1	
1,2,3,7,8-PeCDF	ND	0.211	2.55	1	0.03	
2,3,4,7,8-PeCDF	ND	0.216	2.55	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.157	2.55	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.240	2.55	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.200	2.55	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.175	2.55	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.205	2.55	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.275	2.55	1	0.01	
OCDF	ND	0.694	5.10	1	0.0003	
		Total TEQ				0.000438

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406130804 200-SB-8 8/10'	**Units:**	Percent
Lab Code:	R1404651-009	**Basis:**	Dry
		Percent Solids:	95.7

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	95.7				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130814 200-SB-8 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-010	**Basis:**	Dry
		Percent Solids:	96.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1325
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.474g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149819	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.333	0.494			1
1,2,3,7,8-PeCDD	ND	U	0.331	2.47			1
1,2,3,6,7,8-HxCDD	ND	U	0.314	2.47			1
1,2,3,4,7,8-HxCDD	ND	U	0.303	2.47			1
1,2,3,7,8,9-HxCDD	ND	U	0.284	2.47			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.285	2.47			1
OCDD	**1.24**	J	0.451	4.94	0.91	1.000	1
2,3,7,8-TCDF	ND	U	0.314	0.494			1
1,2,3,7,8-PeCDF	ND	U	0.226	2.47			1
2,3,4,7,8-PeCDF	ND	U	0.250	2.47			1
1,2,3,6,7,8-HxCDF	ND	U	0.192	2.47			1
1,2,3,7,8,9-HxCDF	ND	U	0.252	2.47			1
1,2,3,4,7,8-HxCDF	ND	U	0.237	2.47			1
2,3,4,6,7,8-HxCDF	ND	U	0.212	2.47			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.220	2.47			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.262	2.47			1
OCDF	ND	U	0.350	4.94			1
Total Tetra-Dioxins	ND	U	0.333	0.494			1
Total Penta-Dioxins	ND	U	0.331	2.47			1
Total Hexa-Dioxins	ND	U	0.300	2.47			1
Total Hepta-Dioxins	ND	U	0.285	2.47			1
Total Tetra-Furans	ND	U	0.314	0.494			1
Total Penta-Furans	ND	U	0.227	2.47			1
Total Hexa-Furans	ND	U	0.220	2.47			1
Total Hepta-Furans	ND	U	0.240	2.47			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130814 200-SB-8 8/10'	**Units:**	Percent
Lab Code:	R1404651-010	**Basis:**	Dry
		Percent Solids:	96.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1325
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.474g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149819	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1043.650	52		40-135	0.79	1.020
13C-1,2,3,7,8-PeCDD	2000	1227.285	61		40-135	1.56	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1248.008	62		40-135	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1260.212	63		40-135	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1200.804	60		40-135	1.08	1.067
13C-OCDD	4000	2021.640	51		40-135	0.89	1.144
13C-2,3,7,8-TCDF	2000	1063.163	53		40-135	0.79	0.993
13C-1,2,3,7,8-PeCDF	2000	1144.712	57		40-135	1.56	1.137
13C-2,3,4,7,8-PeCDF	2000	1080.995	54		40-135	1.62	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1100.762	55		40-135	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1353.561	68		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1213.264	61		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1297.921	65		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1160.508	58		40-135	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1235.601	62		40-135	0.44	1.081
37Cl-2,3,7,8-TCDD	800	361.148	45		40-135	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130814 200-SB-8 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-010	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.333	0.494	1	1	
1,2,3,7,8-PeCDD	ND	0.331	2.47	1	1	
1,2,3,6,7,8-HxCDD	ND	0.314	2.47	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.303	2.47	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.284	2.47	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.285	2.47	1	0.01	
OCDD	**1.24**	0.451	4.94	1	0.0003	0.000372
2,3,7,8-TCDF	ND	0.314	0.494	1	0.1	
1,2,3,7,8-PeCDF	ND	0.226	2.47	1	0.03	
2,3,4,7,8-PeCDF	ND	0.250	2.47	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.192	2.47	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.252	2.47	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.237	2.47	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.212	2.47	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.220	2.47	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.262	2.47	1	0.01	
OCDF	ND	0.350	4.94	1	0.0003	
		Total TEQ				0.000372

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406130814 200-SB-8 8/10'	**Units:**	Percent
Lab Code:	R1404651-010	**Basis:**	Dry
		Percent Solids:	96.7

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	96.7				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130944 200-SB-8 28/30'	**Units:**	ng/Kg
Lab Code:	R1404651-011	**Basis:**	Dry
		Percent Solids:	96.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1413
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.164g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149820	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.484	0.508			1
1,2,3,7,8-PeCDD	ND	U	0.308	2.54			1
1,2,3,6,7,8-HxCDD	ND	U	0.347	2.54			1
1,2,3,4,7,8-HxCDD	ND	U	0.313	2.54			1
1,2,3,7,8,9-HxCDD	ND	U	0.304	2.54			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.390	2.54			1
OCDD	**0.706**	JK	0.550	5.08	1.08	1.000	1
2,3,7,8-TCDF	ND	U	0.363	0.508			1
1,2,3,7,8-PeCDF	ND	U	0.246	2.54			1
2,3,4,7,8-PeCDF	ND	U	0.264	2.54			1
1,2,3,6,7,8-HxCDF	ND	U	0.190	2.54			1
1,2,3,7,8,9-HxCDF	ND	U	0.250	2.54			1
1,2,3,4,7,8-HxCDF	ND	U	0.225	2.54			1
2,3,4,6,7,8-HxCDF	ND	U	0.200	2.54			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.306	2.54			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.421	2.54			1
OCDF	ND	U	0.624	5.08			1
Total Tetra-Dioxins	ND	U	0.484	0.508			1
Total Penta-Dioxins	ND	U	0.308	2.54			1
Total Hexa-Dioxins	ND	U	0.321	2.54			1
Total Hepta-Dioxins	ND	U	0.390	2.54			1
Total Tetra-Furans	ND	U	0.363	0.508			1
Total Penta-Furans	ND	U	0.253	2.54			1
Total Hexa-Furans	ND	U	0.213	2.54			1
Total Hepta-Furans	ND	U	0.359	2.54			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130944 200-SB-8 28/30'	**Units:**	Percent
Lab Code:	R1404651-011	**Basis:**	Dry
		Percent Solids:	96.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 1413
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.164g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149820	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149813

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1067.798	53		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1274.337	64		40-135	1.55	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1343.255	67		40-135	1.28	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1309.627	65		40-135	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1288.828	64		40-135	1.08	1.067
13C-OCDD	4000	2094.255	52		40-135	0.93	1.145
13C-2,3,7,8-TCDF	2000	1106.796	55		40-135	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1147.825	57		40-135	1.58	1.137
13C-2,3,4,7,8-PeCDF	2000	1119.114	56		40-135	1.59	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1186.391	59		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1410.428	71		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1251.964	63		40-135	0.50	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1410.403	71		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1233.006	62		40-135	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1214.830	61		40-135	0.44	1.081
37Cl-2,3,7,8-TCDD	800	364.202	46		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406130944 200-SB-8 28/30'	**Units:**	ng/Kg
Lab Code:	R1404651-011	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.484	0.508	1	1	
1,2,3,7,8-PeCDD	ND	0.308	2.54	1	1	
1,2,3,6,7,8-HxCDD	ND	0.347	2.54	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.313	2.54	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.304	2.54	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.390	2.54	1	0.01	
OCDD	**0.706**	0.550	5.08	1	0.0003	0.000212
2,3,7,8-TCDF	ND	0.363	0.508	1	0.1	
1,2,3,7,8-PeCDF	ND	0.246	2.54	1	0.03	
2,3,4,7,8-PeCDF	ND	0.264	2.54	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.190	2.54	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.250	2.54	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.225	2.54	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.200	2.54	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.306	2.54	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.421	2.54	1	0.01	
OCDF	ND	0.624	5.08	1	0.0003	
		Total TEQ				0.000212

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406130944 200-SB-8 28/30'	**Units:**	Percent
Lab Code:	R1404651-011	**Basis:**	Dry
		Percent Solids:	96.9

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	96.9				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406131304 200-SB-8 43/45'	**Units:**	ng/Kg
Lab Code:	R1404651-012	**Basis:**	Dry
		Percent Solids:	98.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2033
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.378g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229927	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.346	0.487			1
1,2,3,7,8-PeCDD	ND	U	0.115	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0770	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0728	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0724	2.44			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.179	2.44			1
OCDD	**0.744**	JK	0.103	4.87	1.22	1.000	1
2,3,7,8-TCDF	ND	U	0.228	0.487			1
1,2,3,7,8-PeCDF	ND	U	0.0876	2.44			1
2,3,4,7,8-PeCDF	ND	U	0.0821	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0416	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0631	2.44			1
1,2,3,4,7,8-HxCDF	ND	U	0.0533	2.44			1
2,3,4,6,7,8-HxCDF	ND	U	0.0464	2.44			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0912	2.44			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.124	2.44			1
OCDF	ND	U	0.186	4.87			1
Total Tetra-Dioxins	ND	U	0.346	0.487			1
Total Penta-Dioxins	ND	U	0.115	2.44			1
Total Hexa-Dioxins	ND	U	0.0741	2.44			1
Total Hepta-Dioxins	ND	U	0.179	2.44			1
Total Tetra-Furans	ND	U	0.228	0.487			1
Total Penta-Furans	ND	U	0.0981	2.44			1
Total Hexa-Furans	ND	U	0.0498	2.44			1
Total Hepta-Furans	ND	U	0.107	2.44			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406131304 200-SB-8 43/45'	**Units:**	Percent
Lab Code:	R1404651-012	**Basis:**	Dry
		Percent Solids:	98.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2033
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.378g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229927	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1157.276	58		40-135	0.75	1.020
13C-1,2,3,7,8-PeCDD	2000	1796.571	90		40-135	1.62	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1295.443	65		40-135	1.33	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1365.885	68		40-135	1.32	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1122.102	56		40-135	1.07	1.066
13C-OCDD	4000	2688.751	67		40-135	0.91	1.142
13C-2,3,7,8-TCDF	2000	1191.064	60		40-135	0.76	0.994
13C-1,2,3,7,8-PeCDF	2000	1414.430	71		40-135	1.61	1.136
13C-2,3,4,7,8-PeCDF	2000	1489.255	74		40-135	1.63	1.166
13C-1,2,3,4,7,8-HxCDF	2000	968.813	48		40-135	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1231.231	62		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1095.691	55		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1197.859	60		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1022.364	51		40-135	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1106.772	55		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	399.946	50		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406131304 200-SB-8 43/45'	**Units:**	ng/Kg
Lab Code:	R1404651-012	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.346	0.487	1	1	
1,2,3,7,8-PeCDD	ND	0.115	2.44	1	1	
1,2,3,6,7,8-HxCDD	ND	0.0770	2.44	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.0728	2.44	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.0724	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.179	2.44	1	0.01	
OCDD	**0.744**	0.103	4.87	1	0.0003	0.000223
2,3,7,8-TCDF	ND	0.228	0.487	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0876	2.44	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0821	2.44	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.0416	2.44	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0631	2.44	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.0533	2.44	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0464	2.44	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.0912	2.44	1	0.01	
1,2,3,4,7,8,9-HpCDF	ND	0.124	2.44	1	0.01	
OCDF	ND	0.186	4.87	1	0.0003	
		Total TEQ				0.000223

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/13/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406131304 200-SB-8 43/45'	**Units:**	Percent
Lab Code:	R1404651-012	**Basis:**	Dry
		Percent Solids:	98.9

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	98.9				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406141704 200-SB-6 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-013	**Basis:**	Dry
		Percent Solids:	97.1

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2121
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.033g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229928	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.320	0.513			1
1,2,3,7,8-PeCDD	ND	U	0.134	2.57			1
1,2,3,6,7,8-HxCDD	ND	U	0.0774	2.57			1
1,2,3,4,7,8-HxCDD	ND	U	0.0749	2.57			1
1,2,3,7,8,9-HxCDD	ND	U	0.0736	2.57			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.159	2.57			1
OCDD	**0.800**	JK	0.134	5.13	1.10	1.001	1
2,3,7,8-TCDF	ND	U	0.257	0.513			1
1,2,3,7,8-PeCDF	ND	U	0.0804	2.57			1
2,3,4,7,8-PeCDF	ND	U	0.0809	2.57			1
1,2,3,6,7,8-HxCDF	ND	U	0.0712	2.57			1
1,2,3,7,8,9-HxCDF	ND	U	0.0974	2.57			1
1,2,3,4,7,8-HxCDF	ND	U	0.0875	2.57			1
2,3,4,6,7,8-HxCDF	ND	U	0.0769	2.57			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.0778	2.57			1
1,2,3,4,7,8,9-HpCDF	**0.182**	JK	0.101	2.57	1.43	1.000	1
OCDF	ND	U	0.214	5.13			1
Total Tetra-Dioxins	ND	U	0.320	0.513			1
Total Penta-Dioxins	ND	U	0.134	2.57			1
Total Hexa-Dioxins	ND	U	0.0753	2.57			1
Total Hepta-Dioxins	ND	U	0.159	2.57			1
Total Tetra-Furans	ND	U	0.257	0.513			1
Total Penta-Furans	ND	U	0.0795	2.57			1
Total Hexa-Furans	ND	U	0.0820	2.57			1
Total Hepta-Furans	ND	U	0.0883	2.57			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406141704 200-SB-6 8/10'	**Units:**	Percent
Lab Code:	R1404651-013	**Basis:**	Dry
		Percent Solids:	97.1

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2121
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.033g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229928	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	984.301	49		40-135	0.76	1.021
13C-1,2,3,7,8-PeCDD	2000	1431.254	72		40-135	1.62	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1148.837	57		40-135	1.32	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1234.472	62		40-135	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1220.680	61		40-135	1.07	1.067
13C-OCDD	4000	2365.203	59		40-135	0.91	1.142
13C-2,3,7,8-TCDF	2000	960.446	48		40-135	0.77	0.994
13C-1,2,3,7,8-PeCDF	2000	1159.614	58		40-135	1.61	1.136
13C-2,3,4,7,8-PeCDF	2000	1166.912	58		40-135	1.62	1.166
13C-1,2,3,4,7,8-HxCDF	2000	879.777	44		40-135	0.49	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1057.674	53		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1020.992	51		40-135	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1077.643	54		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	954.069	48		40-135	0.45	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1048.261	52		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	359.140	45		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406141704 200-SB-6 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-013	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.320	0.513	1	1	
1,2,3,7,8-PeCDD	ND	0.134	2.57	1	1	
1,2,3,6,7,8-HxCDD	ND	0.0774	2.57	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.0749	2.57	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.0736	2.57	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.159	2.57	1	0.01	
OCDD	**0.800**	0.134	5.13	1	0.0003	0.000240
2,3,7,8-TCDF	ND	0.257	0.513	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0804	2.57	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0809	2.57	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.0712	2.57	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0974	2.57	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.0875	2.57	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0769	2.57	1	0.1	
1,2,3,4,6,7,8-HpCDF	ND	0.0778	2.57	1	0.01	
1,2,3,4,7,8,9-HpCDF	**0.182**	0.101	2.57	1	0.01	0.00182
OCDF	ND	0.214	5.13	1	0.0003	
		Total TEQ				0.00206

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/14/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406141704 200-SB-6 8/10'	**Units:**	Percent
Lab Code:	R1404651-013	**Basis:**	Dry
		Percent Solids:	97.1

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	97.1				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151129 200-SB-5 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-014	**Basis:**	Dry
		Percent Solids:	96.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2209
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.038g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229929	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.273	0.518			1
1,2,3,7,8-PeCDD	ND	U	0.120	2.59			1
1,2,3,6,7,8-HxCDD	**0.0729**	JK	0.0687	2.59	1.04	1.000	1
1,2,3,4,7,8-HxCDD	ND	U	0.0626	2.59			1
1,2,3,7,8,9-HxCDD	ND	U	0.0635	2.59			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.141	2.59			1
OCDD	**0.643**	JK	0.0947	5.18	1.03	1.001	1
2,3,7,8-TCDF	ND	U	0.286	0.518			1
1,2,3,7,8-PeCDF	ND	U	0.0803	2.59			1
2,3,4,7,8-PeCDF	ND	U	0.0811	2.59			1
1,2,3,6,7,8-HxCDF	ND	U	0.0440	2.59			1
1,2,3,7,8,9-HxCDF	ND	U	0.0614	2.59			1
1,2,3,4,7,8-HxCDF	ND	U	0.0537	2.59			1
2,3,4,6,7,8-HxCDF	ND	U	0.0467	2.59			1
1,2,3,4,6,7,8-HpCDF	**0.159**	J	0.0396	2.59	0.95	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0536	2.59			1
OCDF	ND	U	0.206	5.18			1
Total Tetra-Dioxins	ND	U	0.273	0.518			1
Total Penta-Dioxins	ND	U	0.120	2.59			1
Total Hexa-Dioxins	ND	U	0.0650	2.59			1
Total Hepta-Dioxins	ND	U	0.141	2.59			1
Total Tetra-Furans	ND	U	0.286	0.518			1
Total Penta-Furans	ND	U	0.0948	2.59			1
Total Hexa-Furans	ND	U	0.0504	2.59			1
Total Hepta-Furans	**0.159**	J	0.0459	2.59	0.95		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151129 200-SB-5 8/10'	**Units:**	Percent
Lab Code:	R1404651-014	**Basis:**	Dry
		Percent Solids:	96.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2209
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.038g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229929	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229921

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1074.648	54		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1596.852	80		40-135	1.60	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1173.493	59		40-135	1.41	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1222.425	61		40-135	1.20	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1243.434	62		40-135	1.06	1.066
13C-OCDD	4000	2573.837	64		40-135	0.92	1.142
13C-2,3,7,8-TCDF	2000	1050.493	53		40-135	0.81	0.994
13C-1,2,3,7,8-PeCDF	2000	1259.263	63		40-135	1.60	1.136
13C-2,3,4,7,8-PeCDF	2000	1242.055	62		40-135	1.58	1.166
13C-1,2,3,4,7,8-HxCDF	2000	842.121	42		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1069.155	53		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	977.746	49		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1062.854	53		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	991.846	50		40-135	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1019.199	51		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	372.390	47		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151129 200-SB-5 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-014	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.273	0.518	1	1	
1,2,3,7,8-PeCDD	ND	0.120	2.59	1	1	
1,2,3,6,7,8-HxCDD	**0.0729**	0.0687	2.59	1	0.1	0.00729
1,2,3,4,7,8-HxCDD	ND	0.0626	2.59	1	0.1	
1,2,3,7,8,9-HxCDD	ND	0.0635	2.59	1	0.1	
1,2,3,4,6,7,8-HpCDD	ND	0.141	2.59	1	0.01	
OCDD	**0.643**	0.0947	5.18	1	0.0003	0.000193
2,3,7,8-TCDF	ND	0.286	0.518	1	0.1	
1,2,3,7,8-PeCDF	ND	0.0803	2.59	1	0.03	
2,3,4,7,8-PeCDF	ND	0.0811	2.59	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.0440	2.59	1	0.1	
1,2,3,7,8,9-HxCDF	ND	0.0614	2.59	1	0.1	
1,2,3,4,7,8-HxCDF	ND	0.0537	2.59	1	0.1	
2,3,4,6,7,8-HxCDF	ND	0.0467	2.59	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.159**	0.0396	2.59	1	0.01	0.00159
1,2,3,4,7,8,9-HpCDF	ND	0.0536	2.59	1	0.01	
OCDF	ND	0.206	5.18	1	0.0003	
		Total TEQ				0.00907

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406151129 200-SB-5 8/10'	**Units:**	Percent
Lab Code:	R1404651-014	**Basis:**	Dry
		Percent Solids:	96.2

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	96.2				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151145 200-SB-5 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-015	**Basis:**	Dry
		Percent Solids:	96.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0431
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.187g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229937	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.198	0.508			1
1,2,3,7,8-PeCDD	ND	U	0.123	2.54			1
1,2,3,6,7,8-HxCDD	ND	U	0.0657	2.54			1
1,2,3,4,7,8-HxCDD	ND	U	0.0658	2.54			1
1,2,3,7,8,9-HxCDD	**0.157**	JK	0.0608	2.54	1.66	1.006	1
1,2,3,4,6,7,8-HpCDD	**2.35**	JK	0.0629	2.54	0.80	1.000	1
OCDD	**23.7**		0.0992	5.08	0.97	1.000	1
2,3,7,8-TCDF	ND	U	0.233	0.508			1
1,2,3,7,8-PeCDF	ND	U	0.118	2.54			1
2,3,4,7,8-PeCDF	ND	U	0.123	2.54			1
1,2,3,6,7,8-HxCDF	ND	U	0.0344	2.54			1
1,2,3,7,8,9-HxCDF	**0.133**	JK	0.0524	2.54	1.71	1.000	1
1,2,3,4,7,8-HxCDF	**0.123**	JK	0.0433	2.54	2.74	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0376	2.54			1
1,2,3,4,6,7,8-HpCDF	**0.309**	JK	0.0502	2.54	1.27	1.001	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0709	2.54			1
OCDF	**0.534**	J	0.170	5.08	0.88	1.005	1
Total Tetra-Dioxins	ND	U	0.198	0.508			1
Total Penta-Dioxins	ND	U	0.123	2.54			1
Total Hexa-Dioxins	**0.325**	J	0.0640	2.54	1.08		1
Total Hepta-Dioxins	**2.31**	J	0.0629	2.54	1.12		1
Total Tetra-Furans	ND	U	0.233	0.508			1
Total Penta-Furans	ND	U	0.0607	2.54			1
Total Hexa-Furans	ND	U	0.0409	2.54			1
Total Hepta-Furans	**0.313**	J	0.0595	2.54	0.97		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151145 200-SB-5 8/10'	**Units:**	Percent
Lab Code:	R1404651-015	**Basis:**	Dry
		Percent Solids:	96.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0431
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.187g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229937	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1119.191	56		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1389.992	69		40-135	1.64	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1508.895	75		40-135	1.27	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1494.647	75		40-135	1.32	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1399.617	70		40-135	1.09	1.066
13C-OCDD	4000	2574.102	64		40-135	0.93	1.143
13C-2,3,7,8-TCDF	2000	1074.586	54		40-135	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1230.973	62		40-135	1.59	1.136
13C-2,3,4,7,8-PeCDF	2000	1165.606	58		40-135	1.64	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1238.889	62		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1515.980	76		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1230.633	62		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1452.175	73		40-135	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1287.639	64		40-135	0.42	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1240.432	62		40-135	0.41	1.080
37Cl-2,3,7,8-TCDD	800	377.026	47		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406151145 200-SB-5 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-015	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.198	0.508	1	1	
1,2,3,7,8-PeCDD	ND	0.123	2.54	1	1	
1,2,3,6,7,8-HxCDD	ND	0.0657	2.54	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.0658	2.54	1	0.1	
1,2,3,7,8,9-HxCDD	**0.157**	0.0608	2.54	1	0.1	0.0157
1,2,3,4,6,7,8-HpCDD	**2.35**	0.0629	2.54	1	0.01	0.0235
OCDD	**23.7**	0.0992	5.08	1	0.0003	0.00711
2,3,7,8-TCDF	ND	0.233	0.508	1	0.1	
1,2,3,7,8-PeCDF	ND	0.118	2.54	1	0.03	
2,3,4,7,8-PeCDF	ND	0.123	2.54	1	0.3	
1,2,3,6,7,8-HxCDF	ND	0.0344	2.54	1	0.1	
1,2,3,7,8,9-HxCDF	**0.133**	0.0524	2.54	1	0.1	0.0133
1,2,3,4,7,8-HxCDF	**0.123**	0.0433	2.54	1	0.1	0.0123
2,3,4,6,7,8-HxCDF	ND	0.0376	2.54	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.309**	0.0502	2.54	1	0.01	0.00309
1,2,3,4,7,8,9-HpCDF	ND	0.0709	2.54	1	0.01	
OCDF	**0.534**	0.170	5.08	1	0.0003	0.000160
		Total TEQ				0.0752

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/15/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406151145 200-SB-5 8/10'	**Units:**	Percent
Lab Code:	R1404651-015	**Basis:**	Dry
		Percent Solids:	96.7

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	96.7				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161404 200-SB-13 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-016	**Basis:**	Dry
		Percent Solids:	96.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0519
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.208g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229938	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.270	0.505			1
1,2,3,7,8-PeCDD	ND	U	0.0885	2.53			1
1,2,3,6,7,8-HxCDD	ND	U	0.0622	2.53			1
1,2,3,4,7,8-HxCDD	**0.105**	JK	0.0629	2.53	1.63	1.001	1
1,2,3,7,8,9-HxCDD	**0.107**	JK	0.0578	2.53	1.51	1.007	1
1,2,3,4,6,7,8-HpCDD	**0.202**	JK	0.0605	2.53	0.47	1.000	1
OCDD	**10.0**		0.144	5.05	0.82	1.000	1
2,3,7,8-TCDF	ND	U	0.308	0.505			1
1,2,3,7,8-PeCDF	ND	U	0.114	2.53			1
2,3,4,7,8-PeCDF	ND	U	0.121	2.53			1
1,2,3,6,7,8-HxCDF	**0.0506**	JK	0.0459	2.53	2.33	1.000	1
1,2,3,7,8,9-HxCDF	ND	U	0.0680	2.53			1
1,2,3,4,7,8-HxCDF	**0.0843**	JK	0.0566	2.53	2.12	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0504	2.53			1
1,2,3,4,6,7,8-HpCDF	**0.0604**	JK	0.0447	2.53	0.81	1.000	1
1,2,3,4,7,8,9-HpCDF	**0.0664**	JK	0.0640	2.53	1.43	1.000	1
OCDF	ND	U	0.249	5.05			1
Total Tetra-Dioxins	ND	U	0.270	0.505			1
Total Penta-Dioxins	ND	U	0.0885	2.53			1
Total Hexa-Dioxins	ND	U	0.0609	2.53			1
Total Hepta-Dioxins	ND	U	0.0605	2.53			1
Total Tetra-Furans	ND	U	0.308	0.505			1
Total Penta-Furans	ND	U	0.0700	2.53			1
Total Hexa-Furans	ND	U	0.0541	2.53			1
Total Hepta-Furans	ND	U	0.0533	2.53			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161404 200-SB-13 8/10'	**Units:**	Percent
Lab Code:	R1404651-016	**Basis:**	Dry
		Percent Solids:	96.9

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0519
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.208g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229938	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	992.859	50		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1214.651	61		40-135	1.63	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1314.466	66		40-135	1.32	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1302.749	65		40-135	1.31	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1245.091	62		40-135	1.10	1.066
13C-OCDD	4000	2233.495	56		40-135	0.92	1.143
13C-2,3,7,8-TCDF	2000	943.202	47		40-135	0.77	0.994
13C-1,2,3,7,8-PeCDF	2000	1070.072	54		40-135	1.59	1.136
13C-2,3,4,7,8-PeCDF	2000	1007.065	50		40-135	1.65	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1152.523	58		40-135	0.50	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1291.965	65		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1092.803	55		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1272.839	64		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1153.312	58		40-135	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1090.858	55		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	366.124	46		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161404 200-SB-13 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-016	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.270	0.505	1	1	
1,2,3,7,8-PeCDD	ND	0.0885	2.53	1	1	
1,2,3,6,7,8-HxCDD	ND	0.0622	2.53	1	0.1	
1,2,3,4,7,8-HxCDD	**0.105**	0.0629	2.53	1	0.1	0.0105
1,2,3,7,8,9-HxCDD	**0.107**	0.0578	2.53	1	0.1	0.0107
1,2,3,4,6,7,8-HpCDD	**0.202**	0.0605	2.53	1	0.01	0.00202
OCDD	**10.0**	0.144	5.05	1	0.0003	0.00300
2,3,7,8-TCDF	ND	0.308	0.505	1	0.1	
1,2,3,7,8-PeCDF	ND	0.114	2.53	1	0.03	
2,3,4,7,8-PeCDF	ND	0.121	2.53	1	0.3	
1,2,3,6,7,8-HxCDF	**0.0506**	0.0459	2.53	1	0.1	0.00506
1,2,3,7,8,9-HxCDF	ND	0.0680	2.53	1	0.1	
1,2,3,4,7,8-HxCDF	**0.0843**	0.0566	2.53	1	0.1	0.00843
2,3,4,6,7,8-HxCDF	ND	0.0504	2.53	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.0604**	0.0447	2.53	1	0.01	0.000604
1,2,3,4,7,8,9-HpCDF	**0.0664**	0.0640	2.53	1	0.01	0.000664
OCDF	ND	0.249	5.05	1	0.0003	
		Total TEQ				0.0410

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406161404 200-SB-13 8/10'	**Units:**	Percent
Lab Code:	R1404651-016	**Basis:**	Dry
		Percent Solids:	96.9

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	96.9				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	ng/Kg
Lab Code:	R1404651-017	**Basis:**	Dry
		Percent Solids:	98.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0607
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.353g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229939	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.269	0.489			1
1,2,3,7,8-PeCDD	ND	U	0.0997	2.45			1
1,2,3,6,7,8-HxCDD	ND	U	0.0917	2.45			1
1,2,3,4,7,8-HxCDD	ND	U	0.0871	2.45			1
1,2,3,7,8,9-HxCDD	**0.166**	J	0.0825	2.45	1.16	1.007	1
1,2,3,4,6,7,8-HpCDD	**2.38**	J	0.101	2.45	0.96	1.000	1
OCDD	**16.0**		0.180	4.89	0.91	1.000	1
2,3,7,8-TCDF	ND	U	0.180	0.489			1
1,2,3,7,8-PeCDF	**0.128**	JK	0.0593	2.45	0.55	1.000	1
2,3,4,7,8-PeCDF	**0.0954**	JK	0.0617	2.45	0.43	1.000	1
1,2,3,6,7,8-HxCDF	**0.104**	J	0.0394	2.45	1.19	1.000	1
1,2,3,7,8,9-HxCDF	**0.142**	J	0.0594	2.45	1.05	1.001	1
1,2,3,4,7,8-HxCDF	**0.0589**	J	0.0469	2.45	1.11	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0402	2.45			1
1,2,3,4,6,7,8-HpCDF	**0.231**	JK	0.0271	2.45	0.79	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0402	2.45			1
OCDF	ND	U	0.212	4.89			1
Total Tetra-Dioxins	ND	U	0.269	0.489			1
Total Penta-Dioxins	ND	U	0.0997	2.45			1
Total Hexa-Dioxins	**0.166**	J	0.0870	2.45	1.16		1
Total Hepta-Dioxins	**2.38**	J	0.101	2.45	0.96		1
Total Tetra-Furans	ND	U	0.180	0.489			1
Total Penta-Furans	ND	U	0.0643	2.45			1
Total Hexa-Furans	**0.404**	J	0.0453	2.45	1.30		1
Total Hepta-Furans	ND	U	0.0328	2.45			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	Percent
Lab Code:	R1404651-017	**Basis:**	Dry
		Percent Solids:	98.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0607
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.353g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229939	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	994.183	50		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1176.020	59		40-135	1.63	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1311.514	66		40-135	1.29	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1168.934	58		40-135	1.32	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1102.286	55		40-135	1.07	1.066
13C-OCDD	4000	1868.027	47		40-135	0.91	1.142
13C-2,3,7,8-TCDF	2000	979.438	49		40-135	0.77	0.994
13C-1,2,3,7,8-PeCDF	2000	1049.588	52		40-135	1.60	1.136
13C-2,3,4,7,8-PeCDF	2000	1026.377	51		40-135	1.59	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1069.546	53		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1218.640	61		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	983.296	49		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1233.845	62		40-135	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1025.044	51		40-135	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	962.398	48		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	395.844	49		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	ng/Kg
Lab Code:	R1404651-017	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.269	0.489	1	1	
1,2,3,7,8-PeCDD	ND	0.0997	2.45	1	1	
1,2,3,6,7,8-HxCDD	ND	0.0917	2.45	1	0.1	
1,2,3,4,7,8-HxCDD	ND	0.0871	2.45	1	0.1	
1,2,3,7,8,9-HxCDD	**0.166**	0.0825	2.45	1	0.1	0.0166
1,2,3,4,6,7,8-HpCDD	**2.38**	0.101	2.45	1	0.01	0.0238
OCDD	**16.0**	0.180	4.89	1	0.0003	0.00480
2,3,7,8-TCDF	ND	0.180	0.489	1	0.1	
1,2,3,7,8-PeCDF	**0.128**	0.0593	2.45	1	0.03	0.00384
2,3,4,7,8-PeCDF	**0.0954**	0.0617	2.45	1	0.3	0.0286
1,2,3,6,7,8-HxCDF	**0.104**	0.0394	2.45	1	0.1	0.0104
1,2,3,7,8,9-HxCDF	**0.142**	0.0594	2.45	1	0.1	0.0142
1,2,3,4,7,8-HxCDF	**0.0589**	0.0469	2.45	1	0.1	0.00589
2,3,4,6,7,8-HxCDF	ND	0.0402	2.45	1	0.1	
1,2,3,4,6,7,8-HpCDF	**0.231**	0.0271	2.45	1	0.01	0.00231
1,2,3,4,7,8,9-HpCDF	ND	0.0402	2.45	1	0.01	
OCDF	ND	0.212	4.89	1	0.0003	
		Total TEQ				0.110

2005 WHO TEFs, ND = 0

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/2/14 07:21
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	Percent
Lab Code:	R1404651-017	**Basis:**	Dry
		Percent Solids:	98.7

Total Solids Run Create

Analytical Method:	CAS SOP	**Analysis Lot:**	399013
Data File Name:		**Instrument Name:**	E-Balance-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
	Total Solids	98.7				

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1400342-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2051
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.009g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149804	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.414	0.500			1
1,2,3,7,8-PeCDD	ND	U	0.235	2.50			1
1,2,3,6,7,8-HxCDD	ND	U	0.290	2.50			1
1,2,3,4,7,8-HxCDD	ND	U	0.286	2.50			1
1,2,3,7,8,9-HxCDD	ND	U	0.265	2.50			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.361	2.50			1
OCDD	ND	U	0.620	5.00			1
2,3,7,8-TCDF	ND	U	0.332	0.500			1
1,2,3,7,8-PeCDF	ND	U	0.206	2.50			1
2,3,4,7,8-PeCDF	ND	U	0.215	2.50			1
1,2,3,6,7,8-HxCDF	ND	U	0.132	2.50			1
1,2,3,7,8,9-HxCDF	ND	U	0.199	2.50			1
1,2,3,4,7,8-HxCDF	ND	U	0.170	2.50			1
2,3,4,6,7,8-HxCDF	ND	U	0.147	2.50			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.284	2.50			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.380	2.50			1
OCDF	ND	U	0.637	5.00			1
Total Tetra-Dioxins	ND	U	0.414	0.500			1
Total Penta-Dioxins	ND	U	0.235	2.50			1
Total Hexa-Dioxins	ND	U	0.280	2.50			1
Total Hepta-Dioxins	ND	U	0.361	2.50			1
Total Tetra-Furans	ND	U	0.332	0.500			1
Total Penta-Furans	ND	U	0.207	2.50			1
Total Hexa-Furans	ND	U	0.158	2.50			1
Total Hepta-Furans	ND	U	0.328	2.50			1

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1400342-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/1/14 2051
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.009g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149804	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149801

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1049.683	52		40-135	0.76	1.020
13C-1,2,3,7,8-PeCDD	2000	1301.910	65		40-135	1.59	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1332.829	67		40-135	1.38	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1314.873	66		40-135	1.20	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1218.457	61		40-135	1.08	1.067
13C-OCDD	4000	2051.275	51		40-135	0.91	1.144
13C-2,3,7,8-TCDF	2000	1101.694	55		40-135	0.83	0.994
13C-1,2,3,7,8-PeCDF	2000	1195.751	60		40-135	1.55	1.137
13C-2,3,4,7,8-PeCDF	2000	1136.656	57		40-135	1.60	1.169
13C-1,2,3,4,7,8-HxCDF	2000	1129.629	56		40-135	0.54	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1447.211	72		40-135	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1189.200	59		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1365.880	68		40-135	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1168.414	58		40-135	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1131.873	57		40-135	0.44	1.081
37Cl-2,3,7,8-TCDD	800	366.831	46		40-135	NA	1.021

Accuracy & Precision

ALS Environmental - Houston HRMS
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QA/QC Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Analyzed:**	7/ 2/14
Sample Matrix:	Soil		

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Units:**	ng/Kg
Prep Method:	Method	**Basis:**	Dry
		Extraction Lot:	211738

Lab Control Sample
EQ1400342-02

Analyte Name	Result	Spike Amount	% Rec		% Rec Limits
2,3,7,8-TCDD	24.7	19.9	124		70 - 130
1,2,3,7,8-PeCDD	113	99.7	113		70 - 130
1,2,3,6,7,8-HxCDD	116	99.7	117		70 - 130
1,2,3,4,7,8-HxCDD	115	99.7	115		70 - 130
1,2,3,7,8,9-HxCDD	122	99.7	123		70 - 130
1,2,3,4,6,7,8-HpCDD	117	99.7	117		70 - 130
OCDD	240	199	120		70 - 130
2,3,7,8-TCDF	25.3	19.9	127		70 - 130
1,2,3,7,8-PeCDF	130	99.7	131	*	70 - 130
2,3,4,7,8-PeCDF	122	99.7	123		70 - 130
1,2,3,6,7,8-HxCDF	113	99.7	113		70 - 130
1,2,3,7,8,9-HxCDF	122	99.7	123		70 - 130
1,2,3,4,7,8-HxCDF	126	99.7	126		70 - 130
2,3,4,6,7,8-HxCDF	111	99.7	112		70 - 130
1,2,3,4,6,7,8-HpCDF	125	99.7	126		70 - 130
1,2,3,4,7,8,9-HpCDF	117	99.7	117		70 - 130
OCDF	228	199	114		70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1400342-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2235
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.030g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149829	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149821

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**24.7**		0.395	0.499	0.77	1.001	1
1,2,3,7,8-PeCDD	**113**		0.335	2.49	1.61	1.000	1
1,2,3,6,7,8-HxCDD	**116**		0.420	2.49	1.27	1.000	1
1,2,3,4,7,8-HxCDD	**115**		0.395	2.49	1.24	1.000	1
1,2,3,7,8,9-HxCDD	**122**		0.375	2.49	1.22	1.007	1
1,2,3,4,6,7,8-HpCDD	**117**		0.459	2.49	1.01	1.000	1
OCDD	**240**		0.824	4.99	0.85	1.000	1
2,3,7,8-TCDF	**25.3**		0.436	0.499	0.81	1.000	1
1,2,3,7,8-PeCDF	**130**		0.330	2.49	1.51	1.001	1
2,3,4,7,8-PeCDF	**122**		0.348	2.49	1.53	1.001	1
1,2,3,6,7,8-HxCDF	**113**		0.220	2.49	1.20	1.000	1
1,2,3,7,8,9-HxCDF	**122**		0.312	2.49	1.27	1.000	1
1,2,3,4,7,8-HxCDF	**126**		0.267	2.49	1.23	1.000	1
2,3,4,6,7,8-HxCDF	**111**		0.230	2.49	1.17	1.000	1
1,2,3,4,6,7,8-HpCDF	**125**		0.543	2.49	1.06	1.000	1
1,2,3,4,7,8,9-HpCDF	**117**		0.713	2.49	1.01	1.000	1
OCDF	**228**		0.841	4.99	0.87	1.005	1
Total Tetra-Dioxins	**24.7**		0.395	0.499	0.77		1
Total Penta-Dioxins	**113**		0.335	2.49	1.61		1
Total Hexa-Dioxins	**353**		0.396	2.49	1.24		1
Total Hepta-Dioxins	**117**		0.459	2.49	1.01		1
Total Tetra-Furans	**27.0**		0.436	0.499	0.74		1
Total Penta-Furans	**262**		0.315	2.49			1
Total Hexa-Furans	**473**		0.253	2.49	1.23		1
Total Hepta-Furans	**243**		0.621	2.49	1.06		1

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Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1400342-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/2/14 2235
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.030g	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-5MSUI
Data File Name:	U149829	**Blank File Name:**	U149804
ICAL Date:	05/21/2014	**Cal Ver. File Name:**	U149821

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1004.715	50		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1225.689	61		40-135	1.55	1.178
13C-1,2,3,4,7,8-HxCDD	2000	1324.713	66		40-135	1.33	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1307.500	65		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1133.590	57		40-135	1.08	1.067
13C-OCDD	4000	1748.852	44		40-135	1.01	1.145
13C-2,3,7,8-TCDF	2000	1023.126	51		40-135	0.80	0.994
13C-1,2,3,7,8-PeCDF	2000	1082.234	54		40-135	1.61	1.137
13C-2,3,4,7,8-PeCDF	2000	1059.309	53		40-135	1.60	1.168
13C-1,2,3,4,7,8-HxCDF	2000	1113.725	56		40-135	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1344.714	67		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1136.151	57		40-135	0.53	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1294.919	65		40-135	0.54	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1113.129	56		40-135	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1070.906	54		40-135	0.47	1.081
37Cl-2,3,7,8-TCDD	800	332.845	42		40-135	NA	1.020

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QA/QC Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/ 3/14

Matrix Spike Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	ng/Kg
Lab Code:	R1404651-006	**Basis:**	Dry

Analytical Method: 8290A
Prep Method: Method

		1406111503 200-SB-7 8/10'MS				1406111503 200-SB-7 8/10'DMS						
		Matrix Spike				**Duplicate Matrix Spike**						
		EQ1400342-03				EQ1400342-04						
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**		**RPD Limit**
2,3,7,8-TCDD	ND	29.8	20.7	144	*	29.7	20.3	146	*	70 - 130	<1		25
1,2,3,7,8-PeCDD	ND	125	104	121		127	102	125		70 - 130	2		25
1,2,3,6,7,8-HxCDD	ND	123	104	118		126	102	124		70 - 130	3		25
1,2,3,4,7,8-HxCDD	ND	124	104	120		125	102	123		70 - 130	<1		25
1,2,3,7,8,9-HxCDD	ND	125	104	121		127	102	125		70 - 130	1		25
1,2,3,4,6,7,8-HpCDD	1.37	127	104	121		157	102	154	*	70 - 130	21		25
OCDD	17.1	261	207	118		566	203	270	*	70 - 130	74	*	25
2,3,7,8-TCDF	ND	29.1	20.7	140	*	27.4	20.3	135	*	70 - 130	6		25
1,2,3,7,8-PeCDF	ND	136	104	131	*	135	102	133	*	70 - 130	<1		25
2,3,4,7,8-PeCDF	ND	133	104	129		138	102	136	*	70 - 130	3		25
1,2,3,6,7,8-HxCDF	ND	123	104	119		120	102	118		70 - 130	2		25
1,2,3,7,8,9-HxCDF	ND	130	104	125		130	102	128		70 - 130	<1		25
1,2,3,4,7,8-HxCDF	ND	134	104	129		137	102	135	*	70 - 130	2		25
2,3,4,6,7,8-HxCDF	ND	116	104	112		121	102	119		70 - 130	4		25
1,2,3,4,6,7,8-HpCDF	ND	141	104	136	*	147	102	145	*	70 - 130	4		25
1,2,3,4,7,8,9-HpCDF	ND	132	104	127		131	102	129		70 - 130	<1		25
OCDF	ND	245	207	119		269	203	132	*	70 - 130	9		25

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
		Date Analyzed:	7/ 3/14

Matrix Spike Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	ng/Kg
Lab Code:	R1404651-017	**Basis:**	Dry

Analytical Method: 8290A
Prep Method: Method

		1406161548 200-SB-13 28-30/32'MS **Matrix Spike** EQ1400342-05				1406161548 200-SB-13 28-30/32'DMS **Duplicate Matrix Spike** EQ1400342-06						
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
2,3,7,8-TCDD	ND	27.4	20.1	137	*	27.7	19.9	139	*	70 - 130	1	25
1,2,3,7,8-PeCDD	ND	121	100	121		119	99.6	119		70 - 130	2	25
1,2,3,6,7,8-HxCDD	ND	119	100	119		117	99.6	118		70 - 130	2	25
1,2,3,4,7,8-HxCDD	ND	118	100	118		116	99.6	116		70 - 130	2	25
1,2,3,7,8,9-HxCDD	0.166	118	100	117		117	99.6	117		70 - 130	<1	25
1,2,3,4,6,7,8-HpCDD	2.38	117	100	114		118	99.6	116		70 - 130	1	25
OCDD	16.0	247	201	115		243	199	114		70 - 130	2	25
2,3,7,8-TCDF	ND	26.4	20.1	132	*	26.4	19.9	133	*	70 - 130	<1	25
1,2,3,7,8-PeCDF	0.128	128	100	127		128	99.6	128		70 - 130	<1	25
2,3,4,7,8-PeCDF	0.0954	128	100	128		127	99.6	127		70 - 130	<1	25
1,2,3,6,7,8-HxCDF	0.104	117	100	117		114	99.6	114		70 - 130	3	25
1,2,3,7,8,9-HxCDF	0.142	126	100	126		126	99.6	127		70 - 130	<1	25
1,2,3,4,7,8-HxCDF	0.0589	128	100	128		126	99.6	127		70 - 130	1	25
2,3,4,6,7,8-HxCDF	ND	110	100	110		111	99.6	111		70 - 130	<1	25
1,2,3,4,6,7,8-HpCDF	0.231	143	100	142	*	135	99.6	135	*	70 - 130	6	25
1,2,3,4,7,8,9-HpCDF	ND	125	100	125		127	99.6	128		70 - 130	1	25
OCDF	ND	242	201	120		229	199	115		70 - 130	5	25

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	ng/Kg
Lab Code:	EQ1400342-03	**Basis:**	Dry
Run Type:	Matrix Spike	**Percent Solids:**	95.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0655
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.141g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229940	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**29.8**		0.257	0.518	0.84	1.001	1
1,2,3,7,8-PeCDD	**125**		0.112	2.59	1.59	1.000	1
1,2,3,6,7,8-HxCDD	**123**		0.0732	2.59	1.21	1.000	1
1,2,3,4,7,8-HxCDD	**124**		0.0689	2.59	1.30	1.000	1
1,2,3,7,8,9-HxCDD	**125**		0.0656	2.59	1.30	1.007	1
1,2,3,4,6,7,8-HpCDD	**127**		0.0739	2.59	1.02	1.000	1
OCDD	**261**		0.140	5.18	0.92	1.000	1
2,3,7,8-TCDF	**29.1**		0.307	0.518	0.79	1.001	1
1,2,3,7,8-PeCDF	**136**		0.199	2.59	1.57	1.001	1
2,3,4,7,8-PeCDF	**133**		0.208	2.59	1.54	1.000	1
1,2,3,6,7,8-HxCDF	**123**		0.0401	2.59	1.23	1.000	1
1,2,3,7,8,9-HxCDF	**130**		0.0562	2.59	1.29	1.000	1
1,2,3,4,7,8-HxCDF	**134**		0.0486	2.59	1.28	1.000	1
2,3,4,6,7,8-HxCDF	**116**		0.0421	2.59	1.23	1.000	1
1,2,3,4,6,7,8-HpCDF	**141**		0.211	2.59	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	**132**		0.296	2.59	1.03	1.000	1
OCDF	**245**		0.211	5.18	0.89	1.005	1
Total Tetra-Dioxins	**29.8**		0.257	0.518	0.84		1
Total Penta-Dioxins	**125**		0.112	2.59	1.59		1
Total Hexa-Dioxins	**372**		0.0692	2.59	1.30		1
Total Hepta-Dioxins	**127**		0.0739	2.59	1.02		1
Total Tetra-Furans	**31.0**		0.307	0.518	0.74		1
Total Penta-Furans	**272**		0.0987	2.59			1
Total Hexa-Furans	**503**		0.0459	2.59	1.28		1
Total Hepta-Furans	**273**		0.249	2.59	1.00		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	Percent
Lab Code:	EQ1400342-03	**Basis:**	Dry
Run Type:	Matrix Spike	**Percent Solids:**	95.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0655
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.141g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229940	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	952.208	48		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1218.031	61		40-135	1.59	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1375.679	69		40-135	1.29	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1245.781	62		40-135	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1214.762	61		40-135	1.12	1.066
13C-OCDD	4000	2203.368	55		40-135	0.91	1.143
13C-2,3,7,8-TCDF	2000	937.399	47		40-135	0.78	0.994
13C-1,2,3,7,8-PeCDF	2000	1085.911	54		40-135	1.61	1.136
13C-2,3,4,7,8-PeCDF	2000	1038.550	52		40-135	1.62	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1139.471	57		40-135	0.50	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1302.020	65		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1139.282	57		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1297.882	65		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1154.859	58		40-135	0.42	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1122.272	56		40-135	0.43	1.080
37Cl-2,3,7,8-TCDD	800	376.108	47		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	ng/Kg
Lab Code:	EQ1400342-04	**Basis:**	Dry
Run Type:	Duplicate Matrix Spike	**Percent Solids:**	95.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0742
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.346g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229941	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**29.7**		0.204	0.508	0.76	1.001	1
1,2,3,7,8-PeCDD	**127**		0.0989	2.54	1.64	1.000	1
1,2,3,6,7,8-HxCDD	**126**		0.0638	2.54	1.30	1.000	1
1,2,3,4,7,8-HxCDD	**125**		0.0642	2.54	1.28	1.000	1
1,2,3,7,8,9-HxCDD	**127**		0.0590	2.54	1.29	1.007	1
1,2,3,4,6,7,8-HpCDD	**157**		0.152	2.54	1.06	1.000	1
OCDD	**566**		0.0816	5.08	0.90	1.000	1
2,3,7,8-TCDF	**27.4**		0.188	0.508	0.79	1.001	1
1,2,3,7,8-PeCDF	**135**		0.171	2.54	1.55	1.001	1
2,3,4,7,8-PeCDF	**138**		0.179	2.54	1.59	1.000	1
1,2,3,6,7,8-HxCDF	**120**		0.0645	2.54	1.17	1.000	1
1,2,3,7,8,9-HxCDF	**130**		0.0892	2.54	1.24	1.000	1
1,2,3,4,7,8-HxCDF	**137**		0.0798	2.54	1.26	1.000	1
2,3,4,6,7,8-HxCDF	**121**		0.0710	2.54	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	**147**		0.296	2.54	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	**131**		0.398	2.54	1.00	1.000	1
OCDF	**269**		0.228	5.08	0.89	1.005	1
Total Tetra-Dioxins	**29.7**		0.204	0.508	0.76		1
Total Penta-Dioxins	**127**		0.0989	2.54	1.49		1
Total Hexa-Dioxins	**379**		0.0623	2.54	1.38		1
Total Hepta-Dioxins	**174**		0.152	2.54	0.98		1
Total Tetra-Furans	**27.4**		0.188	0.508	0.79		1
Total Penta-Furans	**277**		0.110	2.54			1
Total Hexa-Furans	**508**		0.0749	2.54	1.26		1
Total Hepta-Furans	**292**		0.343	2.54	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/11/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406111503 200-SB-7 8/10'	**Units:**	Percent
Lab Code:	EQ1400342-04	**Basis:**	Dry
Run Type:	Duplicate Matrix Spike	**Percent Solids:**	95.2

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0742
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.346g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229941	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	986.280	49		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1267.139	63		40-135	1.59	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1403.354	70		40-135	1.30	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1352.380	68		40-135	1.30	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1254.980	63		40-135	1.06	1.066
13C-OCDD	4000	2253.246	56		40-135	0.92	1.143
13C-2,3,7,8-TCDF	2000	955.062	48		40-135	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1139.951	57		40-135	1.62	1.136
13C-2,3,4,7,8-PeCDF	2000	1070.942	54		40-135	1.60	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1189.227	59		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1407.485	70		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1256.298	63		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1332.605	67		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1183.657	59		40-135	0.43	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1206.471	60		40-135	0.40	1.080
37Cl-2,3,7,8-TCDD	800	373.981	47		40-135	NA	1.021

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	ng/Kg
Lab Code:	EQ1400342-05	**Basis:**	Dry
Run Type:	Matrix Spike	**Percent Solids:**	98.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0830
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.096g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229942	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**27.4**		0.201	0.502	0.81	1.001	1
1,2,3,7,8-PeCDD	**121**		0.0900	2.51	1.59	1.000	1
1,2,3,6,7,8-HxCDD	**119**		0.120	2.51	1.27	1.000	1
1,2,3,4,7,8-HxCDD	**118**		0.120	2.51	1.35	1.000	1
1,2,3,7,8,9-HxCDD	**118**		0.111	2.51	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	**117**		0.0808	2.51	1.05	1.000	1
OCDD	**247**		0.149	5.02	0.89	1.000	1
2,3,7,8-TCDF	**26.4**		0.220	0.502	0.72	1.001	1
1,2,3,7,8-PeCDF	**128**		0.0651	2.51	1.58	1.000	1
2,3,4,7,8-PeCDF	**128**		0.0704	2.51	1.58	1.000	1
1,2,3,6,7,8-HxCDF	**117**		0.0303	2.51	1.27	1.000	1
1,2,3,7,8,9-HxCDF	**126**		0.0438	2.51	1.30	1.000	1
1,2,3,4,7,8-HxCDF	**128**		0.0358	2.51	1.22	1.000	1
2,3,4,6,7,8-HxCDF	**110**		0.0321	2.51	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	**143**		0.298	2.51	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	**125**		0.396	2.51	1.00	1.000	1
OCDF	**242**		0.241	5.02	0.92	1.005	1
Total Tetra-Dioxins	**27.4**		0.201	0.502	0.81		1
Total Penta-Dioxins	**121**		0.0900	2.51	1.59		1
Total Hexa-Dioxins	**356**		0.117	2.51	1.35		1
Total Hepta-Dioxins	**118**		0.0808	2.51	1.15		1
Total Tetra-Furans	**26.4**		0.220	0.502	0.72		1
Total Penta-Furans	**260**		0.106	2.51			1
Total Hexa-Furans	**482**		0.0348	2.51	1.22		1
Total Hepta-Furans	**269**		0.343	2.51	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	Percent
Lab Code:	EQ1400342-05	**Basis:**	Dry
Run Type:	Matrix Spike	**Percent Solids:**	98.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0830
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.096g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229942	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1099.755	55		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1305.295	65		40-135	1.63	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1509.873	75		40-135	1.30	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1332.273	67		40-135	1.33	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1265.934	63		40-135	1.09	1.066
13C-OCDD	4000	2021.822	51		40-135	0.90	1.143
13C-2,3,7,8-TCDF	2000	1058.645	53		40-135	0.78	0.994
13C-1,2,3,7,8-PeCDF	2000	1193.790	60		40-135	1.57	1.136
13C-2,3,4,7,8-PeCDF	2000	1120.689	56		40-135	1.58	1.166
13C-1,2,3,4,7,8-HxCDF	2000	1278.602	64		40-135	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1424.418	71		40-135	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1187.349	59		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1413.927	71		40-135	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1134.085	57		40-135	0.42	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1147.256	57		40-135	0.43	1.080
37Cl-2,3,7,8-TCDD	800	372.593	47		40-135	NA	1.020

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	ng/Kg
Lab Code:	EQ1400342-06	**Basis:**	Dry
Run Type:	Duplicate Matrix Spike	**Percent Solids:**	98.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0918
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.172g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229943	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**27.7**		0.125	0.498	0.78	1.001	1
1,2,3,7,8-PeCDD	**119**		0.0720	2.49	1.64	1.000	1
1,2,3,6,7,8-HxCDD	**117**		0.0503	2.49	1.28	1.000	1
1,2,3,4,7,8-HxCDD	**116**		0.0492	2.49	1.27	1.000	1
1,2,3,7,8,9-HxCDD	**117**		0.0459	2.49	1.29	1.006	1
1,2,3,4,6,7,8-HpCDD	**118**		0.0969	2.49	1.06	1.000	1
OCDD	**243**		0.0765	4.98	0.91	1.000	1
2,3,7,8-TCDF	**26.4**		0.183	0.498	0.77	1.001	1
1,2,3,7,8-PeCDF	**128**		0.0973	2.49	1.59	1.000	1
2,3,4,7,8-PeCDF	**127**		0.104	2.49	1.58	1.000	1
1,2,3,6,7,8-HxCDF	**114**		0.0310	2.49	1.24	1.000	1
1,2,3,7,8,9-HxCDF	**126**		0.0423	2.49	1.20	1.000	1
1,2,3,4,7,8-HxCDF	**126**		0.0359	2.49	1.24	1.000	1
2,3,4,6,7,8-HxCDF	**111**		0.0320	2.49	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	**135**		0.132	2.49	1.02	1.000	1
1,2,3,4,7,8,9-HpCDF	**127**		0.177	2.49	1.01	1.000	1
OCDF	**229**		0.189	4.98	0.90	1.005	1
Total Tetra-Dioxins	**27.7**		0.125	0.498	0.78		1
Total Penta-Dioxins	**119**		0.0720	2.49	1.64		1
Total Hexa-Dioxins	**350**		0.0484	2.49	1.27		1
Total Hepta-Dioxins	**119**		0.0969	2.49	0.93		1
Total Tetra-Furans	**26.4**		0.183	0.498	0.77		1
Total Penta-Furans	**259**		0.0584	2.49			1
Total Hexa-Furans	**477**		0.0347	2.49	1.24		1
Total Hepta-Furans	**262**		0.152	2.49	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	NASA/WSTF/Navarro	**Service Request:**	R1404651
Project:	White Sands Test Facility/14EC011B	**Date Collected:**	6/16/14
Sample Matrix:	Soil	**Date Received:**	6/19/14
Sample Name:	1406161548 200-SB-13 28-30/32'	**Units:**	Percent
Lab Code:	EQ1400342-06	**Basis:**	Dry
Run Type:	Duplicate Matrix Spike	**Percent Solids:**	98.7

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	8290A	**Date Analyzed:**	7/3/14 0918
Prep Method:	Method	**Date Extracted:**	6/27/14
Sample Amount:	10.172g	**Instrument Name:**	E-HRMS-04
		GC Column:	DB-5MSUI
Data File Name:	P229943	**Blank File Name:**	U149804
ICAL Date:	02/01/14	**Cal Ver. File Name:**	P229934

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1211.051	61		40-135	0.77	1.020
13C-1,2,3,7,8-PeCDD	2000	1409.678	70		40-135	1.63	1.176
13C-1,2,3,4,7,8-HxCDD	2000	1503.695	75		40-135	1.30	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1490.143	75		40-135	1.29	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1346.802	67		40-135	1.10	1.066
13C-OCDD	4000	2345.851	59		40-135	0.91	1.143
13C-2,3,7,8-TCDF	2000	1172.117	59		40-135	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1273.480	64		40-135	1.65	1.136
13C-2,3,4,7,8-PeCDF	2000	1223.403	61		40-135	1.59	1.167
13C-1,2,3,4,7,8-HxCDF	2000	1345.554	67		40-135	0.51	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1492.795	75		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1297.531	65		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1491.433	75		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1249.156	62		40-135	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1236.367	62		40-135	0.42	1.080
37Cl-2,3,7,8-TCDD	800	444.732	56		40-135	NA	1.021

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Intra-Network Chain of Custody

1565 Jefferson Rd, Building 300 • Rochester, NY 14623 • 585-288-5380 • FAX 585-288-8475

ALS Contact: Janice Jaeger

Project Name: White Sands Test Facility
Project Number: 14EC011B
Project Manager: Carlyn Tufts
Company: NASA/WSTF/Navarro

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	PCDD PCDF 8290A	Total Solids 8290
R1404651-001	1406041205 200-SB-20 30'	1	Soil	6/4/14		6/19/14	HOUSTON	III	III
R1404651-002	1406041724 200-SB-20 50'	↓	Soil	6/4/14		6/19/14	HOUSTON	III	III
R1404651-003	1406091139 200-SB-21 7.5/10'	↓	Soil	6/9/14		6/19/14	HOUSTON	III	III
R1404651-004	1406091614 200-SB-21 7.5/10'	↓	Soil	6/9/14		6/19/14	HOUSTON	III	III
R1404651-005	1406091749 200-SB-21 7.5/10'	↓	Soil	6/9/14		6/19/14	HOUSTON	III	III
R1404651-006 QC	1406111503 200-SB-7 8/10'	2	Soil	6/11/14		6/19/14	HOUSTON	III	III
R1404651-007	1406111634 200-SB-7 18/21'	1	Soil	6/11/14		6/19/14	HOUSTON	III	III
R1404651-008	1406120934 200-SB-7 38-40'	↓	Soil	6/12/14		6/19/14	HOUSTON	III	III
R1404651-009	1406130804 200-SB-8 8/10'	↓	Soil	6/13/14		6/19/14	HOUSTON	III	III
R1404651-010	1406130814 200-SB-8 8/10'	↓	Soil	6/13/14		6/19/14	HOUSTON	III	III
R1404651-011	1406130944 200-SB-8 28/30'	↓	Soil	6/13/14		6/19/14	HOUSTON	III	III

Special Instructions/Comments
Honeywell WSTF EDD

pH Checked _____

Turnaround Requirements
____ **RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
X **STANDARD**
Requested FAX Date: _____
Requested Report Date: 07/03/14

Report Requirements
____ I. Results Only
____ II. Results + QC Summaries
X III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
PQL/MDL/J Y
EDD Y

Invoice Information
PO# R1404651
Bill to

Relinquished By: [signature] 6/23/14 1452
Received By: [signature] 6/24/14
Airbill Number: _____

Intra-Network Chain of Custody

1565 Jefferson Rd, Building 300 • Rochester, NY 14623 • 585-288-5380 • FAX 585-288-8475

ALS Contact: Janice Jaeger

Project Name: White Sands Test Facility
Project Number: 14EC011B
Project Manager: Carlyn Tufts
Company: NASA/WSTF/Navarro

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	PCDD PCDF 8290A	Total Solids 8290
R1404651-012	1406131304 200-SB-8 43/45'	1	Soil	6/13/14		6/19/14	HOUSTON	III	III
R1404651-013	1406141704 200-SB-6 8/10'		Soil	6/14/14		6/19/14	HOUSTON	III	III
R1404651-014	1406151129 200-SB-5 8/10'		Soil	6/15/14		6/19/14	HOUSTON	III	III
R1404651-015	1406151145 200-SB-5 8/10'		Soil	6/15/14		6/19/14	HOUSTON	III	III
R1404651-016	1406161404 200-SB-13 8/10'		Soil	6/16/14		6/19/14	HOUSTON	III	III
R1404651-017 QC	1406161548 200-SB-13	2	Soil	6/16/14		6/19/14	HOUSTON	III	III

Run QC on sample R1404651-006 for
Run QC on sample R1404651-017 for

Special Instructions/Comments

pH Checked _____

Turnaround Requirements

_____**RUSH** (Surcharges Apply)

PLEASE CIRCLE WORK DAYS
1 2 3 4 5

____ **STANDARD**

Requested FAX Date: _____

Requested Report Date: 07/03/14

Report Requirements

____ I. Results Only

____ II. Results + QC Summaries

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

PQL/MDL/J Y
EDD Y

Invoice Information

PO# R1404651

Bill to

Relinquished By: 6/23/14 /1452 Received By: 6/24/14 Airbill Number:

ALS Environmental

Cooler Receipt Form

Project Chemist: AK

Client/Project: NASA/WSTF

Thermometer ID: SM01

Date/Time Received: 6/24/14 955 Initials: AL

Date/Time Logged in: 6/24/14 Initials: AC

1. Method of delivery: ○ US Mail ✓ Fed Ex ○ UPS ○ DHL ○ Courier ○ Client
2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other
3. Were custody seals on coolers? ✓ Yes ○ No
   Were they intact? ✓ Yes ○ No ○ N/A
   Were they signed and dated? ✓ Yes ○ No ○ N/A
   If yes, how many and where? 1 seal
4. Packing Material: ○ Inserts ✓ Baggies ✓ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other
5. Foreign or Regulated Soil? ○ Yes ✓ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
55308492 2812		6/24/14	1005	AC	1	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

# of containers on COC:

# of containers received:

Service request Label:

Effective 10/04/2013

ALS Environmental - Houston HRMS

10450 Stancliff Rd., Suite 210
Houston, TX 77099
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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheet

Prep Run#: 211738 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/WMCDONOUGH **Prep Method:** Method **Prep Date/Time:** 6/27/14 07:45 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	E1400692-002	CS22-WPCS-F12-01NS	.01	8290/PCDD PCDF		Soil	10.200g	Damp Brown Soil (w/ rocks)
2	E1400692-003	CS22-WPCS-F13-01NS	.01	8290/PCDD PCDF		Soil	10.379g	Wet Brown Mud (in water)
3	E1400692-004	CS22-WPCS-F17-01FD	.01	8290/PCDD PCDF		Soil	10.052g	Wet Brown Soil (in orange foamy water)
4	EQ1400342-01	MB		8290A/PCDD PCDF		Solid	10.009g	
5	EQ1400342-02	LCS		8290A/PCDD PCDF		Solid	10.030g	
6	EQ1400342-03	1406111503 200-SB-7 8/10' MS	.01	8290A/PCDD PCDF		Solid	10.141g	
7	EQ1400342-04	1406111503 200-SB-7 8/10' DMS	.01	8290A/PCDD PCDF		Solid	10.346g	
8	EQ1400342-05	1406161548 200-SB-13 28-30/32' MS	.01	8290A/PCDD PCDF		Solid	10.096g	
9	EQ1400342-06	1406161548 200-SB-13 28-30/32' DMS	.01	8290A/PCDD PCDF		Solid	10.172g	
10	R1404651-001	1406041205 200-SB-20 30'	.01	8290A/PCDD PCDF		Soil	10.230g	Tan/Pink Soil (w/ rocks)
11	R1404651-002	1406041724 200-SB-20 50'	.01	8290A/PCDD PCDF		Soil	10.324g	Tan/Pink Soil (w/ rocks)
12	R1404651-003	1406091139 200-SB-21 7.5/10'	.01	8290A/PCDD PCDF		Soil	10.009g	Red/Brown Soil (w/ rocks)
13	R1404651-004	1406091614 200-SB-21 7.5/10'	.01	8290A/PCDD PCDF		Soil	10.192g	Small Dry Rocks
14	R1404651-005	1406091749 200-SB-21 7.5/10'	.01	8290A/PCDD PCDF		Soil	10.001g	Tan/Pink Soil (w/ rocks)
15	R1404651-006	1406111503 200-SB-7 8/10'	.01	8290A/PCDD PCDF		Soil	10.027g	Red/Brown Soil (w/ rocks)
16	R1404651-007	1406111634 200-SB-7 18/21'	.01	8290A/PCDD PCDF		Soil	10.280g	Red/Brown Soil (w/ rocks)
17	R1404651-008	1406120934 200-SB-7 38-40'	.01	8290A/PCDD PCDF		Soil	10.172g	Tan/Pink Soil (w/ rocks)
18	R1404651-009	1406130804 200-SB-8 8/10'	.01	8290A/PCDD PCDF		Soil	10.247g	Red/Brown Soil (w/ rocks)
19	R1404651-010	1406130814 200-SB-8 8/10'	.01	8290A/PCDD PCDF		Soil	10.474g	Red/Brown Soil (w/ rocks)
20	R1404651-011	1406130944 200-SB-8 28/30'	.01	8290A/PCDD PCDF		Soil	10.164g	Red/Brown Soil (w/ rocks)
21	R1404651-012	1406131304 200-SB-8 43/45'	.01	8290A/PCDD PCDF		Soil	10.378g	Tan/Pink Soil (w/ rocks)
22	R1404651-013	1406141704 200-SB-6 8/10'	.01	8290A/PCDD PCDF		Soil	10.033g	Red/Brown Soil (w/ rocks)
23	R1404651-014	1406151129 200-SB-5 8/10'	.01	8290A/PCDD PCDF		Soil	10.038g	Red/Brown Soil (w/ rocks)
24	R1404651-015	1406151145 200-SB-5 8/10'	.01	8290A/PCDD PCDF		Soil	10.187g	Red/Brown Soil (w/ rocks)
25	R1404651-016	1406161404 200-SB-13 8/10'	.01	8290A/PCDD PCDF		Soil	10.208g	Red/Brown Soil (w/ rocks)
26	R1404651-017	1406161548 200-SB-13 28-30/32'	.01	8290A/PCDD PCDF		Soil	10.353g	Light Brown Soil (w/ rocks)

Preparation Information Benchsheet

Prep Run#: 211738 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/WMCDONOUGH **Prep Method:** Method **Prep Date/Time:** 6/27/14 07:45 AM

Spiking Solutions

Name:	1613B Matrix Working Standard	Inventory ID	71502	Logbook Ref:	71502 TL 6/11/14	Expires On:	06/11/2015

EQ1400342-02	100.00µL	EQ1400342-03	100.00µL	EQ1400342-04	100.00µL	EQ1400342-05	100.00µL	EQ1400342-06	100.00µL

Name:	1613B Labeled Working Standard	Inventory ID	71831	Logbook Ref:	71831 WM 6/23/14	Expires On:	08/04/2016

E1400692-002	1,000.00µL	E1400692-003	1,000.00µL	E1400692-004	1,000.00µL	EQ1400342-01	1,000.00µL	EQ1400342-02	1,000.00µL	EQ1400342-03	1,000.00µL
EQ1400342-04	1,000.00µL	EQ1400342-05	1,000.00µL	EQ1400342-06	1,000.00µL	R1404651-001	1,000.00µL	R1404651-002	1,000.00µL	R1404651-003	1,000.00µL
R1404651-005	1,000.00µL	R1404651-006	1,000.00µL	R1404651-007	1,000.00µL	R1404651-008	1,000.00µL	R1404651-009	1,000.00µL	R1404651-010	1,000.00µL
R1404651-011	1,000.00µL	R1404651-012	1,000.00µL	R1404651-013	1,000.00µL	R1404651-014	1,000.00µL	R1404651-015	1,000.00µL		

Name:	1613B Labeled Working Standard	Inventory ID	71832	Logbook Ref:	71832 WM 6/23/14	Expires On:	08/04/2016

R1404651-004	1,000.00µL	R1404651-016	1,000.00µL	R1404651-017	1,000.00µL

Name:	8290/1613B Cleanup Working Standard	Inventory ID	72014	Logbook Ref:	72014CID 06/26/14	Expires On:	12/23/2014

E1400692-002	100.00µL	E1400692-003	100.00µL	E1400692-004	100.00µL	EQ1400342-01	100.00µL	EQ1400342-02	100.00µL	EQ1400342-03	100.00µL
EQ1400342-04	100.00µL	EQ1400342-05	100.00µL	EQ1400342-06	100.00µL	R1404651-001	100.00µL	R1404651-002	100.00µL	R1404651-003	100.00µL
R1404651-004	100.00µL	R1404651-005	100.00µL	R1404651-006	100.00µL	R1404651-007	100.00µL	R1404651-008	100.00µL	R1404651-009	100.00µL
R1404651-010	100.00µL	R1404651-011	100.00µL	R1404651-012	100.00µL	R1404651-013	100.00µL	R1404651-014	100.00µL	R1404651-015	100.00µL
R1404651-016	100.00µL	R1404651-017	100.00µL								

Preparation Materials

Carbon, High Purity	AL 05/19/14 (70615)	Ethyl Acetate 99.9% Minimum EtOAc	AL 04/01/14 (71228)	Glass Wool	AL 05/19/14 (70618)
Sulfuric Acid Reagent Grade H2SO4	AL 05/21/14 (70716)	Hexanes 95%	AL 06/24/14 (71920)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 05/14/14 (70509)
Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)	Sodium Hydroxide Reagent Grade NaOH	C2-73-7 (53023)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 05/28/14 (71000)
Tridecane (n-Tridecane)	WM 6/10/14 (71503)	Silica Gel Reagent Grade	AL 05/21/14 (70718)	Toluene 99.9% Minimum	AL 06/06/14 (71345)

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	6/27/14 07:45	Started:	6/30/14 10:30	Started:	7/1/14 07:30	Started:	7/1/14 16:00
Finished:	6/28/14 09:30	Finished:	6/30/14 11:15	Finished:	7/1/14 10:00	Finished:	7/1/14 17:30
By:	WMCDONOUGH	By:	CDIAZ	By:	CDIAZ	By:	JPLASSARD
Comments		Comments		Comments		Comments	

Preparation Information Benchsheet

Prep Run#: 211738 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/WMCDONOUGH **Prep Method:** Method **Prep Date/Time:** 6/27/14 07:45 AM

Comments:

Reviewed By: JWP 070214 Date:

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
1406041205 20

Run #11 Filename U149805 Samp: 1 Inj: 1 Acquired: 1-JUL-14 21:39:46
Processed: 2-JUL-14 11:43:59 Sample ID: R1404651-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.358
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.065
17	Unk	OCDD	42:46	1.163e+01	2.483e+01	0.47	no	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:36	4.749e+03	5.768e+03	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	9.131e+03	5.872e+03	1.56	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	8.804e+03	5.498e+03	1.60	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	3.564e+03	6.908e+03	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	4.933e+03	9.673e+03	0.51	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	4.405e+03	8.359e+03	0.53	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	3.566e+03	6.980e+03	0.51	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:53	2.679e+03	5.898e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:21	2.623e+03	5.770e+03	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:22	3.371e+03	4.368e+03	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:54	6.507e+03	4.156e+03	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	5.126e+03	3.806e+03	1.35	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	5.250e+03	4.131e+03	1.27	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:51	5.026e+03	4.629e+03	1.09	yes	no	0.936
32	IS	13C-OCDD	42:45	5.616e+03	6.194e+03	0.91	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:47	6.662e+03	8.431e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	9.618e+03	7.441e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.559e+03				no	1.044

$$\text{OCDD} = \frac{(1.163e{+}01 + 2.483e{+}01) \times 4000 \text{ pg} \times 1}{(5.616e{+}03 + 6.194e{+}03) \times 10.23 \text{ g} \times 99.4 / 100 \times 1.177} = 1.031 \text{ ng/kg}$$

MM07/03/14

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1613RESPA

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406041205 200-S

Run #11 Filename U149805 Samp: 1 Inj: 1 Acquired: 1-JUL-14 21:39:46
Processed: 2-JUL-14 11:43:591 LAB. ID: R1404651-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.36e+02	*	*	9.36e+02	*
2	1,2,3,7,8-PeCDF	*	6.24e+02	*	*	7.76e+02	*
3	2,3,4,7,8-PeCDF	*	6.24e+02	*	*	7.76e+02	*
4	1,2,3,4,7,8-HxCDF	*	6.72e+02	*	*	4.60e+02	*
5	1,2,3,6,7,8-HxCDF	*	6.72e+02	*	*	4.60e+02	*
6	2,3,4,6,7,8-HxCDF	*	6.72e+02	*	*	4.60e+02	*
7	1,2,3,7,8,9-HxCDF	*	6.72e+02	*	*	4.60e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	6.72e+02	*	*	5.68e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	6.72e+02	*	*	5.68e+02	*
10	OCDF	*	4.72e+02	*	*	7.36e+02	*
11	2,3,7,8-TCDD	*	5.40e+02	*	*	6.96e+02	*
12	1,2,3,7,8-PeCDD	*	1.44e+03	*	*	8.60e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.64e+02	*	*	5.64e+02	*
14	1,2,3,6,7,8-HxCDD	*	5.64e+02	*	*	5.64e+02	*
15	1,2,3,7,8,9-HxCDD	*	5.64e+02	*	*	5.64e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	6.40e+02	*	*	5.08e+02	*
17	OCDD	2.53e+03	5.60e+02	4.5e+00	4.02e+03	7.04e+02	5.7e+00
18	13C-2,3,7,8-TCDF	9.50e+05	8.36e+02	1.1e+03	1.18e+06	8.96e+02	1.3e+03
19	13C-1,2,3,7,8-PeCDF	1.65e+06	7.12e+02	2.3e+03	1.05e+06	3.60e+02	2.9e+03
20	13C-2,3,4,7,8-PeCDF	1.70e+06	7.12e+02	2.4e+03	1.05e+06	3.60e+02	2.9e+03
21	13C-1,2,3,4,7,8-HxCDF	7.36e+05	9.48e+02	7.8e+02	1.44e+06	1.12e+03	1.3e+03
22	13C-1,2,3,6,7,8-HxCDF	9.38e+05	9.48e+02	9.9e+02	1.85e+06	1.12e+03	1.6e+03
23	13C-2,3,4,6,7,8-HxCDF	9.06e+05	9.48e+02	9.6e+02	1.74e+06	1.12e+03	1.5e+03
24	13C-1,2,3,7,8,9-HxCDF	6.74e+05	9.48e+02	7.1e+02	1.30e+06	1.12e+03	1.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.17e+05	1.39e+03	3.7e+02	1.15e+06	1.15e+03	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.44e+05	1.39e+03	3.2e+02	9.91e+05	1.15e+03	8.6e+02
27	13C-2,3,7,8-TCDD	7.11e+05	1.46e+03	4.9e+02	9.07e+05	8.28e+02	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.23e+06	7.12e+02	1.7e+03	7.82e+05	5.96e+02	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.11e+06	9.08e+02	1.2e+03	8.12e+05	9.64e+02	8.4e+02
30	13C-1,2,3,6,7,8-HxCDD	1.02e+06	9.08e+02	1.1e+03	7.92e+05	9.64e+02	8.2e+02
31	13C-1,2,3,4,6,7,8-HpCDD	8.96e+05	9.60e+02	9.3e+02	8.07e+05	1.01e+03	8.0e+02
32	13C-OCDD	7.96e+05	6.80e+02	1.2e+03	8.62e+05	5.60e+02	1.5e+03
33	13C-1,2,3,4-TCDD	1.43e+06	1.46e+03	9.8e+02	1.78e+06	8.28e+02	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.80e+06	9.08e+02	2.0e+03	1.40e+06	9.64e+02	1.4e+03
35	37Cl-2,3,7,8-TCDD	5.30e+05	6.64e+02	8.0e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406041205 200-S

Entry: 36 Totals Name: Total Tetra-Furans

Run: 11 File: U149805 Sample: 1 Injection: 1 Function: 1
Llim: 24:04 Ulim: 30:35
Acquired: 1-JUL-14 21:39:46 Processed: 2-JUL-14 11:43:59
Mass: 303.9020 305.8990 Tot Response: 3.31e+01 RRF: 0.9445

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:44	1.54e+01	1.77e+01	0.87	yes	3.31e+01	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406041205 200-S

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 11 File: U149805 Sample: 1 Injection: 1 Function: 3
Llim: 35:37 Ulim: 37:27
Acquired: 1-JUL-14 21:39:46 Processed: 2-JUL-14 11:43:59
Mass: 389.8160 391.8130 Tot Response: 2.03e+01 RRF: 1.151

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:41	1.10e+01	9.37e+00	1.17	yes	2.03e+01	n	n

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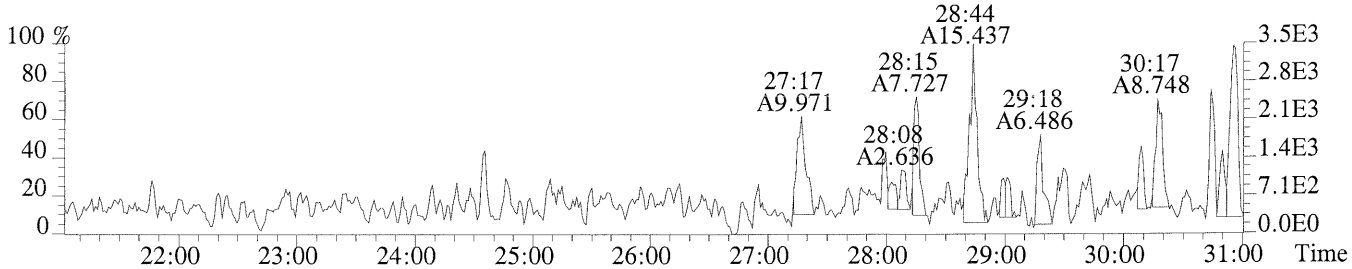
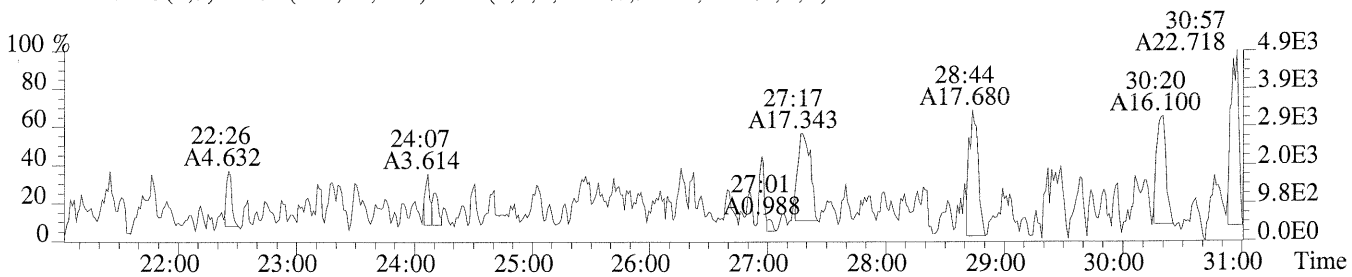
File:U149805 #1-627 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001

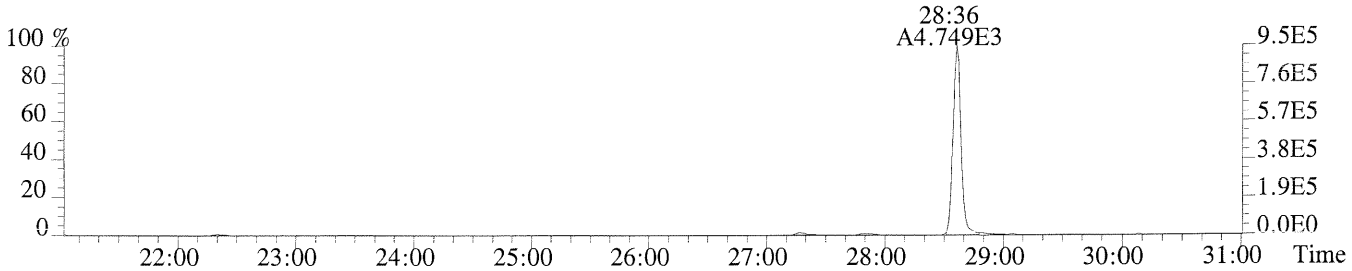
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



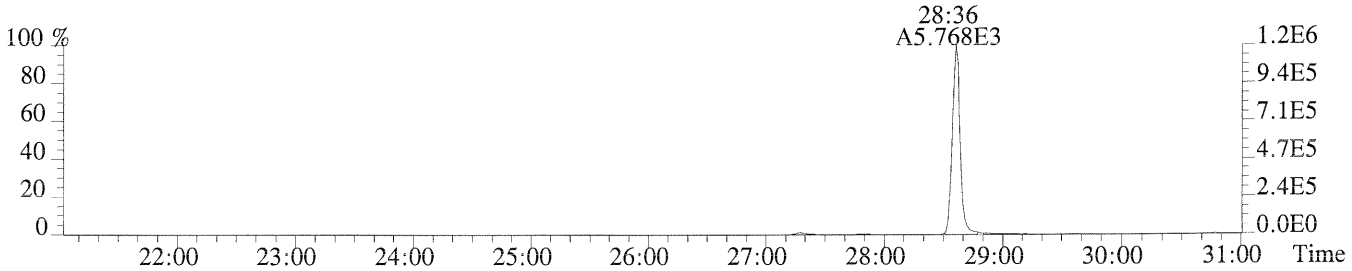
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



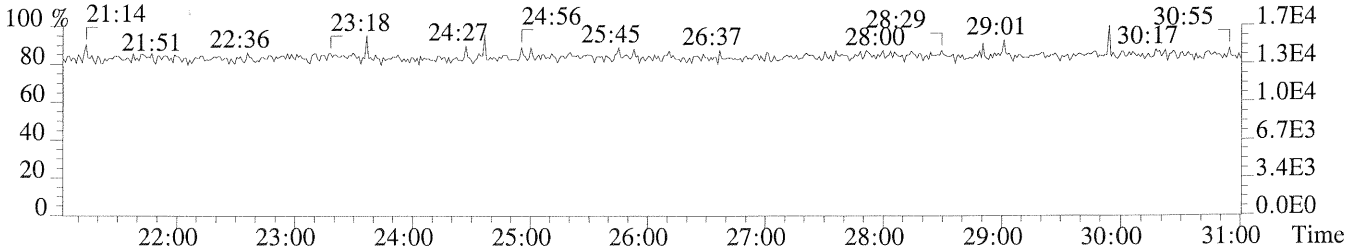
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



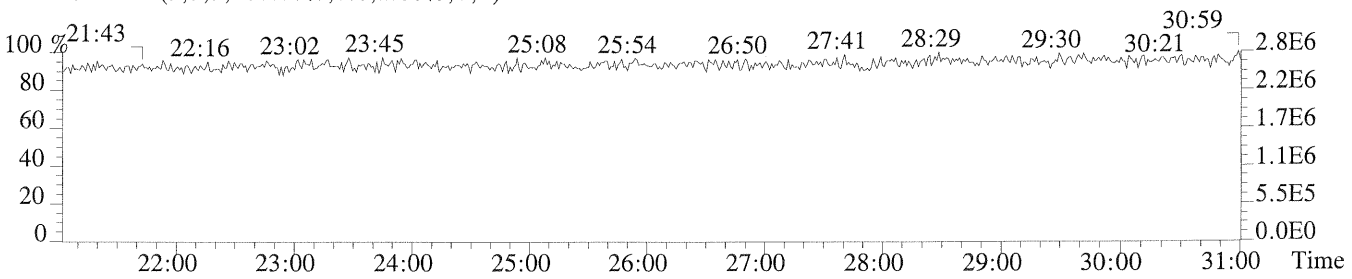
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

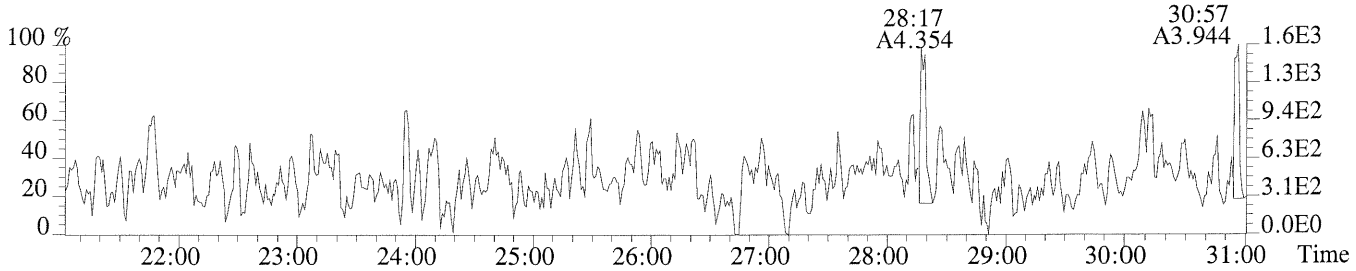


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

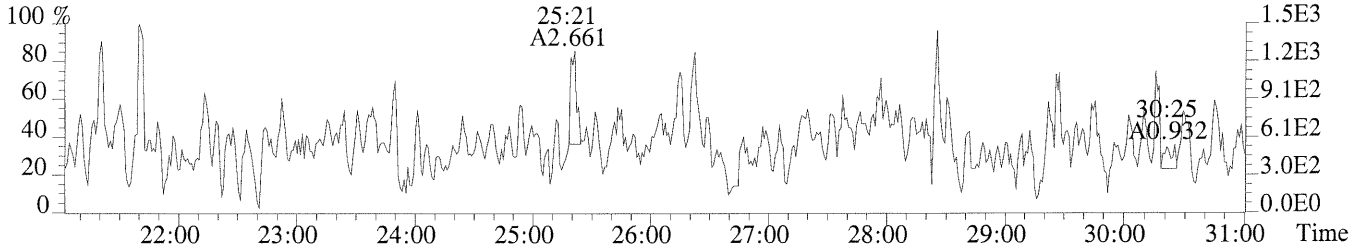


File:U149805 #1-627 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001

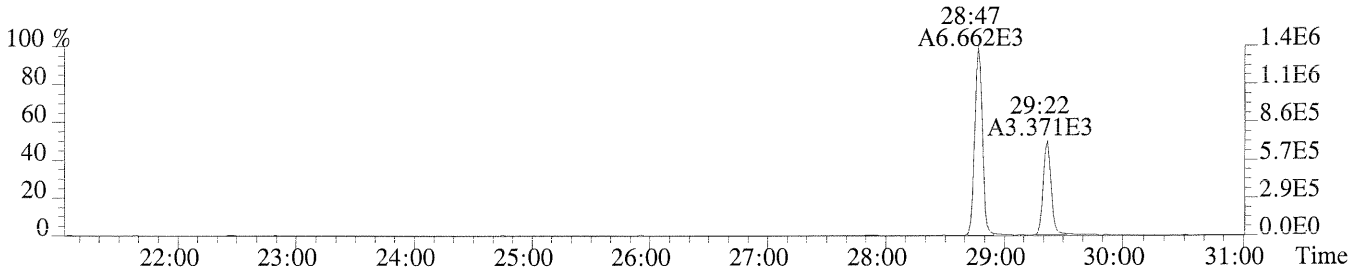
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



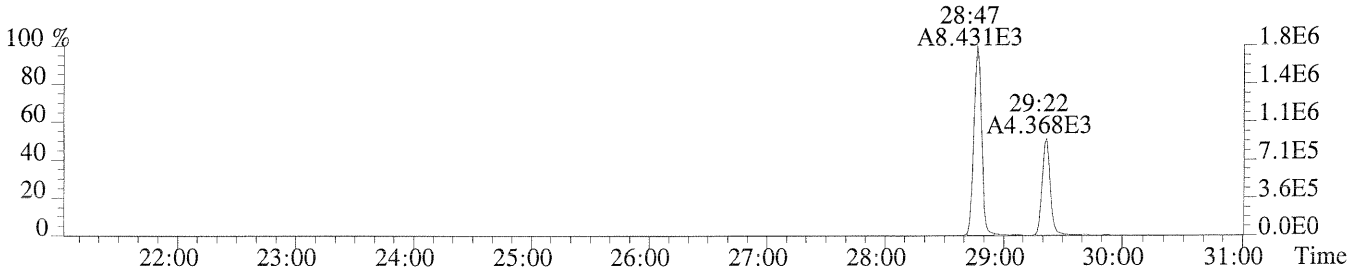
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



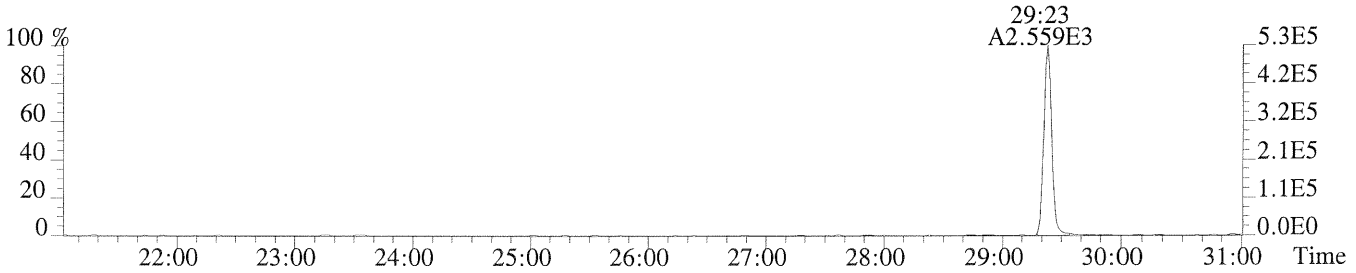
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1456.0,1.00%,F,T)



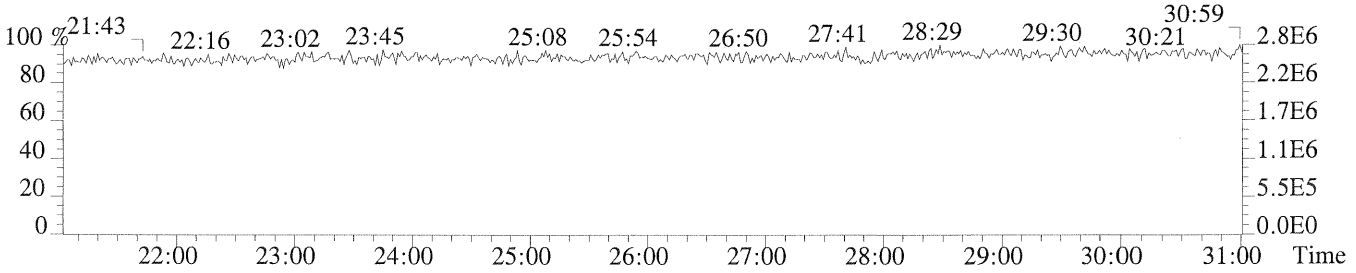
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)

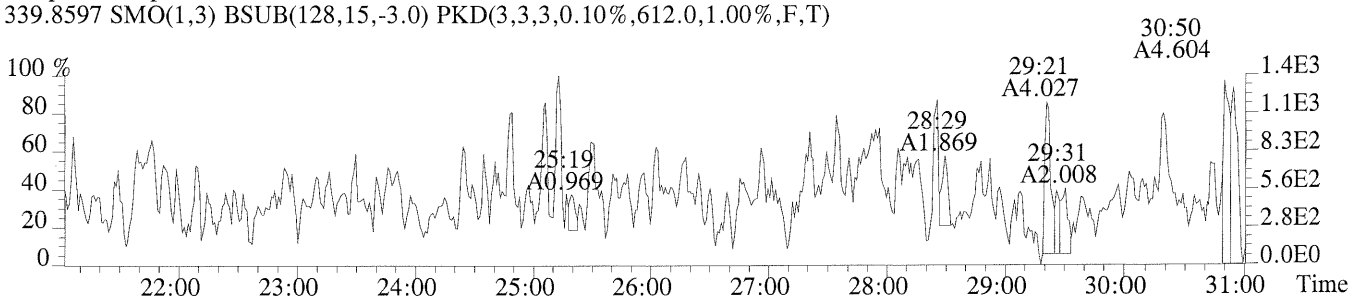


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

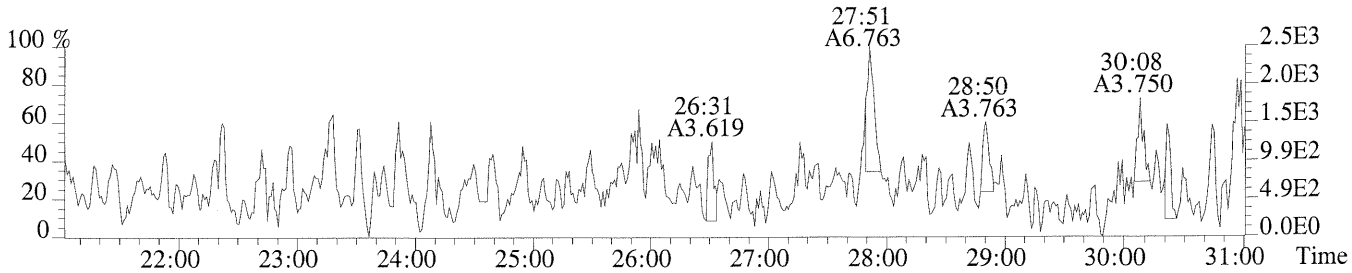


File:U149805 #1-627 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001

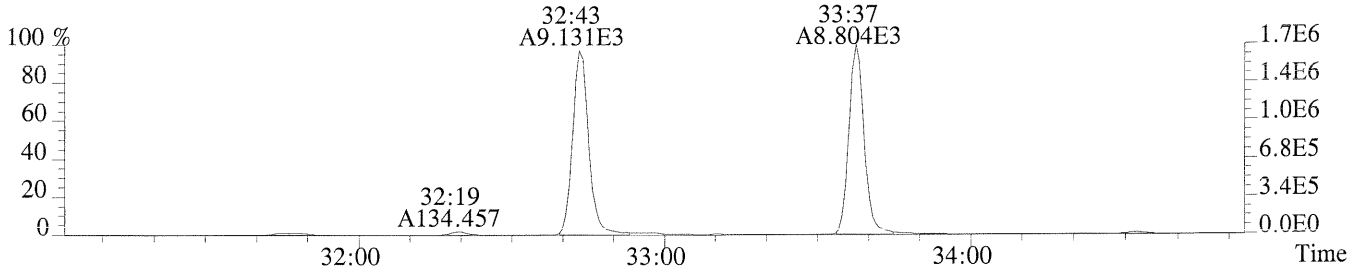
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



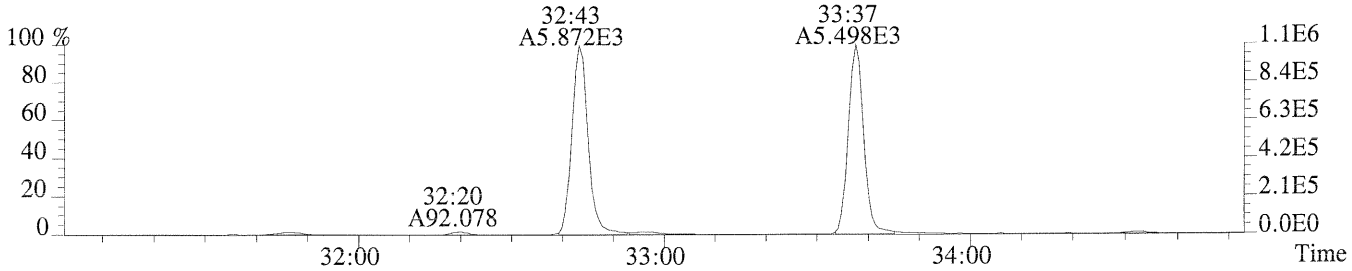
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



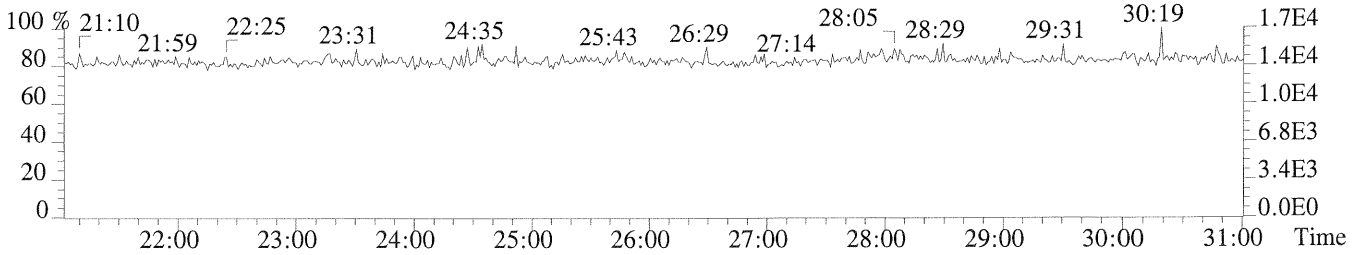
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



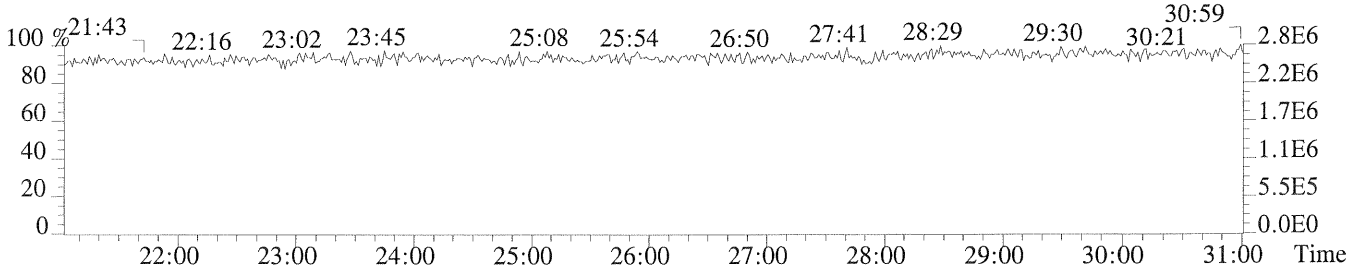
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

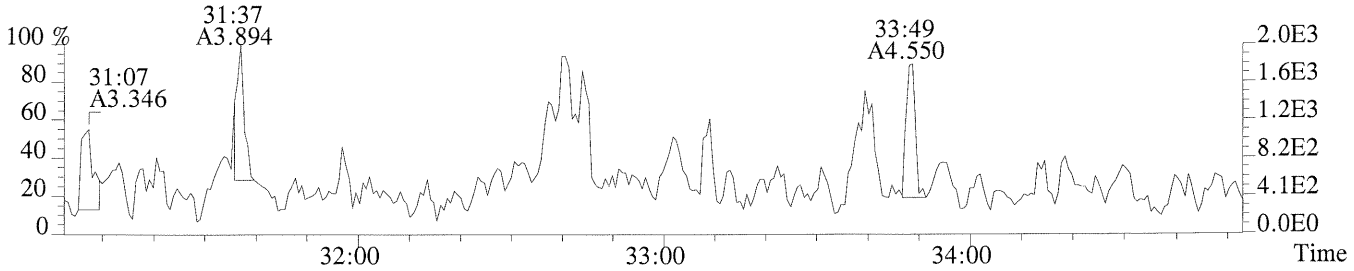


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

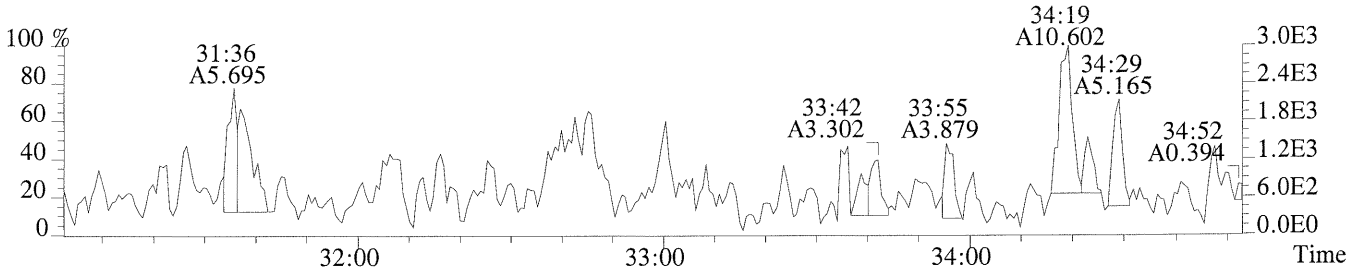


File:U149805 #1-349 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001

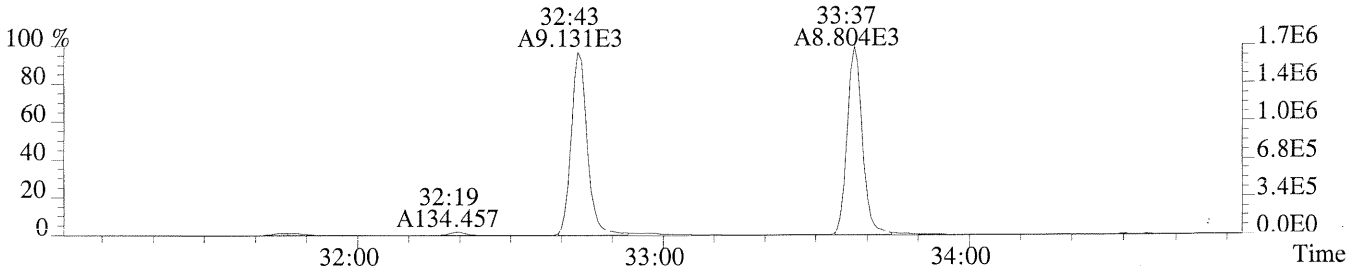
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



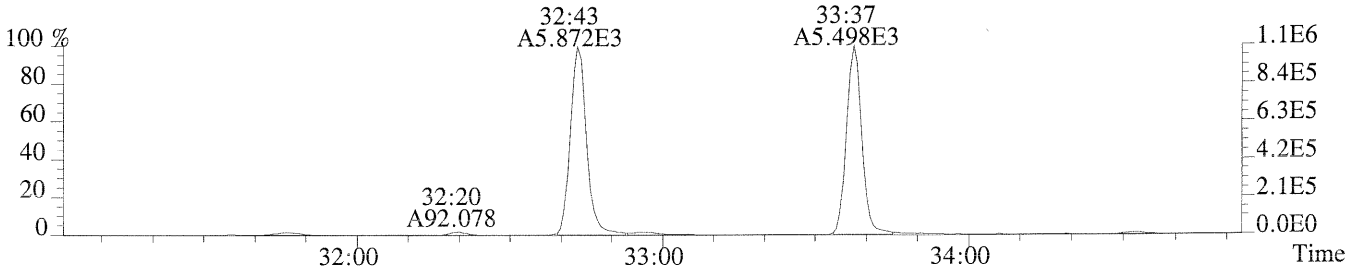
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



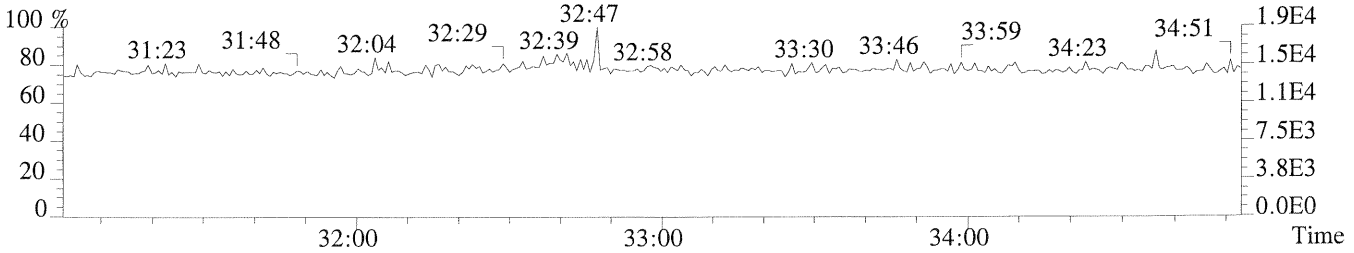
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



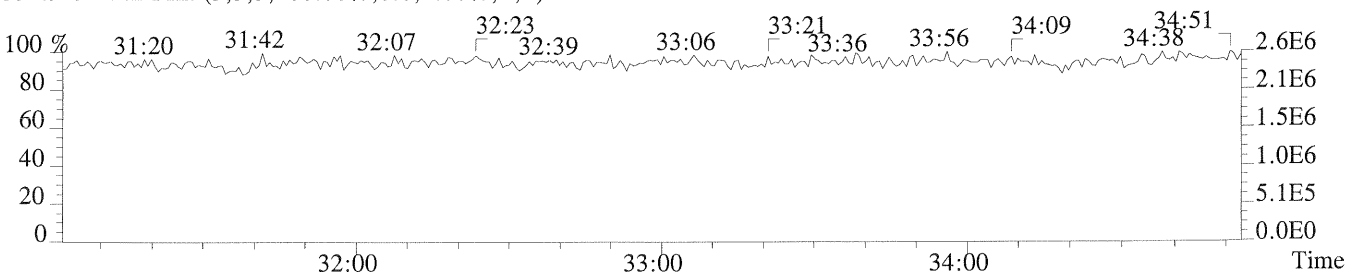
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



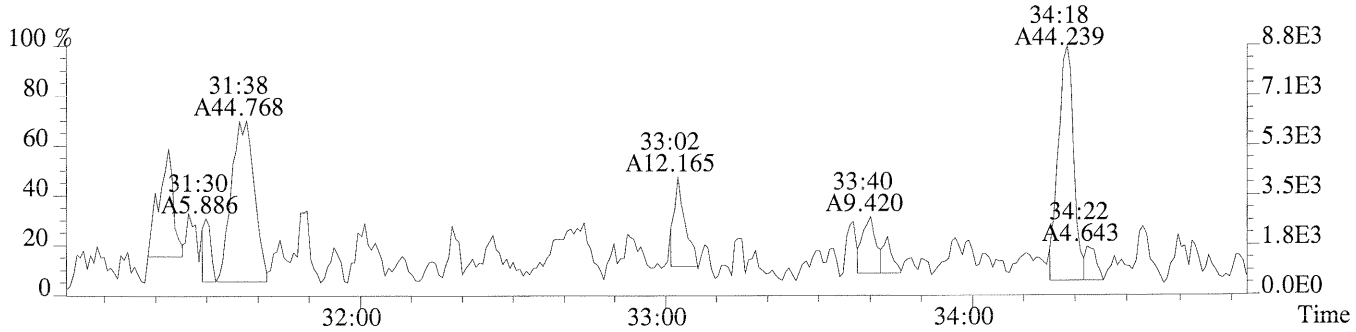
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



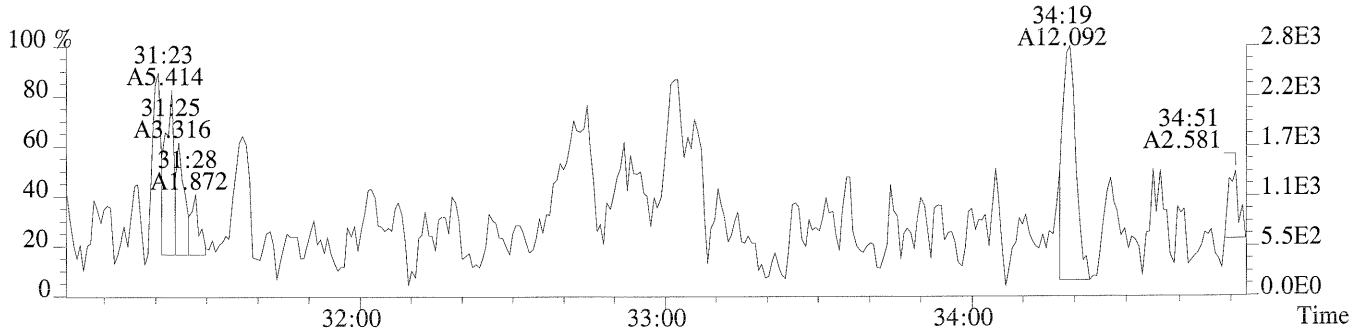
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



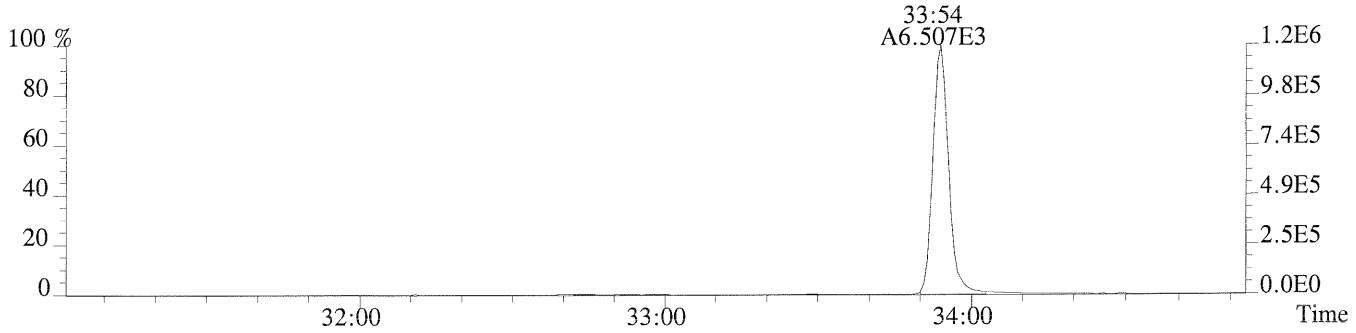
File:U149805 #1-349 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



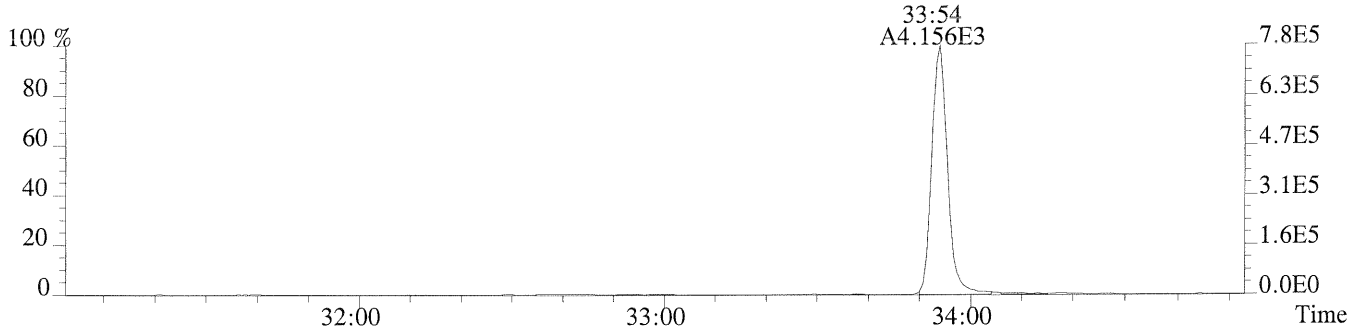
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



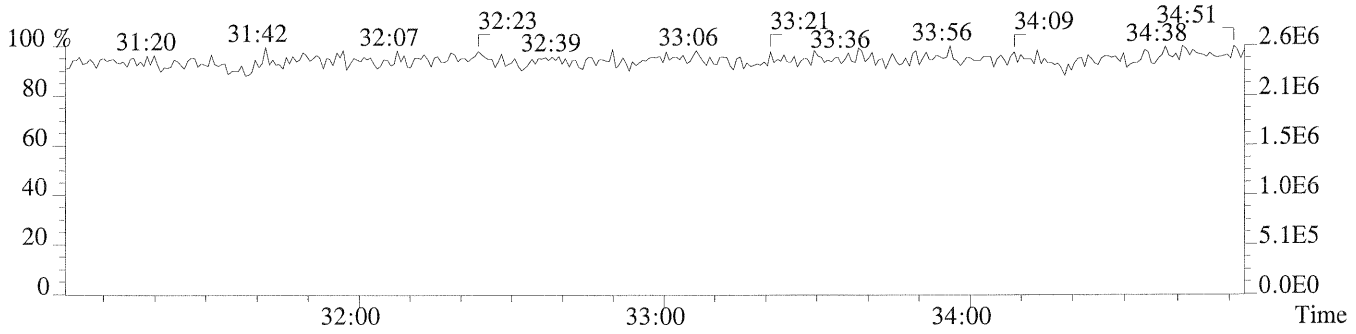
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)

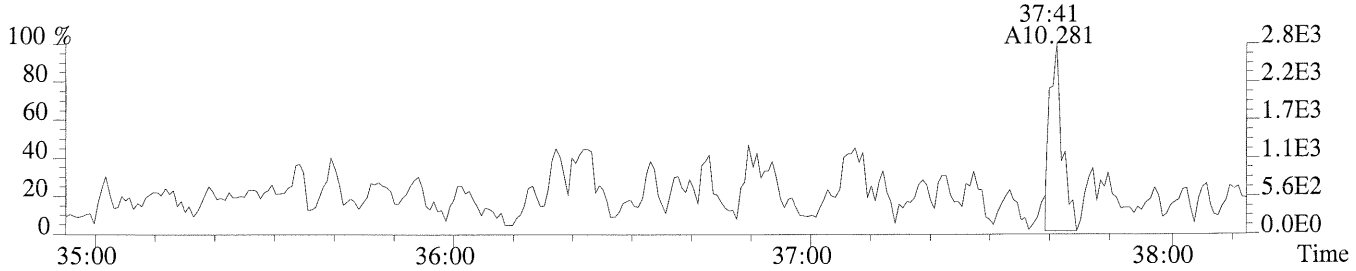


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

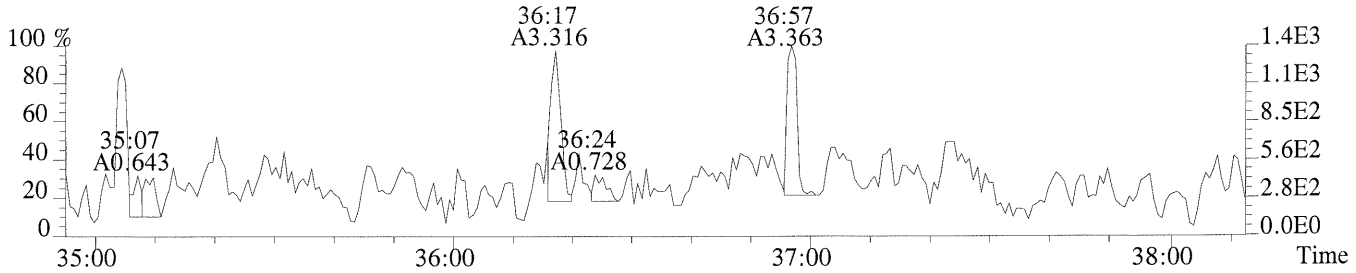


File:U149805 #1-299 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001

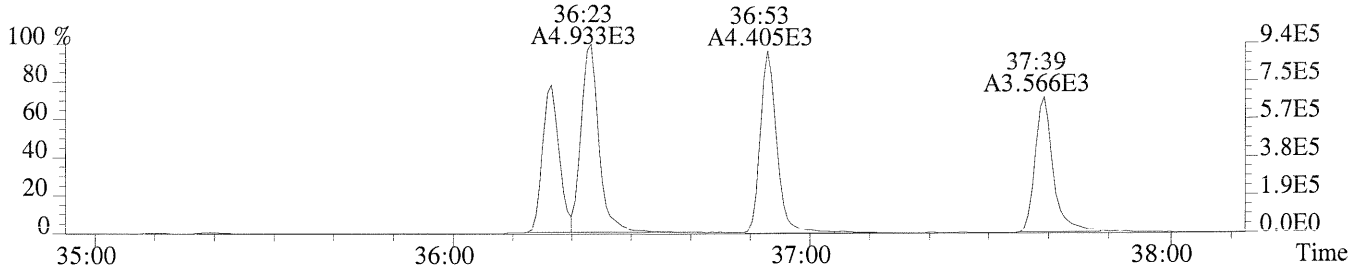
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



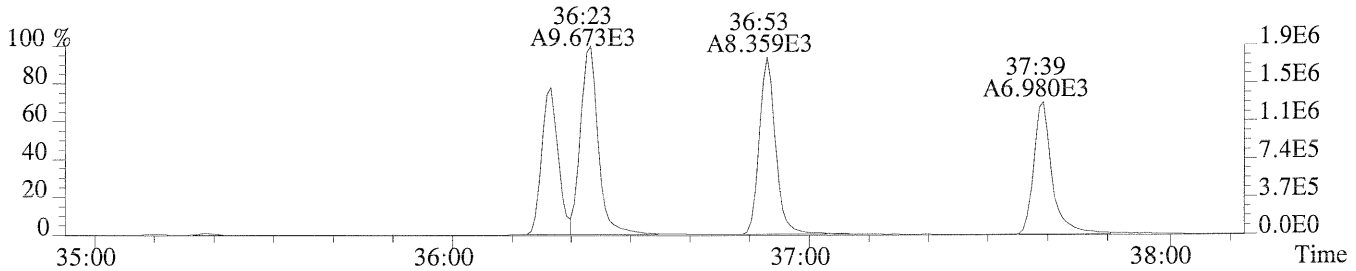
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



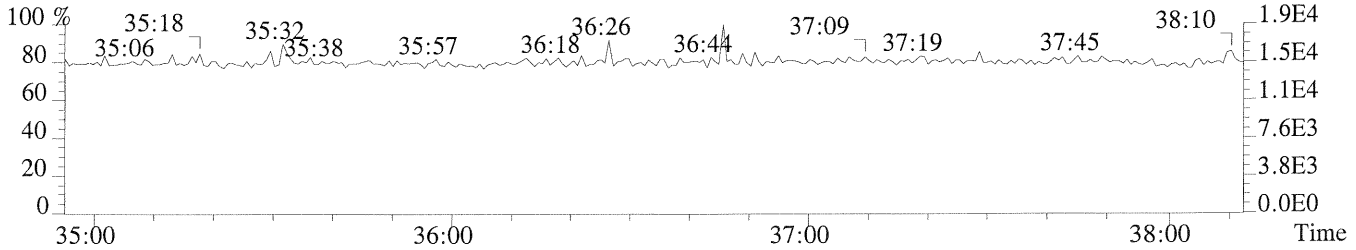
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



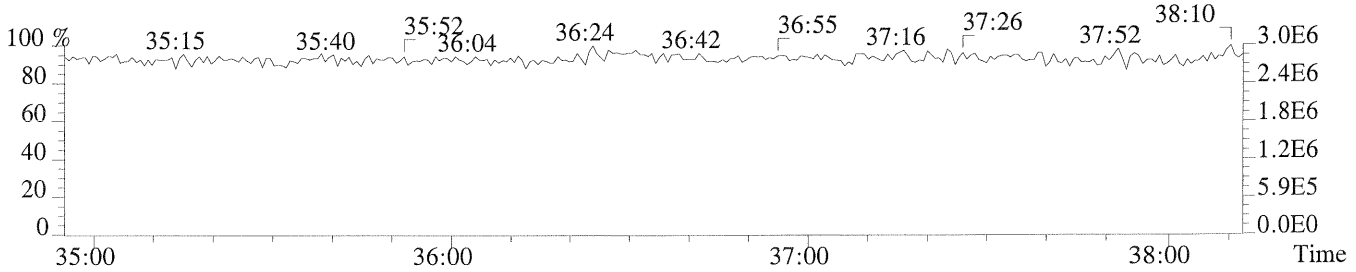
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1124.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

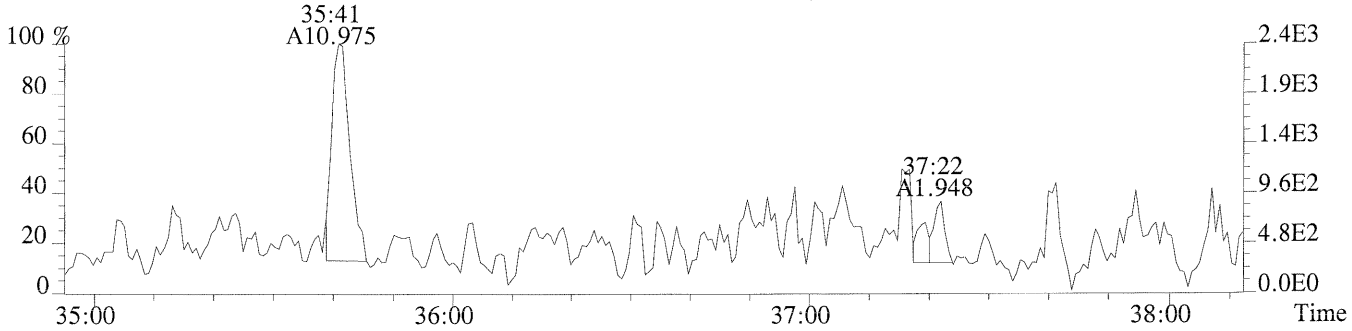


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

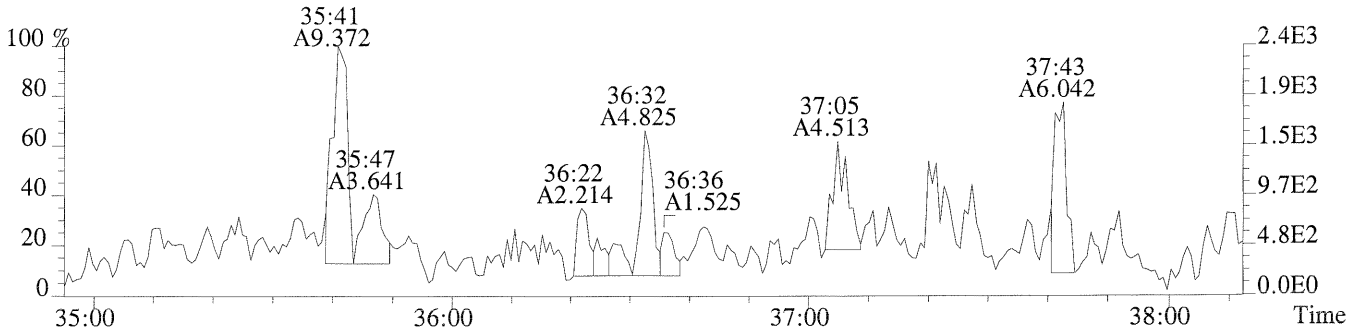


File:U149805 #1-299 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001

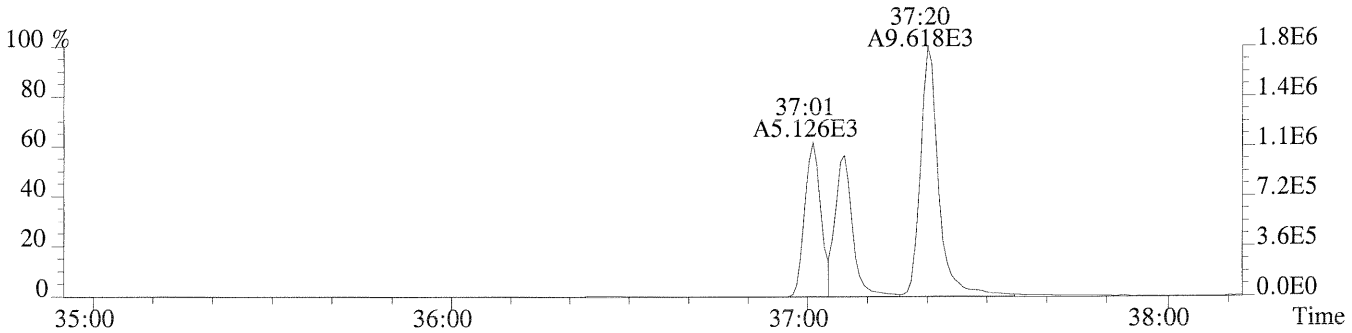
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



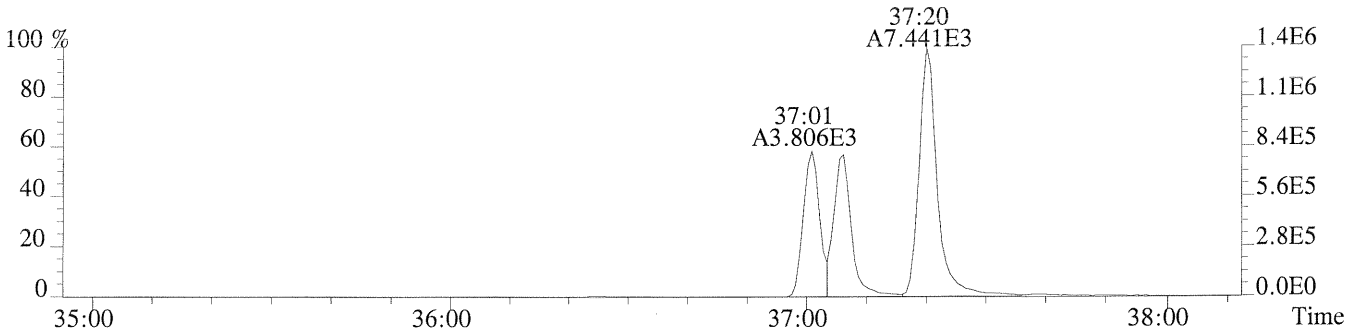
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)



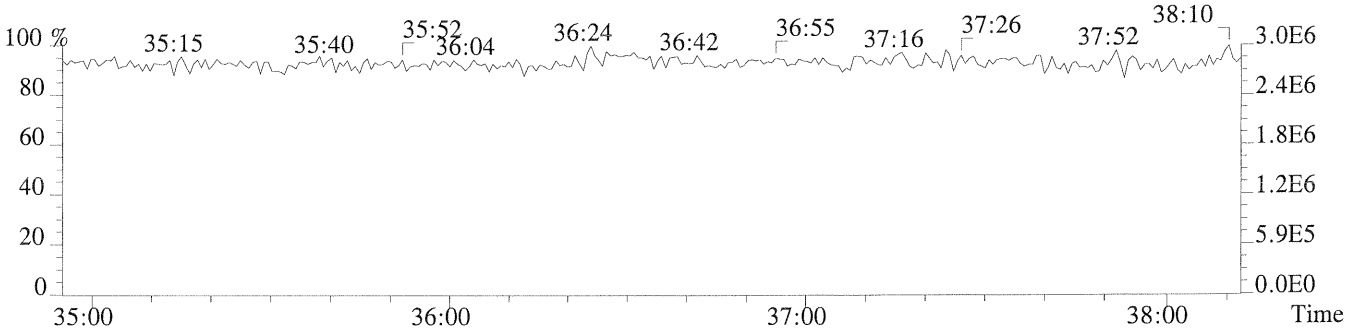
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)

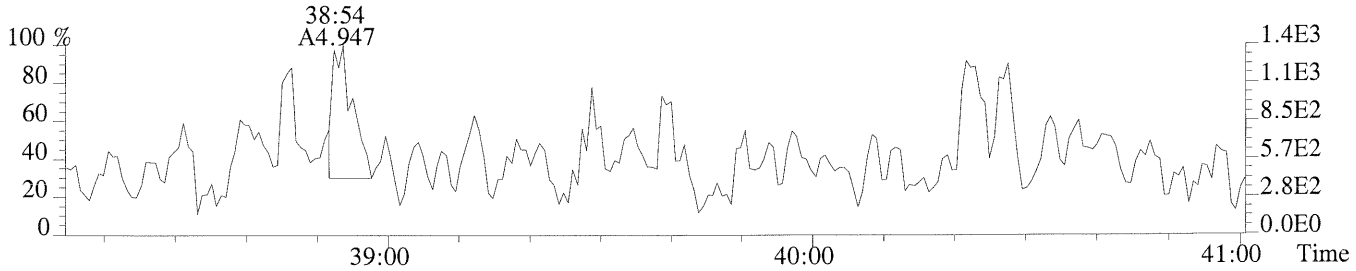


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

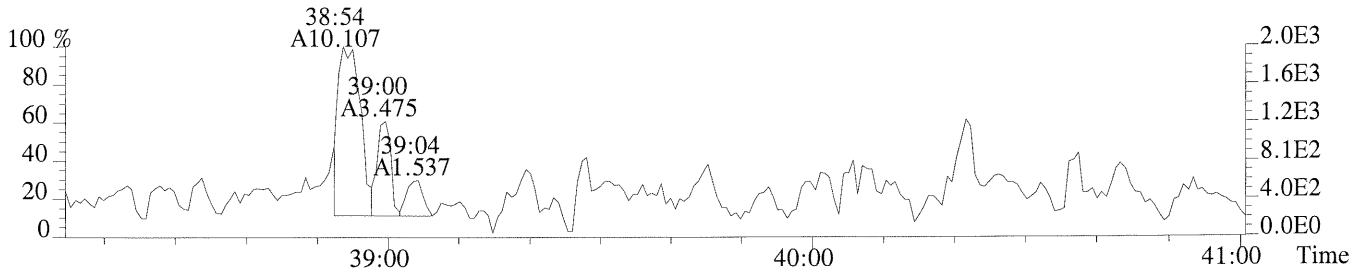


File:U149805 #1-252 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001

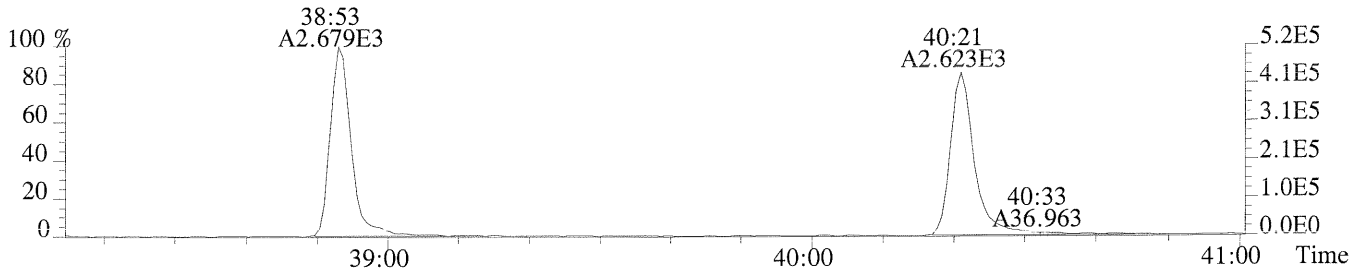
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.50%,F,T)



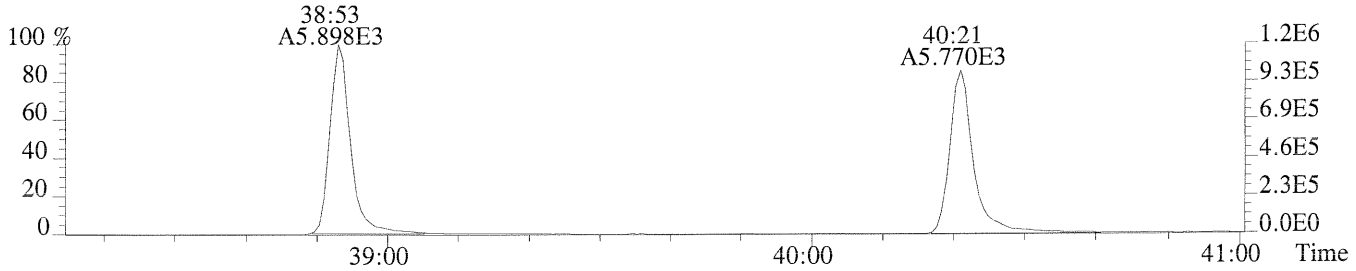
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.50%,F,T)



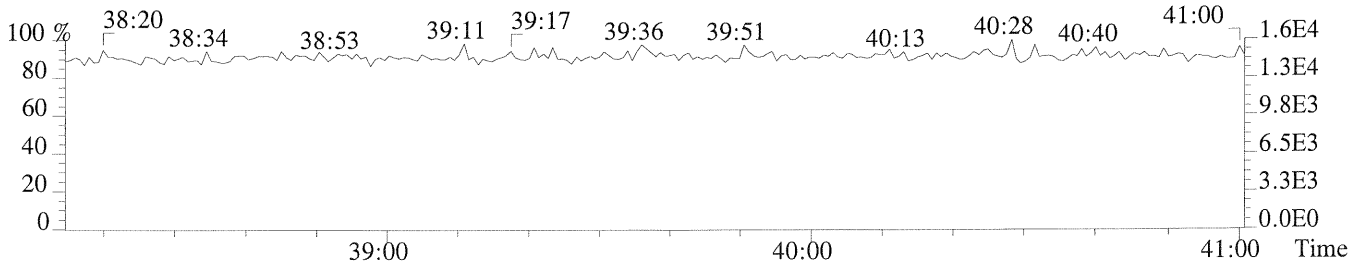
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.50%,F,T)



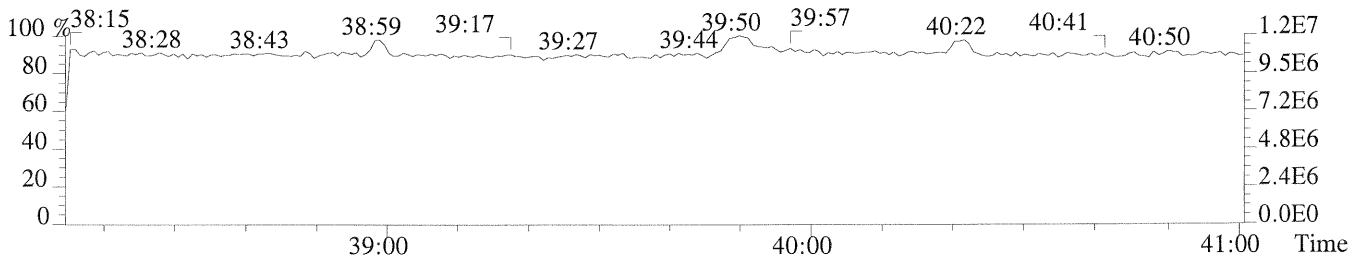
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.50%,F,T)



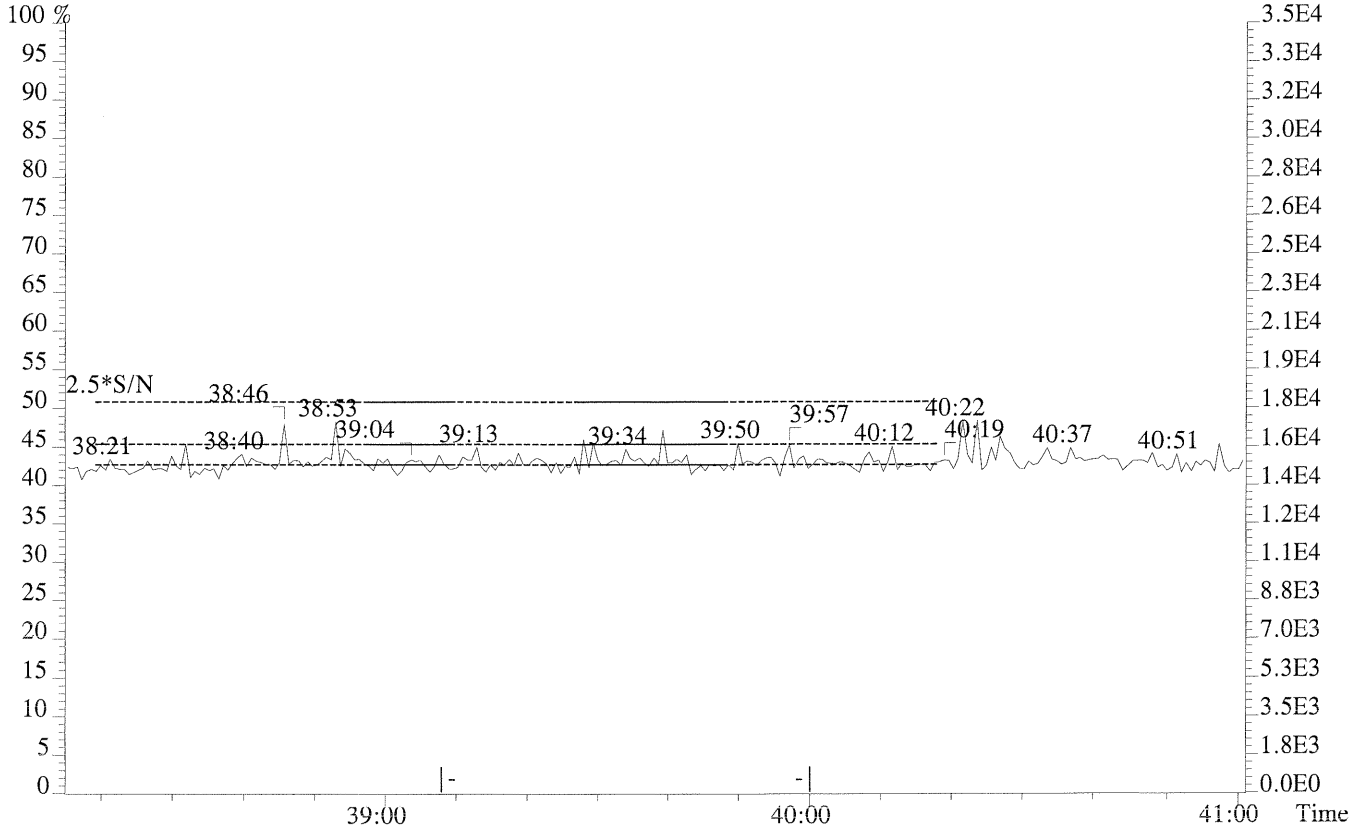
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



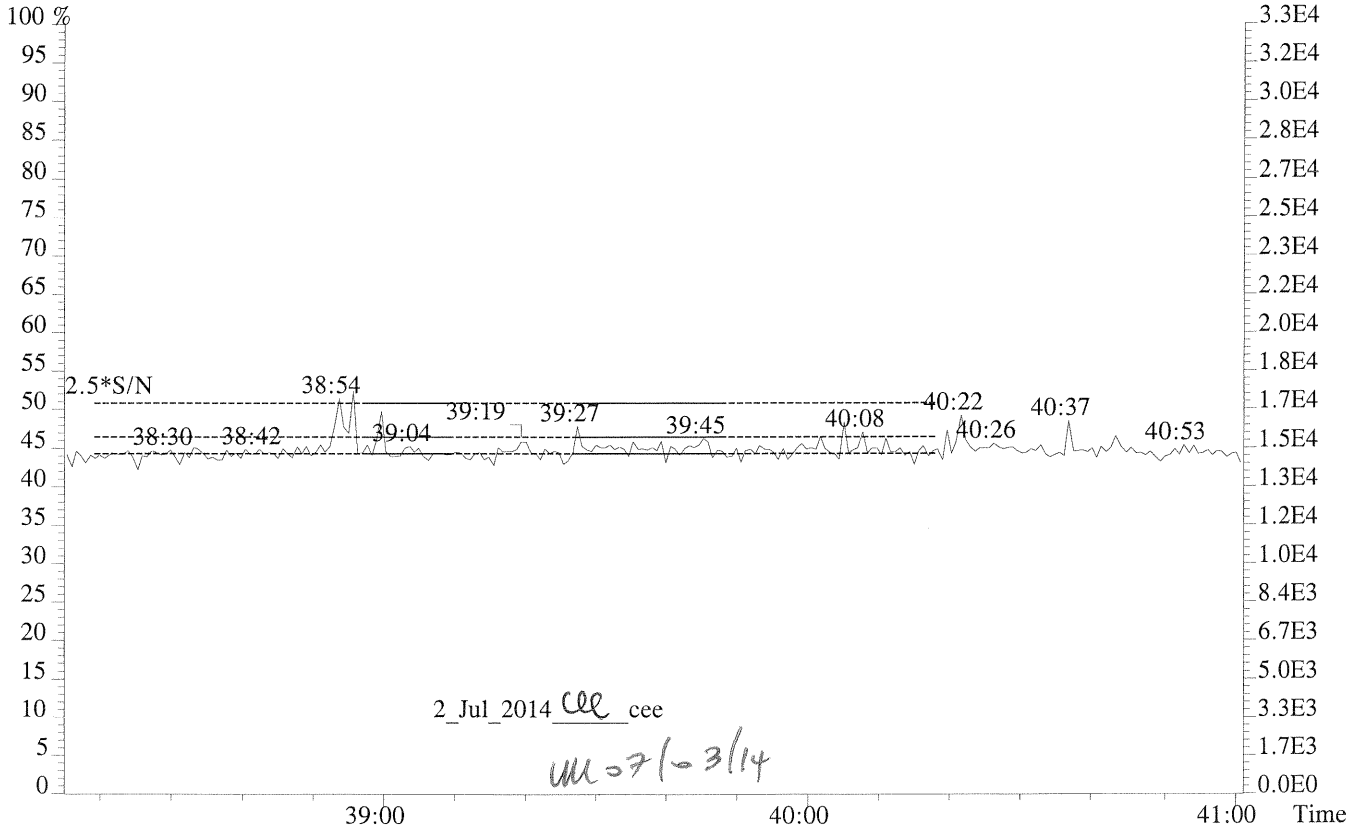
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:U149805 #1-252 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001
407.7818 F:4

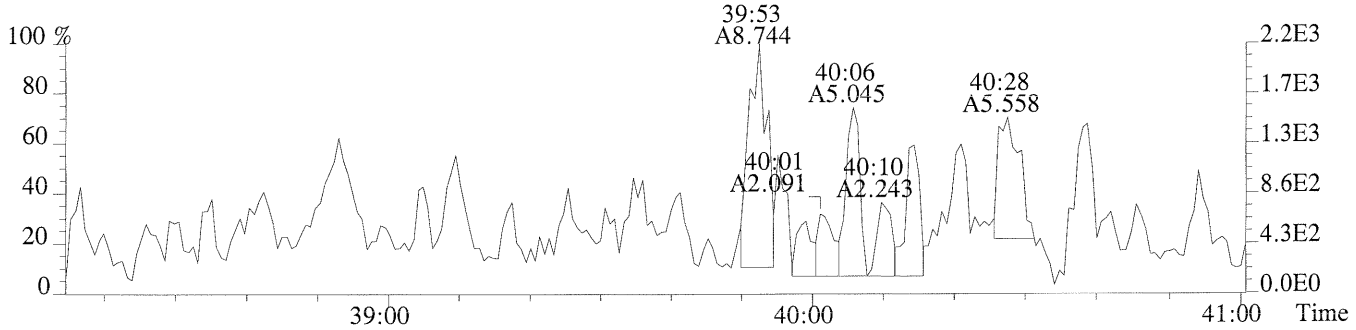


409.7789 F:4

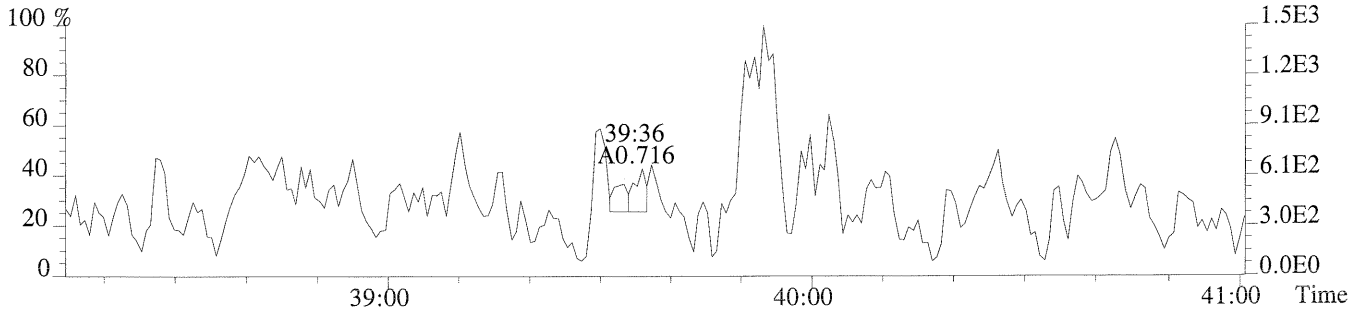


File:U149805 #1-252 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001

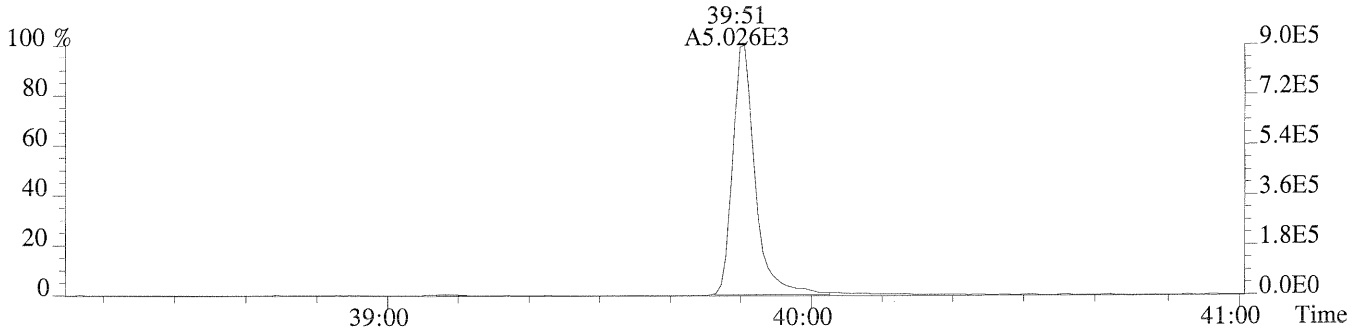
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



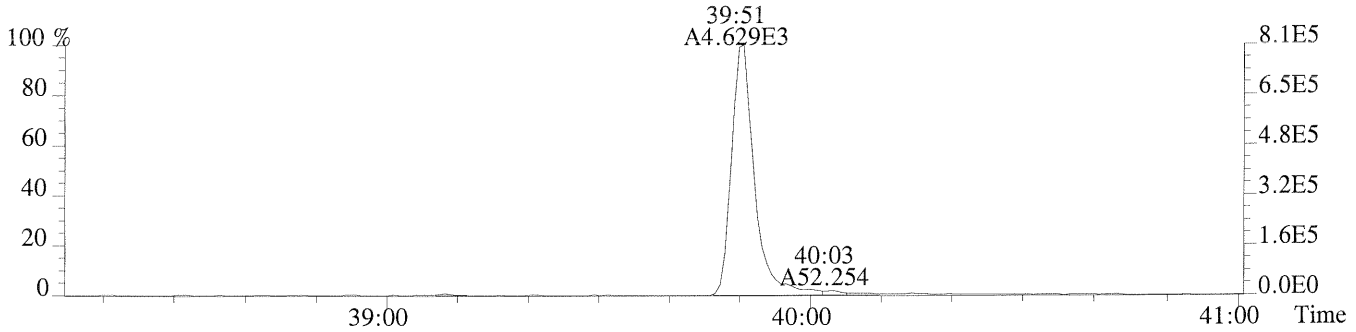
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



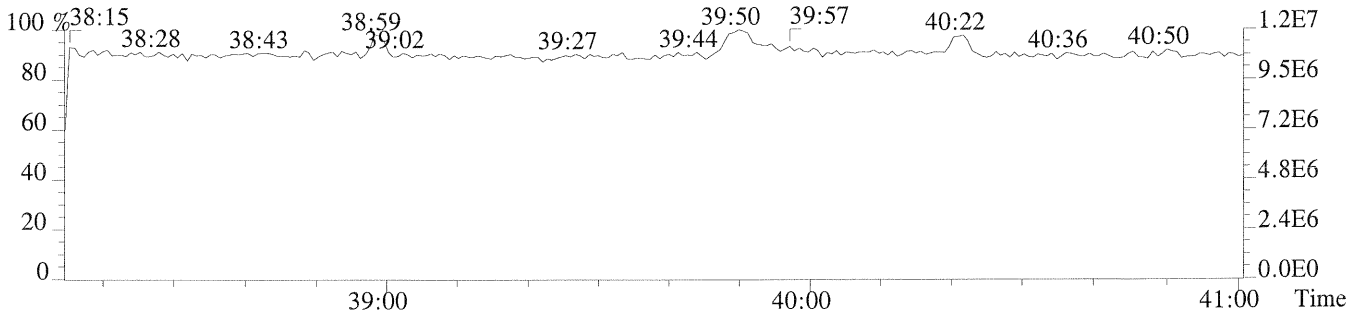
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



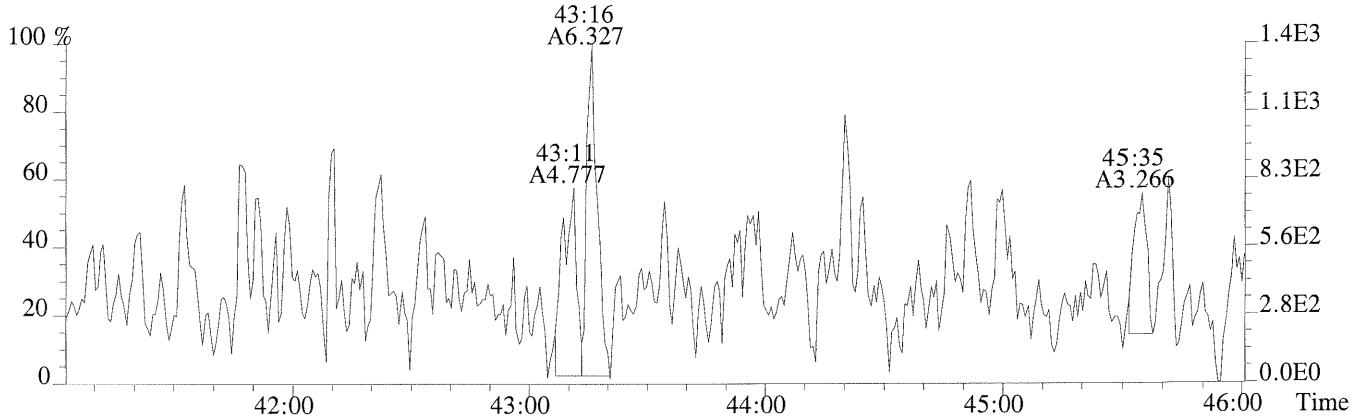
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)



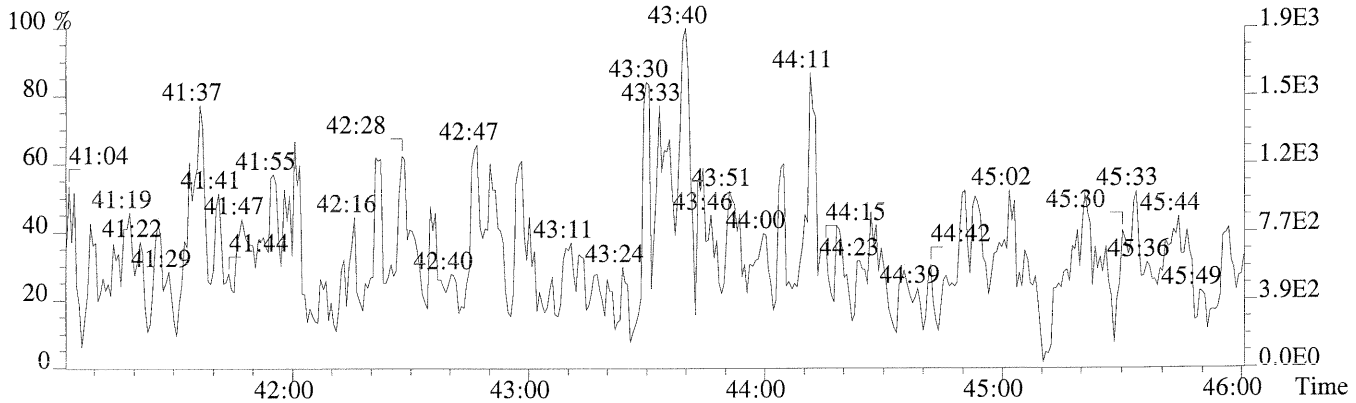
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



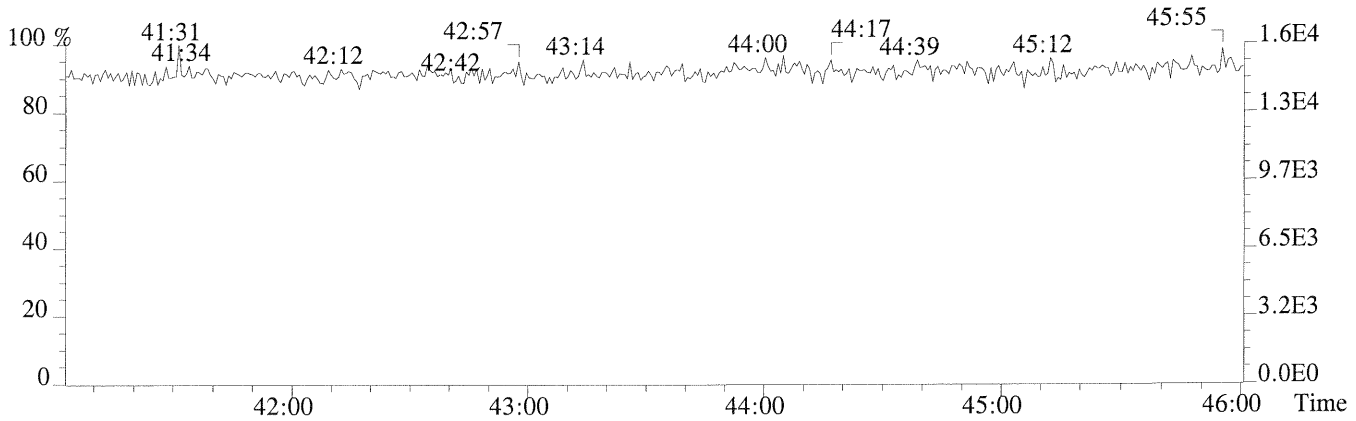
File:U149805 #1-451 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,472.0,0.40%,F,T)



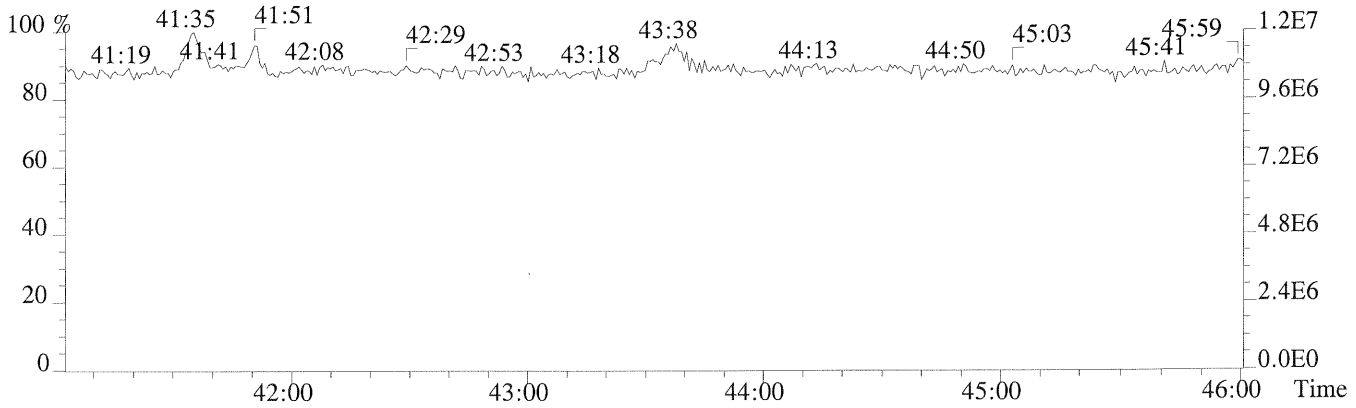
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



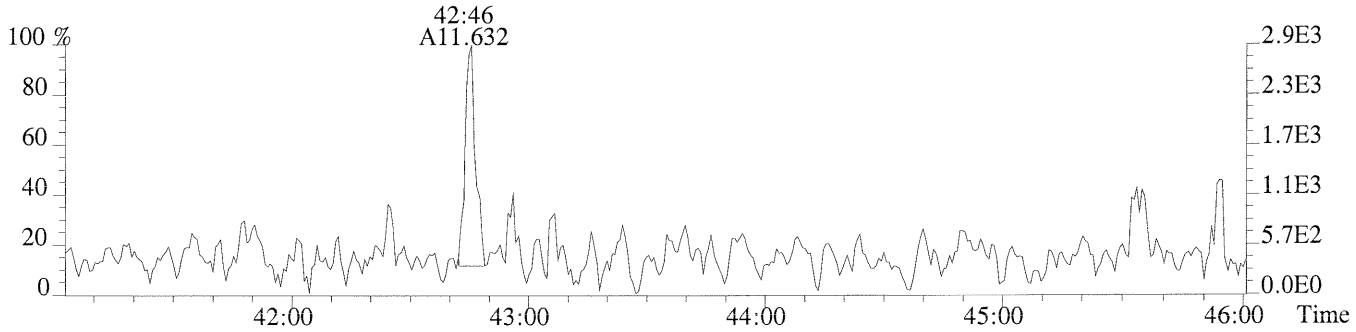
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



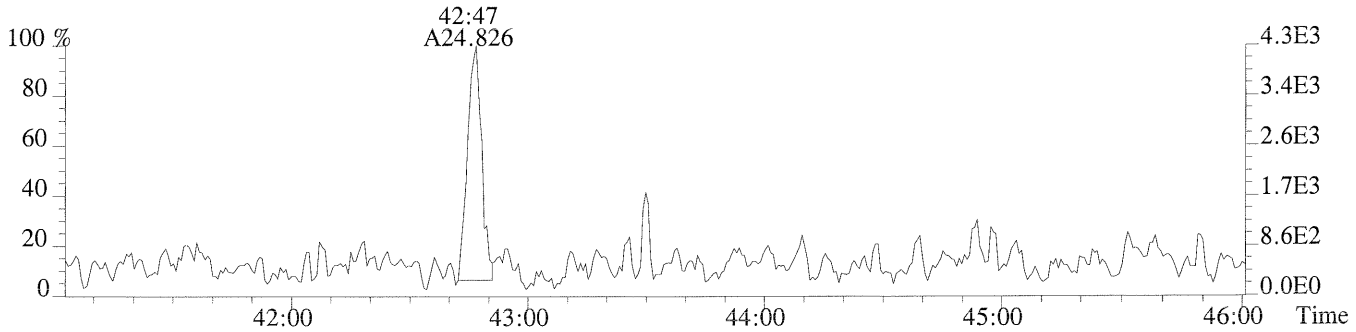
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



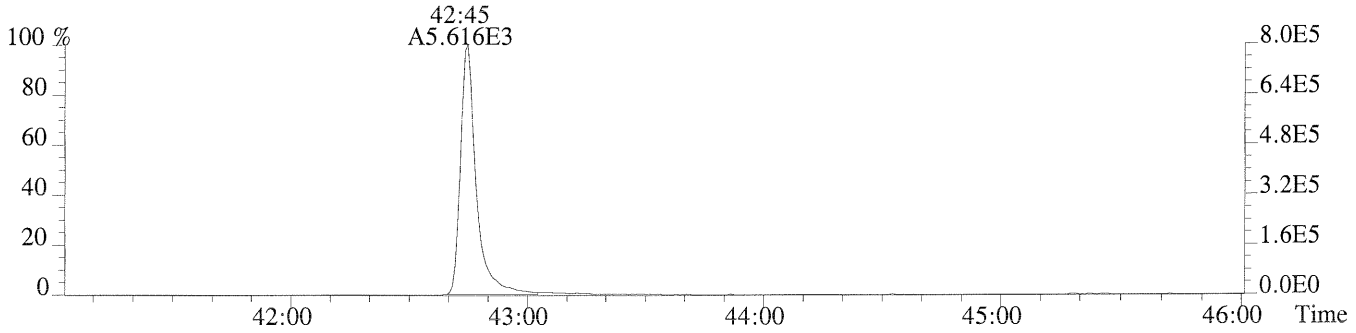
File:U149805 #1-451 Acq: 1-JUL-2014 21:39:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-001
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



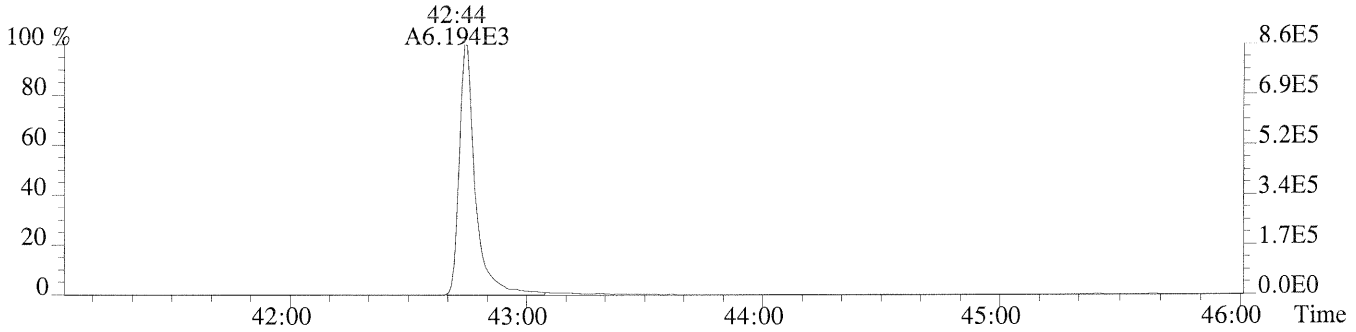
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,704.0,0.40%,F,T)



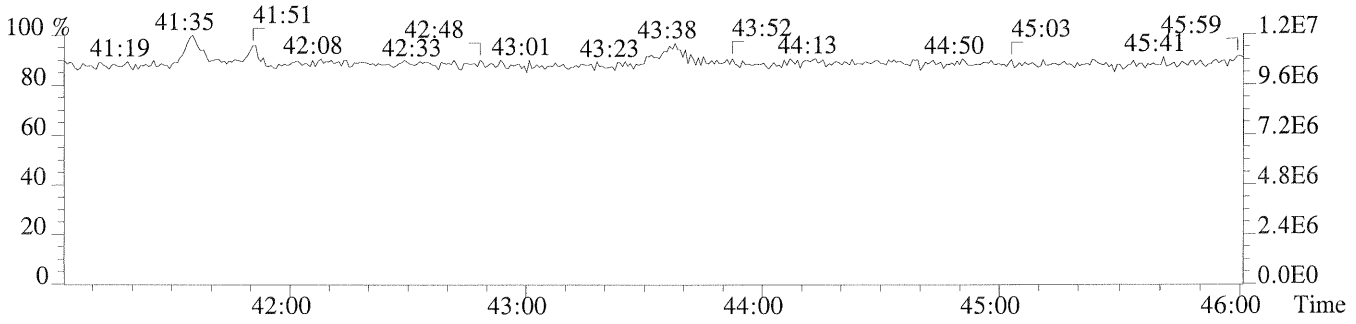
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
1406041724 20

Run #12 Filename U149806 Samp: 1 Inj: 1 Acquired: 1-JUL-14 22:28:26
Processed: 2-JUL-14 11:47:40 Sample ID: R1404651-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.358
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.065
17	Unk	OCDD	NotFnd	*	*	*	no	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:36	4.861e+03	6.052e+03	0.80	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	9.739e+03	6.223e+03	1.57	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	9.060e+03	5.721e+03	1.58	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	3.726e+03	7.163e+03	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	5.374e+03	1.008e+04	0.53	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	4.646e+03	8.980e+03	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	3.642e+03	7.269e+03	0.50	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:53	2.801e+03	6.323e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.663e+03	6.224e+03	0.43	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:21	3.394e+03	4.370e+03	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	6.874e+03	4.371e+03	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	5.235e+03	4.082e+03	1.28	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	5.568e+03	4.262e+03	1.31	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:50	5.061e+03	4.693e+03	1.08	yes	no	0.936
32	IS	13C-OCDD	42:44	5.519e+03	5.904e+03	0.93	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:47	6.825e+03	8.691e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	9.689e+03	7.810e+03	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.798e+03				no	1.044

EDL

$$\text{OCDD} = \frac{(\cancel{5.40e+02} + \cancel{5.88e+02}) \times 4000 \text{ pg} \times 1 \times 2.5}{(\cancel{5.519e+03} + \cancel{5.904e+03}) \times 10.324 \text{ g} \times 99.7 / 100 \times 1.177} = 0.595 \text{ ng/kg}$$

$(7.53e+05 + 8.11e+05)$

MM07/03/14

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1613RESPA

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406041724 200-S

Run #12 Filename U149806 Samp: 1 Inj: 1 Acquired: 1-JUL-14 22:28:26
Processed: 2-JUL-14 11:47:401 LAB. ID: R1404651-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.28e+02	*	*	7.12e+02	*
2	1,2,3,7,8-PeCDF	*	7.96e+02	*	*	1.03e+03	*
3	2,3,4,7,8-PeCDF	*	7.96e+02	*	*	1.03e+03	*
4	1,2,3,4,7,8-HxCDF	*	6.92e+02	*	*	6.76e+02	*
5	1,2,3,6,7,8-HxCDF	*	6.92e+02	*	*	6.76e+02	*
6	2,3,4,6,7,8-HxCDF	*	6.92e+02	*	*	6.76e+02	*
7	1,2,3,7,8,9-HxCDF	*	6.92e+02	*	*	6.76e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	6.84e+02	*	*	4.96e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	6.84e+02	*	*	4.96e+02	*
10	OCDF	*	5.32e+02	*	*	7.36e+02	*
11	2,3,7,8-TCDD	*	6.48e+02	*	*	6.60e+02	*
12	1,2,3,7,8-PeCDD	*	1.15e+03	*	*	1.34e+03	*
13	1,2,3,4,7,8-HxCDD	*	8.88e+02	*	*	6.84e+02	*
14	1,2,3,6,7,8-HxCDD	*	8.88e+02	*	*	6.84e+02	*
15	1,2,3,7,8,9-HxCDD	*	8.88e+02	*	*	6.84e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	4.96e+02	*	*	6.12e+02	*
17	OCDD	*	5.40e+02	*	*	5.88e+02	*
18	13C-2,3,7,8-TCDF	9.66e+05	9.64e+02	1.0e+03	1.19e+06	8.32e+02	1.4e+03
19	13C-1,2,3,7,8-PeCDF	1.76e+06	5.92e+02	3.0e+03	1.10e+06	1.03e+03	1.1e+03
20	13C-2,3,4,7,8-PeCDF	1.79e+06	5.92e+02	3.0e+03	1.09e+06	1.03e+03	1.1e+03
21	13C-1,2,3,4,7,8-HxCDF	7.88e+05	7.36e+02	1.1e+03	1.50e+06	1.76e+03	8.5e+02
22	13C-1,2,3,6,7,8-HxCDF	1.07e+06	7.36e+02	1.5e+03	1.98e+06	1.76e+03	1.1e+03
23	13C-2,3,4,6,7,8-HxCDF	9.56e+05	7.36e+02	1.3e+03	1.90e+06	1.76e+03	1.1e+03
24	13C-1,2,3,7,8,9-HxCDF	7.01e+05	7.36e+02	9.5e+02	1.39e+06	1.76e+03	7.9e+02
25	13C-1,2,3,4,6,7,8-HpCDF	5.37e+05	1.96e+03	2.7e+02	1.20e+06	1.37e+03	8.7e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.73e+05	1.96e+03	2.4e+02	1.09e+06	1.37e+03	7.9e+02
27	13C-2,3,7,8-TCDD	7.01e+05	1.31e+03	5.4e+02	9.32e+05	8.52e+02	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.33e+06	6.72e+02	2.0e+03	8.63e+05	1.08e+03	8.0e+02
29	13C-1,2,3,4,7,8-HxCDD	1.15e+06	1.24e+03	9.3e+02	8.96e+05	1.30e+03	6.9e+02
30	13C-1,2,3,6,7,8-HxCDD	1.11e+06	1.24e+03	8.9e+02	8.43e+05	1.30e+03	6.5e+02
31	13C-1,2,3,4,6,7,8-HpCDD	9.05e+05	6.44e+02	1.4e+03	8.33e+05	1.10e+03	7.6e+02
32	13C-OCDD	7.53e+05	1.01e+03	7.5e+02	8.11e+05	5.48e+02	1.5e+03
33	13C-1,2,3,4-TCDD	1.46e+06	1.31e+03	1.1e+03	1.87e+06	8.52e+02	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.82e+06	1.24e+03	1.5e+03	1.42e+06	1.30e+03	1.1e+03
35	37Cl-2,3,7,8-TCDD	5.69e+05	5.72e+02	9.9e+02			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406041724 200-S

Entry: 36 Totals Name: Total Tetra-Furans

Run: 12 File: U149806 Sample: 1 Injection: 1 Function: 1
Llim: 24:04 Ulim: 30:35
Acquired: 1-JUL-14 22:28:26 Processed: 2-JUL-14 11:47:40
Mass: 303.9020 305.8990 Tot Response: 2.08e+01 RRF: 0.9445

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	30:09	8.57e+00	1.22e+01 0.70	yes	2.08e+01		n	n

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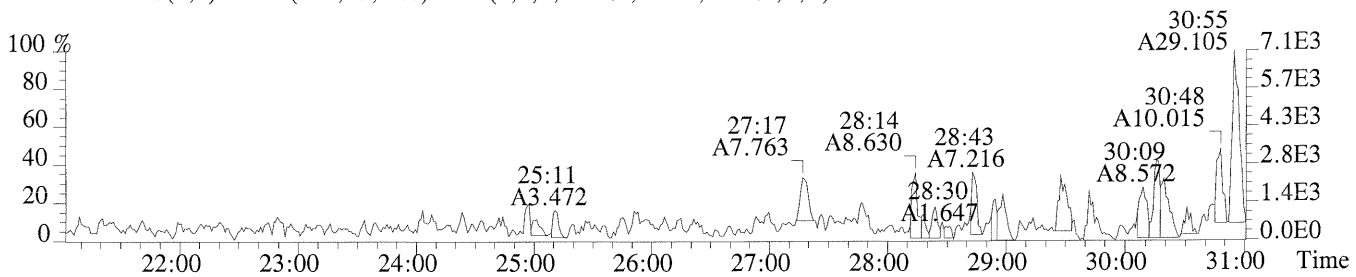
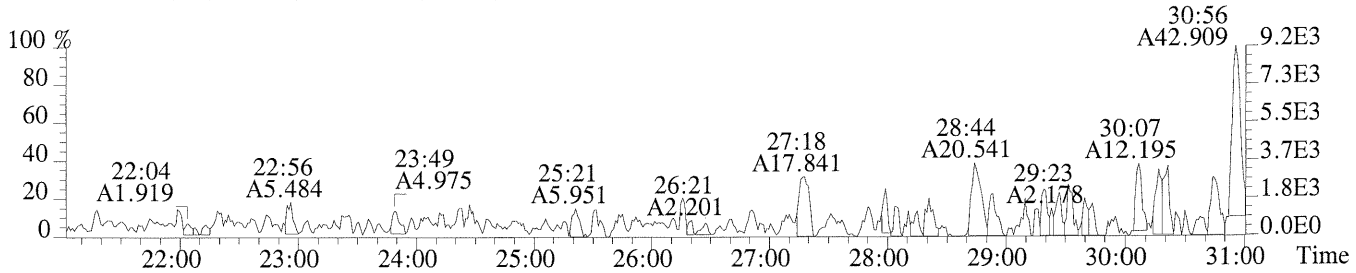
File:U149806 #1-627 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002

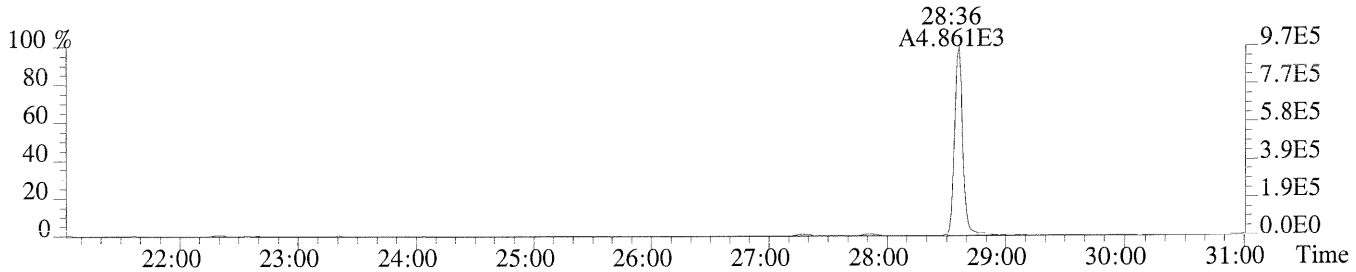
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



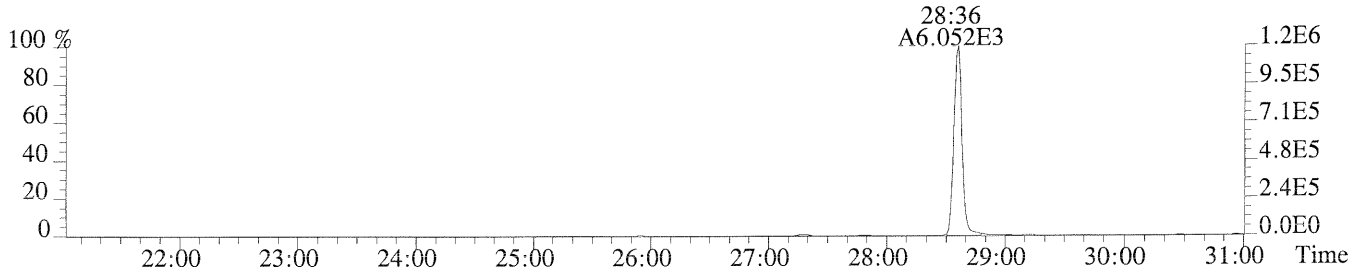
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



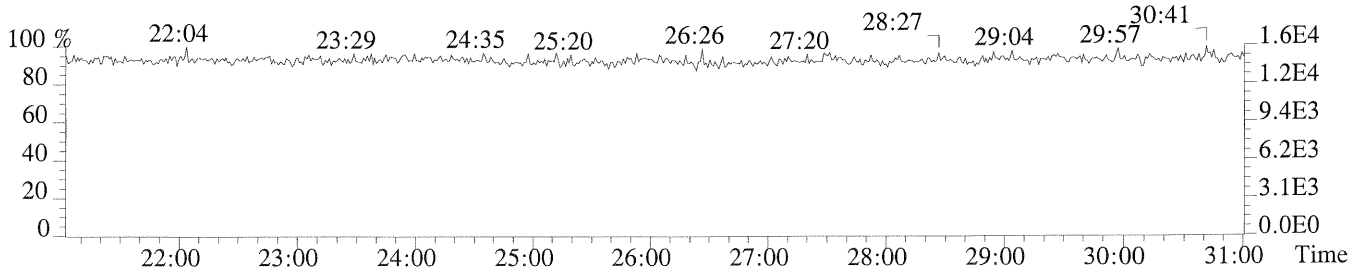
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



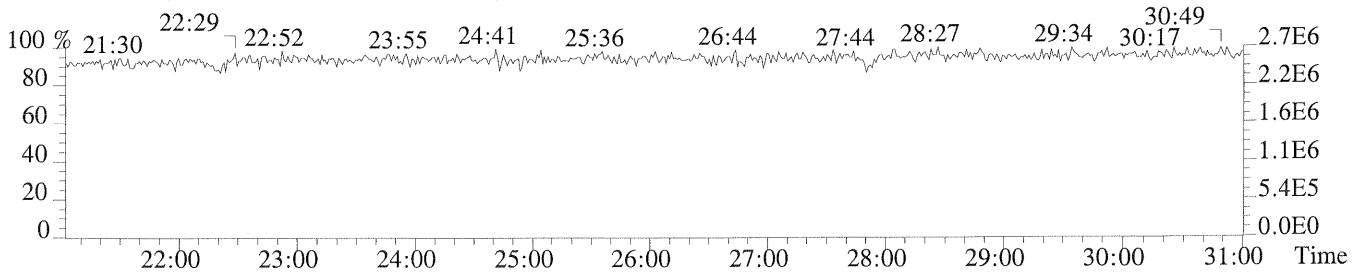
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

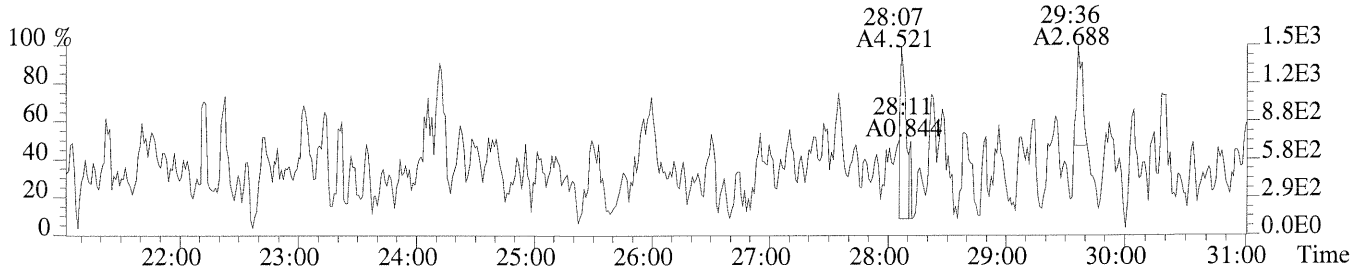


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

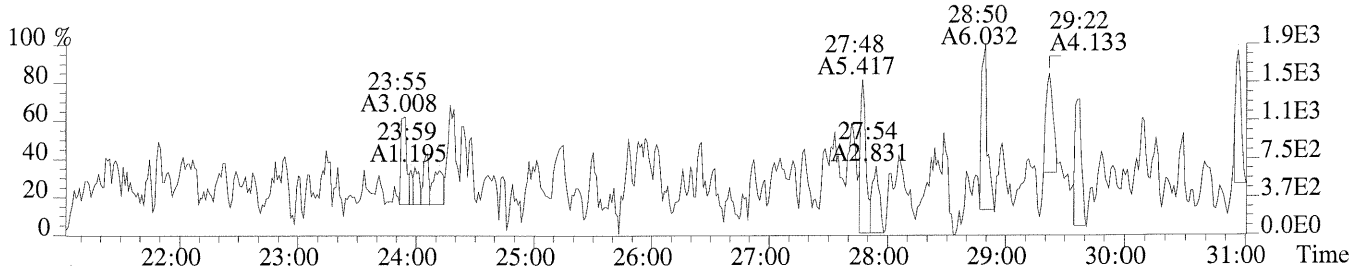


File:U149806 #1-627 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002

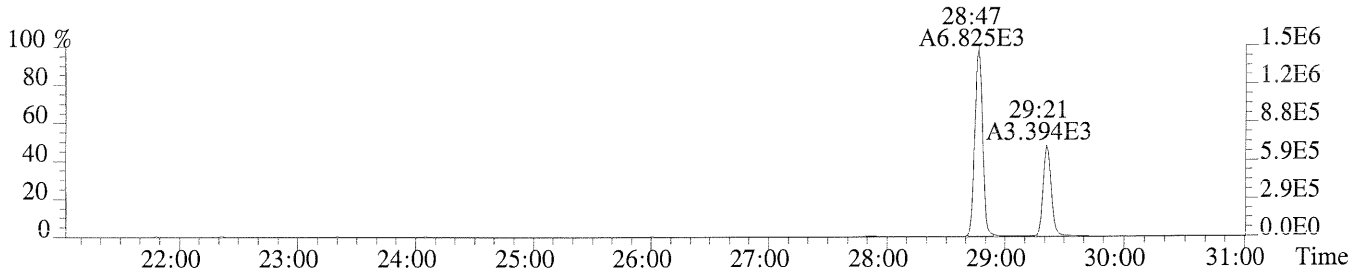
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



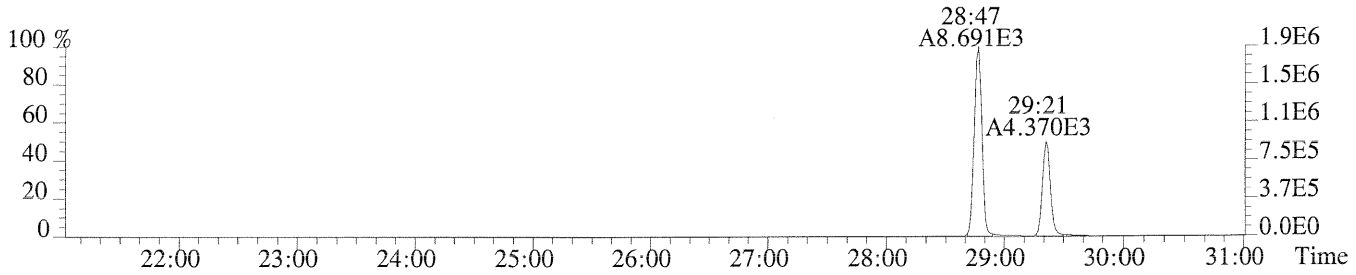
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



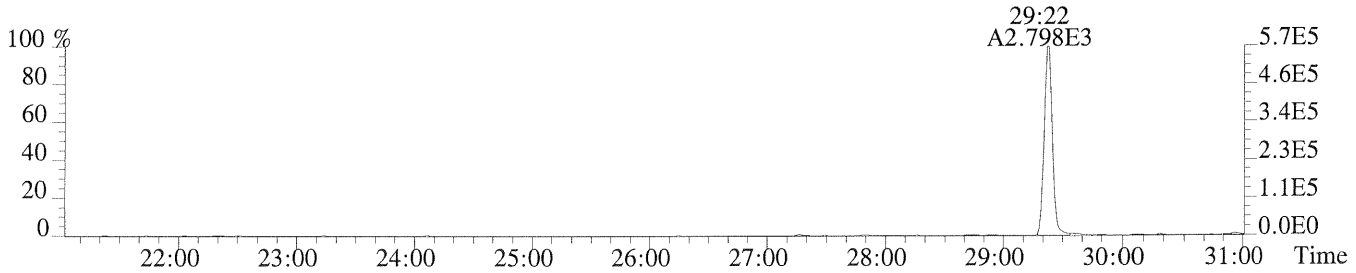
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1308.0,1.00%,F,T)



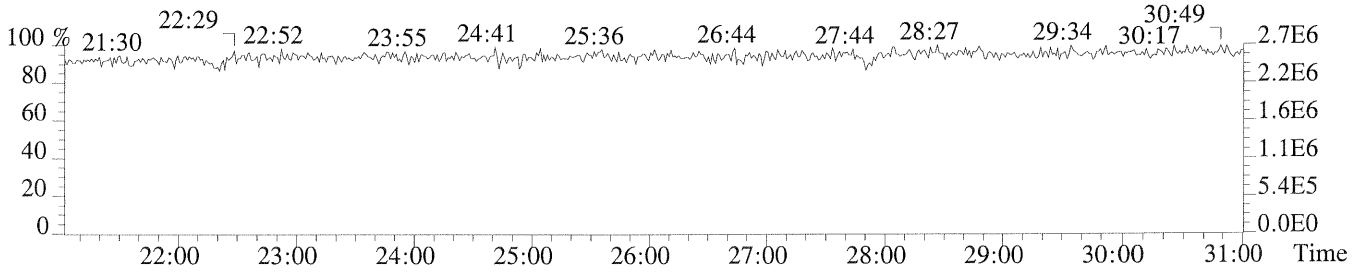
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



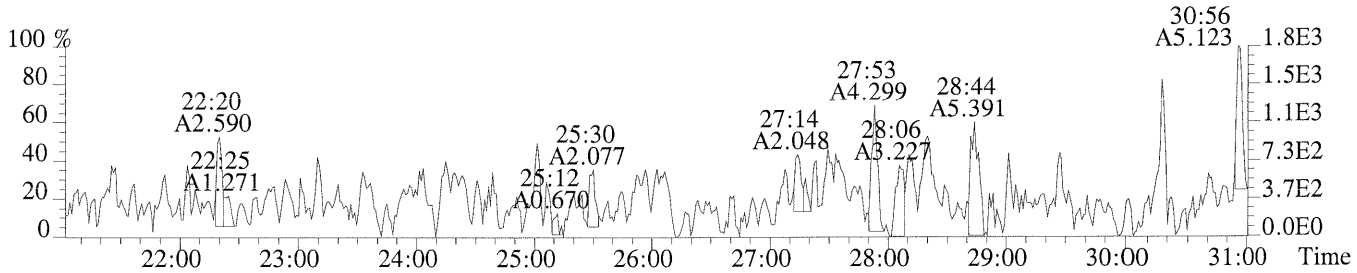
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



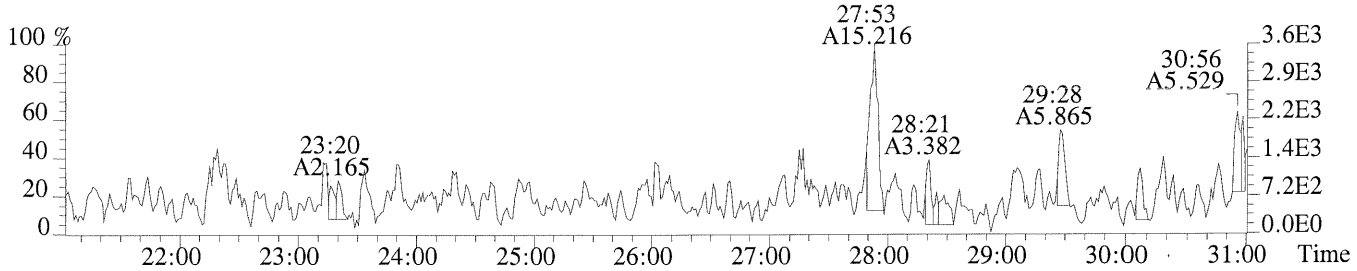
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



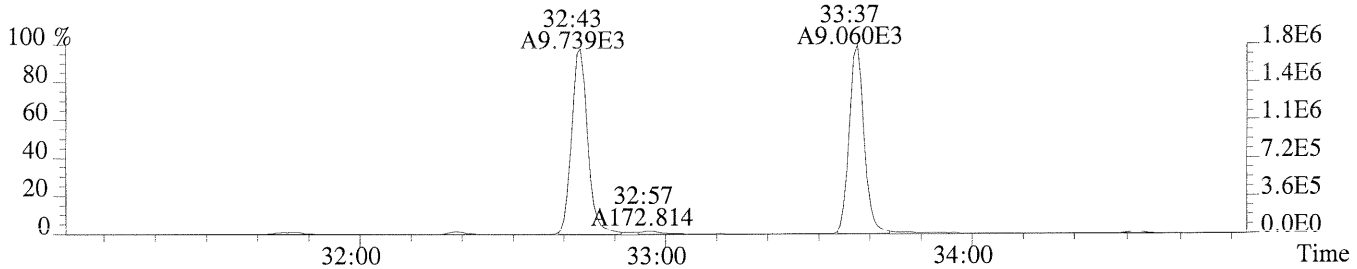
File:U149806 #1-627 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)



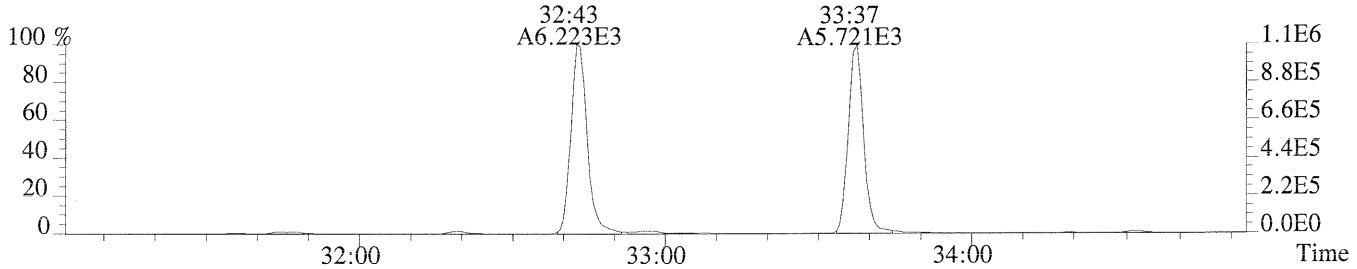
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



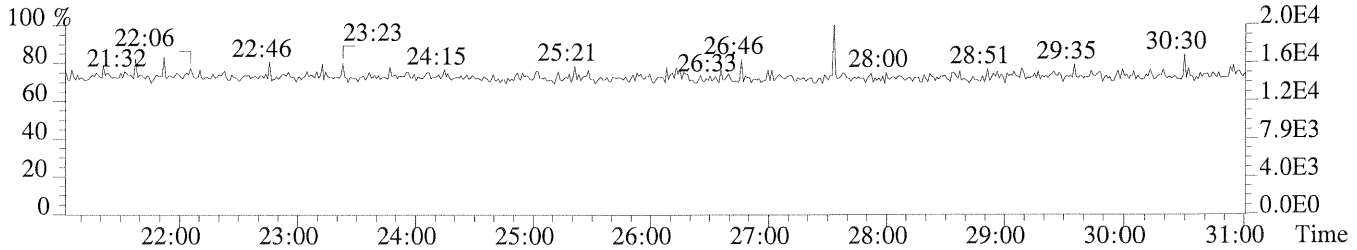
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



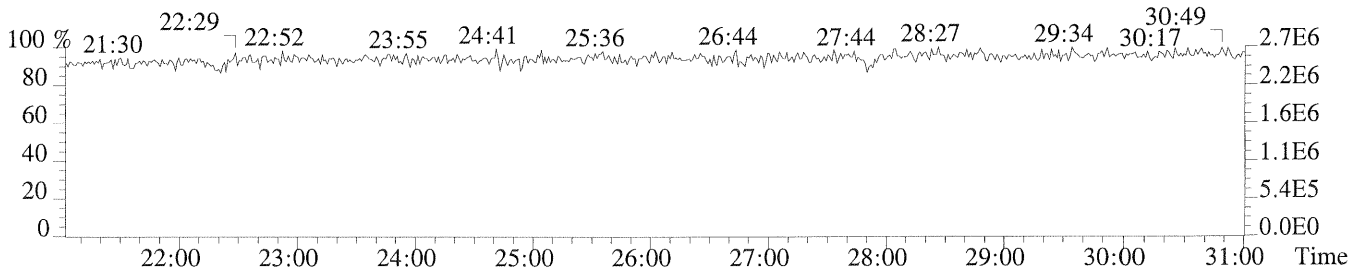
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

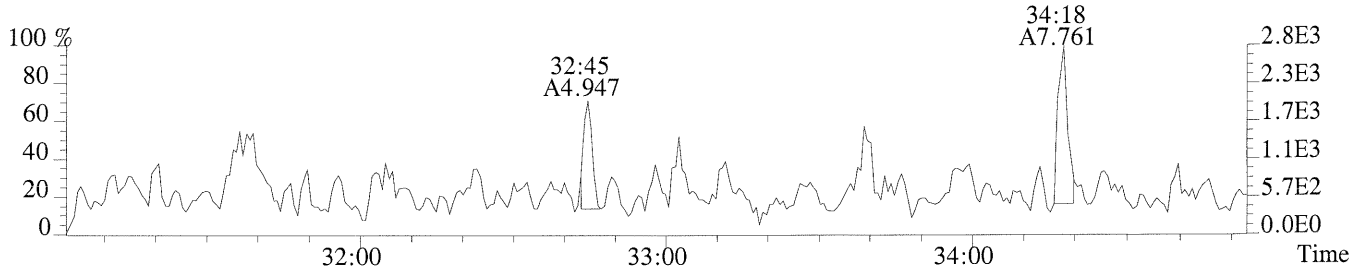


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

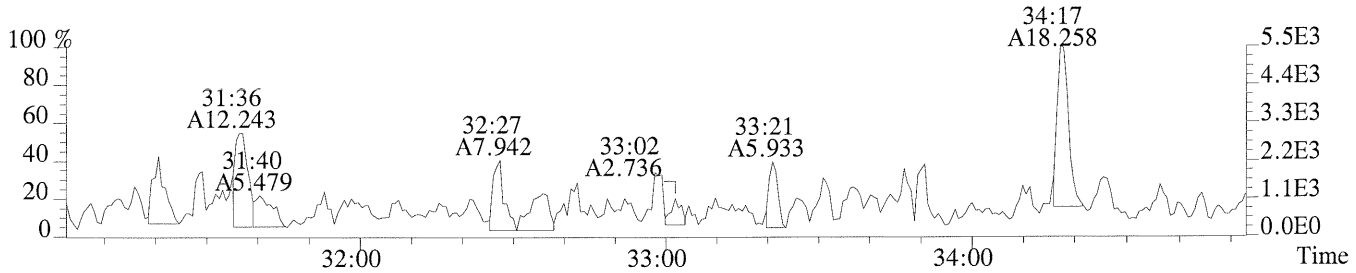


File:U149806 #1-349 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002

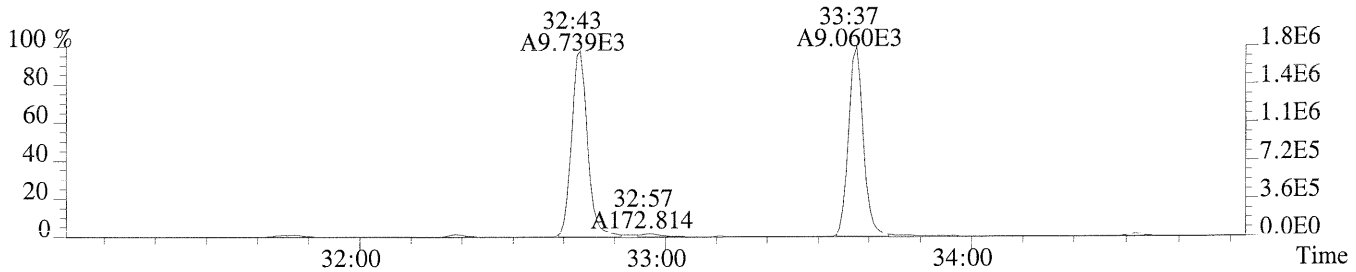
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



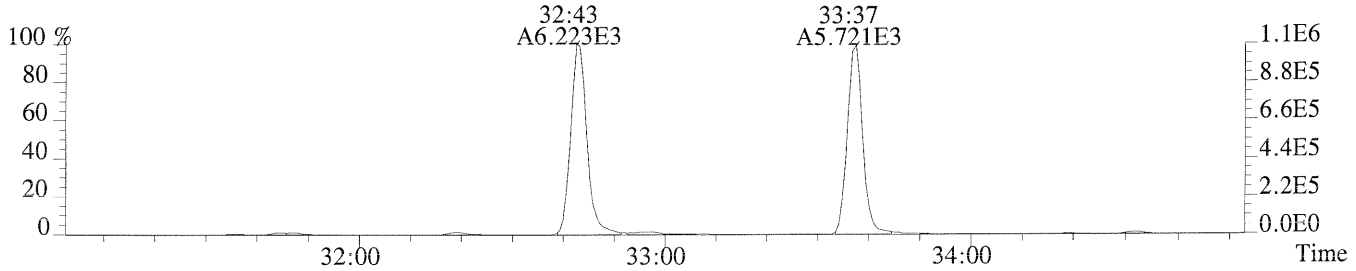
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



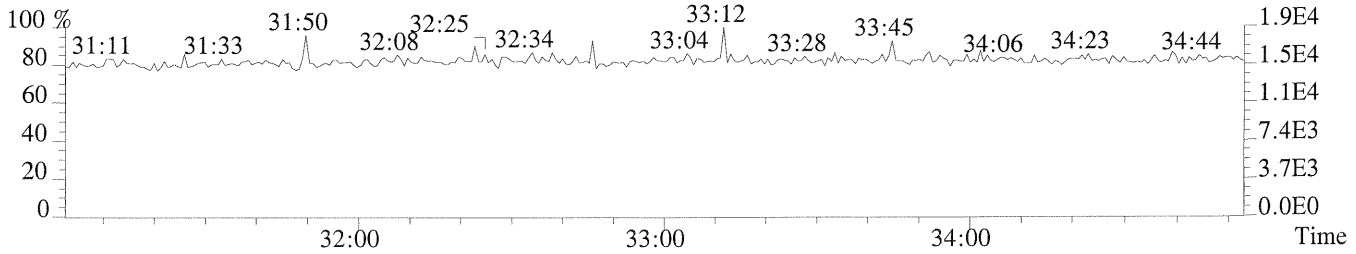
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



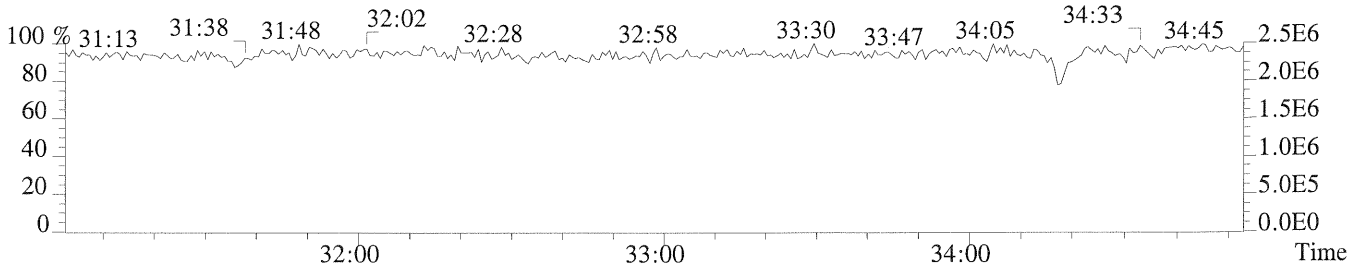
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



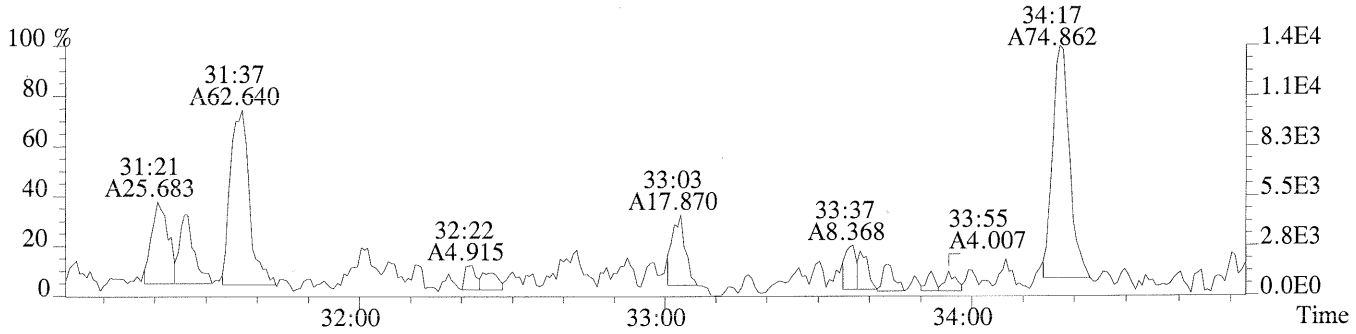
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



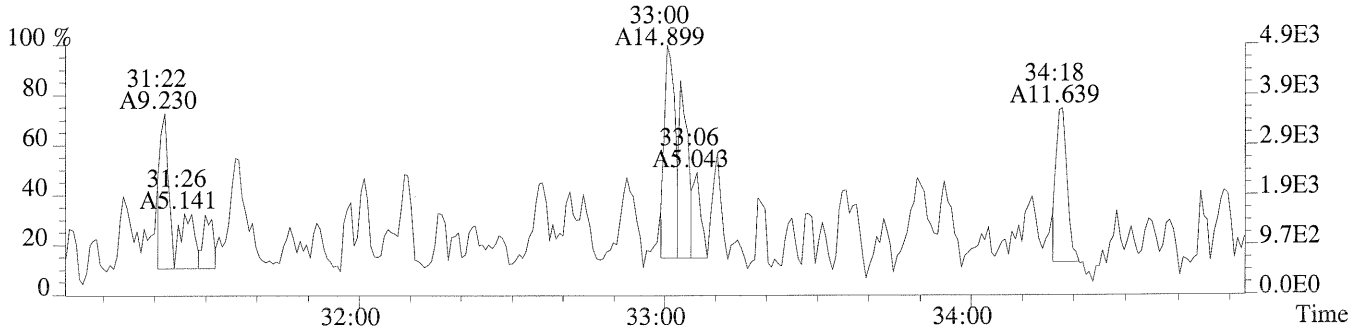
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



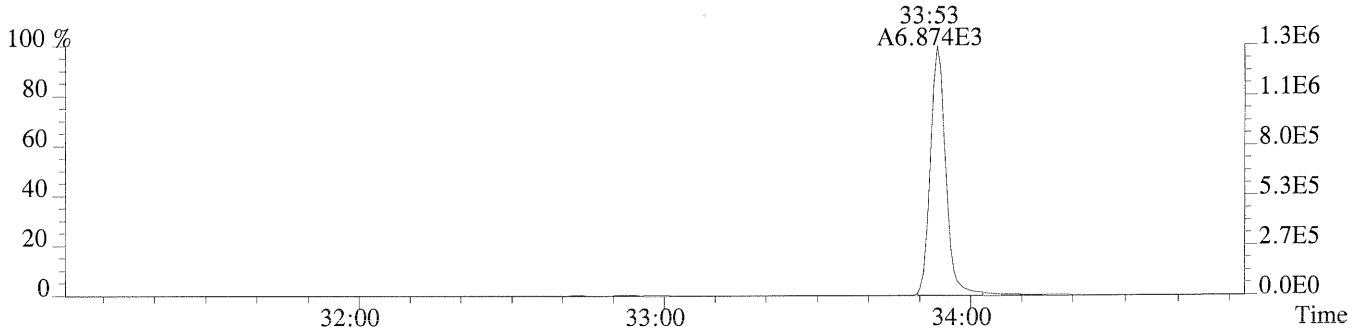
File:U149806 #1-349 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



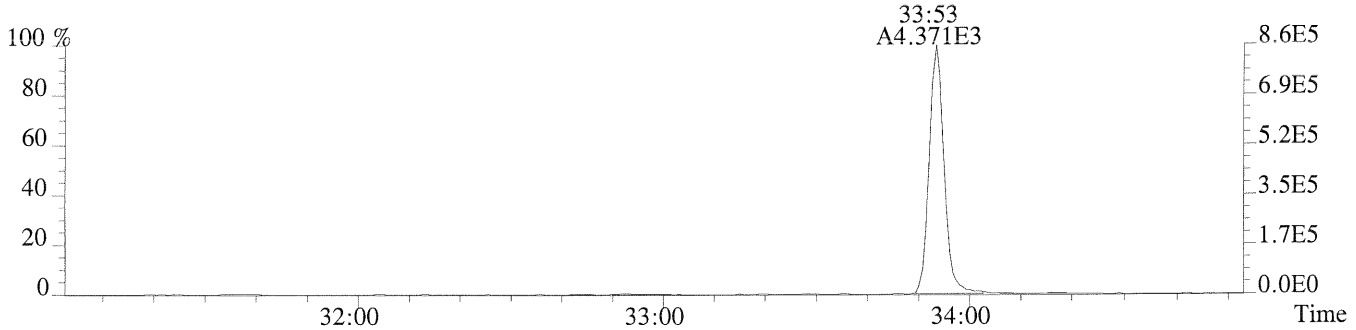
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



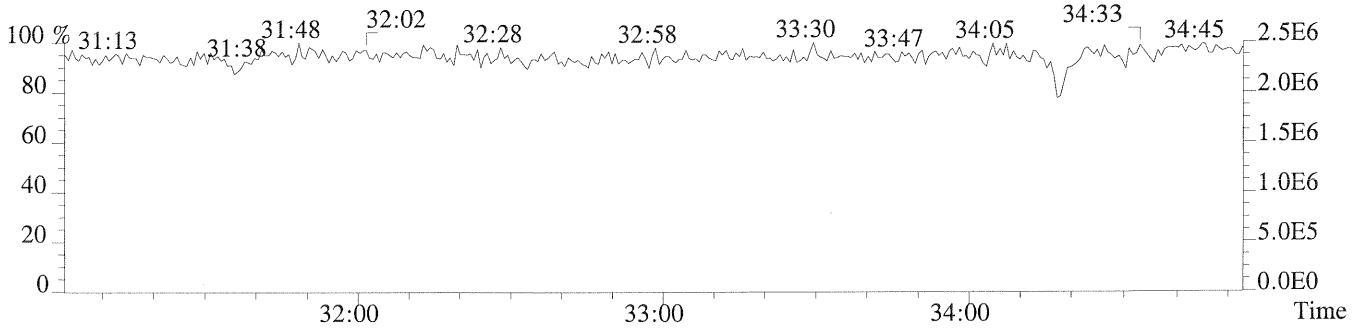
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



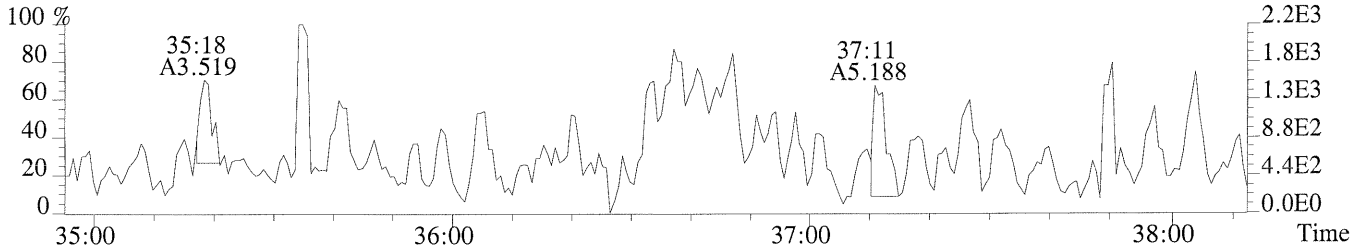
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



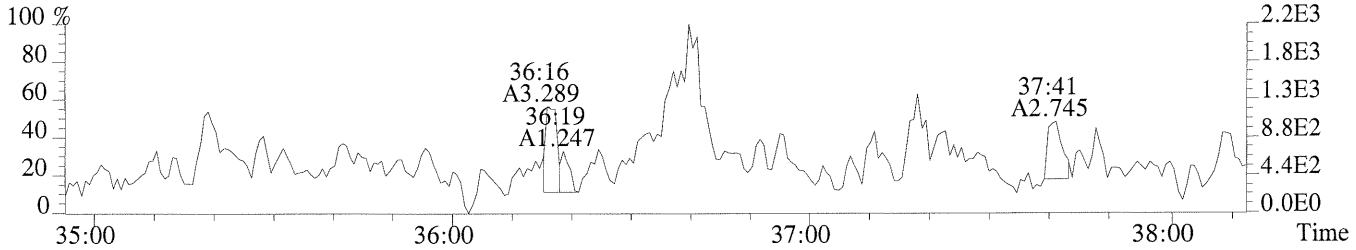
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



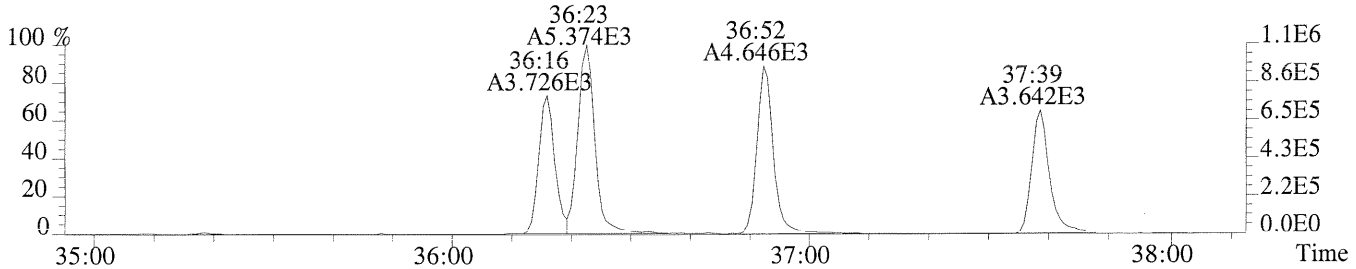
File:U149806 #1-299 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



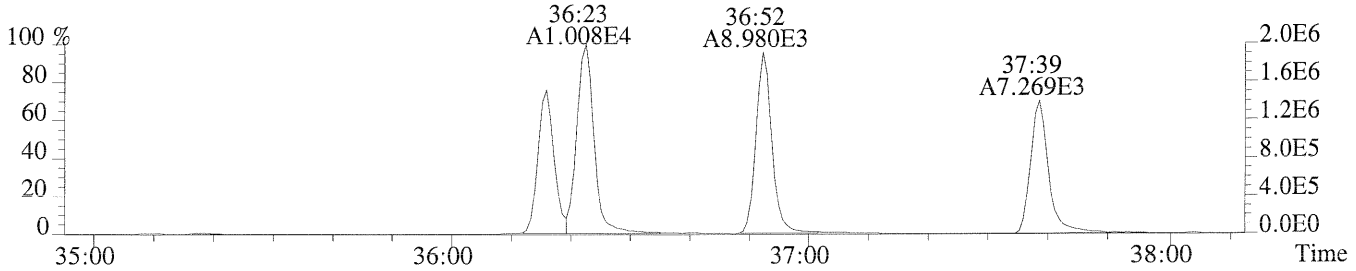
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



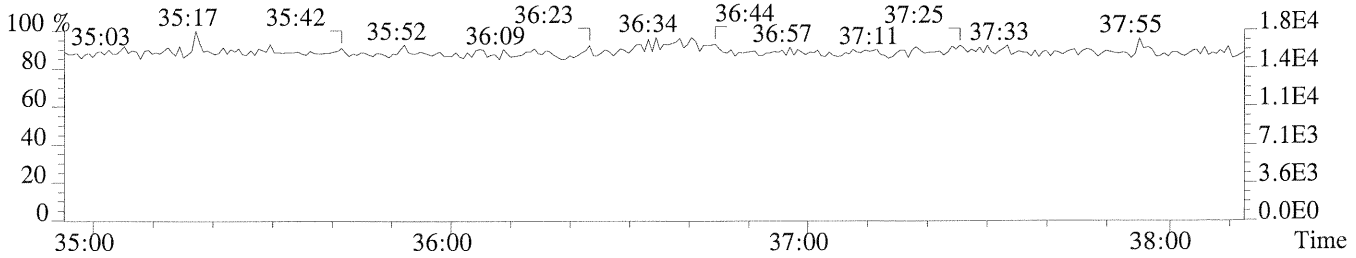
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



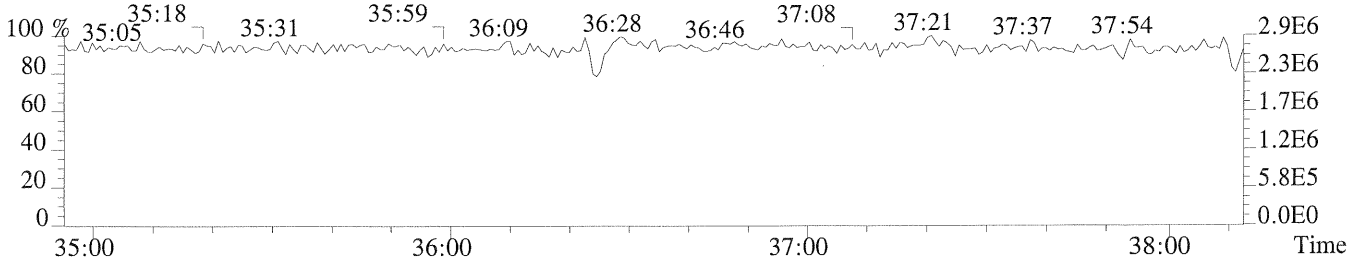
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1760.0,0.40%,F,T)



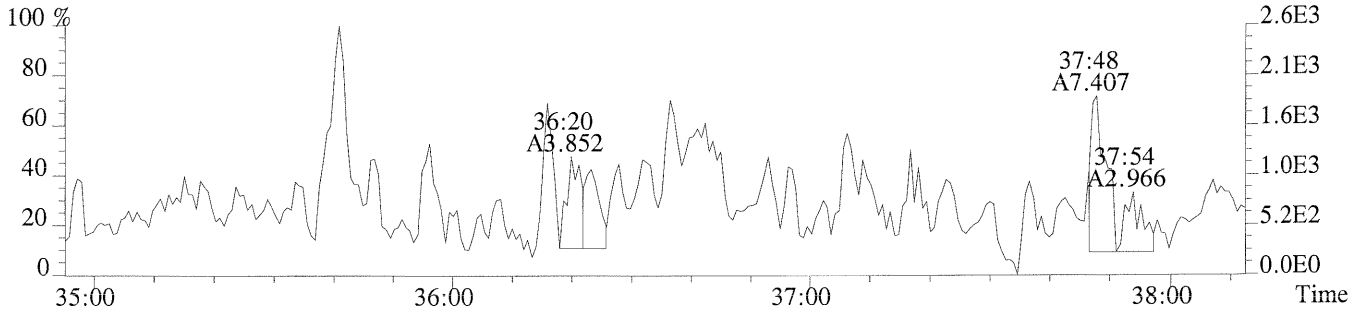
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



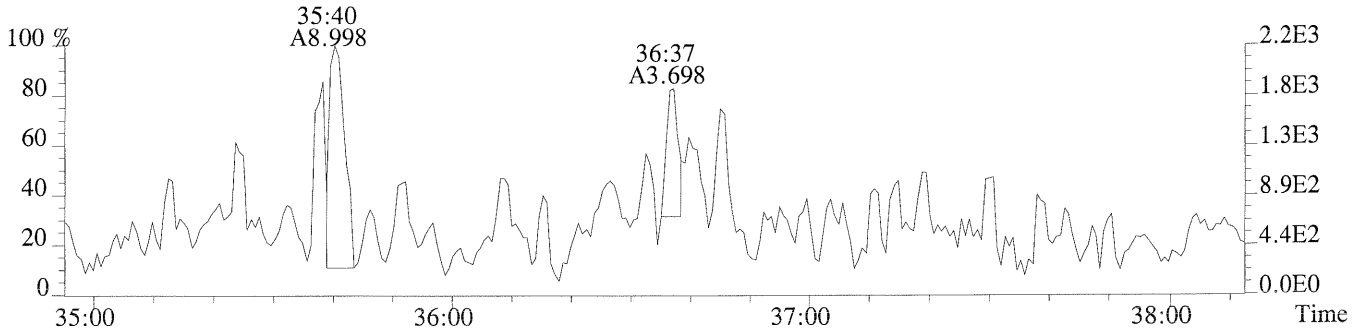
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



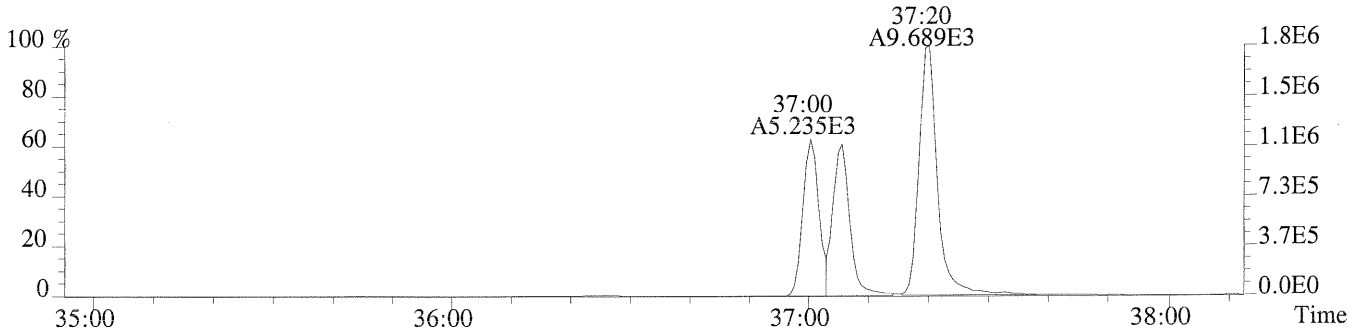
File:U149806 #1-299 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



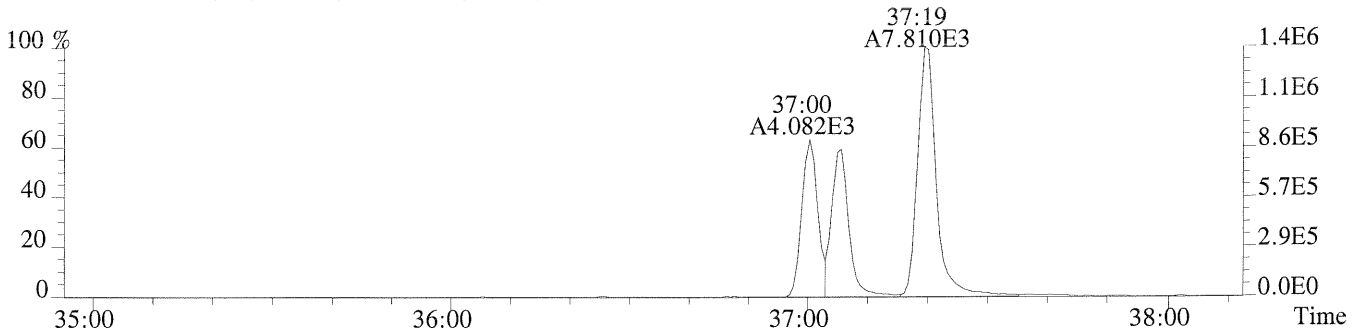
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



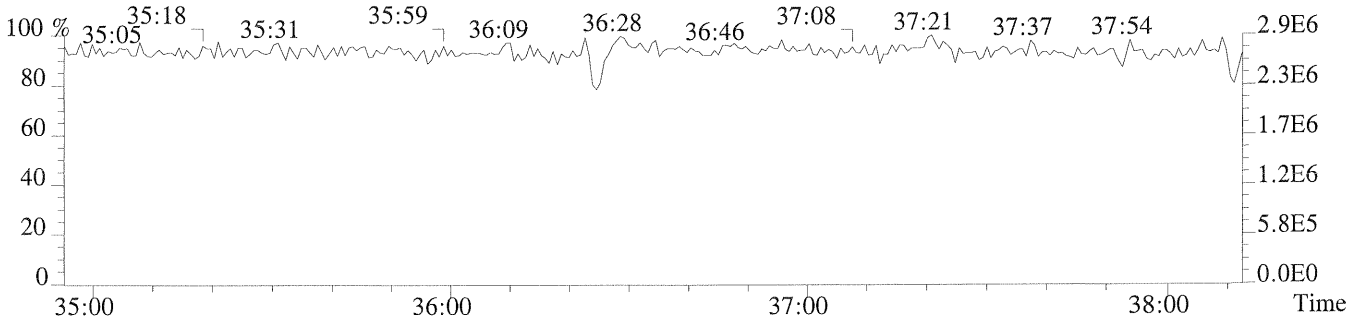
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1240.0,0.40%,F,T)



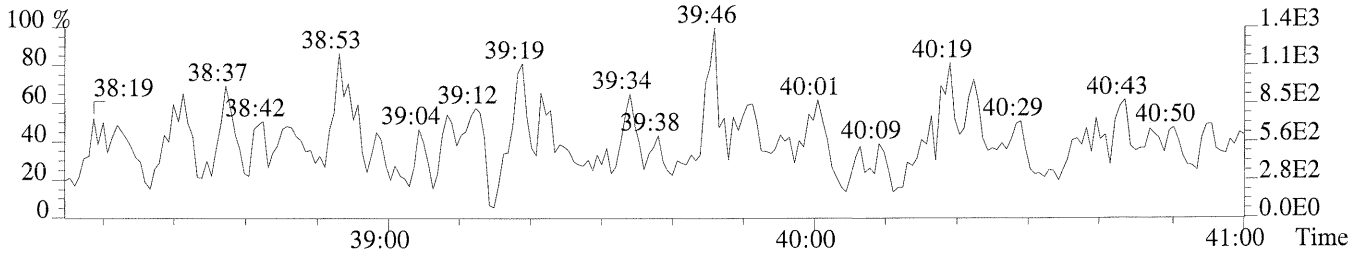
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



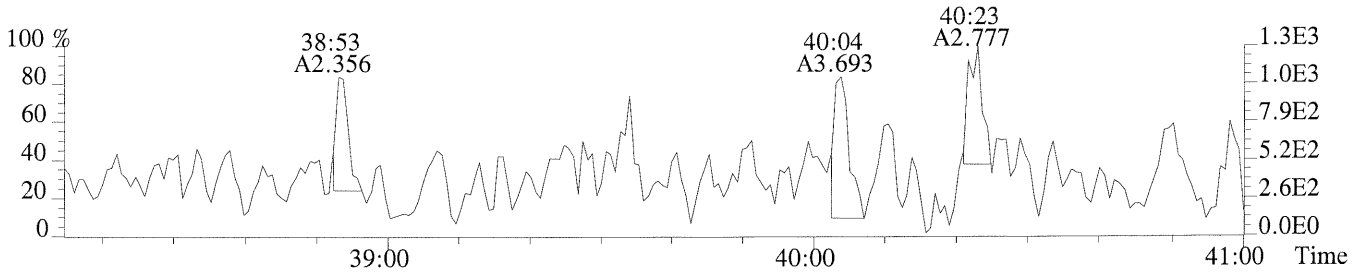
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



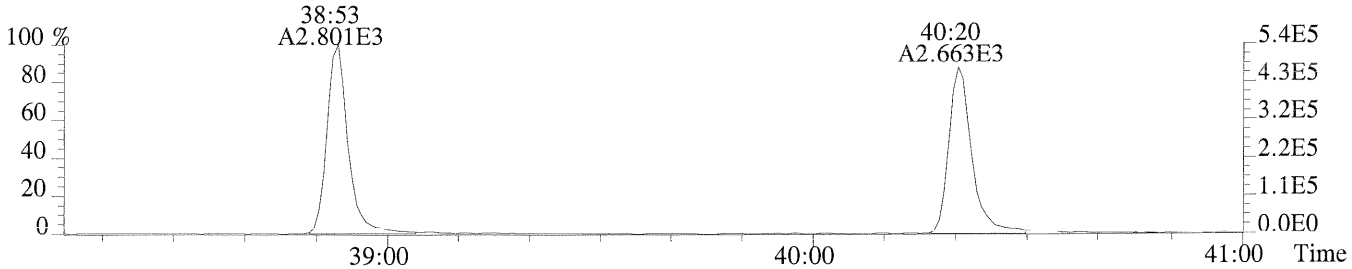
File:U149806 #1-251 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.50%,F,T)



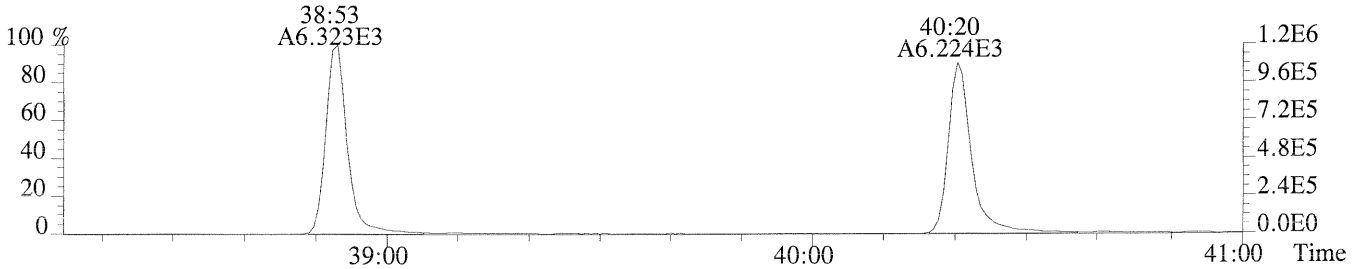
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.50%,F,T)



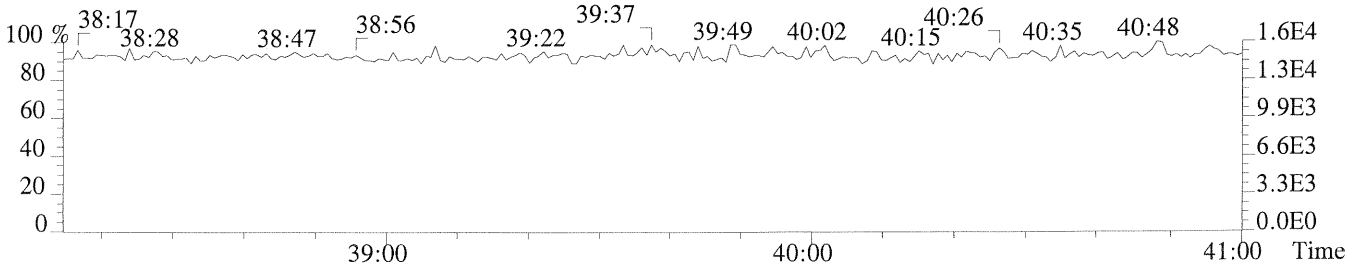
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1960.0,0.50%,F,T)



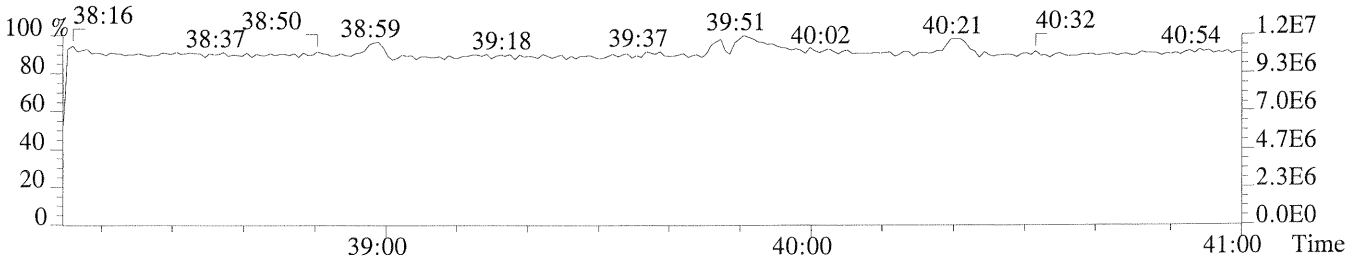
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.50%,F,T)



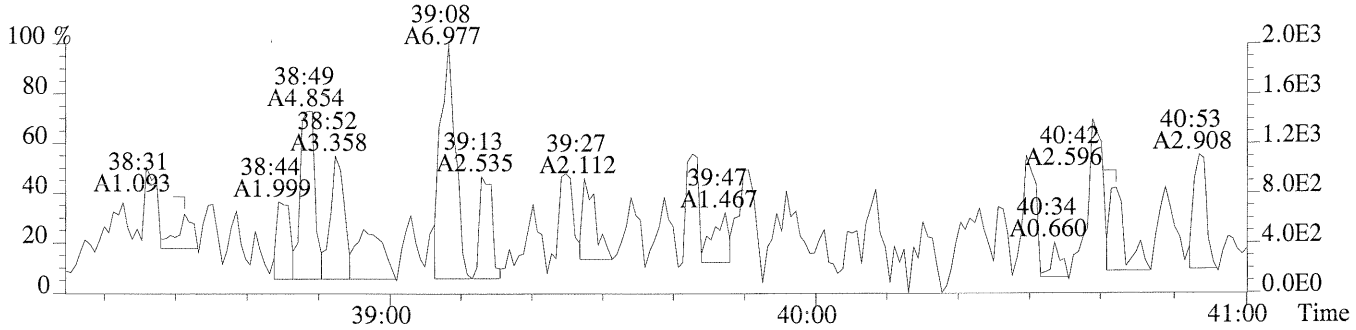
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



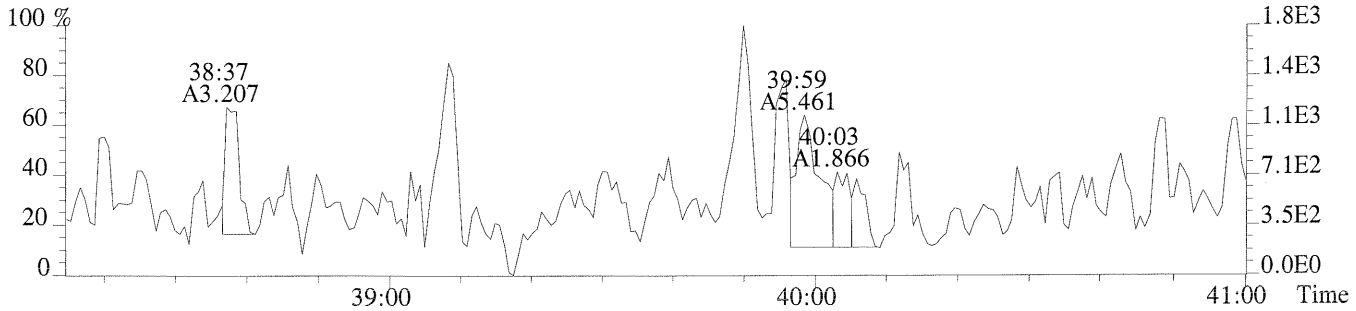
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



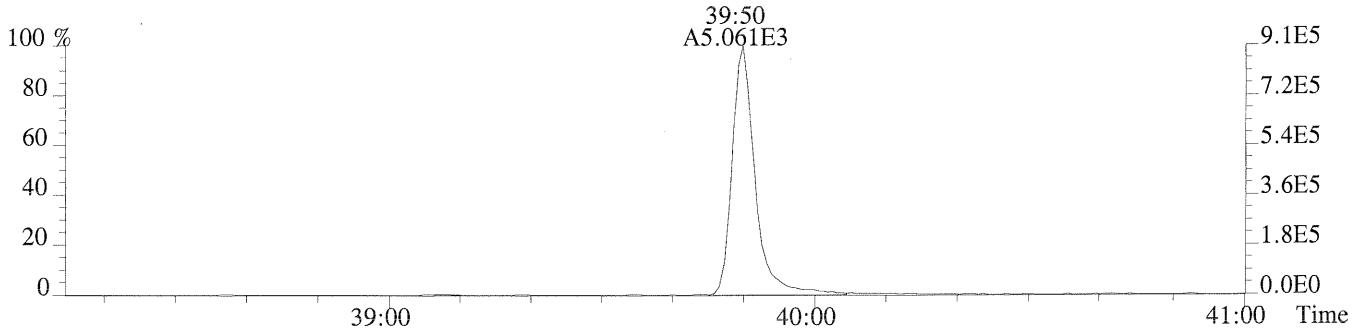
File:U149806 #1-251 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



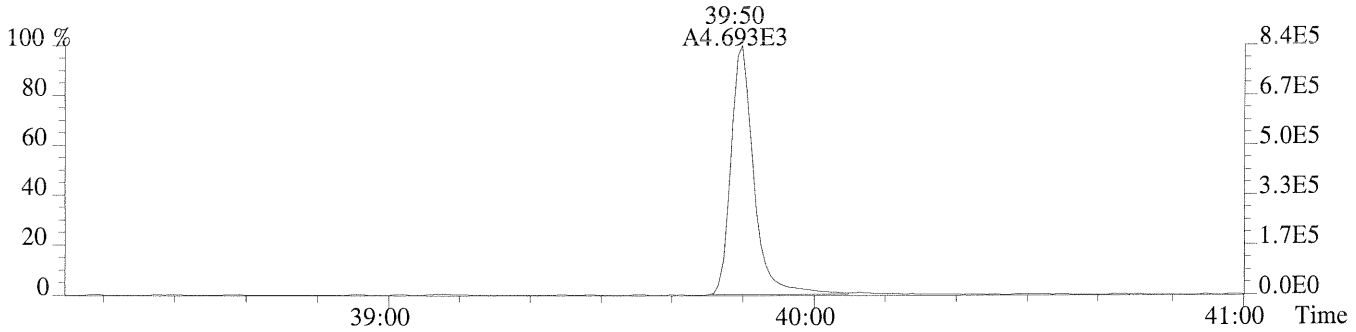
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



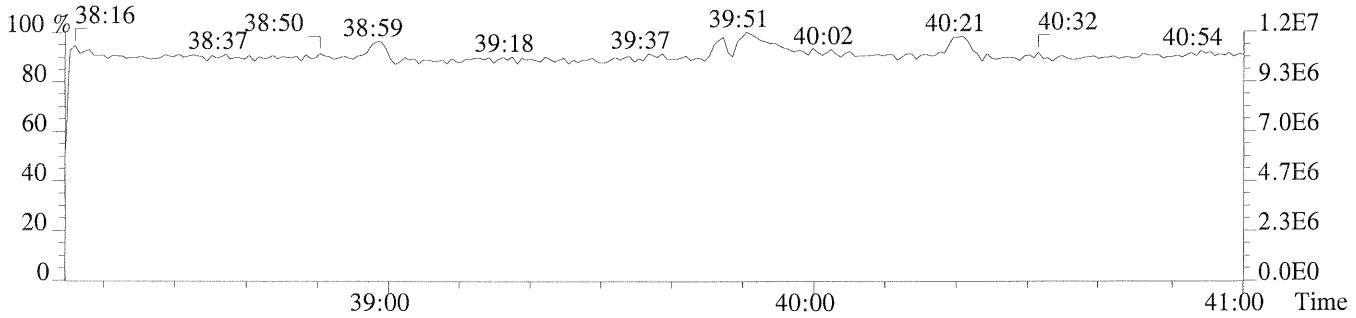
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



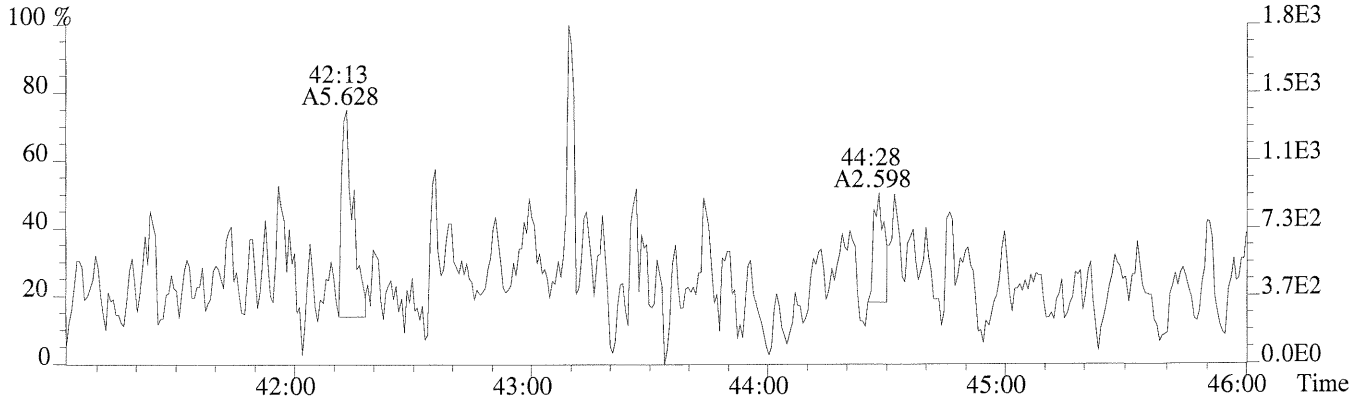
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



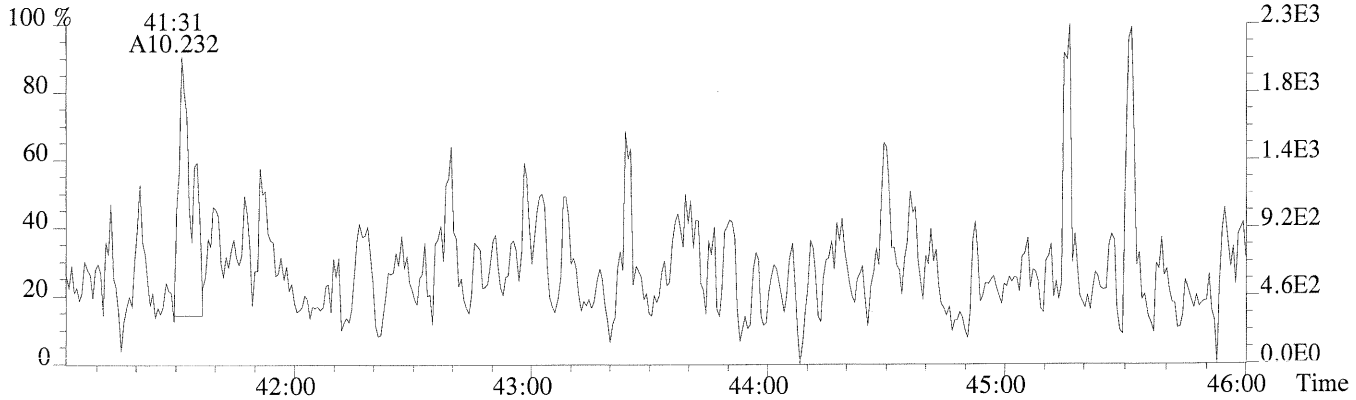
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



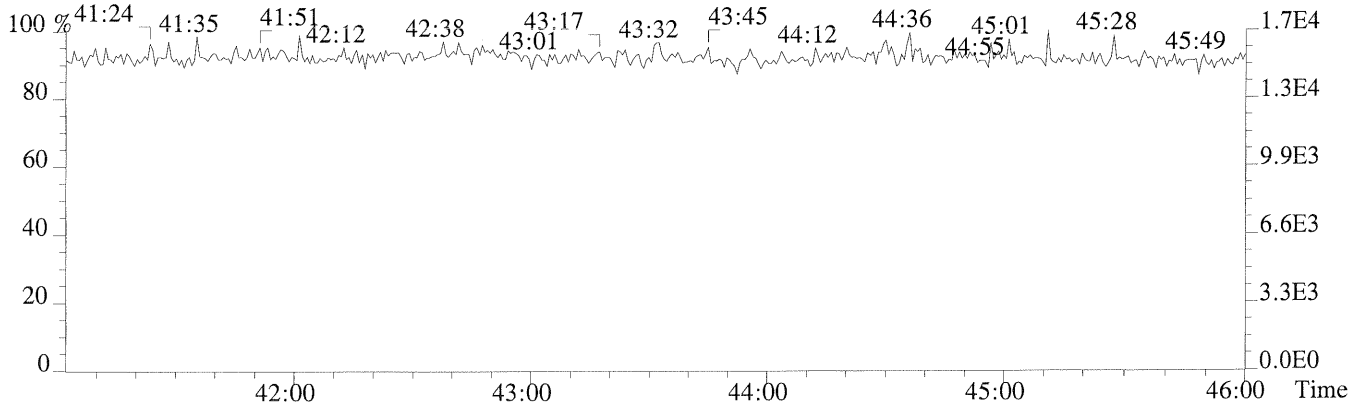
File:U149806 #1-451 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



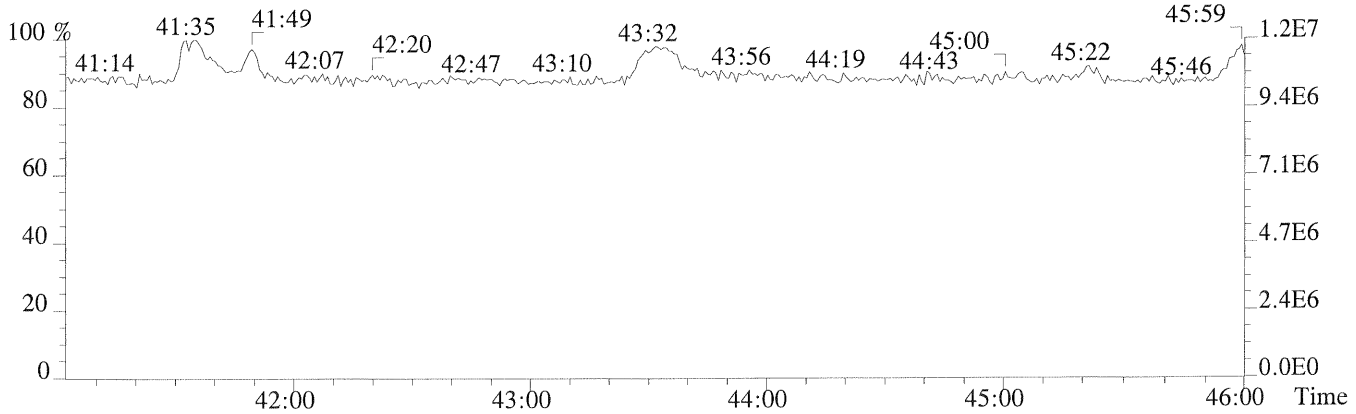
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



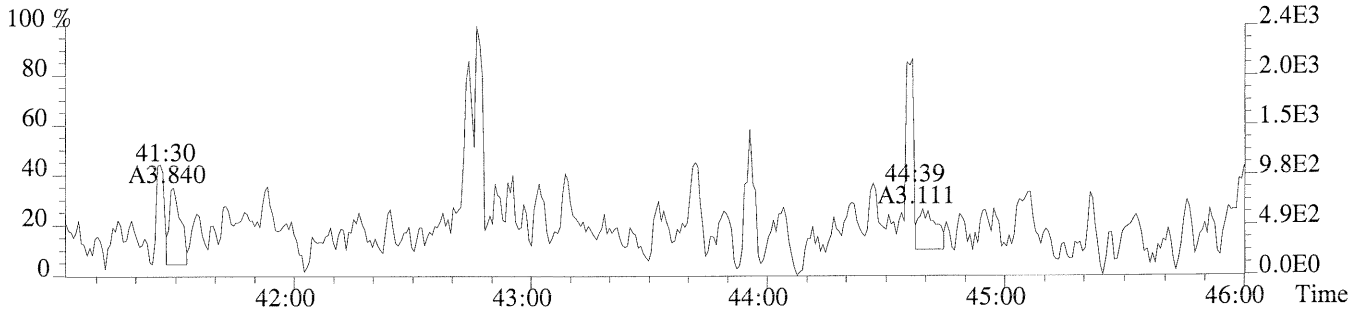
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



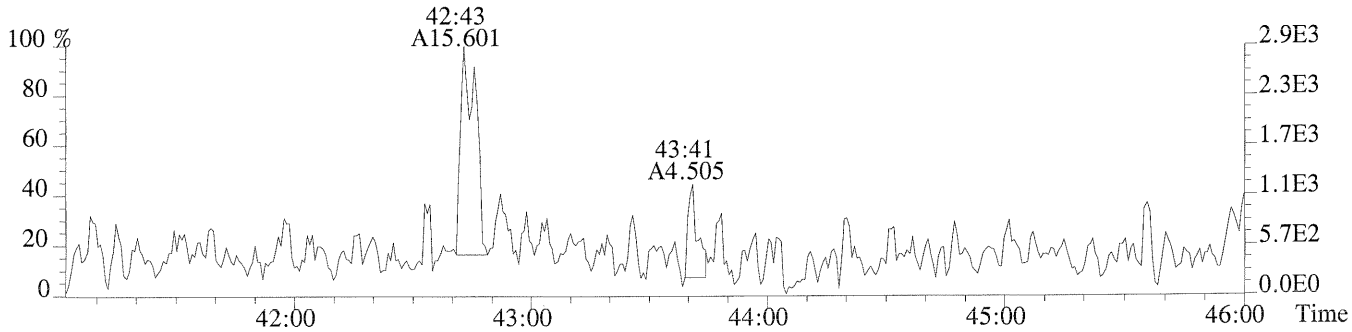
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



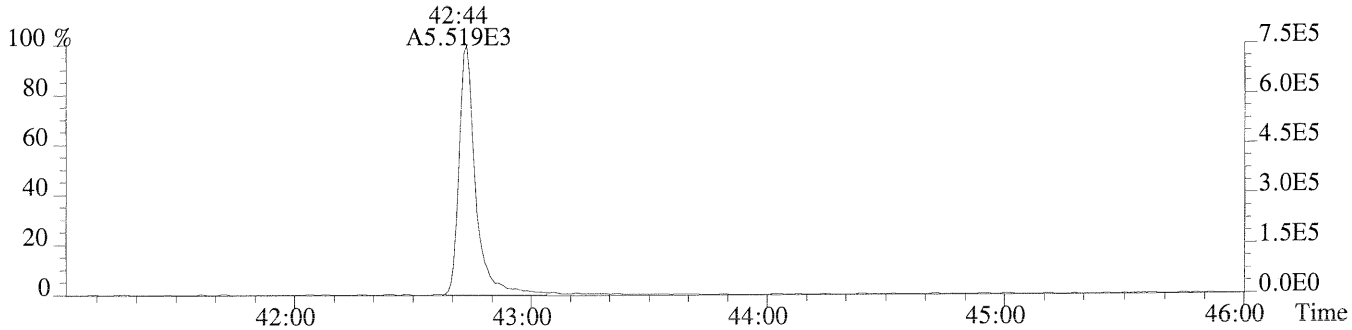
File:U149806 #1-451 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



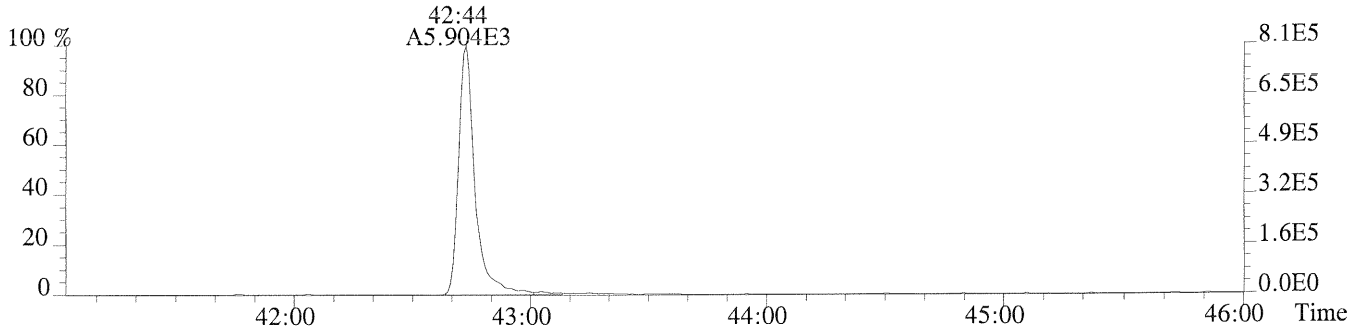
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



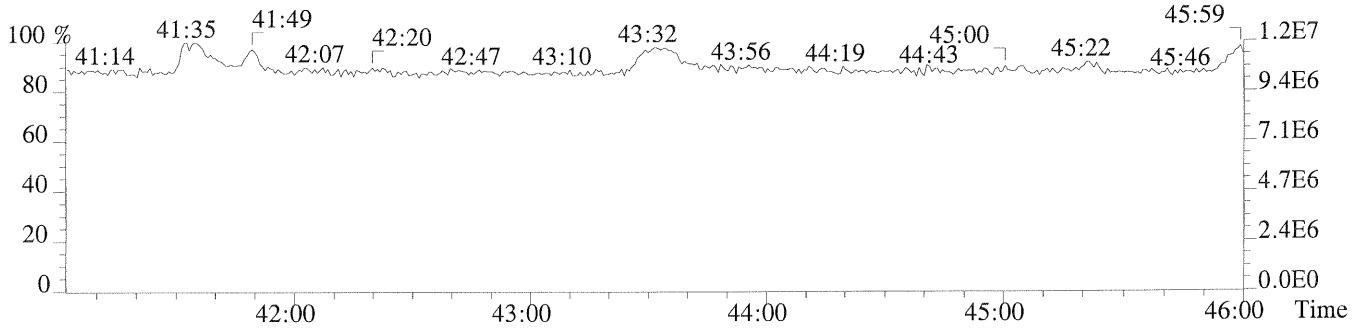
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1008.0,0.40%,F,T)



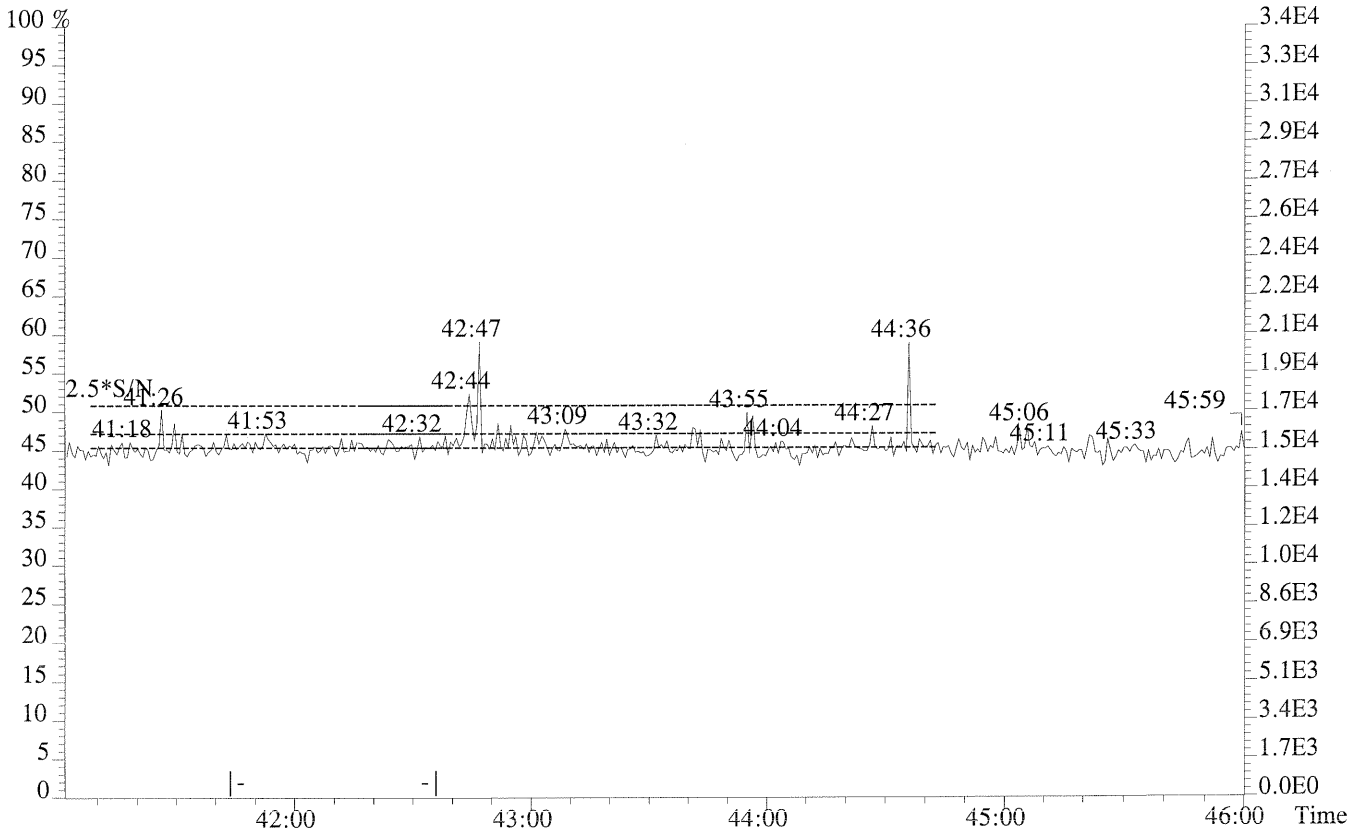
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



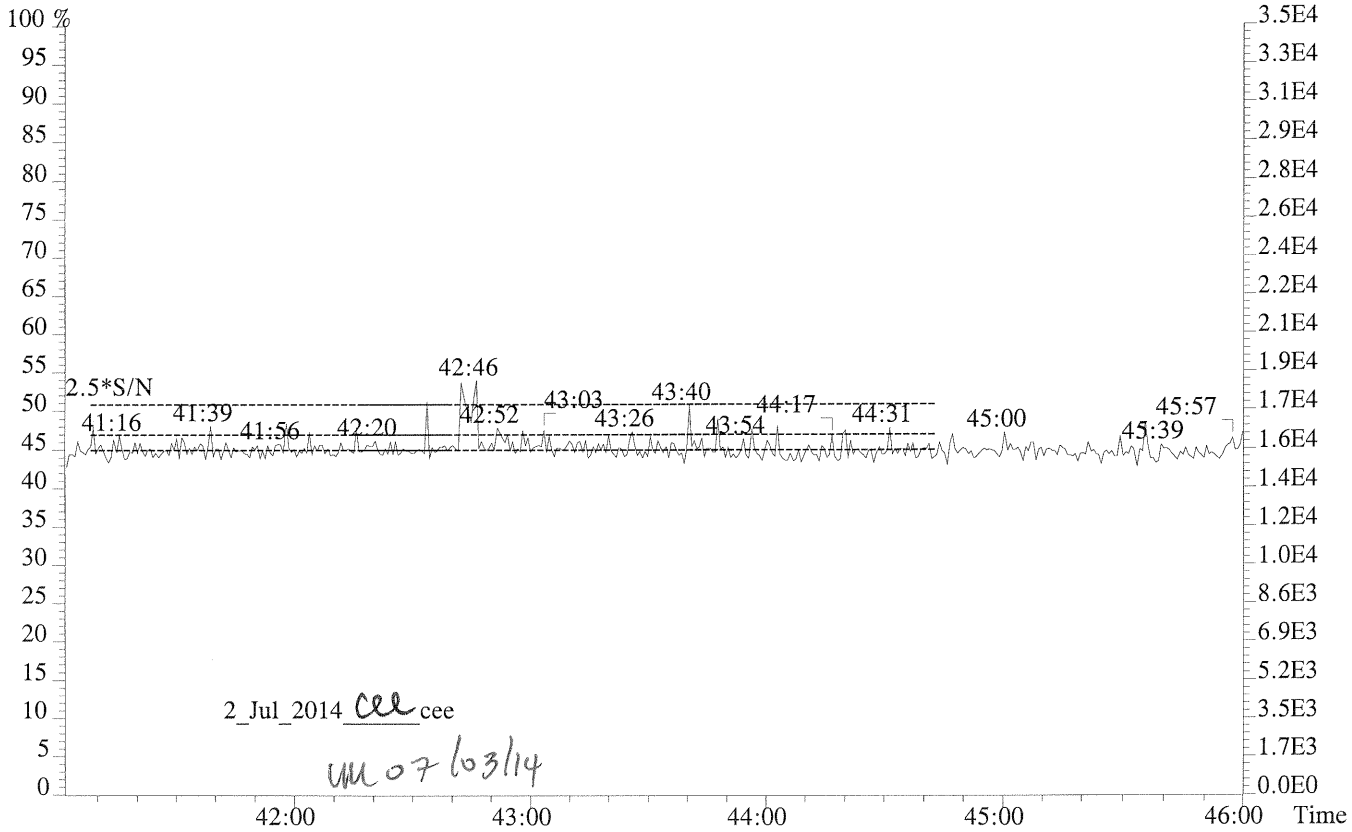
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:U149806 #1-451 Acq: 1-JUL-2014 22:28:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-002
457.7377 F:5



459.7348 F:5



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
1406091139 20

Run #13 Filename U149807 Samp: 1 Inj: 1 Acquired: 1-JUL-14 23:17:05
Processed: 2-JUL-14 11:58:34 Sample ID: R1404651-003

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:54	1.378e+01	7.433e+00	1.85	no	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.358
10	Unk	OCDF	42:57	3.870e+01	4.198e+01	0.92	yes	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:51	1.927e+01	3.118e+01	0.62	no	no	1.065
17	Unk	OCDD	42:44	1.058e+02	1.112e+02	0.95	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:36	4.702e+03	5.716e+03	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	9.327e+03	6.015e+03	1.55	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	8.626e+03	5.575e+03	1.55	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	3.630e+03	6.946e+03	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	5.087e+03	9.868e+03	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	4.550e+03	8.653e+03	0.53	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	3.763e+03	7.163e+03	0.53	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:53	2.882e+03	6.224e+03	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.643e+03	5.860e+03	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:22	3.281e+03	4.150e+03	0.79	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	6.549e+03	4.135e+03	1.58	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	4.880e+03	3.857e+03	1.27	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	5.451e+03	4.302e+03	1.27	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:50	5.088e+03	4.710e+03	1.08	yes	no	0.936
32	IS	13C-OCDD	42:44	5.882e+03	6.472e+03	0.91	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:47	6.709e+03	8.525e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	9.989e+03	7.837e+03	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.693e+03				no	1.044

$$\text{OCDD} = \frac{(1.058e+02 + 1.112e+02) \times 4000 \text{ pg} \times 1}{(5.882e+03 + 6.472e+03) \times 10.009 \text{ g} \times 93.8 / 100 \times 1.177} = 6.358 \text{ ng/kg}$$

MM 07/03/14

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1613RESPA

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406091139 200-S

Run #13 Filename U149807 Samp: 1 Inj: 1 Acquired: 1-JUL-14 23:17:05
Processed: 2-JUL-14 11:58:341 LAB. ID: R1404651-003

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.84e+02	*	*	7.28e+02	*
2	1,2,3,7,8-PeCDF	*	5.96e+02	*	*	9.88e+02	*
3	2,3,4,7,8-PeCDF	*	5.96e+02	*	*	9.88e+02	*
4	1,2,3,4,7,8-HxCDF	*	7.64e+02	*	*	6.00e+02	*
5	1,2,3,6,7,8-HxCDF	*	7.64e+02	*	*	6.00e+02	*
6	2,3,4,6,7,8-HxCDF	*	7.64e+02	*	*	6.00e+02	*
7	1,2,3,7,8,9-HxCDF	*	7.64e+02	*	*	6.00e+02	*
8	1,2,3,4,6,7,8-HpCDF	3.02e+03	8.80e+02	3.4e+00	1.71e+03	4.56e+02	3.7e+00
9	1,2,3,4,7,8,9-HpCDF	*	8.80e+02	*	*	4.56e+02	*
10	OCDF	6.10e+03	6.12e+02	1.0e+01	7.54e+03	8.68e+02	8.7e+00
11	2,3,7,8-TCDD	*	6.48e+02	*	*	6.44e+02	*
12	1,2,3,7,8-PeCDD	*	1.49e+03	*	*	9.80e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.24e+02	*	*	6.28e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.24e+02	*	*	6.28e+02	*
15	1,2,3,7,8,9-HxCDD	*	6.24e+02	*	*	6.28e+02	*
16	1,2,3,4,6,7,8-HpCDD	3.16e+03	8.36e+02	3.8e+00	5.07e+03	8.00e+02	6.3e+00
17	OCDD	1.71e+04	4.88e+02	3.5e+01	1.37e+04	6.76e+02	2.0e+01
18	13C-2,3,7,8-TCDF	9.56e+05	7.44e+02	1.3e+03	1.17e+06	6.92e+02	1.7e+03
19	13C-1,2,3,7,8-PeCDF	1.69e+06	7.96e+02	2.1e+03	1.07e+06	1.07e+03	9.9e+02
20	13C-2,3,4,7,8-PeCDF	1.67e+06	7.96e+02	2.1e+03	1.07e+06	1.07e+03	1.0e+03
21	13C-1,2,3,4,7,8-HxCDF	7.85e+05	8.28e+02	9.5e+02	1.49e+06	7.00e+02	2.1e+03
22	13C-1,2,3,6,7,8-HxCDF	1.01e+06	8.28e+02	1.2e+03	1.95e+06	7.00e+02	2.8e+03
23	13C-2,3,4,6,7,8-HxCDF	9.38e+05	8.28e+02	1.1e+03	1.79e+06	7.00e+02	2.6e+03
24	13C-1,2,3,7,8,9-HxCDF	7.37e+05	8.28e+02	8.9e+02	1.41e+06	7.00e+02	2.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.70e+05	1.38e+03	4.1e+02	1.25e+06	1.06e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.68e+05	1.38e+03	3.4e+02	1.04e+06	1.06e+03	9.8e+02
27	13C-2,3,7,8-TCDD	6.72e+05	1.73e+03	3.9e+02	8.68e+05	1.16e+03	7.5e+02
28	13C-1,2,3,7,8-PeCDD	1.24e+06	7.76e+02	1.6e+03	7.80e+05	6.92e+02	1.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.07e+06	1.23e+03	8.7e+02	8.48e+05	9.92e+02	8.5e+02
30	13C-1,2,3,6,7,8-HxCDD	1.06e+06	1.23e+03	8.6e+02	8.47e+05	9.92e+02	8.5e+02
31	13C-1,2,3,4,6,7,8-HpCDD	9.46e+05	8.32e+02	1.1e+03	8.83e+05	1.08e+03	8.2e+02
32	13C-OCDD	8.87e+05	6.72e+02	1.3e+03	9.75e+05	5.72e+02	1.7e+03
33	13C-1,2,3,4-TCDD	1.46e+06	1.73e+03	8.4e+02	1.84e+06	1.16e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.88e+06	1.23e+03	1.5e+03	1.46e+06	9.92e+02	1.5e+03
35	37Cl-2,3,7,8-TCDD	5.78e+05	6.72e+02	8.6e+02			

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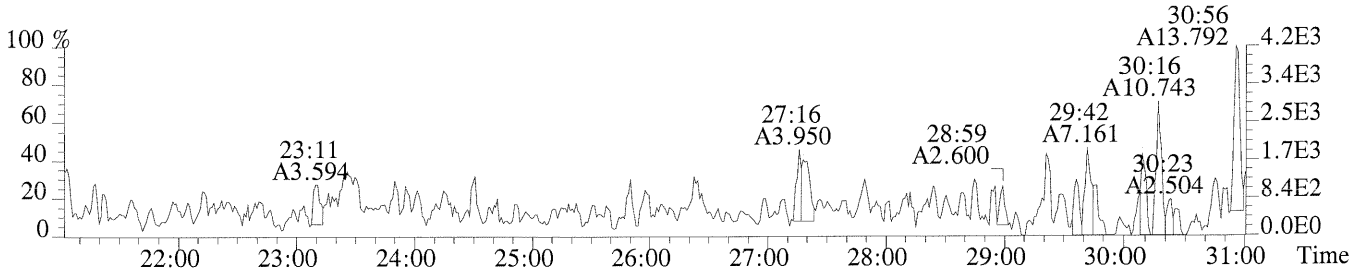
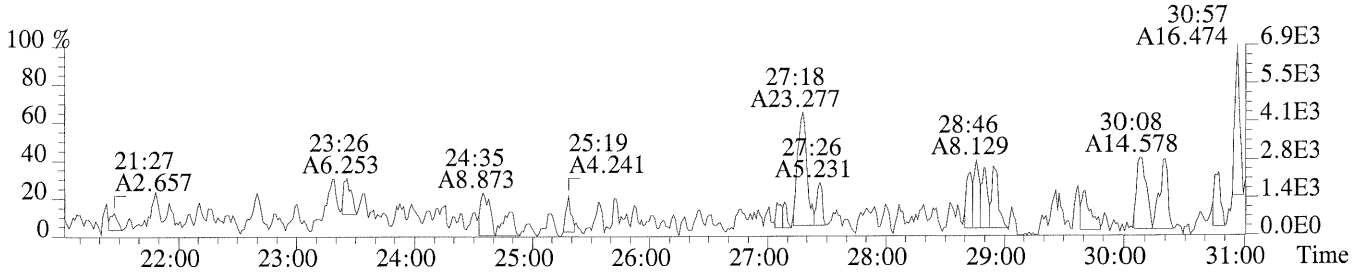
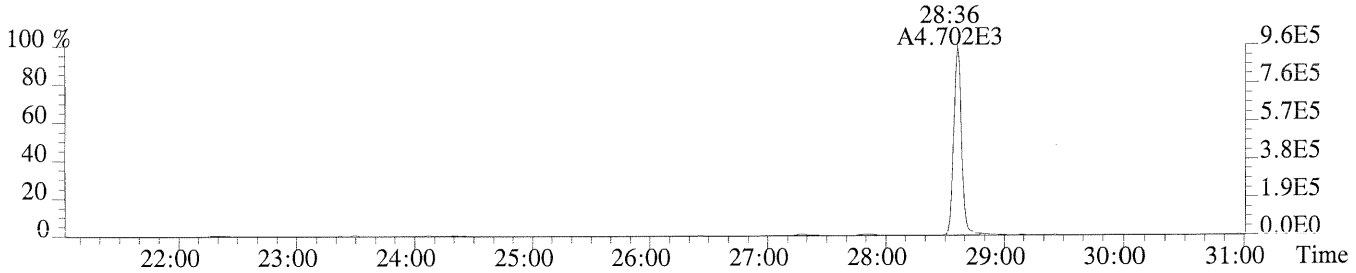
File:U149807 #1-627 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



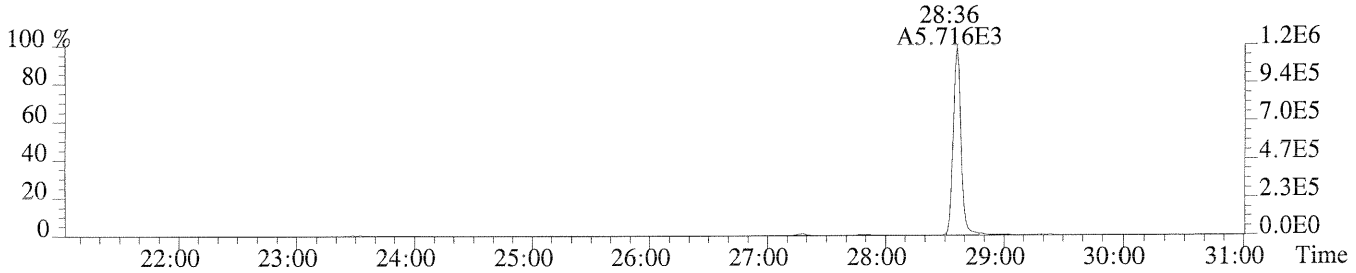
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



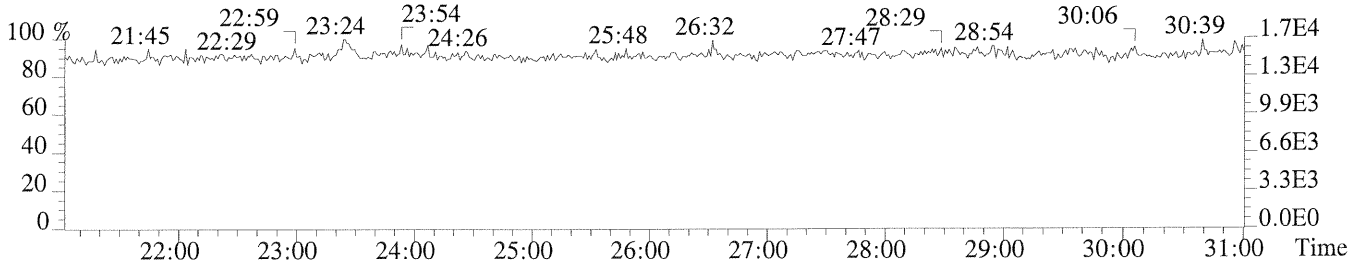
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



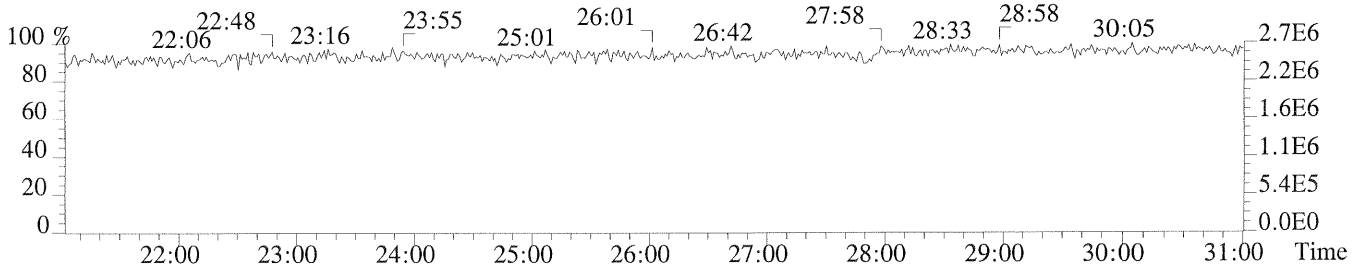
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

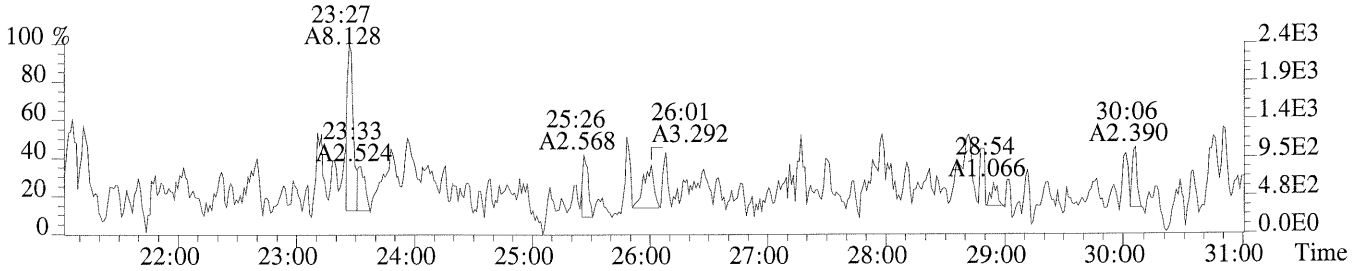


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

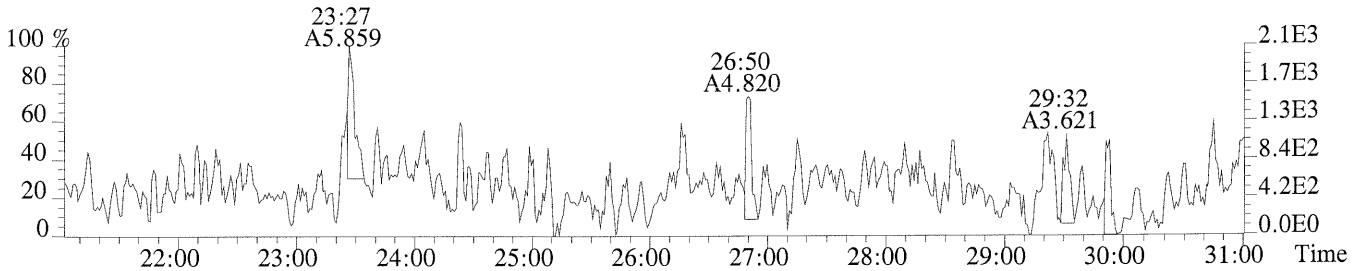


File:U149807 #1-627 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003

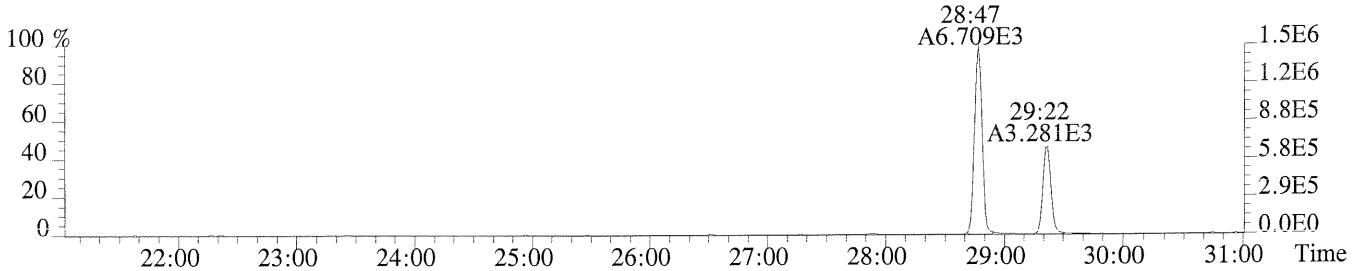
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



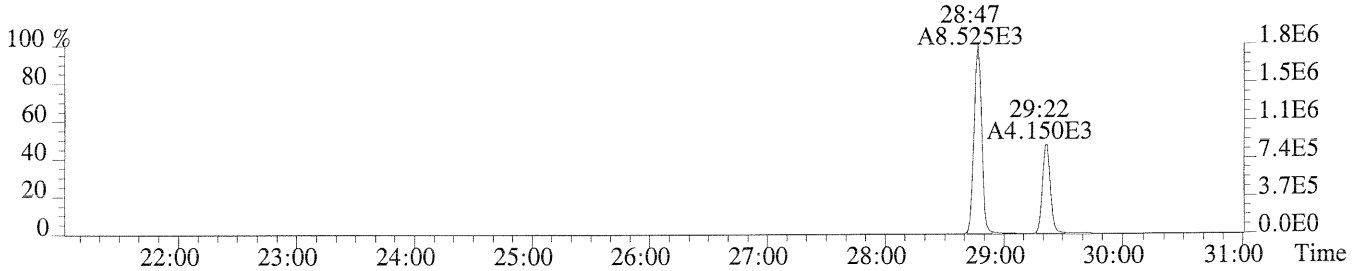
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



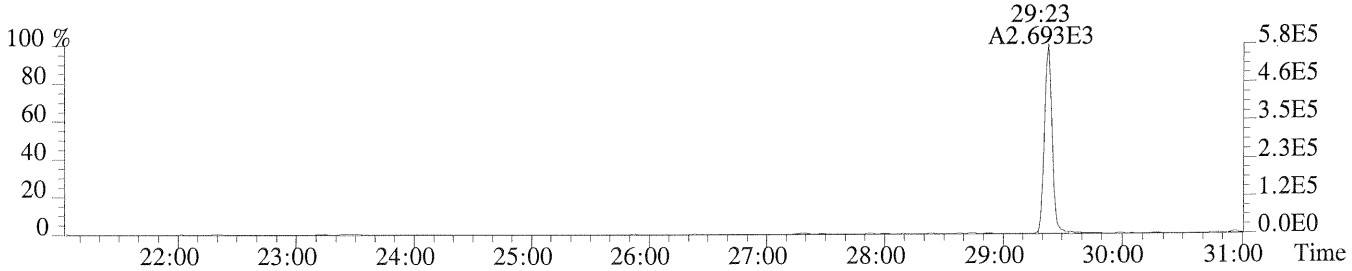
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



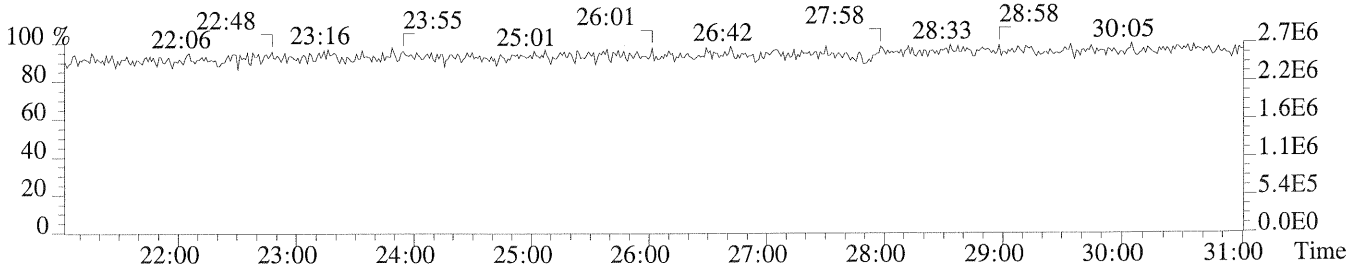
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



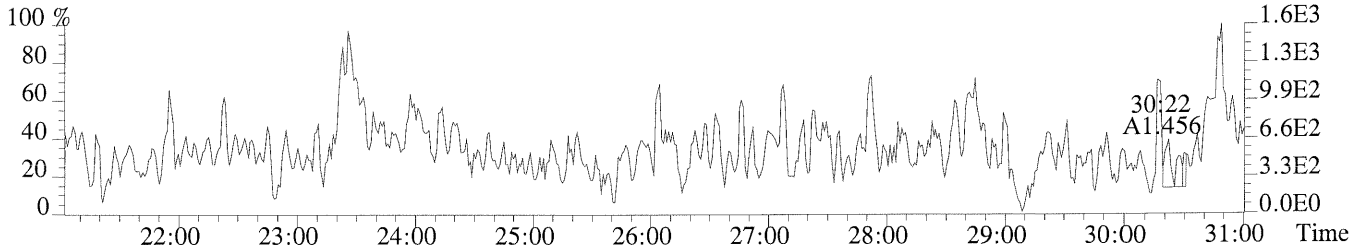
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



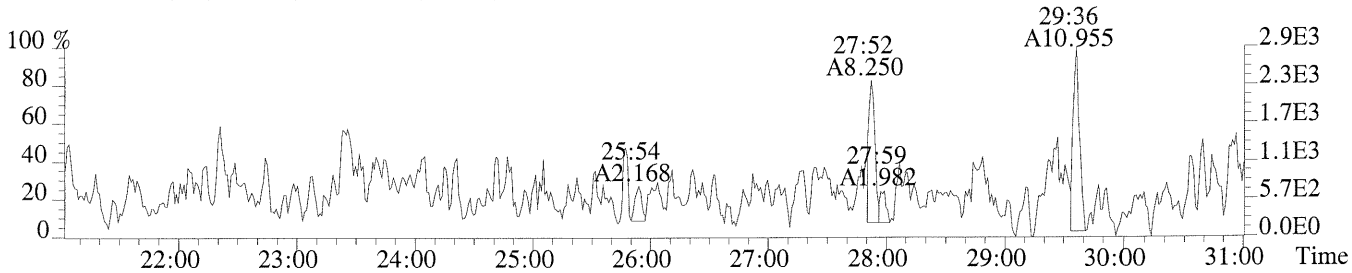
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



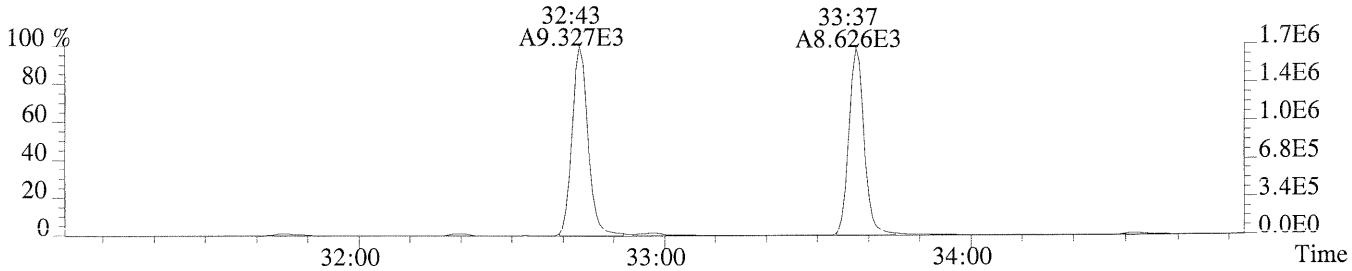
File:U149807 #1-627 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



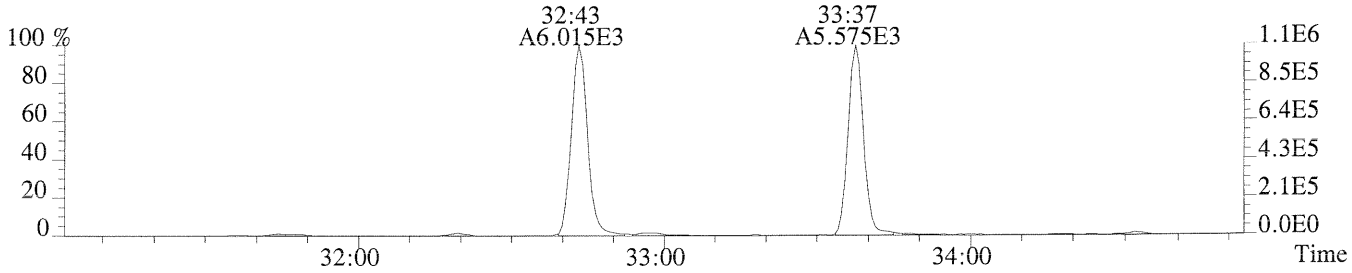
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



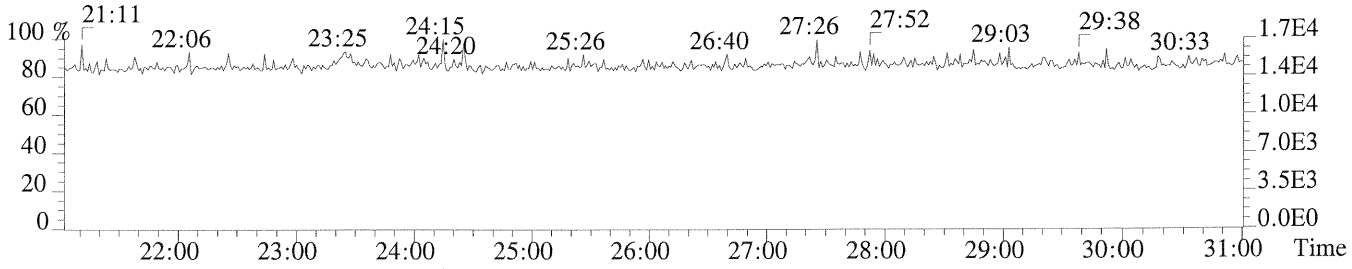
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



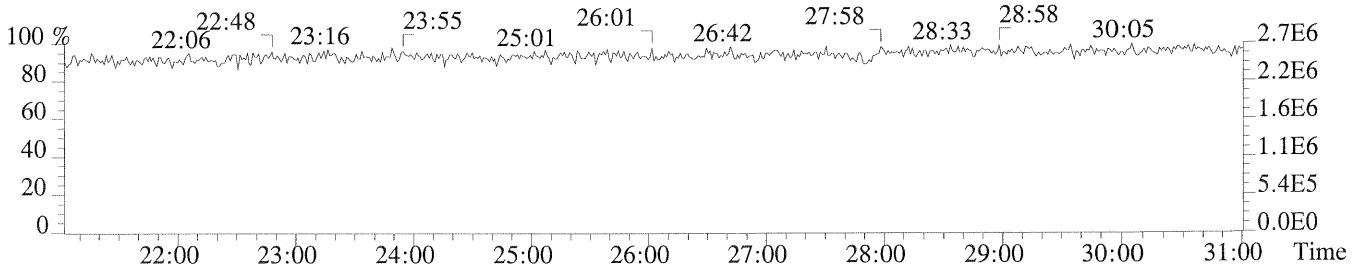
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



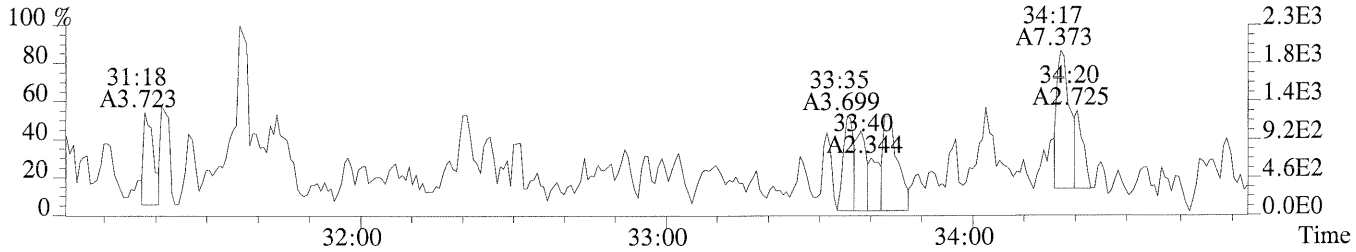
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



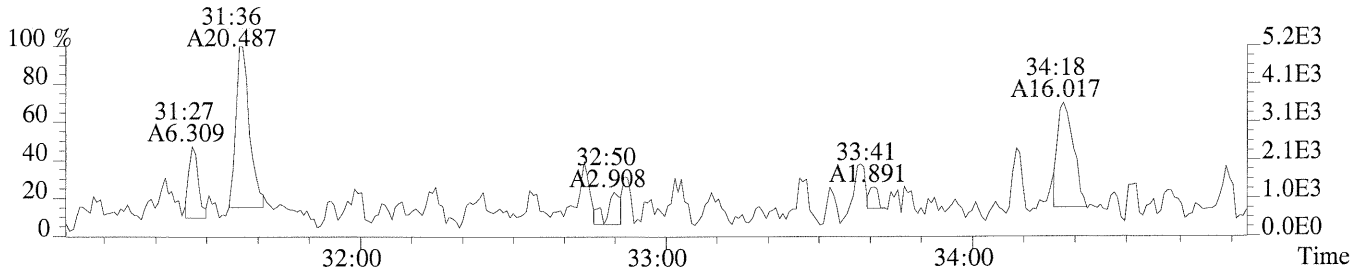
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



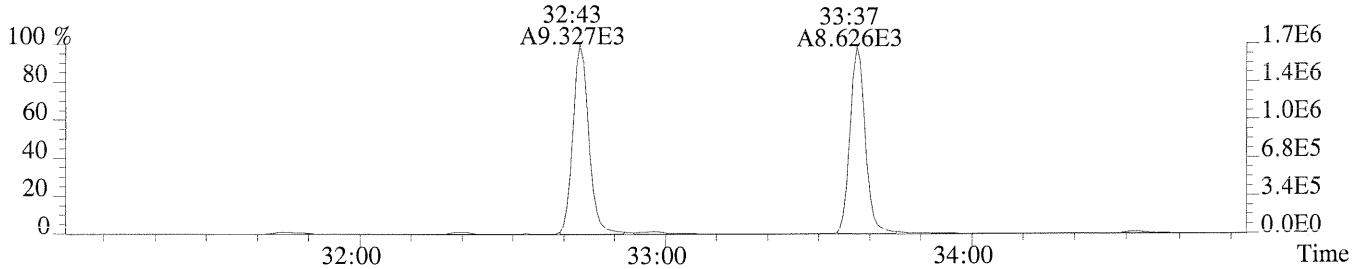
File:U149807 #1-349 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



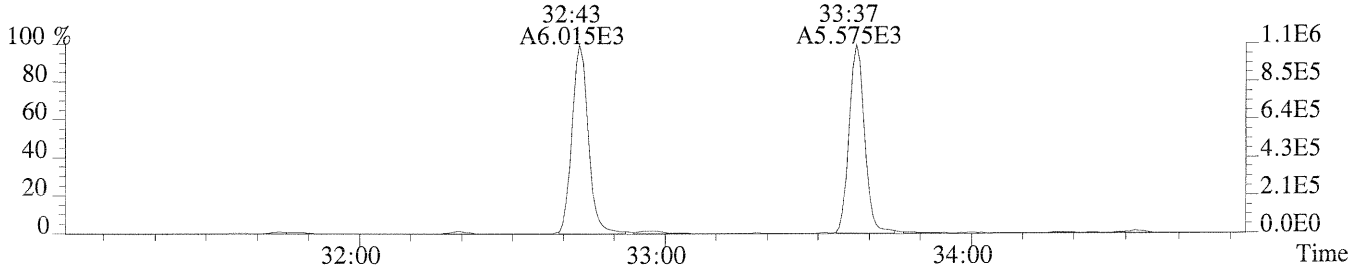
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



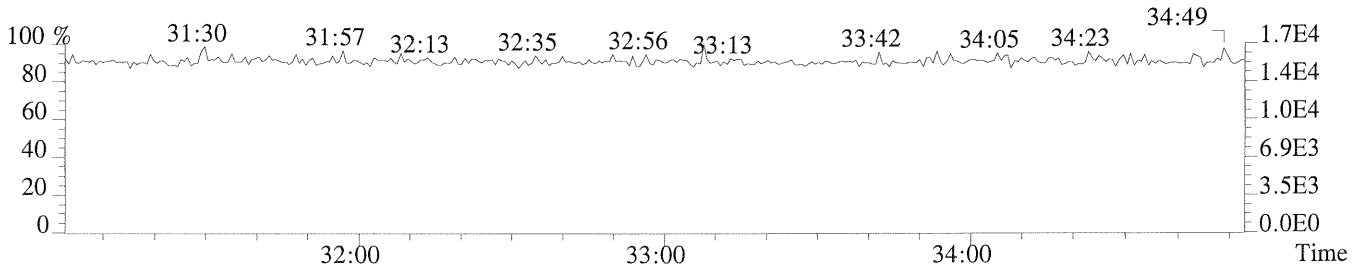
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



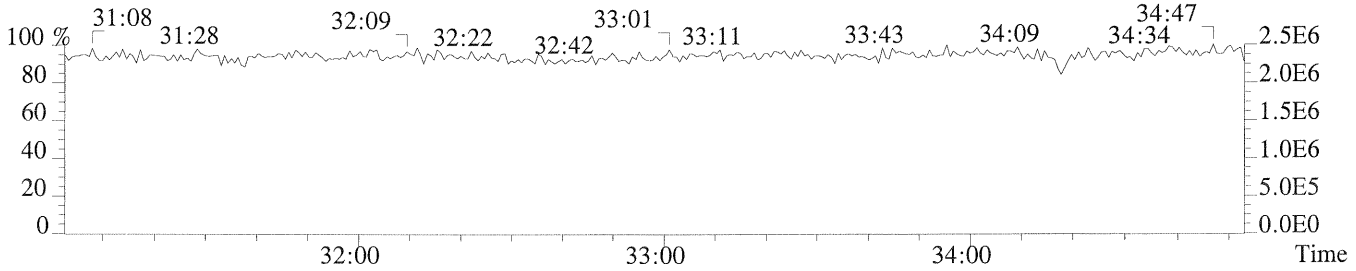
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



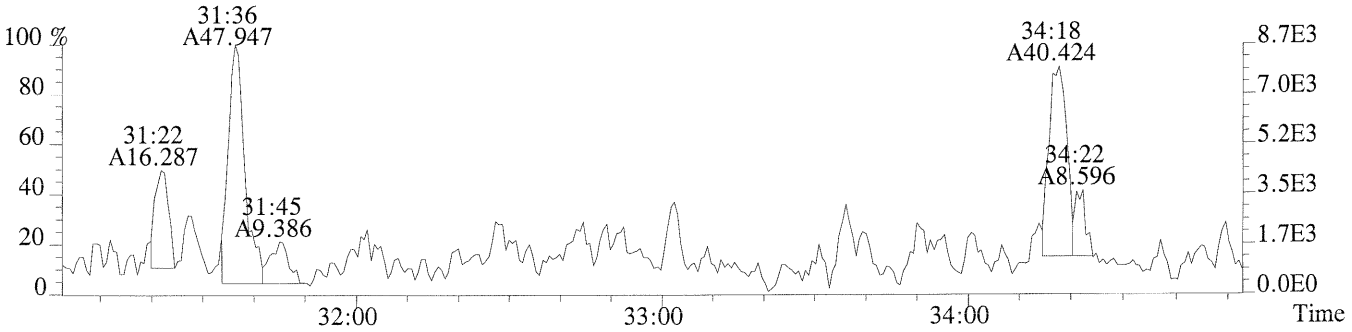
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



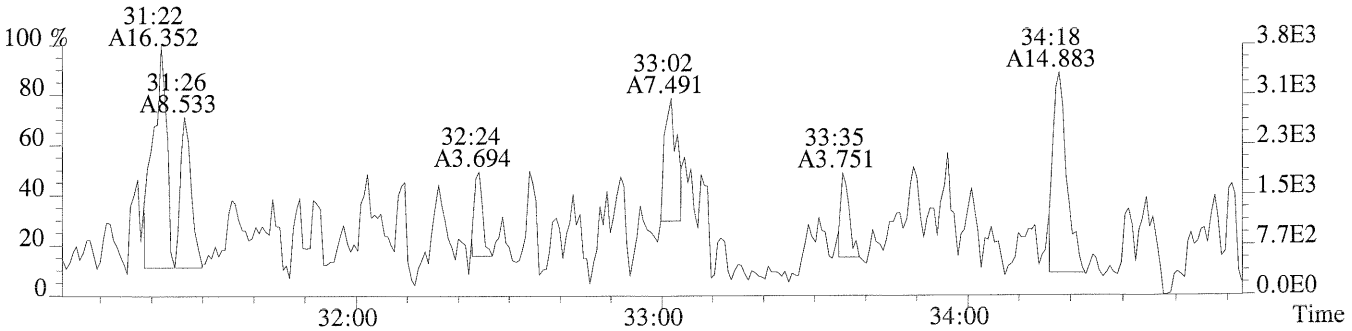
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



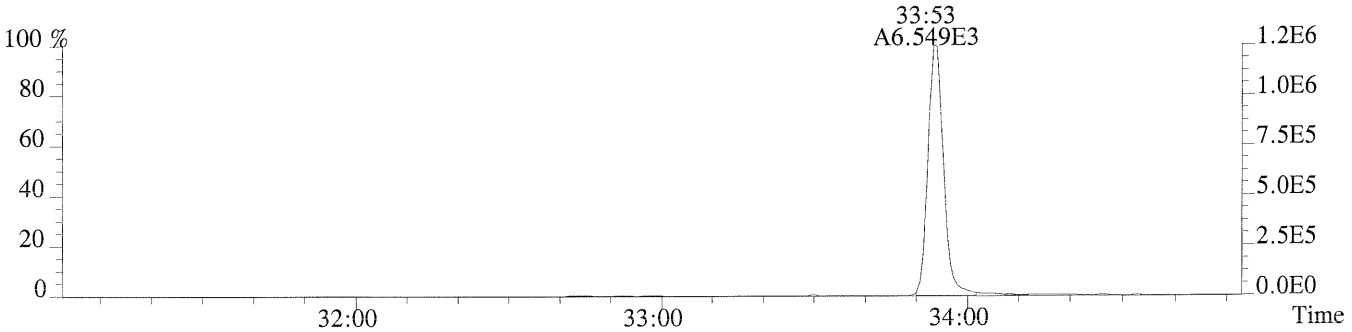
File:U149807 #1-349 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)



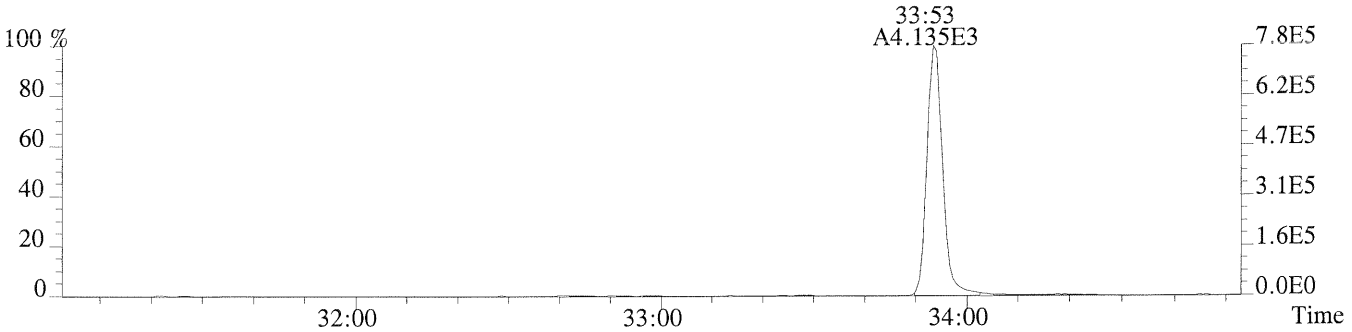
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,980.0,1.00%,F,T)



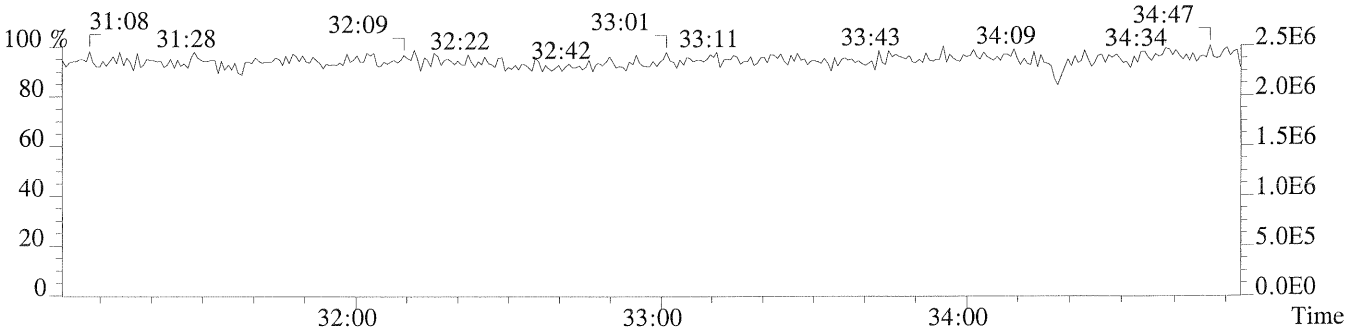
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)

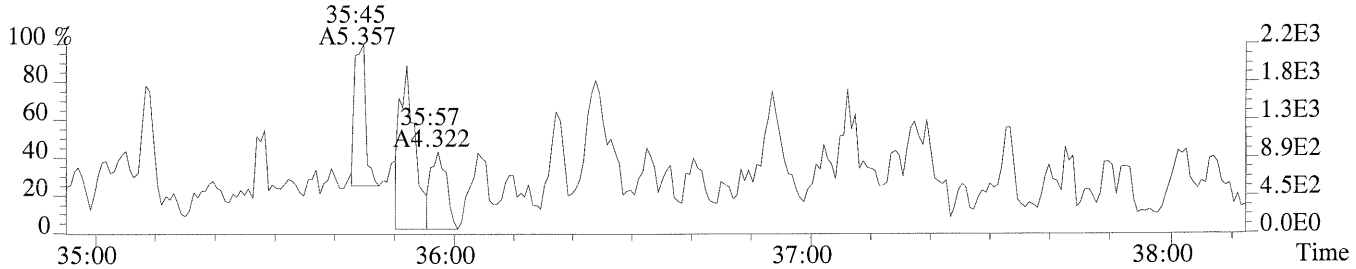


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

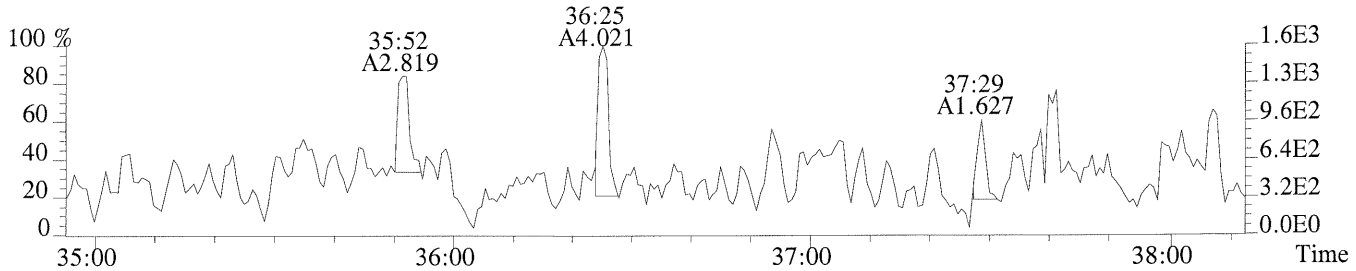


File:U149807 #1-299 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003

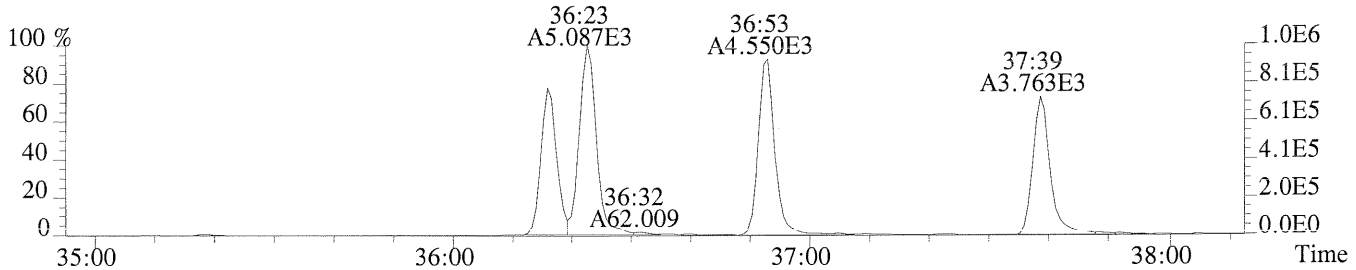
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



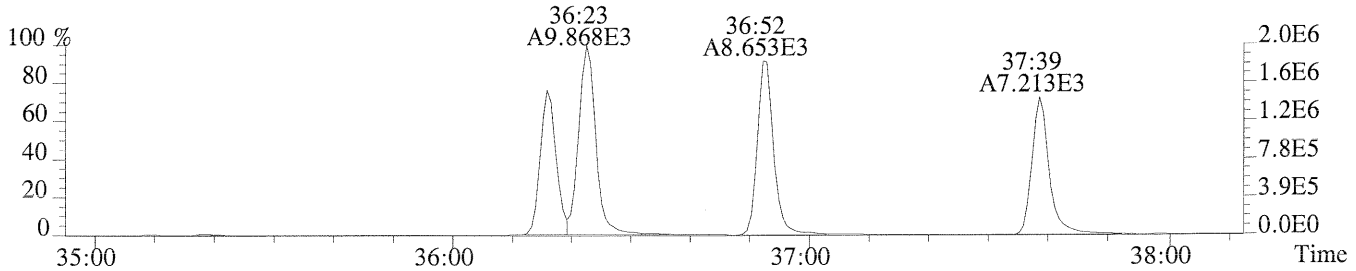
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



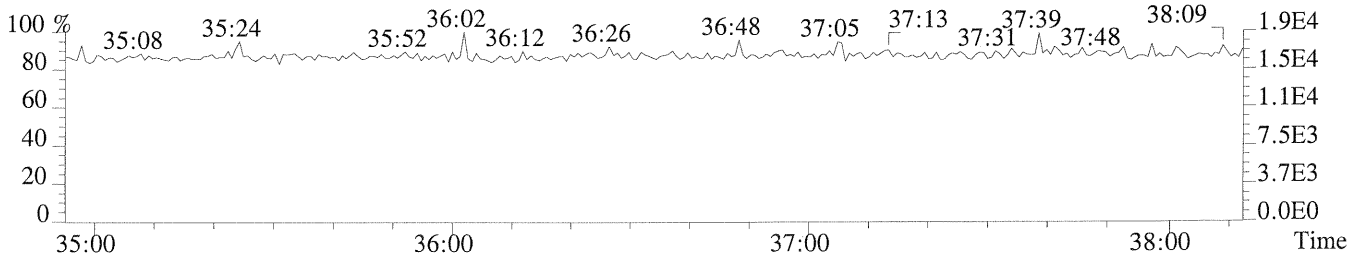
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.40%,F,T)



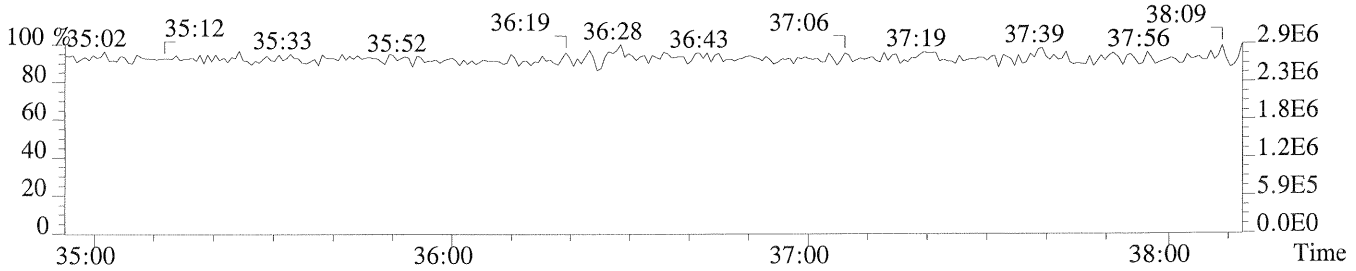
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



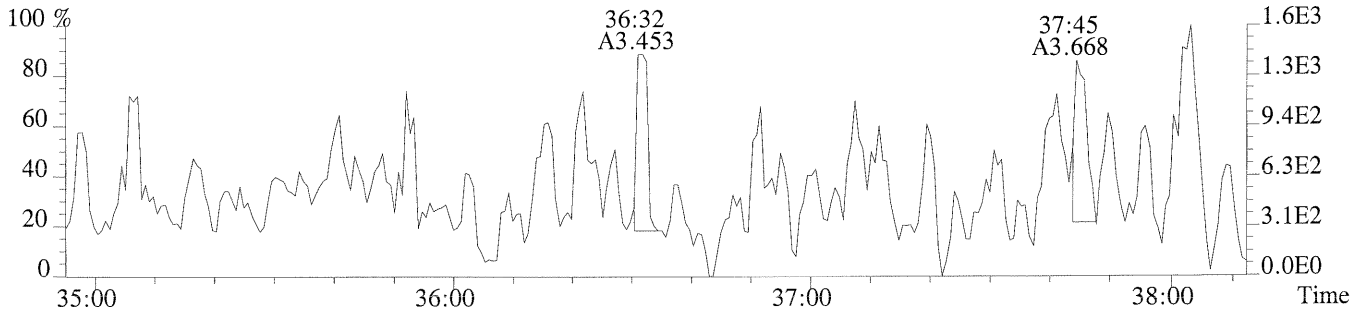
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



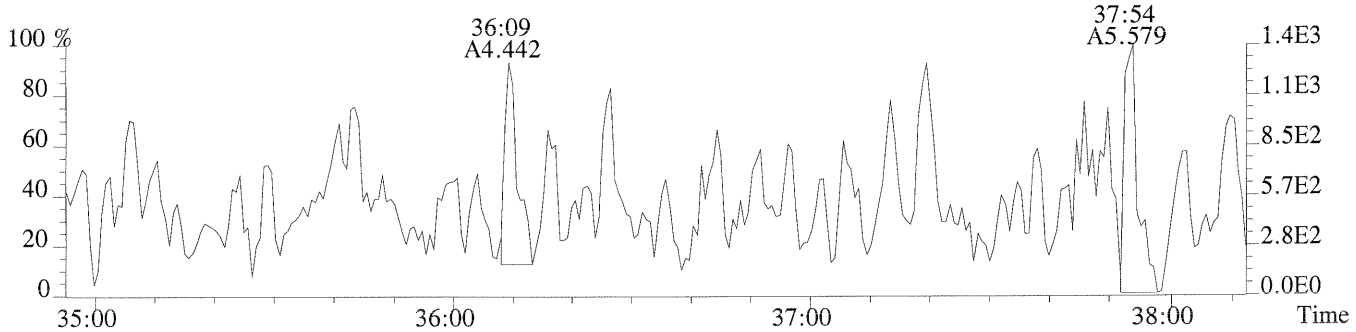
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



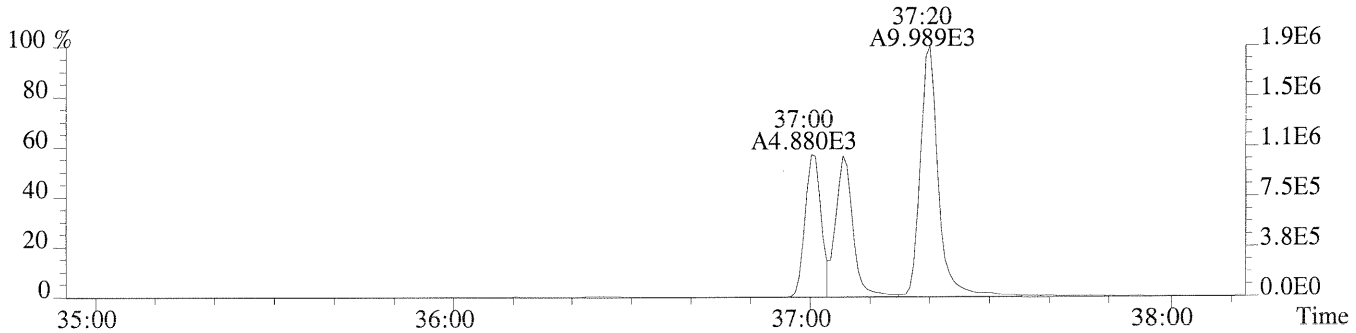
File:U149807 #1-299 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



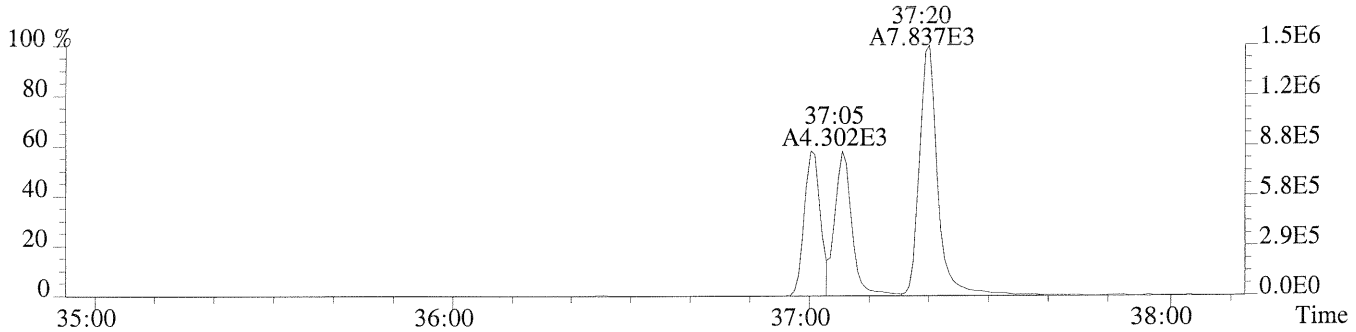
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,628.0,0.40%,F,T)



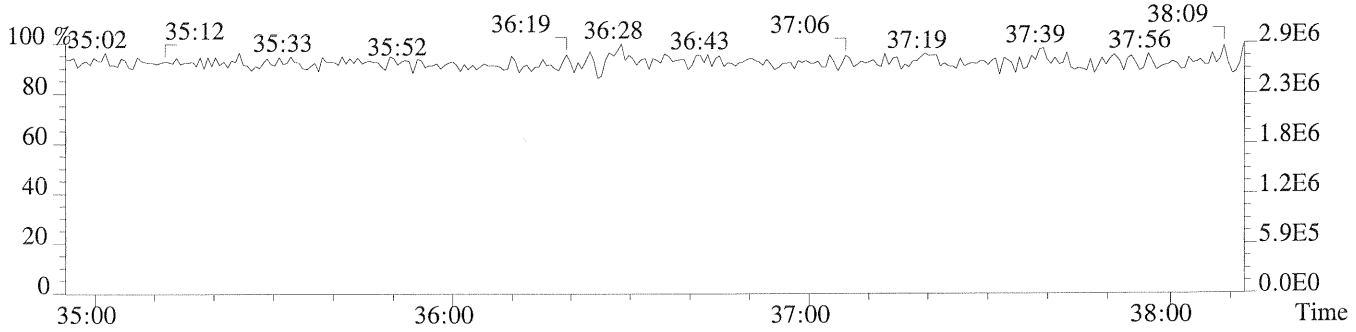
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)

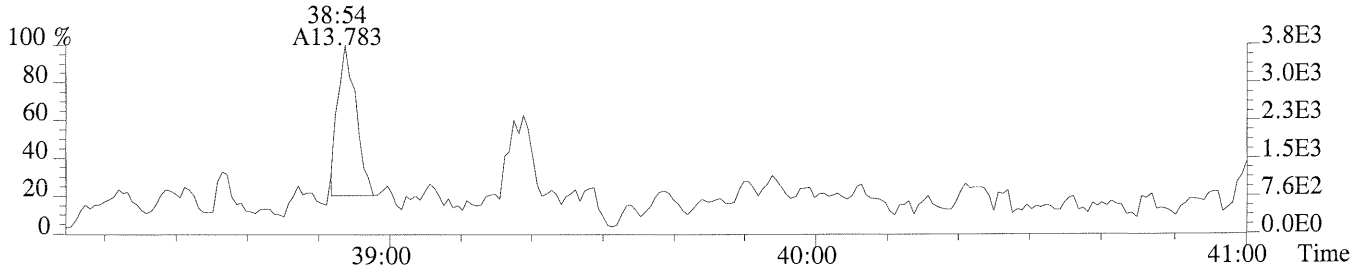


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

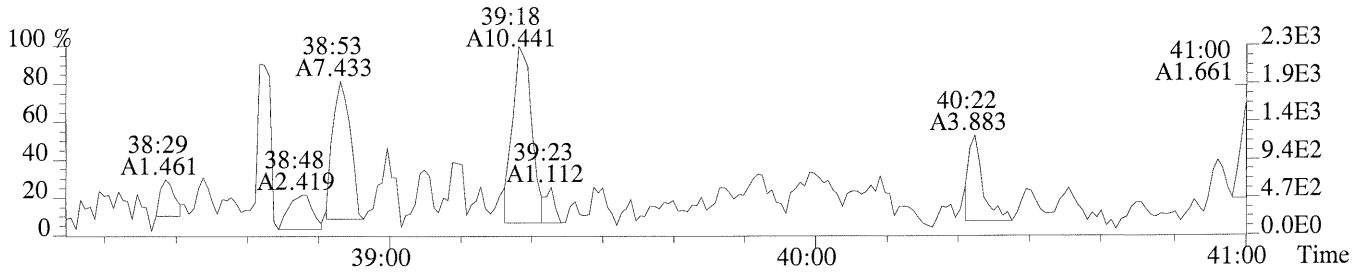


File:U149807 #1-251 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003

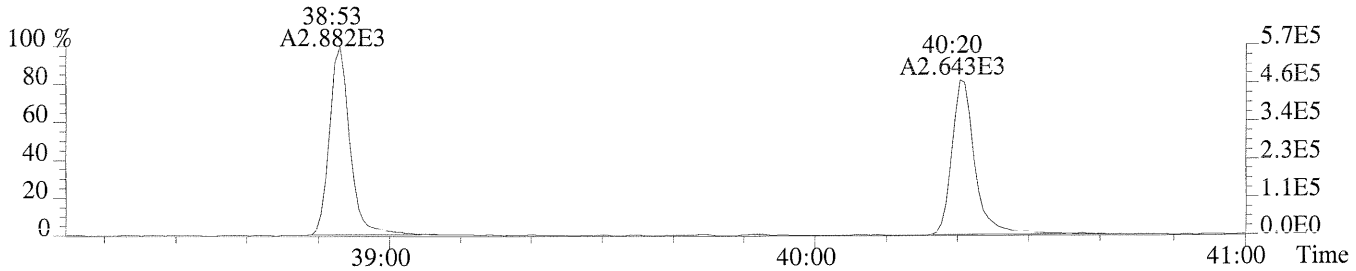
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.50%,F,T)



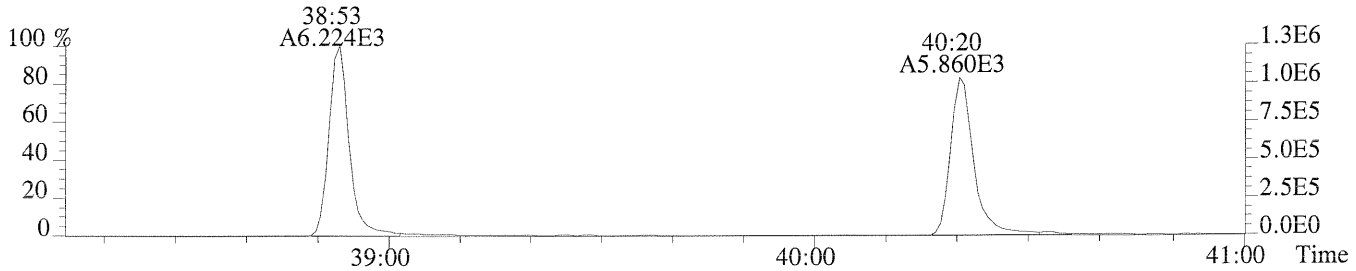
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.50%,F,T)



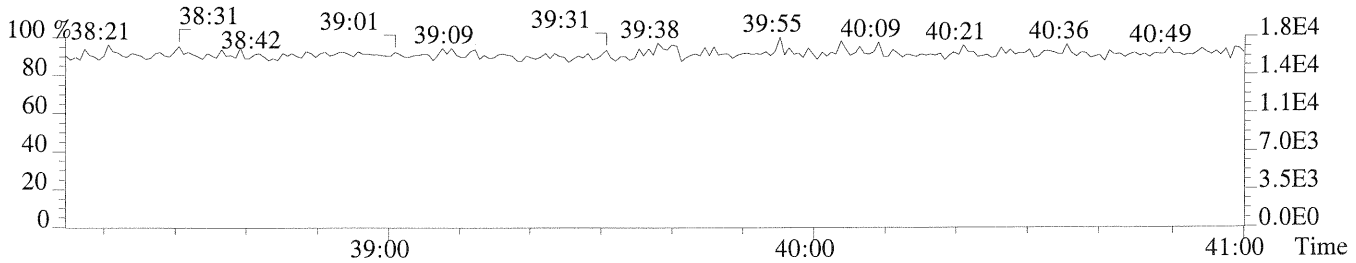
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.50%,F,T)



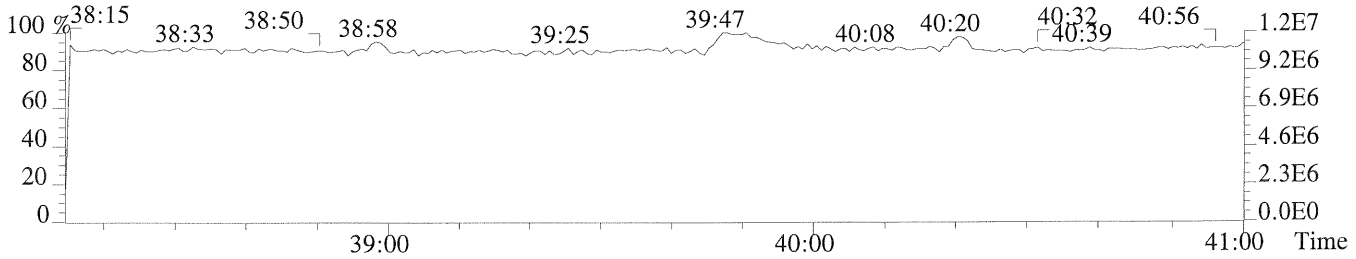
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.50%,F,T)



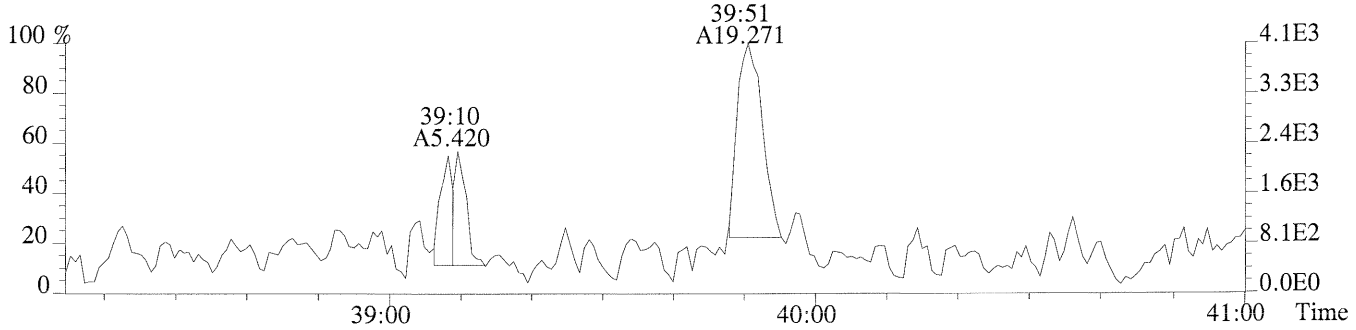
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



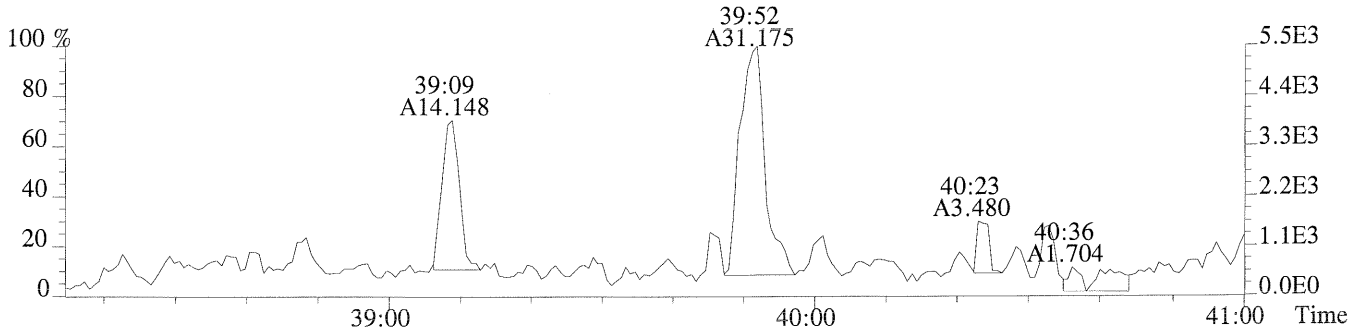
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



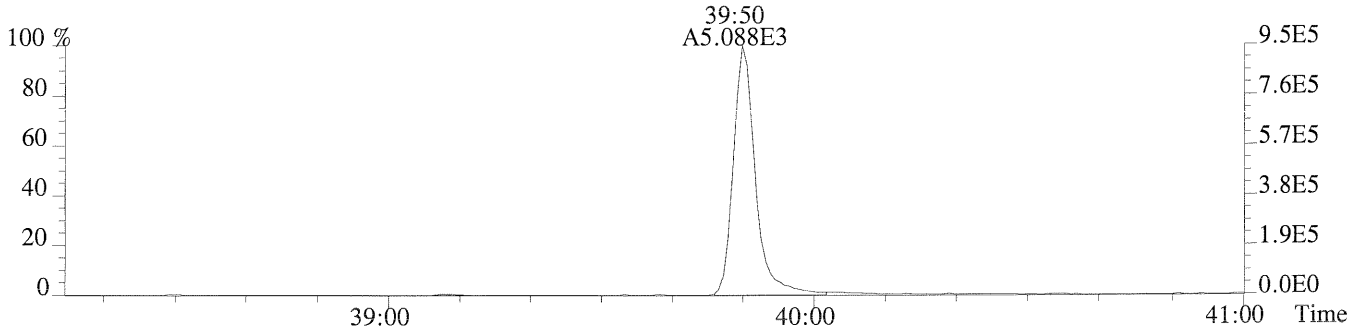
File:U149807 #1-251 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



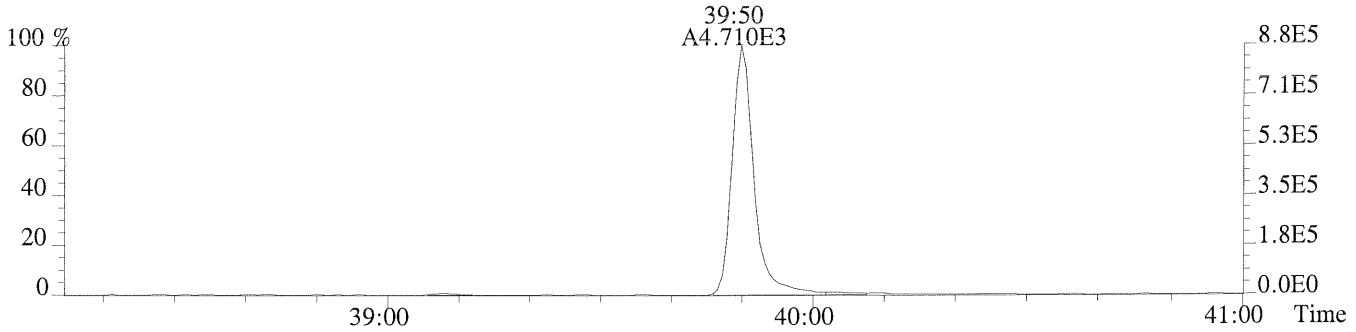
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



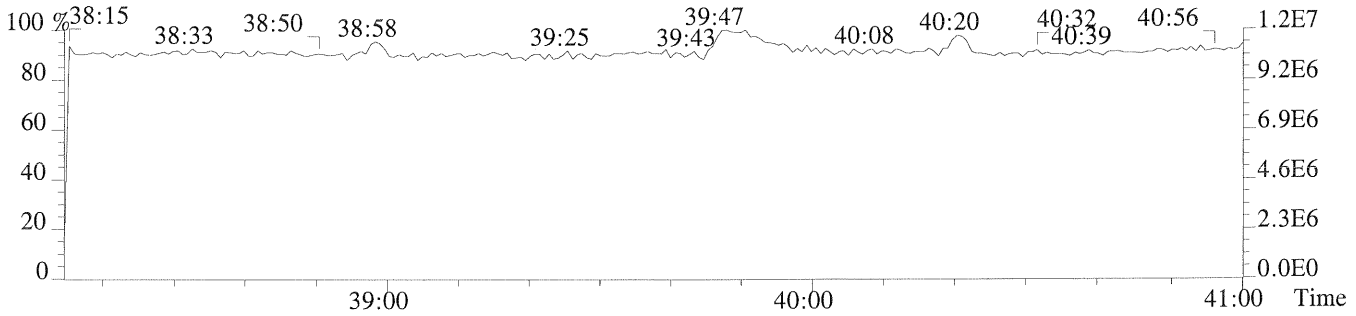
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,832.0,0.40%,F,T)



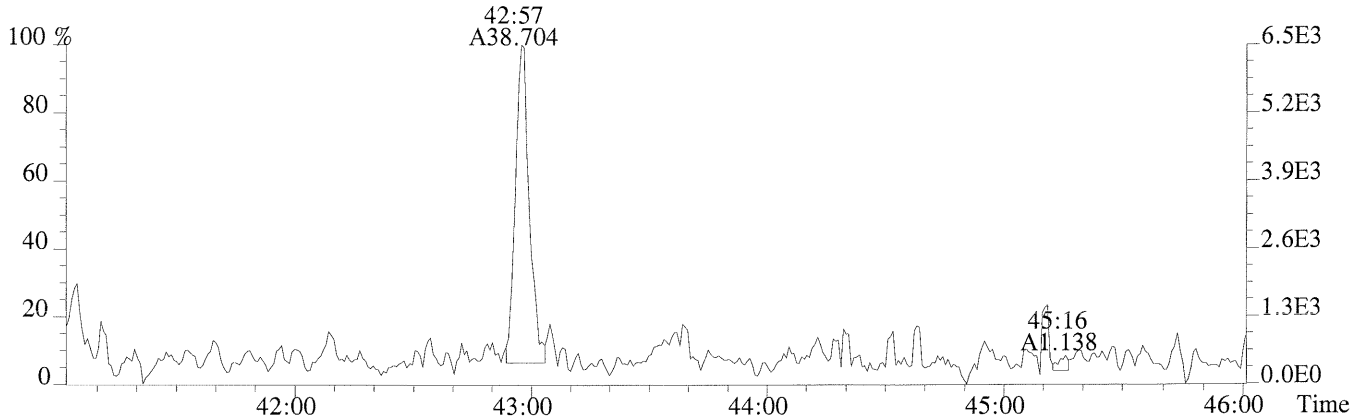
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)



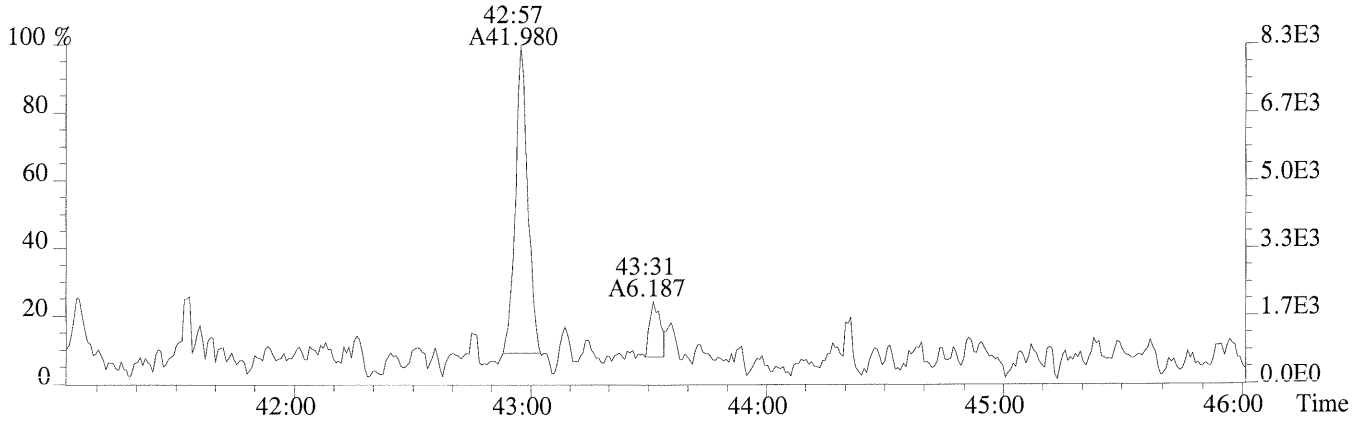
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



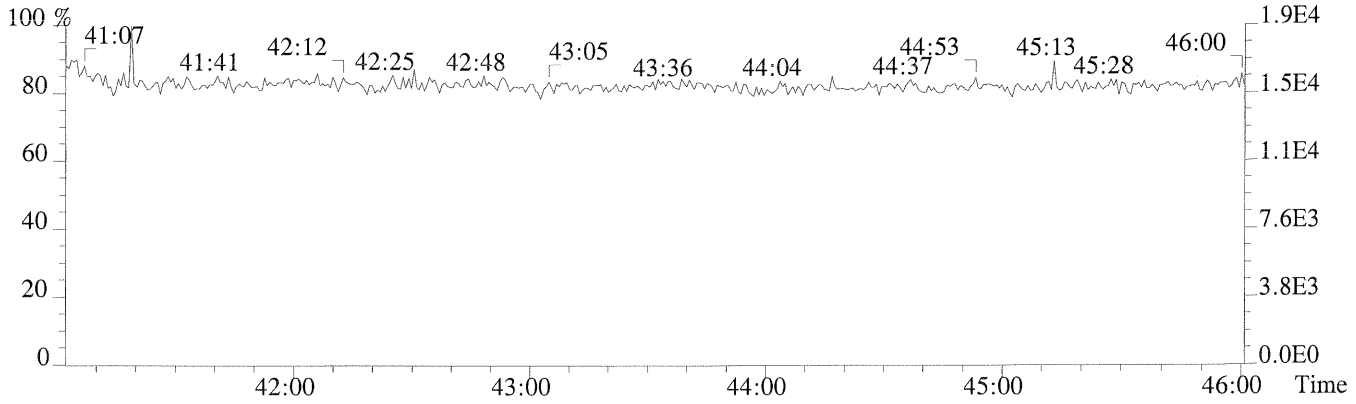
File:U149807 #1-452 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



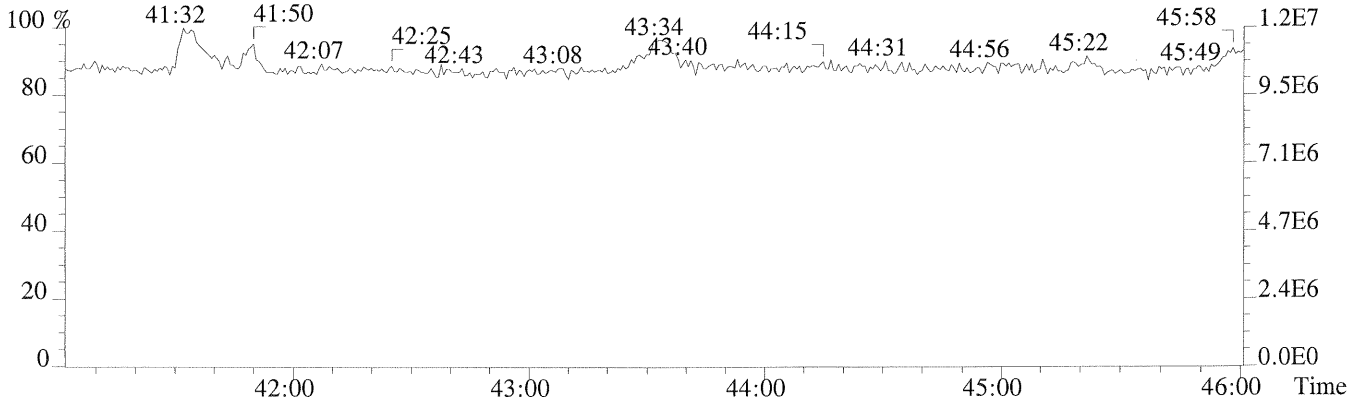
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,868.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

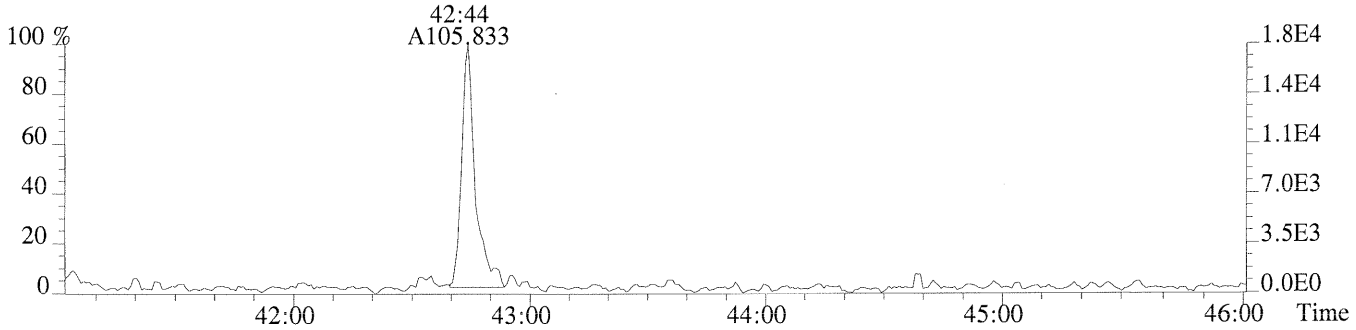


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

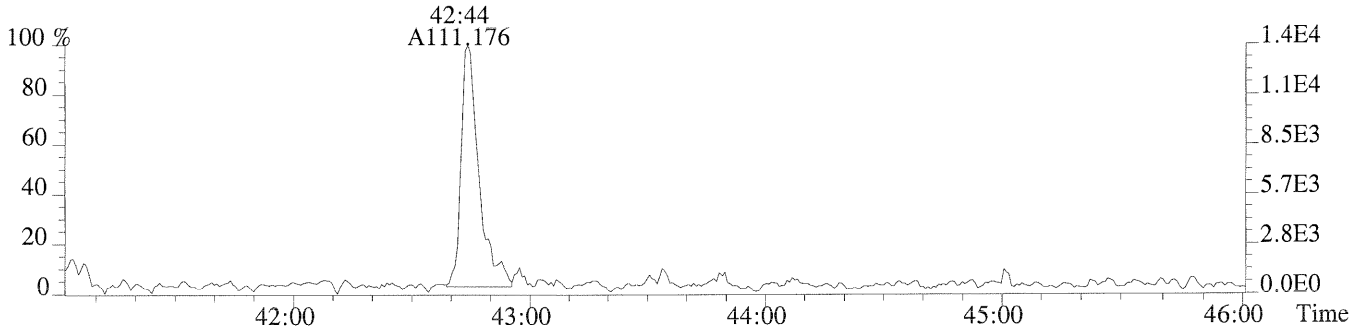


File:U149807 #1-452 Acq: 1-JUL-2014 23:17:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-003

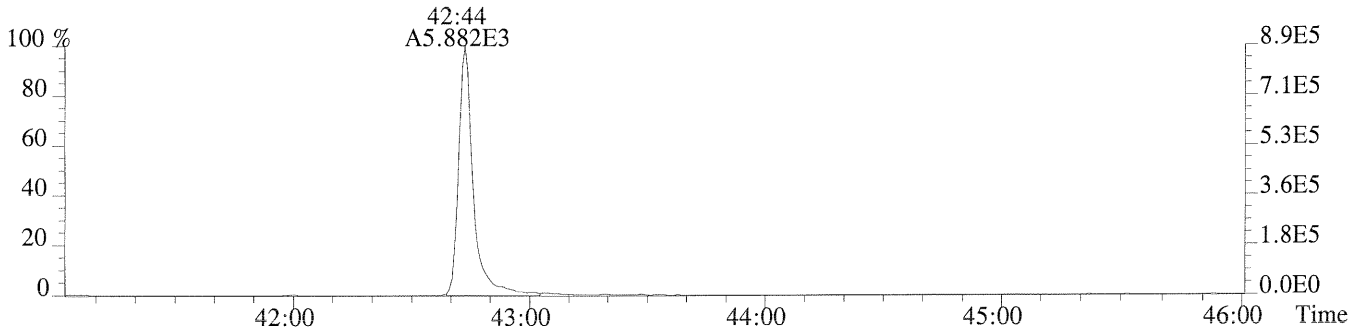
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



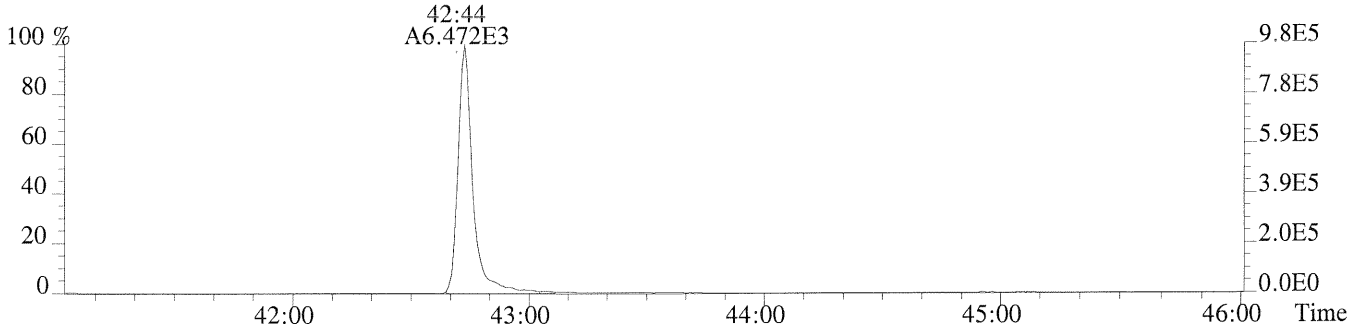
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



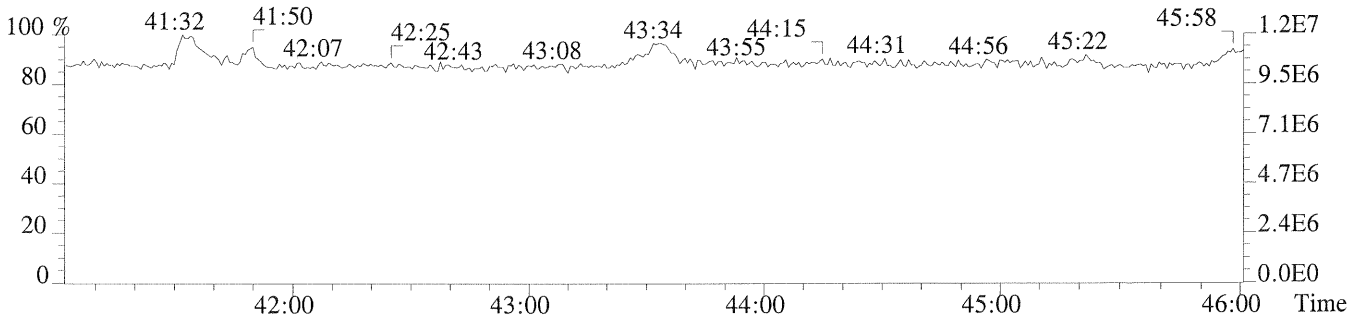
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
1406091614 20

Run #14 Filename U149808 Samp: 1 Inj: 1 Acquired: 2-JUL-14 00:05:46
Processed: 2-JUL-14 12:06:00 Sample ID: R1404651-004

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.358
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	yes	1.065
17	Unk	OCDD	NotFnd	*	*	*	no	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:36	5.260e+03	6.353e+03	0.83	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	9.964e+03	6.321e+03	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	9.550e+03	5.942e+03	1.61	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	3.864e+03	7.602e+03	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	5.447e+03	1.073e+04	0.51	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	4.867e+03	9.304e+03	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	3.871e+03	7.316e+03	0.53	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:53	2.831e+03	6.448e+03	0.44	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.727e+03	6.093e+03	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:21	3.628e+03	4.649e+03	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	7.066e+03	4.448e+03	1.59	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	5.358e+03	4.189e+03	1.28	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	5.805e+03	4.572e+03	1.27	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:50	5.221e+03	4.697e+03	1.11	yes	no	0.936
32	IS	13C-OCDD	42:44	5.586e+03	6.143e+03	0.91	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:47	6.703e+03	8.788e+03	0.76	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	9.711e+03	7.755e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.843e+03				no	1.044

EDL

$$\text{OCDD} = \frac{(4.48e+02 + 5.72e+02) \times 4000 \text{ pg} \times 1 \times 2.5}{(\cancel{5.586e+03} + \cancel{6.143e+03}) \times 10.192 \text{ g} \times 99.8 / 100 \times 1.177} = 0.493 \text{ ng/kg}$$

$(8.18e+05 + 9.07e+05)$

UMO 7/03/14

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESPA

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406091614 200-S

Run #14 Filename U149808 Samp: 1 Inj: 1 Acquired: 2-JUL-14 00:05:46
Processed: 2-JUL-14 12:06:001 LAB. ID: R1404651-004

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.72e+02	*	*	8.80e+02	*
2	1,2,3,7,8-PeCDF	*	5.64e+02	*	*	7.92e+02	*
3	2,3,4,7,8-PeCDF	*	5.64e+02	*	*	7.92e+02	*
4	1,2,3,4,7,8-HxCDF	*	7.16e+02	*	*	4.88e+02	*
5	1,2,3,6,7,8-HxCDF	*	7.16e+02	*	*	4.88e+02	*
6	2,3,4,6,7,8-HxCDF	*	7.16e+02	*	*	4.88e+02	*
7	1,2,3,7,8,9-HxCDF	*	7.16e+02	*	*	4.88e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	5.16e+02	*	*	7.48e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	5.16e+02	*	*	7.48e+02	*
10	OCDF	*	5.72e+02	*	*	8.36e+02	*
11	2,3,7,8-TCDD	*	5.60e+02	*	*	6.64e+02	*
12	1,2,3,7,8-PeCDD	*	9.76e+02	*	*	1.53e+03	*
13	1,2,3,4,7,8-HxCDD	*	4.60e+02	*	*	5.24e+02	*
14	1,2,3,6,7,8-HxCDD	*	4.60e+02	*	*	5.24e+02	*
15	1,2,3,7,8,9-HxCDD	*	4.60e+02	*	*	5.24e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	5.96e+02	*	*	7.04e+02	*
17	OCDD	*	4.48e+02	*	*	5.72e+02	*
18	13C-2,3,7,8-TCDF	1.05e+06	6.28e+02	1.7e+03	1.26e+06	9.00e+02	1.4e+03
19	13C-1,2,3,7,8-PeCDF	1.78e+06	6.72e+02	2.7e+03	1.14e+06	7.36e+02	1.5e+03
20	13C-2,3,4,7,8-PeCDF	1.86e+06	6.72e+02	2.8e+03	1.15e+06	7.36e+02	1.6e+03
21	13C-1,2,3,4,7,8-HxCDF	7.98e+05	5.20e+02	1.5e+03	1.60e+06	6.96e+02	2.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.08e+06	5.20e+02	2.1e+03	2.10e+06	6.96e+02	3.0e+03
23	13C-2,3,4,6,7,8-HxCDF	1.02e+06	5.20e+02	2.0e+03	1.96e+06	6.96e+02	2.8e+03
24	13C-1,2,3,7,8,9-HxCDF	7.50e+05	5.20e+02	1.4e+03	1.44e+06	6.96e+02	2.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.57e+05	2.50e+03	2.2e+02	1.27e+06	1.37e+03	9.3e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.85e+05	2.50e+03	1.9e+02	1.05e+06	1.37e+03	7.7e+02
27	13C-2,3,7,8-TCDD	7.75e+05	1.84e+03	4.2e+02	9.94e+05	9.64e+02	1.0e+03
28	13C-1,2,3,7,8-PeCDD	1.38e+06	6.56e+02	2.1e+03	8.59e+05	7.00e+02	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.18e+06	1.22e+03	9.7e+02	9.23e+05	6.12e+02	1.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.15e+06	1.22e+03	9.5e+02	9.32e+05	6.12e+02	1.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.39e+05	6.68e+02	1.4e+03	8.49e+05	6.12e+02	1.4e+03
32	13C-OCDD	8.18e+05	5.92e+02	1.4e+03	9.07e+05	7.36e+02	1.2e+03
33	13C-1,2,3,4-TCDD	1.39e+06	1.84e+03	7.6e+02	1.81e+06	9.64e+02	1.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.83e+06	1.22e+03	1.5e+03	1.47e+06	6.12e+02	2.4e+03
35	37Cl-2,3,7,8-TCDD	5.90e+05	6.88e+02	8.6e+02			

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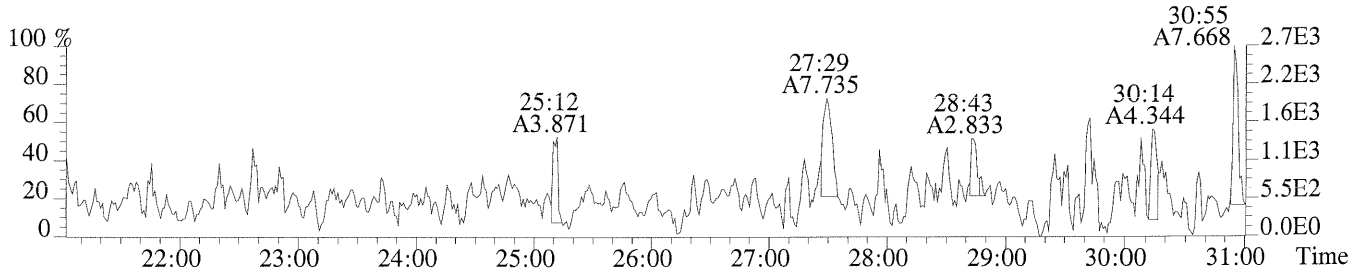
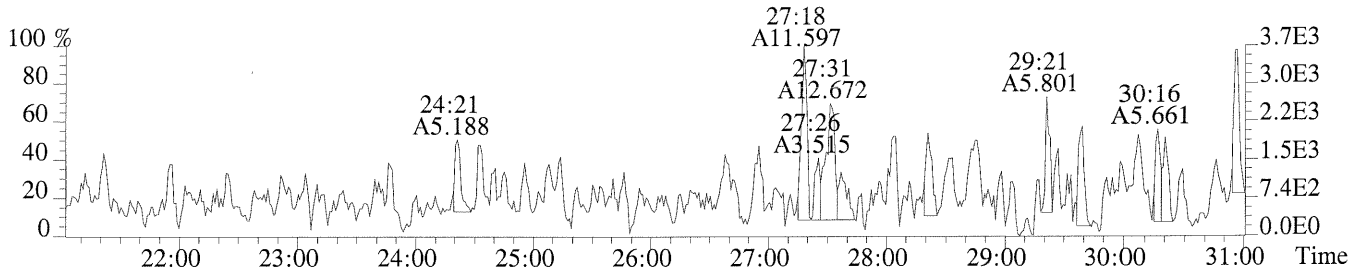
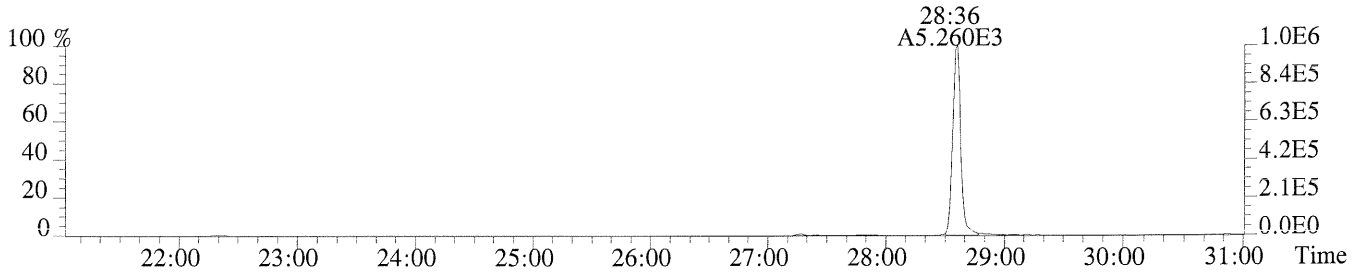
File:U149808 #1-627 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



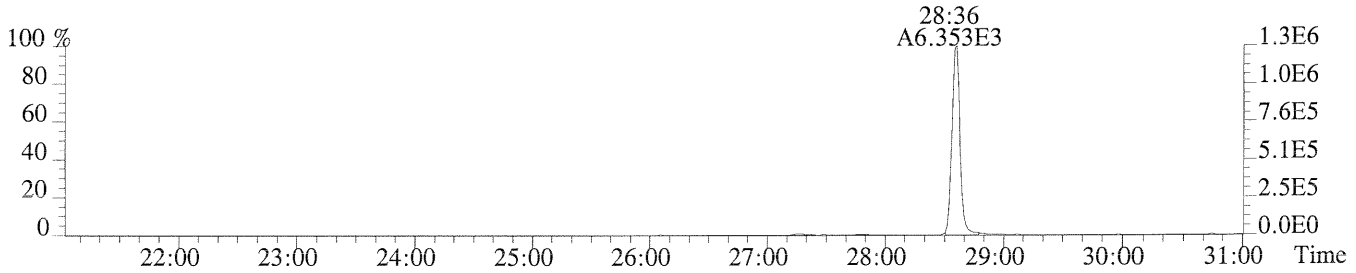
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



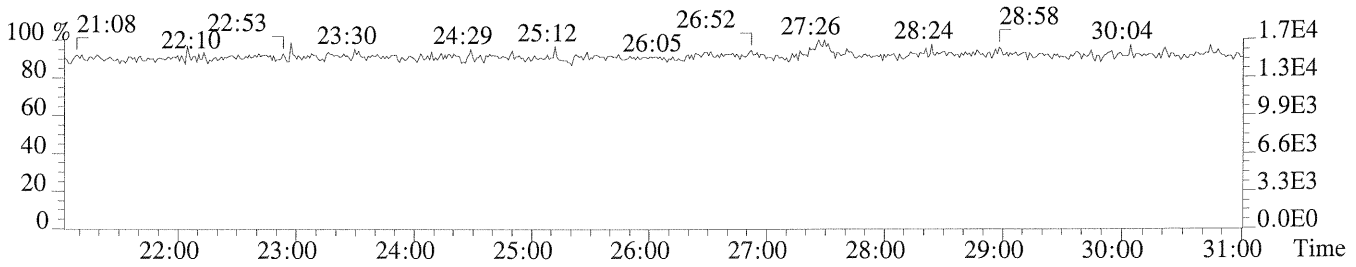
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



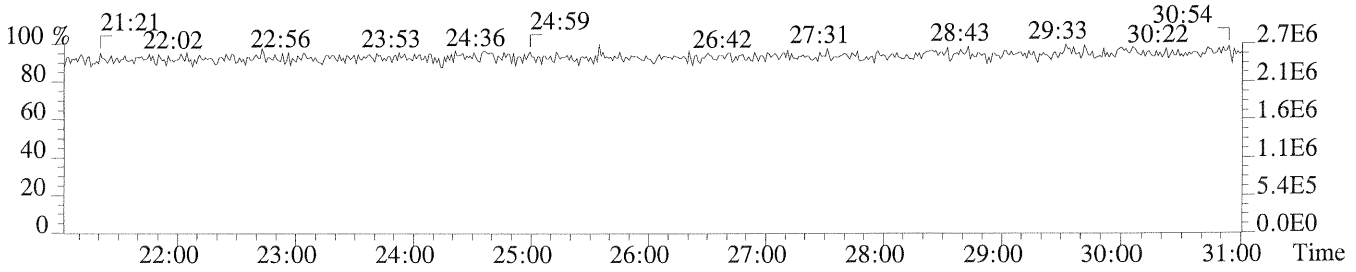
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

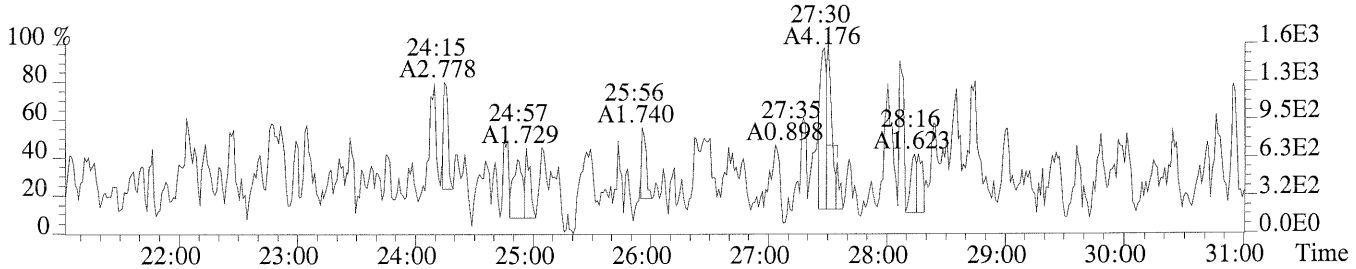


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

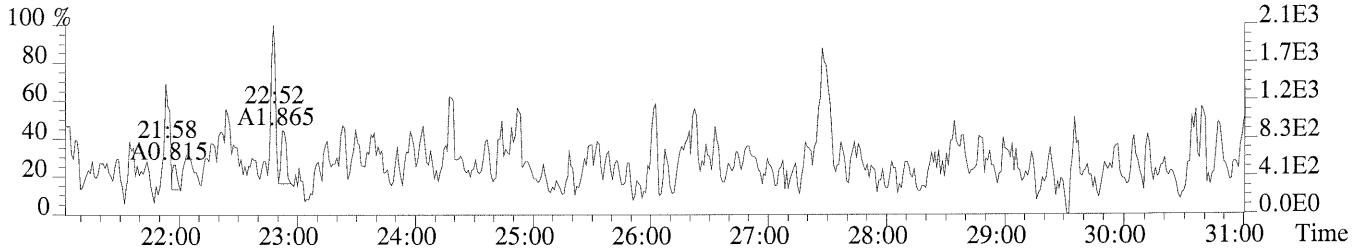


File:U149808 #1-627 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004

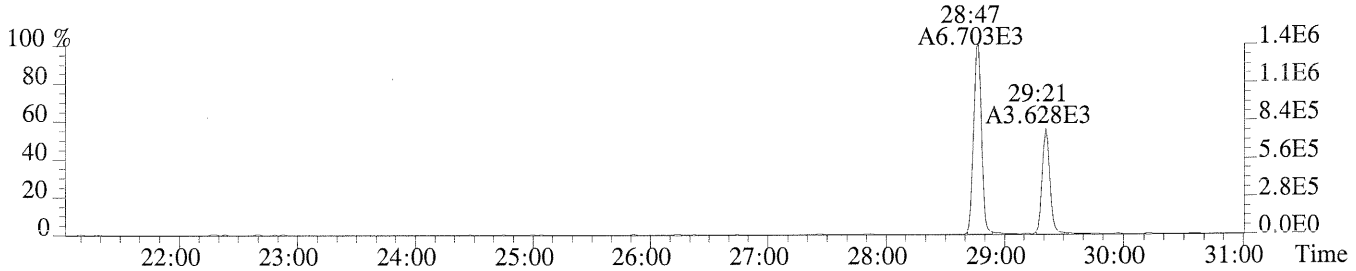
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



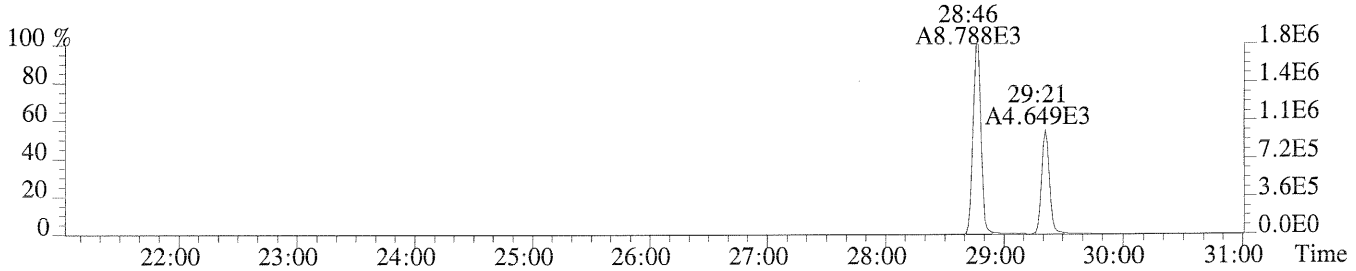
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



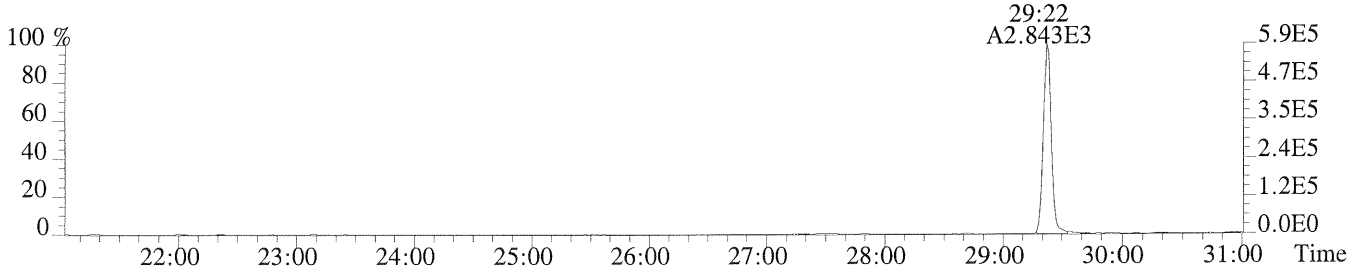
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1844.0,1.00%,F,T)



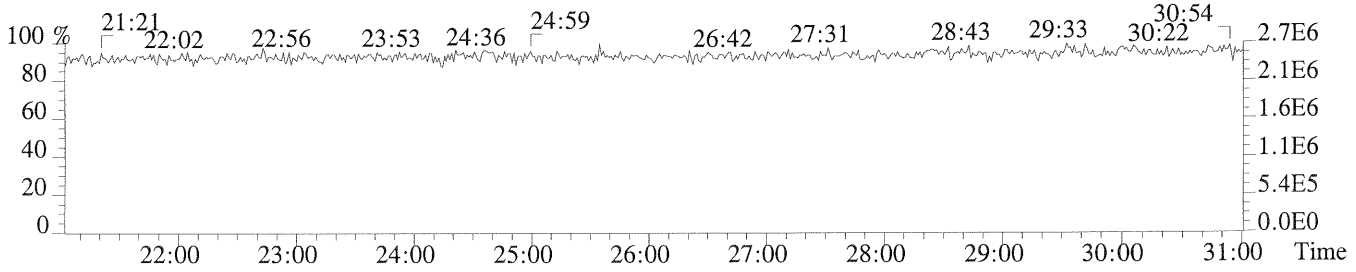
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)

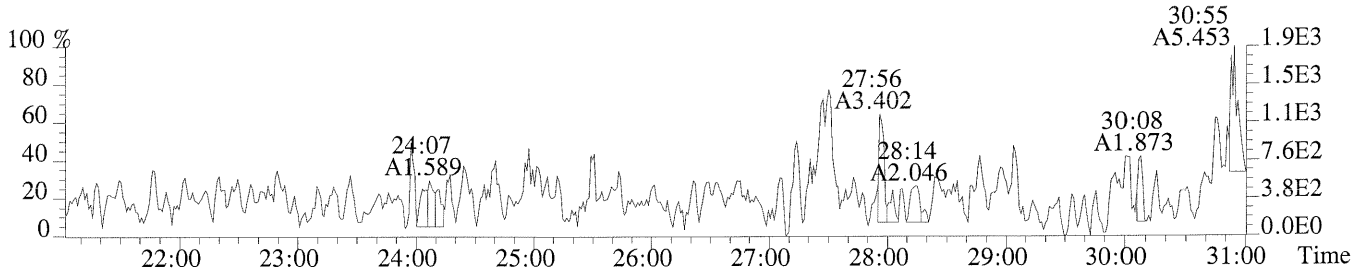


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

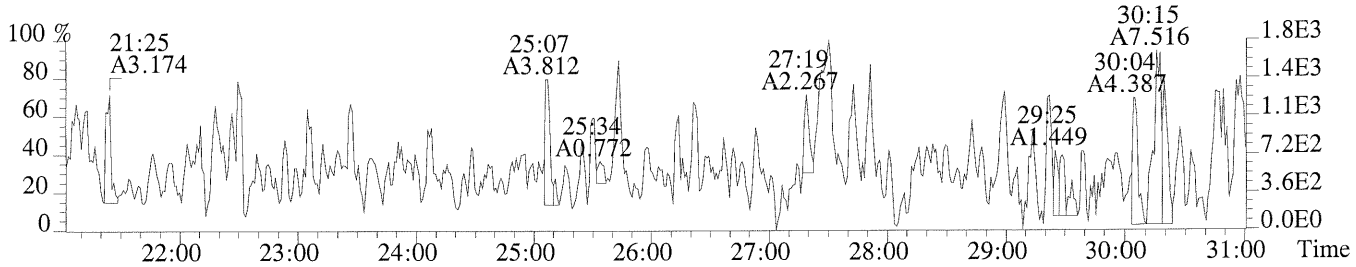


File:U149808 #1-627 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004

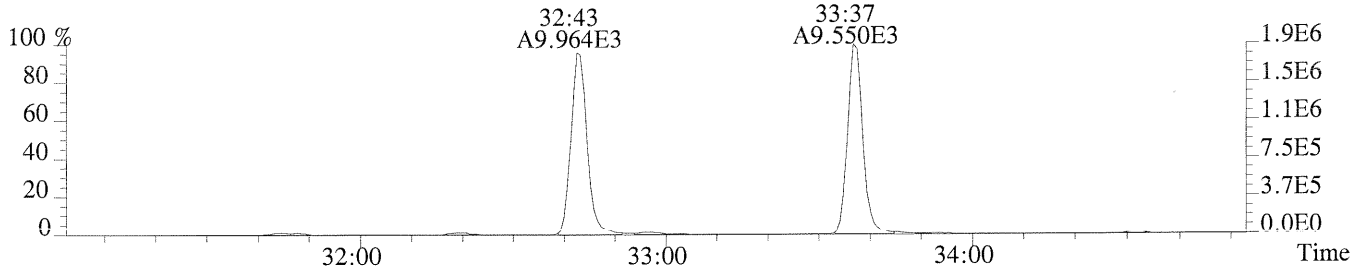
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



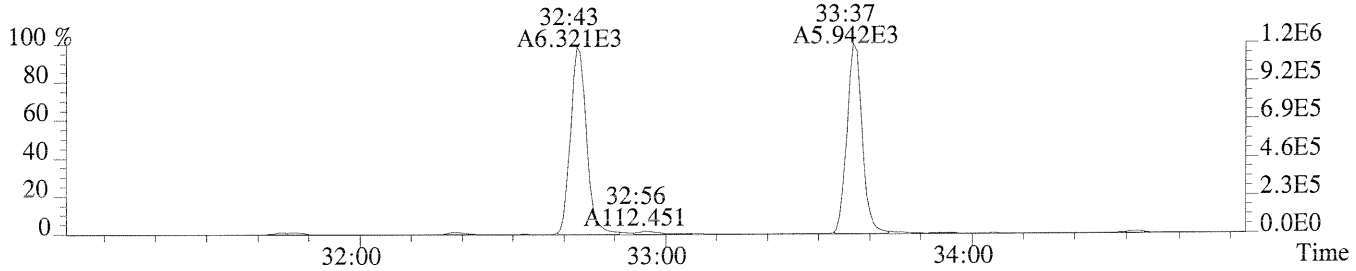
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



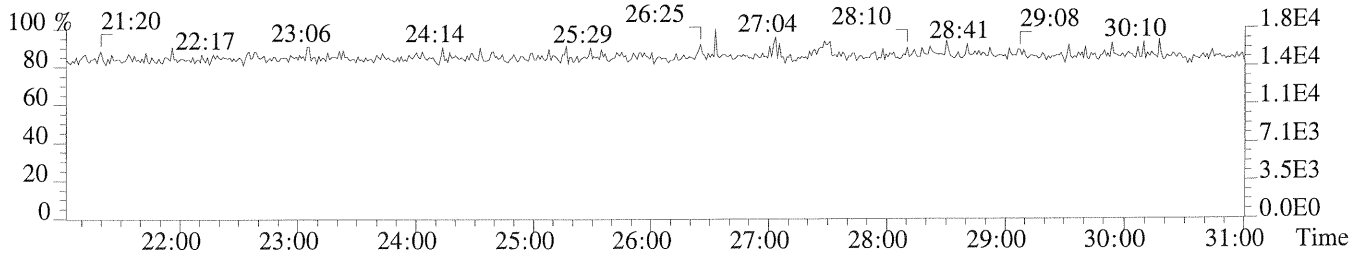
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



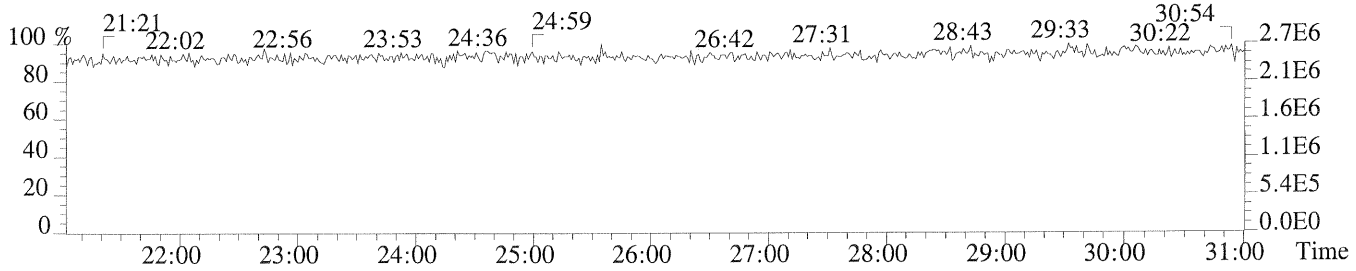
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



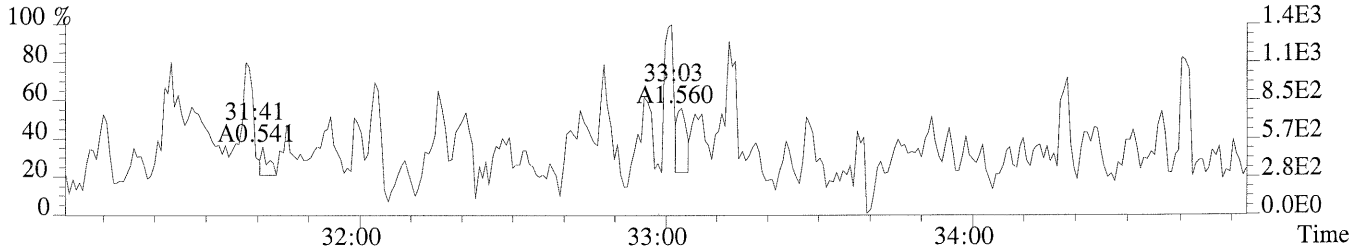
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



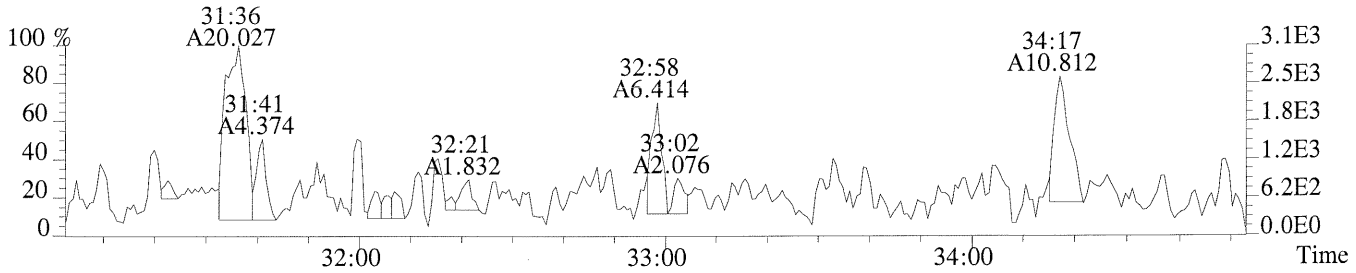
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



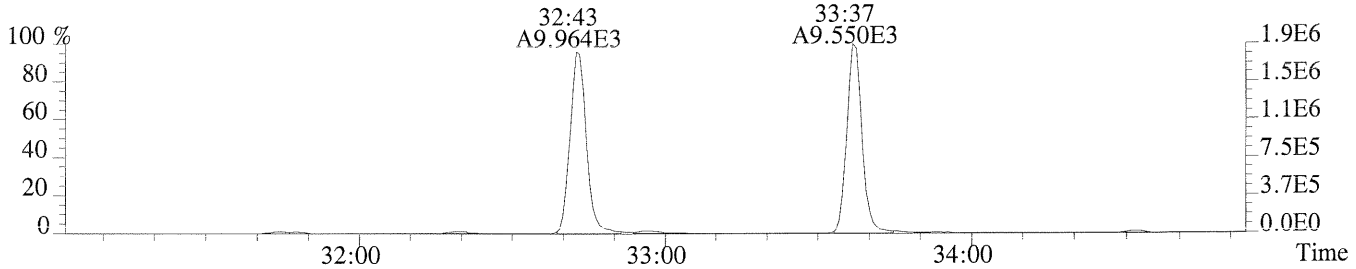
File:U149808 #1-349 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



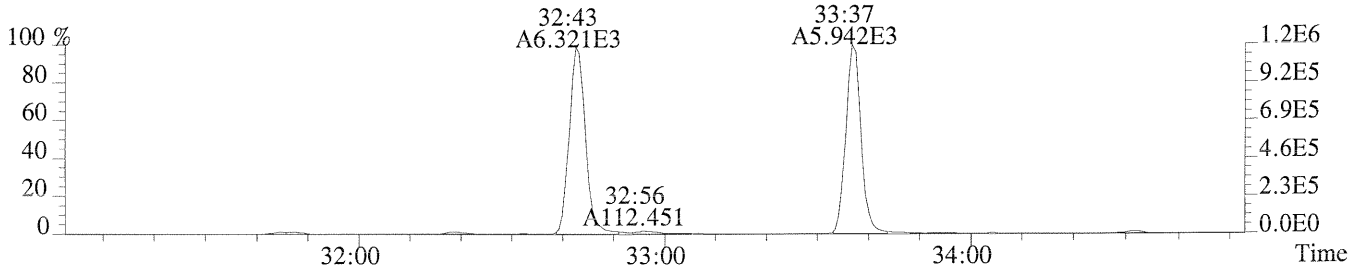
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



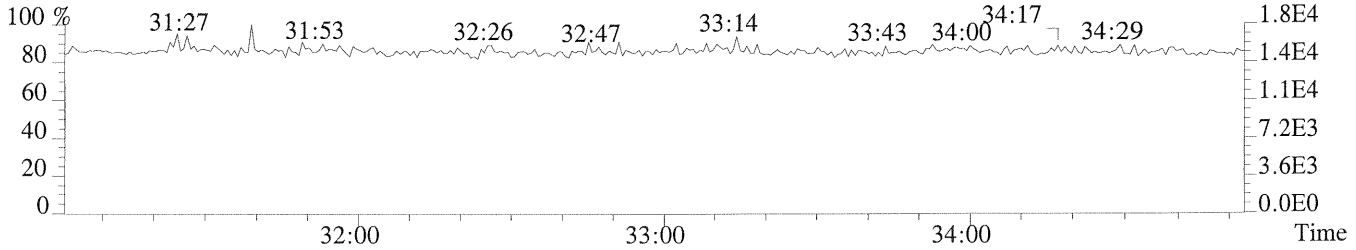
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



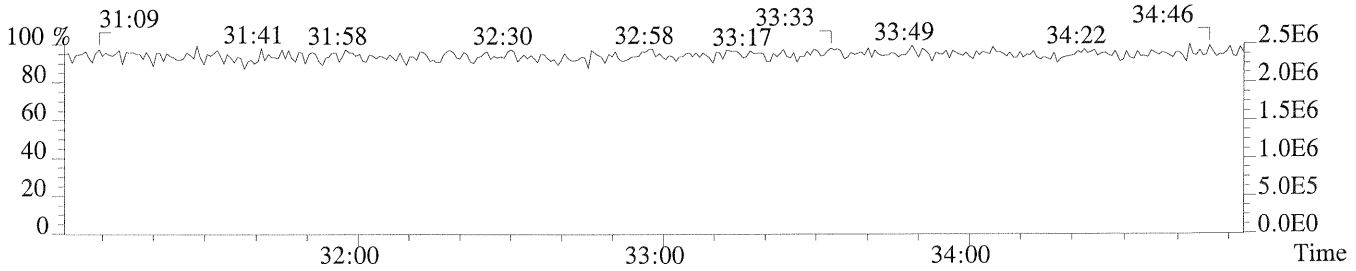
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



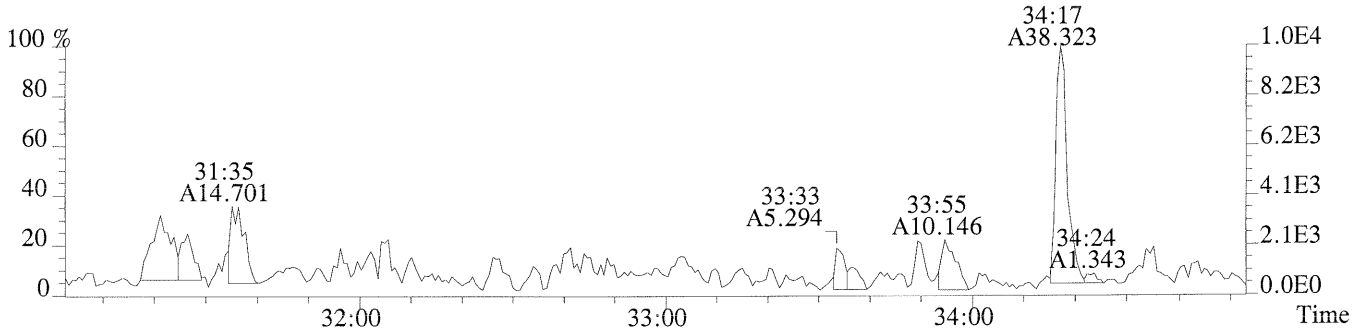
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



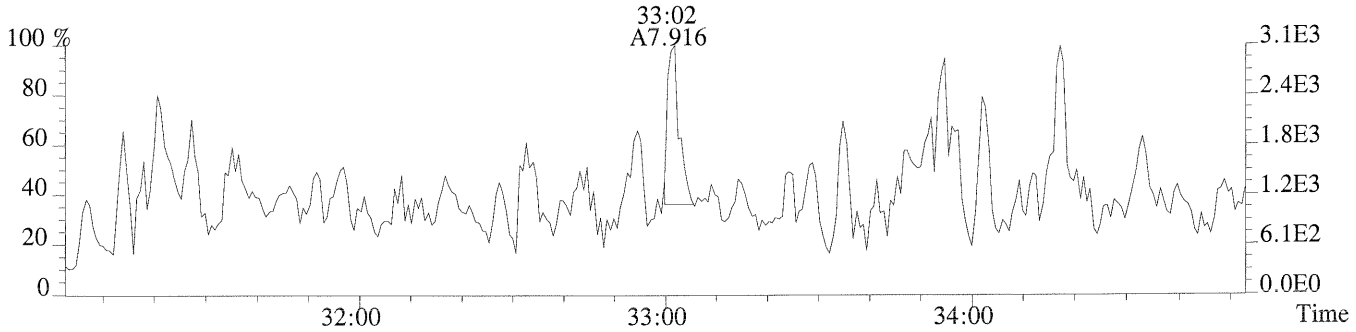
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



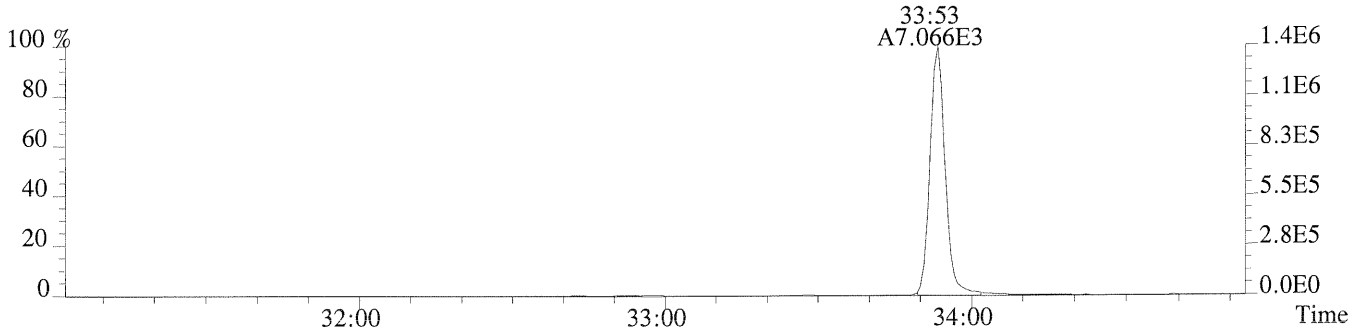
File:U149808 #1-349 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



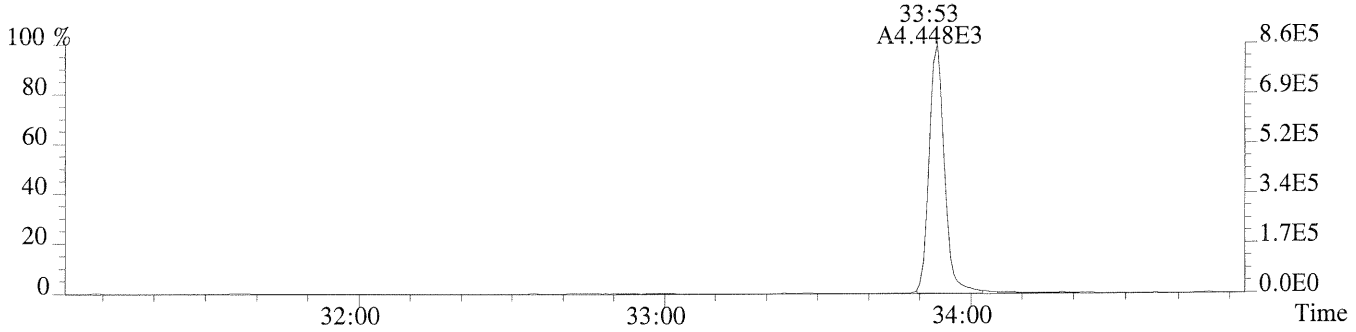
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1528.0,1.00%,F,T)



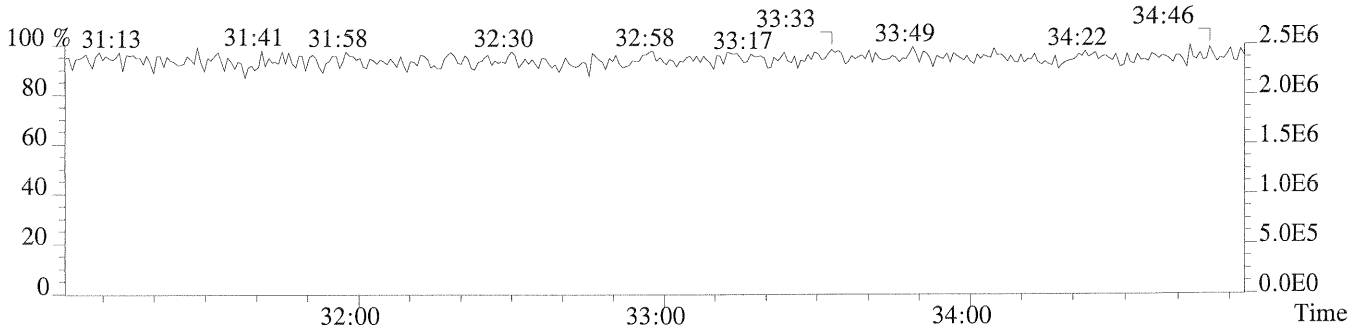
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



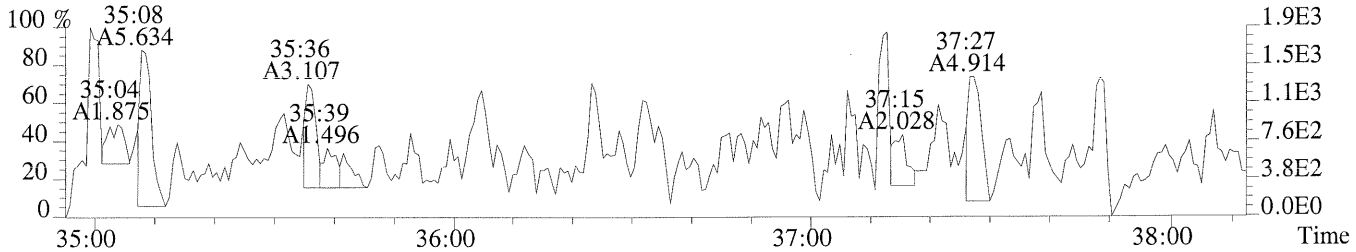
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



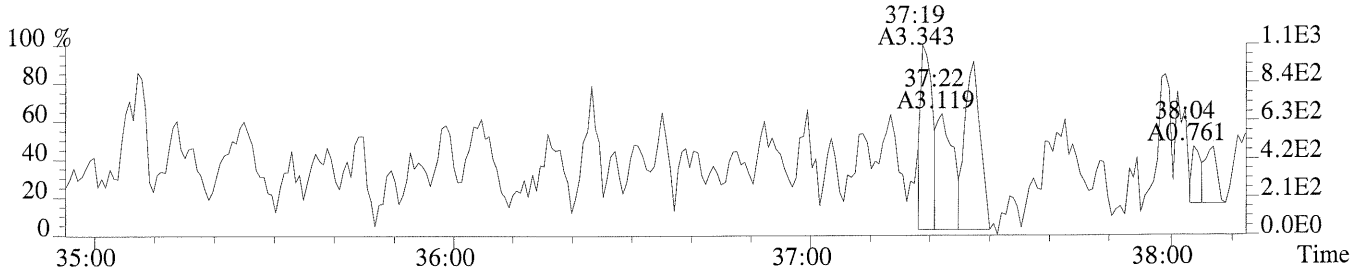
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



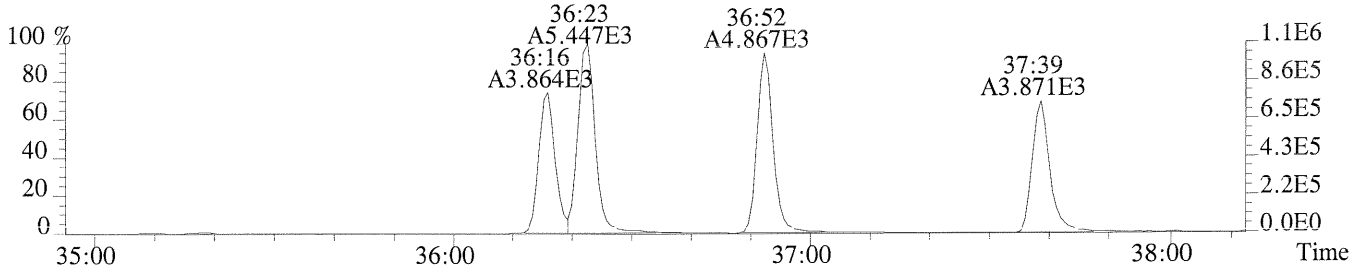
File:U149808 #1-299 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



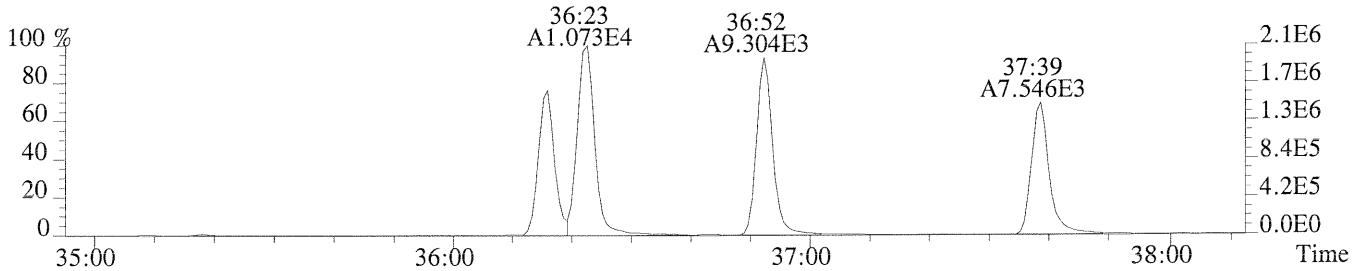
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



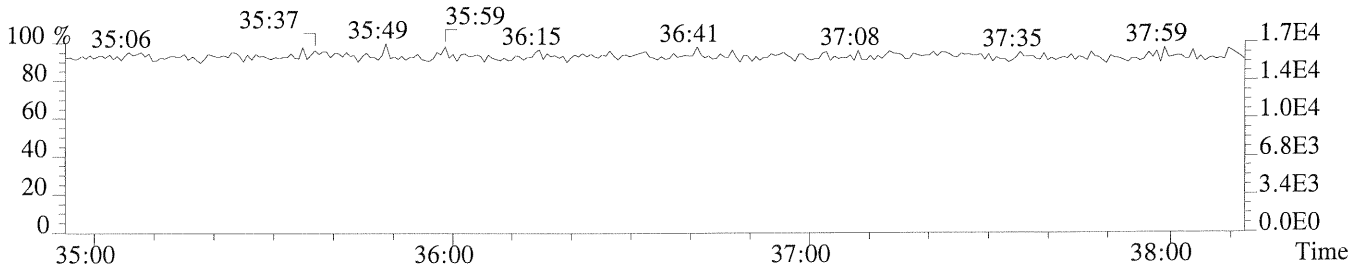
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



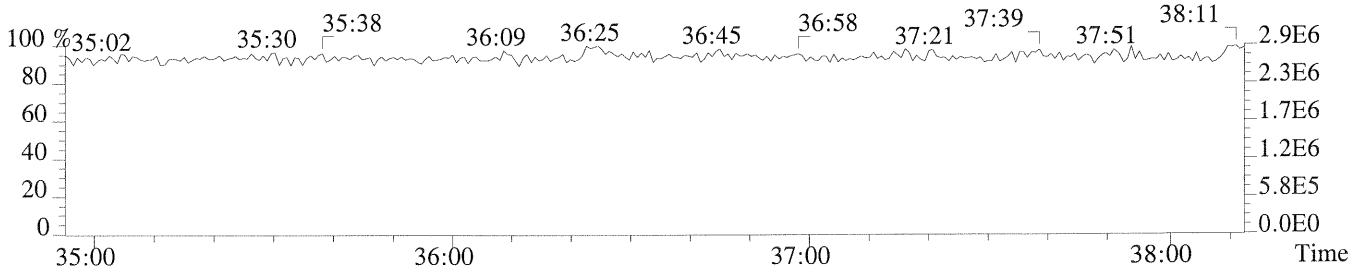
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

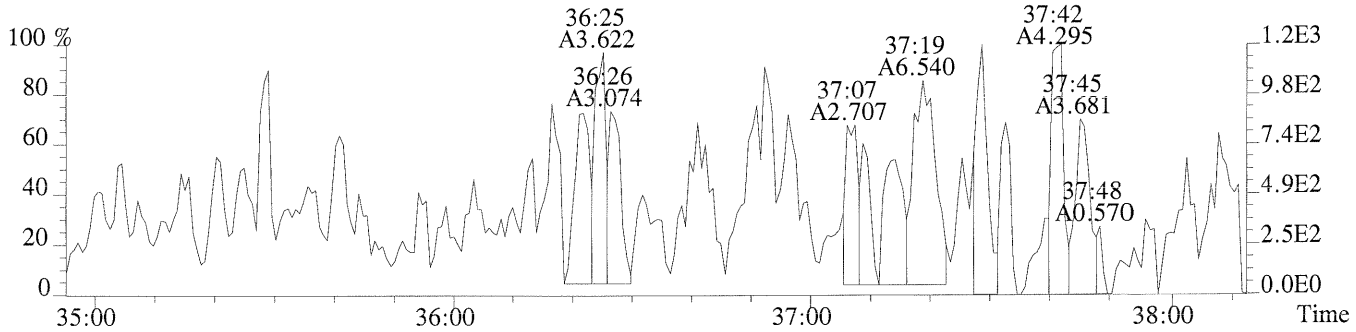


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

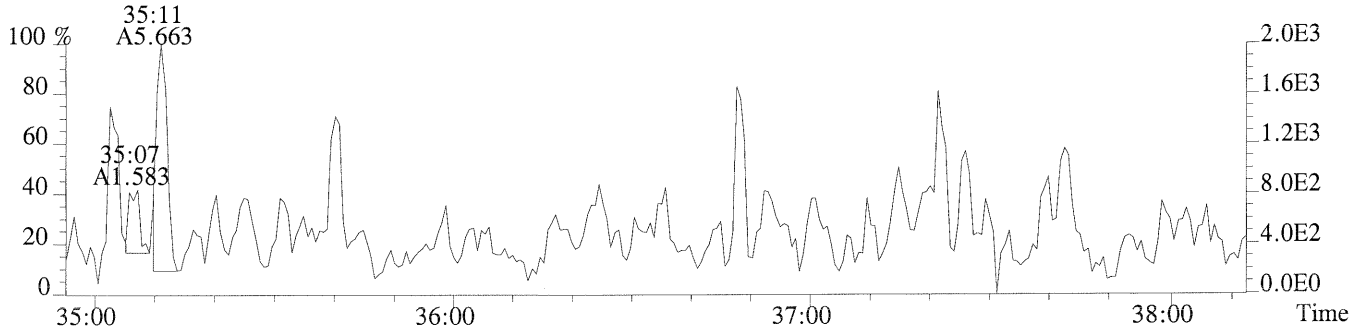


File:U149808 #1-299 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004

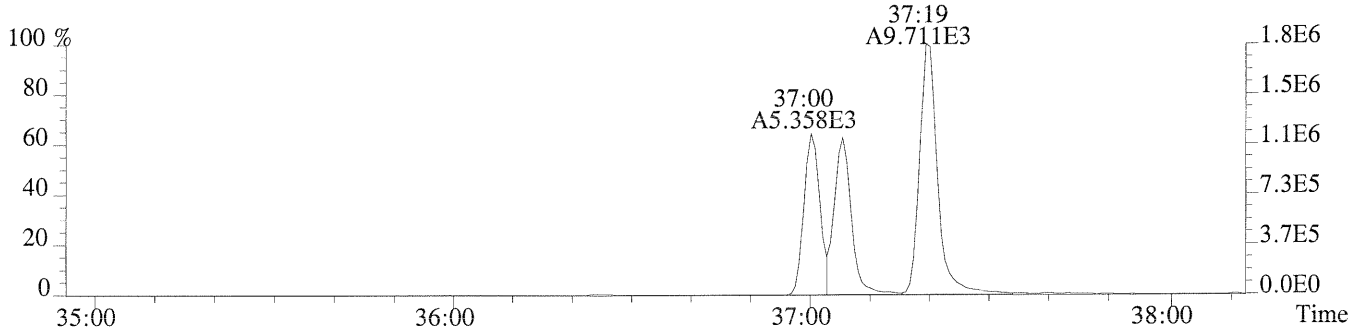
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)



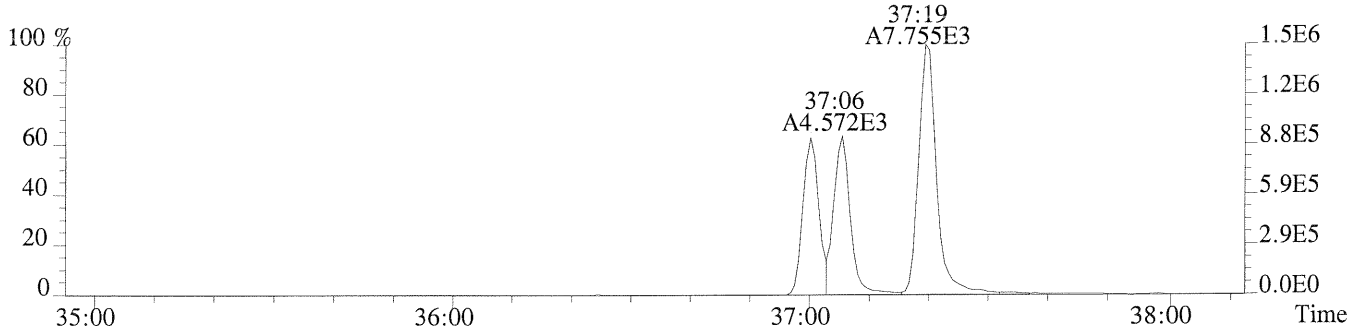
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



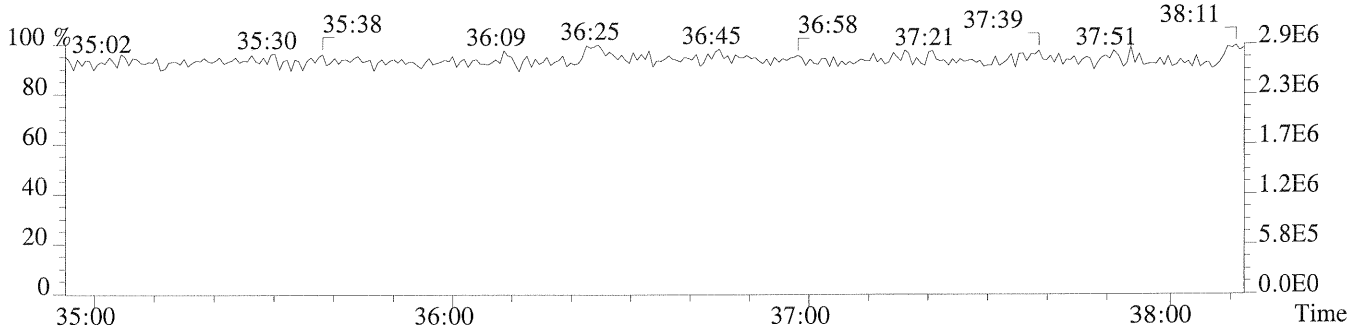
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)

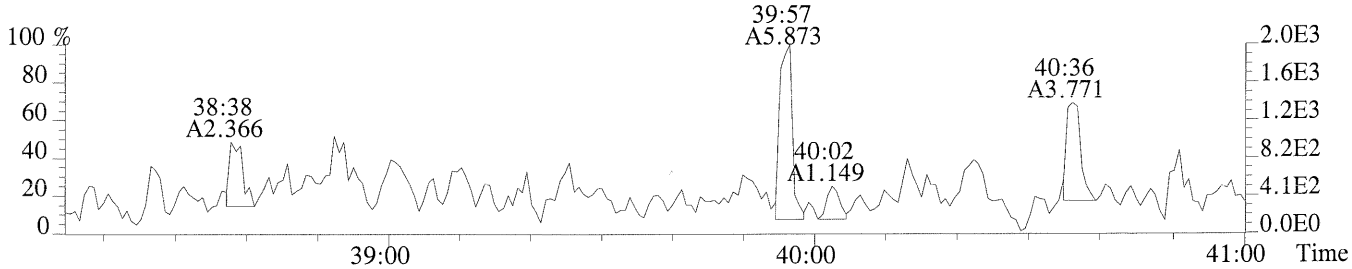


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

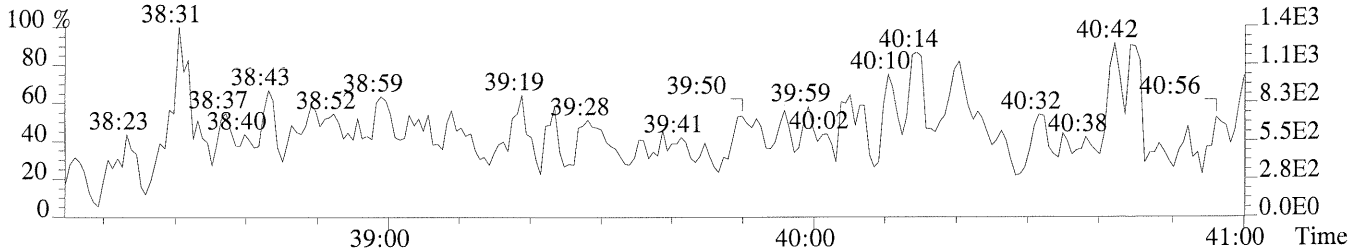


File:U149808 #1-251 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004

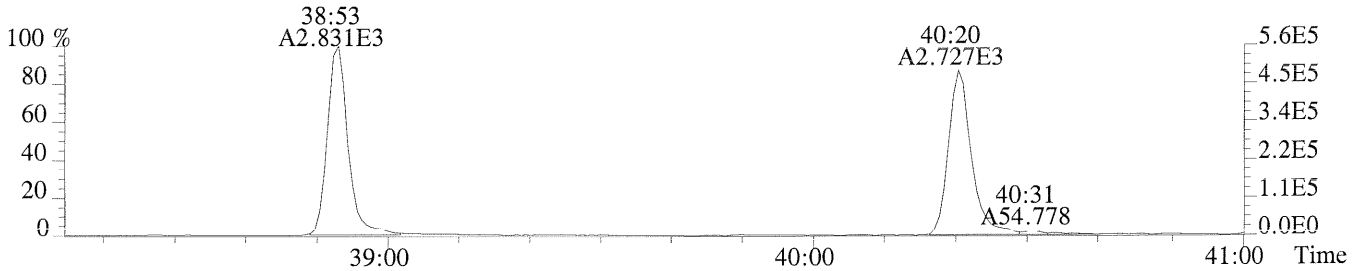
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.50%,F,T)



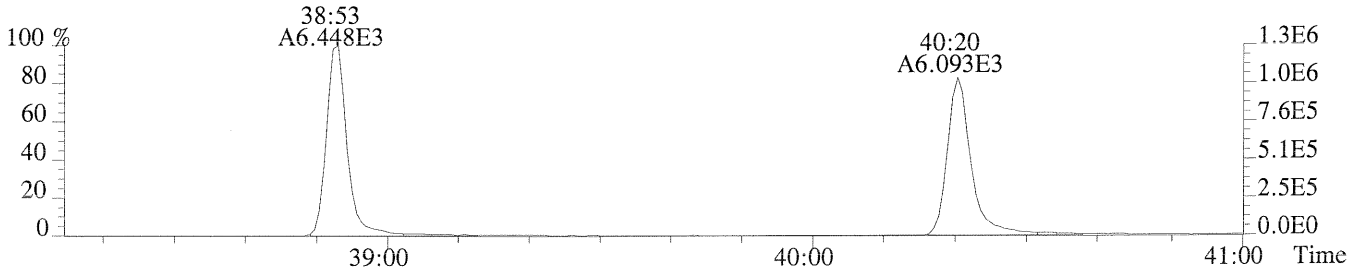
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.50%,F,T)



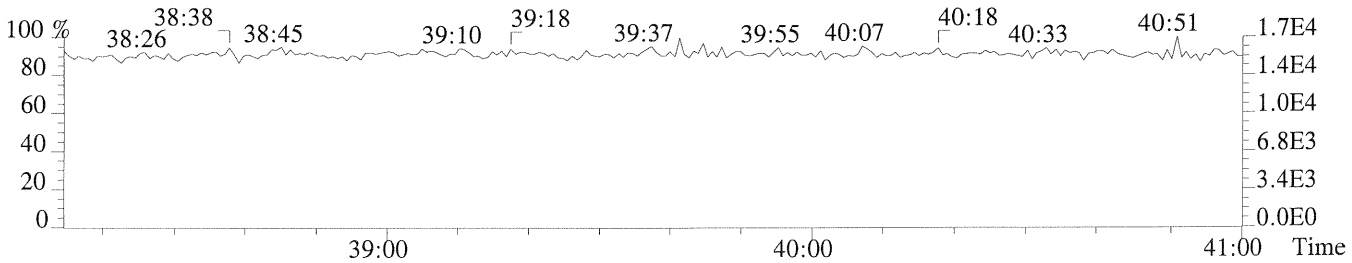
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2500.0,0.50%,F,T)



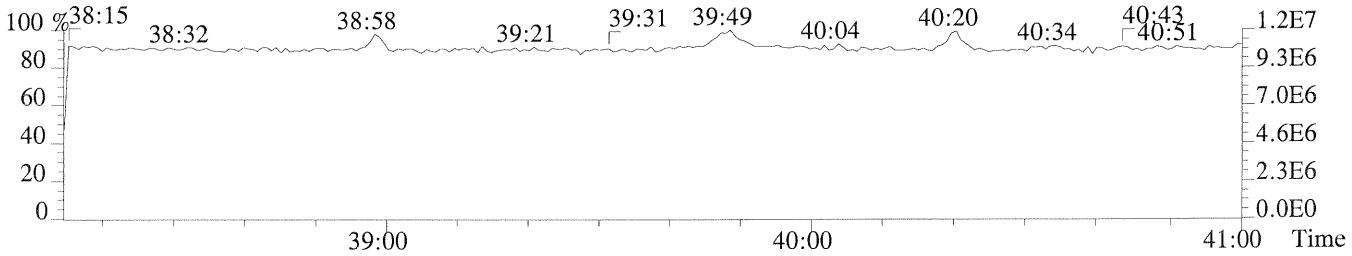
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1372.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

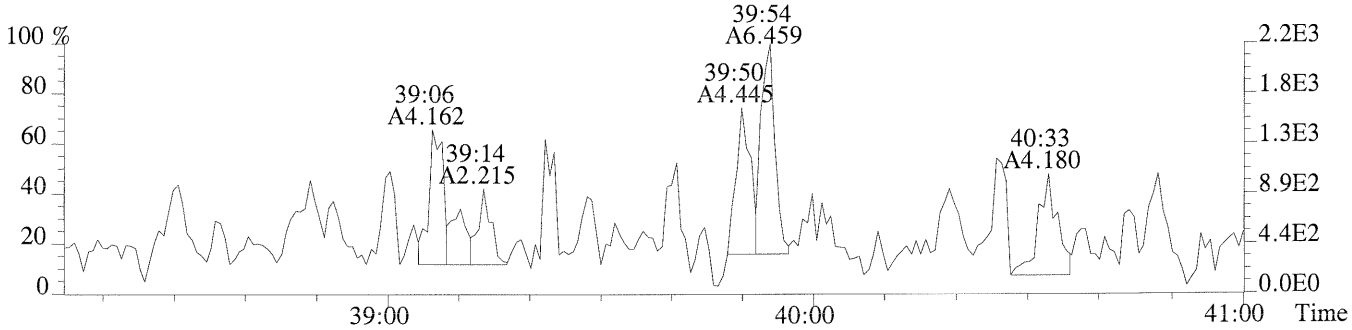


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

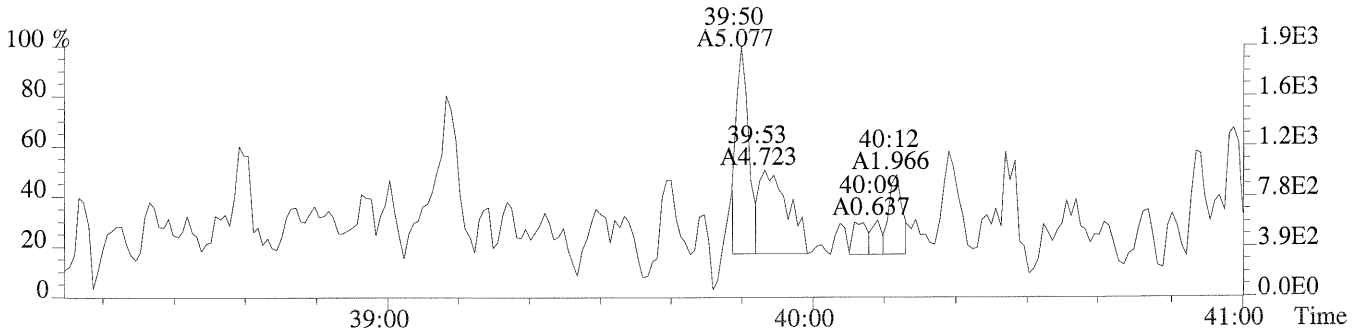


File:U149808 #1-251 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004

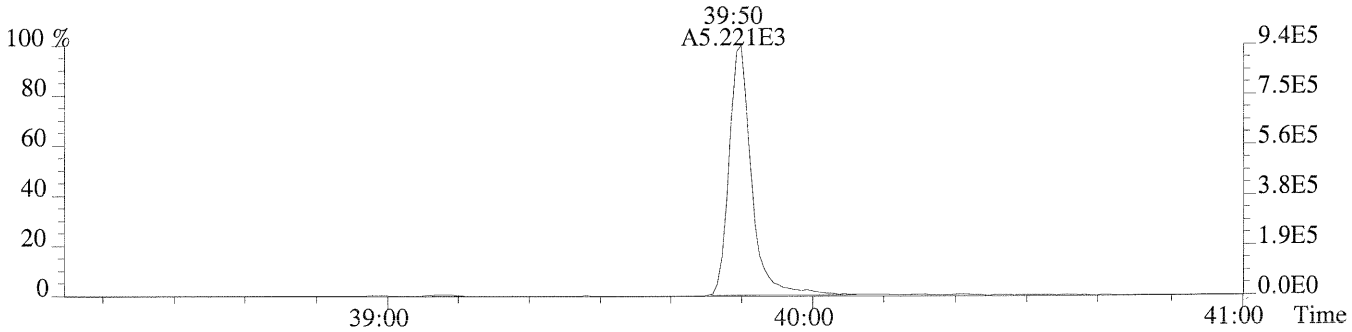
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



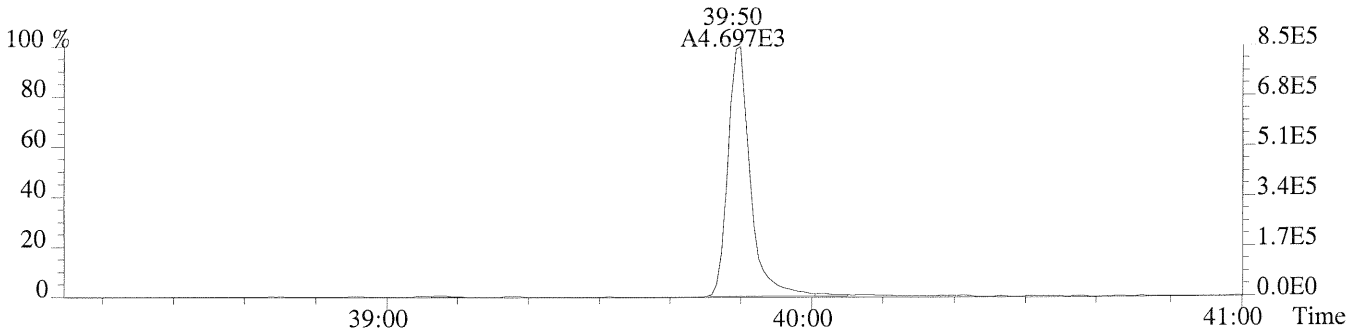
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



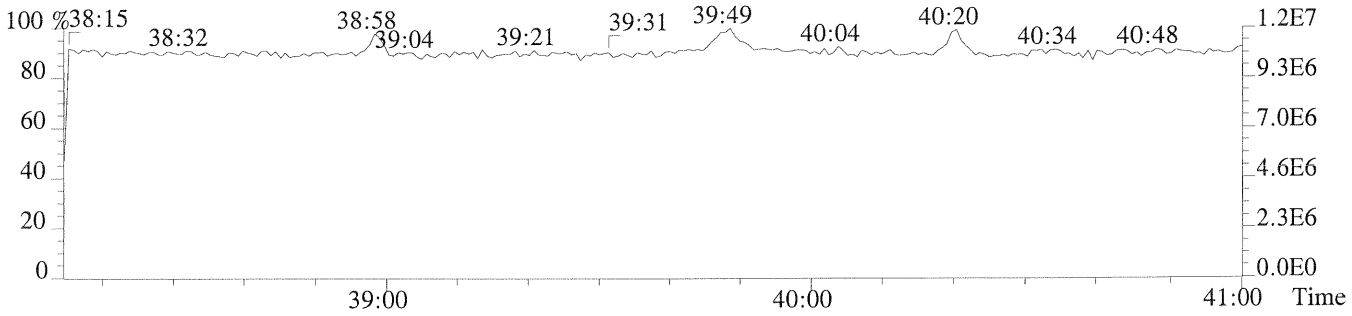
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



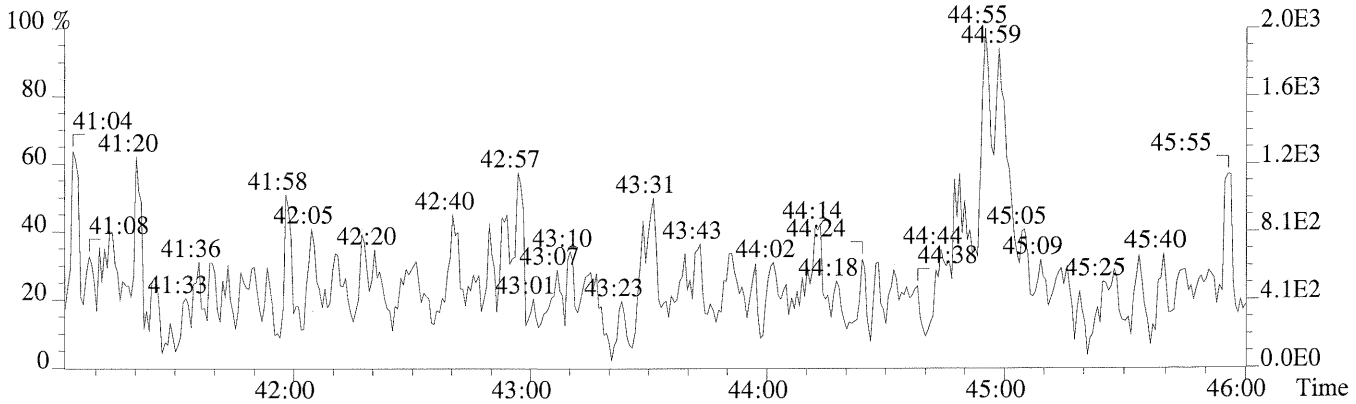
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



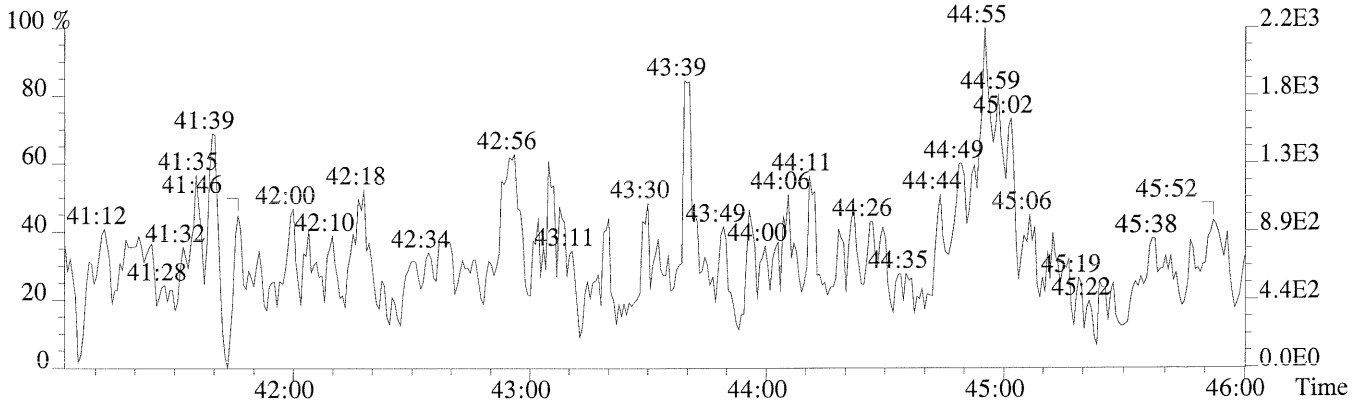
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



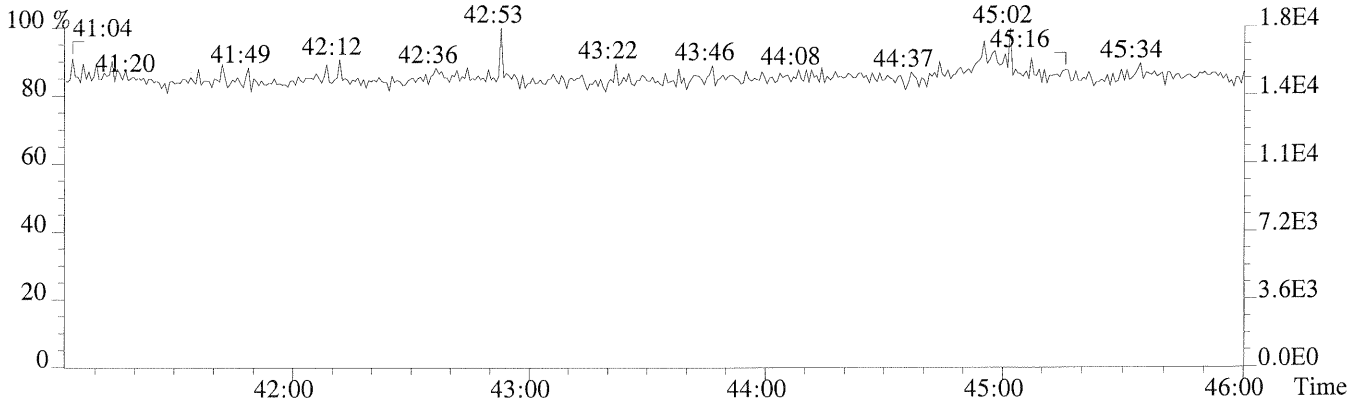
File:U149808 #1-451 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



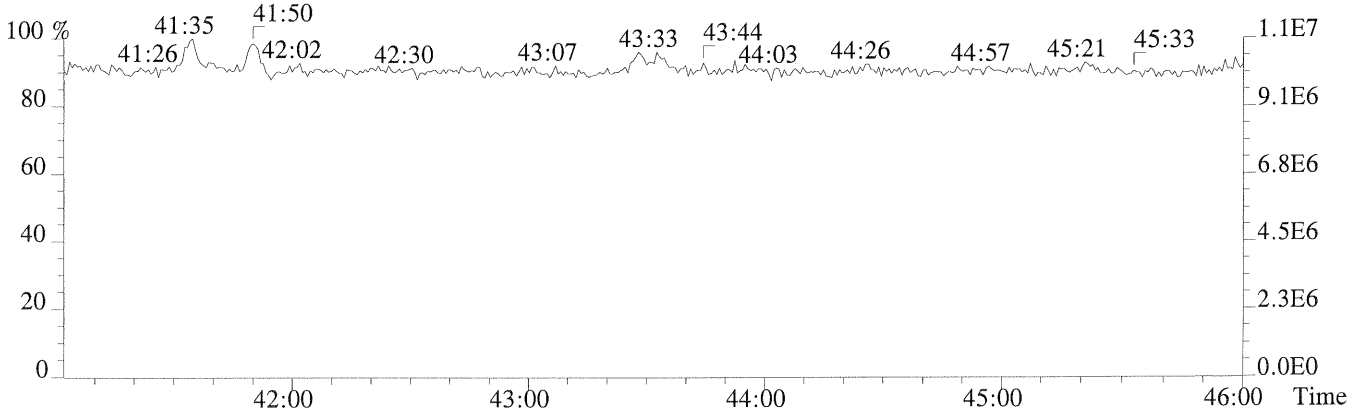
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



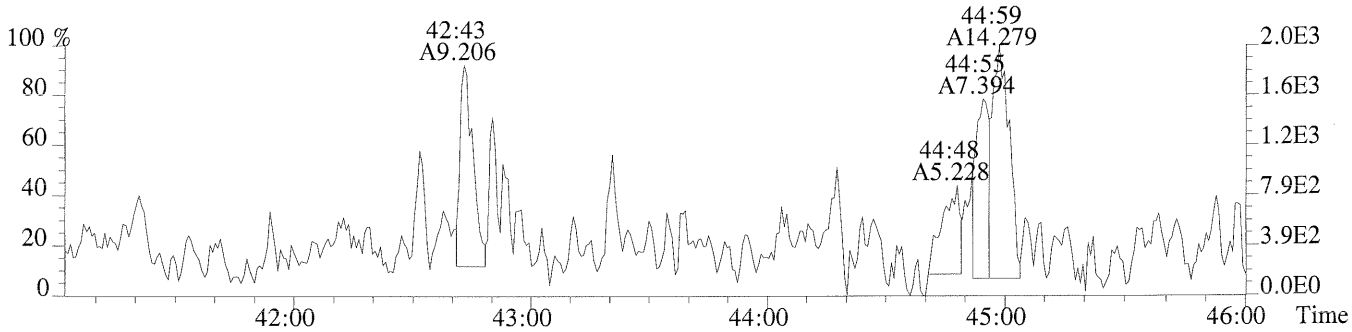
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



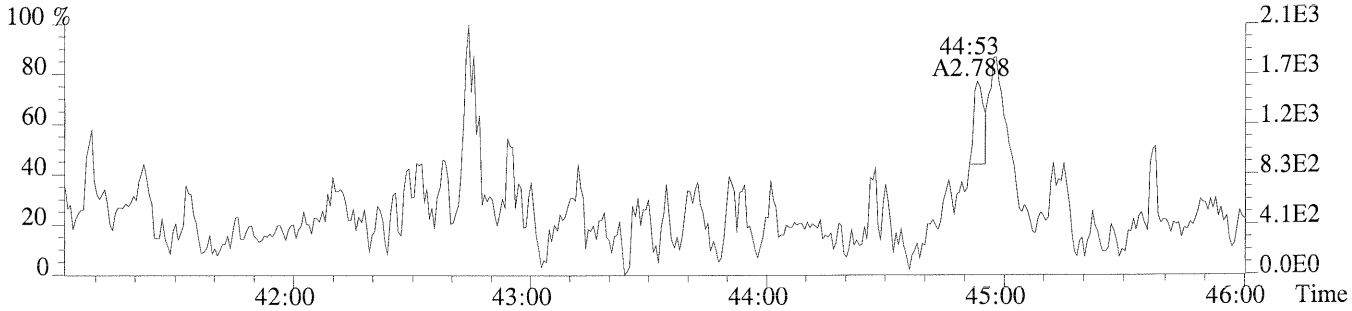
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



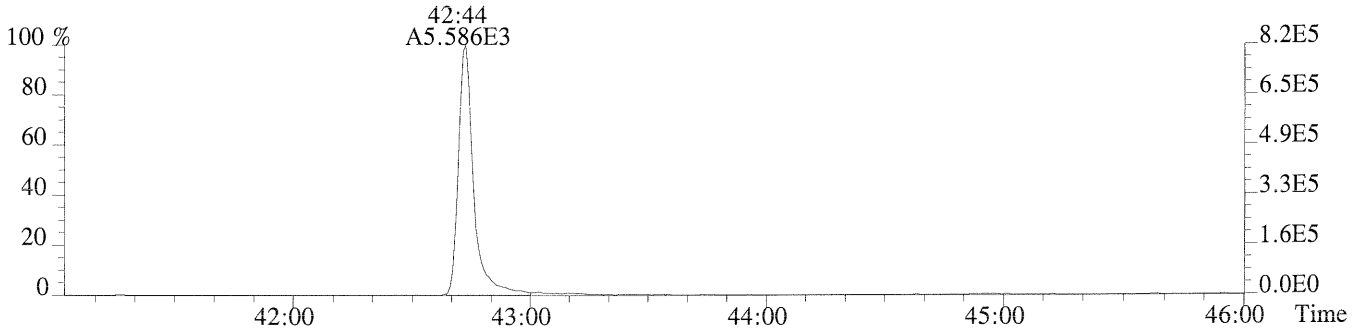
File:U149808 #1-451 Acq: 2-JUL-2014 00:05:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-004
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



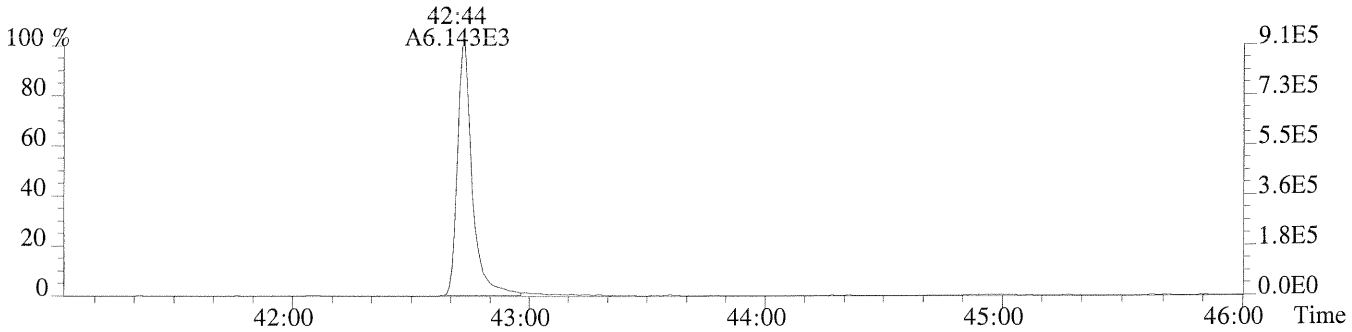
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



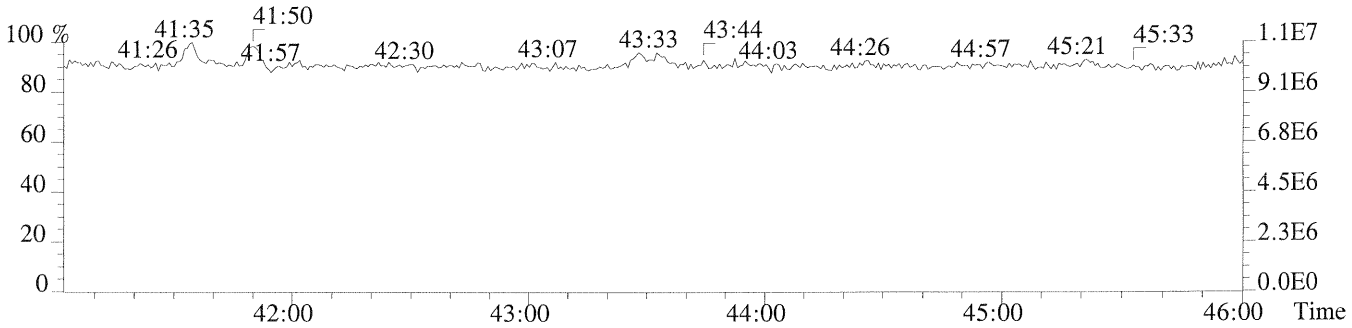
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
1406091749 20

Run #15 Filename U149809 Samp: 1 Inj: 1 Acquired: 2-JUL-14 00:54:26
Processed: 2-JUL-14 12:08:11 Sample ID: R1404651-005

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.358
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:51	3.130e+01	2.679e+01	1.17	yes	no	1.065
17	Unk	OCDD	42:44	1.105e+02	1.334e+02	0.83	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:35	4.784e+03	5.812e+03	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	9.960e+03	6.183e+03	1.61	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	9.242e+03	5.781e+03	1.60	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.853e+03	7.304e+03	0.53	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	5.596e+03	1.055e+04	0.53	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	4.755e+03	9.126e+03	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	3.703e+03	7.171e+03	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	2.947e+03	6.527e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.643e+03	6.148e+03	0.43	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:21	3.412e+03	4.404e+03	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	6.959e+03	4.325e+03	1.61	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	5.246e+03	4.052e+03	1.29	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	5.837e+03	4.422e+03	1.32	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	5.125e+03	4.833e+03	1.06	yes	no	0.936
32	IS	13C-OCDD	42:44	5.702e+03	6.427e+03	0.89	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:46	6.961e+03	8.942e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	1.023e+04	7.868e+03	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.765e+03				no	1.044

$$\text{OCDD} = \frac{(1.105e+02 + 1.334e+02) \times 4000 \text{ pg} \times 1}{(5.702e+03 + 6.427e+03) \times 10.001 \text{ g} \times 98.9 / 100 \times 1.177} = 6.909 \text{ ng/kg}$$

UM 07/03/14

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESPA

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406091749 200-S¶

Run #15 Filename U149809 Samp: 1 Inj: 1 Acquired: 2-JUL-14 00:54:26
Processed: 2-JUL-14 12:08:111 LAB. ID: R1404651-005

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.72e+02	*	*	8.64e+02	*
2	1,2,3,7,8-PeCDF	*	7.60e+02	*	*	9.32e+02	*
3	2,3,4,7,8-PeCDF	*	7.60e+02	*	*	9.32e+02	*
4	1,2,3,4,7,8-HxCDF	*	7.00e+02	*	*	5.00e+02	*
5	1,2,3,6,7,8-HxCDF	*	7.00e+02	*	*	5.00e+02	*
6	2,3,4,6,7,8-HxCDF	*	7.00e+02	*	*	5.00e+02	*
7	1,2,3,7,8,9-HxCDF	*	7.00e+02	*	*	5.00e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	4.44e+02	*	*	6.08e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	4.44e+02	*	*	6.08e+02	*
10	OCDF	*	5.04e+02	*	*	7.92e+02	*
11	2,3,7,8-TCDD	*	7.16e+02	*	*	6.36e+02	*
12	1,2,3,7,8-PeCDD	*	1.12e+03	*	*	9.72e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.36e+02	*	*	6.48e+02	*
14	1,2,3,6,7,8-HxCDD	*	5.36e+02	*	*	6.48e+02	*
15	1,2,3,7,8,9-HxCDD	*	5.36e+02	*	*	6.48e+02	*
16	1,2,3,4,6,7,8-HpCDD	5.48e+03	7.60e+02	7.2e+00	4.96e+03	5.32e+02	9.3e+00
17	OCDD	1.66e+04	5.84e+02	2.8e+01	1.86e+04	6.52e+02	2.9e+01
18	13C-2,3,7,8-TCDF	9.44e+05	1.22e+03	7.7e+02	1.14e+06	6.44e+02	1.8e+03
19	13C-1,2,3,7,8-PeCDF	1.82e+06	8.24e+02	2.2e+03	1.14e+06	1.86e+03	6.1e+02
20	13C-2,3,4,7,8-PeCDF	1.82e+06	8.24e+02	2.2e+03	1.14e+06	1.86e+03	6.1e+02
21	13C-1,2,3,4,7,8-HxCDF	8.08e+05	6.00e+02	1.3e+03	1.57e+06	1.04e+03	1.5e+03
22	13C-1,2,3,6,7,8-HxCDF	1.07e+06	6.00e+02	1.8e+03	2.08e+06	1.04e+03	2.0e+03
23	13C-2,3,4,6,7,8-HxCDF	9.82e+05	6.00e+02	1.6e+03	1.87e+06	1.04e+03	1.8e+03
24	13C-1,2,3,7,8,9-HxCDF	7.28e+05	6.00e+02	1.2e+03	1.44e+06	1.04e+03	1.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.89e+05	1.30e+03	4.5e+02	1.31e+06	1.39e+03	9.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.86e+05	1.30e+03	3.8e+02	1.11e+06	1.39e+03	7.9e+02
27	13C-2,3,7,8-TCDD	7.33e+05	2.08e+03	3.5e+02	9.51e+05	1.08e+03	8.8e+02
28	13C-1,2,3,7,8-PeCDD	1.36e+06	7.16e+02	1.9e+03	8.36e+05	7.64e+02	1.1e+03
29	13C-1,2,3,4,7,8-HxCDD	1.16e+06	9.36e+02	1.2e+03	8.89e+05	7.32e+02	1.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.13e+06	9.36e+02	1.2e+03	8.60e+05	7.32e+02	1.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.00e+06	7.12e+02	1.4e+03	9.20e+05	1.06e+03	8.7e+02
32	13C-OCDD	8.34e+05	6.08e+02	1.4e+03	9.18e+05	6.80e+02	1.4e+03
33	13C-1,2,3,4-TCDD	1.44e+06	2.08e+03	6.9e+02	1.87e+06	1.08e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.98e+06	9.36e+02	2.1e+03	1.49e+06	7.32e+02	2.0e+03
35	37Cl-2,3,7,8-TCDD	5.75e+05	7.48e+02	7.7e+02			

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office:(713)266-1599. Fax:(713)266-0130

ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406091749 200-S

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 15 File: U149809 Sample: 1 Injection: 1 Function: 4
Llim: 39:05 Ulim: 40:02
Acquired: 2-JUL-14 00:54:26 Processed: 2-JUL-14 12:08:11
Mass: 423.7770 425.7740 Tot Response: 5.81e+01 RRF: 1.065

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:51	3.13e+01	2.68e+01 1.17	yes	5.81e+01	1,2,3,4,6,7,8-HpCDD	n	n

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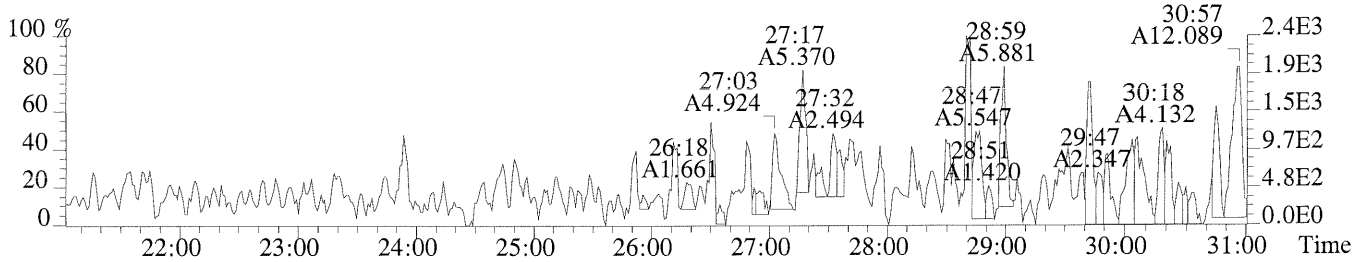
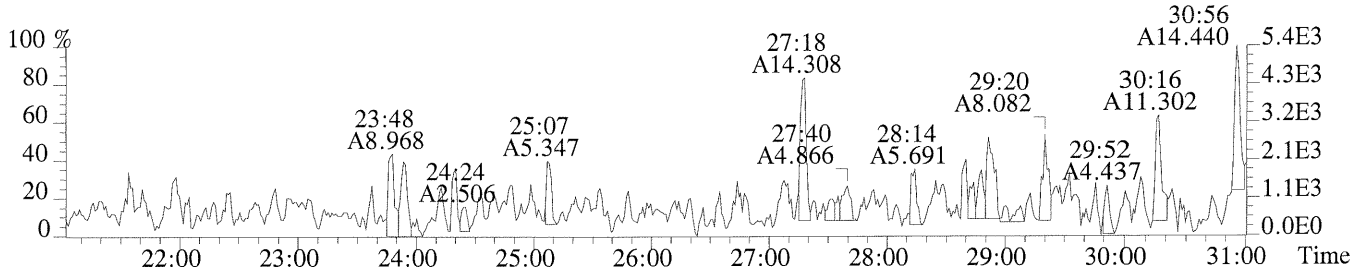
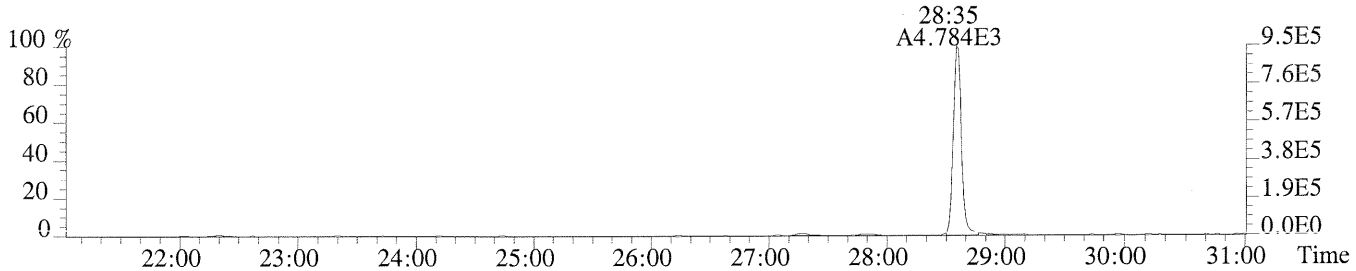
File:U149809 #1-627 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



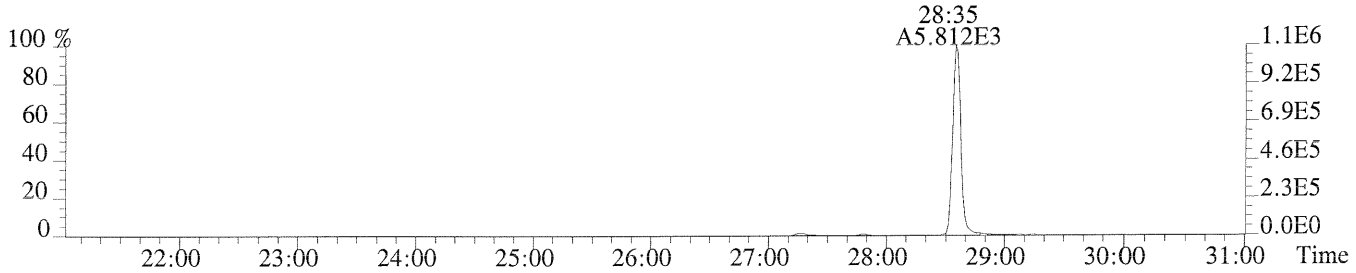
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



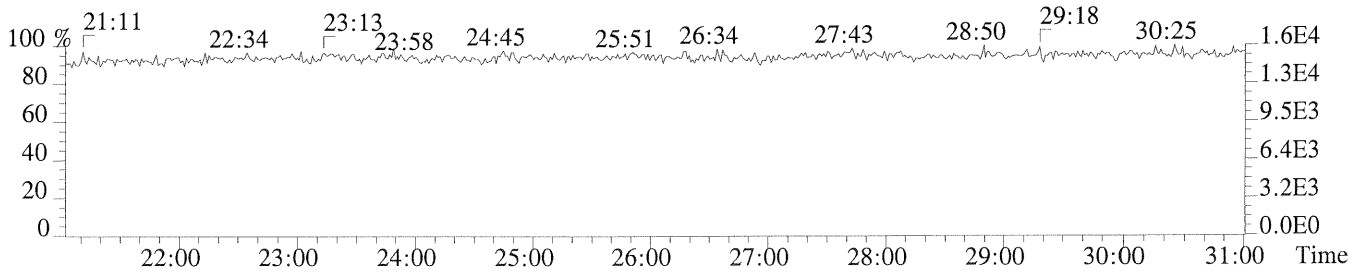
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1220.0,1.00%,F,T)



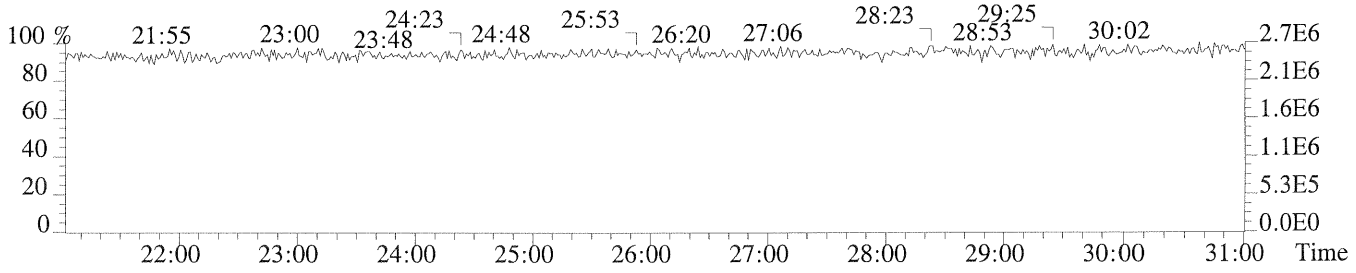
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

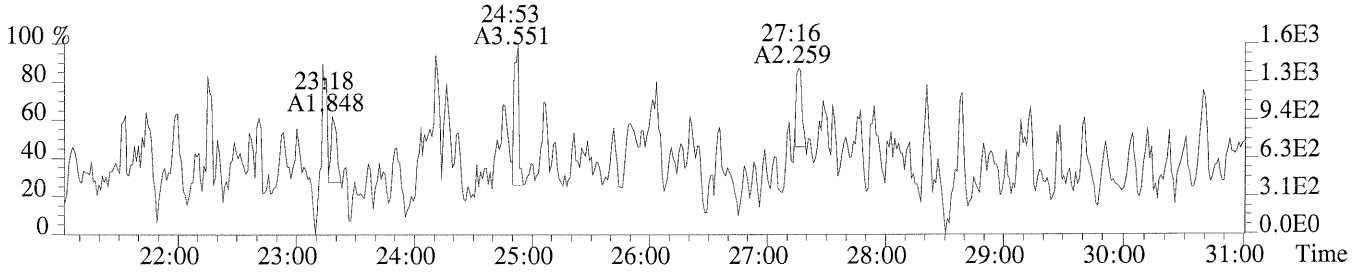


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

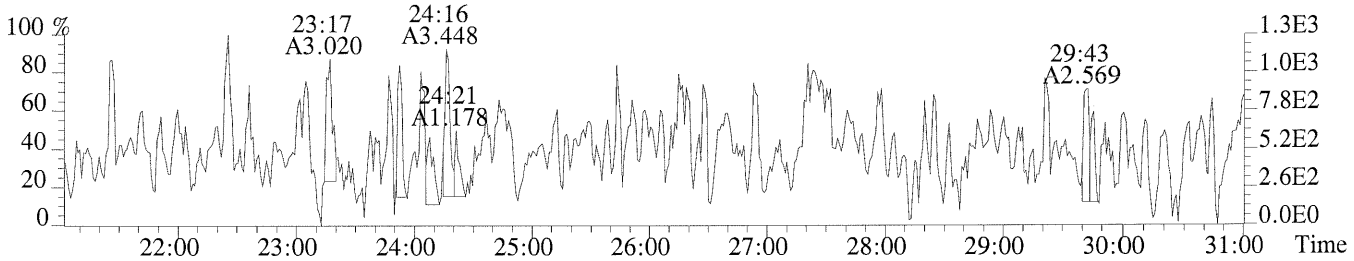


File:U149809 #1-627 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005

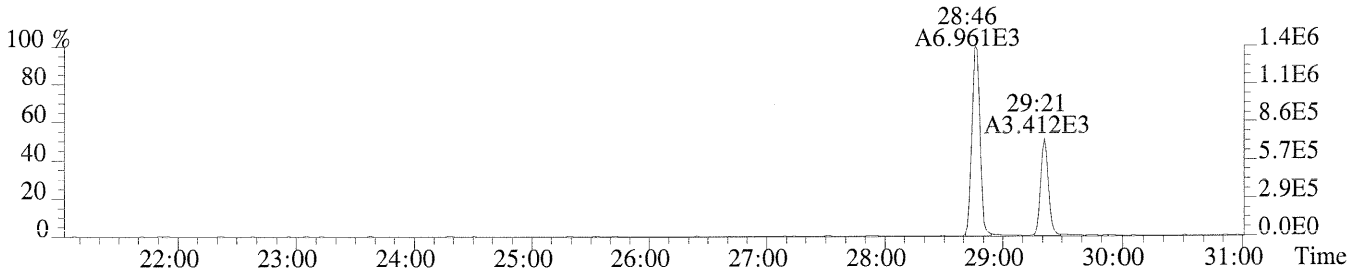
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



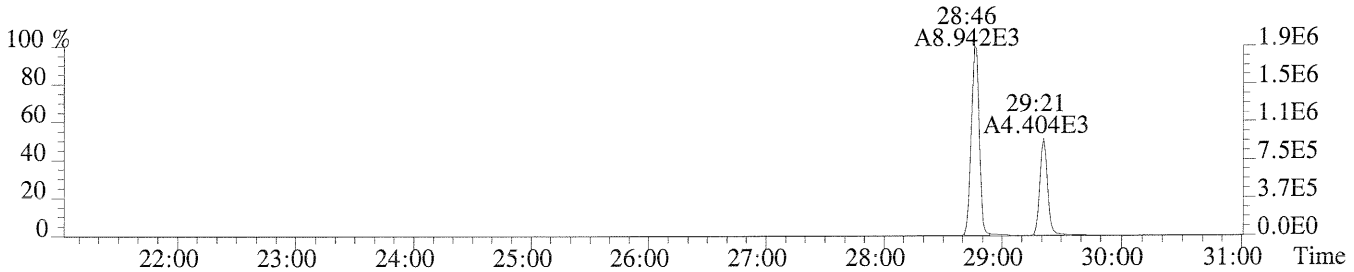
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



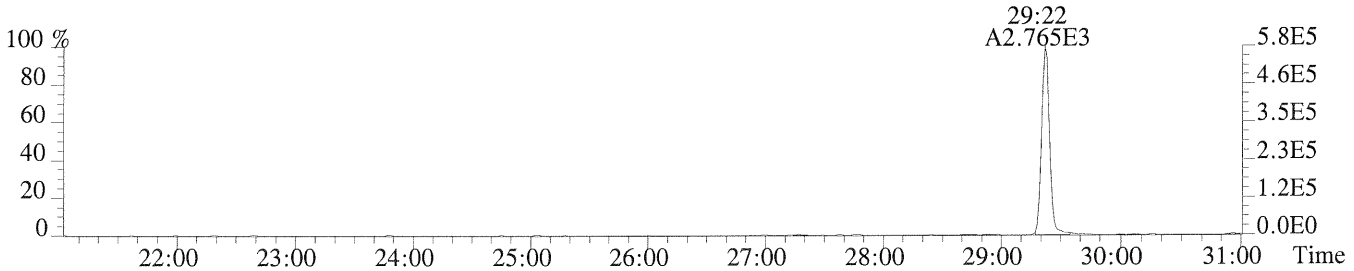
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)



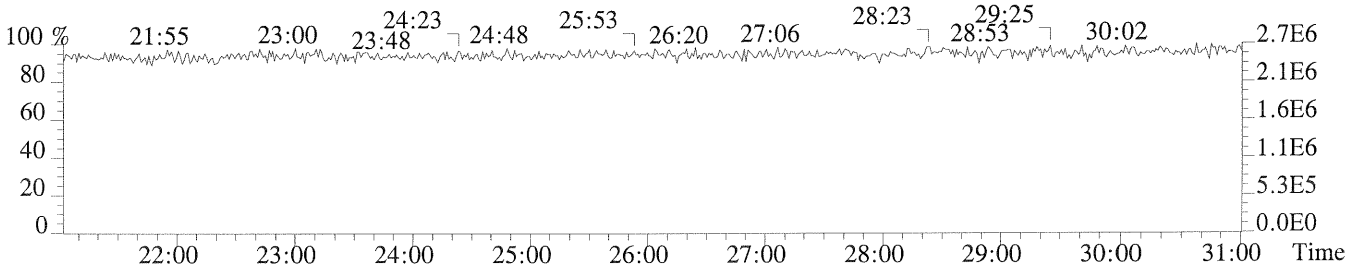
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)

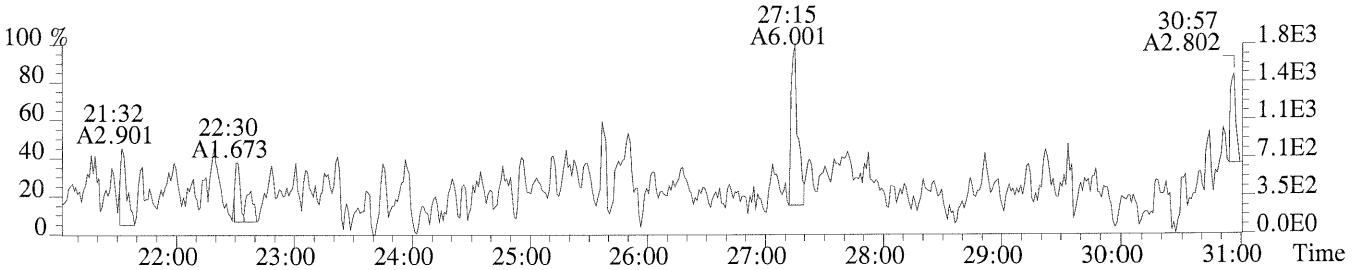


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

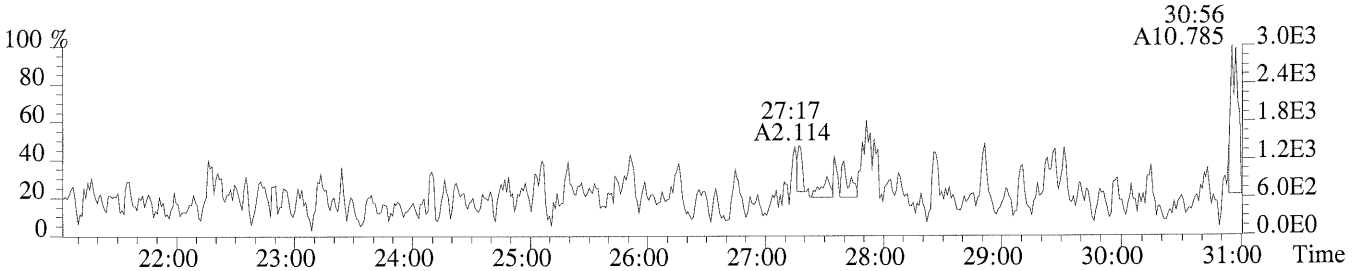


File:U149809 #1-627 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005

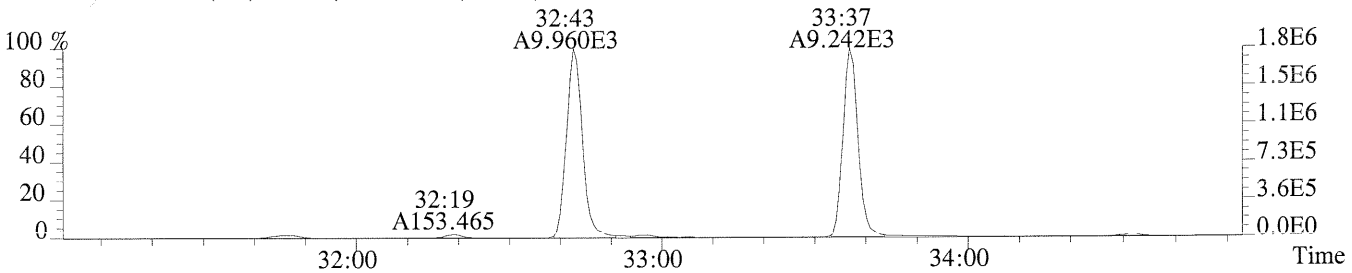
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



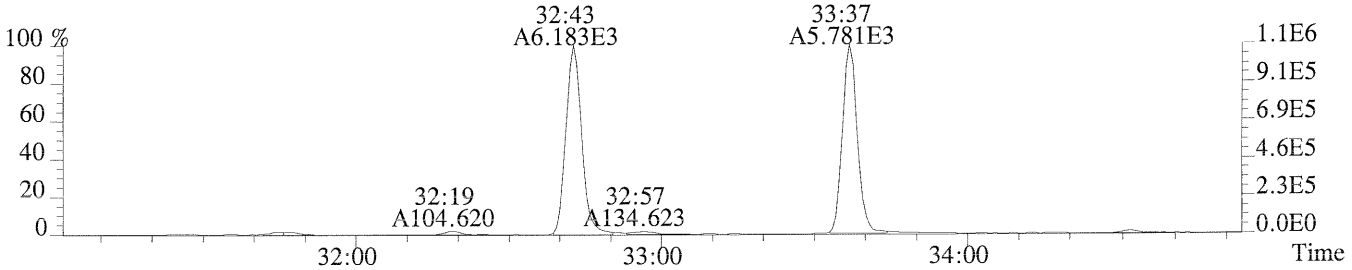
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



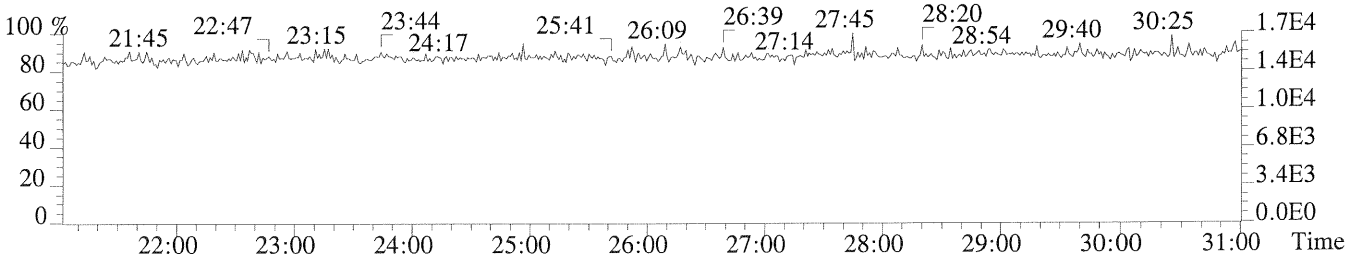
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



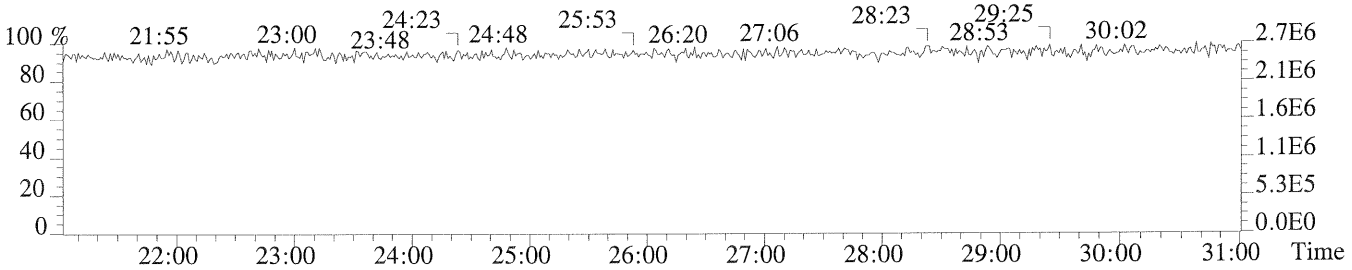
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



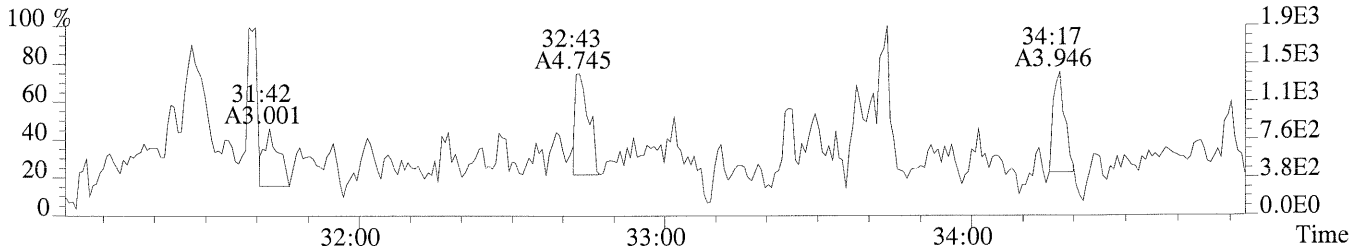
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



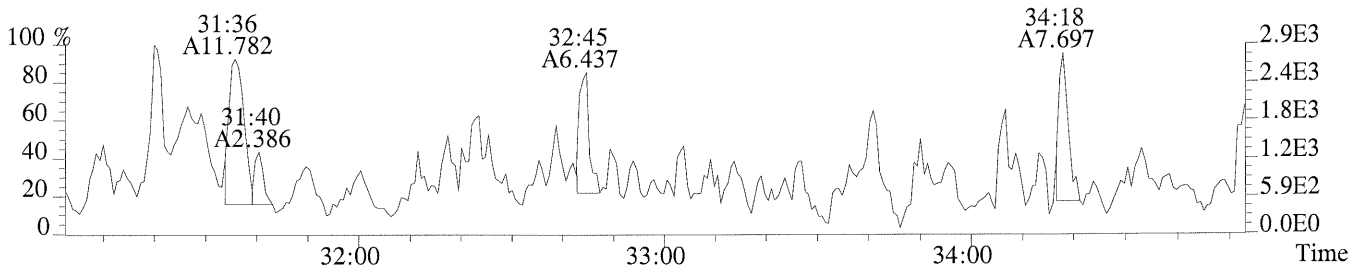
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



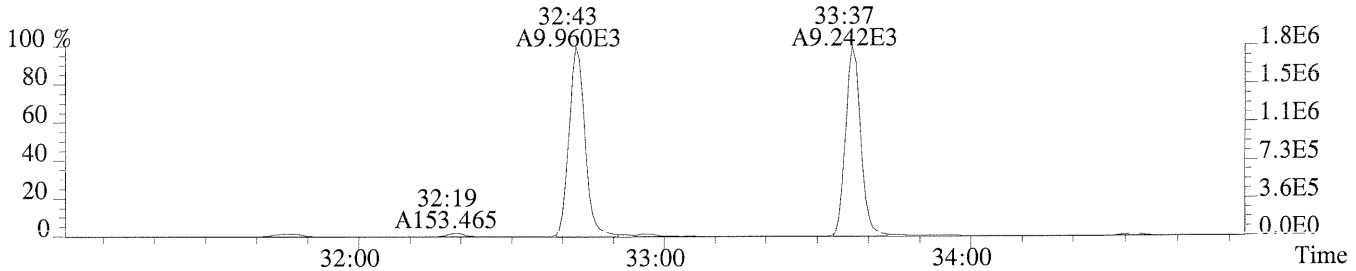
File:U149809 #1-349 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



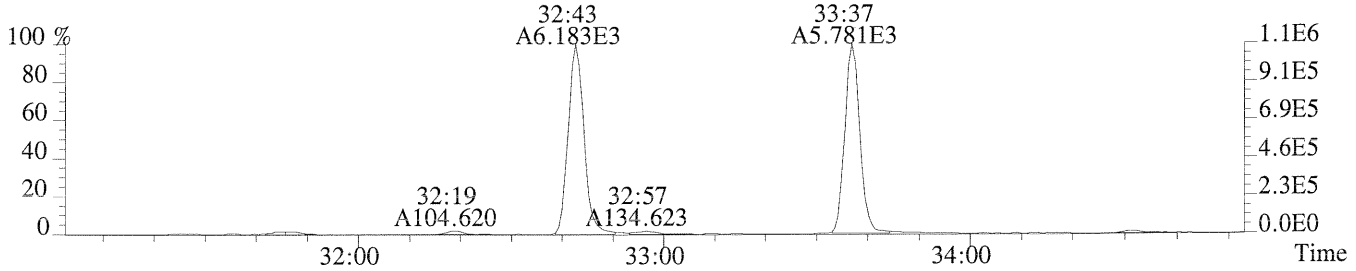
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



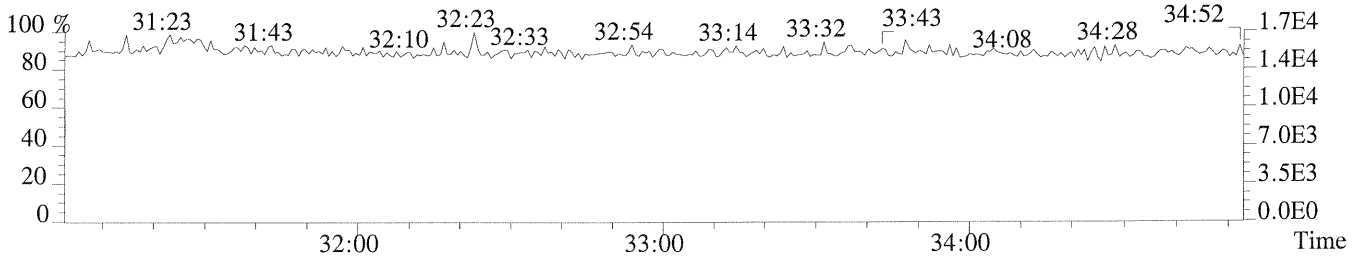
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,824.0,1.00%,F,T)



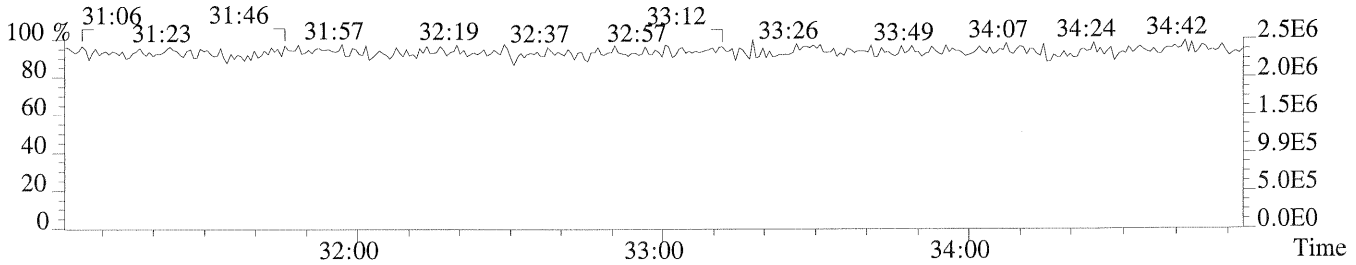
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1864.0,1.00%,F,T)



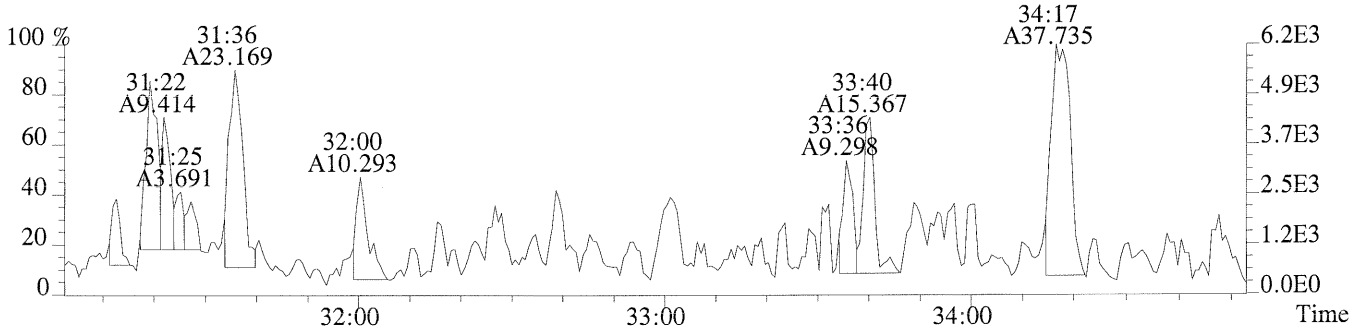
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



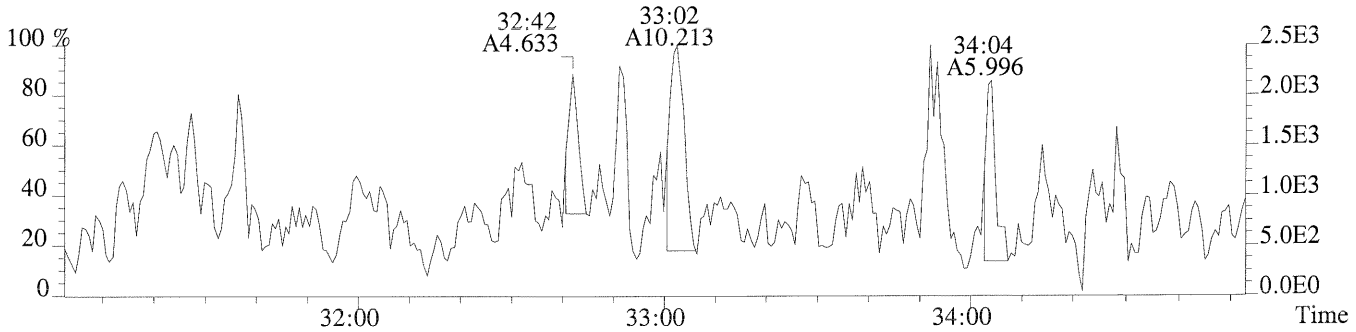
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



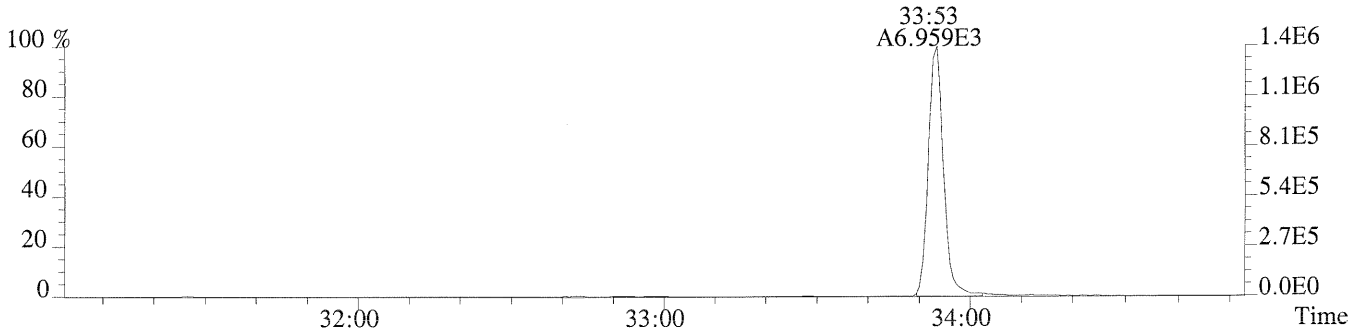
File:U149809 #1-349 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



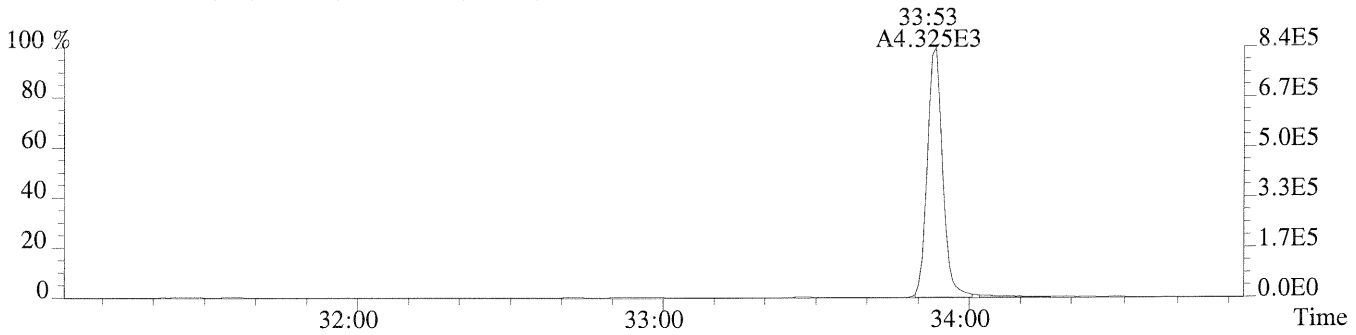
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,972.0,1.00%,F,T)



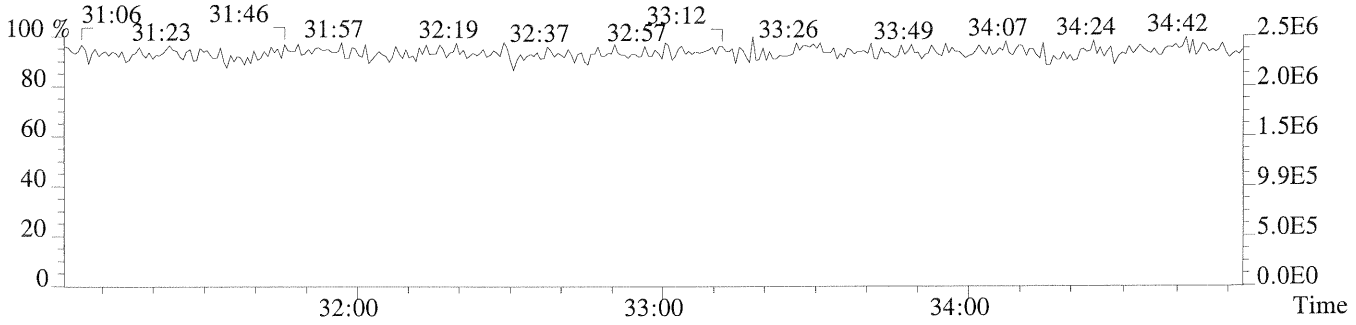
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)

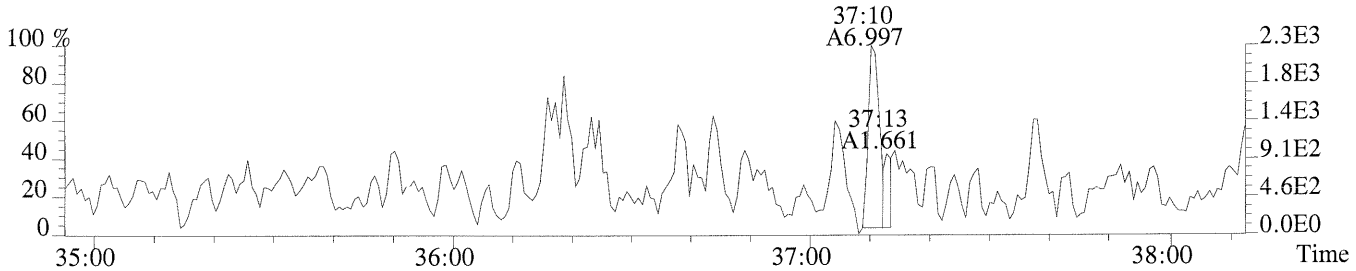


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

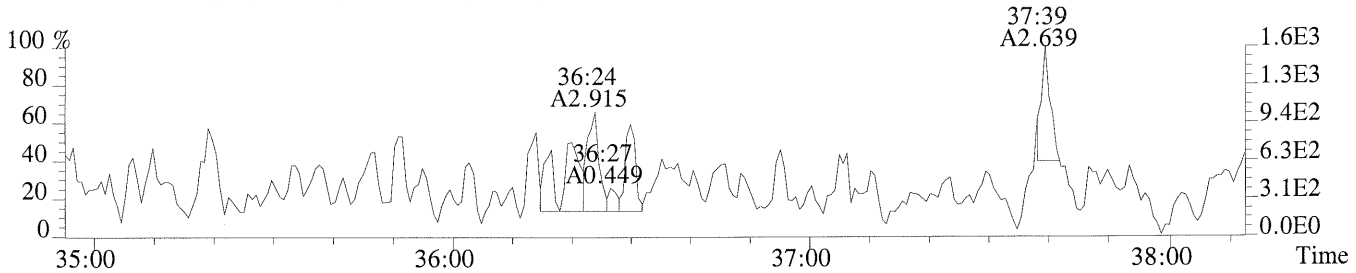


File:U149809 #1-299 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005

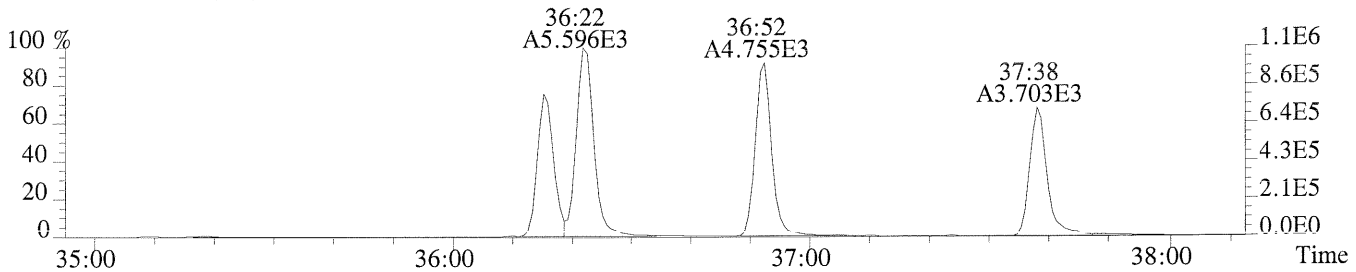
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



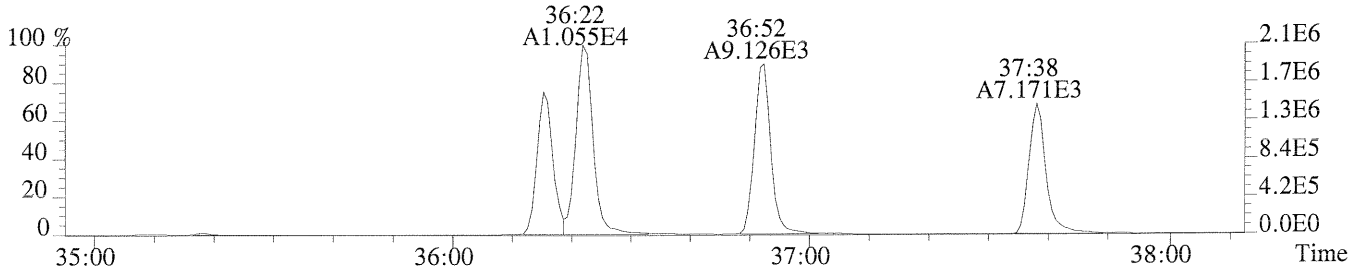
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



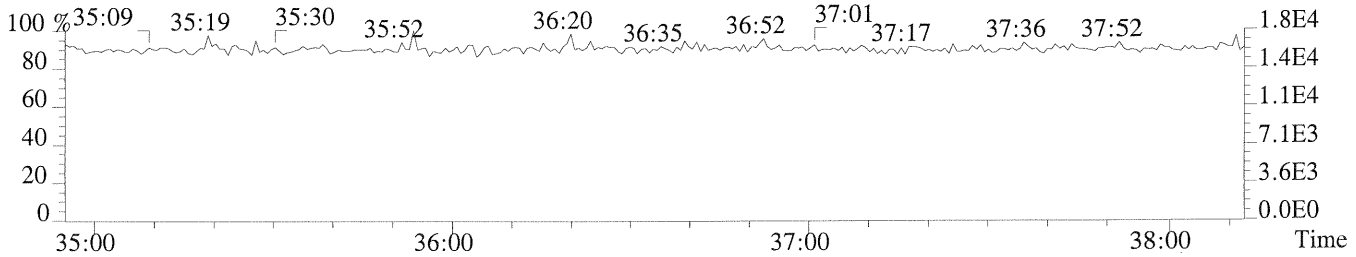
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



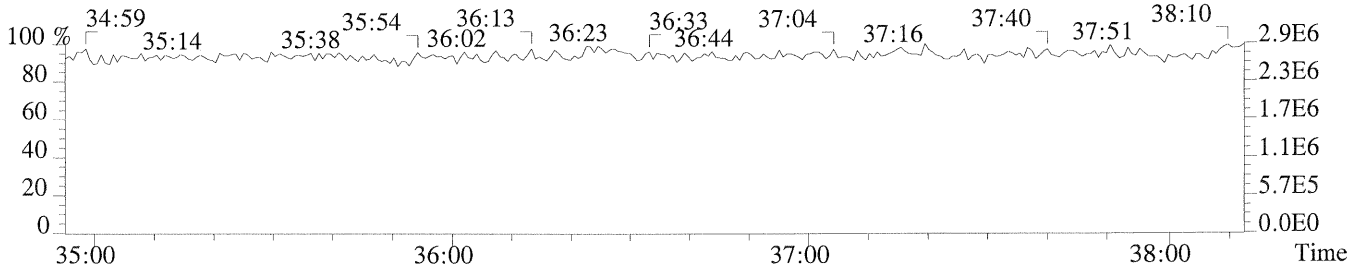
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1036.0,0.40%,F,T)



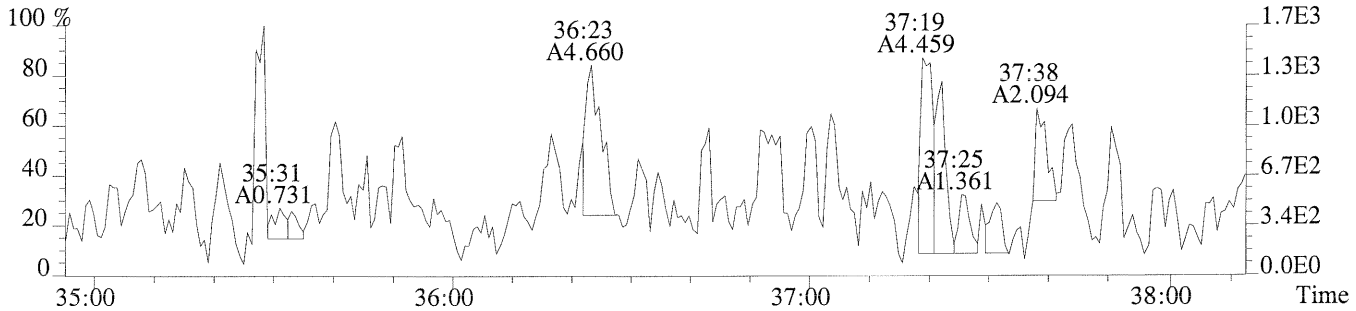
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



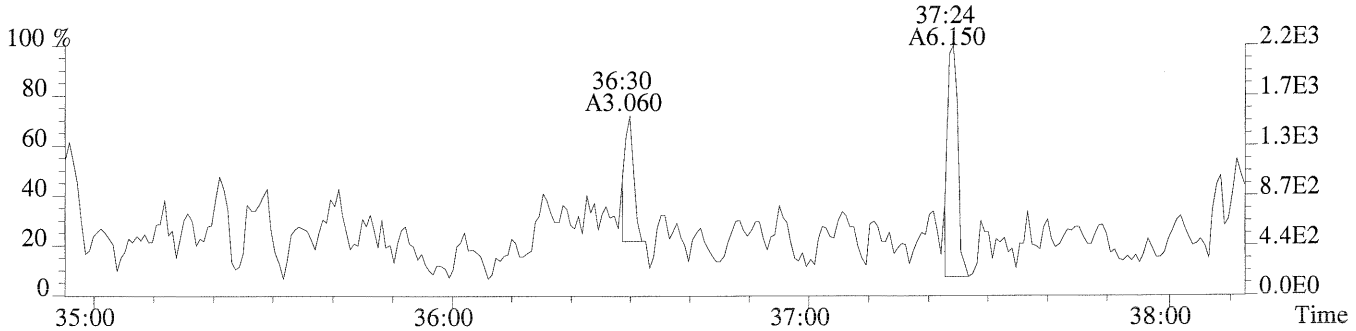
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



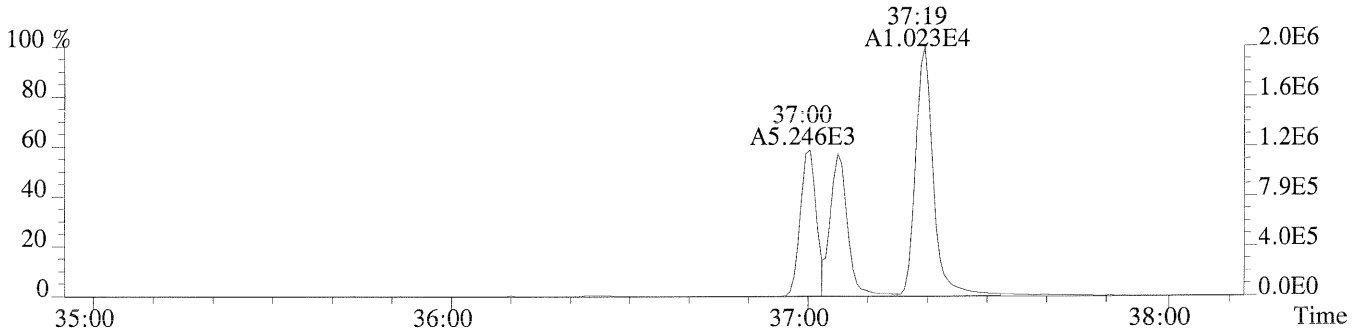
File:U149809 #1-299 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



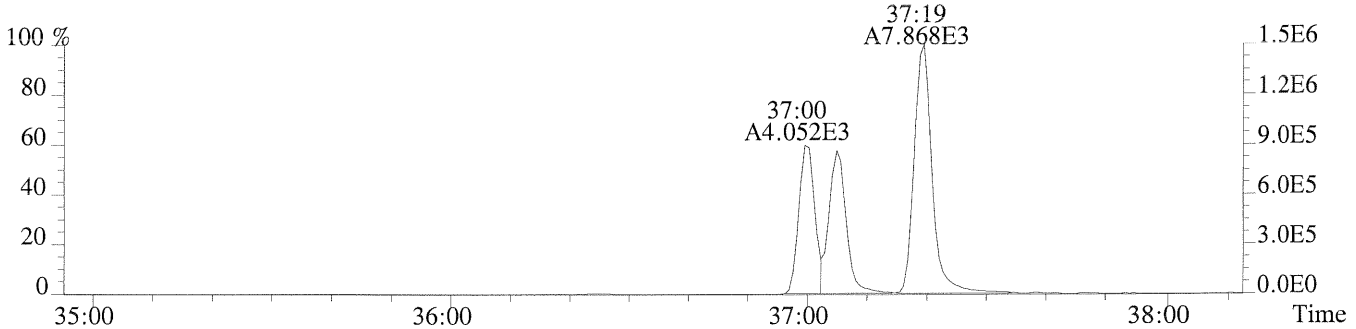
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



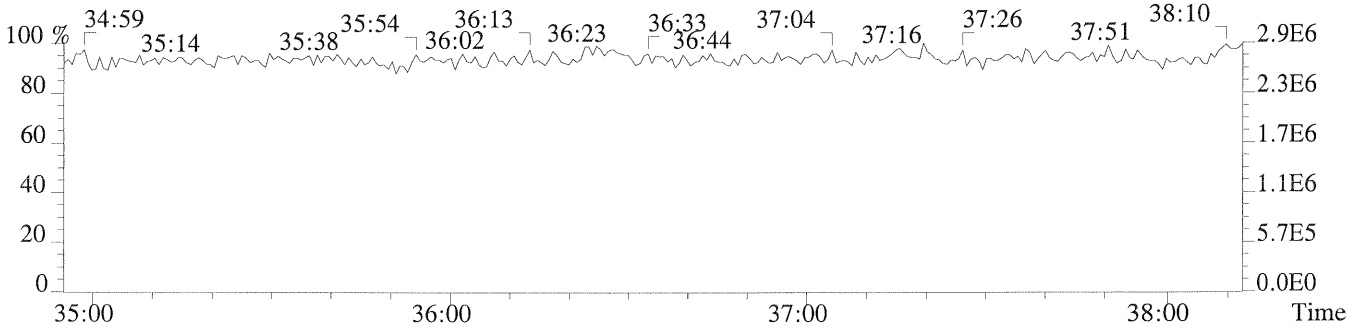
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,936.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)

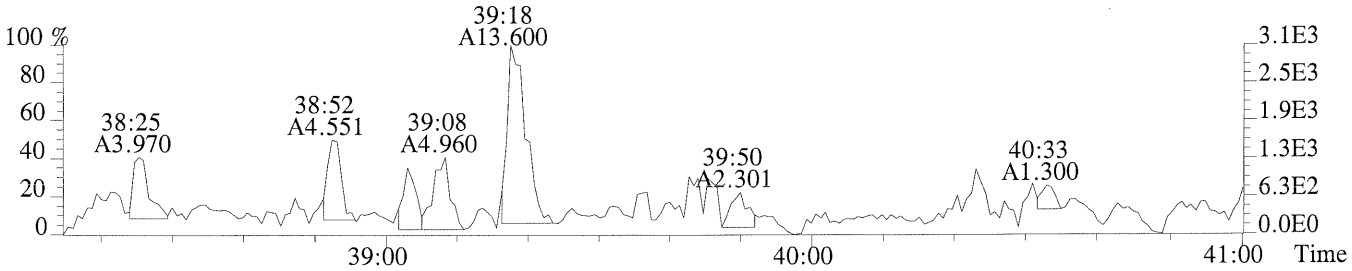


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

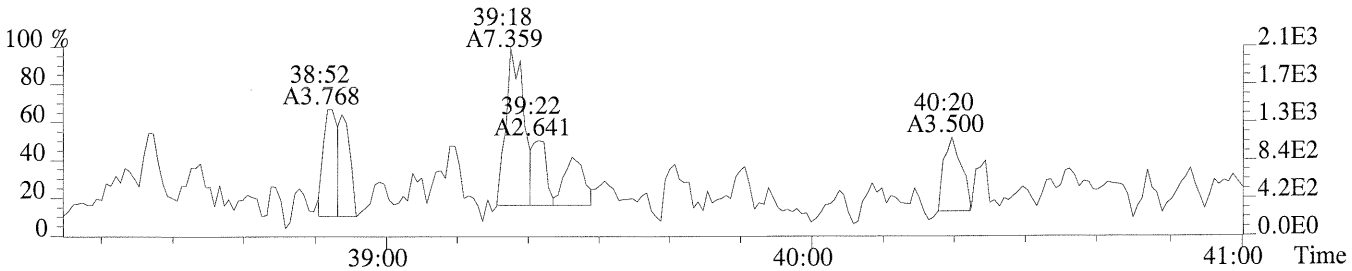


File:U149809 #1-251 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005

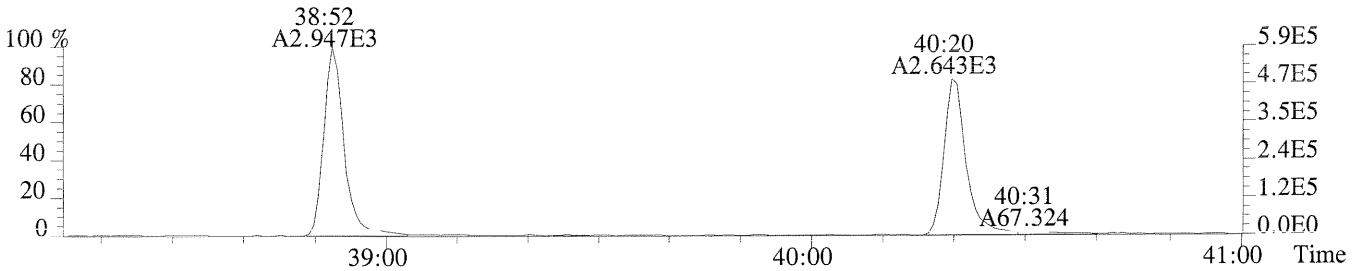
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,444.0,0.50%,F,T)



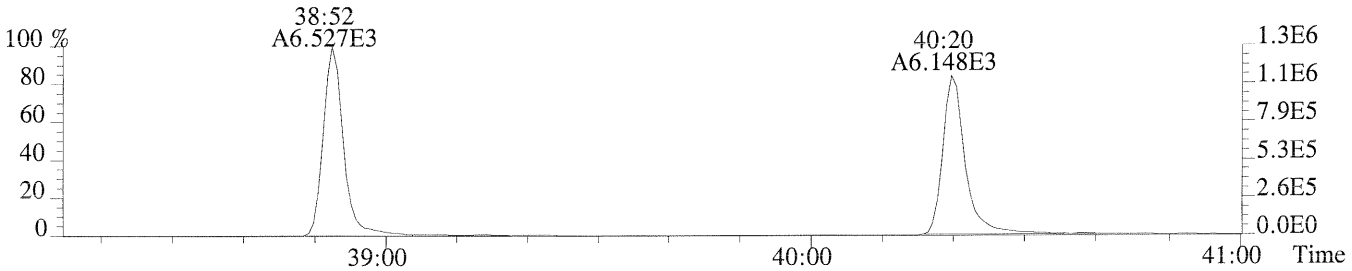
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.50%,F,T)



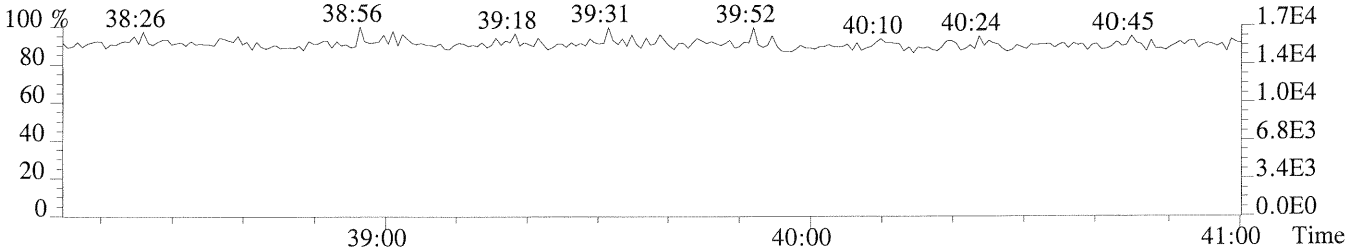
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.50%,F,T)



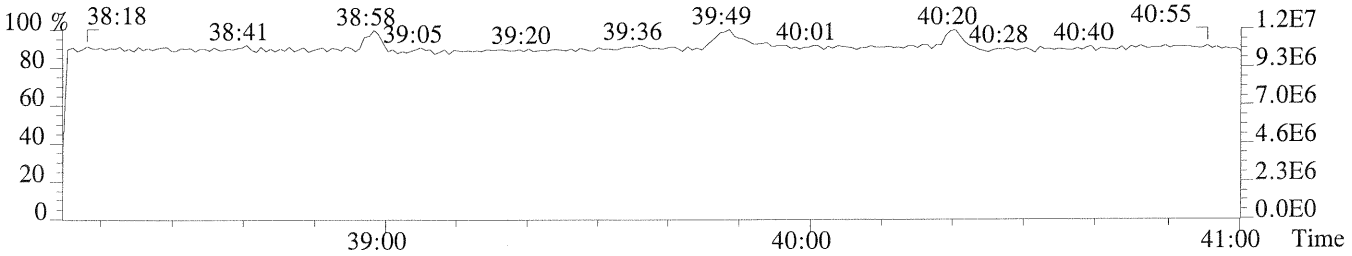
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

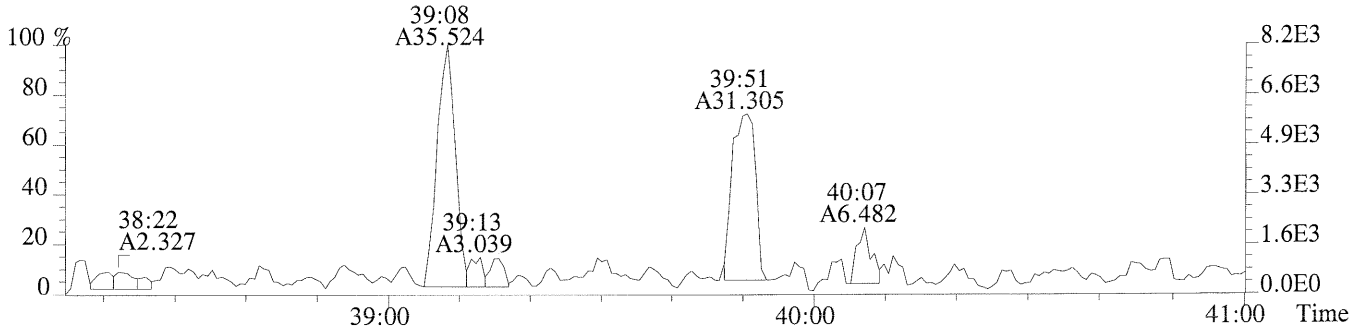


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

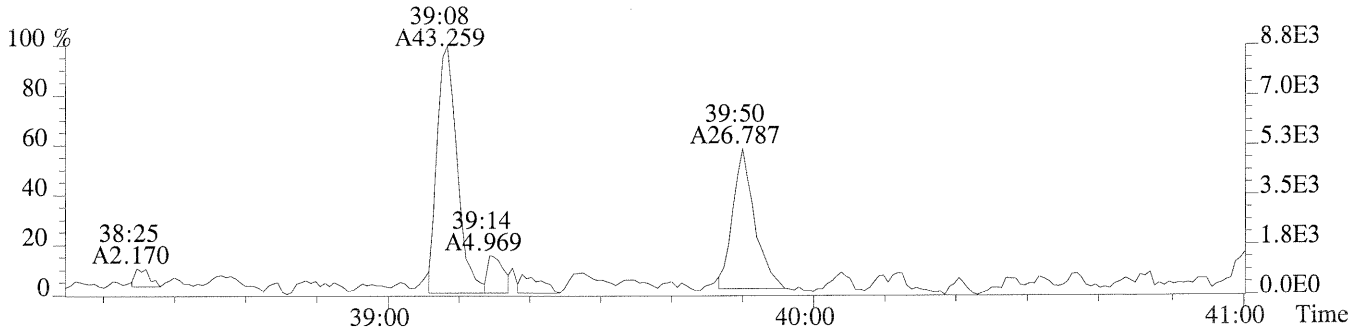


File:U149809 #1-251 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005

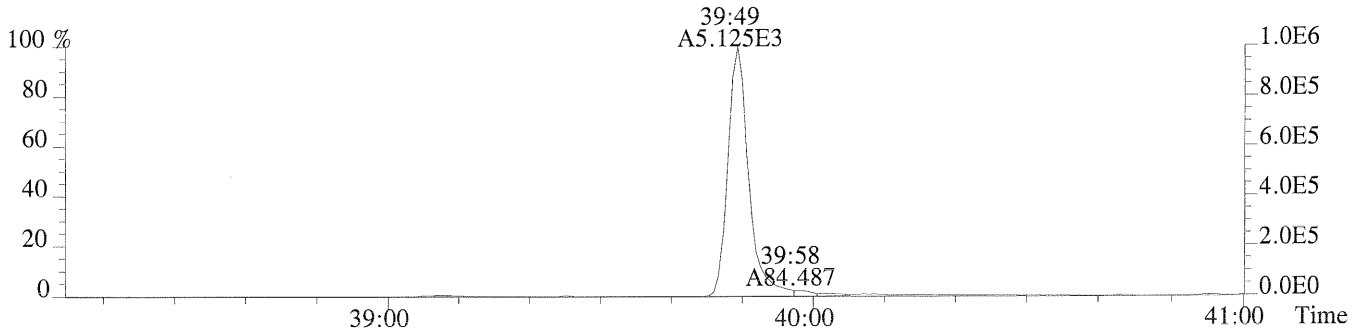
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



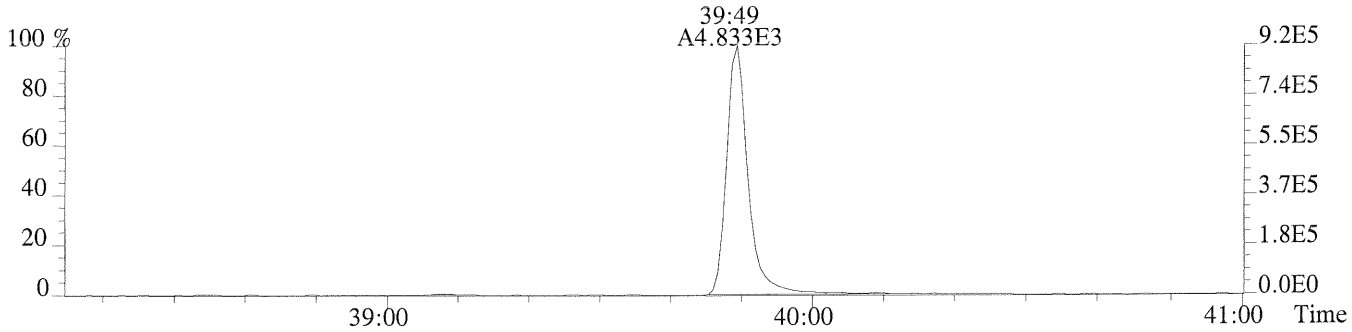
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



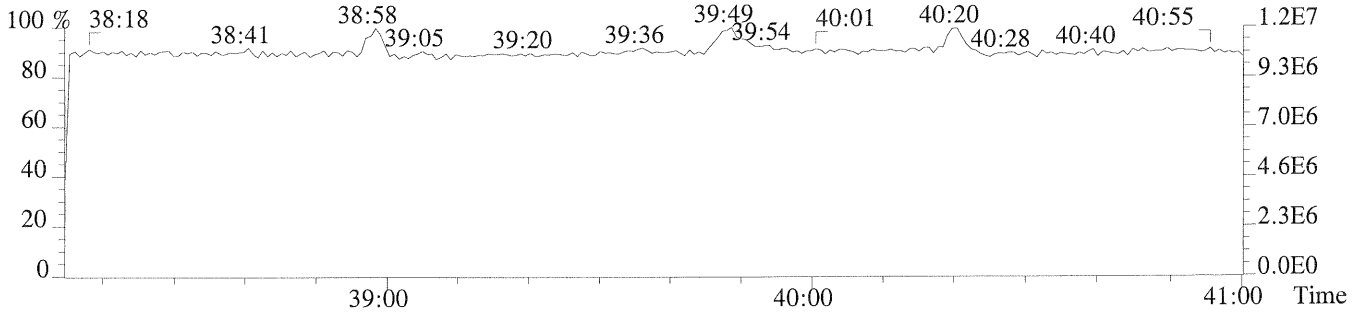
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



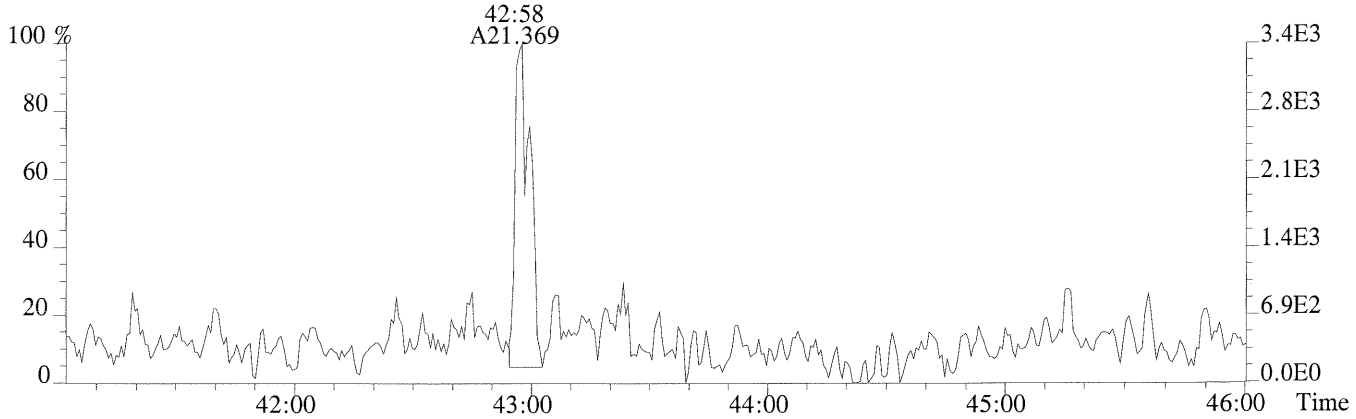
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



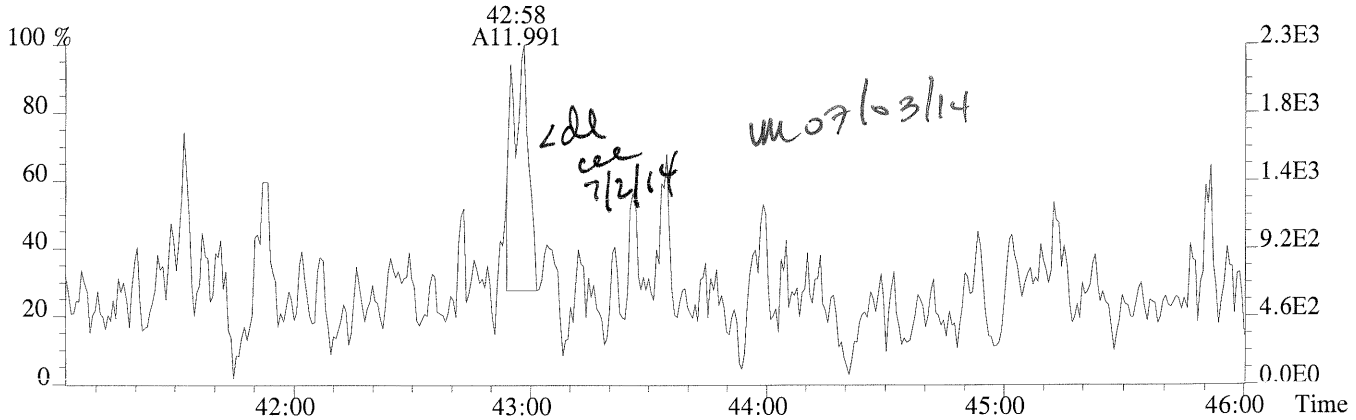
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



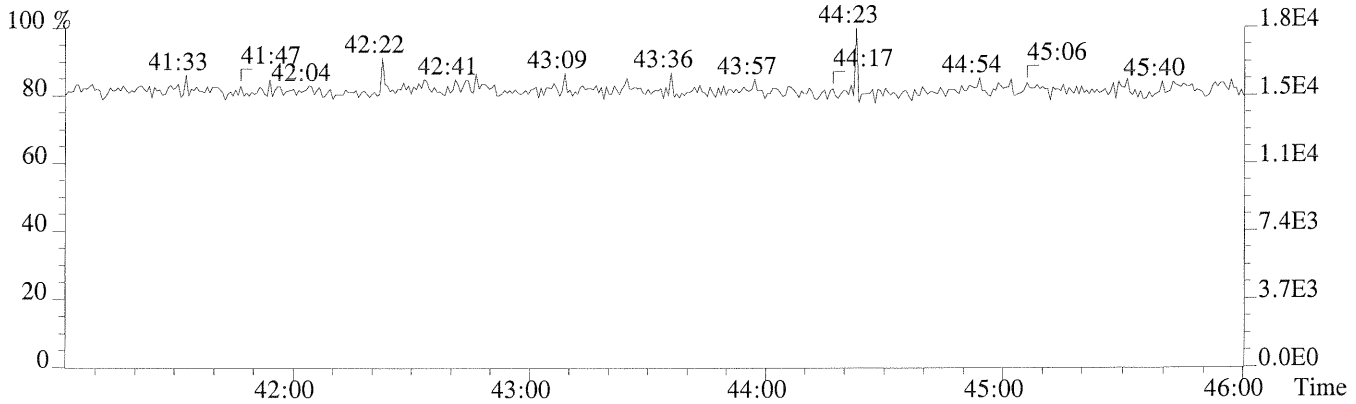
File:U149809 #1-451 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



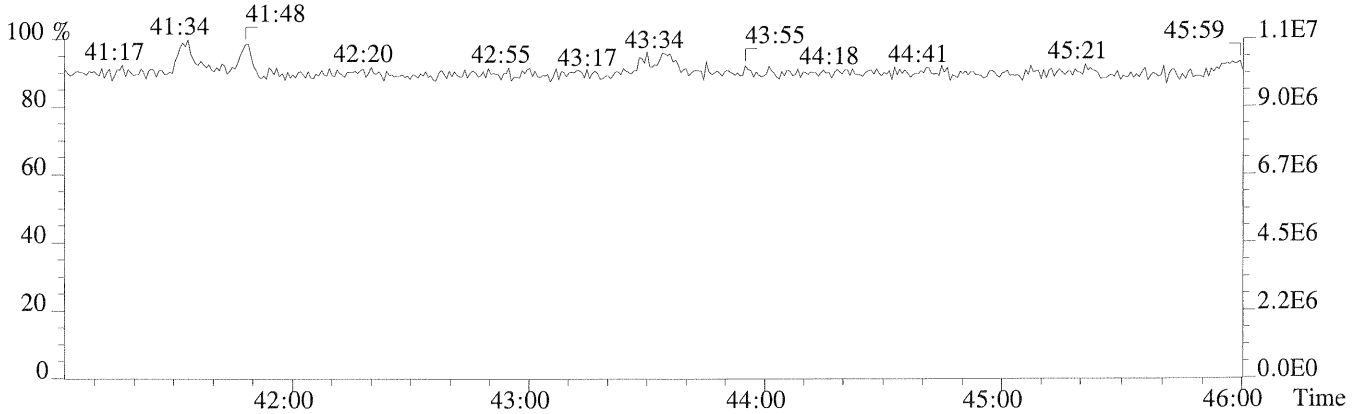
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

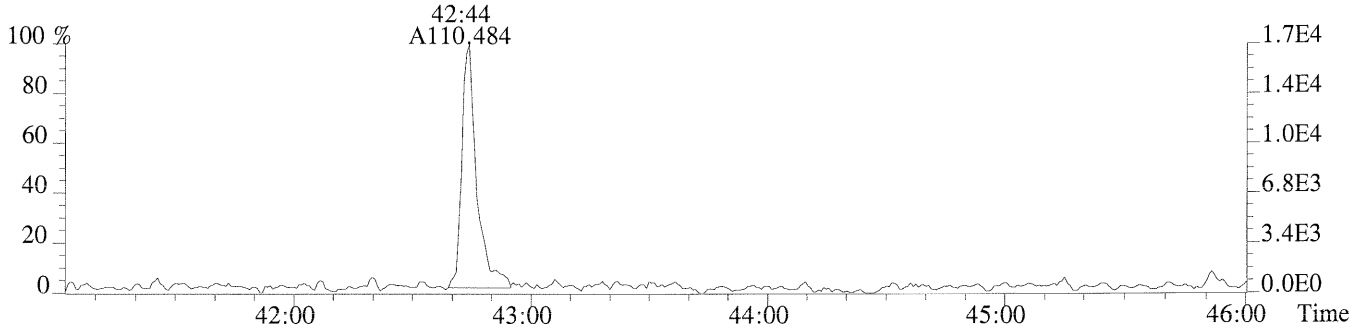


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

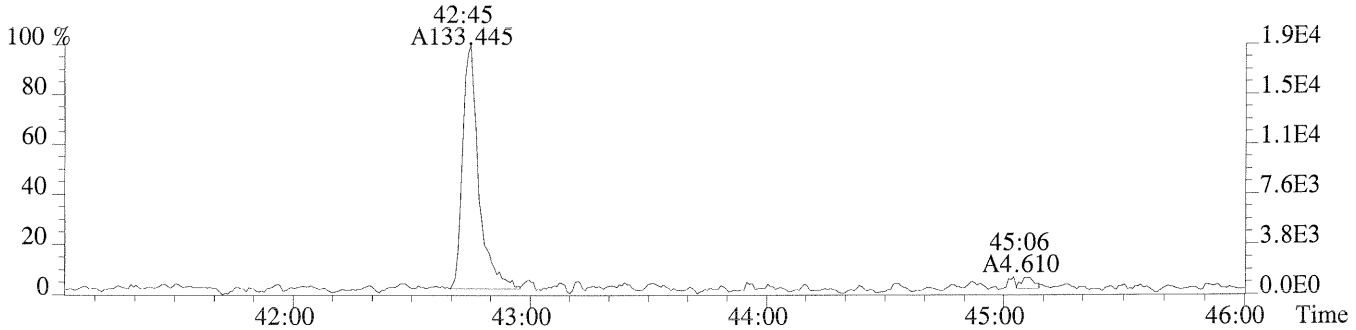


File:U149809 #1-451 Acq: 2-JUL-2014 00:54:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-005

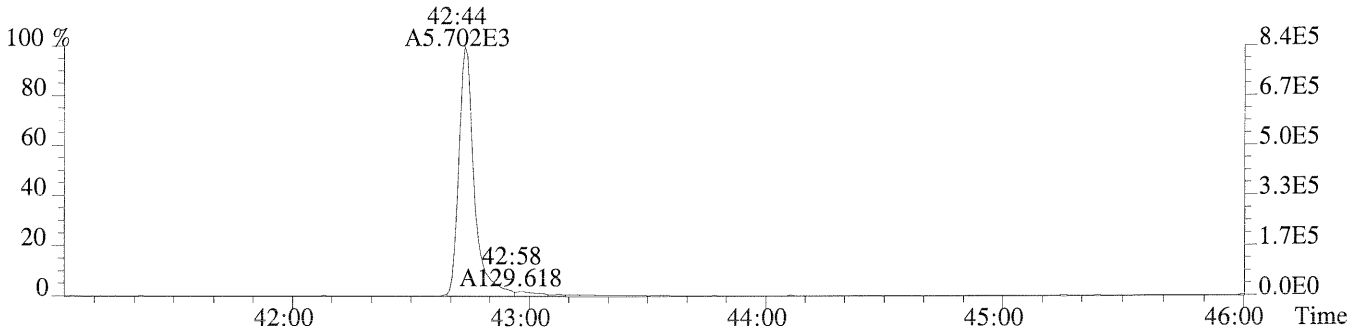
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



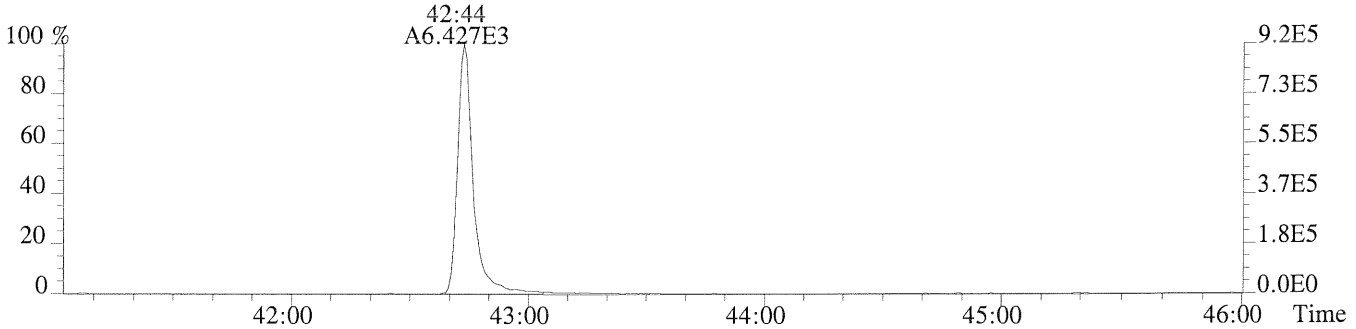
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



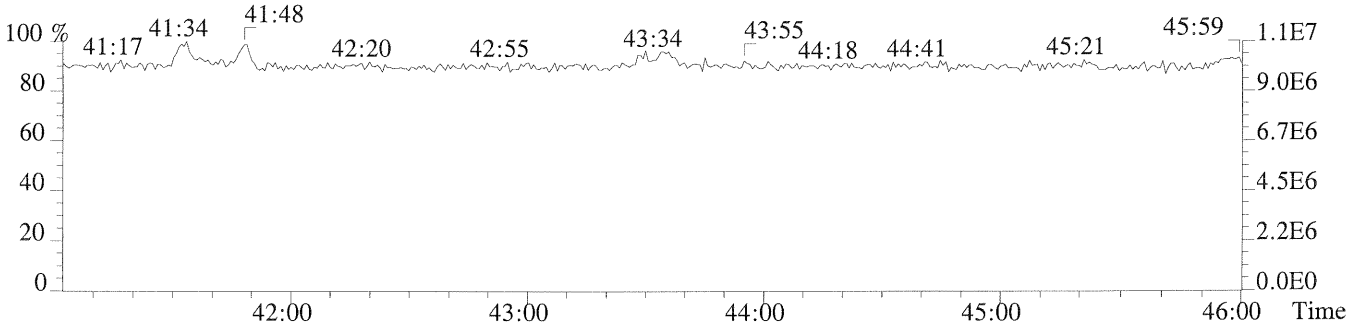
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
1406111503 20

Run #16 Filename U149810 Samp: 1 Inj: 1 Acquired: 2-JUL-14 01:43:06
Processed: 2-JUL-14 12:11:41 Sample ID: R1404651-006

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	~~4.470e+00~~	1.285e+01	0.35	no	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	S/N *	*	*	no	no	1.358
10	Unk	OCDF	NotFnd	cee 7/2/14 *	UM 07/03/14 *	*	no	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:51	3.662e+01	4.380e+01	0.84	no	no	1.065
17	Unk	OCDD	42:45	3.100e+02	3.402e+02	0.91	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:36	5.649e+03	7.036e+03	0.80	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:44	1.147e+04	7.203e+03	1.59	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:38	1.075e+04	6.760e+03	1.59	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	4.335e+03	8.501e+03	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	6.272e+03	1.193e+04	0.53	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	5.476e+03	1.037e+04	0.53	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	4.729e+03	9.170e+03	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:54	3.255e+03	7.290e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:21	3.249e+03	7.261e+03	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:22	4.017e+03	5.172e+03	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:54	8.000e+03	5.126e+03	1.56	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	6.159e+03	4.787e+03	1.29	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	6.549e+03	5.074e+03	1.29	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:51	6.031e+03	5.489e+03	1.10	yes	no	0.936
32	IS	13C-OCDD	42:44	6.442e+03	7.097e+03	0.91	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:47	6.948e+03	9.060e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	1.066e+04	8.125e+03	1.31	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	3.197e+03				no	1.044

$$\text{OCDD} = \frac{(3.100e+02 + 3.402e+02) \times 4000 \text{ pg} \times 1}{(6.442e+03 + 7.097e+03) \times 10.027 \text{ g} \times 95.2 / 100 \times 1.177} = 17.097 \text{ ng/kg}$$

UM 07/03/14

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1613RESPA

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406111503 200-S

Run #16 Filename U149810 Samp: 1 Inj: 1 Acquired: 2-JUL-14 01:43:06
Processed: 2-JUL-14 12:11:411 LAB. ID: R1404651-006

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.00e+02	*	*	8.08e+02	*
2	1,2,3,7,8-PeCDF	*	6.20e+02	*	*	8.48e+02	*
3	2,3,4,7,8-PeCDF	*	6.20e+02	*	*	8.48e+02	*
4	1,2,3,4,7,8-HxCDF	*	6.56e+02	*	*	6.24e+02	*
5	1,2,3,6,7,8-HxCDF	*	6.56e+02	*	*	6.24e+02	*
6	2,3,4,6,7,8-HxCDF	*	6.56e+02	*	*	6.24e+02	*
7	1,2,3,7,8,9-HxCDF	*	6.56e+02	*	*	6.24e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.41e+03	4.72e+02	3.0e+00	3.07e+03	5.52e+02	5.6e+00
9	1,2,3,4,7,8,9-HpCDF	*	4.72e+02	*	*	5.52e+02	*
10	OCDF	*	4.88e+02	*	*	6.36e+02	*
11	2,3,7,8-TCDD	*	7.40e+02	*	*	5.56e+02	*
12	1,2,3,7,8-PeCDD	*	9.16e+02	*	*	1.14e+03	*
13	1,2,3,4,7,8-HxCDD	*	7.08e+02	*	*	7.16e+02	*
14	1,2,3,6,7,8-HxCDD	*	7.08e+02	*	*	7.16e+02	*
15	1,2,3,7,8,9-HxCDD	*	7.08e+02	*	*	7.16e+02	*
16	1,2,3,4,6,7,8-HpCDD	7.81e+03	6.52e+02	1.2e+01	8.49e+03	5.52e+02	1.5e+01
17	OCDD	4.32e+04	4.80e+02	9.0e+01	5.20e+04	5.60e+02	9.3e+01
18	13C-2,3,7,8-TCDF	1.12e+06	1.01e+03	1.1e+03	1.40e+06	8.40e+02	1.7e+03
19	13C-1,2,3,7,8-PeCDF	2.11e+06	9.36e+02	2.3e+03	1.30e+06	7.72e+02	1.7e+03
20	13C-2,3,4,7,8-PeCDF	2.10e+06	9.36e+02	2.2e+03	1.31e+06	7.72e+02	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	9.26e+05	7.64e+02	1.2e+03	1.82e+06	1.36e+03	1.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.26e+06	7.64e+02	1.6e+03	2.41e+06	1.36e+03	1.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.15e+06	7.64e+02	1.5e+03	2.19e+06	1.36e+03	1.6e+03
24	13C-1,2,3,7,8,9-HxCDF	9.37e+05	7.64e+02	1.2e+03	1.81e+06	1.36e+03	1.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.32e+05	1.47e+03	4.3e+02	1.42e+06	1.42e+03	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.02e+05	1.47e+03	4.1e+02	1.31e+06	1.42e+03	9.2e+02
27	13C-2,3,7,8-TCDD	8.59e+05	1.65e+03	5.2e+02	1.12e+06	9.76e+02	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.62e+06	5.80e+02	2.8e+03	1.03e+06	6.12e+02	1.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.35e+06	1.30e+03	1.0e+03	1.04e+06	9.40e+02	1.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.34e+06	1.30e+03	1.0e+03	1.03e+06	9.40e+02	1.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.13e+06	8.48e+02	1.3e+03	1.04e+06	5.60e+02	1.9e+03
32	13C-OCDD	9.86e+05	6.60e+02	1.5e+03	1.08e+06	6.04e+02	1.8e+03
33	13C-1,2,3,4-TCDD	1.45e+06	1.65e+03	8.8e+02	1.91e+06	9.76e+02	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	1.99e+06	1.30e+03	1.5e+03	1.59e+06	9.40e+02	1.7e+03
35	37Cl-2,3,7,8-TCDD	6.81e+05	7.32e+02	9.3e+02			

UM 07/03/14

S/N
CCC 7/2/14

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 16 File: U149810 Sample: 1 Injection: 1 Function: 4
Llim: 39:05 Ulim: 40:02
Acquired: 2-JUL-14 01:43:06 Processed: 2-JUL-14 12:11:41
Mass: 423.7770 425.7740 Tot Response: 7.09e+01 RRF: 1.065

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:10	3.70e+01	3.39e+01	1.09	yes	7.09e+01	n	n

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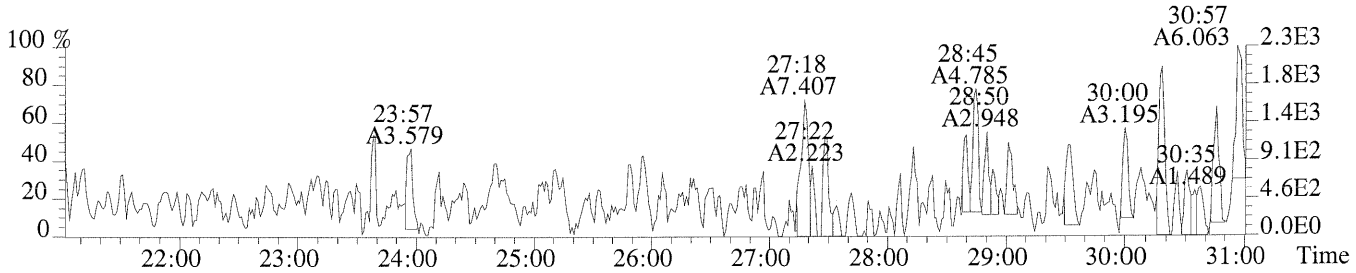
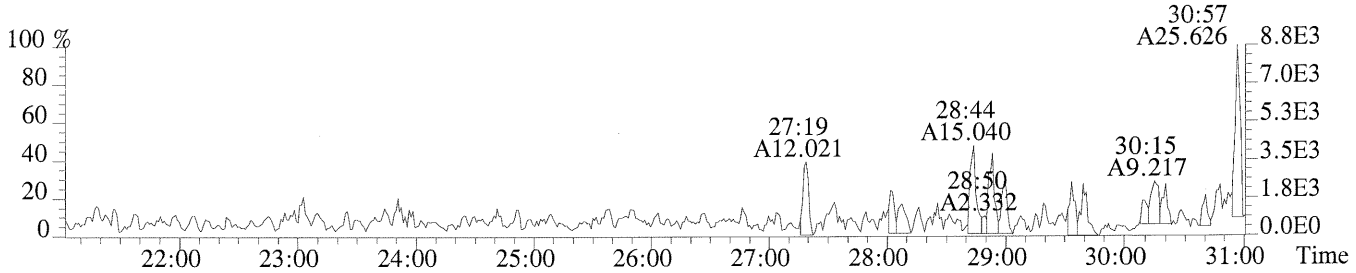
Office(713)266-1599. Fax(713)266-0130

File:U149810 #1-627 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006

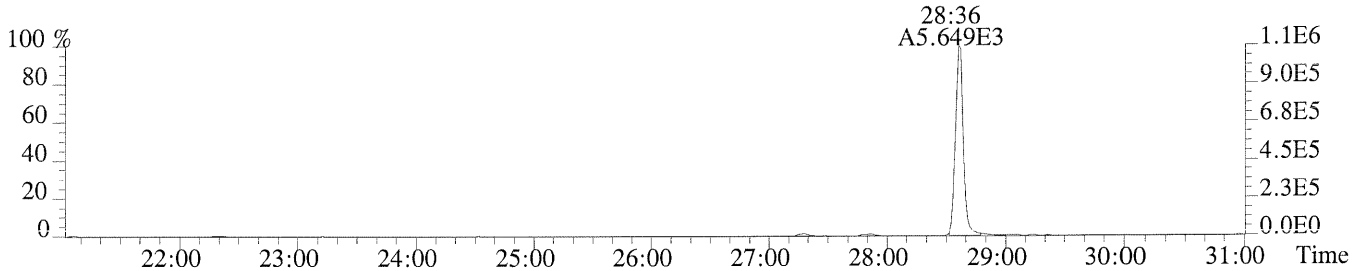
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



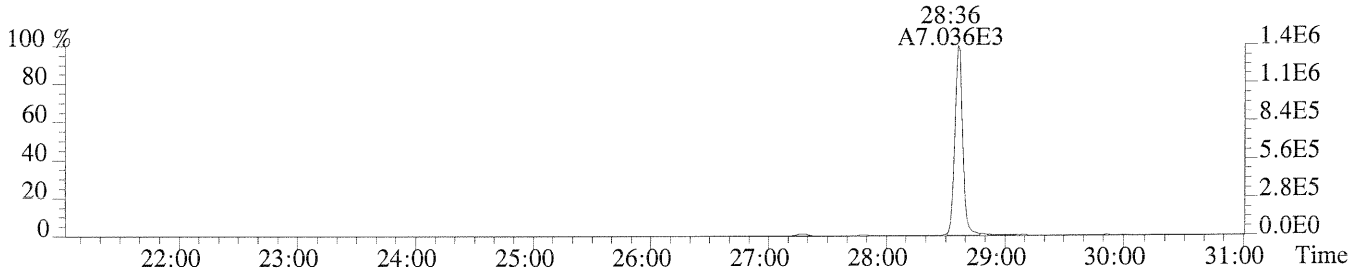
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



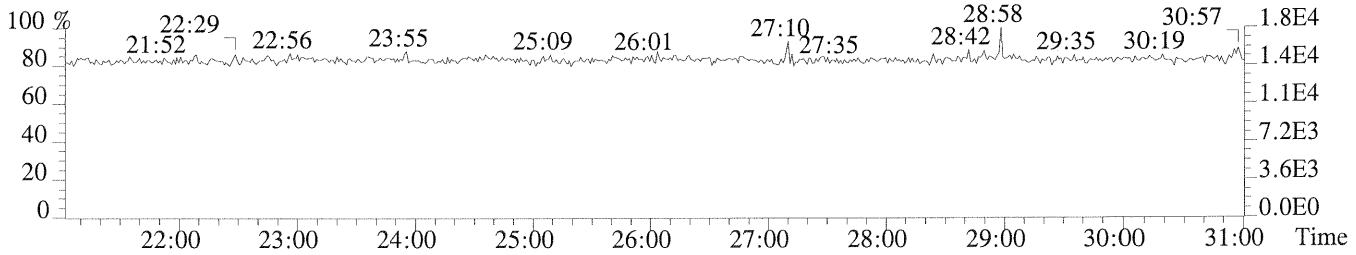
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



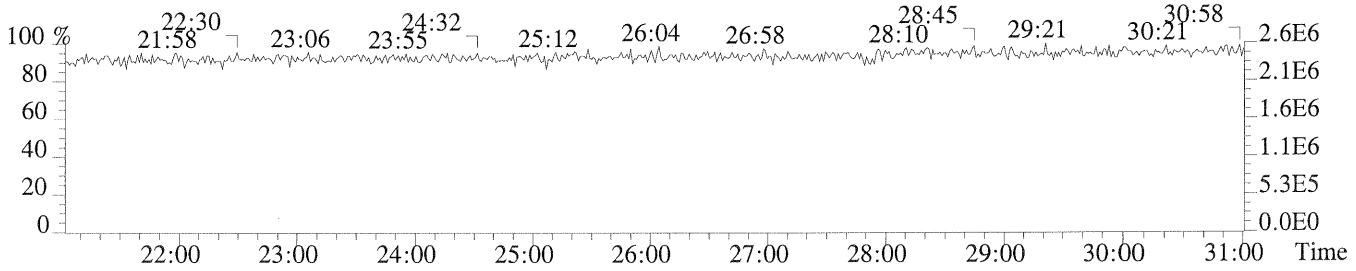
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



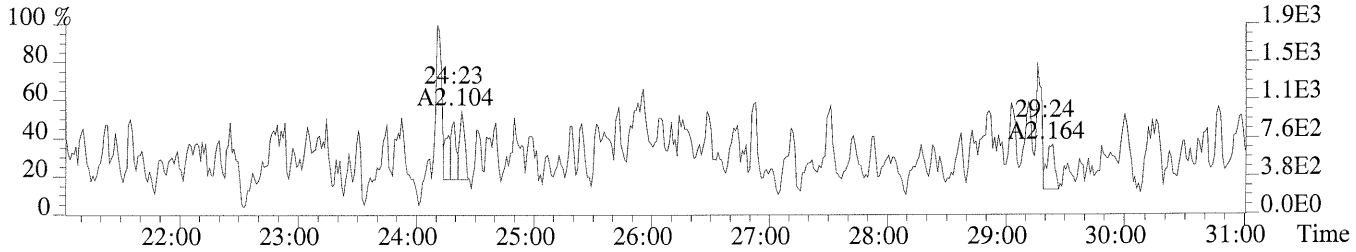
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



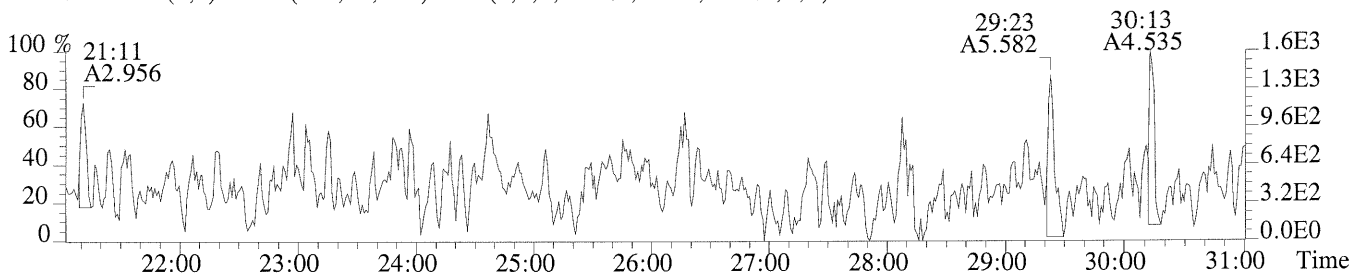
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



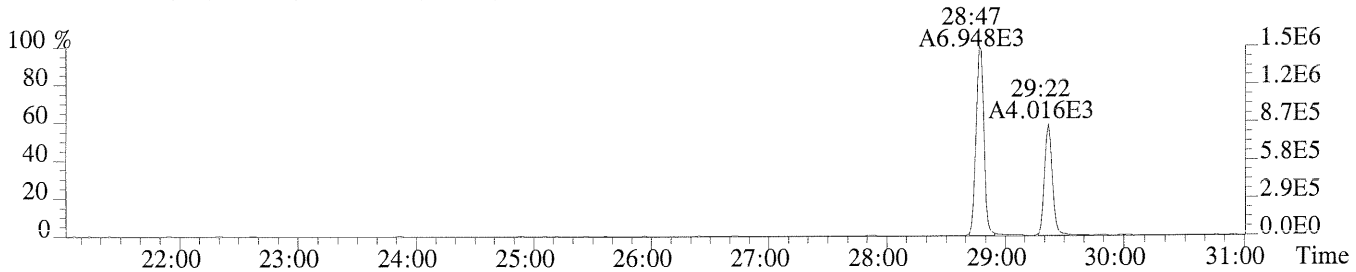
File:U149810 #1-627 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



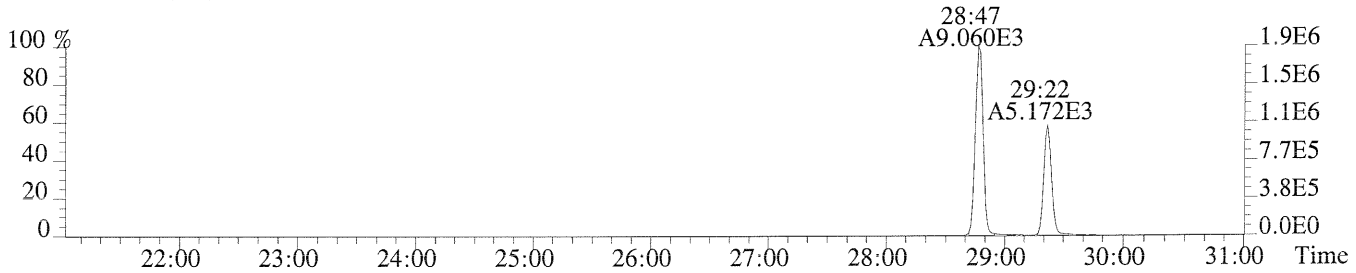
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



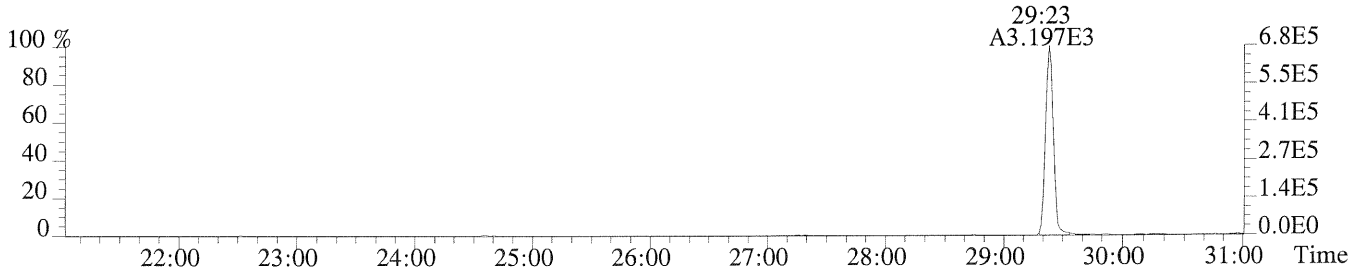
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1652.0,1.00%,F,T)



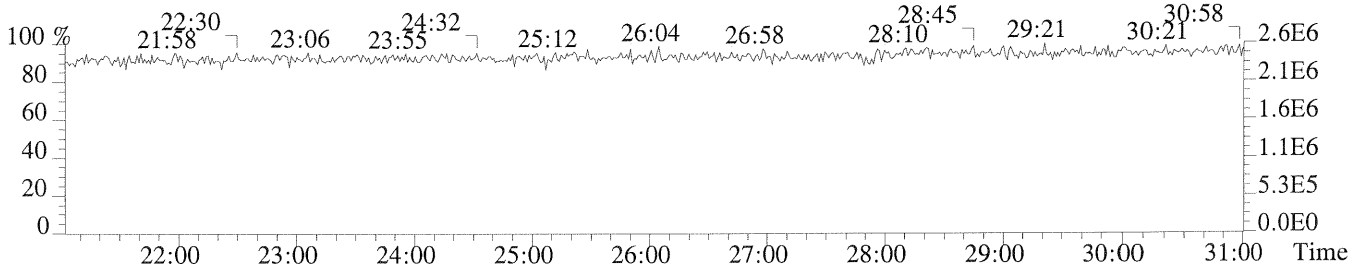
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)

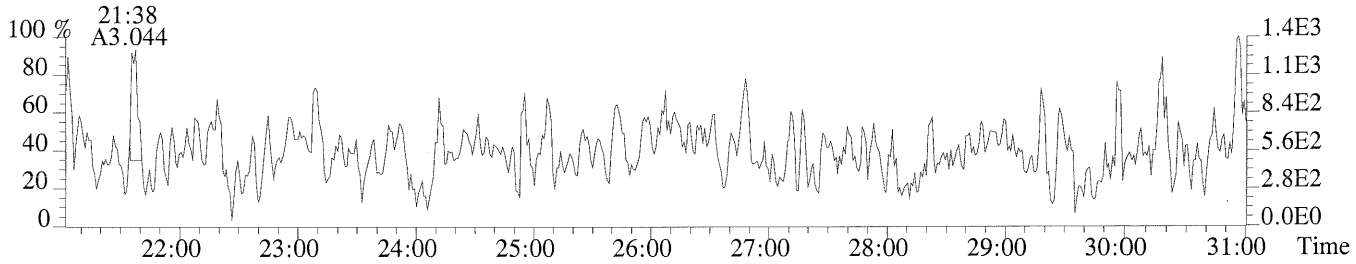


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

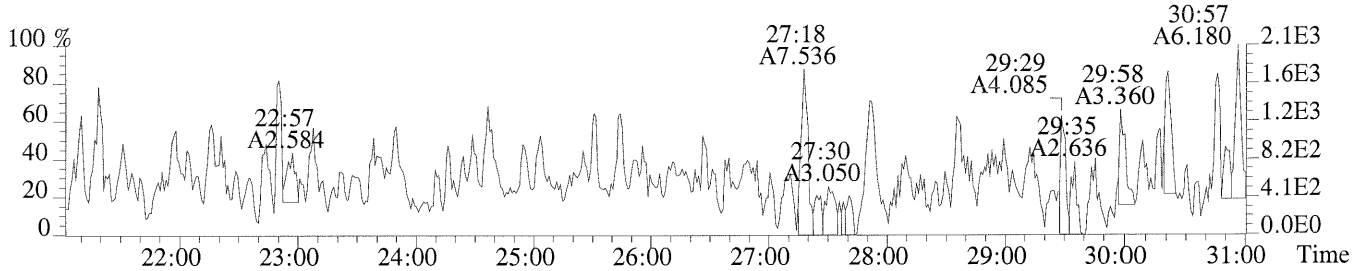


File:U149810 #1-627 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006

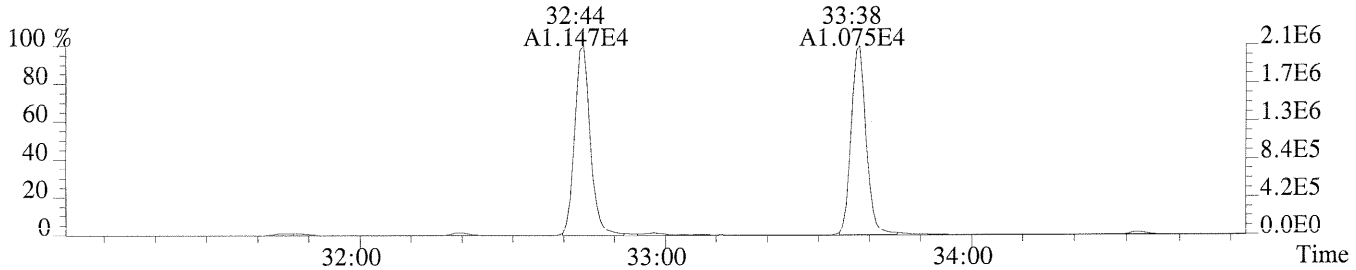
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



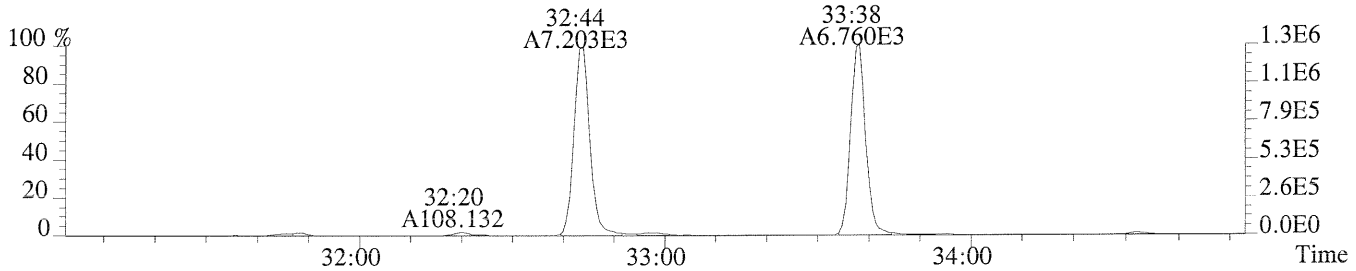
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



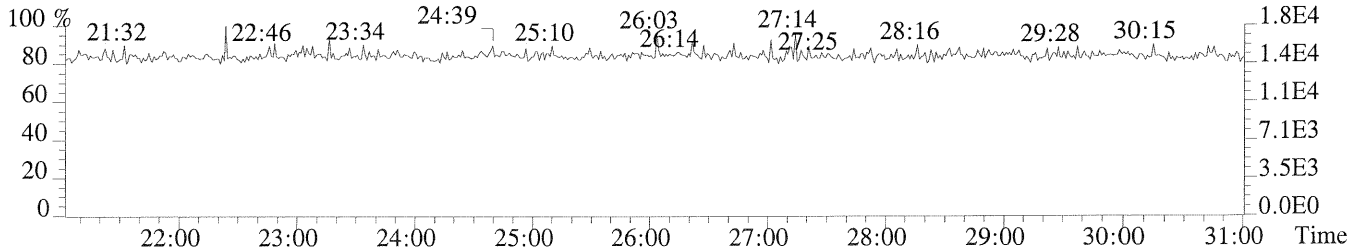
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



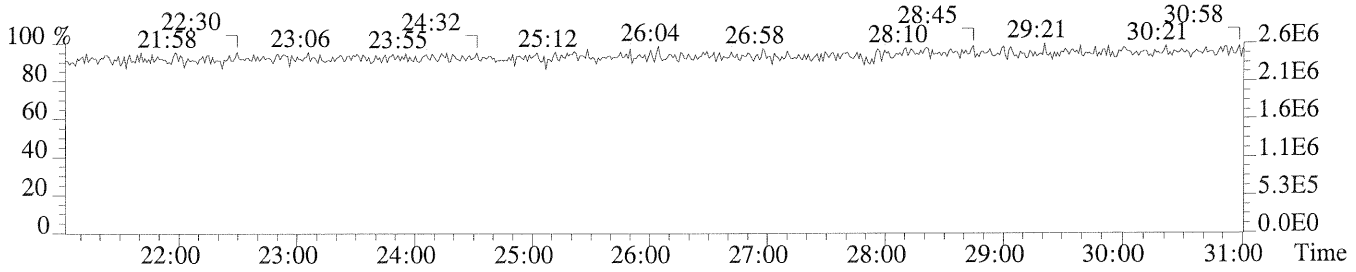
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



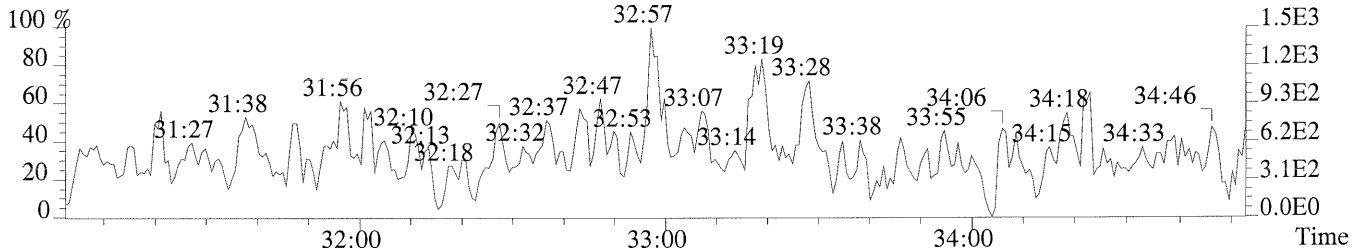
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



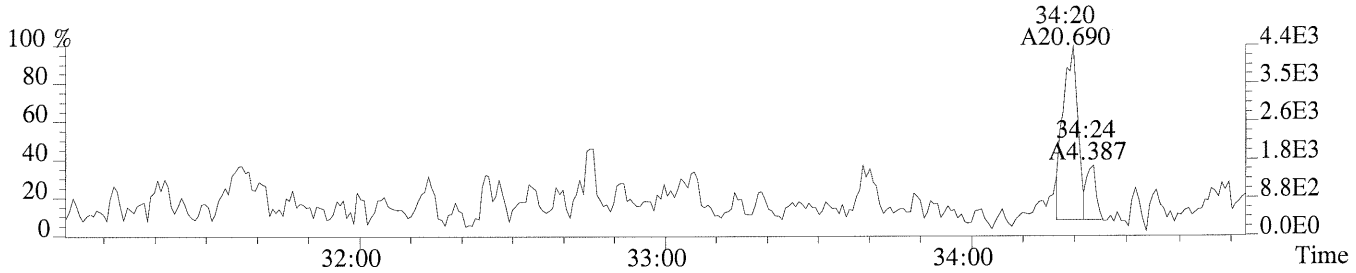
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



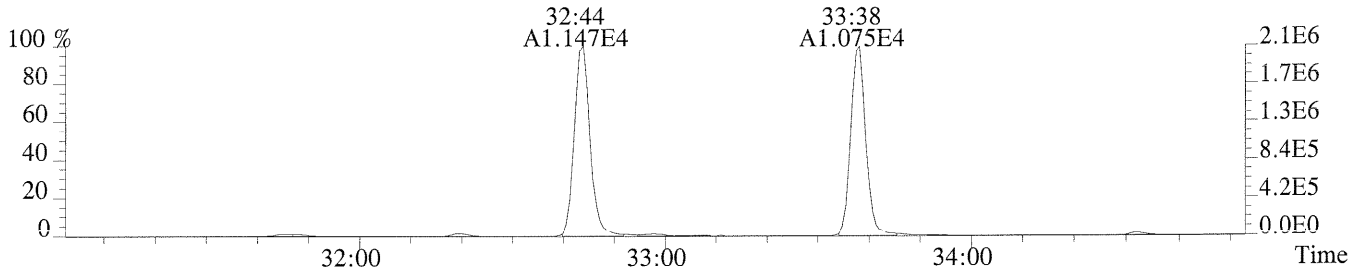
File:U149810 #1-349 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



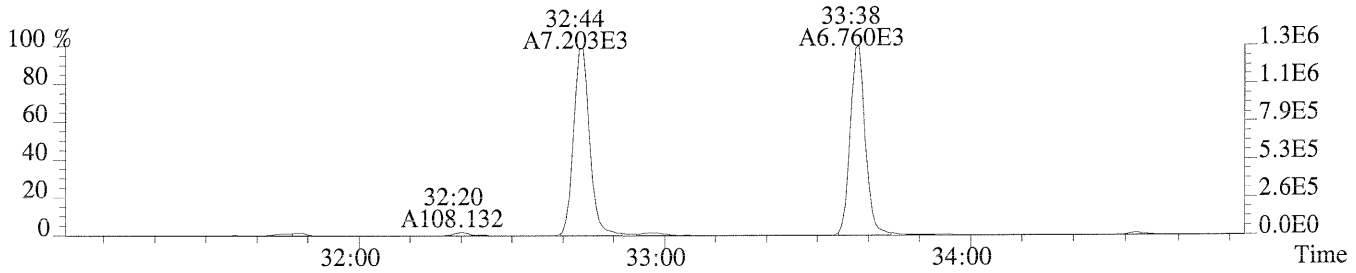
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



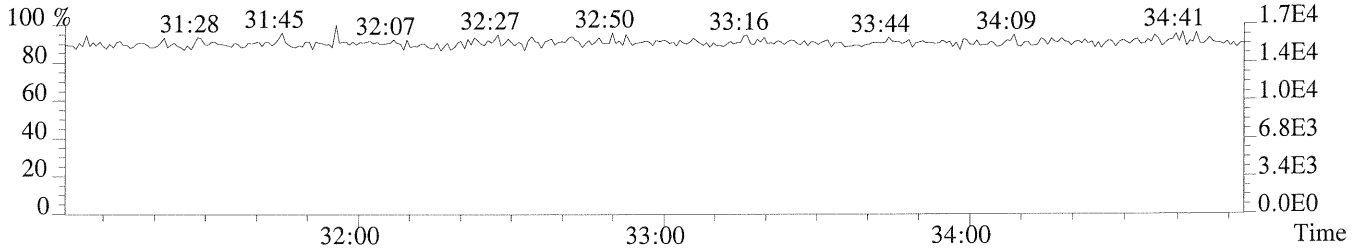
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



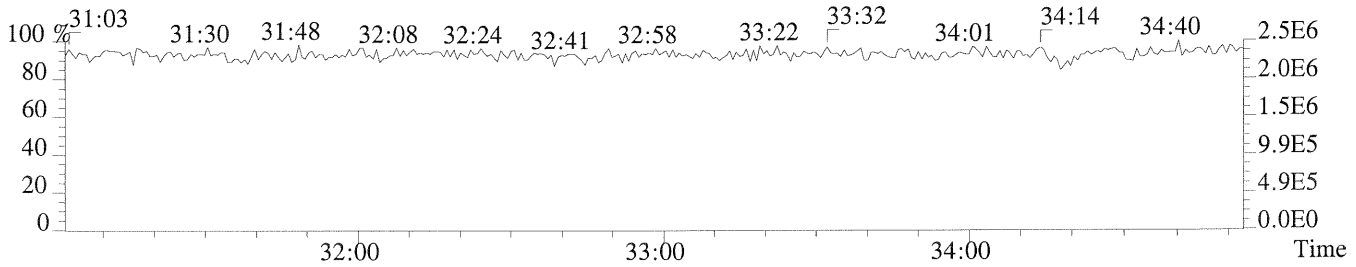
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



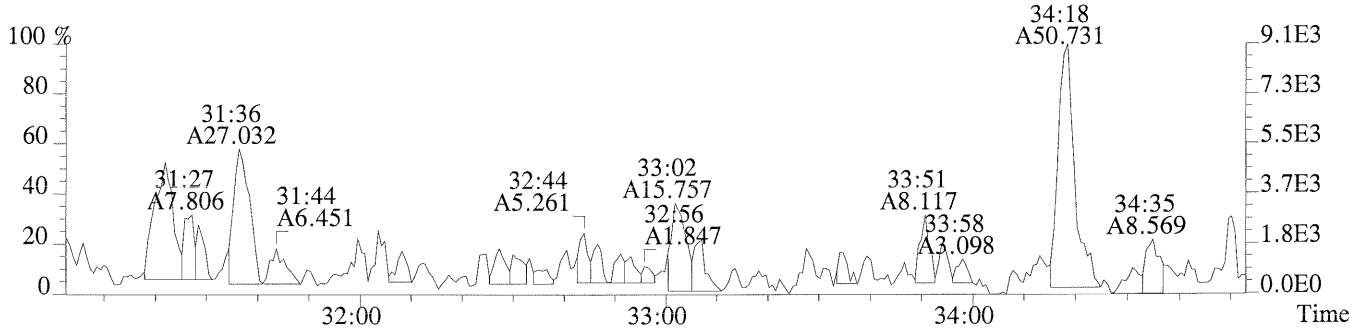
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



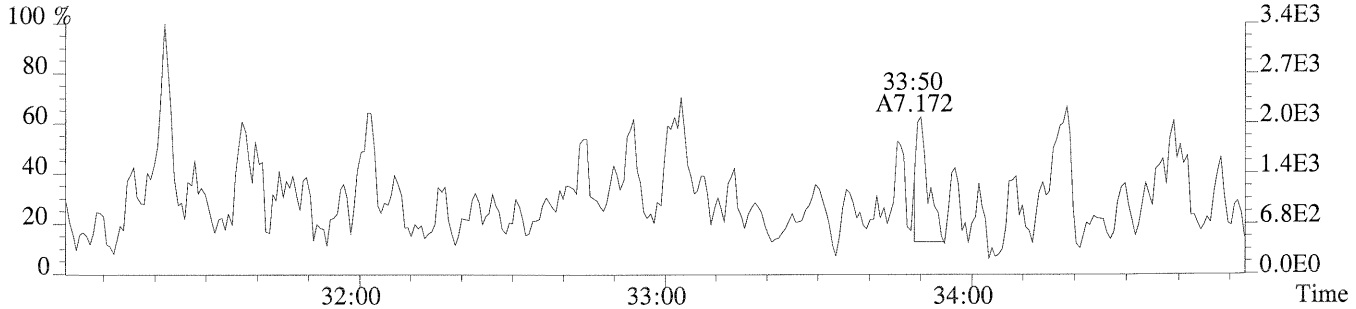
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



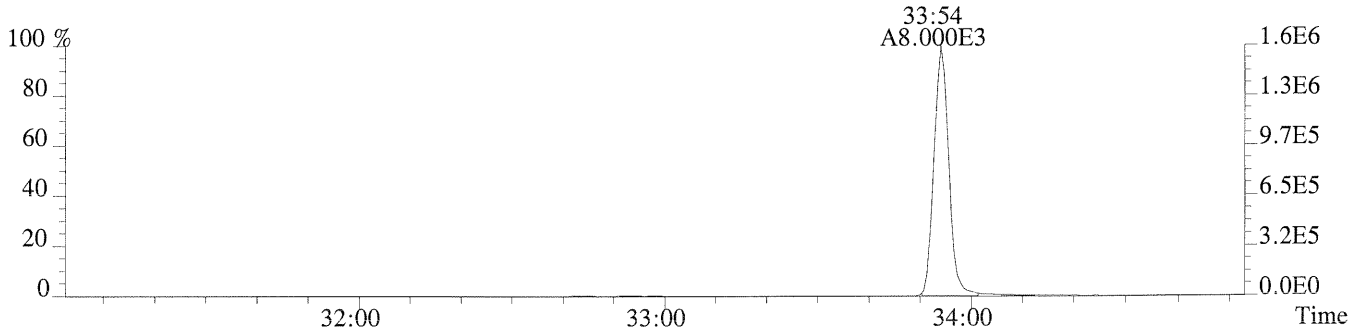
File:U149810 #1-349 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



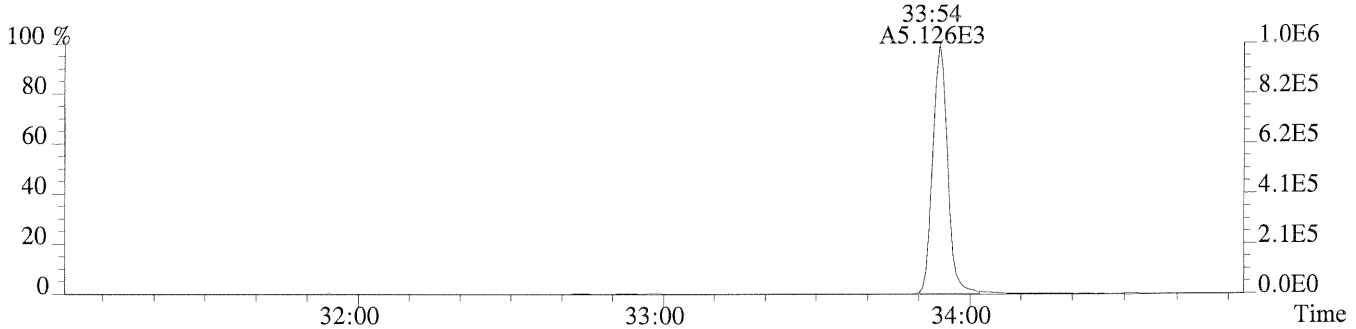
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



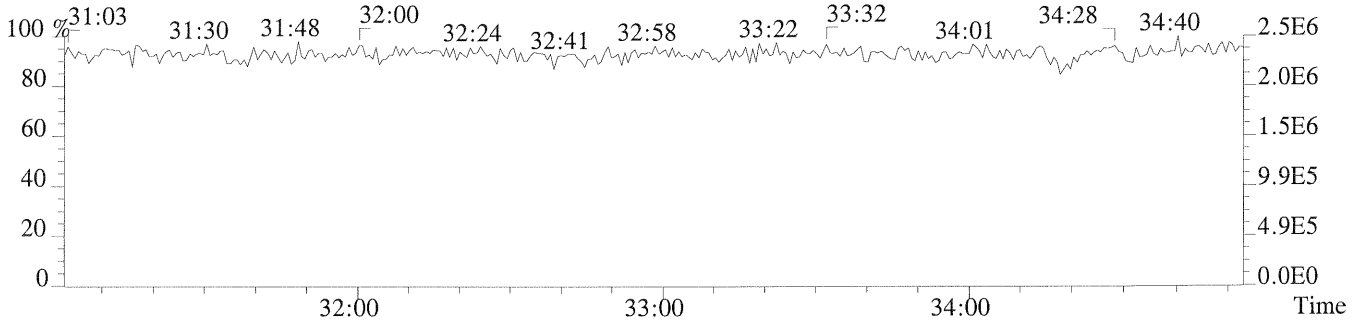
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



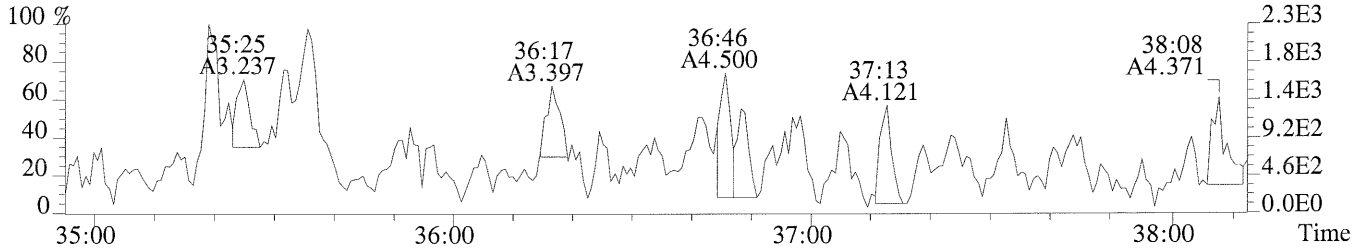
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



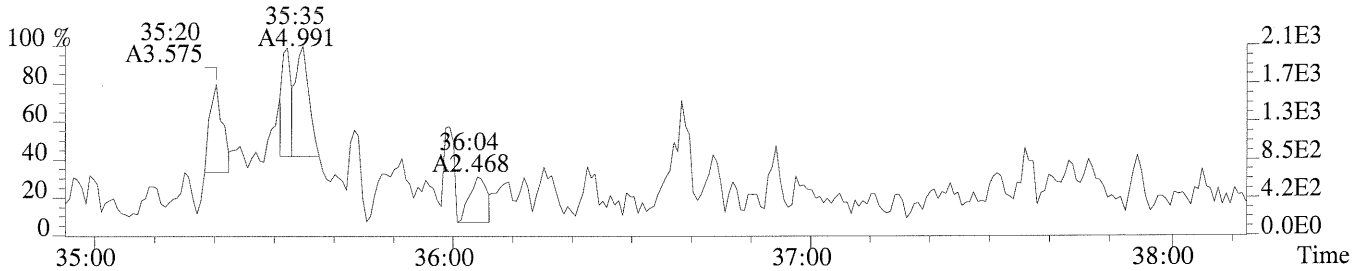
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



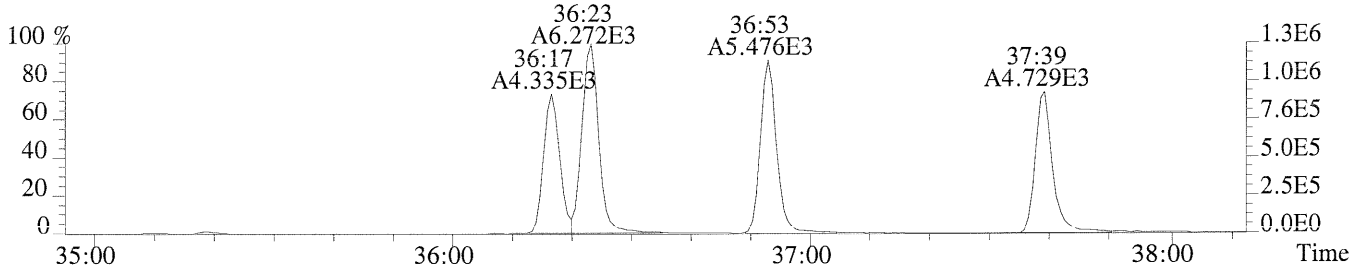
File:U149810 #1-299 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



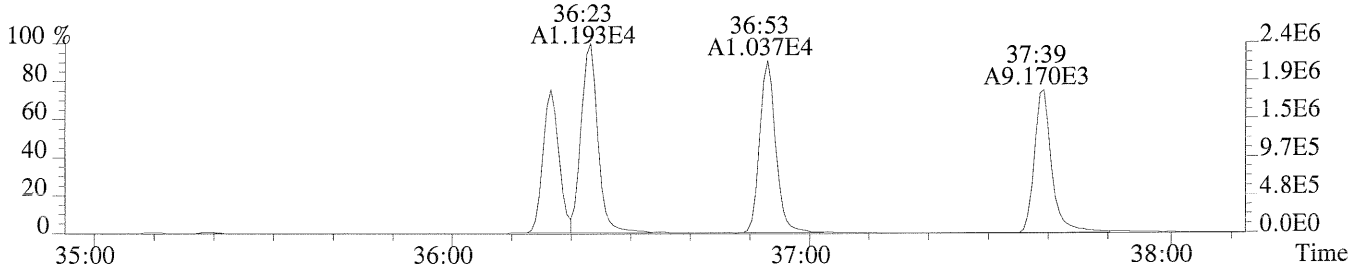
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



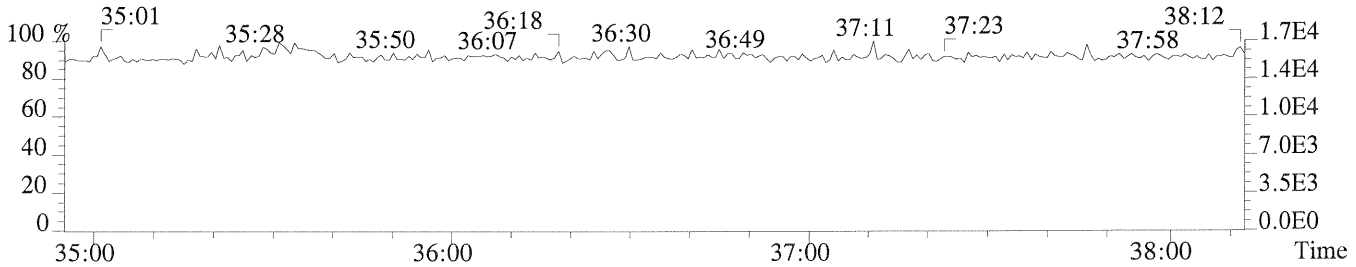
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



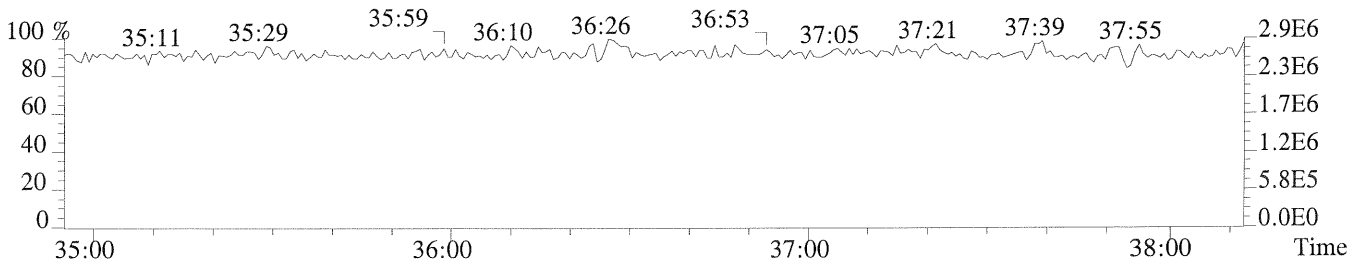
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.40%,F,T)



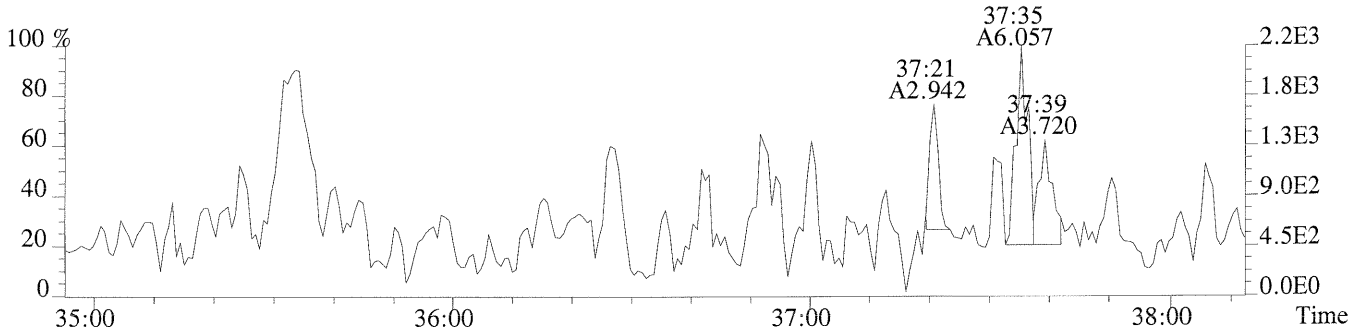
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



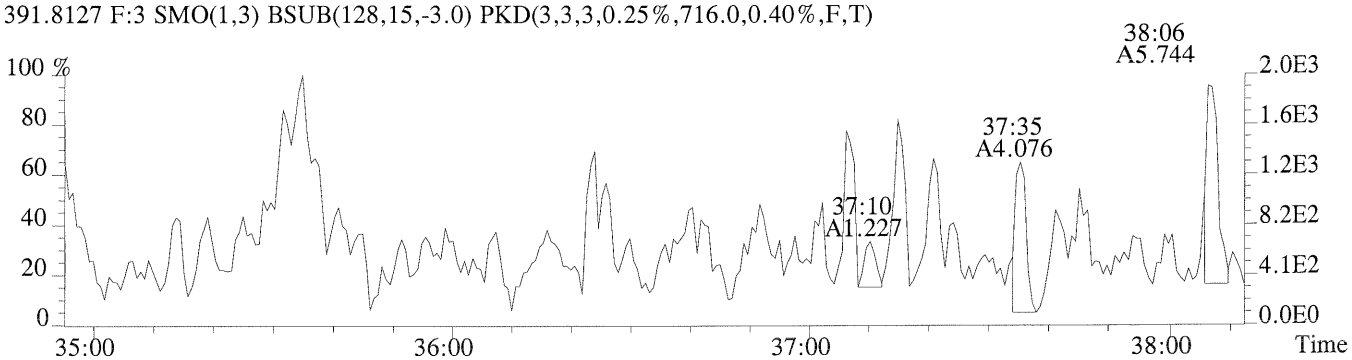
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



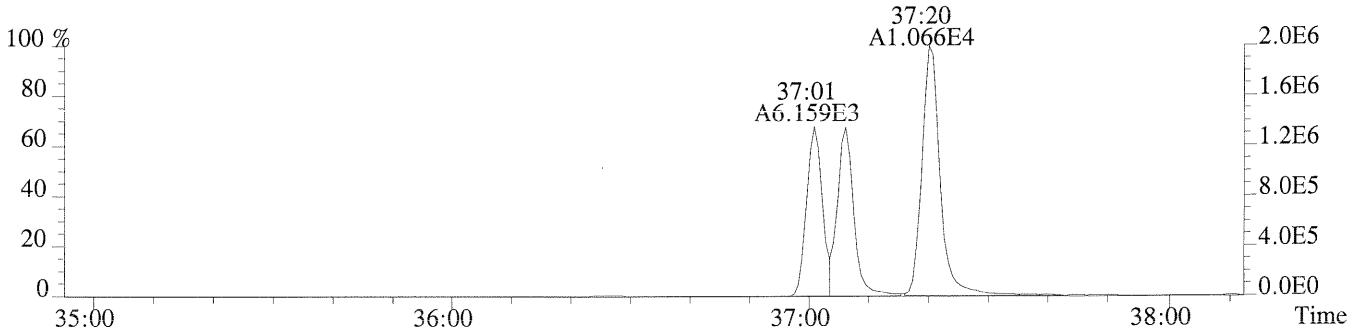
File:U149810 #1-299 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



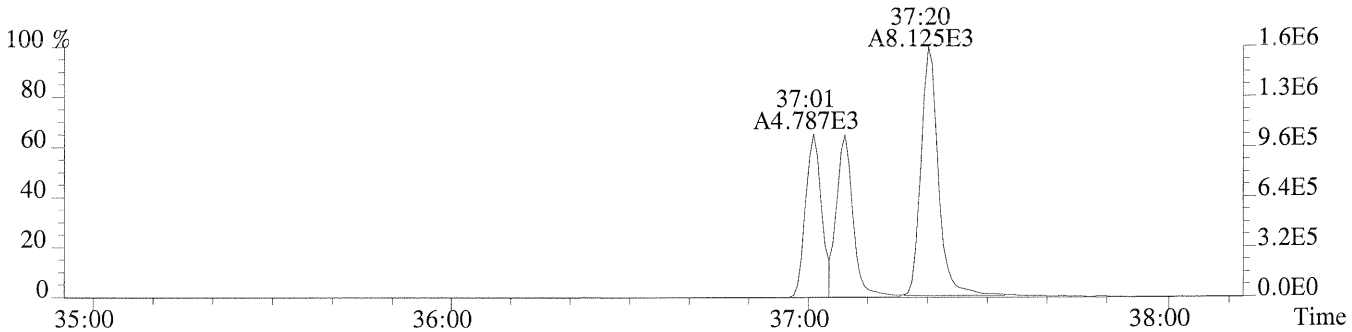
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



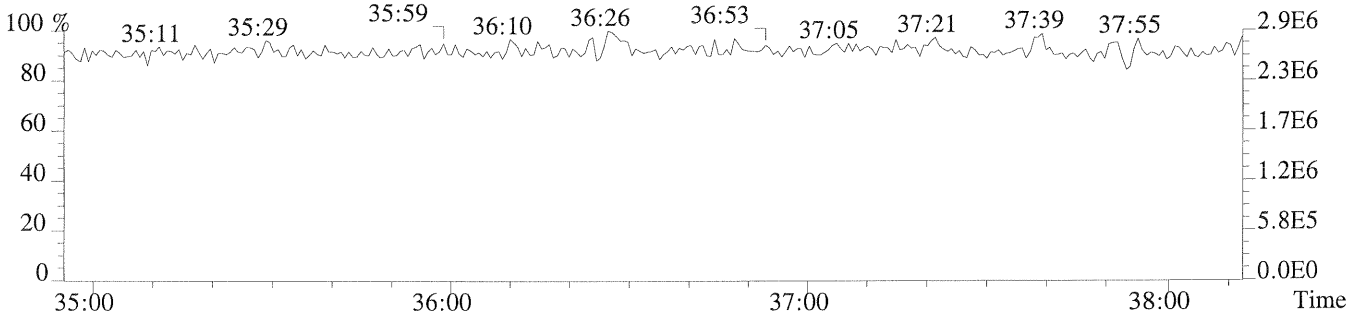
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)

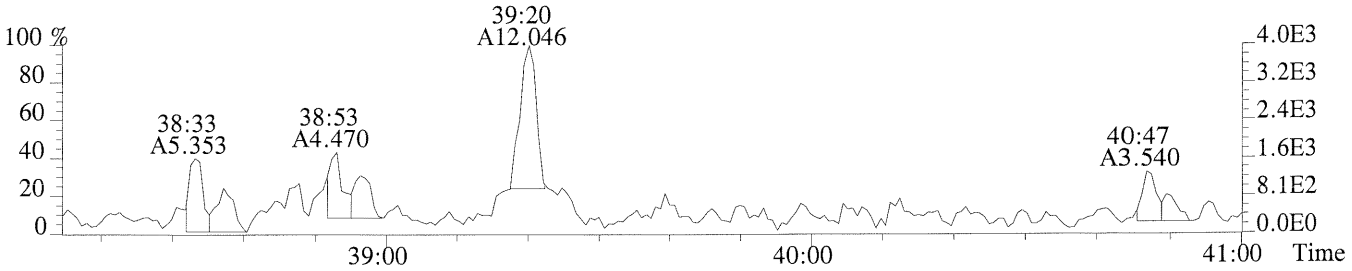


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

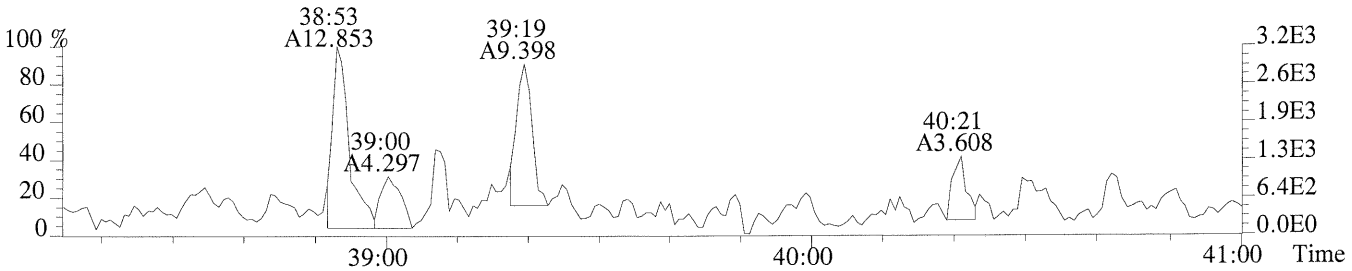


File:U149810 #1-251 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006

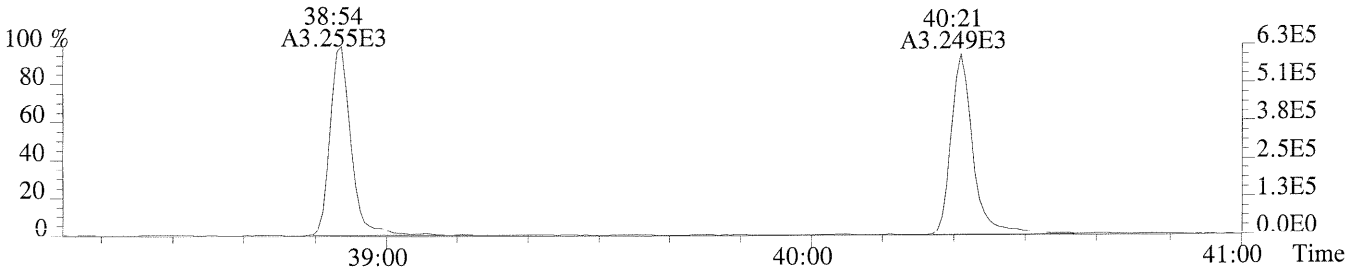
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.50%,F,T)



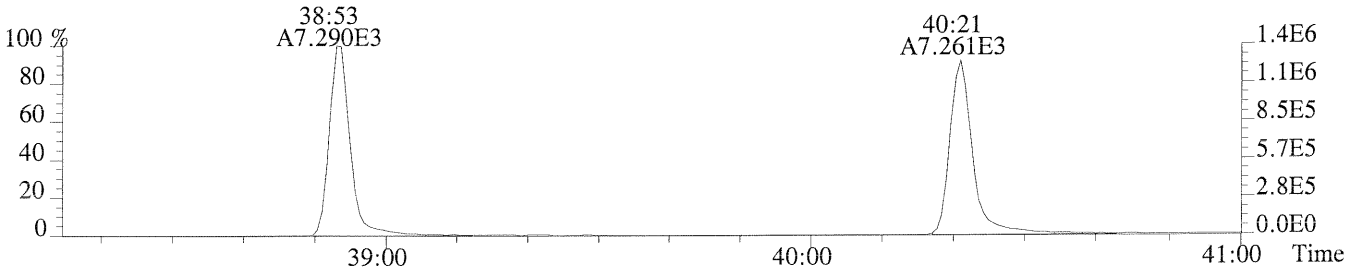
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.50%,F,T)



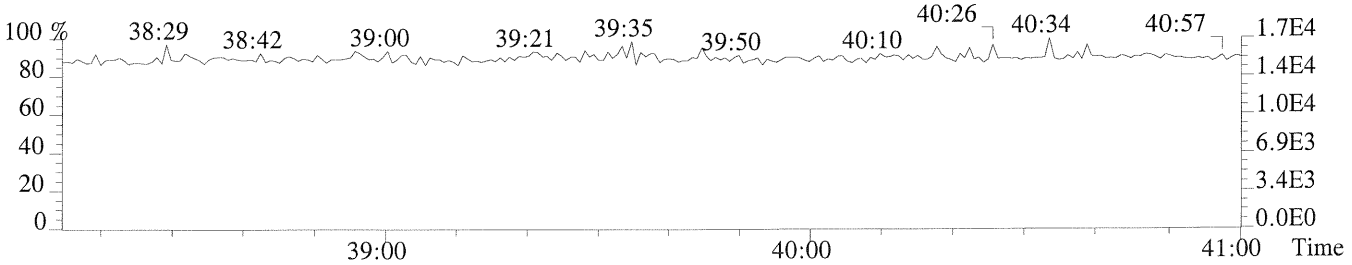
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1472.0,0.50%,F,T)



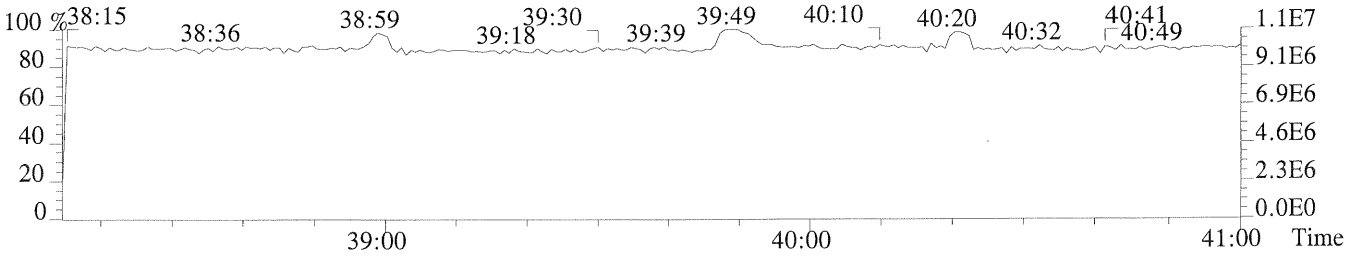
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1416.0,0.50%,F,T)



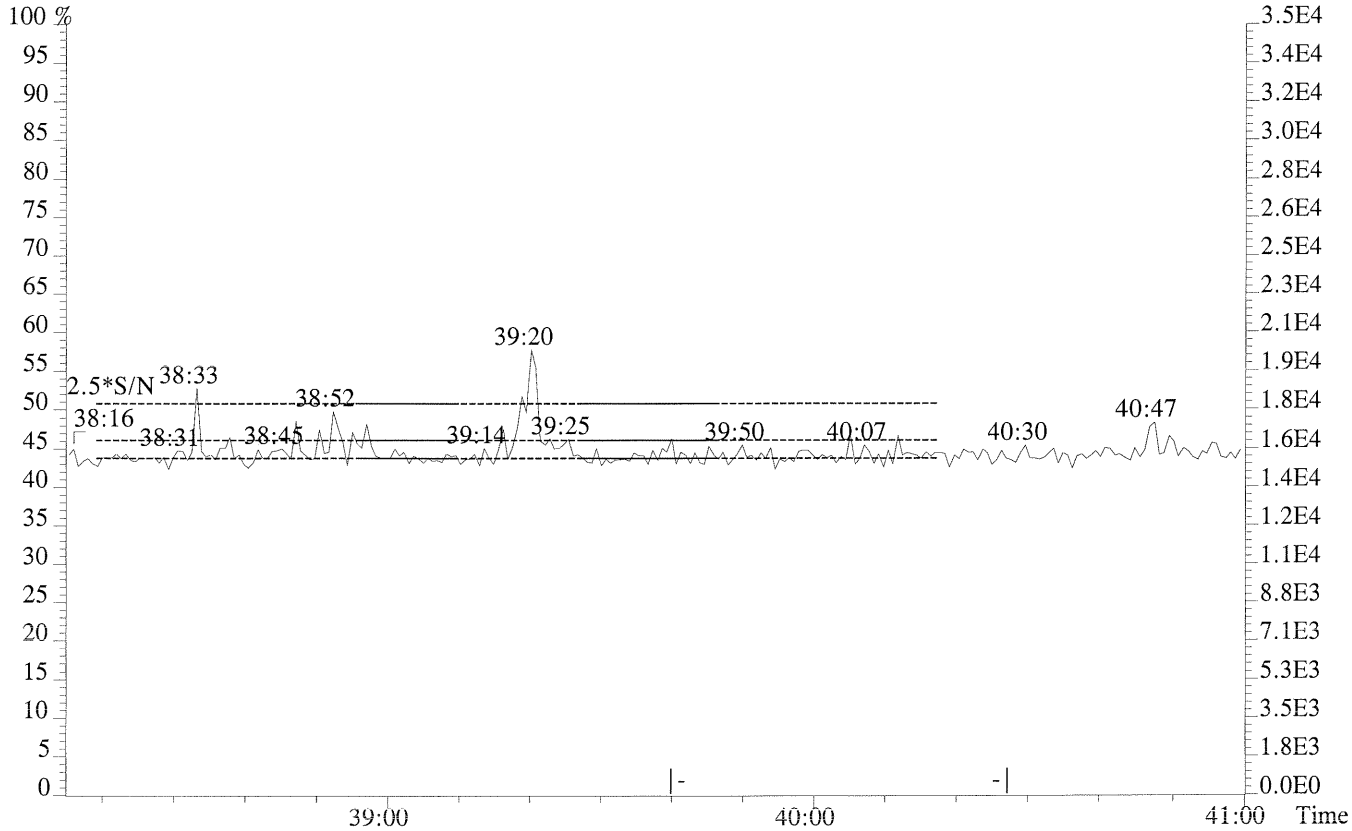
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



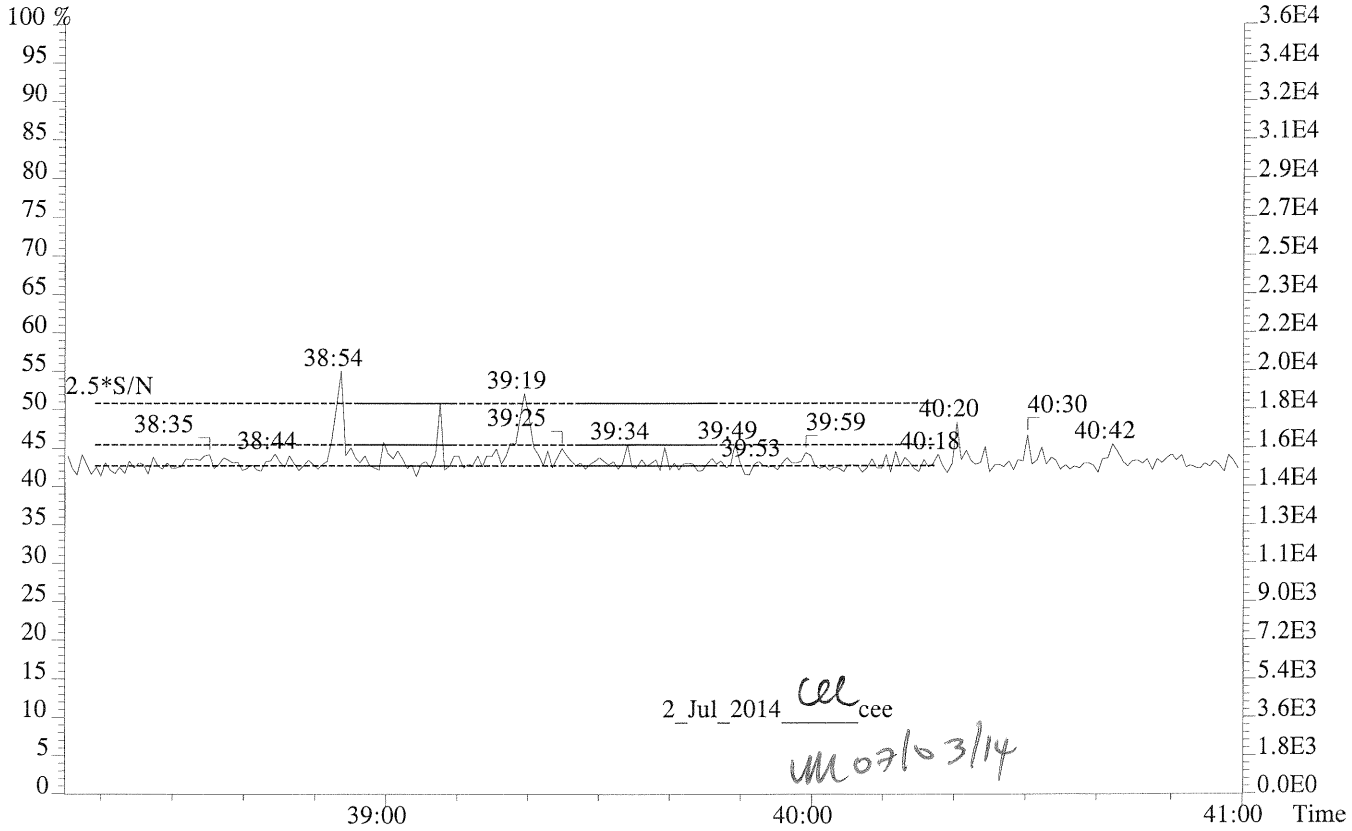
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:U149810 #1-251 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006
407.7818 F:4



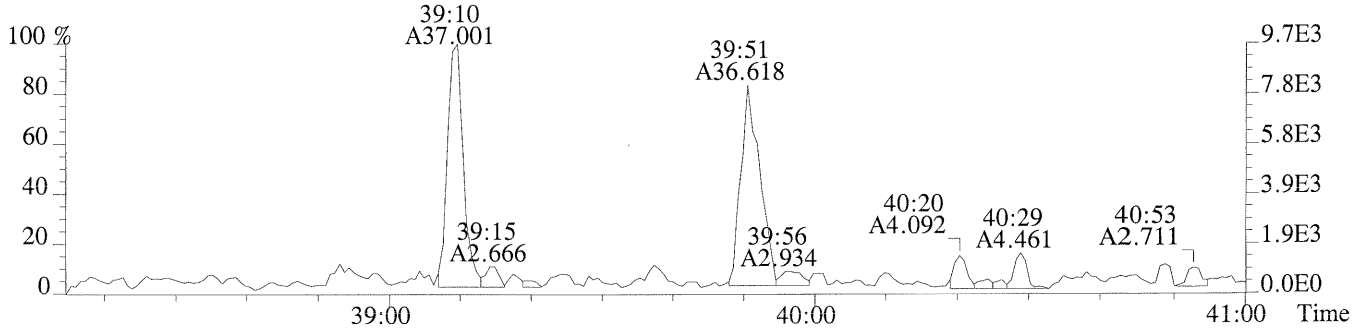
409.7789 F:4



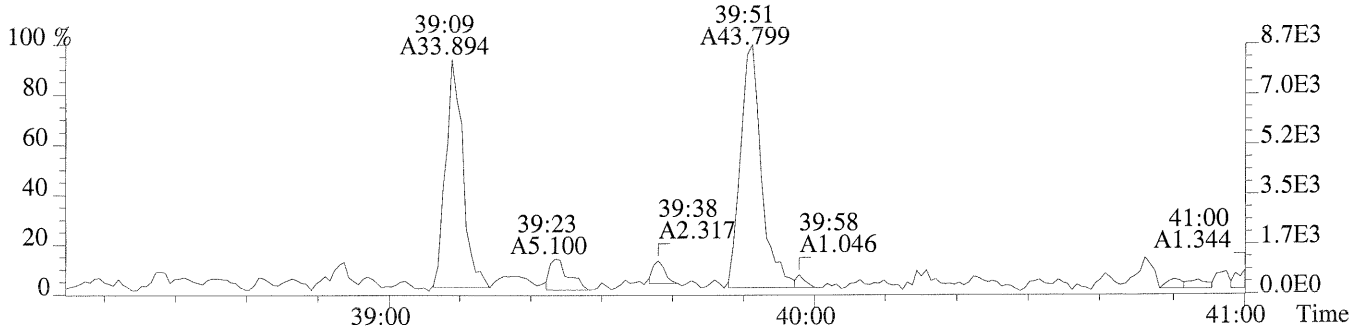
2_Jul_2014 cee
cee
07/03/14

File:U149810 #1-251 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006

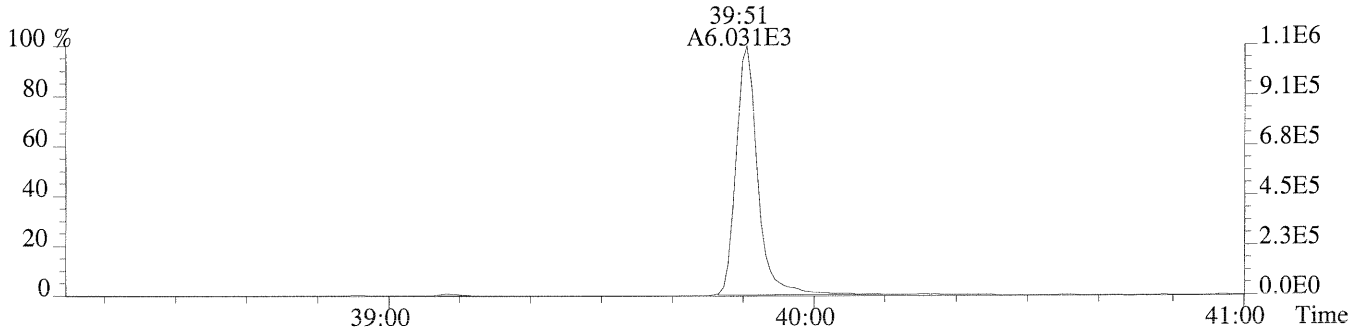
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



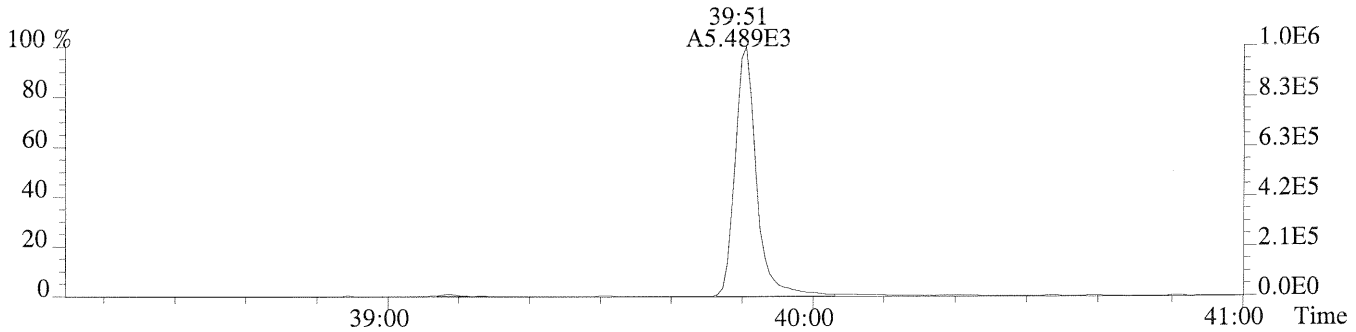
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.40%,F,T)



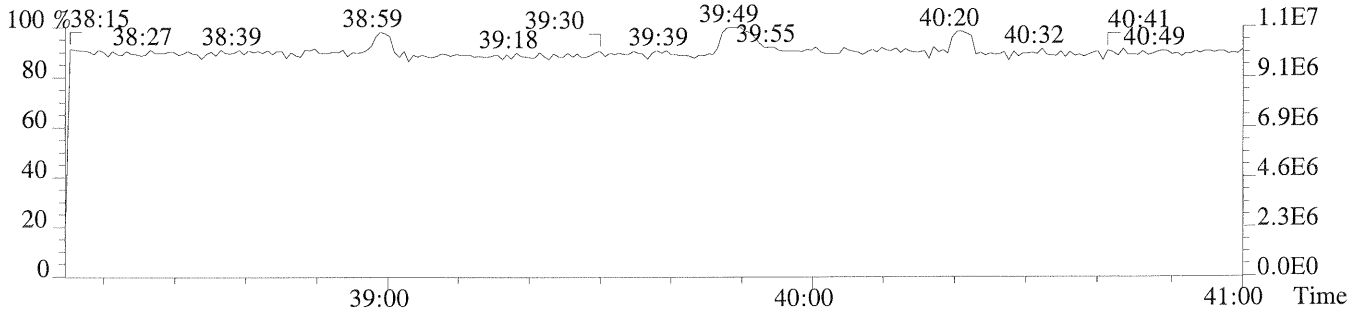
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



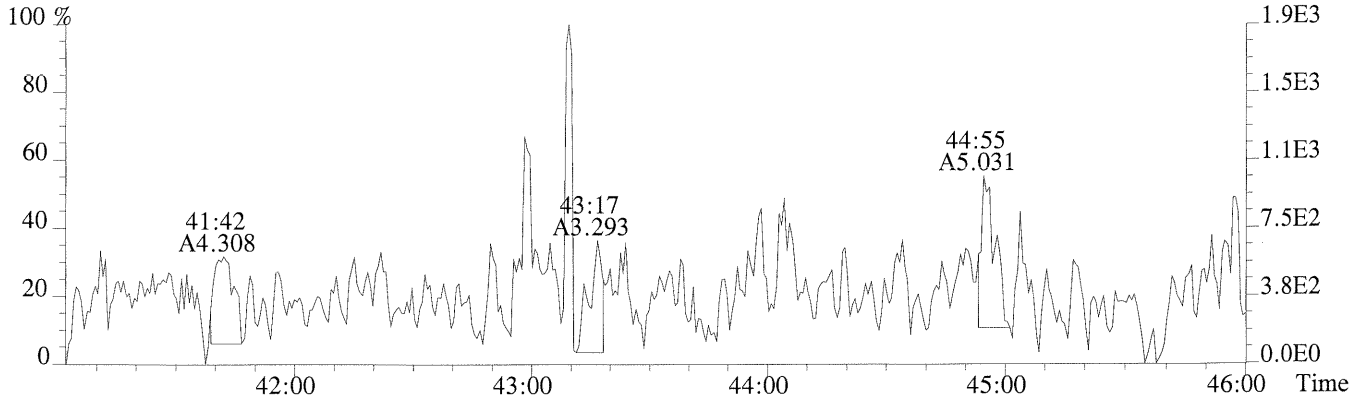
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



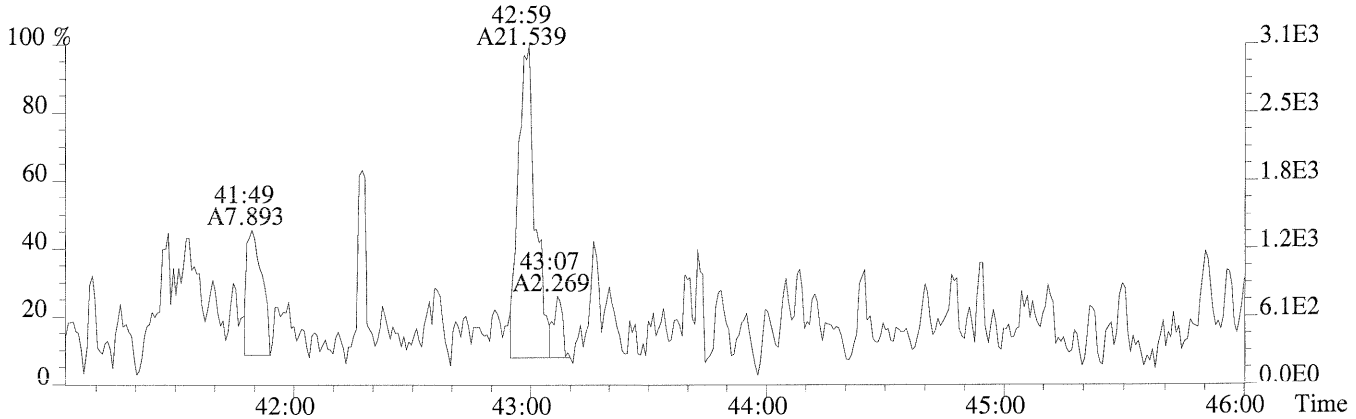
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



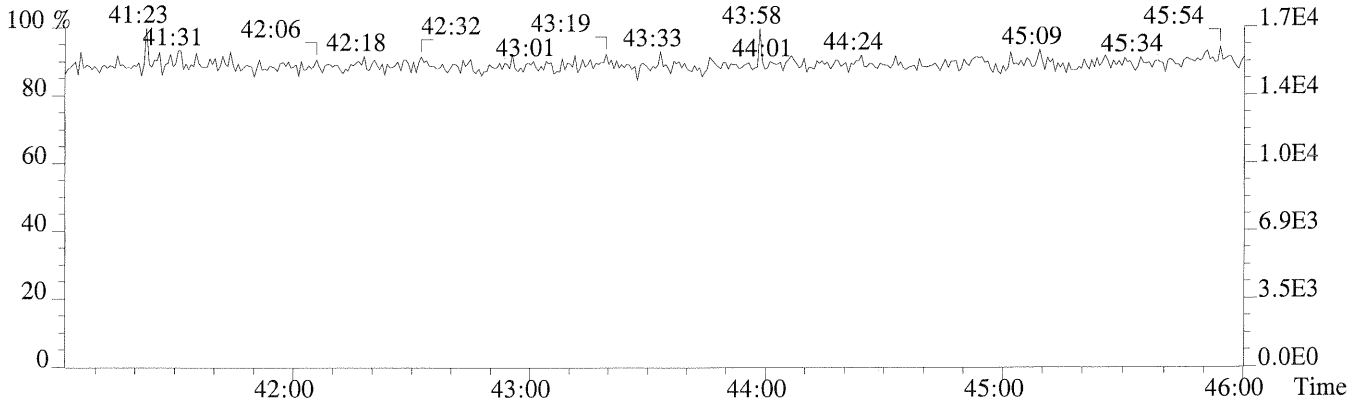
File:U149810 #1-451 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



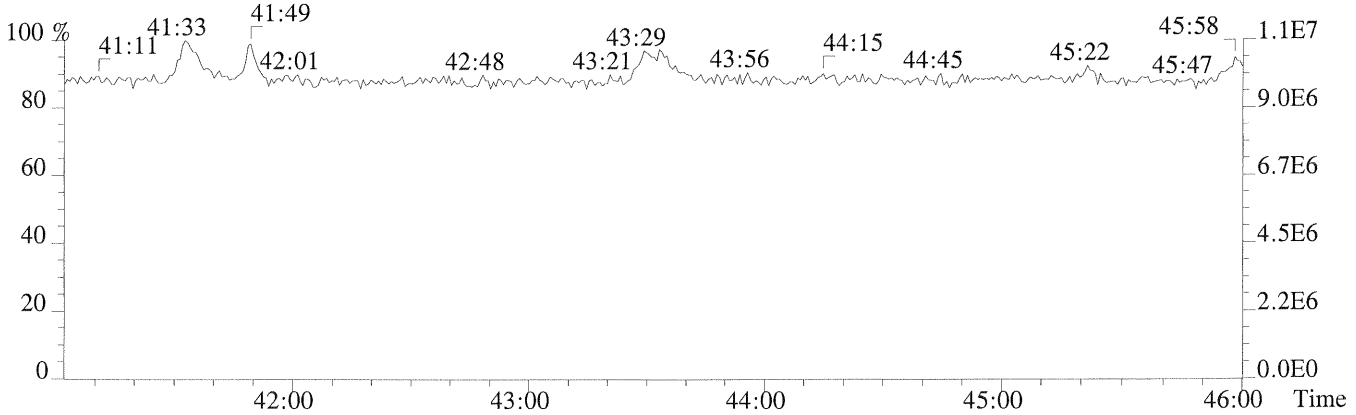
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

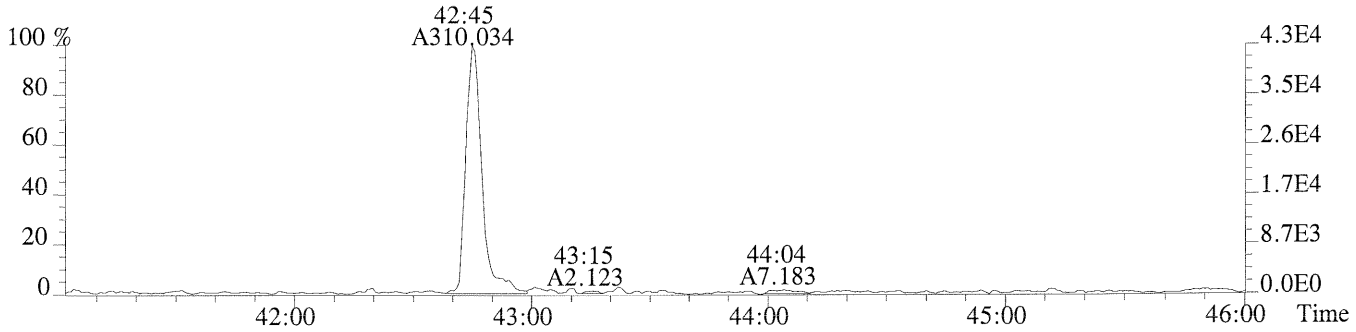


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

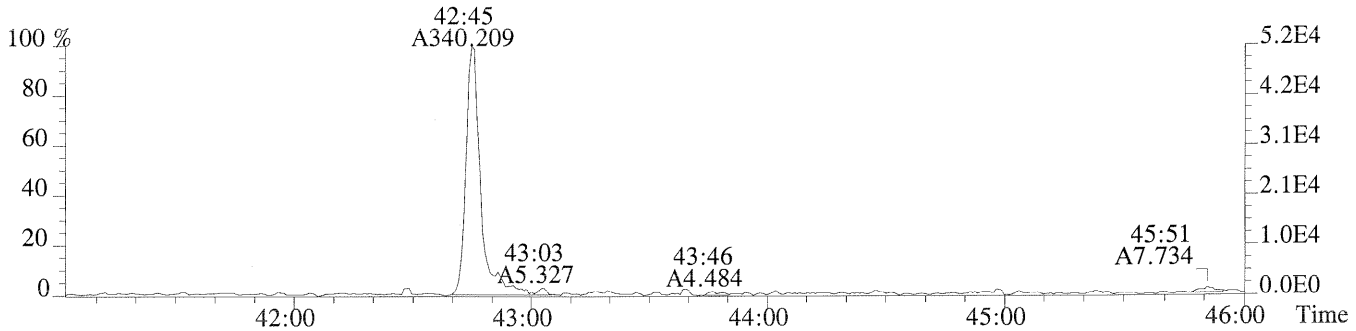


File:U149810 #1-451 Acq: 2-JUL-2014 01:43:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-006

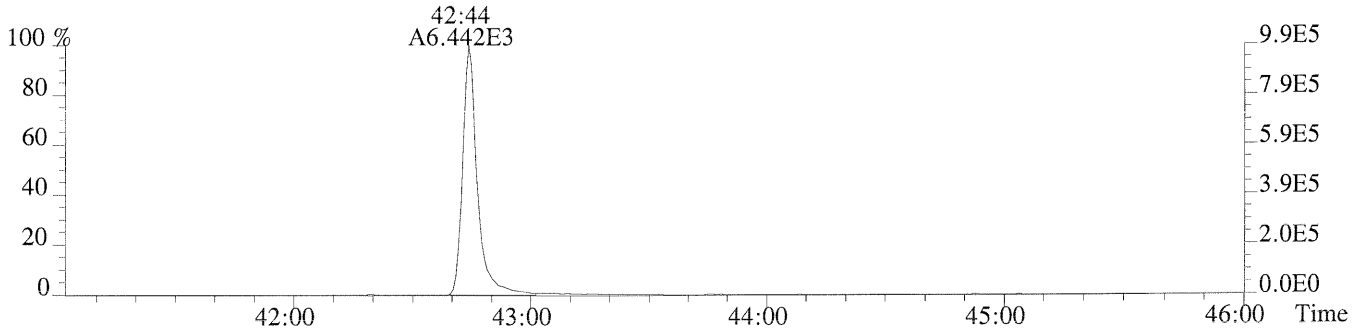
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,480.0,0.40%,F,T)



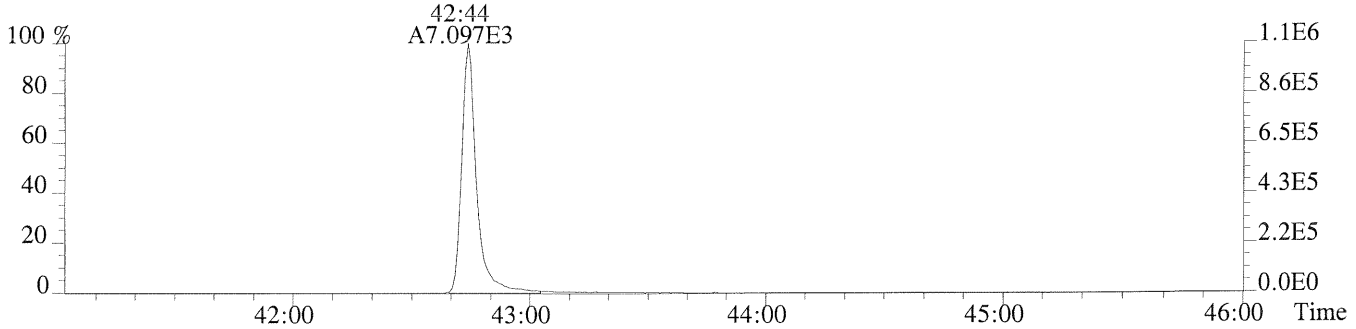
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,560.0,0.40%,F,T)



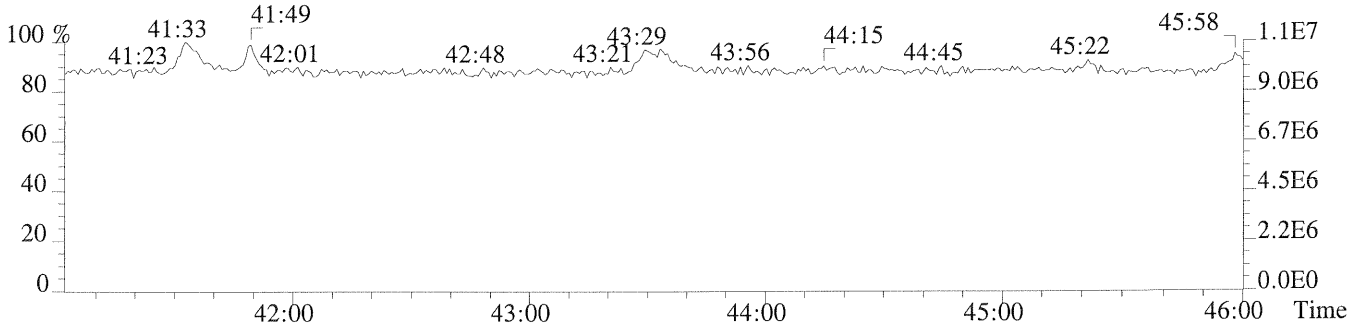
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406111634 20

Run #9 Filename U149816 Samp: 1 Inj: 1 Acquired: 2-JUL-14 10:59:11
Processed: 3-JUL-14 11:00:26 Sample ID: R1404651-007

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.358
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:51	2.351e+01	2.111e+01	1.11	yes	yes	1.065
17	Unk	OCDD	42:44	1.447e+02	1.758e+02	0.82	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:35	5.283e+03	6.447e+03	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	1.047e+04	6.549e+03	1.60	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	9.784e+03	6.227e+03	1.57	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	4.142e+03	7.840e+03	0.53	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	5.720e+03	1.082e+04	0.53	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	5.062e+03	9.526e+03	0.53	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	3.717e+03	7.395e+03	0.50	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:53	3.042e+03	6.604e+03	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.953e+03	6.203e+03	0.48	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:21	3.738e+03	4.802e+03	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	7.448e+03	4.747e+03	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	5.483e+03	4.250e+03	1.29	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	6.357e+03	5.023e+03	1.27	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	5.642e+03	5.147e+03	1.10	yes	no	0.936
32	IS	13C-OCDD	42:44	6.320e+03	6.756e+03	0.94	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:46	6.346e+03	8.281e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	9.719e+03	7.315e+03	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.979e+03				no	1.044

$$\text{OCDD} = \frac{(1.447e+02 + 1.758e+02) \times 4000 \text{ pg} \times 1}{(6.320e+03 + 6.756e+03) \times 10.280 \times 91.3 \times 1.177} = 8.88 \text{ pg/kg}$$

07/1/14

1613RESP1

ALS ENVIRONMENTAL
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Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406111634 200-S

Run #9 Filename U149816 Samp: 1 Inj: 1 Acquired: 2-JUL-14 10:59:11
Processed: 3-JUL-14 11:00:261 LAB. ID: R1404651-007

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.80e+02	*	*	7.96e+02	*
2	1,2,3,7,8-PeCDF	*	5.92e+02	*	*	6.20e+02	*
3	2,3,4,7,8-PeCDF	*	5.92e+02	*	*	6.20e+02	*
4	1,2,3,4,7,8-HxCDF	*	8.20e+02	*	*	6.08e+02	*
5	1,2,3,6,7,8-HxCDF	*	8.20e+02	*	*	6.08e+02	*
6	2,3,4,6,7,8-HxCDF	*	8.20e+02	*	*	6.08e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.20e+02	*	*	6.08e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	6.48e+02	*	*	5.84e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	6.48e+02	*	*	5.84e+02	*
10	OCDF	*	6.04e+02	*	*	6.28e+02	*
11	2,3,7,8-TCDD	*	7.84e+02	*	*	5.40e+02	*
12	1,2,3,7,8-PeCDD	*	9.88e+02	*	*	6.24e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.88e+02	*	*	7.36e+02	*
14	1,2,3,6,7,8-HxCDD	*	7.88e+02	*	*	7.36e+02	*
15	1,2,3,7,8,9-HxCDD	*	7.88e+02	*	*	7.36e+02	*
16	1,2,3,4,6,7,8-HpCDD	4.72e+03	6.88e+02	6.9e+00	5.01e+03	4.84e+02	1.0e+01
17	OCDD	2.16e+04	4.92e+02	4.4e+01	2.45e+04	6.04e+02	4.1e+01
18	13C-2,3,7,8-TCDF	1.08e+06	9.08e+02	1.2e+03	1.33e+06	6.64e+02	2.0e+03
19	13C-1,2,3,7,8-PeCDF	1.88e+06	6.68e+02	2.8e+03	1.16e+06	6.56e+02	1.8e+03
20	13C-2,3,4,7,8-PeCDF	1.93e+06	6.68e+02	2.9e+03	1.23e+06	6.56e+02	1.9e+03
21	13C-1,2,3,4,7,8-HxCDF	8.97e+05	7.68e+02	1.2e+03	1.68e+06	1.16e+03	1.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.12e+06	7.68e+02	1.5e+03	2.09e+06	1.16e+03	1.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.02e+06	7.68e+02	1.3e+03	1.93e+06	1.16e+03	1.7e+03
24	13C-1,2,3,7,8,9-HxCDF	6.99e+05	7.68e+02	9.1e+02	1.36e+06	1.16e+03	1.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.68e+05	7.64e+02	7.4e+02	1.25e+06	1.07e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.34e+05	7.64e+02	7.0e+02	1.15e+06	1.07e+03	1.1e+03
27	13C-2,3,7,8-TCDD	7.81e+05	1.70e+03	4.6e+02	9.98e+05	8.40e+02	1.2e+03
28	13C-1,2,3,7,8-PeCDD	1.42e+06	6.76e+02	2.1e+03	9.01e+05	6.96e+02	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.17e+06	9.00e+02	1.3e+03	9.18e+05	1.01e+03	9.1e+02
30	13C-1,2,3,6,7,8-HxCDD	1.18e+06	9.00e+02	1.3e+03	9.40e+05	1.01e+03	9.3e+02
31	13C-1,2,3,4,6,7,8-HpCDD	1.05e+06	6.36e+02	1.7e+03	9.60e+05	5.20e+02	1.8e+03
32	13C-OCDD	9.06e+05	5.92e+02	1.5e+03	9.62e+05	5.08e+02	1.9e+03
33	13C-1,2,3,4-TCDD	1.33e+06	1.70e+03	7.8e+02	1.78e+06	8.40e+02	2.1e+03
34	13C-1,2,3,7,8,9-HxCDD	1.77e+06	9.00e+02	2.0e+03	1.35e+06	1.01e+03	1.3e+03
35	37Cl-2,3,7,8-TCDD	6.33e+05	7.52e+02	8.4e+02			

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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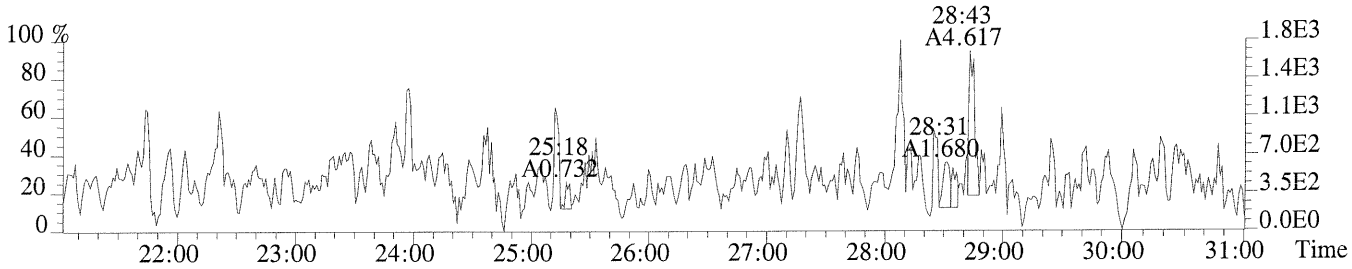
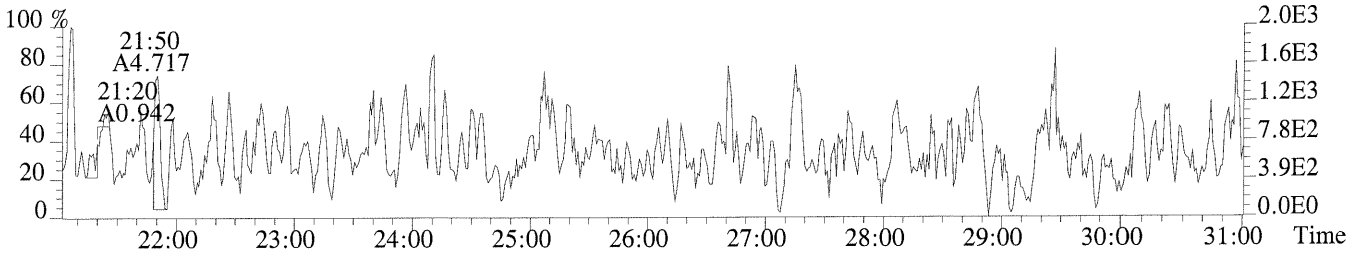
Office:(713)266-1599. Fax:(713)266-0130

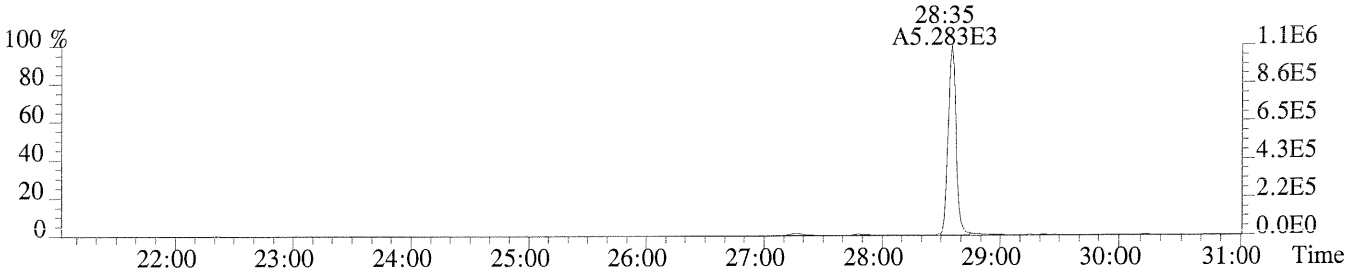
File:U149816 #1-627 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



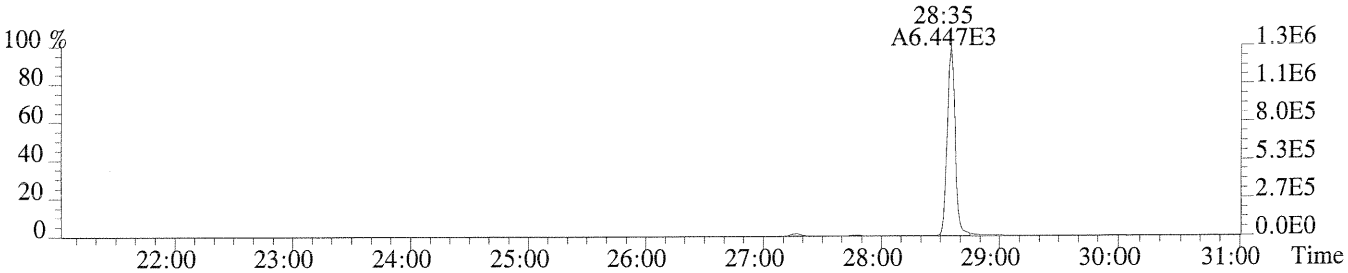
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



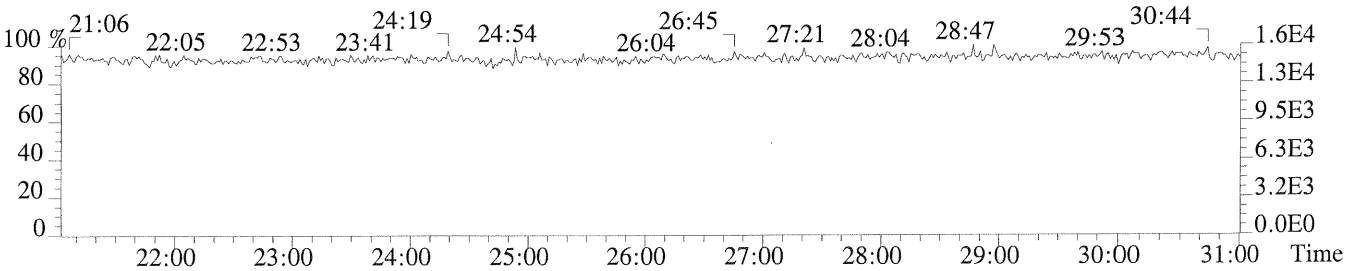
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,908.0,1.00%,F,T)



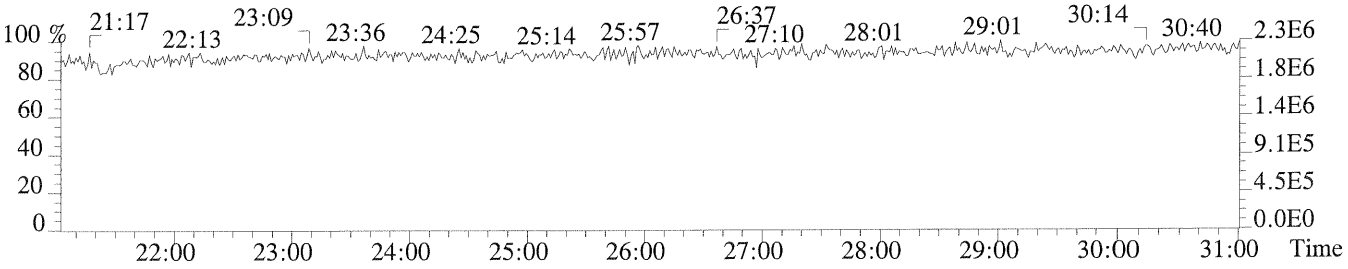
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



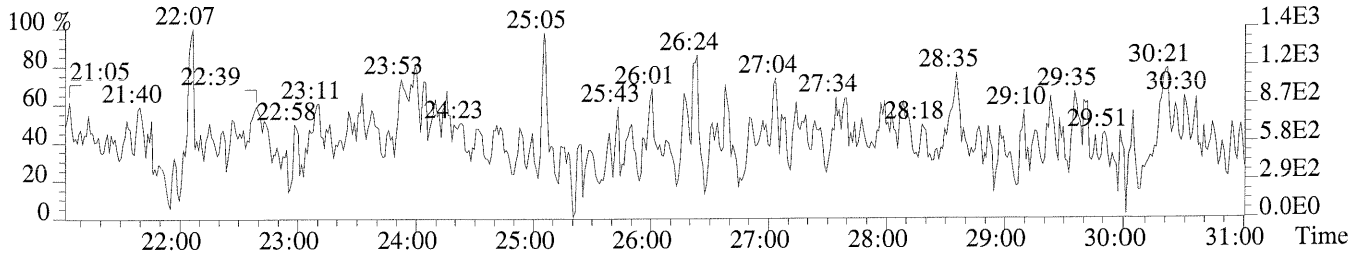
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



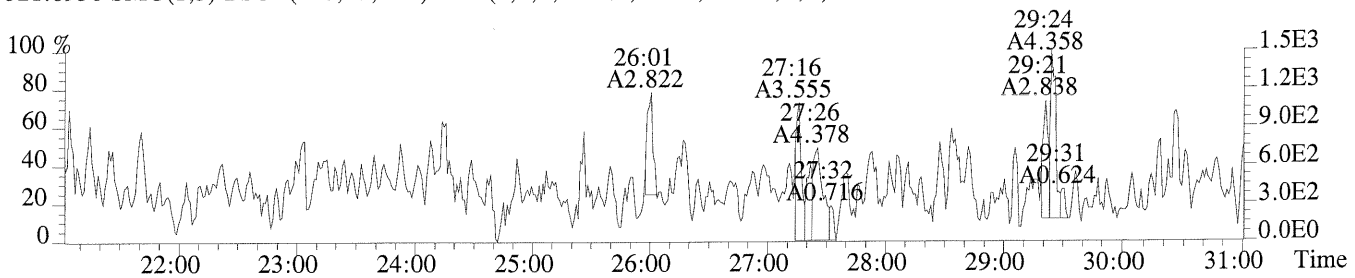
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



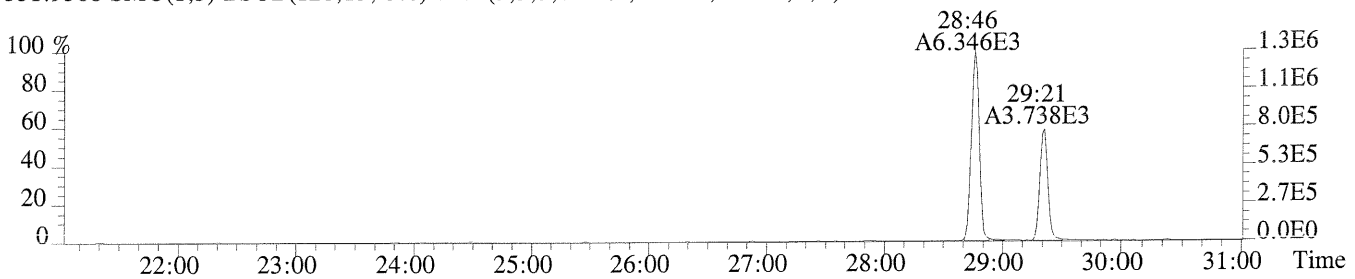
File:U149816 #1-627 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



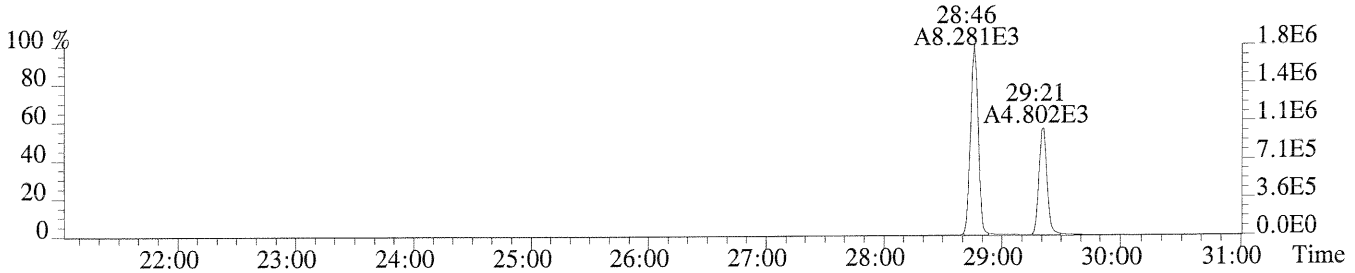
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



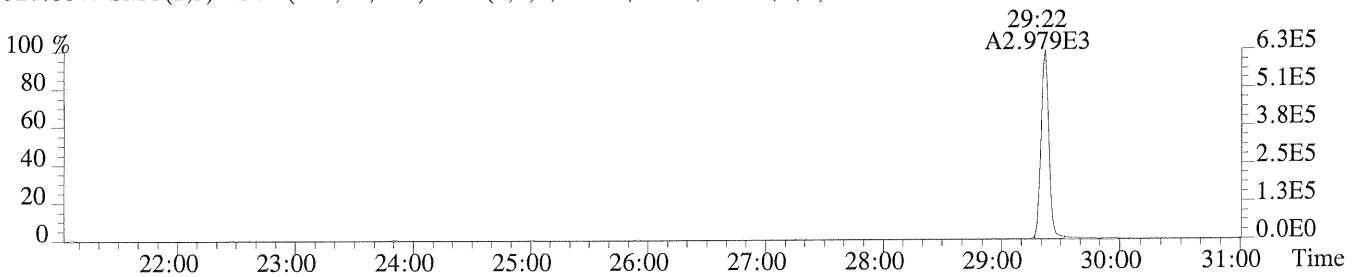
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)



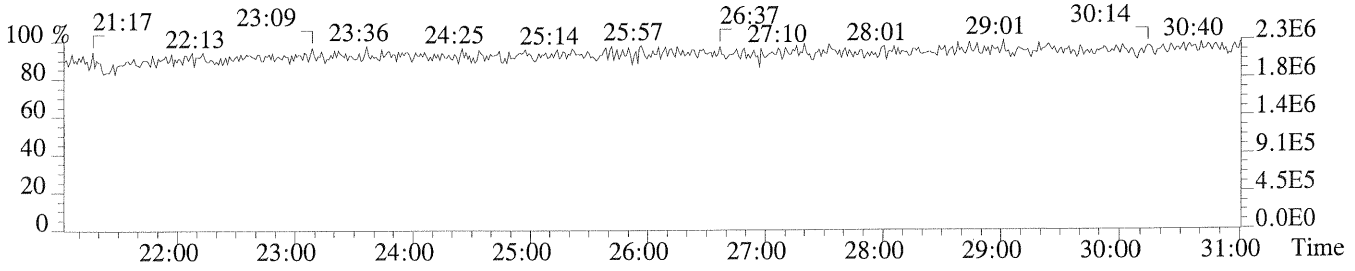
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)

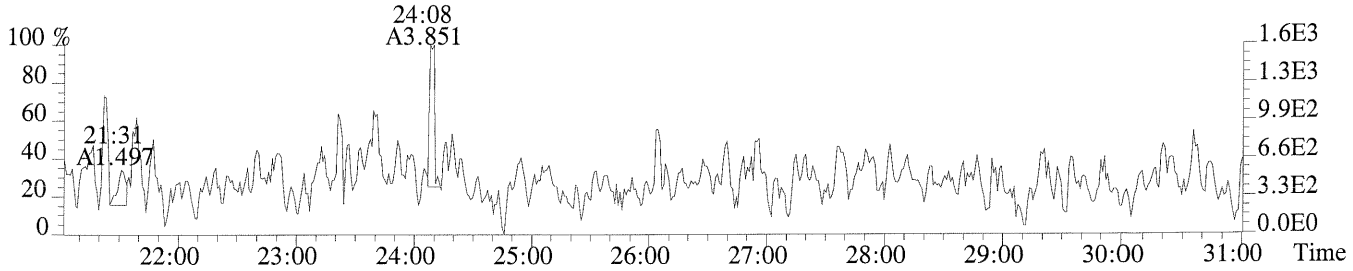


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

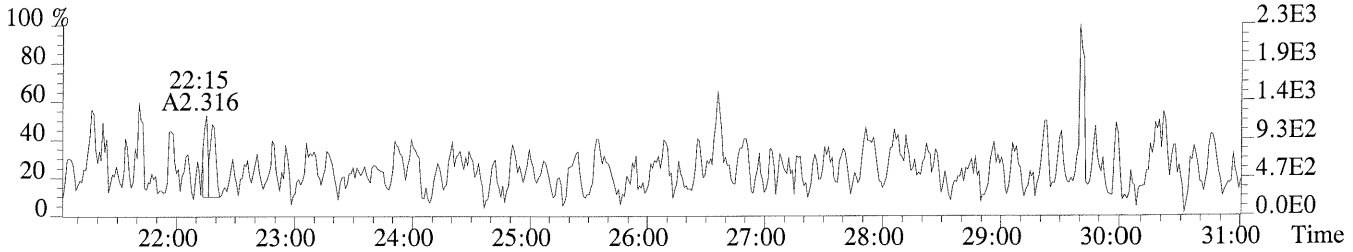


File:U149816 #1-627 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007

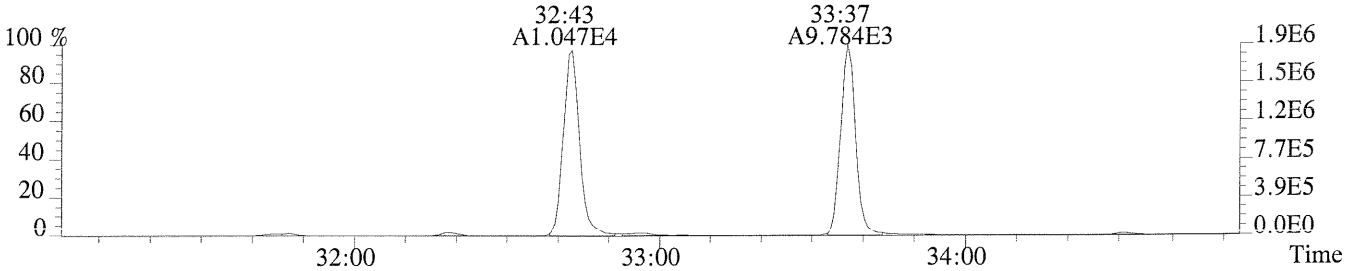
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



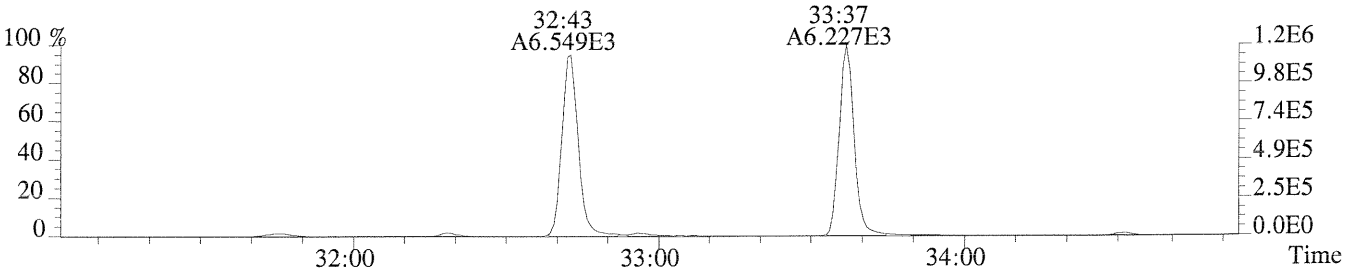
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



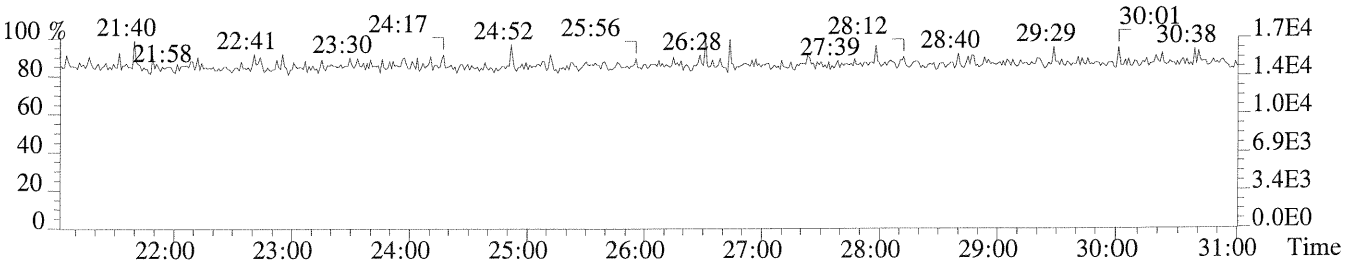
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



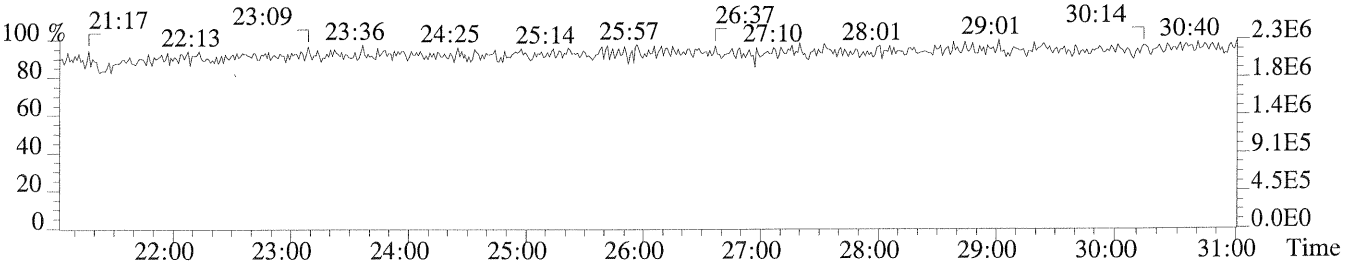
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

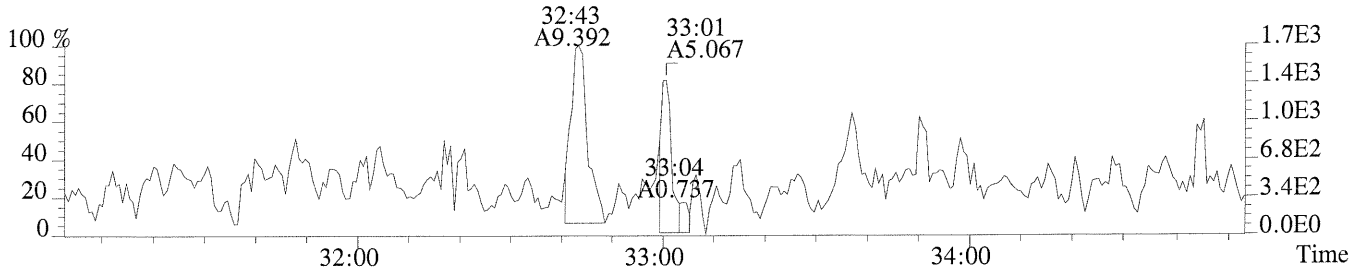


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

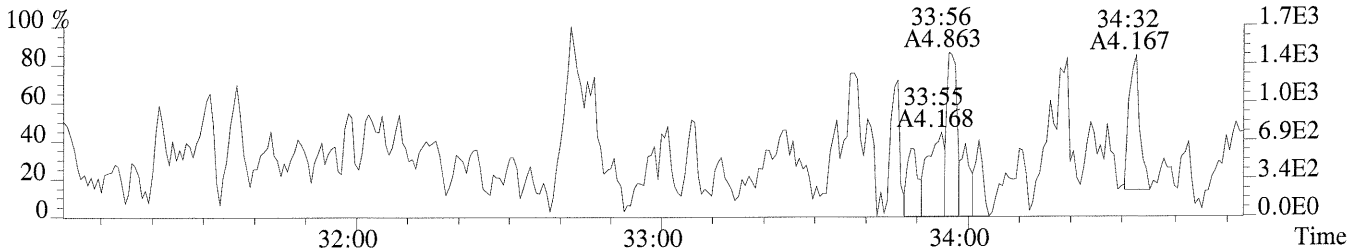


File:U149816 #1-349 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007

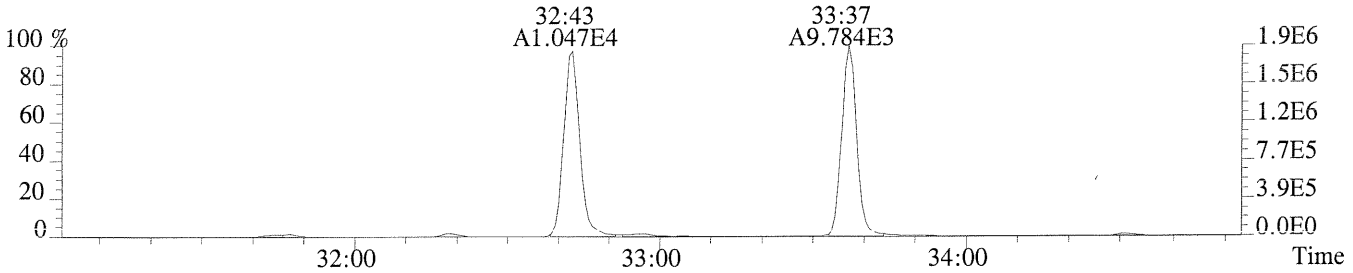
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



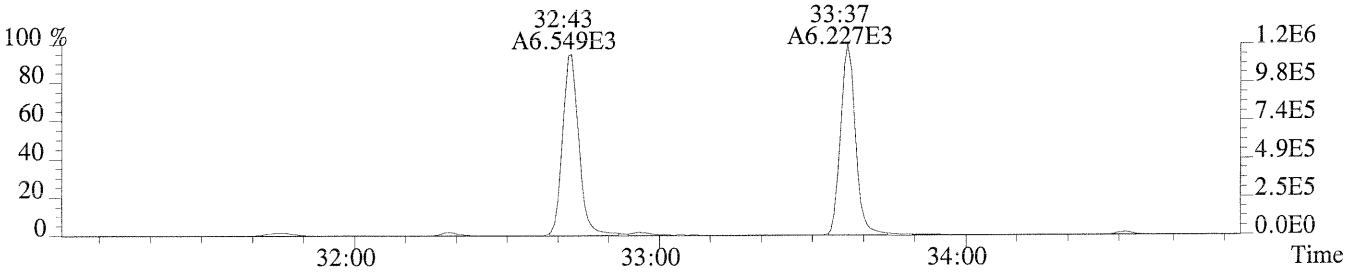
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



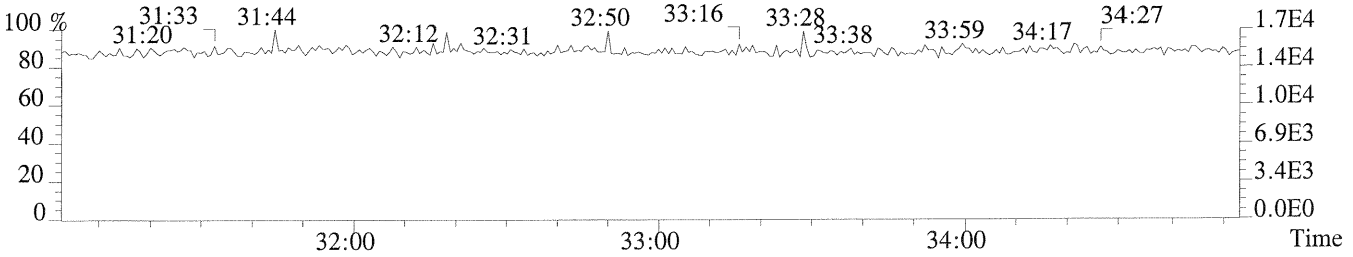
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



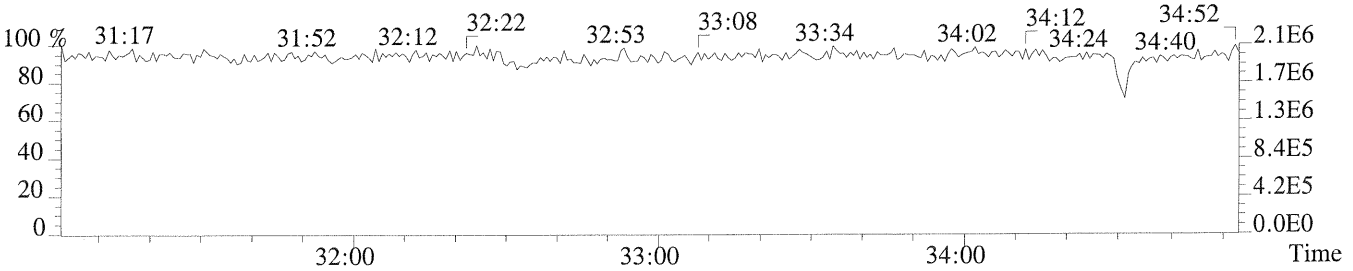
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



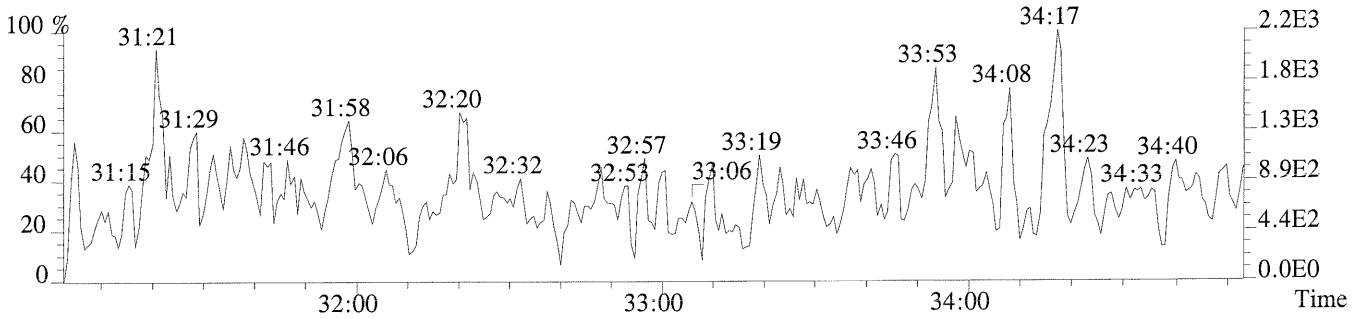
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



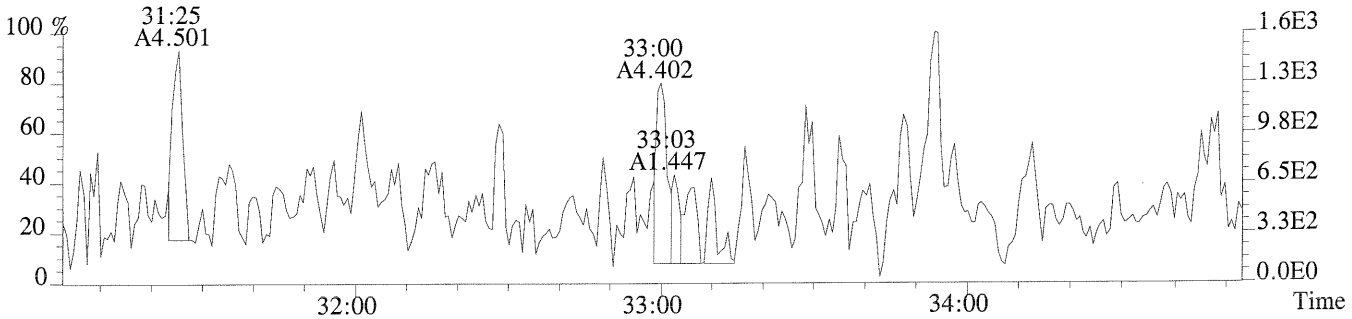
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



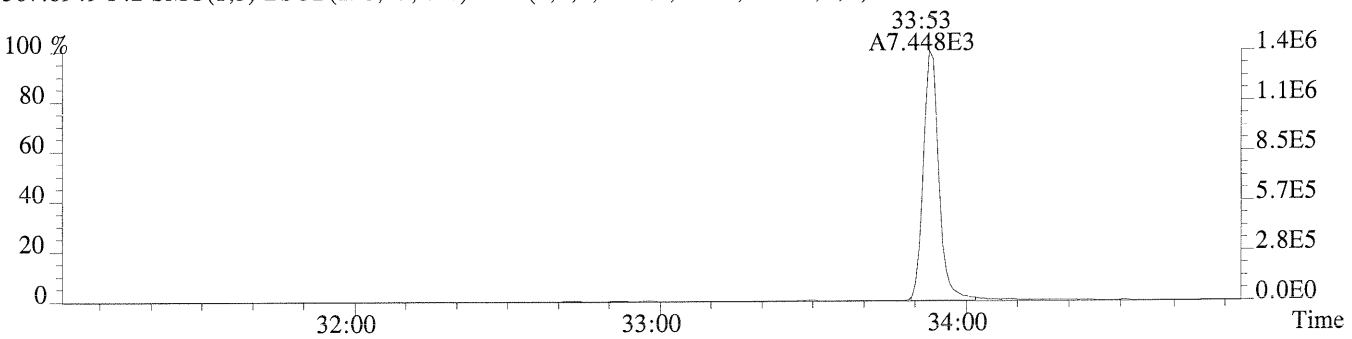
File:U149816 #1-349 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



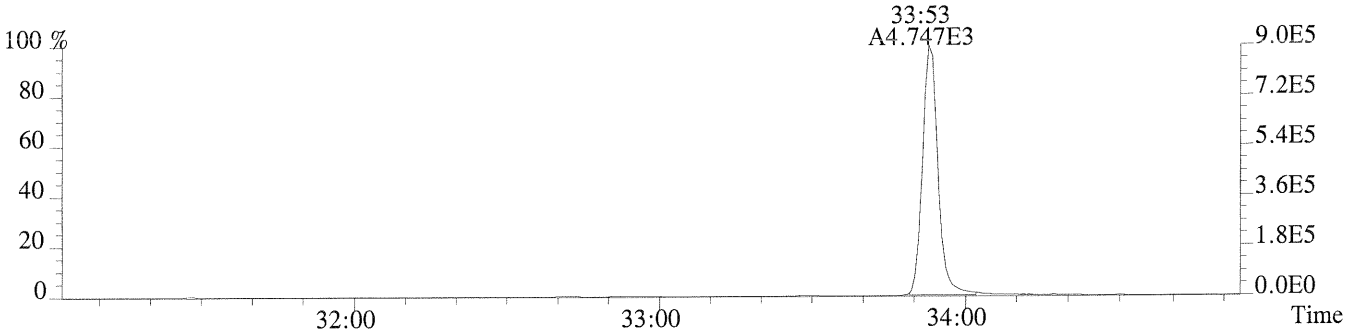
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



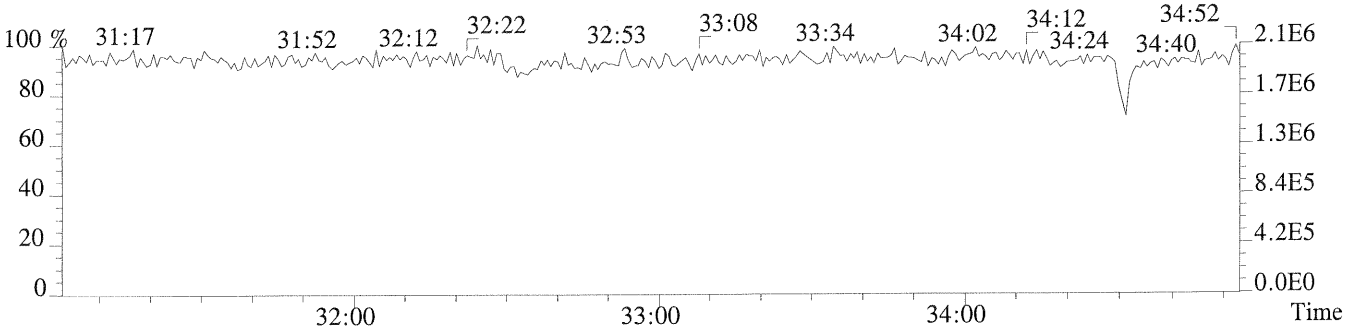
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)

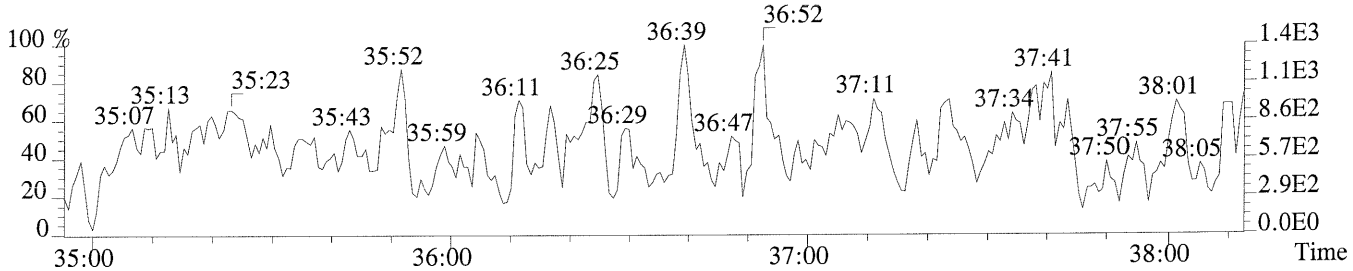


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

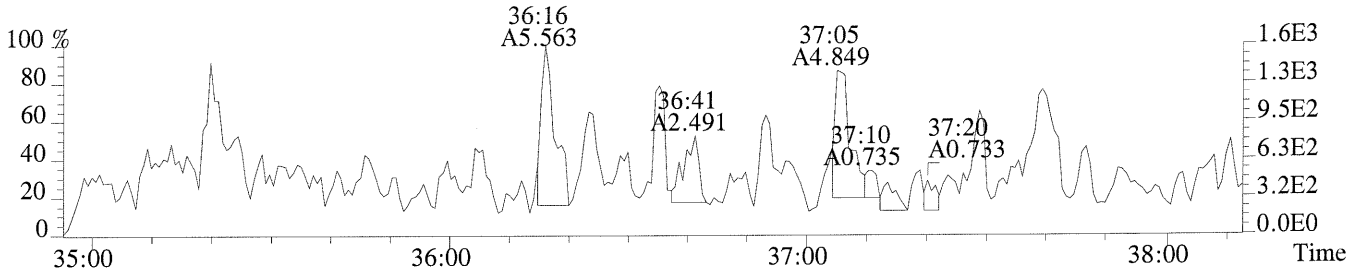


File:U149816 #1-299 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007

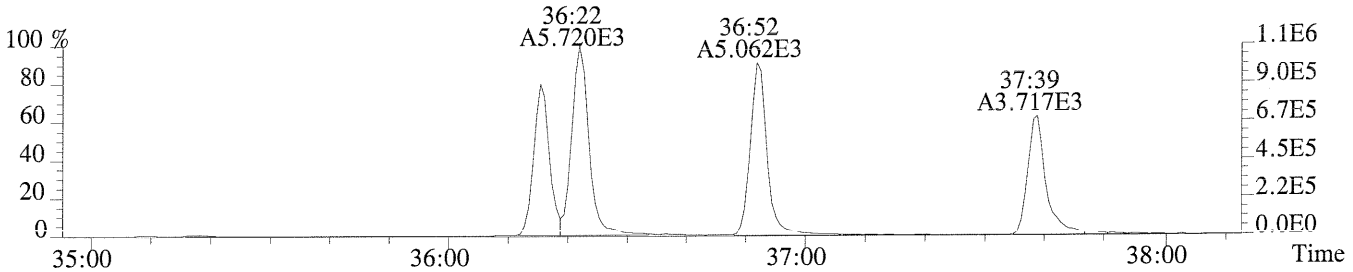
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



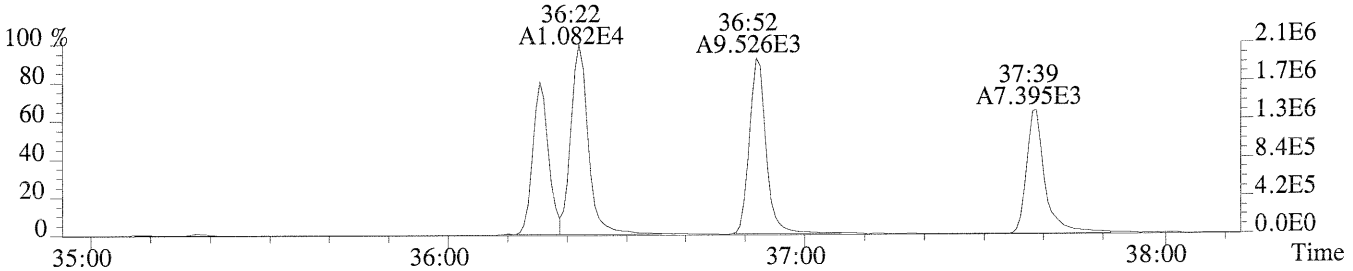
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)



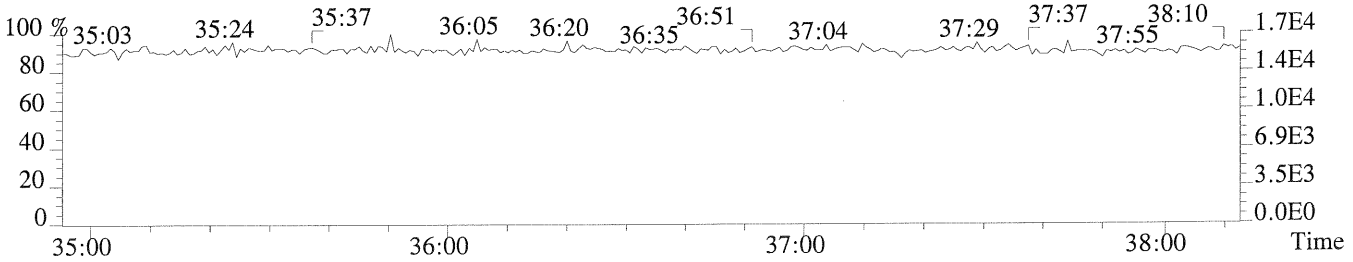
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.40%,F,T)



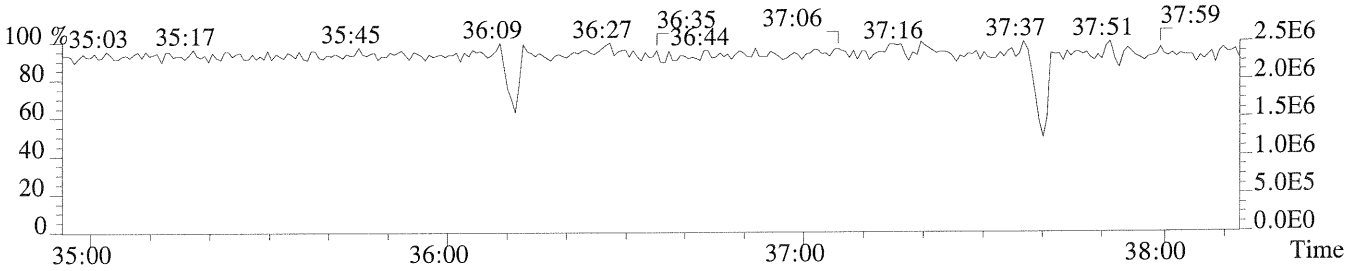
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)



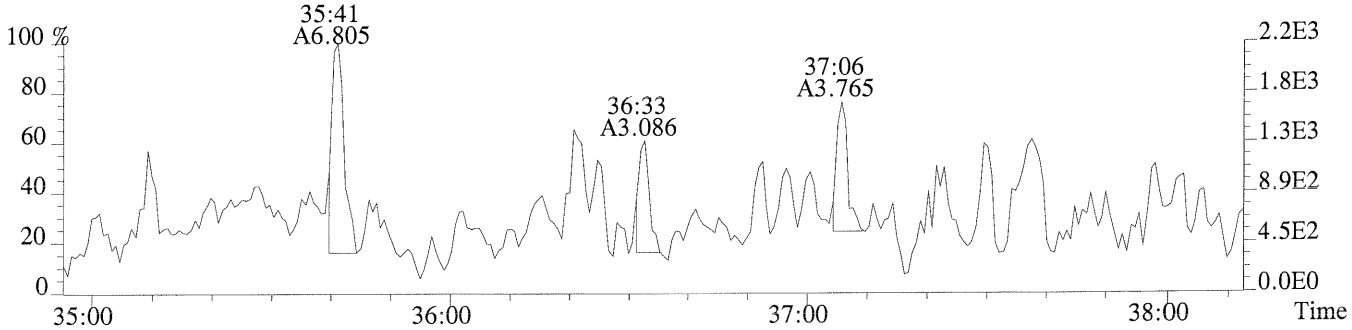
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



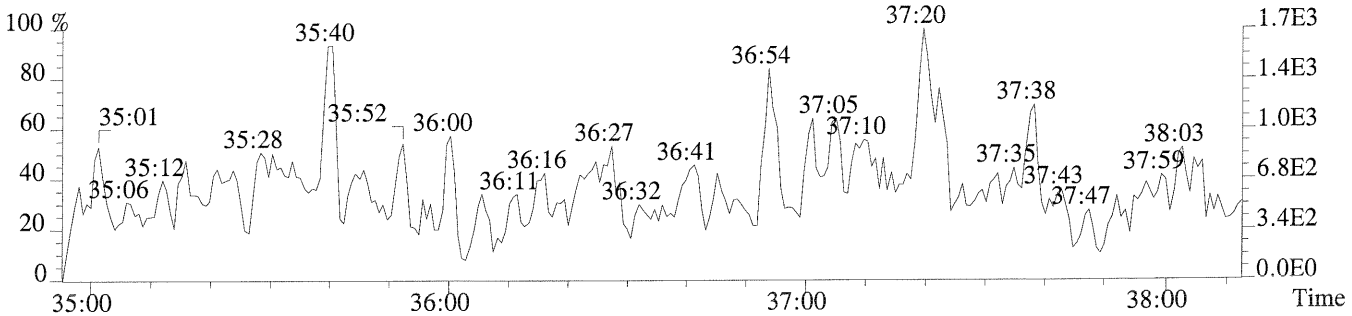
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



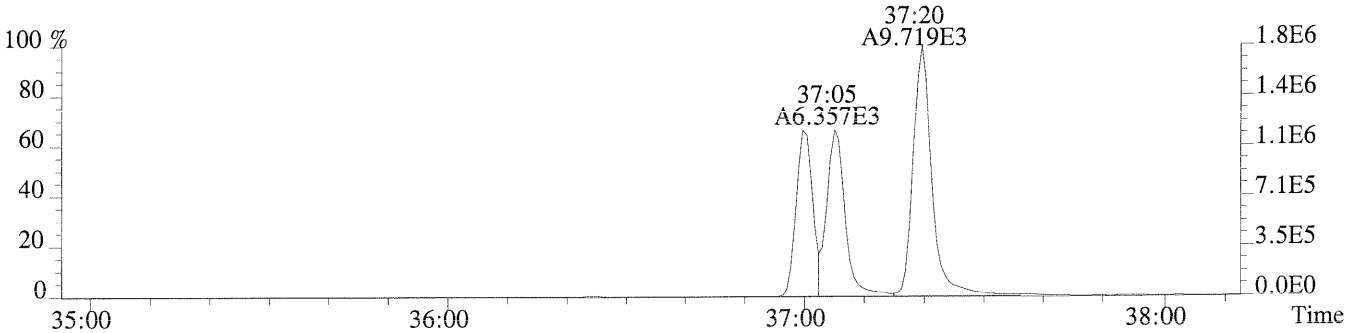
File:U149816 #1-299 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.40%,F,T)



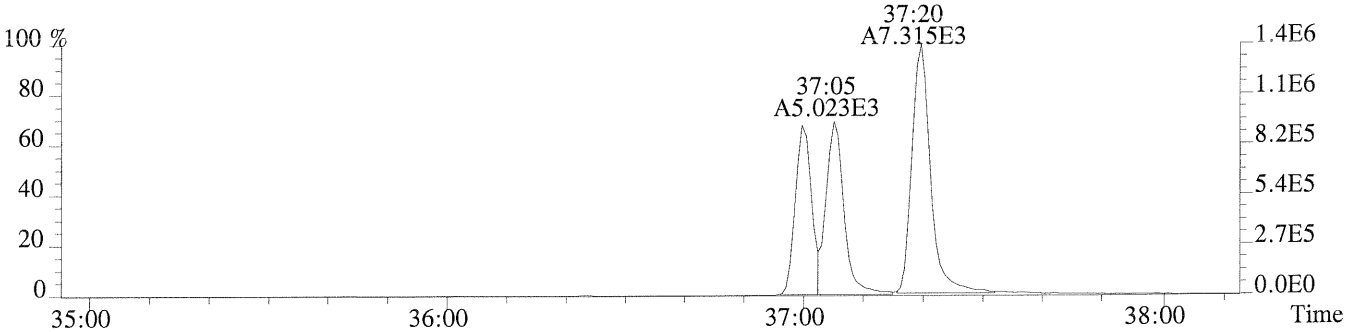
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



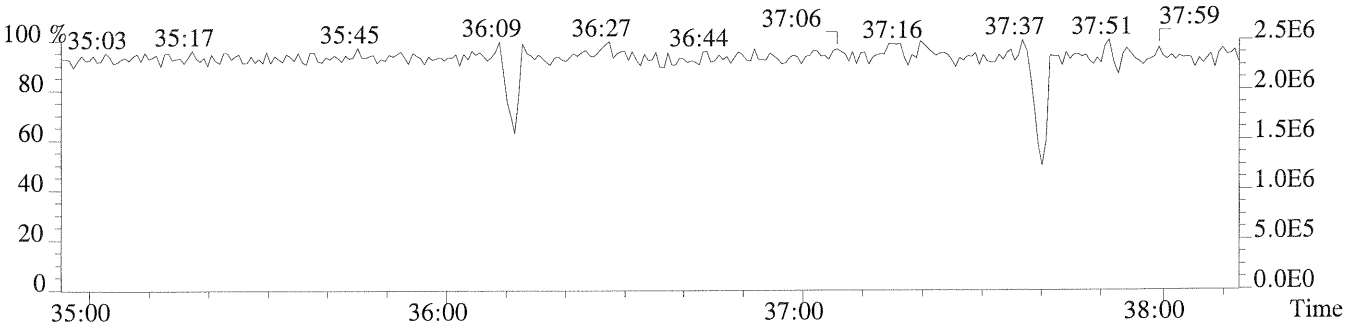
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)

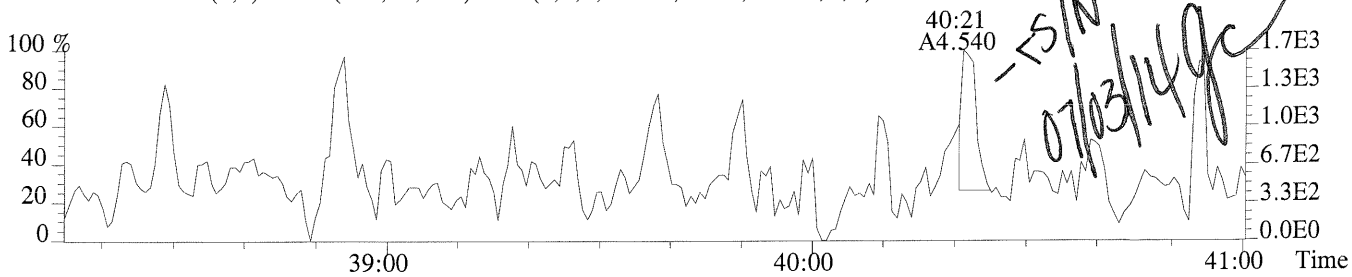


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

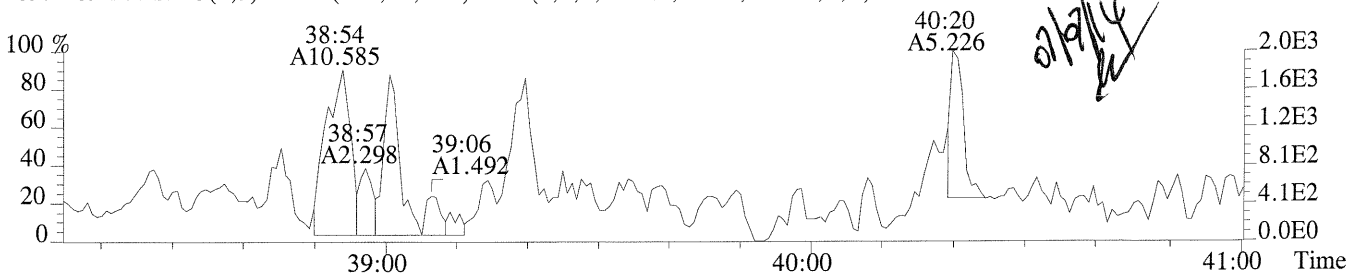


File:U149816 #1-251 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007

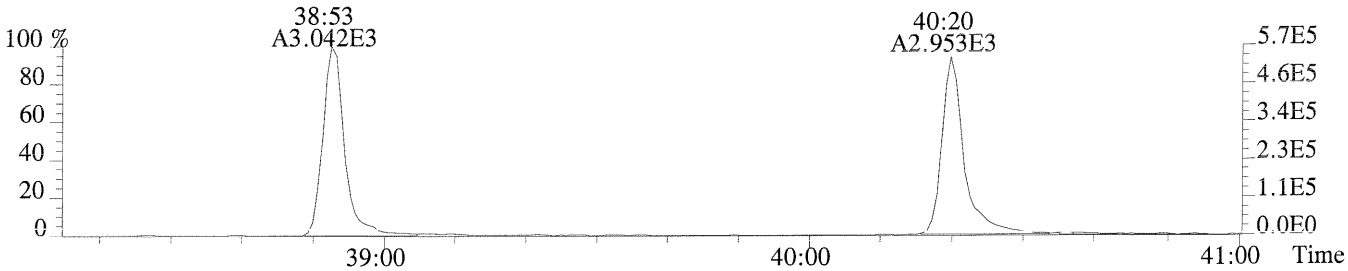
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.50%,F,T)



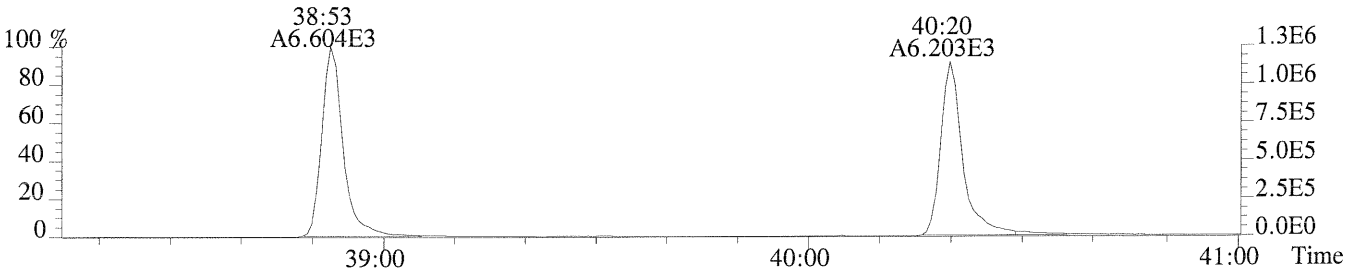
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.50%,F,T)



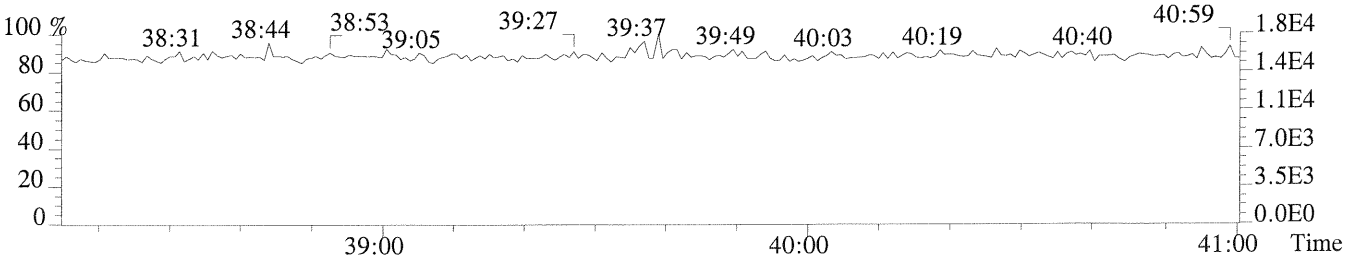
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.50%,F,T)



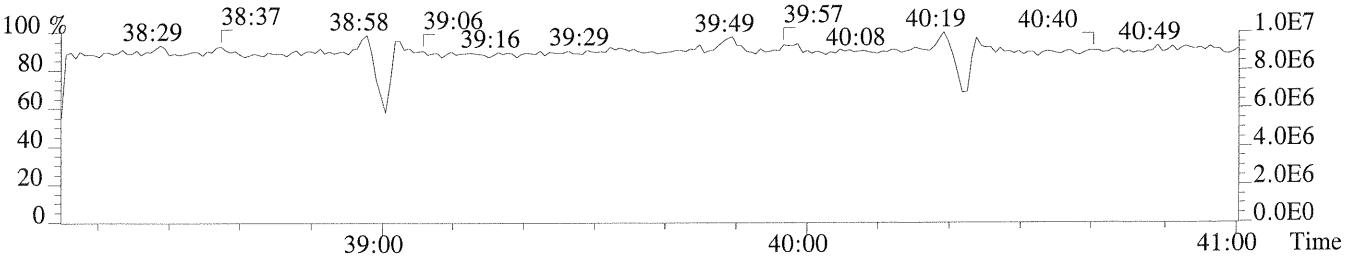
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.50%,F,T)



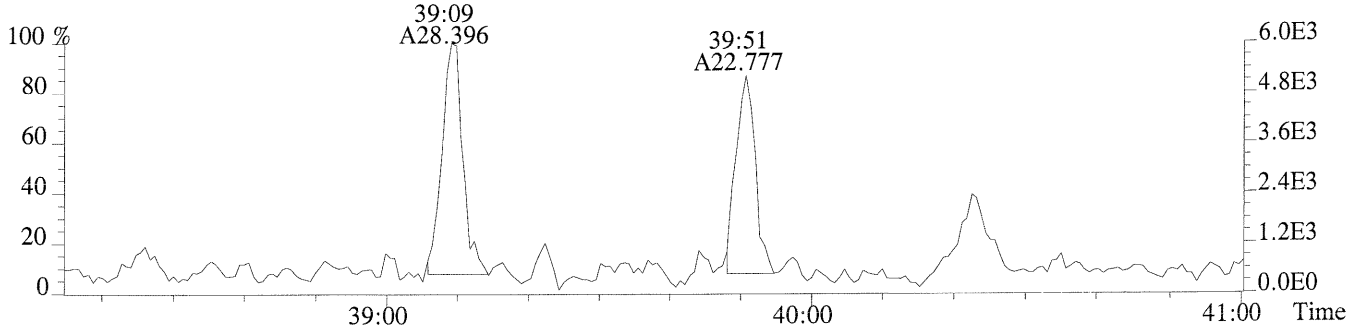
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



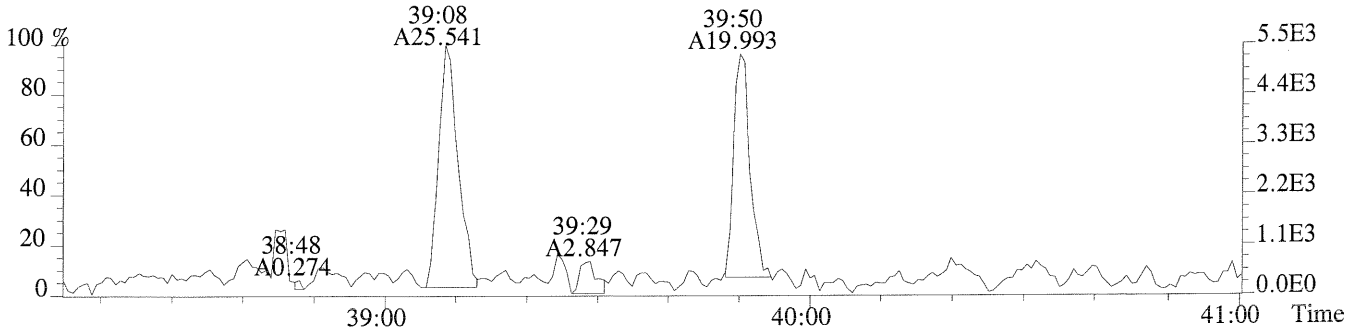
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



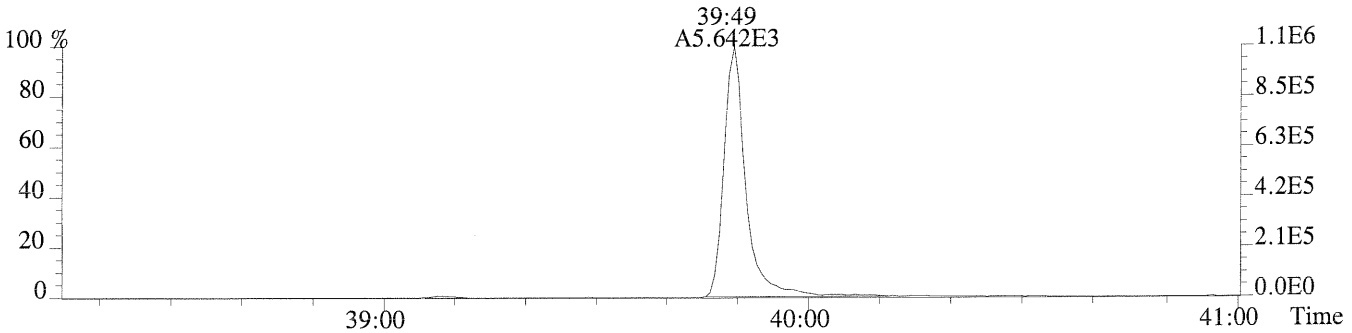
File:U149816 #1-251 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



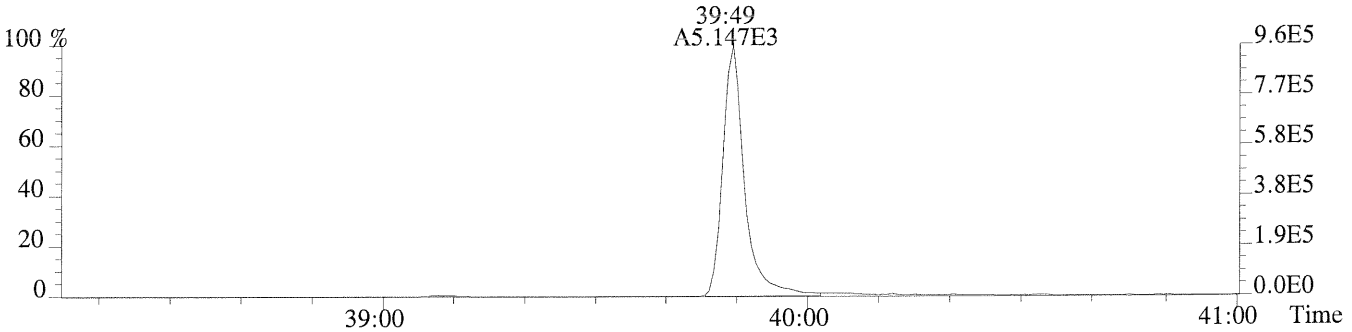
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



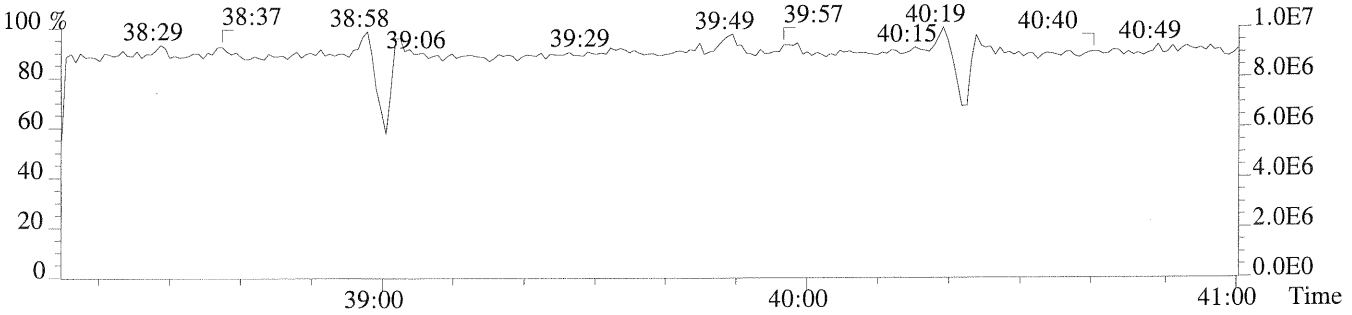
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



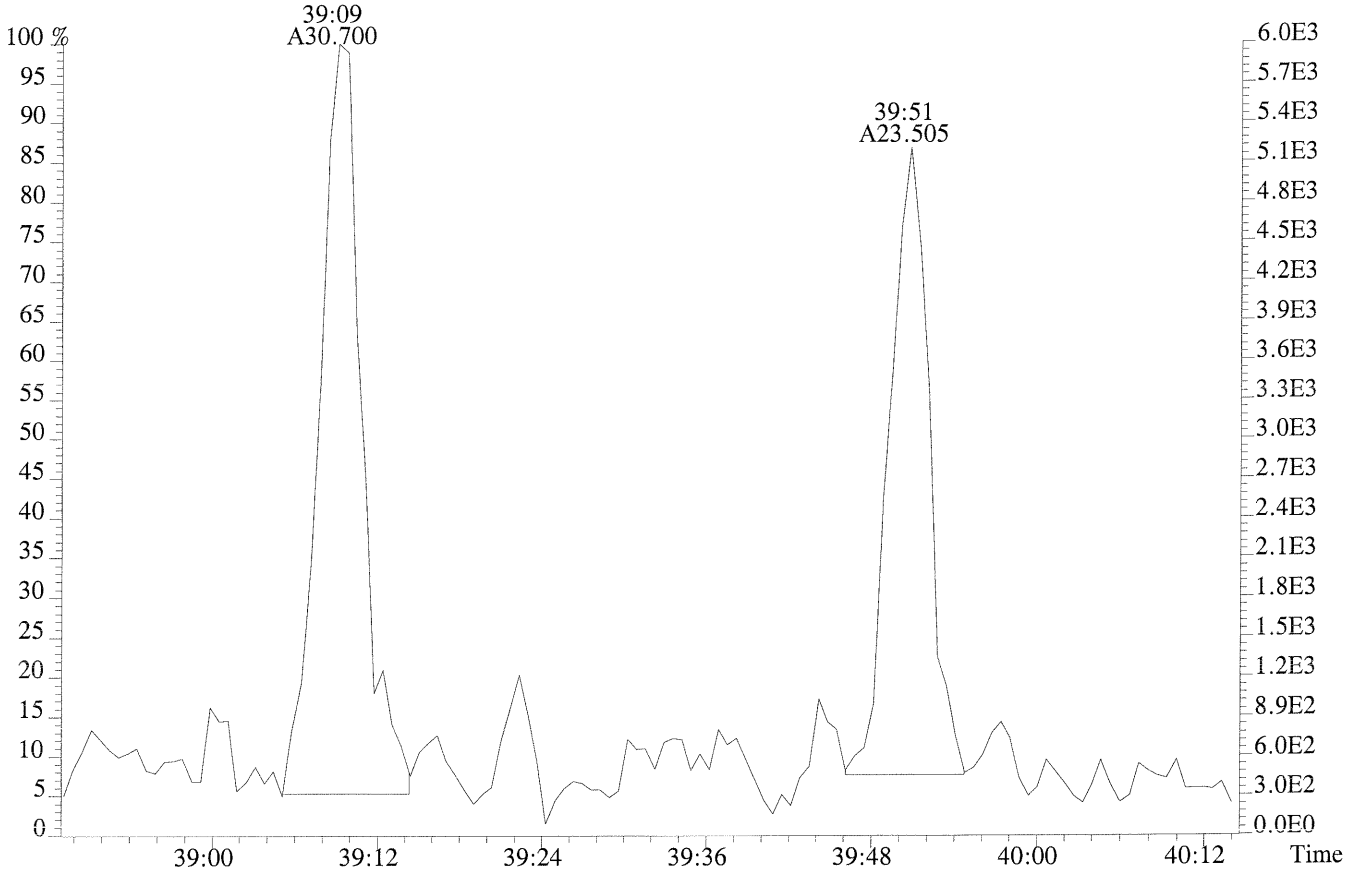
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



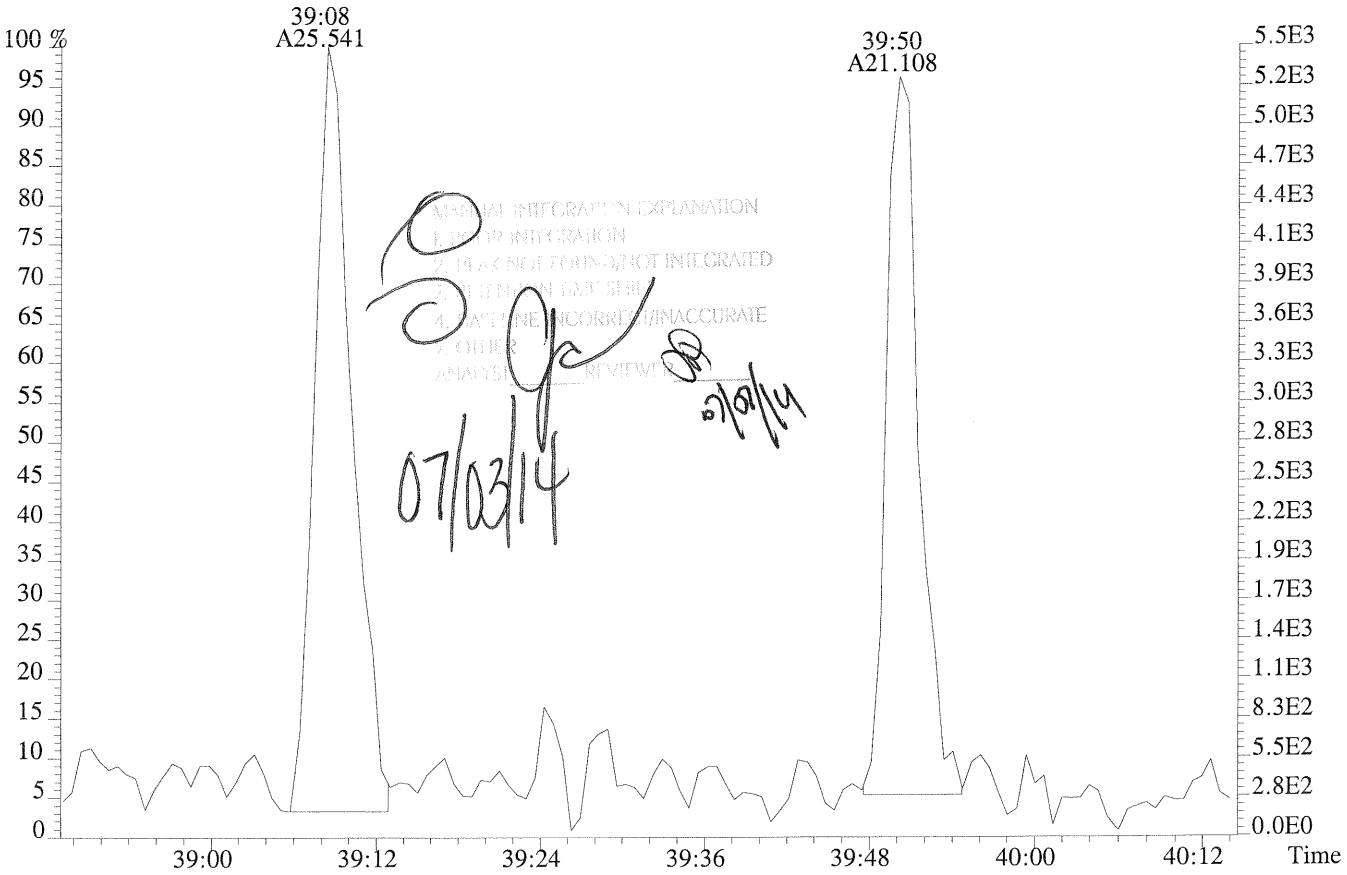
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



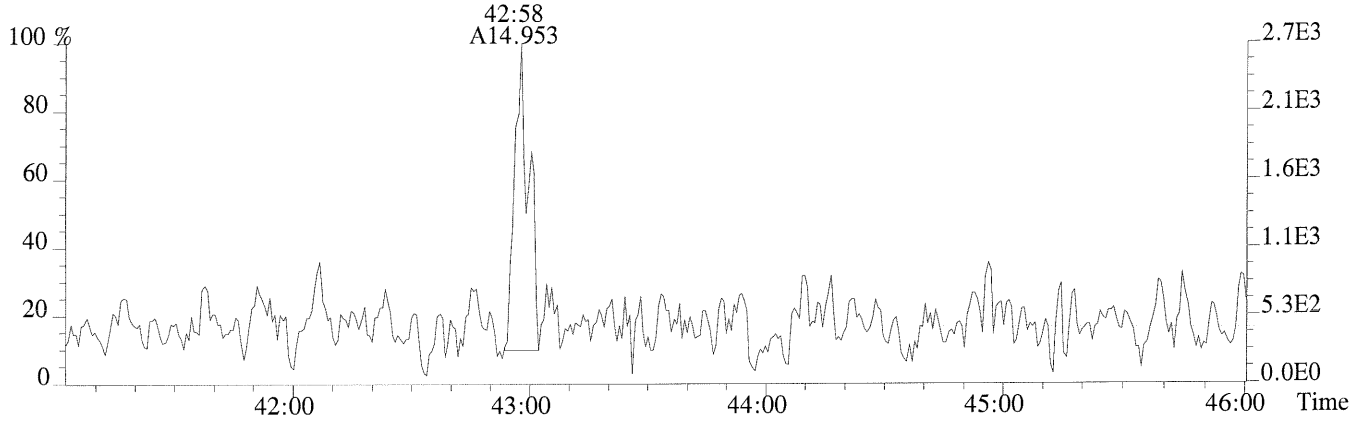
File:U149816 #1-251 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



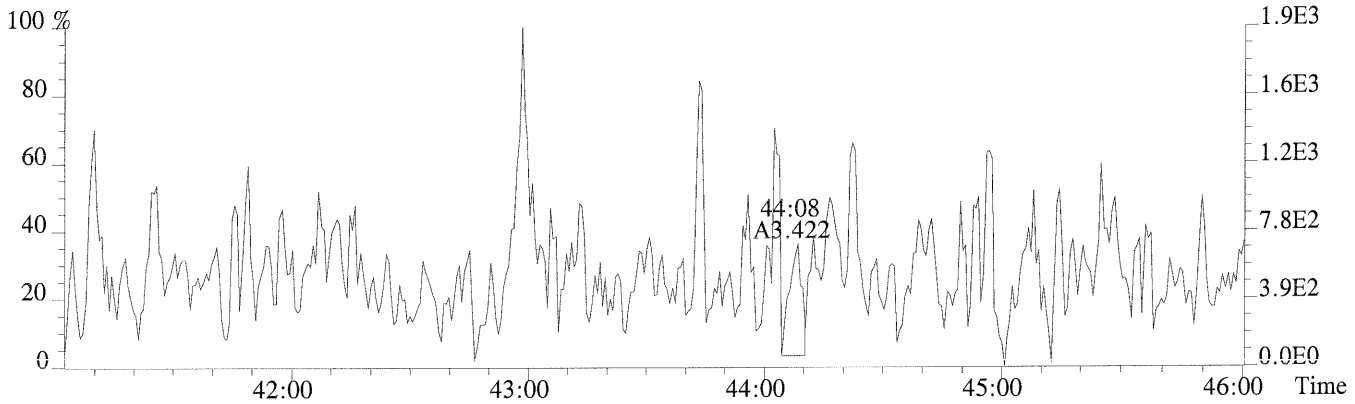
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,484.0,0.40%,F,T)



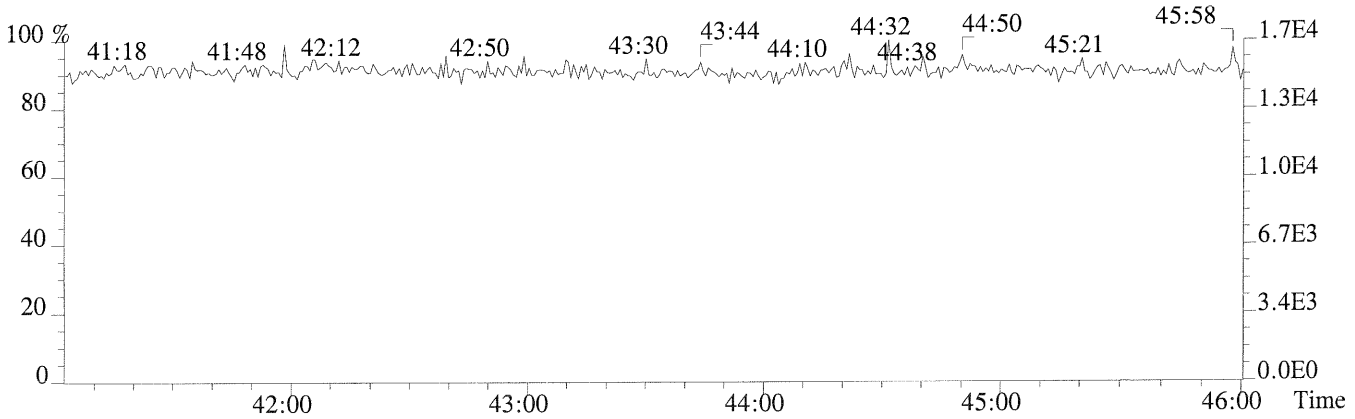
File:U149816 #1-451 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



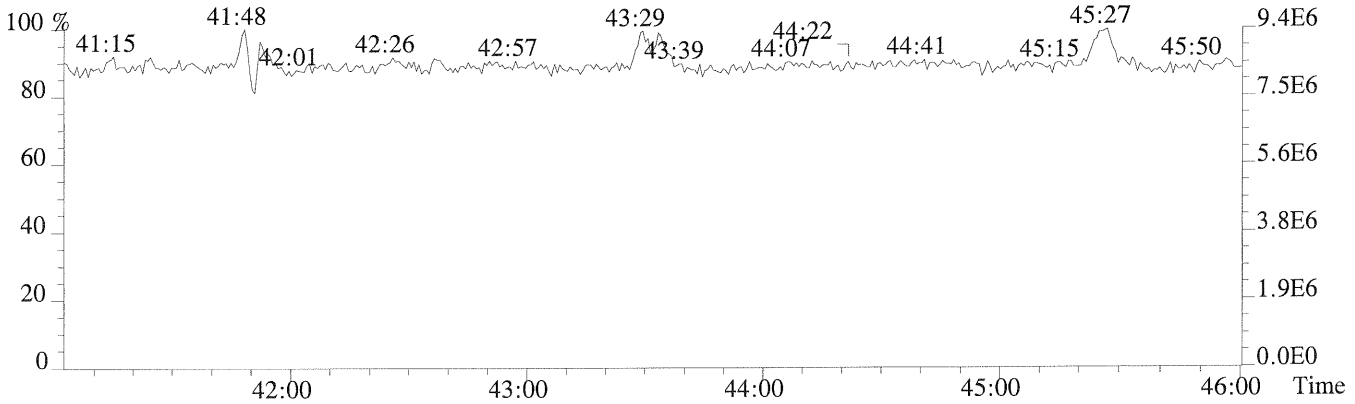
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



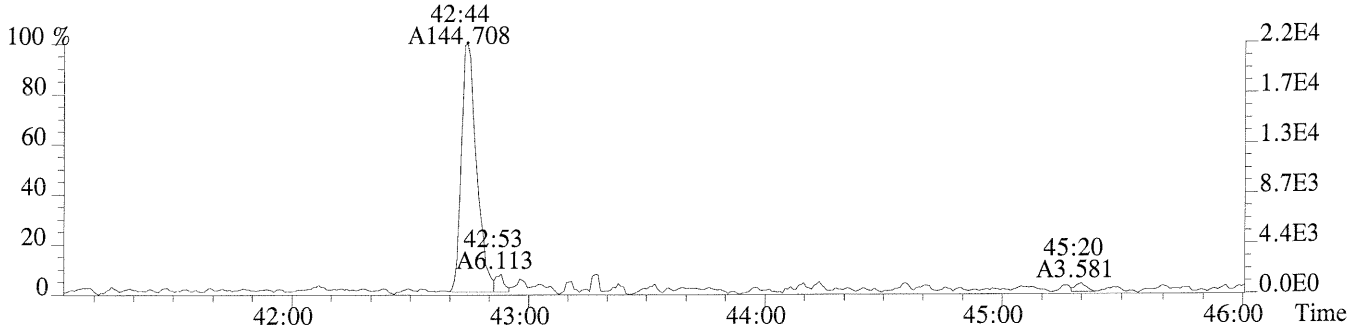
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



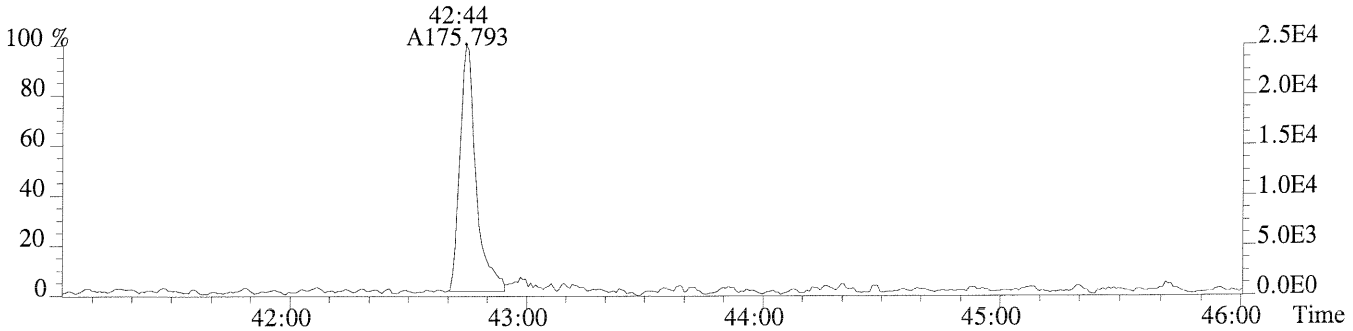
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



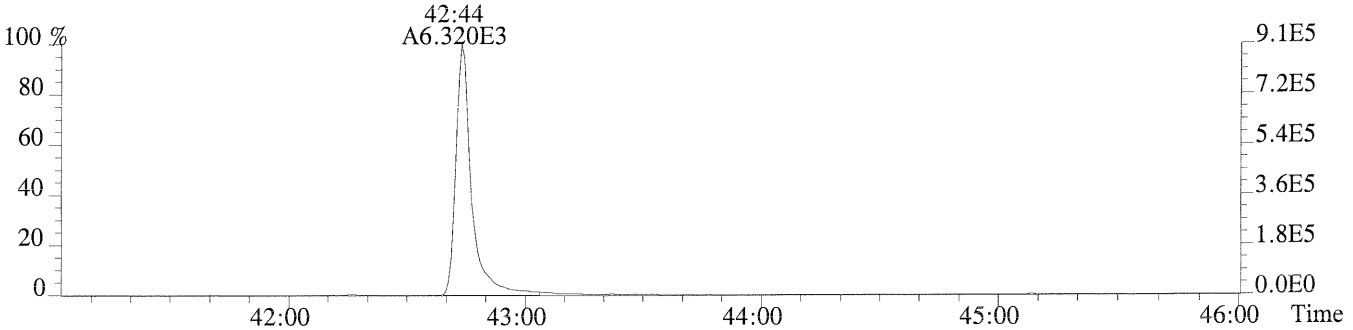
File:U149816 #1-451 Acq: 2-JUL-2014 10:59:11 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-007
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



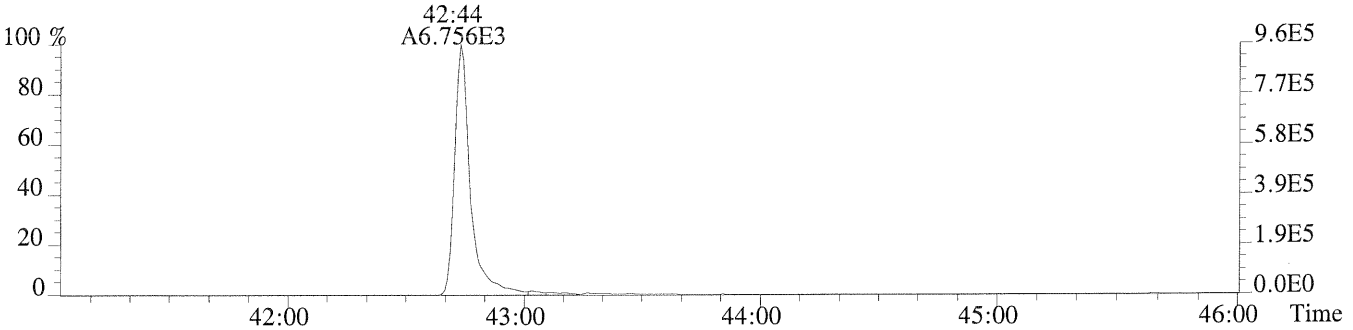
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



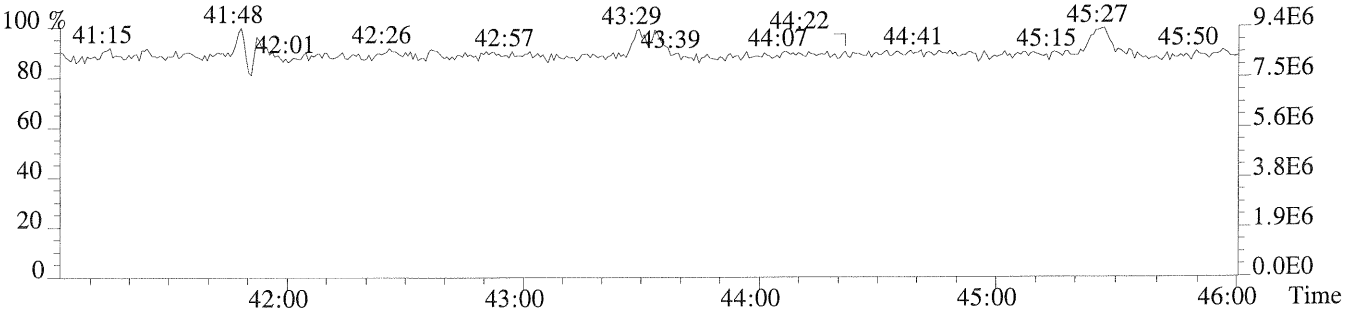
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406120934 20

Run #10 Filename U149817 Samp: 1 Inj: 1 Acquired: 2-JUL-14 11:47:51
Processed: 3-JUL-14 11:00:28 Sample ID: R1404651-008

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.358
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.065
17	Unk	OCDD	42:44	1.218e+01	1.356e+01	0.90	yes	yes	1.177
18	IS	13C-2,3,7,8-TCDF	28:35	4.836e+03	5.833e+03	0.83	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	9.585e+03	6.080e+03	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	9.024e+03	5.811e+03	1.55	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.646e+03	7.109e+03	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	5.208e+03	9.994e+03	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	4.593e+03	9.323e+03	0.49	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	3.597e+03	7.019e+03	0.51	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:53	2.780e+03	6.216e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:21	2.564e+03	5.752e+03	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:20	3.456e+03	4.377e+03	0.79	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	6.762e+03	4.382e+03	1.54	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	5.247e+03	4.098e+03	1.28	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	5.844e+03	4.545e+03	1.29	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	4.822e+03	4.476e+03	1.08	yes	no	0.936
32	IS	13C-OCDD	42:43	5.686e+03	6.183e+03	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:46	6.173e+03	7.800e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	8.982e+03	7.125e+03	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.549e+03				no	1.044

$$\text{OCDD} = \frac{(1.218e+01 + 1.356e+01) \times 4000 \text{ pg} \times 1}{(5.686e+03 + 6.183e+03) \times 10.172 \times 82.9 \times 1.177} = 0.874$$

NB 07/07/14

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406120934 200-S

Run #10 Filename U149817 Samp: 1 Inj: 1 Acquired: 2-JUL-14 11:47:51
Processed: 3-JUL-14 11:00:281 LAB. ID: R1404651-008

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.00e+02	*	*	6.60e+02	*
2	1,2,3,7,8-PeCDF	*	5.44e+02	*	*	7.80e+02	*
3	2,3,4,7,8-PeCDF	*	5.44e+02	*	*	7.80e+02	*
4	1,2,3,4,7,8-HxCDF	*	4.12e+02	*	*	5.72e+02	*
5	1,2,3,6,7,8-HxCDF	*	4.12e+02	*	*	5.72e+02	*
6	2,3,4,6,7,8-HxCDF	*	4.12e+02	*	*	5.72e+02	*
7	1,2,3,7,8,9-HxCDF	*	4.12e+02	*	*	5.72e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	5.88e+02	*	*	7.24e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	5.88e+02	*	*	7.24e+02	*
10	OCDF	*	5.68e+02	*	*	6.76e+02	*
11	2,3,7,8-TCDD	*	6.24e+02	*	*	6.32e+02	*
12	1,2,3,7,8-PeCDD	*	8.92e+02	*	*	8.36e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.20e+02	*	*	6.68e+02	*
14	1,2,3,6,7,8-HxCDD	*	7.20e+02	*	*	6.68e+02	*
15	1,2,3,7,8,9-HxCDD	*	7.20e+02	*	*	6.68e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	6.48e+02	*	*	5.76e+02	*
17	OCDD	2.77e+03	5.04e+02	5.5e+00	2.01e+03	4.44e+02	4.5e+00
18	13C-2,3,7,8-TCDF	9.51e+05	6.24e+02	1.5e+03	1.16e+06	9.36e+02	1.2e+03
19	13C-1,2,3,7,8-PeCDF	1.72e+06	7.96e+02	2.2e+03	1.08e+06	6.44e+02	1.7e+03
20	13C-2,3,4,7,8-PeCDF	1.75e+06	7.96e+02	2.2e+03	1.14e+06	6.44e+02	1.8e+03
21	13C-1,2,3,4,7,8-HxCDF	7.83e+05	6.48e+02	1.2e+03	1.50e+06	5.20e+02	2.9e+03
22	13C-1,2,3,6,7,8-HxCDF	9.86e+05	6.48e+02	1.5e+03	1.88e+06	5.20e+02	3.6e+03
23	13C-2,3,4,6,7,8-HxCDF	9.40e+05	6.48e+02	1.5e+03	1.89e+06	5.20e+02	3.6e+03
24	13C-1,2,3,7,8,9-HxCDF	6.64e+05	6.48e+02	1.0e+03	1.31e+06	5.20e+02	2.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.30e+05	1.39e+03	3.8e+02	1.19e+06	1.80e+03	6.6e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.36e+05	1.39e+03	3.1e+02	9.54e+05	1.80e+03	5.3e+02
27	13C-2,3,7,8-TCDD	7.18e+05	1.20e+03	6.0e+02	9.08e+05	9.92e+02	9.2e+02
28	13C-1,2,3,7,8-PeCDD	1.30e+06	7.76e+02	1.7e+03	8.23e+05	6.84e+02	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.15e+06	4.00e+02	2.9e+03	9.02e+05	6.80e+02	1.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.16e+06	4.00e+02	2.9e+03	8.82e+05	6.80e+02	1.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.50e+05	7.60e+02	1.1e+03	7.90e+05	6.64e+02	1.2e+03
32	13C-OCDD	7.86e+05	7.32e+02	1.1e+03	8.76e+05	5.20e+02	1.7e+03
33	13C-1,2,3,4-TCDD	1.29e+06	1.20e+03	1.1e+03	1.62e+06	9.92e+02	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.65e+06	4.00e+02	4.1e+03	1.32e+06	6.80e+02	1.9e+03
35	37Cl-2,3,7,8-TCDD	5.19e+05	6.76e+02	7.7e+02			

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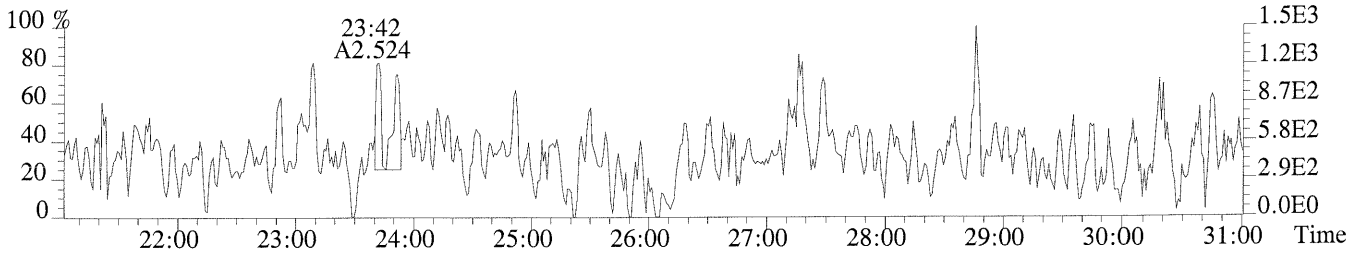
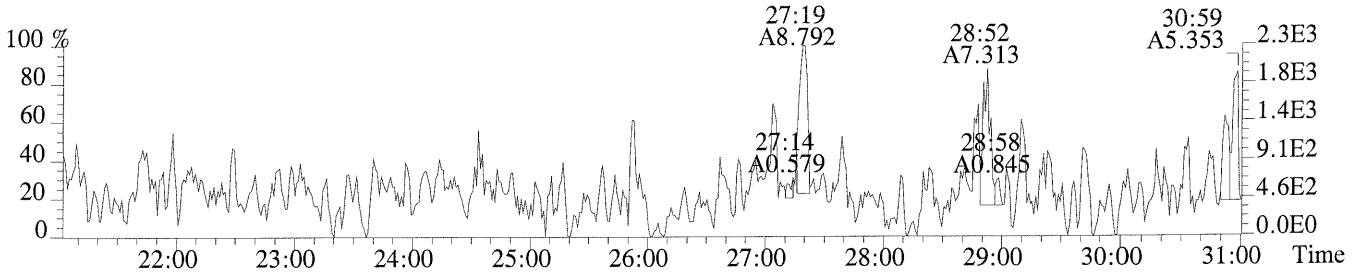
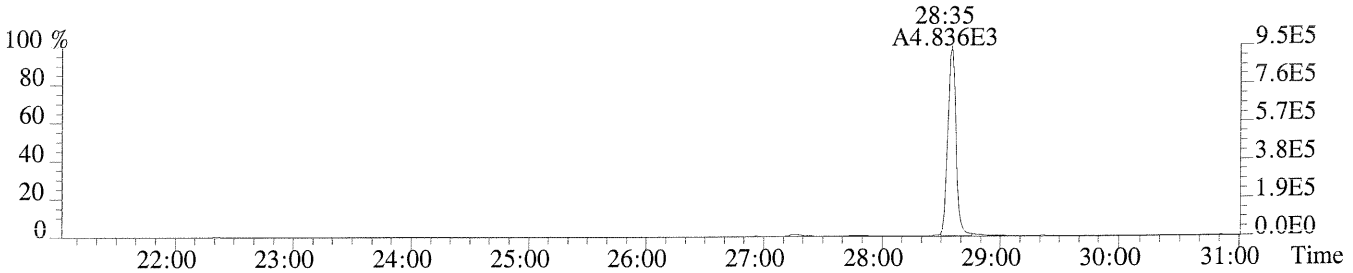
File:U149817 #1-627 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



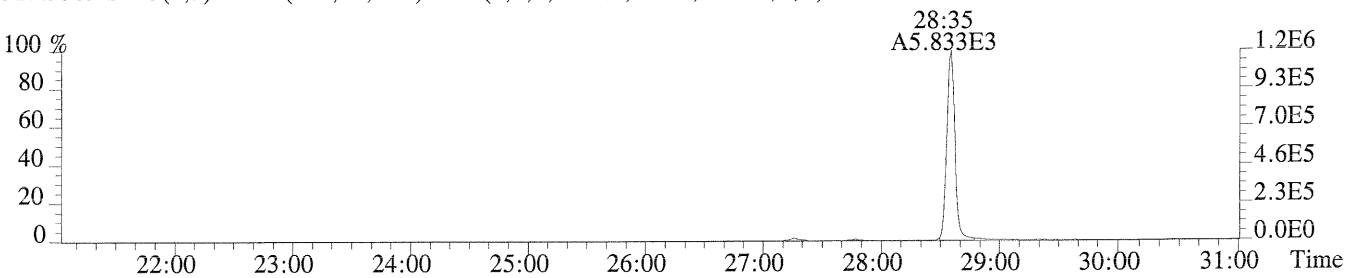
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



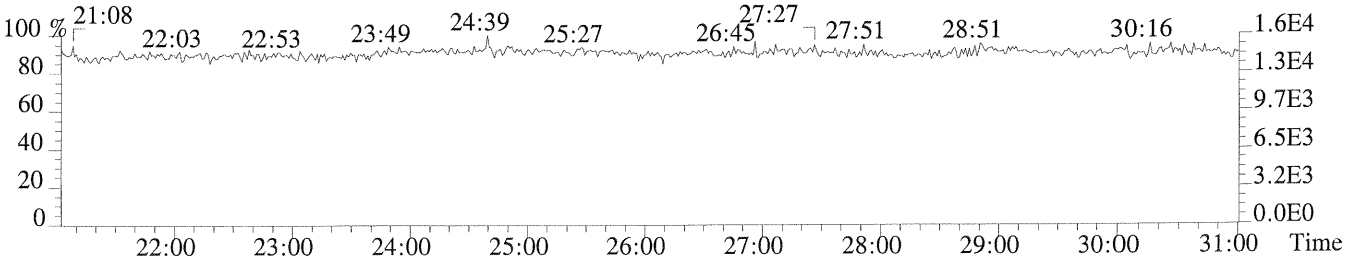
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



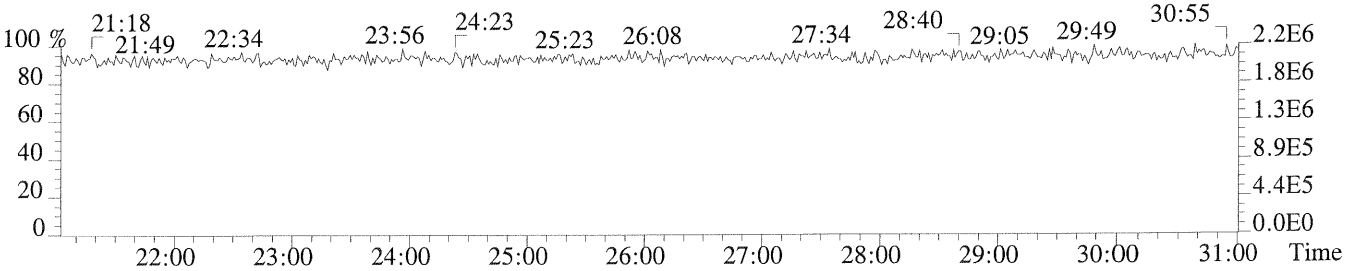
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



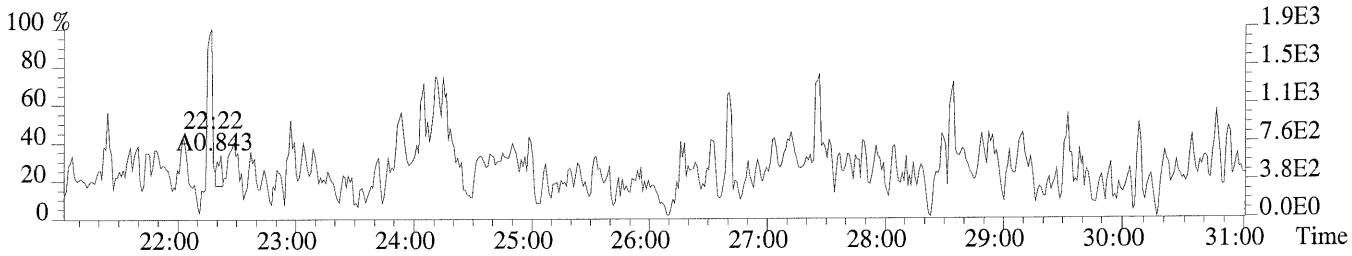
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



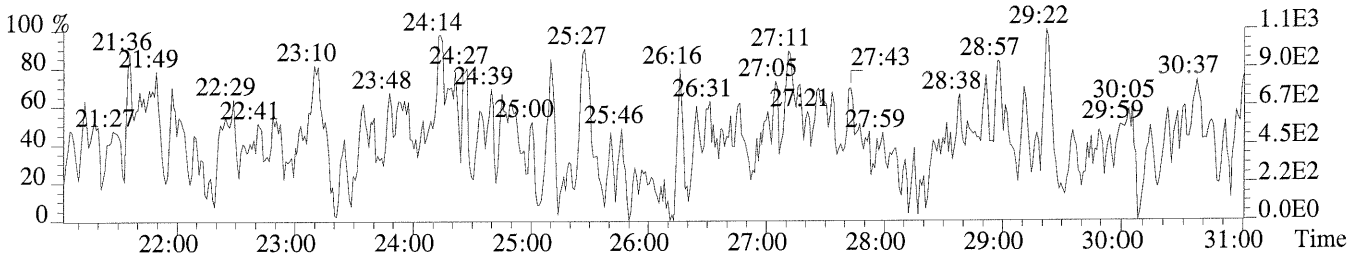
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



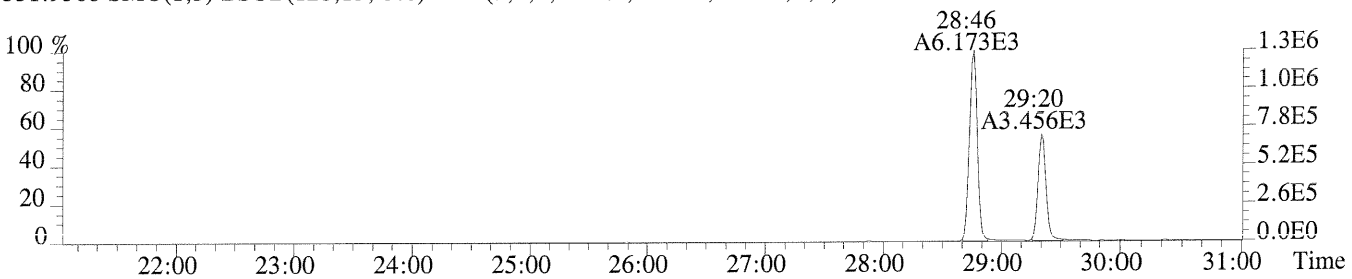
File:U149817 #1-627 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



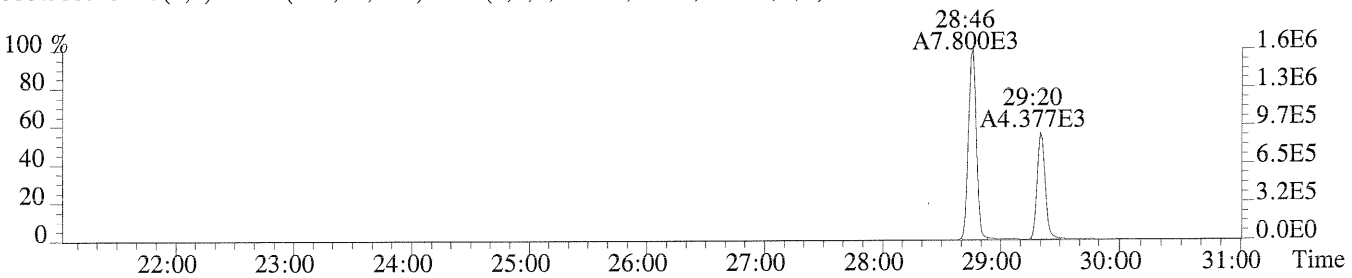
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



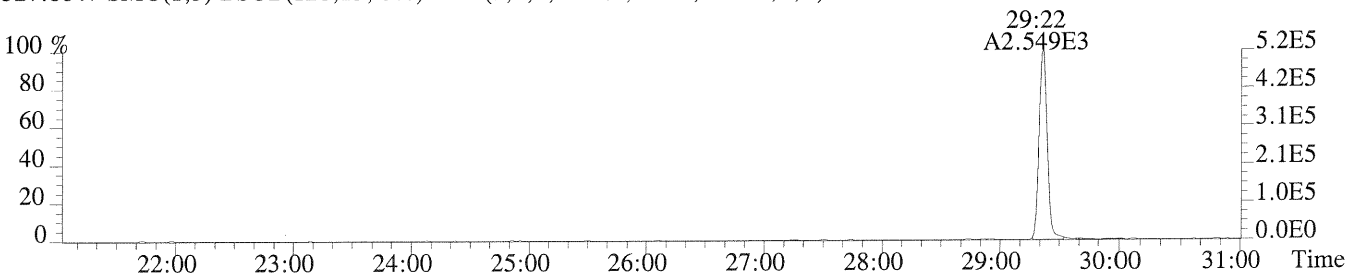
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



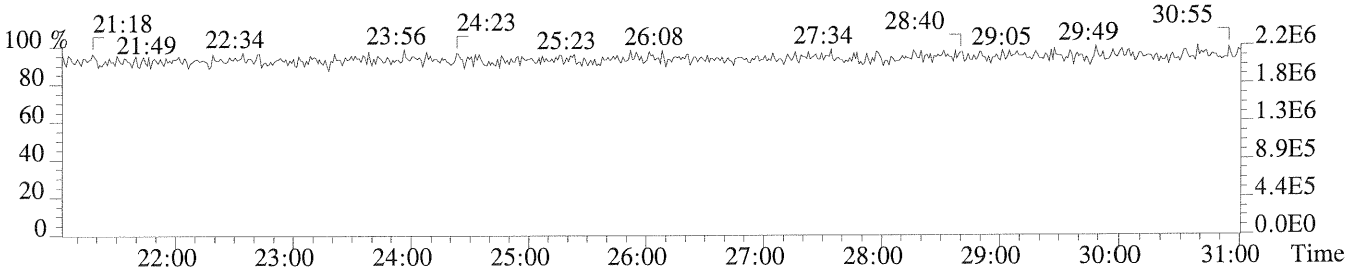
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



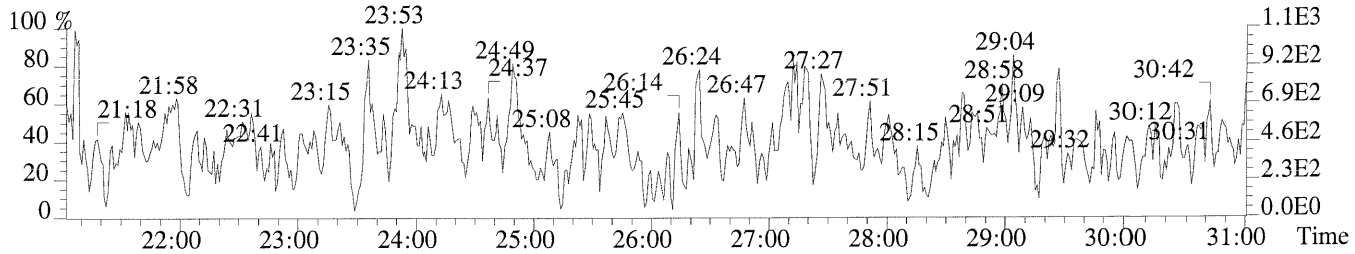
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



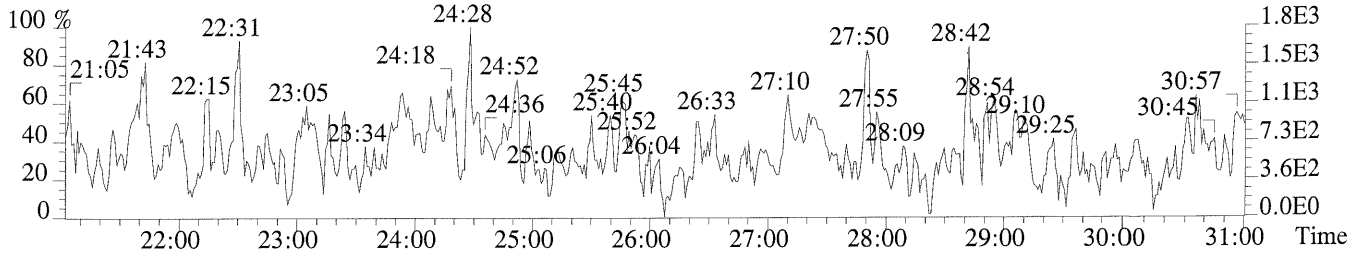
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



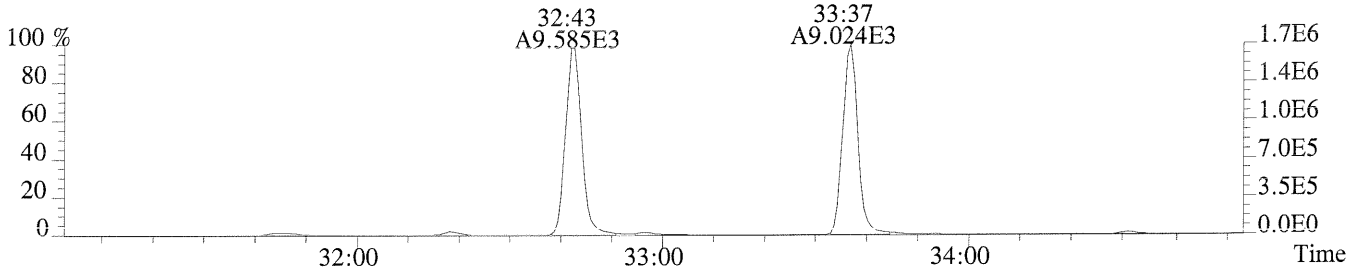
File:U149817 #1-627 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



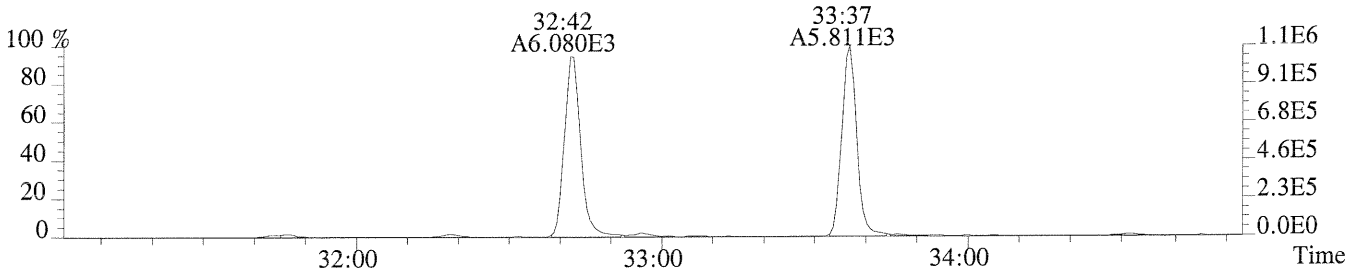
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



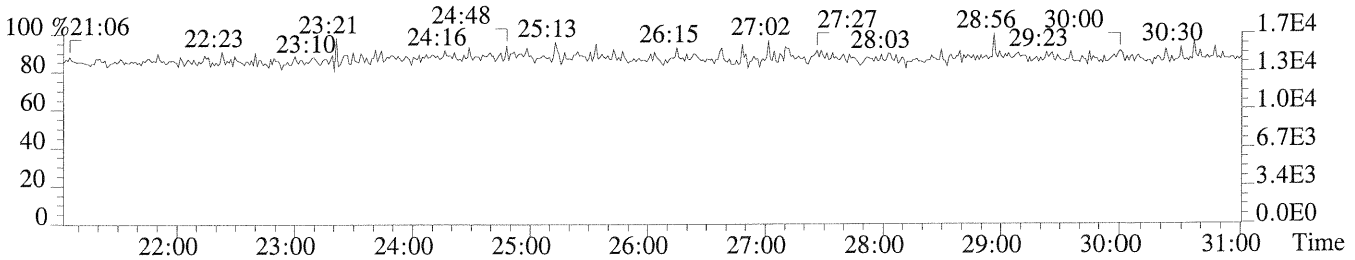
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



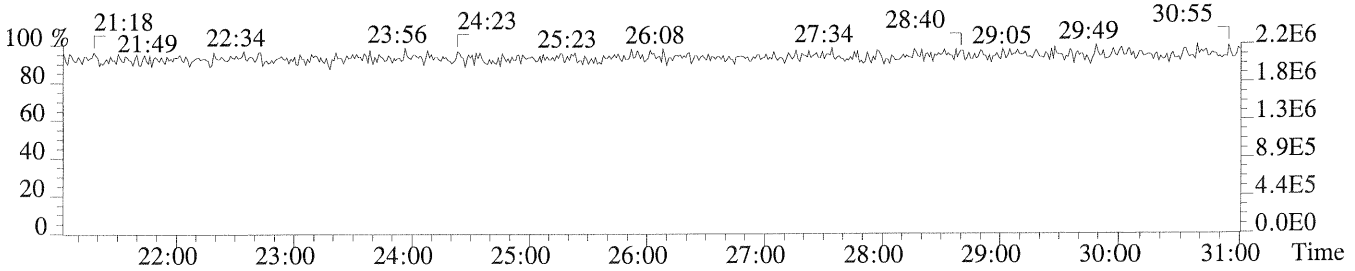
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

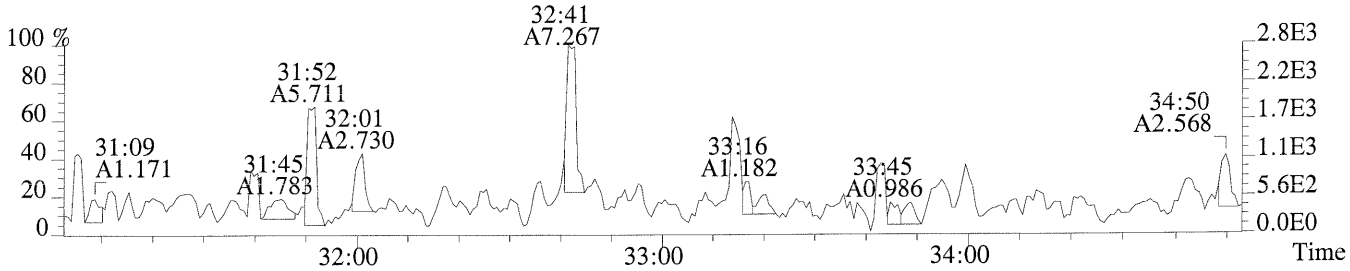


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

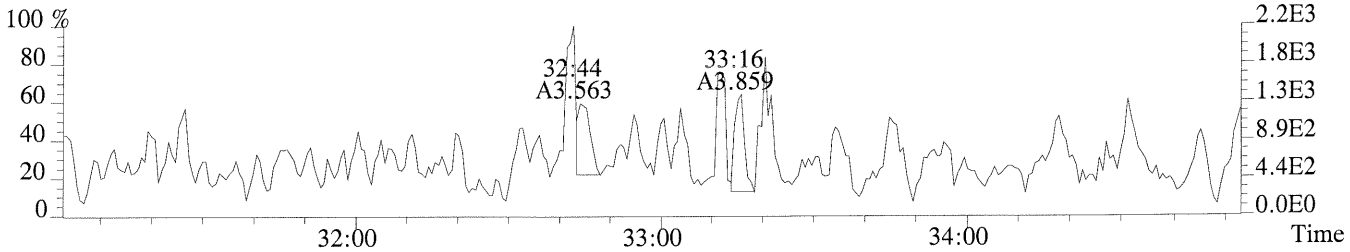


File:U149817 #1-349 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008

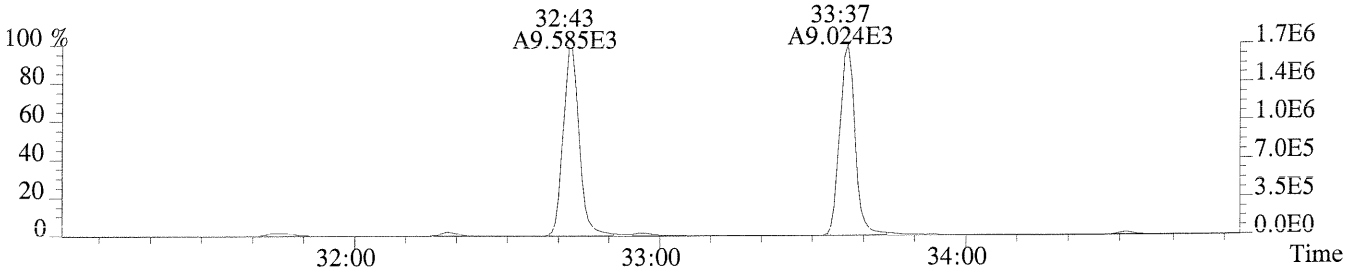
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



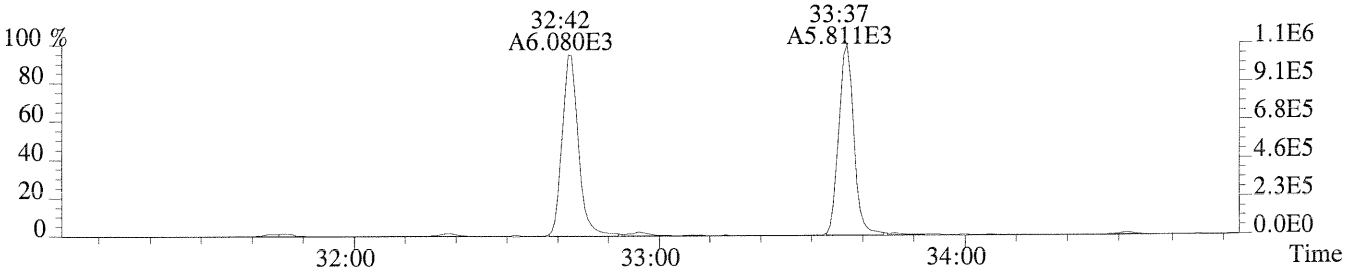
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



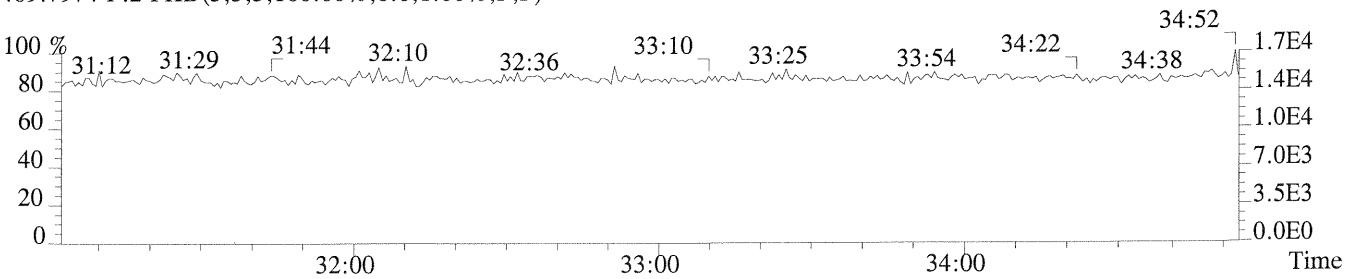
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



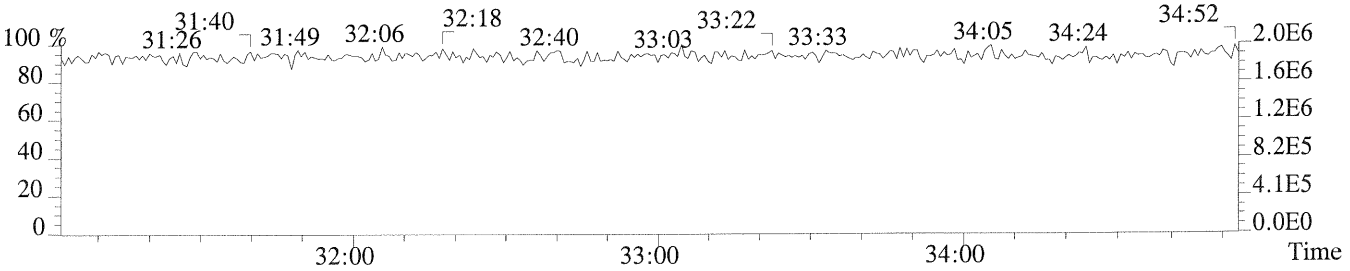
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



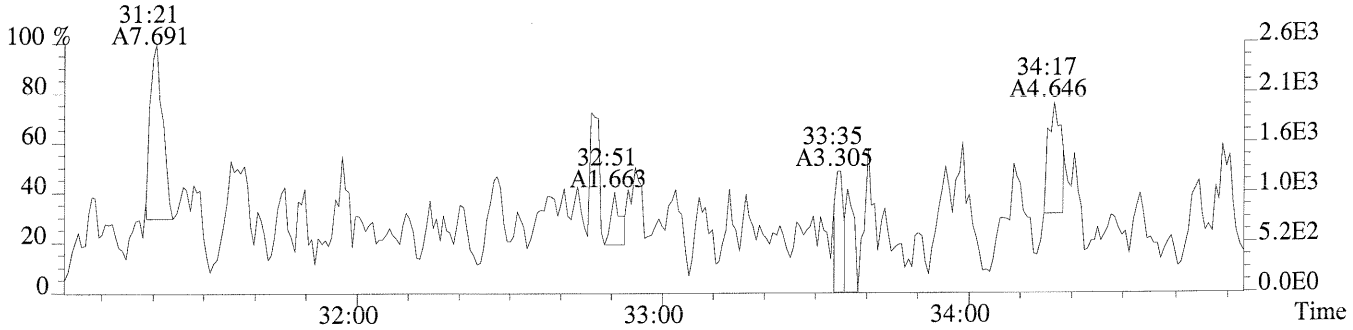
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



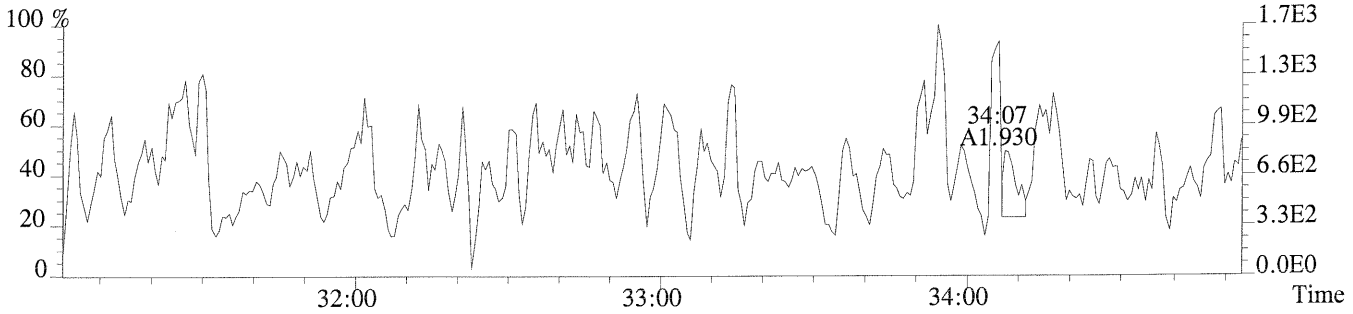
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



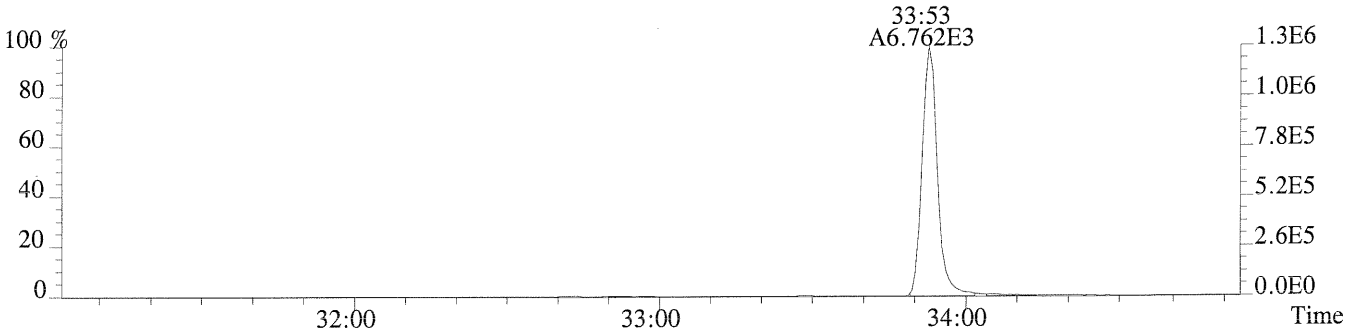
File:U149817 #1-349 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



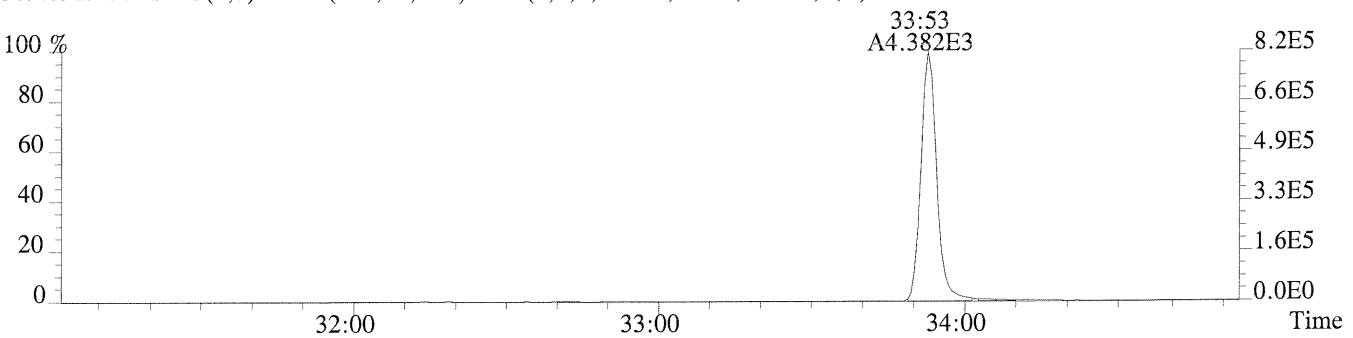
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



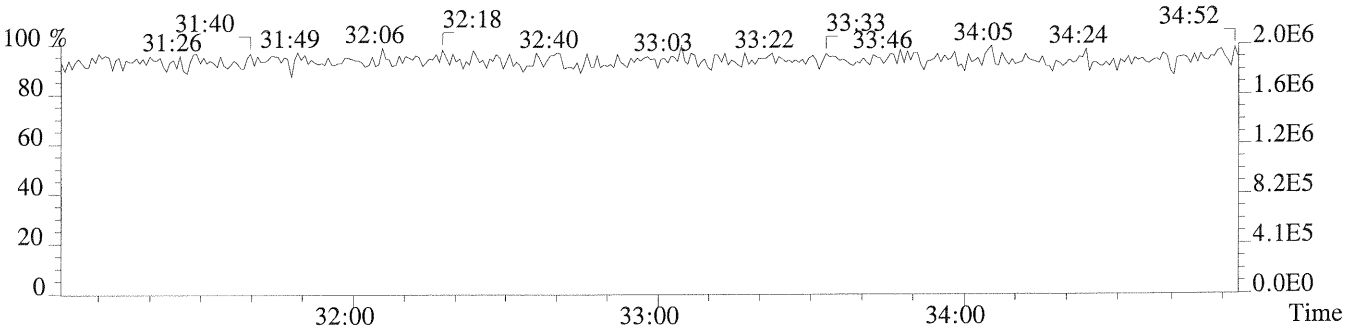
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



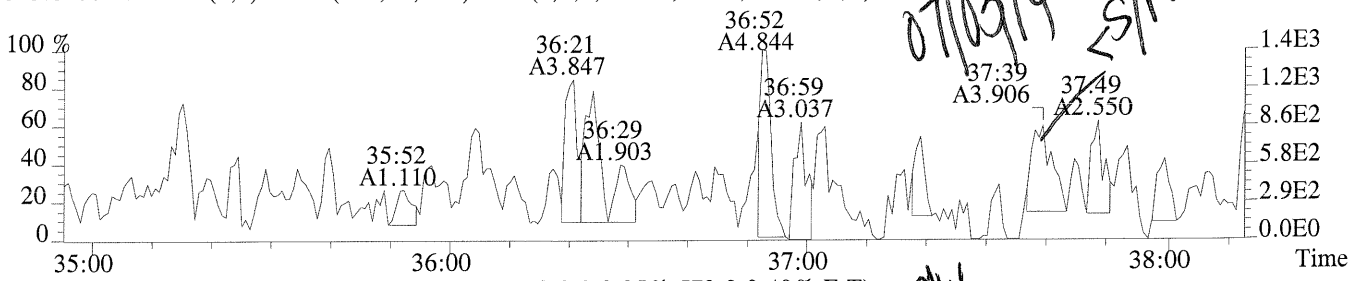
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:U149817 #1-299 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008

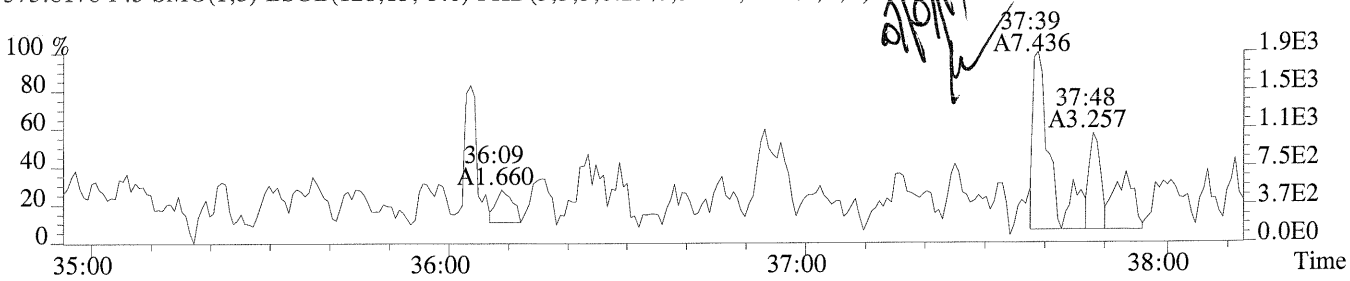
07/03/14 <S/N

373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,412.0,0.40%,F,T)

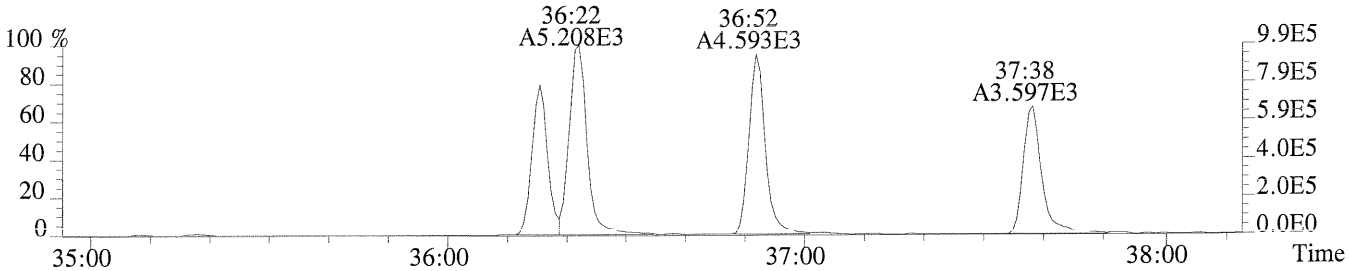


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)

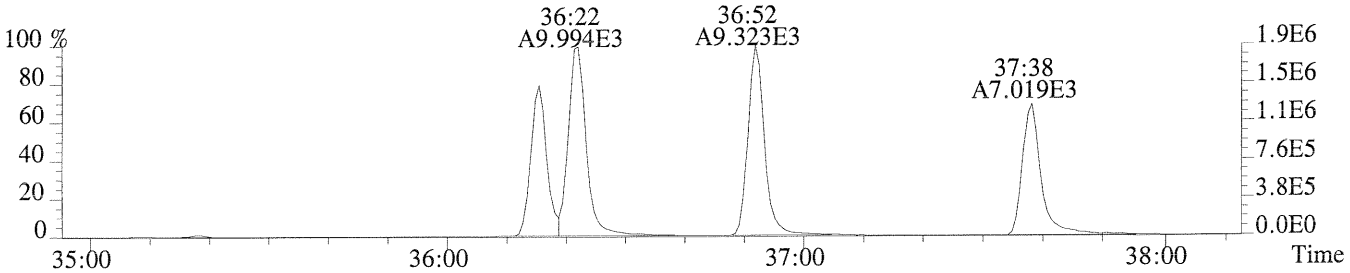
2/07/14



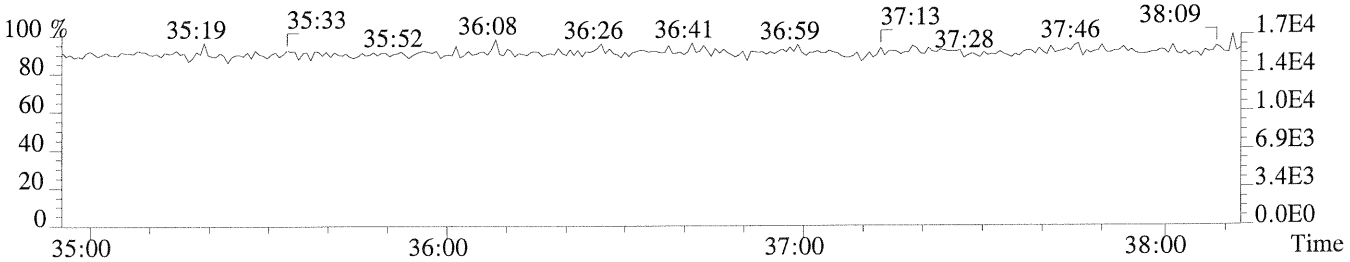
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



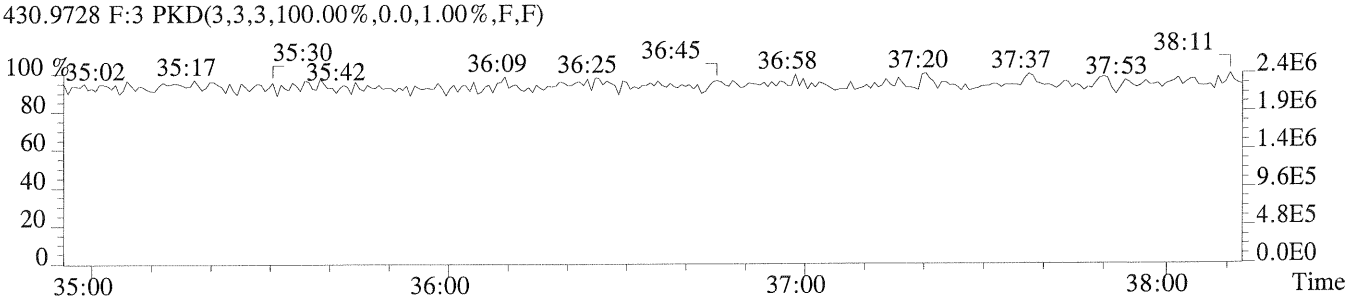
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



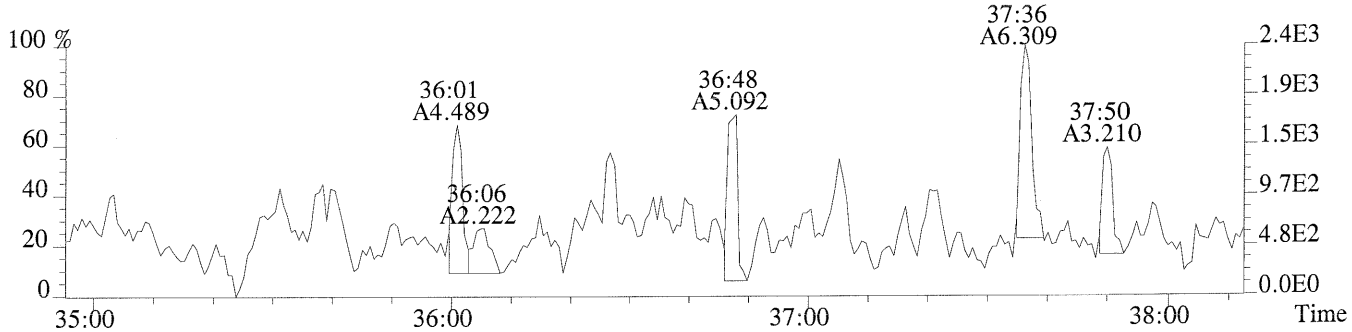
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



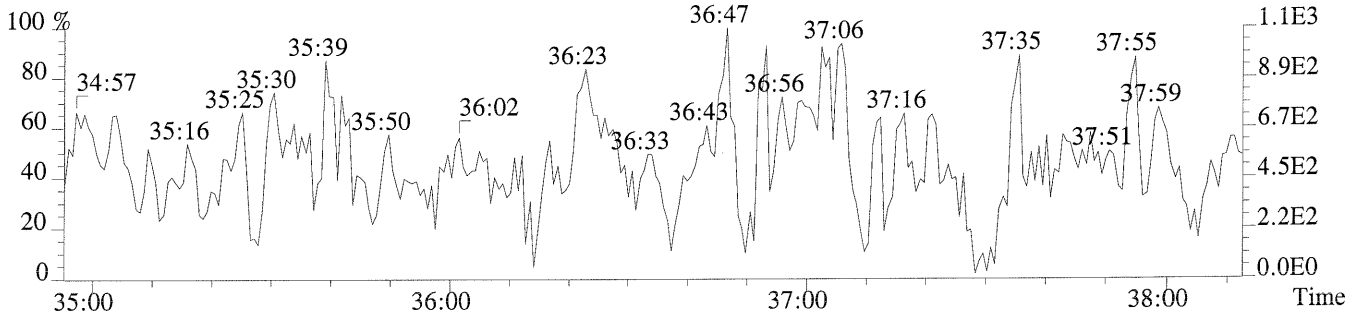
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



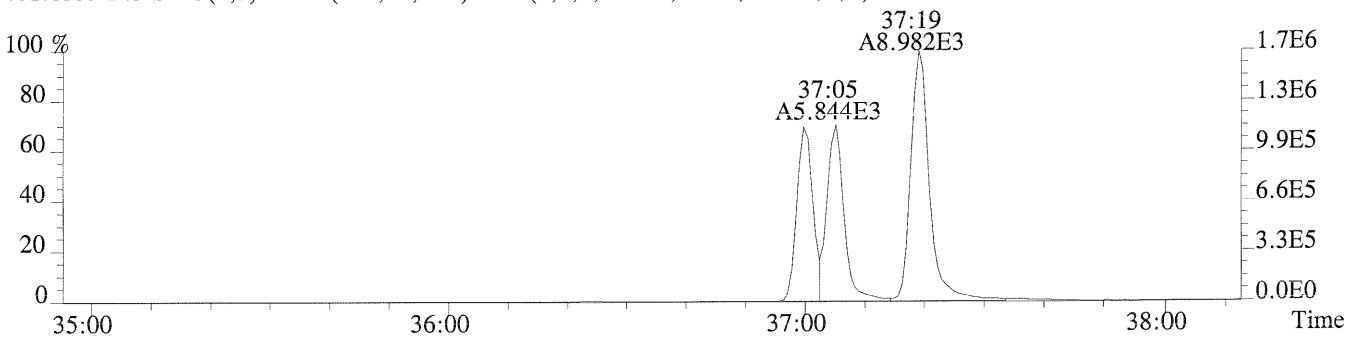
File:U149817 #1-299 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



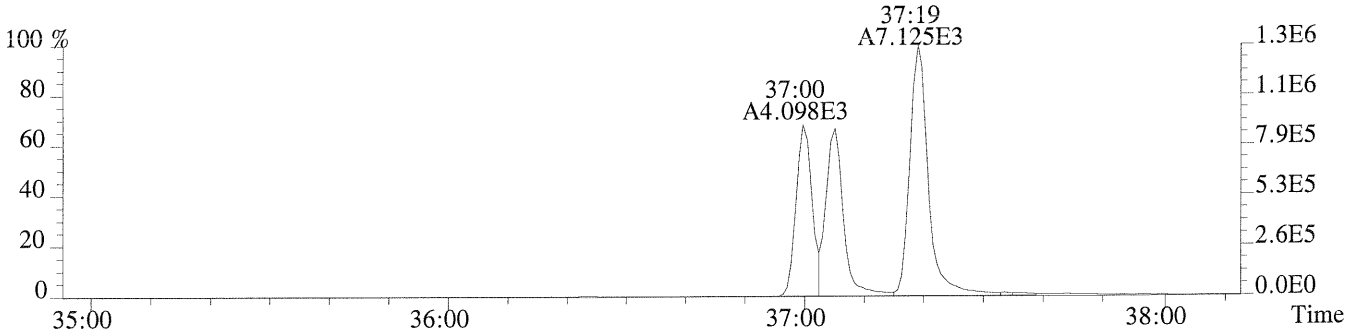
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



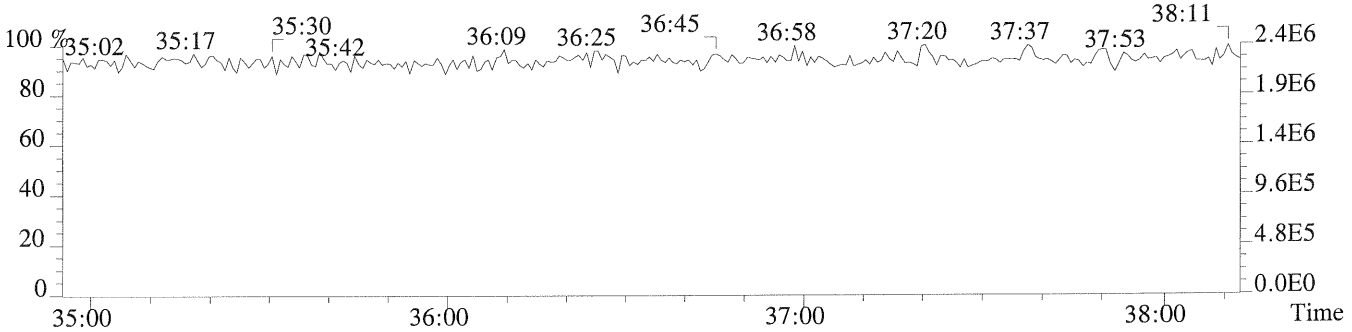
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)

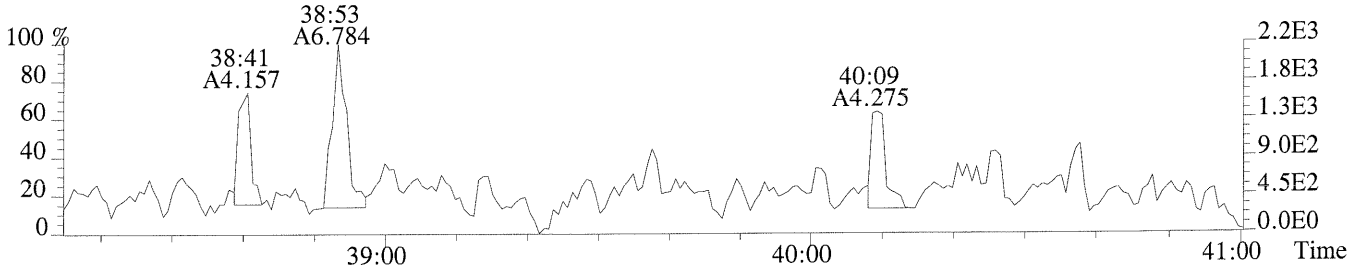


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

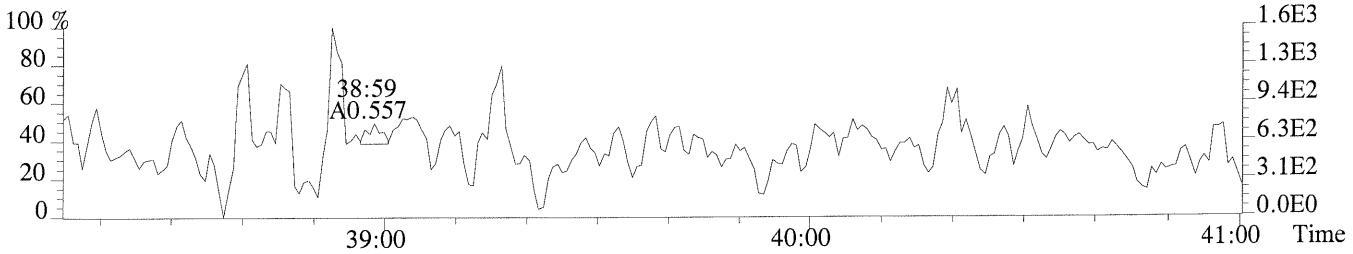


File:U149817 #1-251 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008

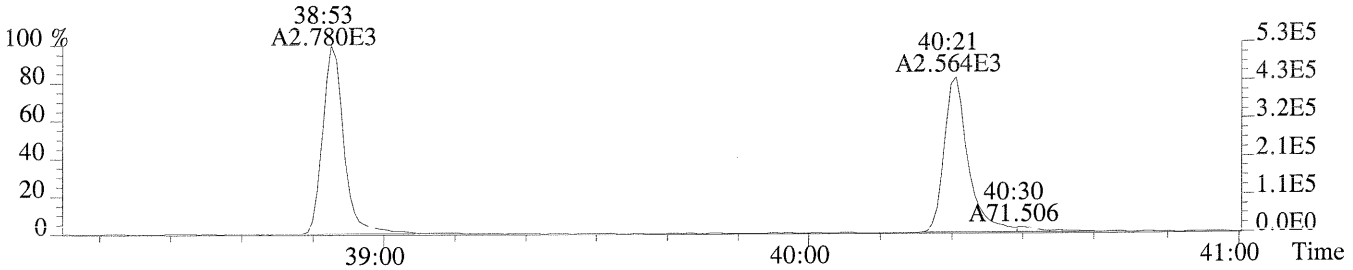
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,588.0,0.50%,F,T)



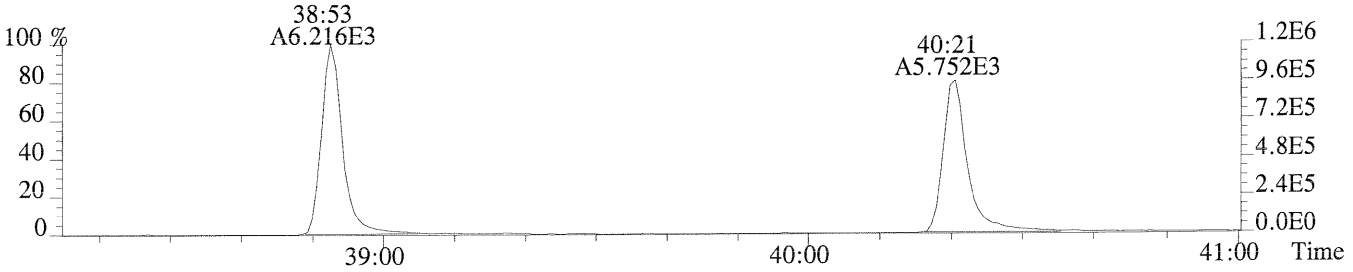
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.50%,F,T)



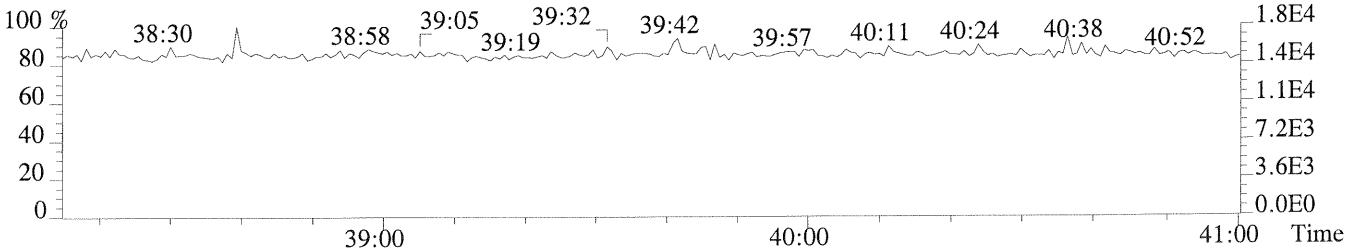
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1388.0,0.50%,F,T)



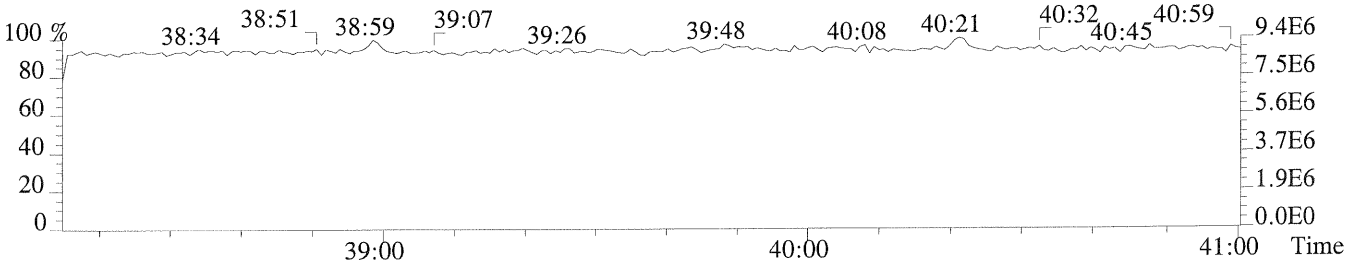
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1796.0,0.50%,F,T)



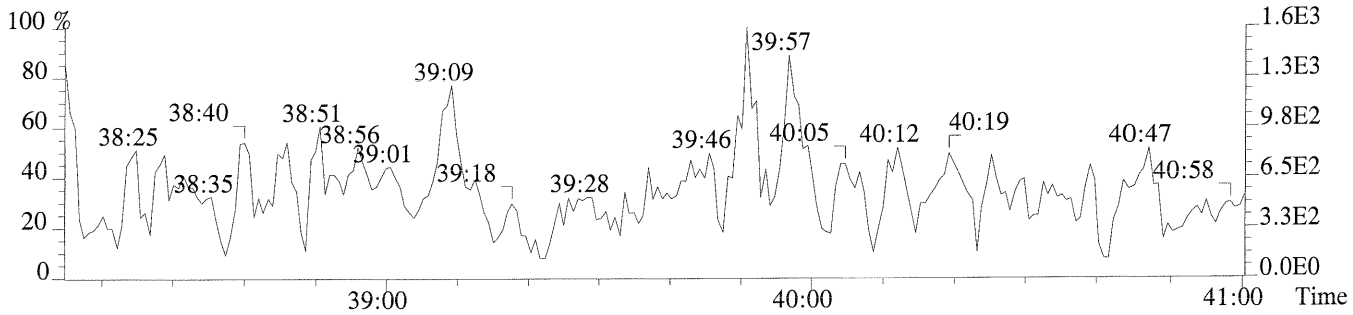
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



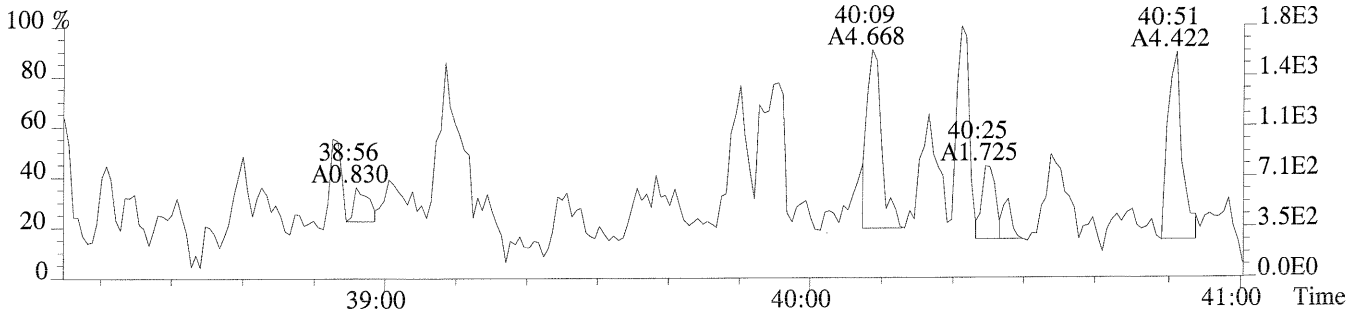
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



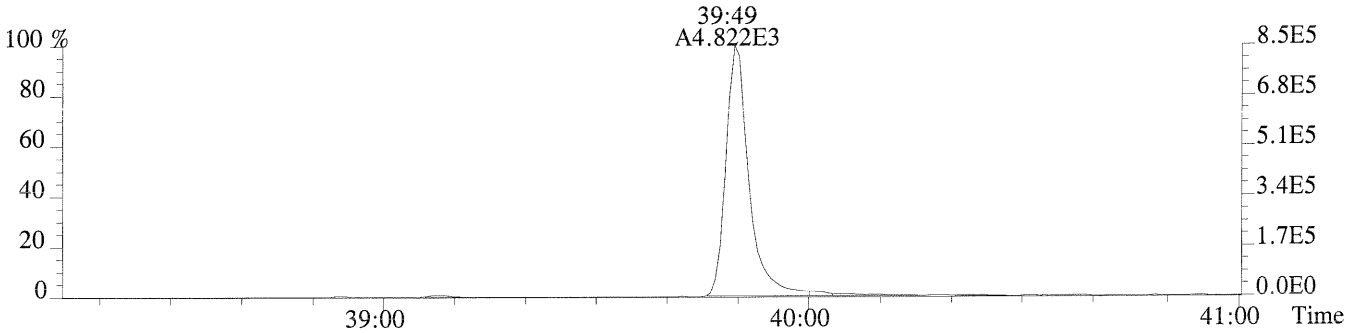
File:U149817 #1-251 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



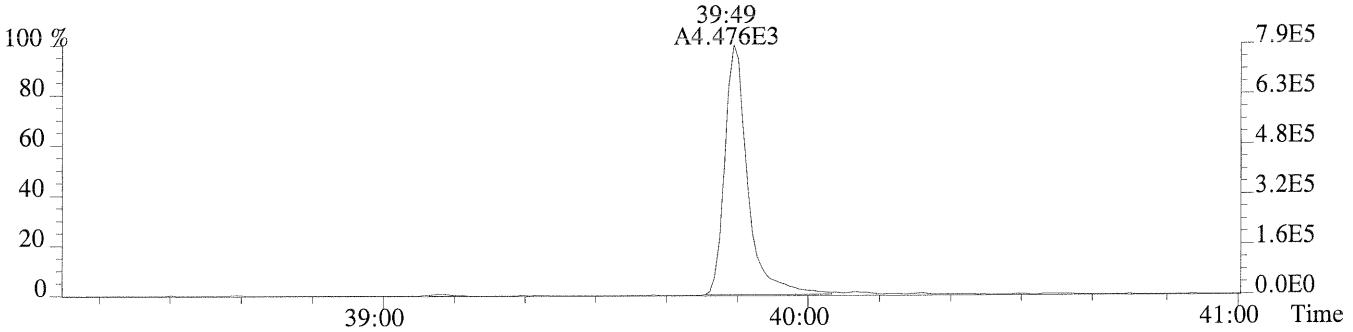
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



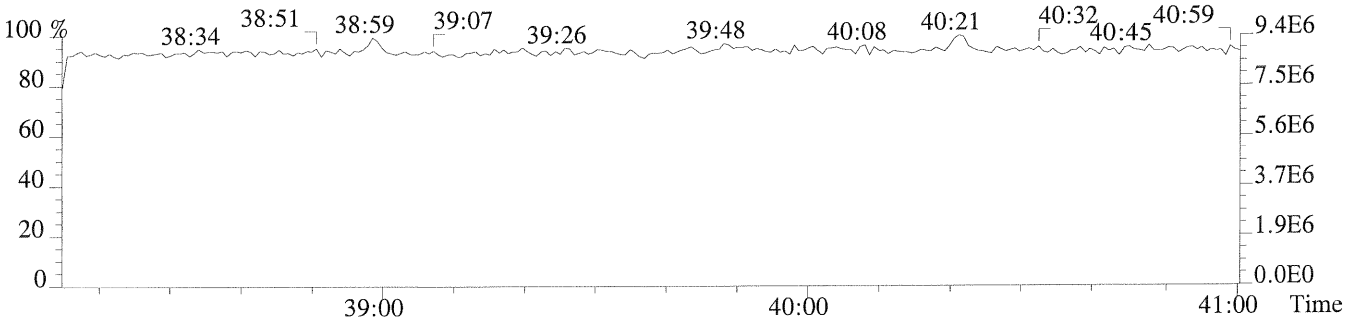
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



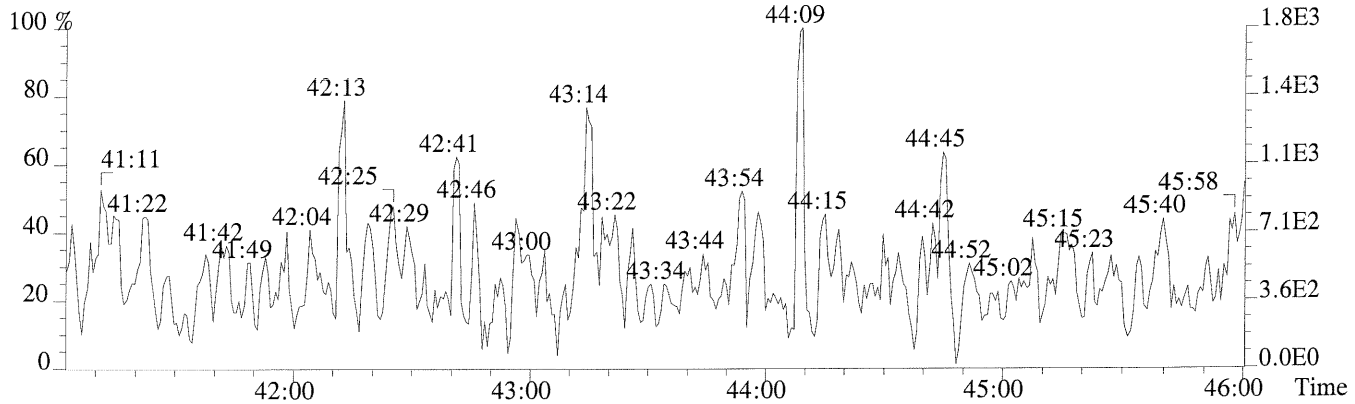
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



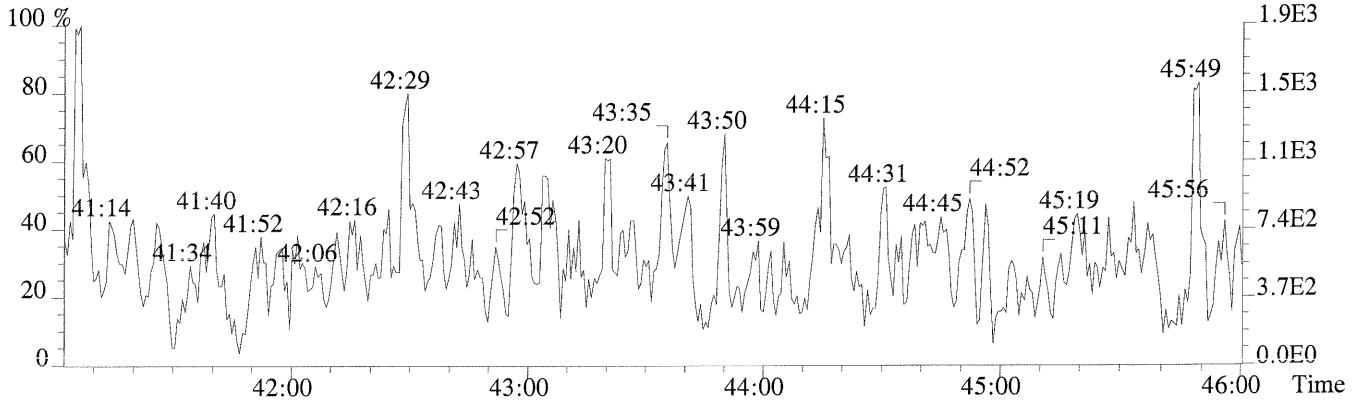
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



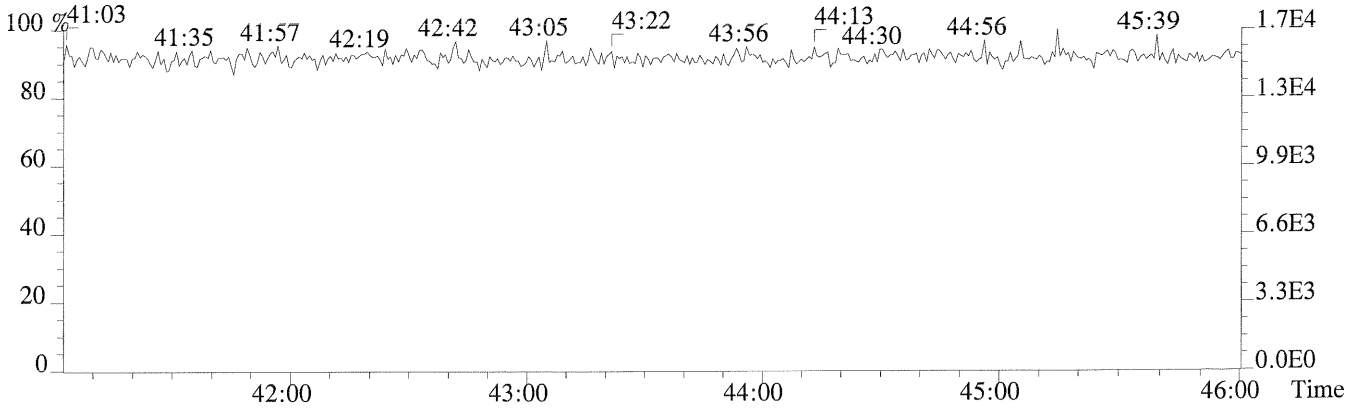
File:U149817 #1-451 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



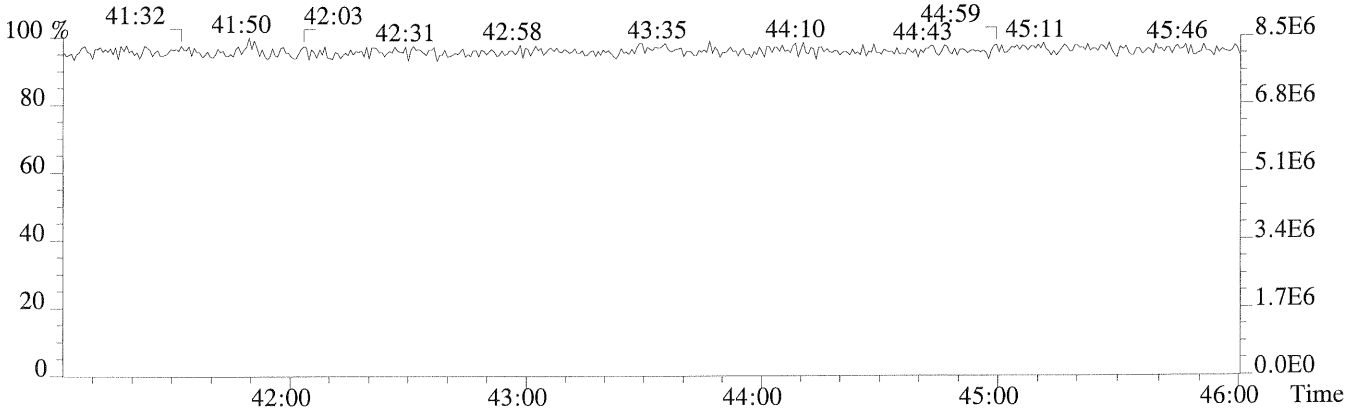
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



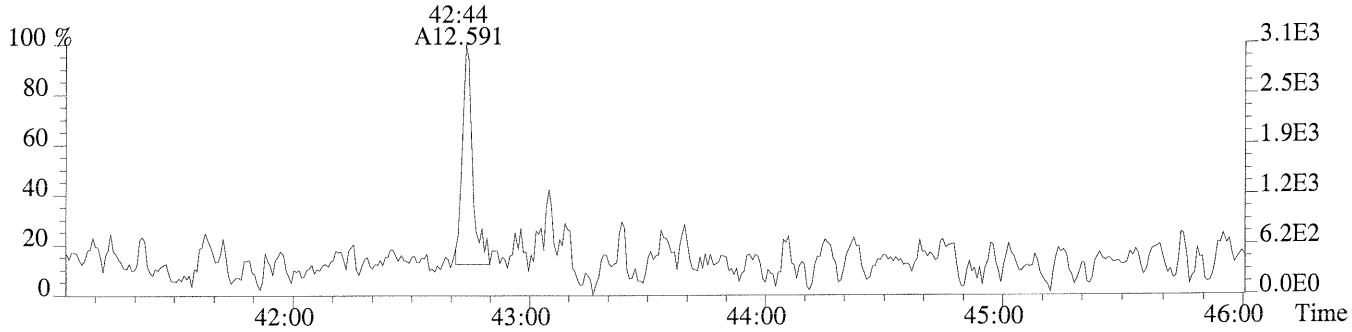
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



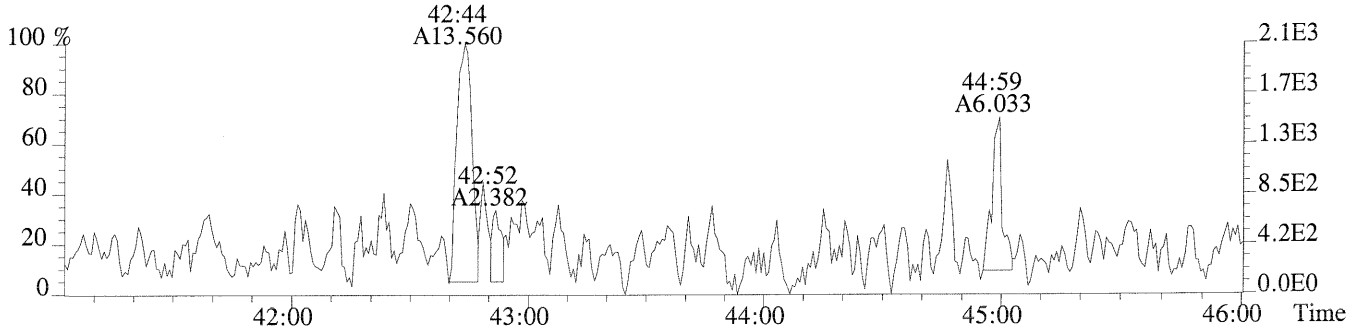
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



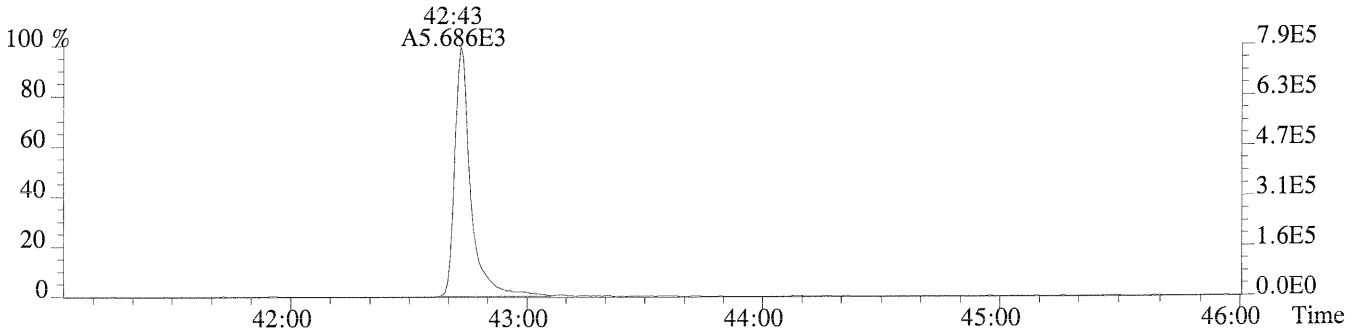
File:U149817 #1-451 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



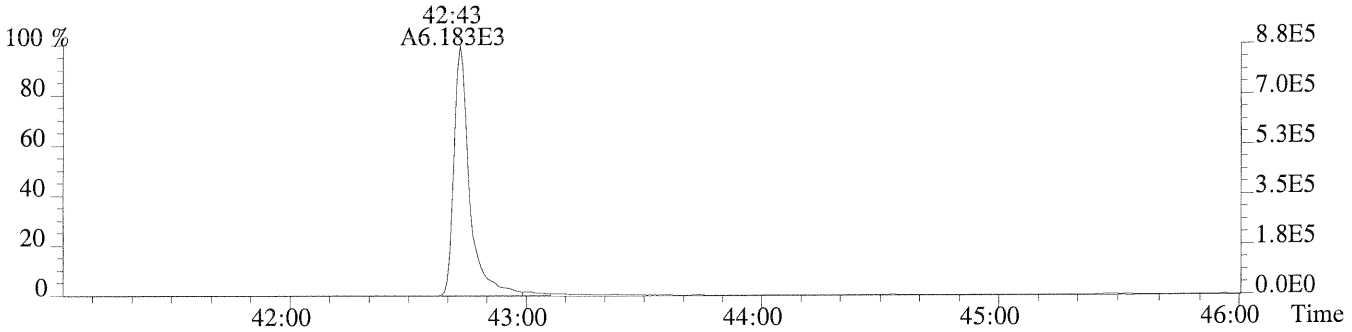
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



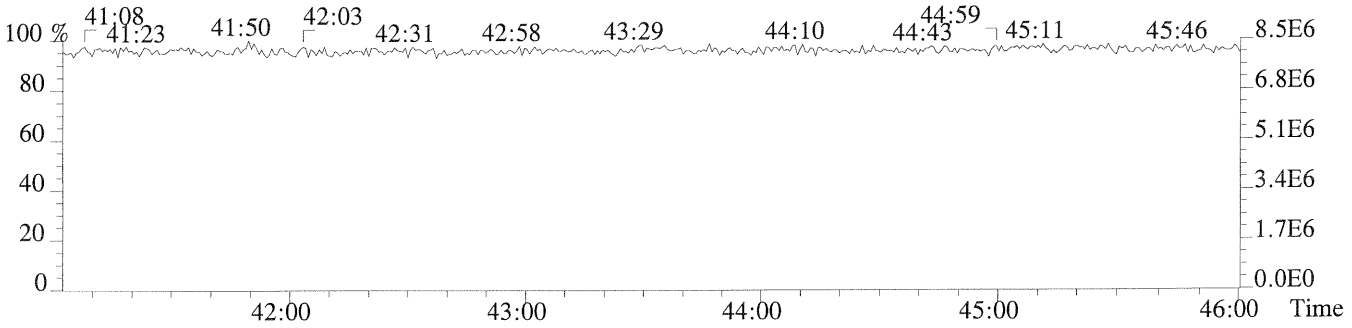
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



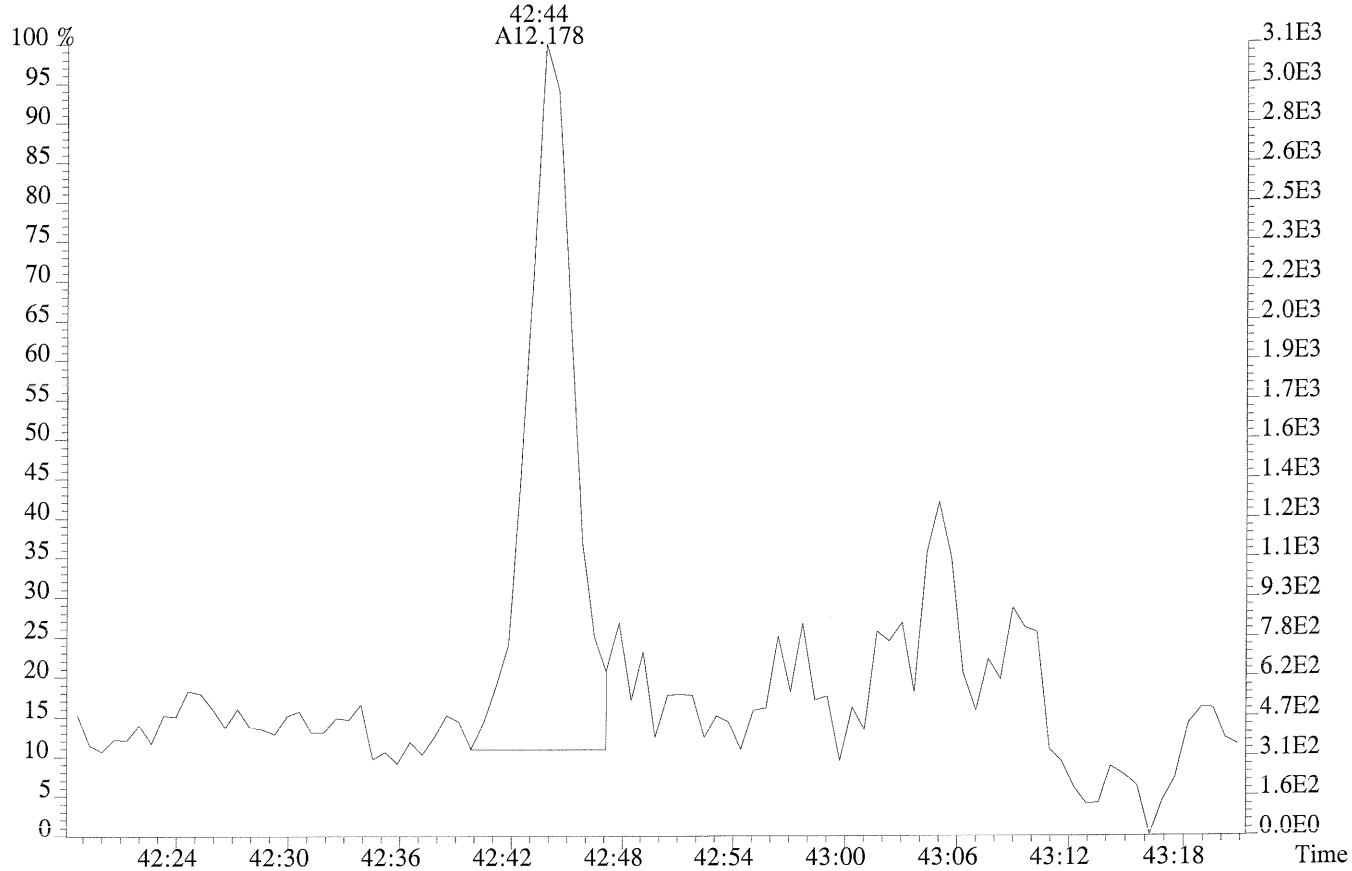
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



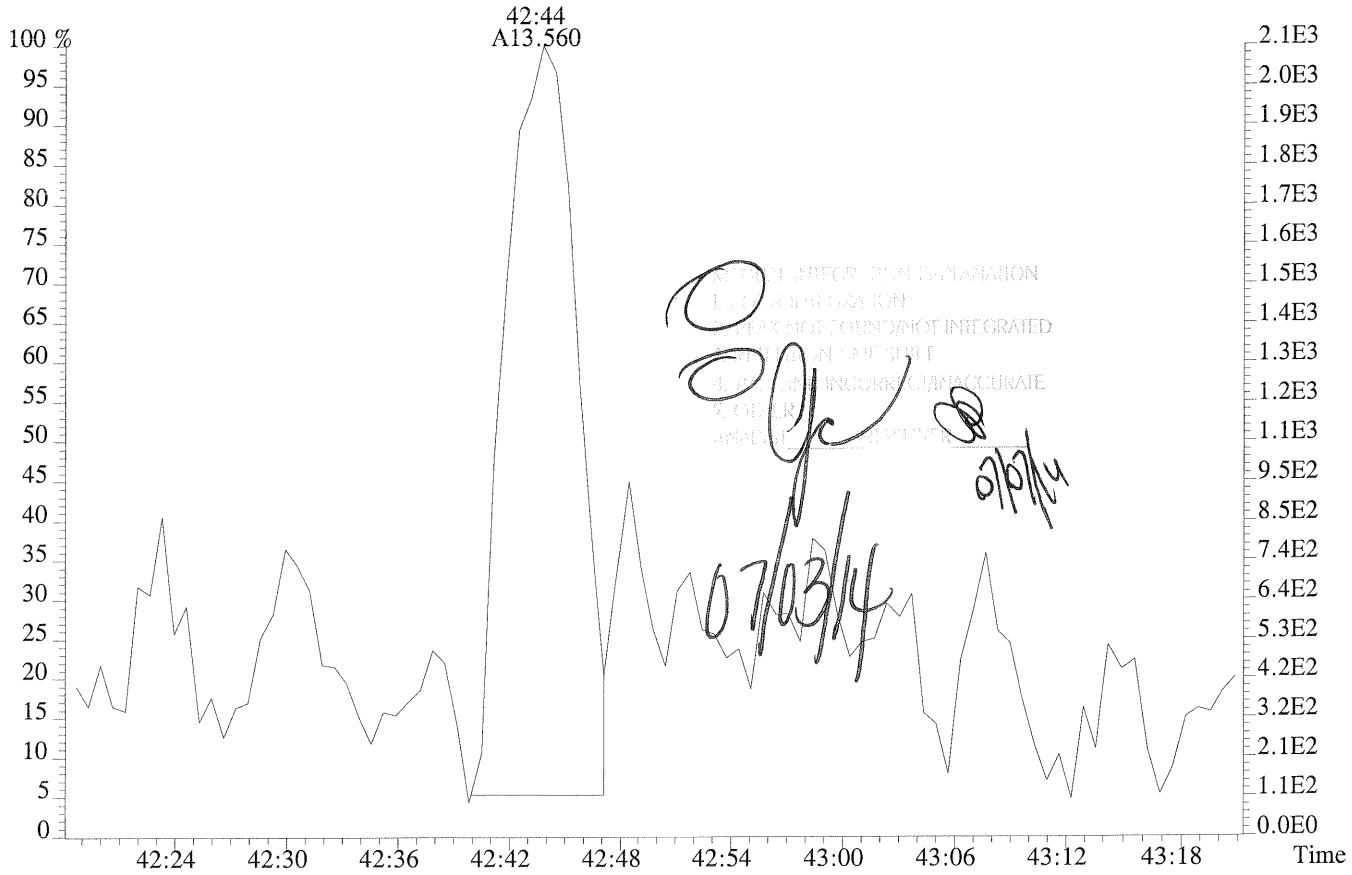
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:U149817 #1-451 Acq: 2-JUL-2014 11:47:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-008
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,444.0,0.40%,F,T)



07/07/14

07/03/14

ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406130804 20

Run #11 Filename U149818 Samp: 1 Inj: 1 Acquired: 2-JUL-14 12:36:29
Processed: 3-JUL-14 11:00:29 Sample ID: R1404651-009

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.358
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.065
17	Unk	OCDD	42:44	2.574e+01	1.859e+01	1.38	no	yes	1.177
18	IS	13C-2,3,7,8-TCDF	28:35	4.640e+03	5.568e+03	0.83	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	9.084e+03	5.658e+03	1.61	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	8.566e+03	5.513e+03	1.55	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.337e+03	6.536e+03	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.895e+03	9.366e+03	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	4.286e+03	8.294e+03	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	3.305e+03	6.374e+03	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:53	2.651e+03	5.897e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.384e+03	5.334e+03	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:20	3.237e+03	4.166e+03	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	6.357e+03	4.035e+03	1.58	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	4.738e+03	3.683e+03	1.29	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	5.264e+03	4.157e+03	1.27	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	4.391e+03	4.113e+03	1.07	yes	no	0.936
32	IS	13C-OCDD	42:43	4.896e+03	5.660e+03	0.87	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:46	6.093e+03	7.943e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	8.245e+03	6.671e+03	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.584e+03				no	1.044

$$\text{OCDD} = \frac{(2.574e+01 + 1.859e+01) \times 4000 \text{ pg} \times 1}{(4.896e+03 + 5.660e+03) \times 10.247 \times 95.7 \times 1.177} = 1.4698 \text{ ng/g}$$

07/07/14

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406130804 200-S

Run #11 Filename U149818 Samp: 1 Inj: 1 Acquired: 2-JUL-14 12:36:29
Processed: 3-JUL-14 11:00:291 LAB. ID: R1404651-009

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.16e+02	*	*	6.24e+02	*
2	1,2,3,7,8-PeCDF	*	4.12e+02	*	*	6.72e+02	*
3	2,3,4,7,8-PeCDF	*	4.12e+02	*	*	6.72e+02	*
4	1,2,3,4,7,8-HxCDF	*	2.92e+02	*	*	6.92e+02	*
5	1,2,3,6,7,8-HxCDF	*	2.92e+02	*	*	6.92e+02	*
6	2,3,4,6,7,8-HxCDF	*	2.92e+02	*	*	6.92e+02	*
7	1,2,3,7,8,9-HxCDF	*	2.92e+02	*	*	6.92e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	4.92e+02	*	*	4.60e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	4.92e+02	*	*	4.60e+02	*
10	OCDF	*	6.40e+02	*	*	6.92e+02	*
11	2,3,7,8-TCDD	*	6.24e+02	*	*	5.96e+02	*
12	1,2,3,7,8-PeCDD	*	6.92e+02	*	*	5.64e+02	*
13	1,2,3,4,7,8-HxCDD	*	5.28e+02	*	*	5.20e+02	*
14	1,2,3,6,7,8-HxCDD	*	5.28e+02	*	*	5.20e+02	*
15	1,2,3,7,8,9-HxCDD	*	5.28e+02	*	*	5.20e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	7.52e+02	*	*	5.04e+02	*
17	OCDD	3.17e+03	5.68e+02	5.6e+00	2.56e+03	5.68e+02	4.5e+00
18	13C-2,3,7,8-TCDF	9.20e+05	9.92e+02	9.3e+02	1.14e+06	7.68e+02	1.5e+03
19	13C-1,2,3,7,8-PeCDF	1.65e+06	6.36e+02	2.6e+03	1.03e+06	5.96e+02	1.7e+03
20	13C-2,3,4,7,8-PeCDF	1.67e+06	6.36e+02	2.6e+03	1.05e+06	5.96e+02	1.8e+03
21	13C-1,2,3,4,7,8-HxCDF	6.97e+05	3.32e+02	2.1e+03	1.34e+06	6.76e+02	2.0e+03
22	13C-1,2,3,6,7,8-HxCDF	9.52e+05	3.32e+02	2.9e+03	1.84e+06	6.76e+02	2.7e+03
23	13C-2,3,4,6,7,8-HxCDF	8.66e+05	3.32e+02	2.6e+03	1.65e+06	6.76e+02	2.4e+03
24	13C-1,2,3,7,8,9-HxCDF	6.30e+05	3.32e+02	1.9e+03	1.17e+06	6.76e+02	1.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.13e+05	1.17e+03	4.4e+02	1.14e+06	1.86e+03	6.1e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.01e+05	1.17e+03	3.4e+02	8.97e+05	1.86e+03	4.8e+02
27	13C-2,3,7,8-TCDD	6.53e+05	1.74e+03	3.8e+02	8.40e+05	1.05e+03	8.0e+02
28	13C-1,2,3,7,8-PeCDD	1.18e+06	6.52e+02	1.8e+03	7.48e+05	6.40e+02	1.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.04e+06	8.44e+02	1.2e+03	8.18e+05	8.68e+02	9.4e+02
30	13C-1,2,3,6,7,8-HxCDD	9.99e+05	8.44e+02	1.2e+03	7.92e+05	8.68e+02	9.1e+02
31	13C-1,2,3,4,6,7,8-HpCDD	7.97e+05	6.72e+02	1.2e+03	7.41e+05	6.00e+02	1.2e+03
32	13C-OCDD	6.78e+05	5.08e+02	1.3e+03	7.66e+05	6.04e+02	1.3e+03
33	13C-1,2,3,4-TCDD	1.32e+06	1.74e+03	7.6e+02	1.70e+06	1.05e+03	1.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.58e+06	8.44e+02	1.9e+03	1.25e+06	8.68e+02	1.4e+03
35	37Cl-2,3,7,8-TCDD	5.34e+05	6.08e+02	8.8e+02			

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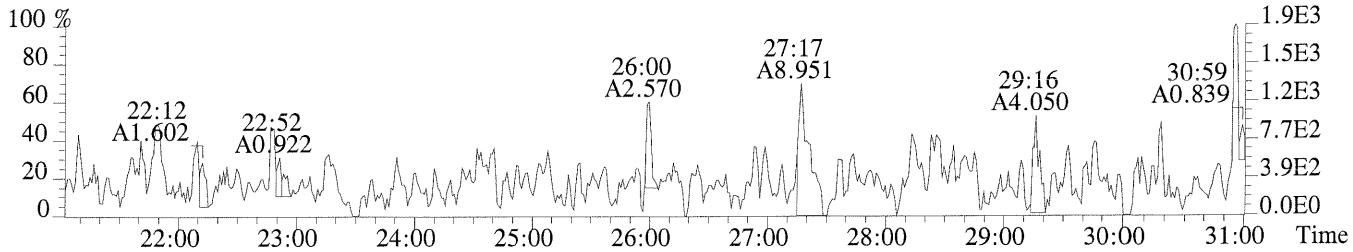
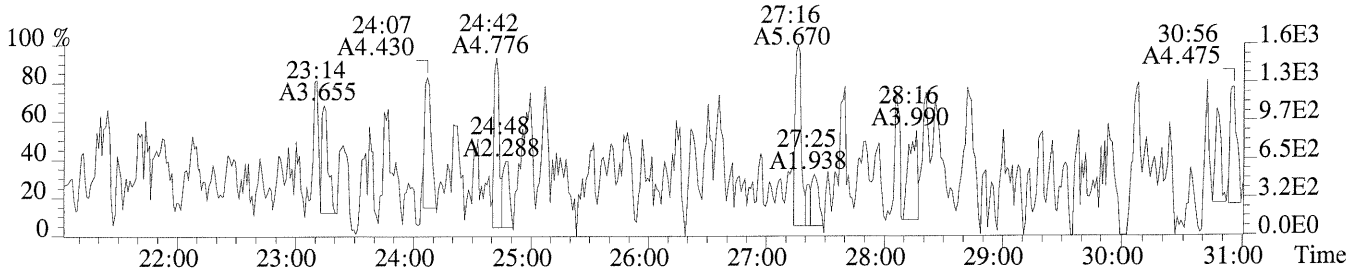
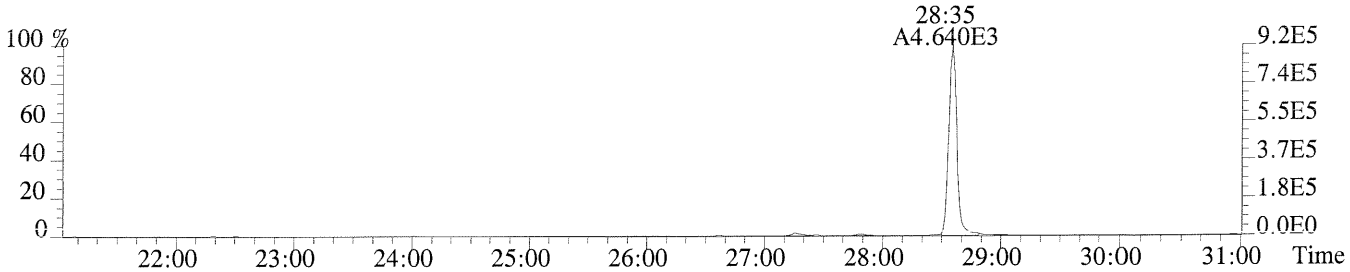
File:U149818 #1-627 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



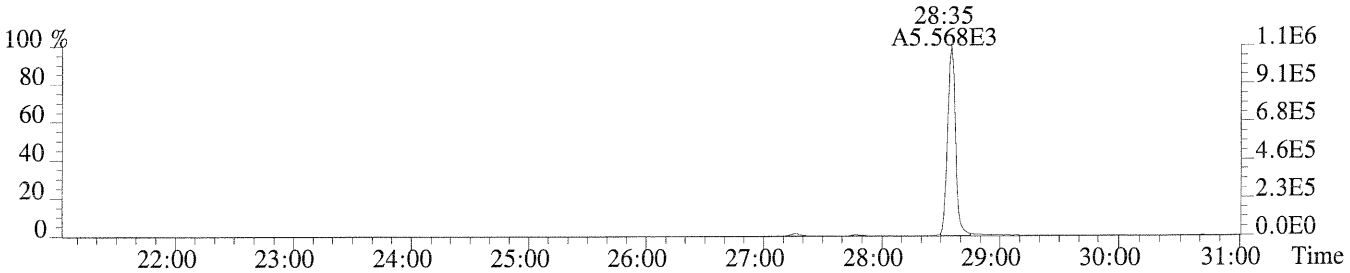
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



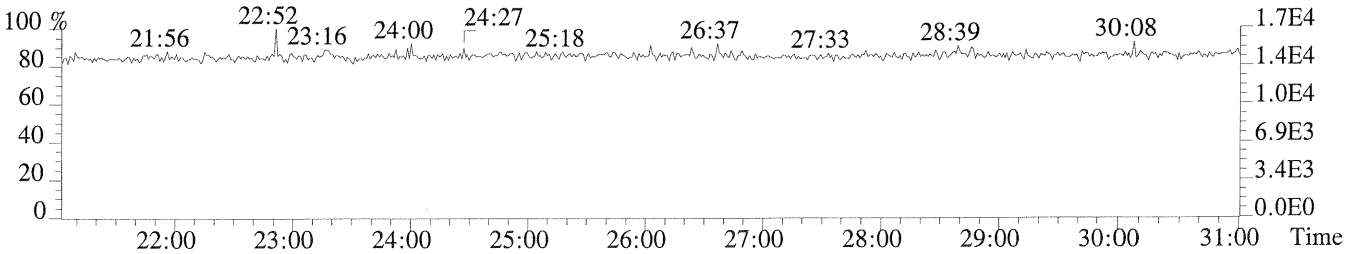
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



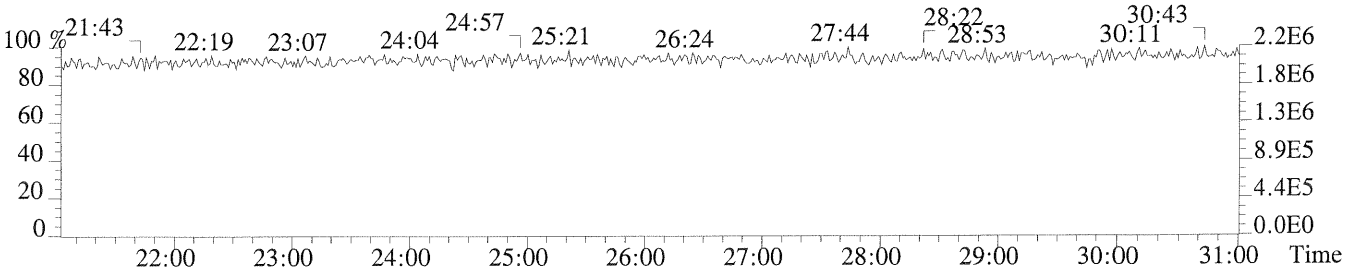
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



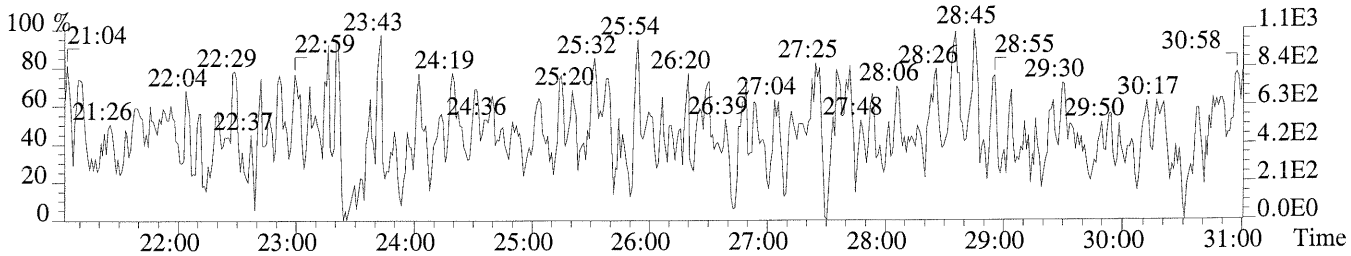
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



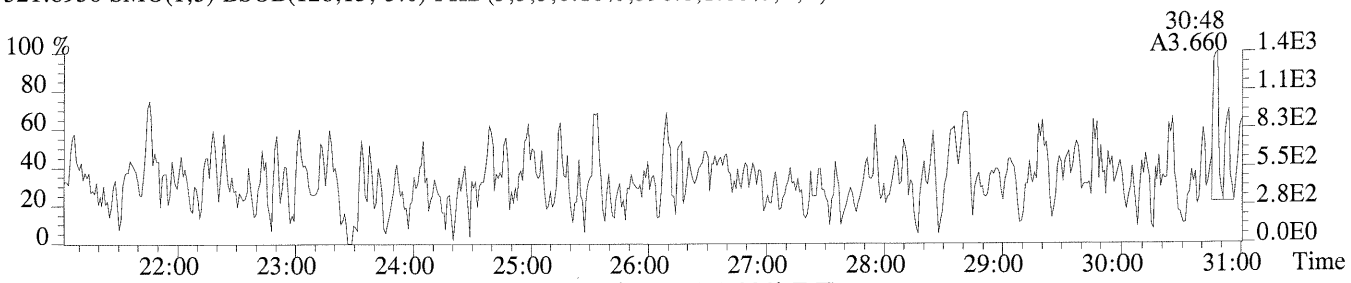
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



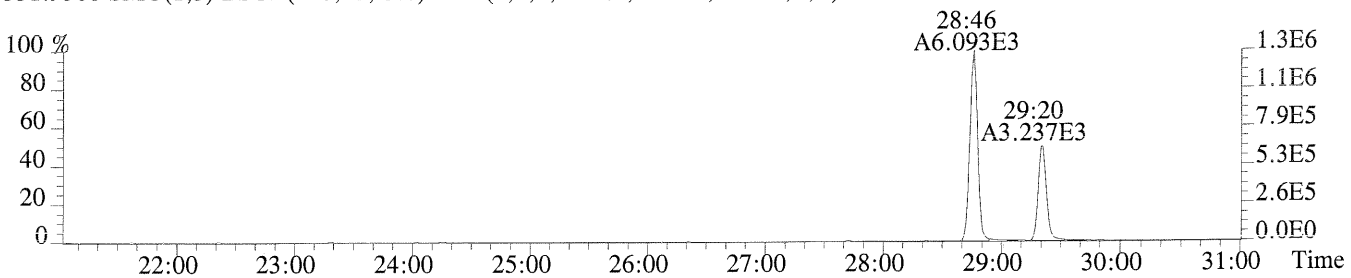
File:U149818 #1-627 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



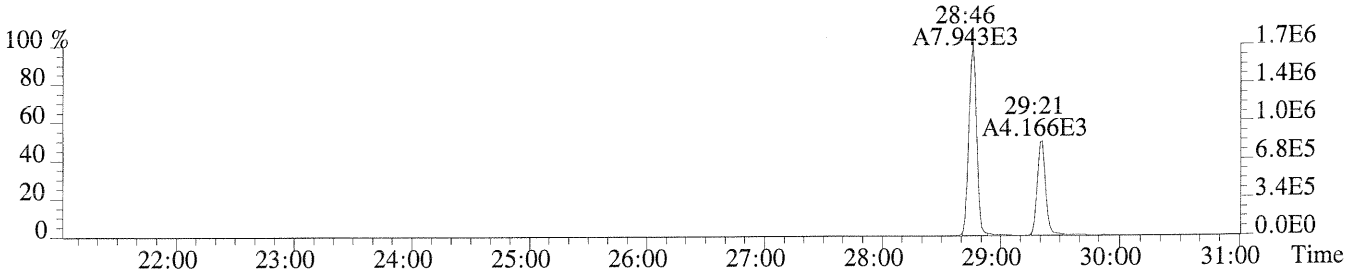
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



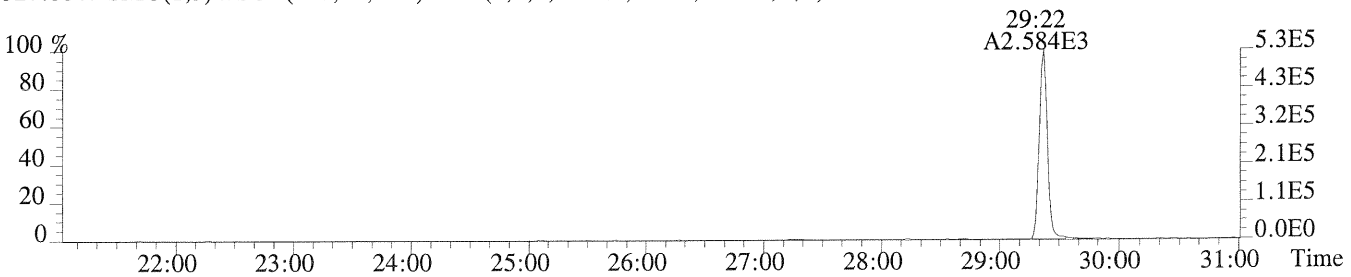
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1740.0,1.00%,F,T)



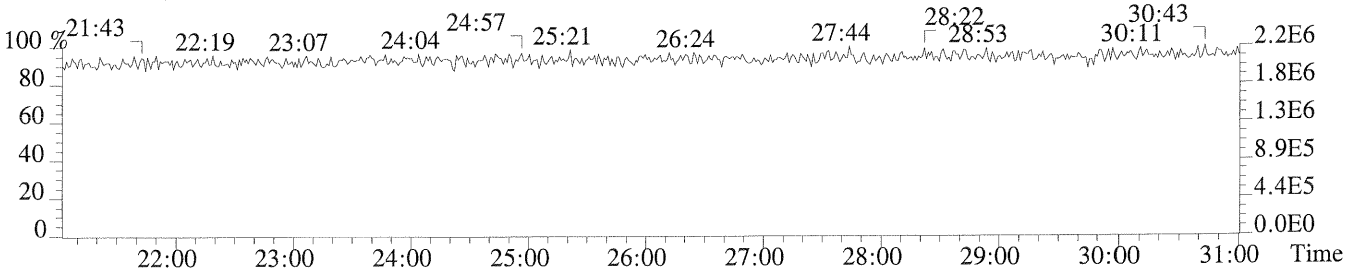
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



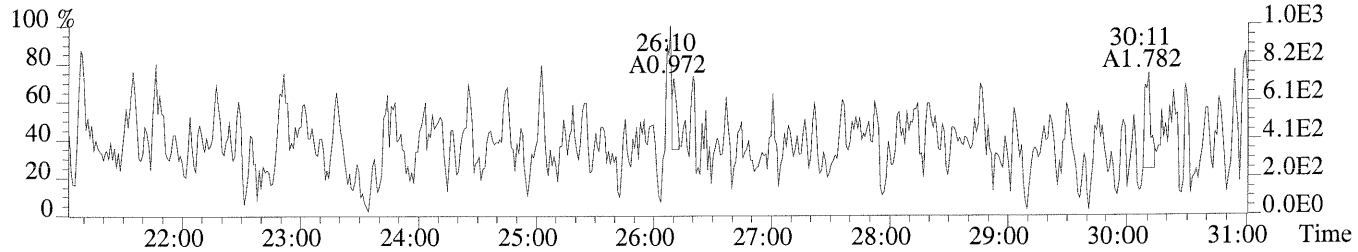
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



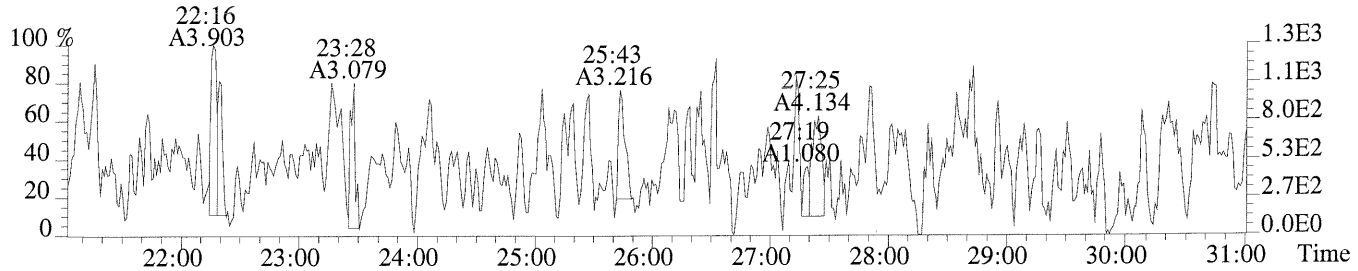
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



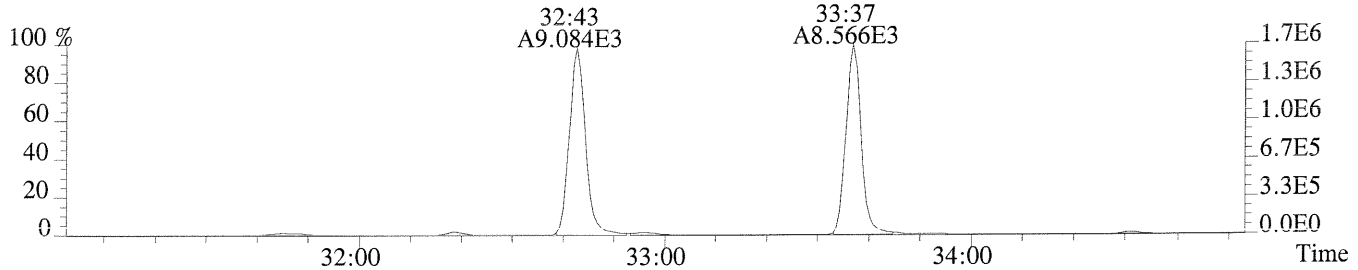
File:U149818 #1-627 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



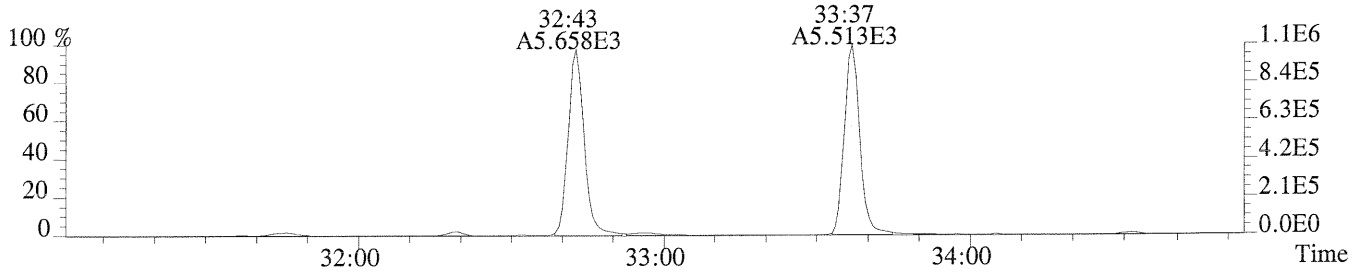
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



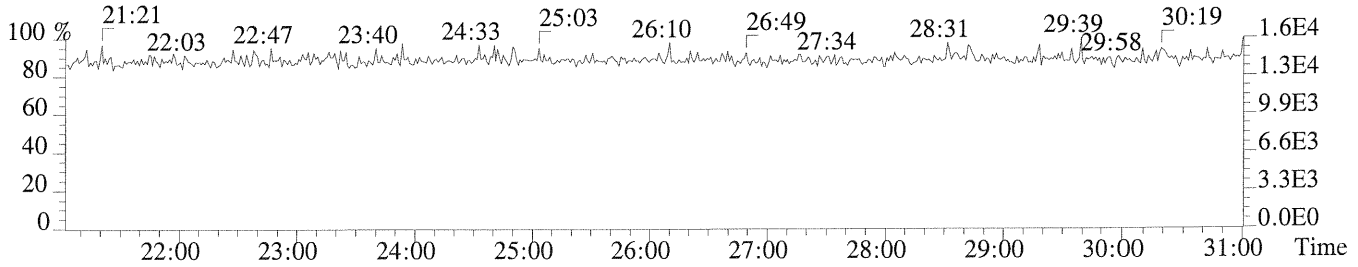
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



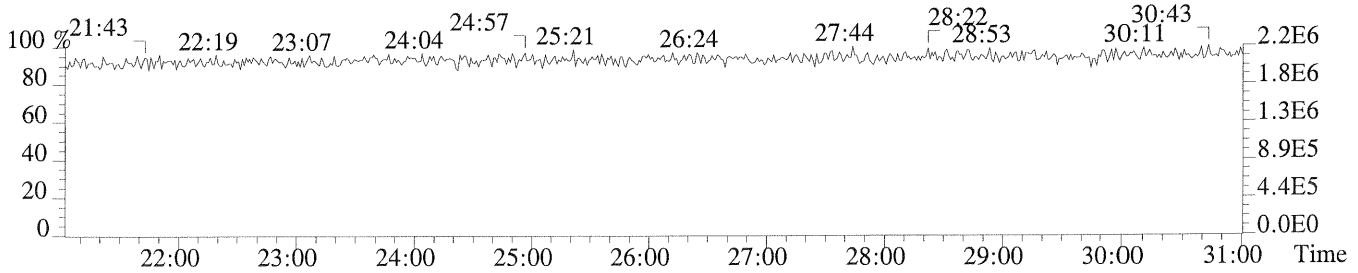
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

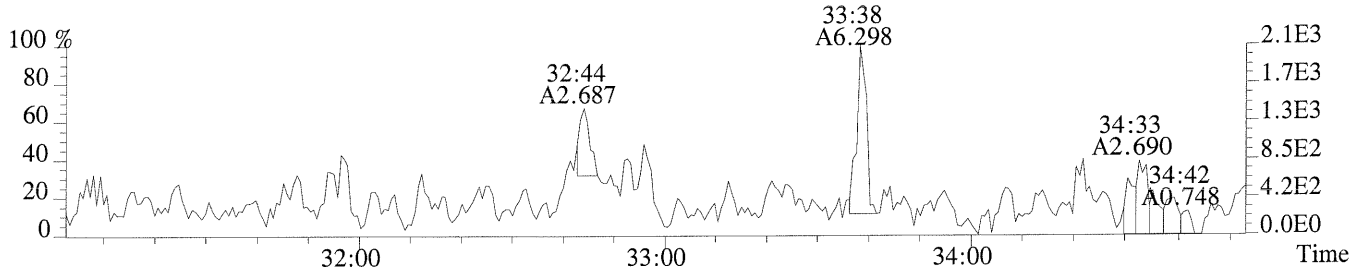


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

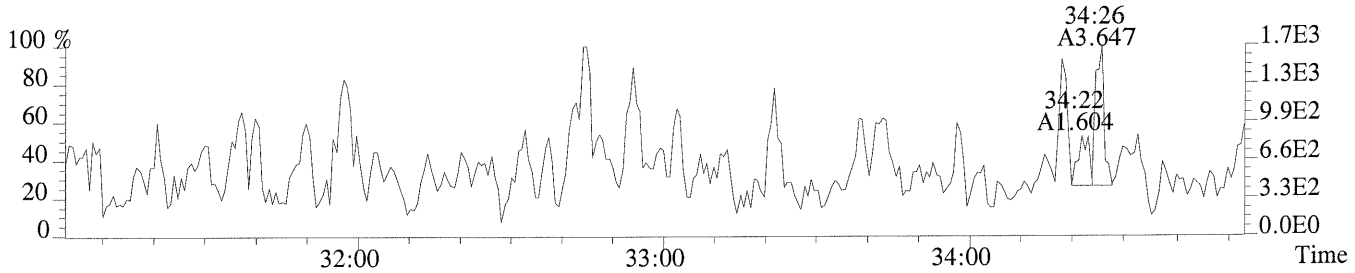


File:U149818 #1-349 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009

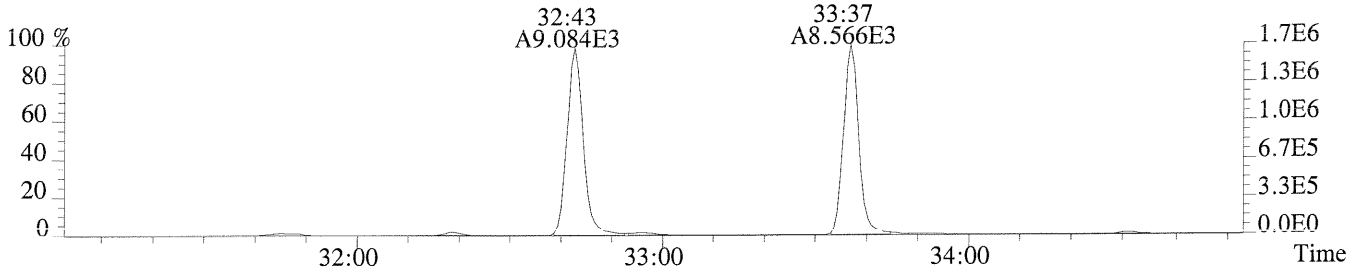
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



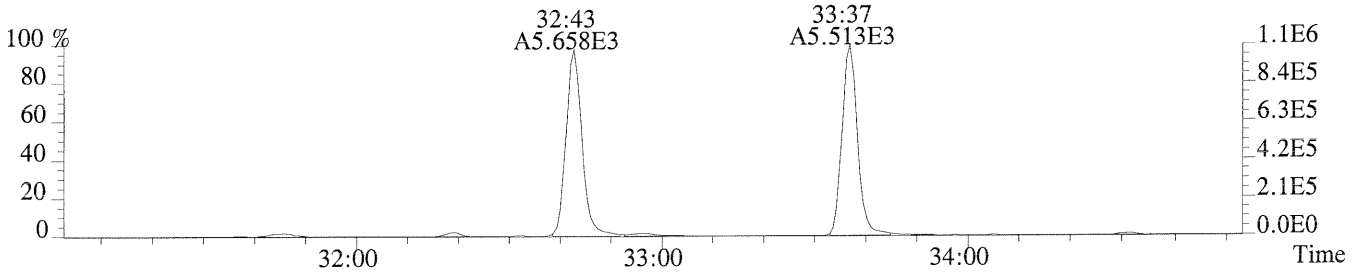
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



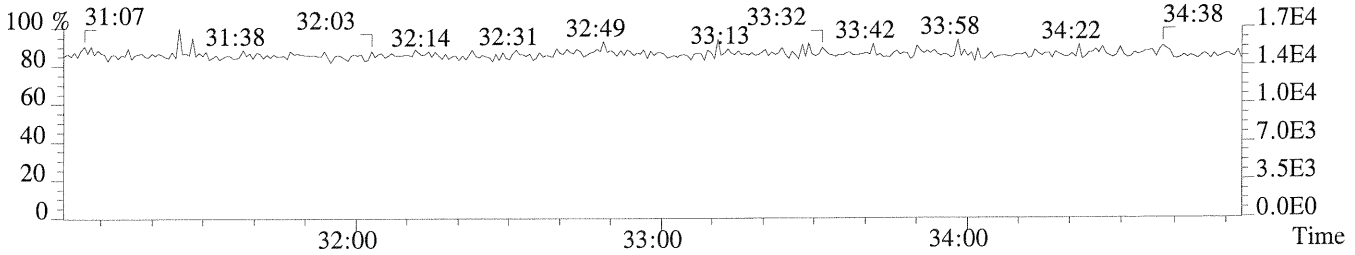
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



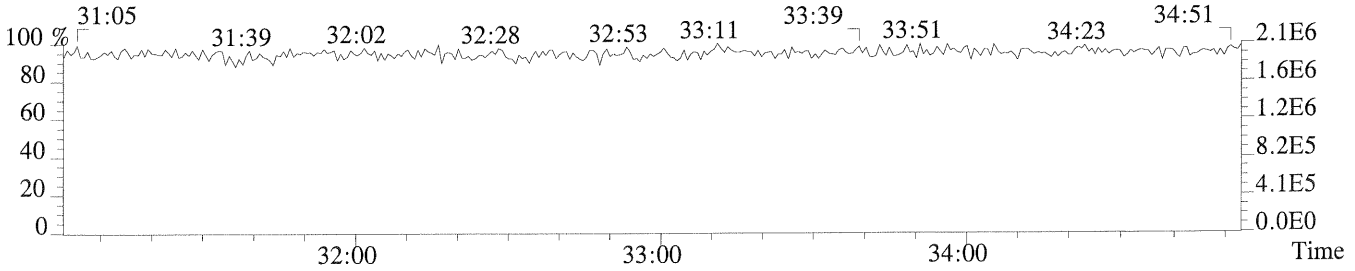
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

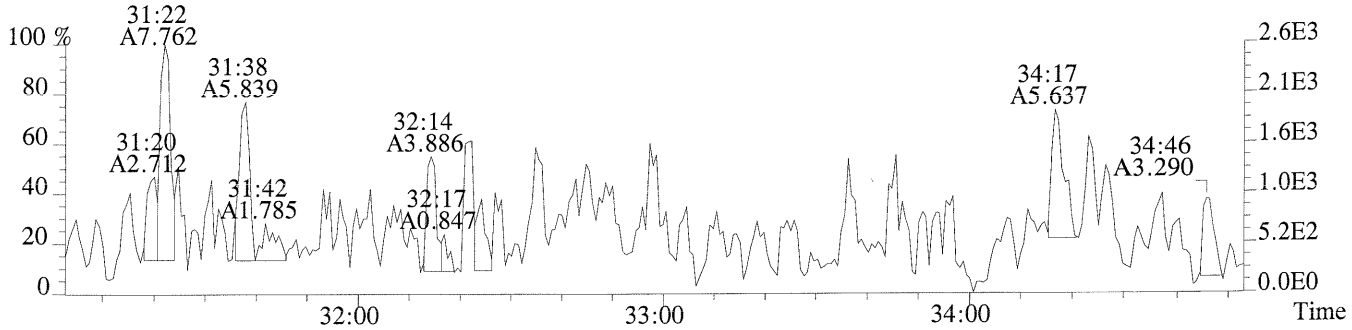


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

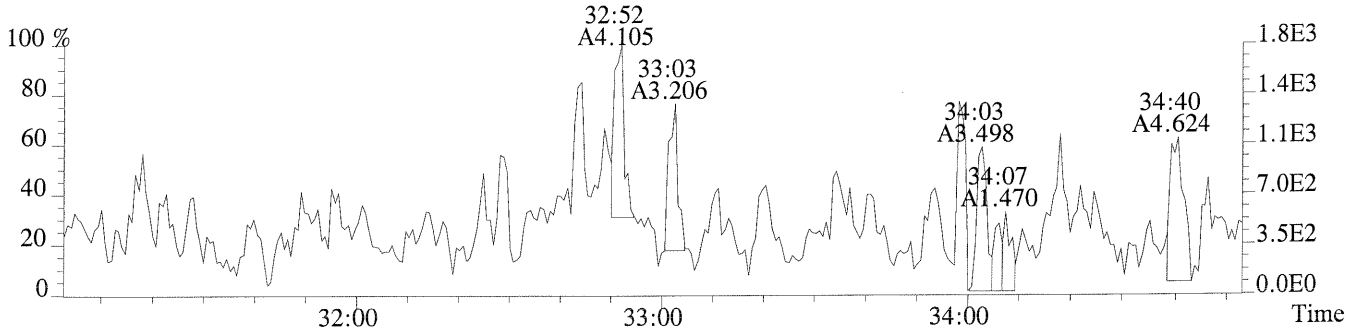


File:U149818 #1-349 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009

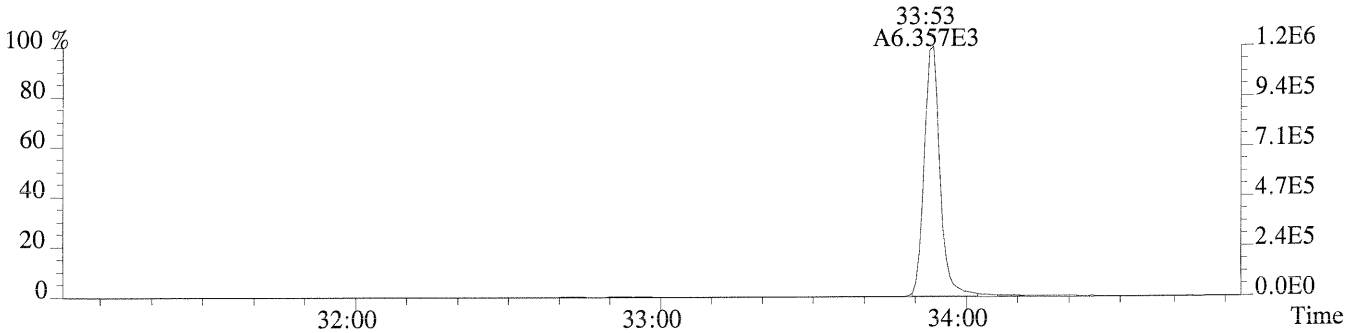
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



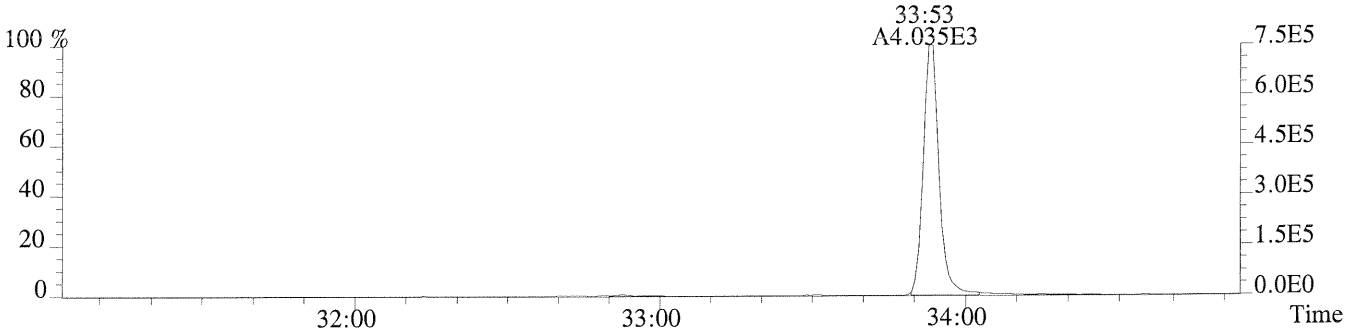
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



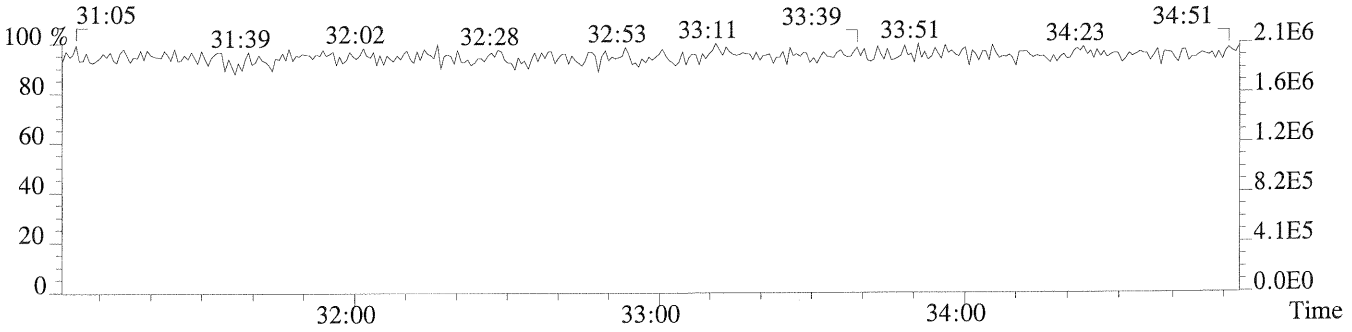
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)

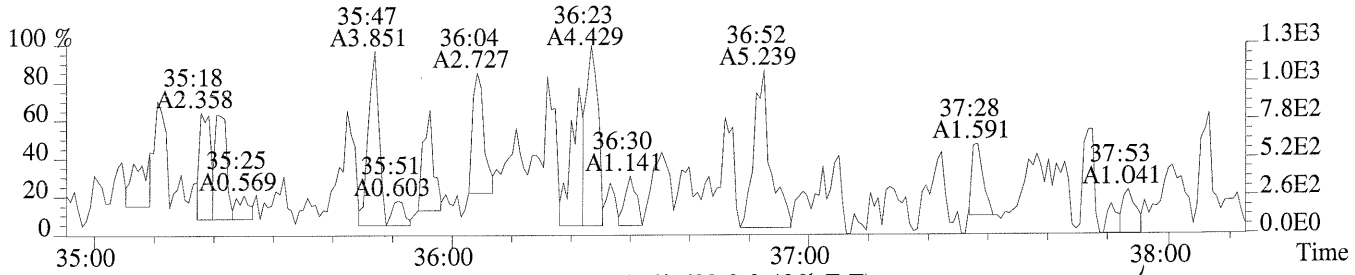


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

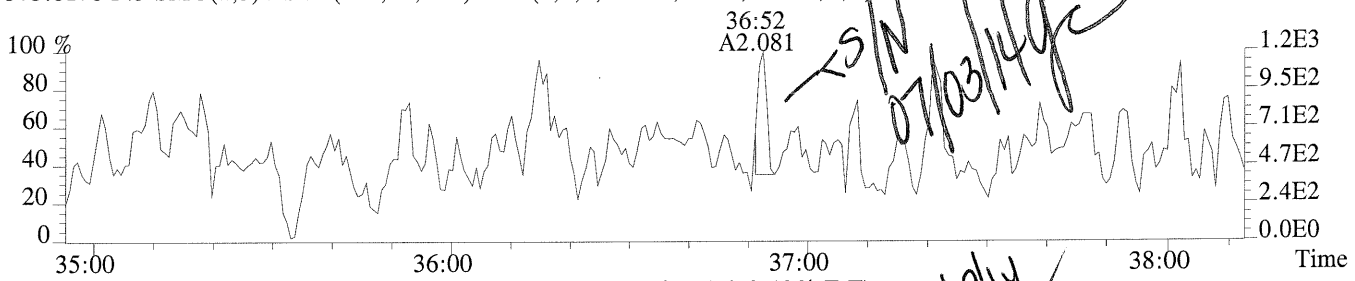


File:U149818 #1-299 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009

373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.40%,F,T)



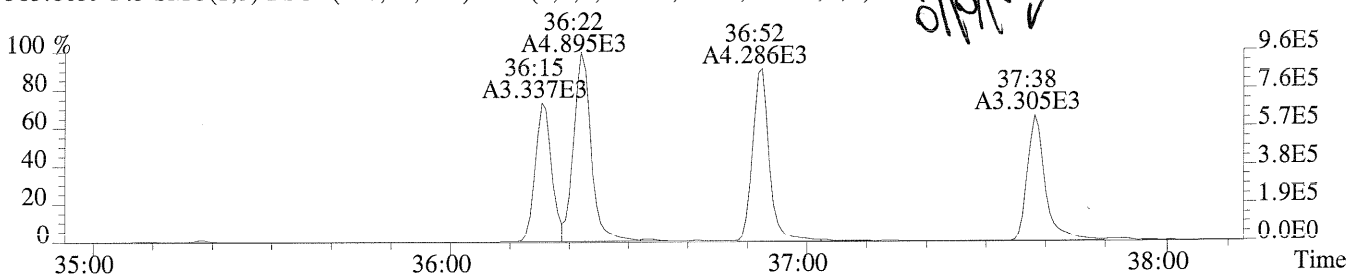
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



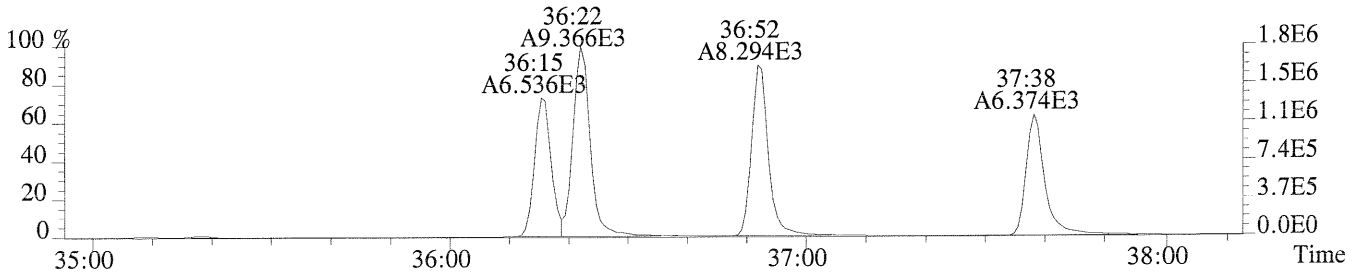
S/N 07/03/14

383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,332.0,0.40%,F,T)

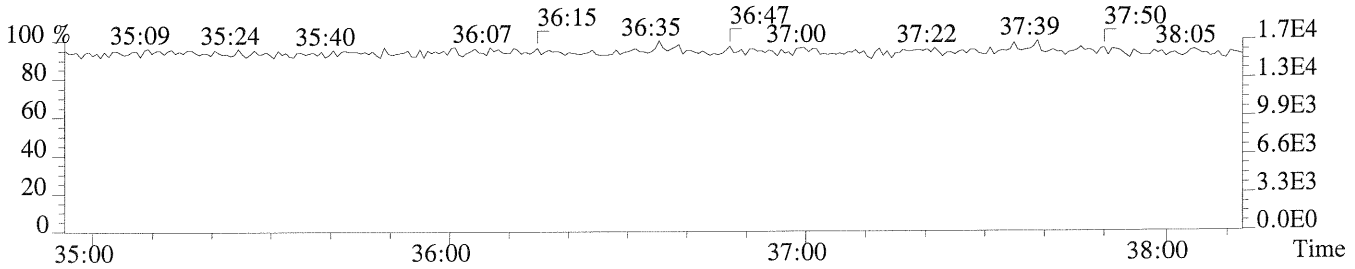
07/9/14



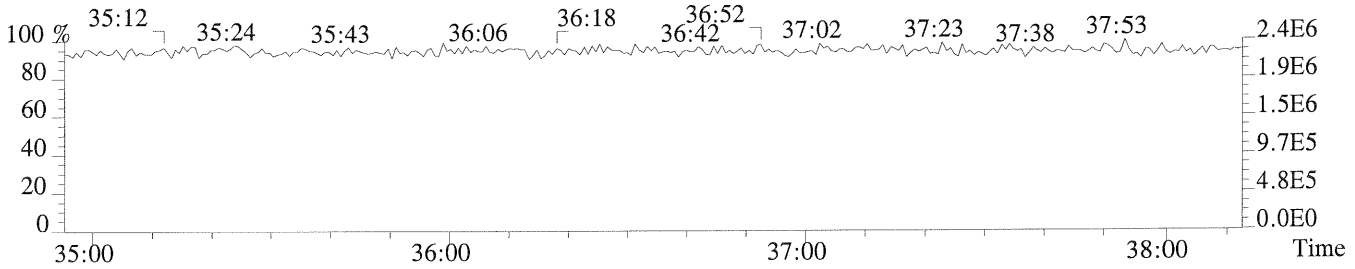
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



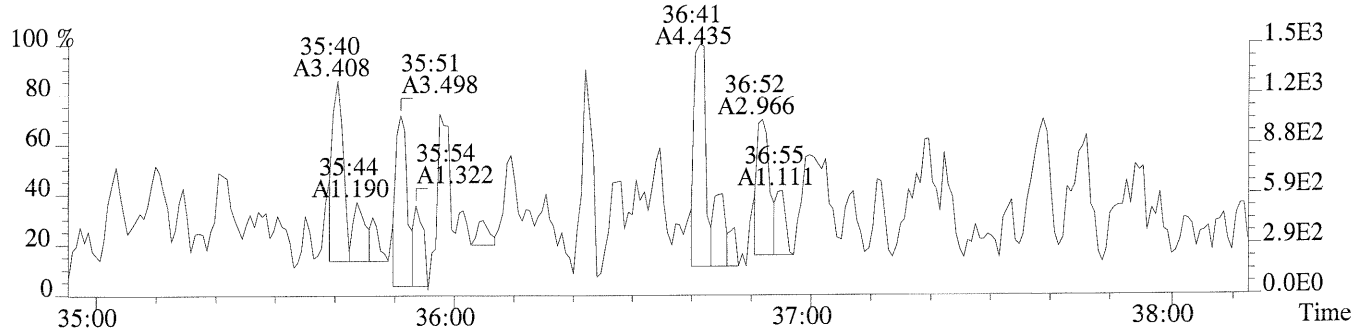
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



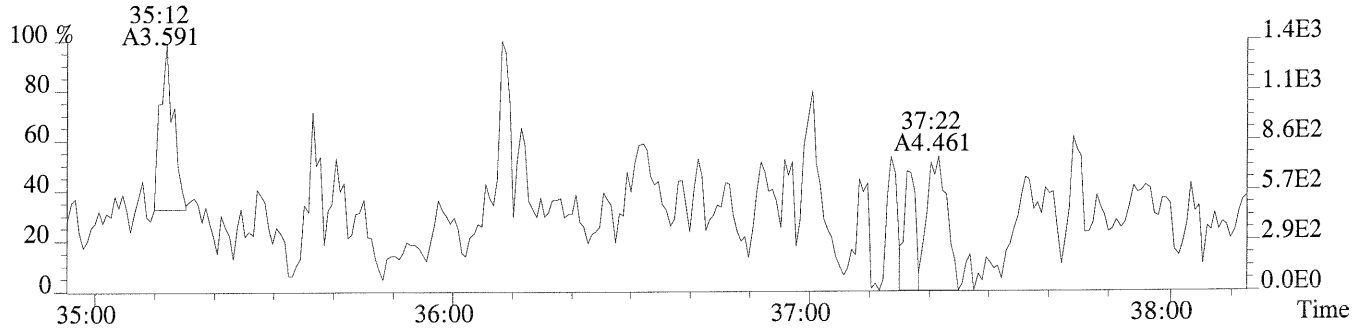
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



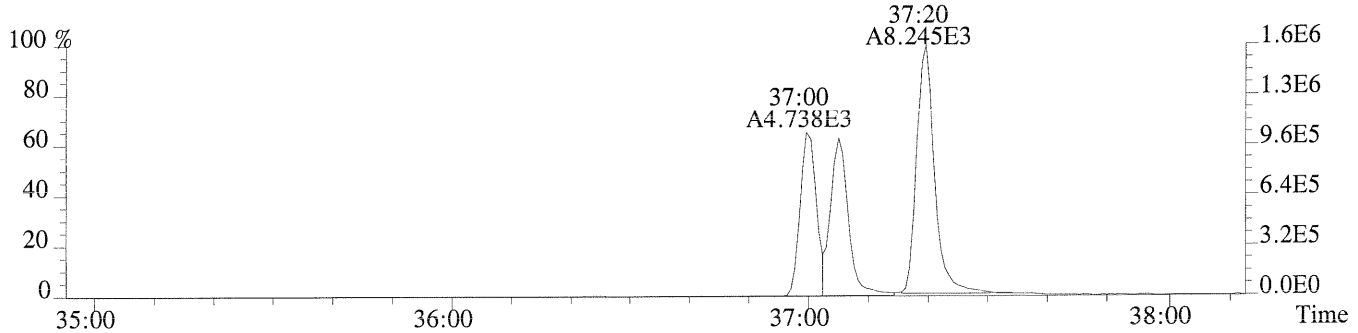
File:U149818 #1-299 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,528.0,0.40%,F,T)



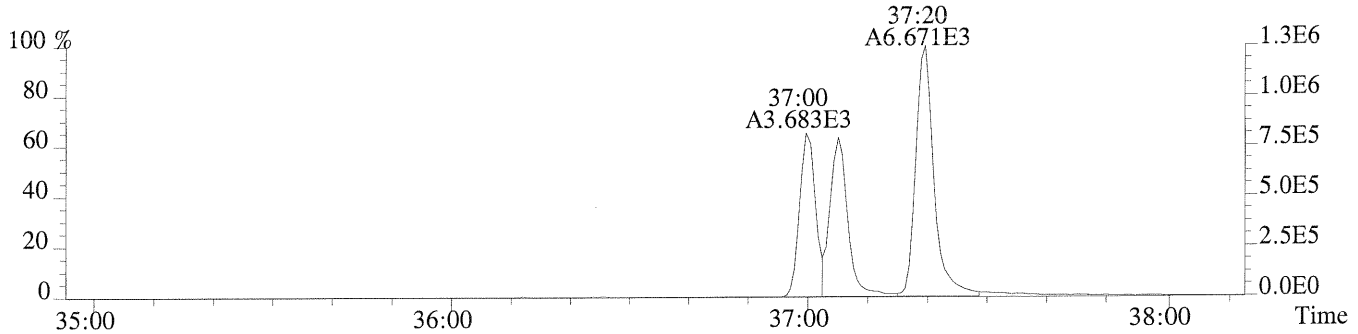
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



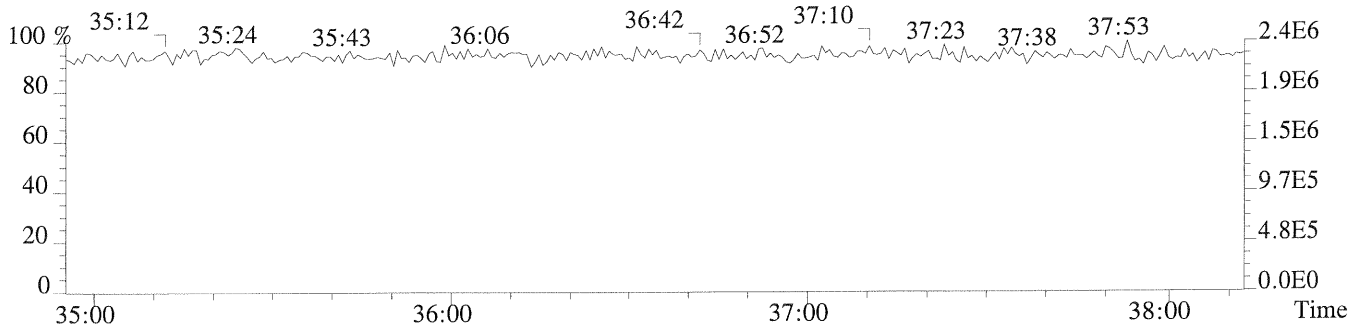
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.40%,F,T)

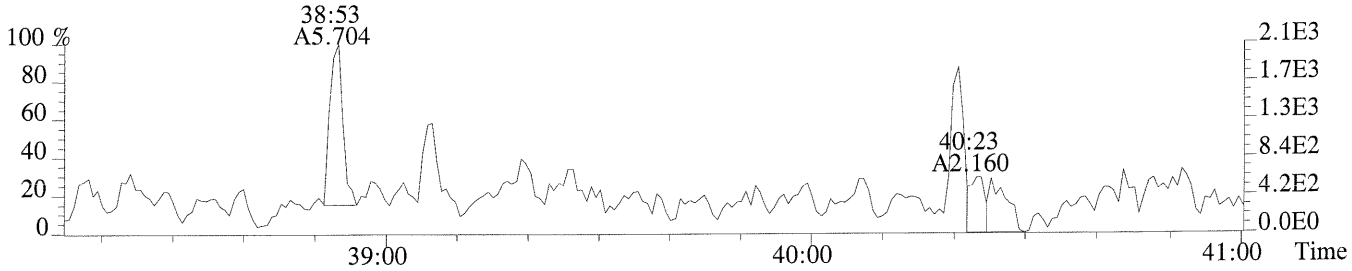


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

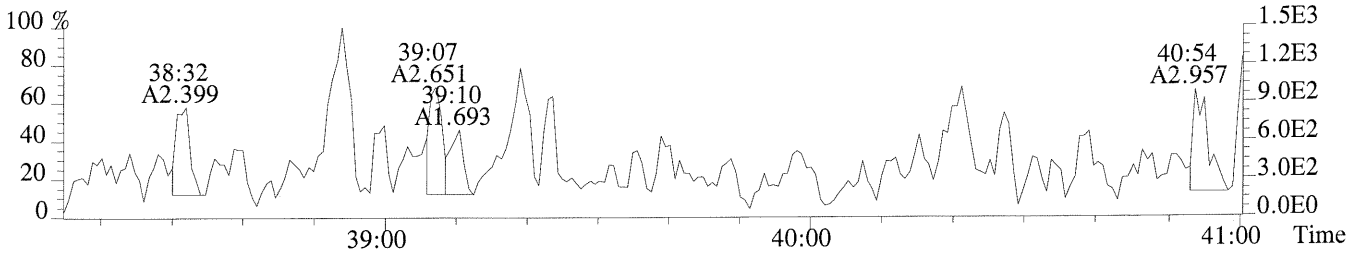


File:U149818 #1-251 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009

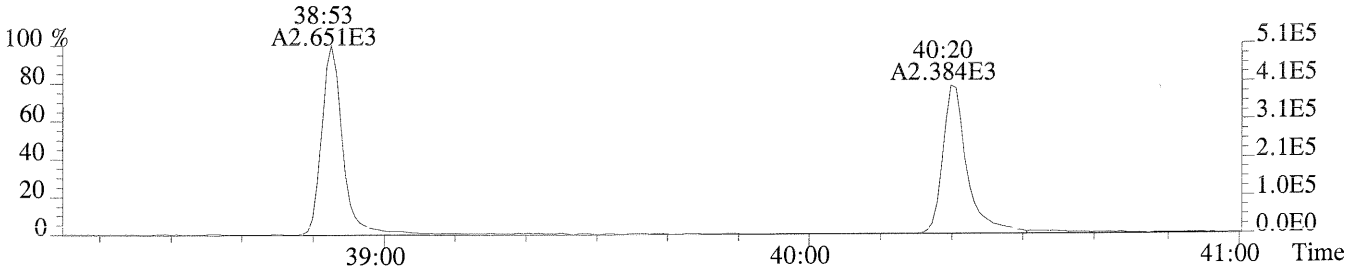
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.50%,F,T)



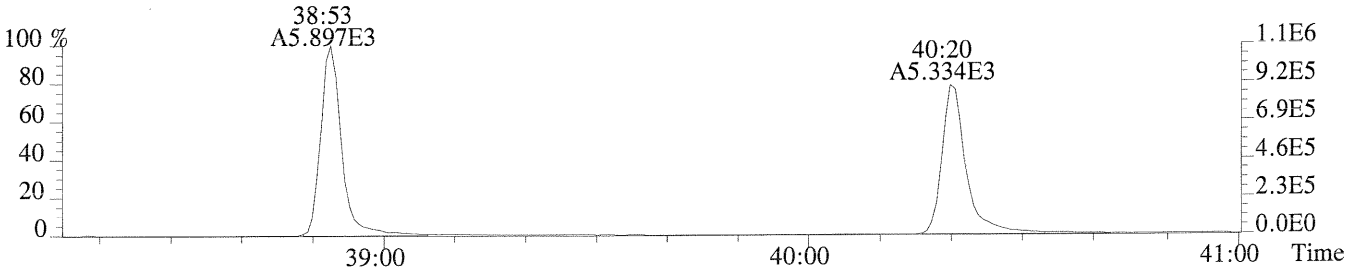
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.50%,F,T)



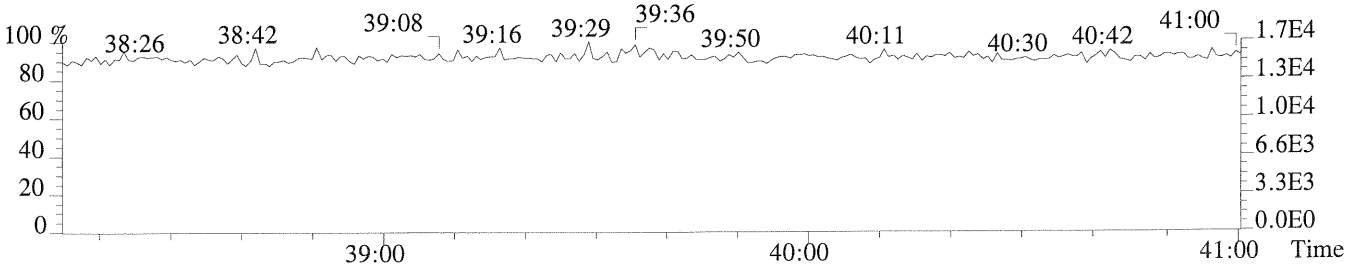
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.50%,F,T)



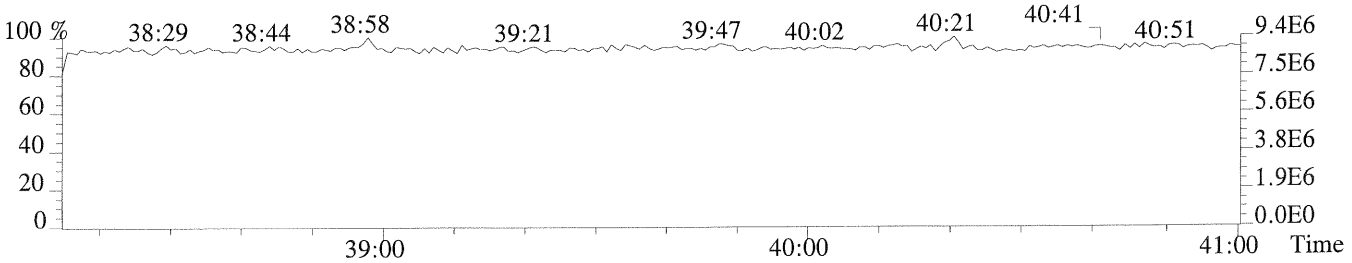
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1864.0,0.50%,F,T)



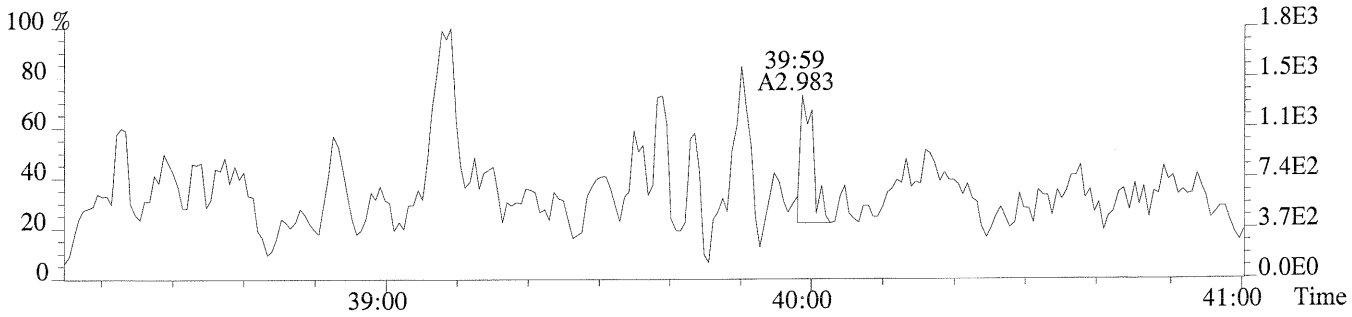
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



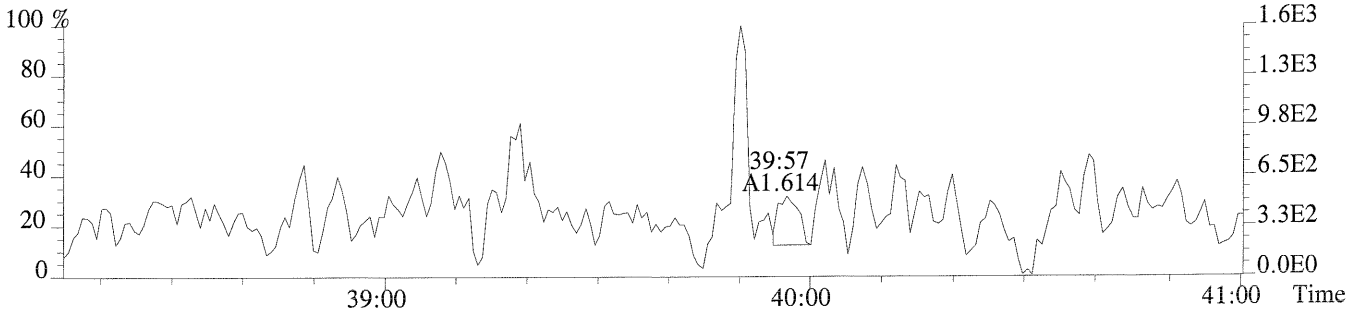
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



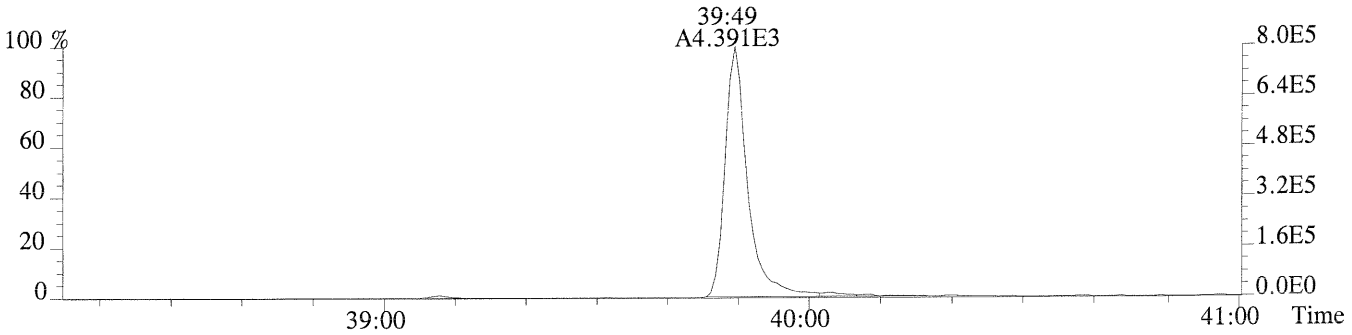
File:U149818 #1-251 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,752.0,0.40%,F,T)



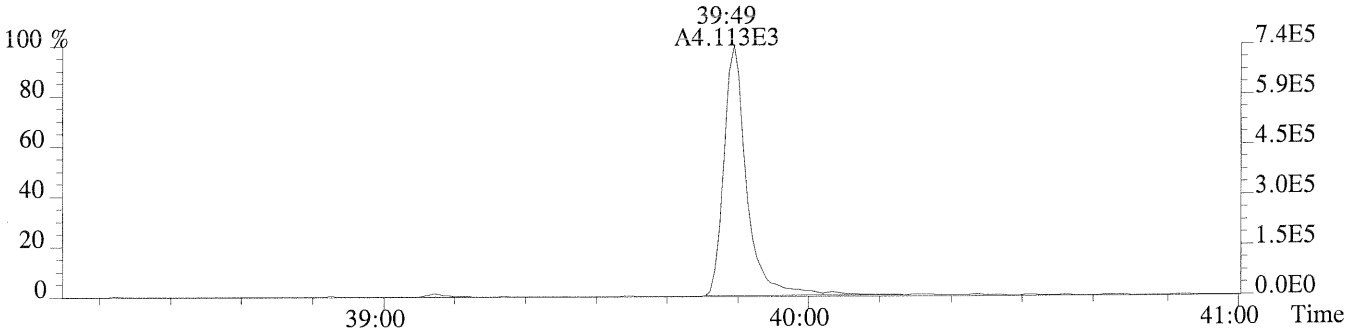
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,504.0,0.40%,F,T)



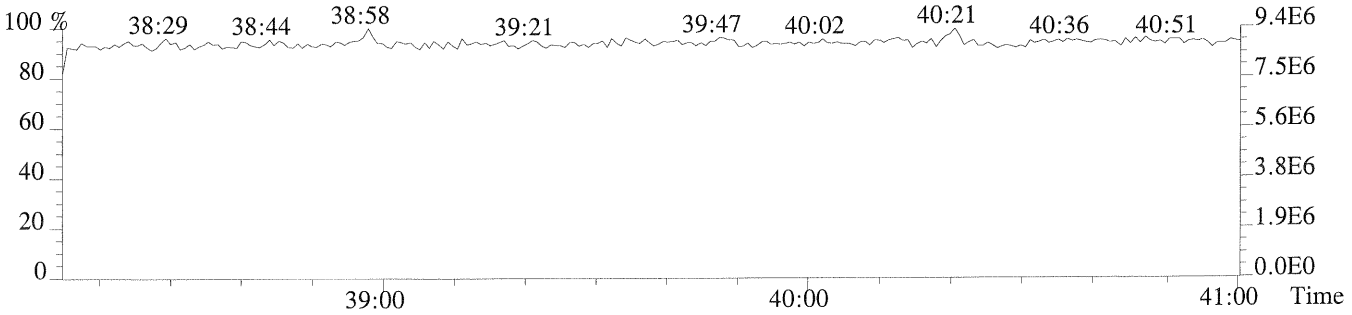
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



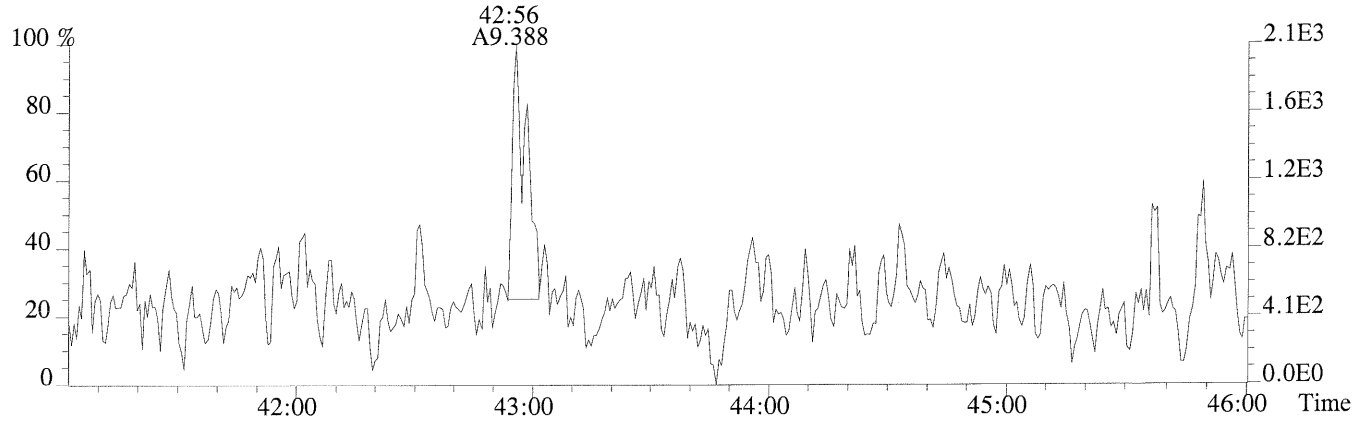
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



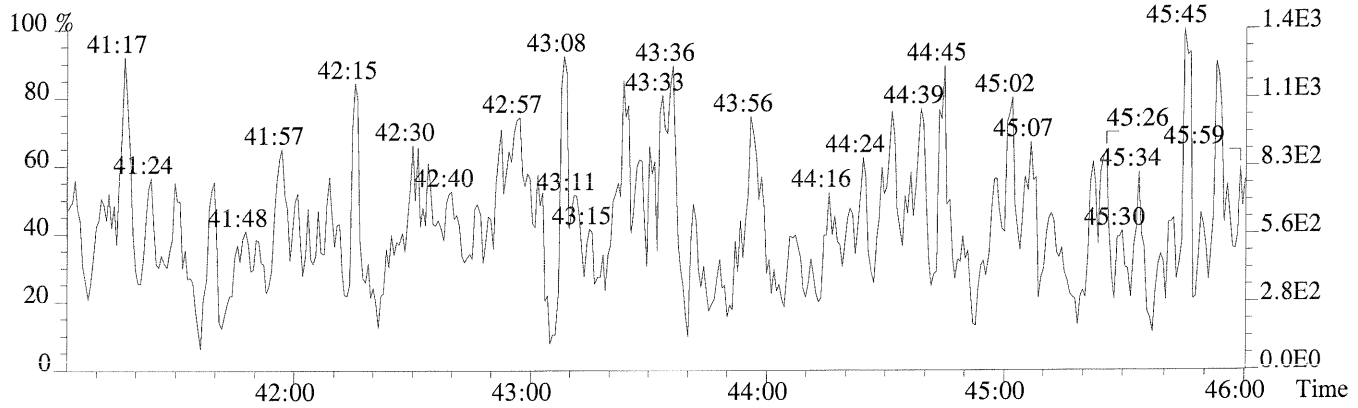
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



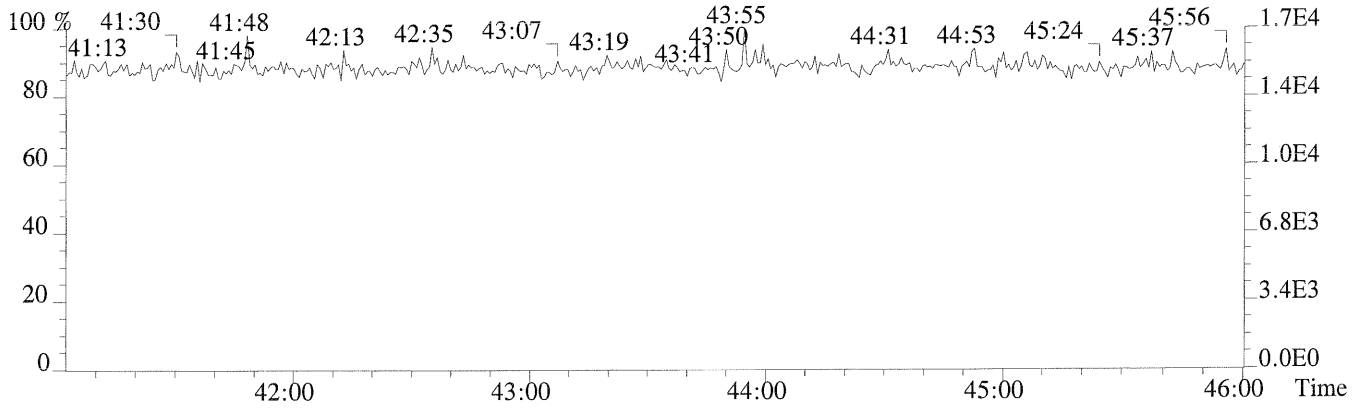
File:U149818 #1-451 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



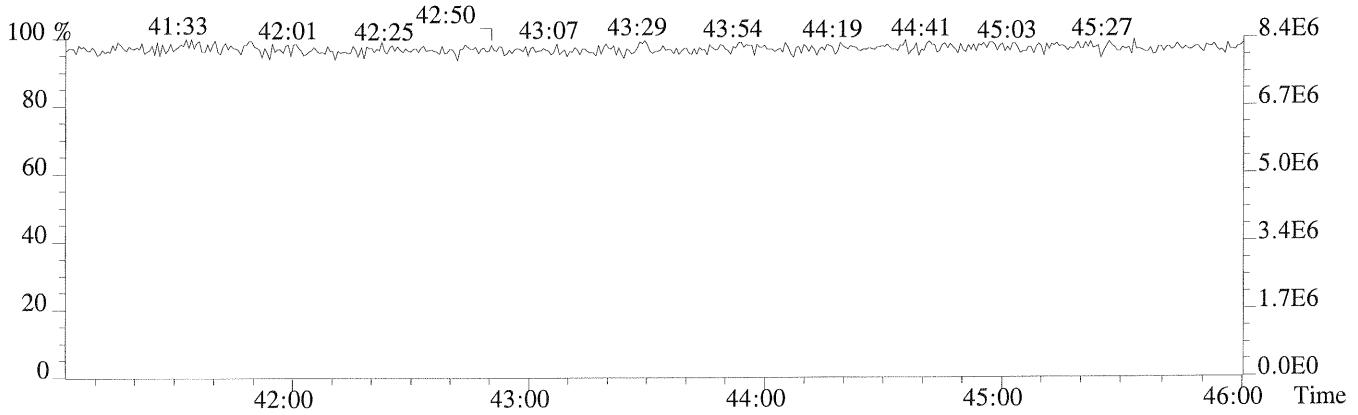
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

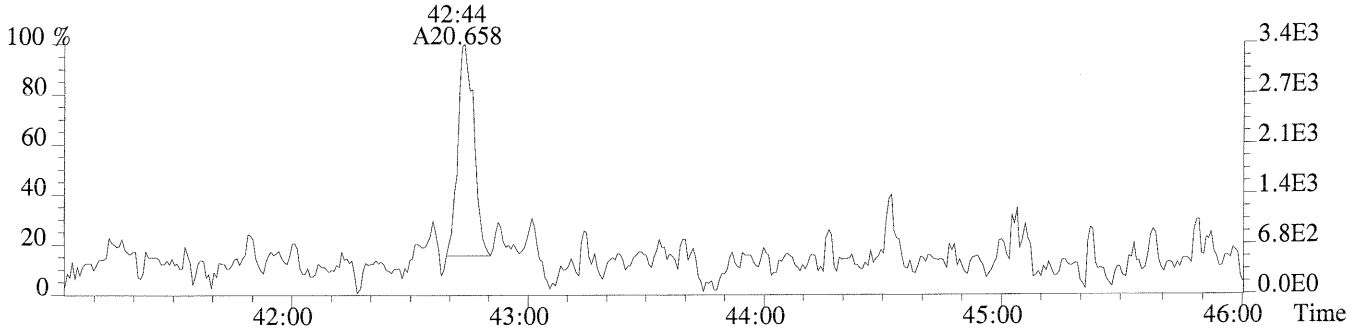


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

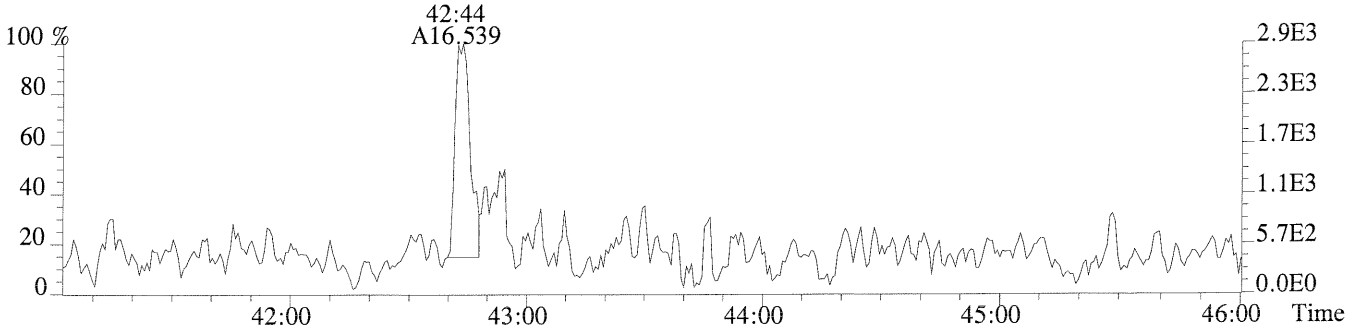


File:U149818 #1-451 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009

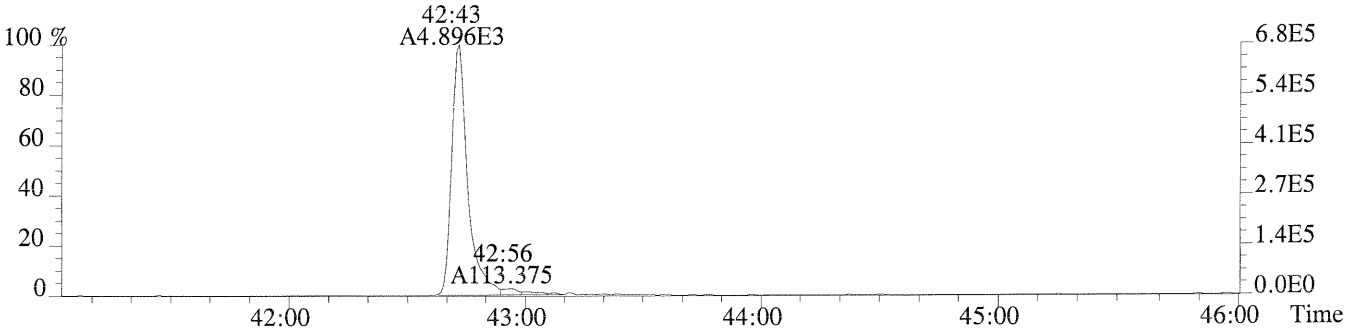
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



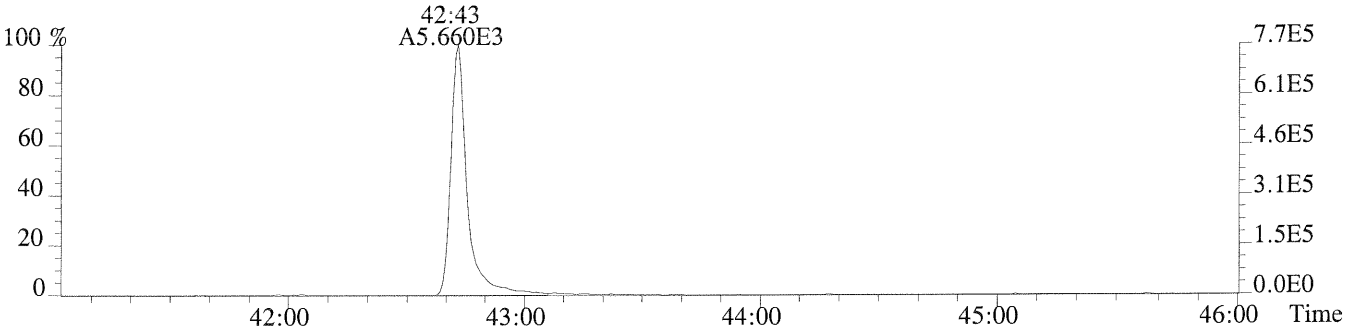
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



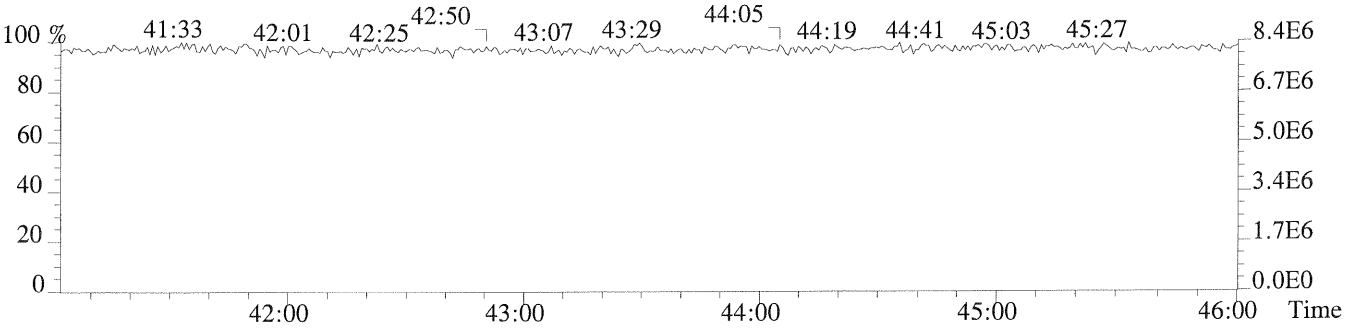
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



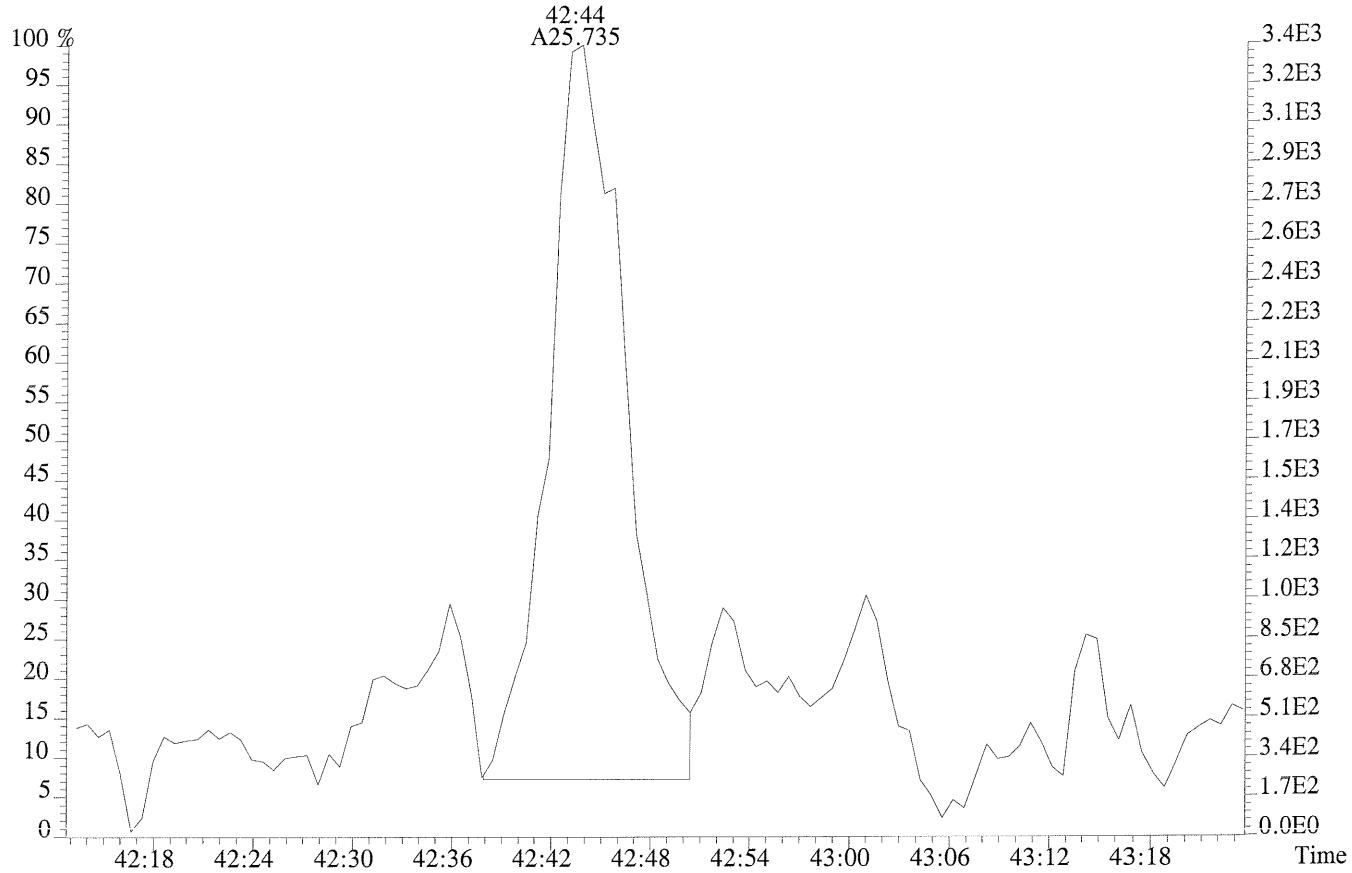
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



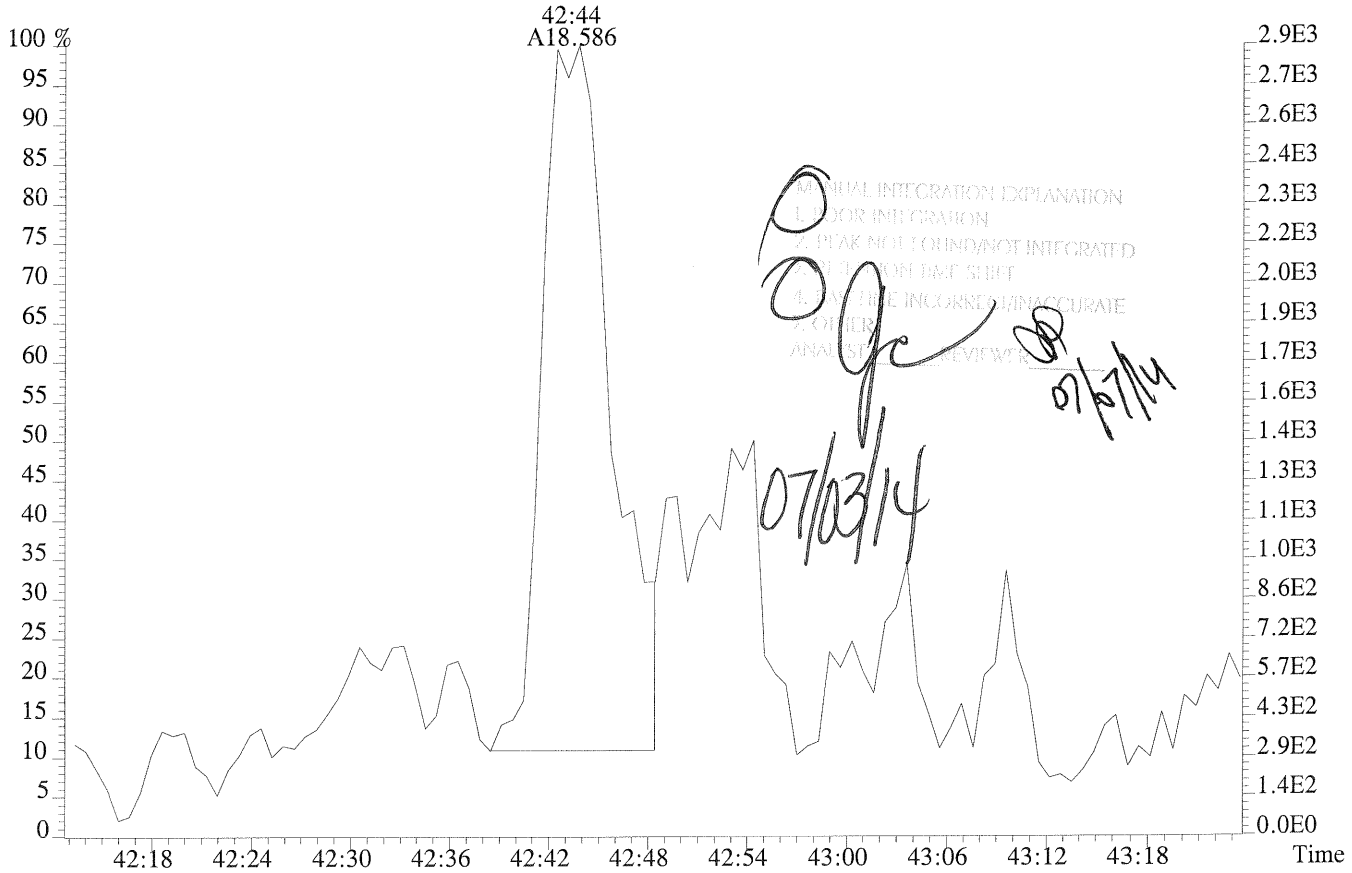
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:U149818 #1-451 Acq: 2-JUL-2014 12:36:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-009
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. INTEGRATION DATE SHEET
4. RESULTS ARE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER

07/03/14

07/07/14

ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406130814 20

Run #12 Filename U149819 Samp: 1 Inj: 1 Acquired: 2-JUL-14 13:25:14
Processed: 3-JUL-14 11:00:31 Sample ID: R1404651-010

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.358
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.065
17	Unk	OCDD	42:43	2.192e+01	2.400e+01	0.91	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:34	4.853e+03	6.143e+03	0.79	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:42	9.660e+03	6.186e+03	1.56	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	8.993e+03	5.565e+03	1.62	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	3.664e+03	7.084e+03	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	5.201e+03	9.936e+03	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	4.593e+03	8.842e+03	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	3.942e+03	7.636e+03	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	2.931e+03	6.435e+03	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.797e+03	6.295e+03	0.44	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:20	3.508e+03	4.417e+03	0.79	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	6.659e+03	4.280e+03	1.56	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	5.099e+03	3.973e+03	1.28	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	5.587e+03	4.441e+03	1.26	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	4.883e+03	4.509e+03	1.08	yes	no	0.936
32	IS	13C-OCDD	42:42	5.871e+03	6.586e+03	0.89	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:46	6.280e+03	8.137e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	9.374e+03	7.332e+03	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:21	2.719e+03				no	1.044

$$\text{OCDD} = \frac{(2.192e{+}01 + 2.400e{+}01) \times 4000 \text{ pg} \times 1}{(5.871e{+}03 + 6.586e{+}03) \times 10.474 \times 96.7 \times 1.177} = 1.24 \text{ ng/kg}$$

8/07/14

1613RESP1

ALS ENVIRONMENTAL
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Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406130814 200-S

Run #12 Filename U149819 Samp: 1 Inj: 1 Acquired: 2-JUL-14 13:25:14
Processed: 3-JUL-14 11:00:311 LAB. ID: R1404651-010

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	4.60e+02	*	*	8.52e+02	*
2	1,2,3,7,8-PeCDF	*	6.76e+02	*	*	6.28e+02	*
3	2,3,4,7,8-PeCDF	*	6.76e+02	*	*	6.28e+02	*
4	1,2,3,4,7,8-HxCDF	*	7.80e+02	*	*	5.48e+02	*
5	1,2,3,6,7,8-HxCDF	*	7.80e+02	*	*	5.48e+02	*
6	2,3,4,6,7,8-HxCDF	*	7.80e+02	*	*	5.48e+02	*
7	1,2,3,7,8,9-HxCDF	*	7.80e+02	*	*	5.48e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	5.52e+02	*	*	5.64e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	5.52e+02	*	*	5.64e+02	*
10	OCDF	*	3.68e+02	*	*	5.08e+02	*
11	2,3,7,8-TCDD	*	5.52e+02	*	*	6.20e+02	*
12	1,2,3,7,8-PeCDD	*	8.68e+02	*	*	5.88e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.16e+02	*	*	6.76e+02	*
14	1,2,3,6,7,8-HxCDD	*	7.16e+02	*	*	6.76e+02	*
15	1,2,3,7,8,9-HxCDD	*	7.16e+02	*	*	6.76e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	4.56e+02	*	*	5.84e+02	*
17	OCDD	2.67e+03	4.68e+02	5.7e+00	3.93e+03	5.16e+02	7.6e+00
18	13C-2,3,7,8-TCDF	9.60e+05	9.16e+02	1.0e+03	1.22e+06	7.12e+02	1.7e+03
19	13C-1,2,3,7,8-PeCDF	1.76e+06	5.20e+02	3.4e+03	1.14e+06	4.80e+02	2.4e+03
20	13C-2,3,4,7,8-PeCDF	1.69e+06	5.20e+02	3.3e+03	1.04e+06	4.80e+02	2.2e+03
21	13C-1,2,3,4,7,8-HxCDF	7.73e+05	5.92e+02	1.3e+03	1.48e+06	8.16e+02	1.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.01e+06	5.92e+02	1.7e+03	1.96e+06	8.16e+02	2.4e+03
23	13C-2,3,4,6,7,8-HxCDF	9.10e+05	5.92e+02	1.5e+03	1.82e+06	8.16e+02	2.2e+03
24	13C-1,2,3,7,8,9-HxCDF	7.73e+05	5.92e+02	1.3e+03	1.49e+06	8.16e+02	1.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.42e+05	5.56e+02	9.8e+02	1.22e+06	1.23e+03	9.9e+02
26	13C-1,2,3,4,7,8,9-HpCDF	4.74e+05	5.56e+02	8.5e+02	1.08e+06	1.23e+03	8.7e+02
27	13C-2,3,7,8-TCDD	7.55e+05	1.61e+03	4.7e+02	9.55e+05	9.28e+02	1.0e+03
28	13C-1,2,3,7,8-PeCDD	1.28e+06	5.80e+02	2.2e+03	8.30e+05	6.08e+02	1.4e+03
29	13C-1,2,3,4,7,8-HxCDD	1.12e+06	7.08e+02	1.6e+03	8.76e+05	6.16e+02	1.4e+03
30	13C-1,2,3,6,7,8-HxCDD	1.10e+06	7.08e+02	1.6e+03	8.75e+05	6.16e+02	1.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.81e+05	5.32e+02	1.7e+03	8.06e+05	7.60e+02	1.1e+03
32	13C-OCDD	8.65e+05	4.76e+02	1.8e+03	9.59e+05	6.16e+02	1.6e+03
33	13C-1,2,3,4-TCDD	1.31e+06	1.61e+03	8.1e+02	1.70e+06	9.28e+02	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.71e+06	7.08e+02	2.4e+03	1.34e+06	6.16e+02	2.2e+03
35	37Cl-2,3,7,8-TCDD	5.74e+05	8.28e+02	6.9e+02			

ALS ENVIRONMENTAL
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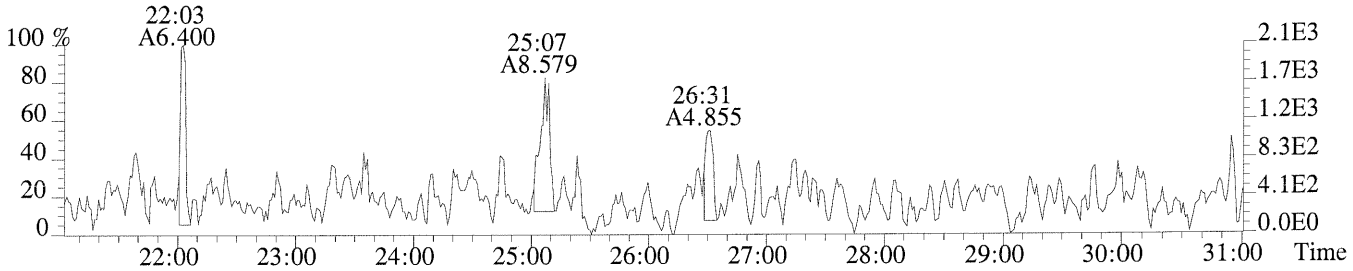
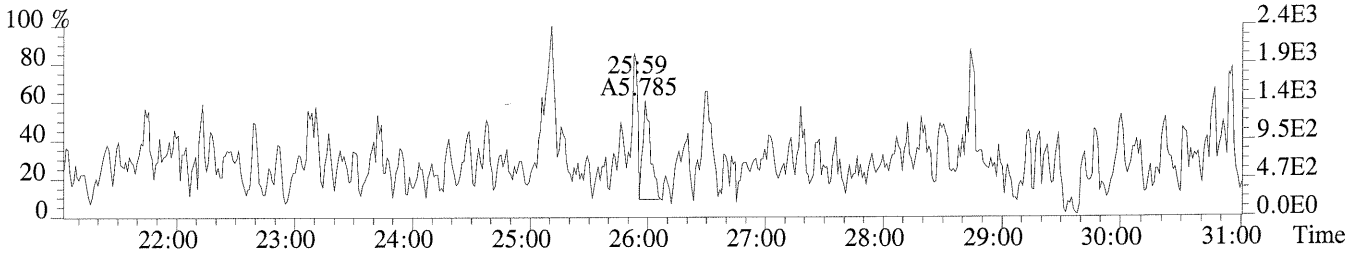
Office:(713)266-1599. Fax:(713)266-0130

File:U149819 #1-627 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010

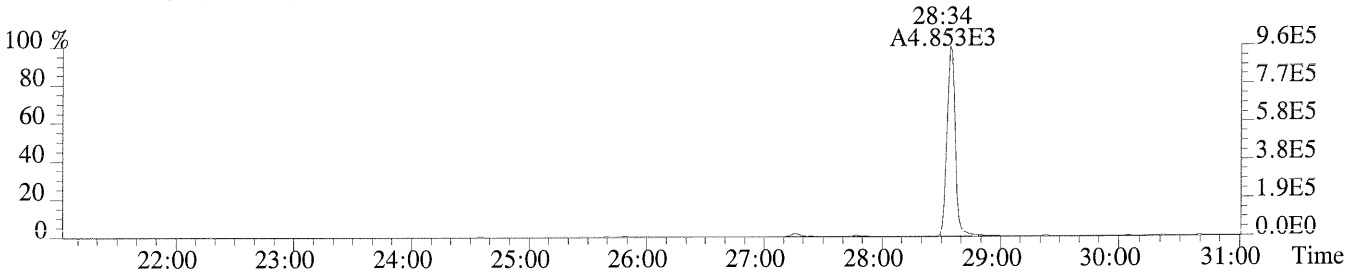
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



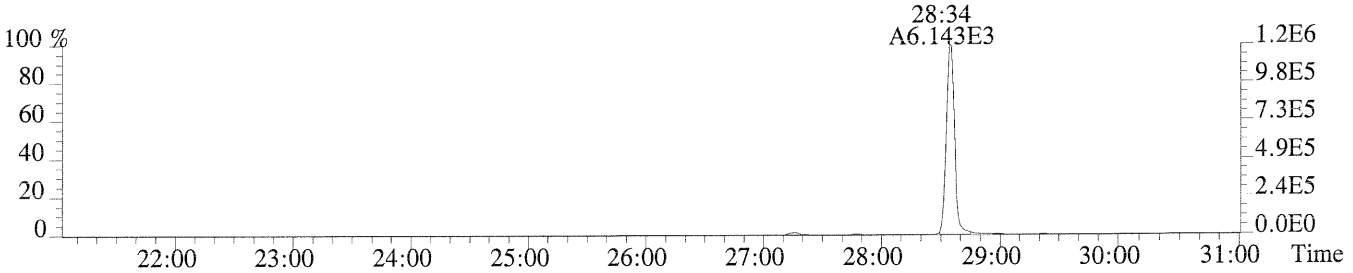
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



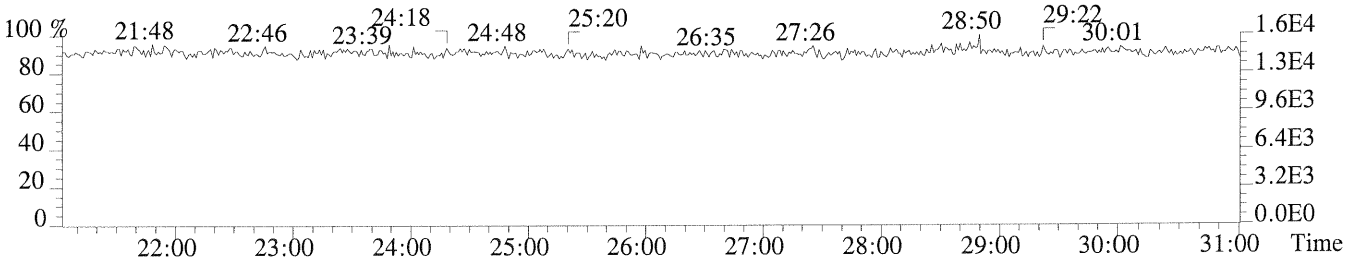
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



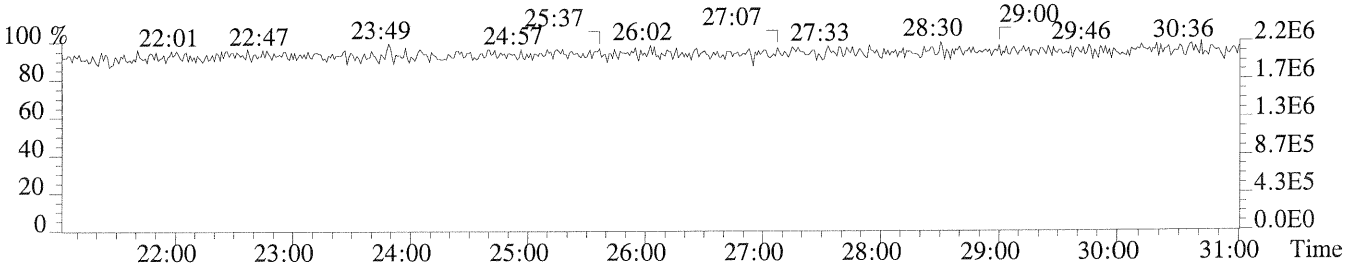
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

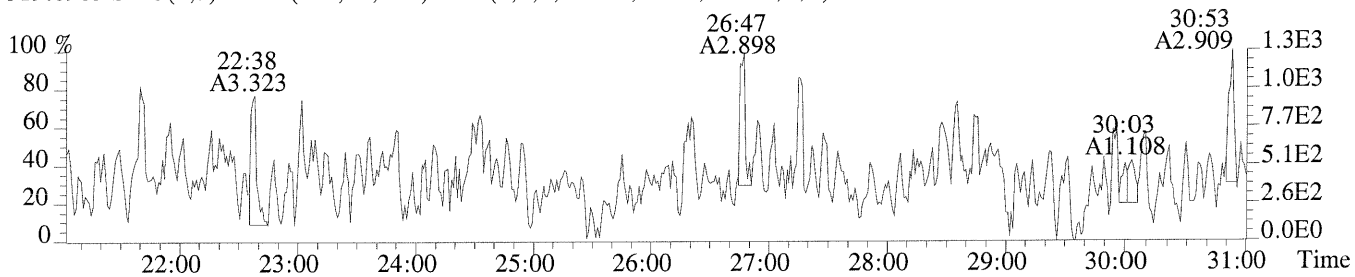


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

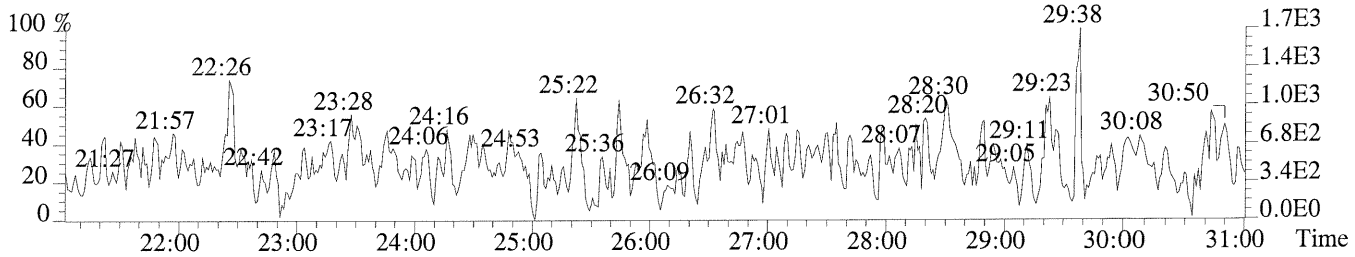


File:U149819 #1-627 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010

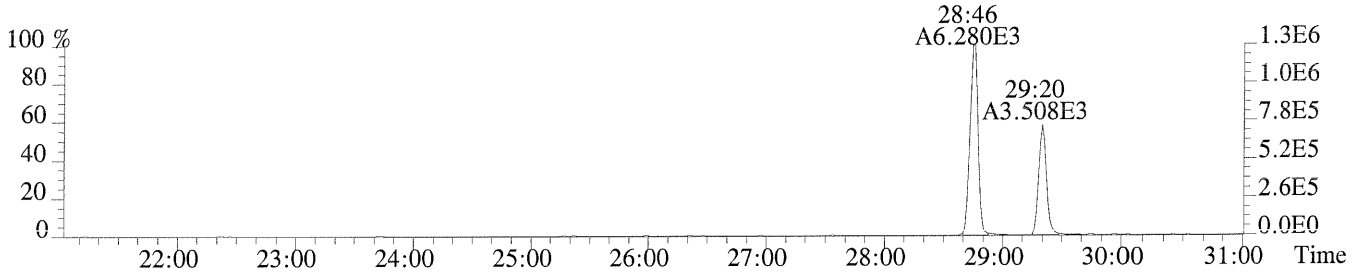
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



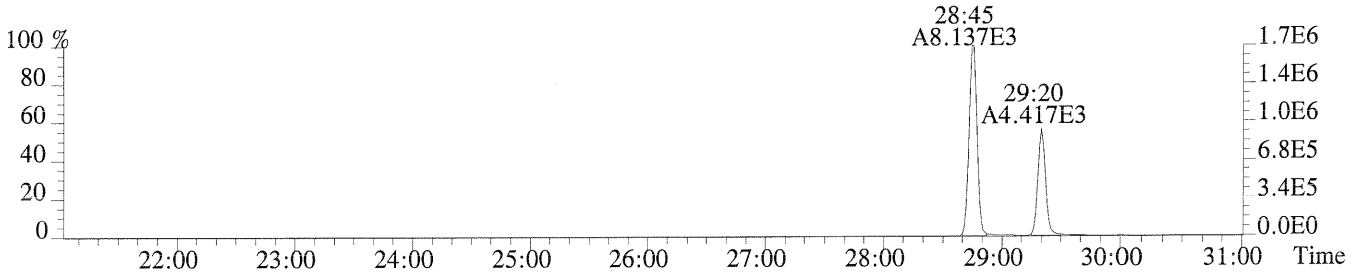
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



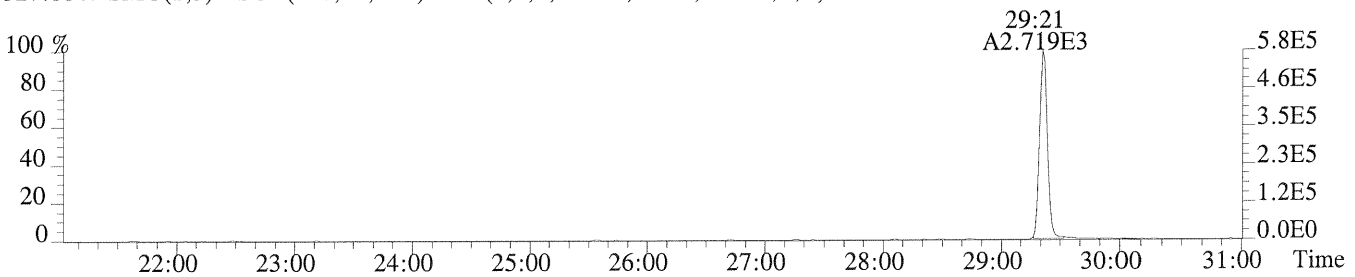
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1612.0,1.00%,F,T)



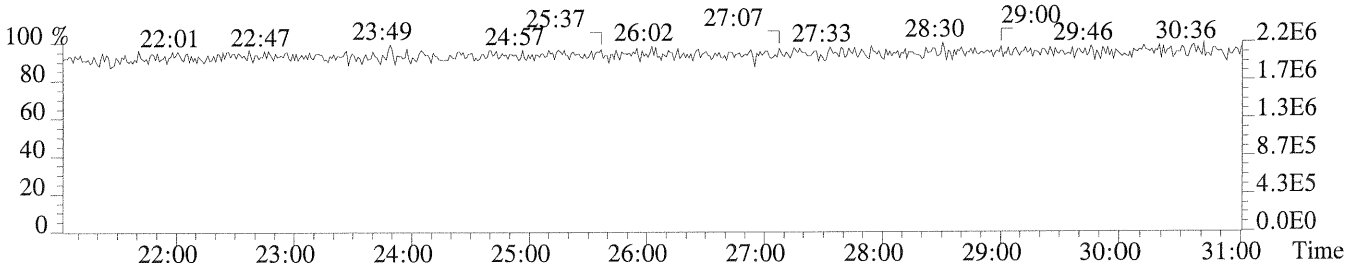
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,928.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)

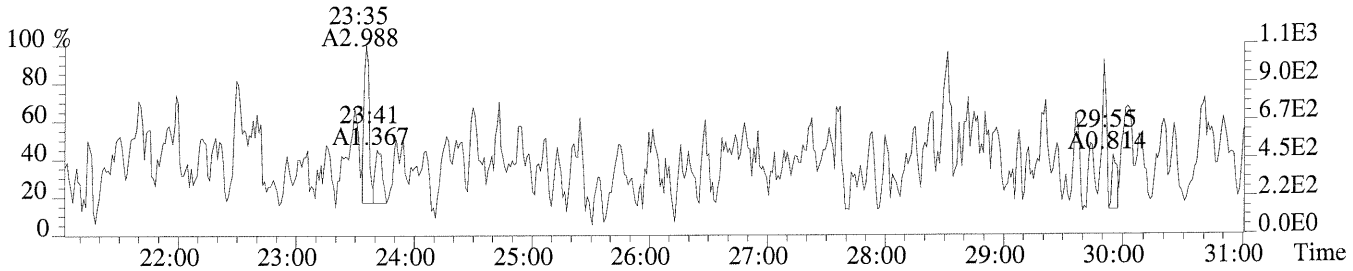


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

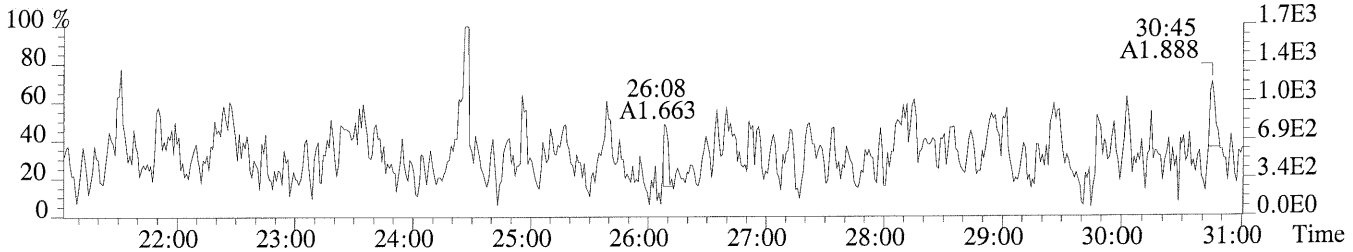


File:U149819 #1-627 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010

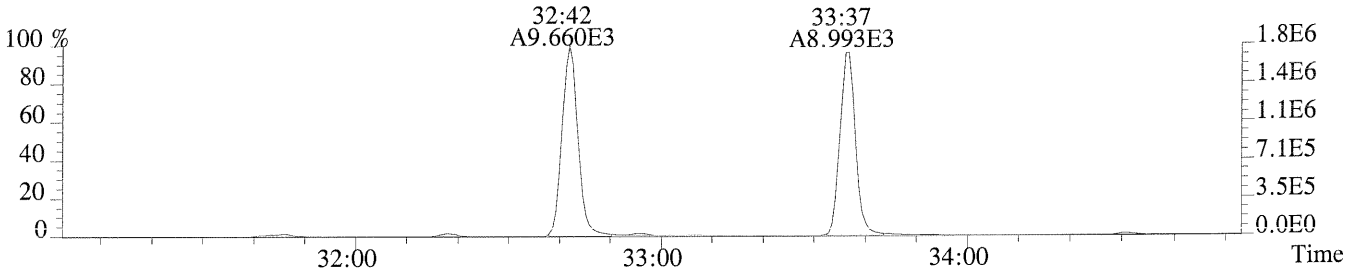
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



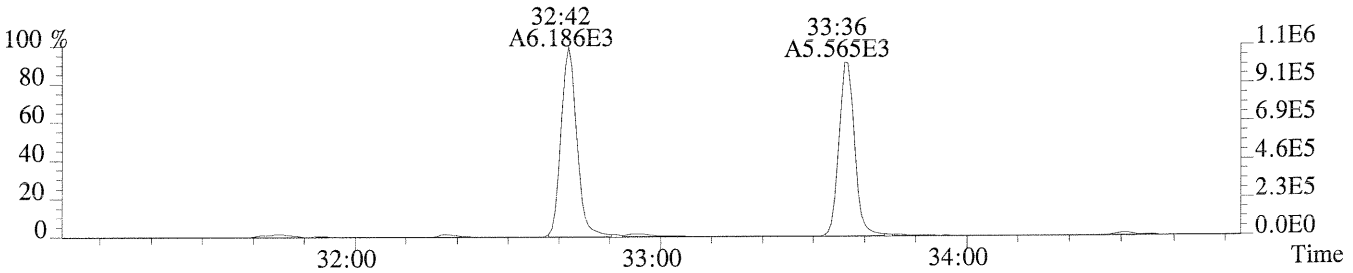
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



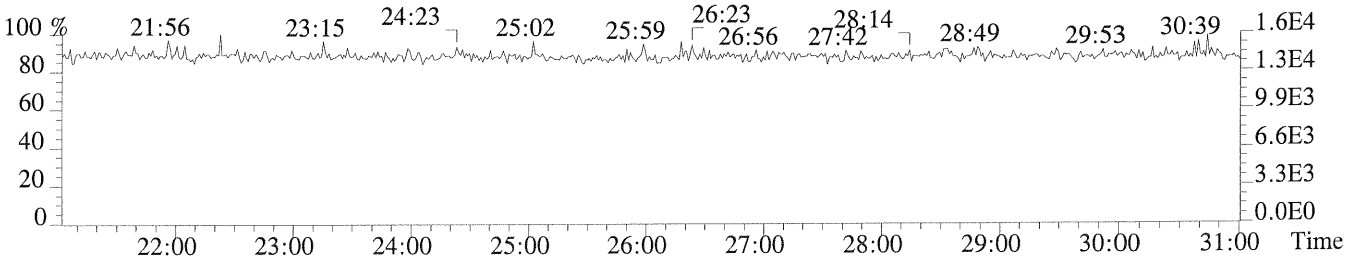
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



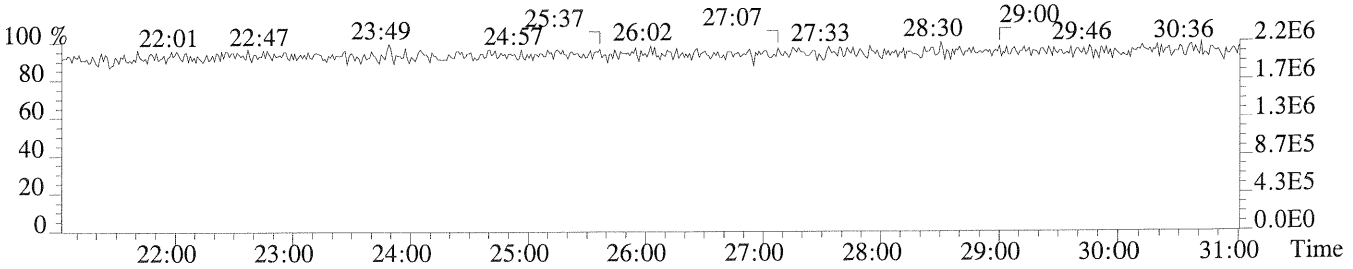
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



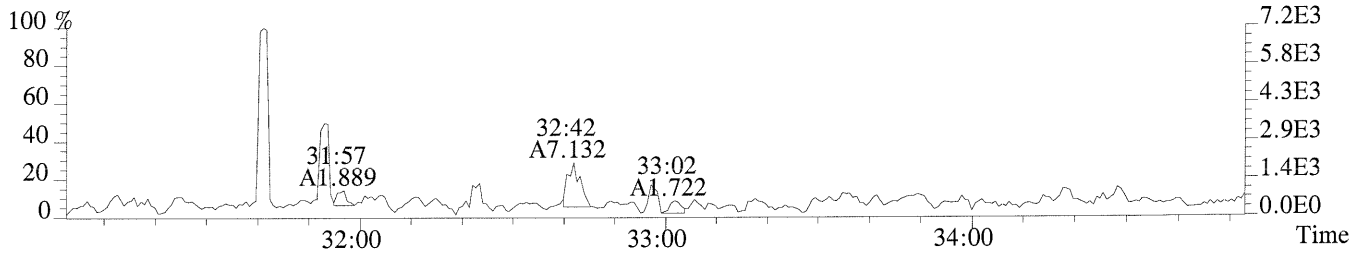
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



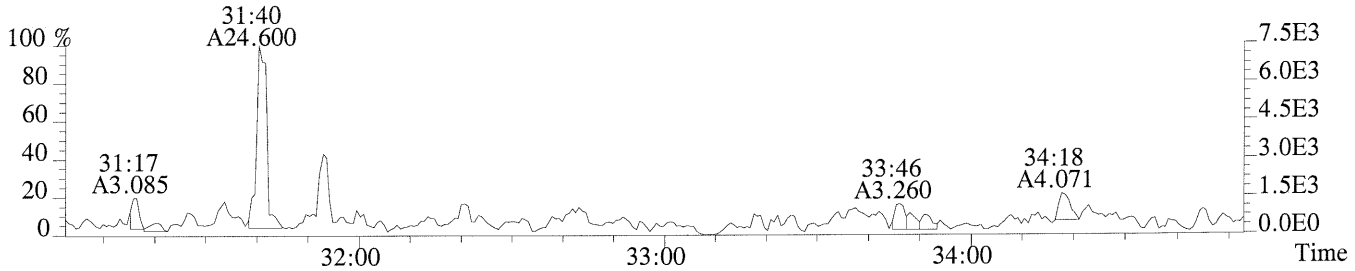
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



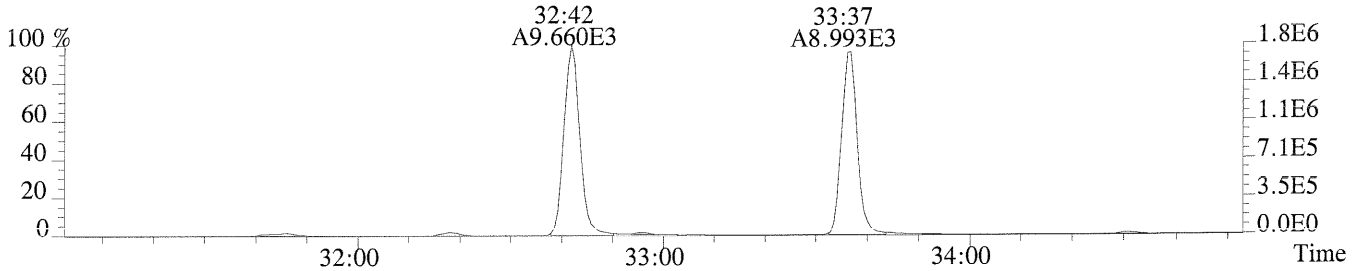
File:U149819 #1-349 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



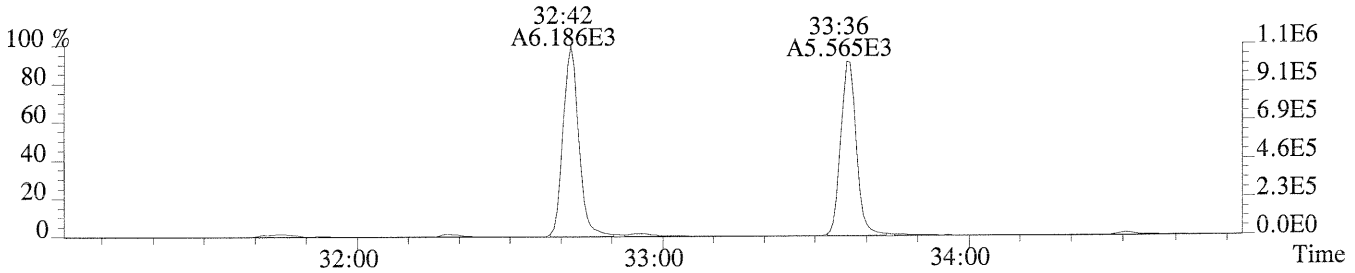
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



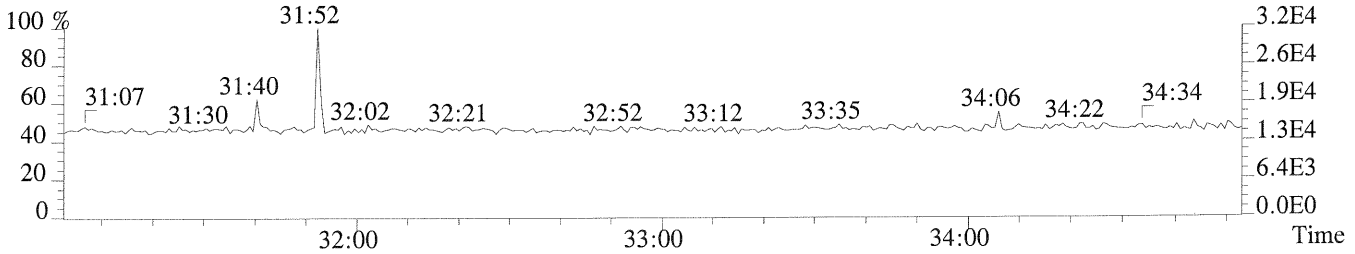
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



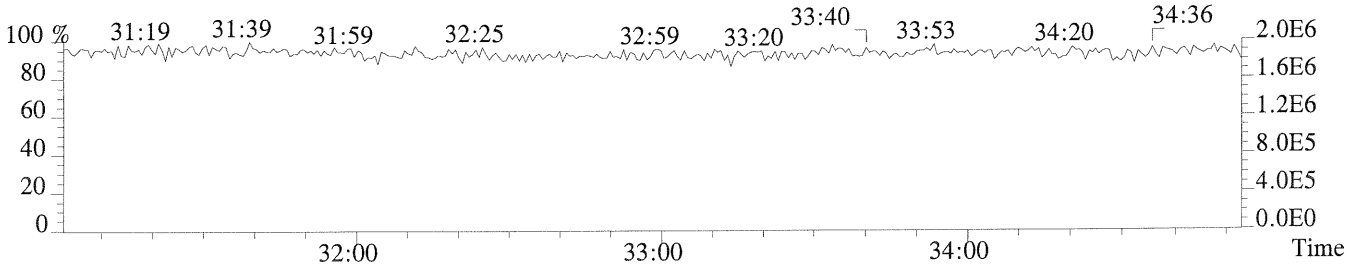
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

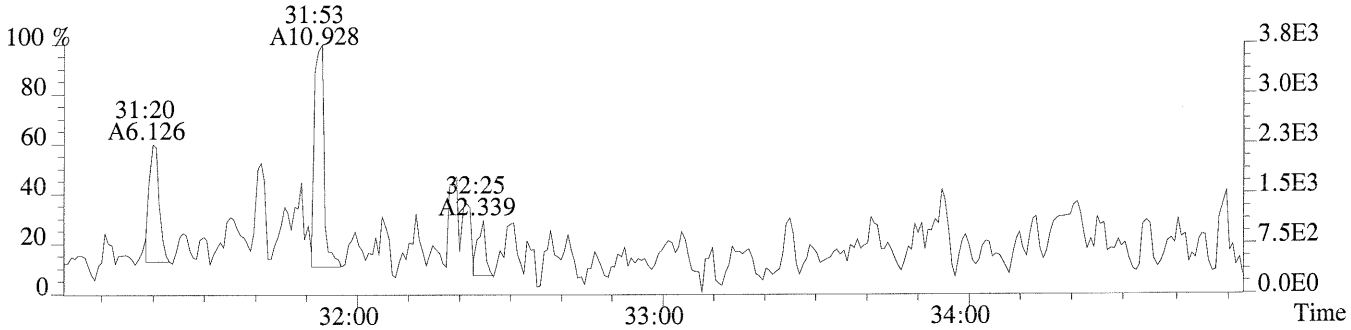


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

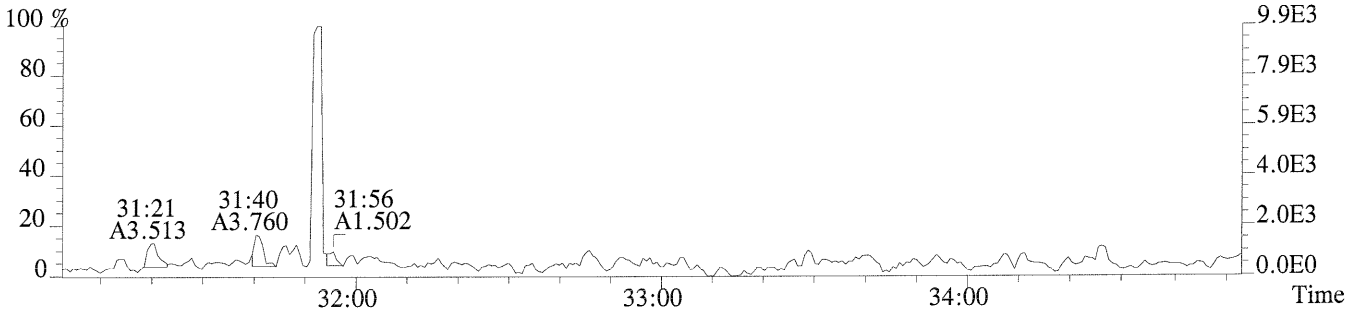


File:U149819 #1-349 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010

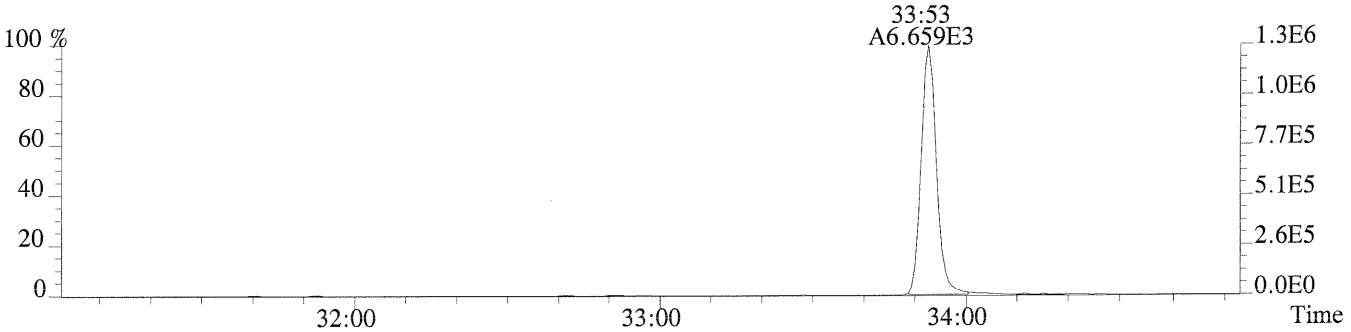
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



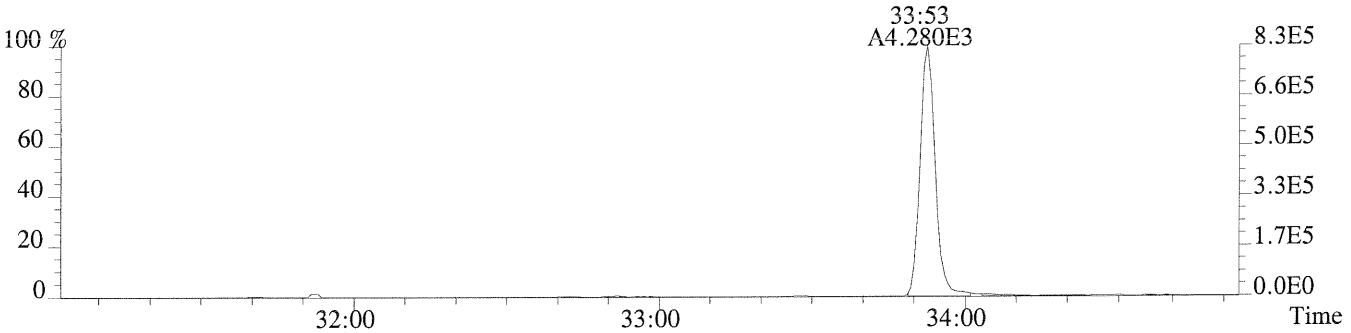
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



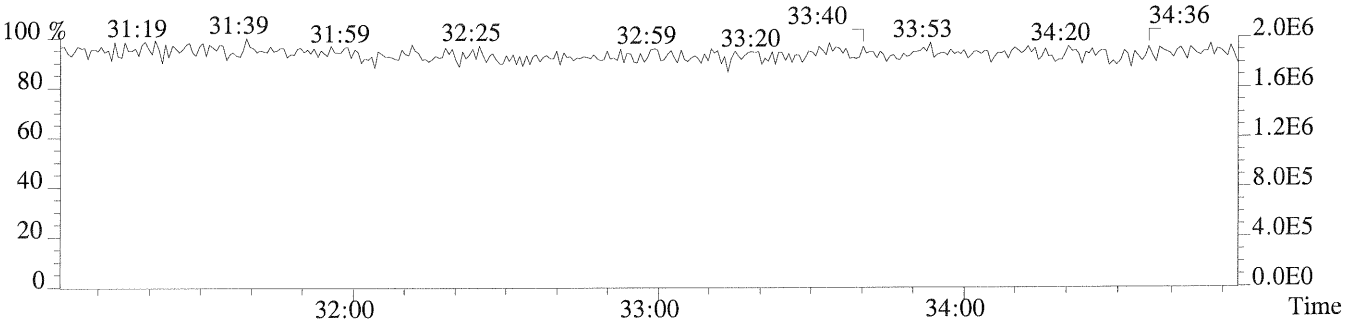
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



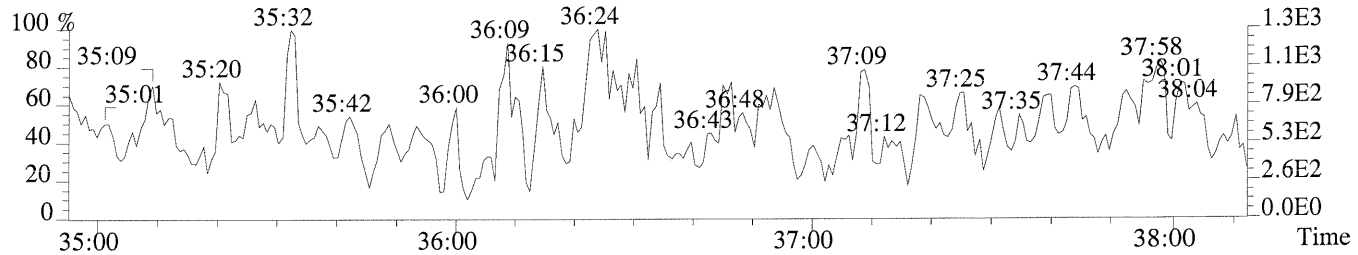
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



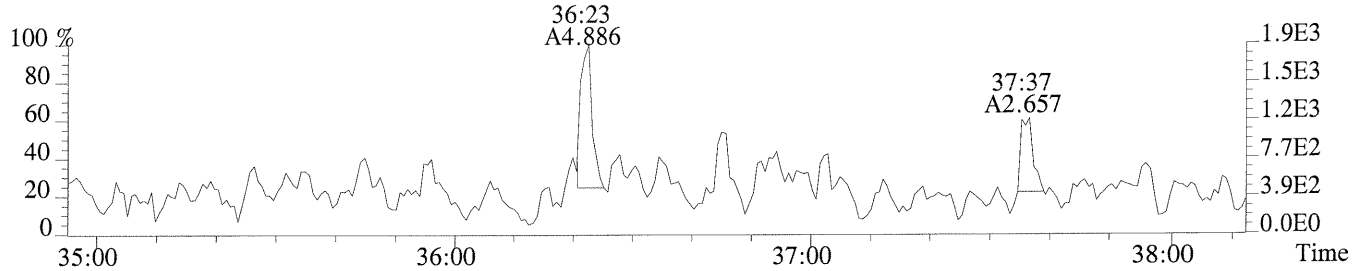
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



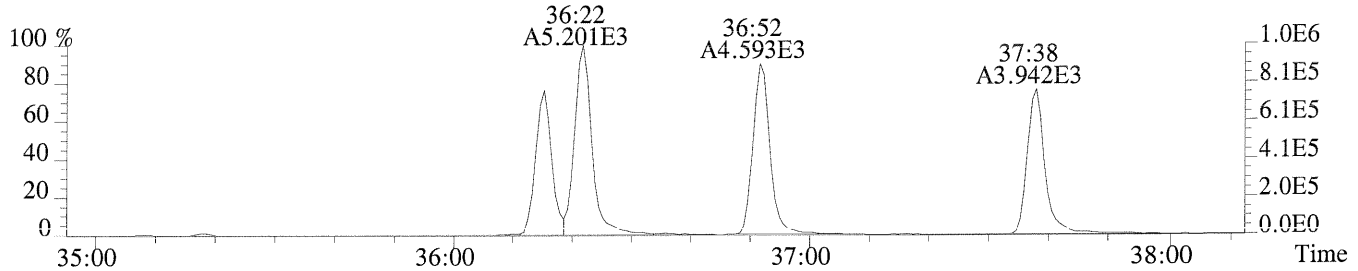
File:U149819 #1-299 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



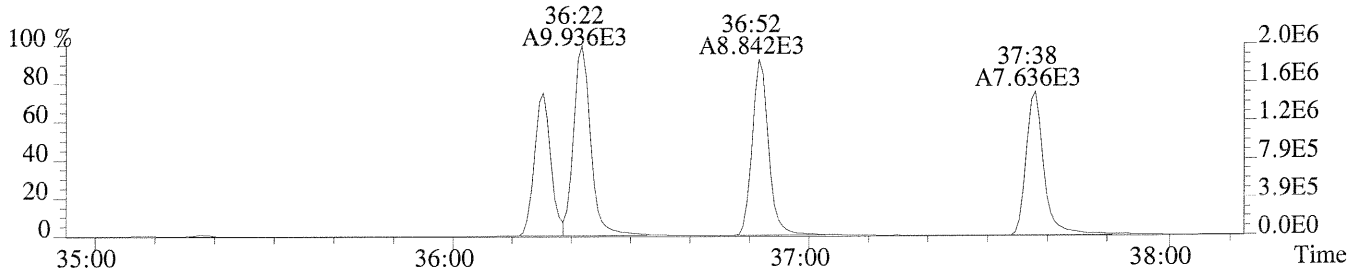
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



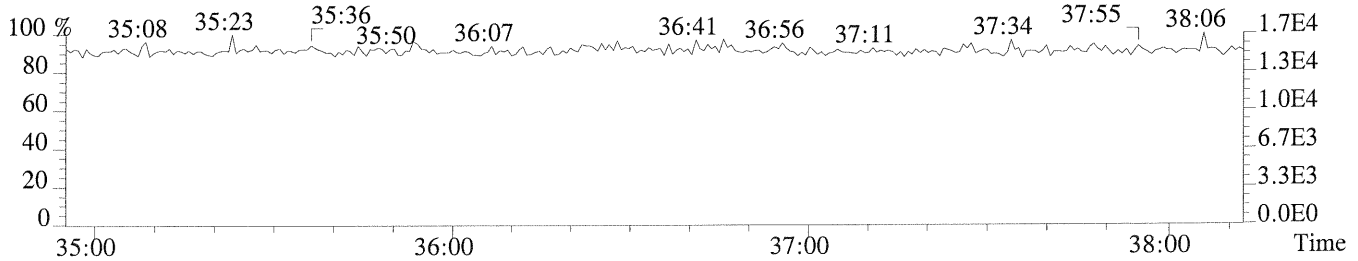
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



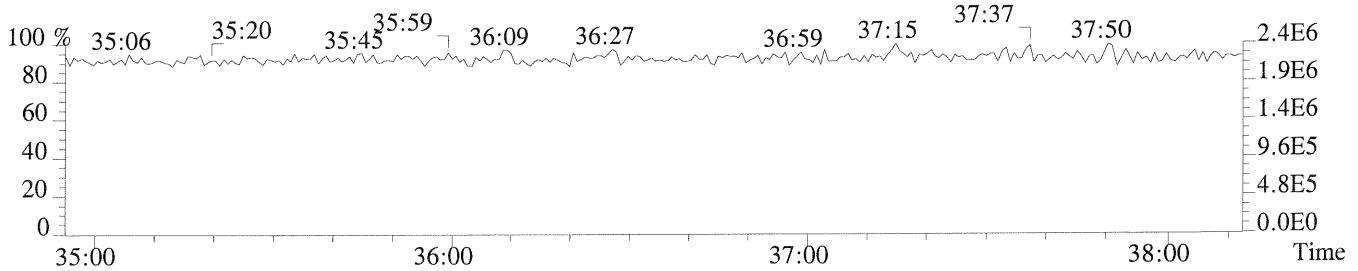
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



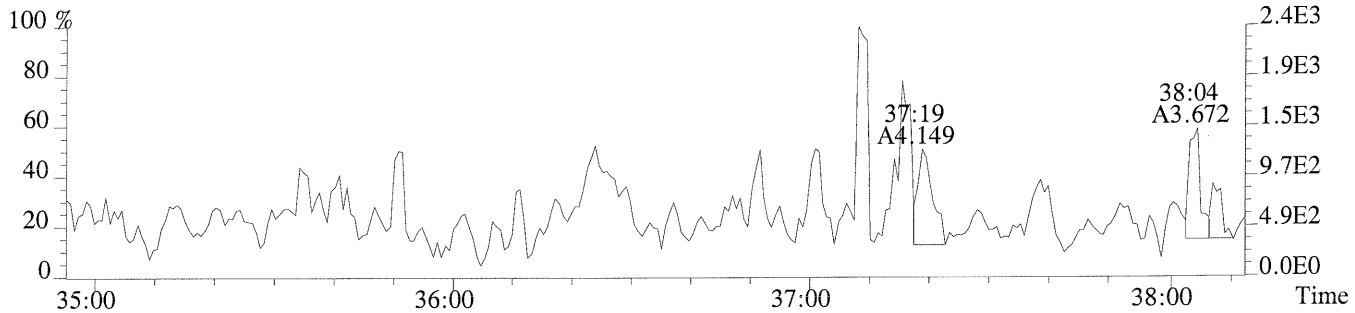
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



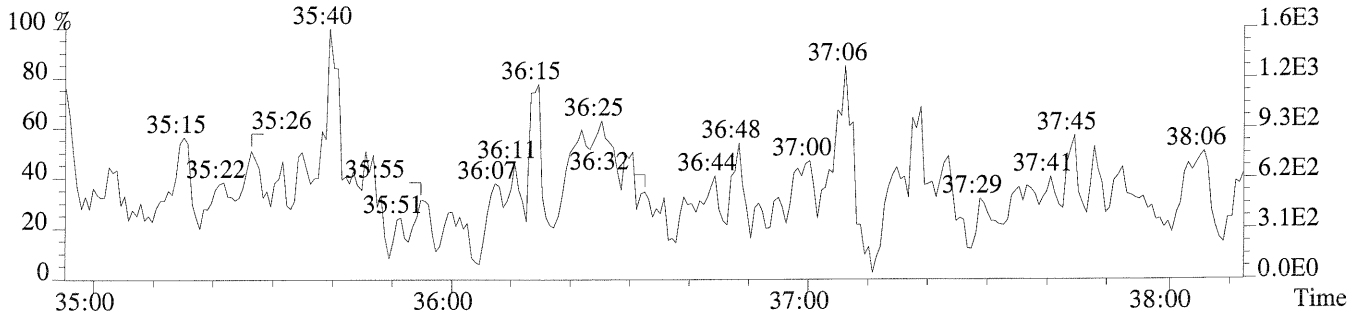
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



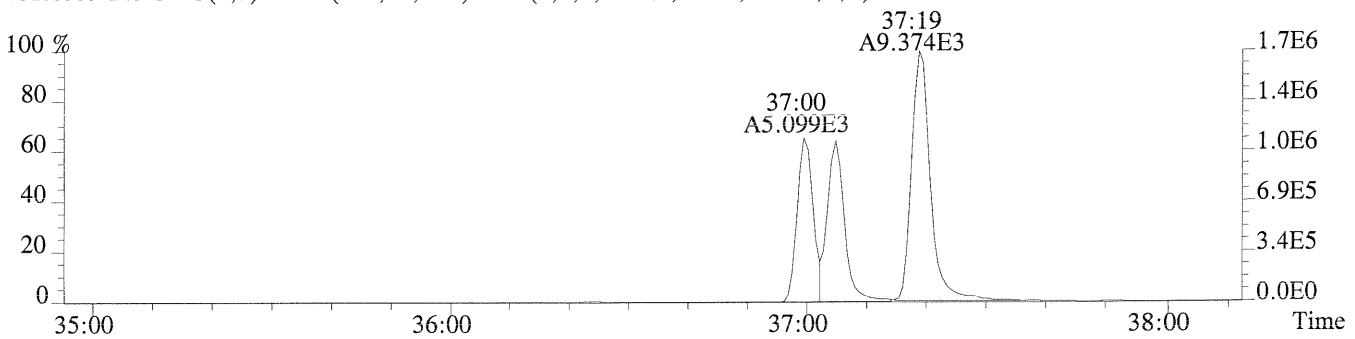
File:U149819 #1-299 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



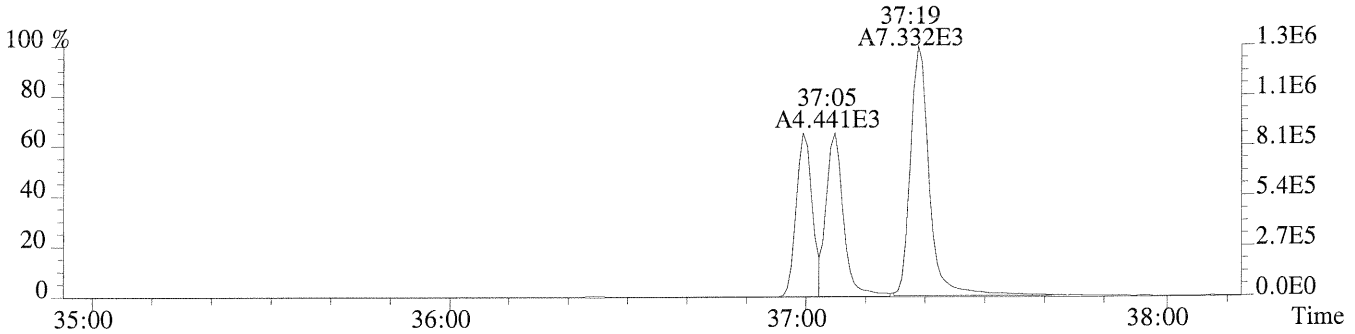
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



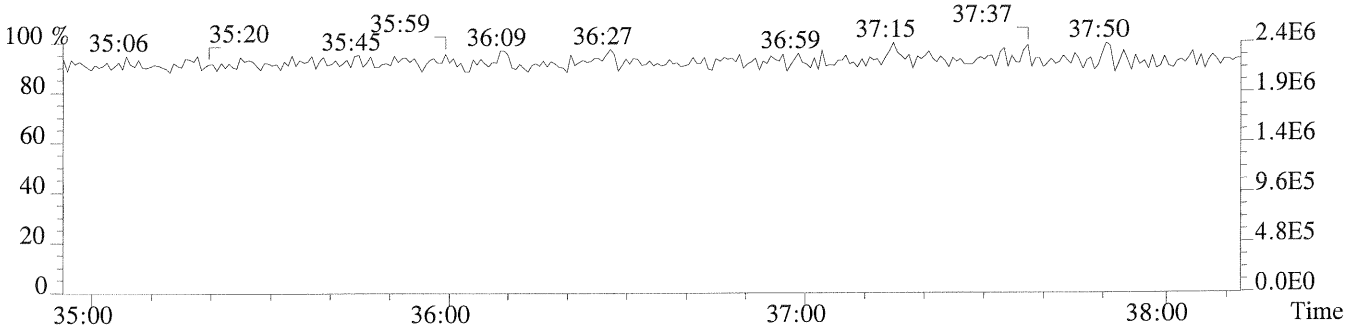
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)

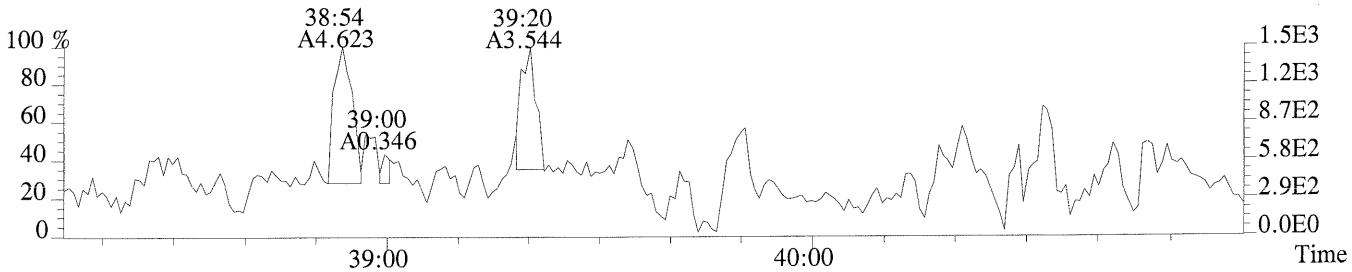


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

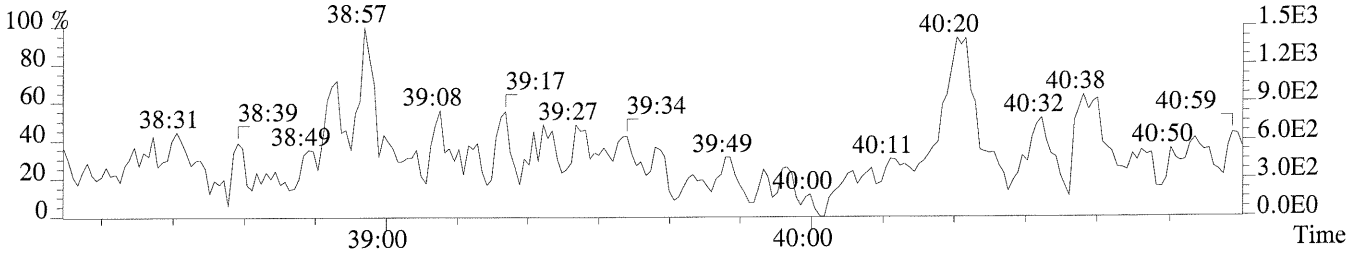


File:U149819 #1-251 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010

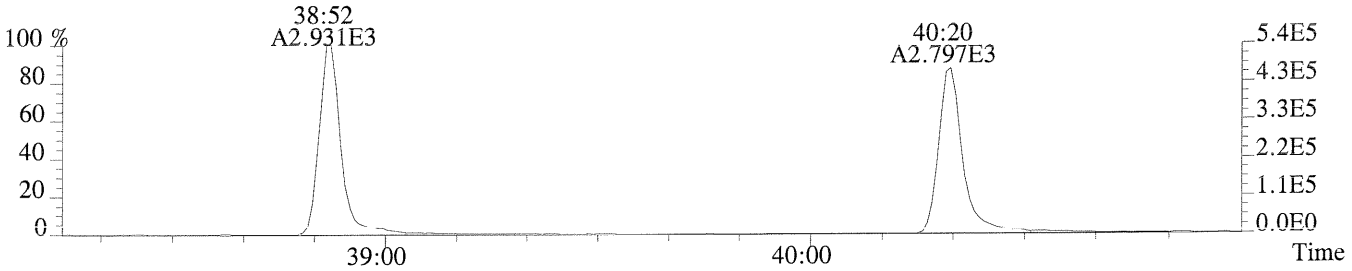
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,552.0,0.50%,F,T)



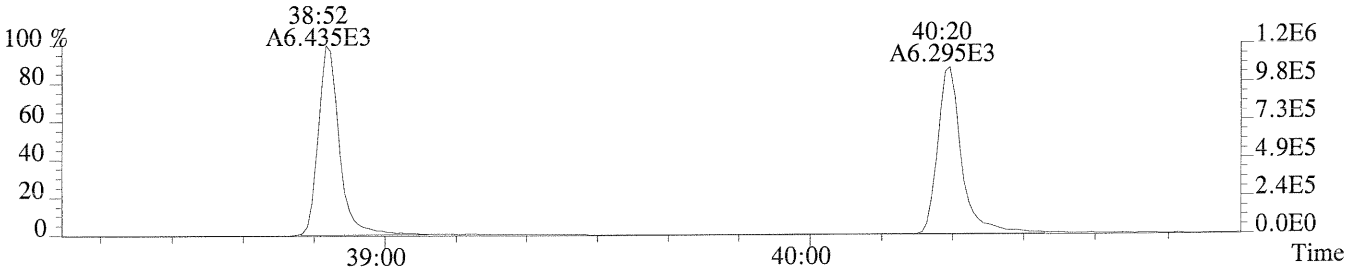
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.50%,F,T)



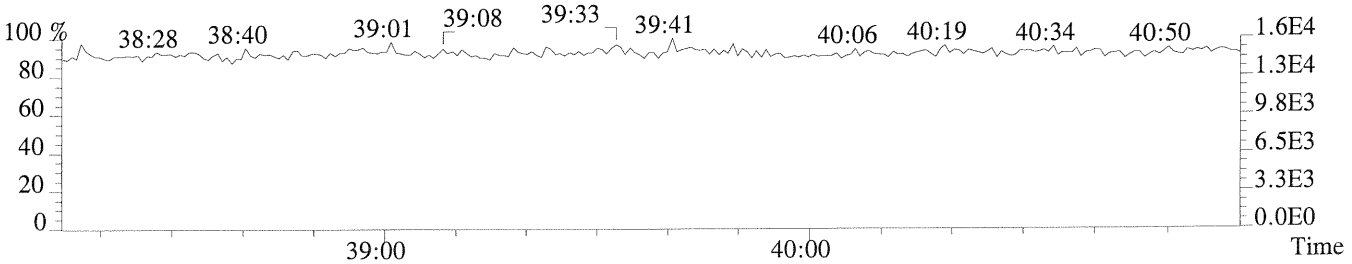
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.50%,F,T)



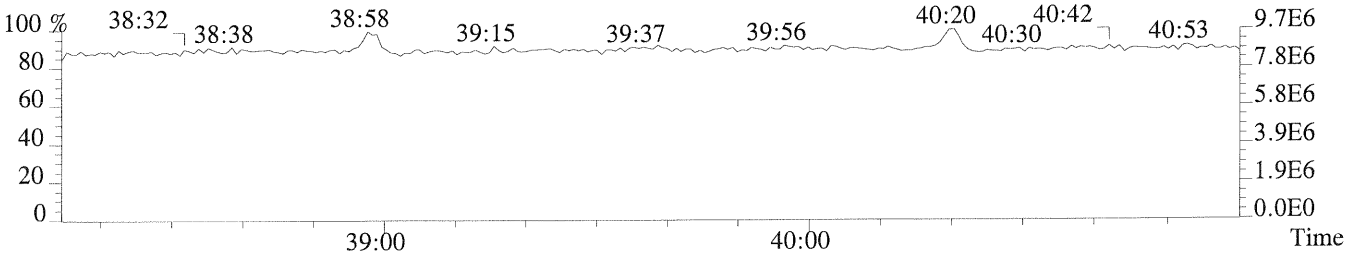
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.50%,F,T)



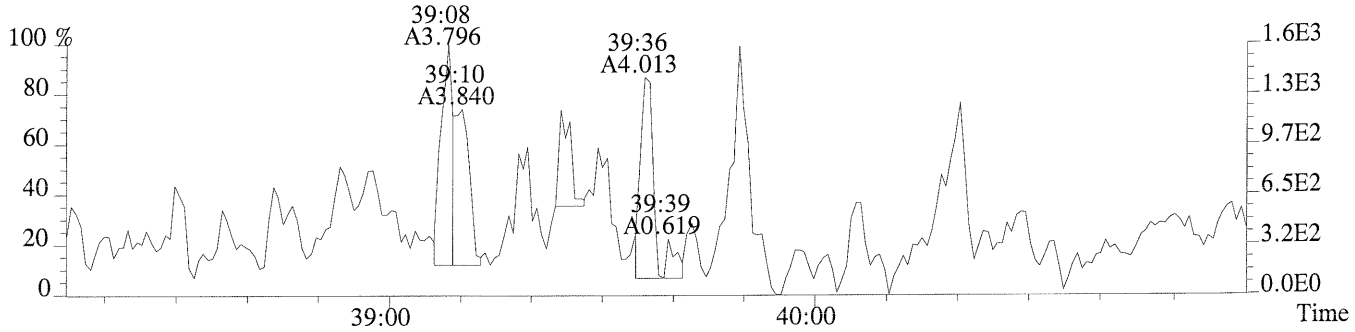
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



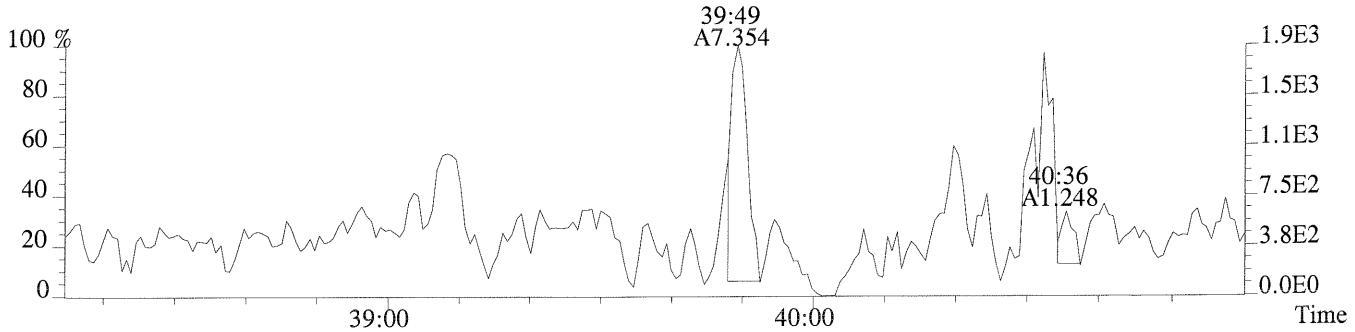
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



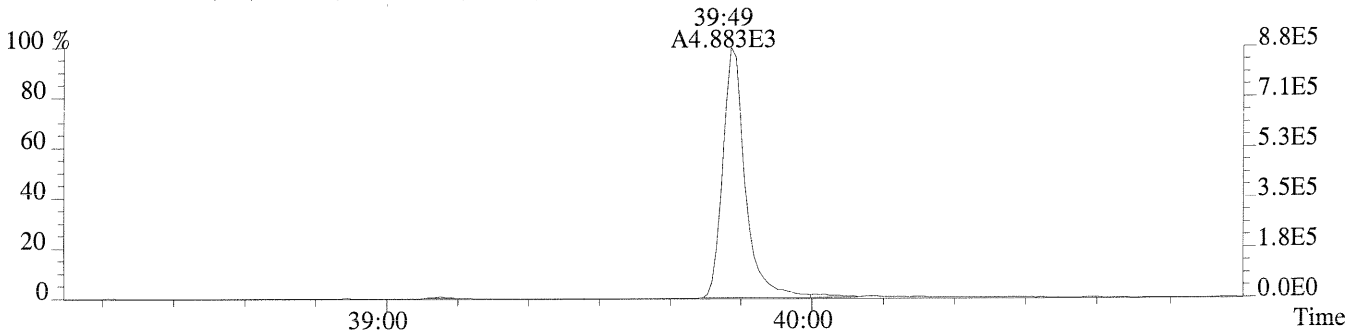
File:U149819 #1-251 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



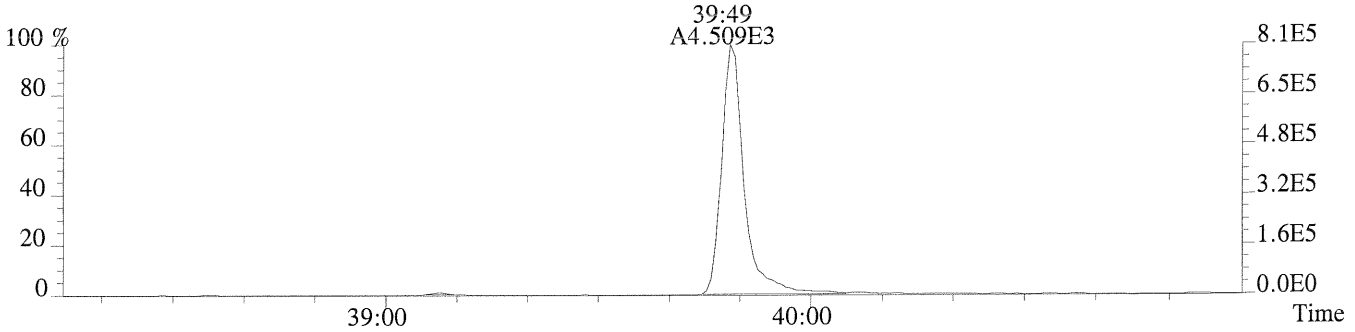
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



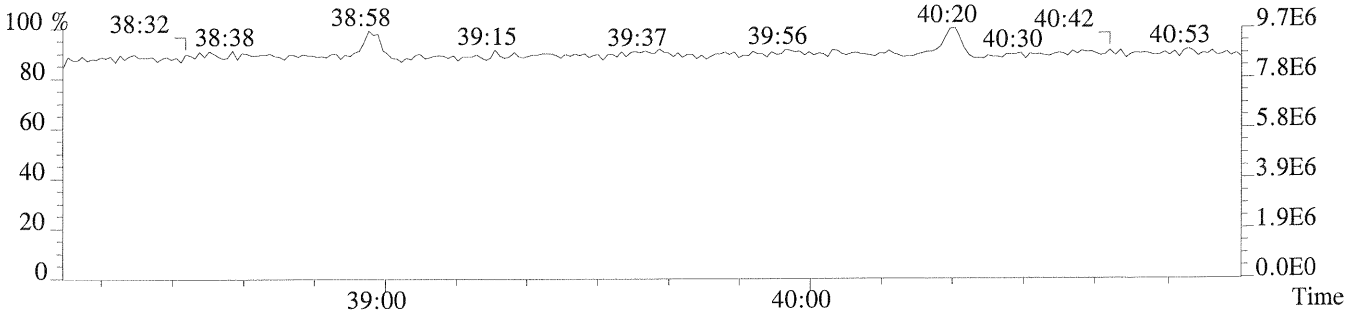
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



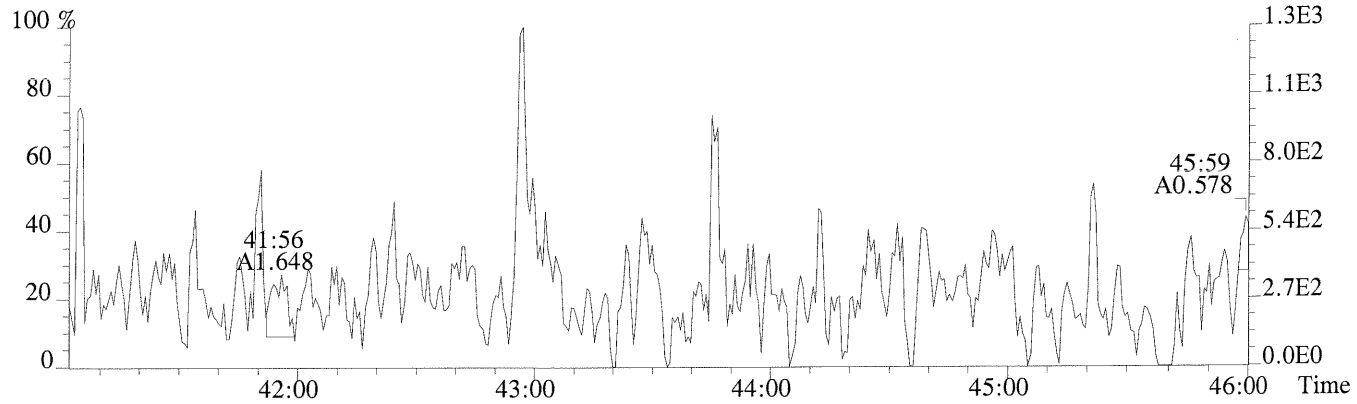
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



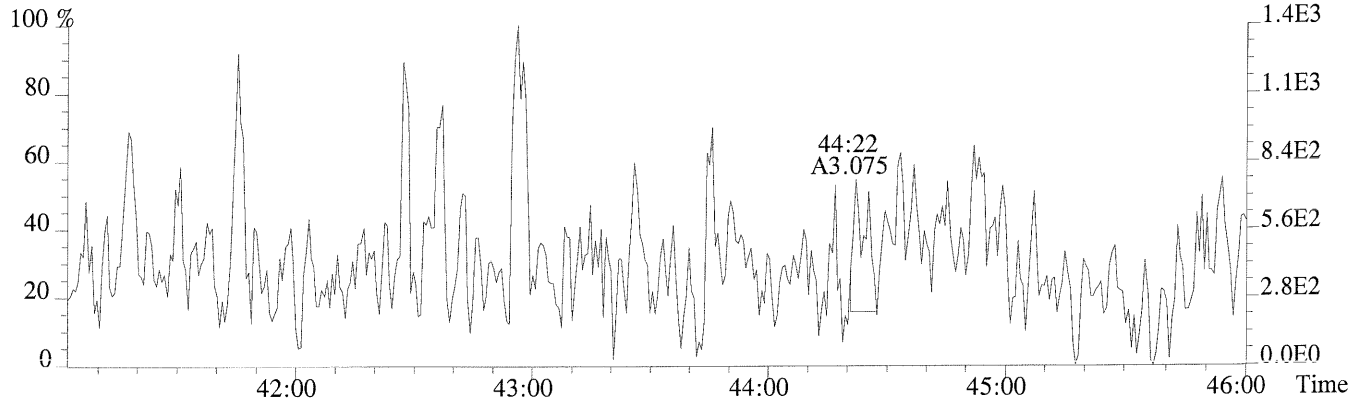
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



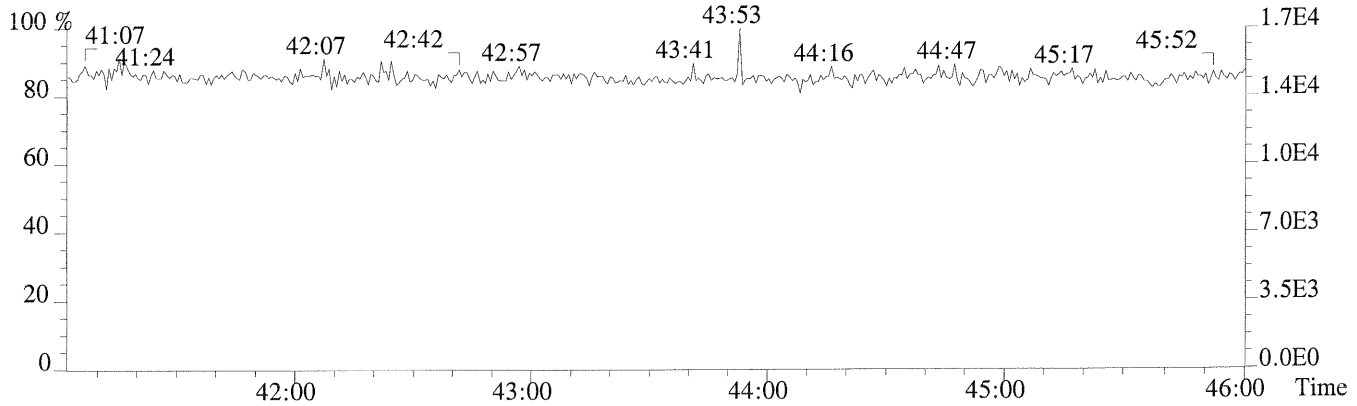
File:U149819 #1-451 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,368.0,0.40%,F,T)



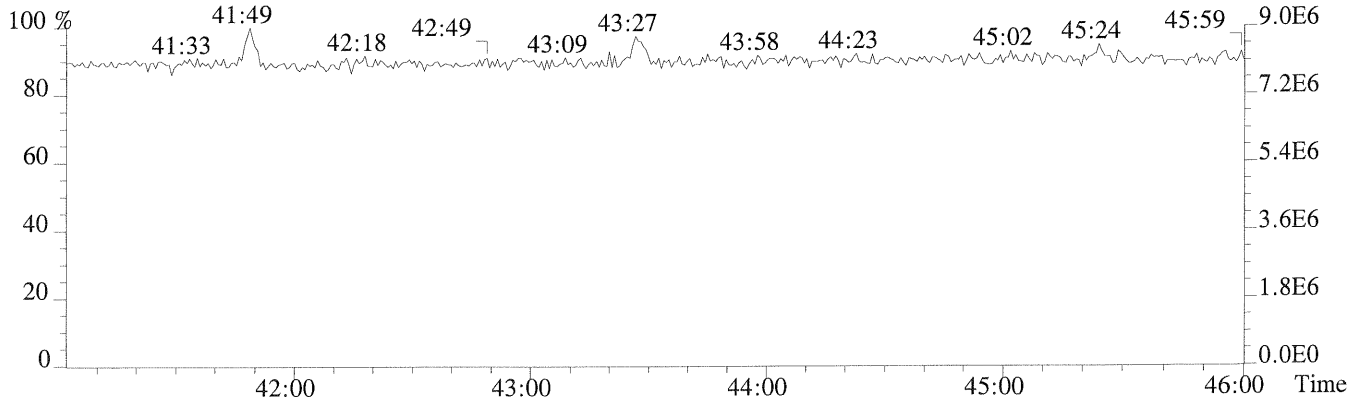
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



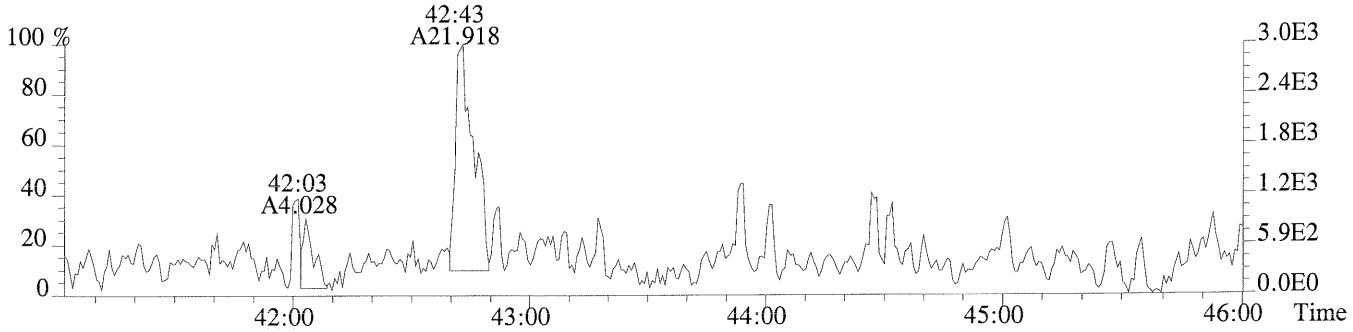
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



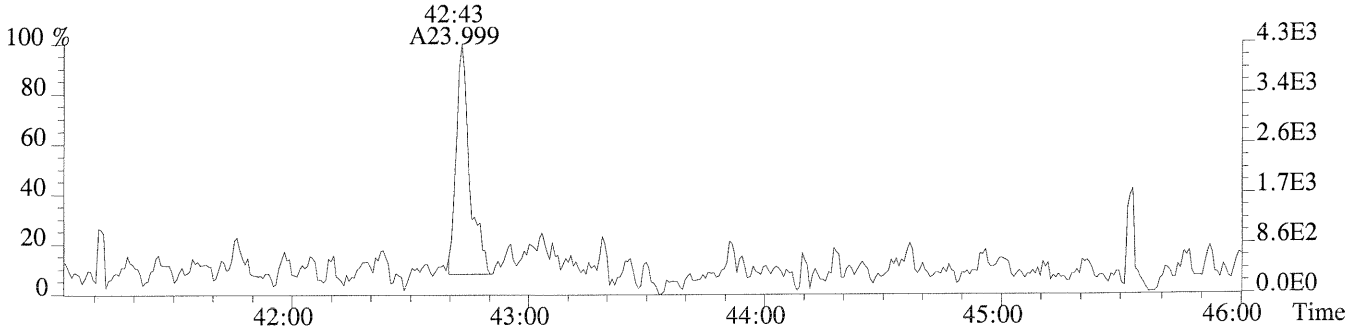
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



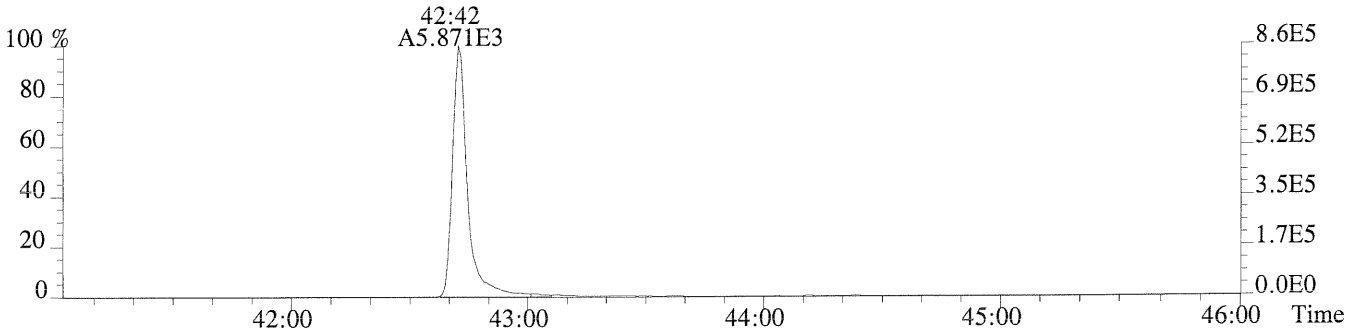
File:U149819 #1-451 Acq: 2-JUL-2014 13:25:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-010
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



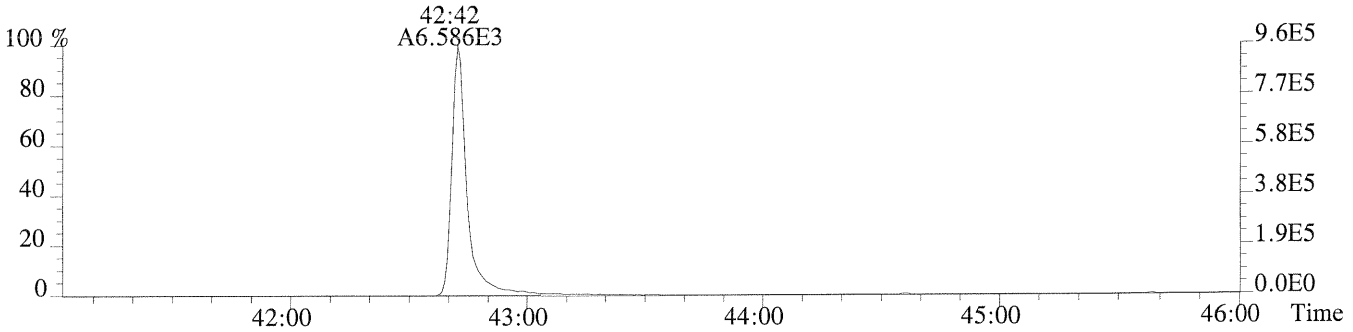
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



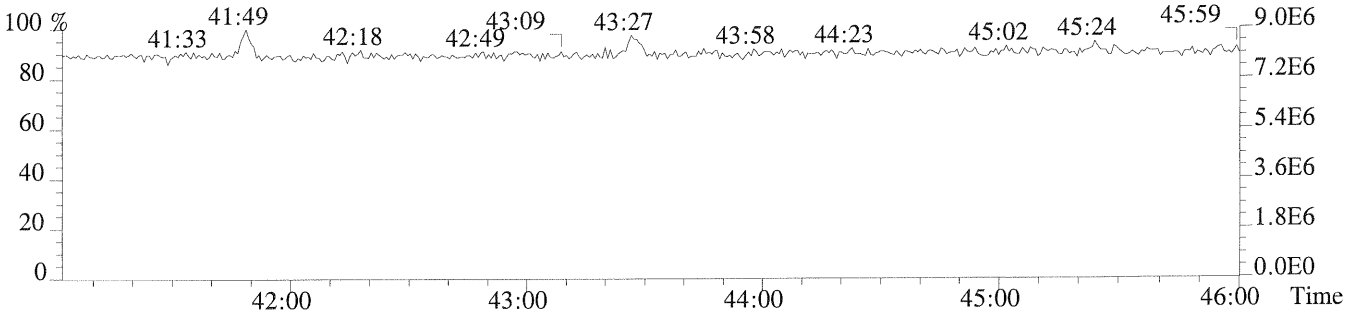
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,476.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406130814 20

Run #13 Filename U149820 Samp: 1 Inj: 1 Acquired: 2-JUL-14 14:13:54
Processed: 3-JUL-14 11:00:33 Sample ID: R1404651-011

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.358
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.065
17	Unk	OCDD	42:45	1.287e+01	1.188e+01	1.08	no	yes	1.177
18	IS	13C-2,3,7,8-TCDF	28:35	4.889e+03	6.165e+03	0.79	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	9.392e+03	5.951e+03	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	8.929e+03	5.624e+03	1.59	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	3.683e+03	7.180e+03	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	5.132e+03	9.660e+03	0.53	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	4.694e+03	8.997e+03	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	3.748e+03	7.456e+03	0.50	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:53	2.952e+03	6.379e+03	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:21	2.569e+03	5.814e+03	0.44	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:21	3.401e+03	4.429e+03	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	6.669e+03	4.299e+03	1.55	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	5.147e+03	4.010e+03	1.28	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	5.480e+03	4.292e+03	1.28	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:50	4.920e+03	4.535e+03	1.08	yes	no	0.936
32	IS	13C-OCDD	42:44	5.821e+03	6.281e+03	0.93	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:46	6.115e+03	7.807e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	8.802e+03	6.865e+03	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	2.648e+03				no	1.044

$$\text{OCDD} = \frac{(1.287e+01 + 1.188e+01) \times 4000 \text{ pg} \times 1}{(5.821e+03 + 6.281e+03) \times 10.164 \times 96.9 \times 1.177} = 0.706 \text{ ng/kg}$$

07/07/14

1613RESP1

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ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406130814 200-S

Run #13 Filename U149820 Samp: 1 Inj: 1 Acquired: 2-JUL-14 14:13:54
Processed: 3-JUL-14 11:00:331 LAB. ID: R1404651-011

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	7.60e+02	*	*	7.52e+02	*
2	1,2,3,7,8-PeCDF	*	6.40e+02	*	*	7.12e+02	*
3	2,3,4,7,8-PeCDF	*	6.40e+02	*	*	7.12e+02	*
4	1,2,3,4,7,8-HxCDF	*	5.56e+02	*	*	6.84e+02	*
5	1,2,3,6,7,8-HxCDF	*	5.56e+02	*	*	6.84e+02	*
6	2,3,4,6,7,8-HxCDF	*	5.56e+02	*	*	6.84e+02	*
7	1,2,3,7,8,9-HxCDF	*	5.56e+02	*	*	6.84e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	8.28e+02	*	*	7.56e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	8.28e+02	*	*	7.56e+02	*
10	OCDF	*	6.32e+02	*	*	7.96e+02	*
11	2,3,7,8-TCDD	*	8.64e+02	*	*	6.76e+02	*
12	1,2,3,7,8-PeCDD	*	6.84e+02	*	*	6.04e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.44e+02	*	*	6.92e+02	*
14	1,2,3,6,7,8-HxCDD	*	7.44e+02	*	*	6.92e+02	*
15	1,2,3,7,8,9-HxCDD	*	7.44e+02	*	*	6.92e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	6.96e+02	*	*	6.60e+02	*
17	OCDD	2.18e+03	5.00e+02	4.4e+00	2.57e+03	5.96e+02	4.3e+00
18	13C-2,3,7,8-TCDF	9.85e+05	1.04e+03	9.5e+02	1.25e+06	8.00e+02	1.6e+03
19	13C-1,2,3,7,8-PeCDF	1.73e+06	9.04e+02	1.9e+03	1.11e+06	5.80e+02	1.9e+03
20	13C-2,3,4,7,8-PeCDF	1.68e+06	9.04e+02	1.9e+03	1.08e+06	5.80e+02	1.9e+03
21	13C-1,2,3,4,7,8-HxCDF	7.76e+05	7.08e+02	1.1e+03	1.50e+06	9.32e+02	1.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.00e+06	7.08e+02	1.4e+03	1.88e+06	9.32e+02	2.0e+03
23	13C-2,3,4,6,7,8-HxCDF	9.46e+05	7.08e+02	1.3e+03	1.82e+06	9.32e+02	2.0e+03
24	13C-1,2,3,7,8,9-HxCDF	7.33e+05	7.08e+02	1.0e+03	1.45e+06	9.32e+02	1.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.85e+05	1.18e+03	5.0e+02	1.25e+06	1.06e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.29e+05	1.18e+03	3.7e+02	9.74e+05	1.06e+03	9.2e+02
27	13C-2,3,7,8-TCDD	6.91e+05	1.62e+03	4.3e+02	8.98e+05	6.28e+02	1.4e+03
28	13C-1,2,3,7,8-PeCDD	1.24e+06	5.48e+02	2.3e+03	8.21e+05	5.52e+02	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.15e+06	6.96e+02	1.7e+03	8.97e+05	5.08e+02	1.8e+03
30	13C-1,2,3,6,7,8-HxCDD	1.06e+06	6.96e+02	1.5e+03	8.31e+05	5.08e+02	1.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.68e+05	9.20e+02	9.4e+02	7.84e+05	7.24e+02	1.1e+03
32	13C-OCDD	8.19e+05	4.68e+02	1.8e+03	8.96e+05	6.04e+02	1.5e+03
33	13C-1,2,3,4-TCDD	1.32e+06	1.62e+03	8.1e+02	1.67e+06	6.28e+02	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.64e+06	6.96e+02	2.4e+03	1.27e+06	5.08e+02	2.5e+03
35	37Cl-2,3,7,8-TCDD	5.50e+05	8.68e+02	6.3e+02			

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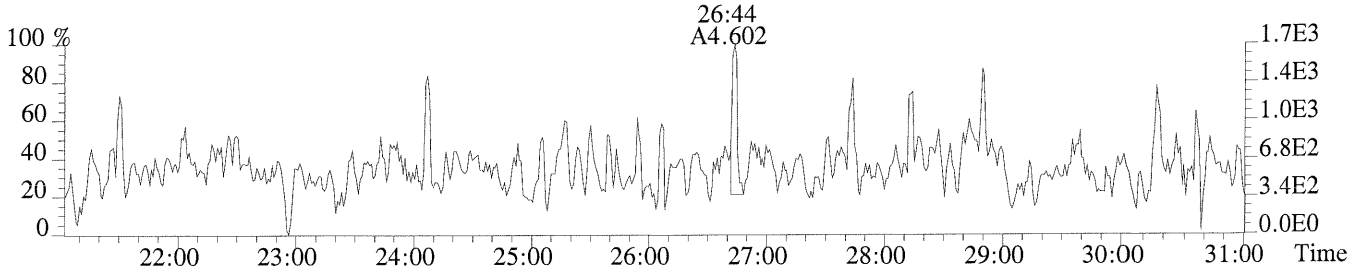
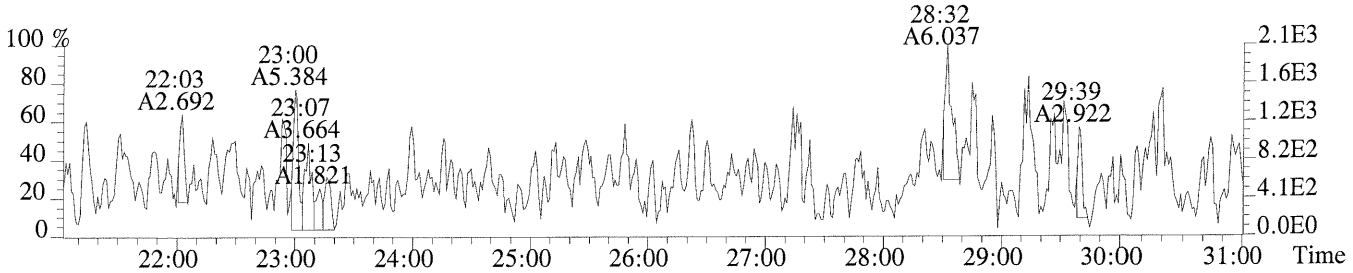
File:U149820 #1-627 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011

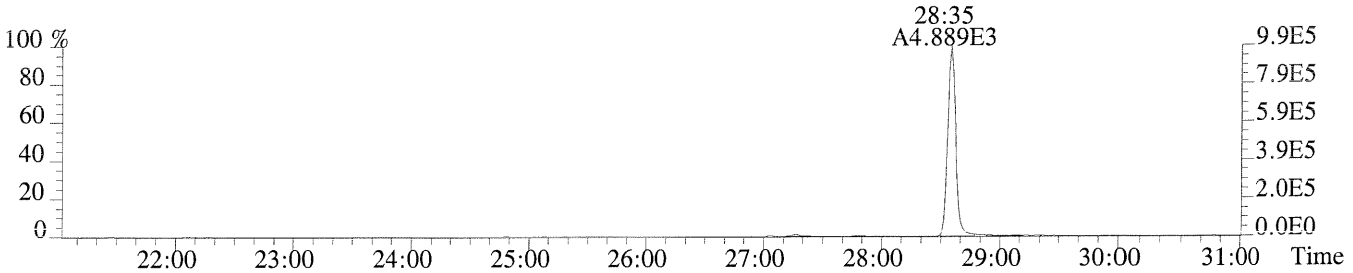
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



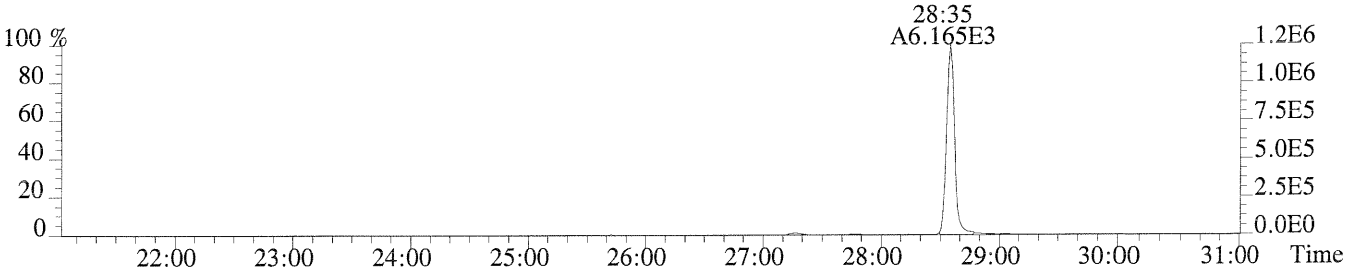
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



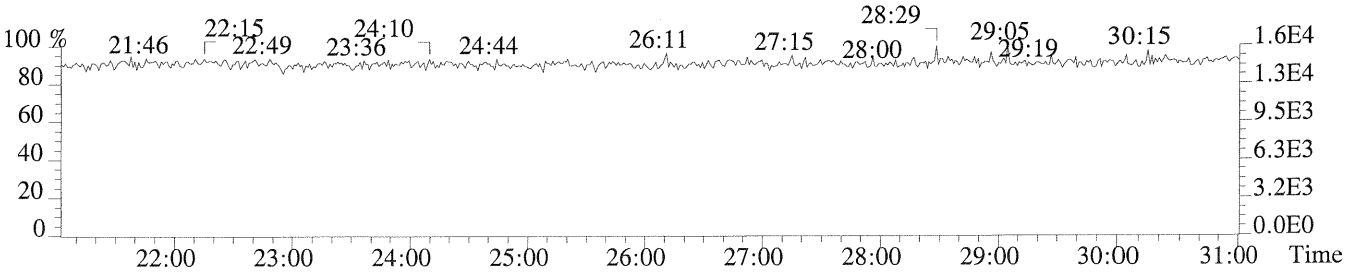
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



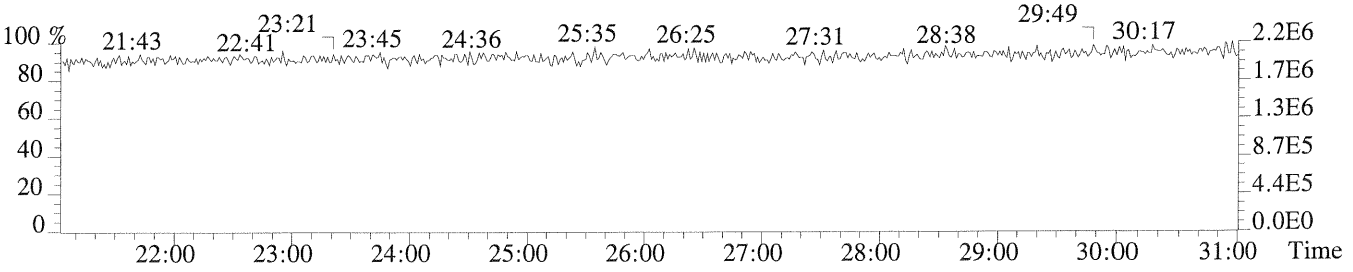
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



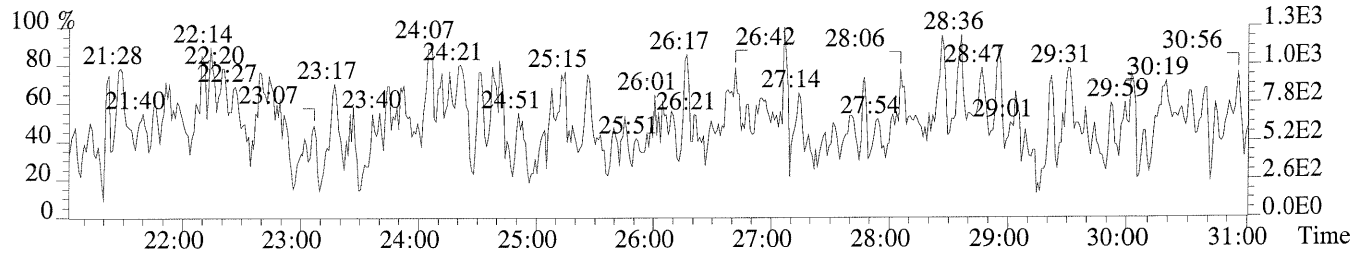
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



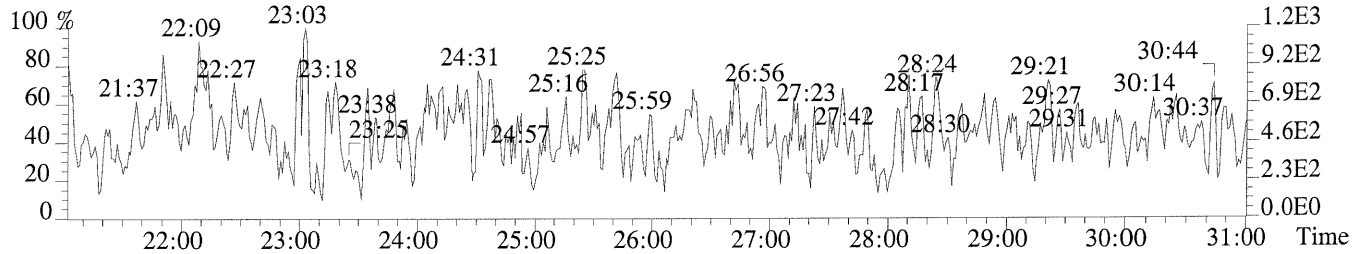
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



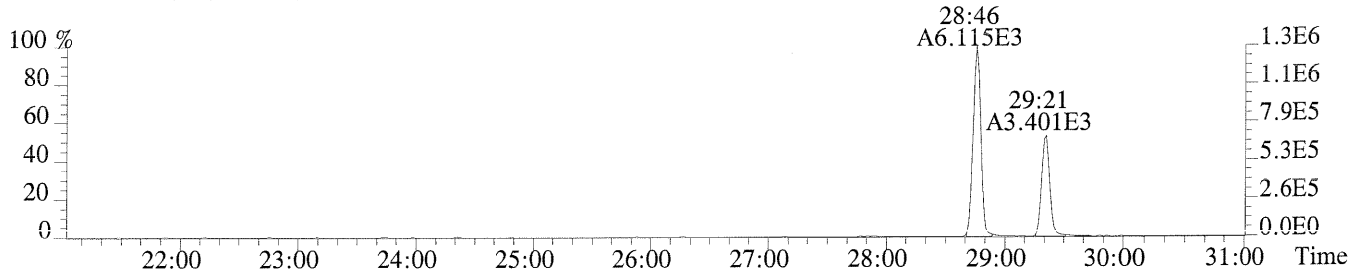
File:U149820 #1-627 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



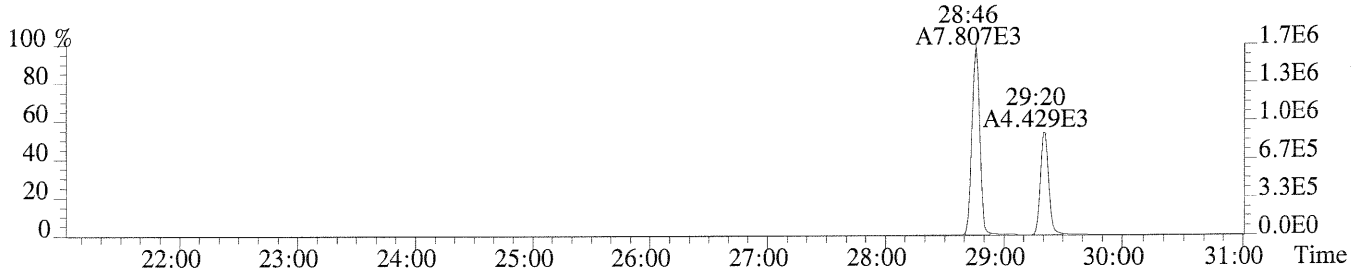
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



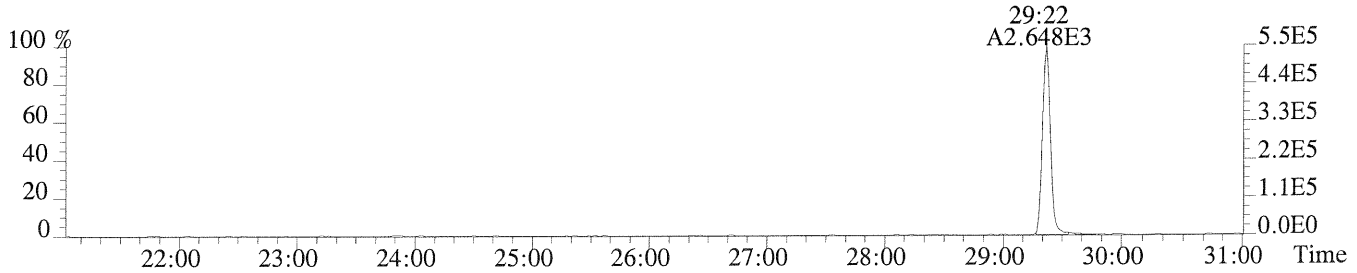
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1624.0,1.00%,F,T)



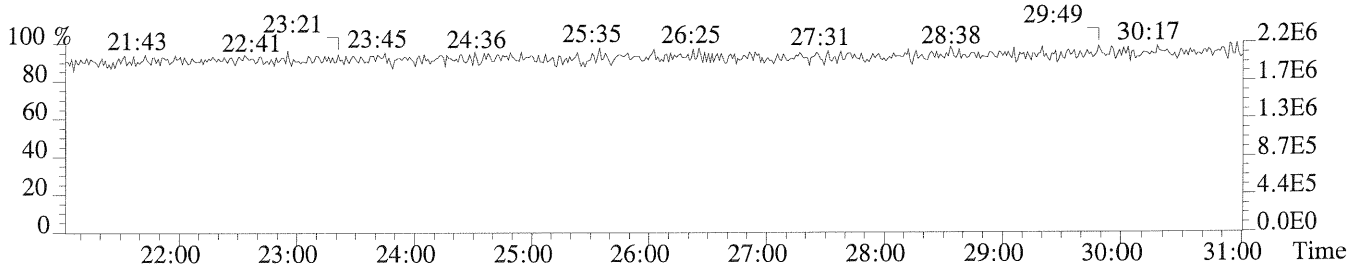
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



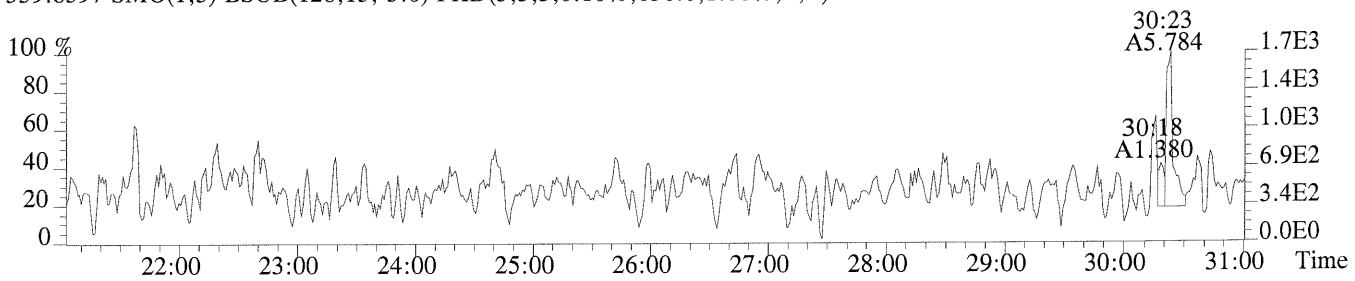
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



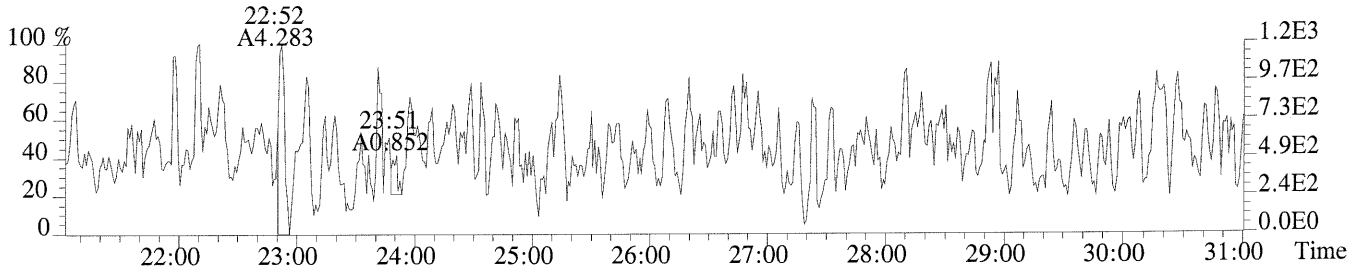
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



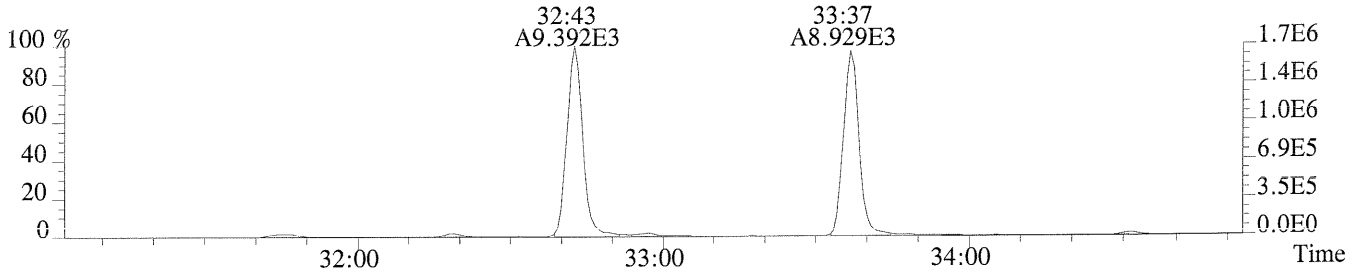
File:U149820 #1-627 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



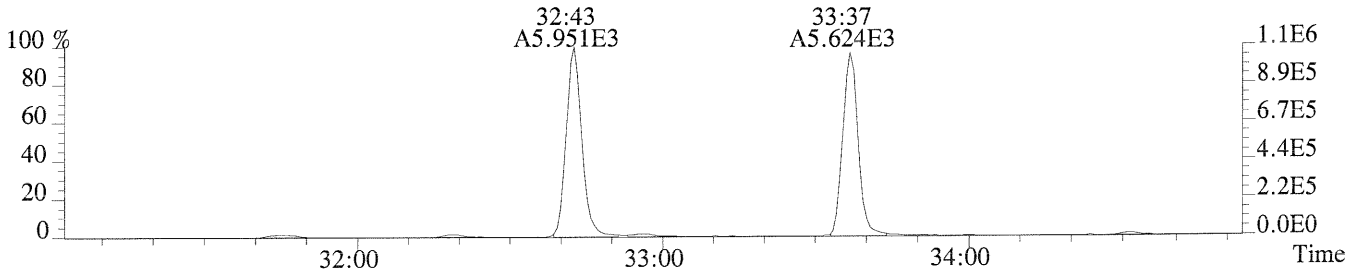
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



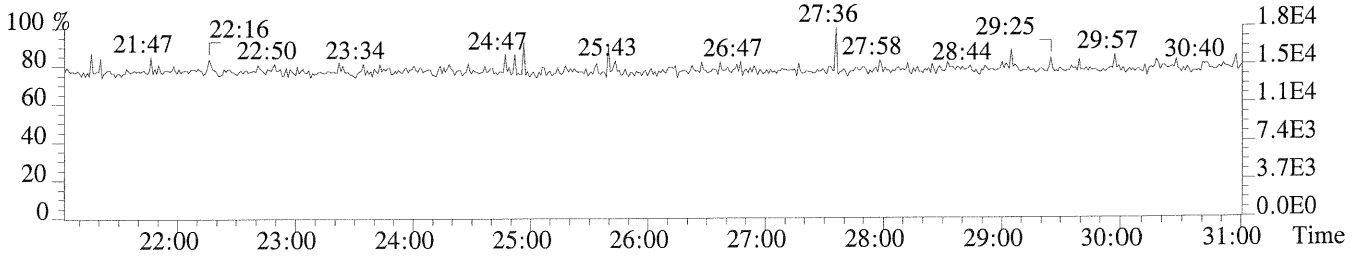
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



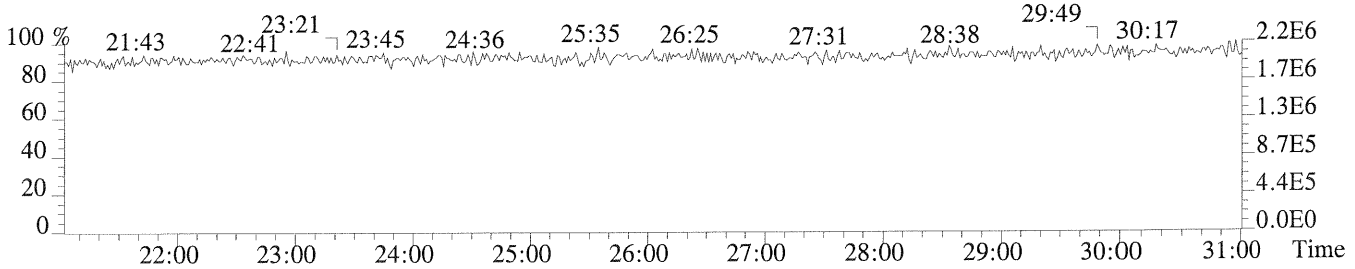
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

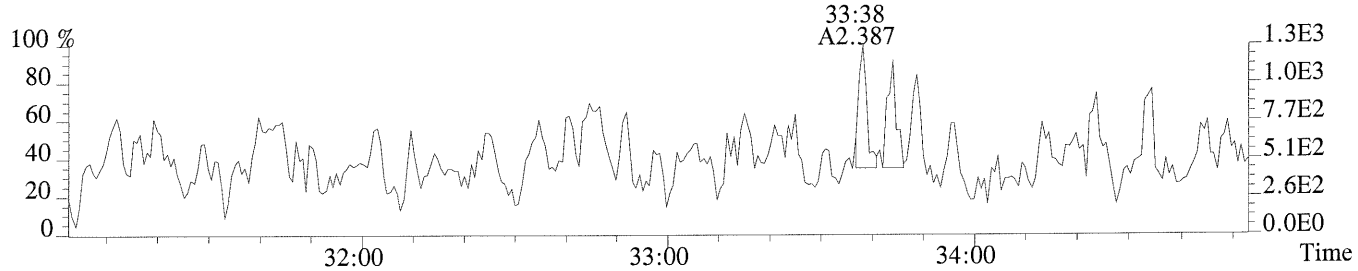


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

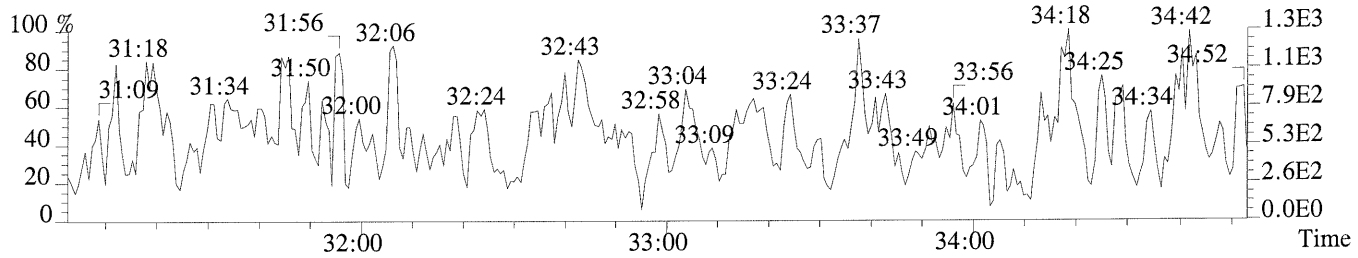


File:U149820 #1-349 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011

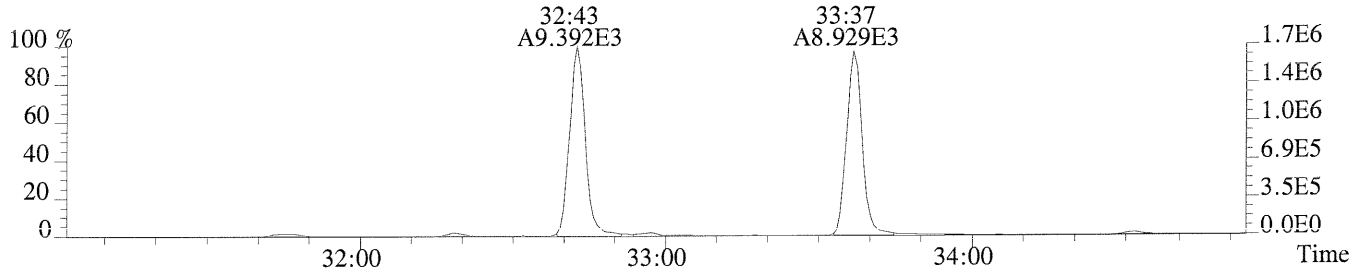
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



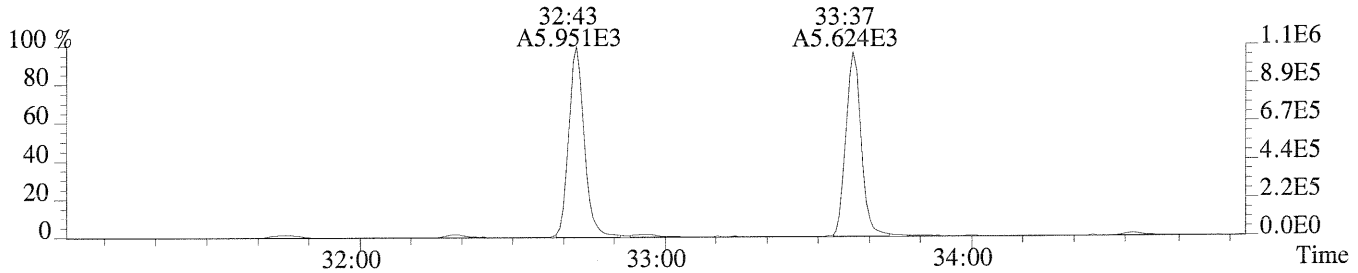
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



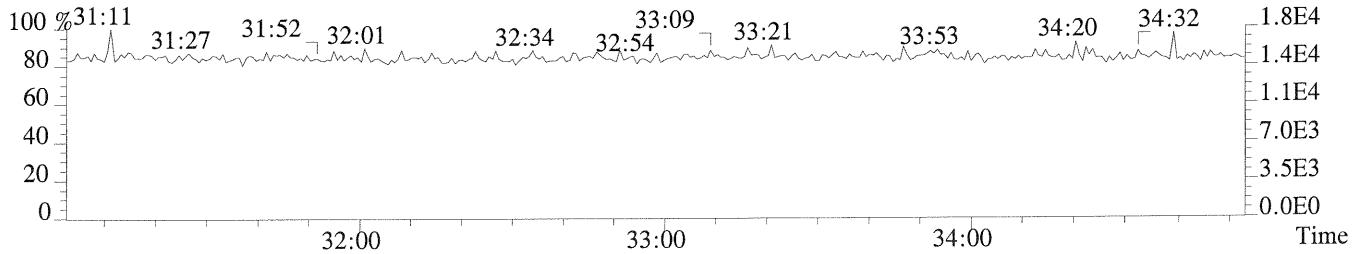
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



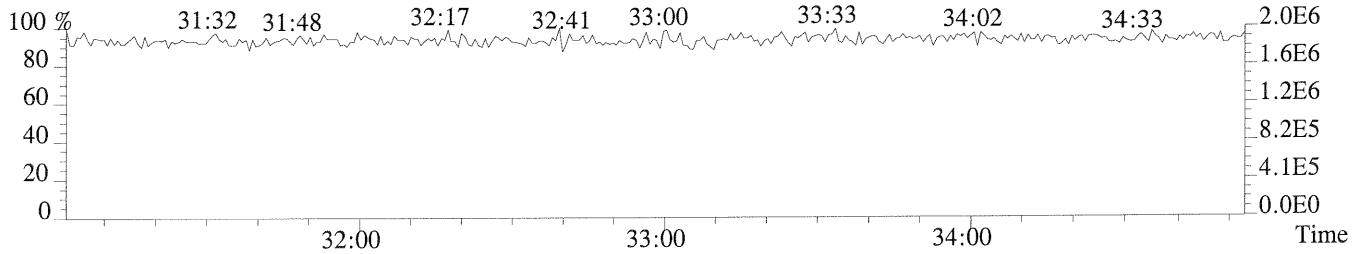
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



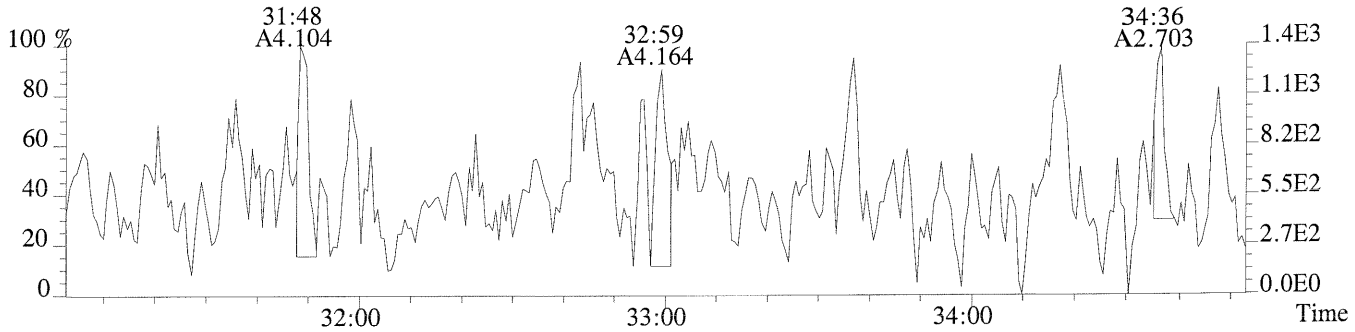
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



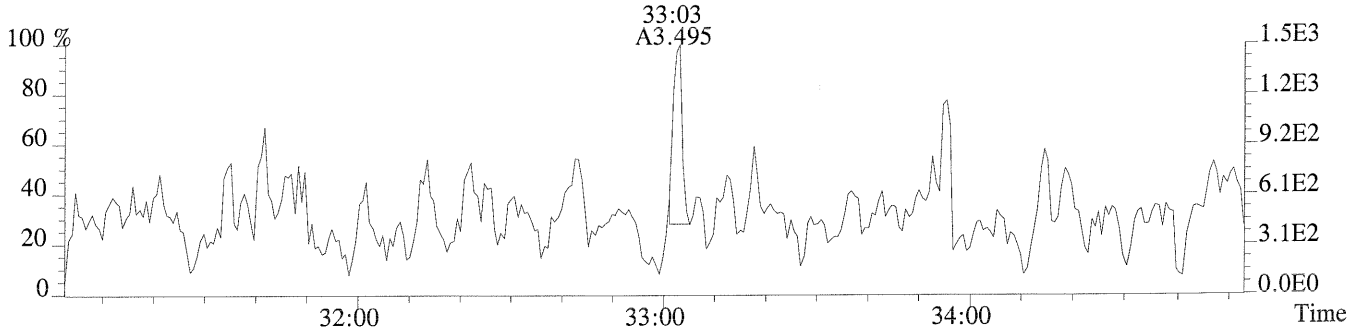
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



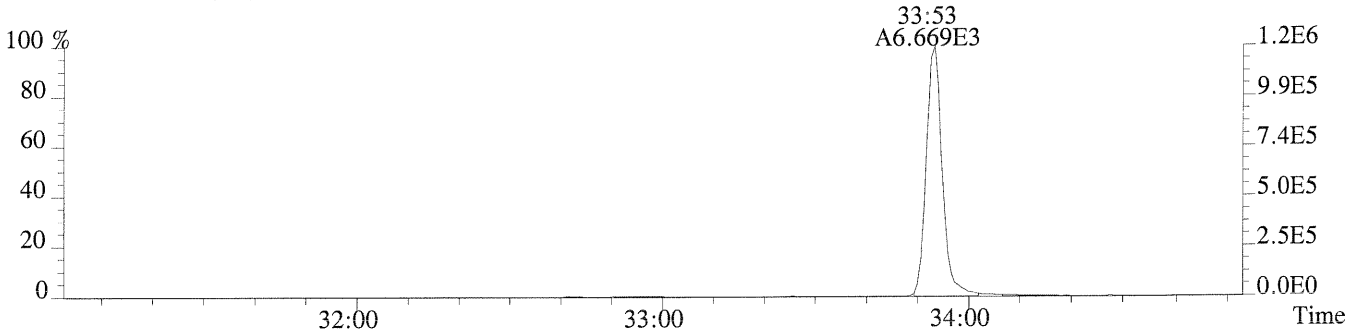
File:U149820 #1-349 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



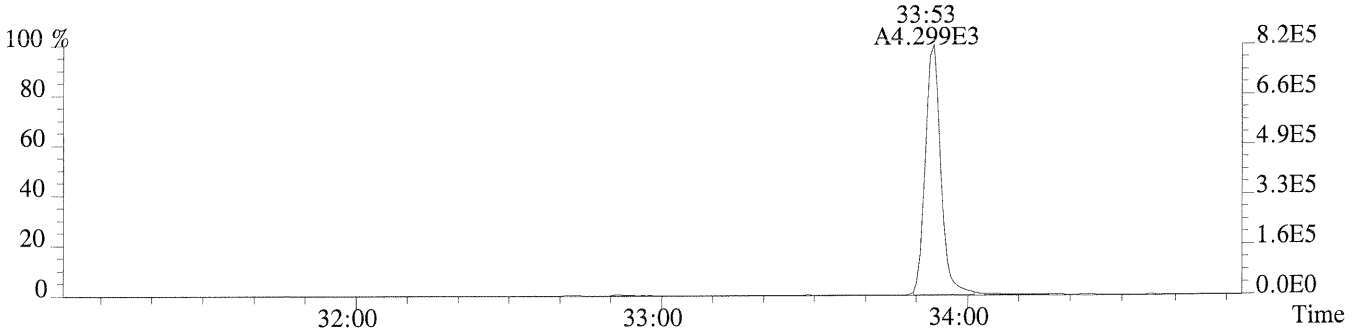
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



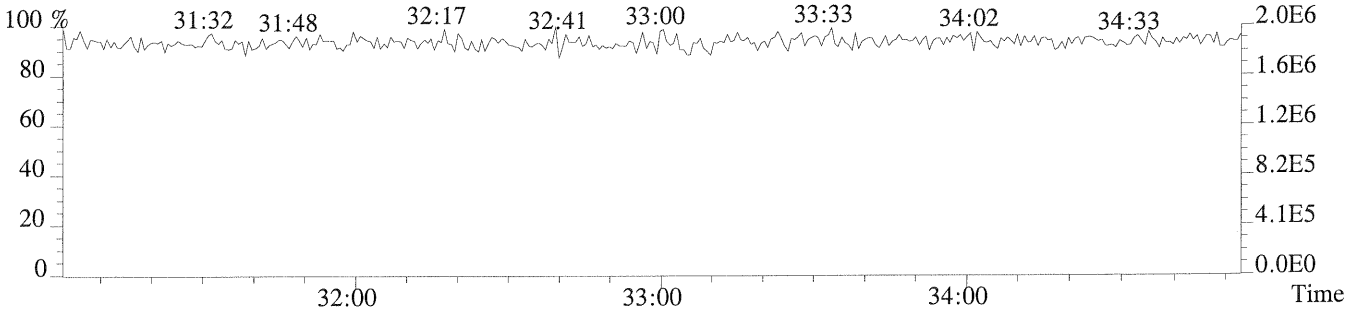
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)

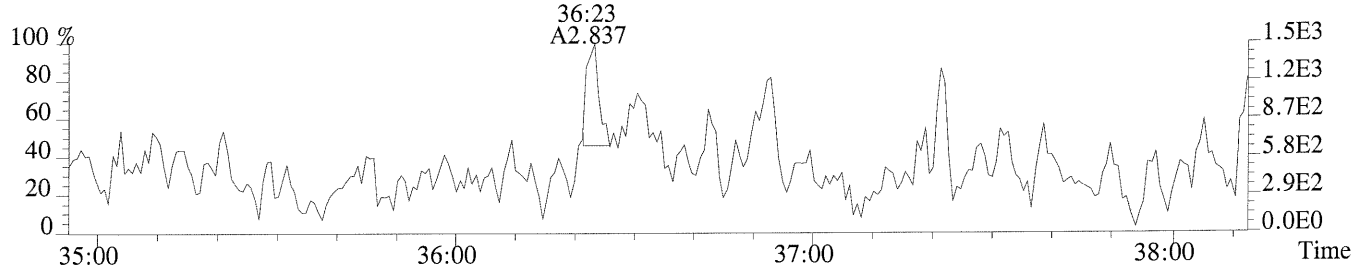


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

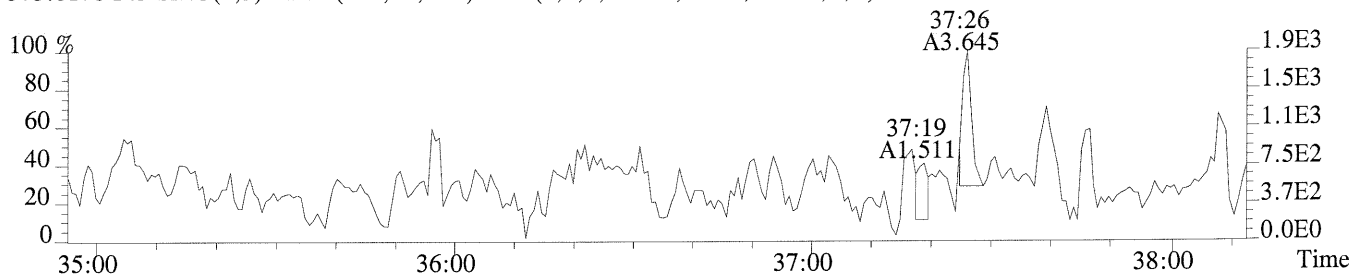


File:U149820 #1-299 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011

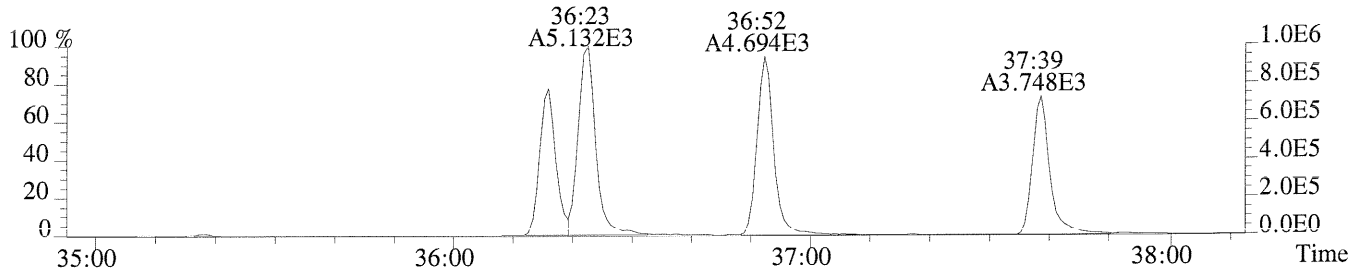
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



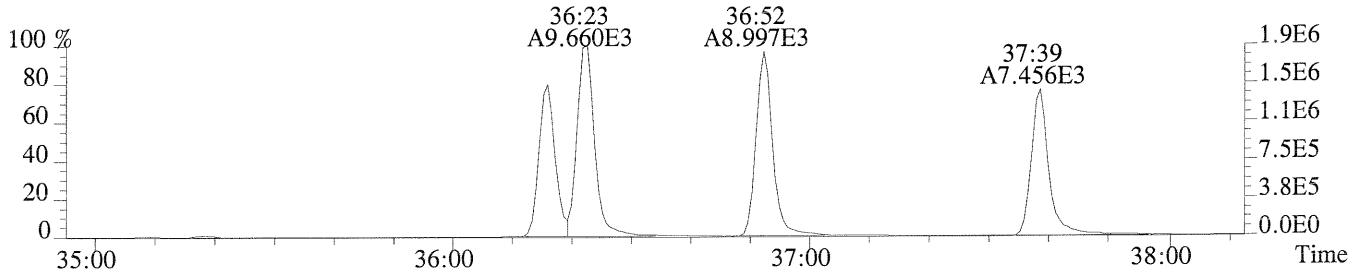
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



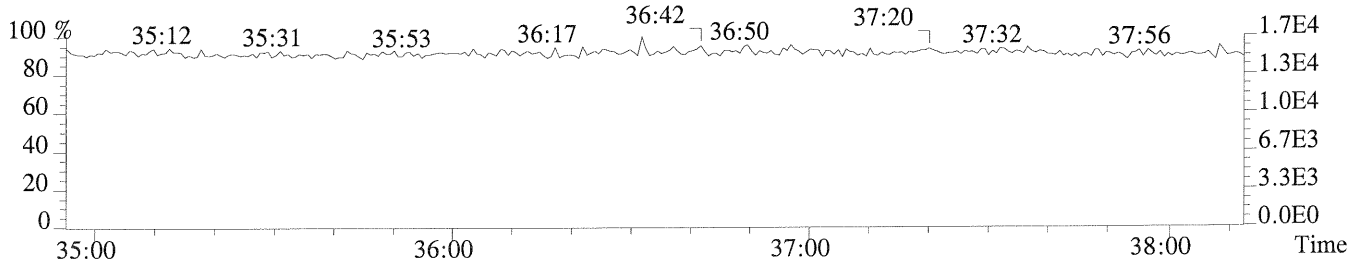
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



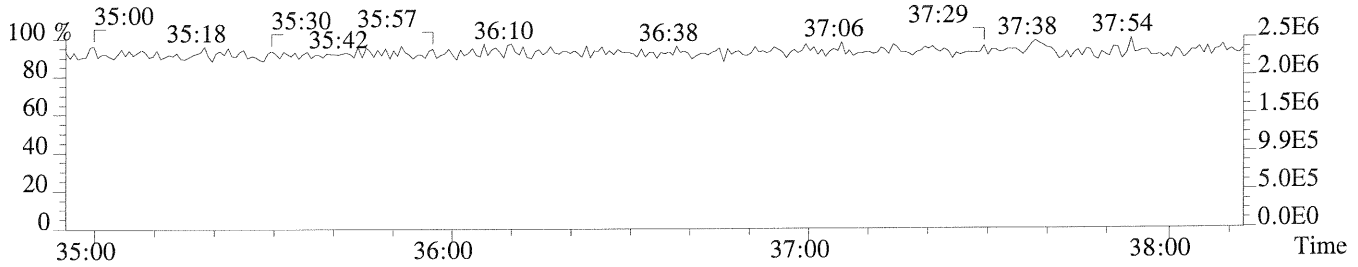
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

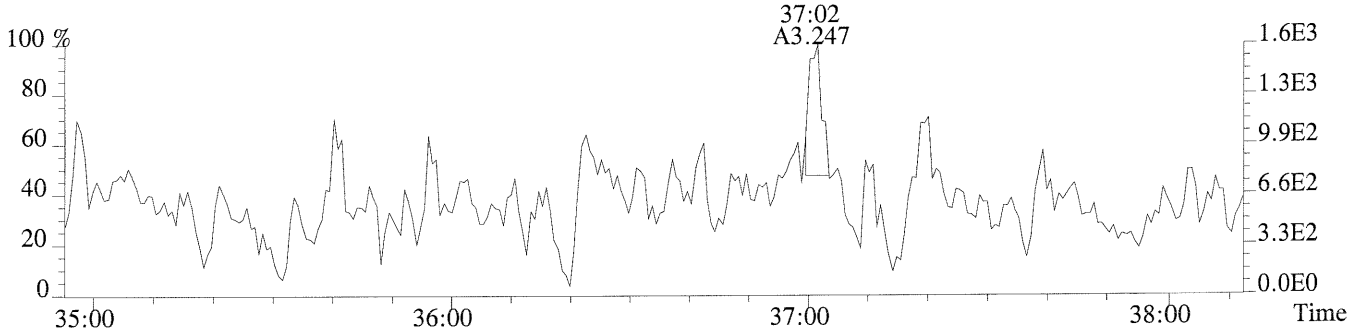


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

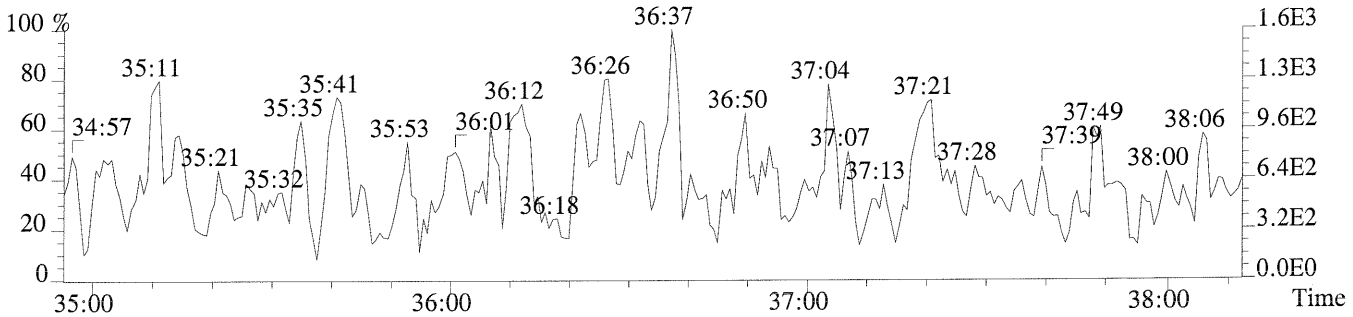


File:U149820 #1-299 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011

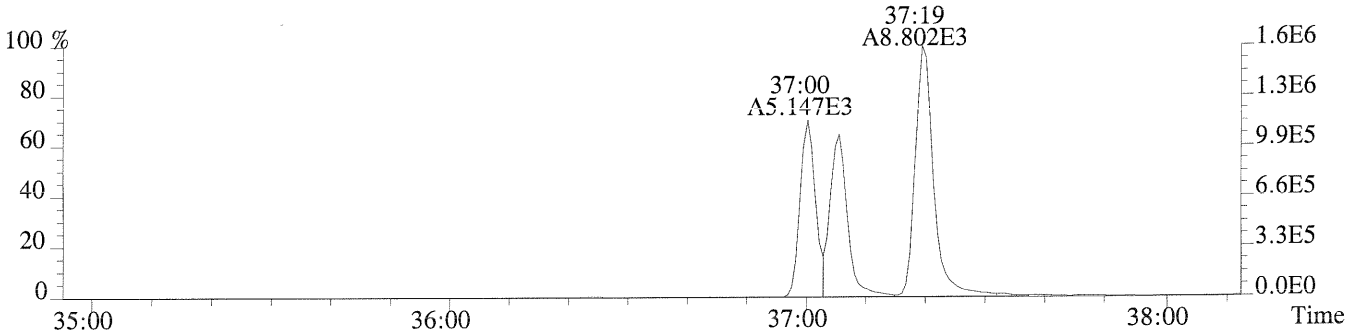
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



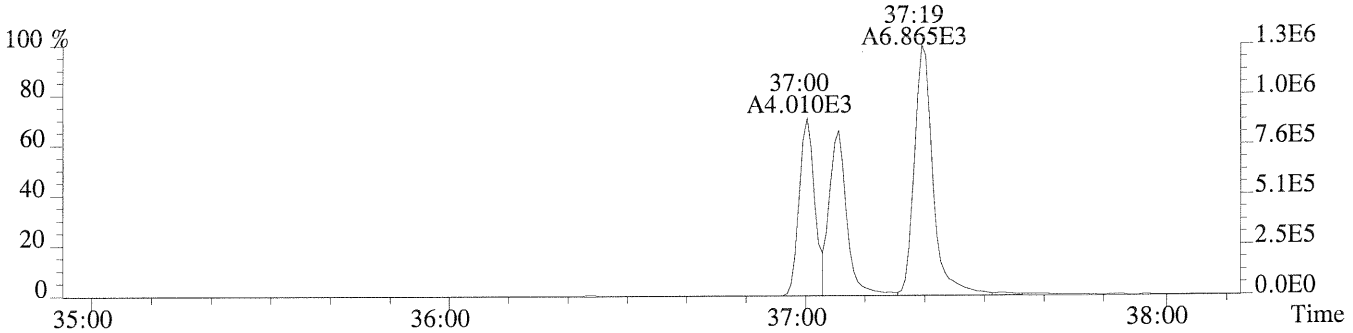
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



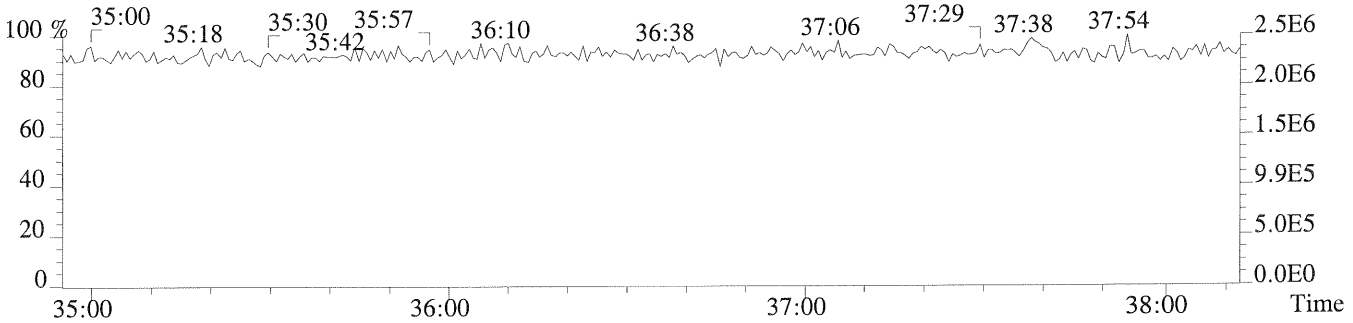
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



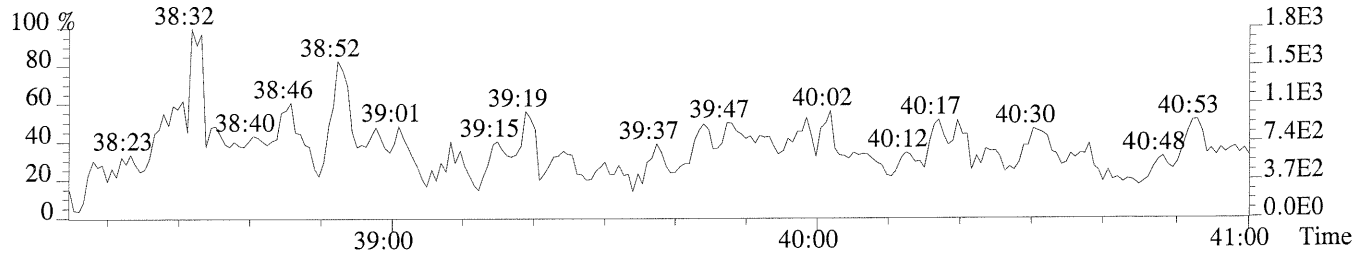
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



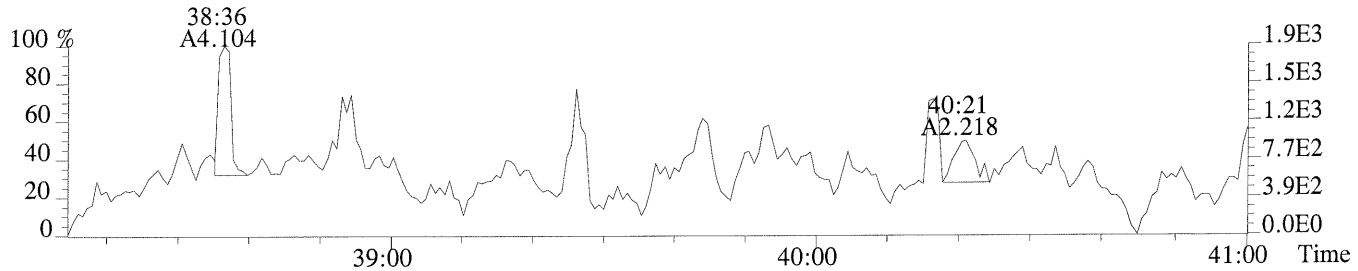
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



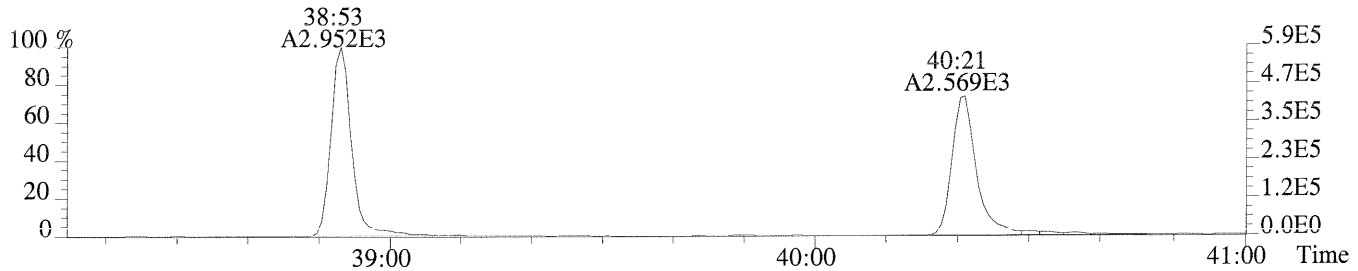
File:U149820 #1-251 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,828.0,0.50%,F,T)



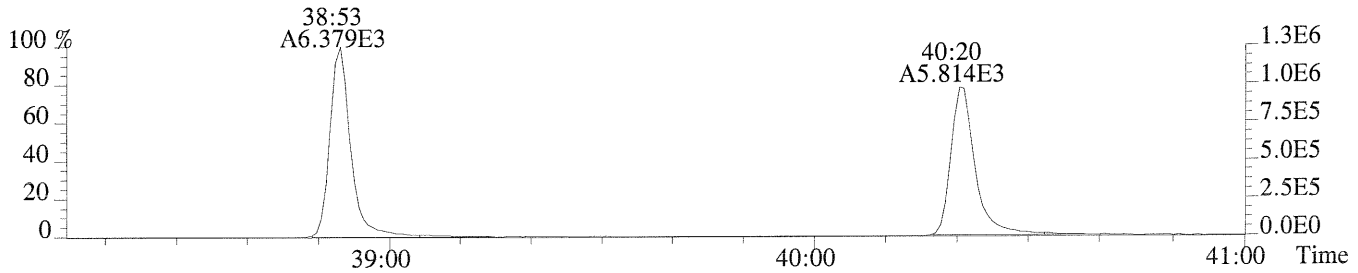
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.50%,F,T)



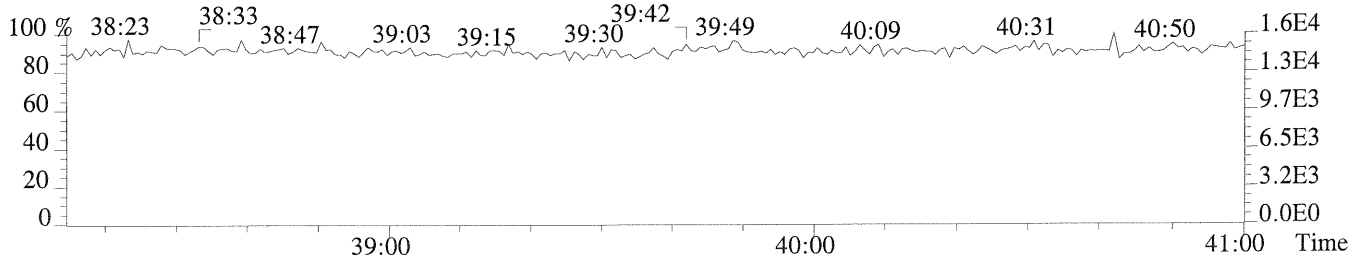
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.50%,F,T)



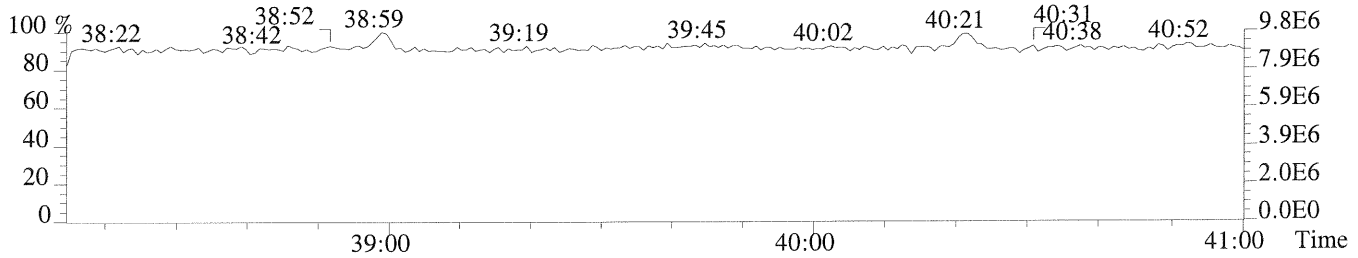
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.50%,F,T)



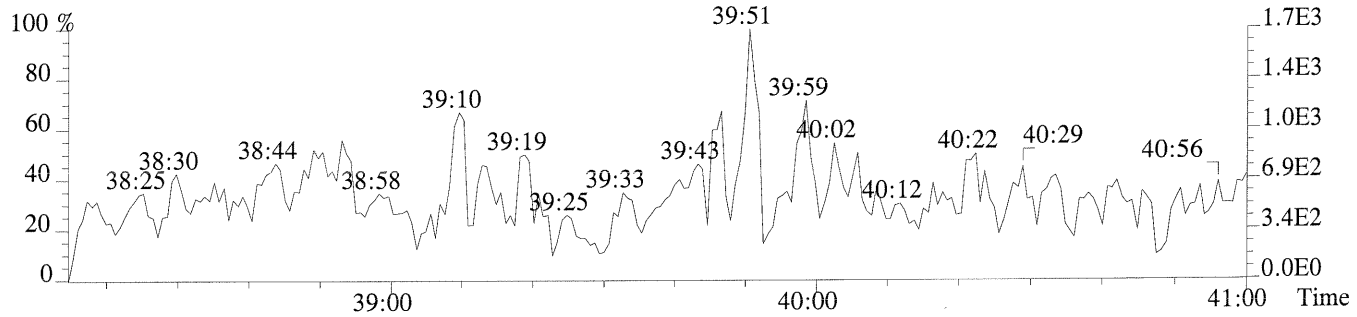
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



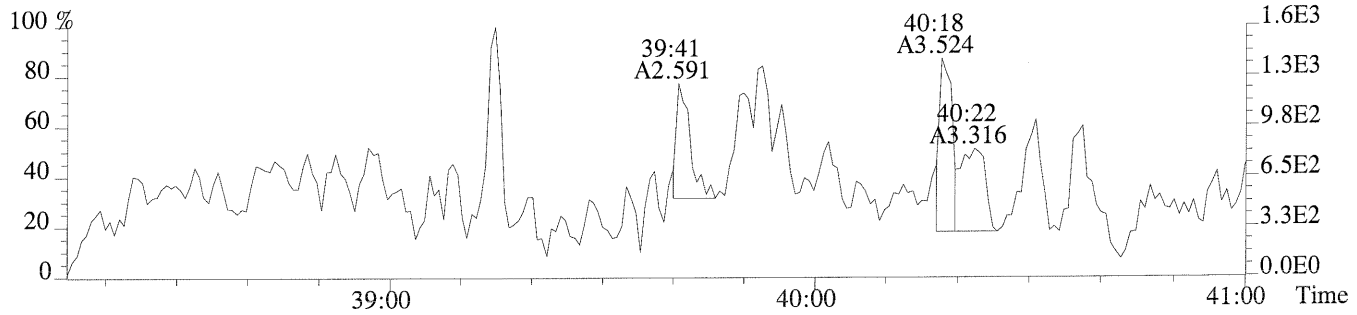
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



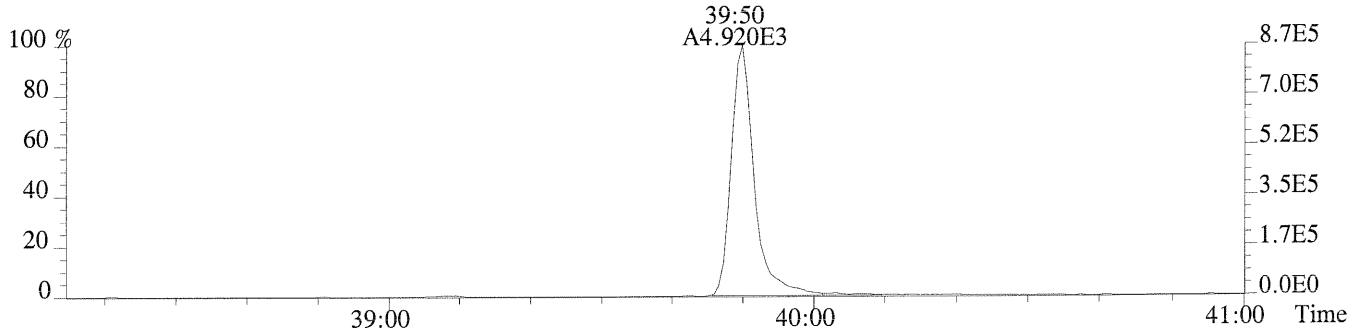
File:U149820 #1-251 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



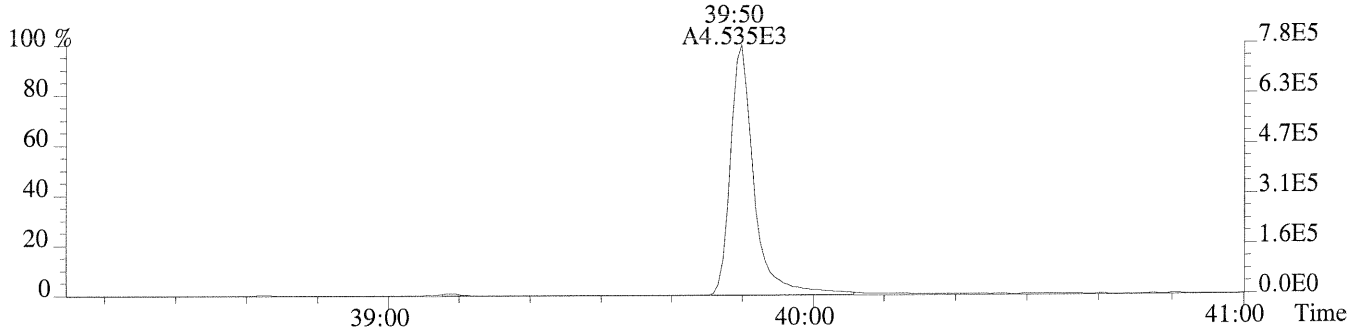
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



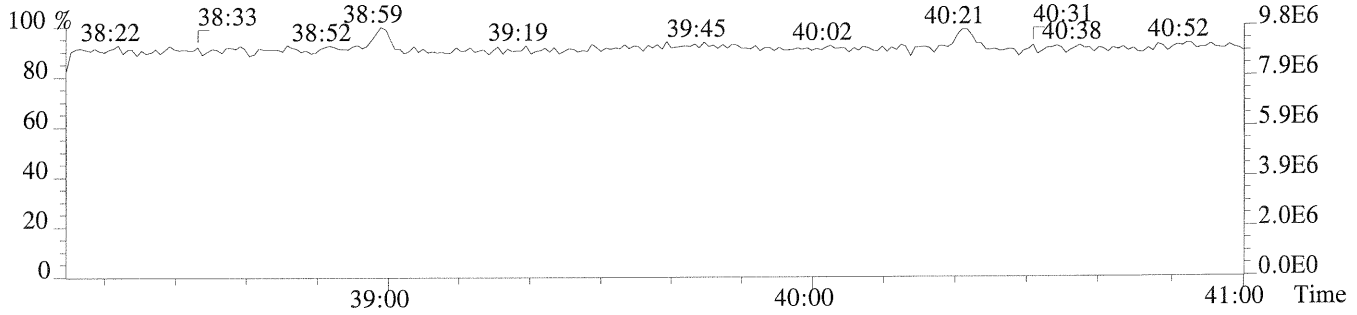
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



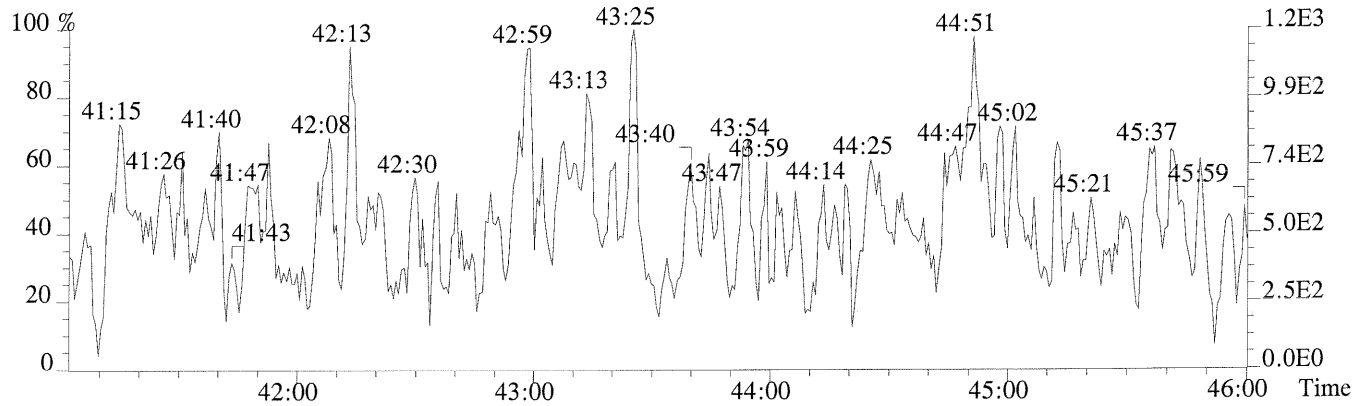
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



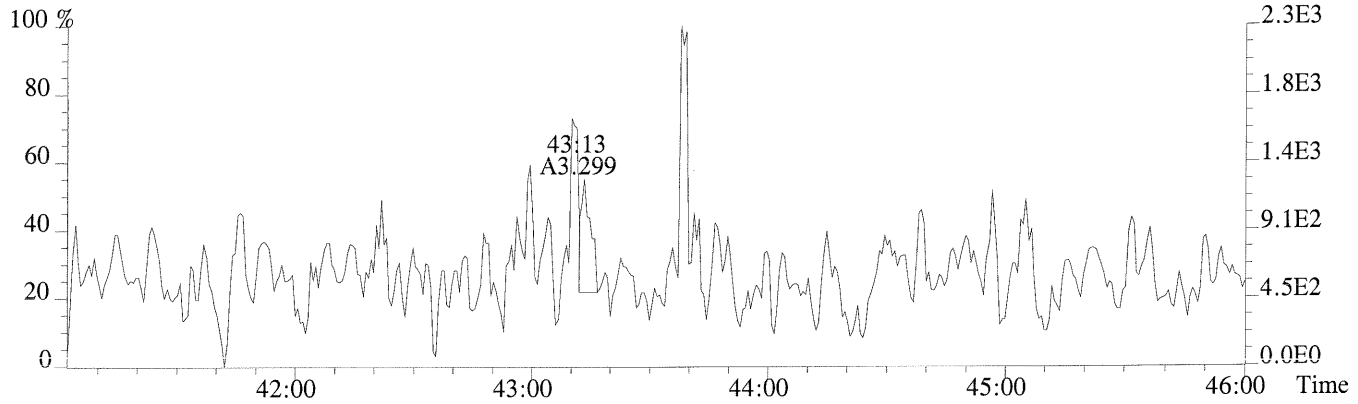
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



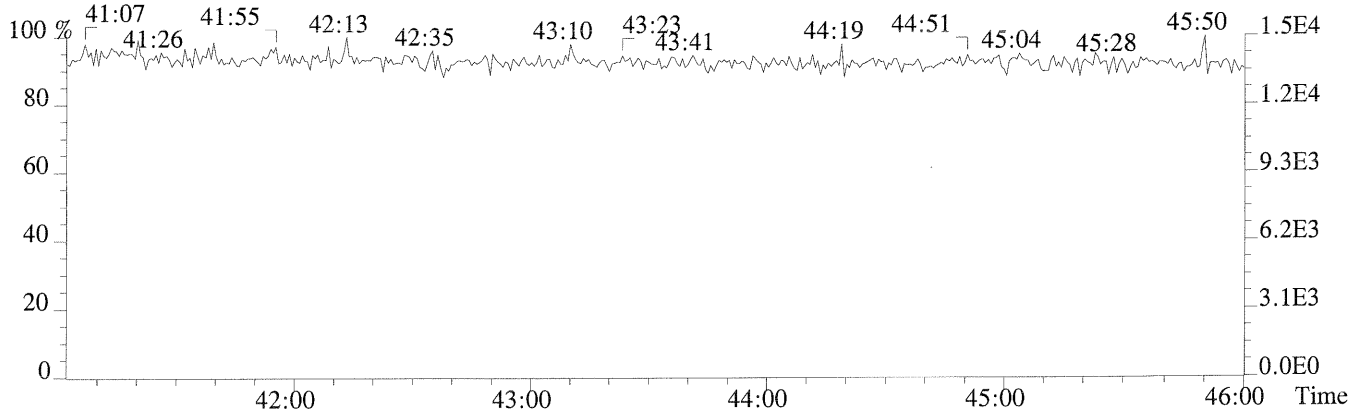
File:U149820 #1-451 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



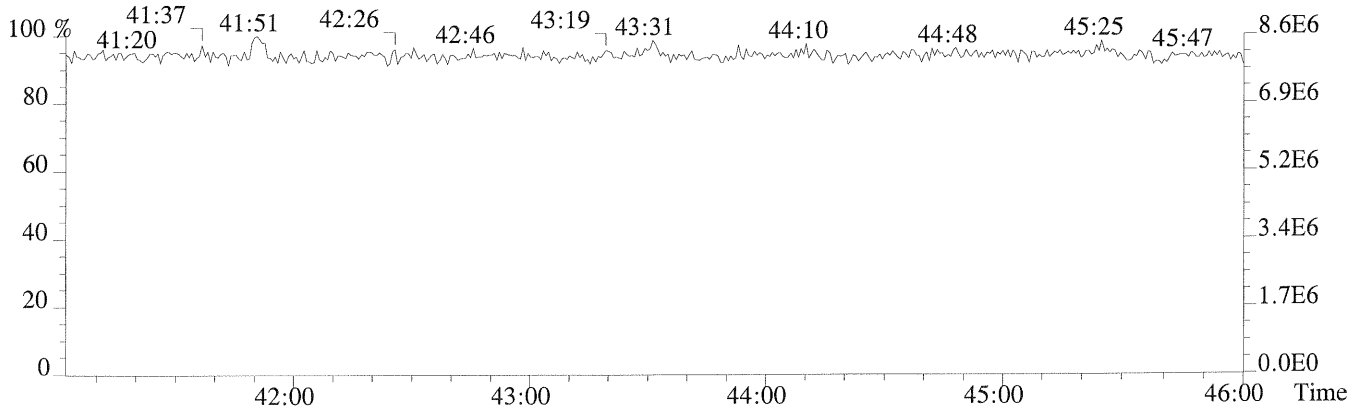
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,796.0,0.40%,F,T)



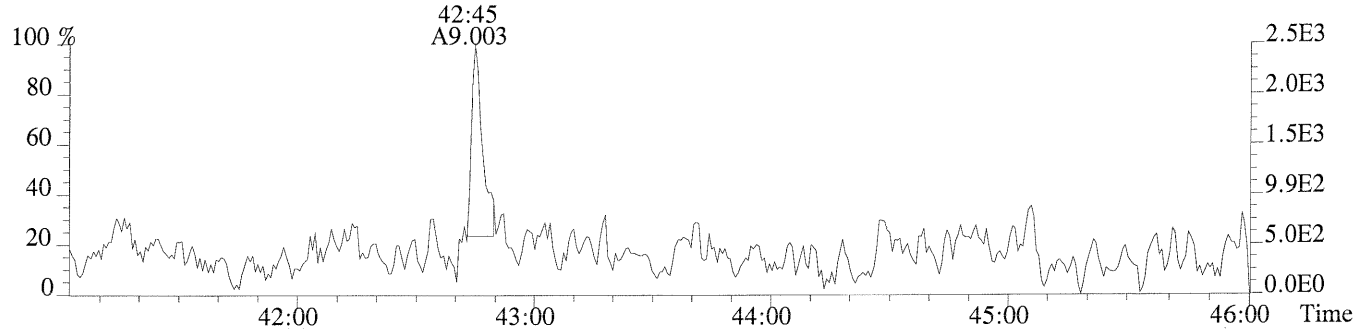
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



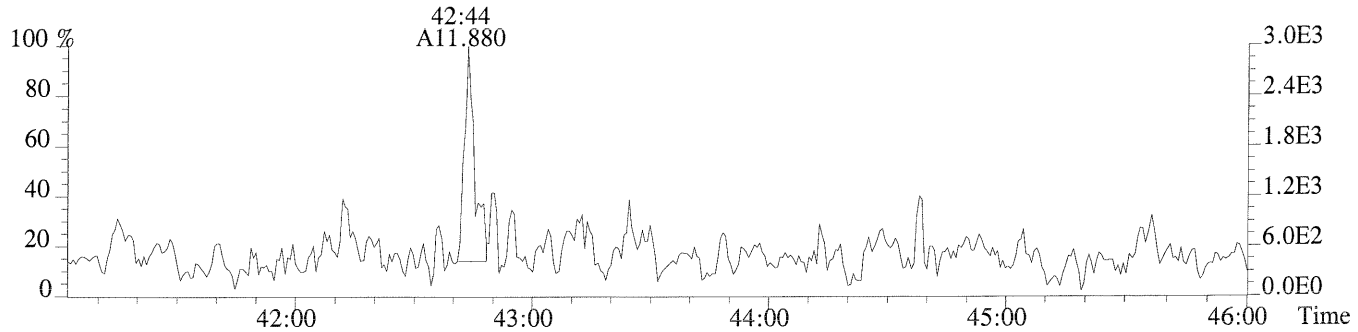
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



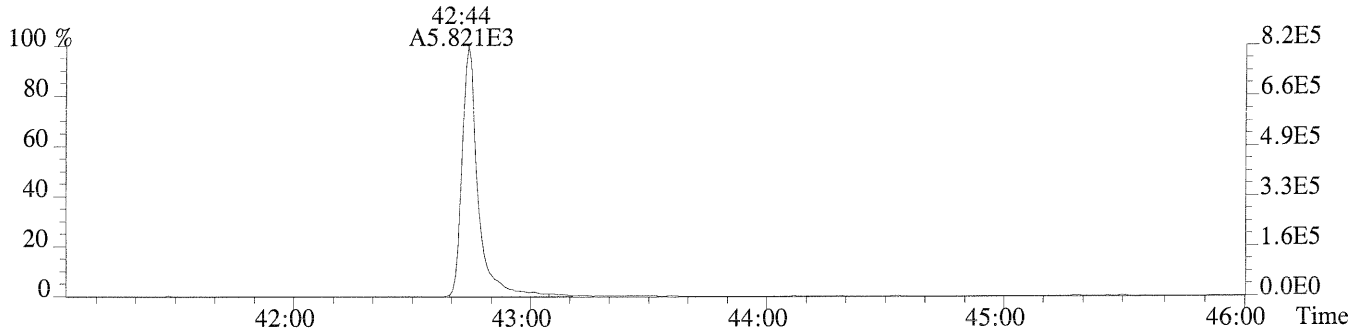
File:U149820 #1-451 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



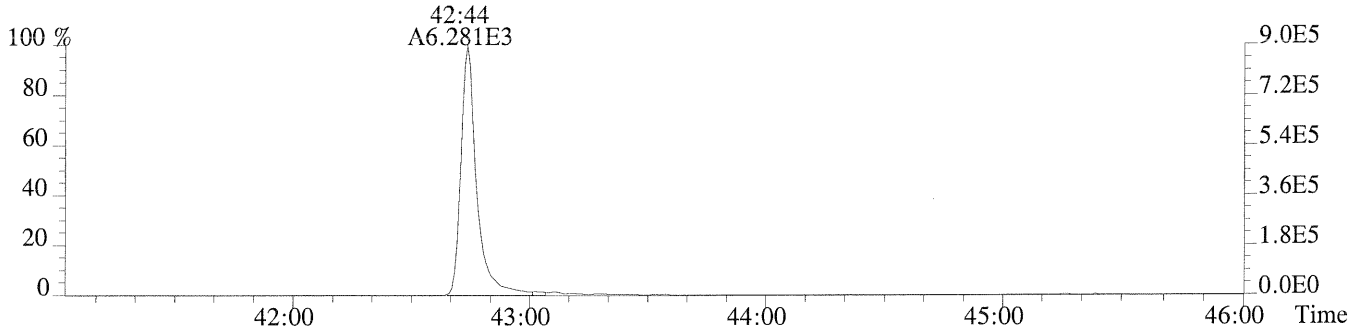
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



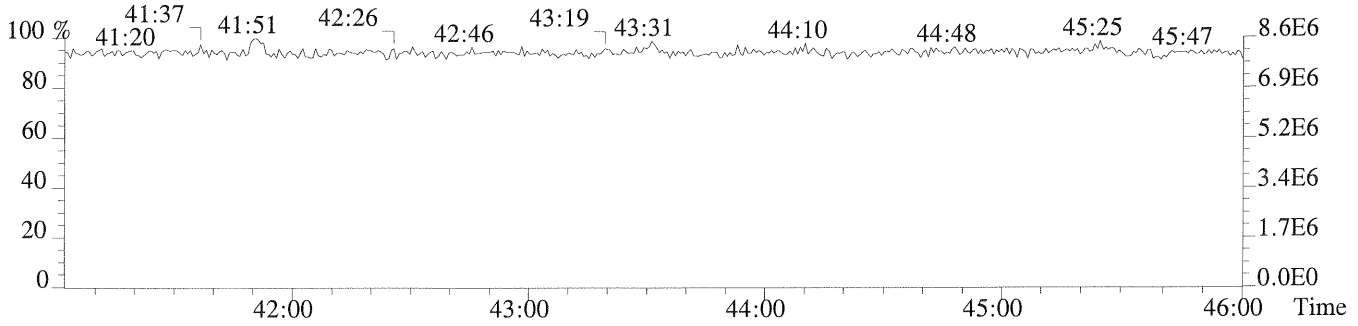
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,468.0,0.40%,F,T)



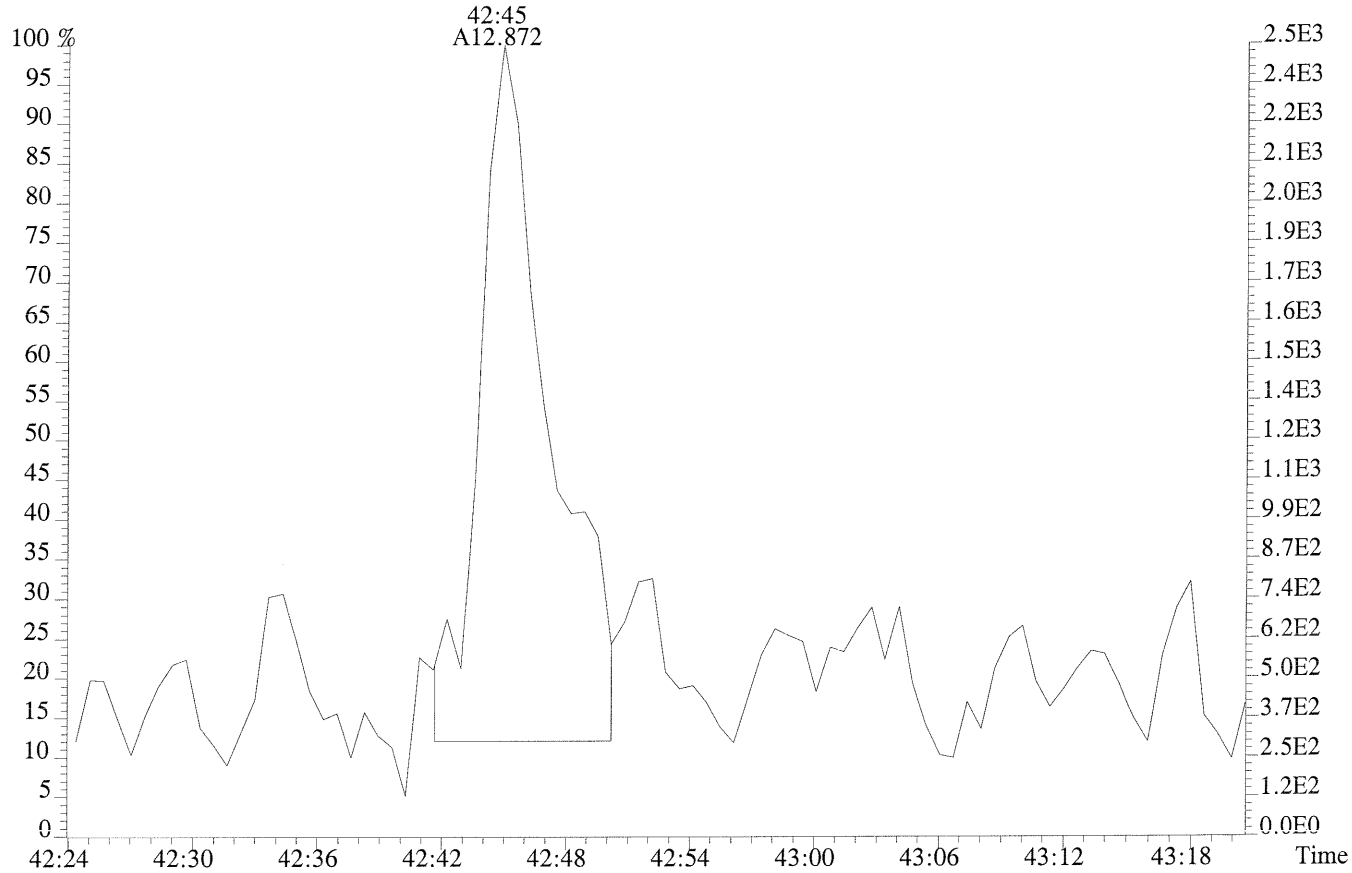
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



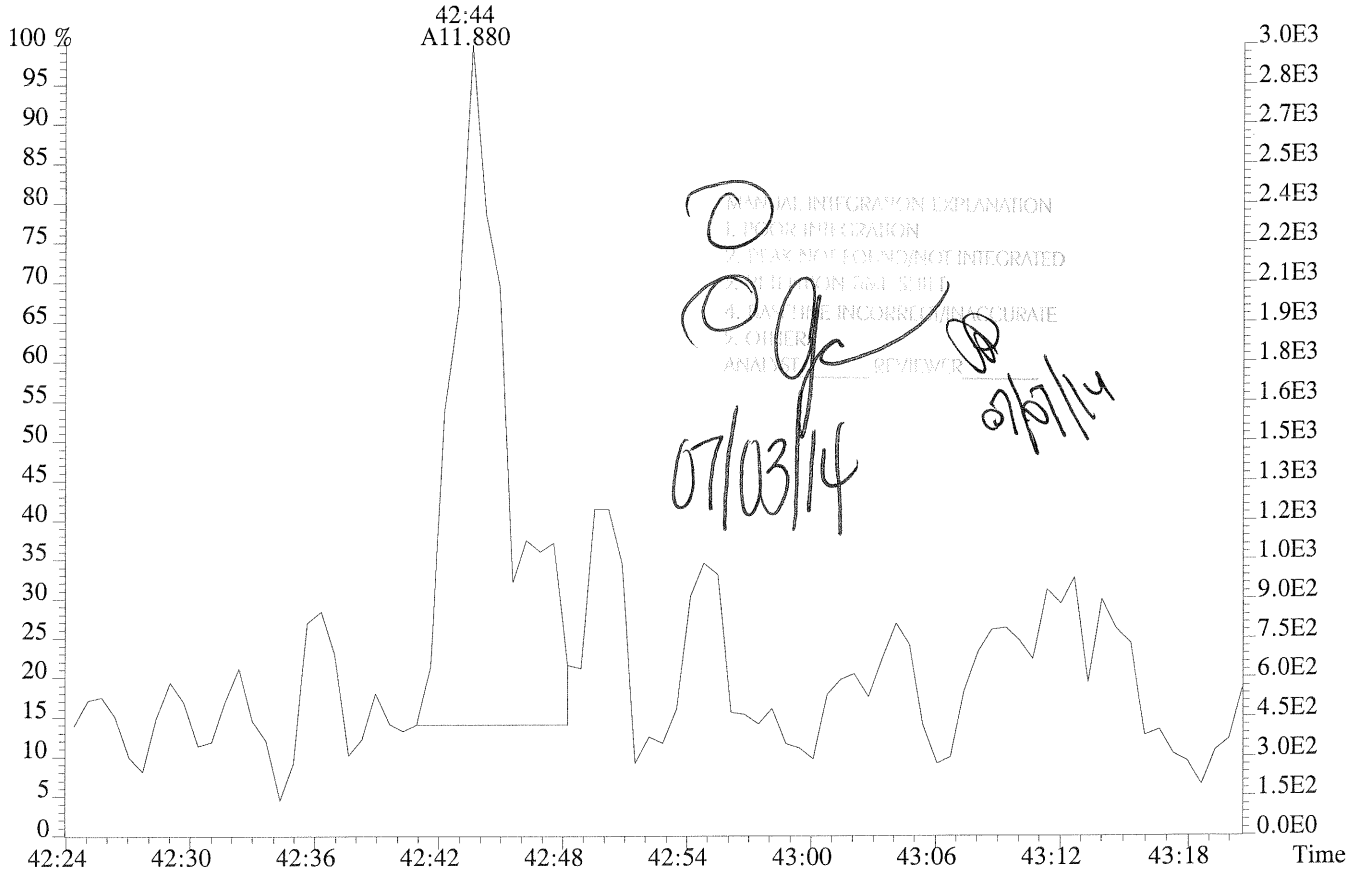
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:U149820 #1-451 Acq: 2-JUL-2014 14:13:54 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-011
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,500.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



MANUAL INTEGRATION EXPLANATION
1. PROPER INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. SOLUTION TOO SMALL
4. PEAK INCORRECTLY/INACCURATE
5. OTHER
ANALYST REVIEWER

07/03/14

07/07/14

ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406131304 20

Run #12 Filename P229927 Samp: 1 Inj: 1 Acquired: 2-JUL-14 20:33:26
Processed: 3-JUL-14 13:33:17 Sample ID: R1404651-012

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.127
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.123
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.101
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.338
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.234
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.381
10	Unk	OCDF	NotFnd	*	*	*	no	yes	1.703
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.053
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.170
17	Unk	OCDD	42:39	2.919e+01	2.389e+01	1.22	no	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:41	5.548e+03	7.335e+03	0.76	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:47	1.268e+04	7.868e+03	1.61	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:39	1.298e+04	7.943e+03	1.63	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	5.540e+03	1.054e+04	0.53	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	8.121e+03	1.546e+04	0.53	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	6.976e+03	1.324e+04	0.53	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	5.398e+03	1.049e+04	0.51	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	4.315e+03	9.997e+03	0.43	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	3.831e+03	9.062e+03	0.42	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:26	3.601e+03	4.779e+03	0.75	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:56	9.588e+03	5.902e+03	1.62	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	8.042e+03	6.033e+03	1.33	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	8.920e+03	6.778e+03	1.32	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	6.349e+03	5.917e+03	1.07	yes	no	0.935
32	IS	13C-OCDD	42:38	1.030e+04	1.130e+04	0.91	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:51	6.803e+03	8.777e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	1.309e+04	1.028e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:28	2.946e+03				no	0.946

$$\text{OCDD} = \frac{(2.919e+01 + 2.389e+01) \times 4000 \text{ pg} \times 1}{(1.030e+04 + 1.130e+04) \times 10.3789 \times 98.9 \times 1.288} = 0.743 \text{ ng/kg}$$

UMO 7/07/14

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406131304 200-S

Run #12 Filename P229927 Samp: 1 Inj: 1 Acquired: 2-JUL-14 20:33:26
Processed: 3-JUL-14 13:33:171 LAB. ID: R1404651-012

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	2.04e+02	*	*	1.06e+03	*
2	1,2,3,7,8-PeCDF	*	6.40e+01	*	*	6.32e+02	*
3	2,3,4,7,8-PeCDF	*	6.40e+01	*	*	6.32e+02	*
4	1,2,3,4,7,8-HxCDF	*	3.76e+02	*	*	7.60e+01	*
5	1,2,3,6,7,8-HxCDF	*	3.76e+02	*	*	7.60e+01	*
6	2,3,4,6,7,8-HxCDF	*	3.76e+02	*	*	7.60e+01	*
7	1,2,3,7,8,9-HxCDF	*	3.76e+02	*	*	7.60e+01	*
8	1,2,3,4,6,7,8-HpCDF	*	3.84e+02	*	*	3.12e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	3.84e+02	*	*	3.12e+02	*
10	OCDF	*	2.28e+02	*	*	7.00e+02	*
11	2,3,7,8-TCDD	*	5.44e+02	*	*	6.64e+02	*
12	1,2,3,7,8-PeCDD	*	6.44e+02	*	*	3.20e+01	*
13	1,2,3,4,7,8-HxCDD	*	1.04e+02	*	*	4.16e+02	*
14	1,2,3,6,7,8-HxCDD	*	1.04e+02	*	*	4.16e+02	*
15	1,2,3,7,8,9-HxCDD	*	1.04e+02	*	*	4.16e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	6.88e+02	*	*	2.16e+02	*
17	OCDD	4.87e+03	8.00e+01	6.1e+01	3.73e+03	3.08e+02	1.2e+01
18	13C-2,3,7,8-TCDF	1.03e+06	9.00e+02	1.1e+03	1.37e+06	8.64e+02	1.6e+03
19	13C-1,2,3,7,8-PeCDF	2.11e+06	2.40e+01	8.8e+04	1.32e+06	3.80e+02	3.5e+03
20	13C-2,3,4,7,8-PeCDF	2.32e+06	2.40e+01	9.7e+04	1.42e+06	3.80e+02	3.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.05e+06	5.00e+02	2.1e+03	2.03e+06	5.72e+02	3.5e+03
22	13C-1,2,3,6,7,8-HxCDF	1.46e+06	5.00e+02	2.9e+03	2.84e+06	5.72e+02	5.0e+03
23	13C-2,3,4,6,7,8-HxCDF	1.33e+06	5.00e+02	2.7e+03	2.50e+06	5.72e+02	4.4e+03
24	13C-1,2,3,7,8,9-HxCDF	9.27e+05	5.00e+02	1.9e+03	1.81e+06	5.72e+02	3.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.87e+05	3.56e+02	2.2e+03	1.82e+06	5.80e+02	3.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.97e+05	3.56e+02	1.7e+03	1.37e+06	5.80e+02	2.4e+03
27	13C-2,3,7,8-TCDD	6.87e+05	2.08e+03	3.3e+02	9.24e+05	1.16e+03	7.9e+02
28	13C-1,2,3,7,8-PeCDD	1.66e+06	7.16e+02	2.3e+03	1.02e+06	2.76e+02	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.62e+06	5.92e+02	2.7e+03	1.21e+06	4.48e+02	2.7e+03
30	13C-1,2,3,6,7,8-HxCDD	1.59e+06	5.92e+02	2.7e+03	1.22e+06	4.48e+02	2.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.07e+06	5.68e+02	1.9e+03	1.03e+06	1.64e+02	6.3e+03
32	13C-OCDD	1.37e+06	3.36e+02	4.1e+03	1.49e+06	3.92e+02	3.8e+03
33	13C-1,2,3,4-TCDD	1.34e+06	2.08e+03	6.5e+02	1.71e+06	1.16e+03	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	2.44e+06	5.92e+02	4.1e+03	1.92e+06	4.48e+02	4.3e+03
35	37Cl-2,3,7,8-TCDD	5.59e+05	1.32e+02	4.2e+03			

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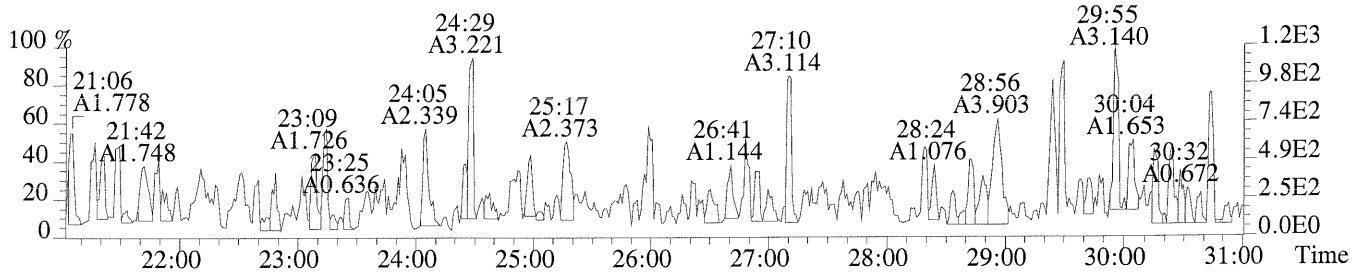
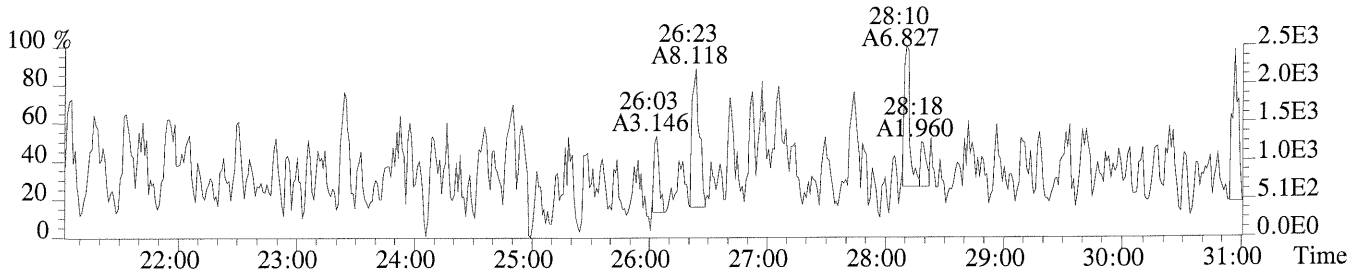
File:P229927 #1-627 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012

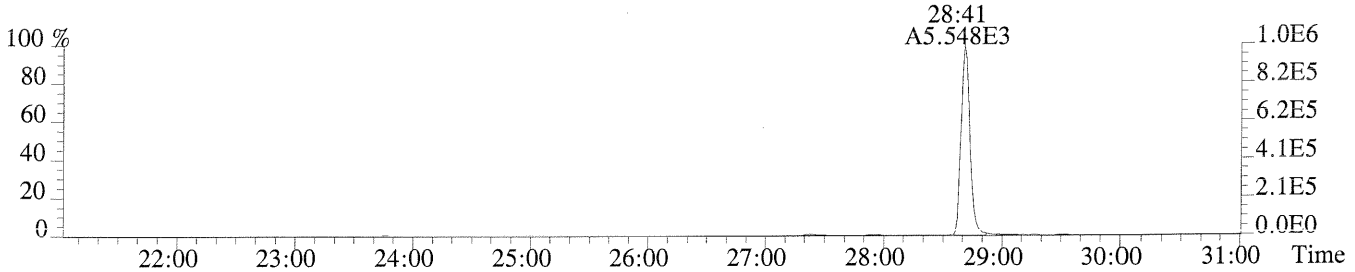
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,204.0,1.00%,F,T)



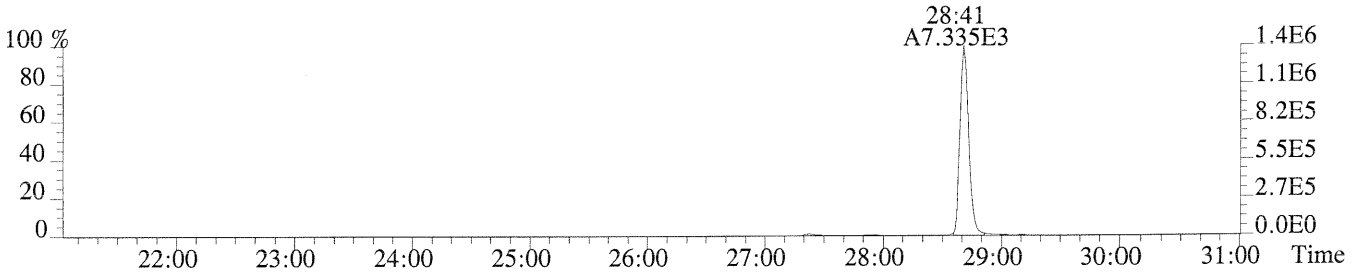
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



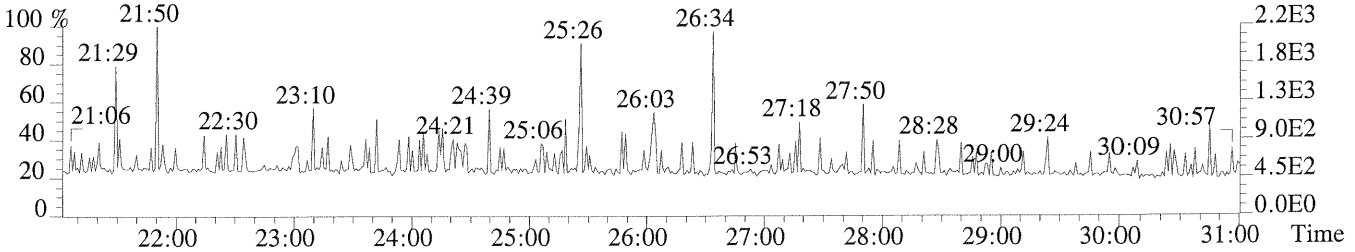
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,900.0,1.00%,F,T)



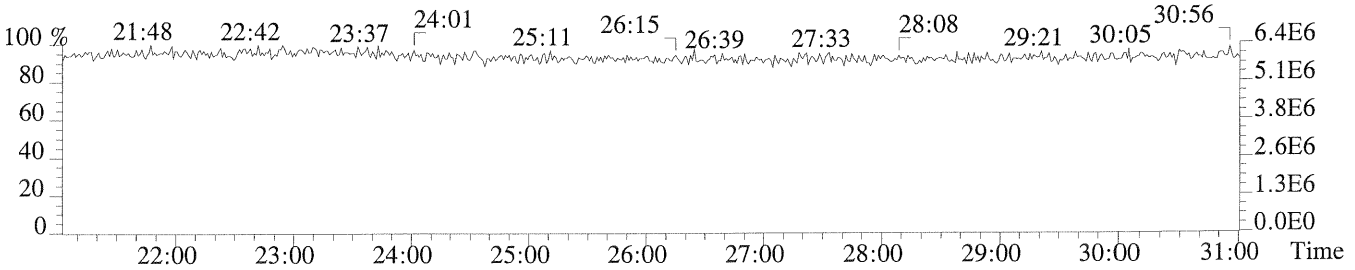
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

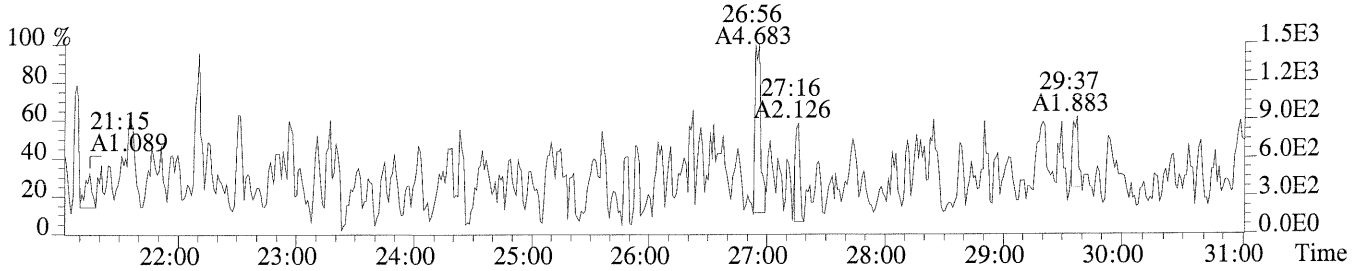


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

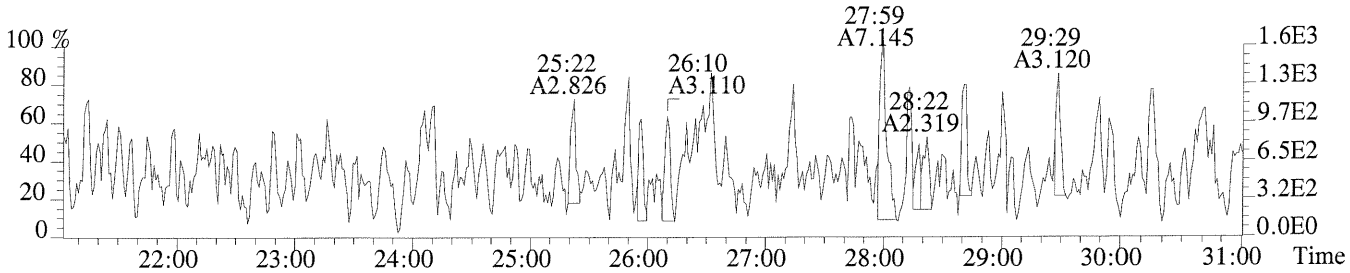


File:P229927 #1-627 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012

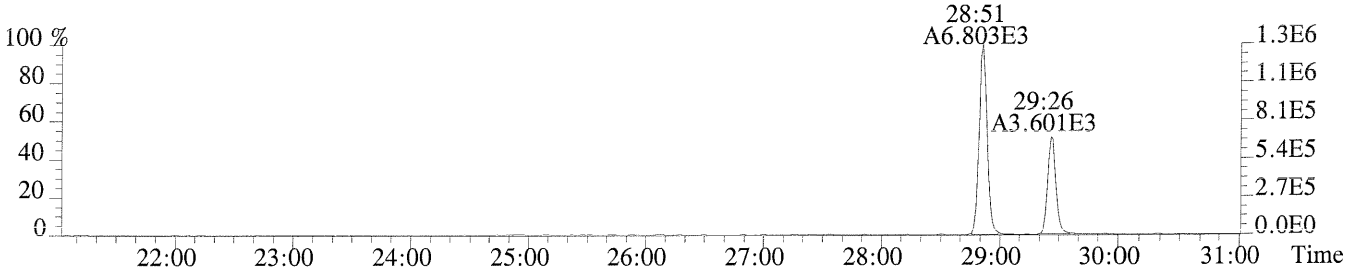
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



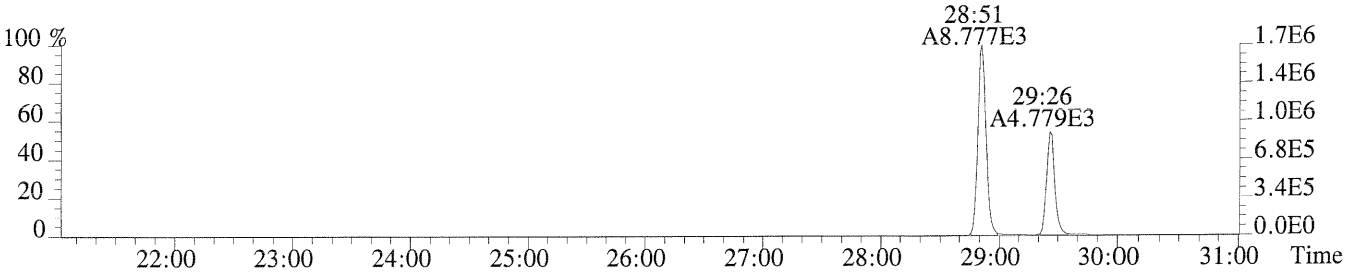
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



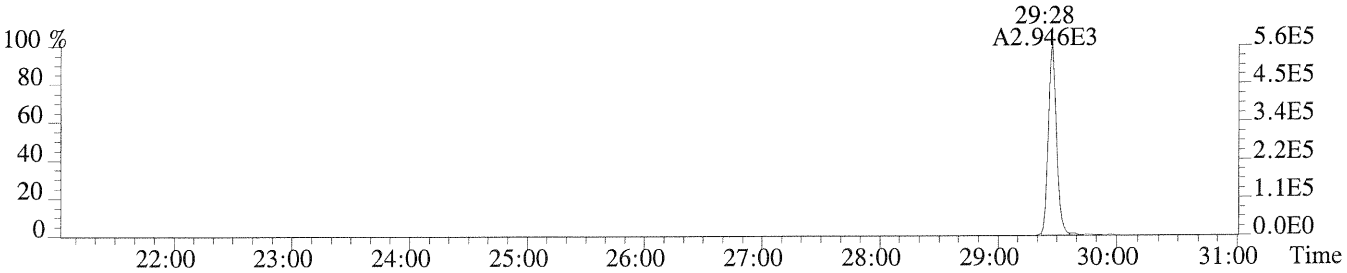
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2076.0,1.00%,F,T)



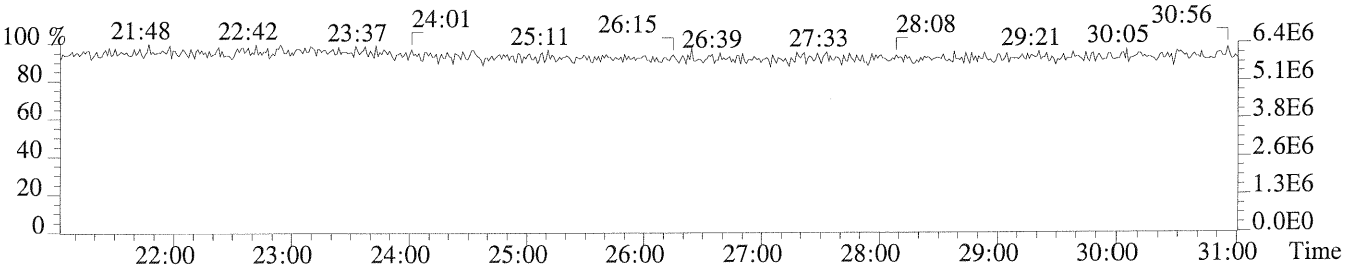
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1164.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,132.0,1.00%,F,T)

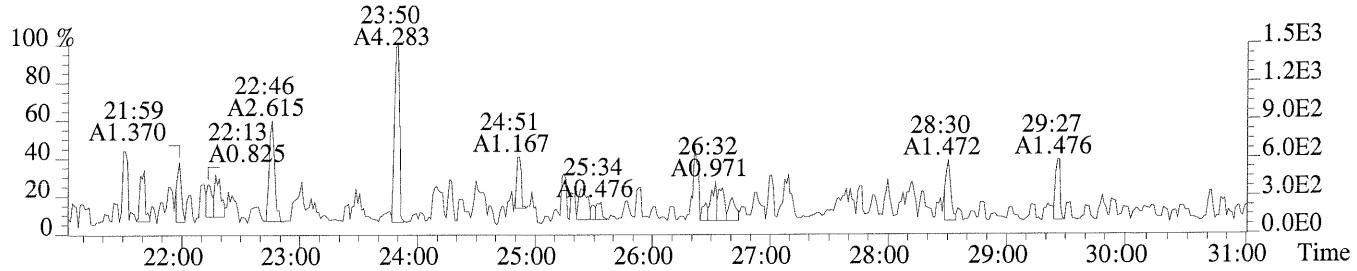


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

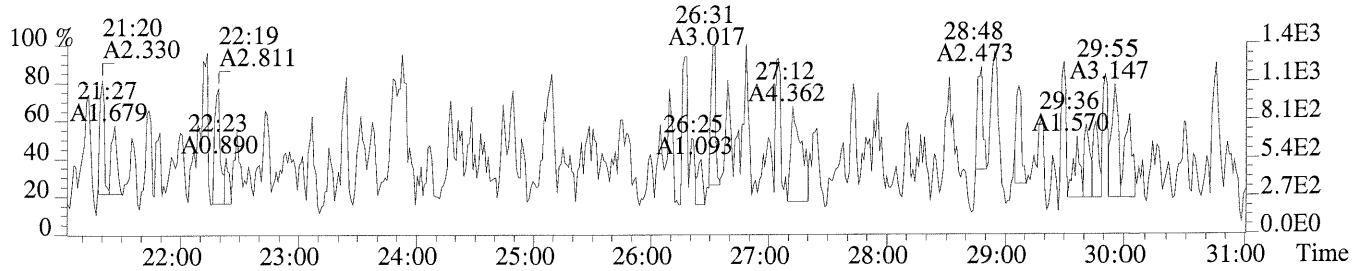


File:P229927 #1-627 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012

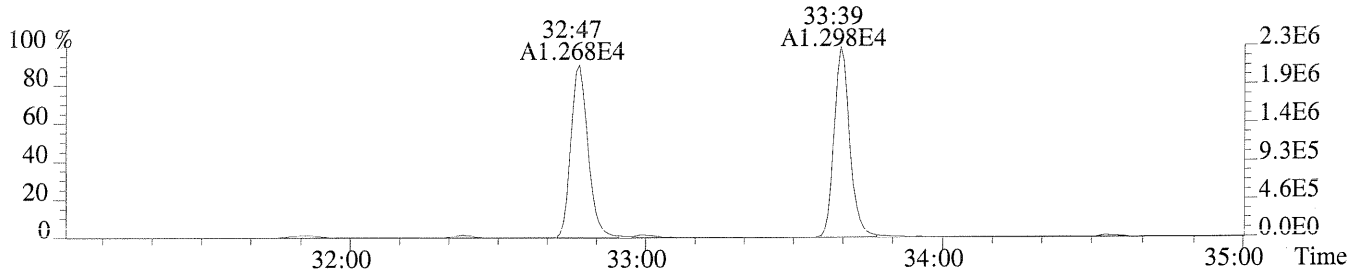
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



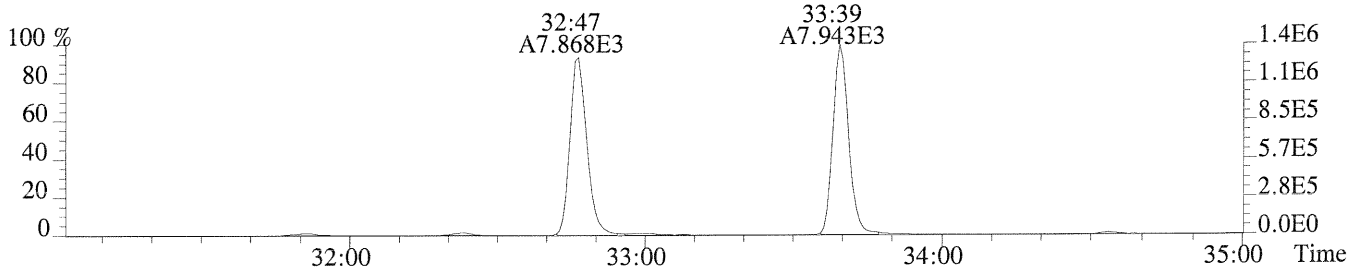
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



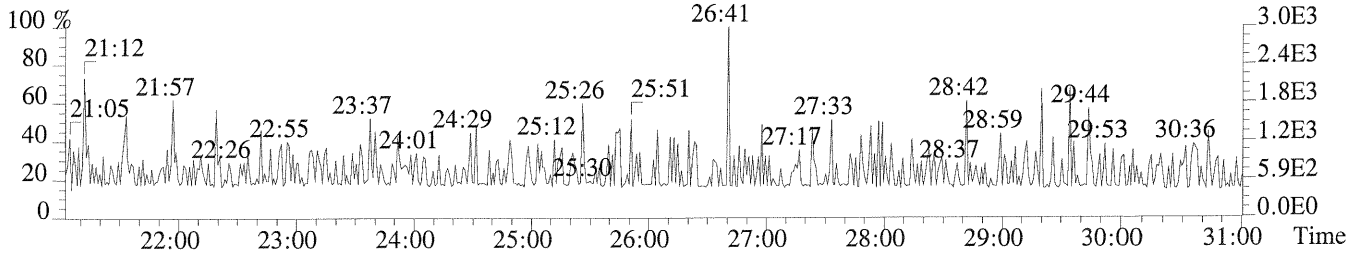
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,24.0,1.00%,F,T)



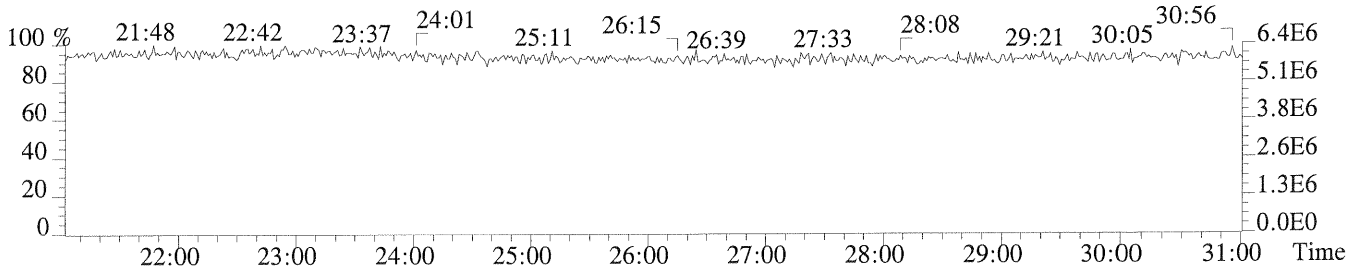
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

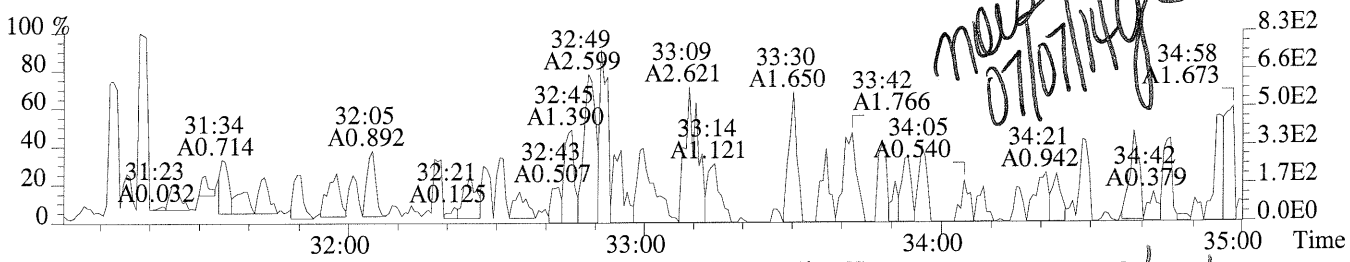


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229927 #1-360 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012

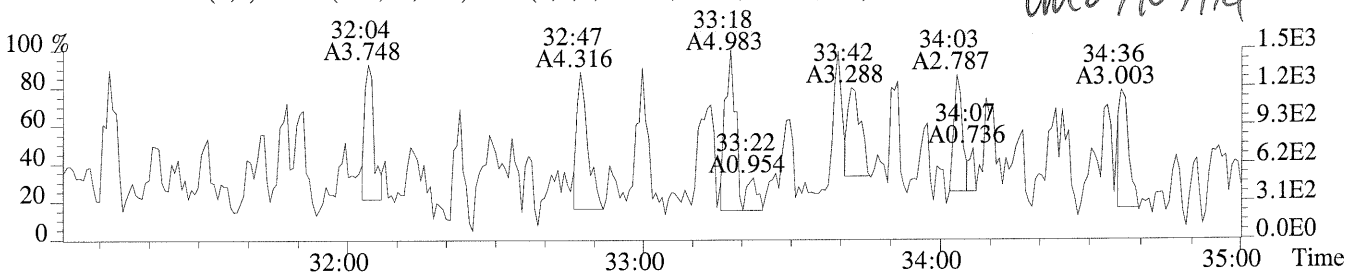
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,64.0,1.00%,F,T)



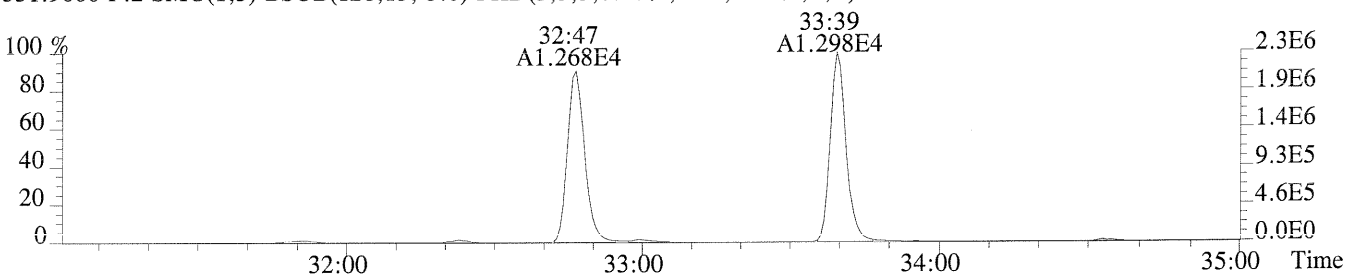
mcuse 07/07/14

341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)

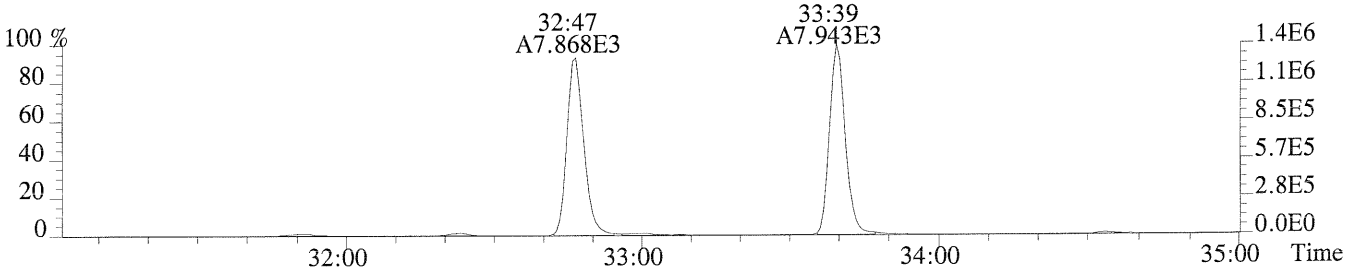
UM 07/07/14



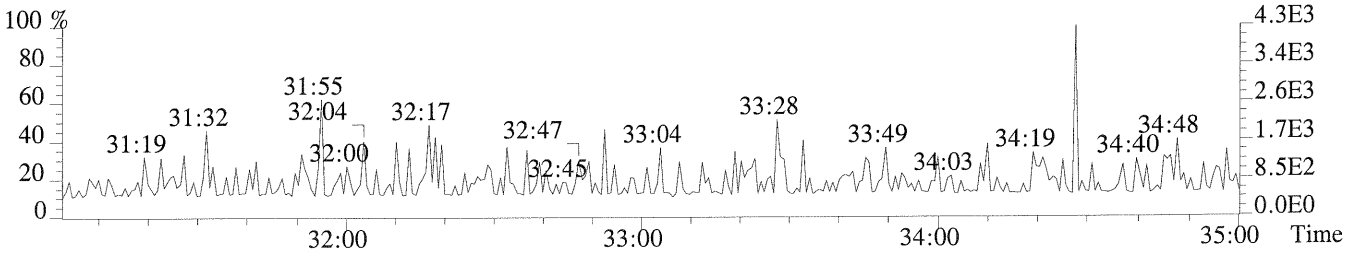
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,24.0,1.00%,F,T)



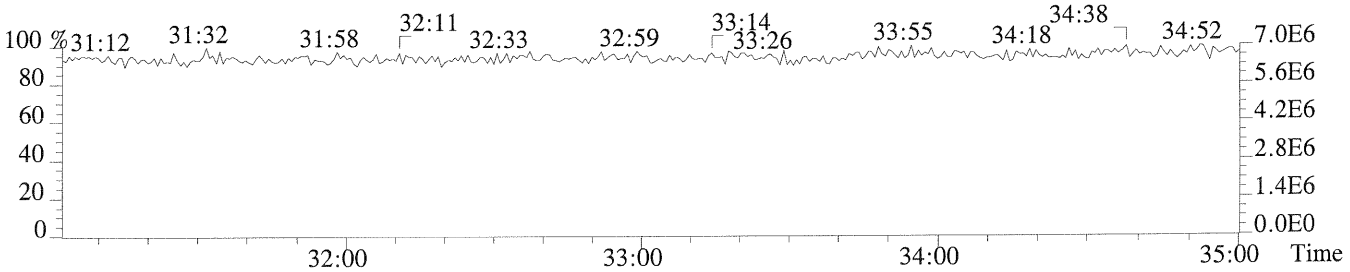
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



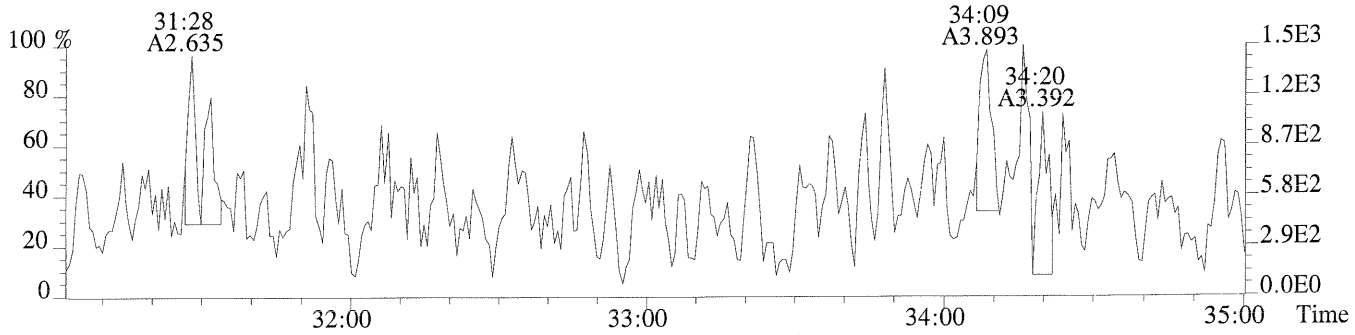
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



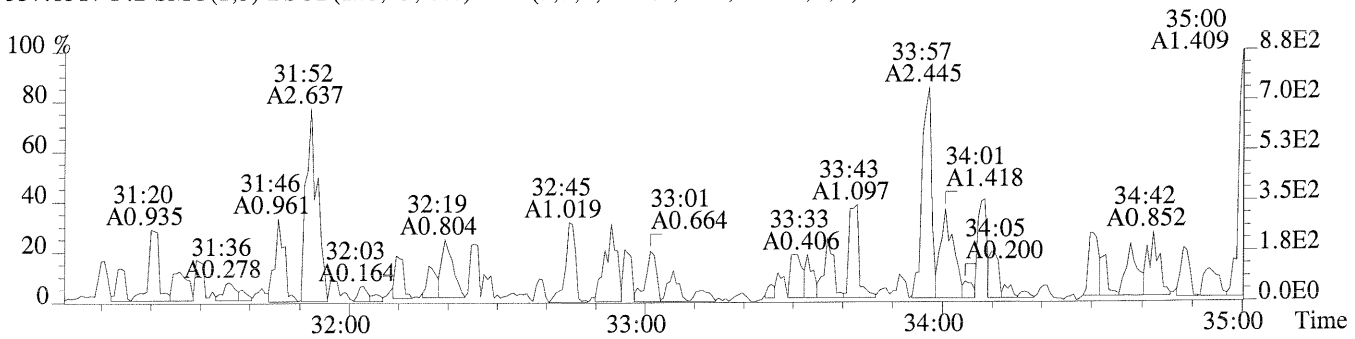
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



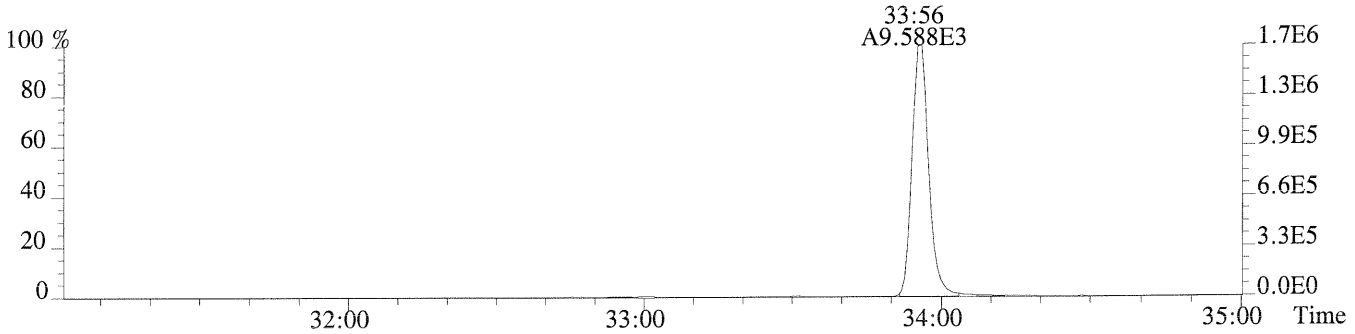
File:P229927 #1-360 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



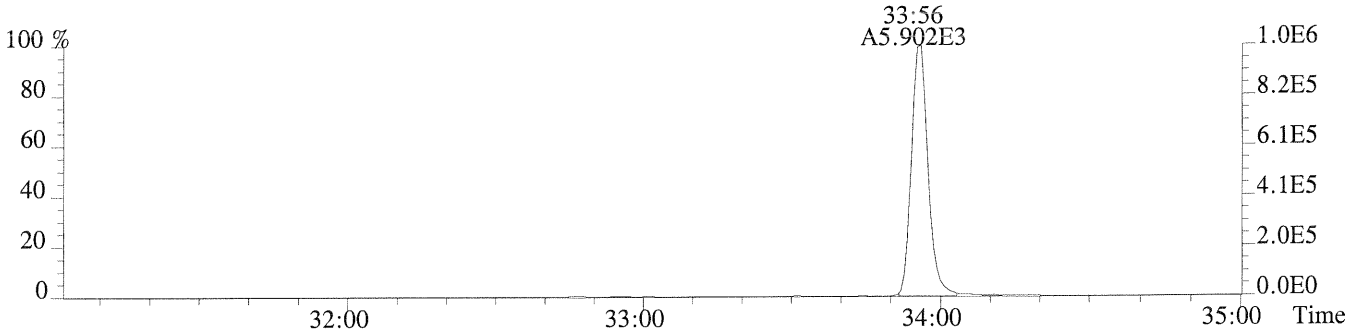
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,32.0,1.00%,F,T)



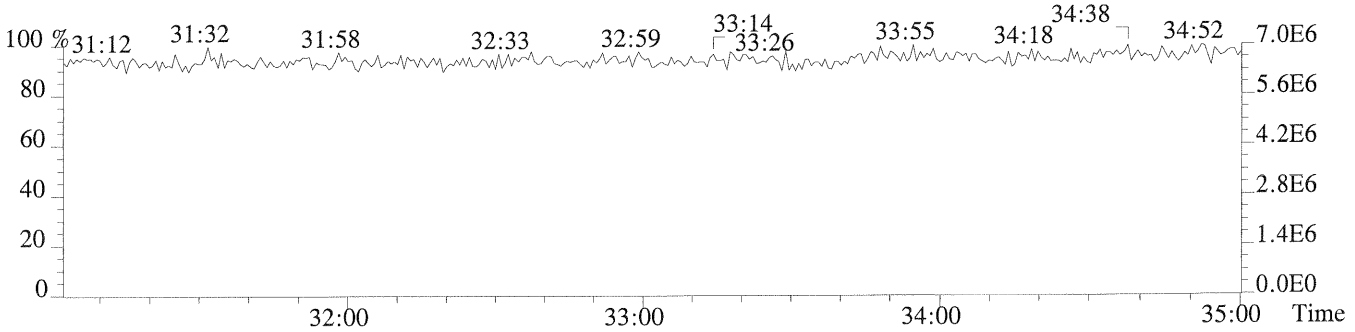
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,276.0,1.00%,F,T)

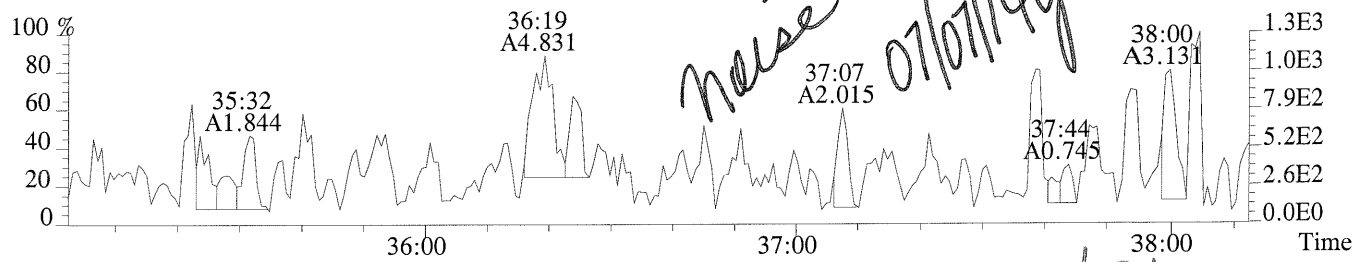


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

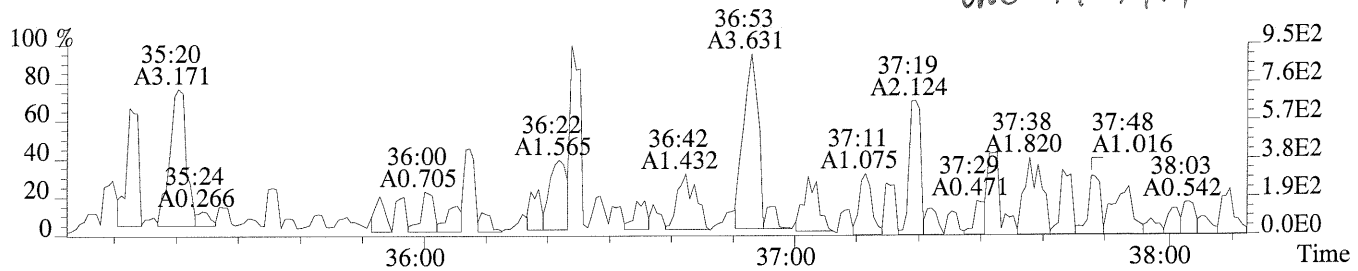


File:P229927 #1-288 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012

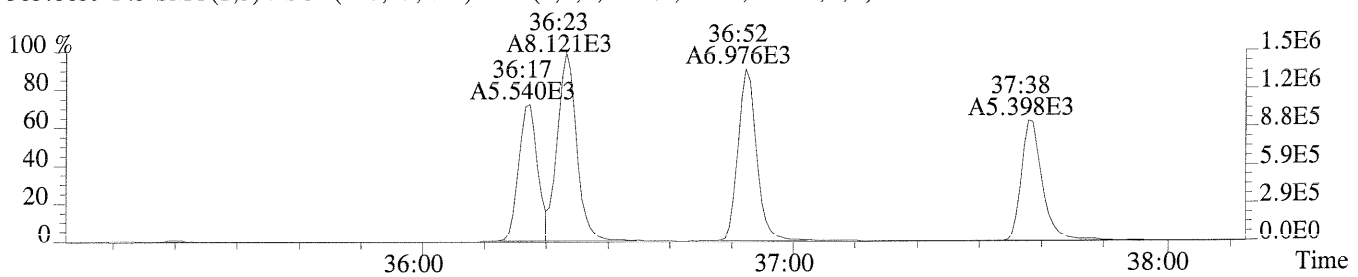
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)



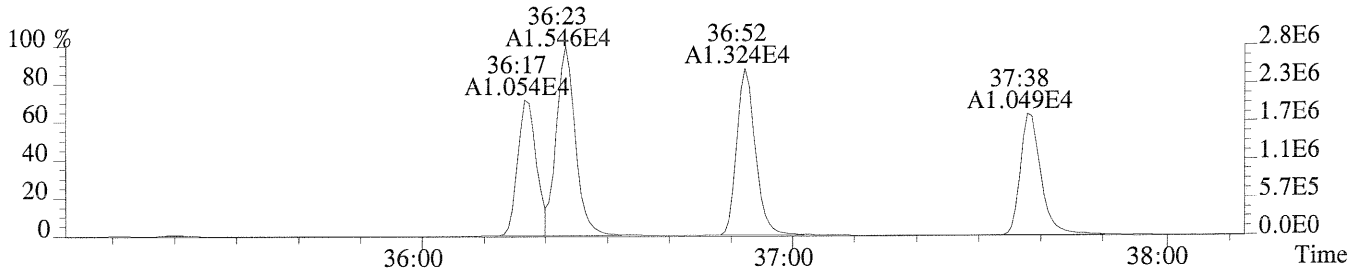
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,76.0,0.40%,F,T)



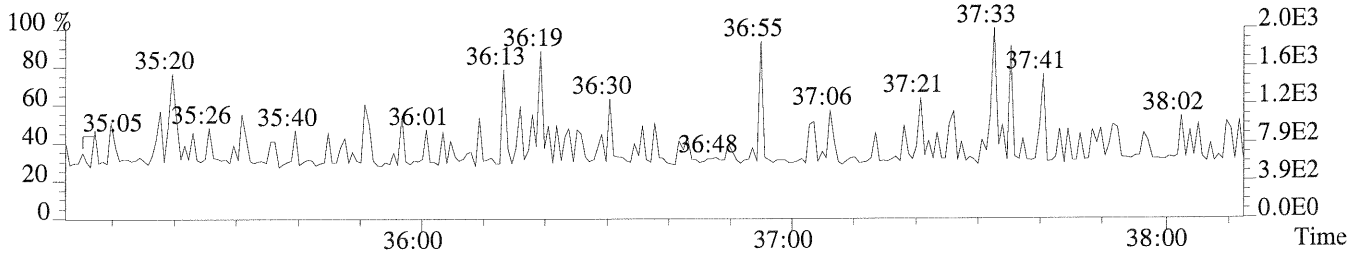
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



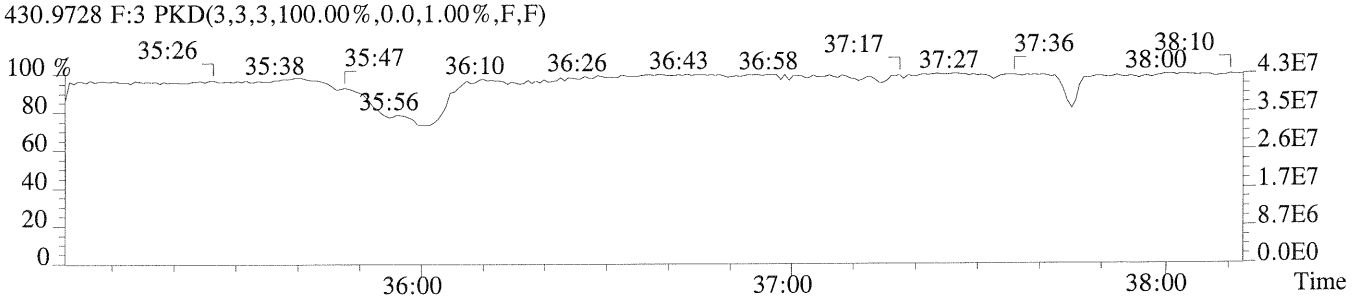
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

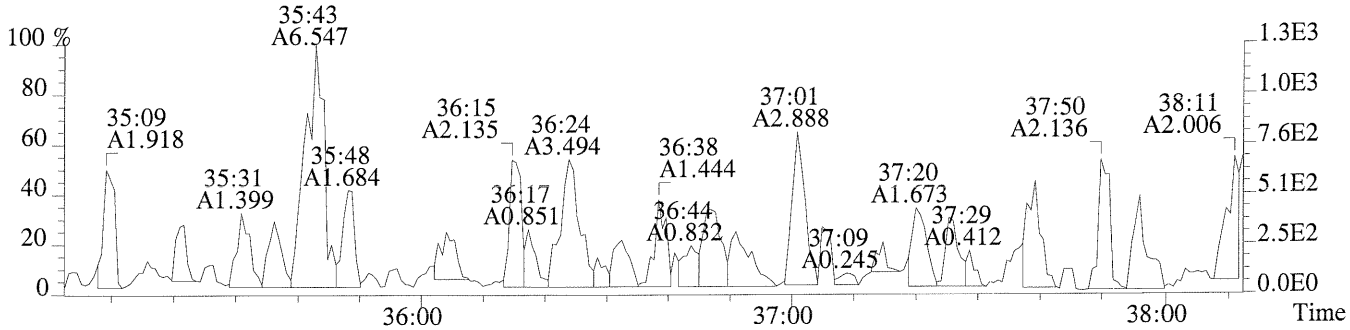


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

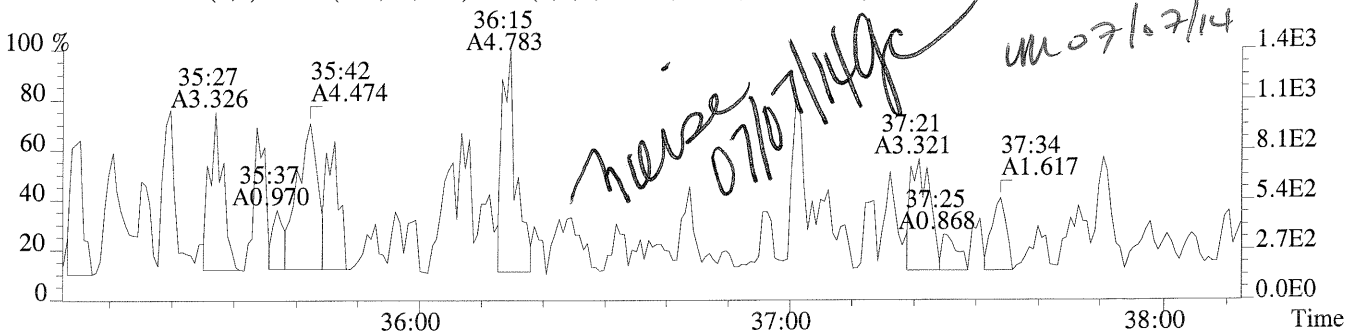


File:P229927 #1-288 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012

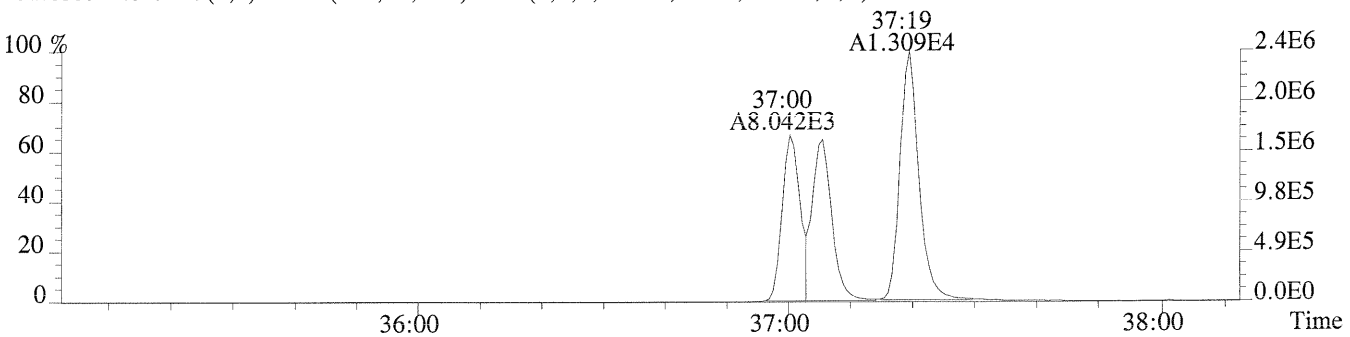
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,104.0,0.40%,F,T)



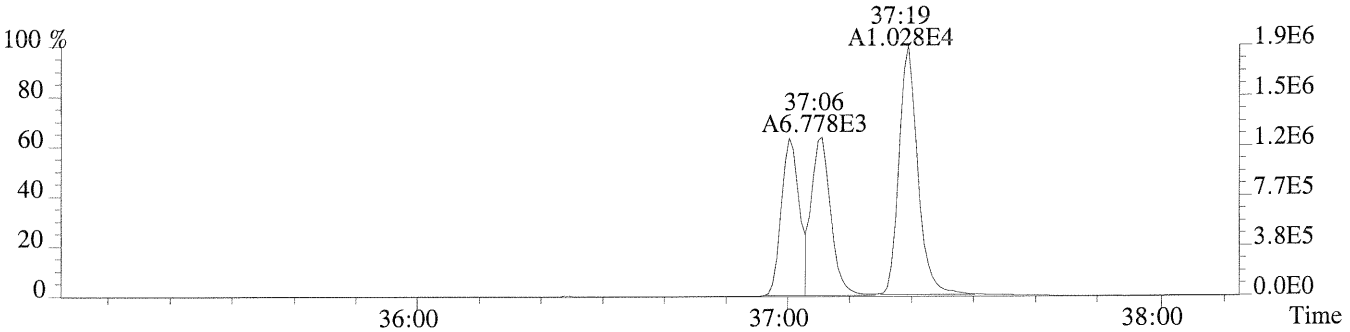
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



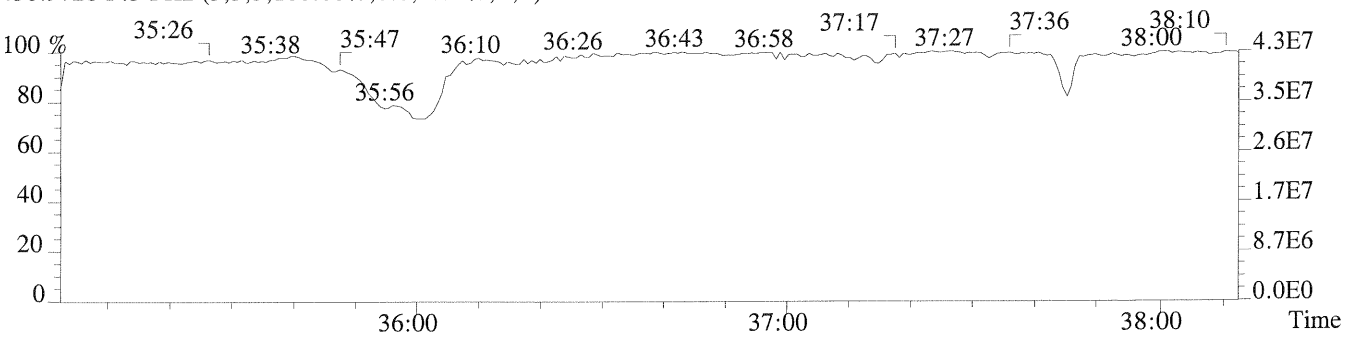
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,448.0,0.40%,F,T)

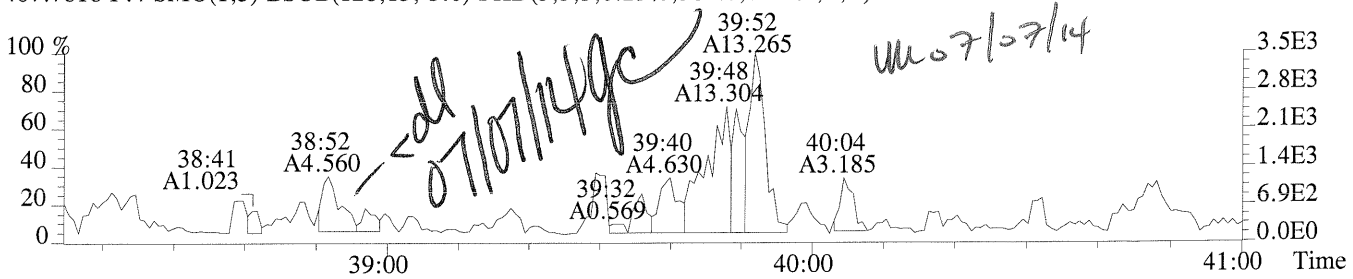


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

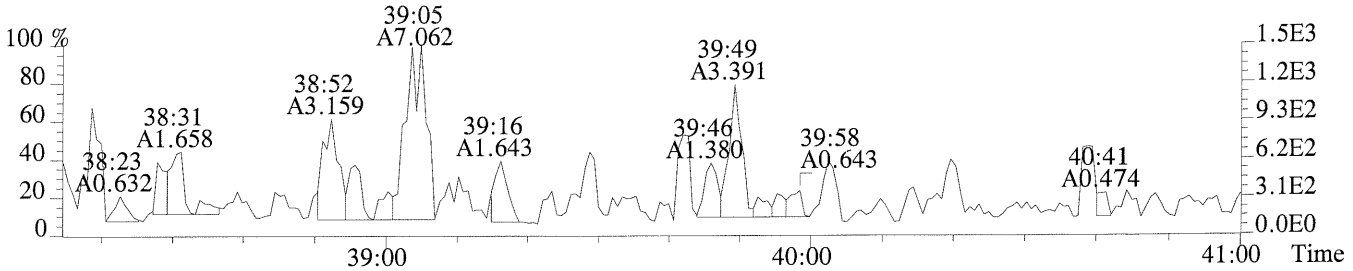


File:P229927 #1-251 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012

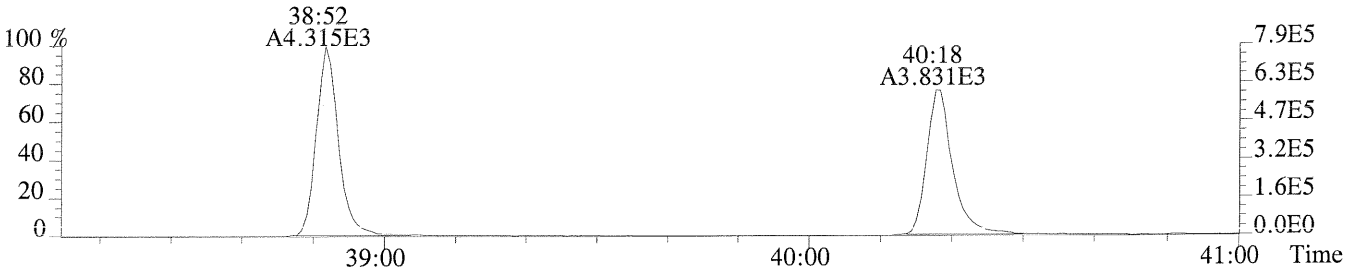
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,384.0,0.50%,F,T)



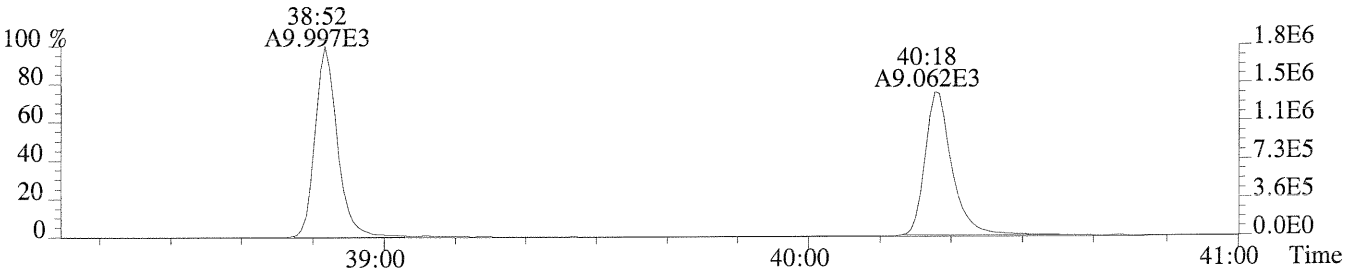
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.50%,F,T)



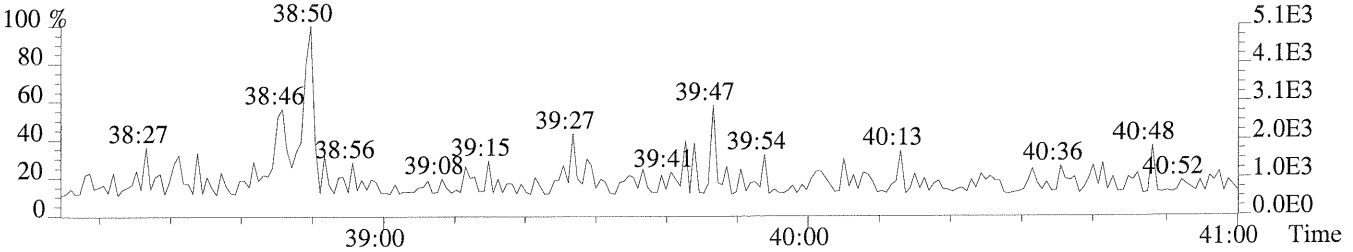
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,356.0,0.50%,F,T)



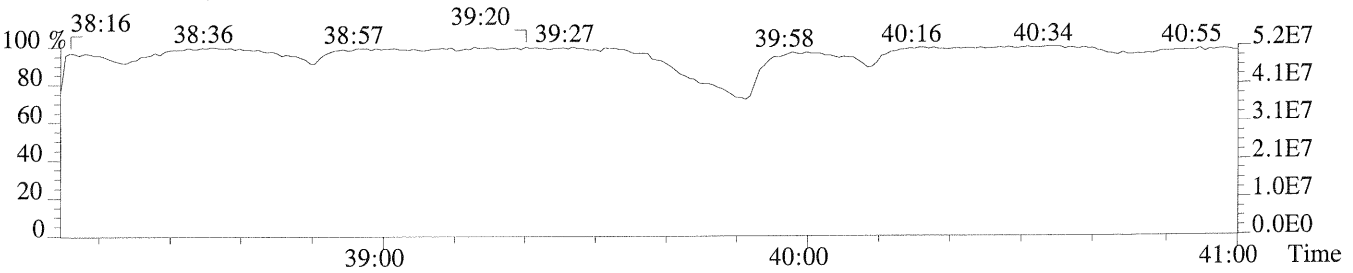
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.50%,F,T)



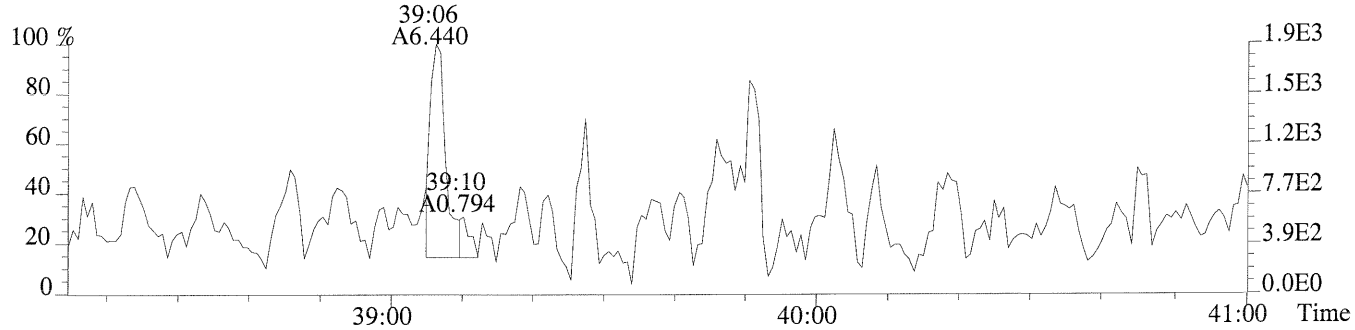
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



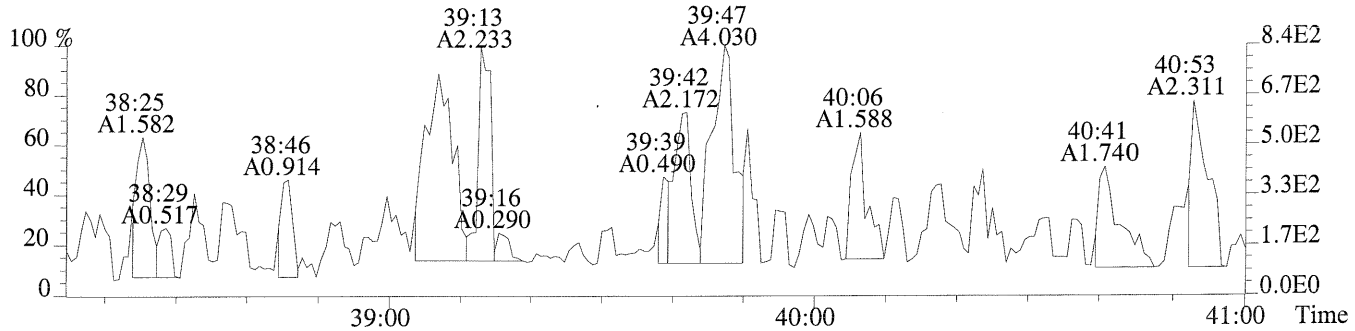
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



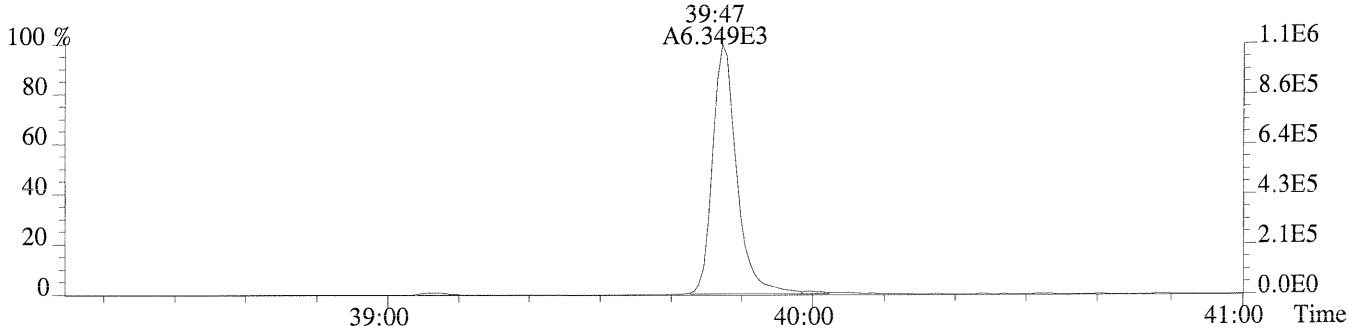
File:P229927 #1-251 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



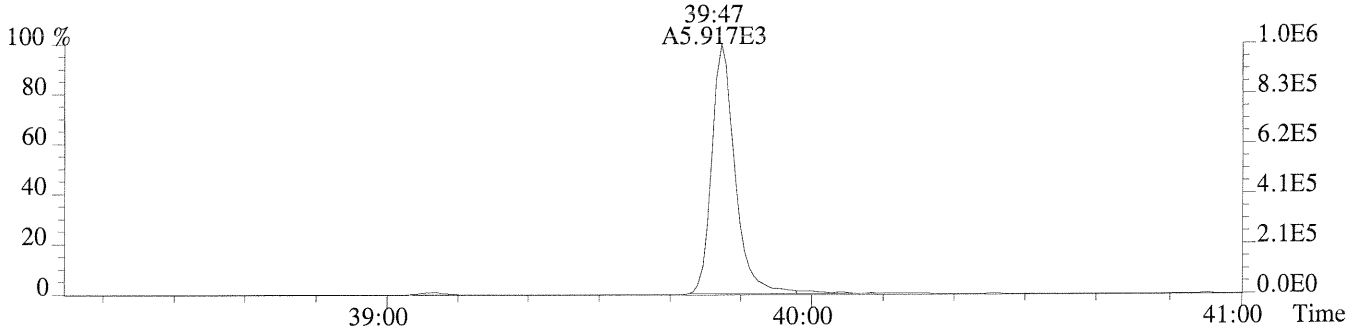
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



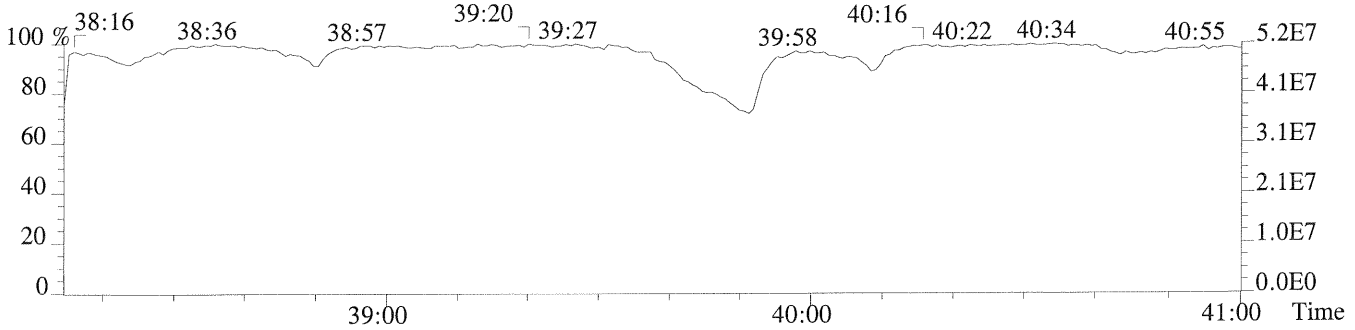
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



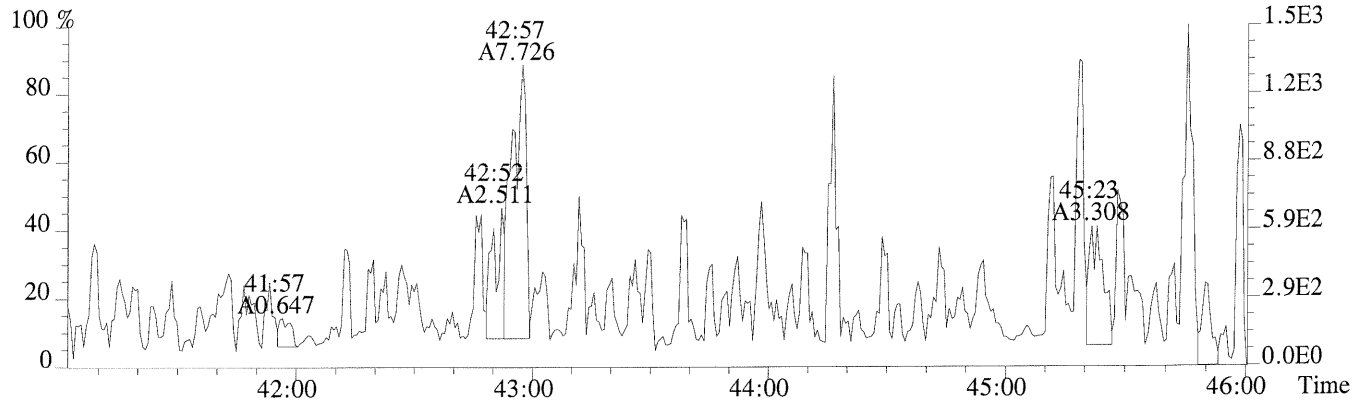
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,164.0,0.40%,F,T)



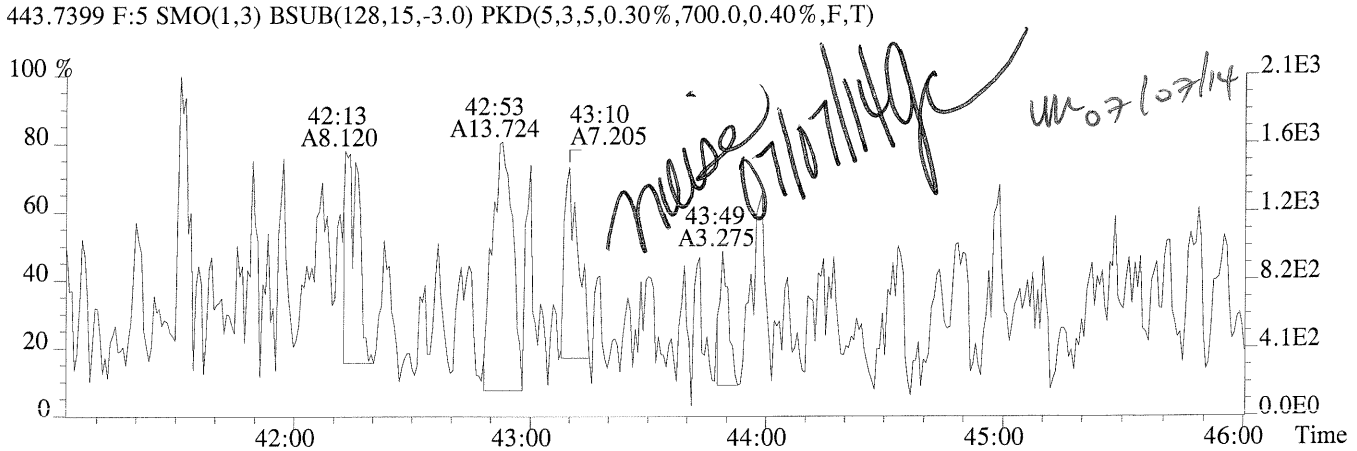
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



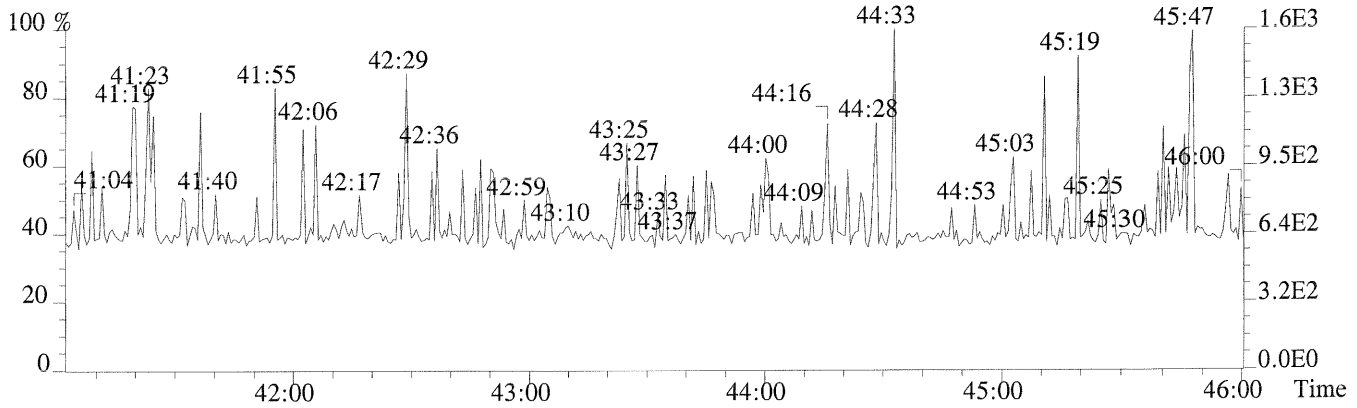
File:P229927 #1-457 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,228.0,0.40%,F,T)



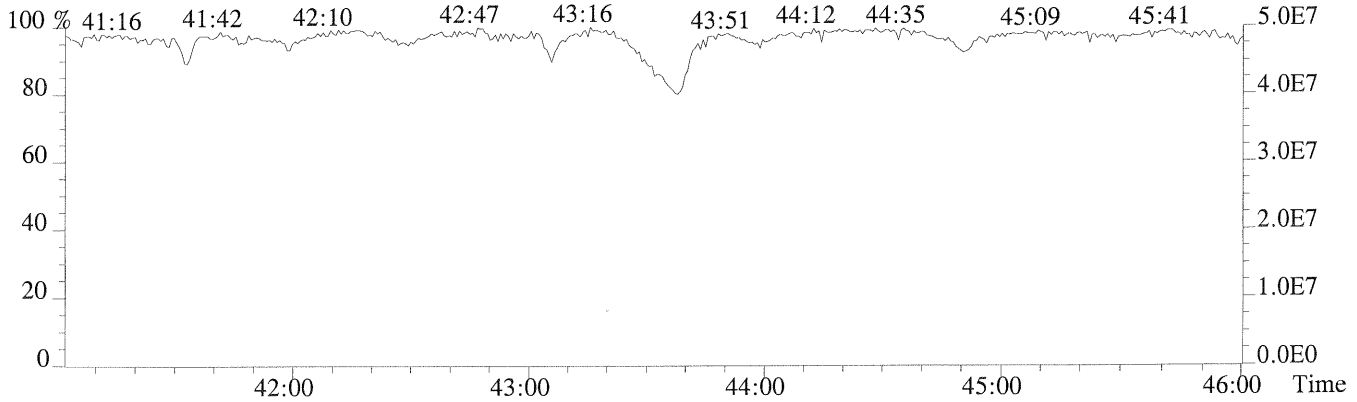
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



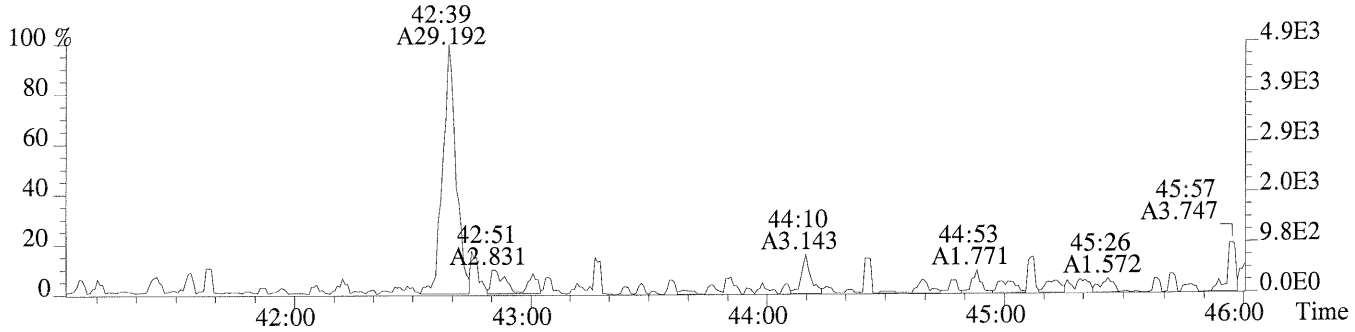
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



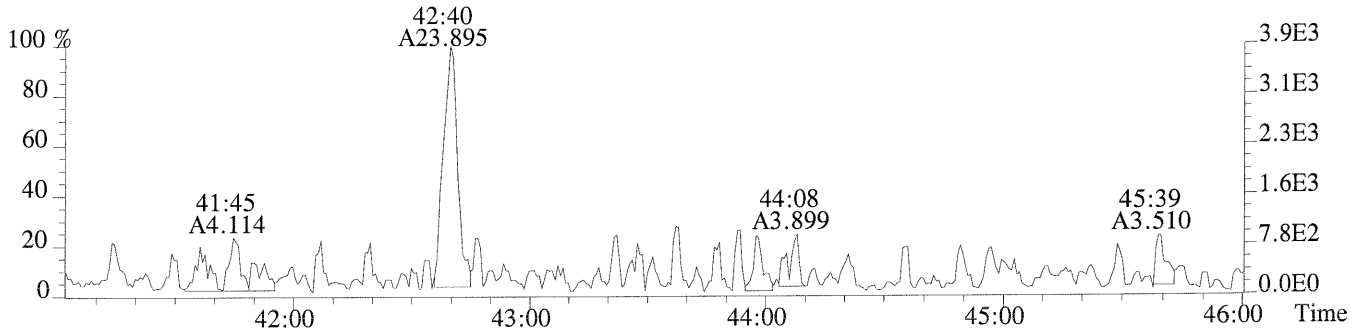
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



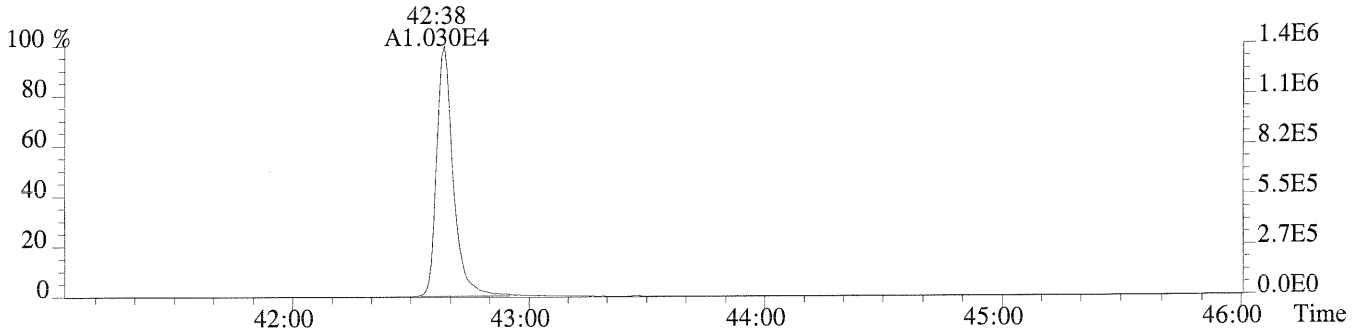
File:P229927 #1-457 Acq: 2-JUL-2014 20:33:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-012
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,80.0,0.40%,F,T)



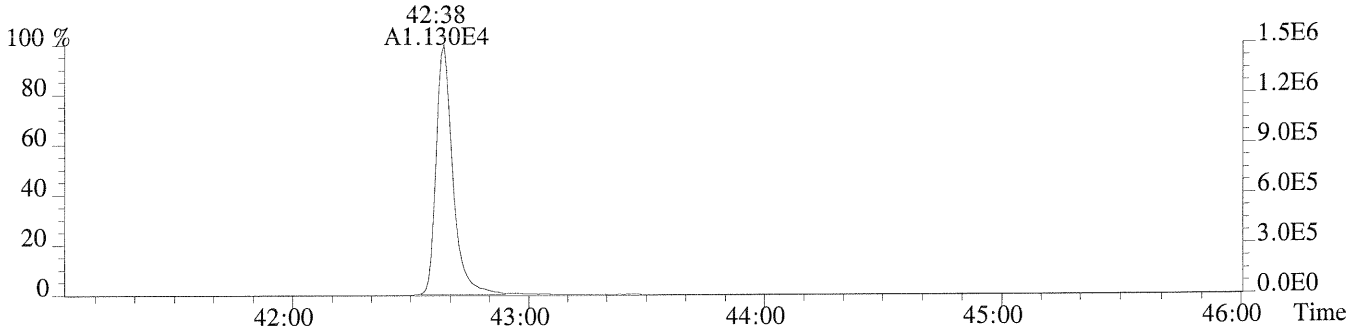
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,308.0,0.40%,F,T)



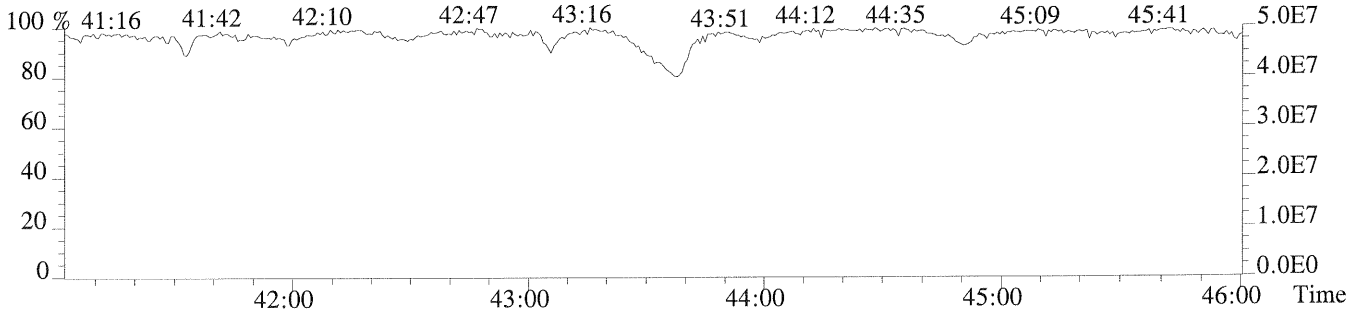
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,392.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406141704 20

Run #13 Filename P229928 Samp: 1 Inj: 1 Acquired: 2-JUL-14 21:21:13
Processed: 3-JUL-14 13:33:28 Sample ID: R1404651-013

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.127
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.123
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.101
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.233
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	8.889e+00	6.233e+00	1.43	no	yes	1.381
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.703
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.053
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	yes	1.069
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.170
17	Unk	OCDD	42:40	2.527e+01	2.297e+01	1.10	no	yes	1.288
18	IS	13C-2,3,7,8-TCDF	28:41	4.842e+03	6.260e+03	0.77	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:47	1.111e+04	6.897e+03	1.61	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:39	1.083e+04	6.692e+03	1.62	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	4.886e+03	9.901e+03	0.49	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	6.983e+03	1.353e+04	0.52	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	6.413e+03	1.200e+04	0.53	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	5.114e+03	9.877e+03	0.52	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	4.169e+03	9.352e+03	0.45	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	3.630e+03	8.732e+03	0.42	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:27	3.289e+03	4.327e+03	0.76	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:56	8.153e+03	5.034e+03	1.62	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	7.194e+03	5.442e+03	1.32	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	8.143e+03	6.220e+03	1.31	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	6.988e+03	6.520e+03	1.07	yes	no	0.935
32	IS	13C-OCDD	42:38	9.185e+03	1.005e+04	0.91	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:51	7.267e+03	9.383e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	1.310e+04	1.057e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:28	2.827e+03				no	0.946

$$\text{OCDD} = \frac{(2.527e+01 + 2.297e+01) \times 4000 \text{ pg} \times 1}{(9.185e+03 + 1.005e+04) \times 10.033\text{g} \times 97.1 \times 1.288} = 0.799 \text{ ng/kg}$$

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1613RESP1

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Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406141704 200-S

Run #13 Filename P229928 Samp: 1 Inj: 1 Acquired: 2-JUL-14 21:21:13
Processed: 3-JUL-14 13:33:281 LAB. ID: R1404651-013

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.20e+01	*	*	1.10e+03	*
2	1,2,3,7,8-PeCDF	*	1.12e+02	*	*	4.24e+02	*
3	2,3,4,7,8-PeCDF	*	1.12e+02	*	*	4.24e+02	*
4	1,2,3,4,7,8-HxCDF	*	5.40e+02	*	*	9.60e+01	*
5	1,2,3,6,7,8-HxCDF	*	5.40e+02	*	*	9.60e+01	*
6	2,3,4,6,7,8-HxCDF	*	5.40e+02	*	*	9.60e+01	*
7	1,2,3,7,8,9-HxCDF	*	5.40e+02	*	*	9.60e+01	*
8	1,2,3,4,6,7,8-HpCDF	*	2.92e+02	*	*	2.28e+02	*
9	1,2,3,4,7,8,9-HpCDF	1.82e+03	2.92e+02	6.2e+00	9.16e+02	2.28e+02	4.0e+00
10	OCDF	*	2.00e+02	*	*	7.04e+02	*
11	2,3,7,8-TCDD	*	4.56e+02	*	*	5.16e+02	*
12	1,2,3,7,8-PeCDD	*	5.64e+02	*	*	7.20e+01	*
13	1,2,3,4,7,8-HxCDD	*	1.20e+02	*	*	3.36e+02	*
14	1,2,3,6,7,8-HxCDD	*	1.20e+02	*	*	3.36e+02	*
15	1,2,3,7,8,9-HxCDD	*	1.20e+02	*	*	3.36e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	5.60e+02	*	*	2.44e+02	*
17	OCDD	3.59e+03	1.48e+02	2.4e+01	2.89e+03	2.80e+02	1.0e+01
18	13C-2,3,7,8-TCDF	8.98e+05	5.04e+02	1.8e+03	1.15e+06	4.92e+02	2.3e+03
19	13C-1,2,3,7,8-PeCDF	1.87e+06	3.76e+02	5.0e+03	1.16e+06	2.68e+02	4.3e+03
20	13C-2,3,4,7,8-PeCDF	1.89e+06	3.76e+02	5.0e+03	1.18e+06	2.68e+02	4.4e+03
21	13C-1,2,3,4,7,8-HxCDF	9.14e+05	2.84e+02	3.2e+03	1.87e+06	7.20e+02	2.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.25e+06	2.84e+02	4.4e+03	2.46e+06	7.20e+02	3.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.19e+06	2.84e+02	4.2e+03	2.25e+06	7.20e+02	3.1e+03
24	13C-1,2,3,7,8,9-HxCDF	9.09e+05	2.84e+02	3.2e+03	1.71e+06	7.20e+02	2.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.35e+05	1.02e+03	7.2e+02	1.68e+06	1.48e+03	1.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.59e+05	1.02e+03	5.5e+02	1.37e+06	1.48e+03	9.3e+02
27	13C-2,3,7,8-TCDD	6.35e+05	2.14e+03	3.0e+02	8.44e+05	8.28e+02	1.0e+03
28	13C-1,2,3,7,8-PeCDD	1.41e+06	5.16e+02	2.7e+03	8.64e+05	3.04e+02	2.8e+03
29	13C-1,2,3,4,7,8-HxCDD	1.45e+06	3.76e+02	3.8e+03	1.10e+06	2.12e+02	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.45e+06	3.76e+02	3.9e+03	1.13e+06	2.12e+02	5.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.14e+06	7.12e+02	1.6e+03	1.08e+06	1.52e+02	7.1e+03
32	13C-OCDD	1.21e+06	3.20e+02	3.8e+03	1.34e+06	2.64e+02	5.1e+03
33	13C-1,2,3,4-TCDD	1.43e+06	2.14e+03	6.7e+02	1.84e+06	8.28e+02	2.2e+03
34	13C-1,2,3,7,8,9-HxCDD	2.42e+06	3.76e+02	6.4e+03	1.93e+06	2.12e+02	9.1e+03
35	37Cl-2,3,7,8-TCDD	5.51e+05	9.60e+01	5.7e+03			

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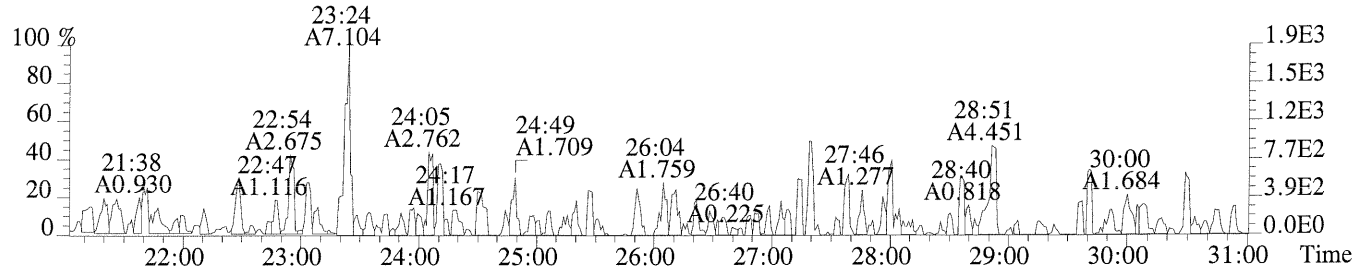
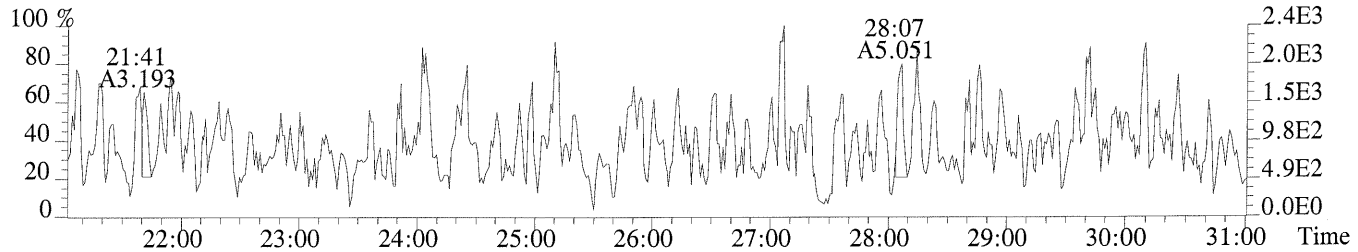
File:P229928 #1-627 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-013

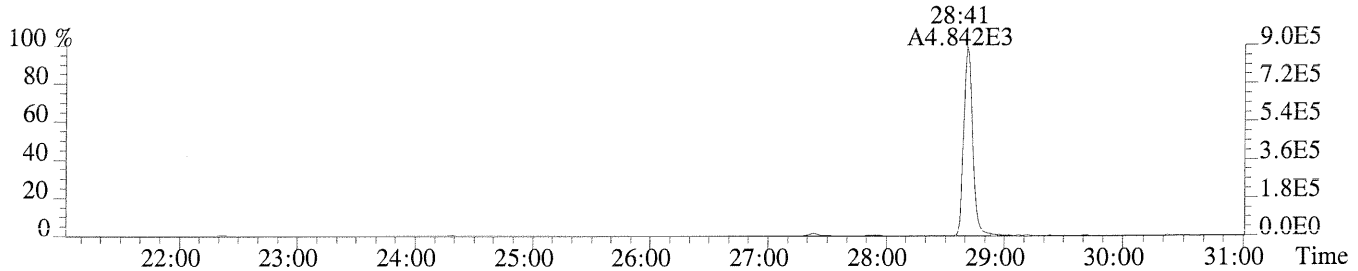
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,52.0,1.00%,F,T)



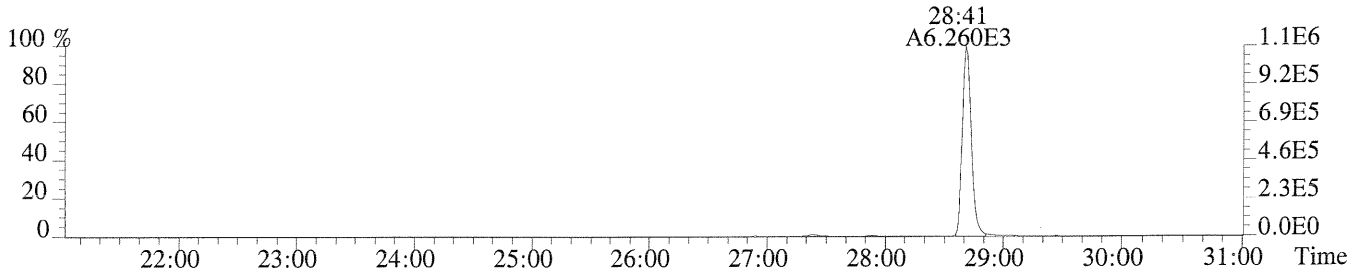
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



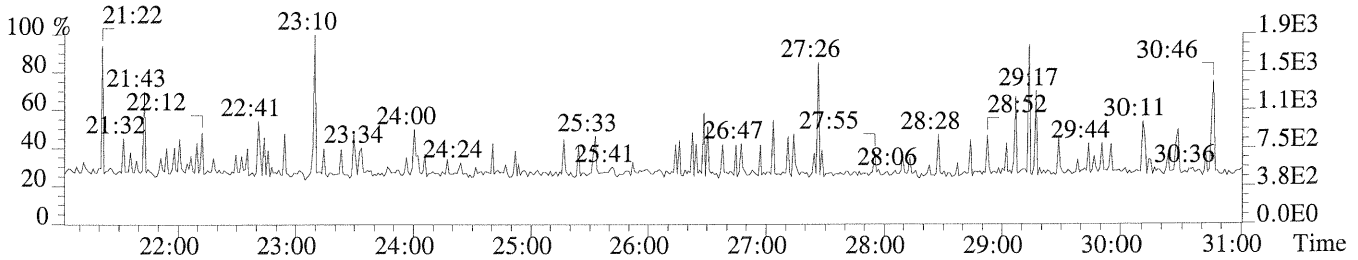
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



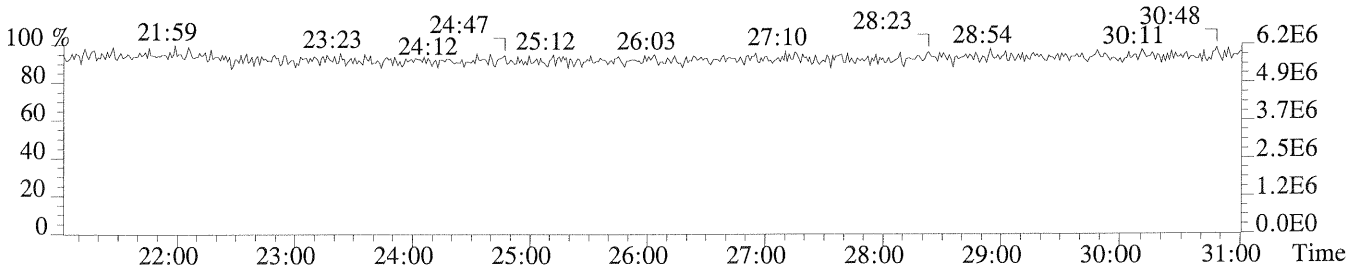
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

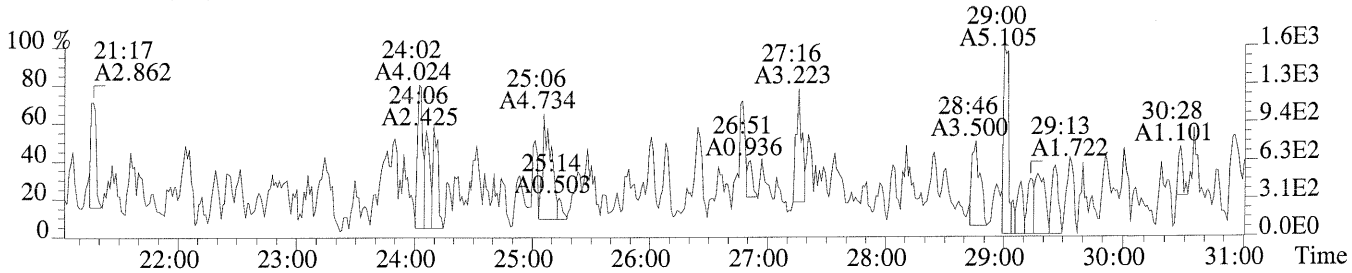


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

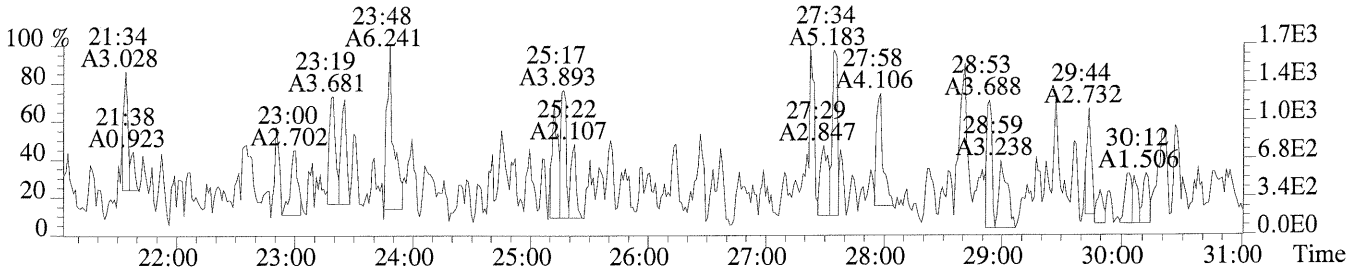


File:P229928 #1-627 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-013

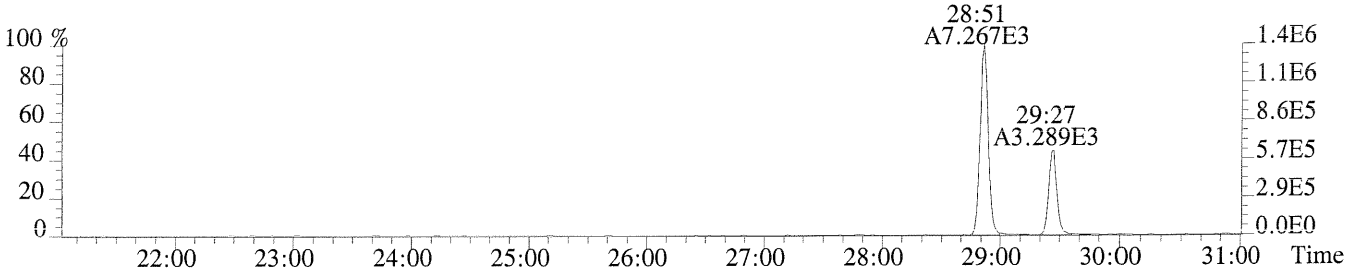
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



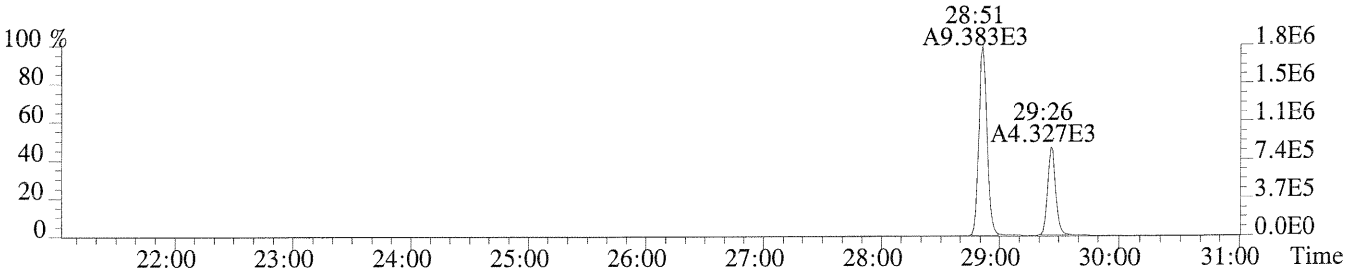
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



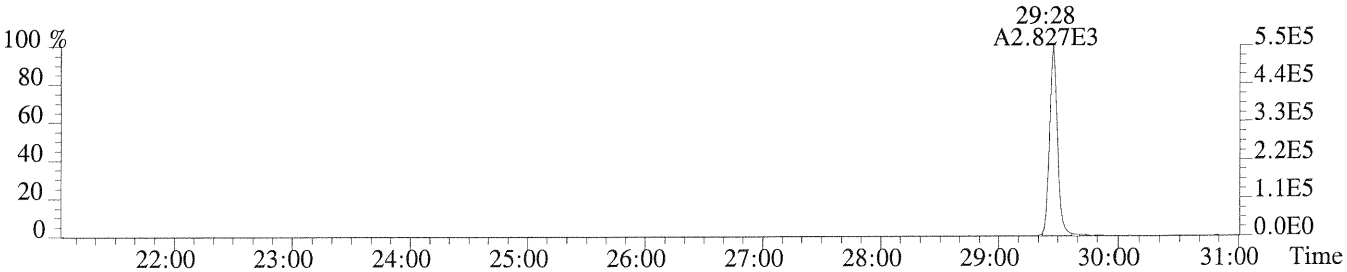
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2140.0,1.00%,F,T)



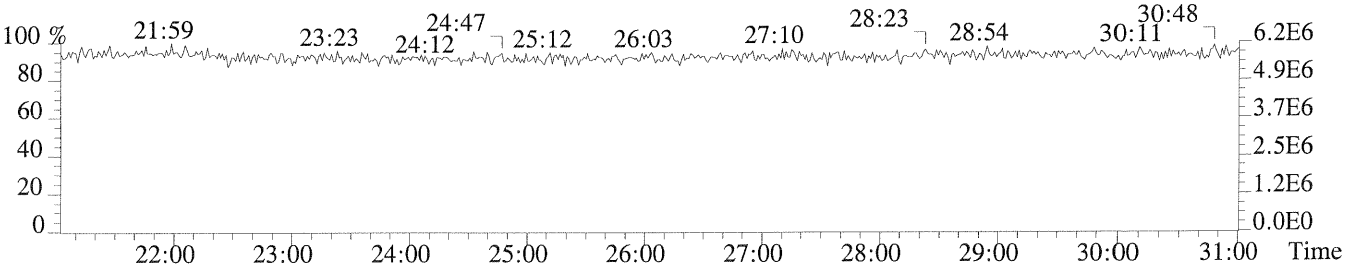
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)

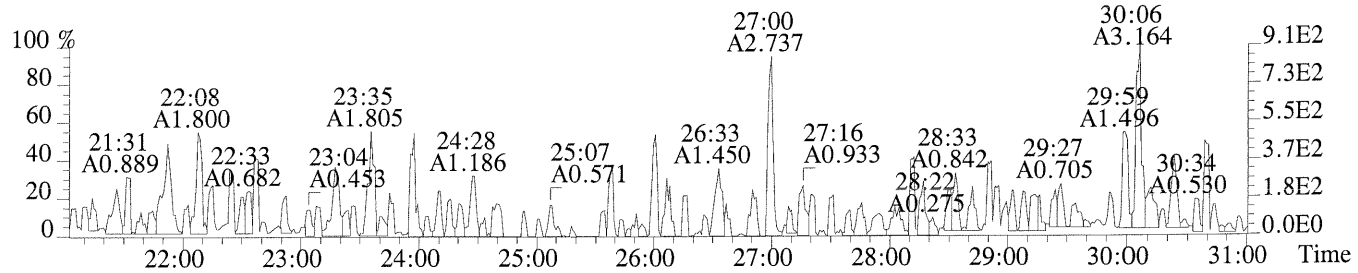


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

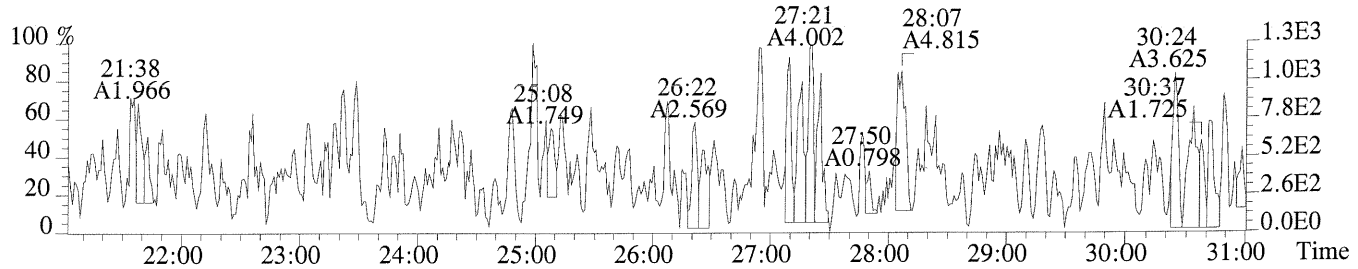


File:P229928 #1-627 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-013

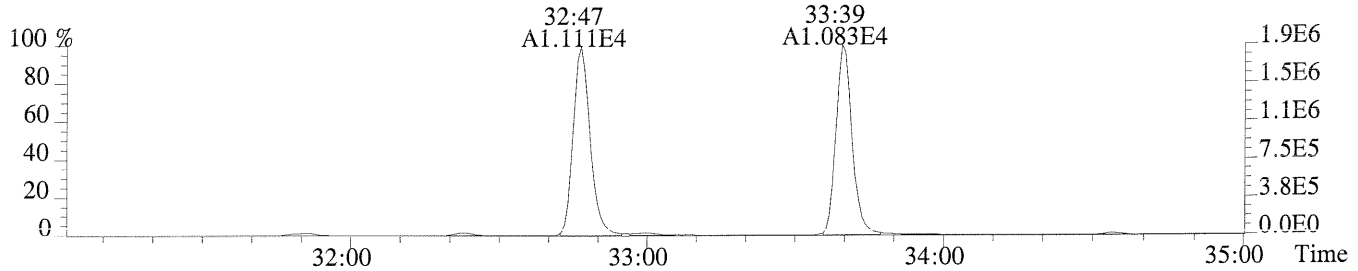
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,48.0,1.00%,F,T)



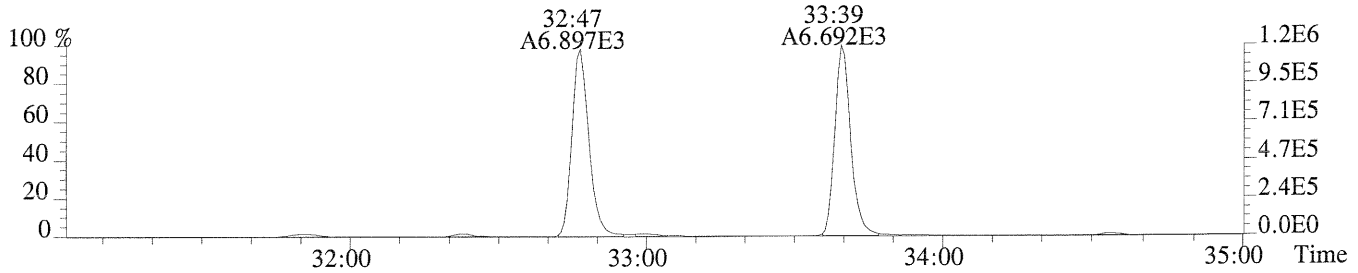
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



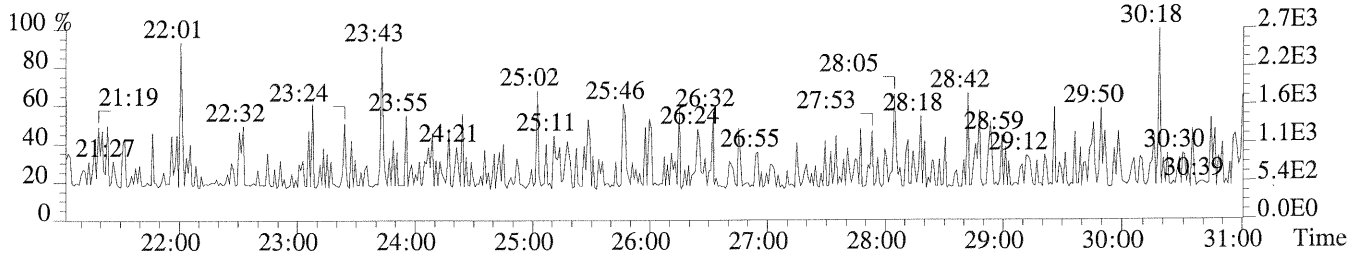
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



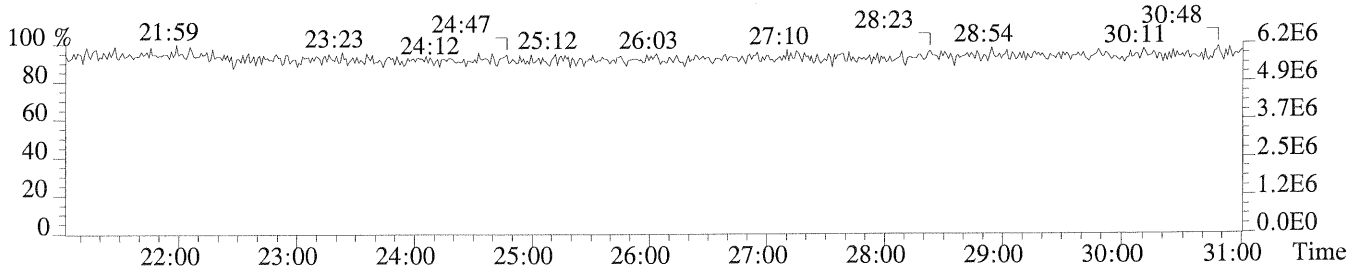
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

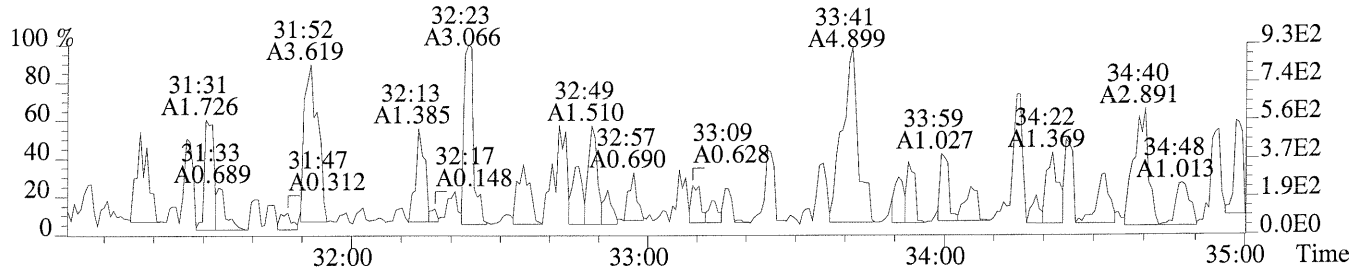


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

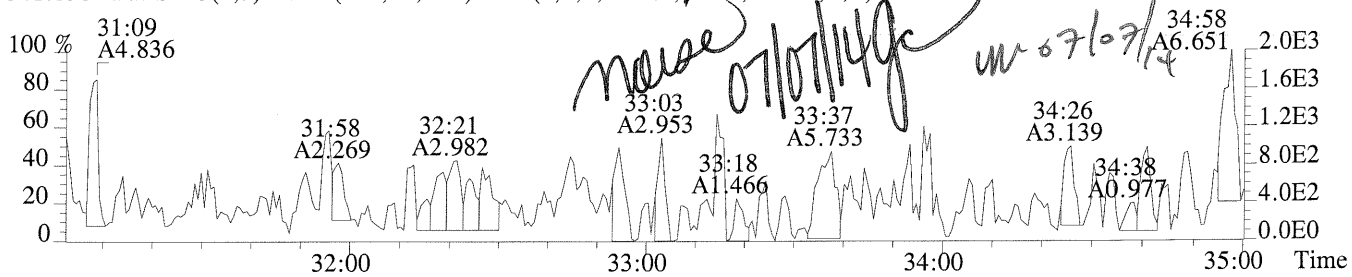


File:P229928 #1-360 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-013

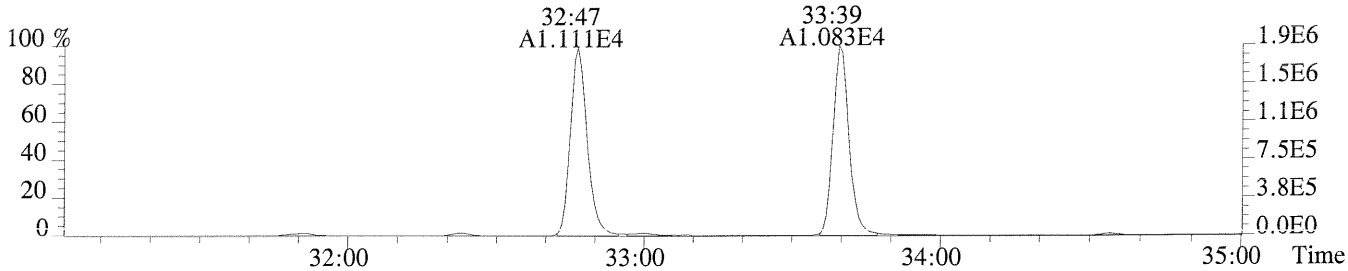
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,112.0,1.00%,F,T)



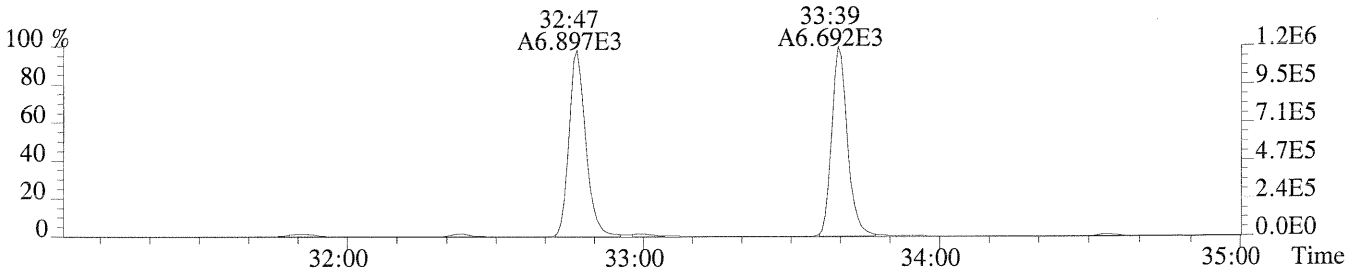
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



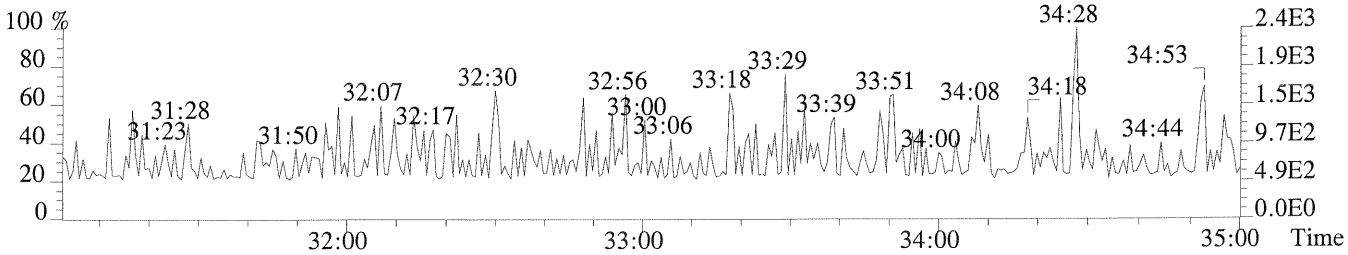
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



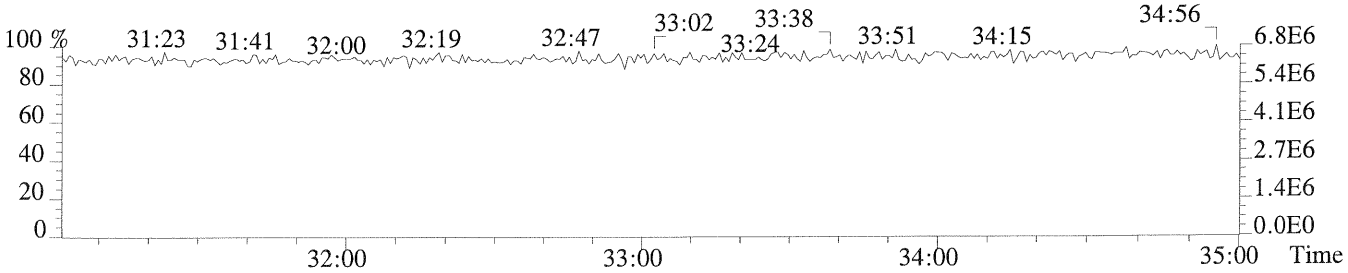
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,268.0,1.00%,F,T)



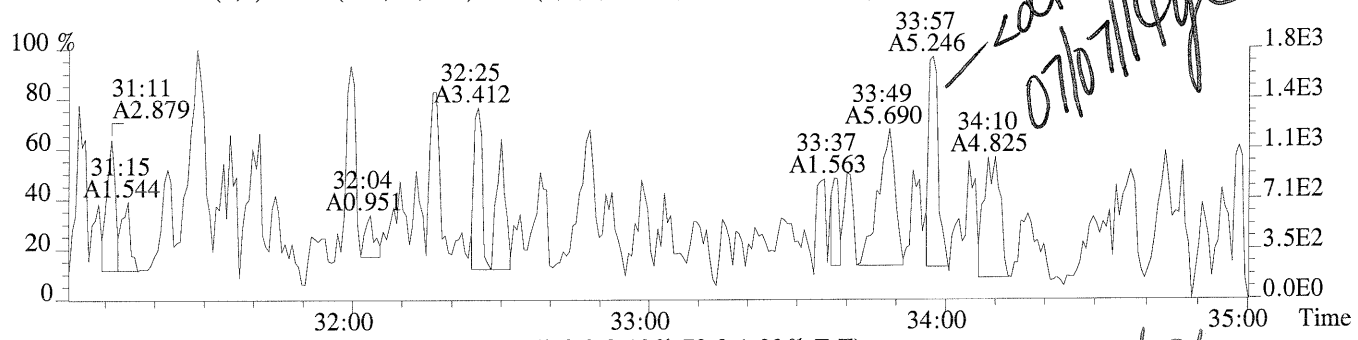
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



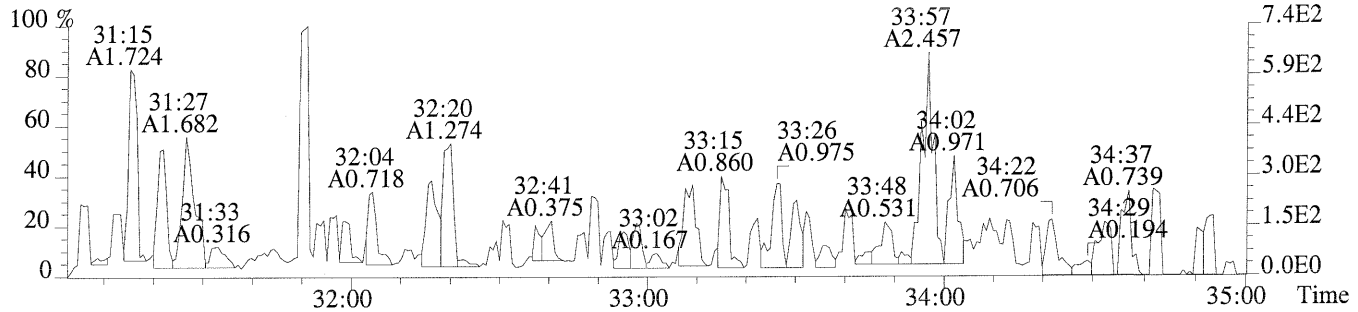
File:P229928 #1-360 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:R1404651-013
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



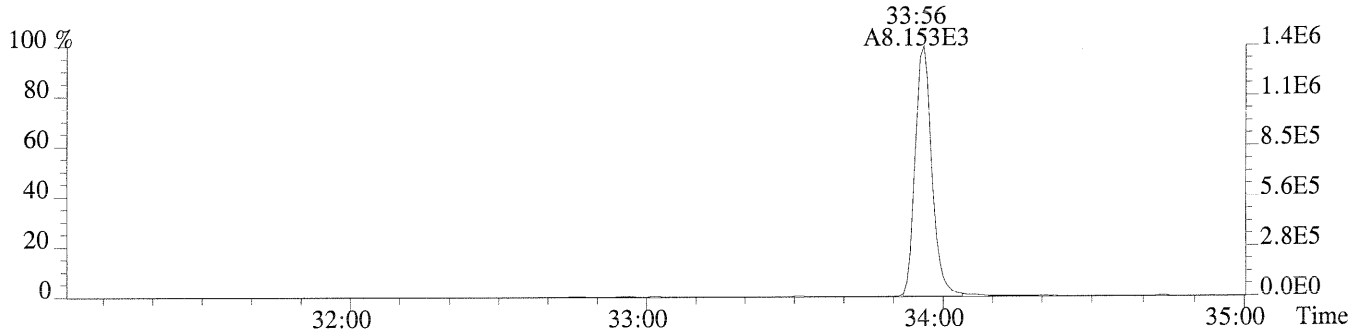
zdl. 07/07/14 gc

357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,72.0,1.00%,F,T)

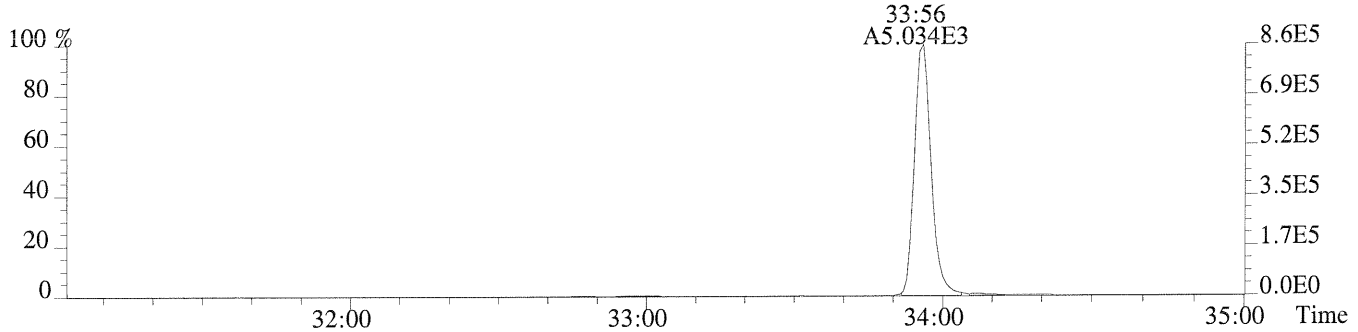
MM 07/07/14



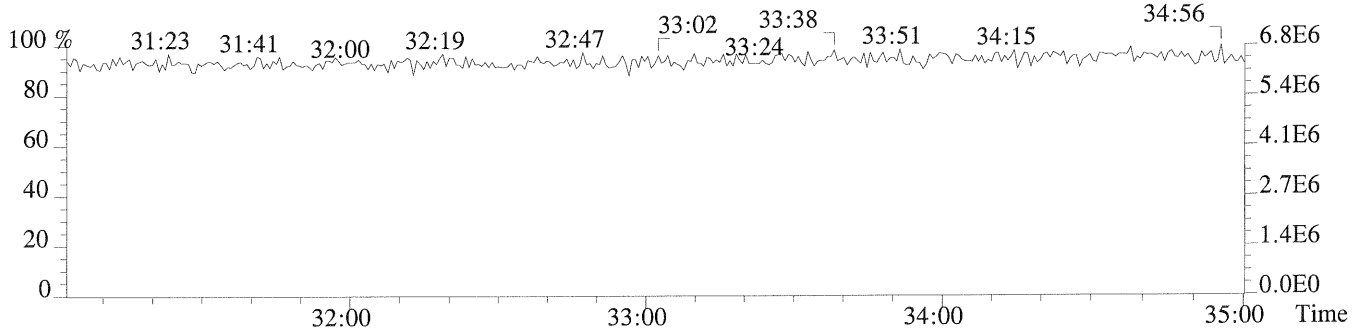
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)

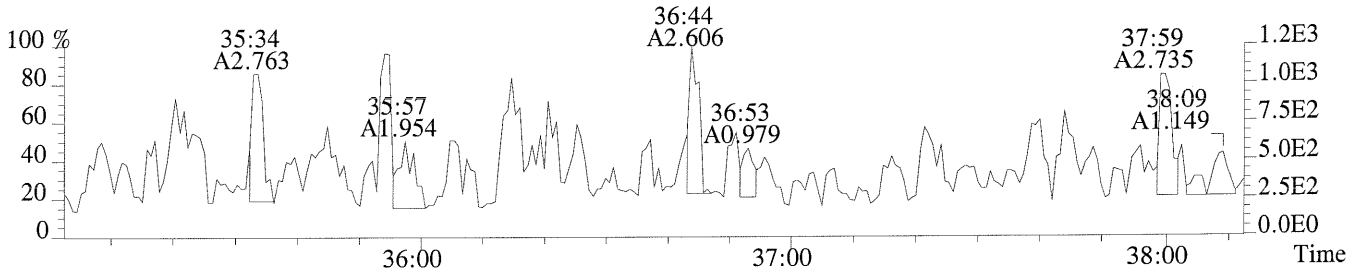


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

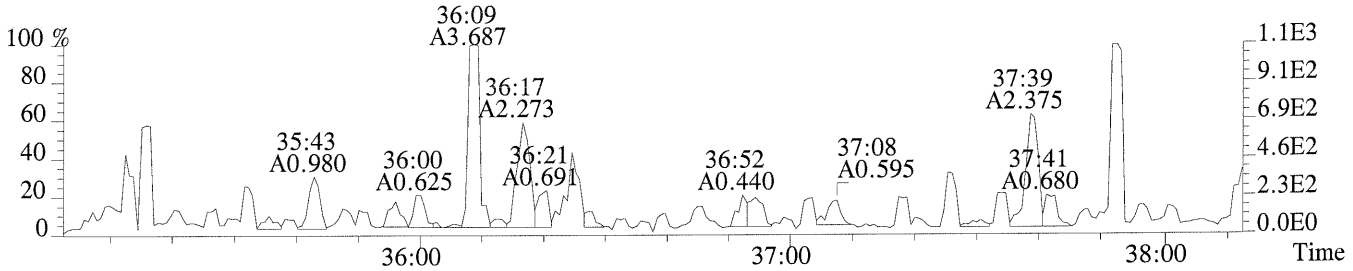


File:P229928 #1-288 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-013

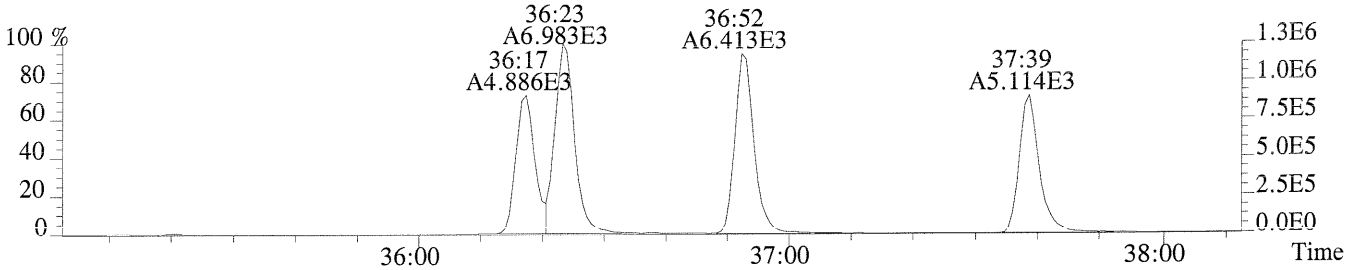
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



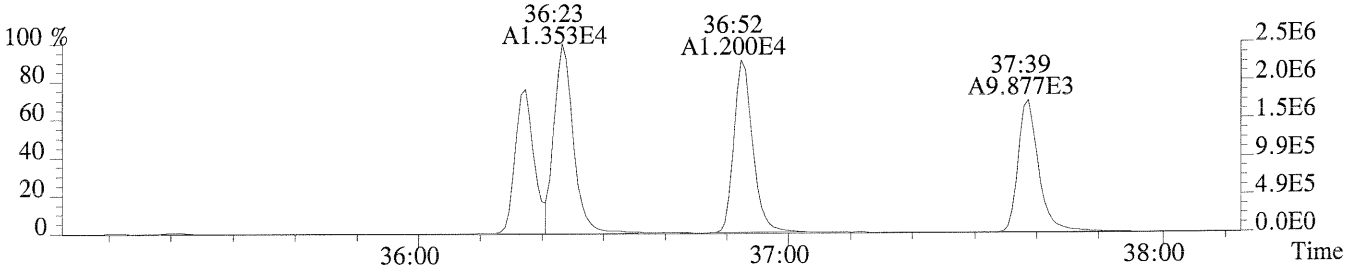
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,96.0,0.40%,F,T)



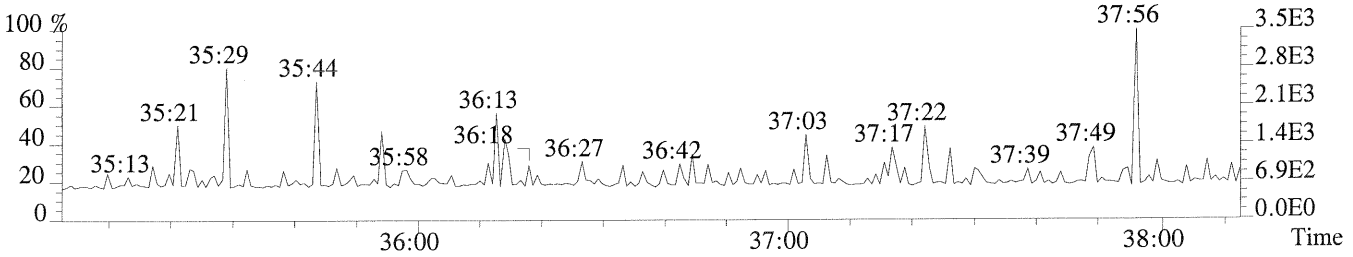
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



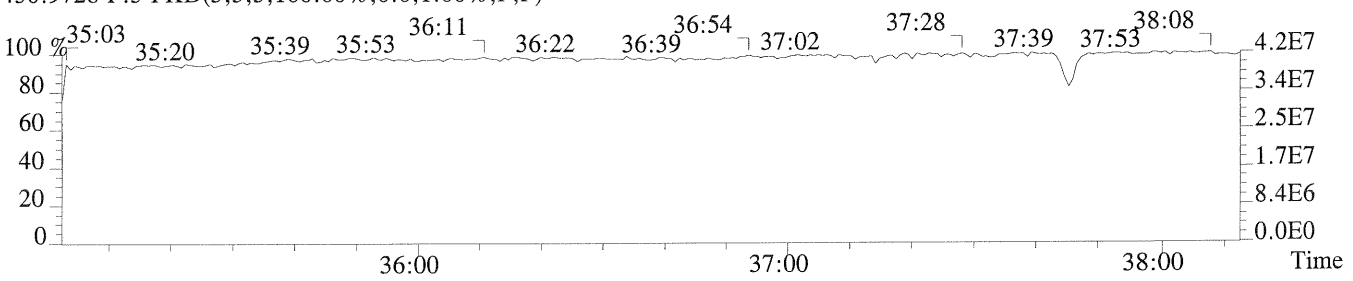
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



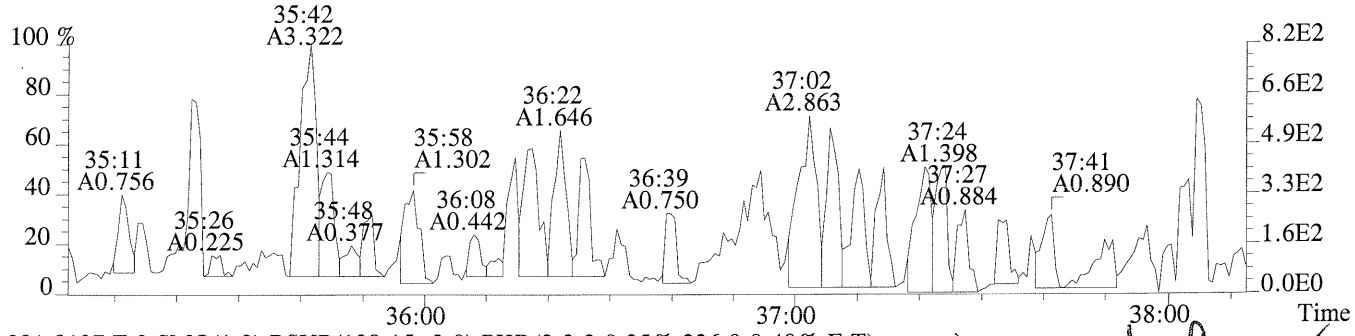
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



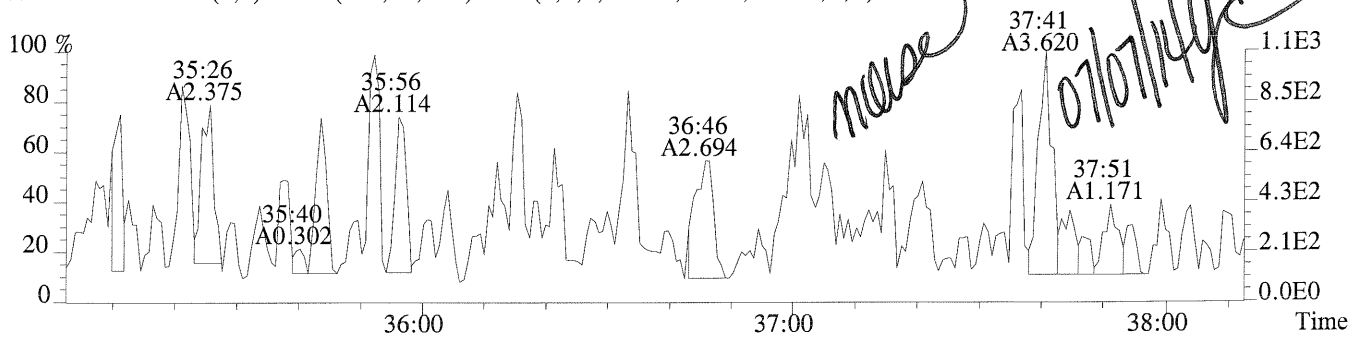
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229928 #1-288 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-013
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,120.0,0.40%,F,T)

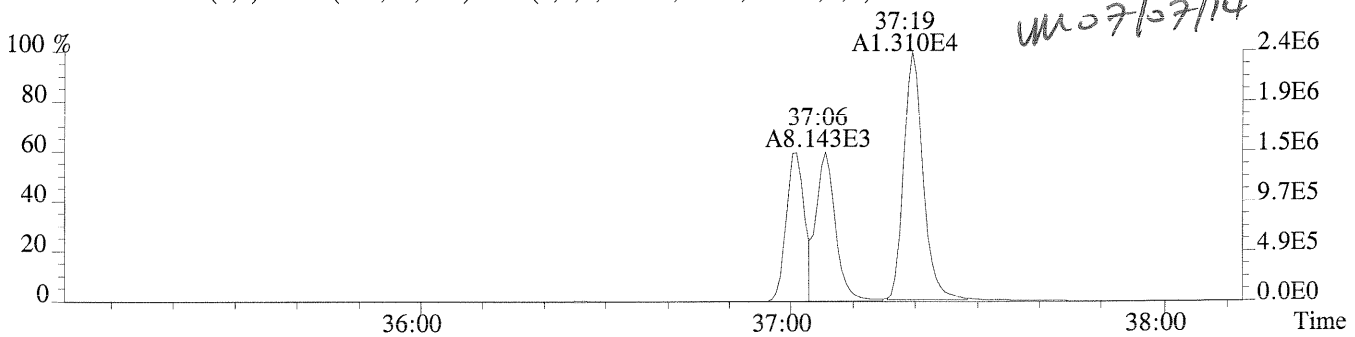


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



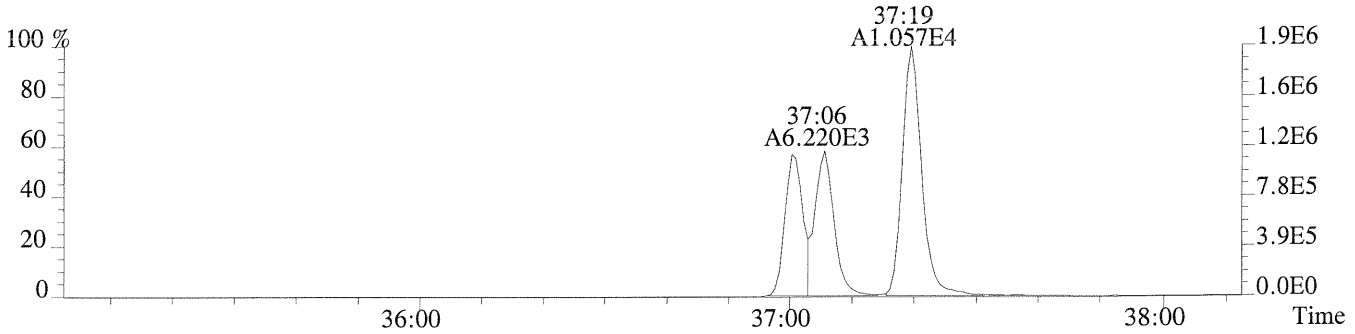
mcl 07/07/14

401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,376.0,0.40%,F,T)

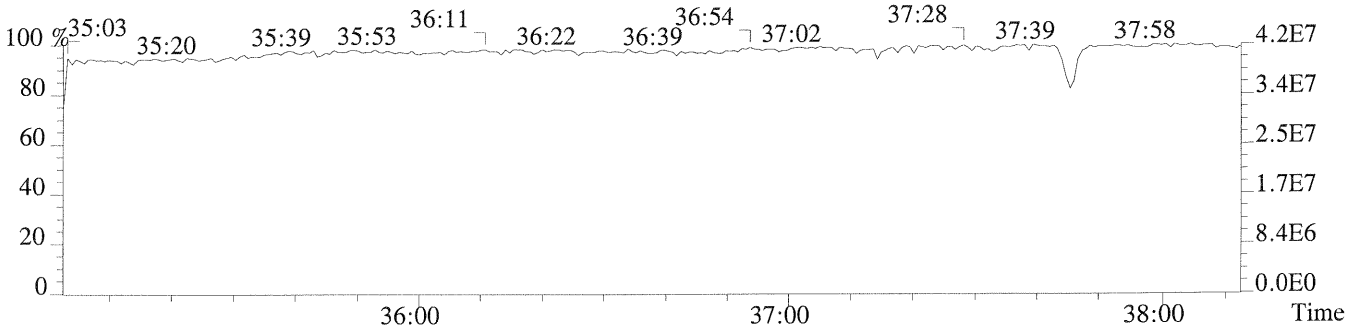


MM 07/07/14

403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,212.0,0.40%,F,T)

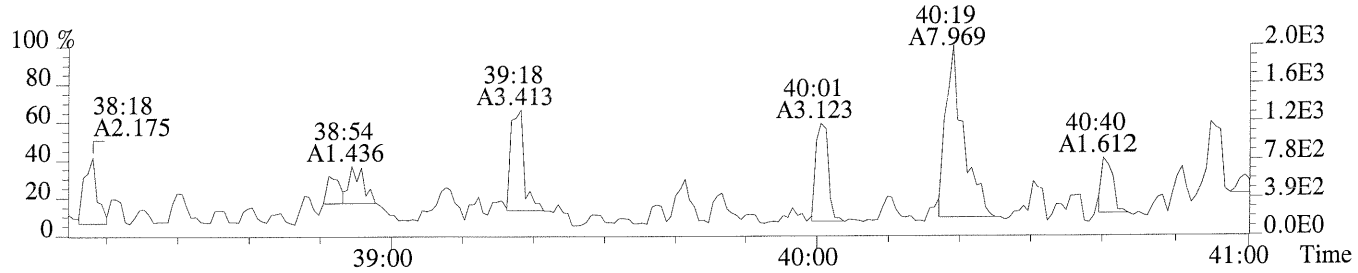


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

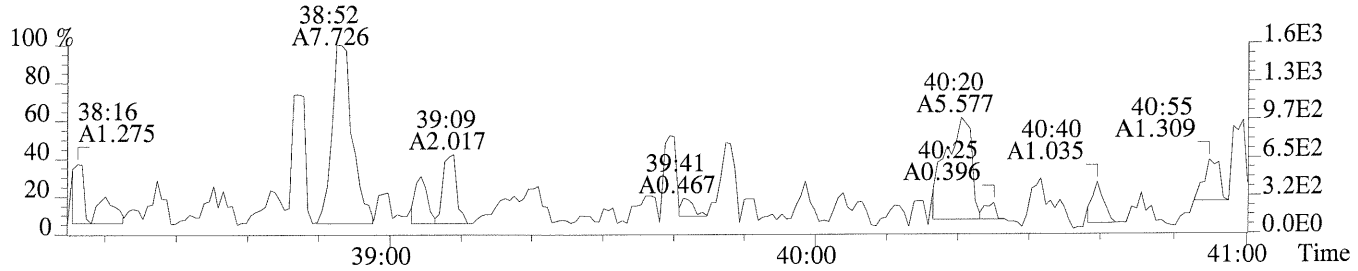


File:P229928 #1-251 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-013

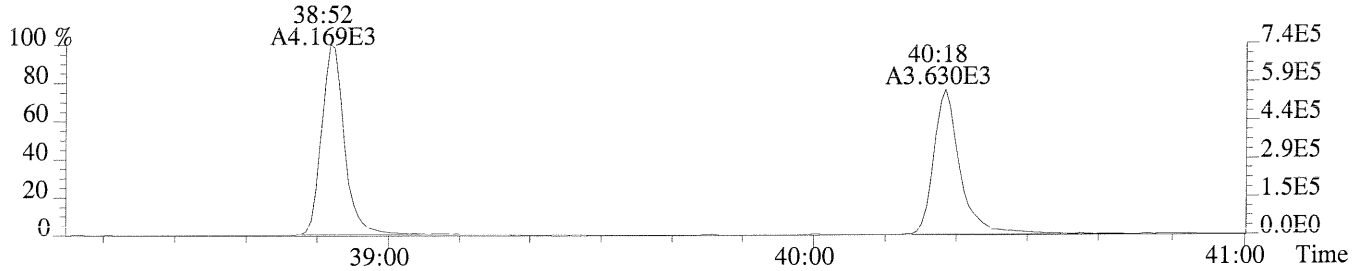
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.50%,F,T)



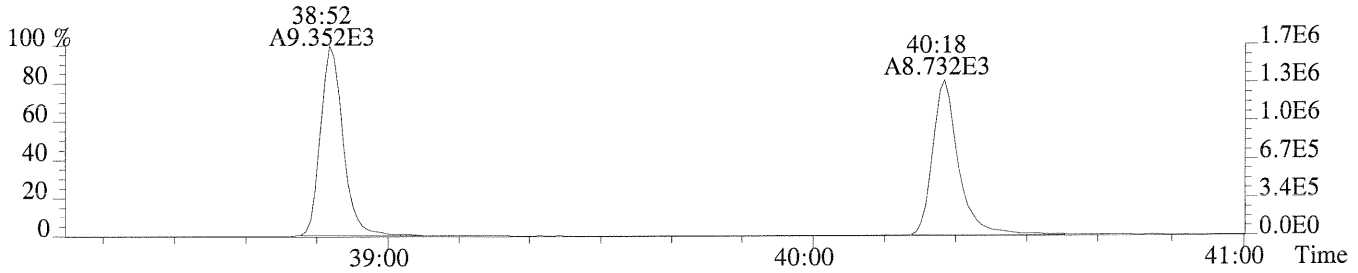
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.50%,F,T)



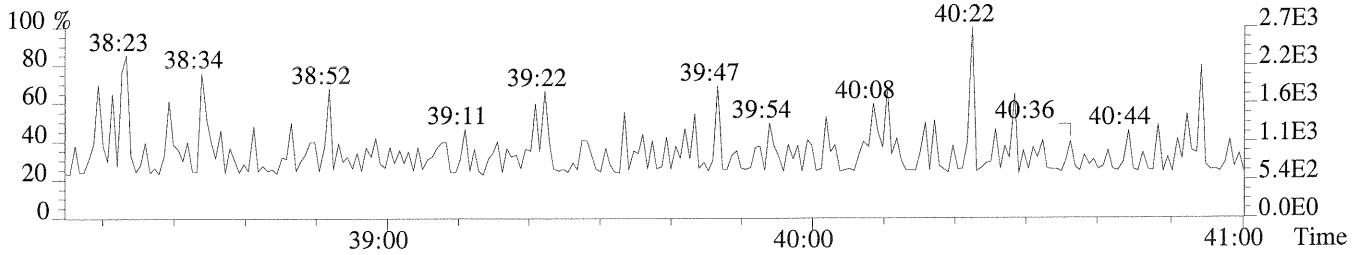
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.50%,F,T)



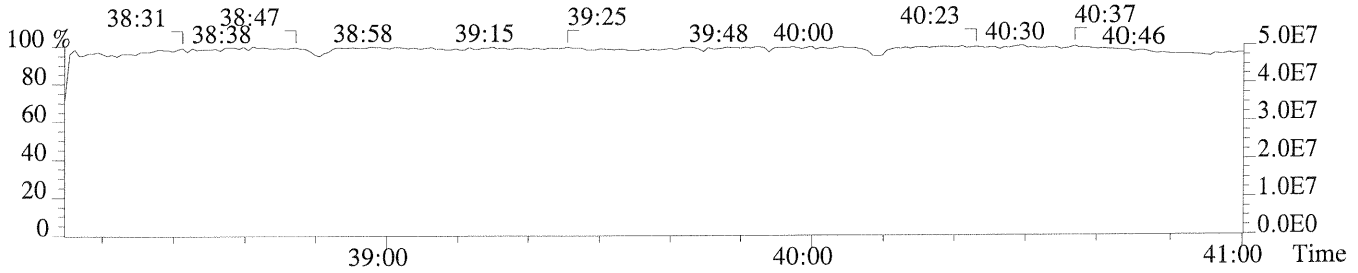
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1476.0,0.50%,F,T)



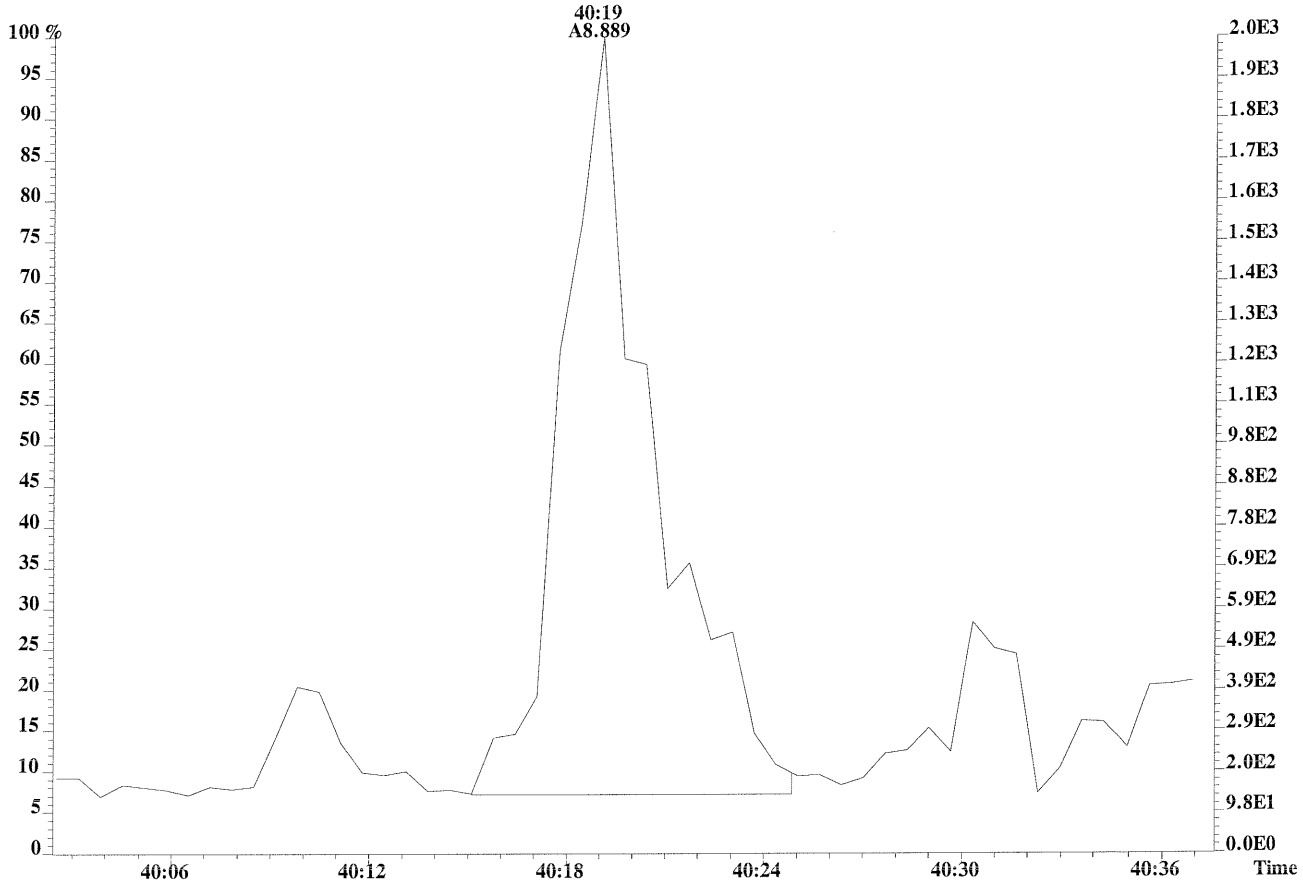
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



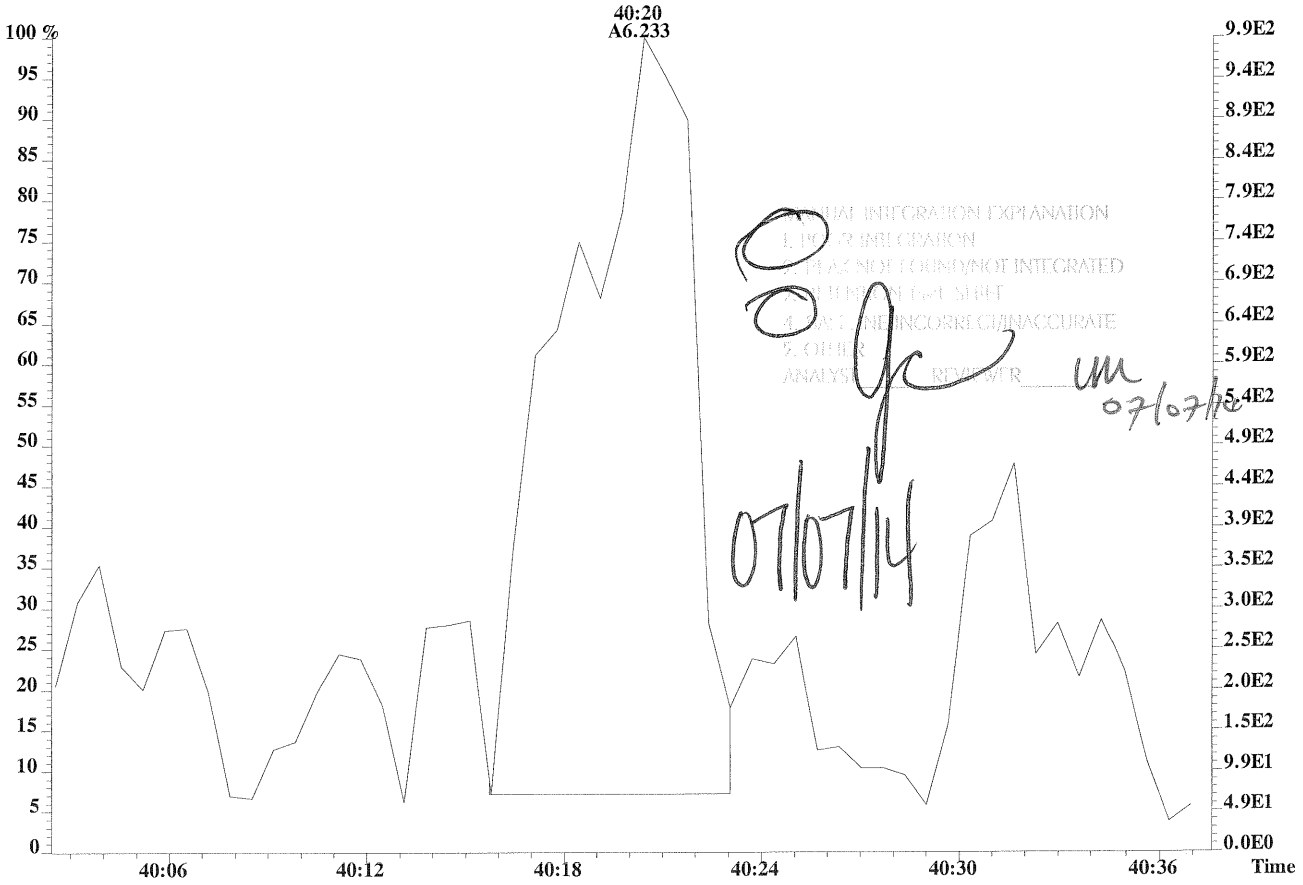
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229928 #1-251 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:R1404651-013
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,292.0,0.50%,F,T)



409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.50%,F,T)

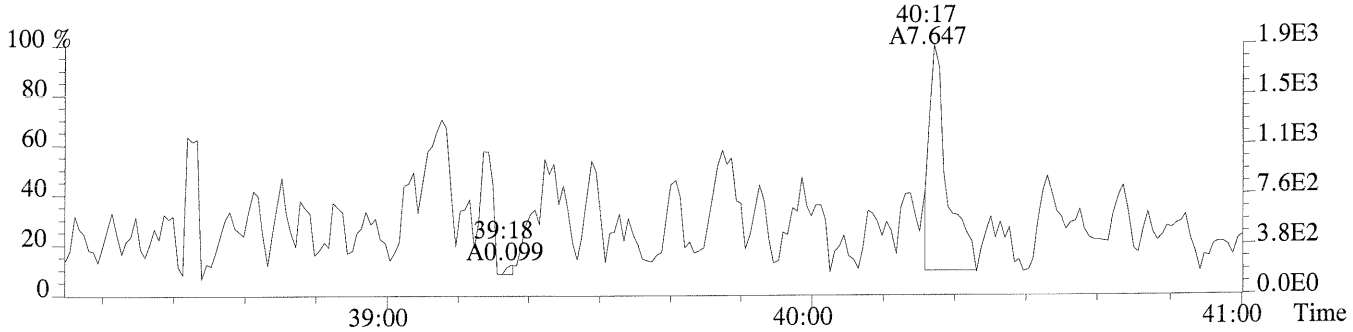


MANUAL INTEGRATION EXPLANATION
1. PROPER INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. BEFORE LAST STEP
4. PEAK INCORRECT/INACCURATE
5. OTHER
ANALYST ____ REVIEWER ____

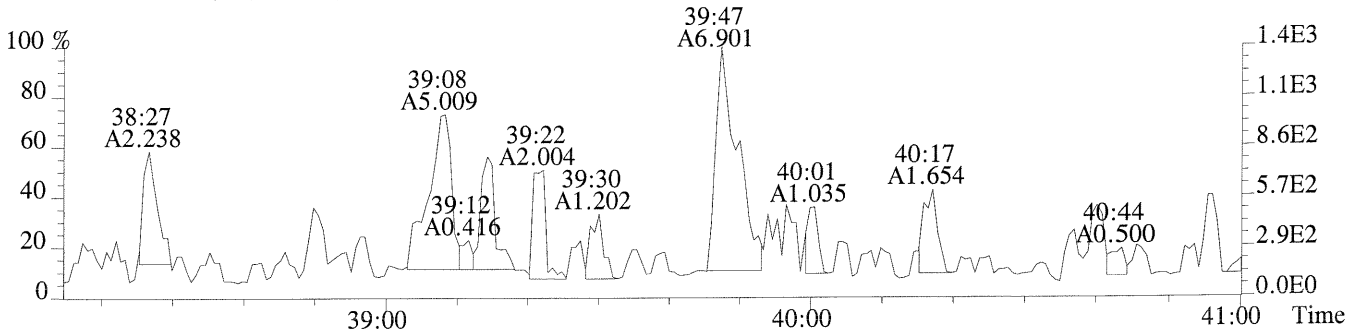
07/07/14

07/07/14

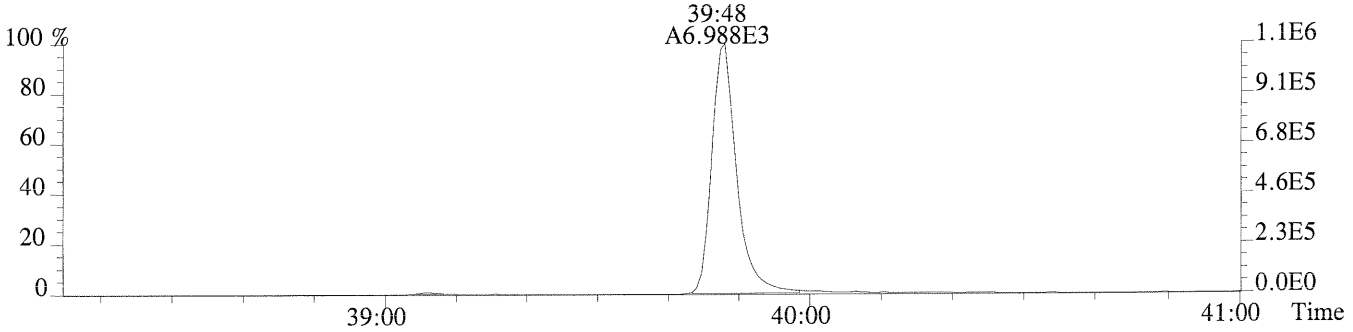
File:P229928 #1-251 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-013
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



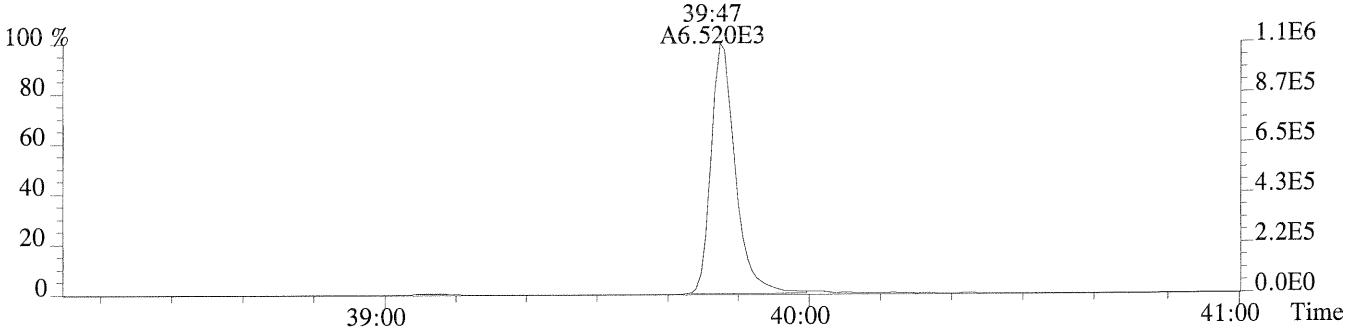
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



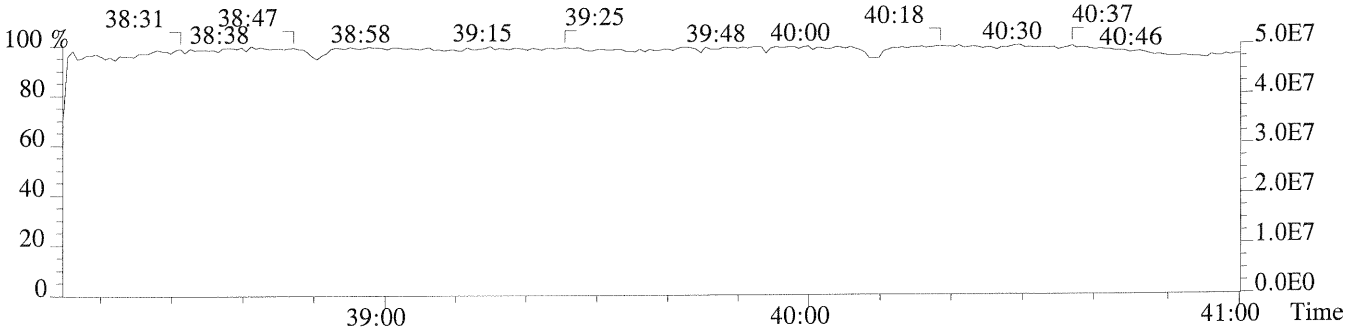
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



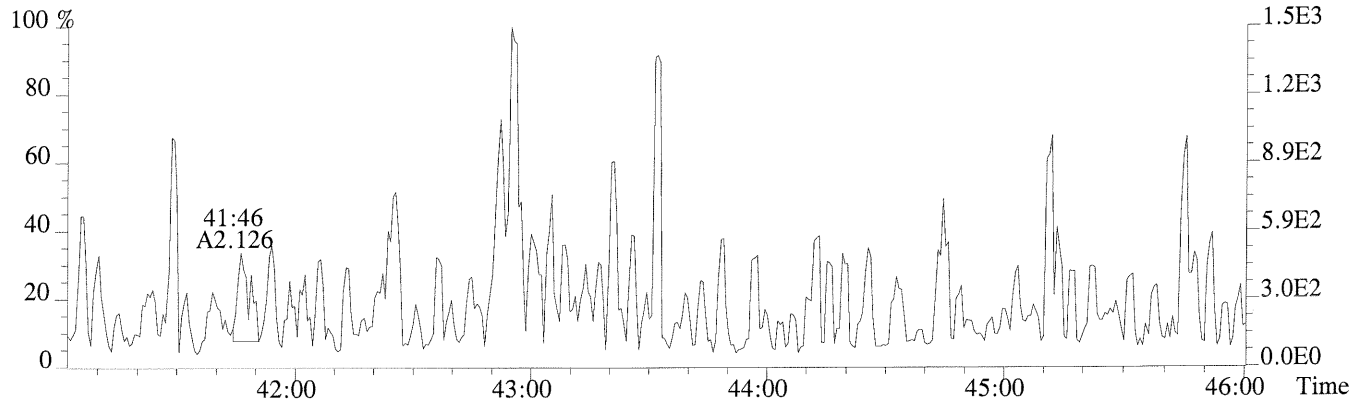
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.40%,F,T)



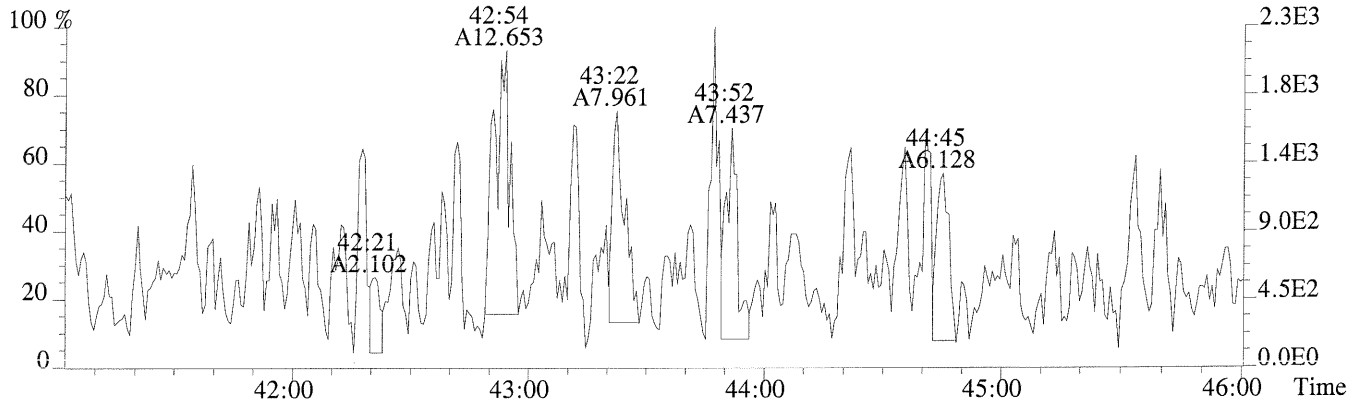
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



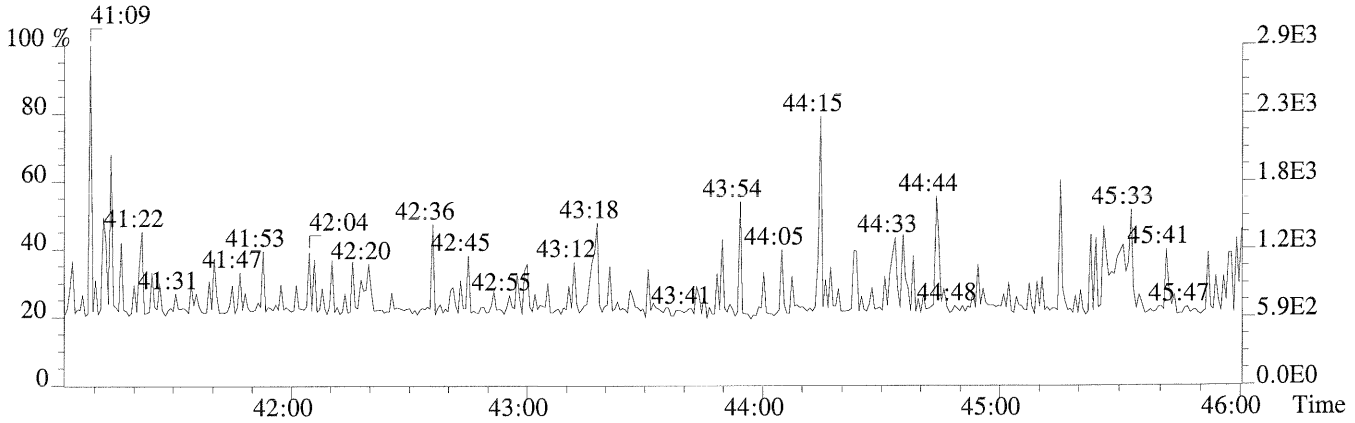
File:P229928 #1-457 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-013
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,200.0,0.40%,F,T)



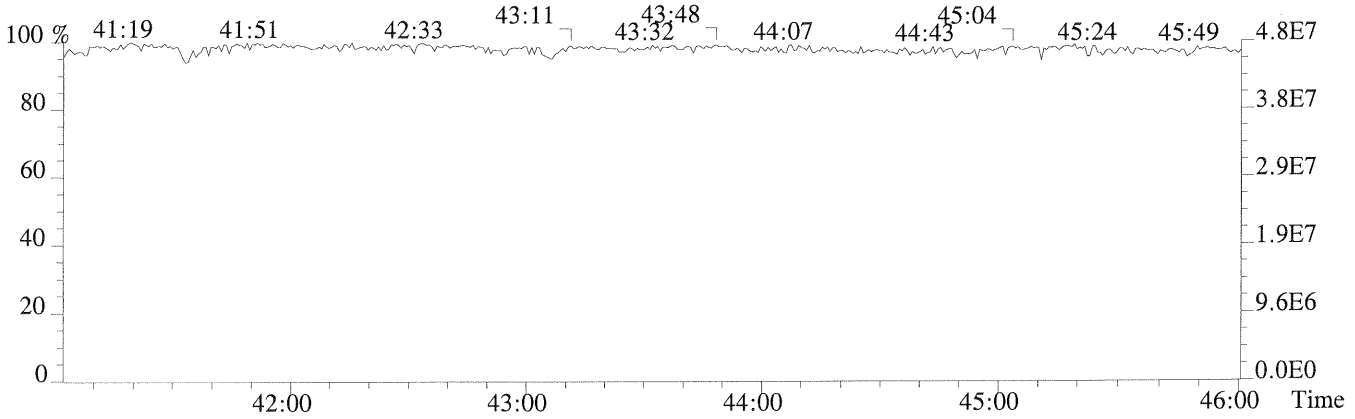
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,704.0,0.40%,F,T)



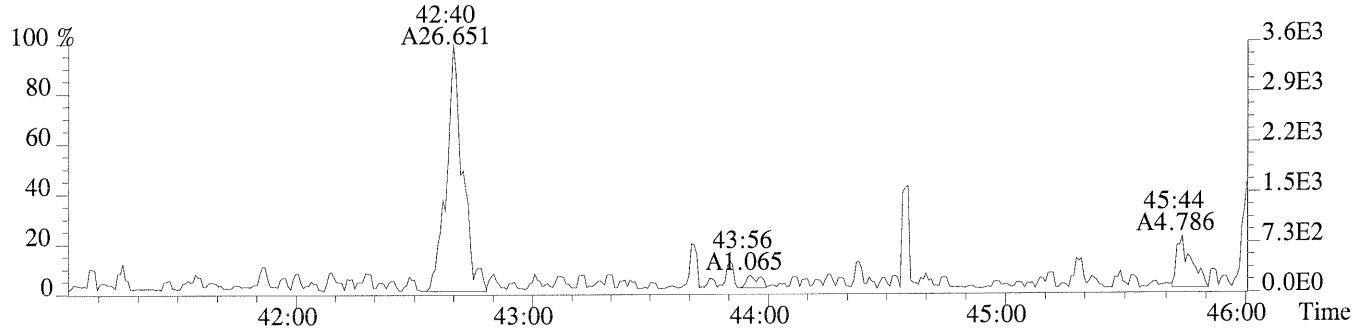
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



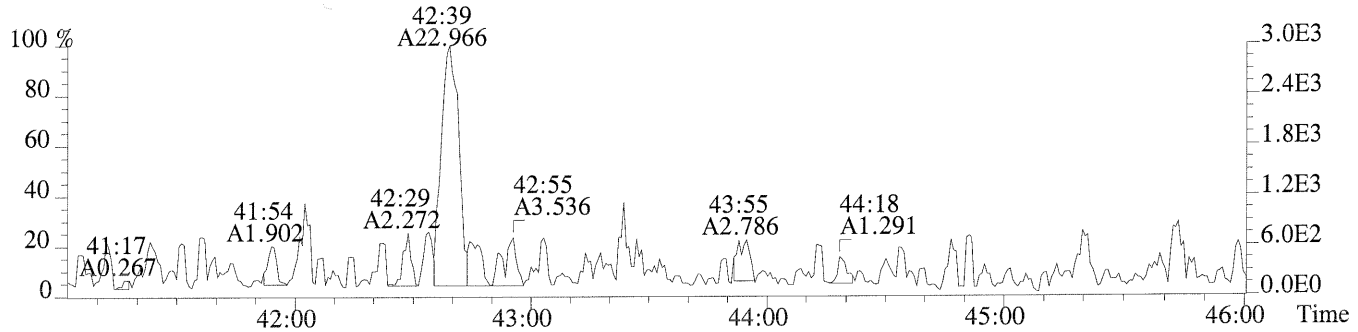
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



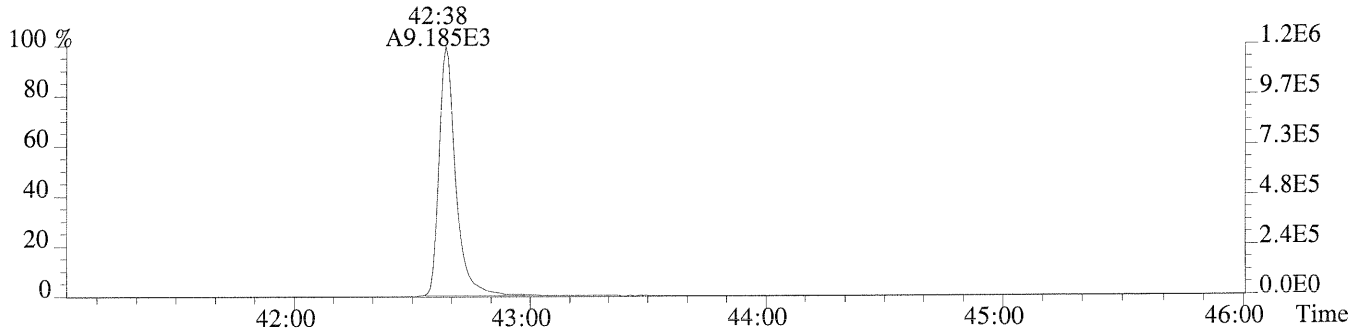
File:P229928 #1-457 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-013
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



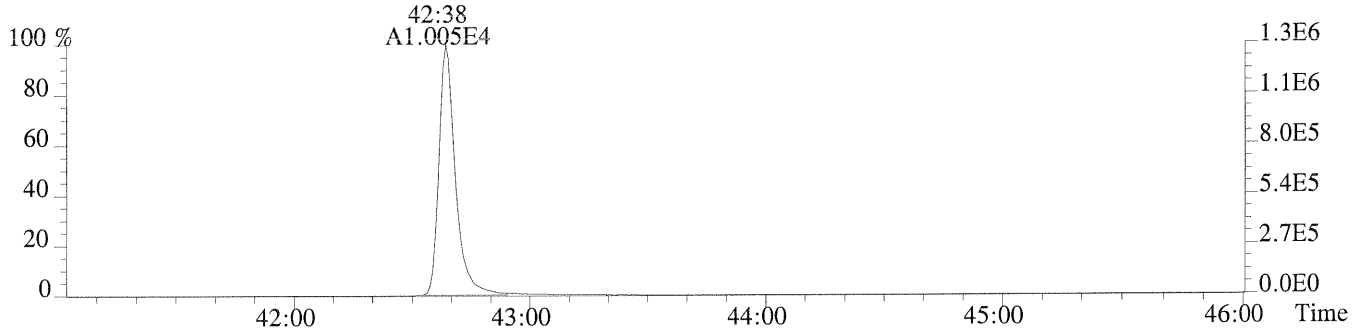
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



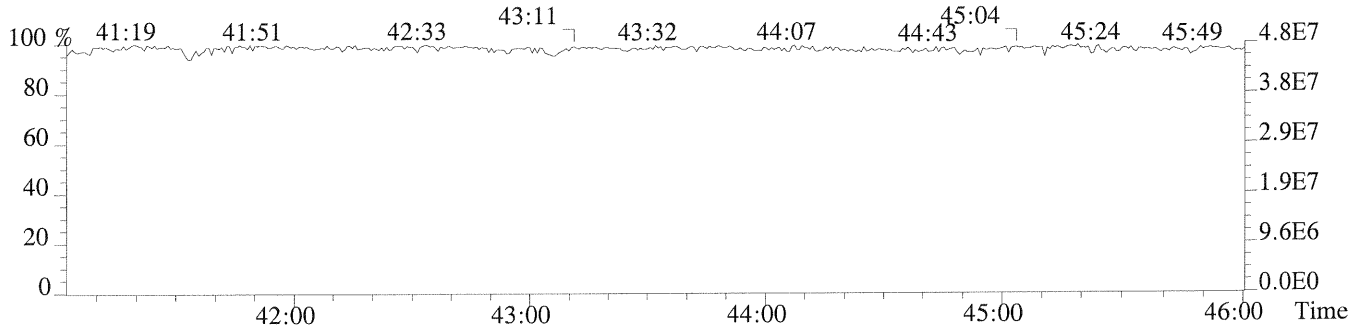
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,320.0,0.40%,F,T)



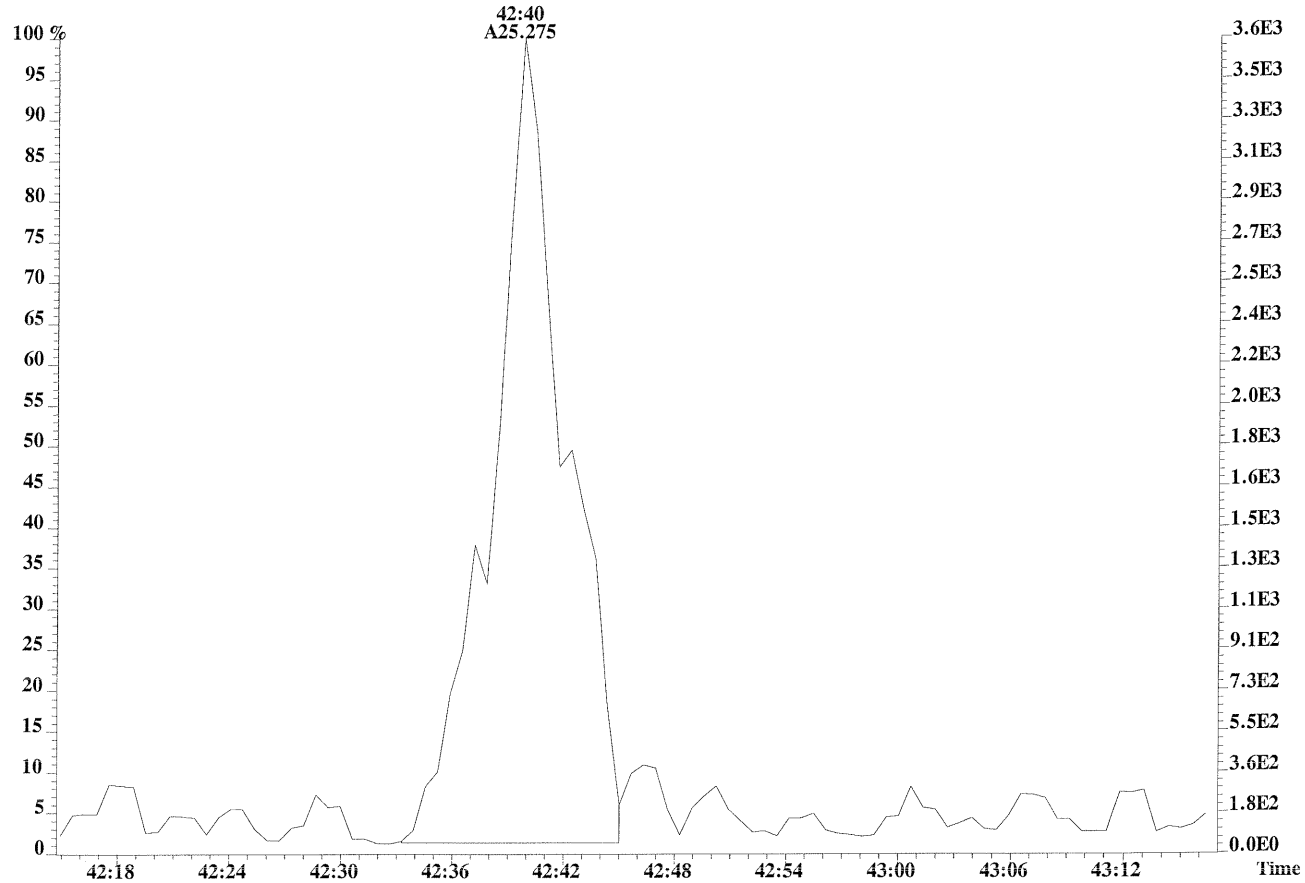
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



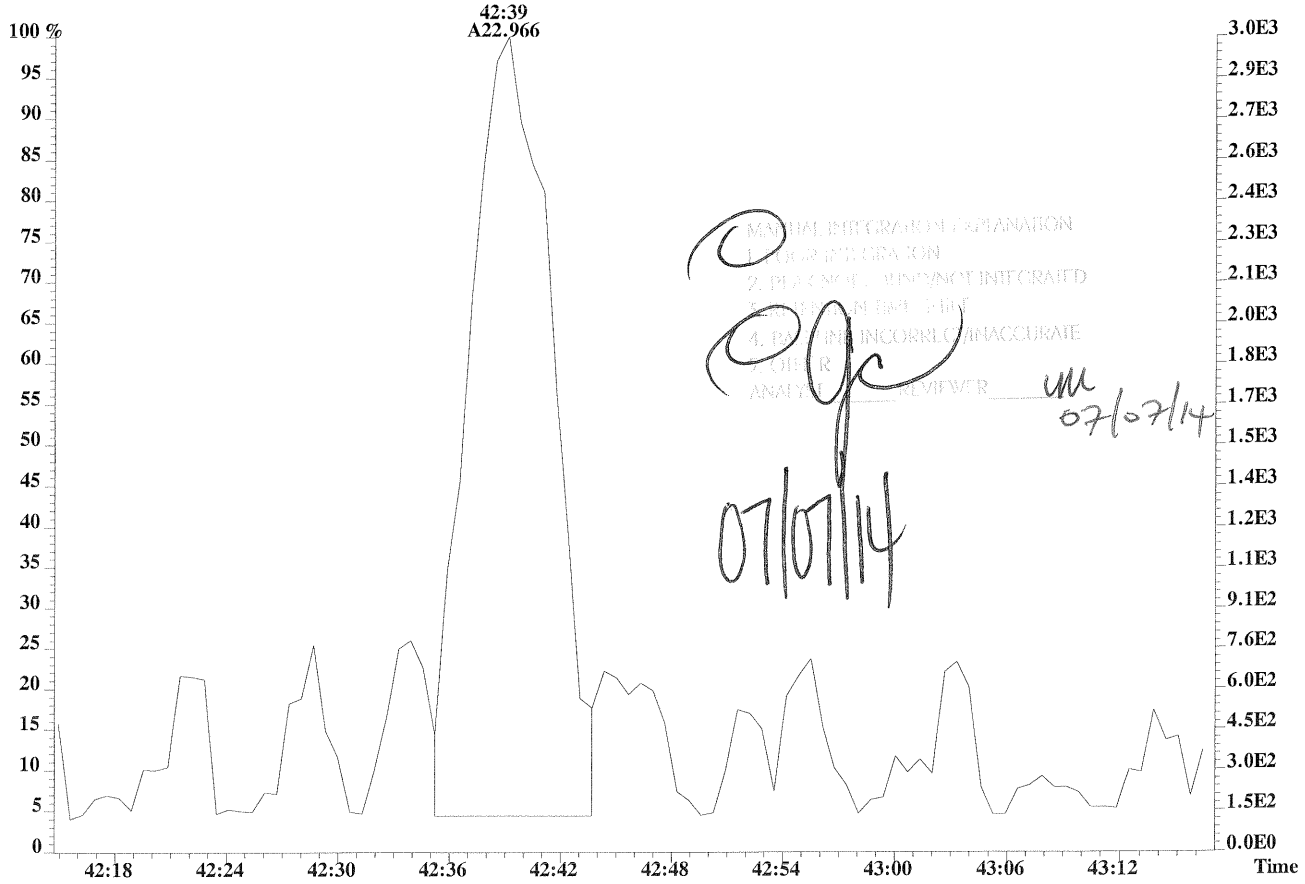
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P229928 #1-457 Acq: 2-JUL-2014 21:21:13 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:R1404651-013
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,280.0,0.40%,F,T)



MANUAL INTEGRATION / EXPLANATION
1. [illegible] INTEGRATION
2. PEAK NOT [illegible] / INCORRECT INTEGRATED
3. [illegible] NOT FOUND
4. PEAK [illegible] INCORRECT / INACCURATE
5. OTHER
ANALYST / REVIEWER

MM 07/07/14

07/07/14

ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406151129 20

Run #14 Filename P229929 Samp: 1 Inj: 1 Acquired: 2-JUL-14 22:09:06
Processed: 3-JUL-14 13:33:38 Sample ID: R1404651-014

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	1.127
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.123
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.101
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.234
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.233
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	7.502e+00	7.901e+00	0.95	yes	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.381
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.703
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.053
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.223
14	Unk	1,2,3,6,7,8-HxCDD	37:05	2.995e+00	2.893e+00	1.04	no	yes	1.168
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.170
17	Unk	OCDD	42:40	2.132e+01	2.079e+01	1.03	no	yes	1.288
18	IS	13C-2,3,7,8-TCDF	28:41	5.058e+03	6.266e+03	0.81	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:46	1.122e+04	7.015e+03	1.60	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:39	1.065e+04	6.740e+03	1.58	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	4.869e+03	9.380e+03	0.52	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	7.196e+03	1.368e+04	0.53	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	6.327e+03	1.196e+04	0.53	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	4.844e+03	9.608e+03	0.50	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	4.227e+03	9.923e+03	0.43	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	3.572e+03	8.528e+03	0.42	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:26	3.377e+03	4.378e+03	0.77	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:55	8.450e+03	5.272e+03	1.60	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	7.594e+03	5.400e+03	1.41	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	7.806e+03	6.512e+03	1.20	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	7.114e+03	6.739e+03	1.06	yes	no	0.935
32	IS	13C-OCDD	42:38	1.007e+04	1.100e+04	0.92	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:51	6.824e+03	8.703e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	1.333e+04	1.050e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	2.734e+03				no	0.946

$$\text{OCDD} = \frac{(2.132e+01 + 2.079e+01) \times 4000 \text{ pg} \times 1}{(1.007e+04 + 1.100e+04) \times 10.038\text{g} \times 96.2 \times 1.288} = 0.642 \text{ mg/kg}$$

UM 07/07/14

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406151129 200-S

Run #14 Filename P229929 Samp: 1 Inj: 1 Acquired: 2-JUL-14 22:09:06
Processed: 3-JUL-14 13:33:381 LAB. ID: R1404651-014

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.52e+02	*	*	1.15e+03	*
2	1,2,3,7,8-PeCDF	*	1.72e+02	*	*	3.56e+02	*
3	2,3,4,7,8-PeCDF	*	1.72e+02	*	*	3.56e+02	*
4	1,2,3,4,7,8-HxCDF	*	3.40e+02	*	*	4.40e+01	*
5	1,2,3,6,7,8-HxCDF	*	3.40e+02	*	*	4.40e+01	*
6	2,3,4,6,7,8-HxCDF	*	3.40e+02	*	*	4.40e+01	*
7	1,2,3,7,8,9-HxCDF	*	3.40e+02	*	*	4.40e+01	*
8	1,2,3,4,6,7,8-HpCDF	1.93e+03	4.80e+01	4.0e+01	1.62e+03	2.28e+02	7.1e+00
9	1,2,3,4,7,8,9-HpCDF	*	4.80e+01	*	*	2.28e+02	*
10	OCDF	*	1.72e+02	*	*	7.68e+02	*
11	2,3,7,8-TCDD	*	5.00e+02	*	*	3.48e+02	*
12	1,2,3,7,8-PeCDD	*	5.44e+02	*	*	4.40e+01	*
13	1,2,3,4,7,8-HxCDD	*	6.80e+01	*	*	3.28e+02	*
14	1,2,3,6,7,8-HxCDD	7.41e+02	6.80e+01	1.1e+01	9.67e+02	3.28e+02	2.9e+00
15	1,2,3,7,8,9-HxCDD	*	6.80e+01	*	*	3.28e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	5.96e+02	*	*	1.40e+02	*
17	OCDD	2.73e+03	7.20e+01	3.8e+01	3.12e+03	2.56e+02	1.2e+01
18	13C-2,3,7,8-TCDF	9.24e+05	5.80e+02	1.6e+03	1.17e+06	8.64e+02	1.4e+03
19	13C-1,2,3,7,8-PeCDF	1.86e+06	9.60e+01	1.9e+04	1.16e+06	5.80e+02	2.0e+03
20	13C-2,3,4,7,8-PeCDF	1.88e+06	9.60e+01	2.0e+04	1.17e+06	5.80e+02	2.0e+03
21	13C-1,2,3,4,7,8-HxCDF	9.47e+05	2.56e+02	3.7e+03	1.81e+06	7.84e+02	2.3e+03
22	13C-1,2,3,6,7,8-HxCDF	1.26e+06	2.56e+02	4.9e+03	2.40e+06	7.84e+02	3.1e+03
23	13C-2,3,4,6,7,8-HxCDF	1.20e+06	2.56e+02	4.7e+03	2.24e+06	7.84e+02	2.9e+03
24	13C-1,2,3,7,8,9-HxCDF	8.49e+05	2.56e+02	3.3e+03	1.70e+06	7.84e+02	2.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.56e+05	4.16e+02	1.8e+03	1.78e+06	6.08e+02	2.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.74e+05	4.16e+02	1.4e+03	1.35e+06	6.08e+02	2.2e+03
27	13C-2,3,7,8-TCDD	6.66e+05	2.06e+03	3.2e+02	8.59e+05	7.52e+02	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.46e+06	3.96e+02	3.7e+03	9.11e+05	4.20e+02	2.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.49e+06	5.36e+02	2.8e+03	1.16e+06	4.64e+02	2.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.44e+06	5.36e+02	2.7e+03	1.12e+06	4.64e+02	2.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.20e+06	6.00e+02	2.0e+03	1.11e+06	6.00e+01	1.8e+04
32	13C-OCDD	1.32e+06	3.04e+02	4.4e+03	1.45e+06	1.92e+02	7.6e+03
33	13C-1,2,3,4-TCDD	1.33e+06	2.06e+03	6.4e+02	1.72e+06	7.52e+02	2.3e+03
34	13C-1,2,3,7,8,9-HxCDD	2.37e+06	5.36e+02	4.4e+03	1.89e+06	4.64e+02	4.1e+03
35	37Cl-2,3,7,8-TCDD	5.31e+05	1.80e+02	3.0e+03			

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Peak List Summary

CLIENT ID.

1406151129 200-S

Entry: 43 Totals Name: Total Hepta-Furans

Run: 14 File: P229929 Sample: 1 Injection: 1 Function: 4
Llim: 38:48 Ulim: 40:29
Acquired: 2-JUL-14 22:09:06 Processed: 3-JUL-14 13:33:38
Mass: 407.7820 409.7790 Tot Response: 1.54e+01 RRF: 1.403

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:53	7.50e+00	7.90e+00	0.95	yes	1.54e+01	1,2,3,4,6,7,8-HpCDF	n	n

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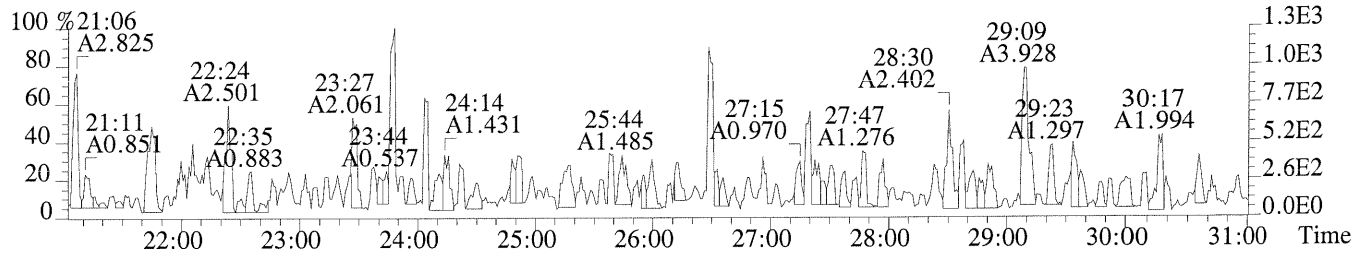
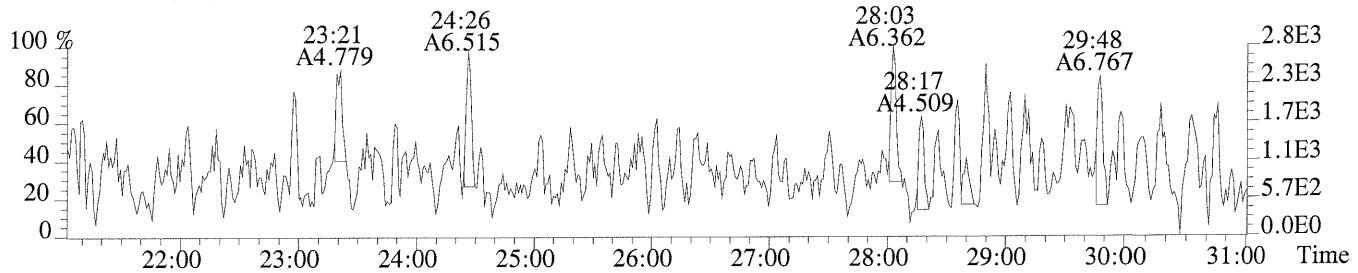
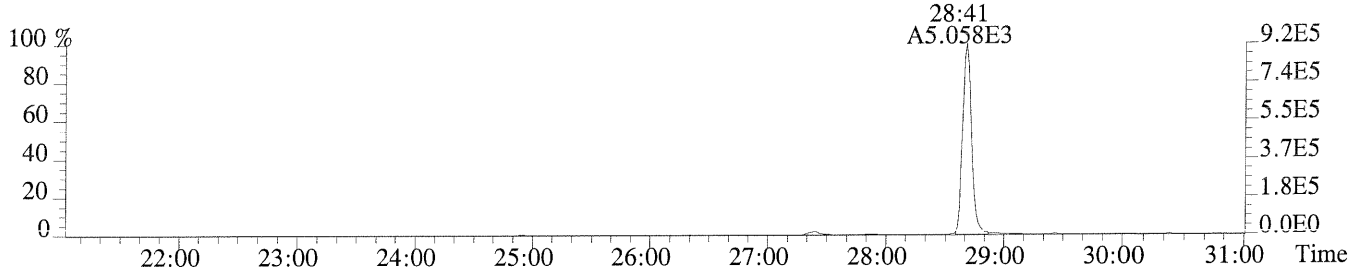
File:P229929 #1-627 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,152.0,1.00%,F,T)



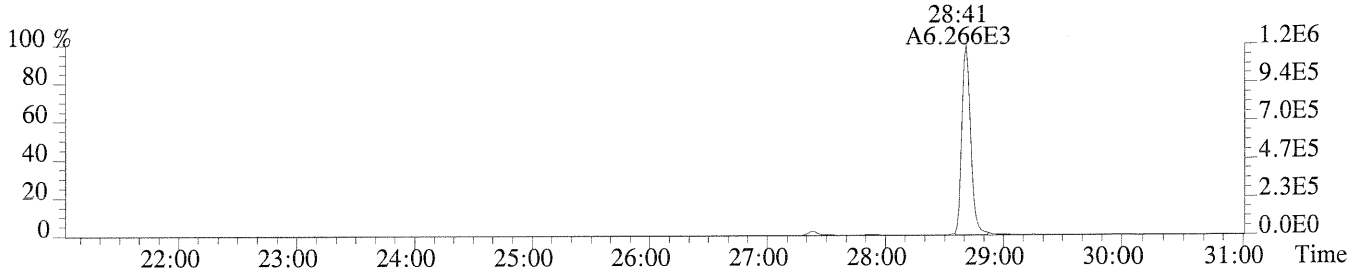
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1152.0,1.00%,F,T)



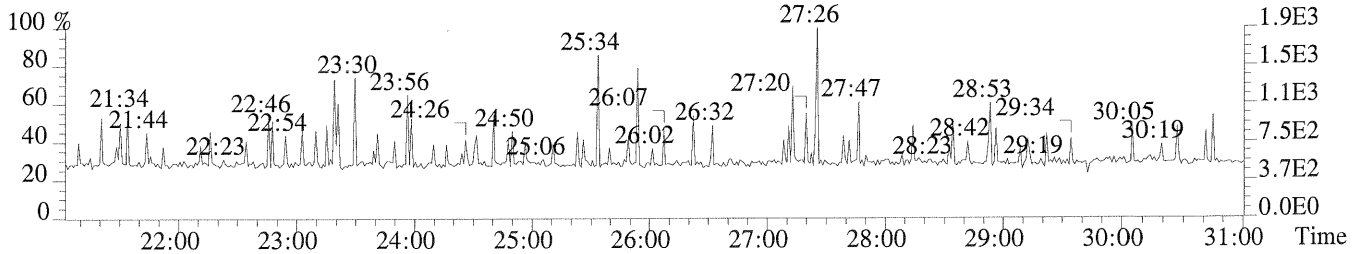
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



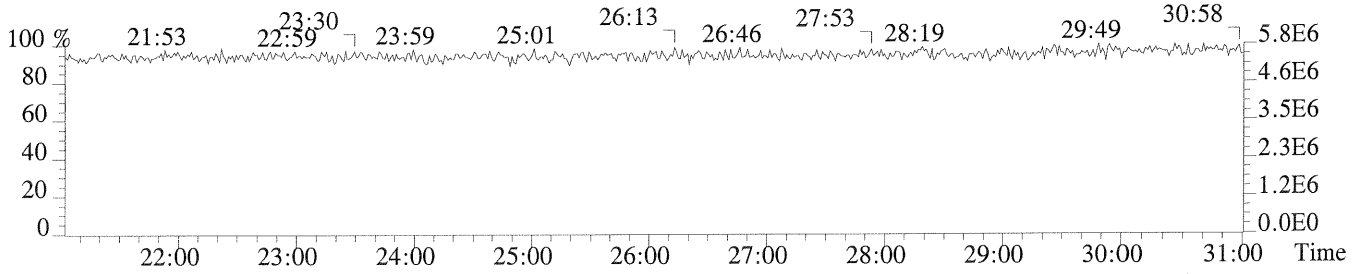
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,864.0,1.00%,F,T)



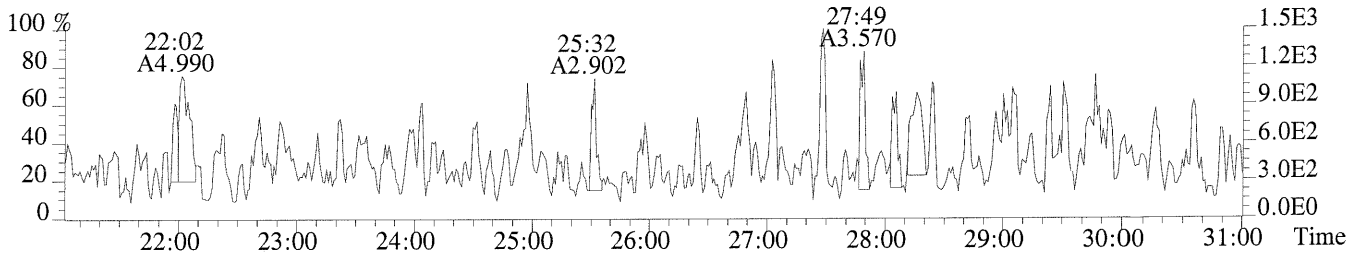
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



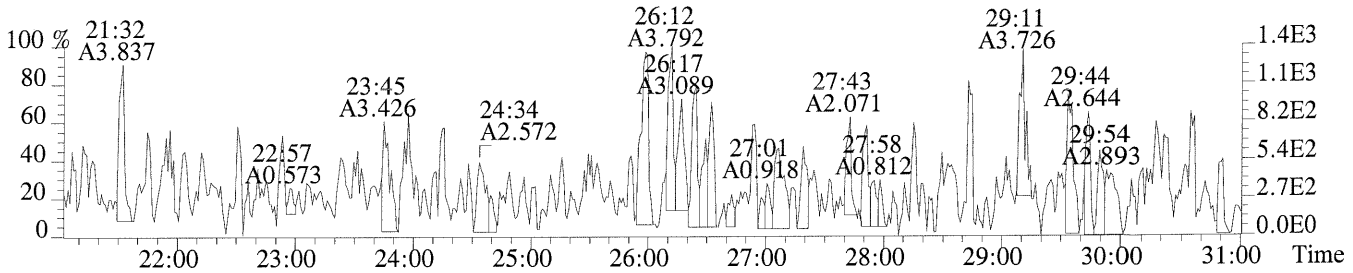
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



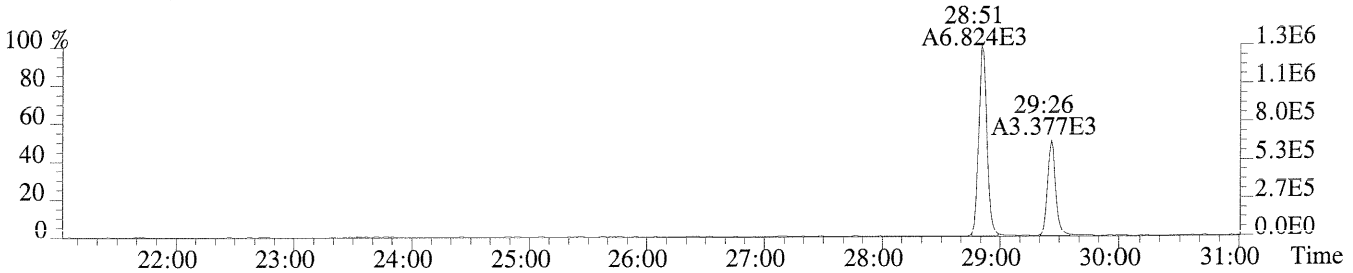
File:P229929 #1-627 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



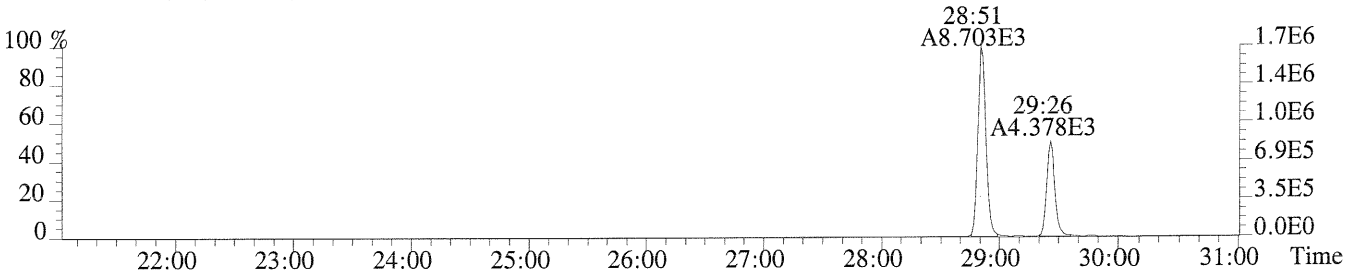
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



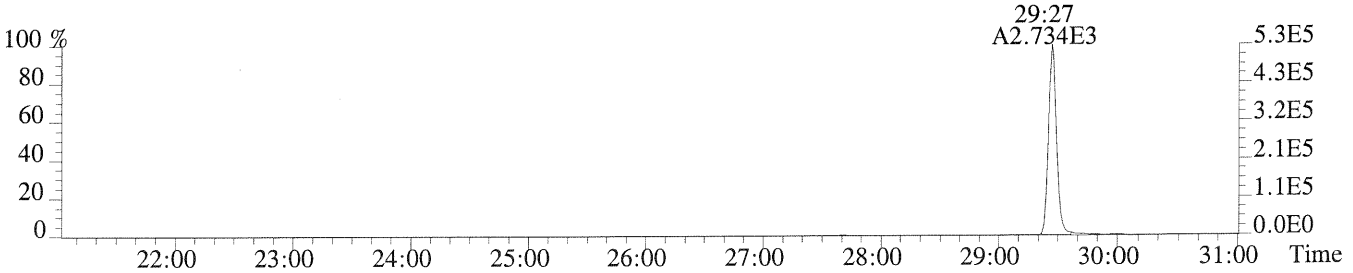
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



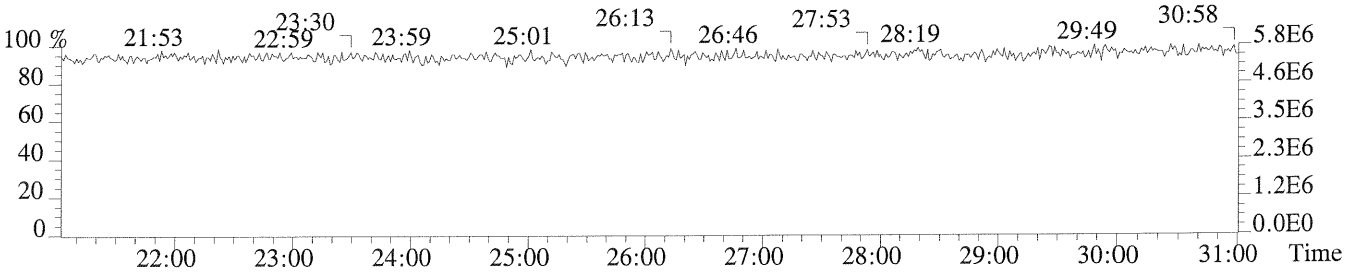
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)

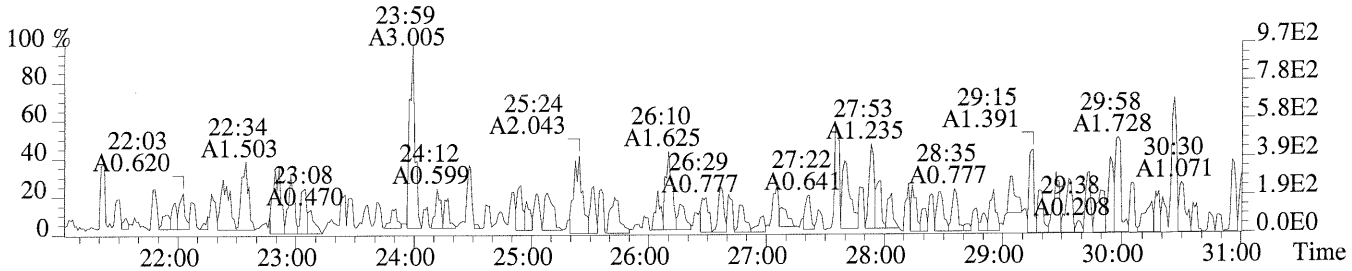


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

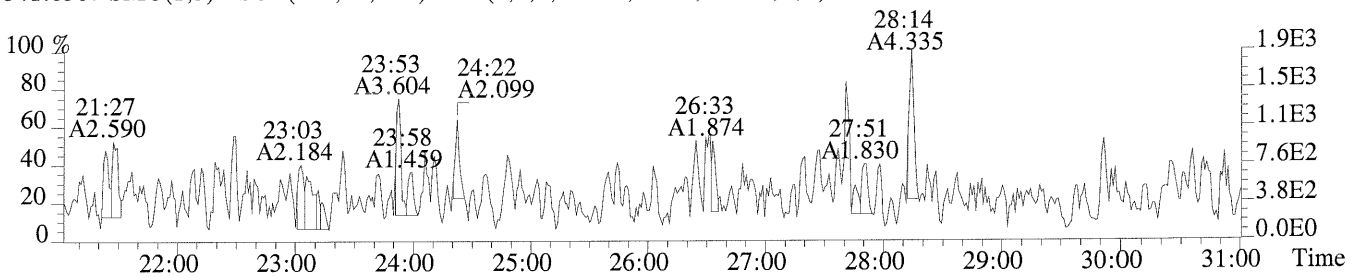


File:P229929 #1-627 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014

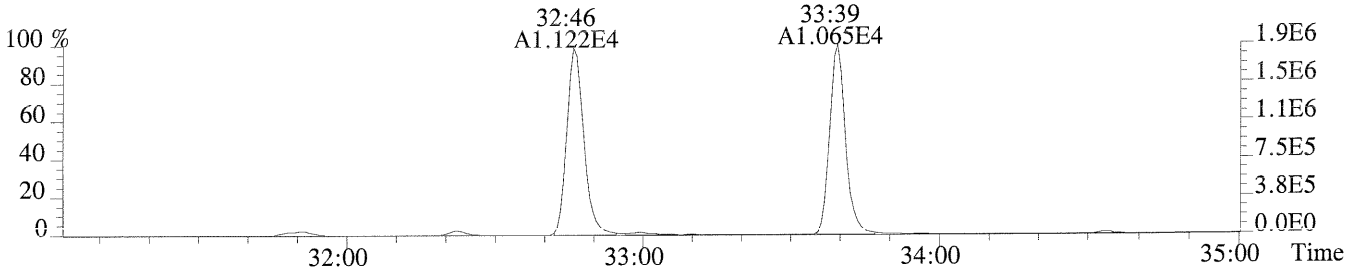
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,68.0,1.00%,F,T)



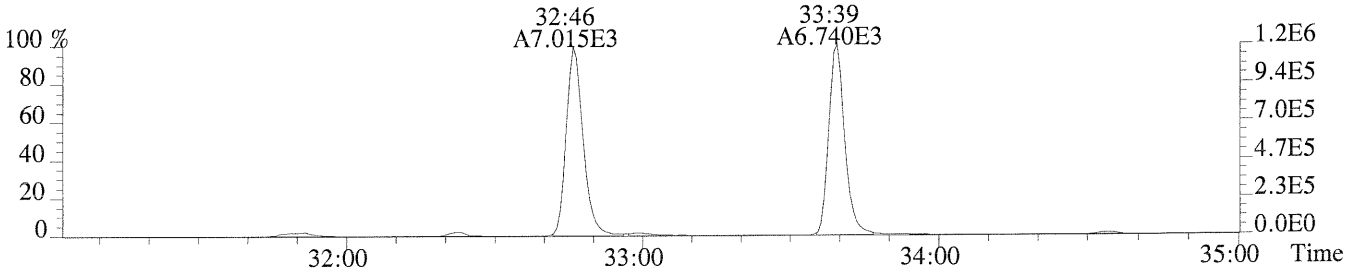
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



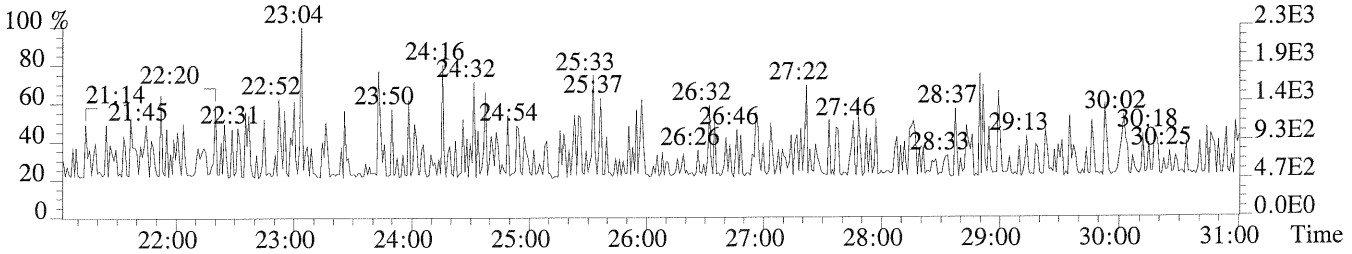
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



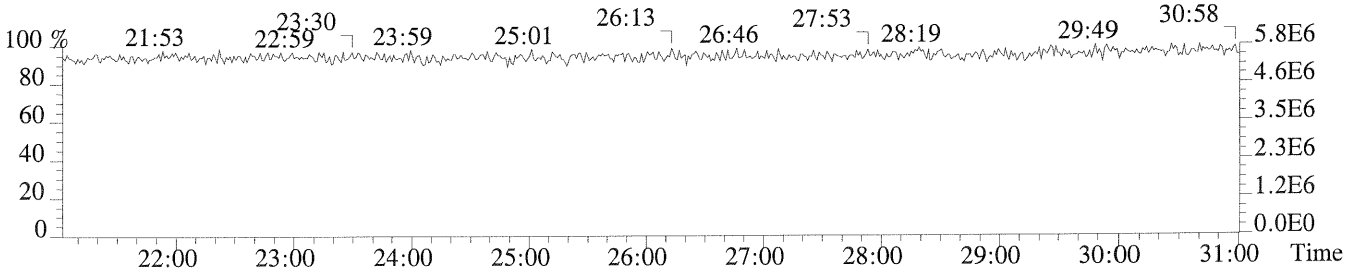
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

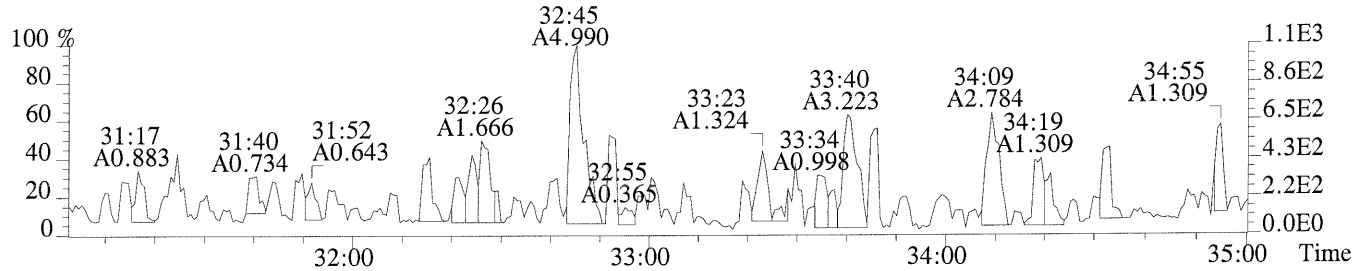


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

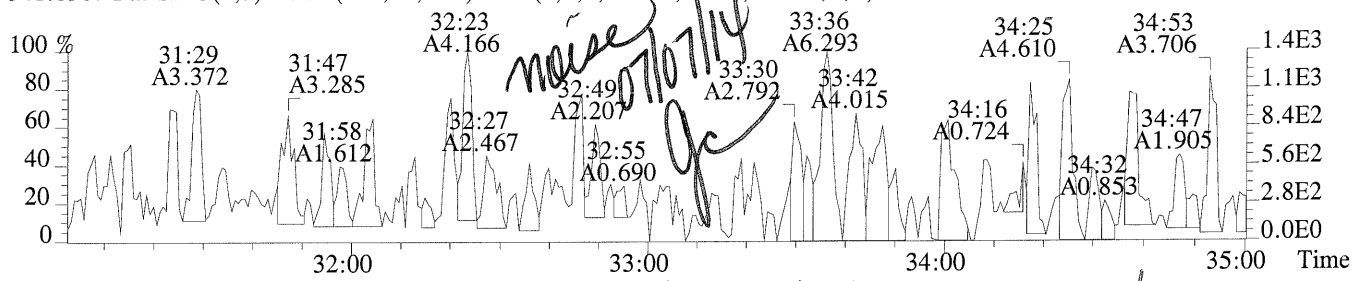


File:P229929 #1-360 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014

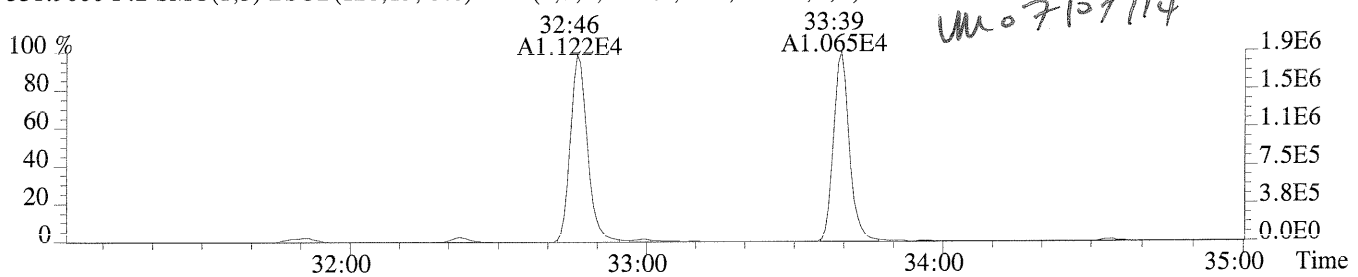
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



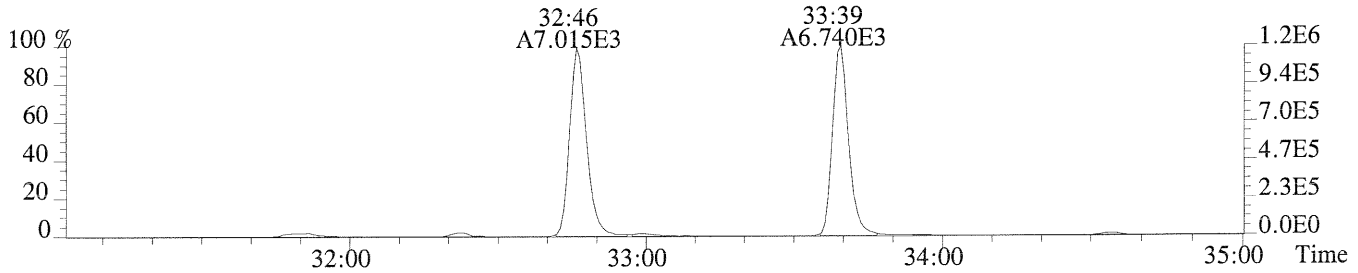
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



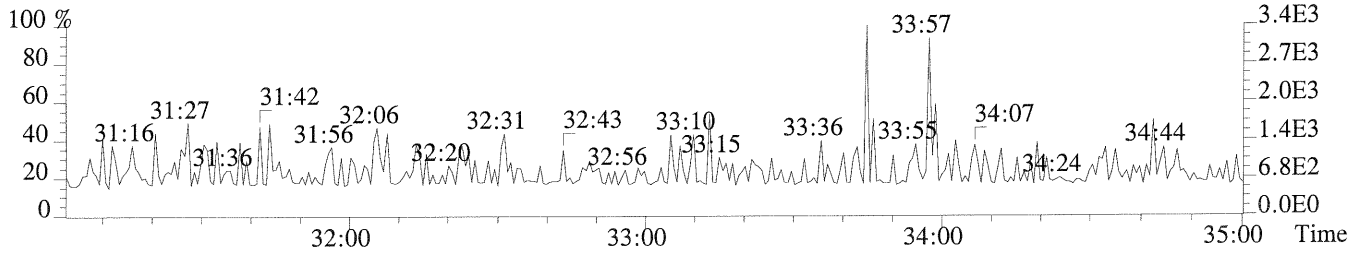
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,96.0,1.00%,F,T)



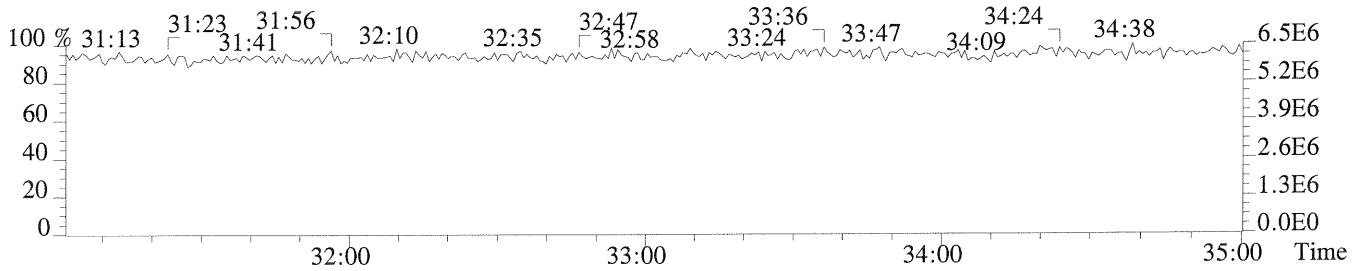
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



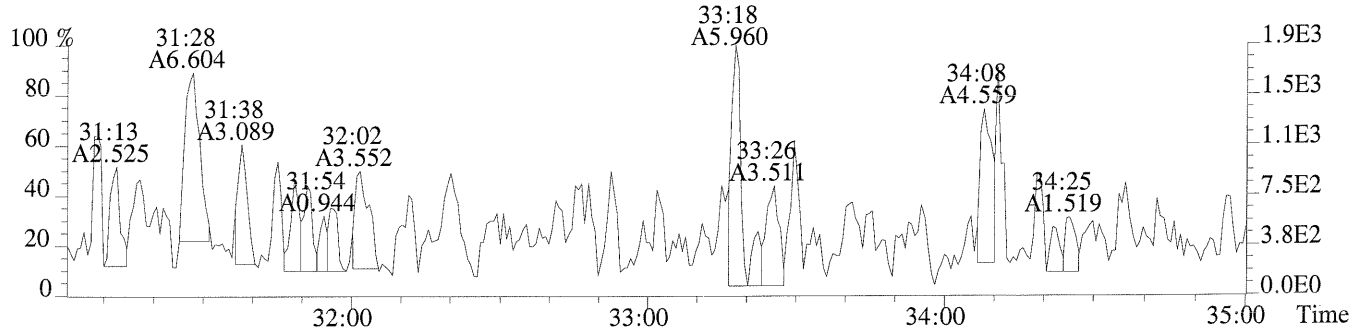
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



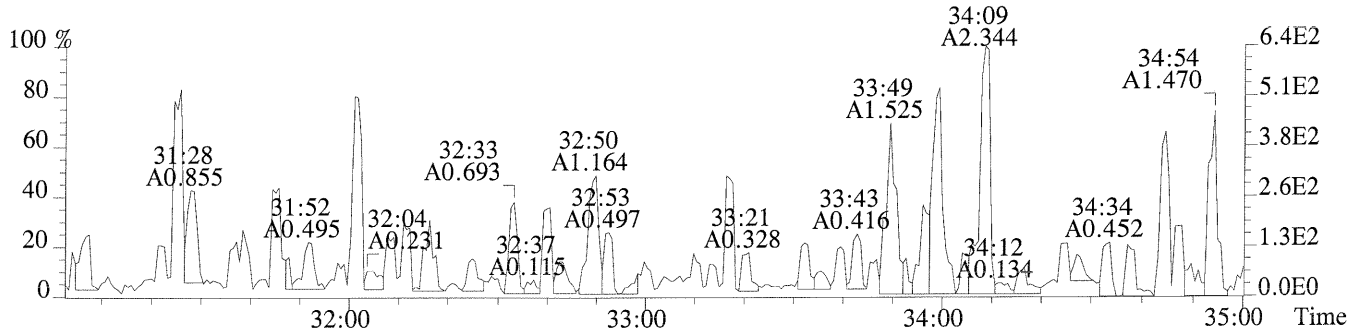
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



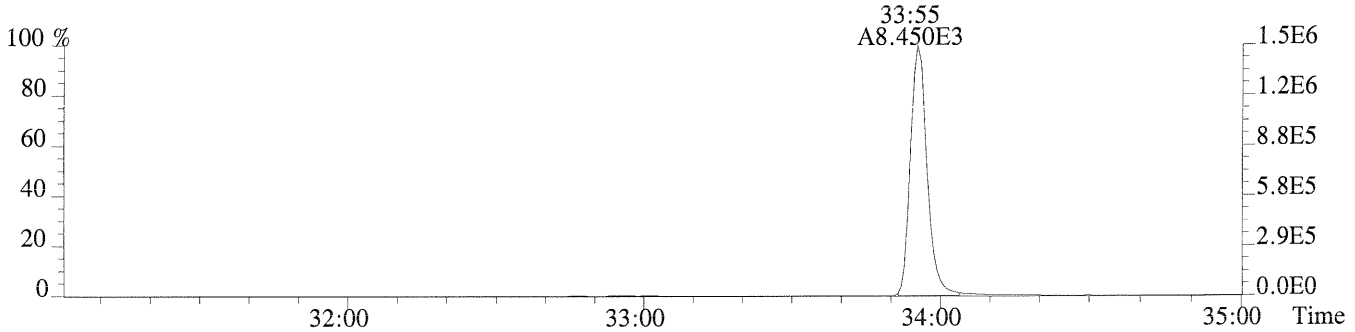
File:P229929 #1-360 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



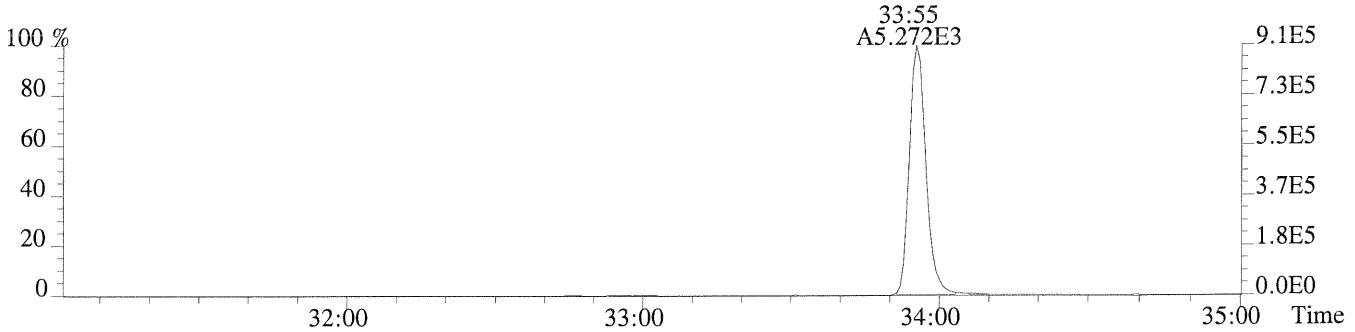
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,44.0,1.00%,F,T)



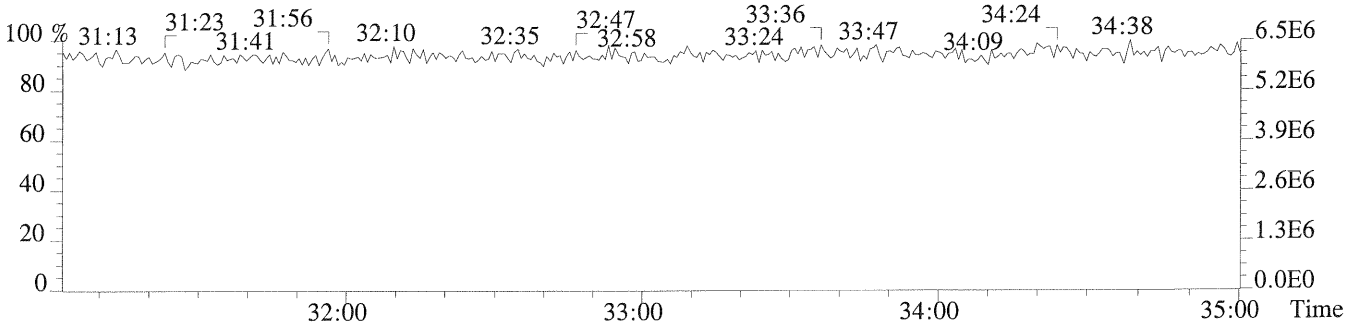
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,420.0,1.00%,F,T)

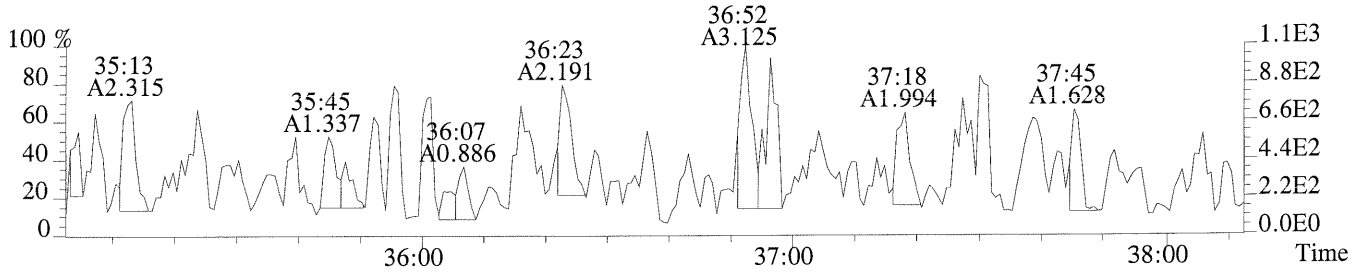


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

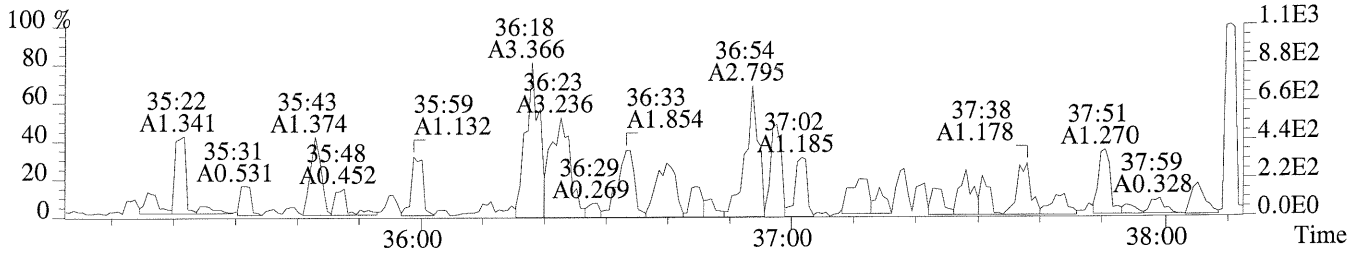


File:P229929 #1-288 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014

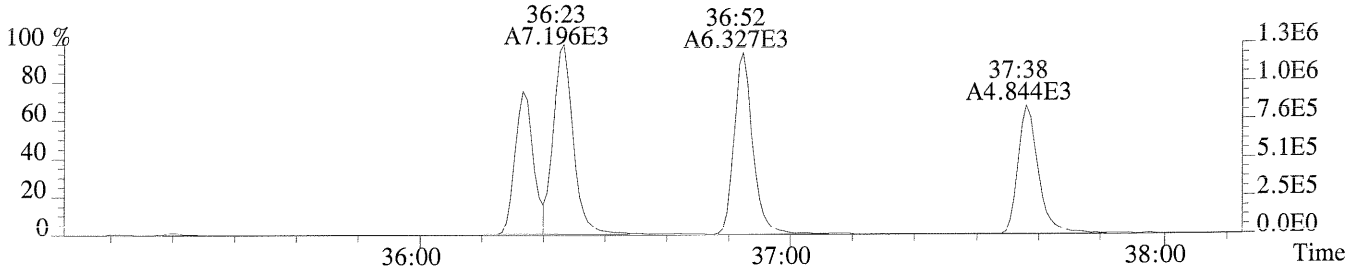
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



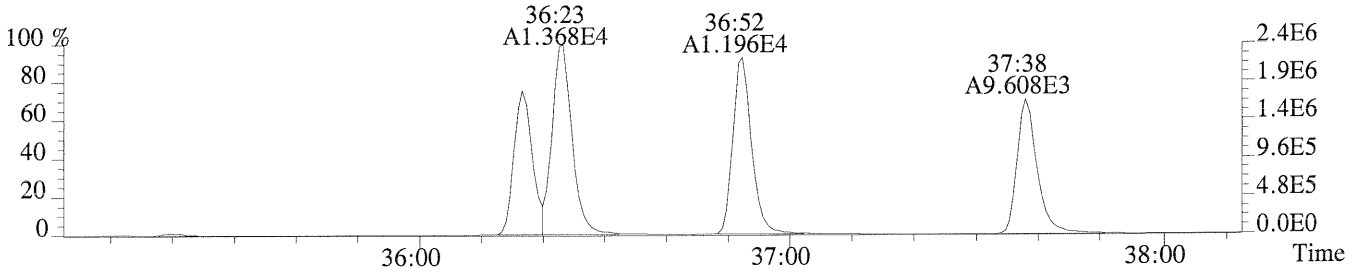
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,44.0,0.40%,F,T)



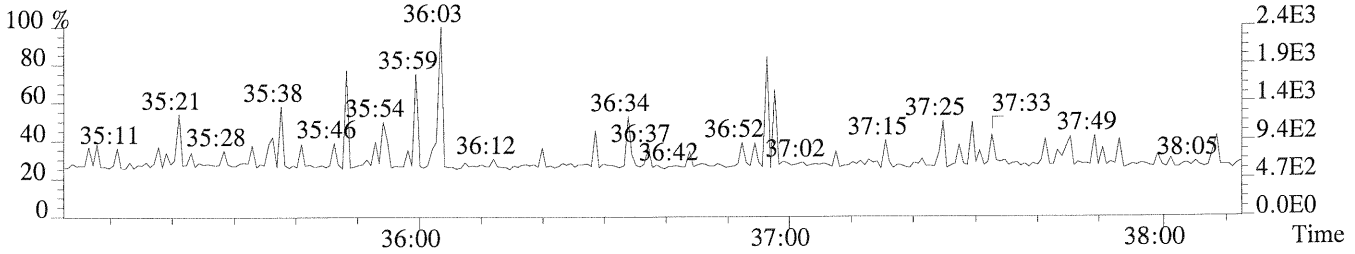
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



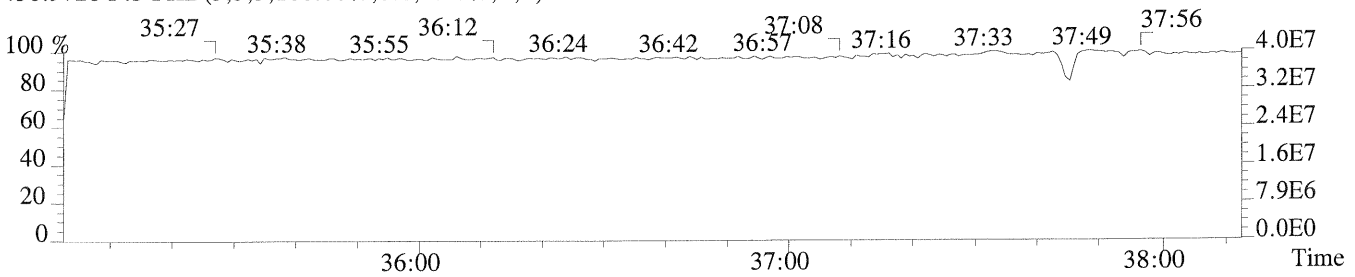
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



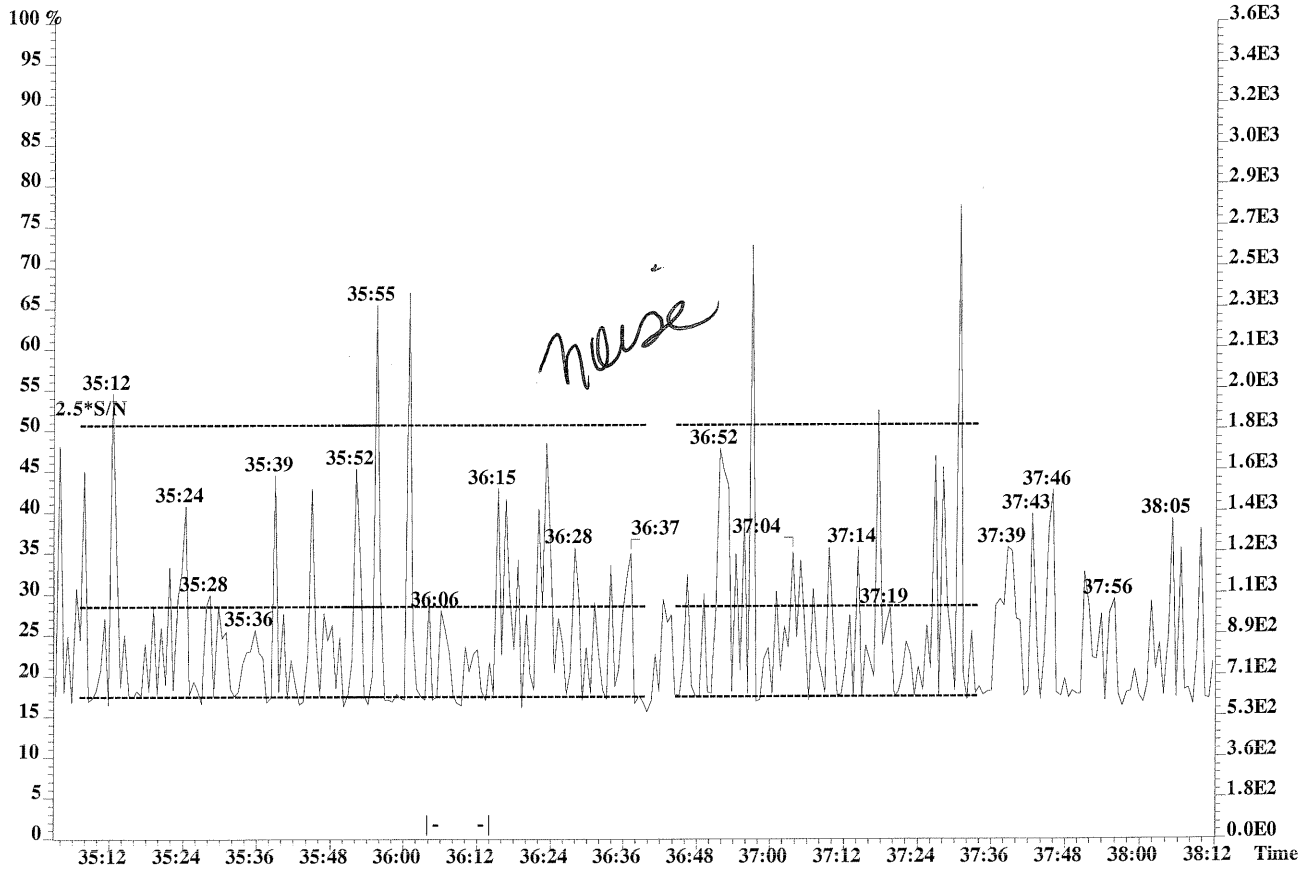
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



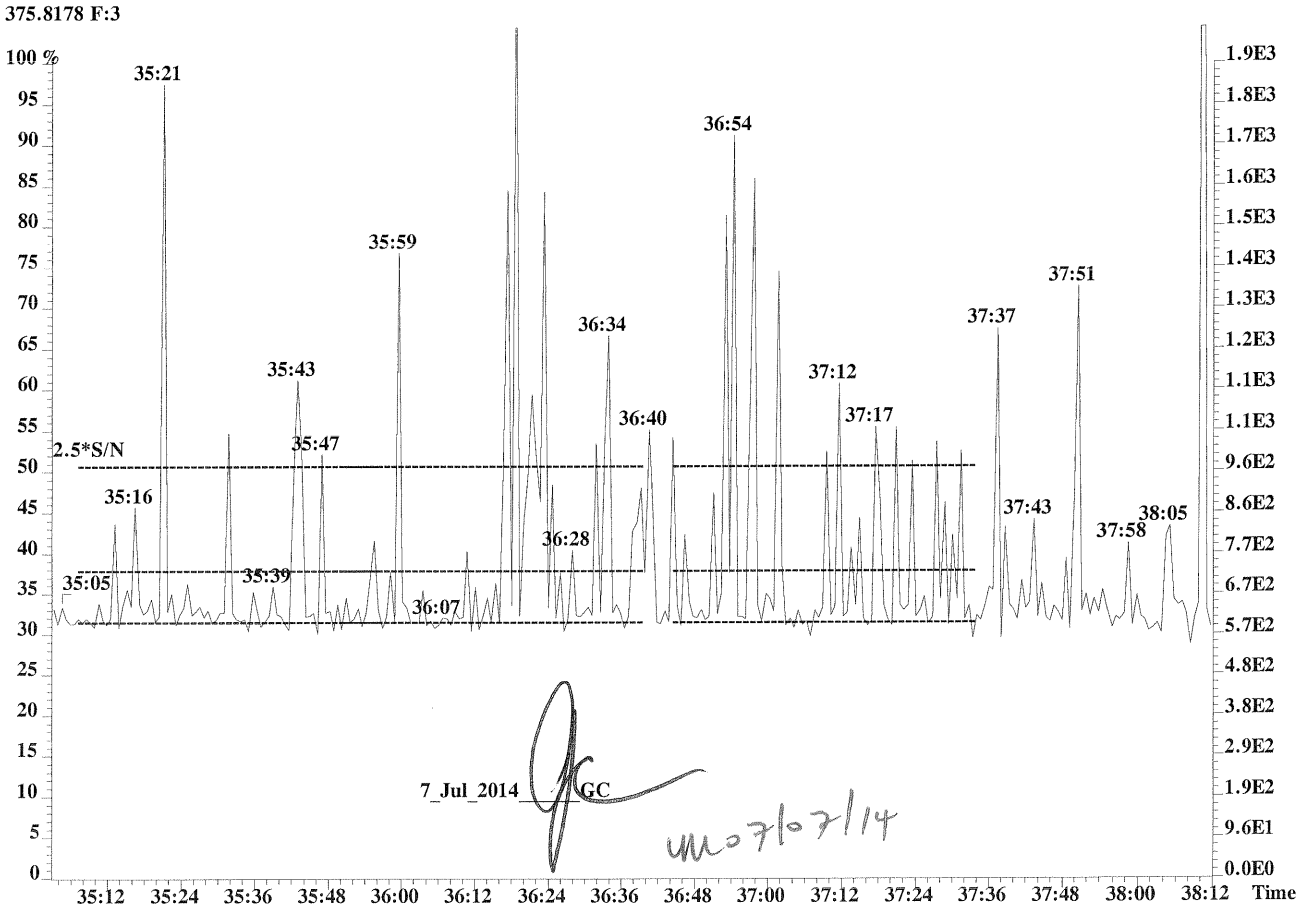
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229929 #1-288 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:R1404651-014
373.8208 F:3



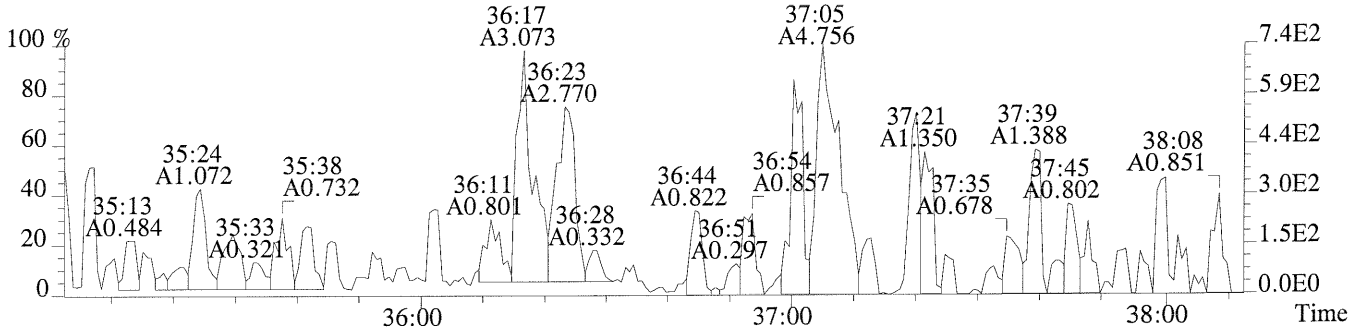
375.8178 F:3



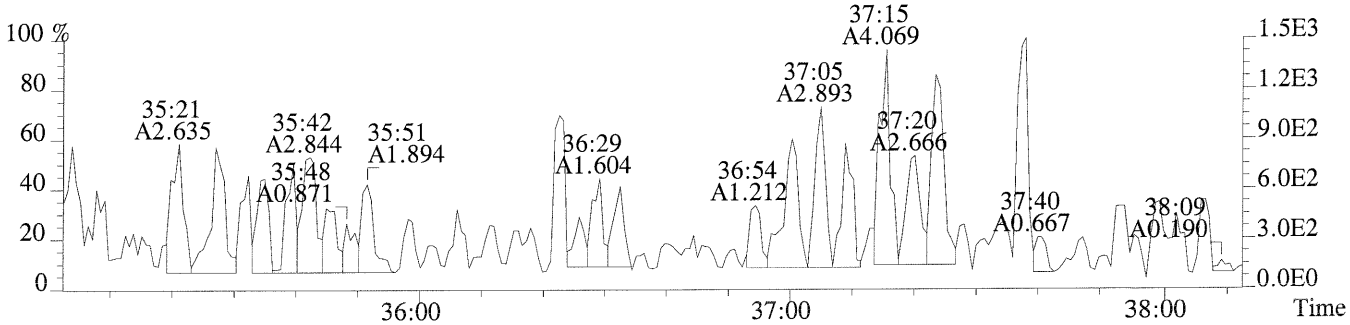
7_Jul_2014 GC

File:P229929 #1-288 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014

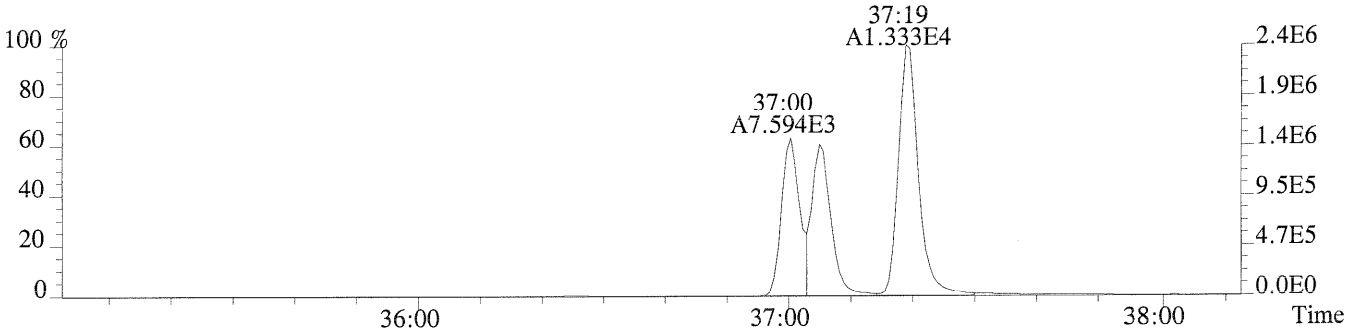
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,68.0,0.40%,F,T)



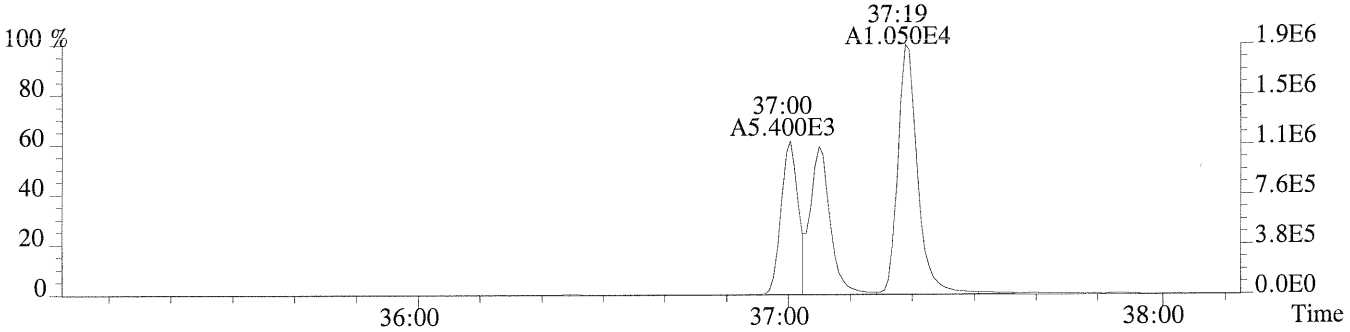
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)



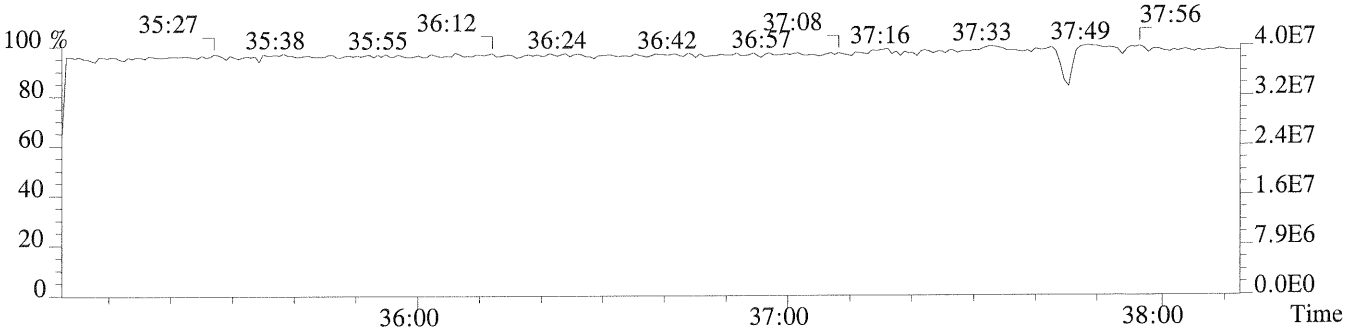
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



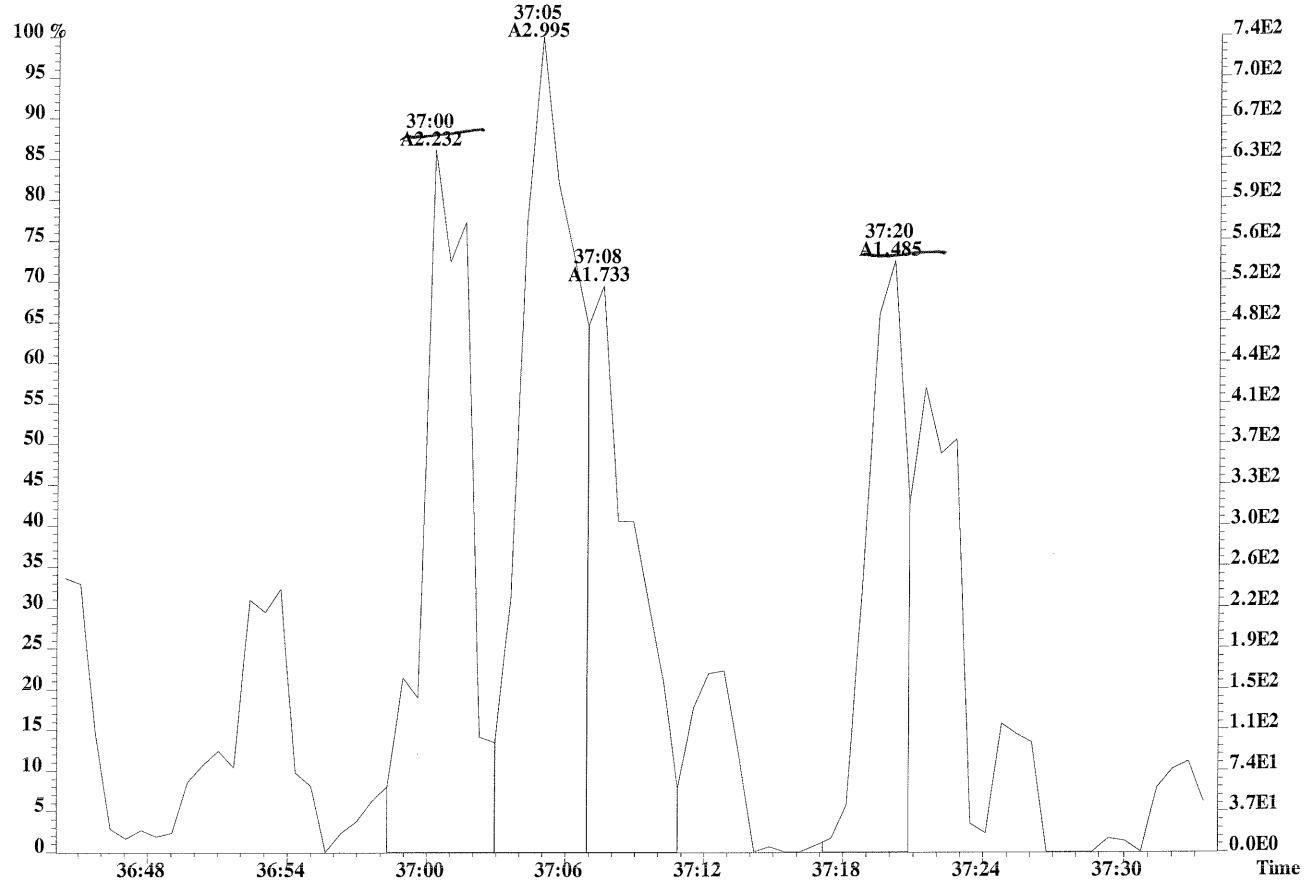
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



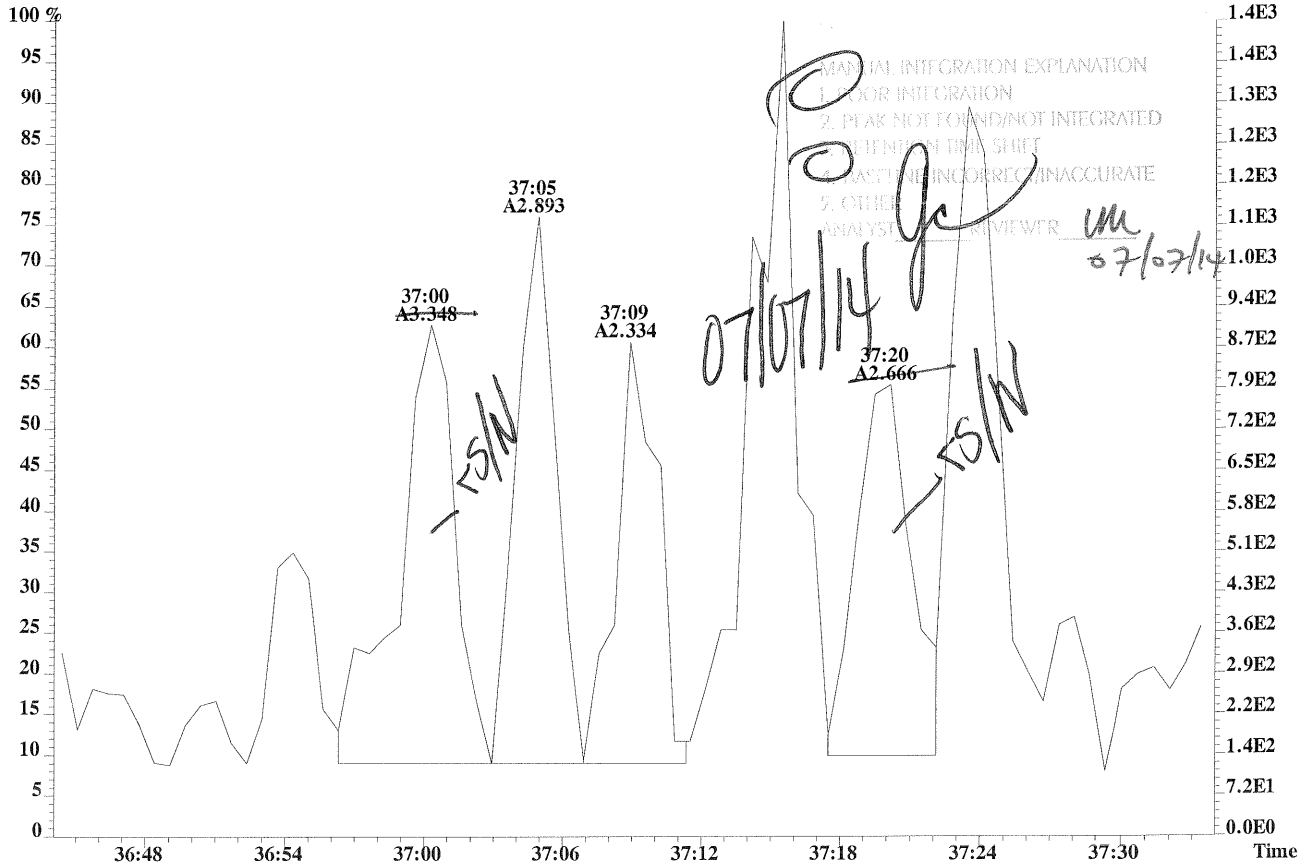
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229929 #1-288 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:R1404651-014
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,68.0,0.40%,F,T)

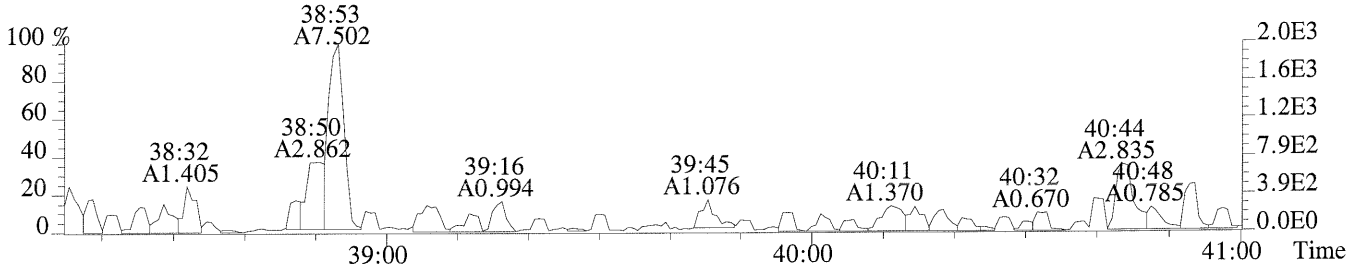


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,328.0,0.40%,F,T)

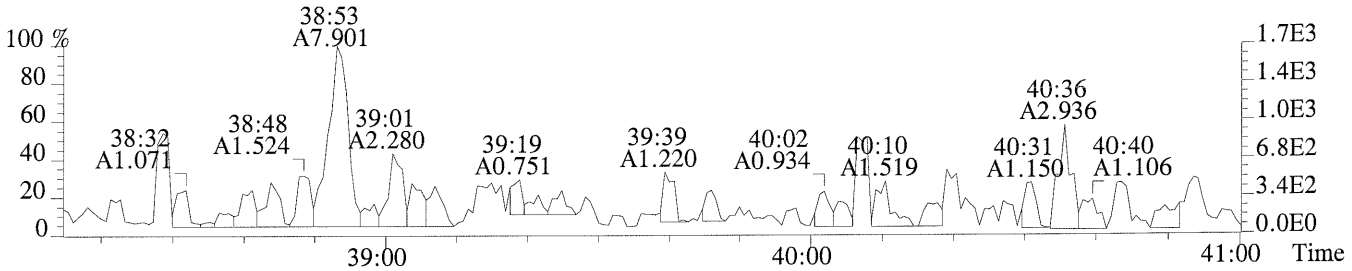


File:P229929 #1-251 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014

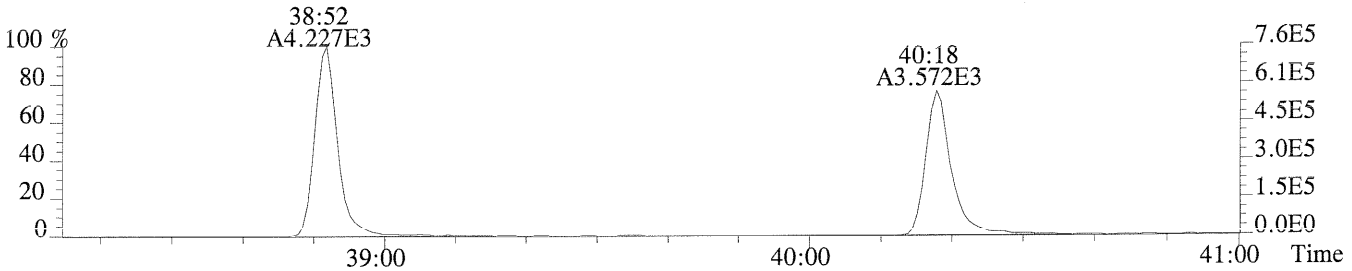
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48.0,0.50%,F,T)



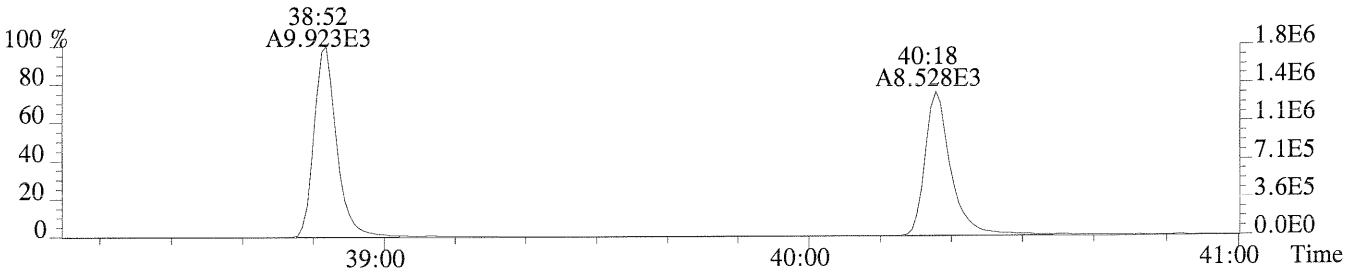
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.50%,F,T)



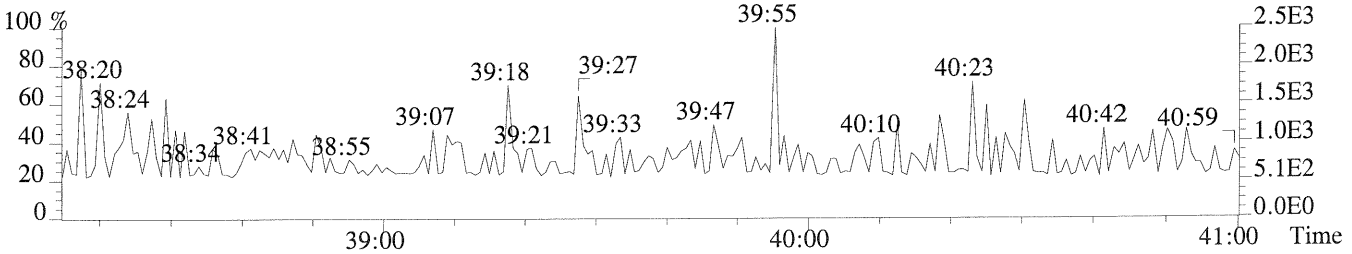
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.50%,F,T)



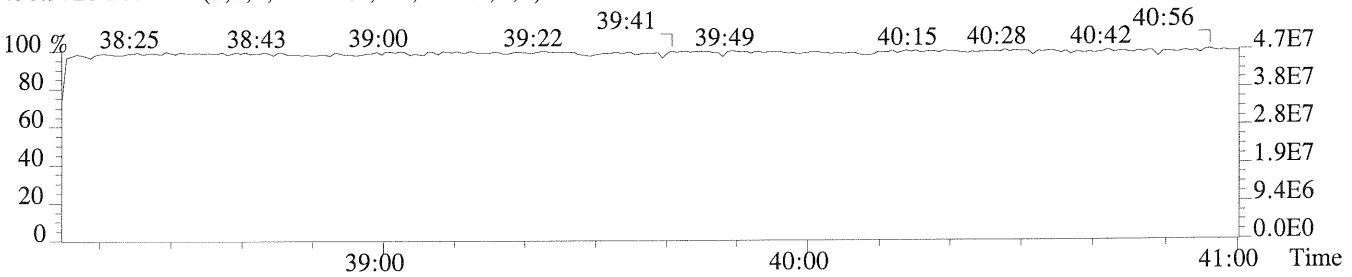
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.50%,F,T)



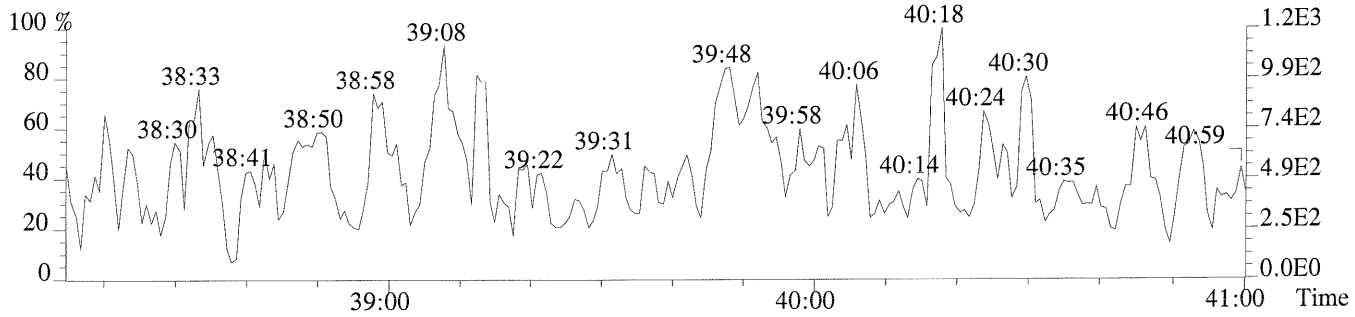
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



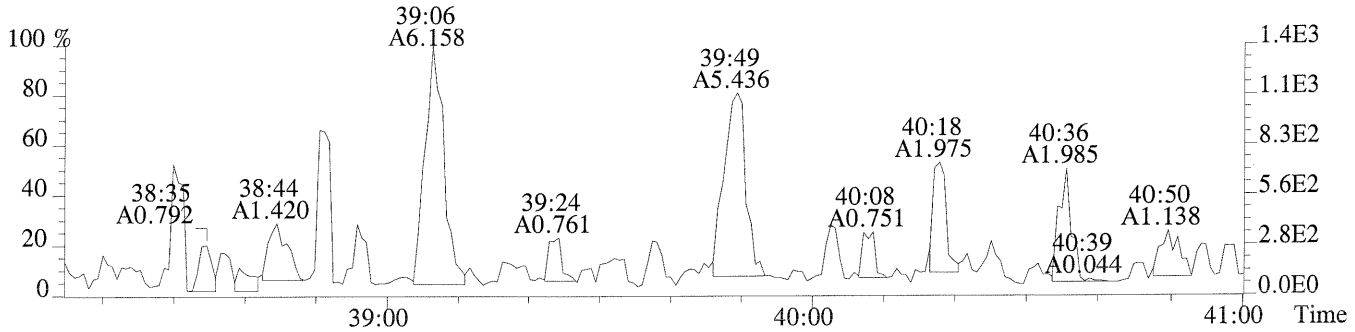
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



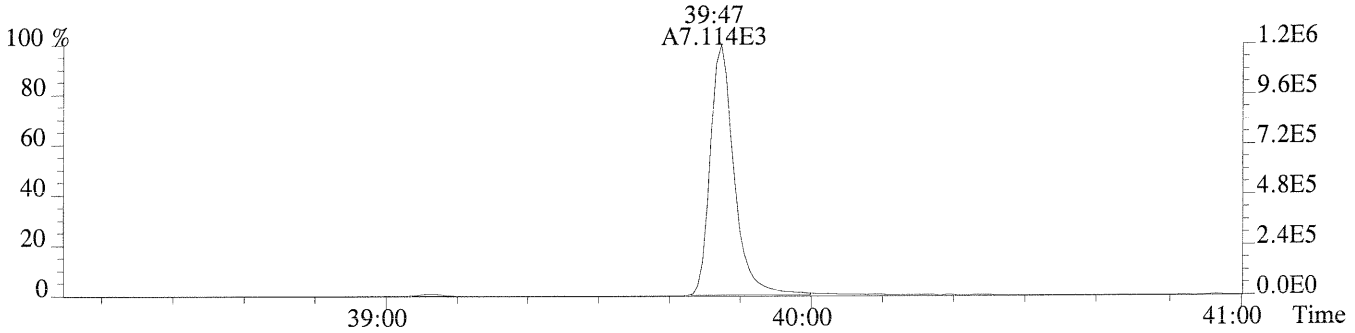
File:P229929 #1-251 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



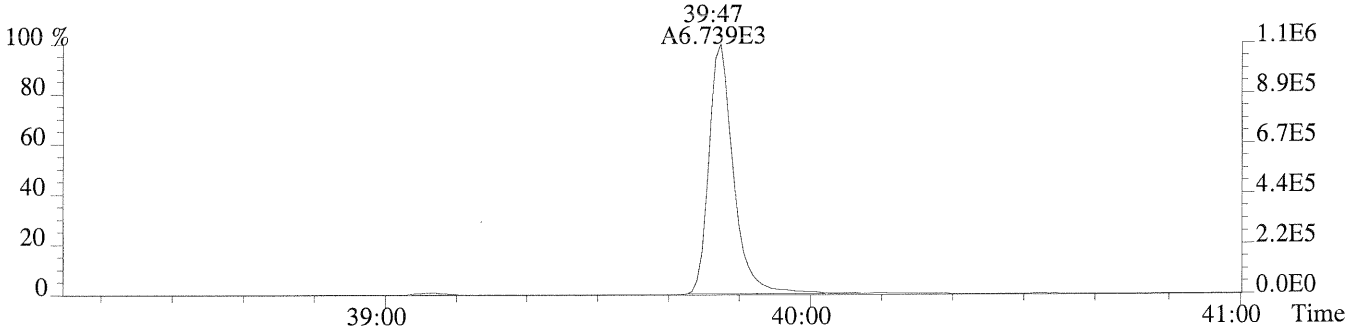
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.40%,F,T)



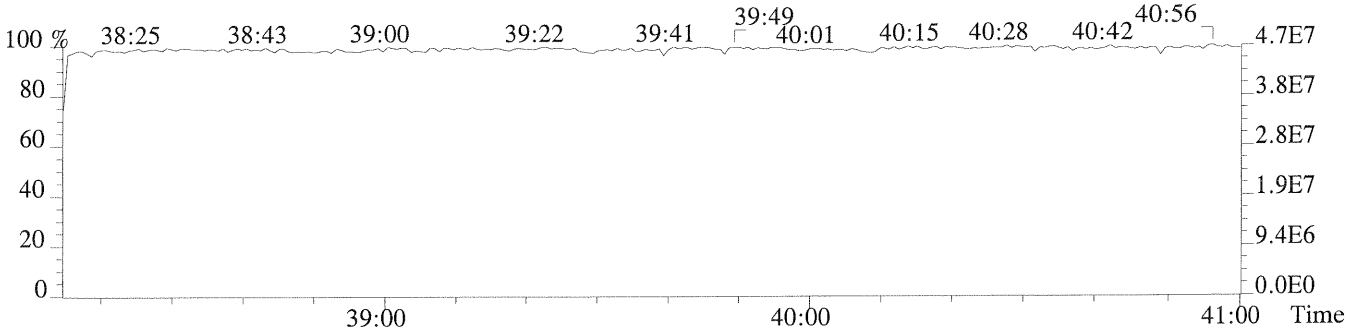
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



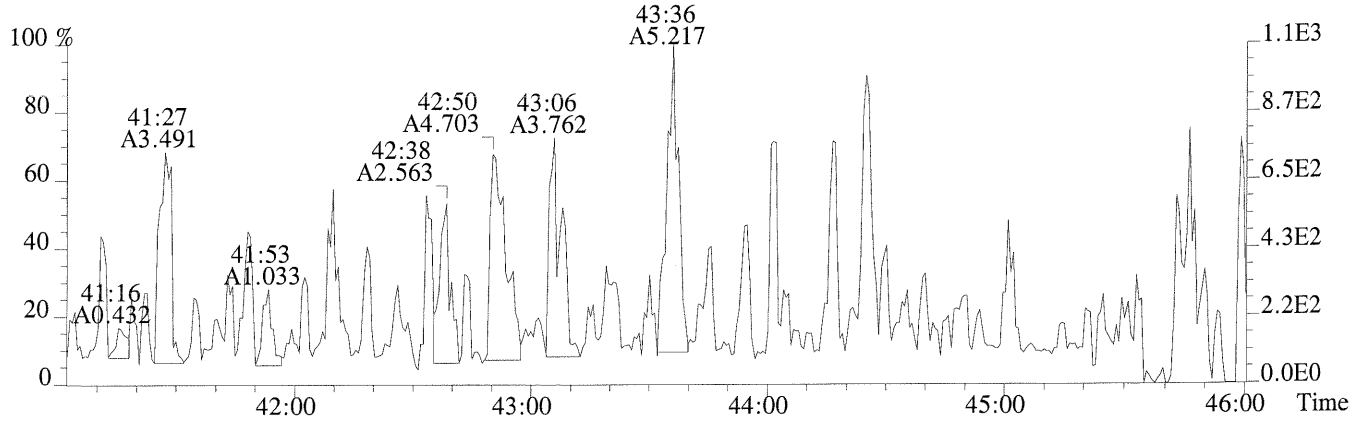
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,60.0,0.40%,F,T)



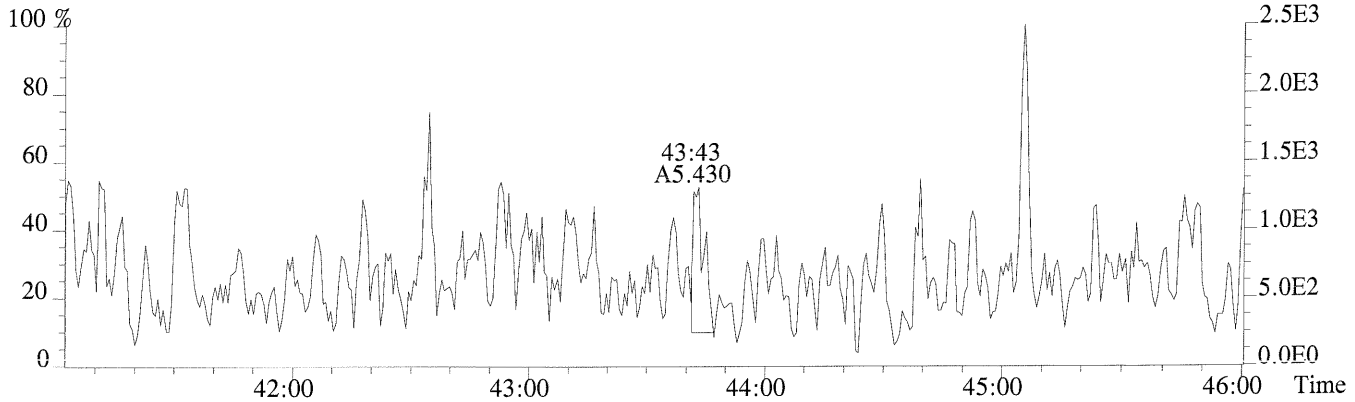
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



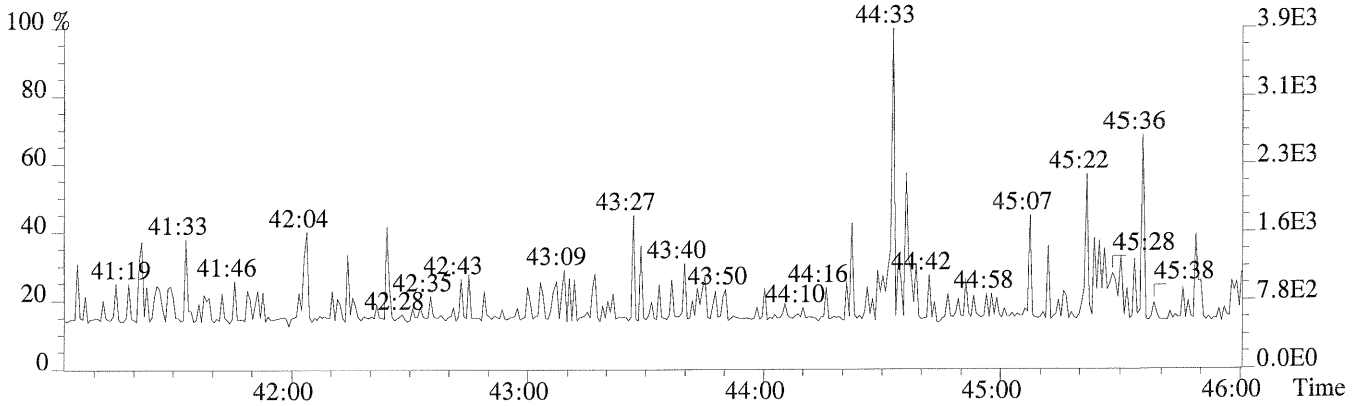
File:P229929 #1-457 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



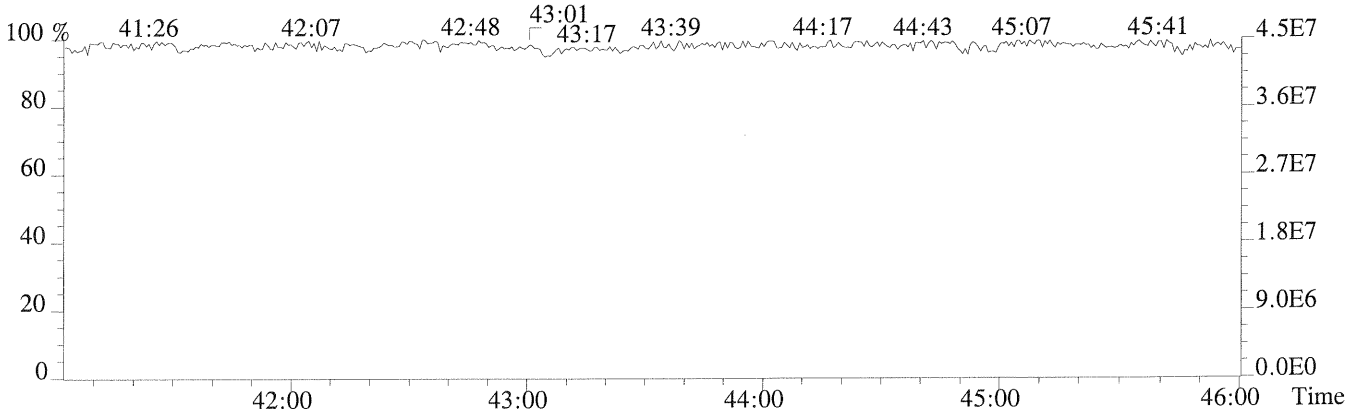
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,768.0,0.40%,F,T)



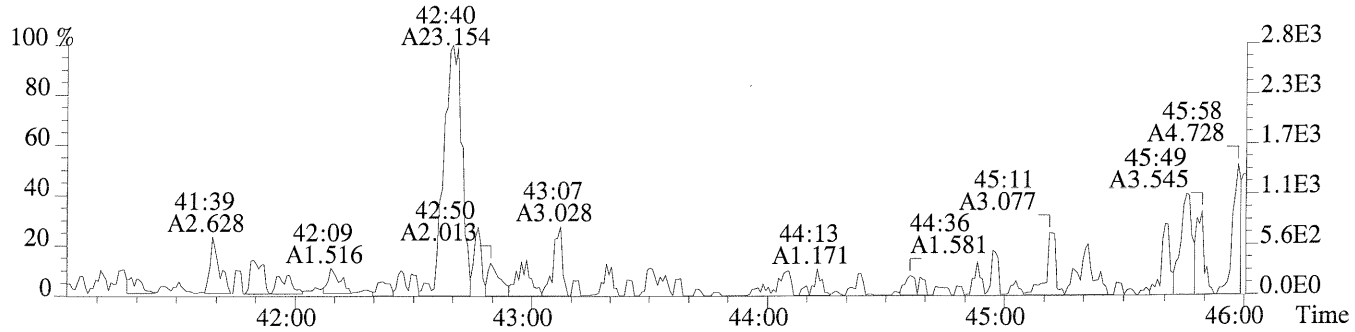
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



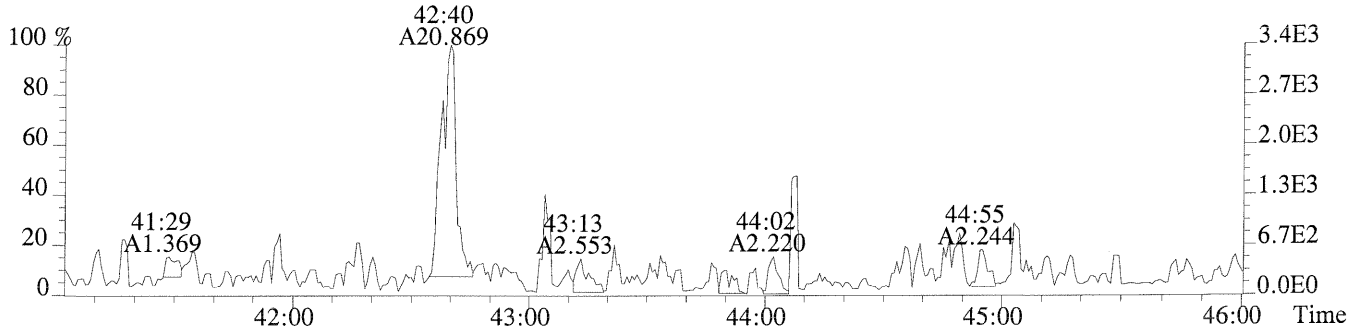
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



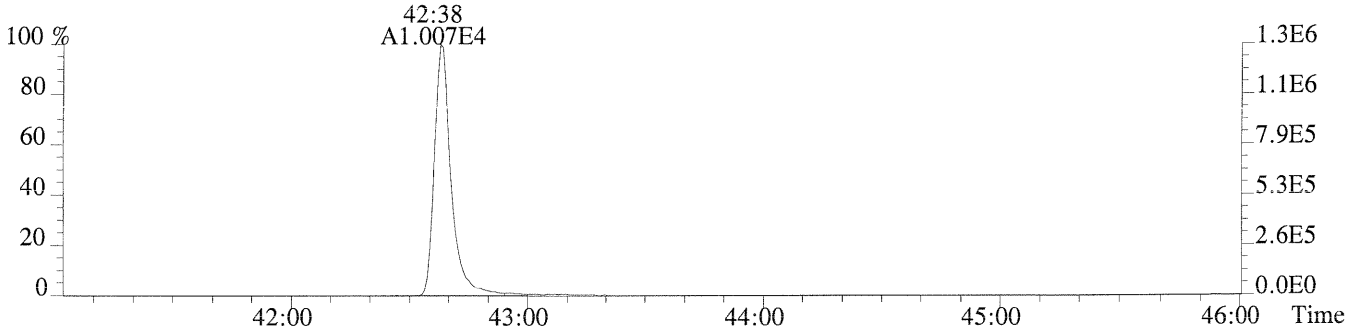
File:P229929 #1-457 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-014
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,72.0,0.40%,F,T)



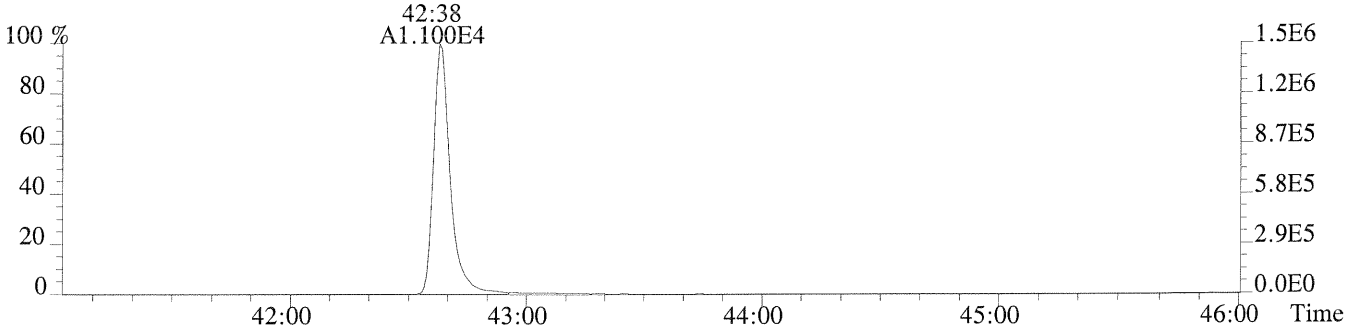
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



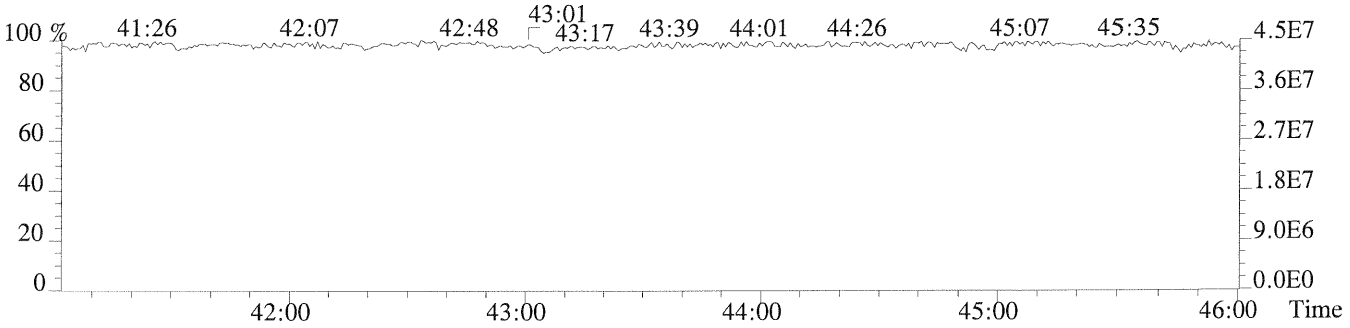
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



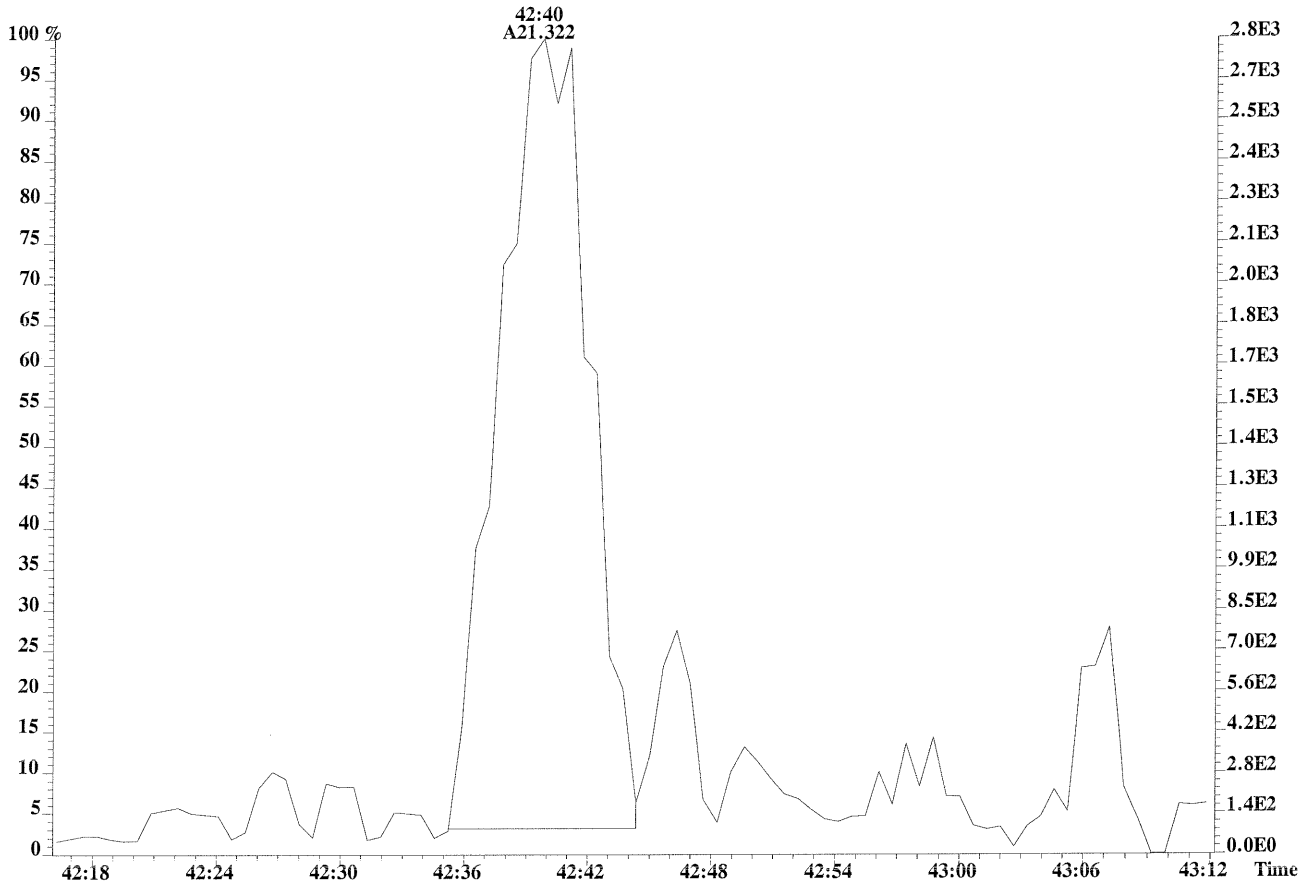
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,192.0,0.40%,F,T)



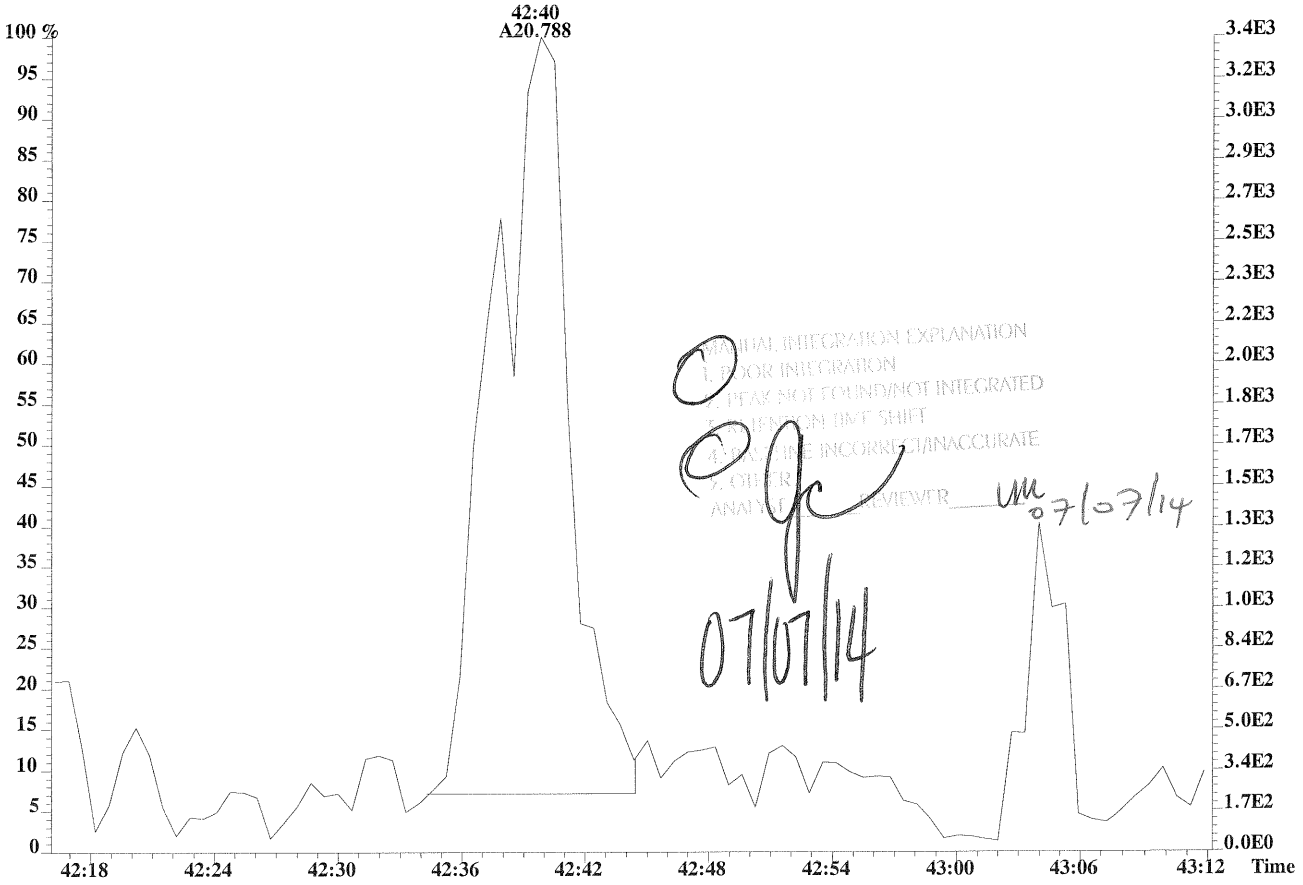
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P229929 #1-457 Acq: 2-JUL-2014 22:09:06 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:R1404651-014
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,72.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,256.0,0.40%,F,T)



ORIGINAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST REVIEWER um 07/07/14
07/07/14

ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406151145 20

Run #4 Filename P229937 Samp: 1 Inj: 1 Acquired: 3-JUL-14 04:31:37
Processed: 7-JUL-14 10:57:17 Sample ID: R1404651-015

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.929
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	1.048
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.976
4	Unk	1,2,3,4,7,8-HxCDF	36:17	8.474e+00	3.094e+00	2.74	no	yes	1.254
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.147
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.161
7	Unk	1,2,3,7,8,9-HxCDF	37:37	7.394e+00	4.330e+00	1.71	no	yes	1.169
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	1.723e+01	1.356e+01	1.27	no	yes	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.309
10	Unk	OCDF	42:51	1.856e+01	2.107e+01	0.88	yes	yes	1.462
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.989
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.014
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.114
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.115
15	Unk	1,2,3,7,8,9-HxCDD	37:18	8.507e+00	5.124e+00	1.66	no	no	1.207
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	7.998e+01	1.001e+02	0.80	no	no	1.091
17	Unk	OCDD	42:37	7.017e+02	7.198e+02	0.97	yes	no	1.183
18	IS	13C-2,3,7,8-TCDF	28:40	5.632e+03	7.095e+03	0.79	yes	no	1.518
19	IS	13C-1,2,3,7,8-PeCDF	32:45	1.246e+04	7.843e+03	1.59	yes	no	2.114
20	IS	13C-2,3,4,7,8-PeCDF	33:38	1.207e+04	7.361e+03	1.64	yes	no	2.137
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	5.204e+03	9.998e+03	0.52	yes	no	1.126
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	7.877e+03	1.534e+04	0.51	yes	no	1.405
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	6.709e+03	1.323e+04	0.51	yes	no	1.260
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	5.207e+03	1.015e+04	0.51	yes	no	1.145
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	4.328e+03	1.039e+04	0.42	yes	no	1.049
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:17	3.659e+03	8.858e+03	0.41	yes	no	0.926
27	IS	13C-2,3,7,8-TCDD	29:25	3.802e+03	4.868e+03	0.78	yes	no	0.993
28	IS	13C-1,2,3,7,8-PeCDD	33:55	9.170e+03	5.608e+03	1.64	yes	no	1.363
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	7.558e+03	5.942e+03	1.27	yes	no	0.821
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	8.886e+03	6.749e+03	1.32	yes	no	0.960
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	7.453e+03	6.816e+03	1.09	yes	no	0.936
32	IS	13C-OCDD	42:37	9.957e+03	1.065e+04	0.93	yes	no	0.735
33	RS/RT	13C-1,2,3,4-TCDD	28:50	6.830e+03	8.773e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.253e+04	9.264e+03	1.35	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	2.920e+03				no	0.993

$$\text{OCDD} = \frac{(7.017e+02 + 7.198e+02) \times 4000 \text{ pg} \times 1}{(9.957e+03 + 1.065e+04) \times 10.187\text{g} \times 96.7 \times 1.183} = 23.677 \text{ ng/kg}$$

MM 07/08/14

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1613RESP1

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Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406151145 200-S

Run #4 Filename P229937 Samp: 1 Inj: 1 Acquired: 3-JUL-14 04:31:37
Processed: 7-JUL-14 10:57:171 LAB. ID: R1404651-015

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	8.80e+01	*	*	8.96e+02	*
2	1,2,3,7,8-PeCDF	*	1.00e+02	*	*	7.16e+02	*
3	2,3,4,7,8-PeCDF	*	1.00e+02	*	*	7.16e+02	*
4	1,2,3,4,7,8-HxCDF	2.09e+03	1.24e+02	1.7e+01	8.29e+02	1.96e+02	4.2e+00
5	1,2,3,6,7,8-HxCDF	*	1.24e+02	*	*	1.96e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.24e+02	*	*	1.96e+02	*
7	1,2,3,7,8,9-HxCDF	1.51e+03	1.24e+02	1.2e+01	8.77e+02	1.96e+02	4.5e+00
8	1,2,3,4,6,7,8-HpCDF	2.86e+03	1.00e+02	2.9e+01	2.57e+03	2.52e+02	1.0e+01
9	1,2,3,4,7,8,9-HpCDF	*	1.00e+02	*	*	2.52e+02	*
10	OCDF	4.03e+03	9.20e+01	4.4e+01	2.79e+03	5.76e+02	4.9e+00
11	2,3,7,8-TCDD	*	3.04e+02	*	*	3.52e+02	*
12	1,2,3,7,8-PeCDD	*	5.84e+02	*	*	5.20e+01	*
13	1,2,3,4,7,8-HxCDD	*	1.84e+02	*	*	2.16e+02	*
14	1,2,3,6,7,8-HxCDD	*	1.84e+02	*	*	2.16e+02	*
15	1,2,3,7,8,9-HxCDD	1.47e+03	1.84e+02	8.0e+00	1.15e+03	2.16e+02	5.3e+00
16	1,2,3,4,6,7,8-HpCDD	1.36e+04	2.60e+02	5.2e+01	1.73e+04	5.60e+01	3.1e+02
17	OCDD	9.05e+04	4.80e+01	1.9e+03	9.53e+04	2.68e+02	3.6e+02
18	13C-2,3,7,8-TCDF	1.02e+06	5.80e+02	1.8e+03	1.28e+06	8.28e+02	1.6e+03
19	13C-1,2,3,7,8-PeCDF	2.06e+06	5.56e+02	3.7e+03	1.28e+06	3.36e+02	3.8e+03
20	13C-2,3,4,7,8-PeCDF	2.16e+06	5.56e+02	3.9e+03	1.30e+06	3.36e+02	3.9e+03
21	13C-1,2,3,4,7,8-HxCDF	1.04e+06	2.72e+02	3.8e+03	1.94e+06	6.92e+02	2.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.38e+06	2.72e+02	5.1e+03	2.75e+06	6.92e+02	4.0e+03
23	13C-2,3,4,6,7,8-HxCDF	1.25e+06	2.72e+02	4.6e+03	2.45e+06	6.92e+02	3.5e+03
24	13C-1,2,3,7,8,9-HxCDF	8.99e+05	2.72e+02	3.3e+03	1.74e+06	6.92e+02	2.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.61e+05	7.44e+02	1.0e+03	1.82e+06	9.80e+02	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.69e+05	7.44e+02	7.6e+02	1.34e+06	9.80e+02	1.4e+03
27	13C-2,3,7,8-TCDD	7.47e+05	1.96e+03	3.8e+02	9.54e+05	8.92e+02	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.59e+06	3.80e+02	4.2e+03	9.88e+05	2.28e+02	4.3e+03
29	13C-1,2,3,4,7,8-HxCDD	1.54e+06	2.52e+02	6.1e+03	1.22e+06	3.24e+02	3.8e+03
30	13C-1,2,3,6,7,8-HxCDD	1.57e+06	2.52e+02	6.2e+03	1.19e+06	3.24e+02	3.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.21e+06	3.20e+02	3.8e+03	1.12e+06	7.20e+01	1.6e+04
32	13C-OCDD	1.32e+06	1.48e+02	8.9e+03	1.40e+06	1.36e+02	1.0e+04
33	13C-1,2,3,4-TCDD	1.34e+06	1.96e+03	6.9e+02	1.74e+06	8.92e+02	2.0e+03
34	13C-1,2,3,7,8,9-HxCDD	2.25e+06	2.52e+02	8.9e+03	1.73e+06	3.24e+02	5.3e+03
35	37Cl-2,3,7,8-TCDD	5.69e+05	8.80e+01	6.5e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406151145 200-S

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 4 File: P229937 Sample: 1 Injection: 1 Function: 3
Llim: 35:36 Ulim: 37:24
Acquired: 3-JUL-14 04:31:37 Processed: 7-JUL-14 10:57:17
Mass: 389.8160 391.8130 Tot Response: 2.67e+01 RRF: 1.145

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:42	6.57e+00	6.11e+00	1.08	yes	1.27e+01		y	y
2	36:25	8.11e+00	5.95e+00	1.36	yes	1.41e+01		n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406151145 200-S

Entry: 43 Totals Name: Total Hepta-Furans

Run: 4 File: P229937 Sample: 1 Injection: 1 Function: 4
Llim: 38:46 Ulim: 40:28
Acquired: 3-JUL-14 04:31:37 Processed: 7-JUL-14 10:57:17
Mass: 407.7820 409.7790 Tot Response: 2.82e+01 RRF: 1.343

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:16	1.39e+01	1.43e+01	0.97	yes	2.82e+01	y	y

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406151145 200-S

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 4 File: P229937 Sample: 1 Injection: 1 Function: 4
Llim: 39:01 Ulim: 39:57
Acquired: 3-JUL-14 04:31:37 Processed: 7-JUL-14 10:57:17
Mass: 423.7770 425.7740 Tot Response: 1.77e+02 RRF: 1.091

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	9.37e+01	8.37e+01	1.12	yes	1.77e+02	n	n

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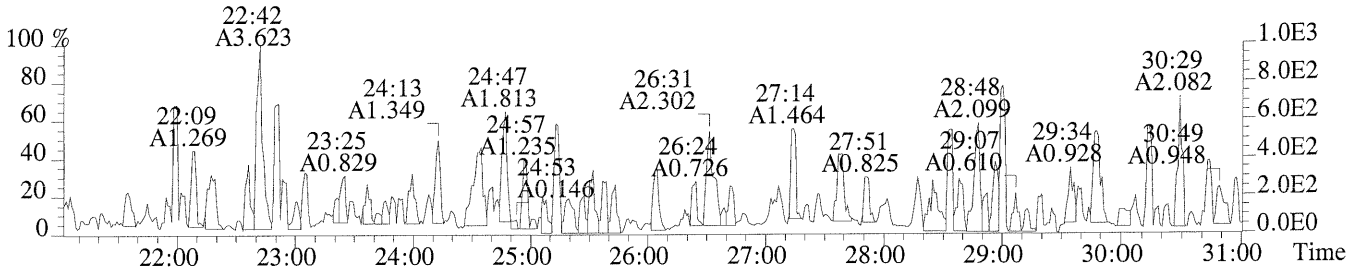
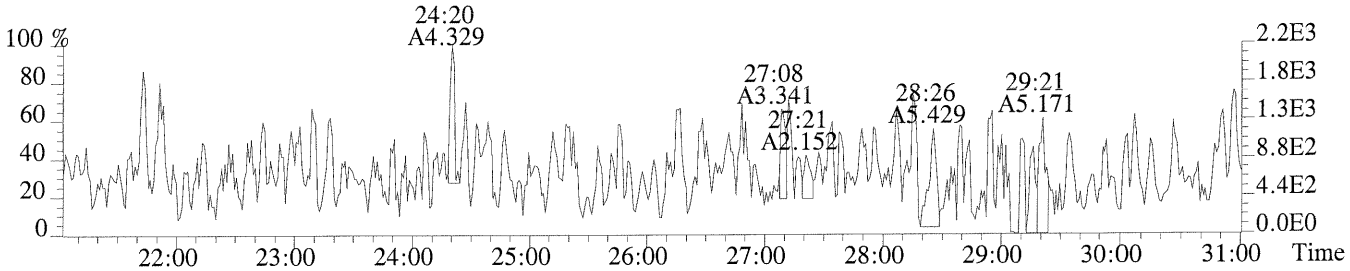
File:P229937 #1-627 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015

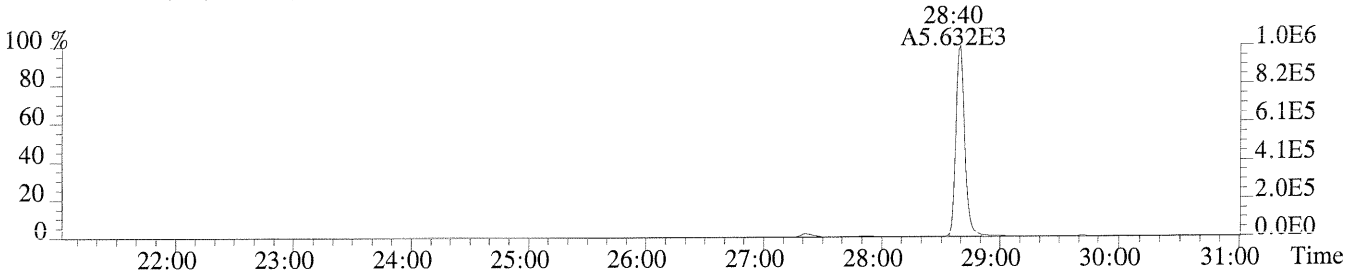
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,88.0,1.00%,F,T)



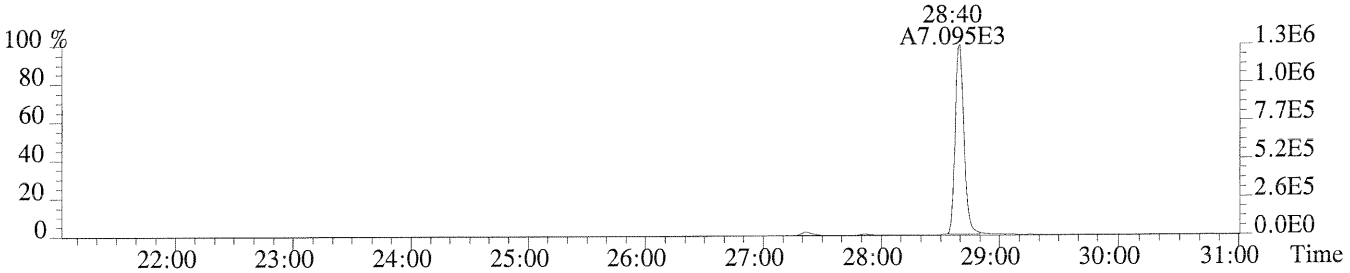
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



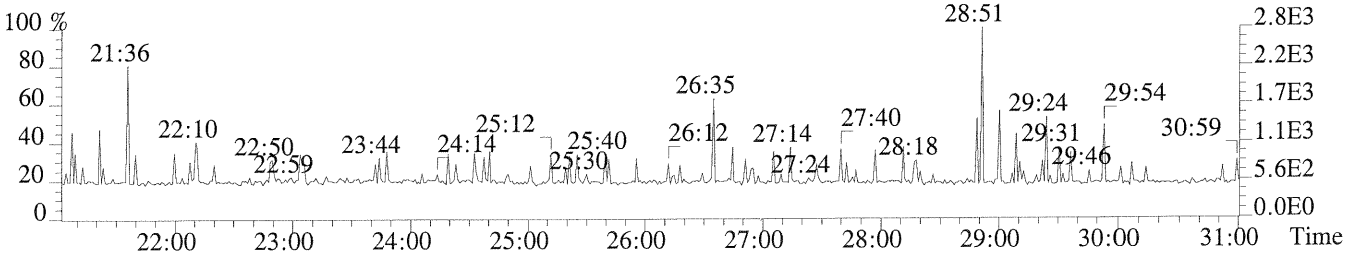
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



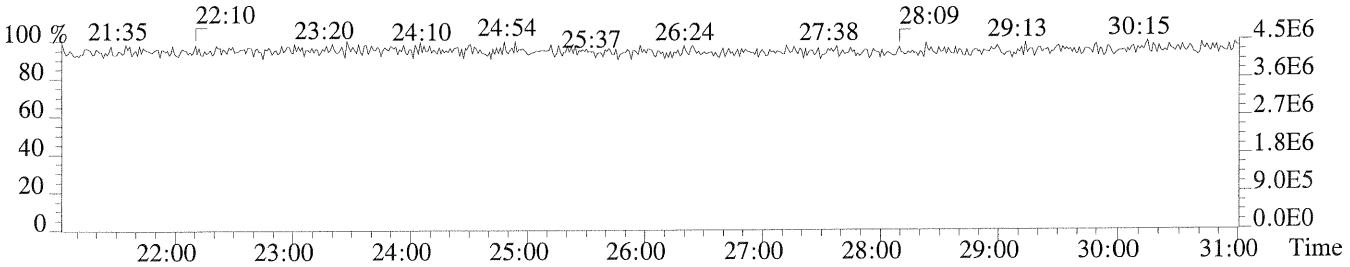
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

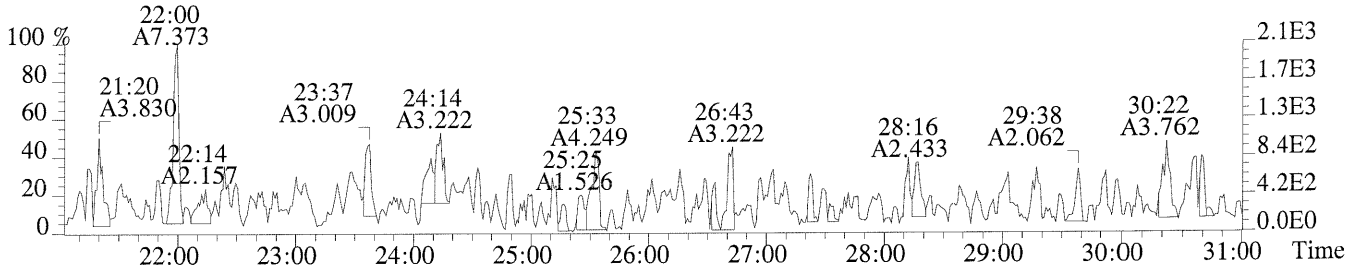


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

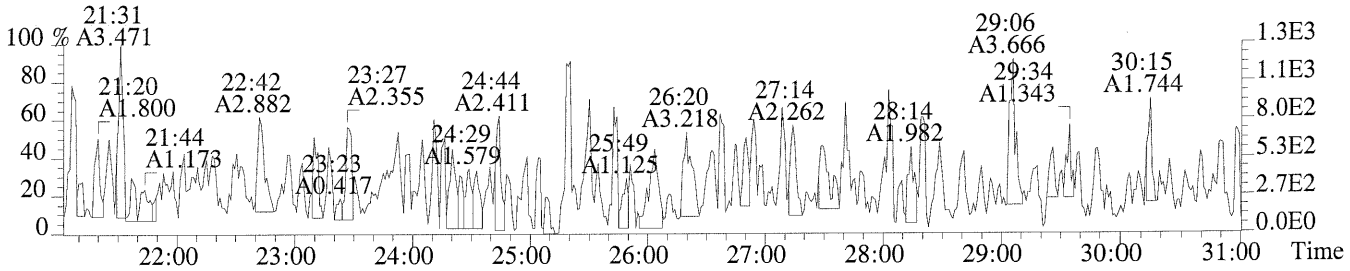


File:P229937 #1-627 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015

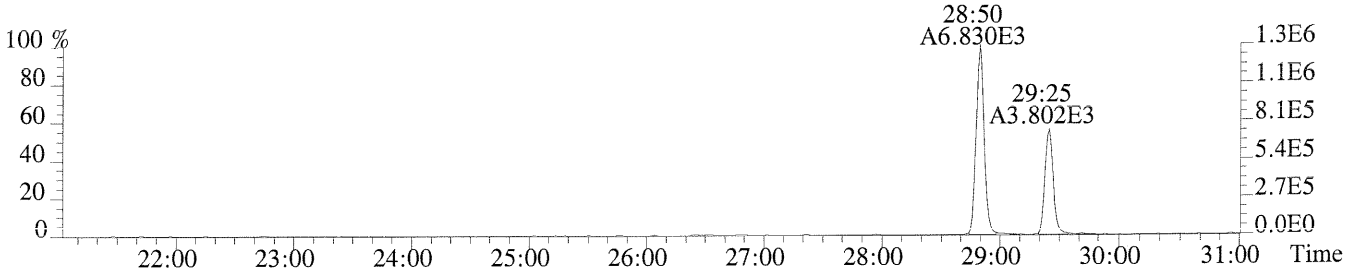
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,304.0,1.00%,F,T)



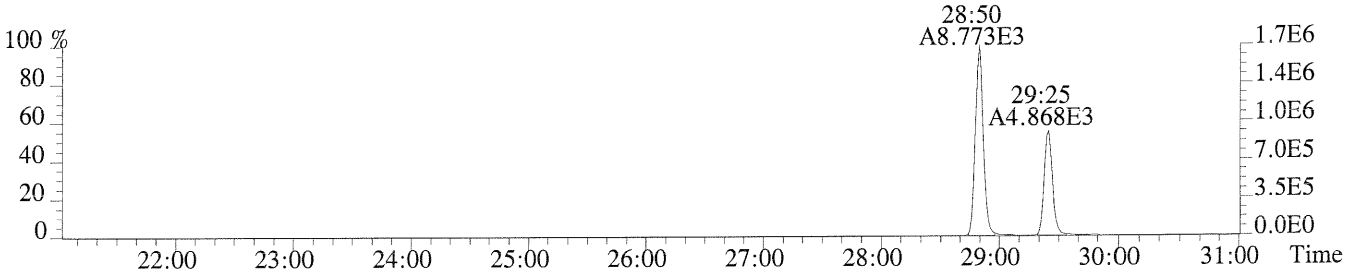
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



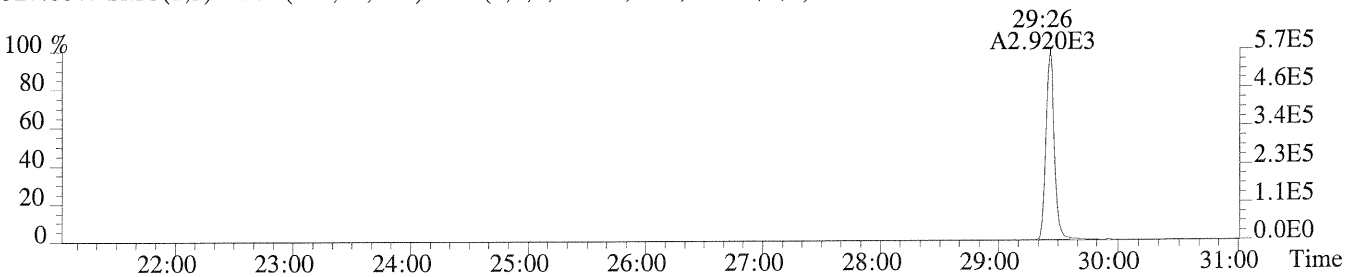
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1960.0,1.00%,F,T)



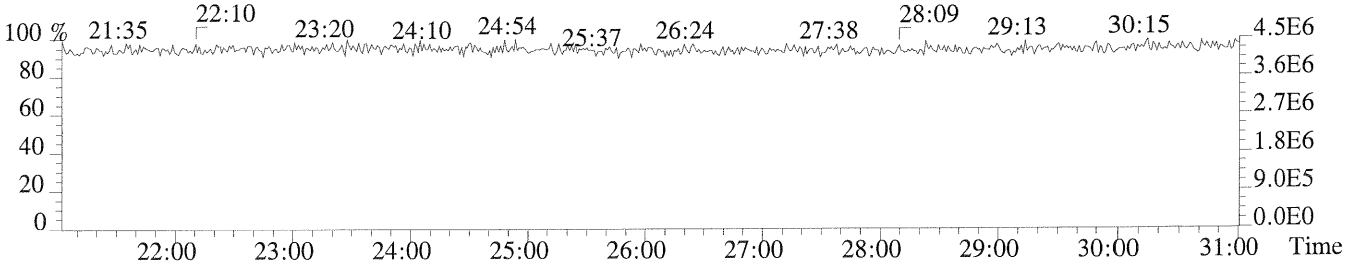
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



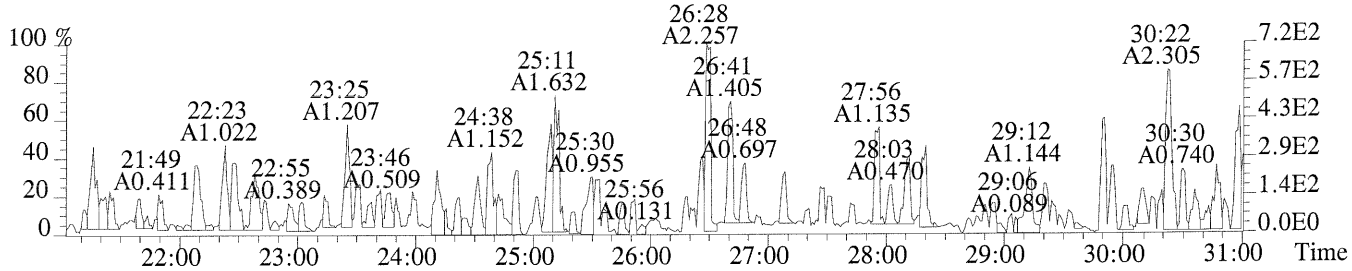
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,88.0,1.00%,F,T)



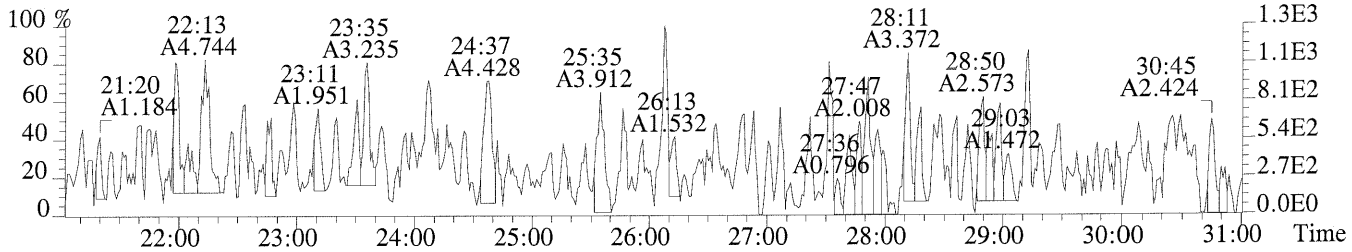
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



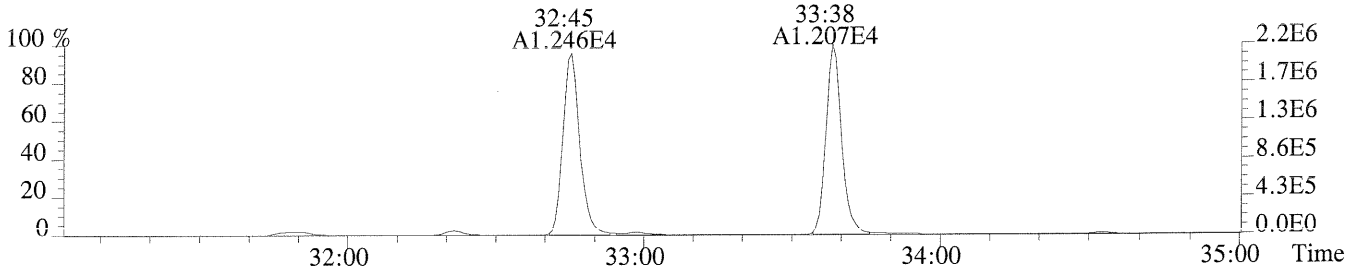
File:P229937 #1-627 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,52.0,1.00%,F,T)



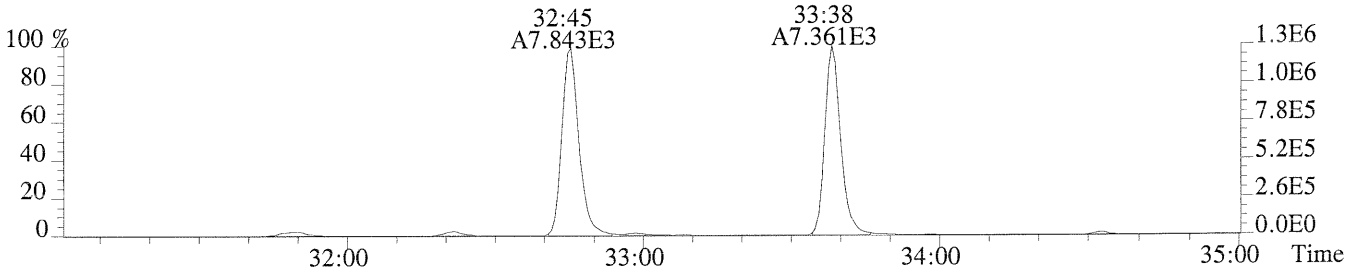
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



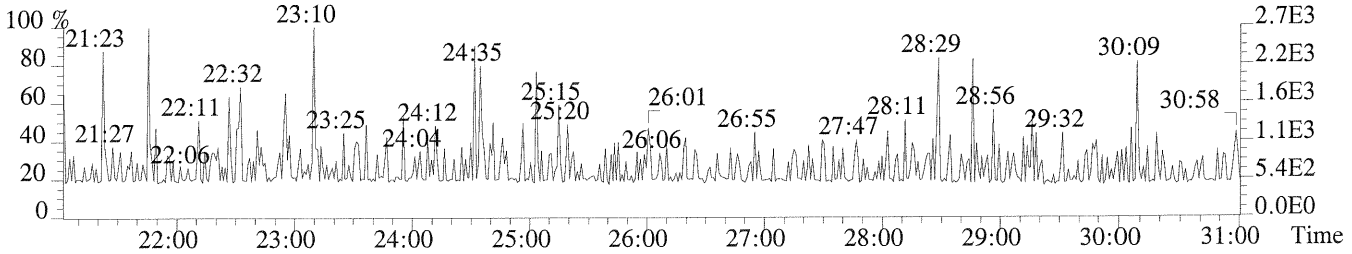
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



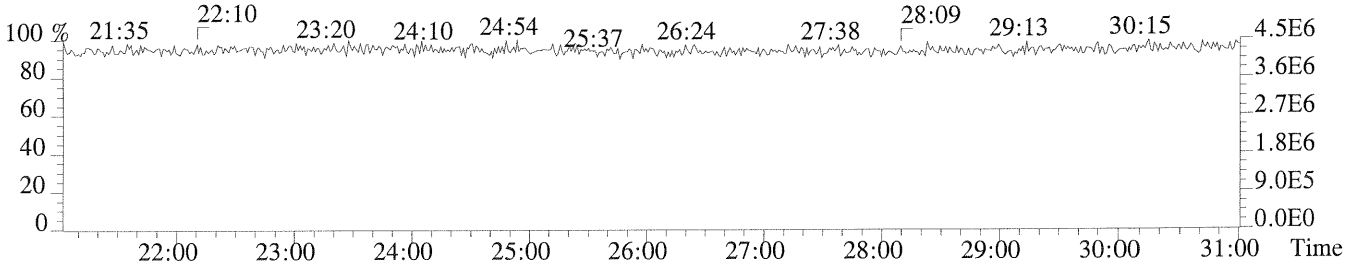
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

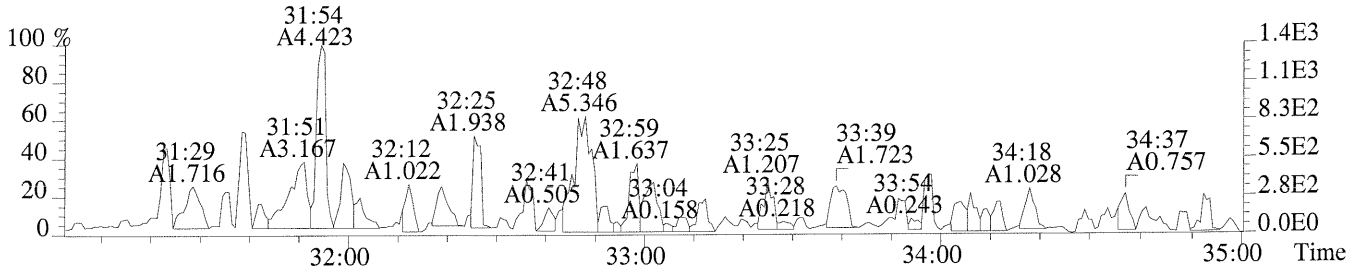


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

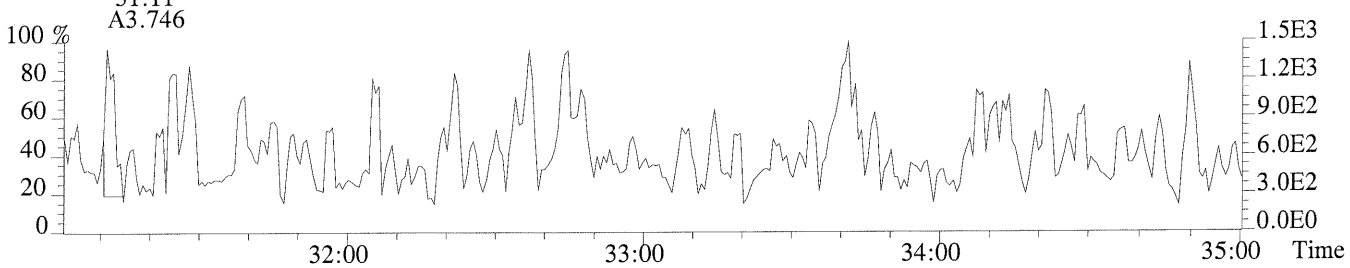


File:P229937 #1-360 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015

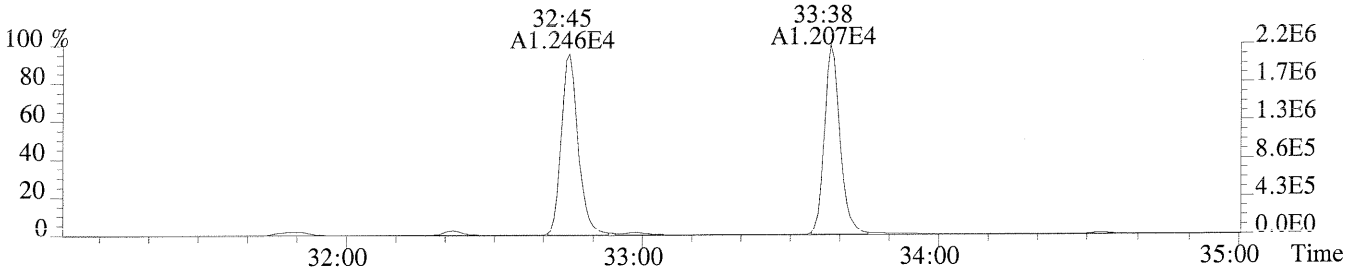
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,100.0,1.00%,F,T)



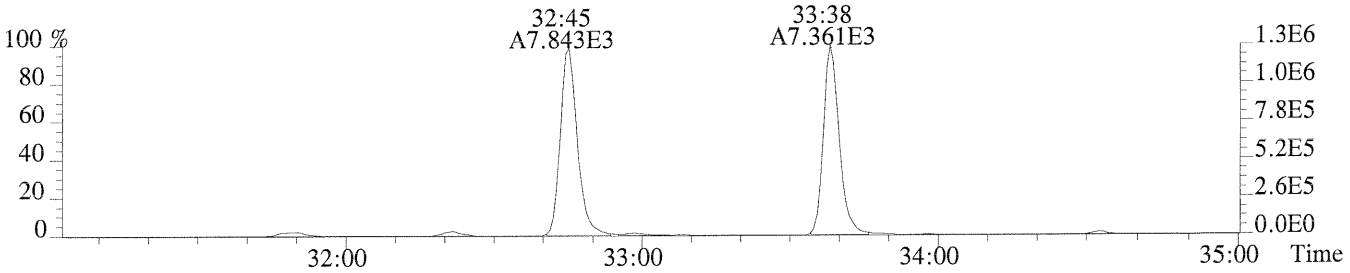
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



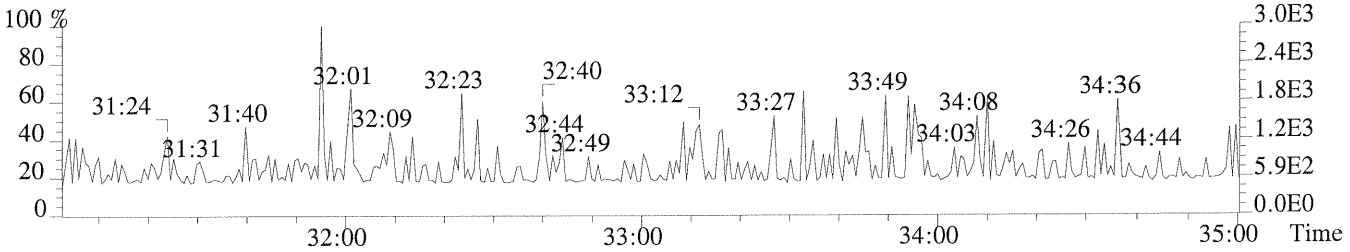
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



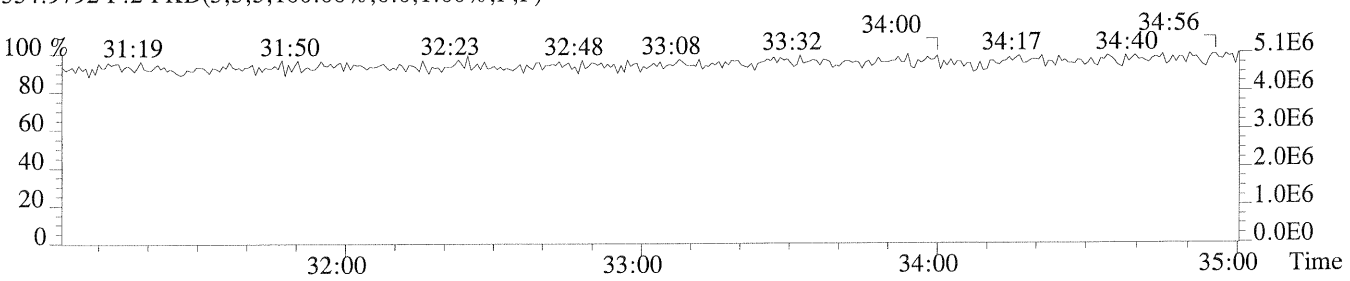
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

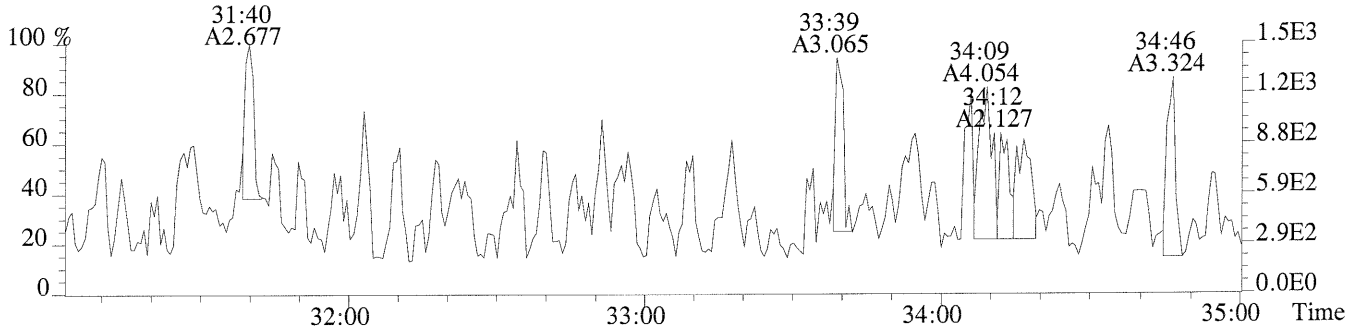


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

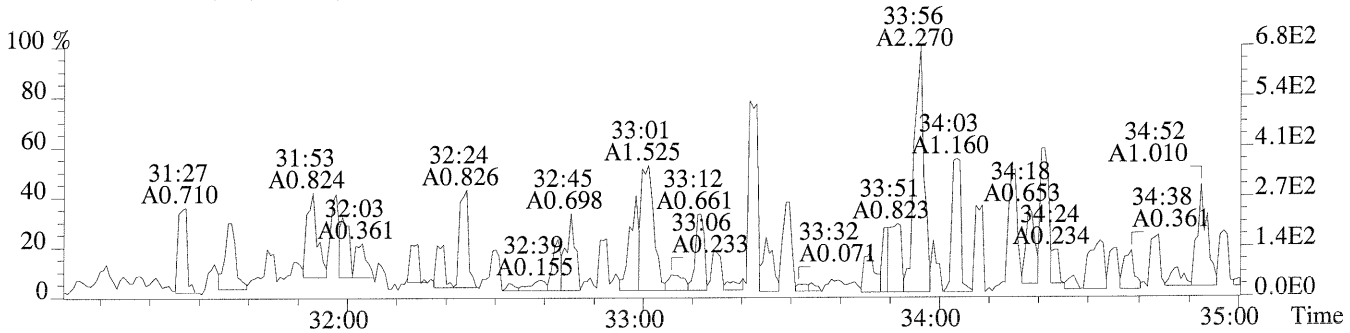


File:P229937 #1-360 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015

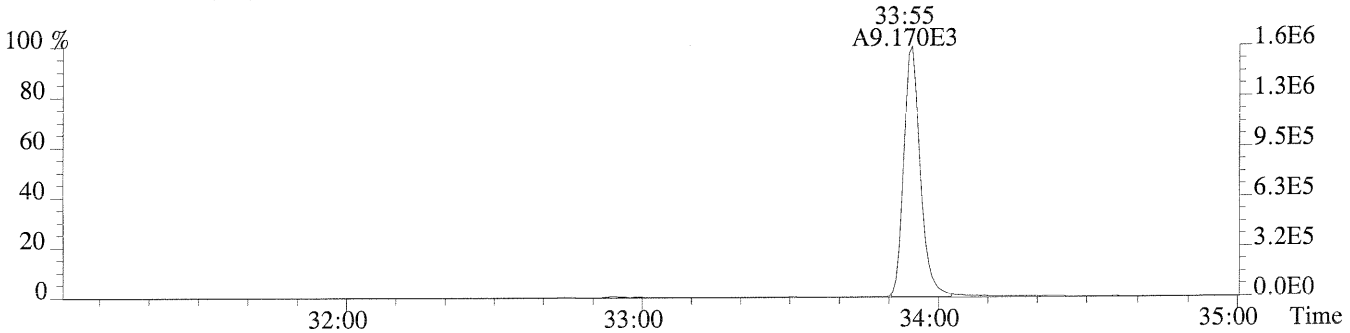
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



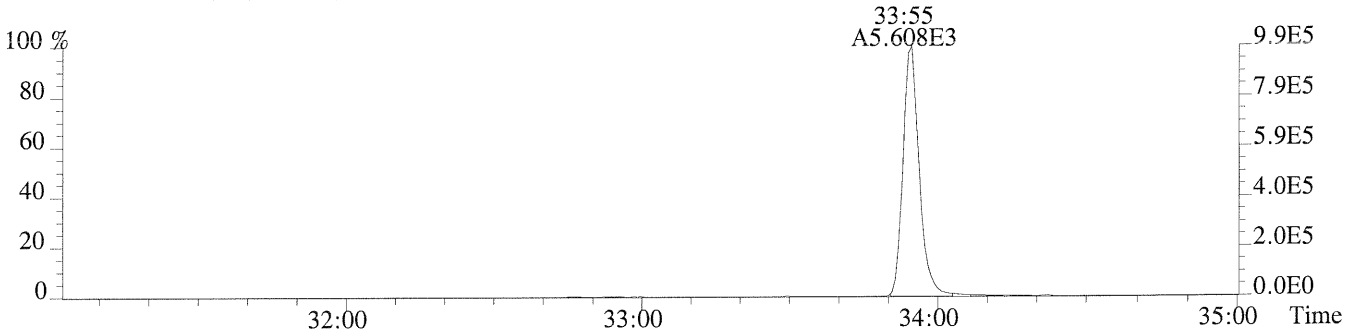
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,52.0,1.00%,F,T)



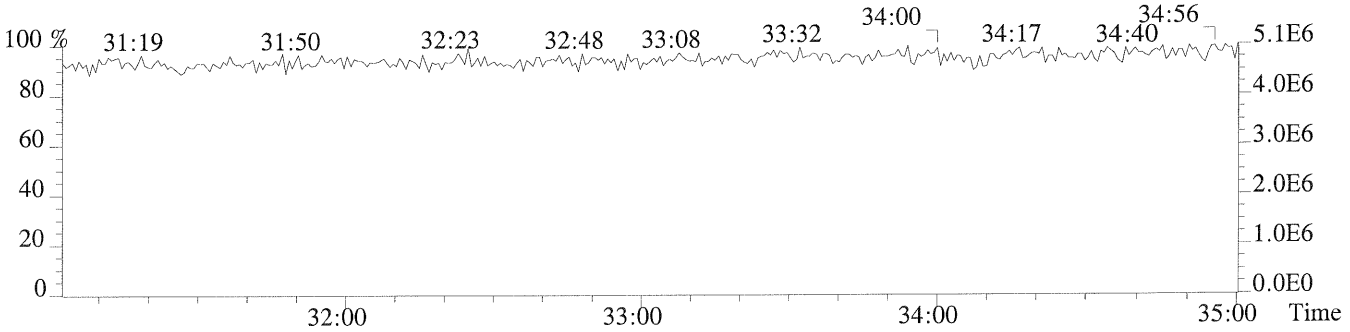
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)

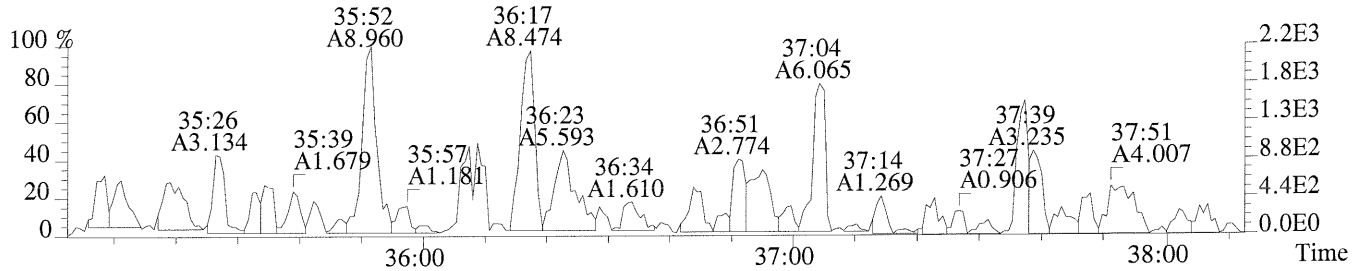


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

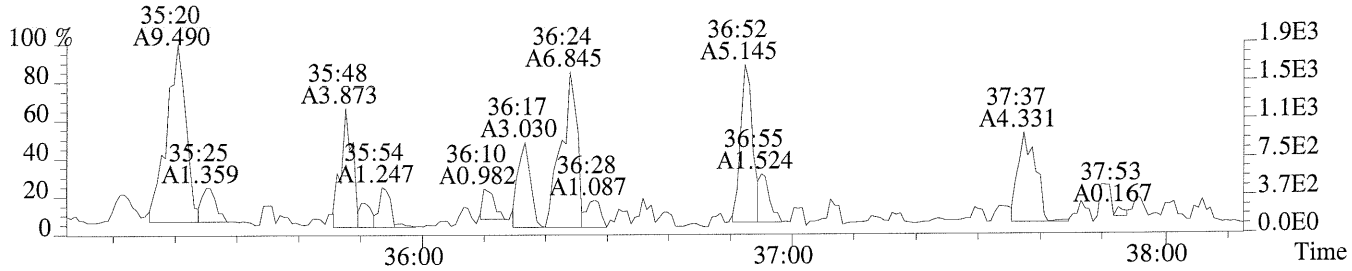


File:P229937 #1-288 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015

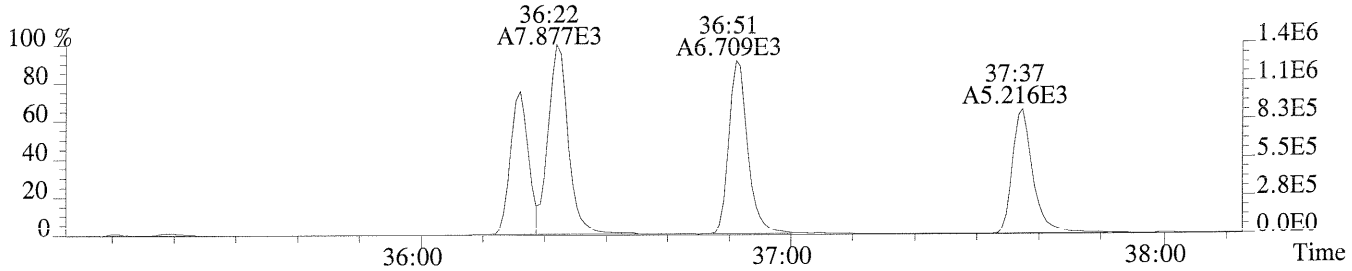
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,124.0,0.40%,F,T)



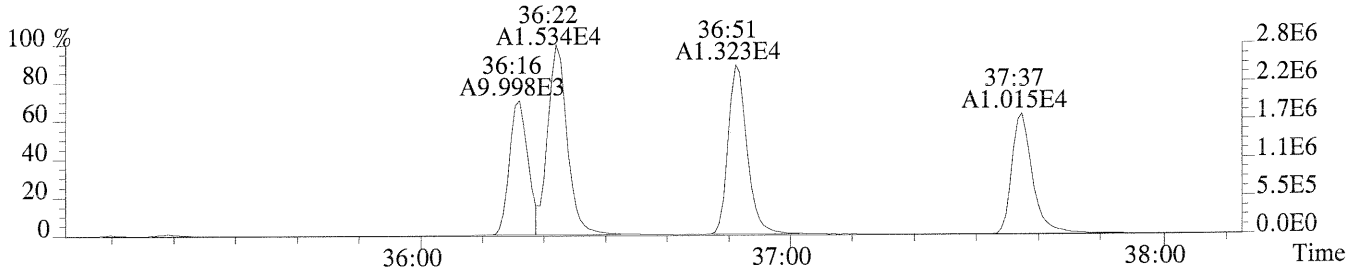
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



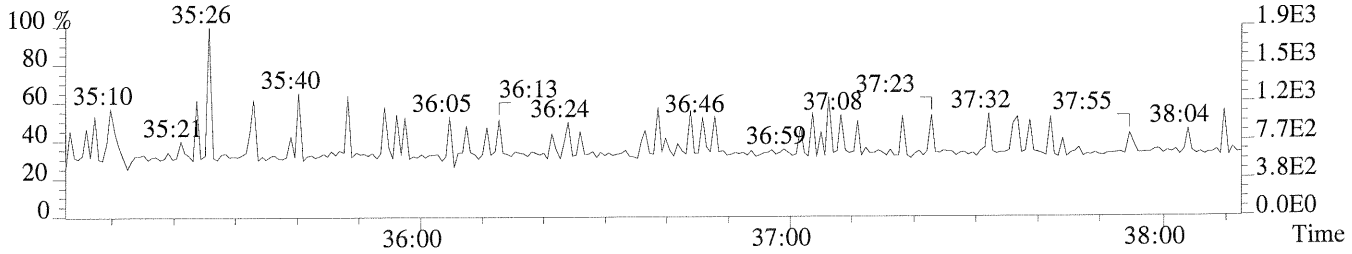
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



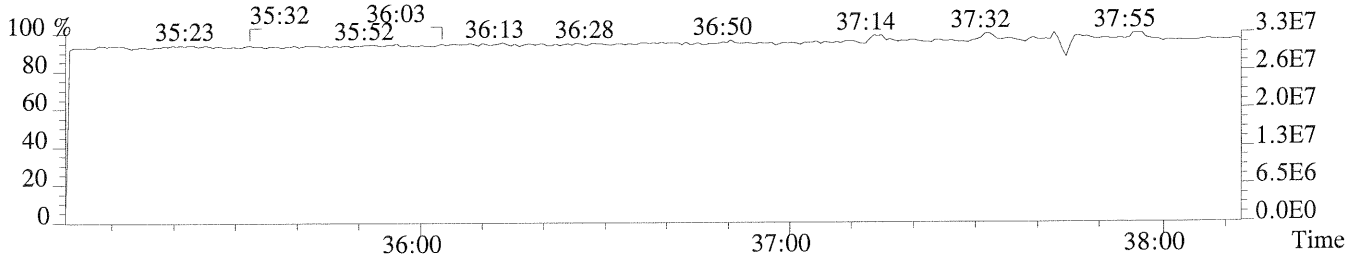
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



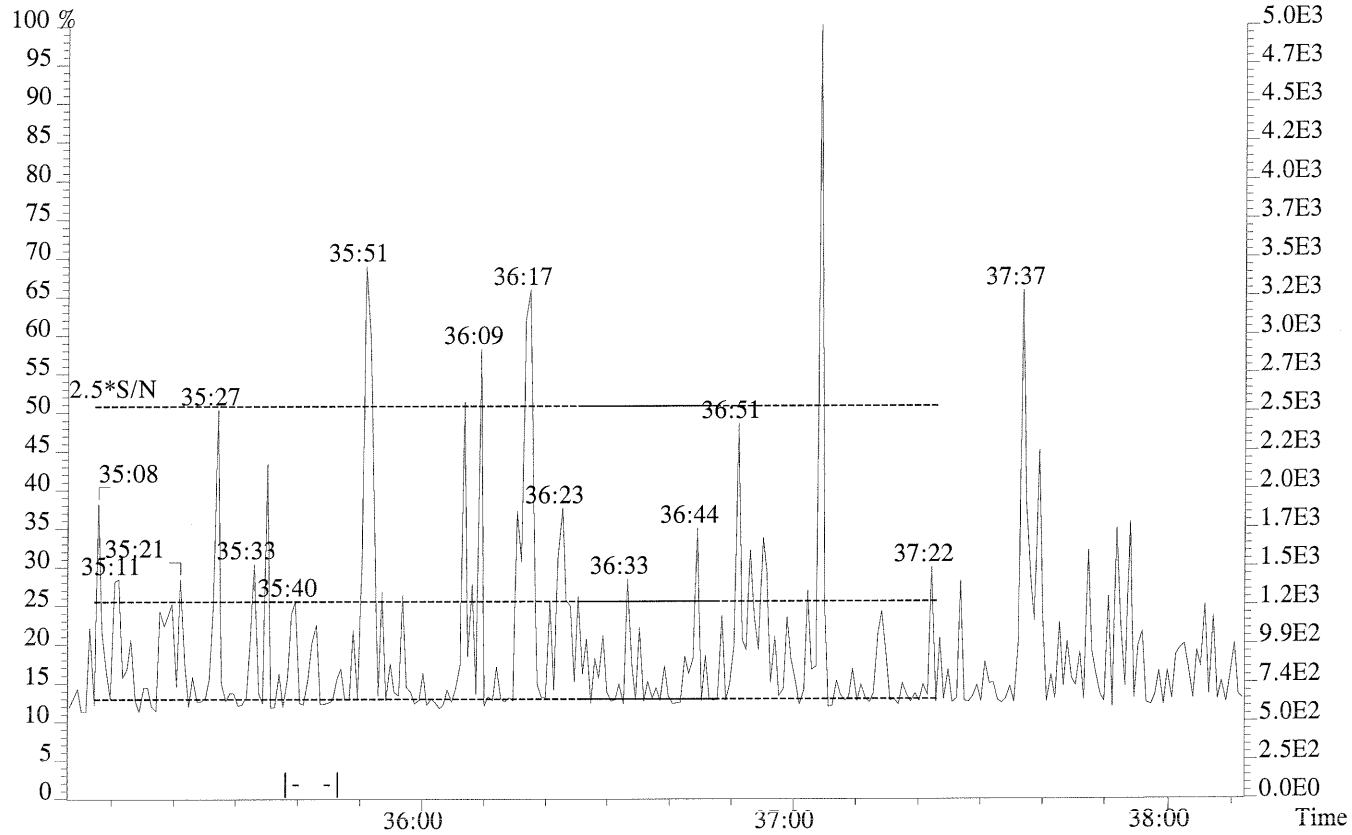
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



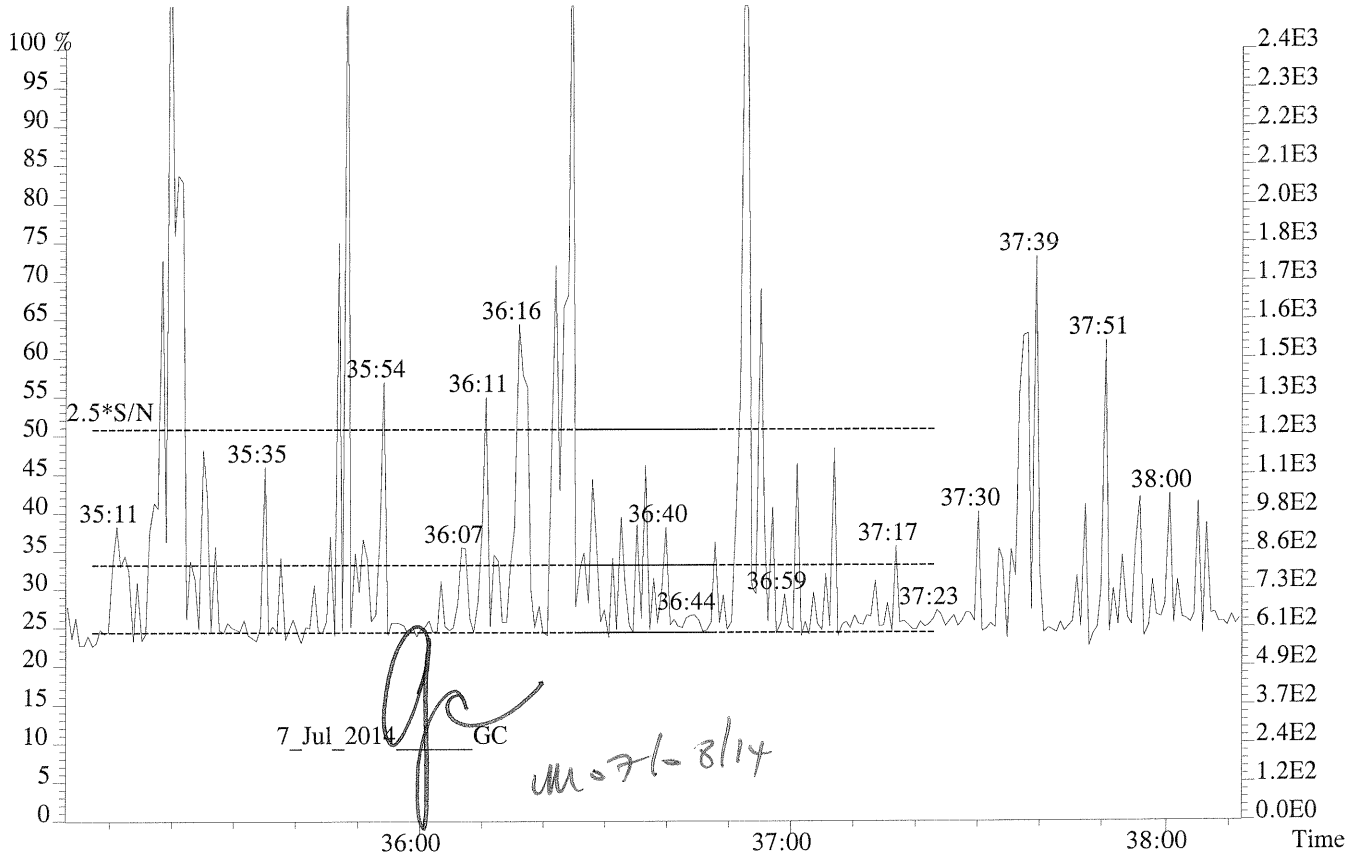
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



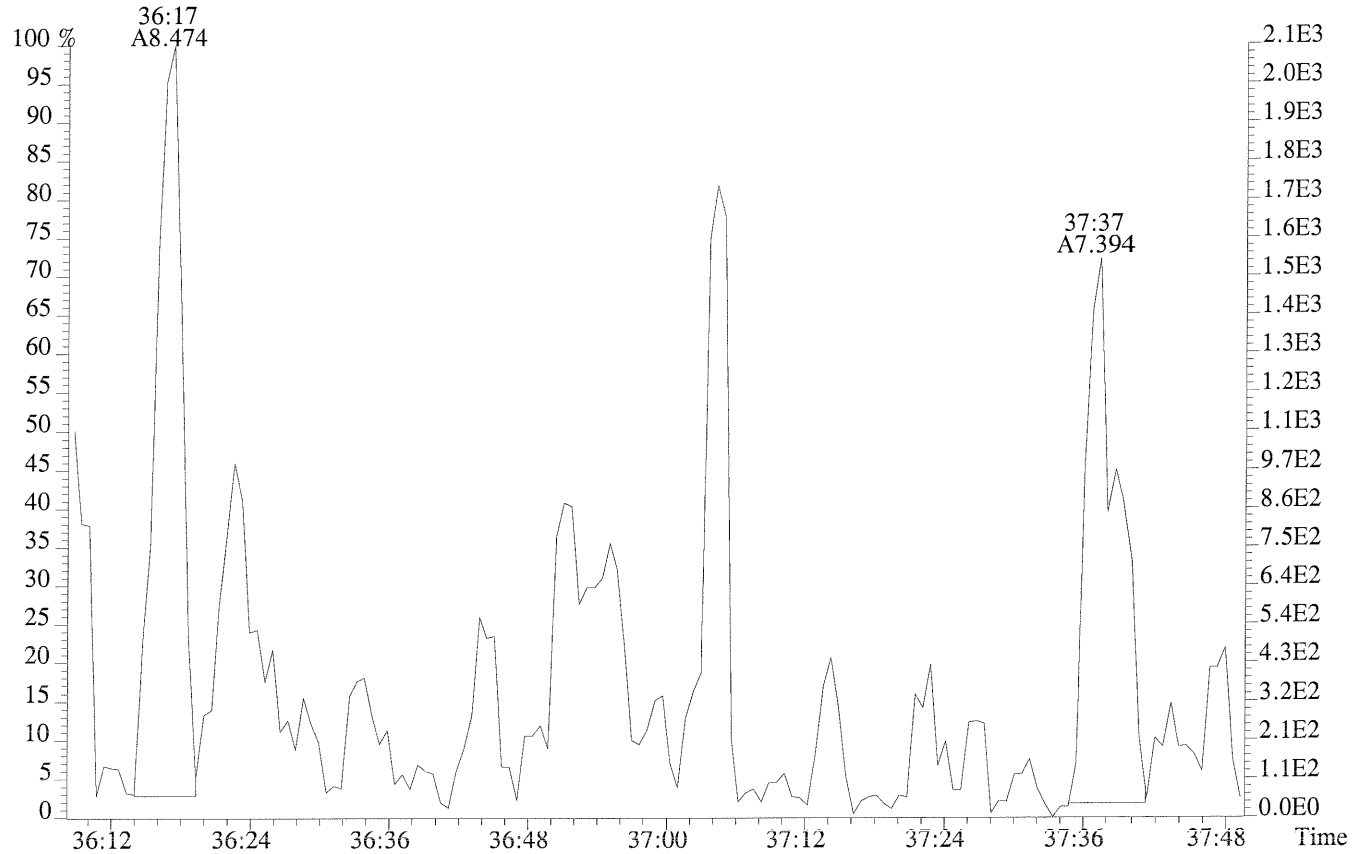
File:P229937 #1-288 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015
373.8208 F:3



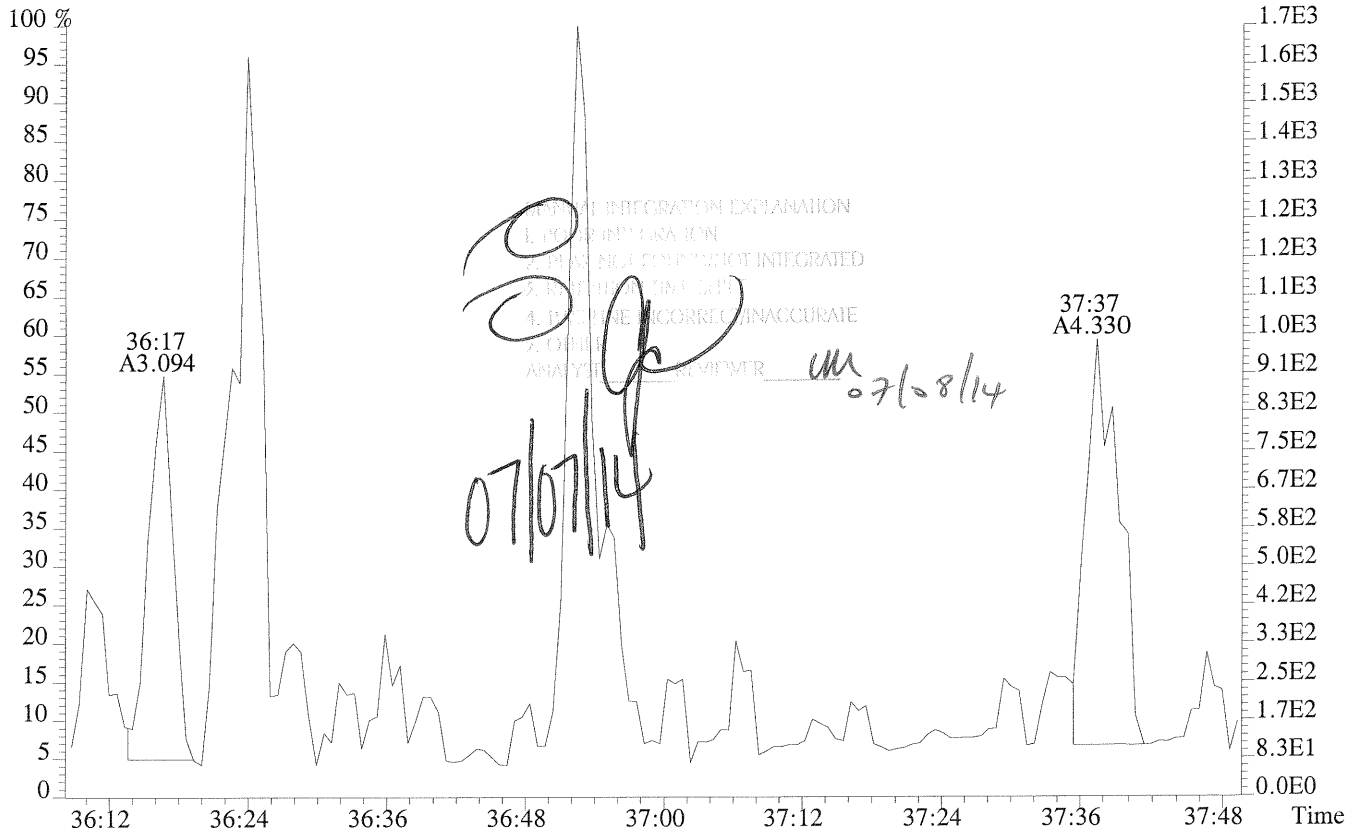
375.8178 F:3



File:P229937 #1-288 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0)

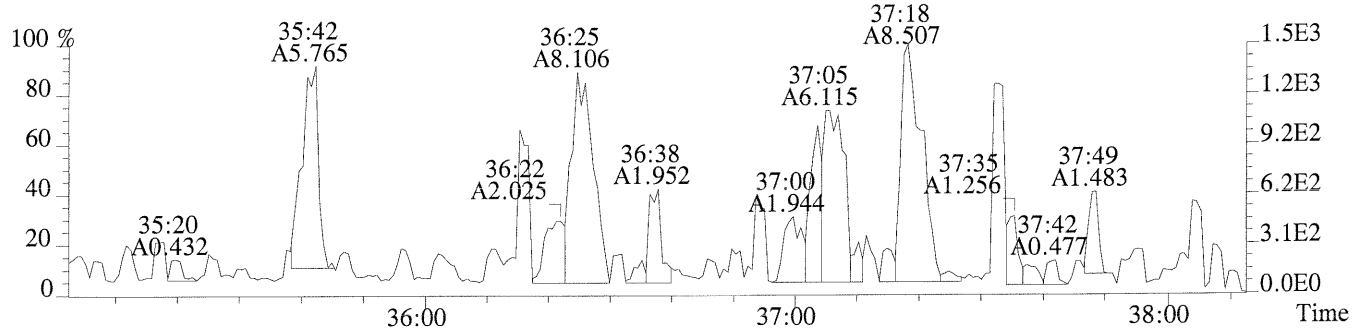


375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0)

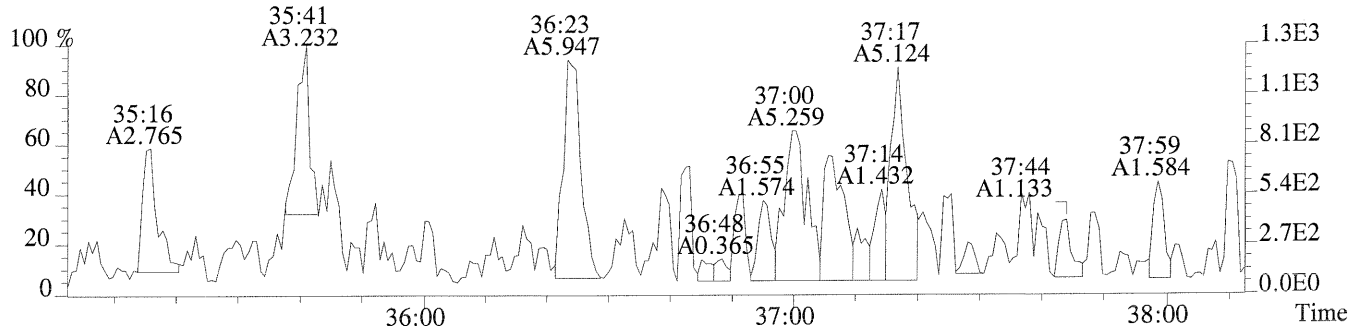


File:P229937 #1-288 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015

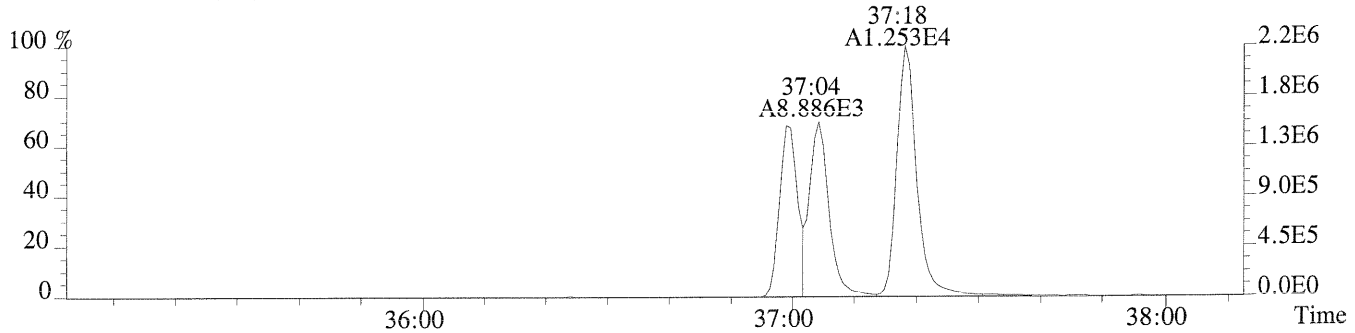
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)



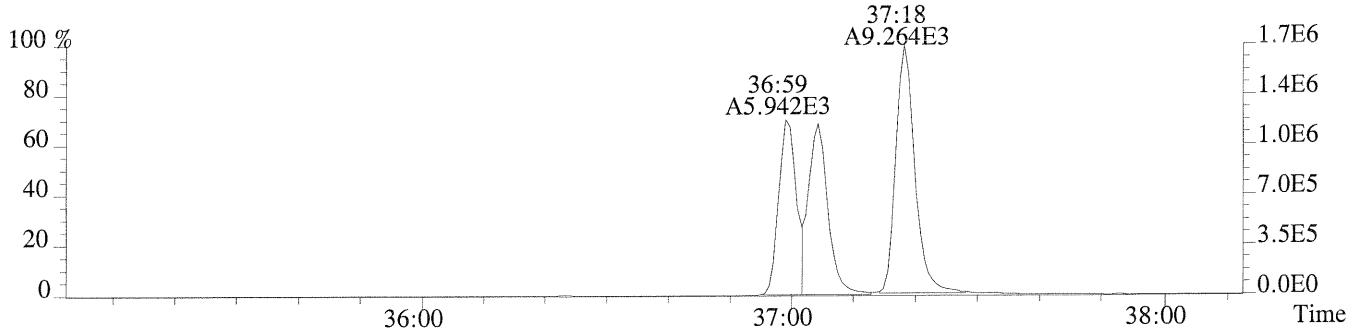
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)



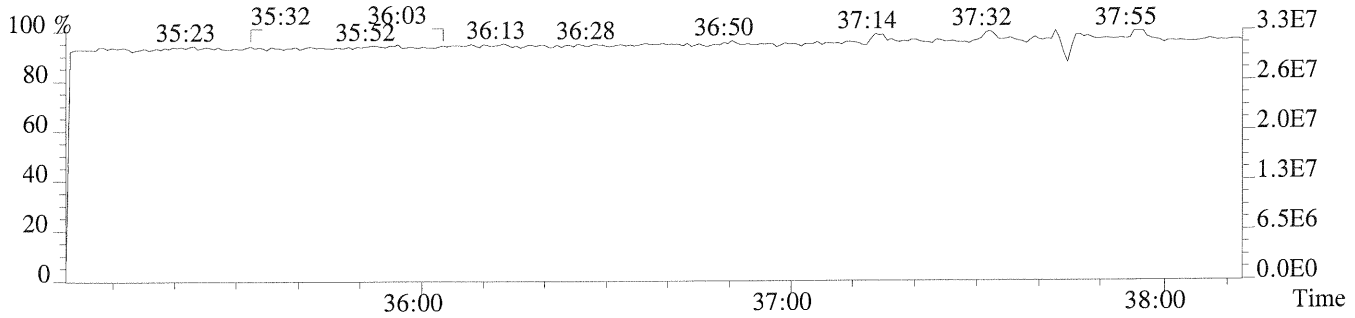
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



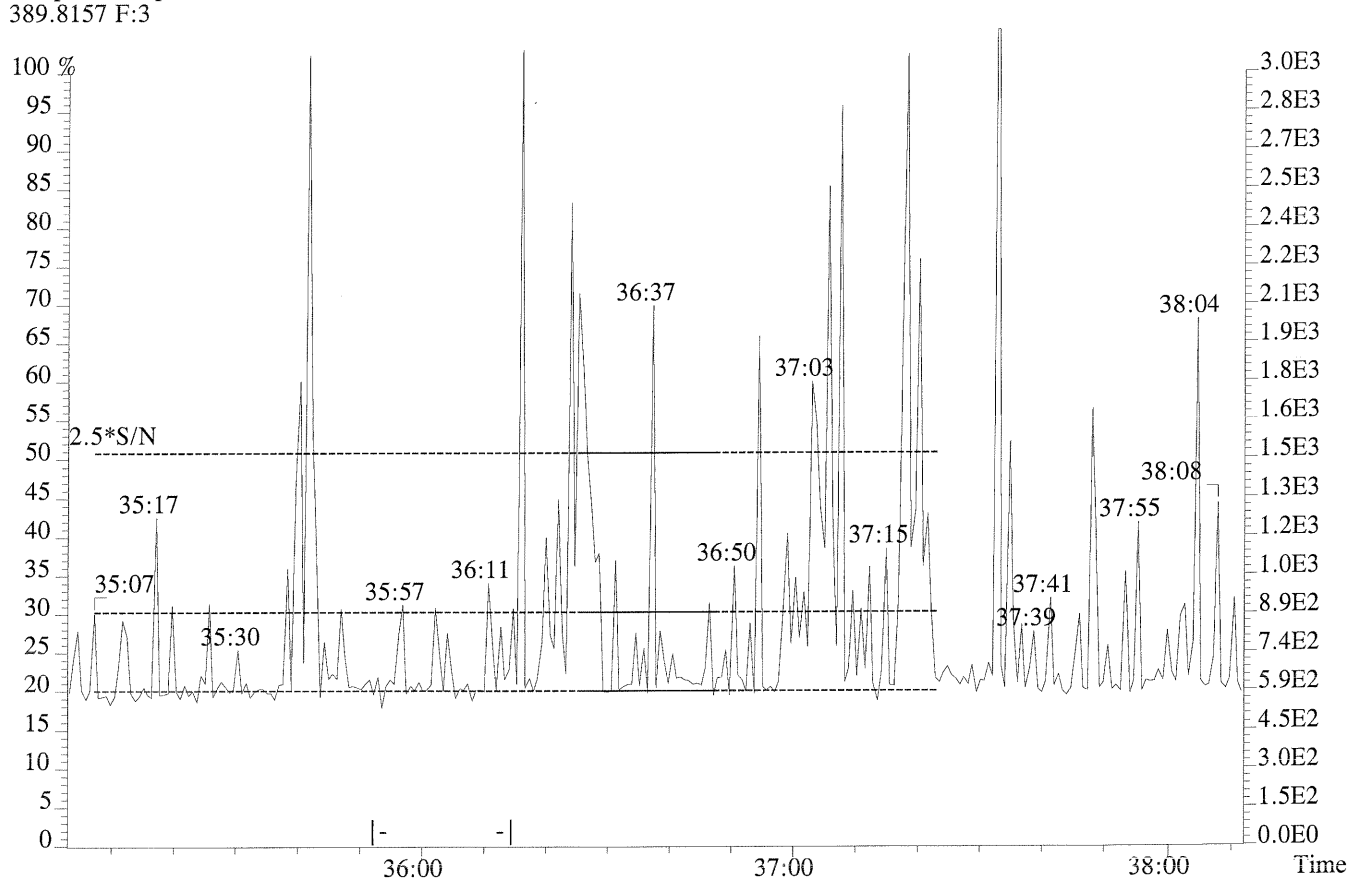
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



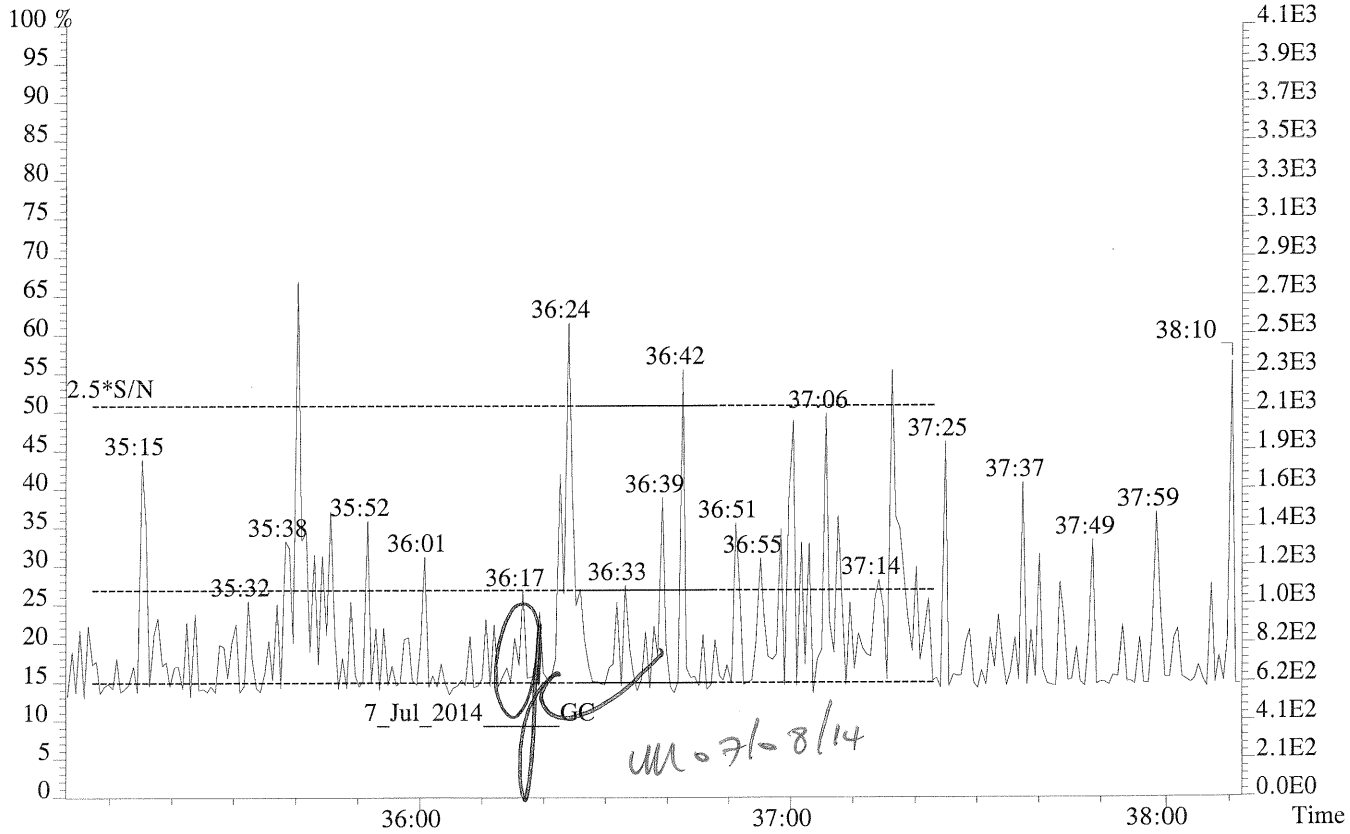
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229937 #1-288 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015
389.8157 F:3



391.8127 F:3



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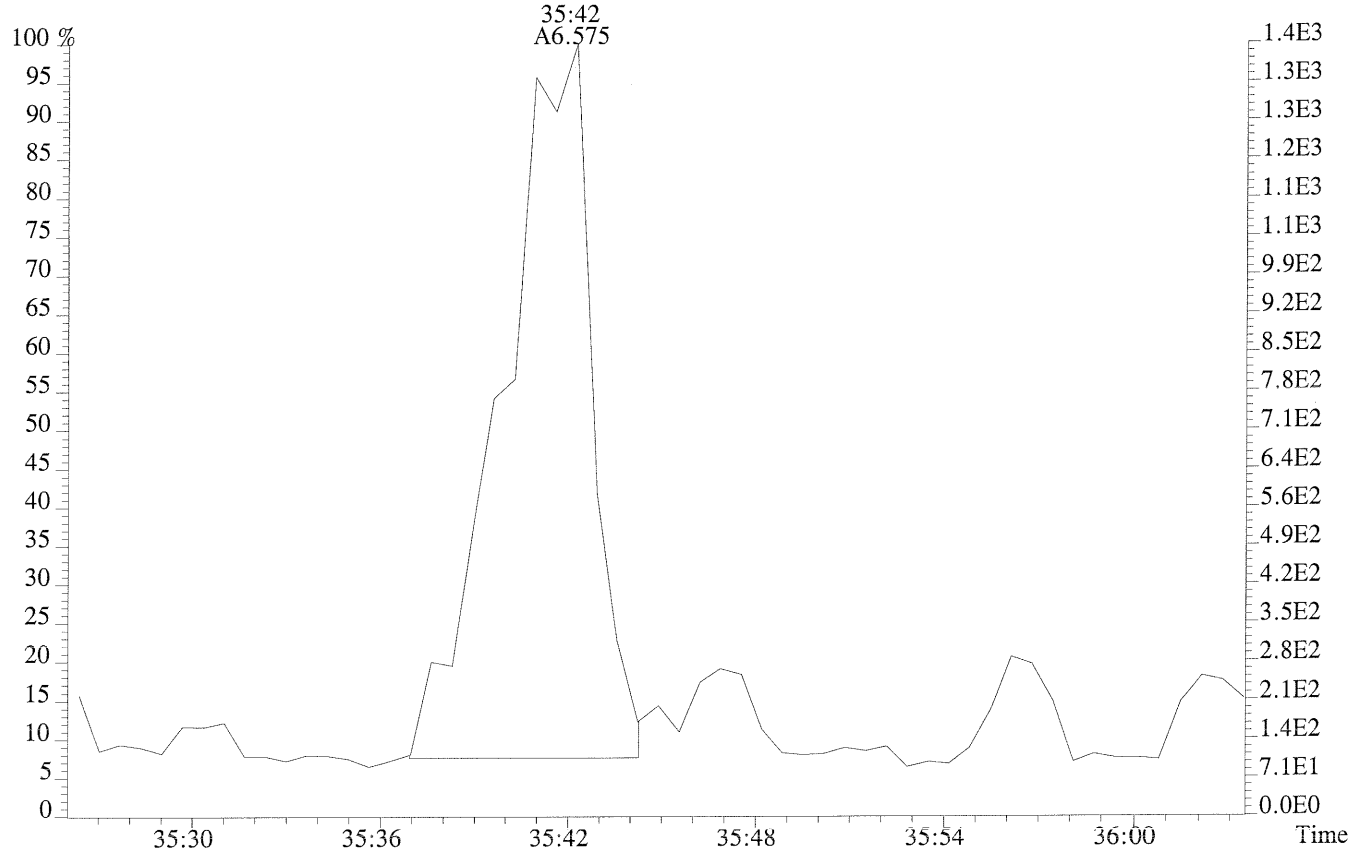
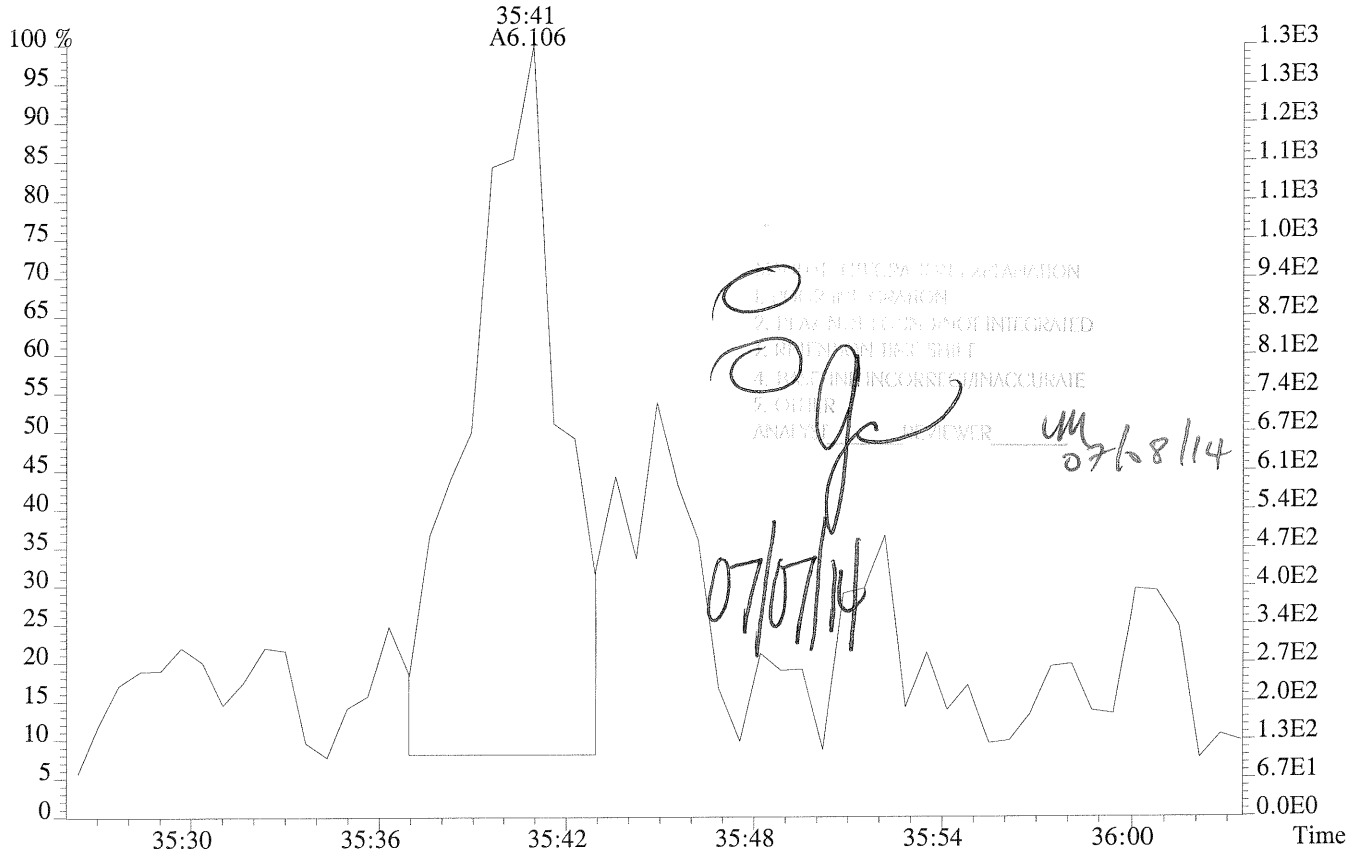
File:P229937 #1-288 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,184.0,0.40%,F,T)

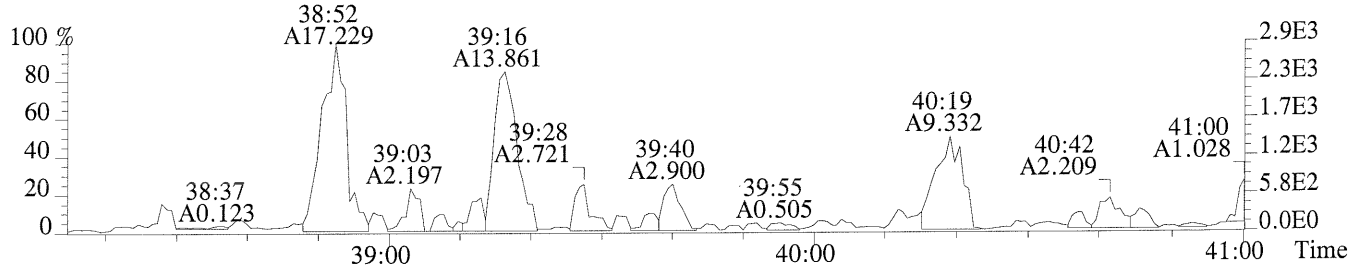


391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,216.0,0.40%,F,T)

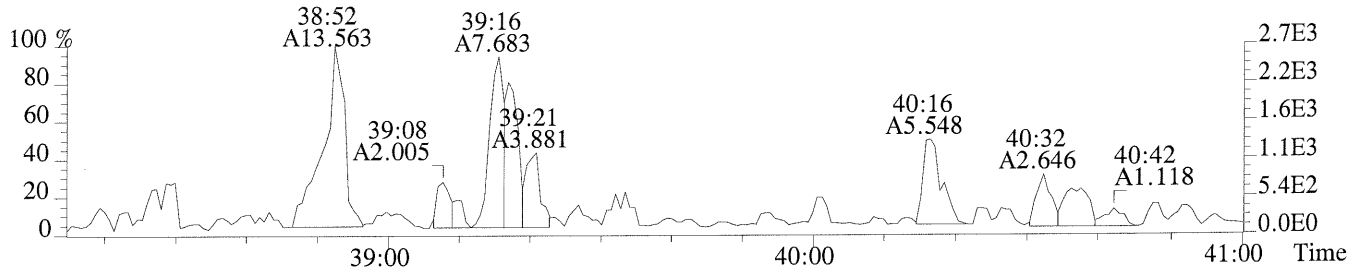


File:P229937 #1-251 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015

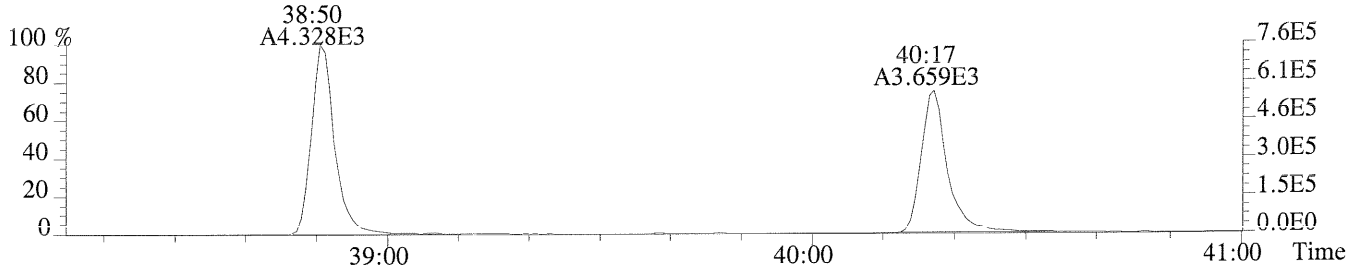
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,100.0,0.50%,F,T)



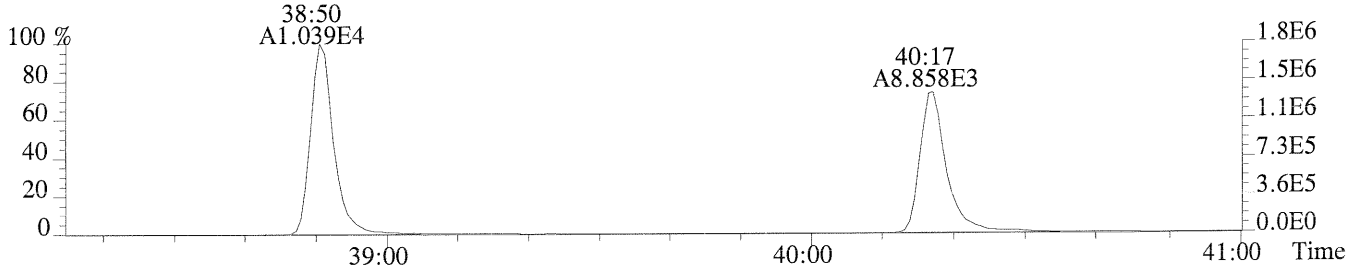
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.50%,F,T)



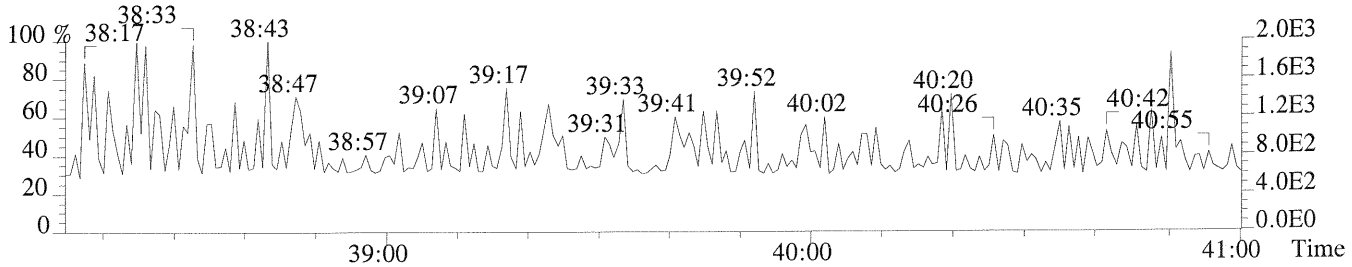
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.50%,F,T)



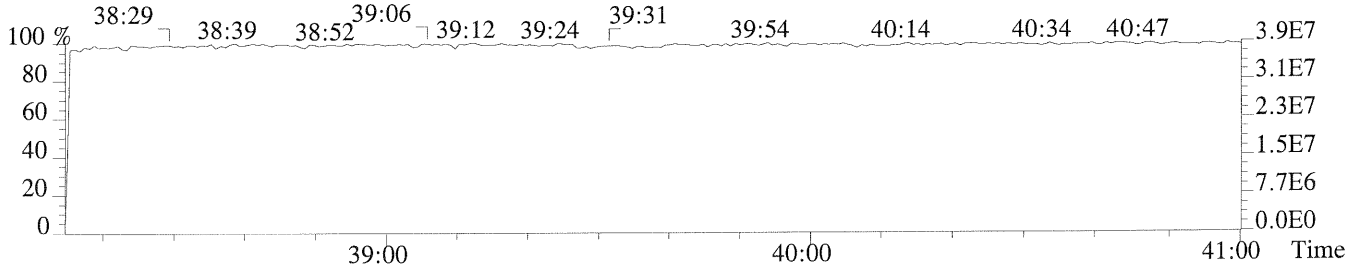
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.50%,F,T)



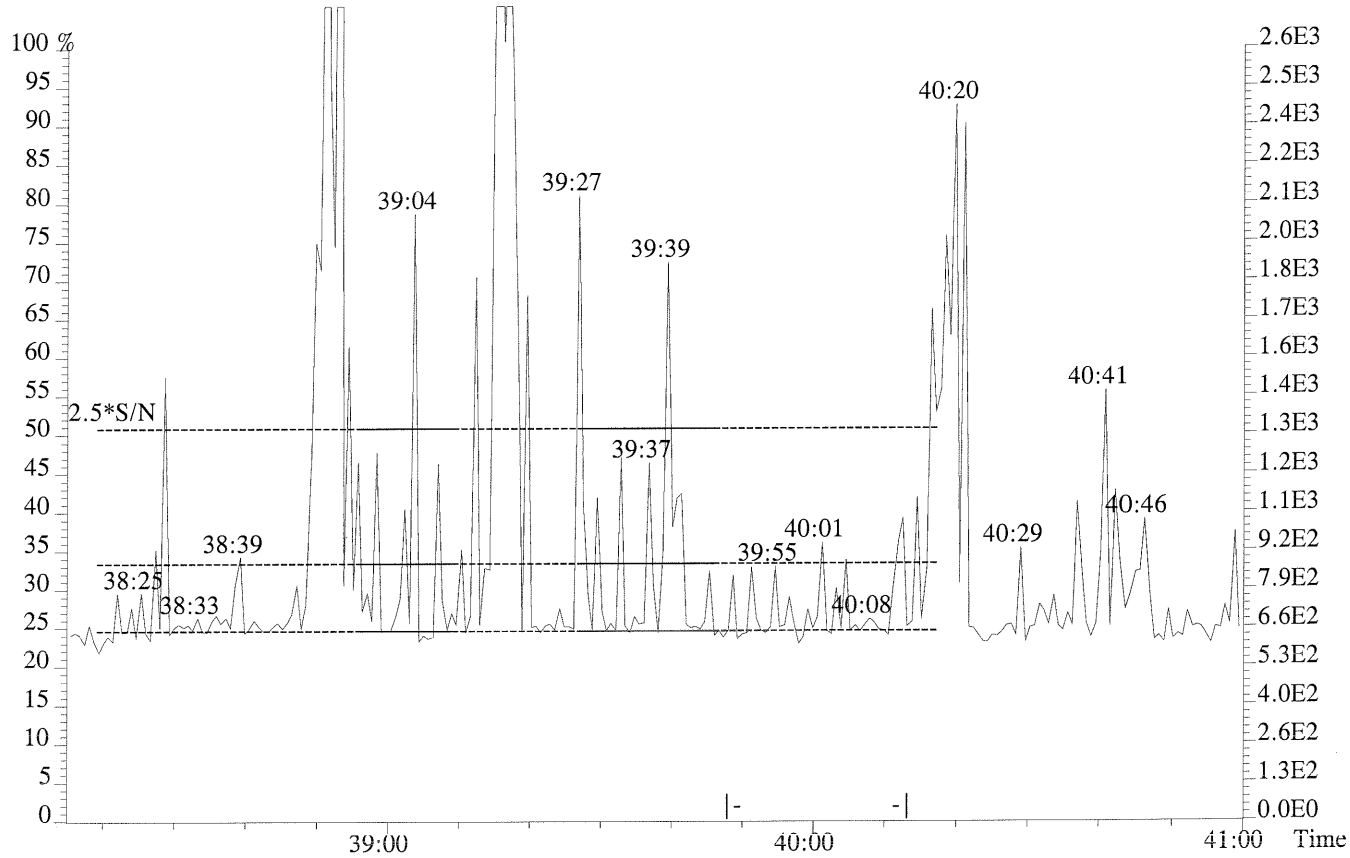
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



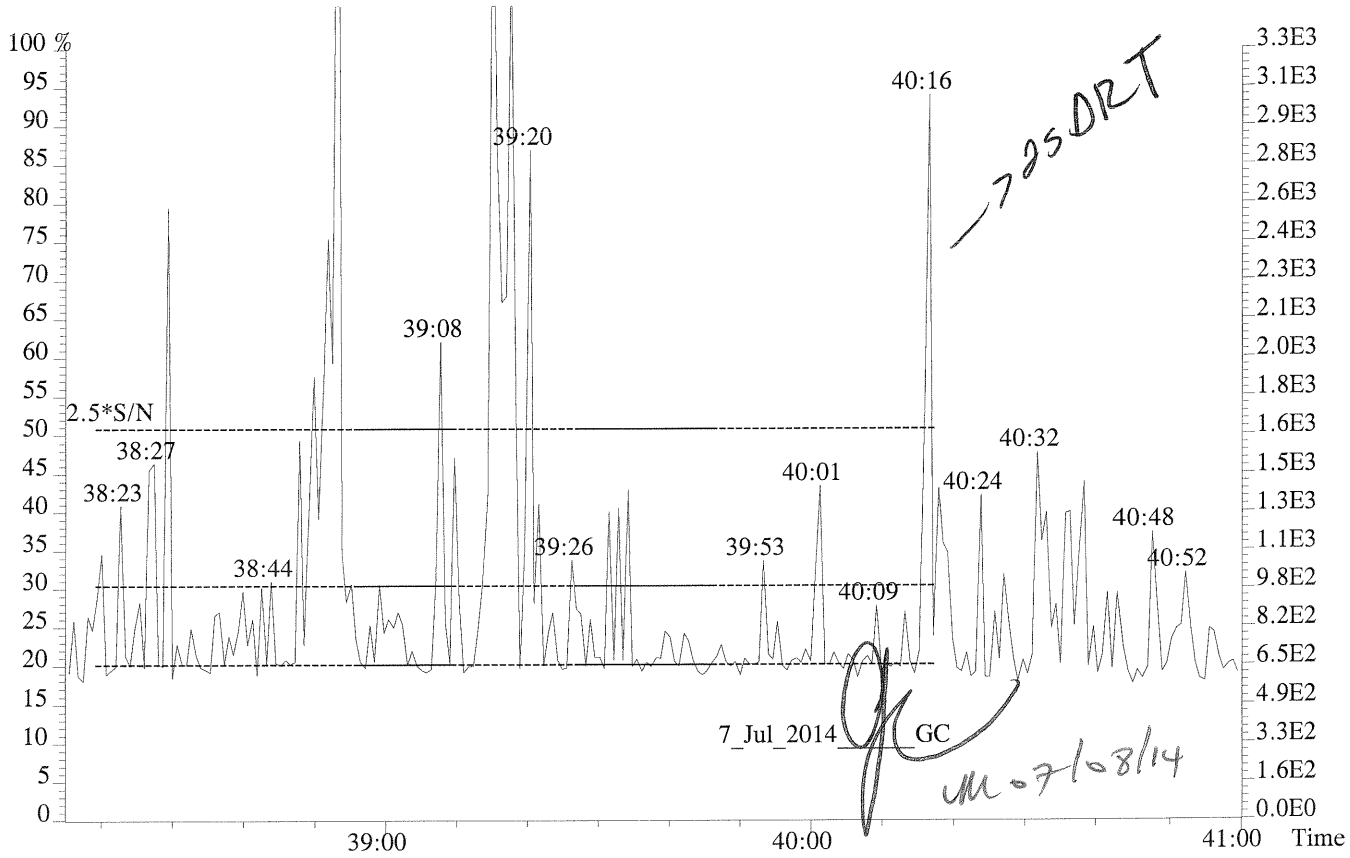
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229937 #1-251 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015
407.7818 F:4



409.7789 F:4



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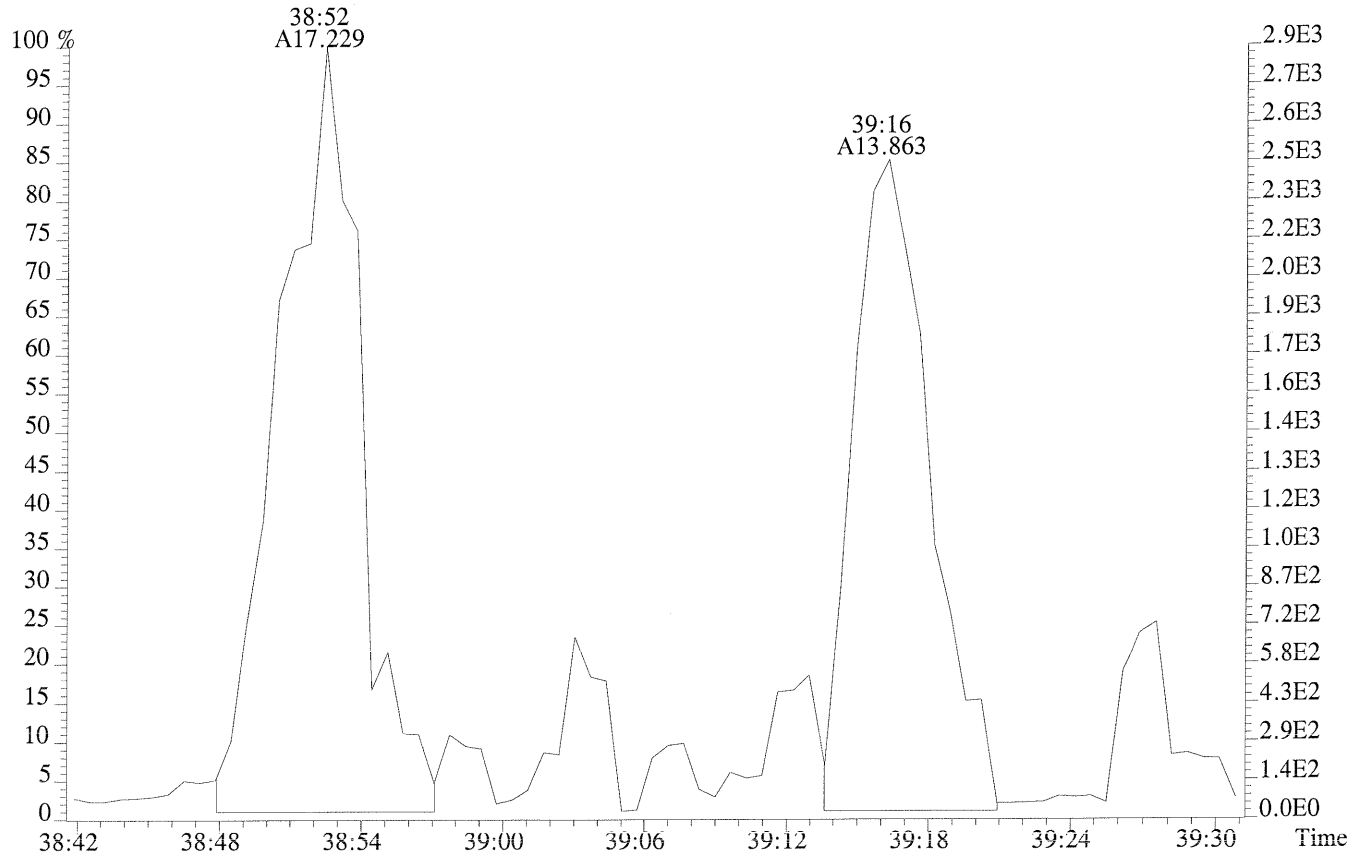
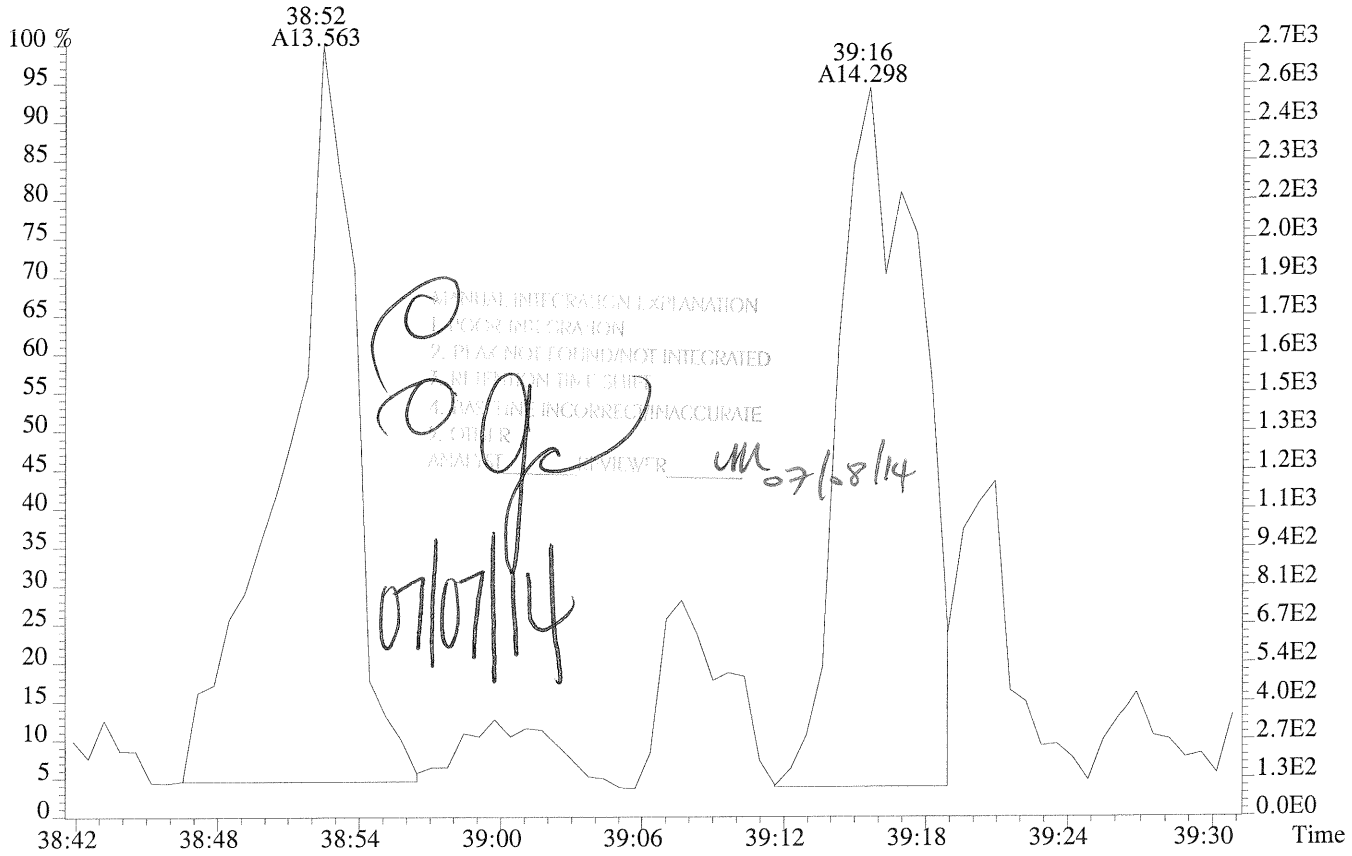
File:P229937 #1-251 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0)



409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0)



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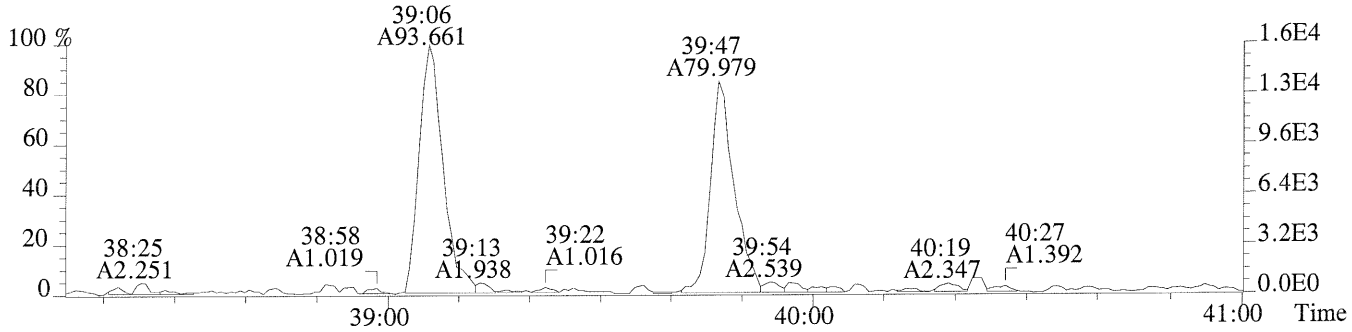
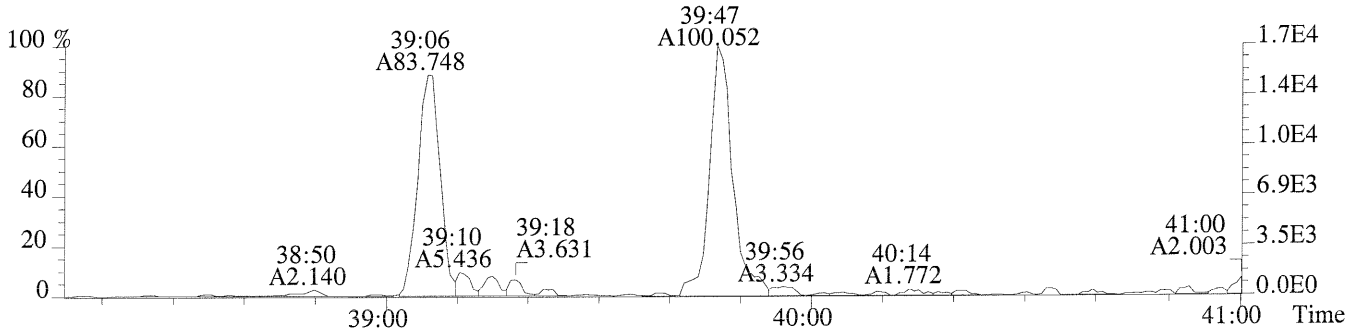
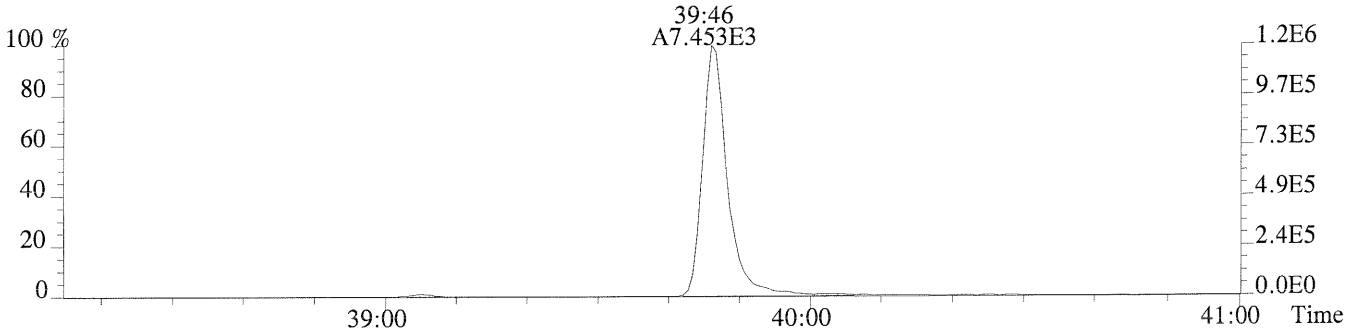
File:P229937 #1-251 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,260.0,0.40%,F,T)



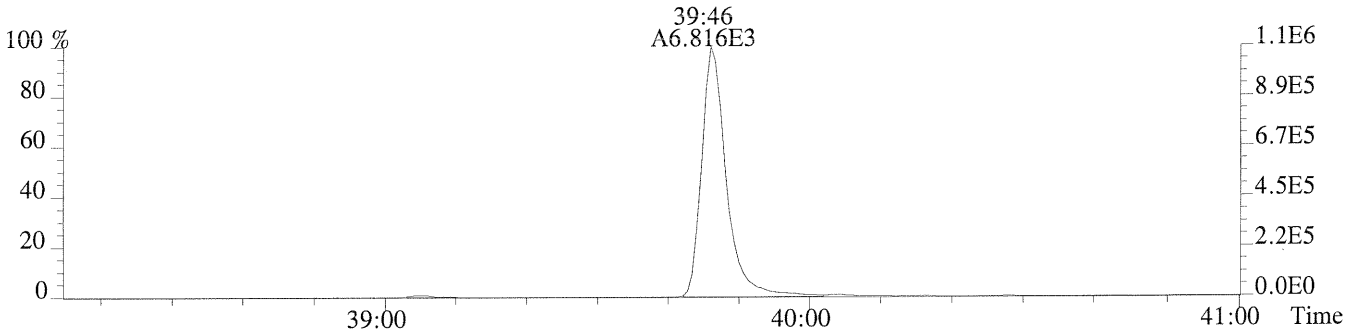
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,56.0,0.40%,F,T)



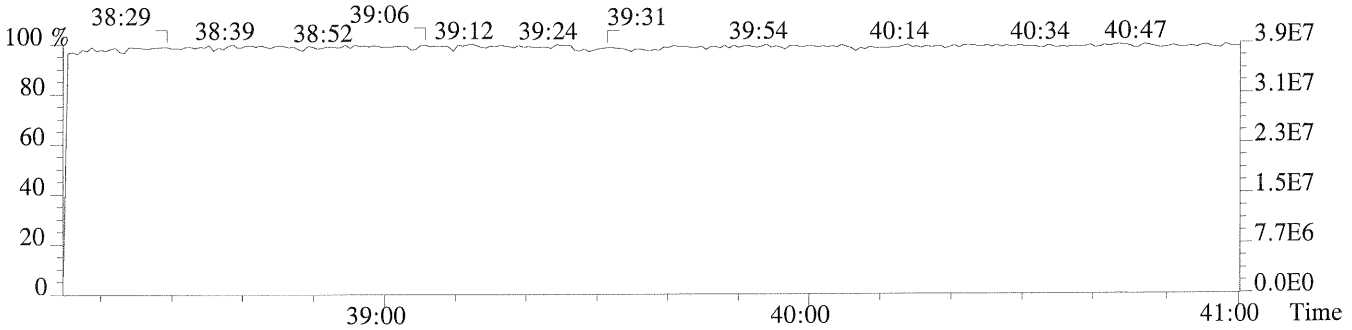
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



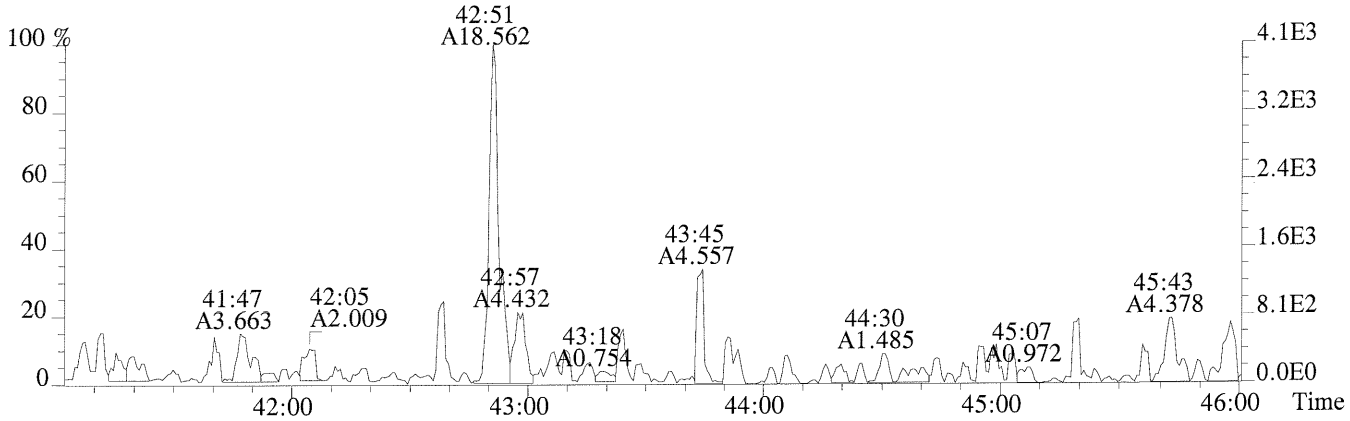
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



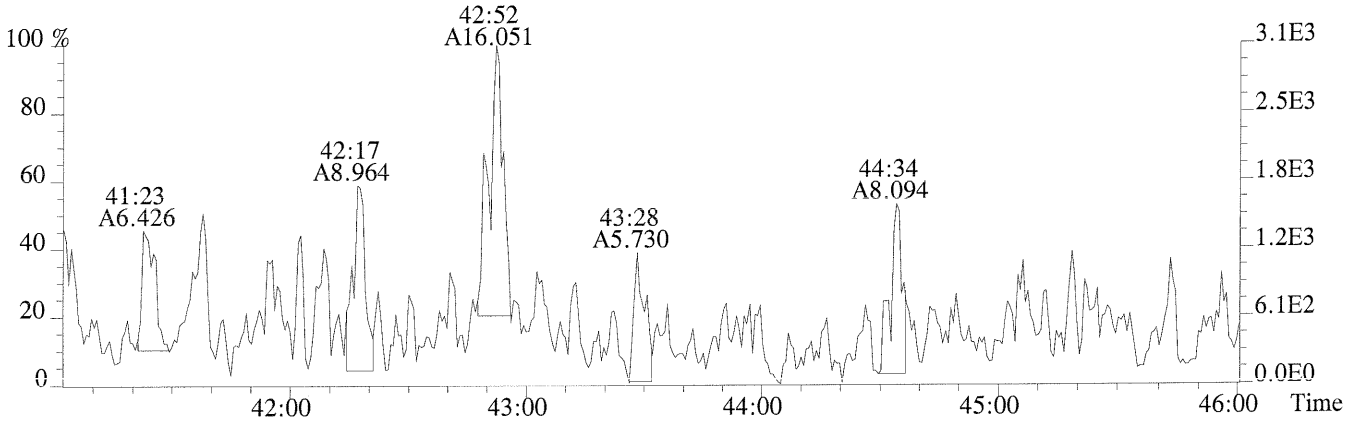
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



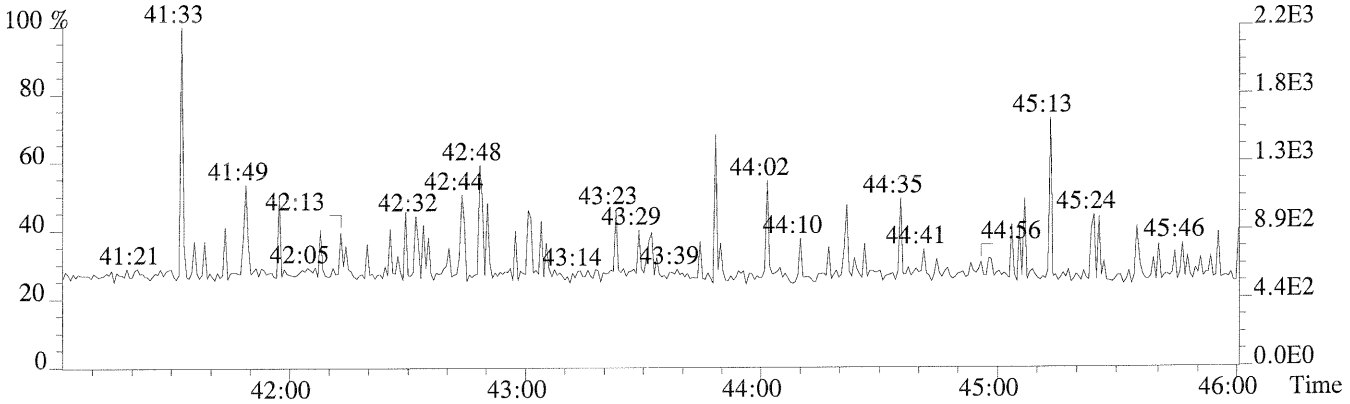
File:P229937 #1-457 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,92.0,0.40%,F,T)



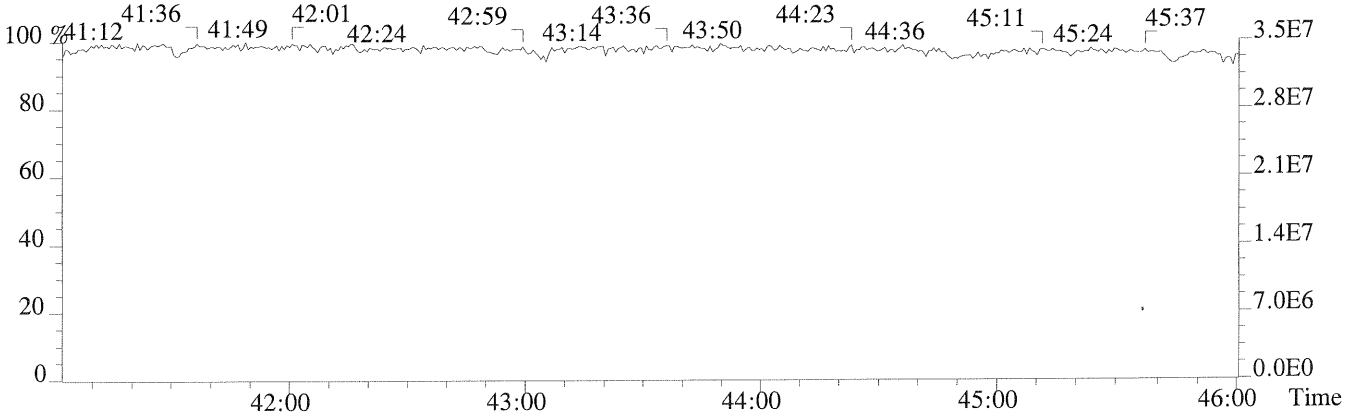
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



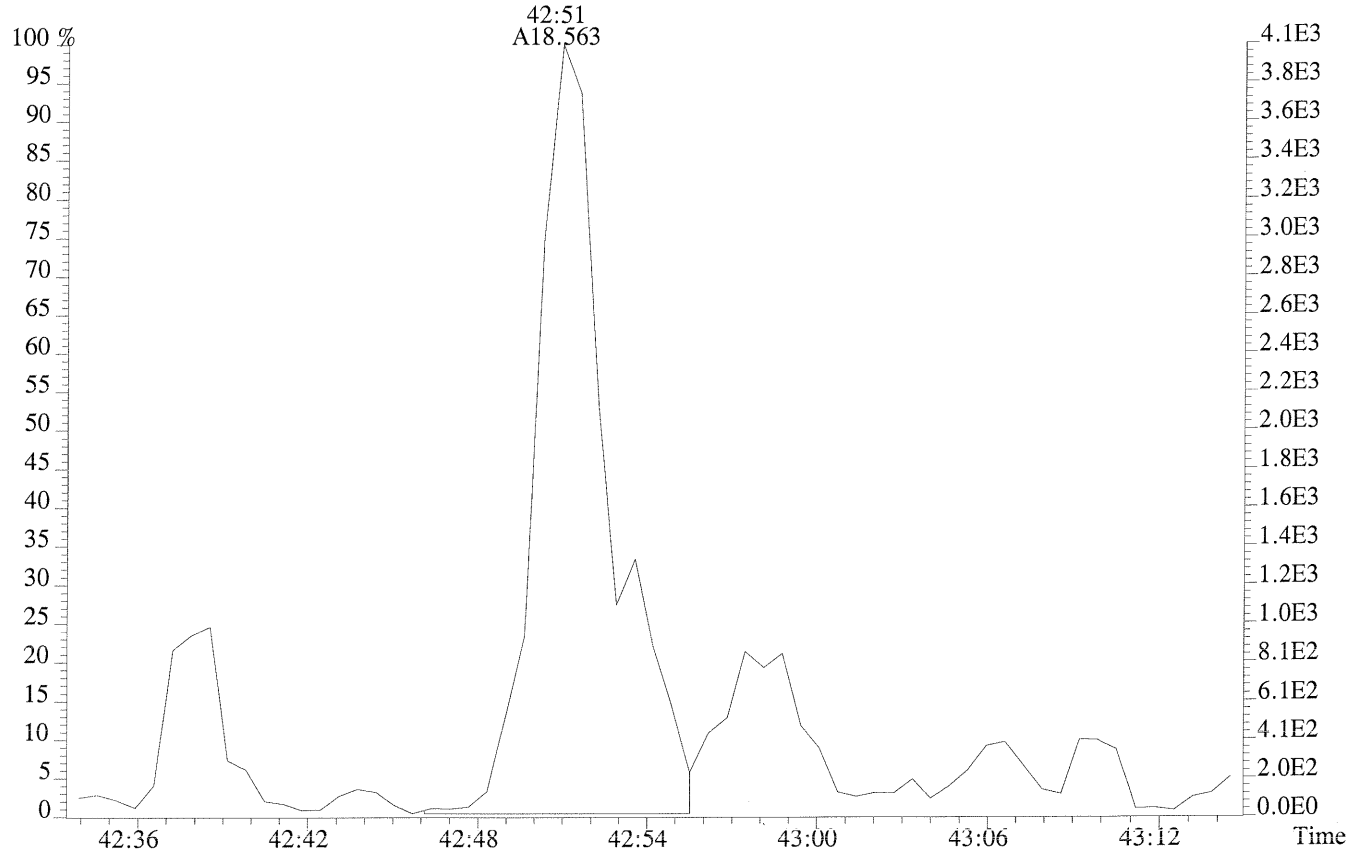
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



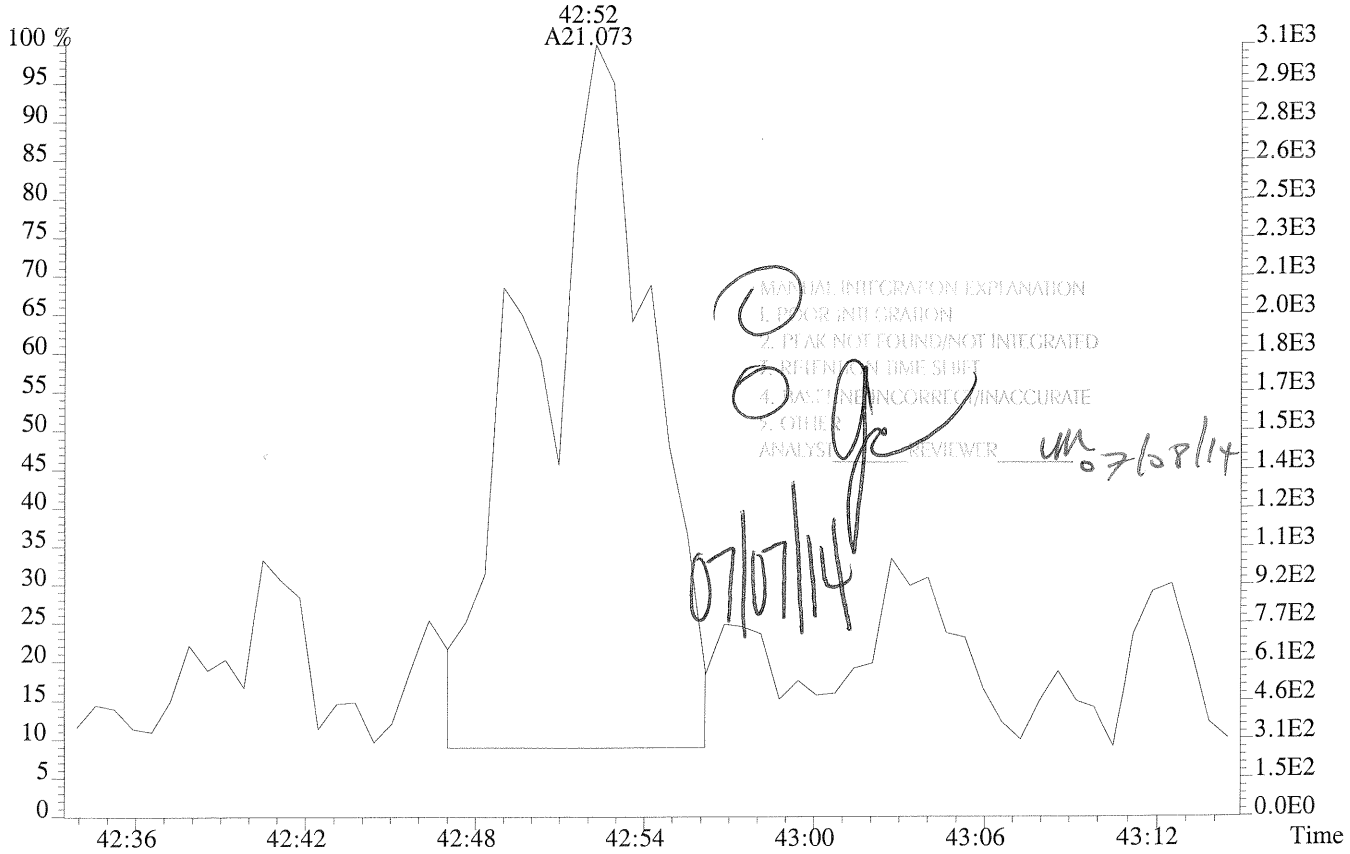
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P229937 #1-457 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0)

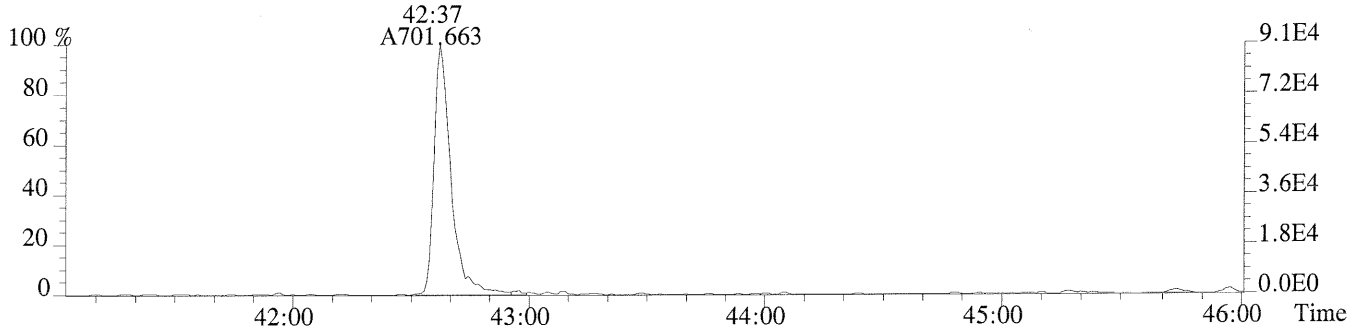


443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)

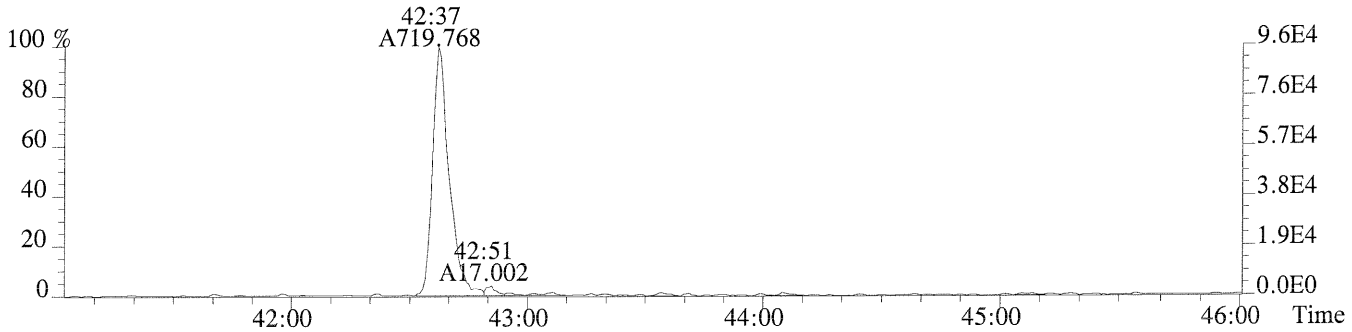


File:P229937 #1-457 Acq: 3-JUL-2014 04:31:37 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-015

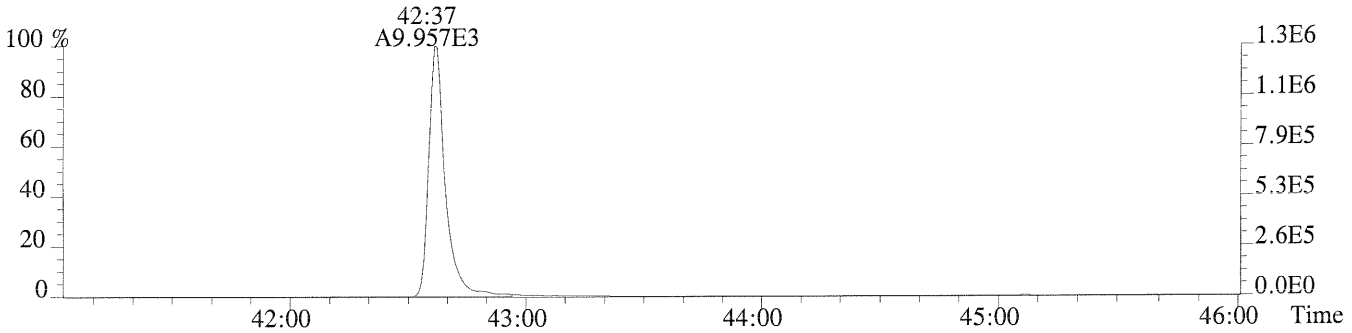
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,48.0,0.40%,F,T)



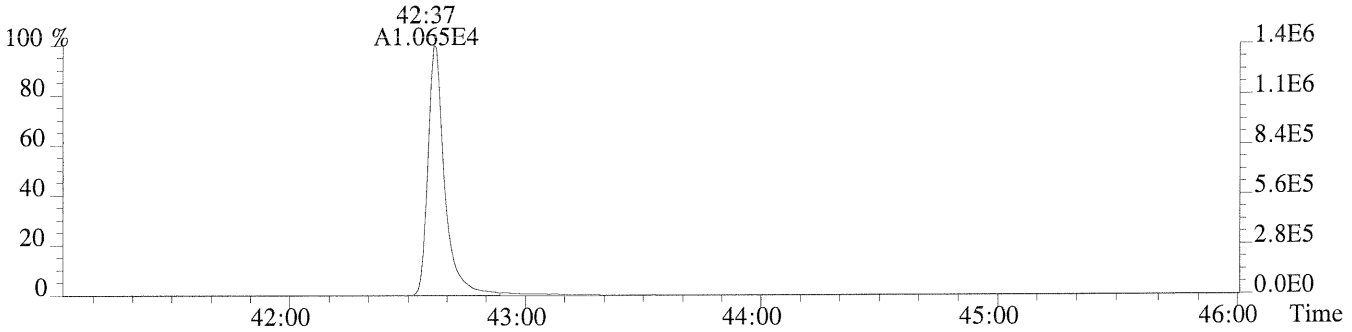
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,268.0,0.40%,F,T)



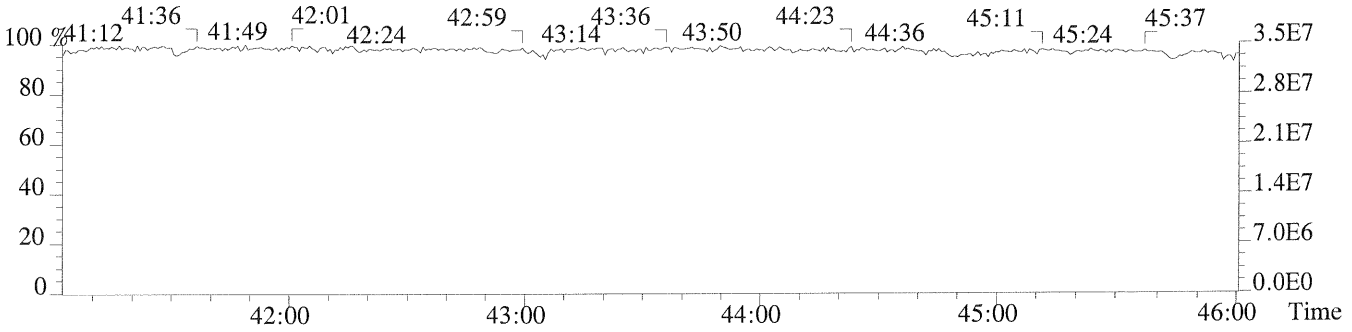
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,136.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406161404 20

Run #5 Filename P229938 Samp: 1 Inj: 1 Acquired: 3-JUL-14 05:19:25
Processed: 7-JUL-14 10:57:28 Sample ID: R1404651-016

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.929
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.048
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.976
4	Unk	1,2,3,4,7,8-HxCDF	36:15	5.084e+00	2.403e+00	2.12	no	yes	1.254
5	Unk	1,2,3,6,7,8-HxCDF	36:21	4.030e+00	1.730e+00	2.33	no	yes	1.147
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.161
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.169
8	Unk	1,2,3,4,6,7,8-HpCDF	38:50	2.444e+00	3.026e+00	0.81	no	yes	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	2.820e+00	1.969e+00	1.43	no	yes	1.309
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.462
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	yes	0.989
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.014
13	Unk	1,2,3,4,7,8-HxCDD	37:02	4.285e+00	2.625e+00	1.63	no	no	1.114
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.115
15	Unk	1,2,3,7,8,9-HxCDD	37:19	4.962e+00	3.284e+00	1.51	no	no	1.207
16	Unk	1,2,3,4,6,7,8-HpCDD	39:46	4.459e+00	9.541e+00	0.47	no	no	1.091
17	Unk	OCDD	42:37	2.391e+02	2.909e+02	0.82	yes	no	1.183
18	IS	13C-2,3,7,8-TCDF	28:40	4.952e+03	6.431e+03	0.77	yes	no	1.518
19	IS	13C-1,2,3,7,8-PeCDF	32:45	1.104e+04	6.936e+03	1.59	yes	no	2.114
20	IS	13C-2,3,4,7,8-PeCDF	33:38	1.065e+04	6.453e+03	1.65	yes	no	2.137
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	4.794e+03	9.521e+03	0.50	yes	no	1.126
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	6.908e+03	1.312e+04	0.53	yes	no	1.405
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	6.081e+03	1.161e+04	0.52	yes	no	1.260
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	4.625e+03	9.179e+03	0.50	yes	no	1.145
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	4.003e+03	9.341e+03	0.43	yes	no	1.049
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:17	3.281e+03	7.862e+03	0.42	yes	no	0.926
27	IS	13C-2,3,7,8-TCDD	29:25	3.417e+03	4.420e+03	0.77	yes	no	0.993
28	IS	13C-1,2,3,7,8-PeCDD	33:55	8.154e+03	5.005e+03	1.63	yes	no	1.363
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	6.771e+03	5.134e+03	1.32	yes	no	0.821
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	7.816e+03	5.979e+03	1.31	yes	no	0.960
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	6.739e+03	6.110e+03	1.10	yes	no	0.936
32	IS	13C-OCDD	42:37	8.677e+03	9.425e+03	0.92	yes	no	0.735
33	RS/RT	13C-1,2,3,4-TCDD	28:50	6.982e+03	8.917e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.232e+04	9.742e+03	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	2.889e+03				no	0.993

$$\text{OCDD} = \frac{(2.391e+02 + 2.909e+02) \times 4000 \text{ pg} \times 1}{(8.677e+03 + 9.425e+03) \times 10.208\text{g} \times 96.9 \times 1.183} = 10.008 \text{ ng/kg}$$

MM 07/08/14

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406161404 200-S

Run #5 Filename P229938 Samp: 1 Inj: 1 Acquired: 3-JUL-14 05:19:25
Processed: 7-JUL-14 10:57:281 LAB. ID: R1404651-016

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.32e+02	*	*	1.05e+03	*
2	1,2,3,7,8-PeCDF	*	5.20e+01	*	*	6.44e+02	*
3	2,3,4,7,8-PeCDF	*	5.20e+01	*	*	6.44e+02	*
4	1,2,3,4,7,8-HxCDF	1.45e+03	3.12e+02	4.6e+00	6.70e+02	6.80e+01	9.9e+00
5	1,2,3,6,7,8-HxCDF	9.15e+02	3.12e+02	2.9e+00	4.80e+02	6.80e+01	7.1e+00
6	2,3,4,6,7,8-HxCDF	*	3.12e+02	*	*	6.80e+01	*
7	1,2,3,7,8,9-HxCDF	*	3.12e+02	*	*	6.80e+01	*
8	1,2,3,4,6,7,8-HpCDF	5.92e+02	1.52e+02	3.9e+00	7.17e+02	1.36e+02	5.3e+00
9	1,2,3,4,7,8,9-HpCDF	6.22e+02	1.52e+02	4.1e+00	6.33e+02	1.36e+02	4.7e+00
10	OCDF	*	1.48e+02	*	*	6.92e+02	*
11	2,3,7,8-TCDD	*	3.88e+02	*	*	4.24e+02	*
12	1,2,3,7,8-PeCDD	*	3.32e+02	*	*	8.00e+01	*
13	1,2,3,4,7,8-HxCDD	1.03e+03	8.40e+01	1.2e+01	7.76e+02	2.56e+02	3.0e+00
14	1,2,3,6,7,8-HxCDD	*	8.40e+01	*	*	2.56e+02	*
15	1,2,3,7,8,9-HxCDD	9.13e+02	8.40e+01	1.1e+01	8.84e+02	2.56e+02	3.5e+00
16	1,2,3,4,6,7,8-HpCDD	1.03e+03	2.04e+02	5.0e+00	2.52e+03	6.80e+01	3.7e+01
17	OCDD	3.01e+04	1.88e+02	1.6e+02	3.91e+04	2.04e+02	1.9e+02
18	13C-2,3,7,8-TCDF	9.18e+05	5.04e+02	1.8e+03	1.16e+06	5.56e+02	2.1e+03
19	13C-1,2,3,7,8-PeCDF	1.80e+06	4.00e+01	4.5e+04	1.14e+06	2.00e+02	5.7e+03
20	13C-2,3,4,7,8-PeCDF	1.84e+06	4.00e+01	4.6e+04	1.12e+06	2.00e+02	5.6e+03
21	13C-1,2,3,4,7,8-HxCDF	9.06e+05	2.36e+02	3.8e+03	1.79e+06	9.72e+02	1.8e+03
22	13C-1,2,3,6,7,8-HxCDF	1.25e+06	2.36e+02	5.3e+03	2.37e+06	9.72e+02	2.4e+03
23	13C-2,3,4,6,7,8-HxCDF	1.12e+06	2.36e+02	4.8e+03	2.16e+06	9.72e+02	2.2e+03
24	13C-1,2,3,7,8,9-HxCDF	8.13e+05	2.36e+02	3.4e+03	1.59e+06	9.72e+02	1.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.99e+05	8.24e+02	8.5e+02	1.68e+06	8.68e+02	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.09e+05	8.24e+02	6.2e+02	1.22e+06	8.68e+02	1.4e+03
27	13C-2,3,7,8-TCDD	6.72e+05	1.91e+03	3.5e+02	8.59e+05	5.88e+02	1.5e+03
28	13C-1,2,3,7,8-PeCDD	1.43e+06	3.52e+02	4.1e+03	8.82e+05	2.40e+02	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.39e+06	3.36e+02	4.1e+03	1.05e+06	1.88e+02	5.6e+03
30	13C-1,2,3,6,7,8-HxCDD	1.38e+06	3.36e+02	4.1e+03	1.08e+06	1.88e+02	5.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.10e+06	5.20e+02	2.1e+03	9.79e+05	3.08e+02	3.2e+03
32	13C-OCDD	1.11e+06	5.04e+02	2.2e+03	1.22e+06	2.32e+02	5.3e+03
33	13C-1,2,3,4-TCDD	1.40e+06	1.91e+03	7.3e+02	1.80e+06	5.88e+02	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	2.24e+06	3.36e+02	6.7e+03	1.83e+06	1.88e+02	9.8e+03
35	37Cl-2,3,7,8-TCDD	5.75e+05	1.92e+02	3.0e+03			

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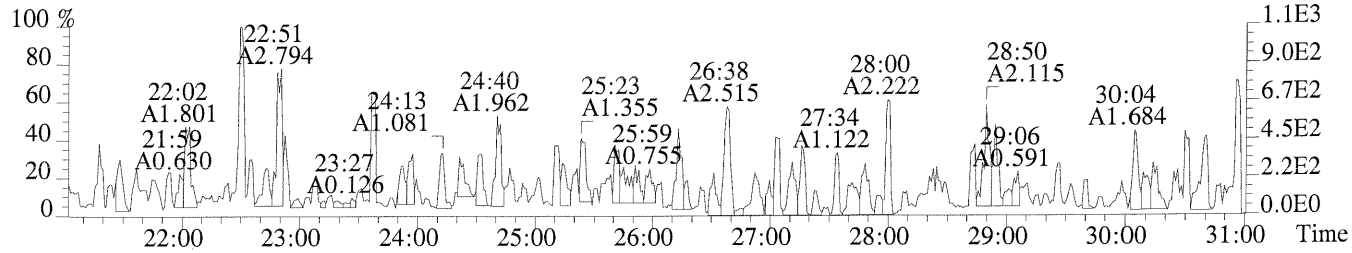
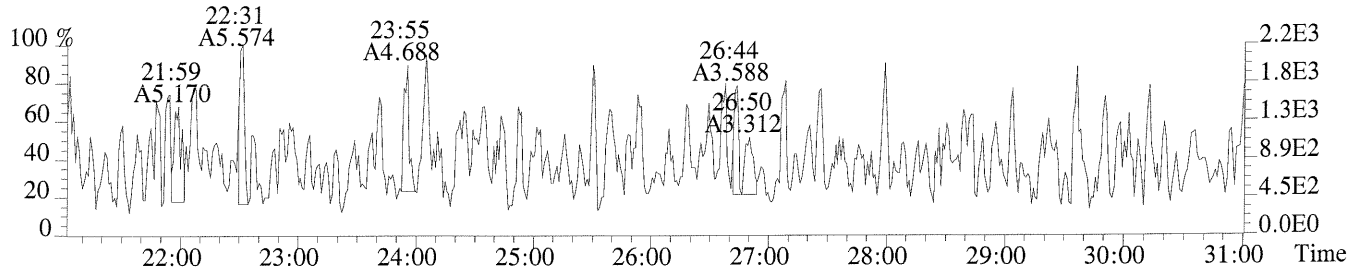
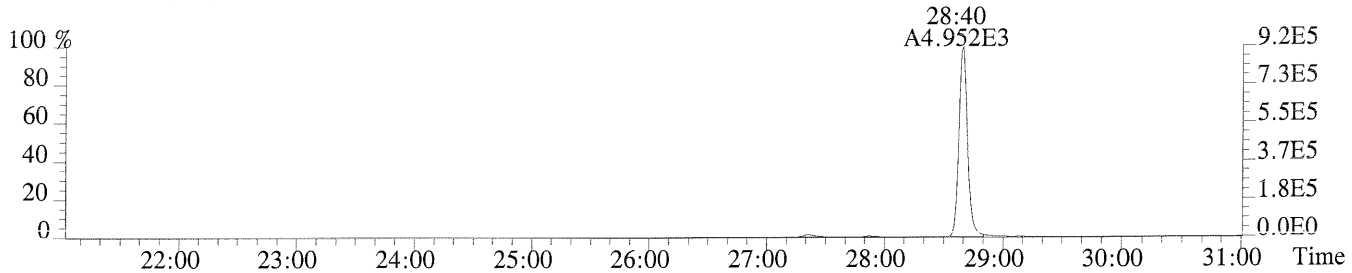
File:P229938 #1-627 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,132.0,1.00%,F,T)



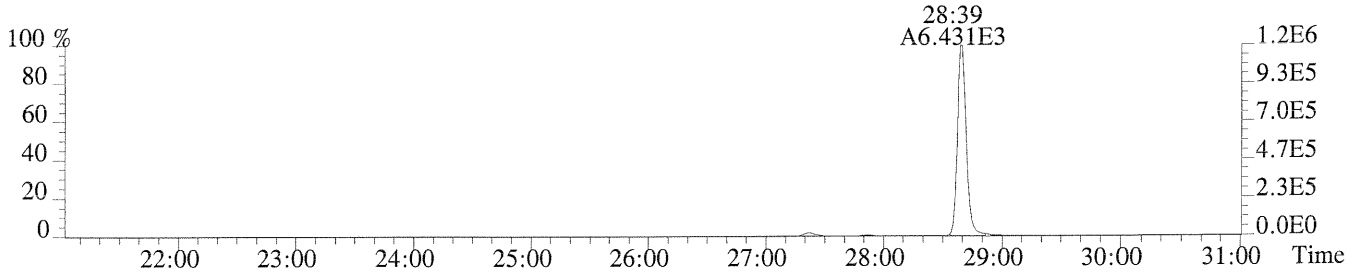
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



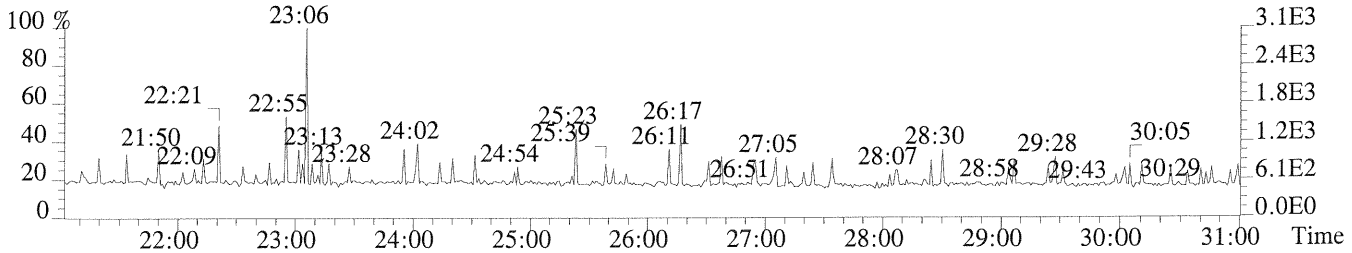
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



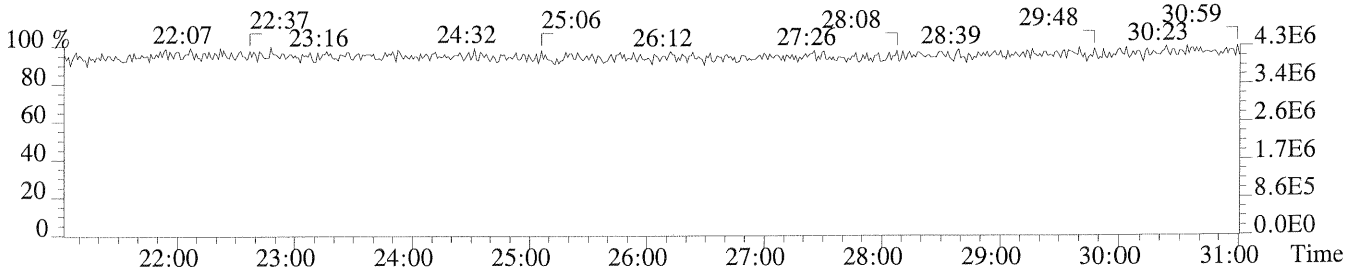
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



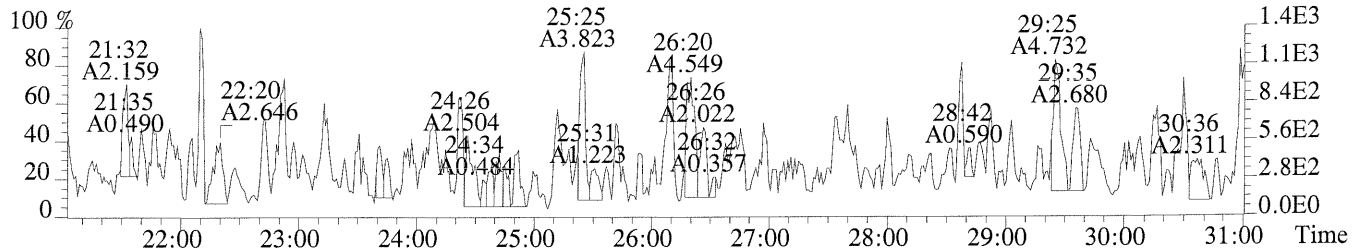
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



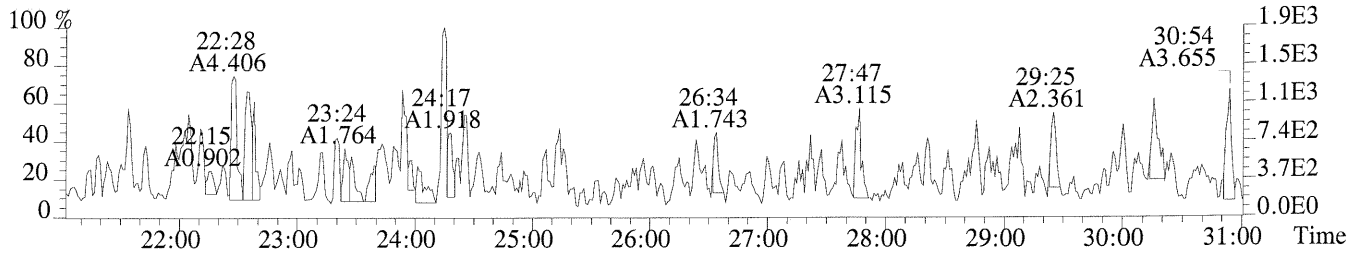
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



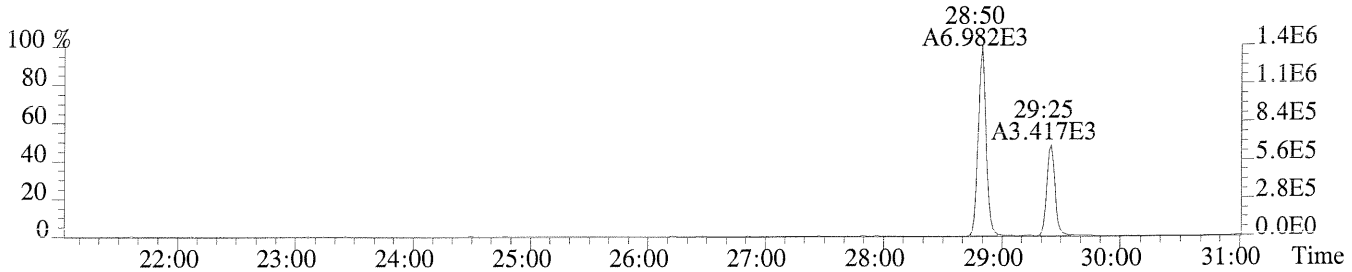
File:P229938 #1-627 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



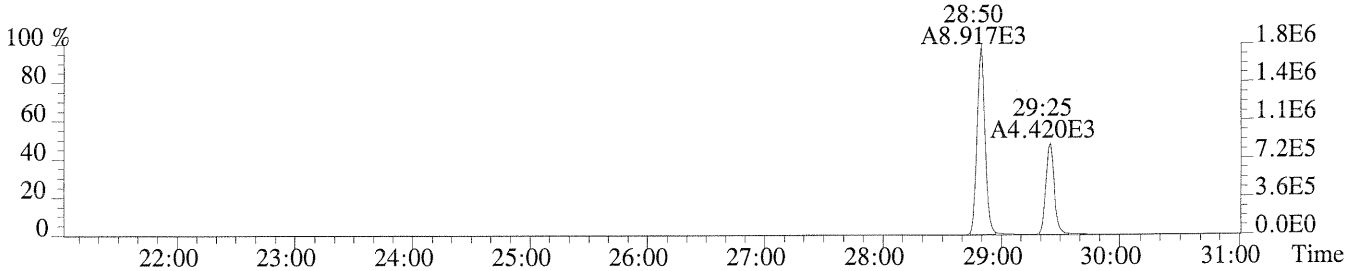
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



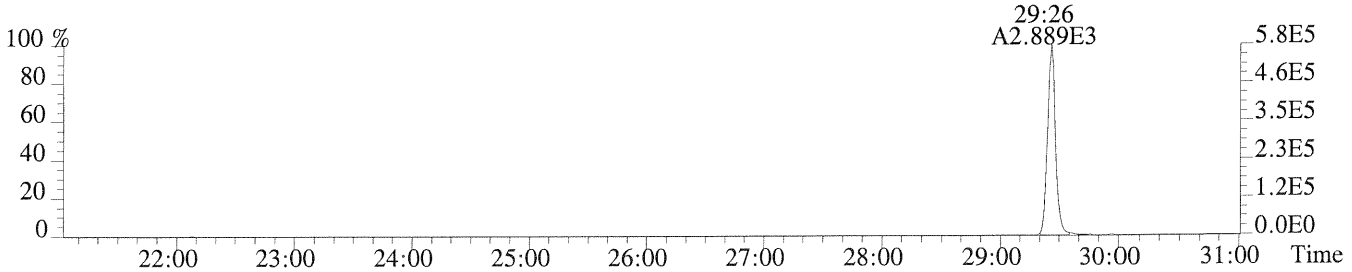
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1908.0,1.00%,F,T)



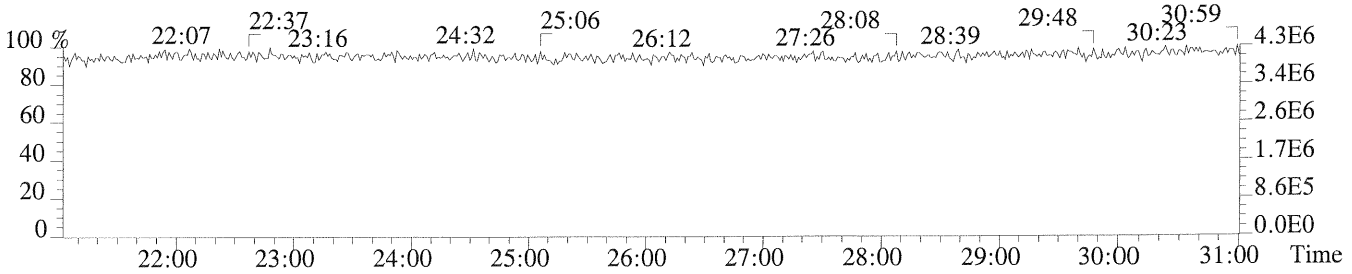
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



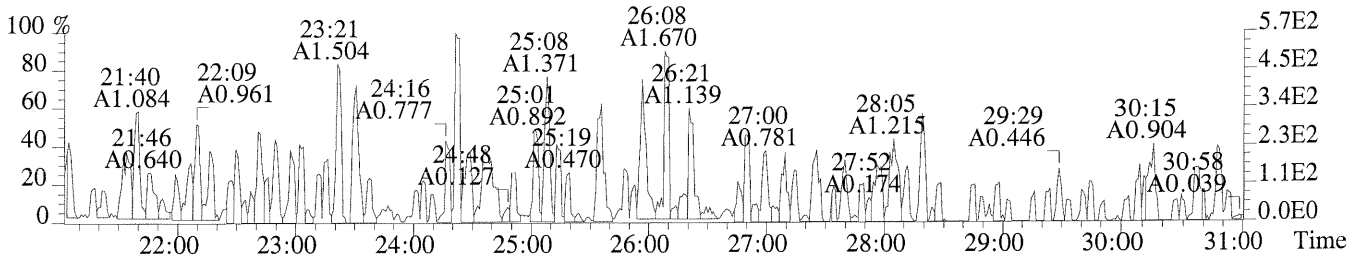
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,192.0,1.00%,F,T)



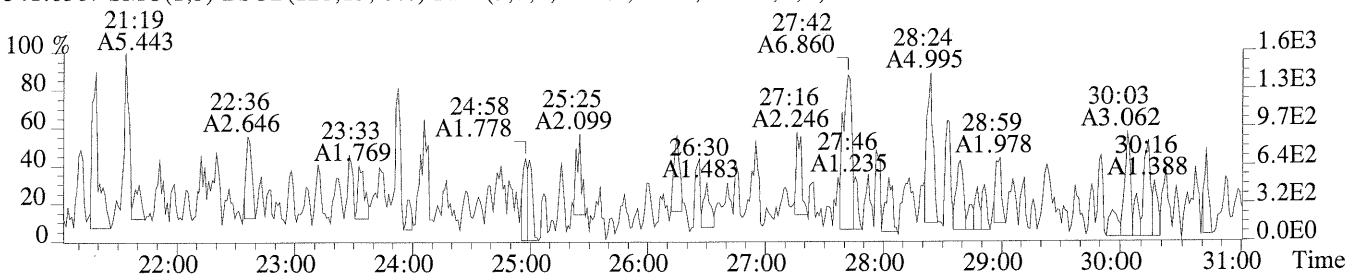
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



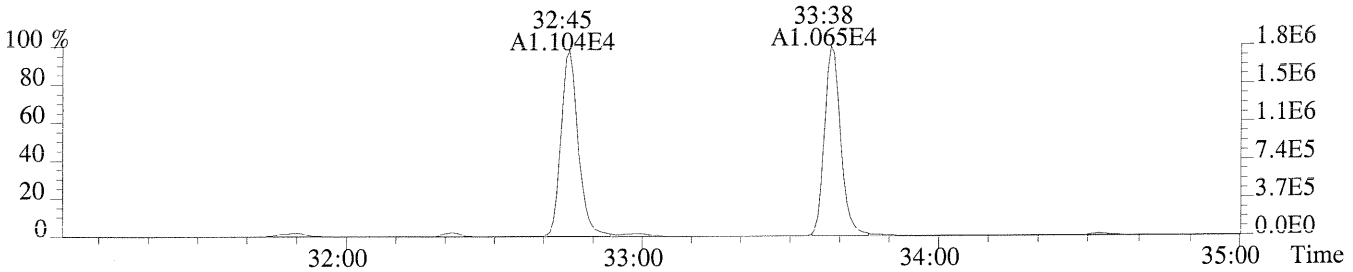
File:P229938 #1-627 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,36.0,1.00%,F,T)



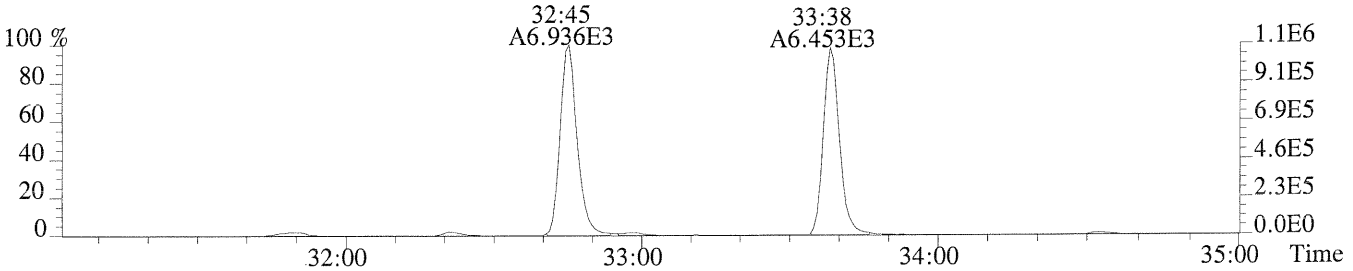
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



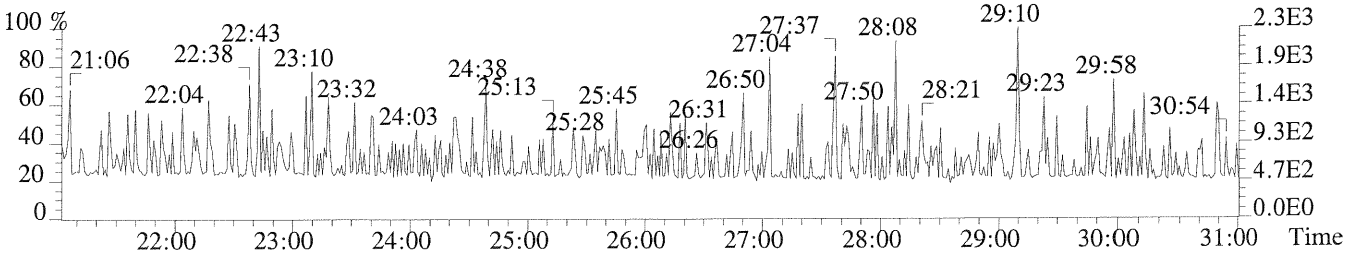
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,40.0,1.00%,F,T)



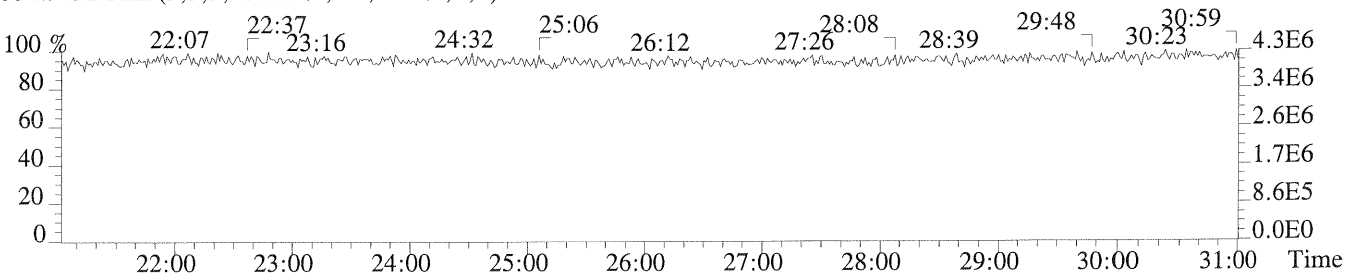
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

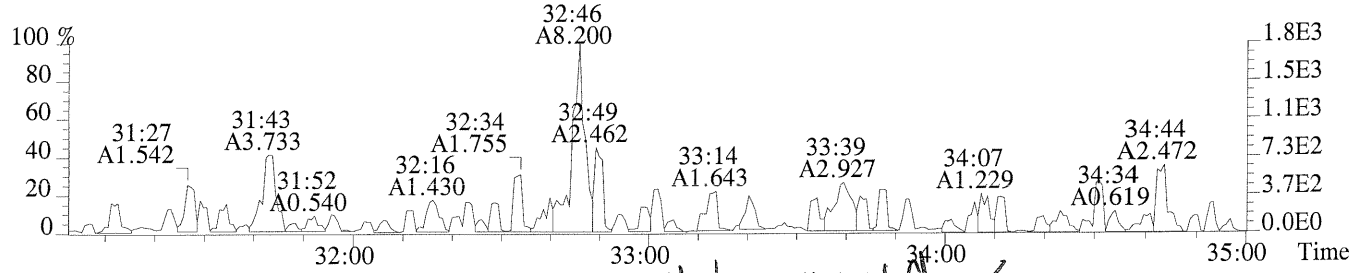


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229938 #1-360 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016

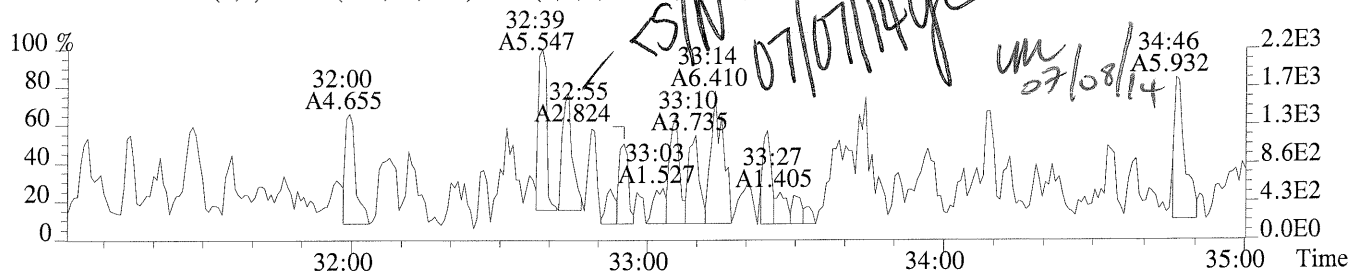
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,52.0,1.00%,F,T)



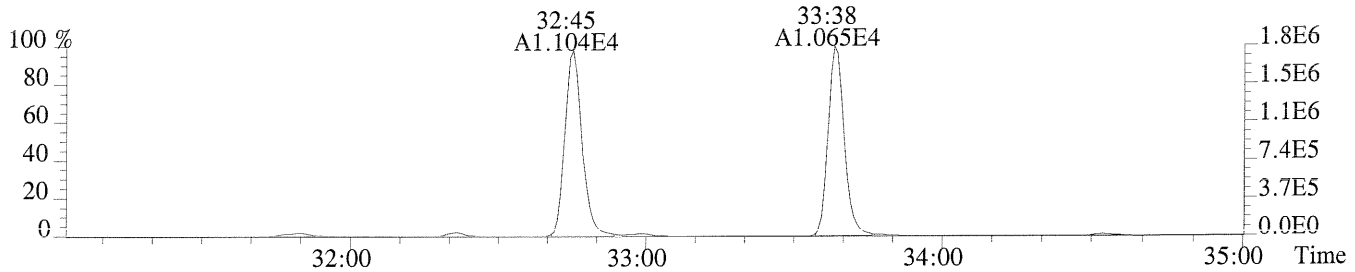
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)

S/N 07/07/14 gc

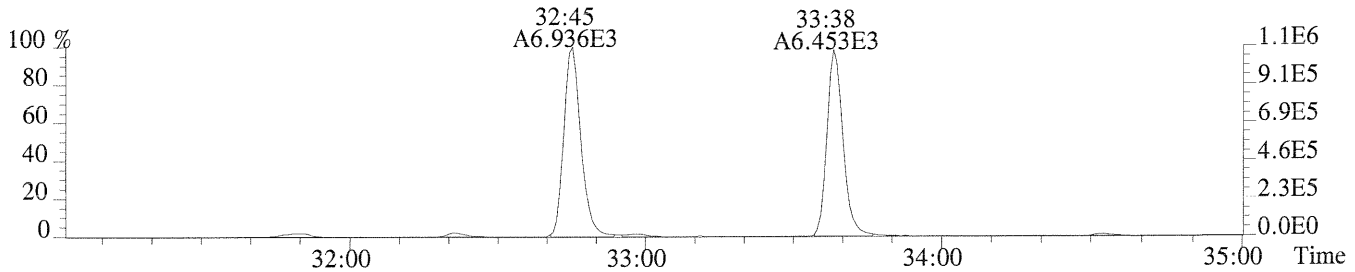
um 07/08/14



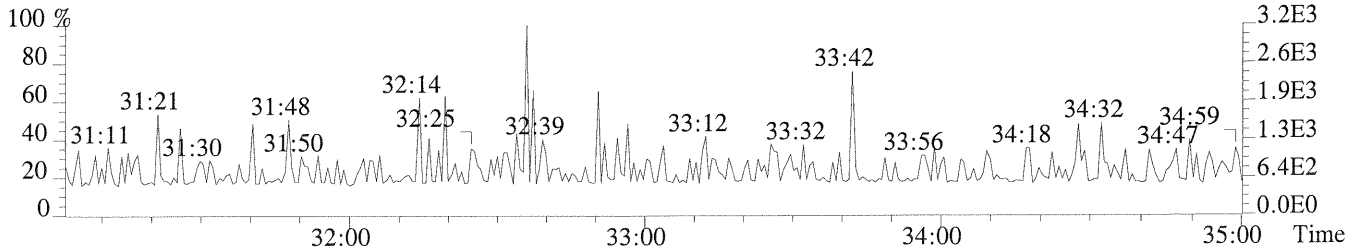
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,40.0,1.00%,F,T)



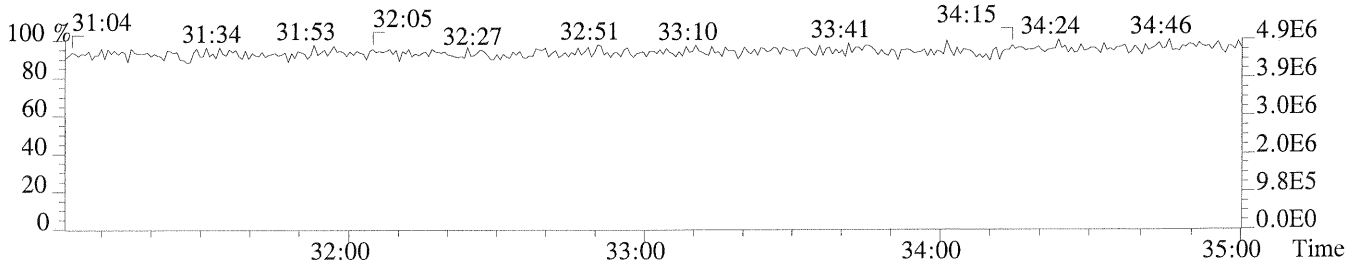
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



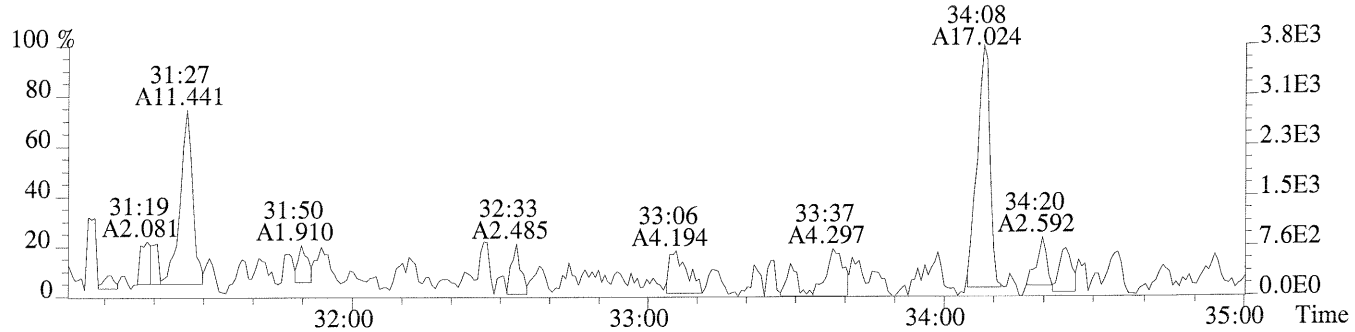
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



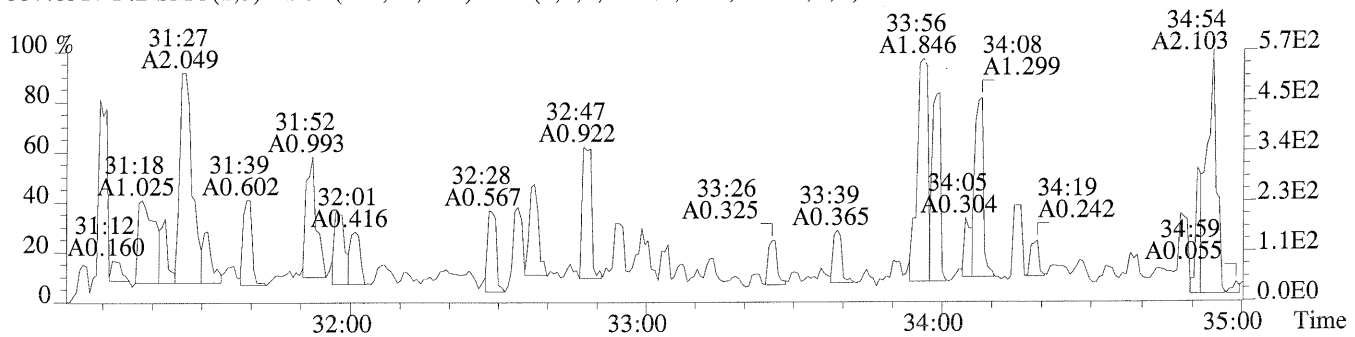
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



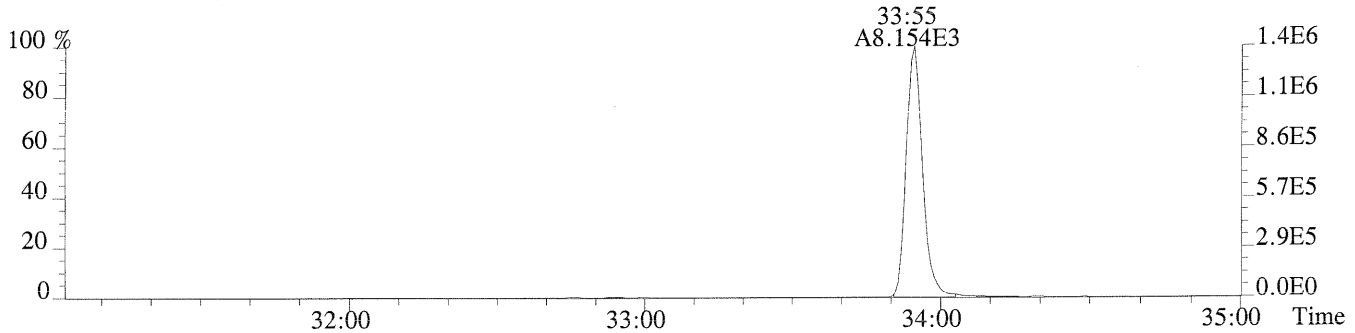
File:P229938 #1-360 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,332.0,1.00%,F,T)



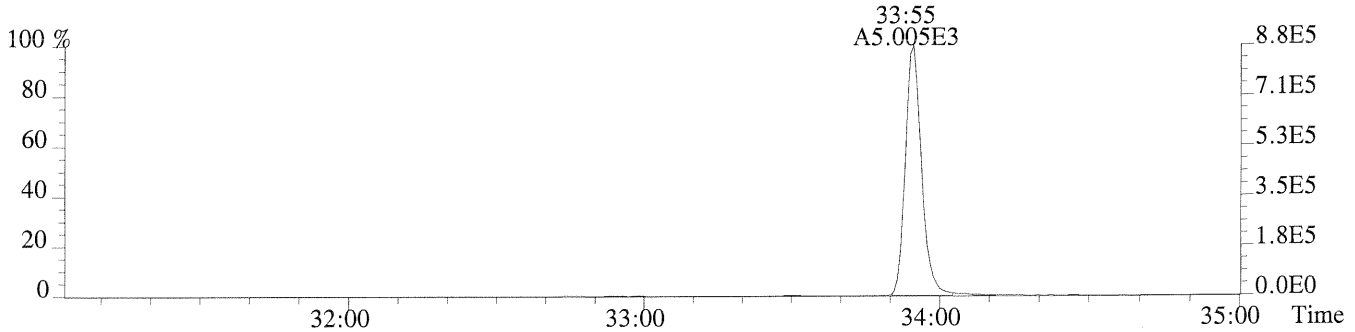
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,80.0,1.00%,F,T)



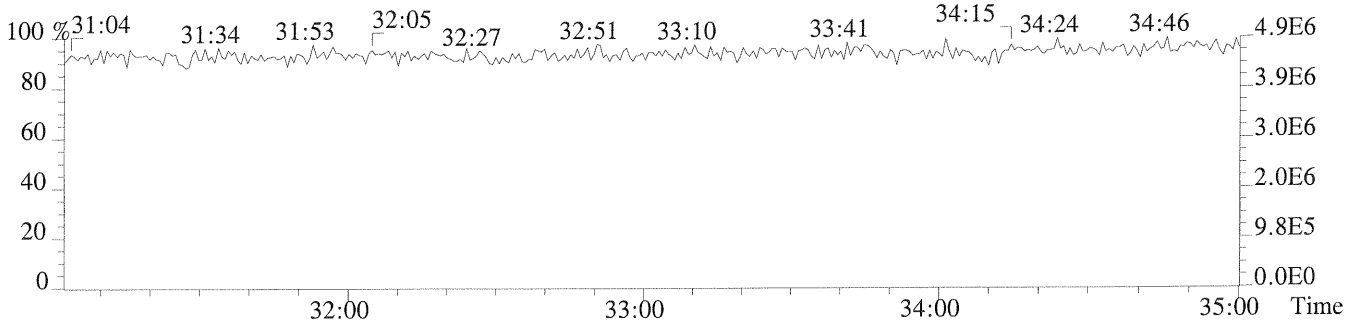
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,352.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)

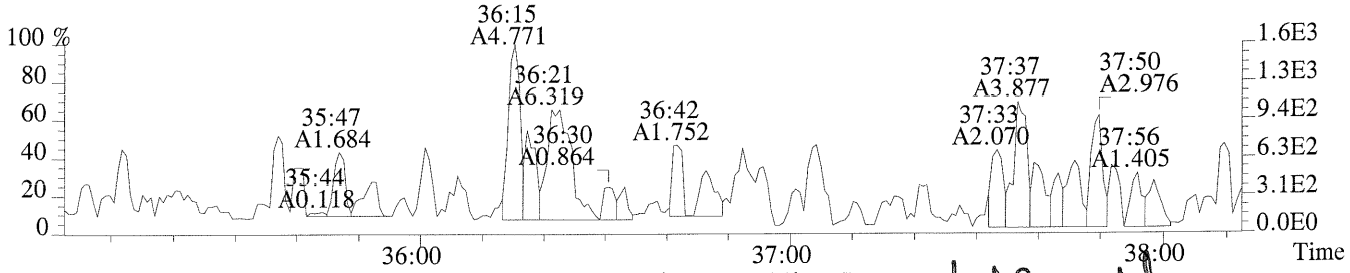


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



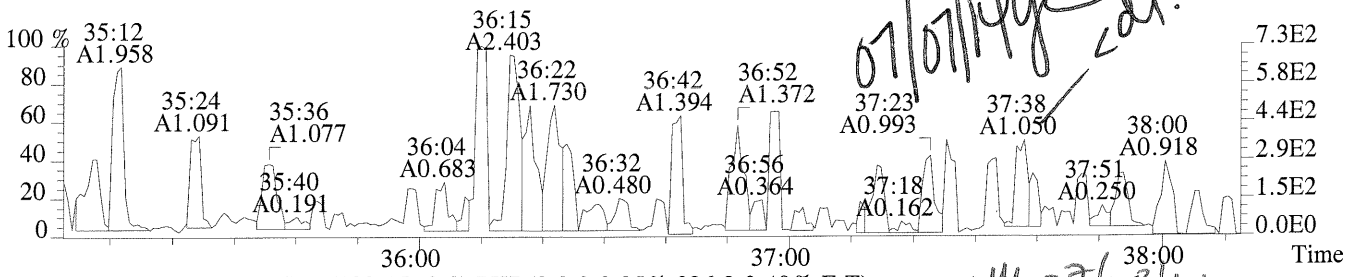
File:P229938 #1-288 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016

373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



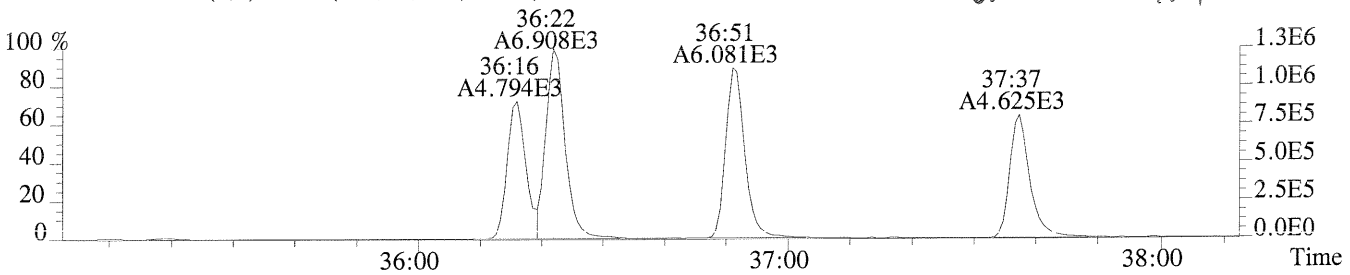
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,68.0,0.40%,F,T)

07/07/14 gc

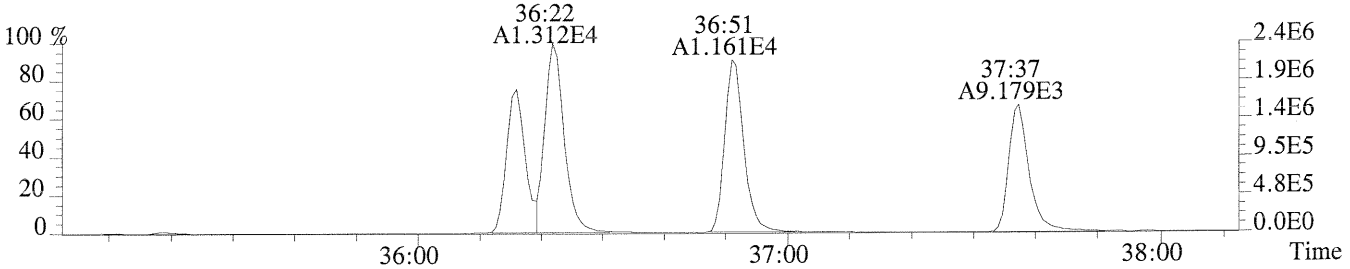


383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)

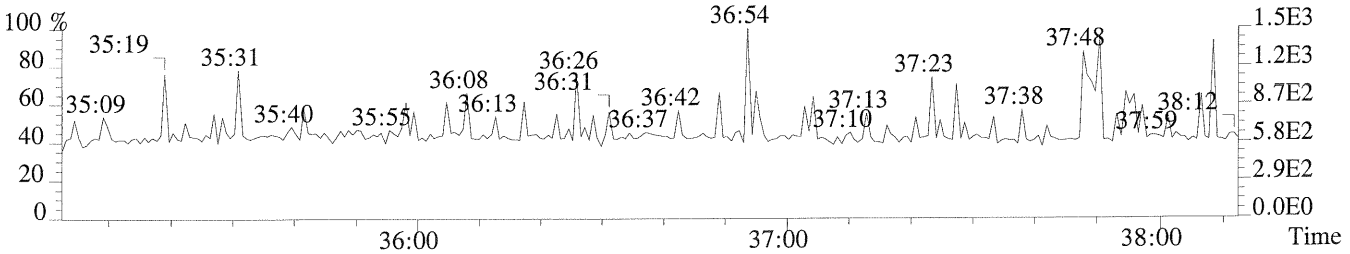
MM 07/08/14



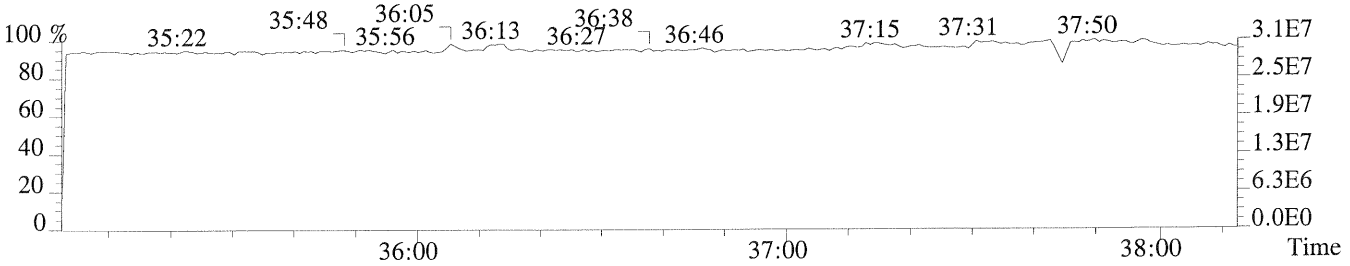
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



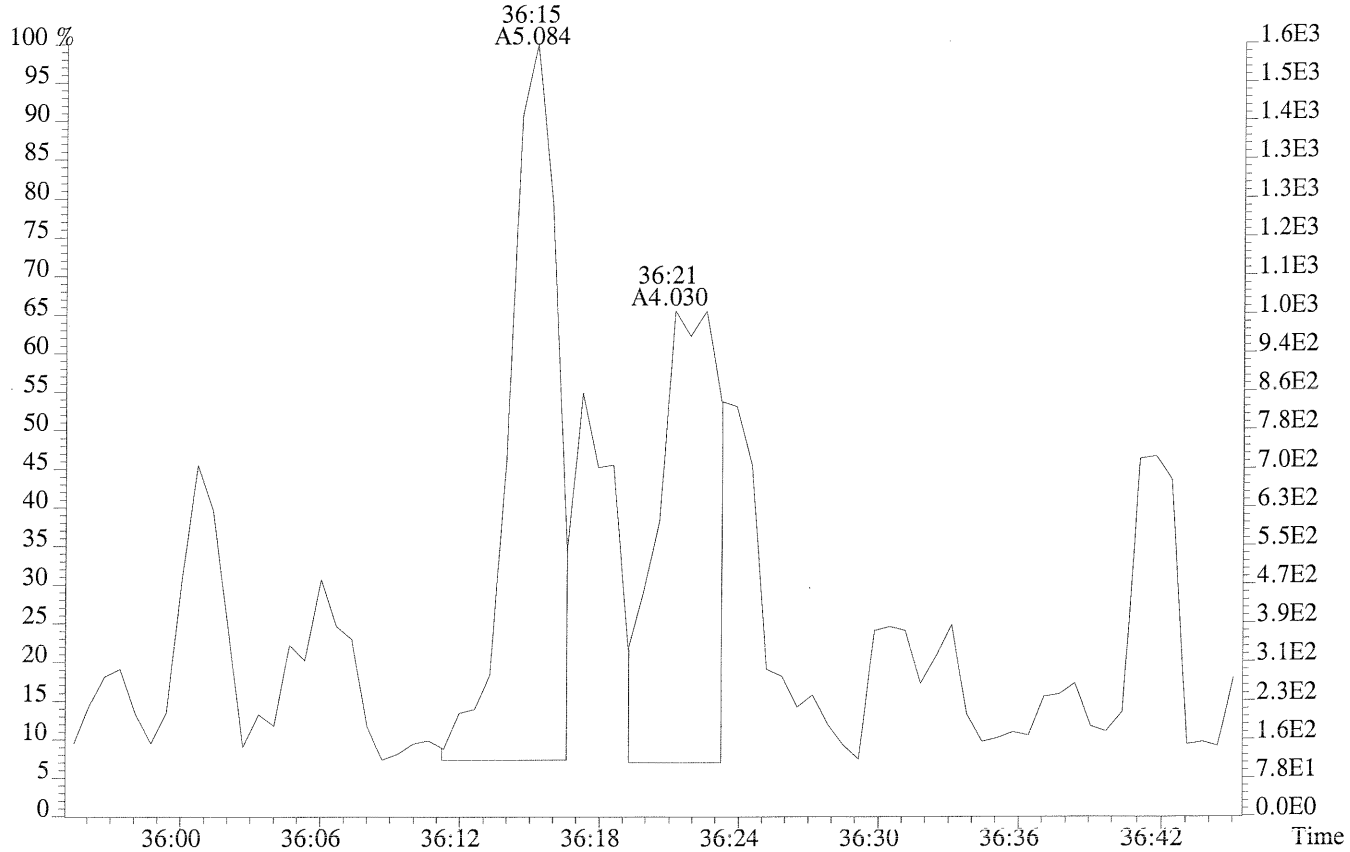
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



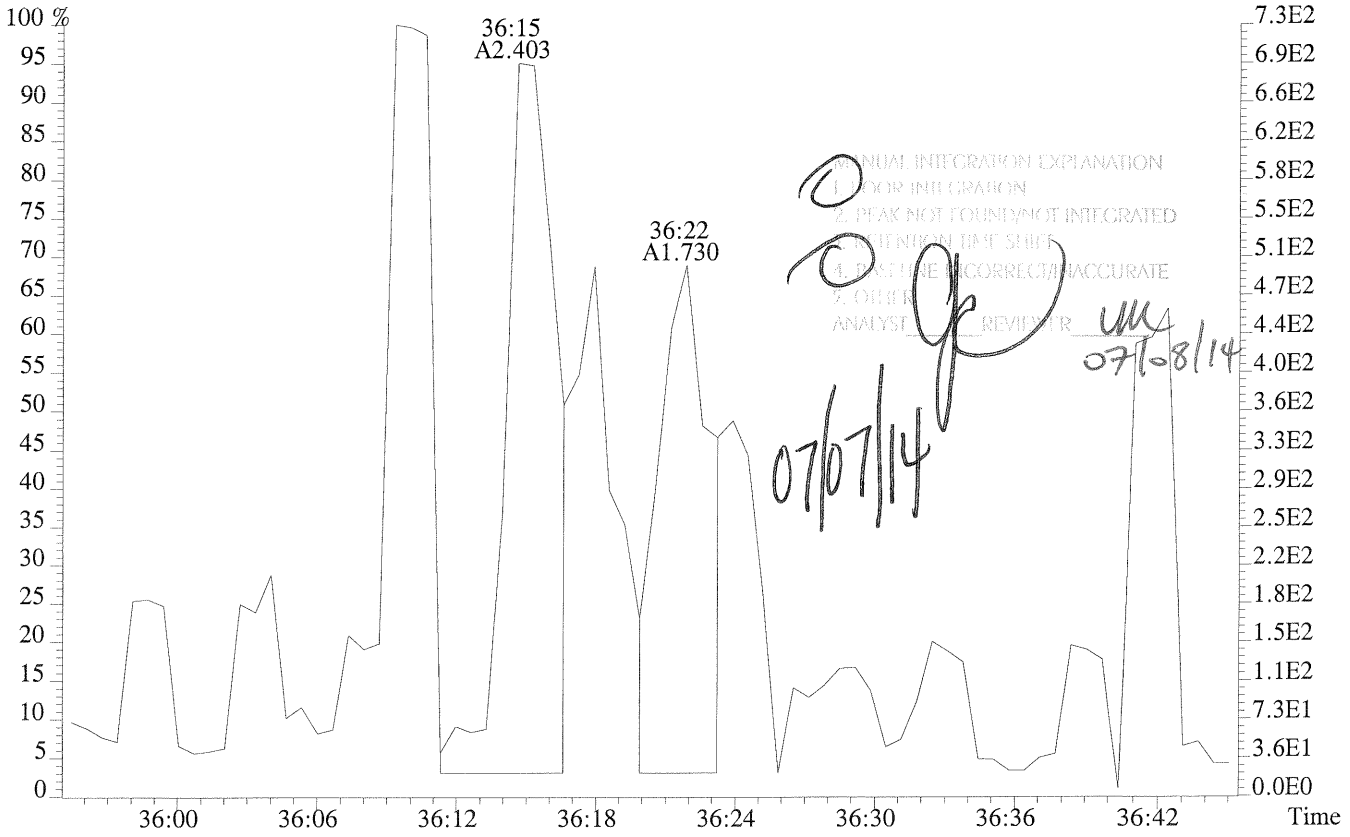
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229938 #1-288 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,312.0,0.40%,F,T)



375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,68.0,0.40%,F,T)

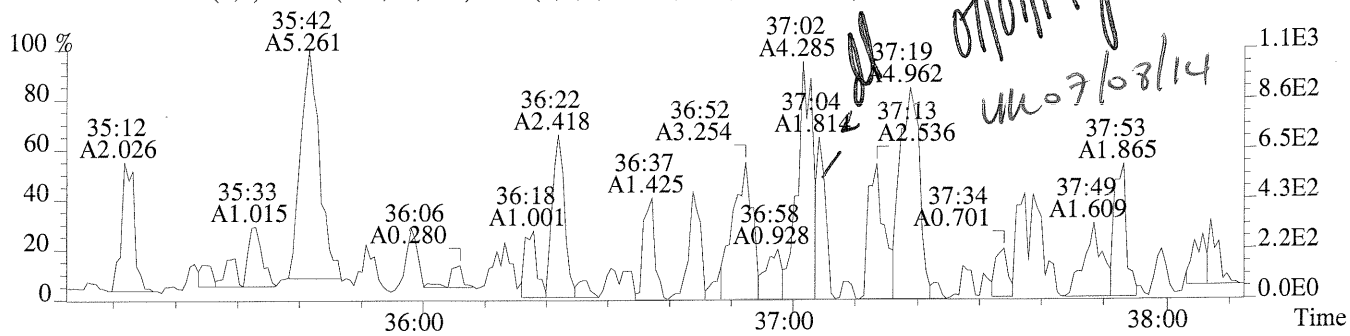


File:P229938 #1-288 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spectr
Sample#1 Exp:R1404651-016

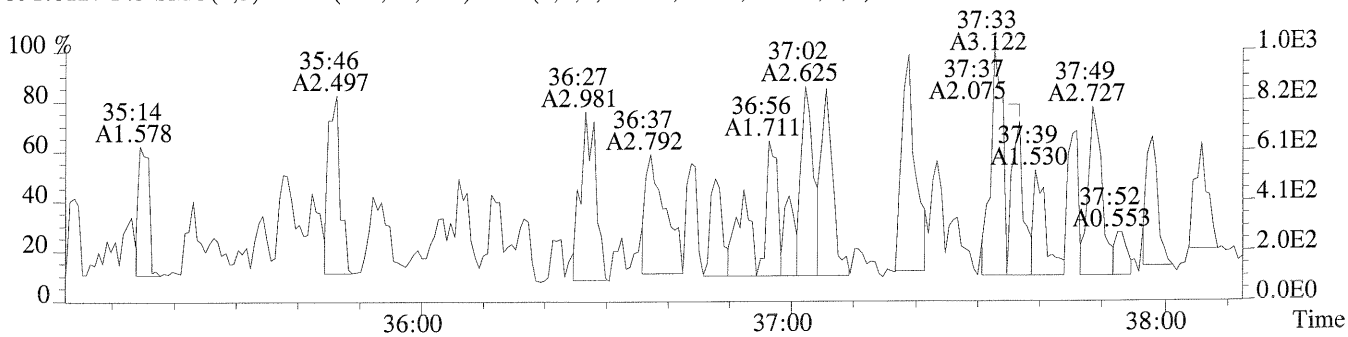
07/07/14 gc

UK 07/08/14

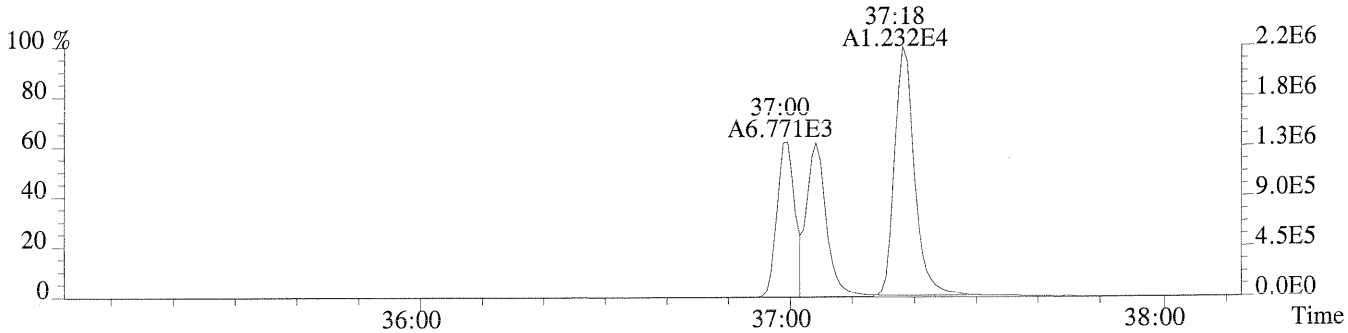
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,84.0,0.40%,F,T)



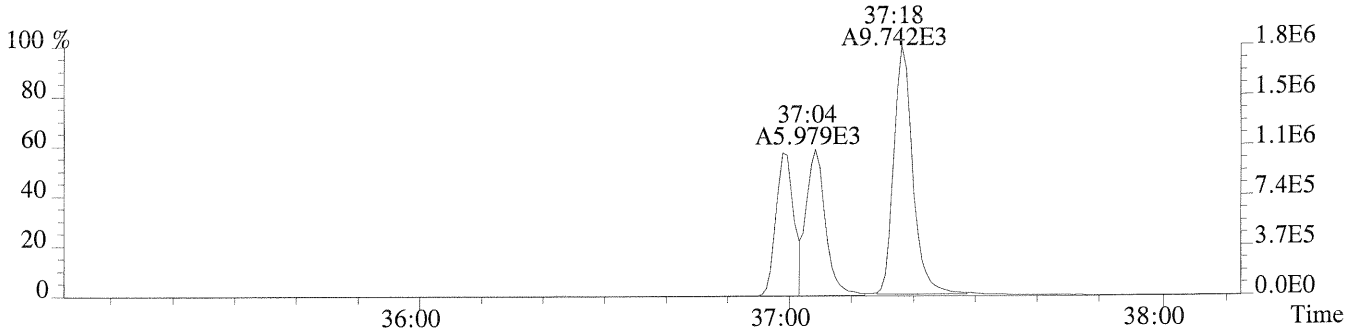
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



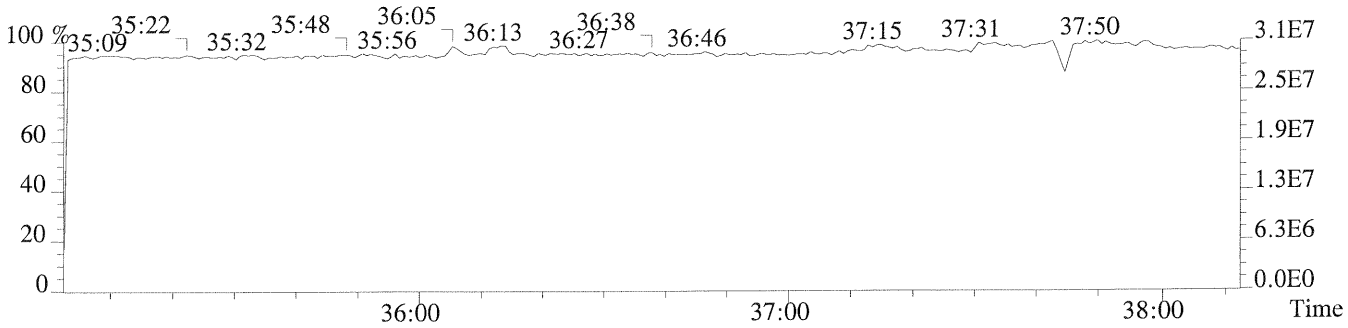
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,336.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)

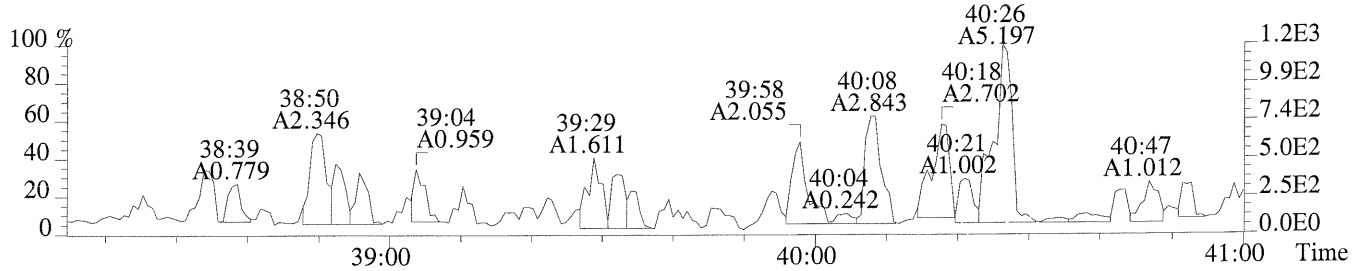


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

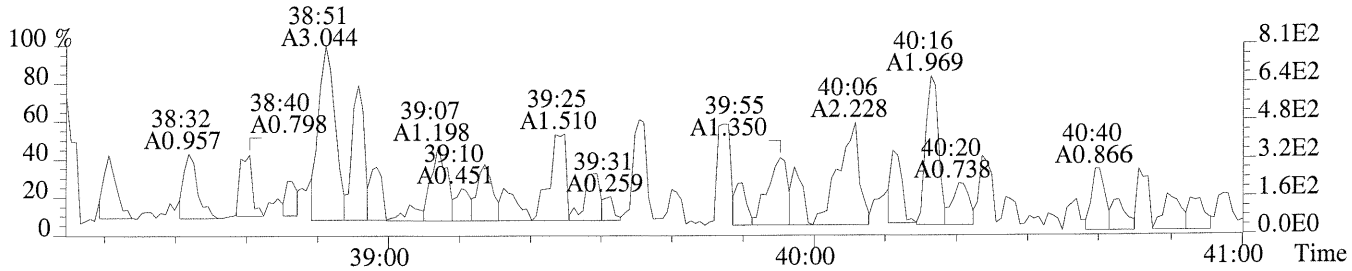


File:P229938 #1-251 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016

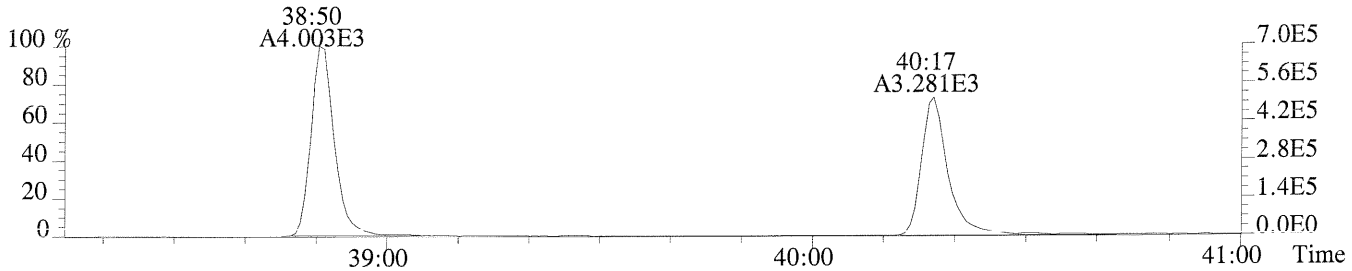
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.50%,F,T)



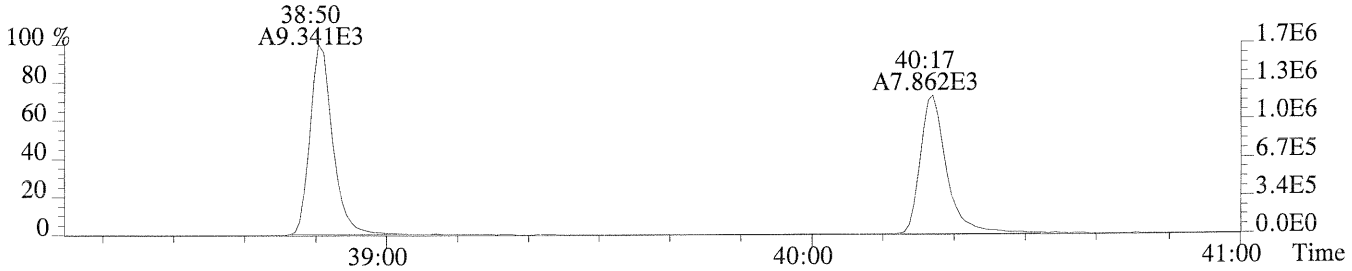
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,136.0,0.50%,F,T)



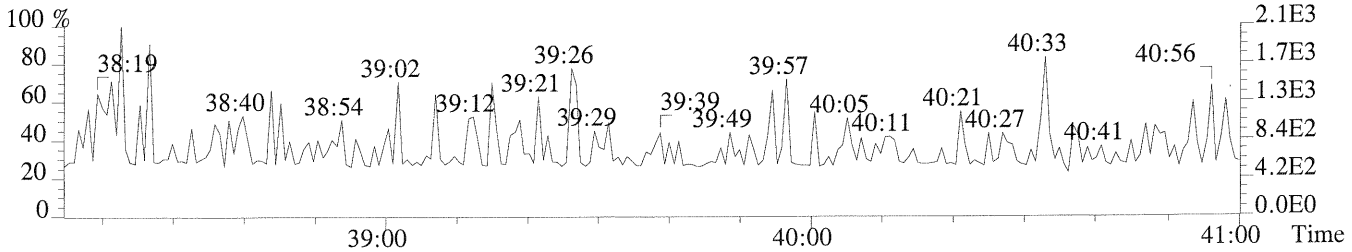
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.50%,F,T)



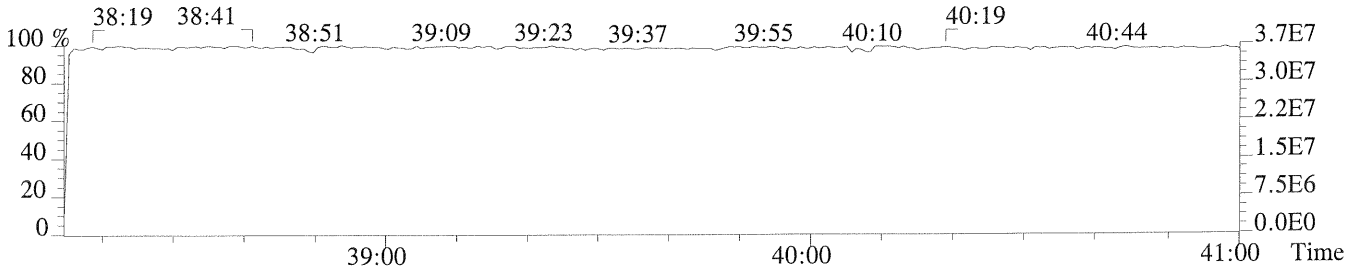
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,868.0,0.50%,F,T)



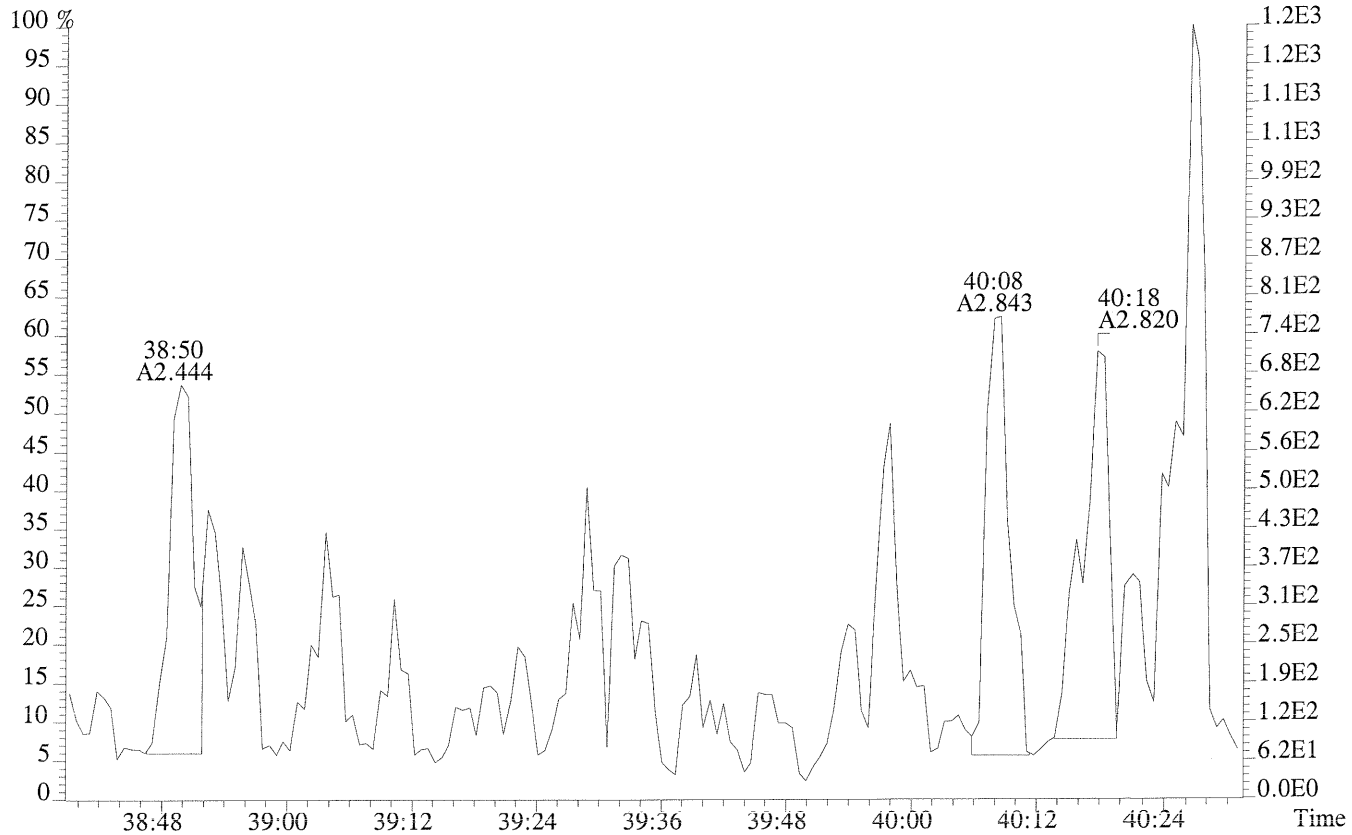
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



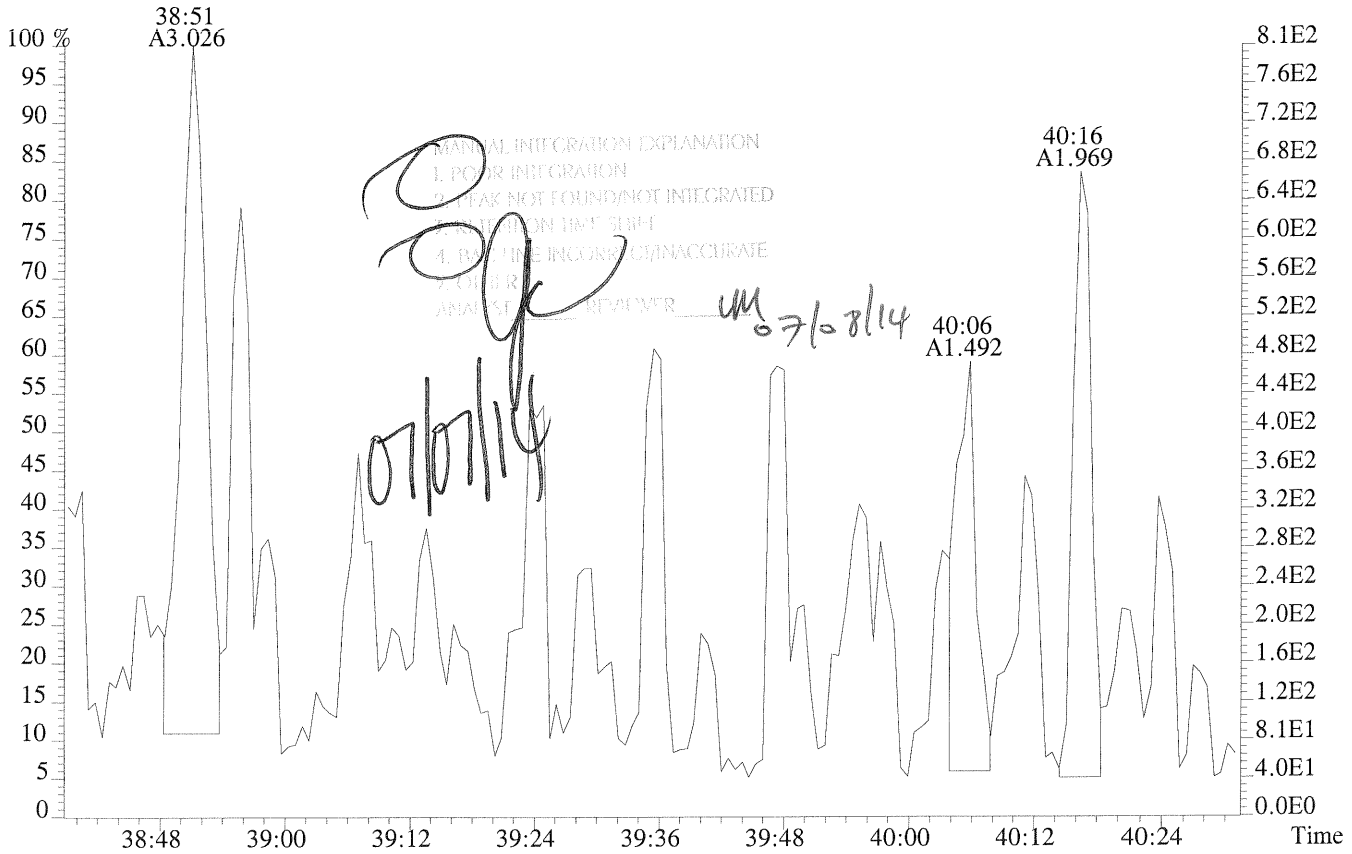
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



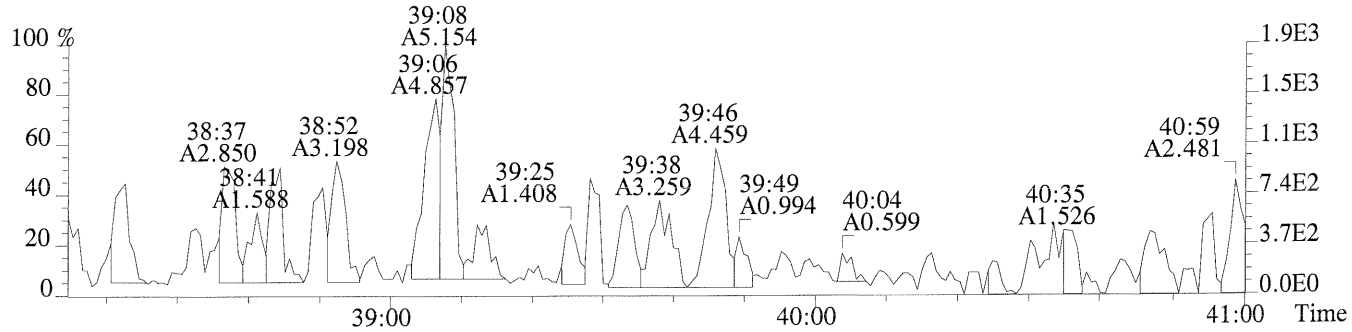
File:P229938 #1-251 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,152.0,0.50%,F,T)



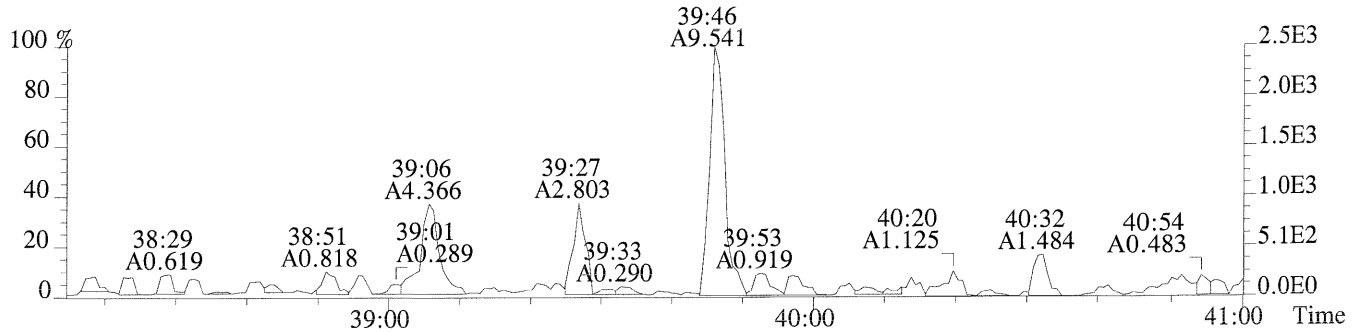
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,136.0,0.50%,F,T)



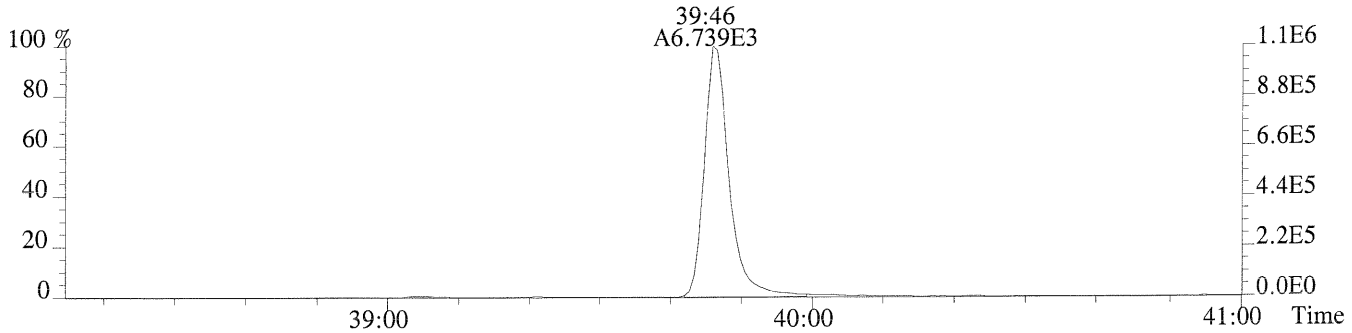
File:P229938 #1-251 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



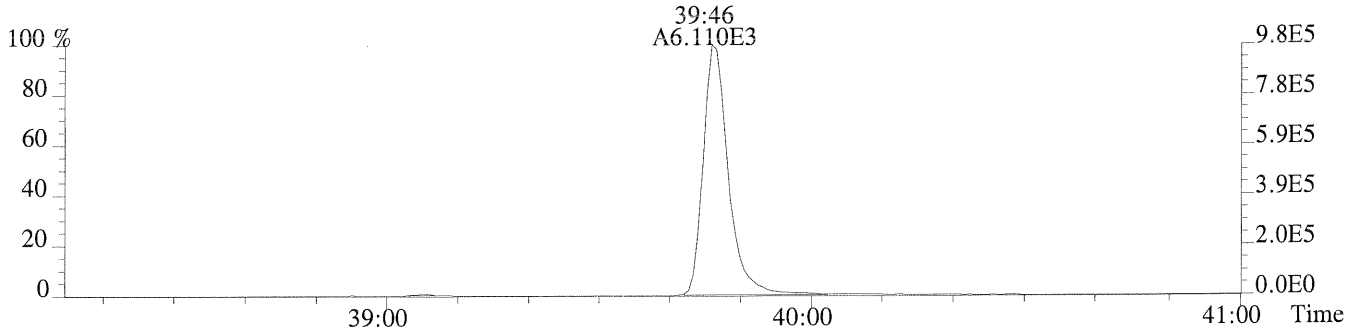
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,68.0,0.40%,F,T)



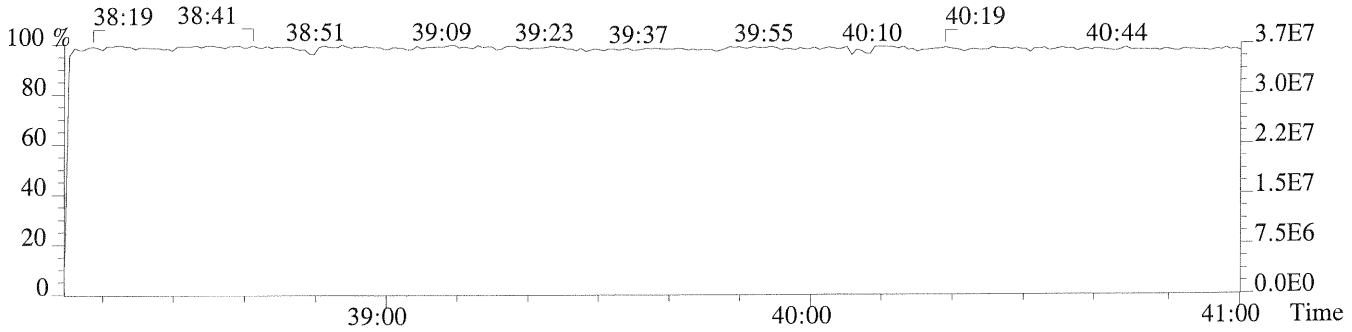
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



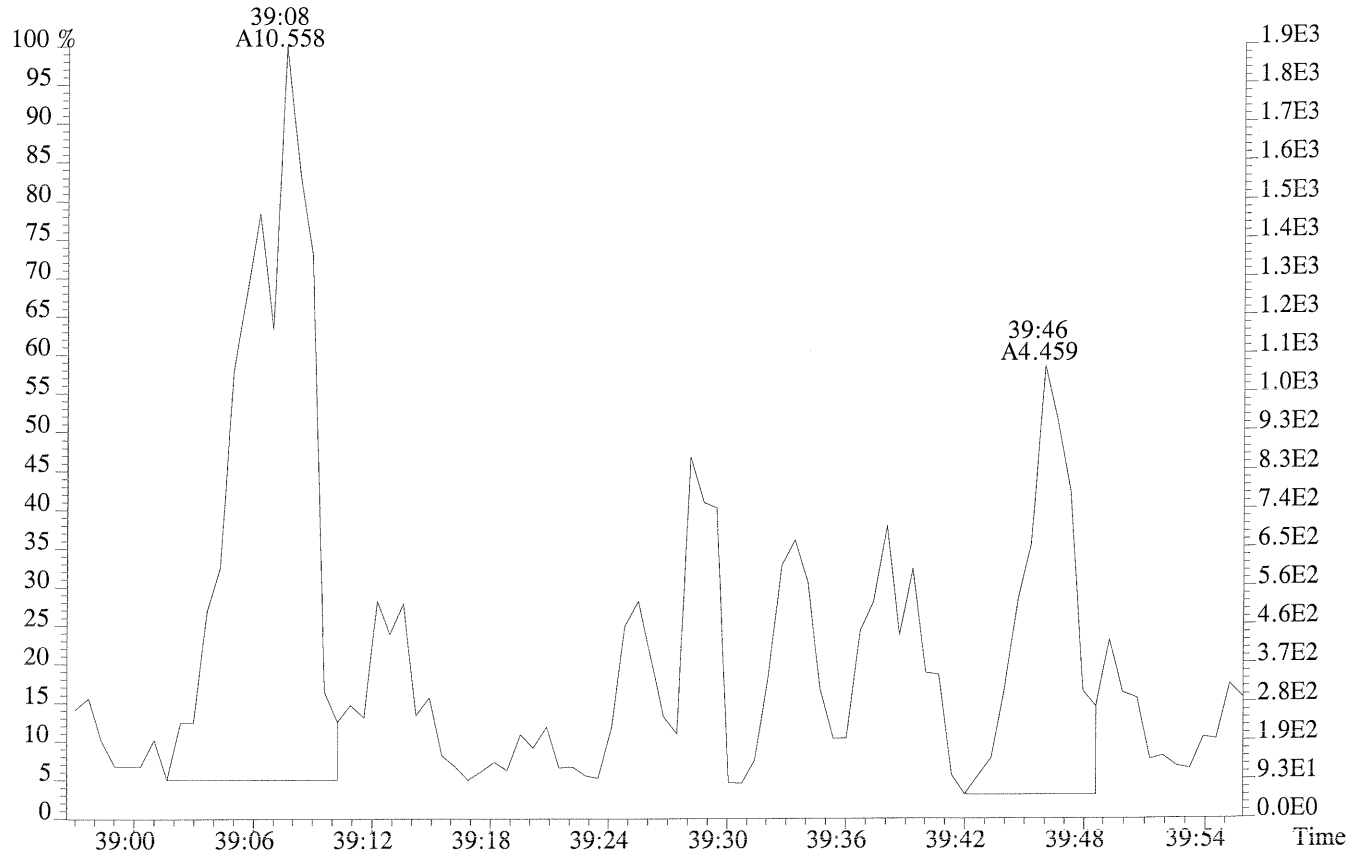
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



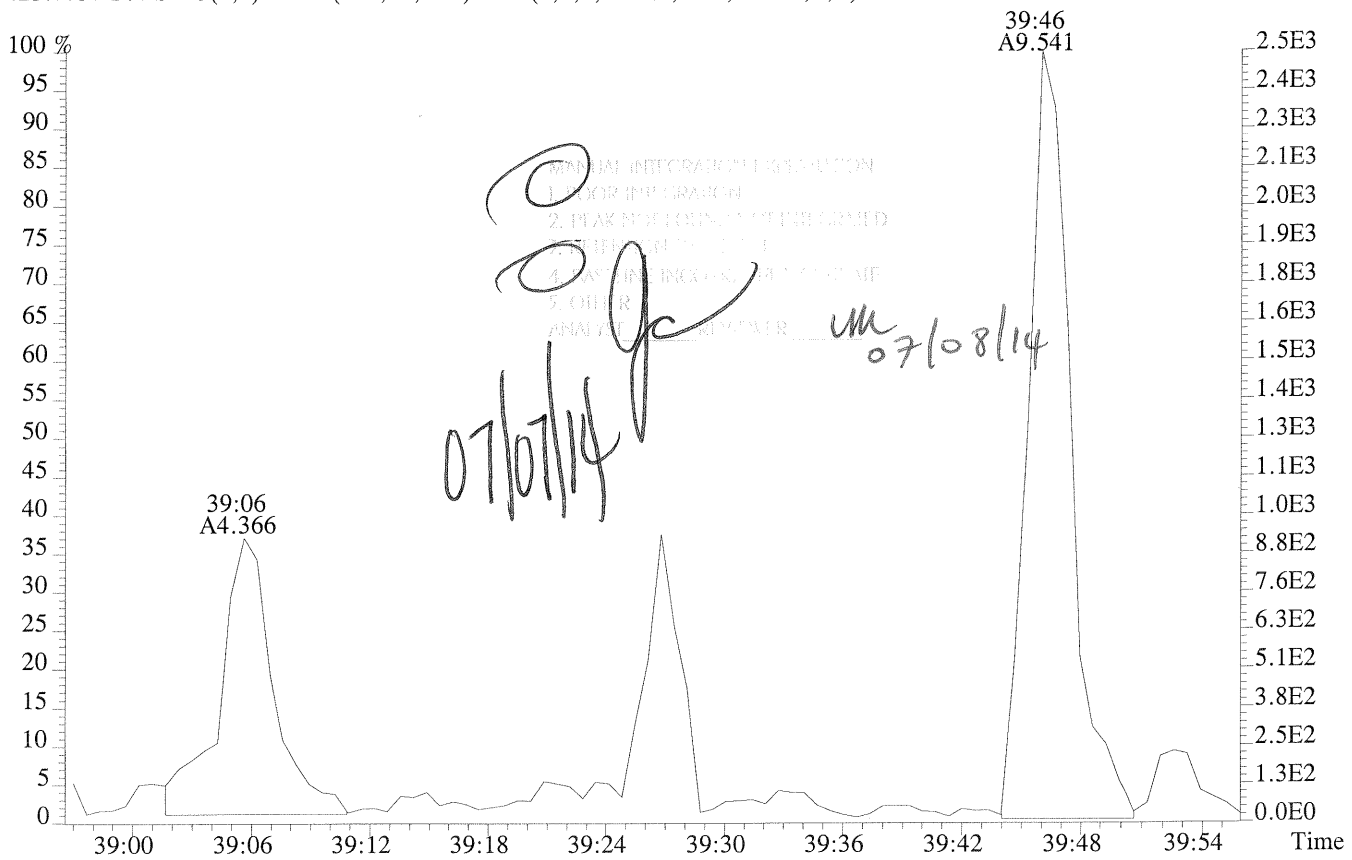
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229938 #1-251 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



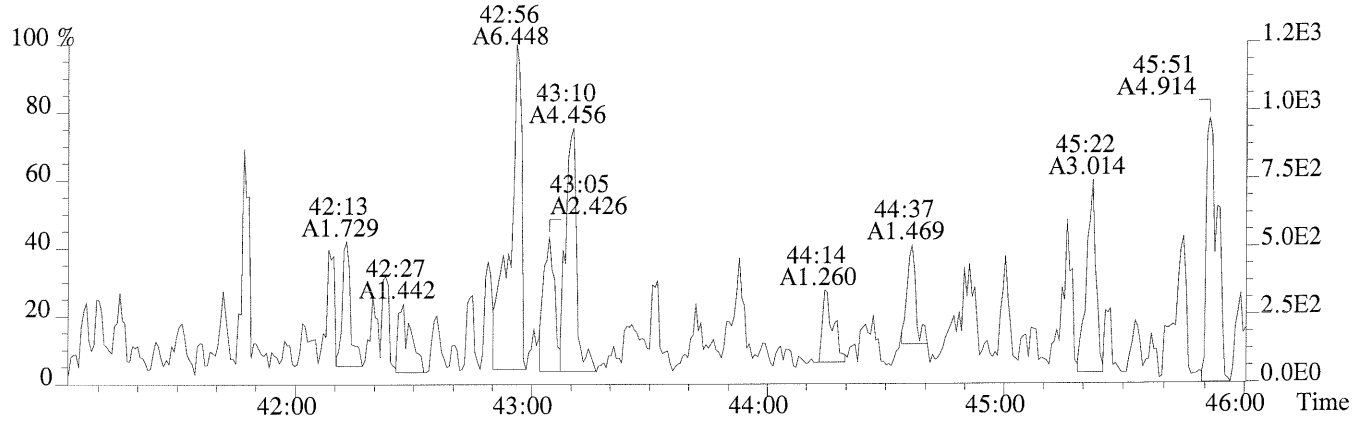
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,68.0,0.40%,F,T)



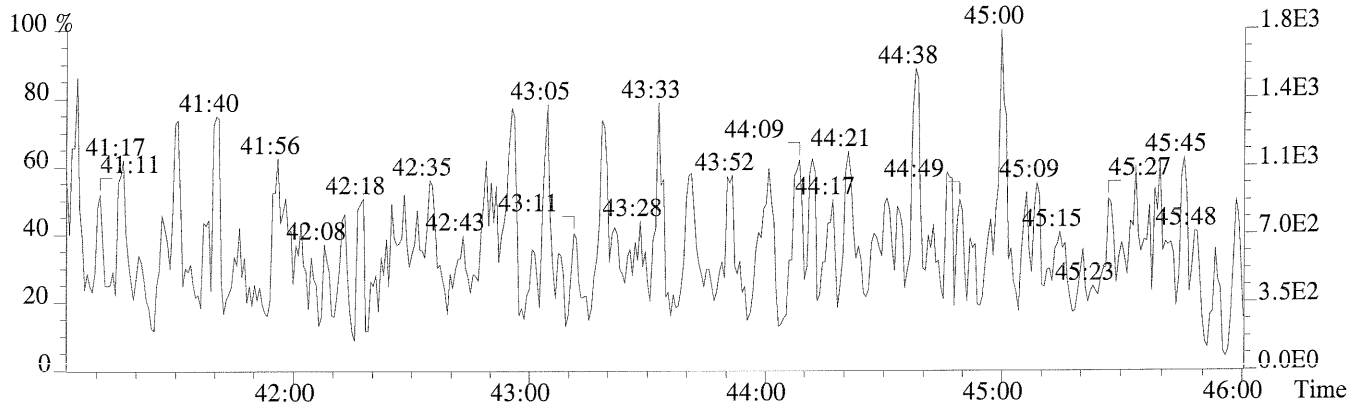
07/07/14

07/08/14

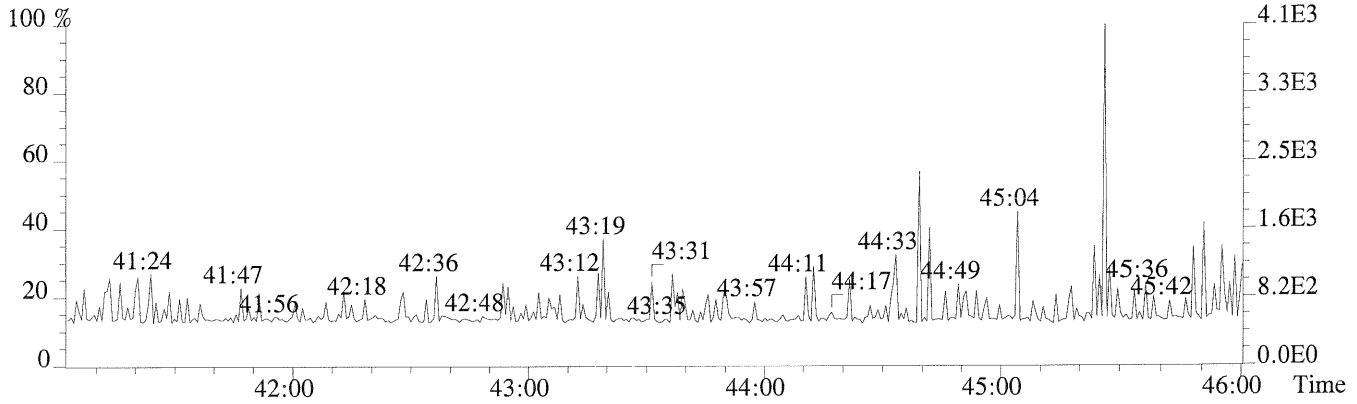
File:P229938 #1-457 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,148.0,0.40%,F,T)



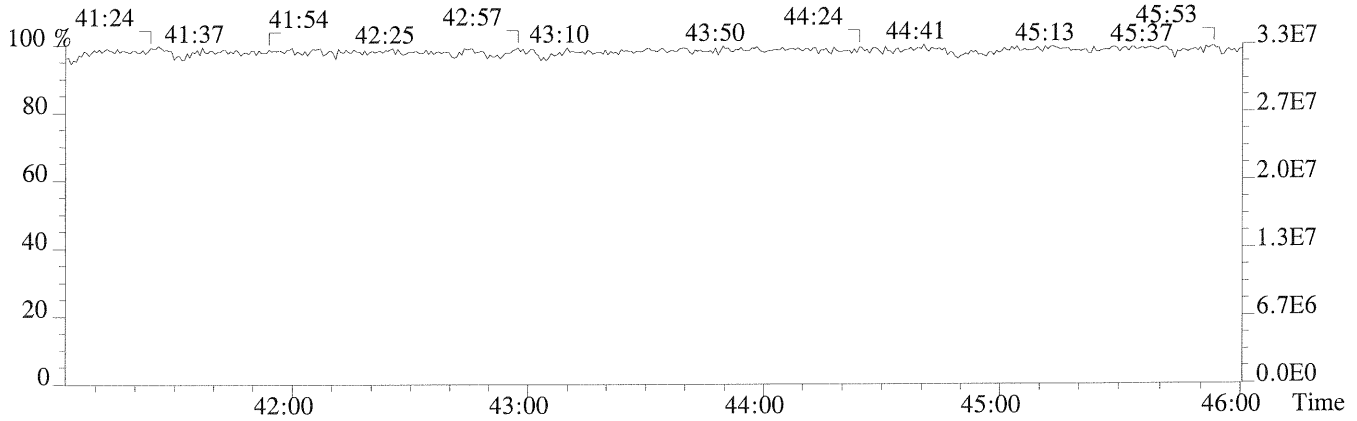
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

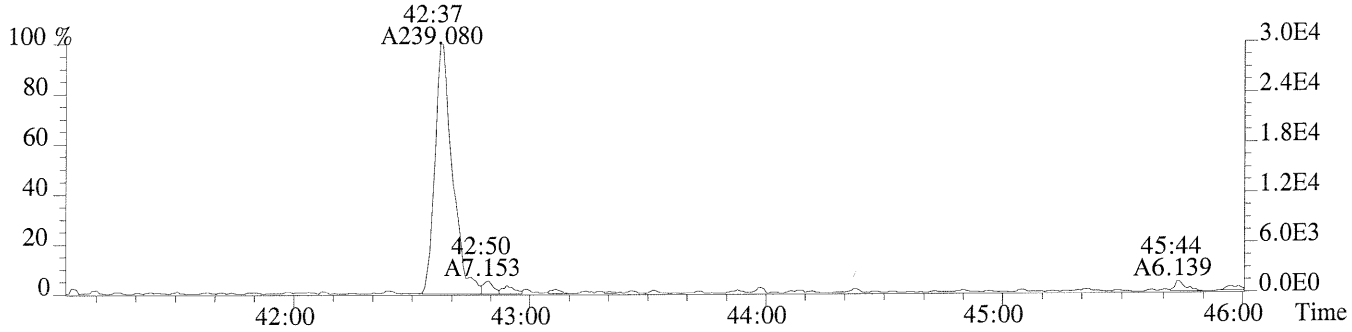


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

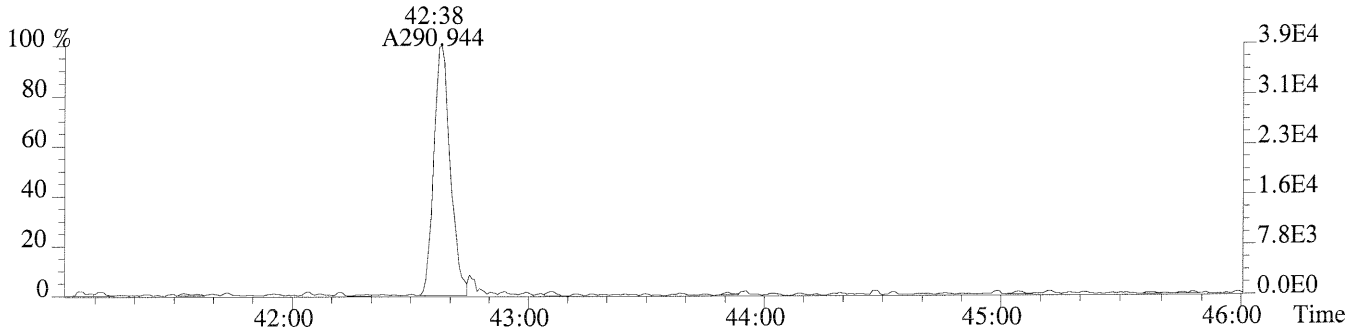


File:P229938 #1-457 Acq: 3-JUL-2014 05:19:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-016

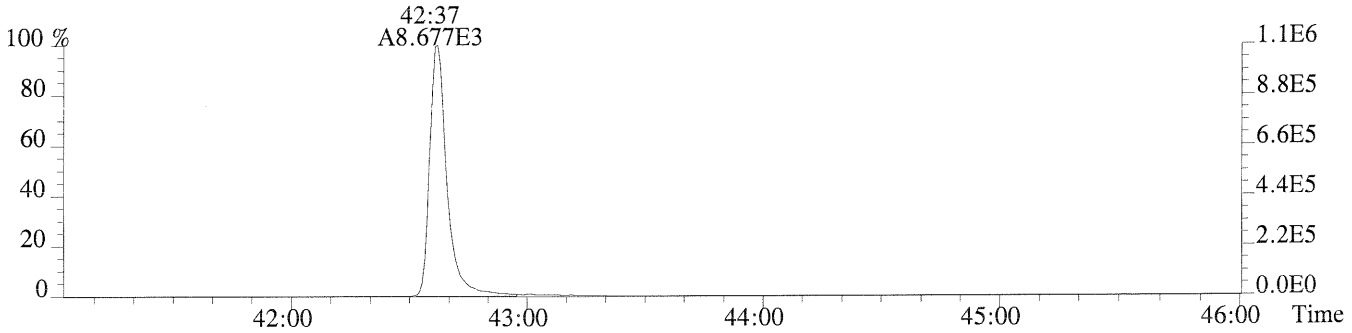
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



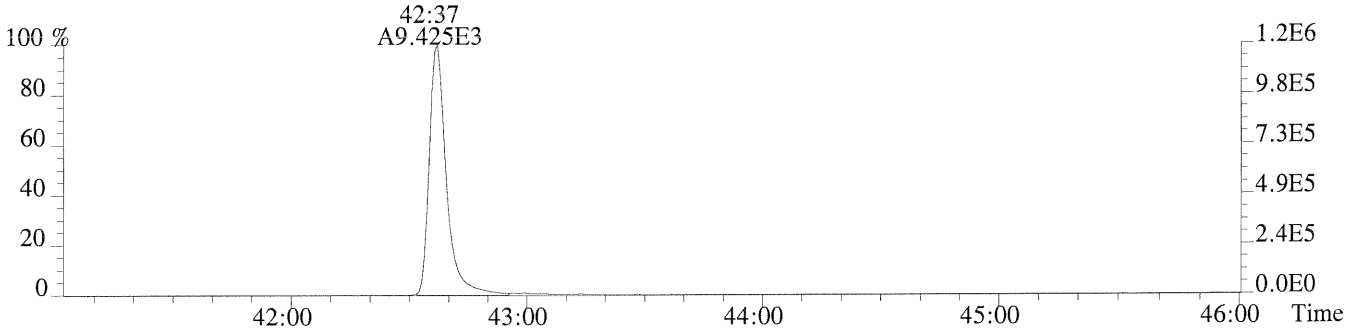
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



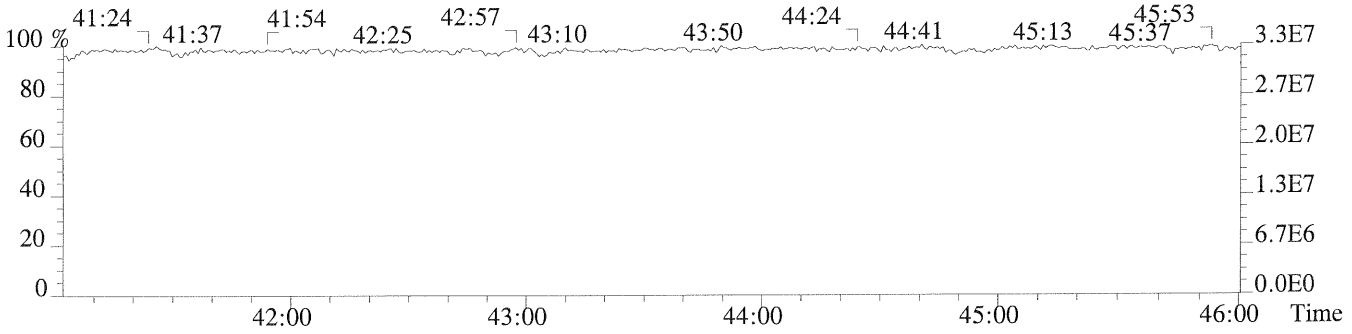
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,232.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406161548 20

Run #6 Filename P229939 Samp: 1 Inj: 1 Acquired: 3-JUL-14 06:07:13
Processed: 7-JUL-14 10:57:38 Sample ID: R1404651-017

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.929
2	Unk	1,2,3,7,8-PeCDF	32:45	4.254e+00	7.705e+00	0.55	no	no	1.048
3	Unk	2,3,4,7,8-PeCDF	33:39	2.474e+00	5.716e+00	0.43	no	no	0.976
4	Unk	1,2,3,4,7,8-HxCDF	36:16	2.623e+00	2.360e+00	1.11	yes	no	1.254
5	Unk	1,2,3,6,7,8-HxCDF	36:23	6.225e+00	5.230e+00	1.19	yes	no	1.147
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.161
7	Unk	1,2,3,7,8,9-HxCDF	37:39	5.362e+00	5.086e+00	1.05	yes	no	1.169
8	Unk	1,2,3,4,6,7,8-HpCDF	38:50	8.429e+00	1.063e+01	0.79	no	yes	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.309
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.462
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	0.989
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.014
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.114
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.115
15	Unk	1,2,3,7,8,9-HxCDD	37:19	6.621e+00	5.708e+00	1.16	yes	yes	1.207
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	7.365e+01	7.652e+01	0.96	yes	no	1.091
17	Unk	OCDD	42:37	3.472e+02	3.818e+02	0.91	yes	yes	1.183
18	IS	13C-2,3,7,8-TCDF	28:39	5.060e+03	6.604e+03	0.77	yes	no	1.518
19	IS	13C-1,2,3,7,8-PeCDF	32:45	1.071e+04	6.694e+03	1.60	yes	no	2.114
20	IS	13C-2,3,4,7,8-PeCDF	33:38	1.057e+04	6.638e+03	1.59	yes	no	2.137
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	4.483e+03	8.711e+03	0.51	yes	no	1.126
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	6.358e+03	1.241e+04	0.51	yes	no	1.405
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	5.768e+03	1.127e+04	0.51	yes	no	1.260
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	4.138e+03	8.199e+03	0.50	yes	no	1.145
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	3.538e+03	8.242e+03	0.43	yes	no	1.049
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	2.904e+03	6.859e+03	0.42	yes	no	0.926
27	IS	13C-2,3,7,8-TCDD	29:24	3.363e+03	4.381e+03	0.77	yes	no	0.993
28	IS	13C-1,2,3,7,8-PeCDD	33:54	7.801e+03	4.771e+03	1.63	yes	no	1.363
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	6.640e+03	5.157e+03	1.29	yes	no	0.821
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	6.984e+03	5.309e+03	1.32	yes	no	0.960
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	5.832e+03	5.466e+03	1.07	yes	no	0.936
32	IS	13C-OCDD	42:36	7.183e+03	7.854e+03	0.91	yes	no	0.735
33	RS/RT	13C-1,2,3,4-TCDD	28:50	6.849e+03	8.841e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.240e+04	9.506e+03	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	3.082e+03				no	0.993

$$\text{OCDD} = \frac{(3.472e+02 + 3.818e+02) \times 4000 \text{ pg} \times 1}{(7.183e+03 + 7.854e+03) \times 10.3539\text{g} \times 98.7 \times 1.183} = 16.042 \text{ ng/kg}$$

MM 07/08/14

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406161548 200-S

Run #6 Filename P229939 Samp: 1 Inj: 1 Acquired: 3-JUL-14 06:07:13
Processed: 7-JUL-14 10:57:381 LAB. ID: R1404651-017

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	1.20e+02	*	*	6.28e+02	*
2	1,2,3,7,8-PeCDF	8.53e+02	5.20e+01	1.6e+01	1.95e+03	3.20e+02	6.1e+00
3	2,3,4,7,8-PeCDF	7.74e+02	5.20e+01	1.5e+01	9.18e+02	3.20e+02	2.9e+00
4	1,2,3,4,7,8-HxCDF	6.93e+02	2.36e+02	2.9e+00	4.51e+02	7.60e+01	5.9e+00
5	1,2,3,6,7,8-HxCDF	1.40e+03	2.36e+02	5.9e+00	1.08e+03	7.60e+01	1.4e+01
6	2,3,4,6,7,8-HxCDF	*	2.36e+02	*	*	7.60e+01	*
7	1,2,3,7,8,9-HxCDF	1.64e+03	2.36e+02	7.0e+00	1.26e+03	7.60e+01	1.7e+01
8	1,2,3,4,6,7,8-HpCDF	1.56e+03	7.20e+01	2.2e+01	1.68e+03	8.80e+01	1.9e+01
9	1,2,3,4,7,8,9-HpCDF	*	7.20e+01	*	*	8.80e+01	*
10	OCDF	*	8.40e+01	*	*	5.52e+02	*
11	2,3,7,8-TCDD	*	3.48e+02	*	*	4.80e+02	*
12	1,2,3,7,8-PeCDD	*	3.88e+02	*	*	7.20e+01	*
13	1,2,3,4,7,8-HxCDD	*	4.80e+01	*	*	4.16e+02	*
14	1,2,3,6,7,8-HxCDD	*	4.80e+01	*	*	4.16e+02	*
15	1,2,3,7,8,9-HxCDD	1.23e+03	4.80e+01	2.6e+01	1.28e+03	4.16e+02	3.1e+00
16	1,2,3,4,6,7,8-HpCDD	1.24e+04	3.64e+02	3.4e+01	1.22e+04	5.60e+01	2.2e+02
17	OCDD	4.95e+04	1.88e+02	2.6e+02	5.59e+04	2.48e+02	2.3e+02
18	13C-2,3,7,8-TCDF	9.54e+05	5.64e+02	1.7e+03	1.24e+06	5.32e+02	2.3e+03
19	13C-1,2,3,7,8-PeCDF	1.78e+06	1.80e+02	9.9e+03	1.13e+06	2.92e+02	3.9e+03
20	13C-2,3,4,7,8-PeCDF	1.84e+06	1.80e+02	1.0e+04	1.17e+06	2.92e+02	4.0e+03
21	13C-1,2,3,4,7,8-HxCDF	8.79e+05	3.24e+02	2.7e+03	1.71e+06	6.68e+02	2.6e+03
22	13C-1,2,3,6,7,8-HxCDF	1.15e+06	3.24e+02	3.5e+03	2.22e+06	6.68e+02	3.3e+03
23	13C-2,3,4,6,7,8-HxCDF	1.11e+06	3.24e+02	3.4e+03	2.16e+06	6.68e+02	3.2e+03
24	13C-1,2,3,7,8,9-HxCDF	7.37e+05	3.24e+02	2.3e+03	1.45e+06	6.68e+02	2.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	6.32e+05	8.24e+02	7.7e+02	1.47e+06	7.36e+02	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.38e+05	8.24e+02	5.3e+02	1.05e+06	7.36e+02	1.4e+03
27	13C-2,3,7,8-TCDD	6.56e+05	1.66e+03	4.0e+02	8.66e+05	6.96e+02	1.2e+03
28	13C-1,2,3,7,8-PeCDD	1.37e+06	3.68e+02	3.7e+03	8.45e+05	2.12e+02	4.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.30e+06	3.48e+02	3.7e+03	1.03e+06	1.68e+02	6.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.24e+06	3.48e+02	3.6e+03	9.70e+05	1.68e+02	5.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.59e+05	3.64e+02	2.6e+03	9.14e+05	1.88e+02	4.9e+03
32	13C-OCDD	9.51e+05	2.08e+02	4.6e+03	1.05e+06	2.40e+02	4.4e+03
33	13C-1,2,3,4-TCDD	1.34e+06	1.66e+03	8.1e+02	1.75e+06	6.96e+02	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	2.18e+06	3.48e+02	6.3e+03	1.66e+06	1.68e+02	9.9e+03
35	37Cl-2,3,7,8-TCDD	5.82e+05	1.72e+02	3.4e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 41 Totals Name: Total Hexa-Furans

Run: 6 File: P229939 Sample: 1 Injection: 1 Function: 3
Llim: 35:05 Ulim: 37:49
Acquired: 3-JUL-14 06:07:13 Processed: 7-JUL-14 10:57:38
Mass: 373.8210 375.8180 Tot Response: 3.61e+01 RRF: 1.180

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:20	5.20e+00	3.99e+00	1.30	yes	9.20e+00		n	n
2	36:16	2.62e+00	2.36e+00	1.11	yes	4.98e+00	1,2,3,4,7,8-HxCDF	n	n
3	36:23	6.22e+00	5.23e+00	1.19	yes	1.15e+01	1,2,3,6,7,8-HxCDF	n	n
4	37:39	5.36e+00	5.09e+00	1.05	yes	1.04e+01	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 6 File: P229939 Sample: 1 Injection: 1 Function: 3
Llim: 35:36 Ulim: 37:24
Acquired: 3-JUL-14 06:07:13 Processed: 7-JUL-14 10:57:38
Mass: 389.8160 391.8130 Tot Response: 1.23e+01 RRF: 1.145

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:19	6.62e+00	5.71e+00	1.16	yes	1,2,3,7,8,9-HxCDD	n	y

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Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 6 File: P229939 Sample: 1 Injection: 1 Function: 4
Llim: 39:01 Ulim: 39:57
Acquired: 3-JUL-14 06:07:13 Processed: 7-JUL-14 10:57:38
Mass: 423.7770 425.7740 Tot Response: 1.50e+02 RRF: 1.091

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:47	7.36e+01	7.65e+01	0.96	yes	1.50e+02	1,2,3,4,6,7,8-HpCDD	n	n

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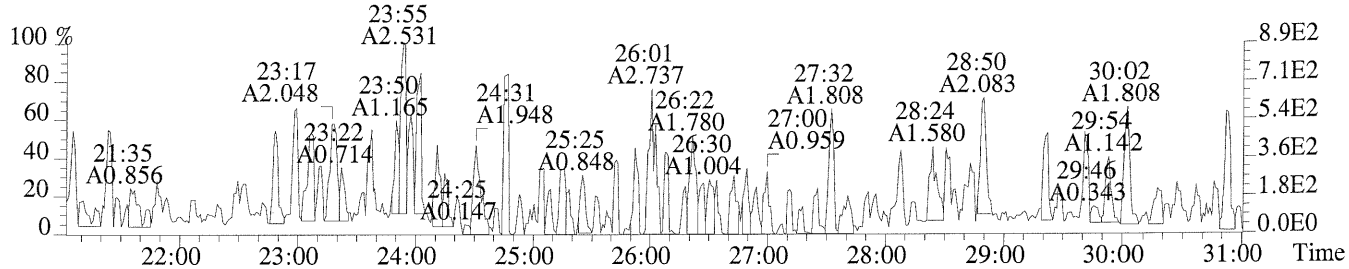
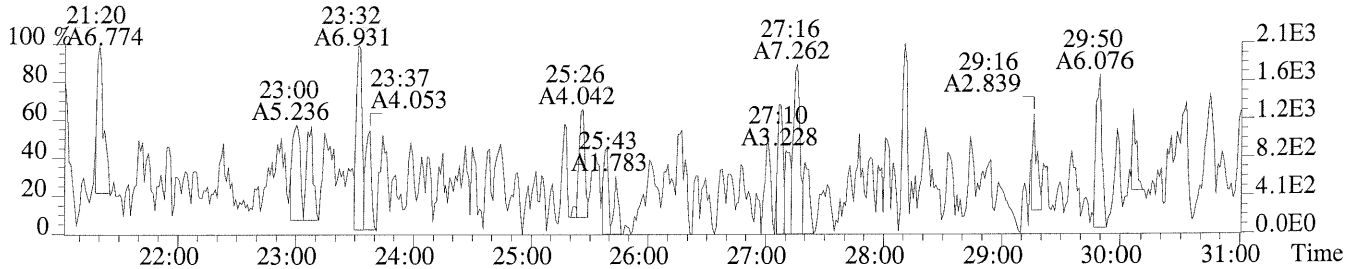
File:P229939 #1-627 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017

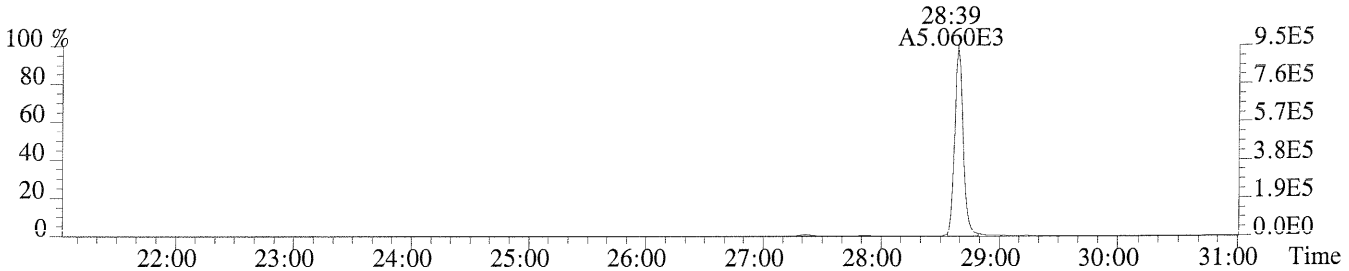
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,120.0,1.00%,F,T)



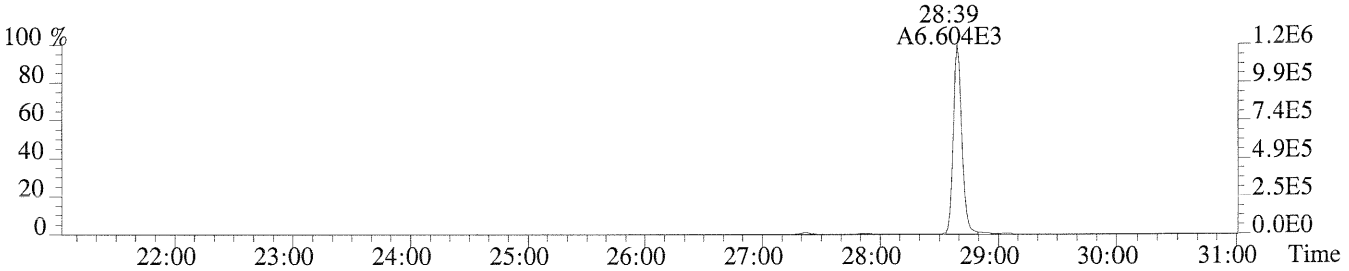
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



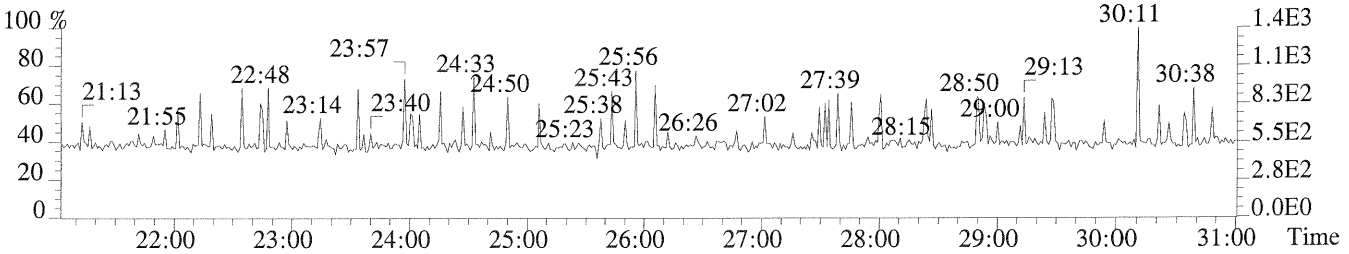
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



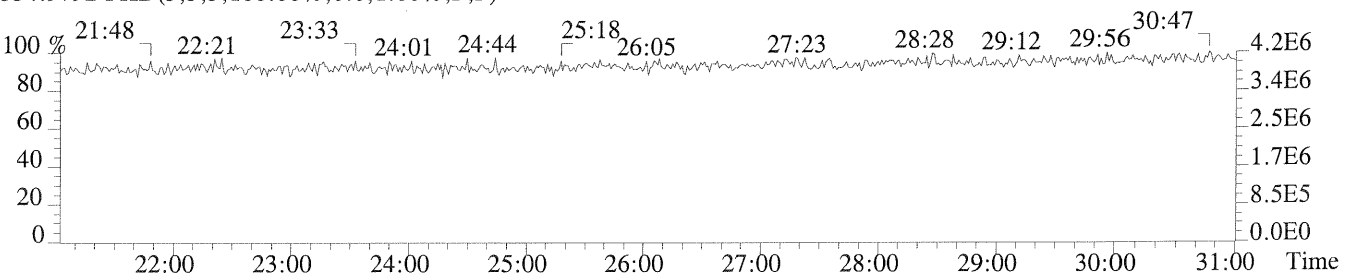
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



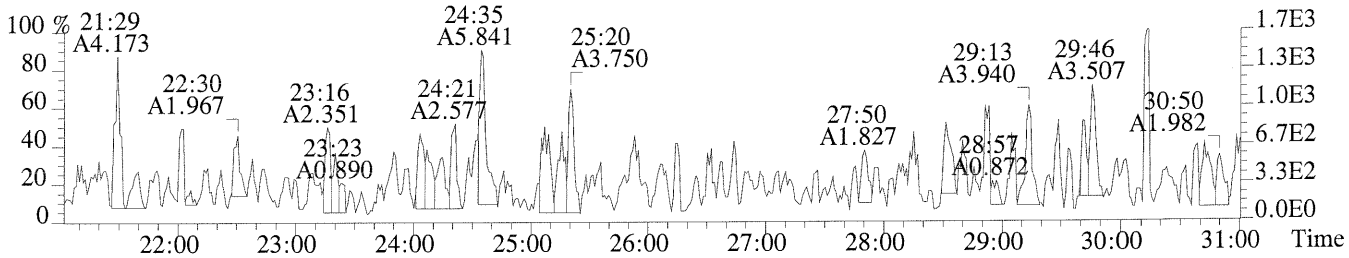
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



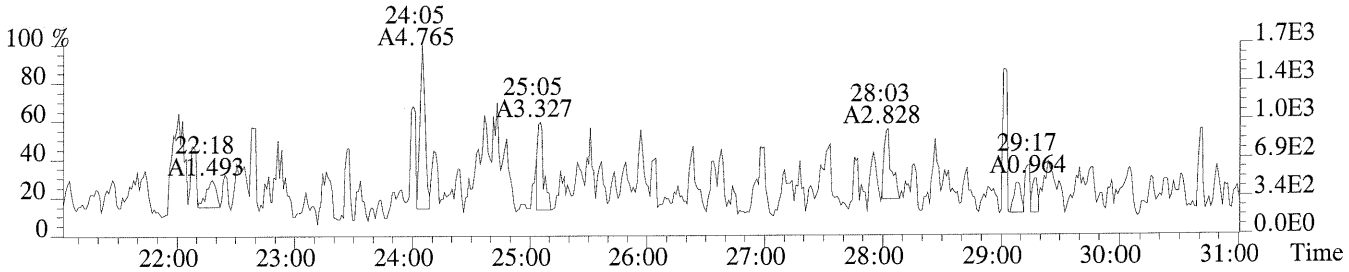
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



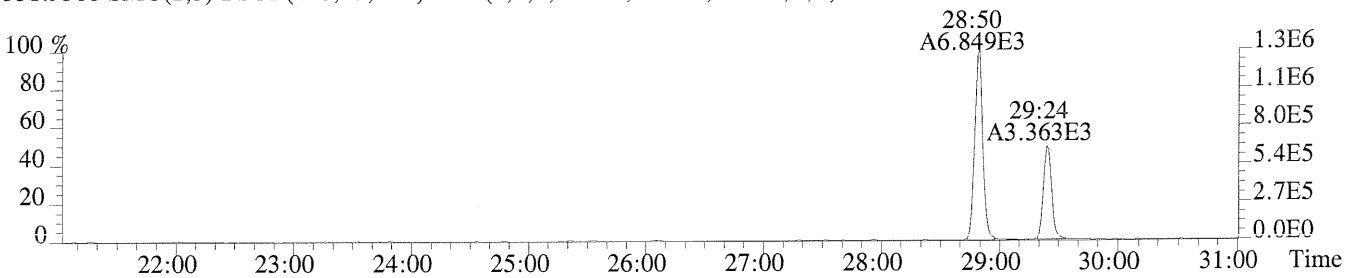
File:P229939 #1-627 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,348.0,1.00%,F,T)



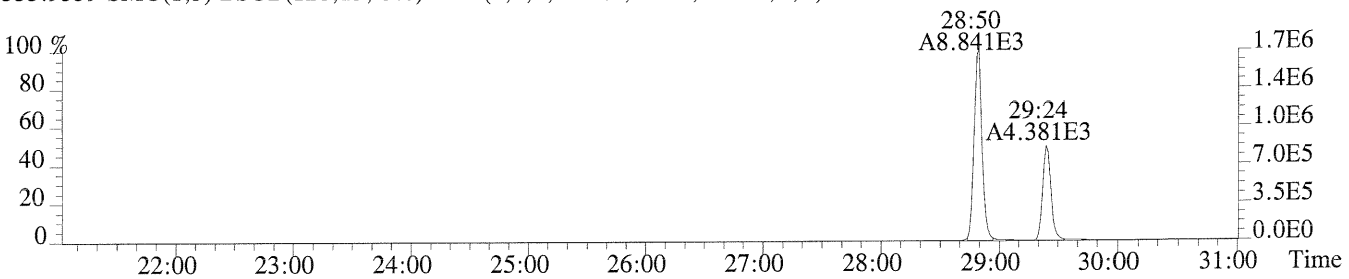
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



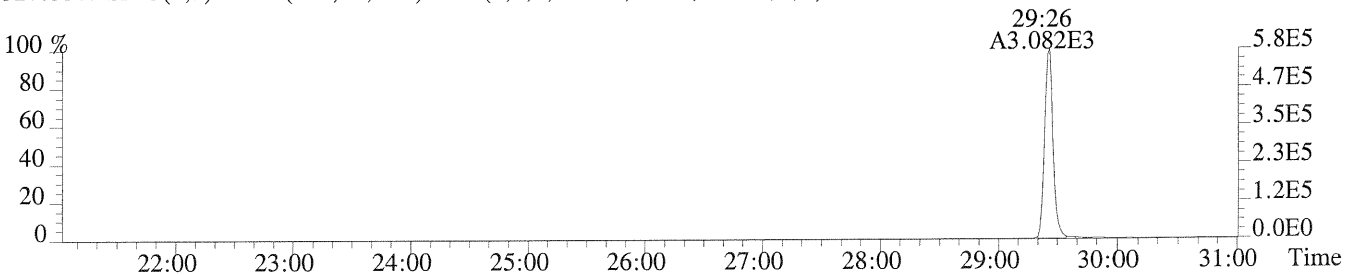
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1656.0,1.00%,F,T)



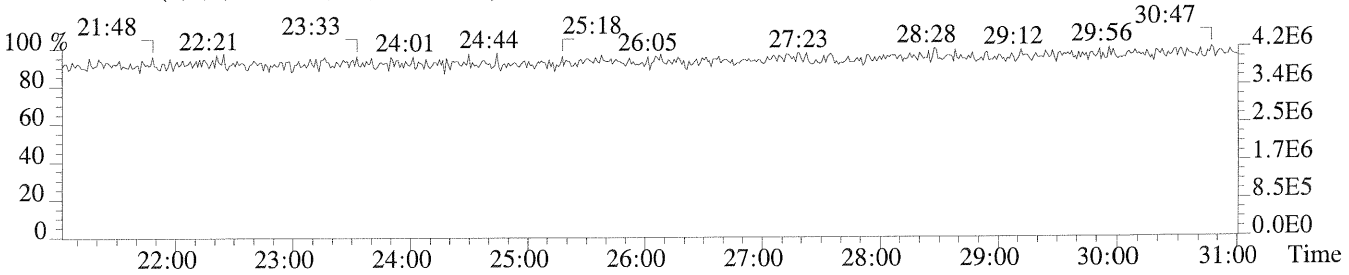
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



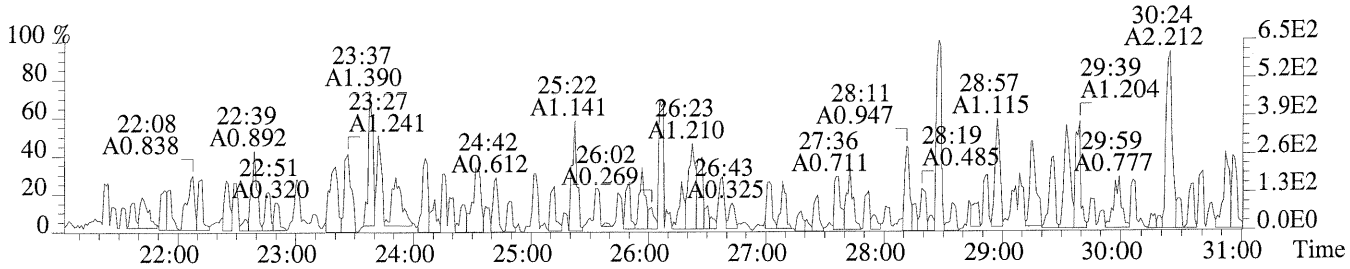
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,172.0,1.00%,F,T)



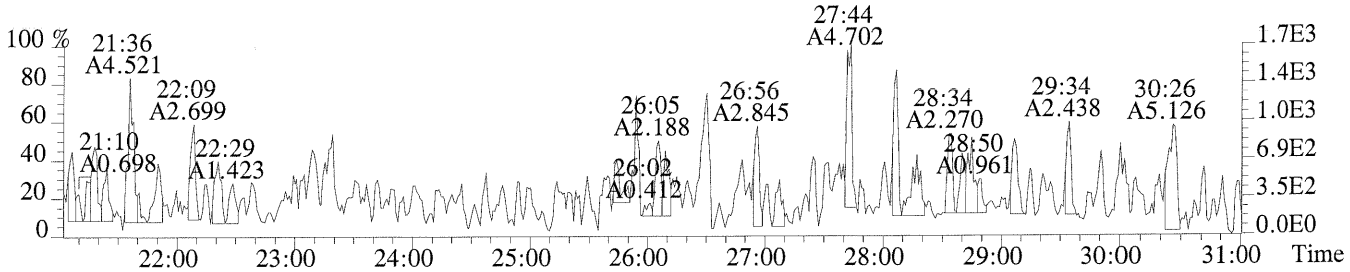
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



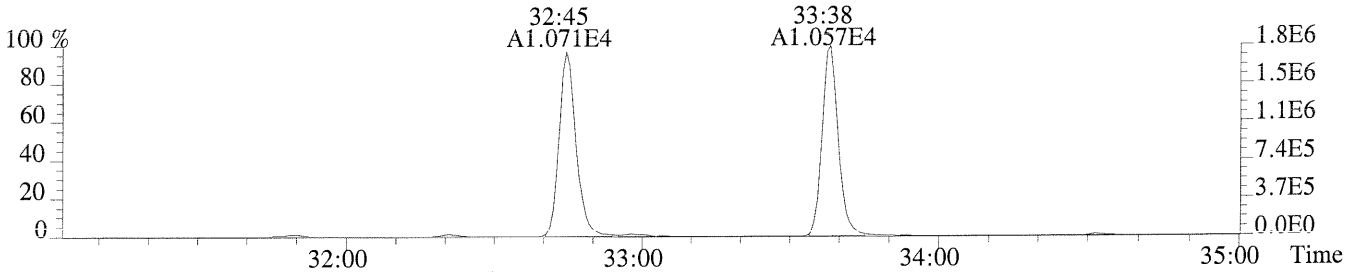
File:P229939 #1-627 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,36.0,1.00%,F,T)



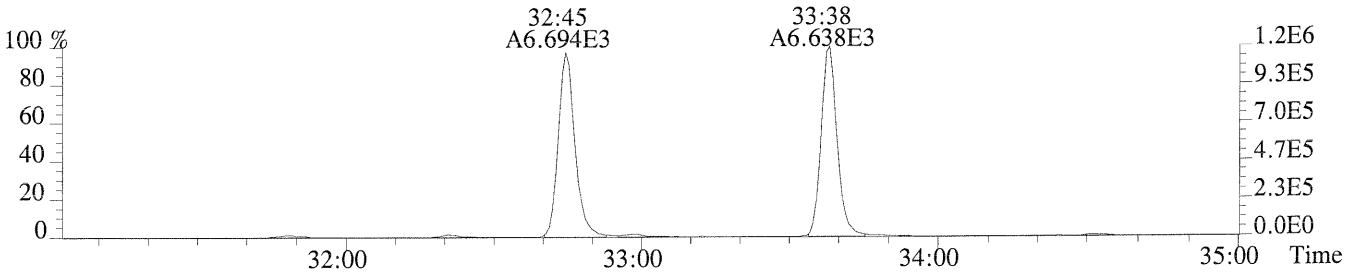
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,360.0,1.00%,F,T)



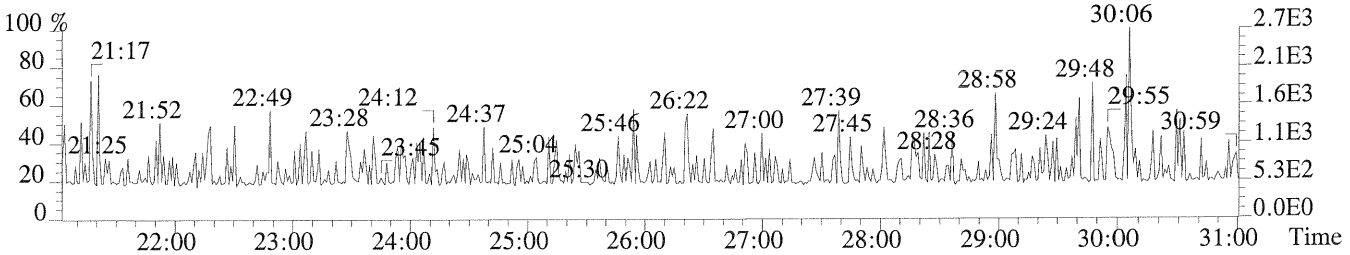
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



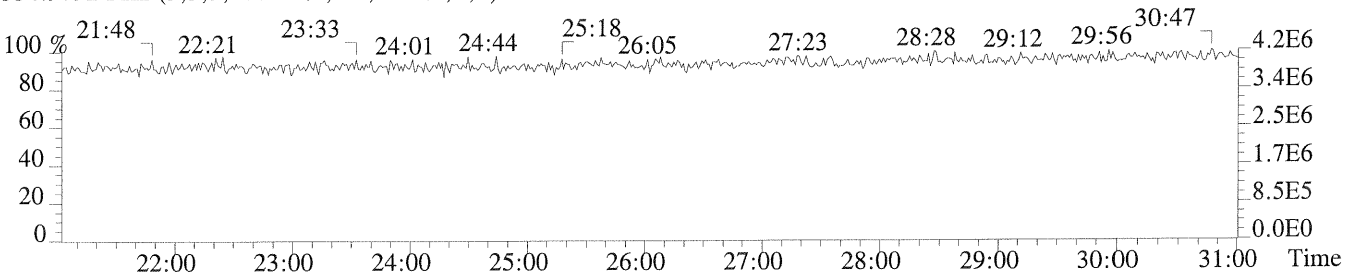
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

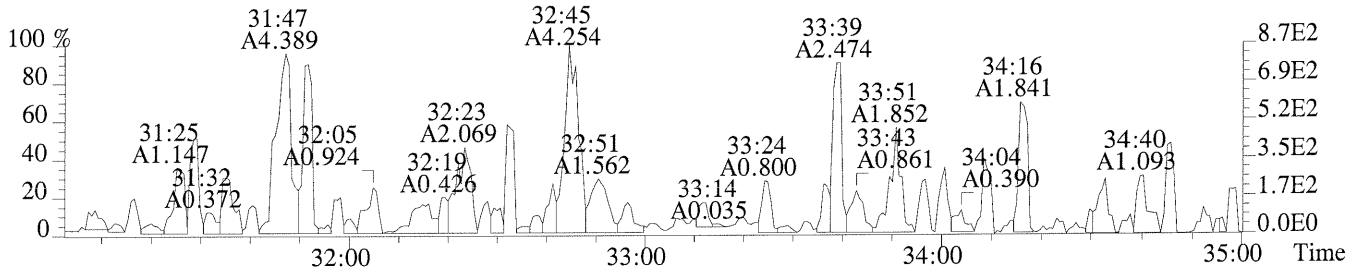


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

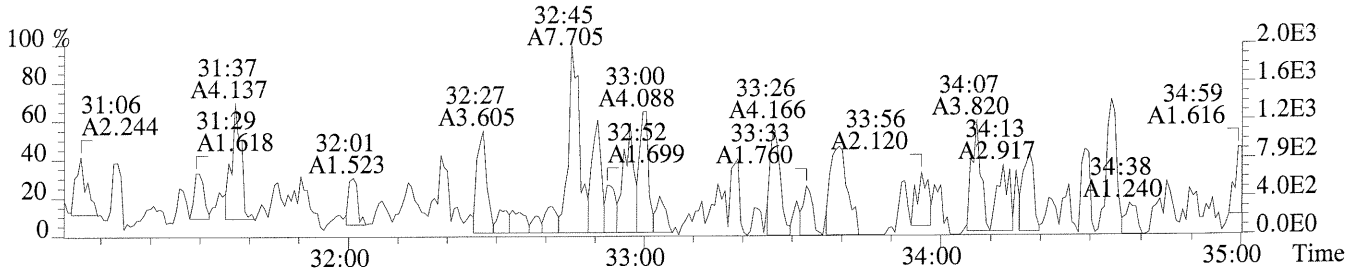


File:P229939 #1-360 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017

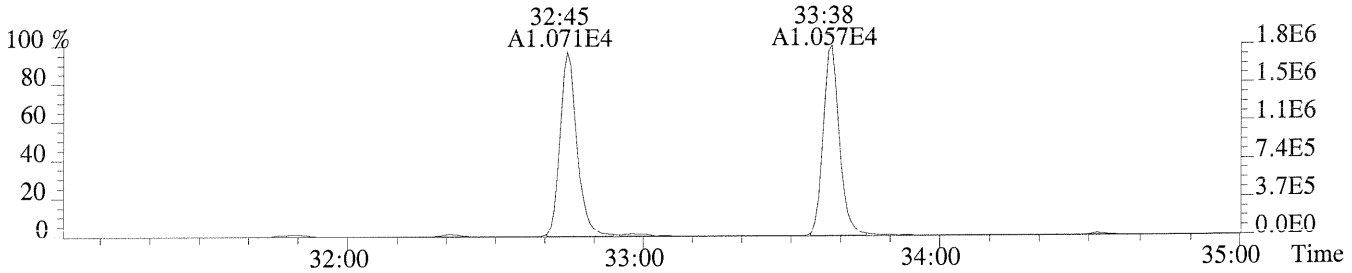
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,52.0,1.00%,F,T)



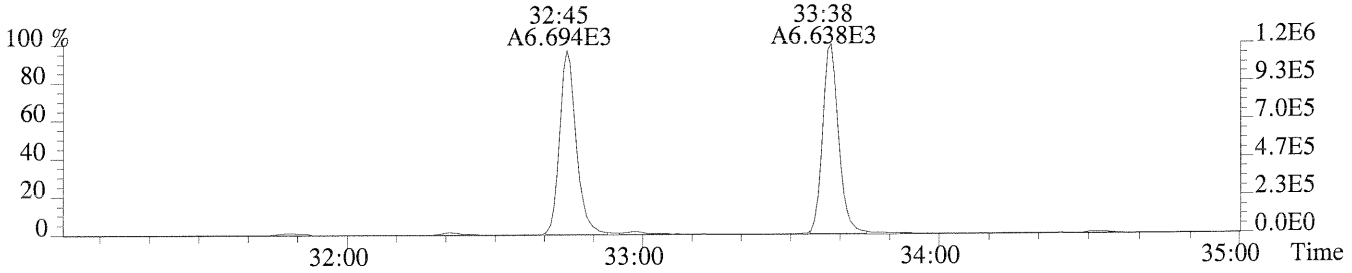
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



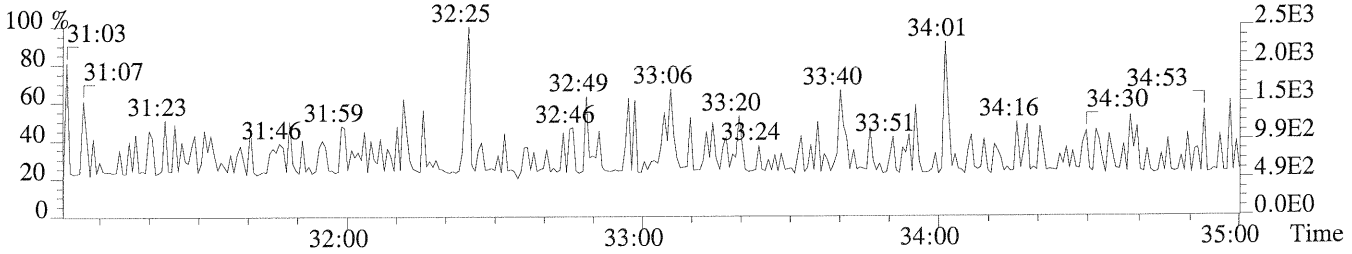
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,180.0,1.00%,F,T)



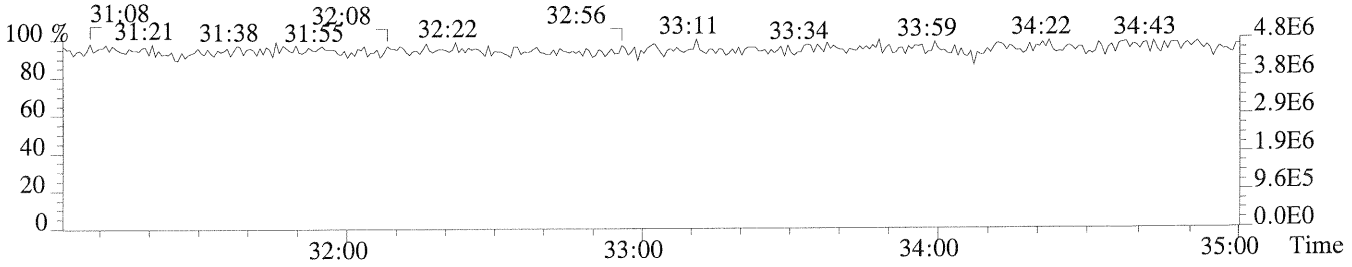
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,292.0,1.00%,F,T)



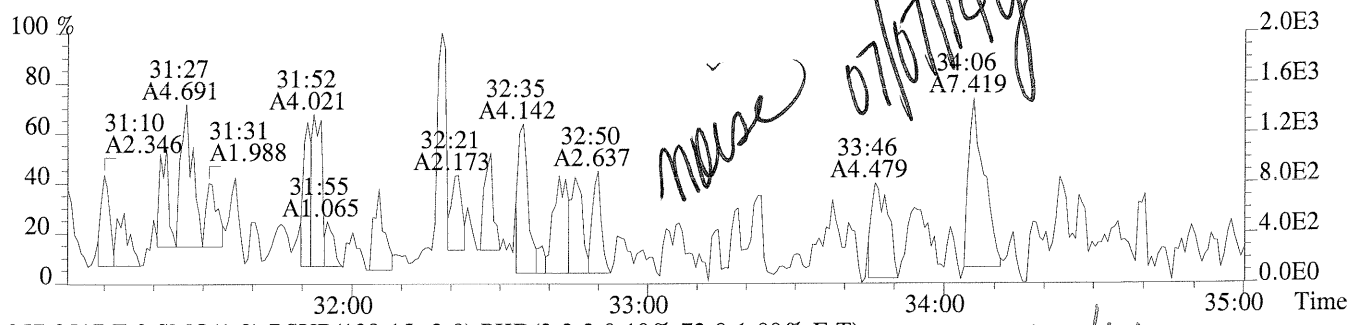
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



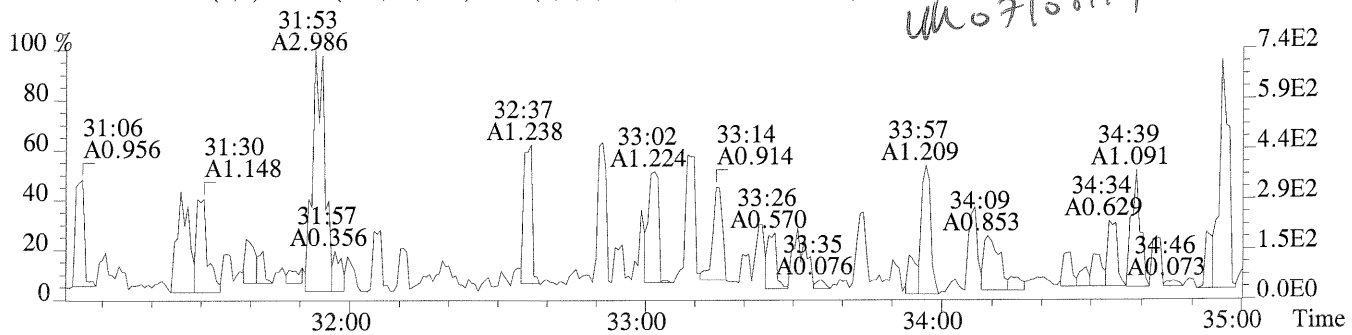
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



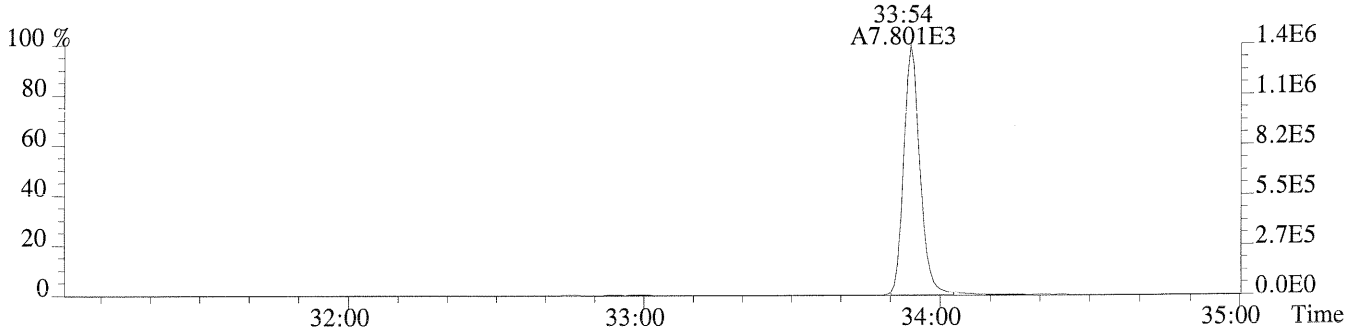
File:P229939 #1-360 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



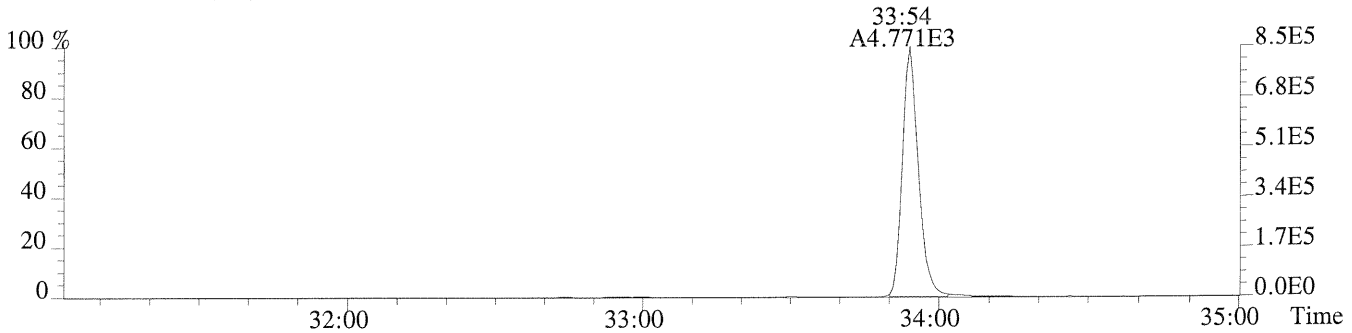
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,72.0,1.00%,F,T)



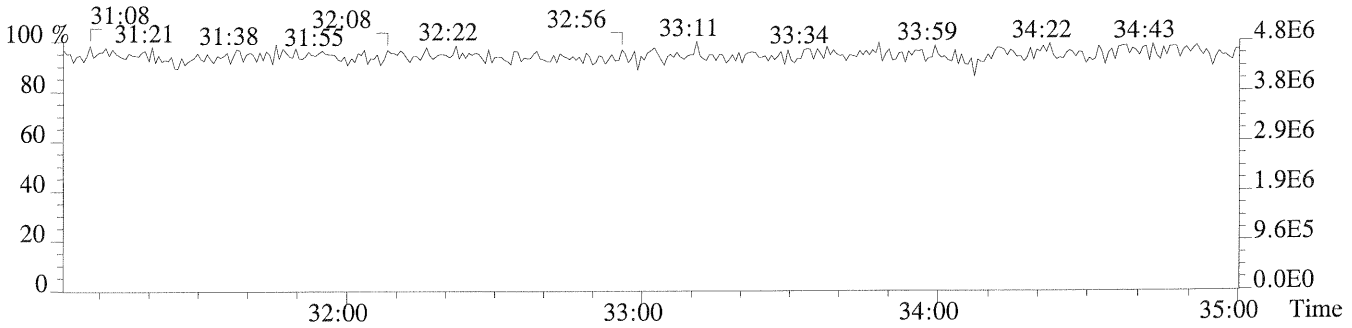
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



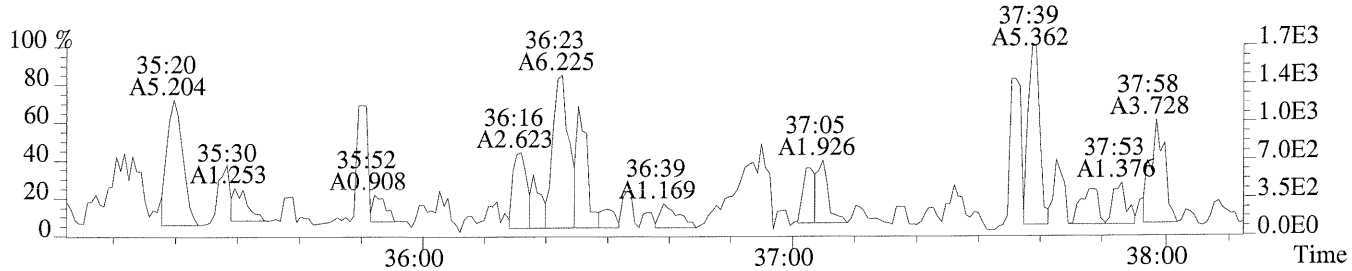
369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,212.0,1.00%,F,T)



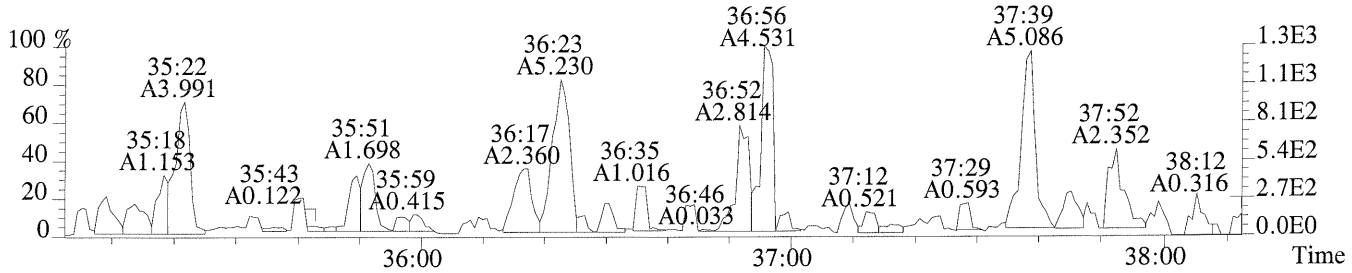
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



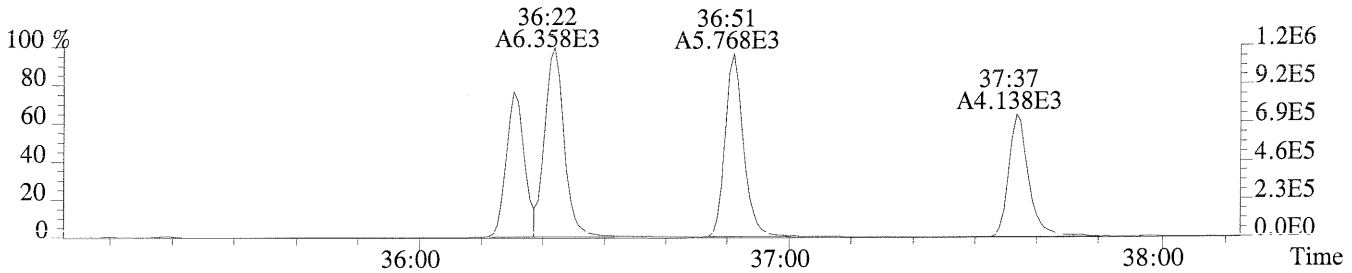
File:P229939 #1-288 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



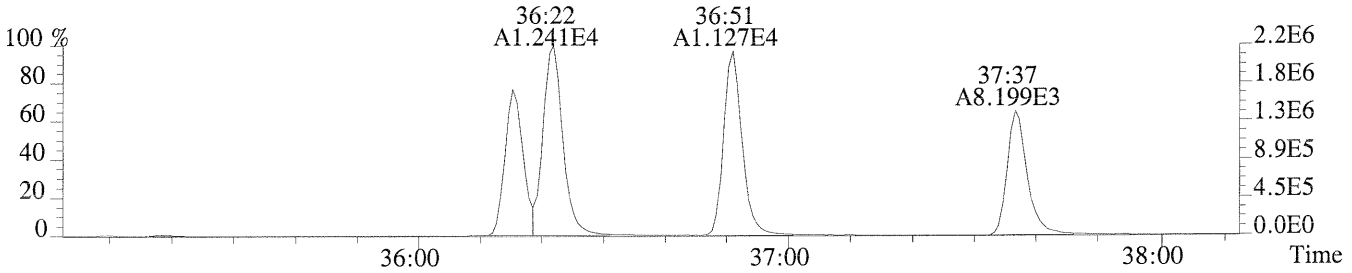
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,76.0,0.40%,F,T)



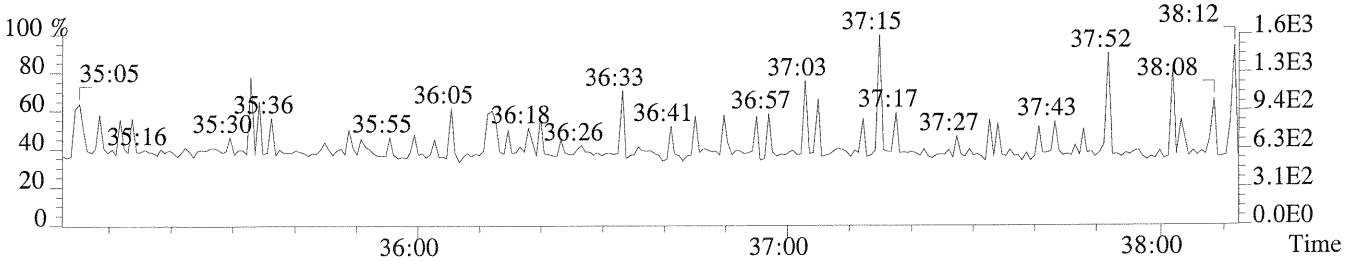
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



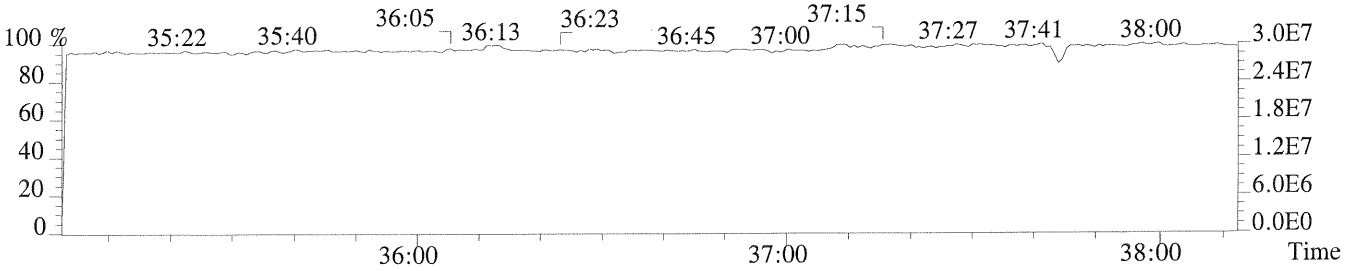
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

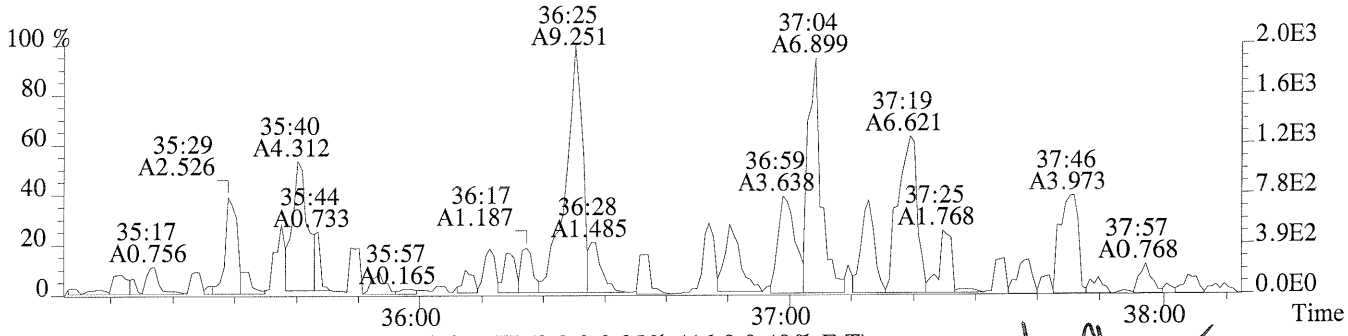


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



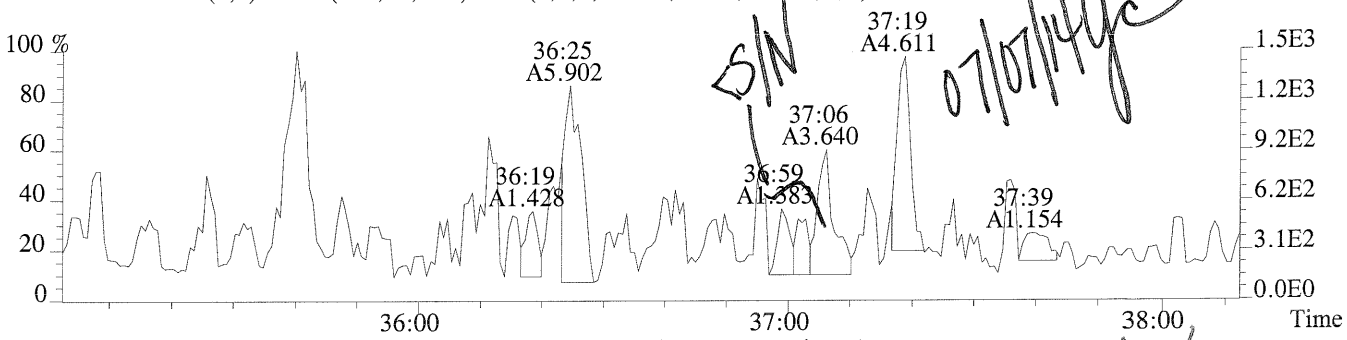
File:P229939 #1-288 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017

389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48.0,0.40%,F,T)



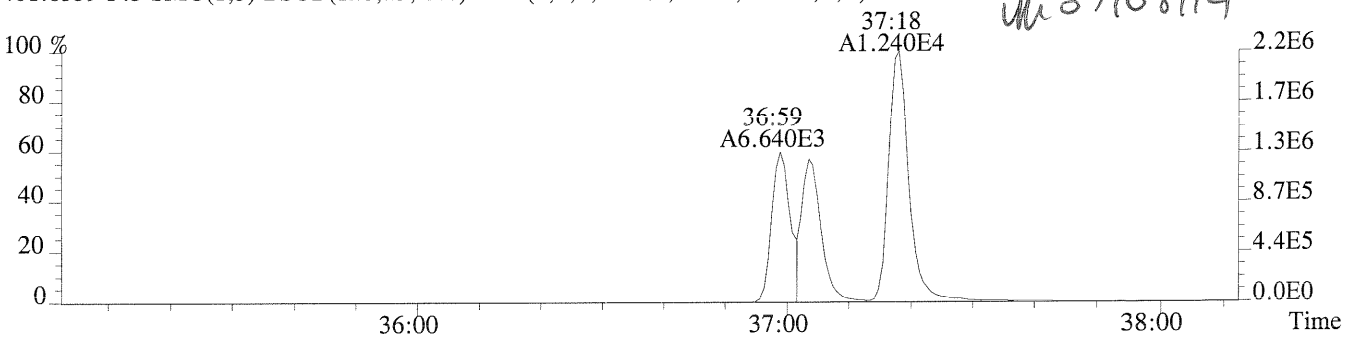
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)

S/N 07/07/14 Gc

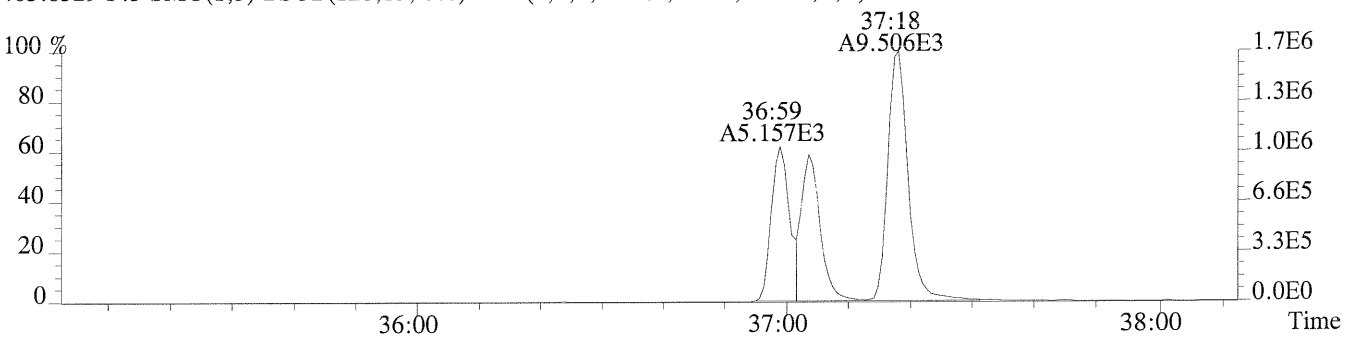


401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)

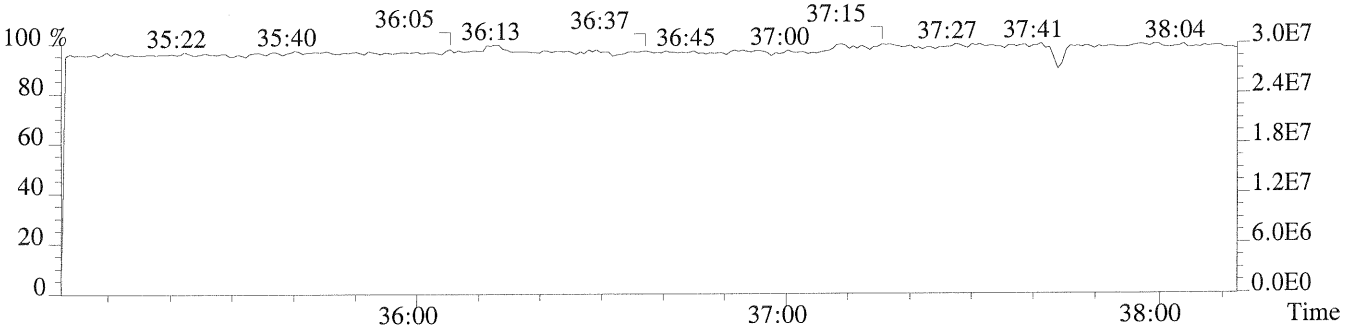
MM 07/08/14



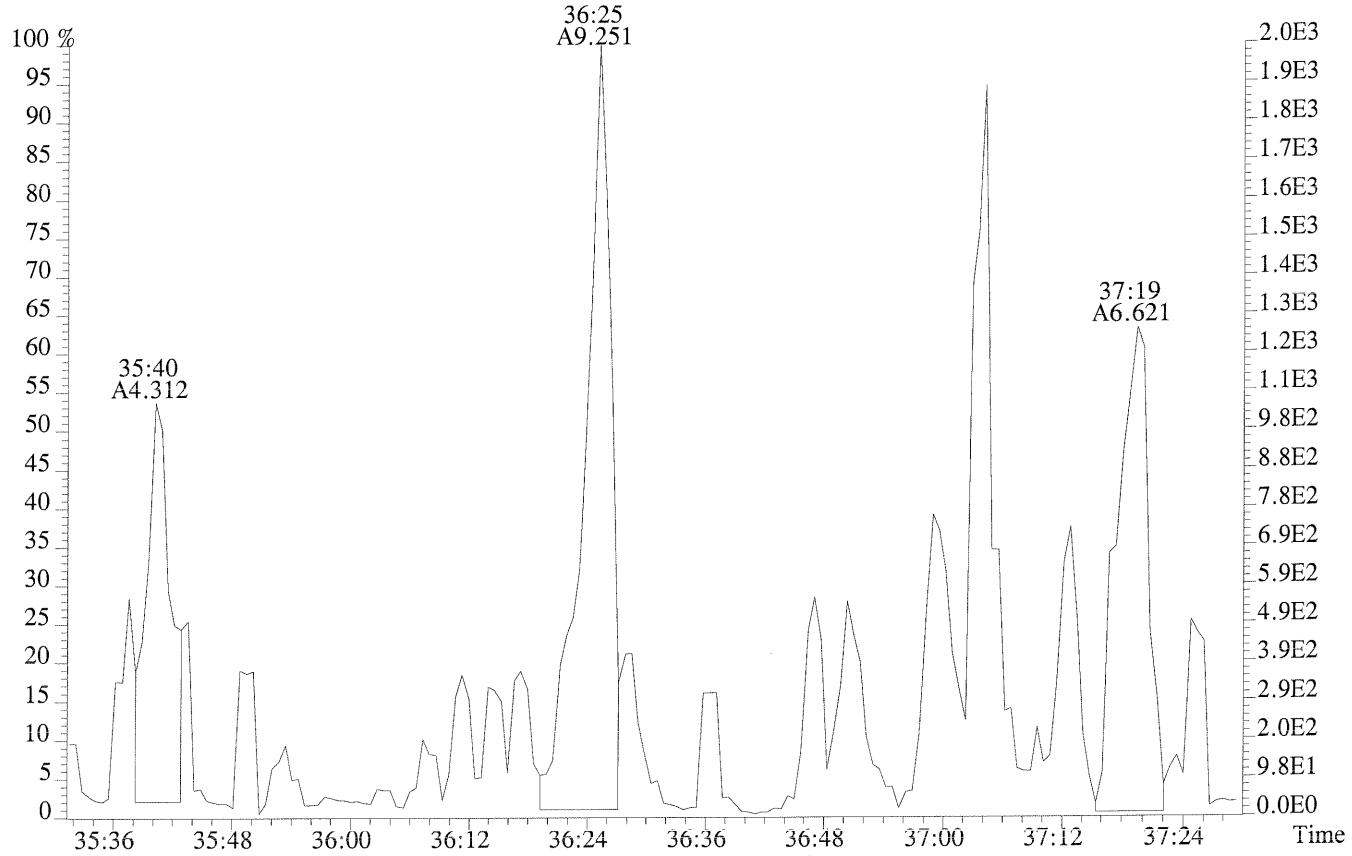
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



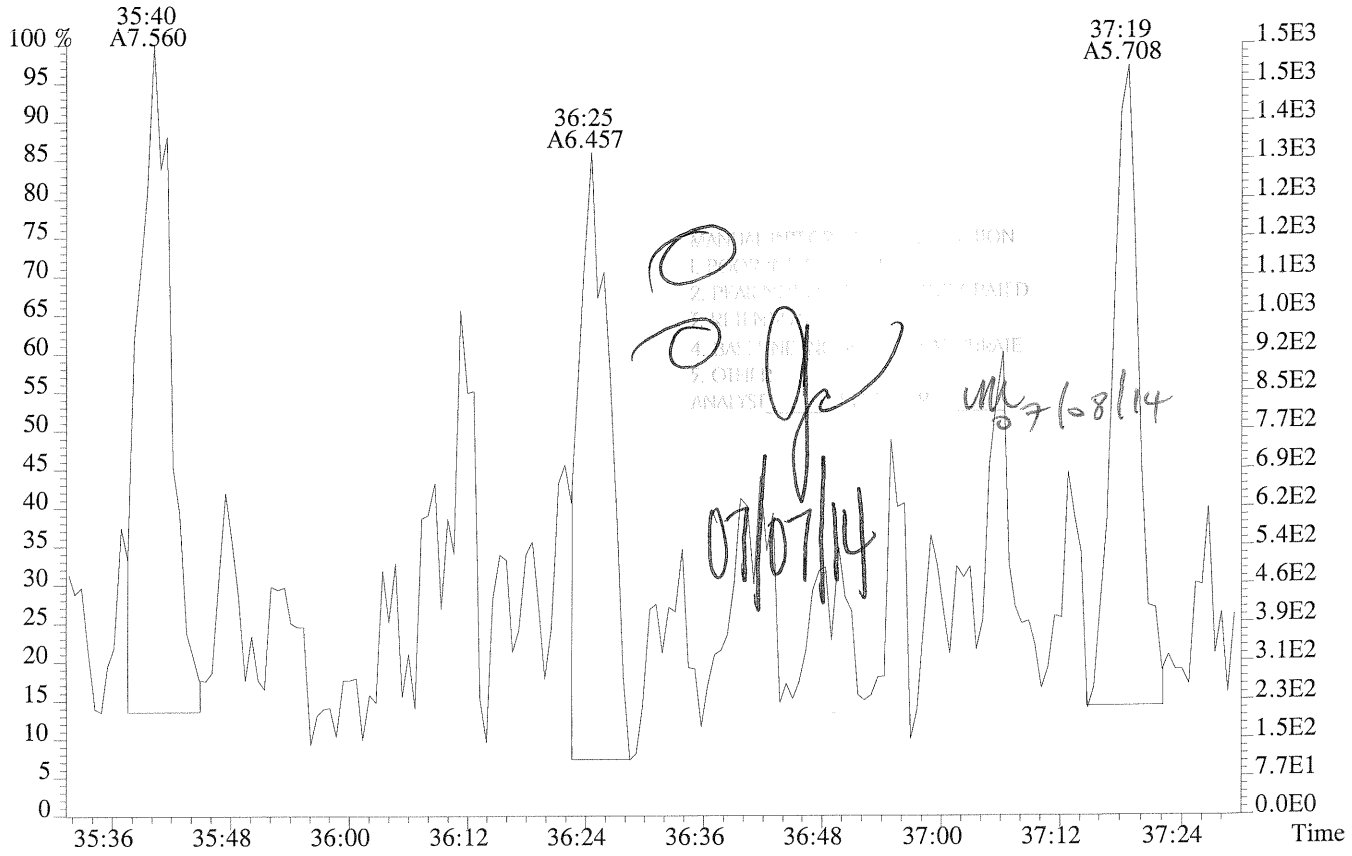
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P229939 #1-288 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48.0,0.40%,F,T)



391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.40%,F,T)



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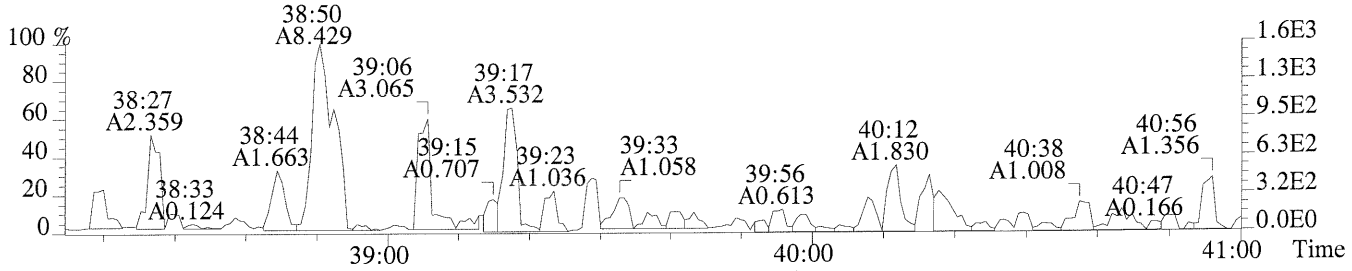
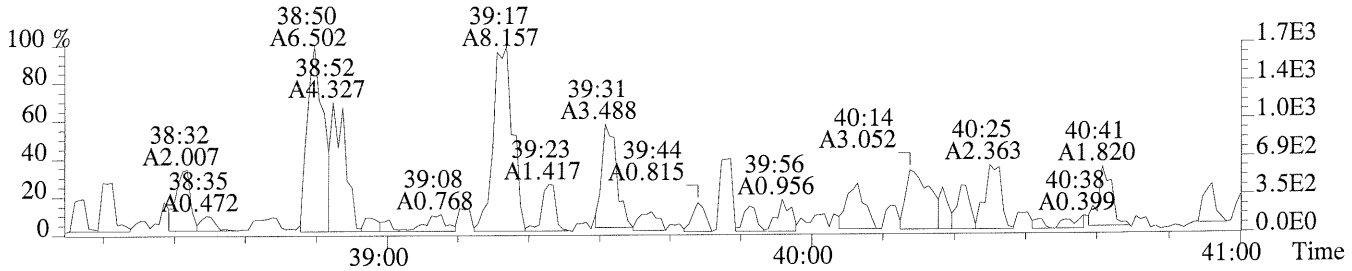
07/08/14

File:P229939 #1-251 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017

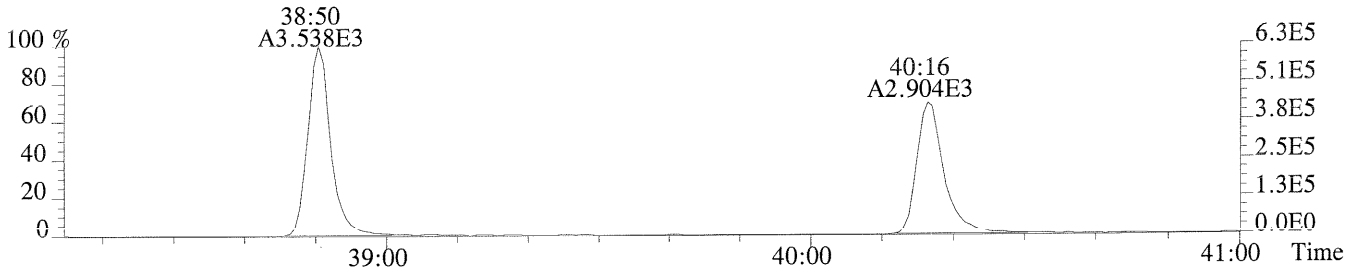
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.50%,F,T)



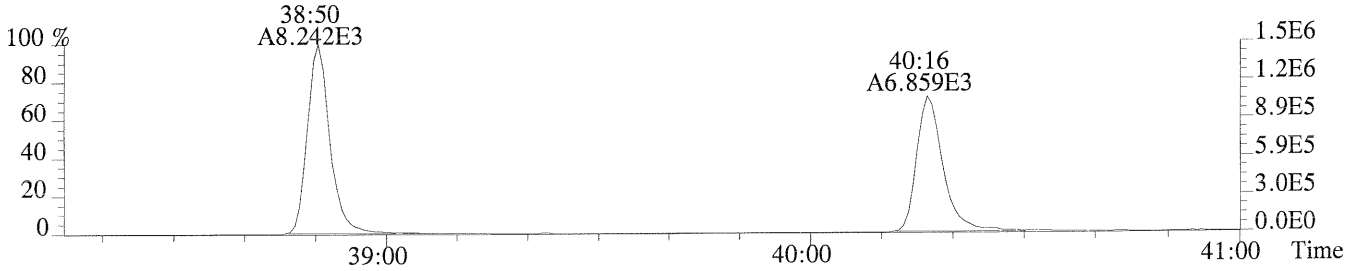
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,88.0,0.50%,F,T)



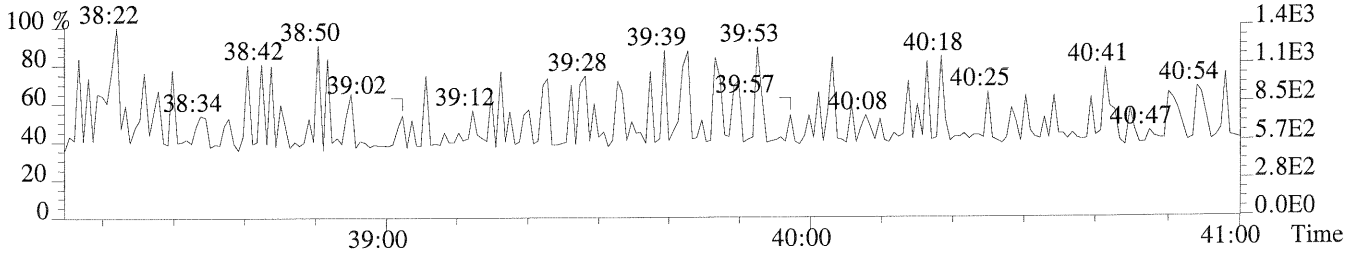
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.50%,F,T)



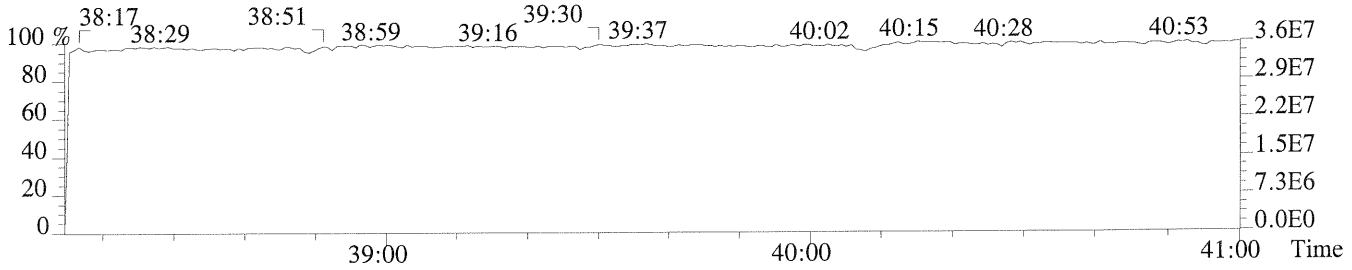
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.50%,F,T)



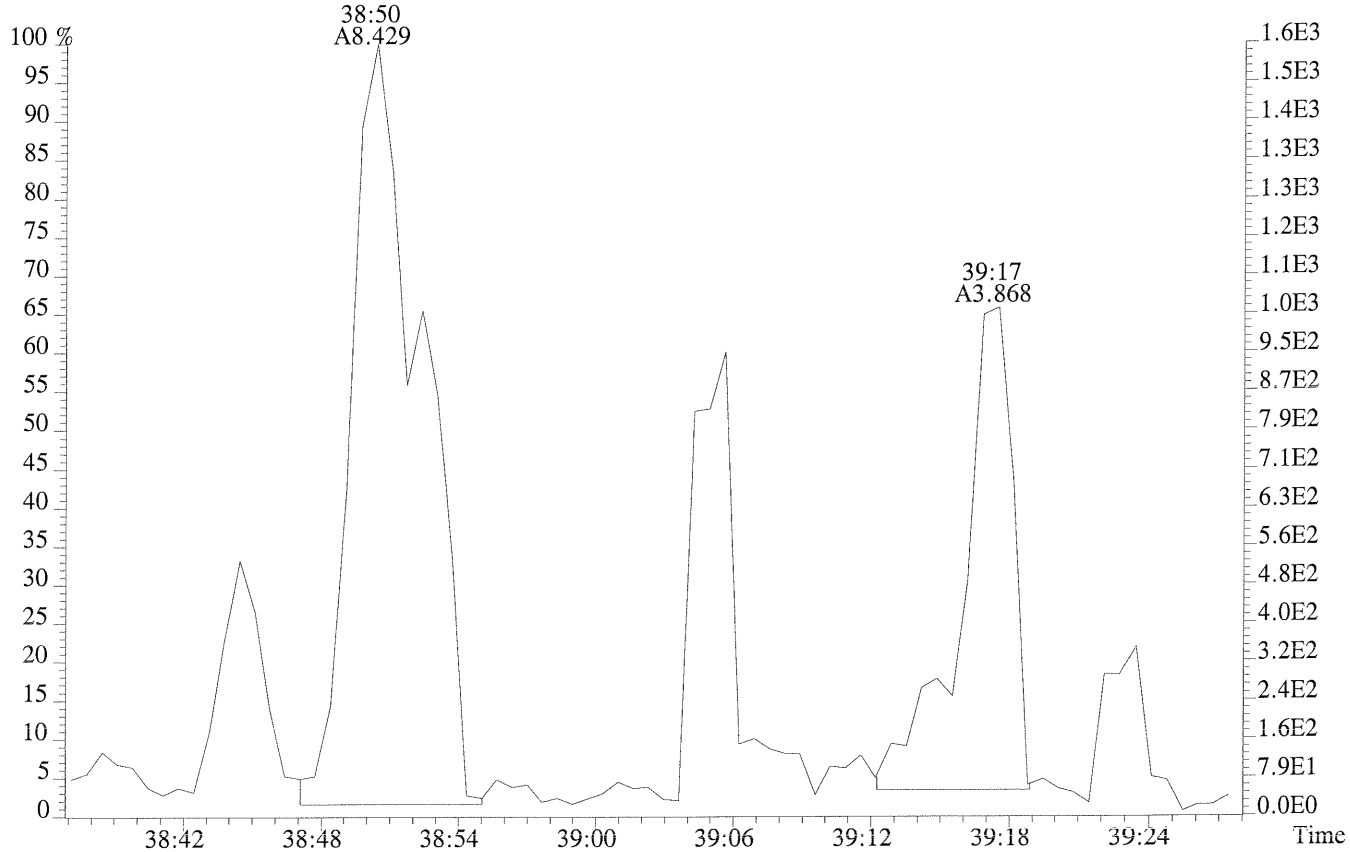
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



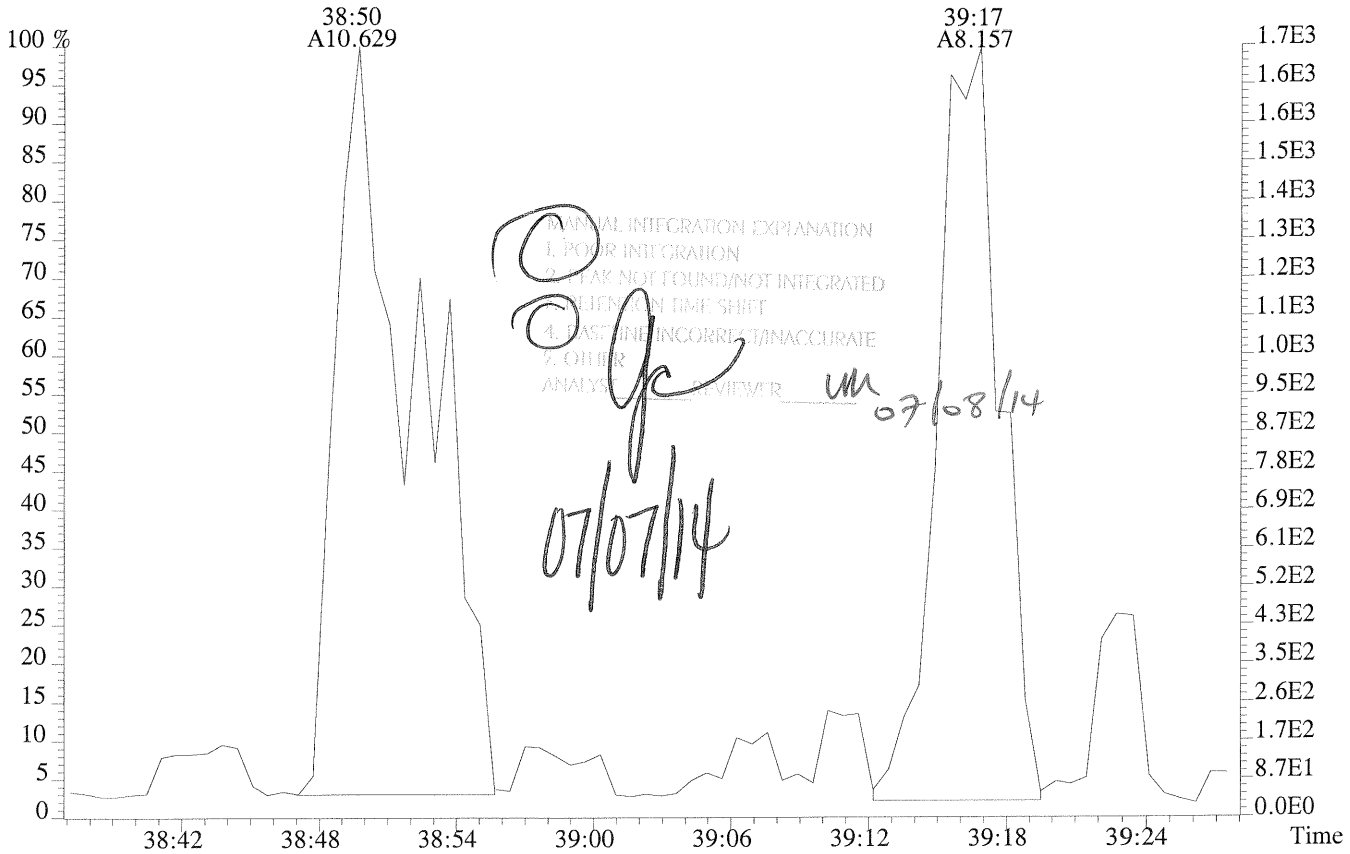
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



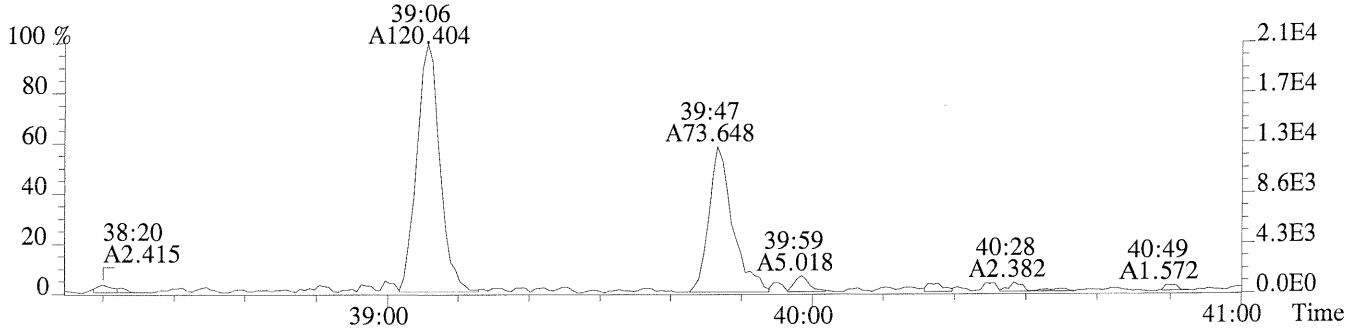
File:P229939 #1-251 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.50%,F,T)



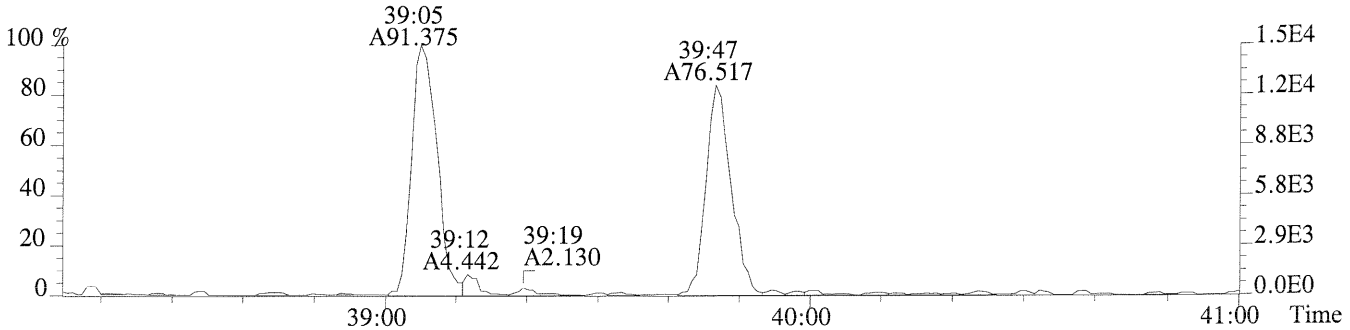
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,88.0,0.50%,F,T)



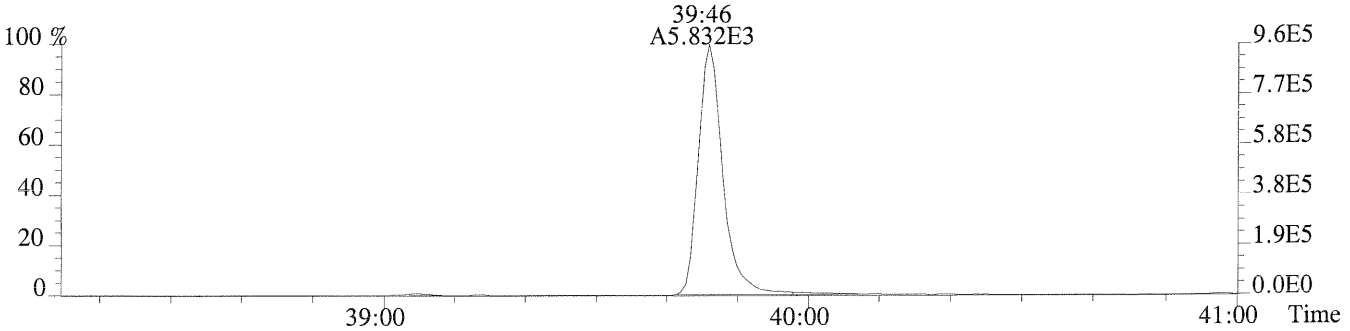
File:P229939 #1-251 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



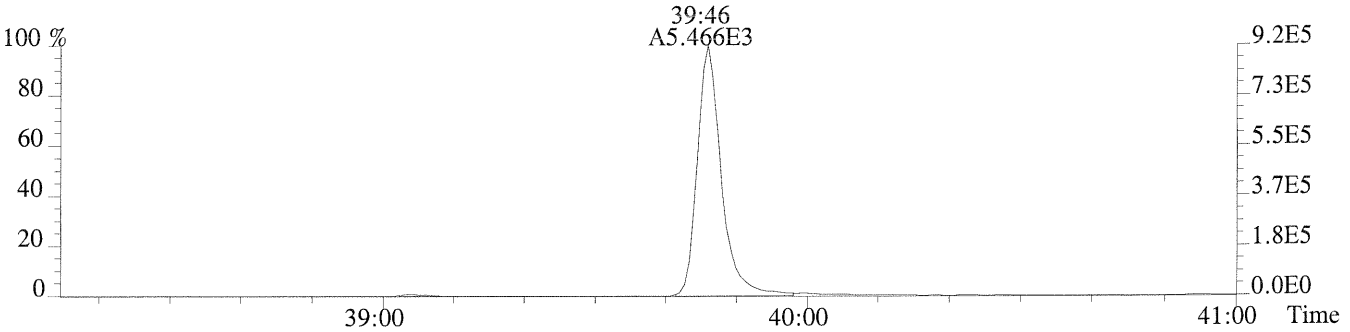
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,56.0,0.40%,F,T)



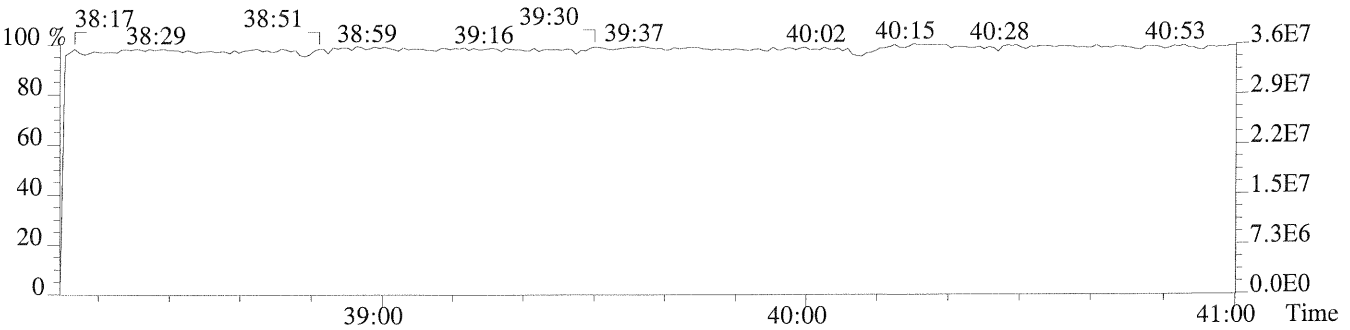
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



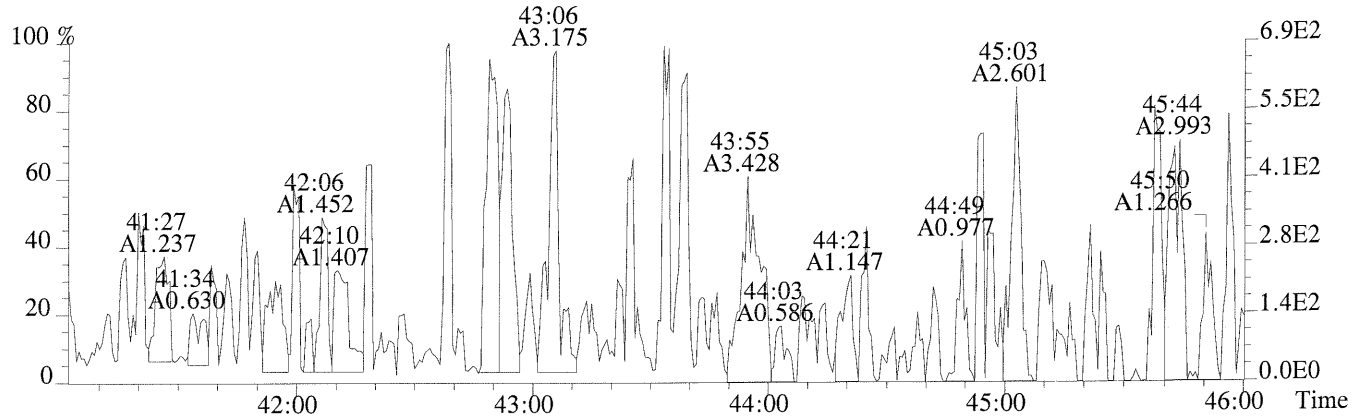
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,188.0,0.40%,F,T)



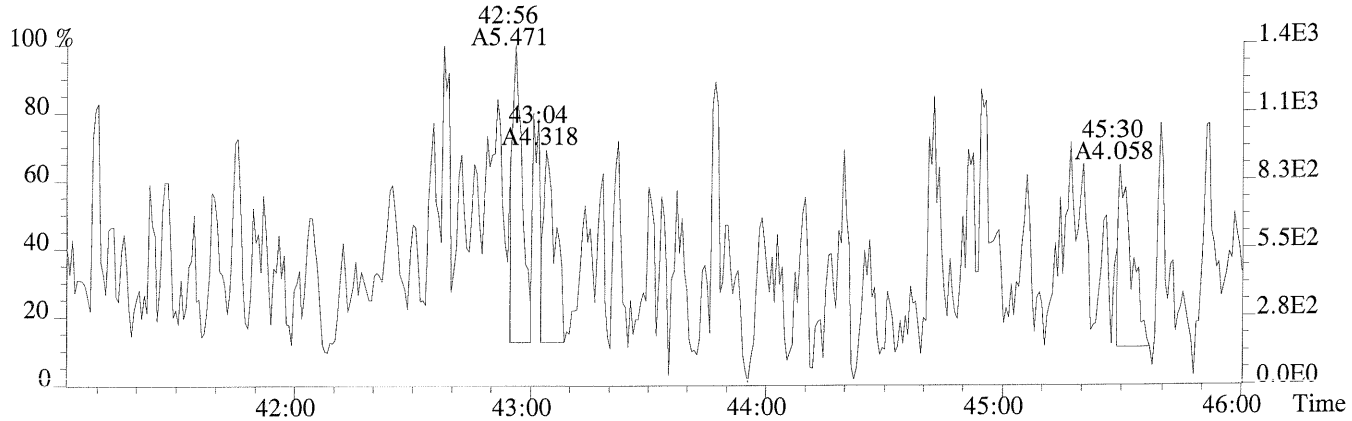
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



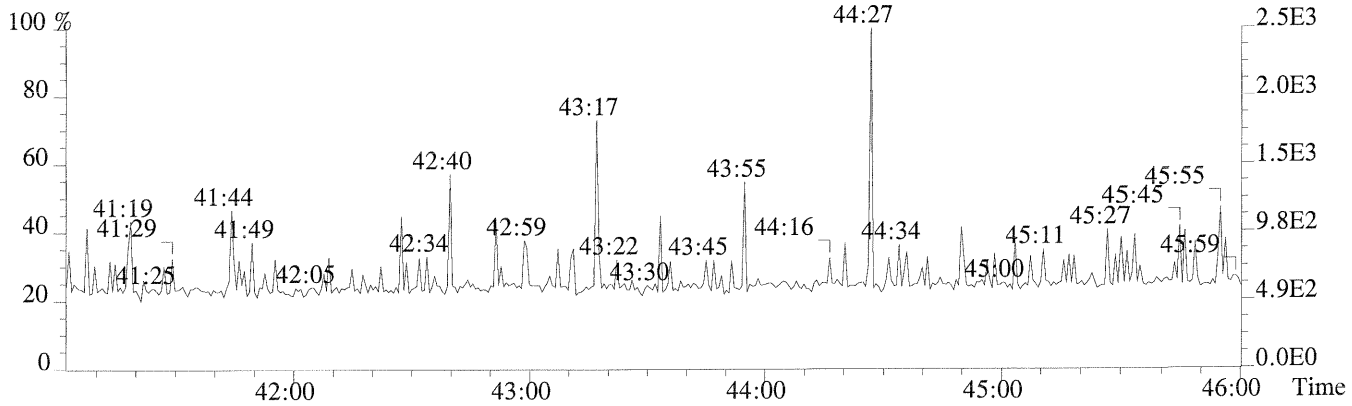
File:P229939 #1-457 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,84.0,0.40%,F,T)



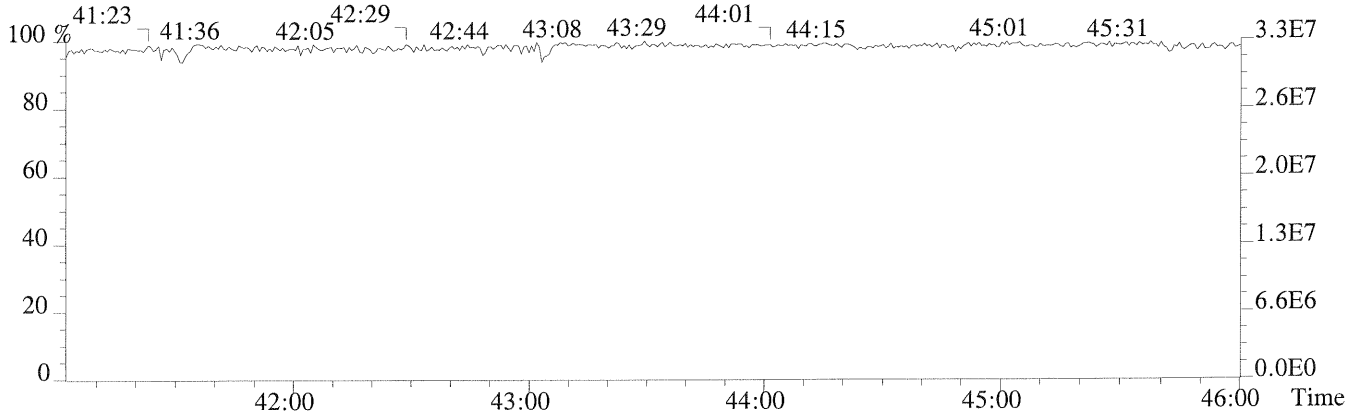
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



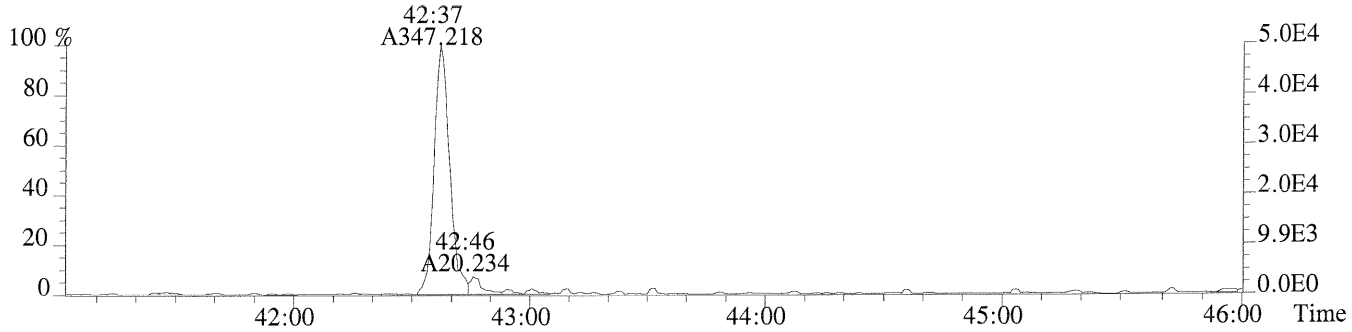
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



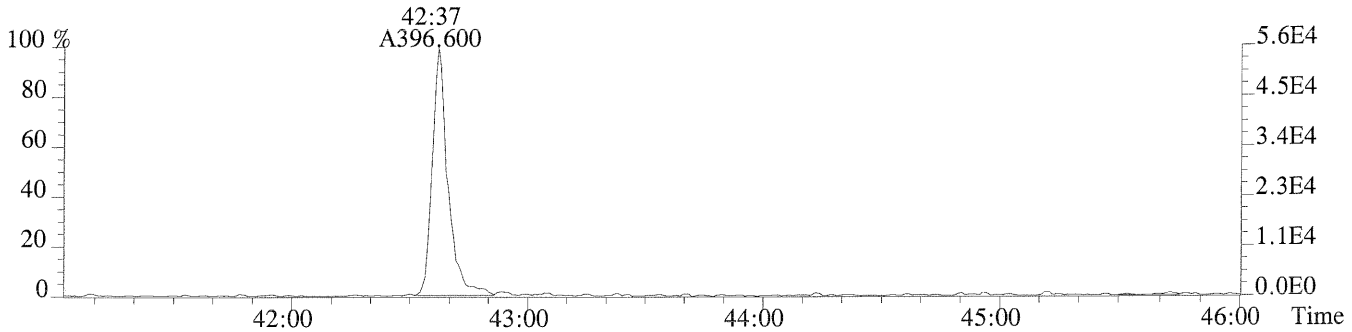
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



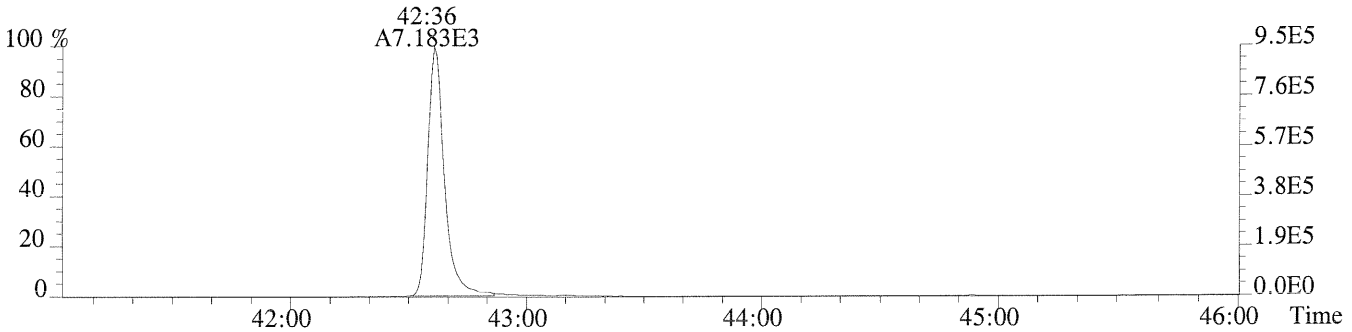
File:P229939 #1-457 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



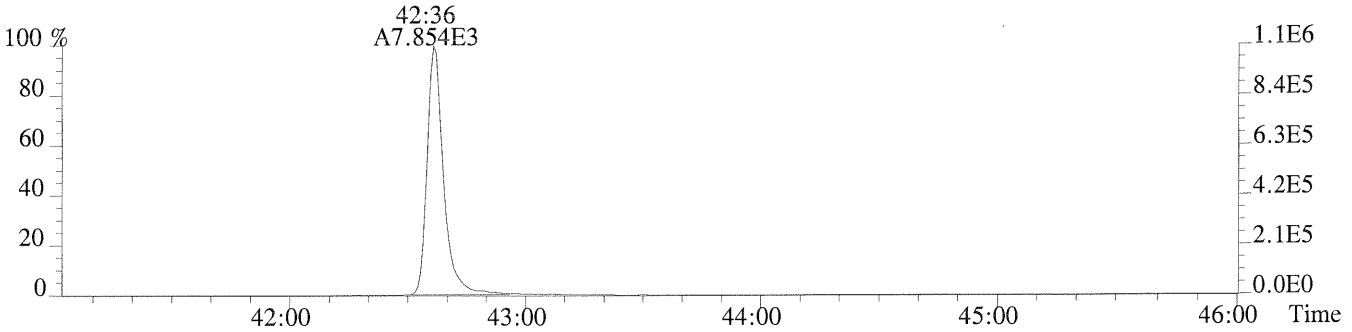
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



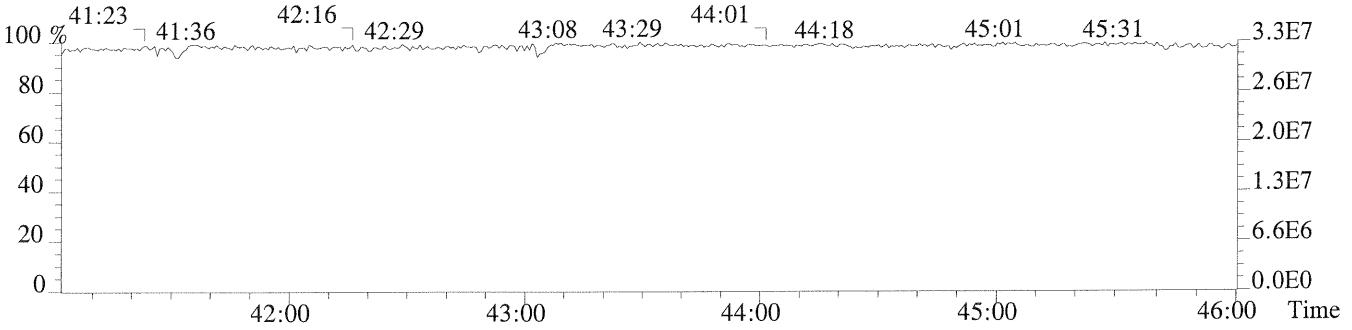
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,208.0,0.40%,F,T)



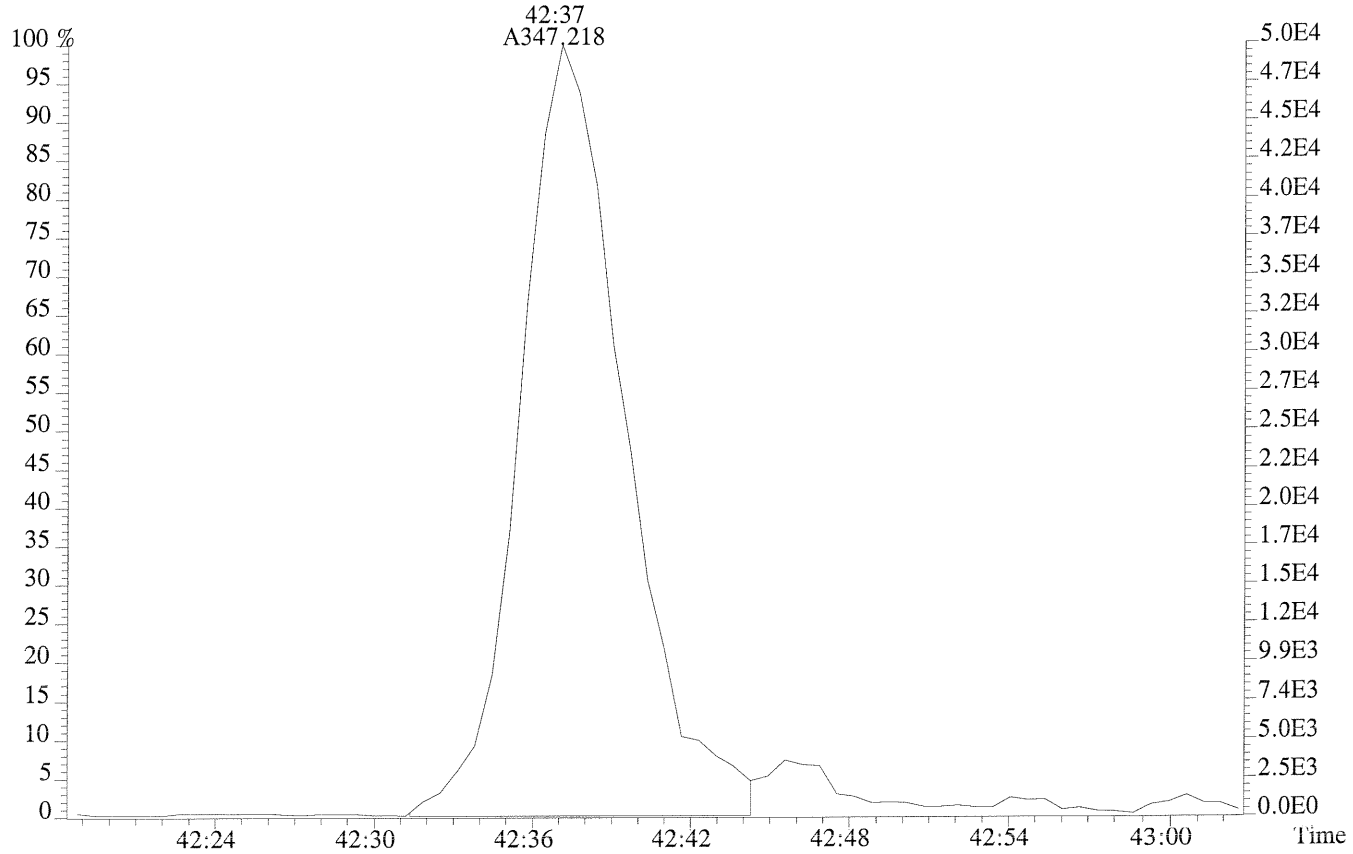
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,240.0,0.40%,F,T)



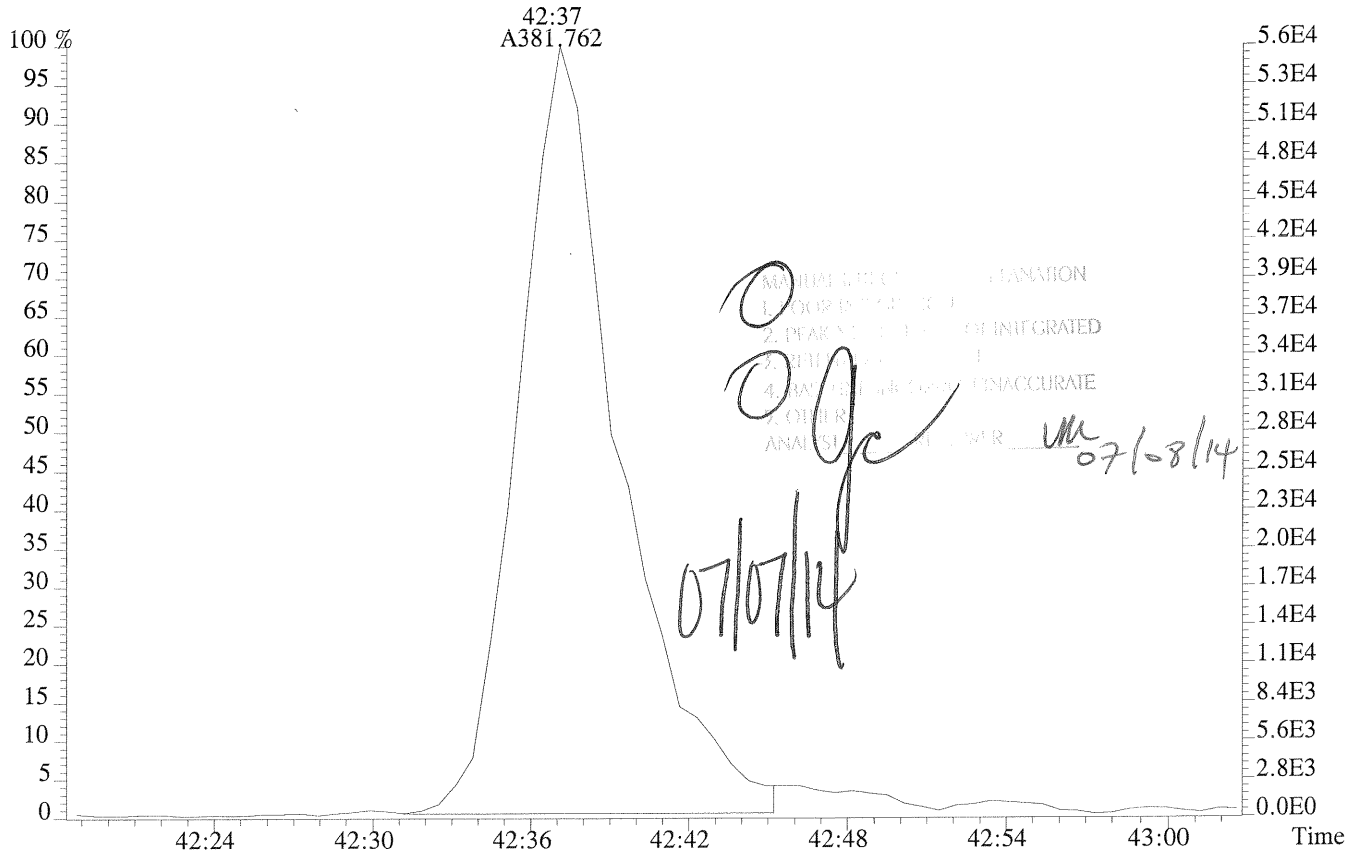
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P229939 #1-457 Acq: 3-JUL-2014 06:07:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:R1404651-017
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,188.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,248.0,0.40%,F,T)



07/07/14

07/08/14

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
METHOD BLANK

Run #10 Filename U149804 Samp: 1 Inj: 1 Acquired: 1-JUL-14 20:51:06
Processed: 2-JUL-14 11:41:11 Sample ID: EQ1400342-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.977
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.358
10	Unk	OCDF	NotFnd	*	*	*	no	no	1.350
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.013
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	NotFnd	*	*	*	no	no	1.065
17	Unk	OCDD	NotFnd	*	*	*	no	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:36	5.254e+03	6.347e+03	0.83	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:44	1.025e+04	6.599e+03	1.55	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:38	9.600e+03	5.986e+03	1.60	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	3.879e+03	7.169e+03	0.54	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	5.627e+03	1.058e+04	0.53	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	4.753e+03	9.408e+03	0.51	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	3.882e+03	7.485e+03	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:54	2.924e+03	6.521e+03	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:22	2.564e+03	5.778e+03	0.44	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:22	3.501e+03	4.615e+03	0.76	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:54	7.253e+03	4.562e+03	1.59	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:02	5.629e+03	4.075e+03	1.38	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	5.719e+03	4.760e+03	1.20	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:51	4.946e+03	4.600e+03	1.08	yes	no	0.936
32	IS	13C-OCDD	42:44	6.026e+03	6.633e+03	0.91	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:47	6.435e+03	8.244e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:21	9.448e+03	7.285e+03	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	2.812e+03				no	1.044

ALS ENVIRONMENTAL
10450 Stancliff Road, Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
METHOD BLANK

Run #10 Filename U149804 Samp: 1 Inj: 1 Acquired: 1-JUL-14 20:51:06
Processed: 2-JUL-14 11:41:111 LAB. ID: EQ1400342-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	6.88e+02	*	*	7.80e+02	*
2	1,2,3,7,8-PeCDF	*	6.00e+02	*	*	6.28e+02	*
3	2,3,4,7,8-PeCDF	*	6.00e+02	*	*	6.28e+02	*
4	1,2,3,4,7,8-HxCDF	*	3.80e+02	*	*	5.76e+02	*
5	1,2,3,6,7,8-HxCDF	*	3.80e+02	*	*	5.76e+02	*
6	2,3,4,6,7,8-HxCDF	*	3.80e+02	*	*	5.76e+02	*
7	1,2,3,7,8,9-HxCDF	*	3.80e+02	*	*	5.76e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	7.40e+02	*	*	7.36e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	7.40e+02	*	*	7.36e+02	*
10	OCDF	*	7.24e+02	*	*	8.12e+02	*
11	2,3,7,8-TCDD	*	6.48e+02	*	*	8.12e+02	*
12	1,2,3,7,8-PeCDD	*	6.08e+02	*	*	4.76e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.60e+02	*	*	6.64e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.60e+02	*	*	6.64e+02	*
15	1,2,3,7,8,9-HxCDD	*	6.60e+02	*	*	6.64e+02	*
16	1,2,3,4,6,7,8-HpCDD	*	7.36e+02	*	*	5.44e+02	*
17	OCDD	*	5.56e+02	*	*	7.48e+02	*
18	13C-2,3,7,8-TCDF	1.05e+06	9.60e+02	1.1e+03	1.28e+06	4.84e+02	2.6e+03
19	13C-1,2,3,7,8-PeCDF	1.86e+06	9.32e+02	2.0e+03	1.18e+06	6.20e+02	1.9e+03
20	13C-2,3,4,7,8-PeCDF	1.87e+06	9.32e+02	2.0e+03	1.16e+06	6.20e+02	1.9e+03
21	13C-1,2,3,4,7,8-HxCDF	7.99e+05	4.64e+02	1.7e+03	1.49e+06	8.00e+02	1.9e+03
22	13C-1,2,3,6,7,8-HxCDF	1.10e+06	4.64e+02	2.4e+03	2.05e+06	8.00e+02	2.6e+03
23	13C-2,3,4,6,7,8-HxCDF	9.62e+05	4.64e+02	2.1e+03	1.89e+06	8.00e+02	2.4e+03
24	13C-1,2,3,7,8,9-HxCDF	7.17e+05	4.64e+02	1.5e+03	1.37e+06	8.00e+02	1.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.63e+05	7.36e+02	7.6e+02	1.26e+06	1.24e+03	1.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.38e+05	7.36e+02	6.0e+02	9.88e+05	1.24e+03	7.9e+02
27	13C-2,3,7,8-TCDD	7.45e+05	1.52e+03	4.9e+02	9.89e+05	9.60e+02	1.0e+03
28	13C-1,2,3,7,8-PeCDD	1.37e+06	7.68e+02	1.8e+03	8.71e+05	5.68e+02	1.5e+03
29	13C-1,2,3,4,7,8-HxCDD	1.15e+06	7.00e+02	1.6e+03	8.76e+05	5.56e+02	1.6e+03
30	13C-1,2,3,6,7,8-HxCDD	1.15e+06	7.00e+02	1.6e+03	9.16e+05	5.56e+02	1.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	8.49e+05	7.40e+02	1.1e+03	8.11e+05	5.20e+02	1.6e+03
32	13C-OCDD	8.29e+05	7.56e+02	1.1e+03	9.53e+05	8.20e+02	1.2e+03
33	13C-1,2,3,4-TCDD	1.34e+06	1.52e+03	8.8e+02	1.72e+06	9.60e+02	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	1.73e+06	7.00e+02	2.5e+03	1.30e+06	5.56e+02	2.3e+03
35	37Cl-2,3,7,8-TCDD	5.89e+05	5.64e+02	1.0e+03			

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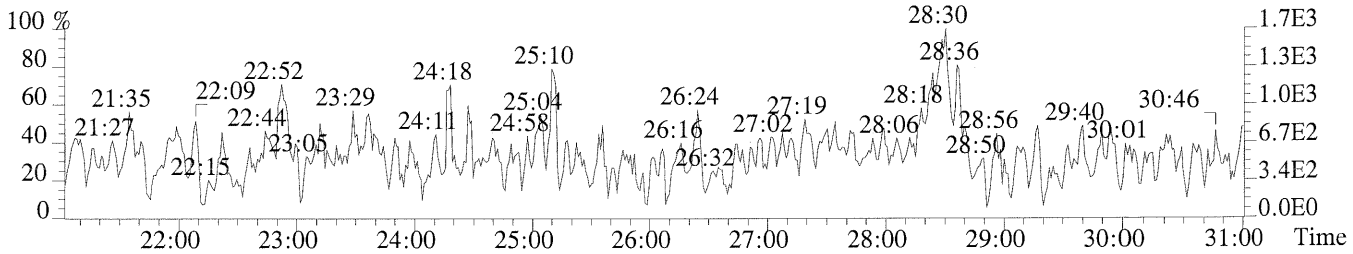
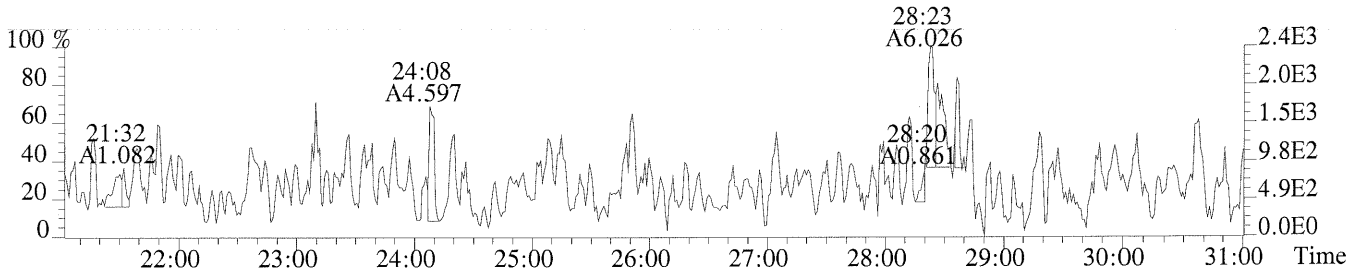
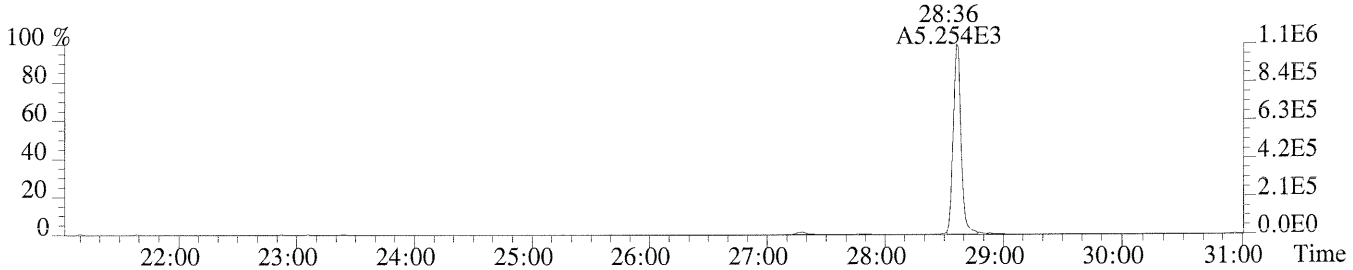
File:U149804 #1-627 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



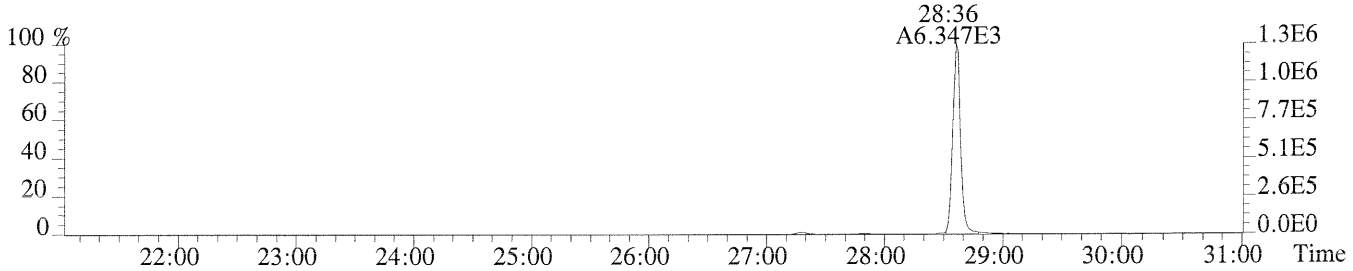
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



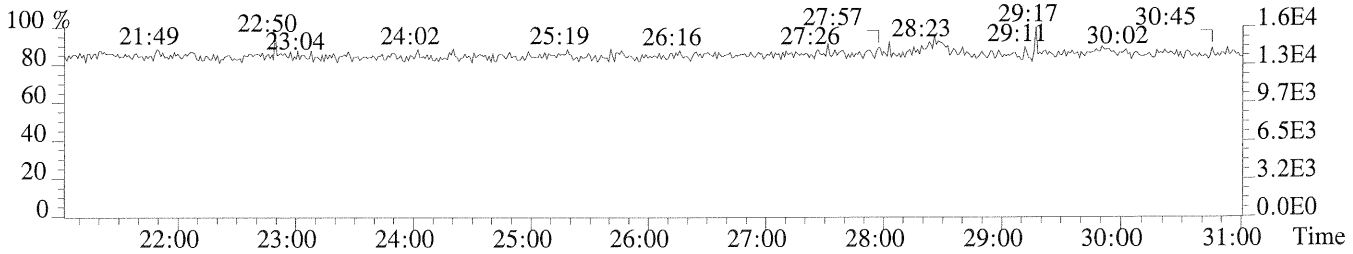
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



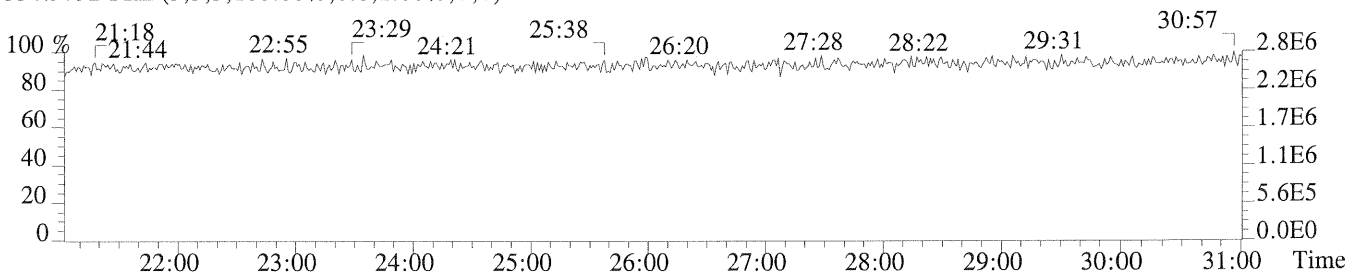
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



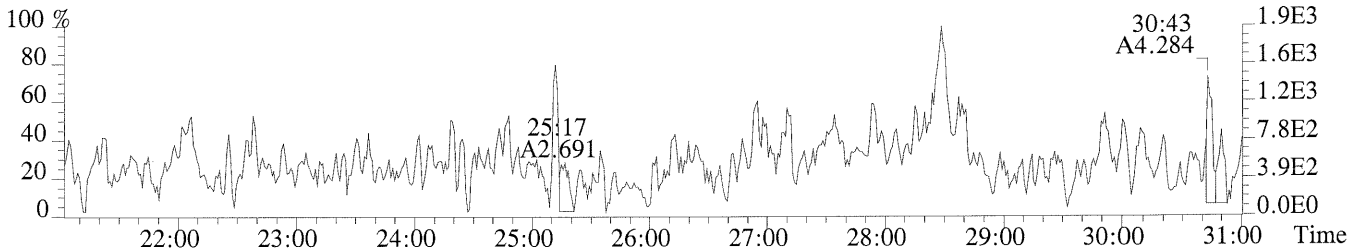
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



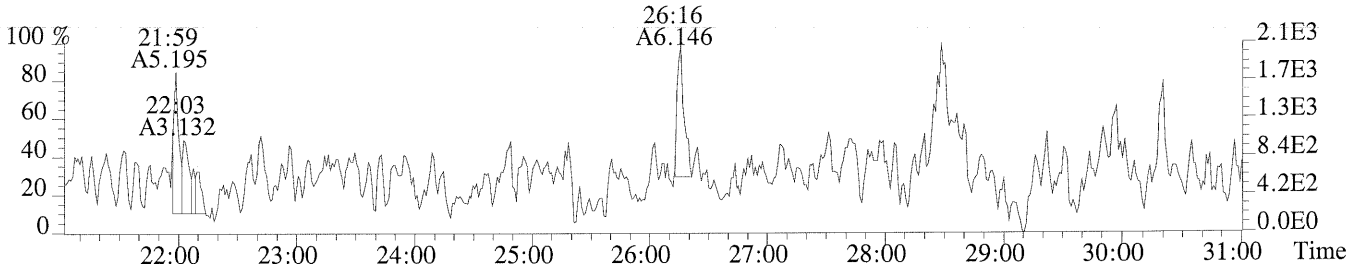
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



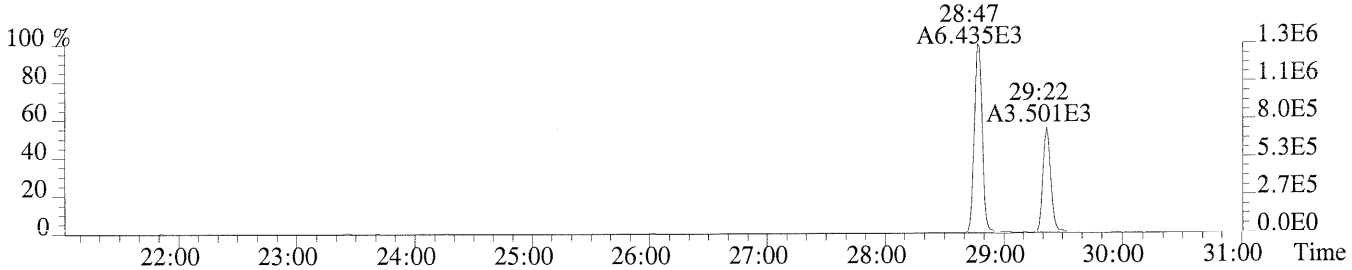
File:U149804 #1-627 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



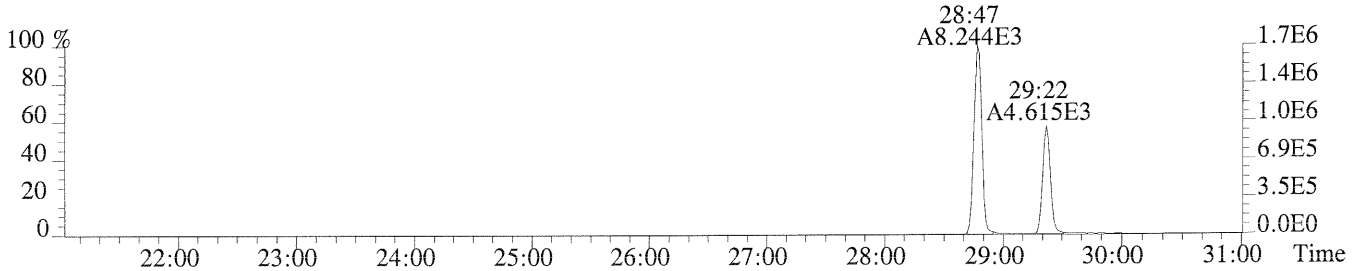
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



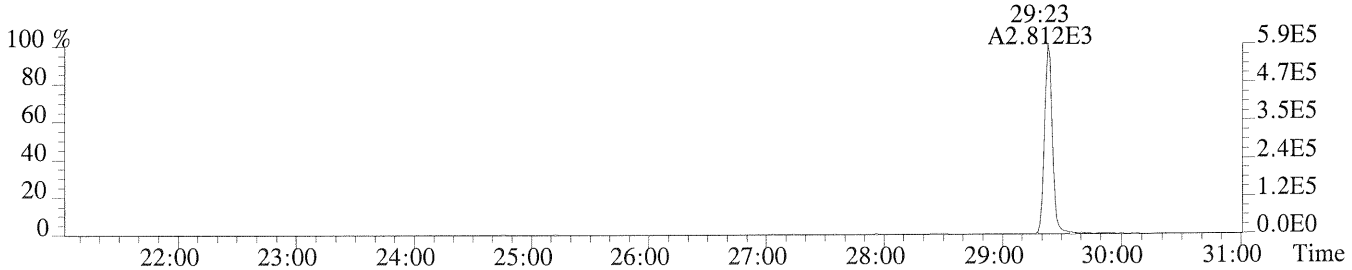
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



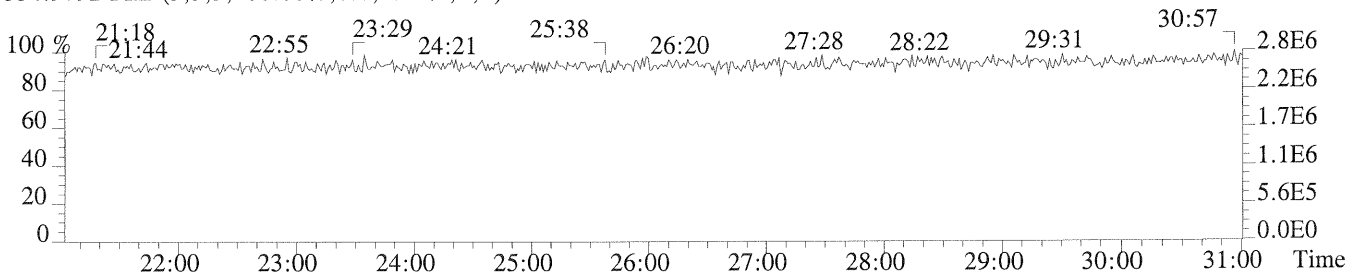
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



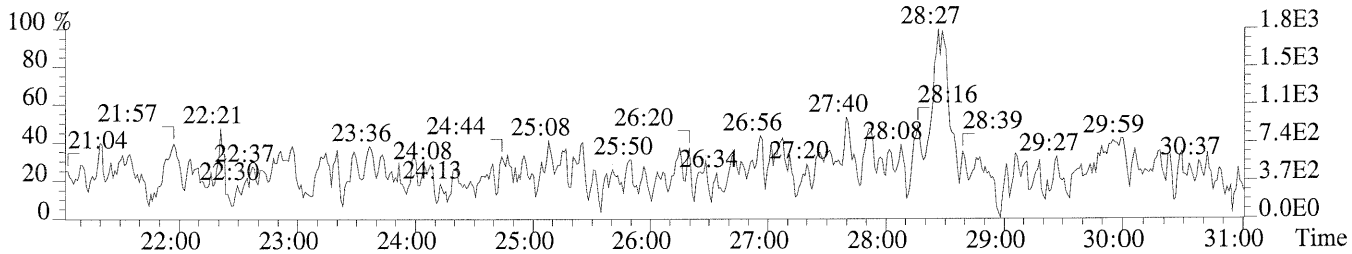
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



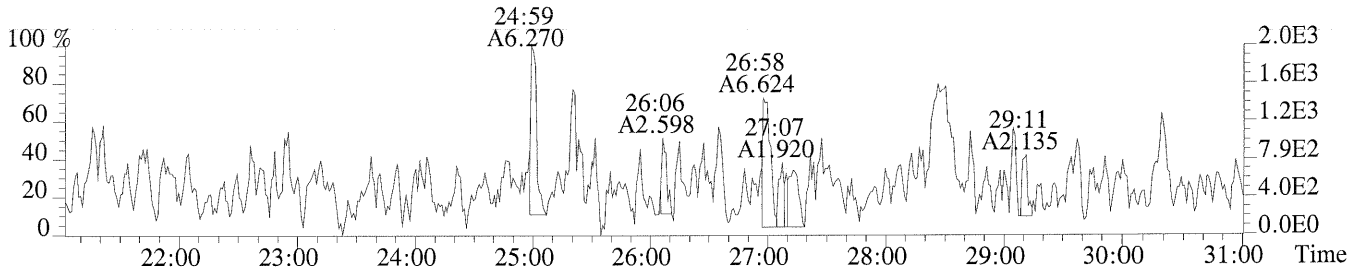
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



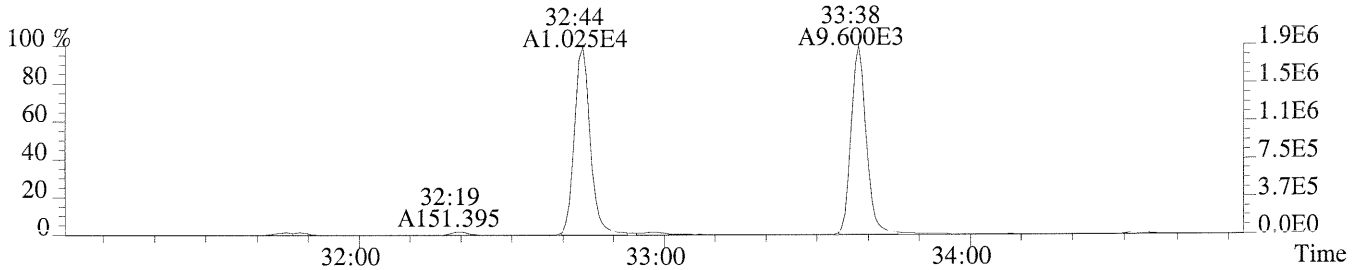
File:U149804 #1-627 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



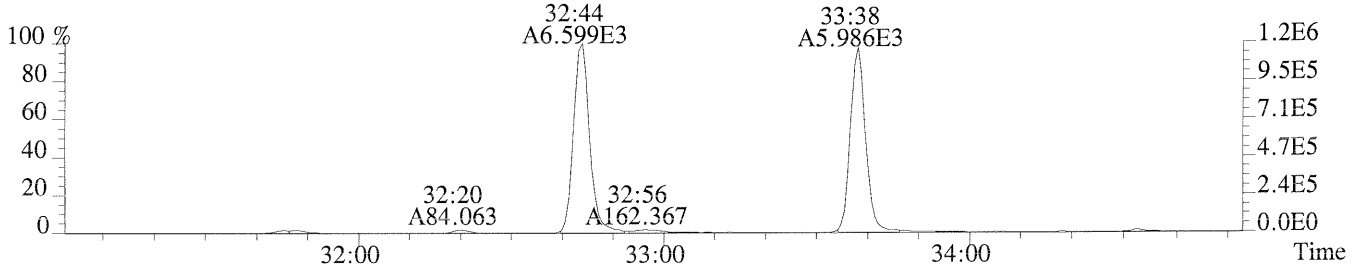
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



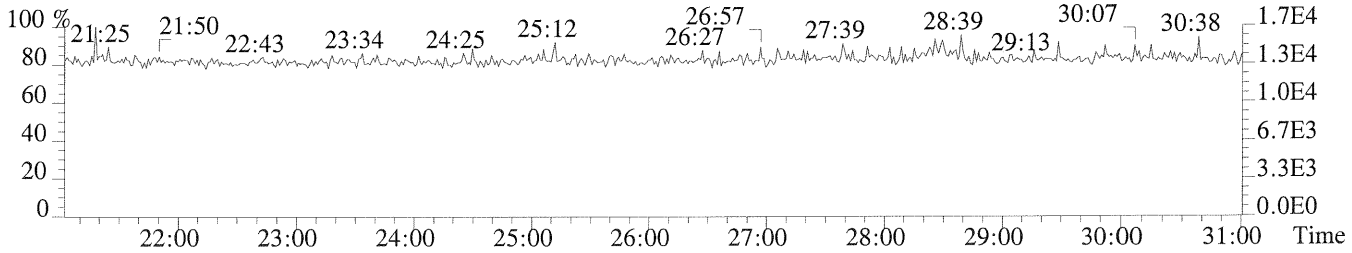
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



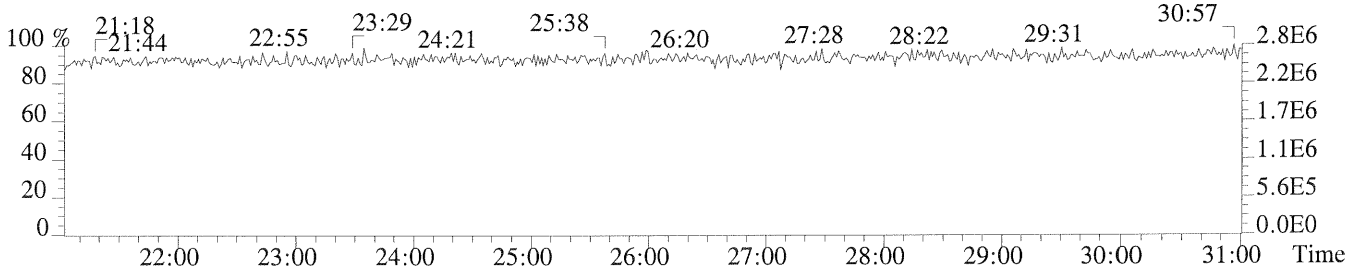
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



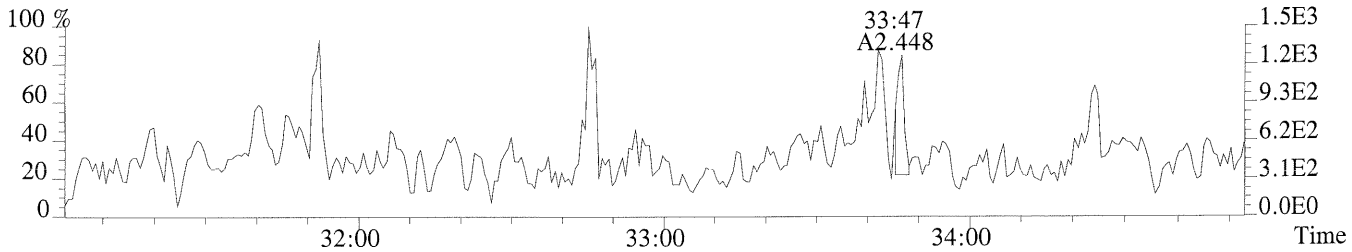
409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



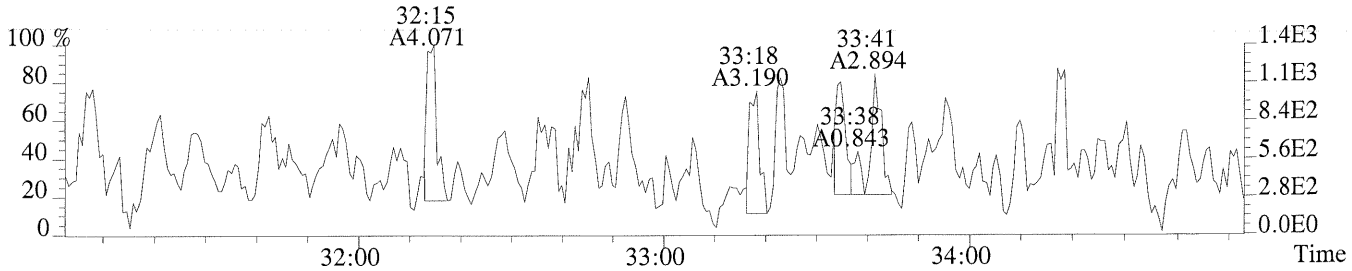
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



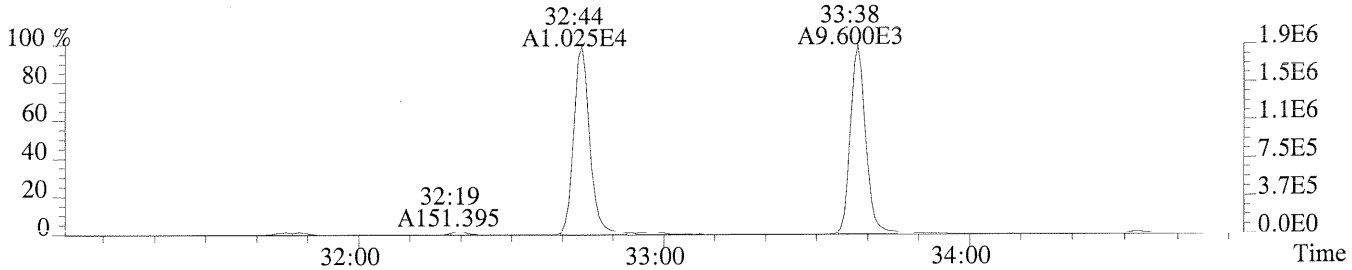
File:U149804 #1-349 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



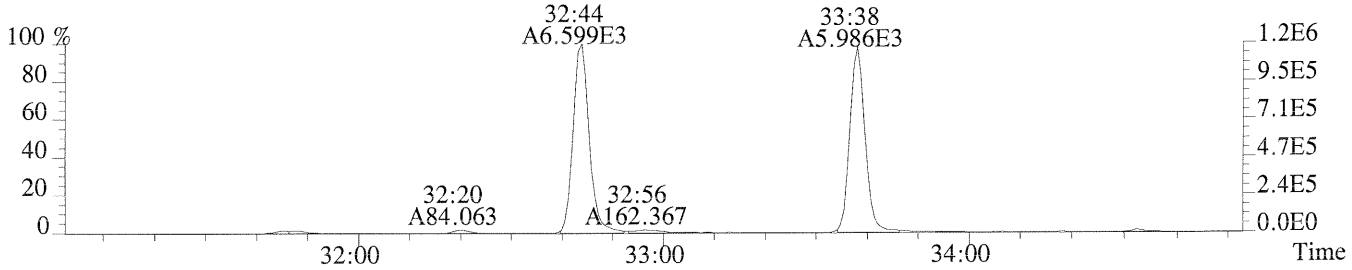
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



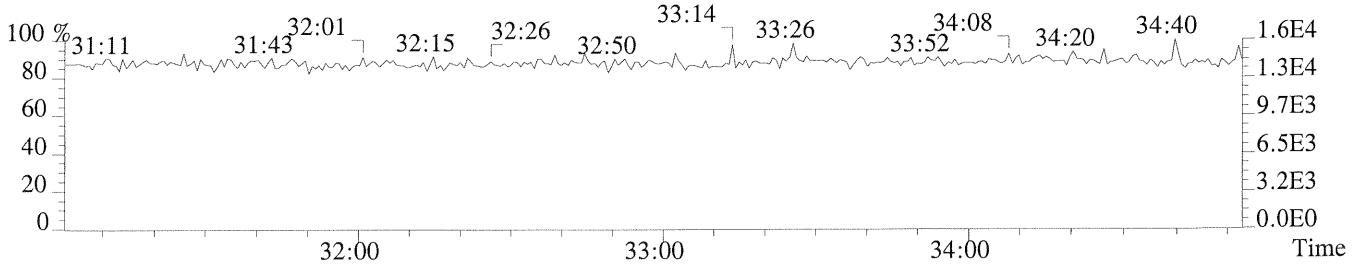
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



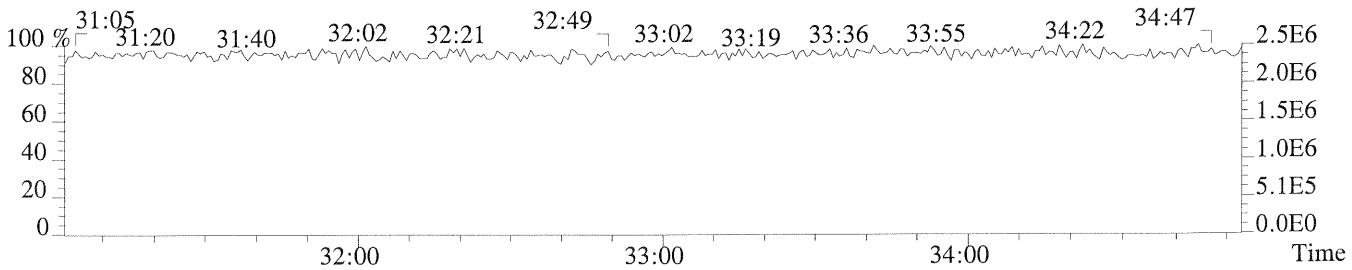
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



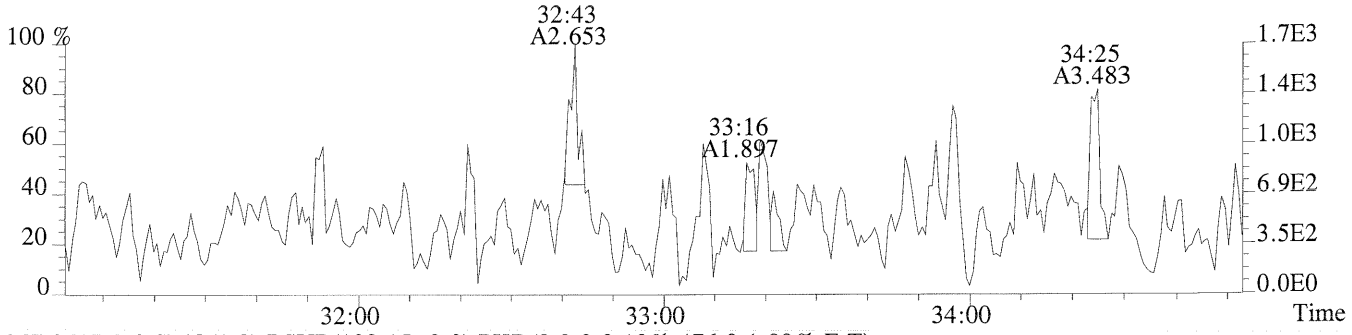
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



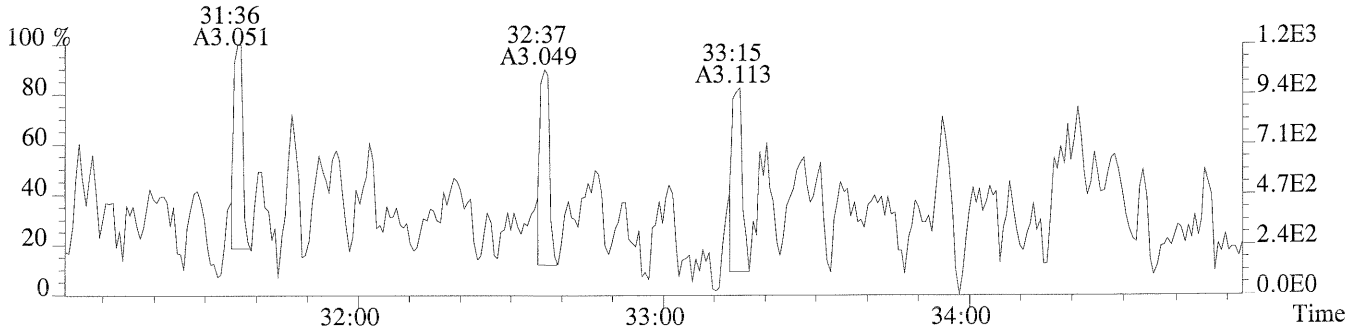
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



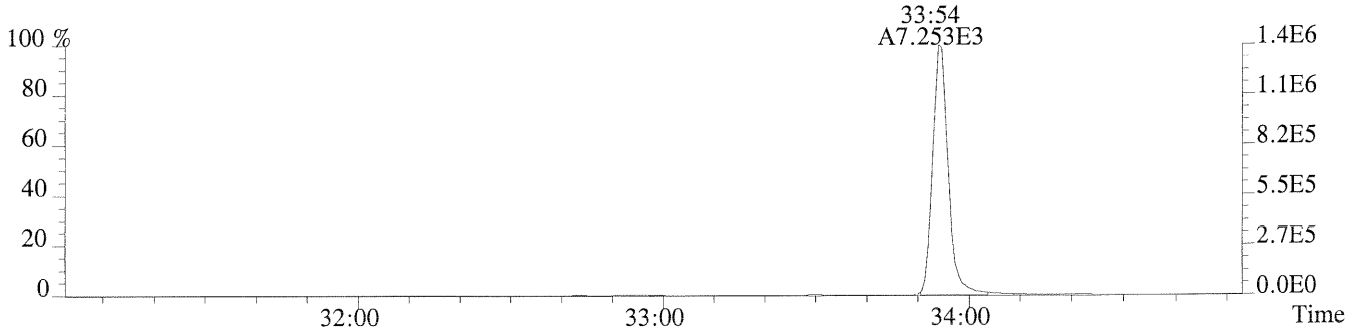
File:U149804 #1-349 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



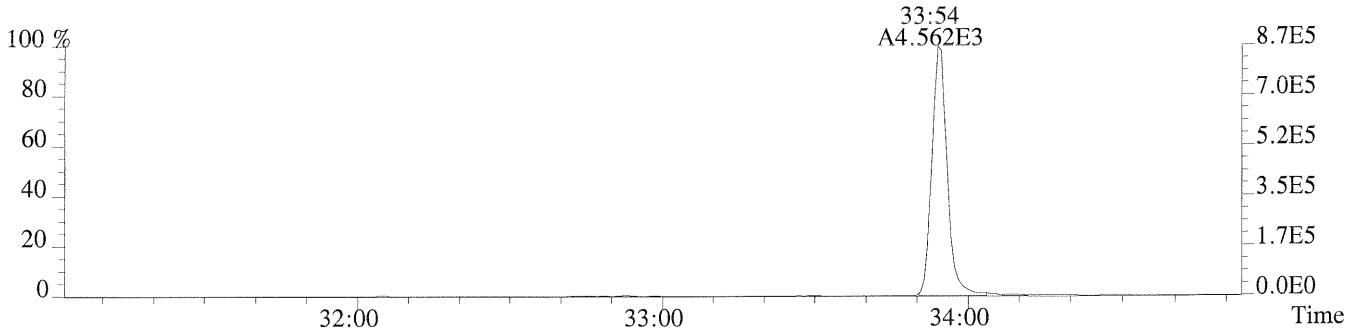
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,476.0,1.00%,F,T)



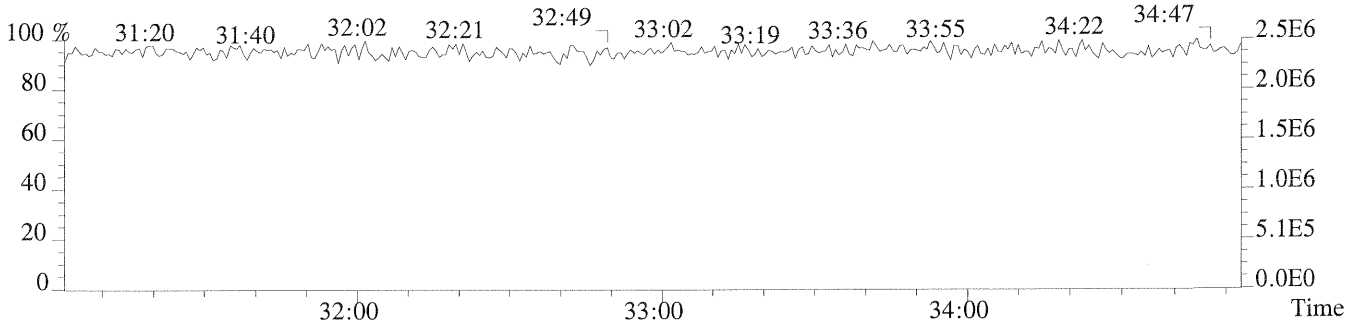
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,768.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)

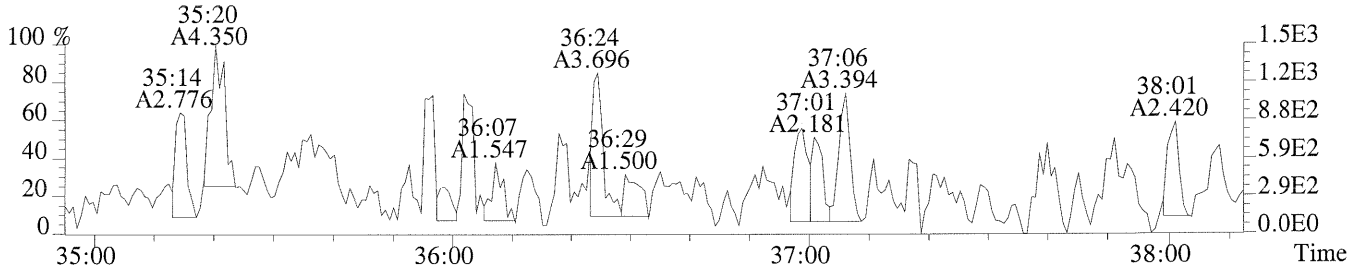


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

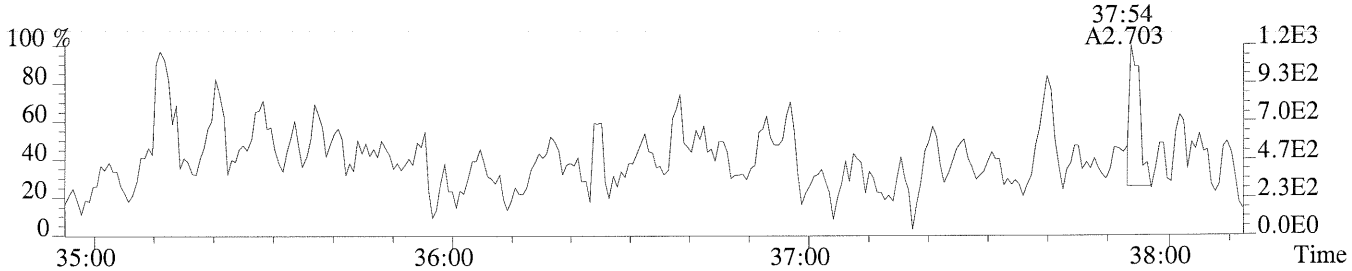


File:U149804 #1-299 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01

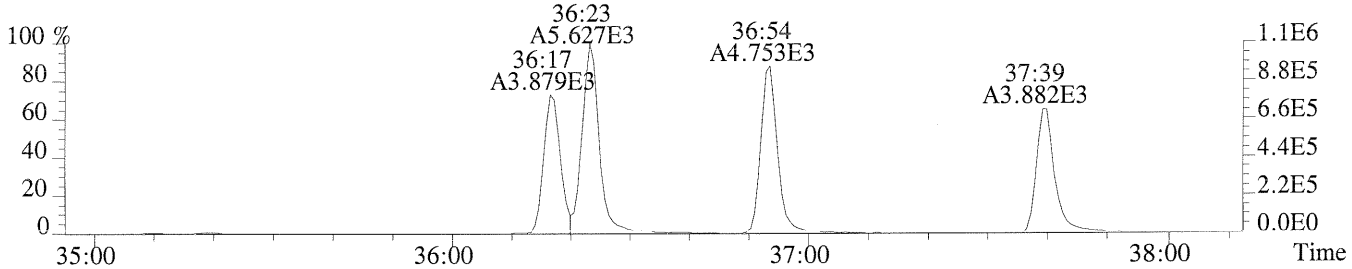
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,380.0,0.40%,F,T)



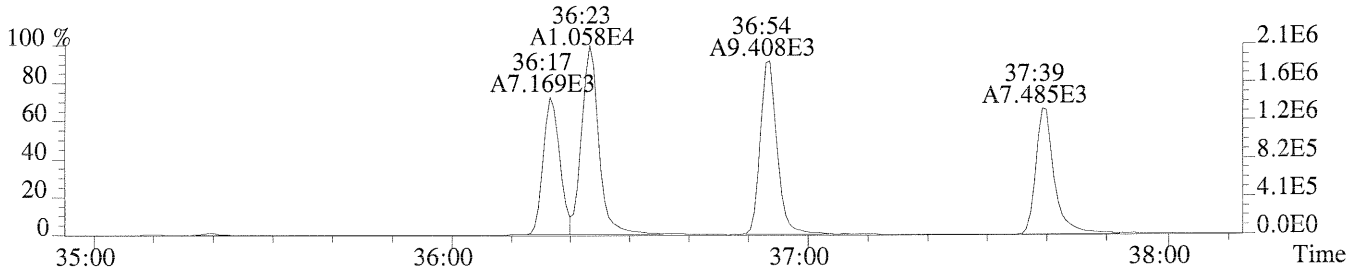
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



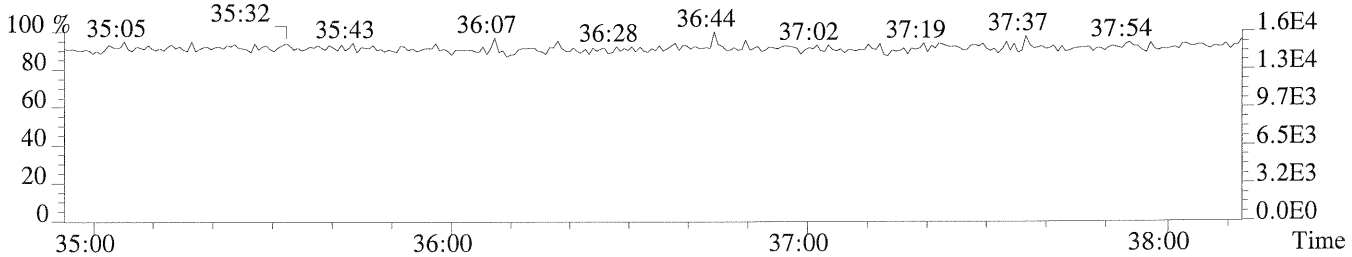
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



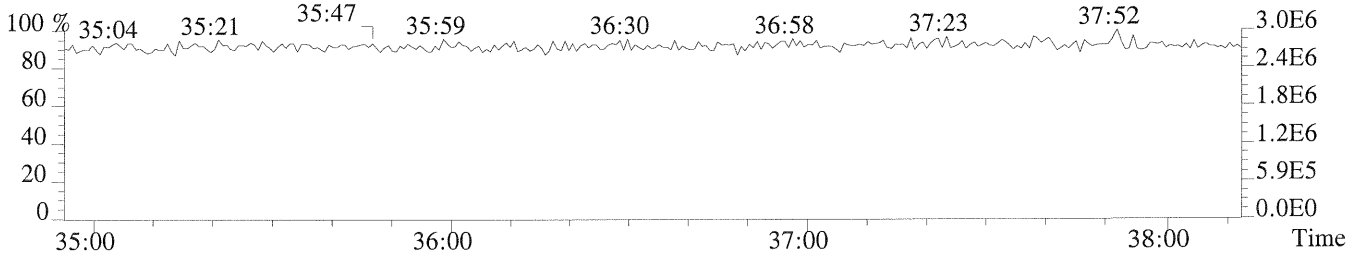
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



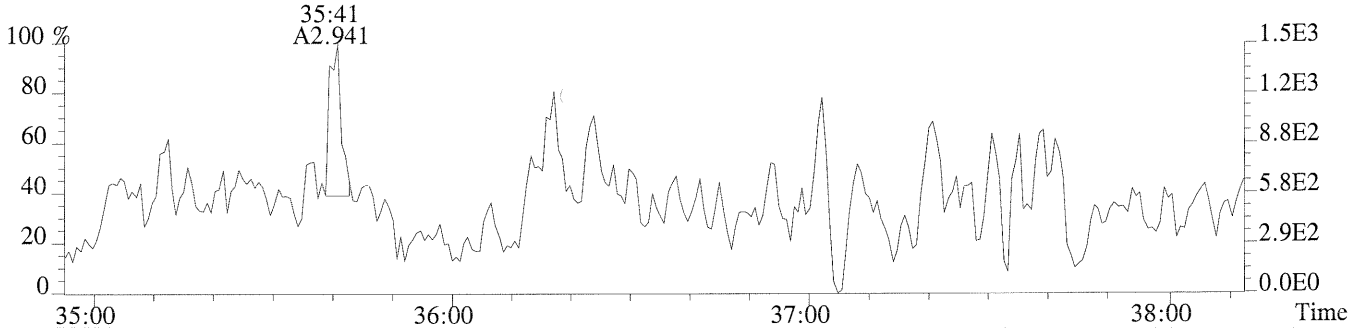
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



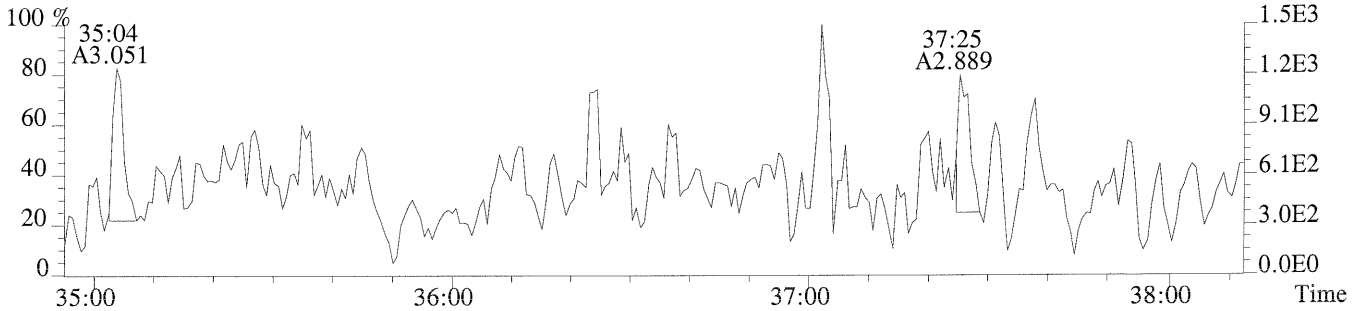
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



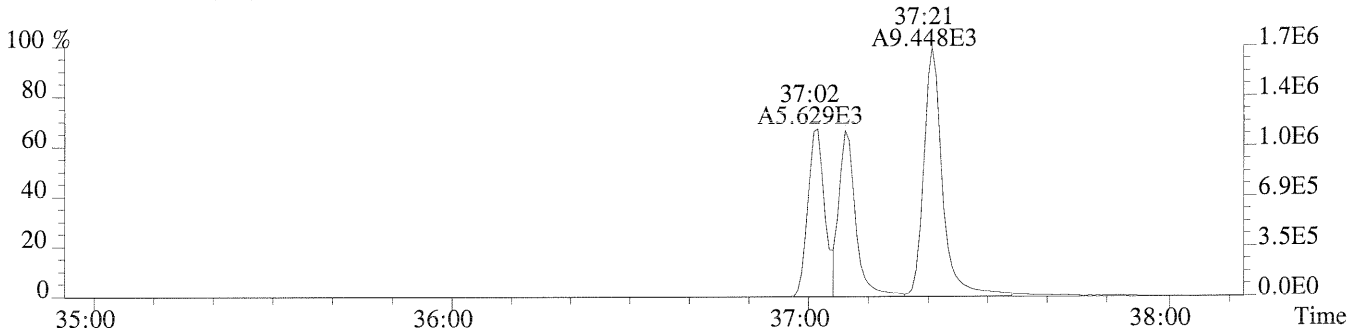
File:U149804 #1-299 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



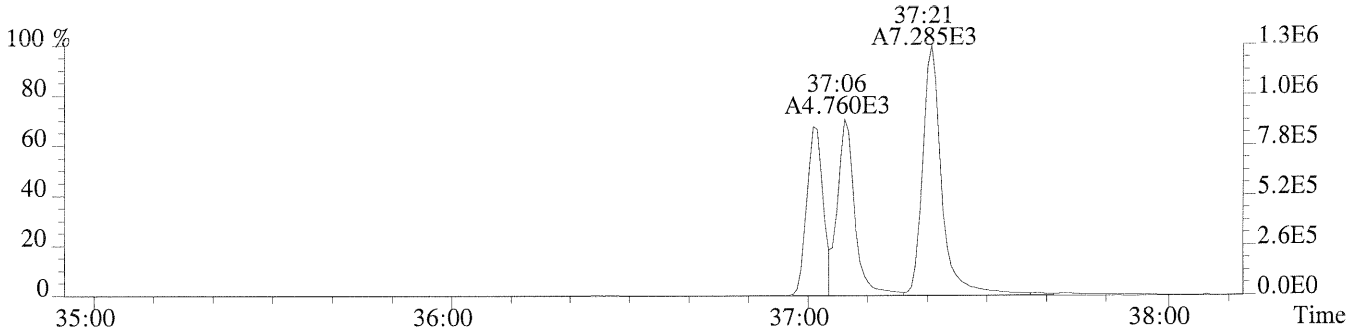
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



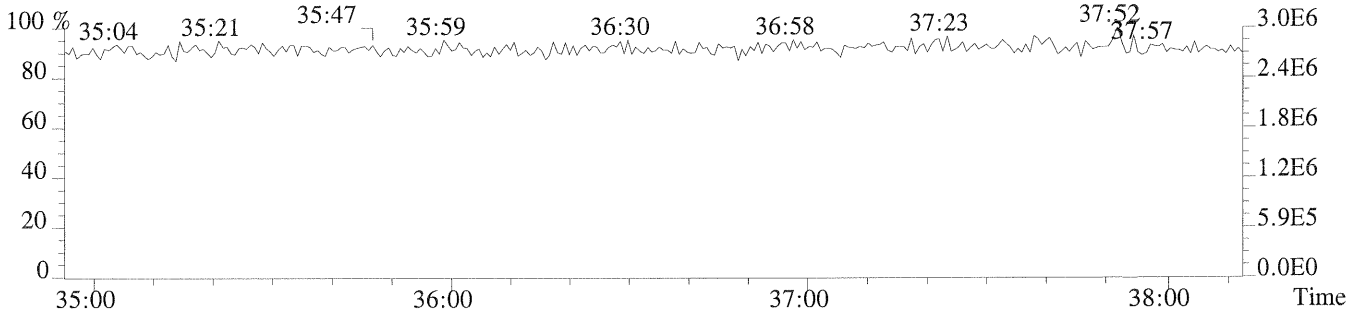
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)

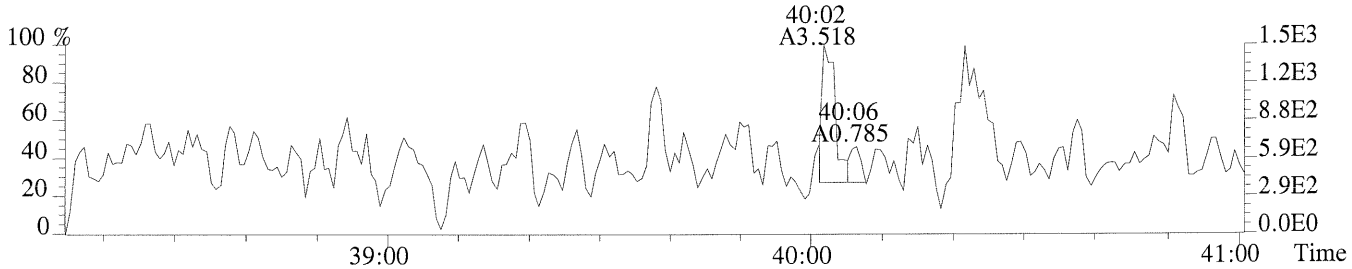


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

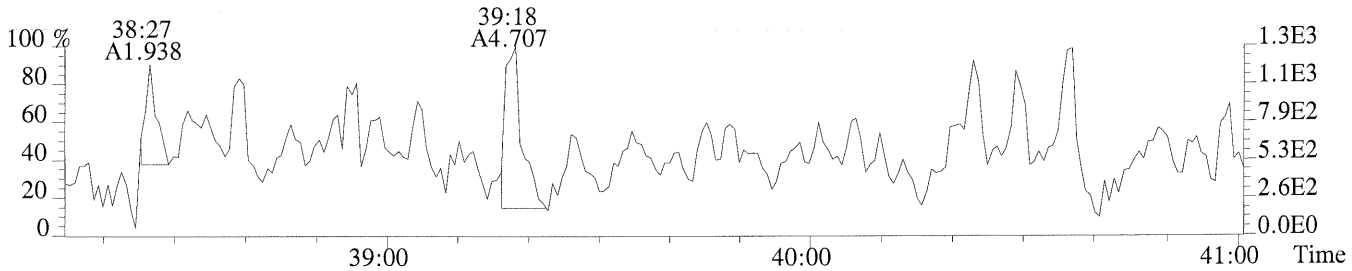


File:U149804 #1-252 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01

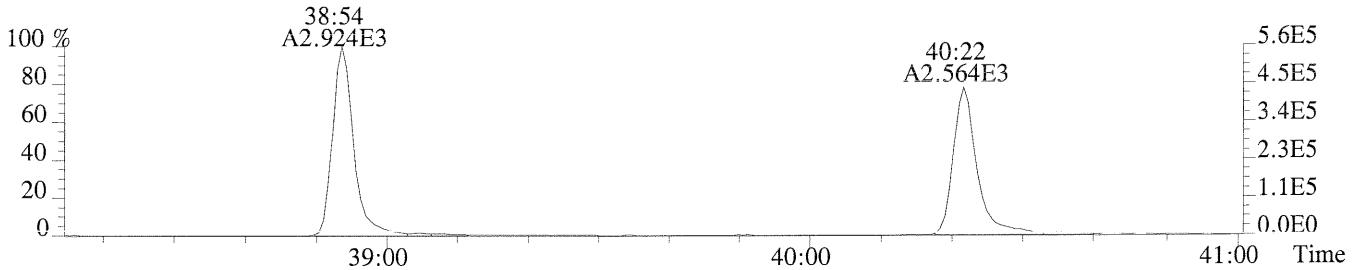
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.50%,F,T)



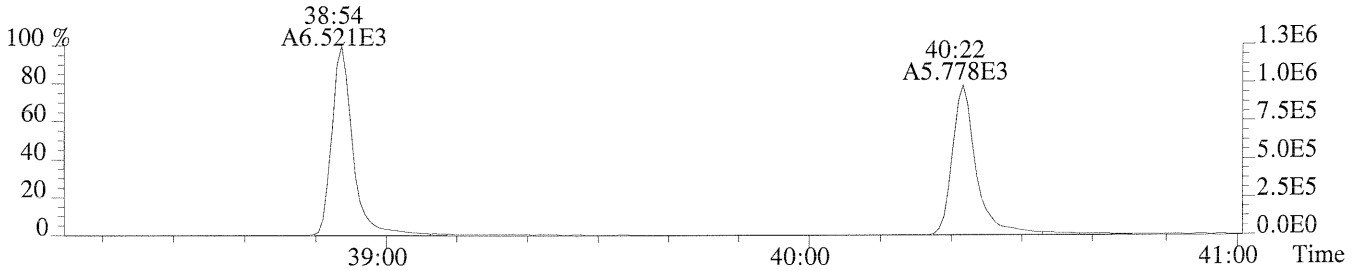
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.50%,F,T)



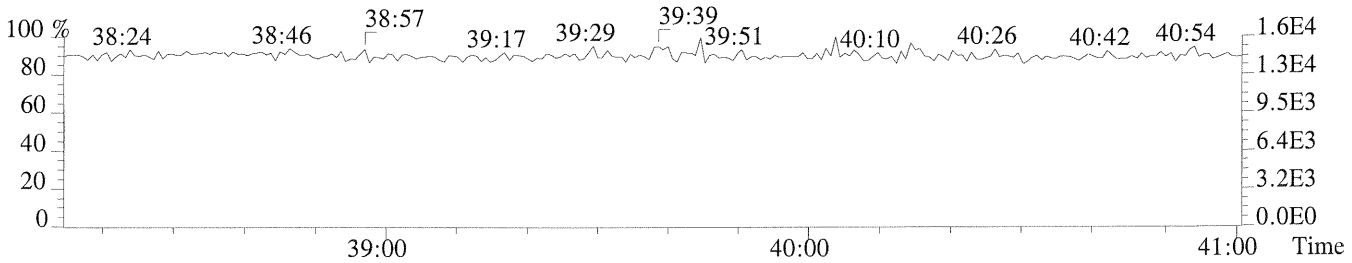
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.50%,F,T)



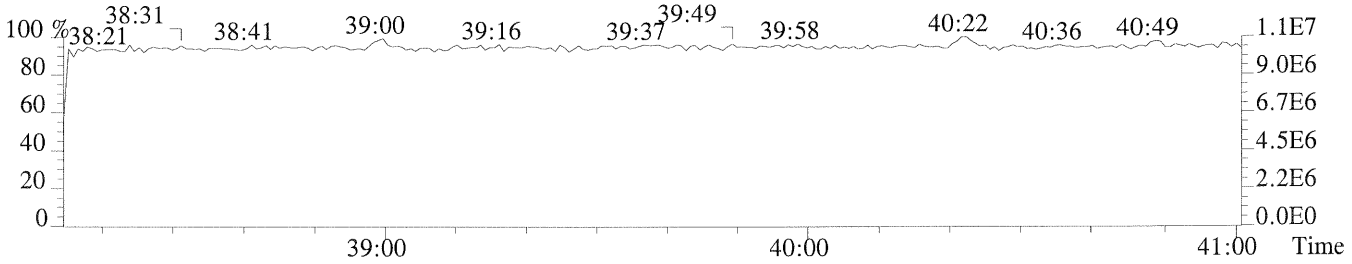
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1244.0,0.50%,F,T)



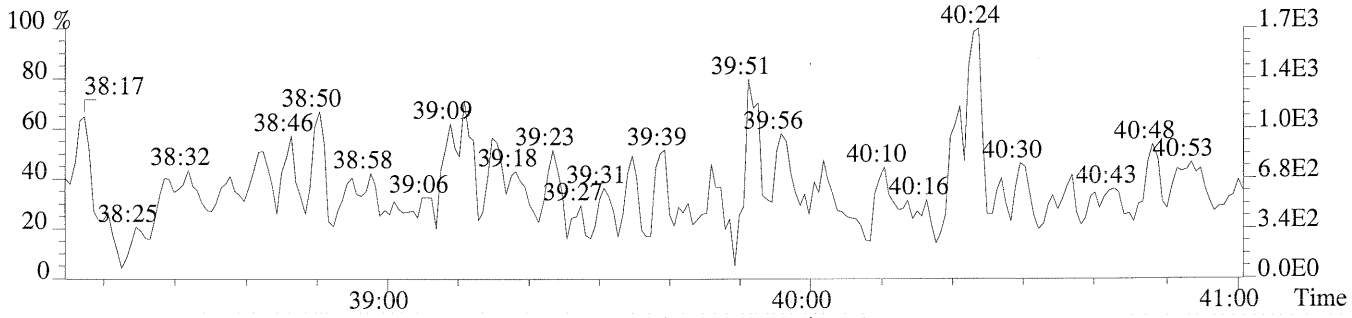
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



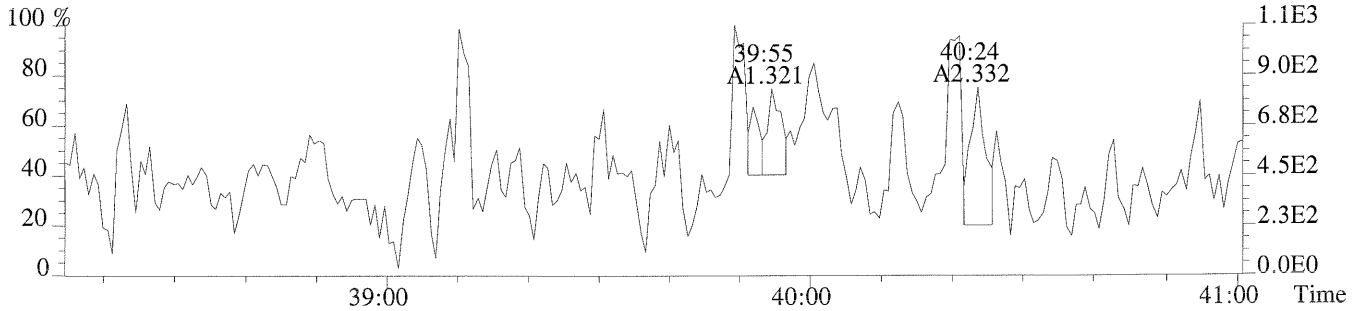
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



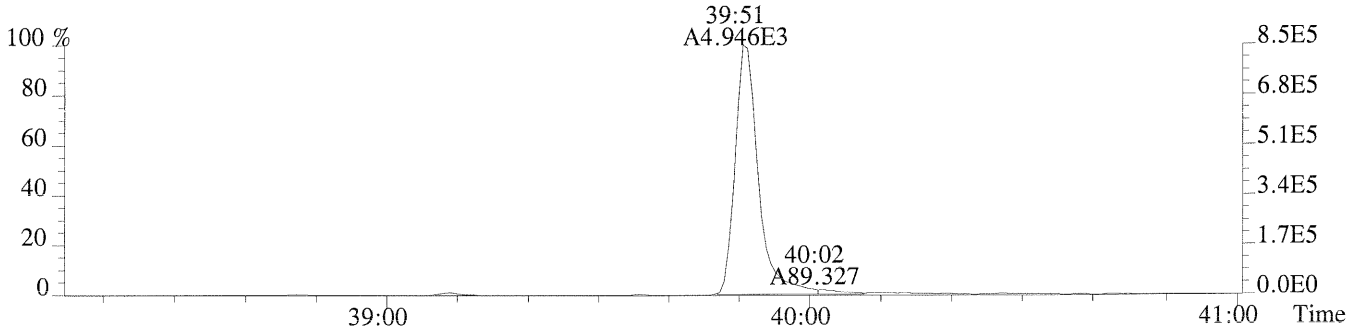
File:U149804 #1-252 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



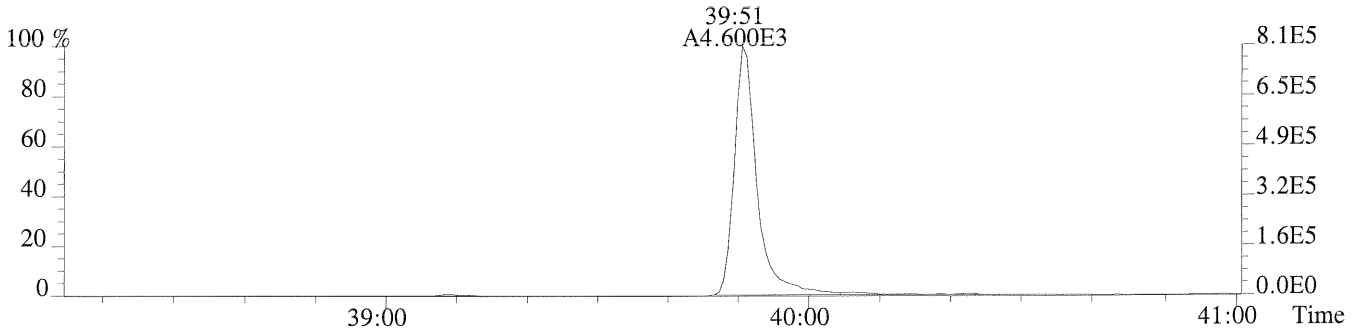
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



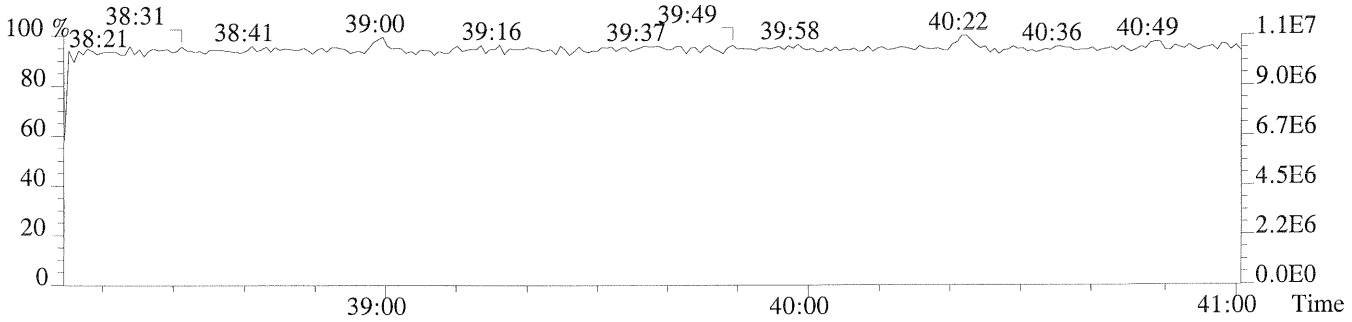
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



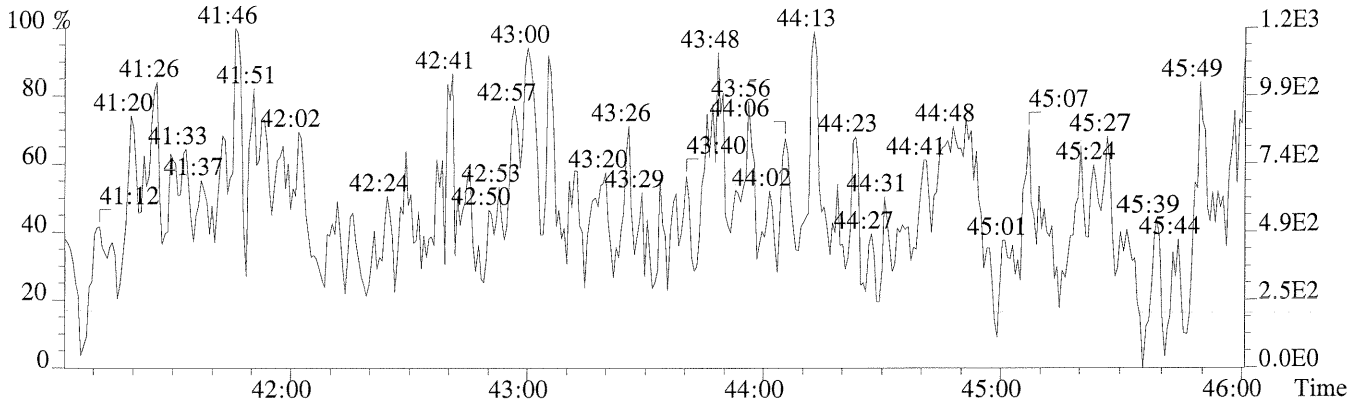
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



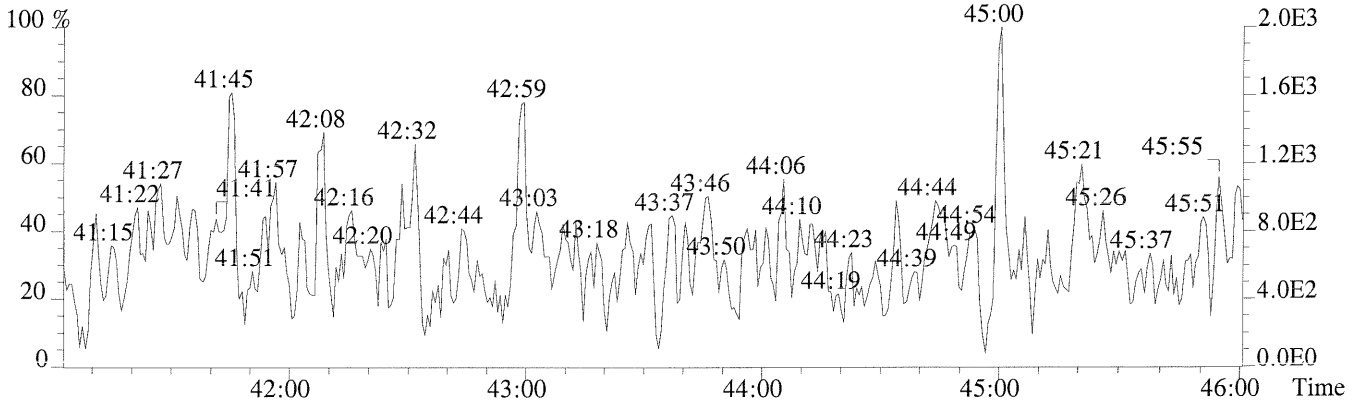
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



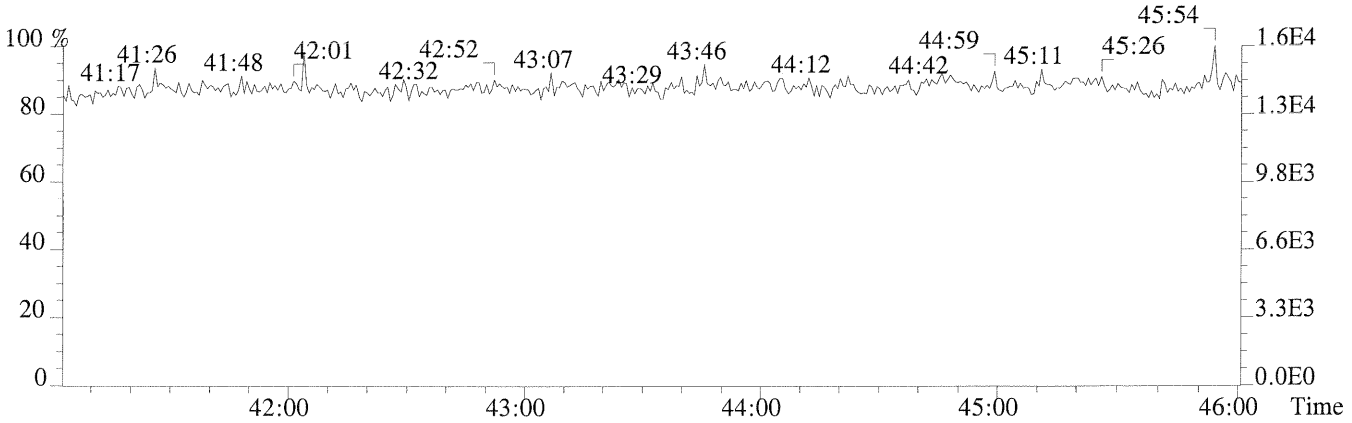
File:U149804 #1-451 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



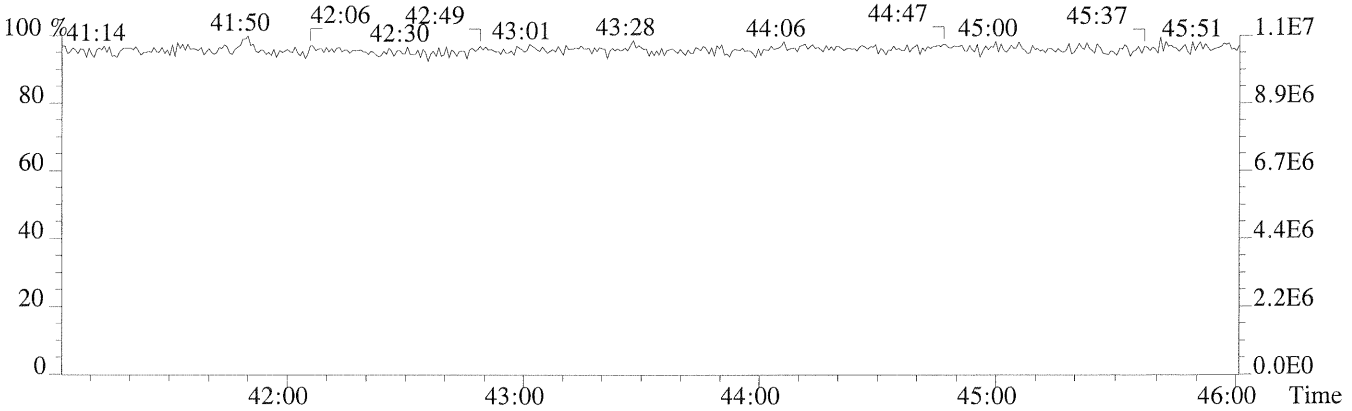
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,812.0,0.40%,F,T)



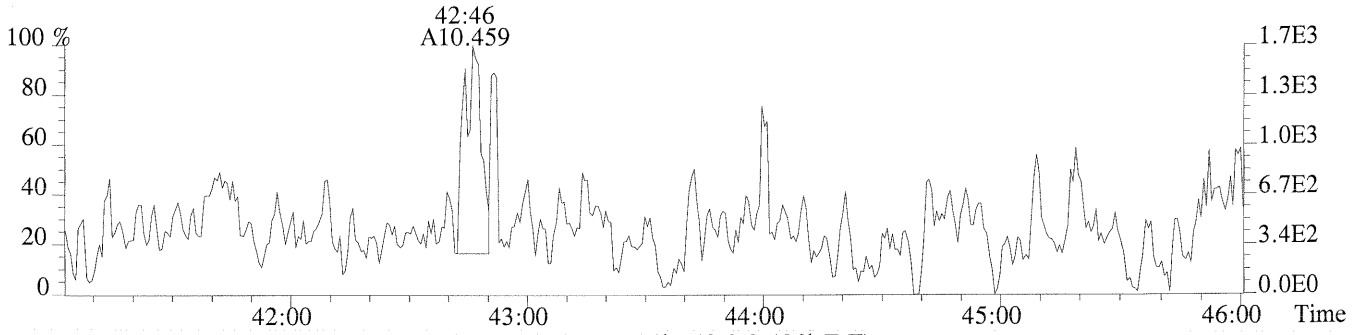
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



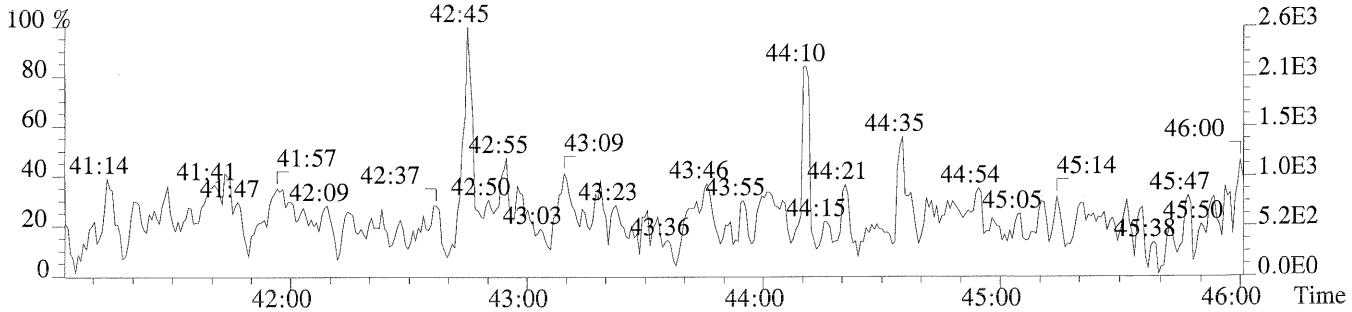
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



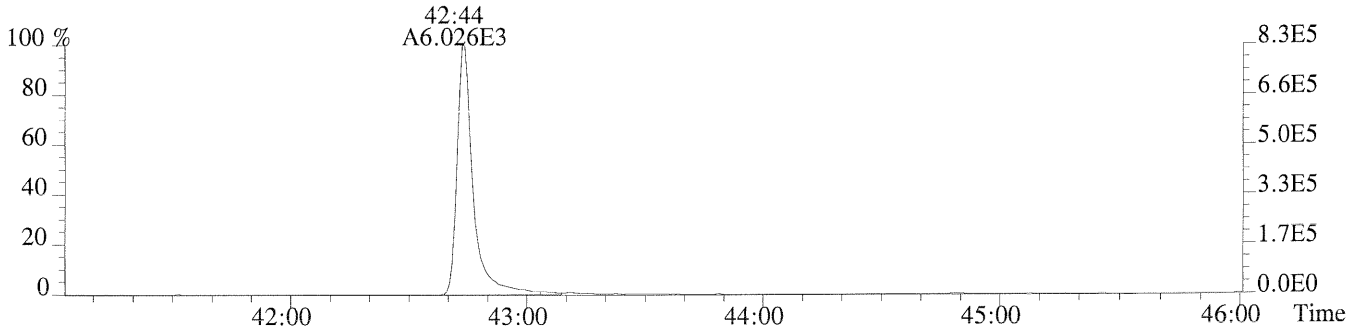
File:U149804 #1-451 Acq: 1-JUL-2014 20:51:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-01
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,556.0,0.40%,F,T)



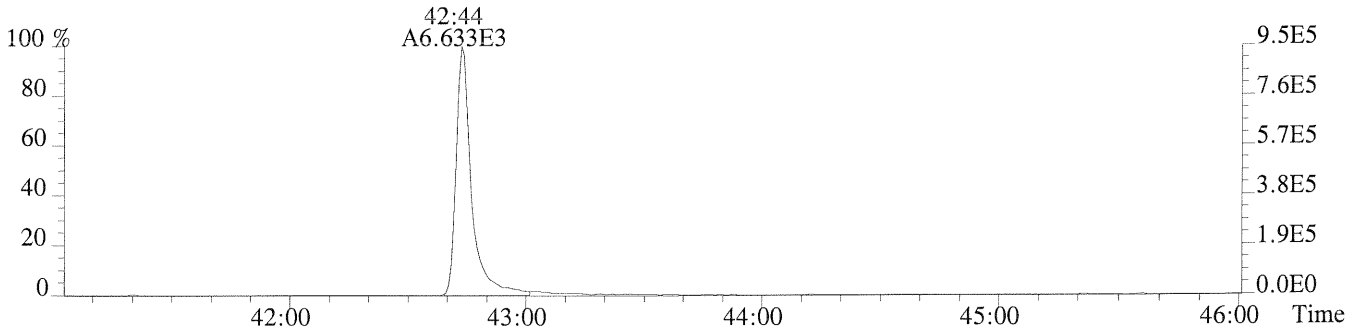
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,748.0,0.40%,F,T)



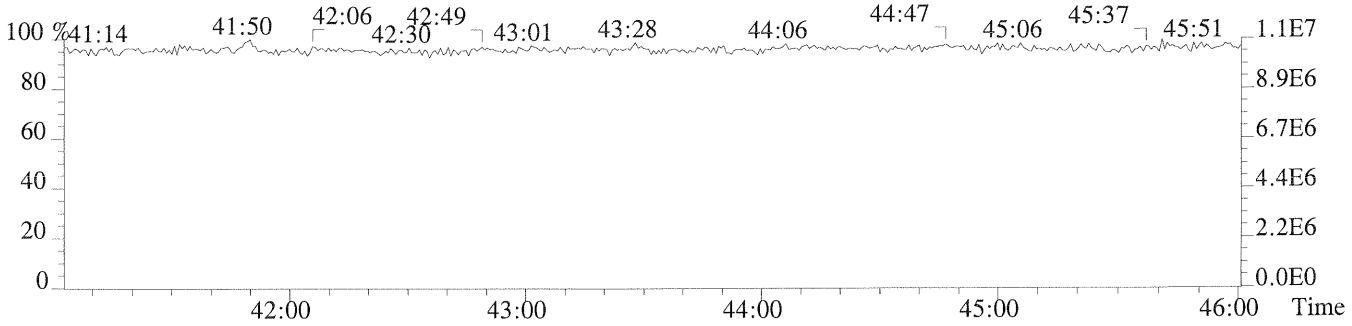
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,756.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
LCS

Run #14 Filename U149829 Samp: 1 Inj: 1 Acquired: 2-JUL-14 22:35:58
Processed: 3-JUL-14 07:18:29 Sample ID: EQ1400342-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:35	4.845e+02	5.966e+02	0.81	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:43	4.918e+03	3.250e+03	1.51	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:38	4.251e+03	2.770e+03	1.53	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.693e+03	2.991e+03	1.23	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	4.255e+03	3.534e+03	1.20	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.648e+03	3.107e+03	1.17	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:38	3.408e+03	2.674e+03	1.27	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	3.288e+03	3.099e+03	1.06	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:20	2.500e+03	2.473e+03	1.01	yes	no	1.358
10	Unk	OCDF	42:57	3.083e+03	3.530e+03	0.87	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:22	3.551e+02	4.620e+02	0.77	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:53	3.334e+03	2.066e+03	1.61	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.763e+03	2.219e+03	1.24	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	2.975e+03	2.350e+03	1.27	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	3.260e+03	2.676e+03	1.22	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:50	2.216e+03	2.187e+03	1.01	yes	no	1.065
17	Unk	OCDD	42:44	2.784e+03	3.277e+03	0.85	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:35	4.005e+03	5.031e+03	0.80	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:42	7.897e+03	4.894e+03	1.61	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:36	7.503e+03	4.678e+03	1.60	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.967e+03	5.671e+03	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	4.120e+03	7.824e+03	0.53	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	3.718e+03	6.928e+03	0.54	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	2.998e+03	5.614e+03	0.53	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	2.235e+03	4.900e+03	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	1.994e+03	4.265e+03	0.47	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:20	2.851e+03	3.664e+03	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	5.670e+03	3.658e+03	1.55	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	4.362e+03	3.286e+03	1.33	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	4.625e+03	3.639e+03	1.27	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	3.664e+03	3.379e+03	1.08	yes	no	0.936
32	IS	13C-OCDD	42:43	4.300e+03	4.259e+03	1.01	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:46	5.433e+03	6.877e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	7.479e+03	5.790e+03	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:21	2.140e+03				no	1.044

$$\text{OCDD} = \frac{(2.784e+03 + 3.277e+03) \times 4000 \text{ pg} \times 1}{(4.300e+03 + 4.259e+03) \times \quad \times \quad \times 1.177} =$$

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
LCS

Run #14 Filename U149829 Samp: 1 Inj: 1 Acquired: 2-JUL-14 22:35:58
Processed: 3-JUL-14 07:18:291 LAB. ID: EQ1400342-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	9.52e+04	5.92e+02	1.6e+02	1.23e+05	8.80e+02	1.4e+02
2	1,2,3,7,8-PeCDF	8.86e+05	5.76e+02	1.5e+03	5.90e+05	9.52e+02	6.2e+02
3	2,3,4,7,8-PeCDF	7.88e+05	5.76e+02	1.4e+03	5.17e+05	9.52e+02	5.4e+02
4	1,2,3,4,7,8-HxCDF	7.69e+05	6.60e+02	1.2e+03	6.10e+05	5.08e+02	1.2e+03
5	1,2,3,6,7,8-HxCDF	8.18e+05	6.60e+02	1.2e+03	6.70e+05	5.08e+02	1.3e+03
6	2,3,4,6,7,8-HxCDF	7.45e+05	6.60e+02	1.1e+03	6.22e+05	5.08e+02	1.2e+03
7	1,2,3,7,8,9-HxCDF	6.16e+05	6.60e+02	9.3e+02	5.04e+05	5.08e+02	9.9e+02
8	1,2,3,4,6,7,8-HpCDF	5.89e+05	8.48e+02	6.9e+02	5.85e+05	1.20e+03	4.9e+02
9	1,2,3,4,7,8,9-HpCDF	4.16e+05	8.48e+02	4.9e+02	4.18e+05	1.20e+03	3.5e+02
10	OCDF	4.24e+05	6.60e+02	6.4e+02	4.86e+05	6.32e+02	7.7e+02
11	2,3,7,8-TCDD	7.78e+04	5.32e+02	1.5e+02	9.19e+04	5.76e+02	1.6e+02
12	1,2,3,7,8-PeCDD	6.28e+05	6.24e+02	1.0e+03	3.99e+05	6.00e+02	6.7e+02
13	1,2,3,4,7,8-HxCDD	6.09e+05	8.56e+02	7.1e+02	4.81e+05	6.40e+02	7.5e+02
14	1,2,3,6,7,8-HxCDD	5.84e+05	8.56e+02	6.8e+02	4.51e+05	6.40e+02	7.0e+02
15	1,2,3,7,8,9-HxCDD	6.21e+05	8.56e+02	7.3e+02	5.14e+05	6.40e+02	8.0e+02
16	1,2,3,4,6,7,8-HpCDD	3.92e+05	6.84e+02	5.7e+02	3.89e+05	5.48e+02	7.1e+02
17	OCDD	3.65e+05	5.20e+02	7.0e+02	4.44e+05	5.84e+02	7.6e+02
18	13C-2,3,7,8-TCDF	7.82e+05	7.56e+02	1.0e+03	9.97e+05	7.16e+02	1.4e+03
19	13C-1,2,3,7,8-PeCDF	1.46e+06	4.72e+02	3.1e+03	9.03e+05	7.76e+02	1.2e+03
20	13C-2,3,4,7,8-PeCDF	1.45e+06	4.72e+02	3.1e+03	8.81e+05	7.76e+02	1.1e+03
21	13C-1,2,3,4,7,8-HxCDF	6.14e+05	3.72e+02	1.6e+03	1.16e+06	8.88e+02	1.3e+03
22	13C-1,2,3,6,7,8-HxCDF	7.87e+05	3.72e+02	2.1e+03	1.51e+06	8.88e+02	1.7e+03
23	13C-2,3,4,6,7,8-HxCDF	7.68e+05	3.72e+02	2.1e+03	1.47e+06	8.88e+02	1.7e+03
24	13C-1,2,3,7,8,9-HxCDF	5.63e+05	3.72e+02	1.5e+03	1.05e+06	8.88e+02	1.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	4.10e+05	1.16e+03	3.5e+02	9.12e+05	6.56e+02	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.35e+05	1.16e+03	2.9e+02	7.17e+05	6.56e+02	1.1e+03
27	13C-2,3,7,8-TCDD	6.11e+05	1.68e+03	3.6e+02	7.64e+05	9.44e+02	8.1e+02
28	13C-1,2,3,7,8-PeCDD	1.07e+06	6.44e+02	1.7e+03	7.00e+05	5.44e+02	1.3e+03
29	13C-1,2,3,4,7,8-HxCDD	9.54e+05	5.96e+02	1.6e+03	7.08e+05	4.52e+02	1.6e+03
30	13C-1,2,3,6,7,8-HxCDD	8.88e+05	5.96e+02	1.5e+03	7.13e+05	4.52e+02	1.6e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.52e+05	7.28e+02	9.0e+02	6.01e+05	6.76e+02	8.9e+02
32	13C-OCDD	5.62e+05	6.52e+02	8.6e+02	5.69e+05	5.40e+02	1.1e+03
33	13C-1,2,3,4-TCDD	1.12e+06	1.68e+03	6.7e+02	1.41e+06	9.44e+02	1.5e+03
34	13C-1,2,3,7,8,9-HxCDD	1.40e+06	5.96e+02	2.3e+03	1.12e+06	4.52e+02	2.5e+03
35	37Cl-2,3,7,8-TCDD	4.36e+05	6.12e+02	7.1e+02			

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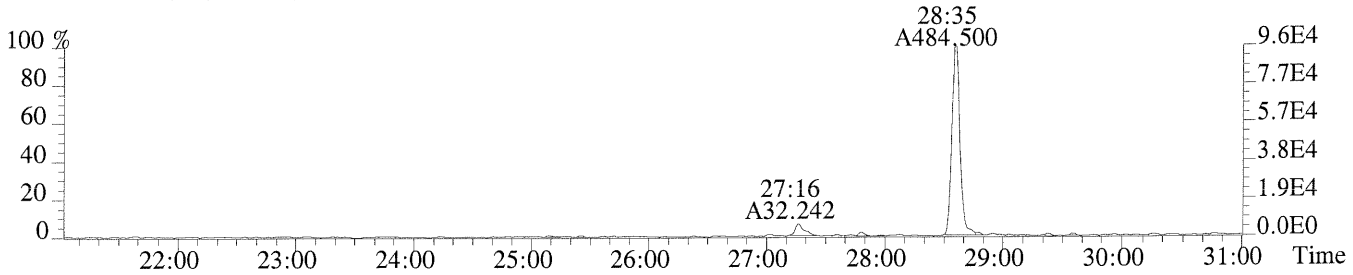
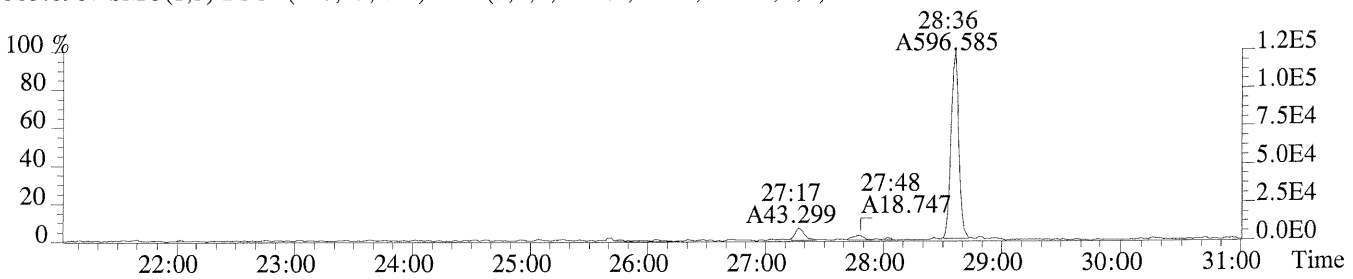
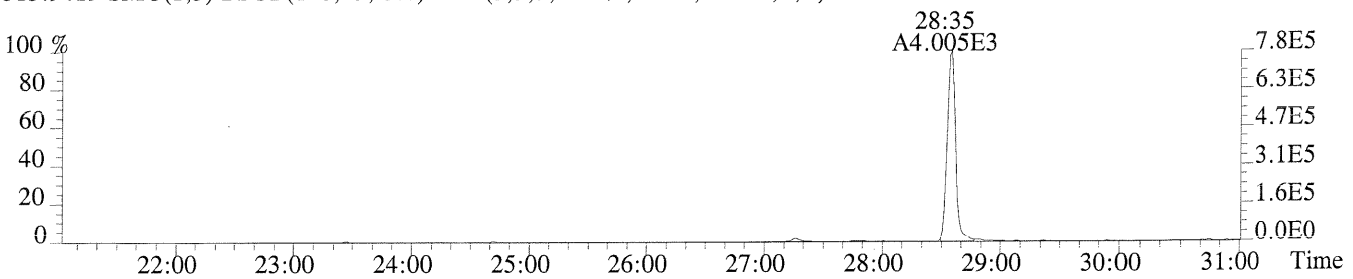
File:U149829 #1-627 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



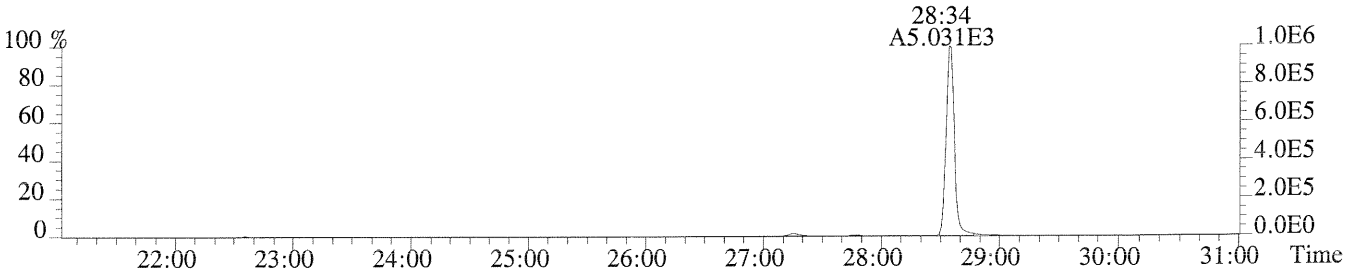
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



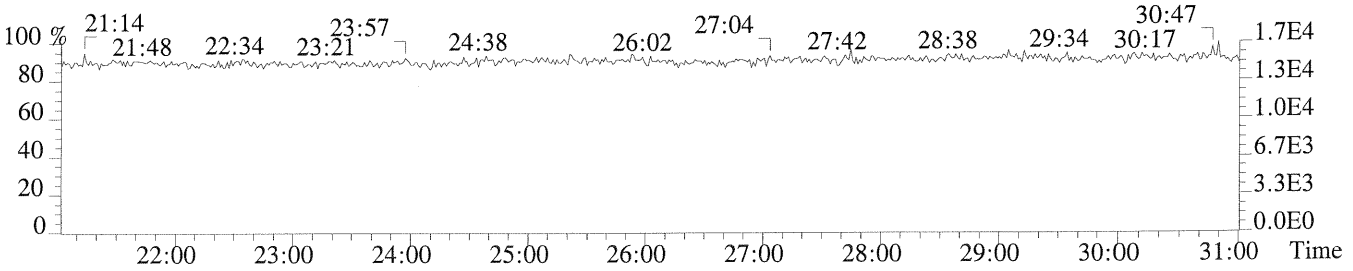
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



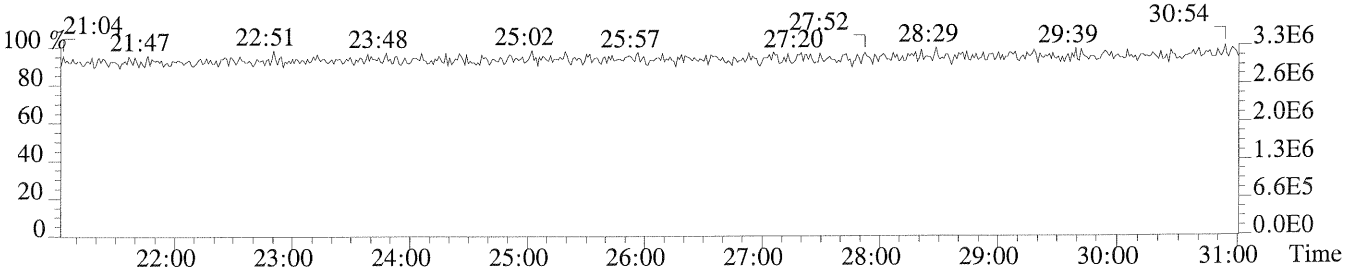
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

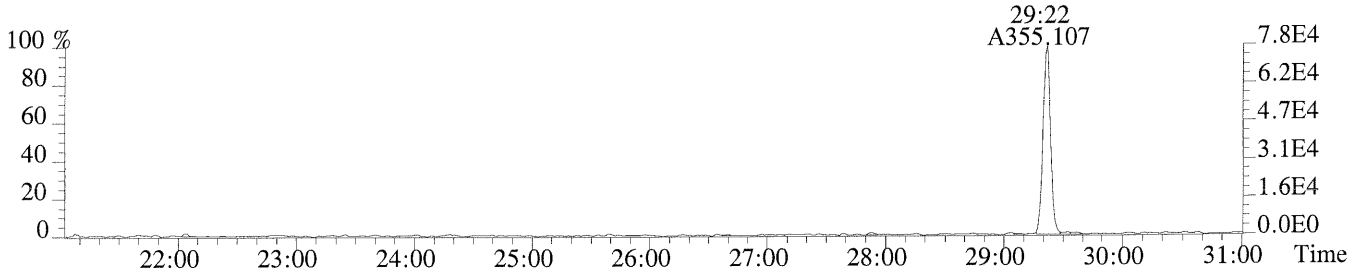


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

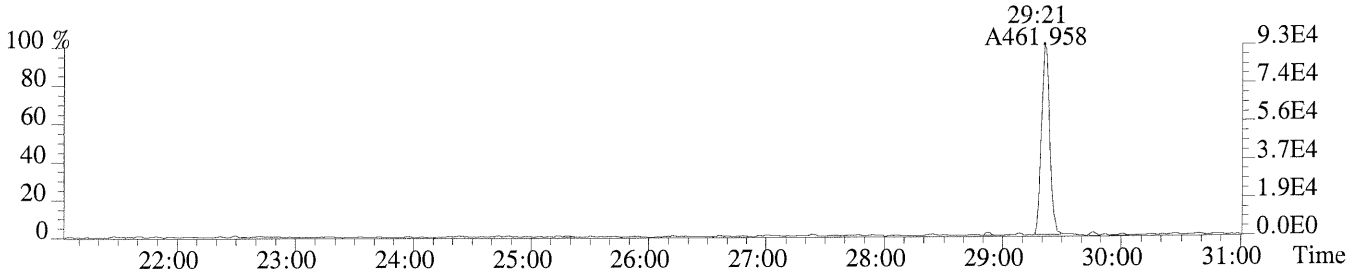


File:U149829 #1-627 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02

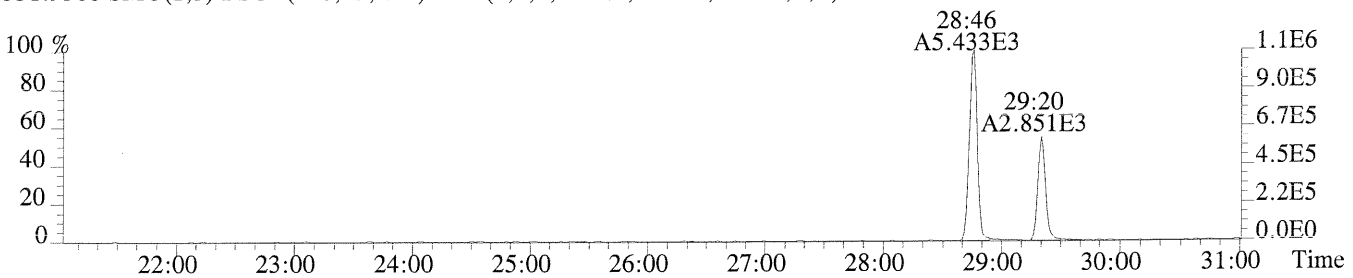
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



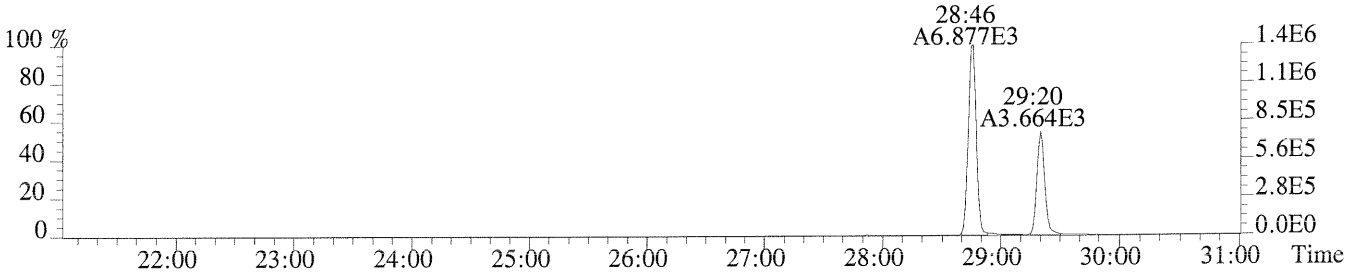
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



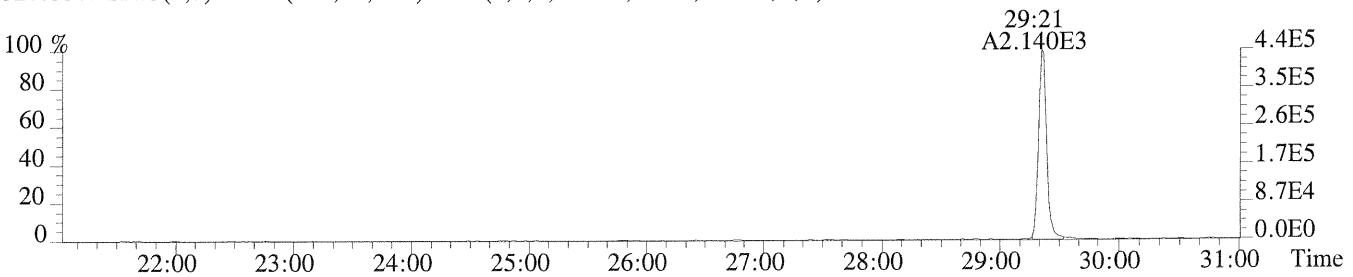
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



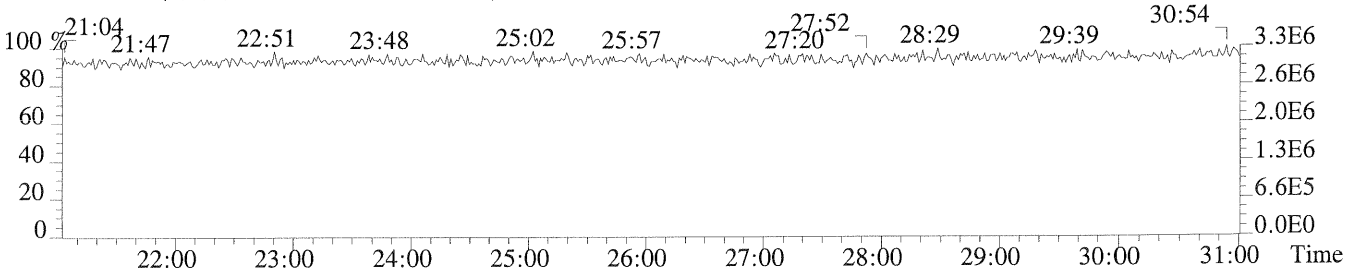
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



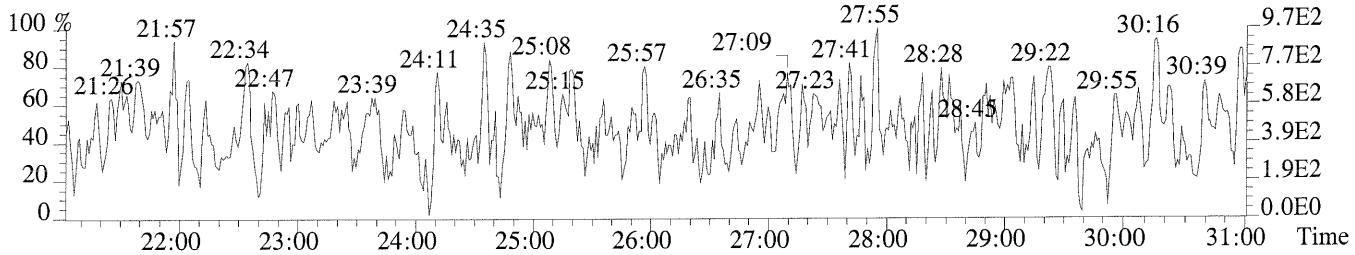
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



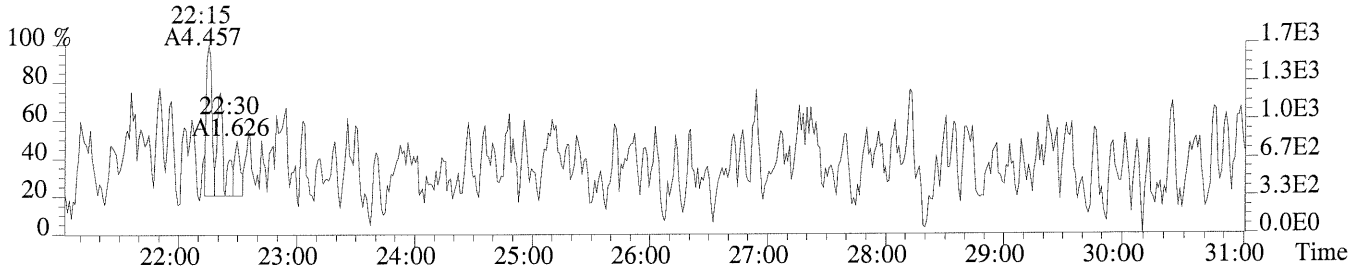
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



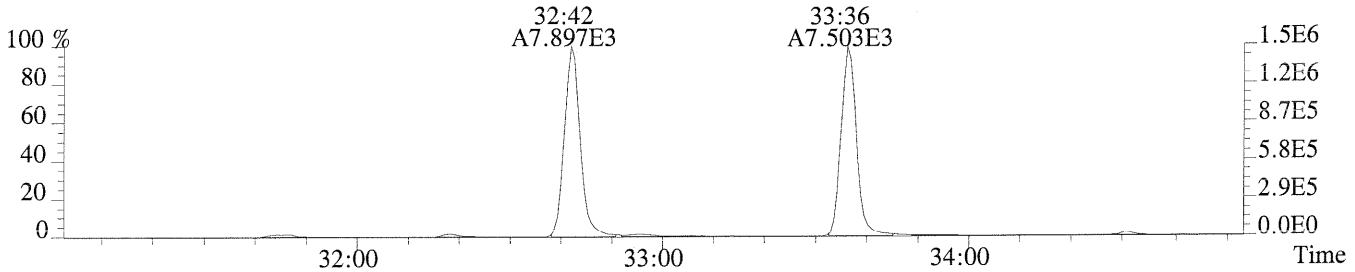
File:U149829 #1-627 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



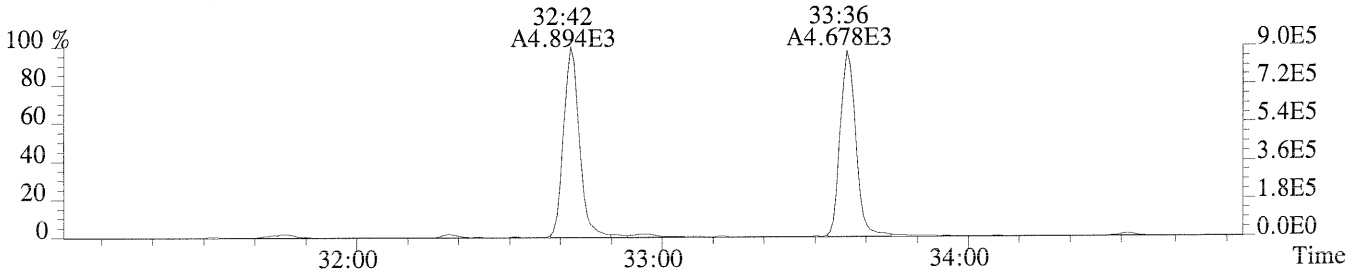
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



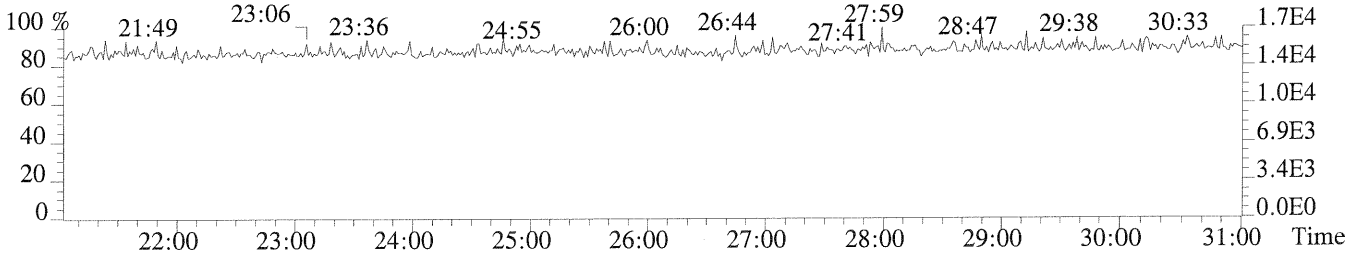
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



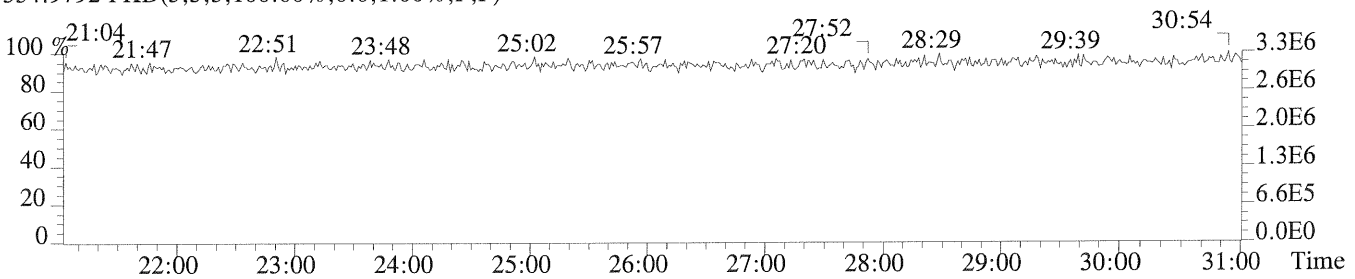
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

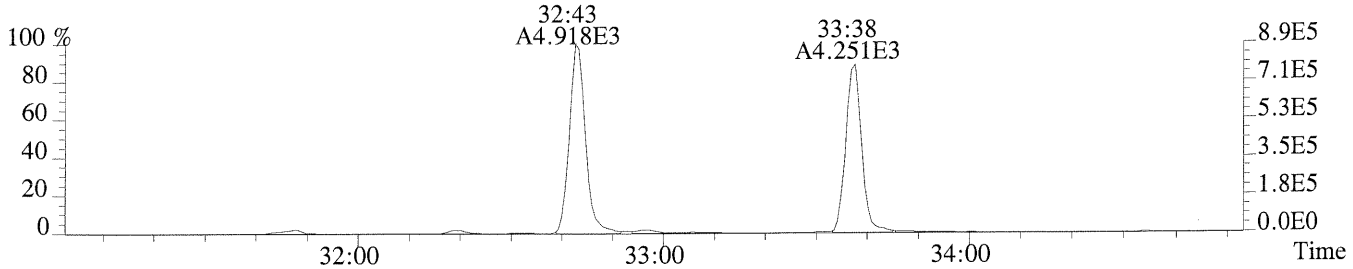


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

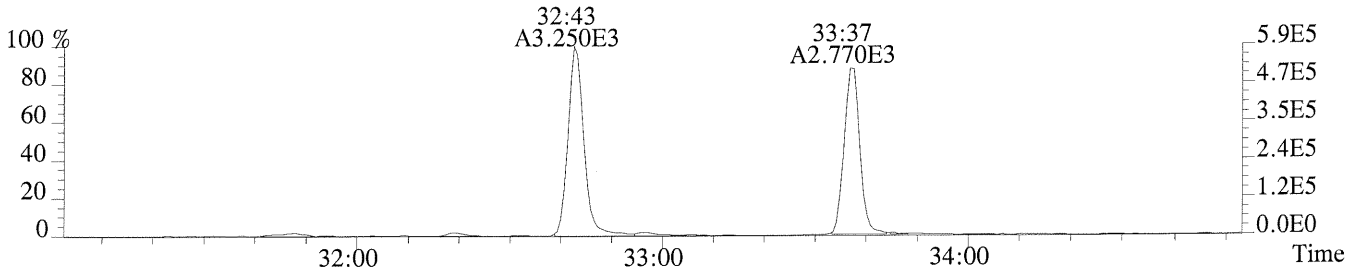


File:U149829 #1-349 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02

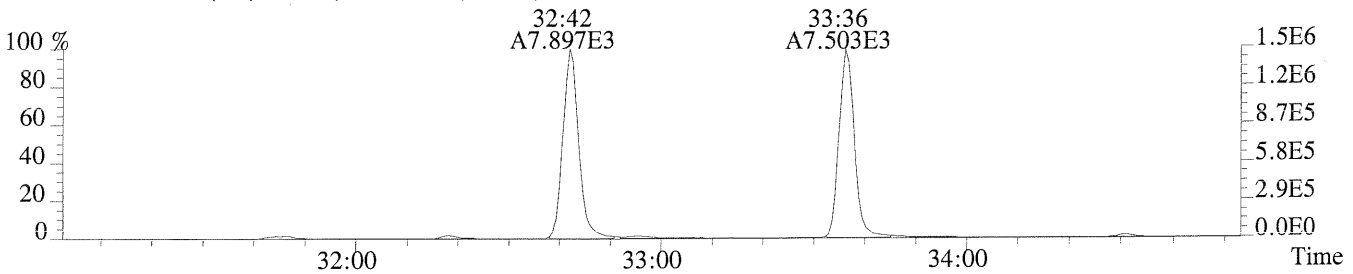
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



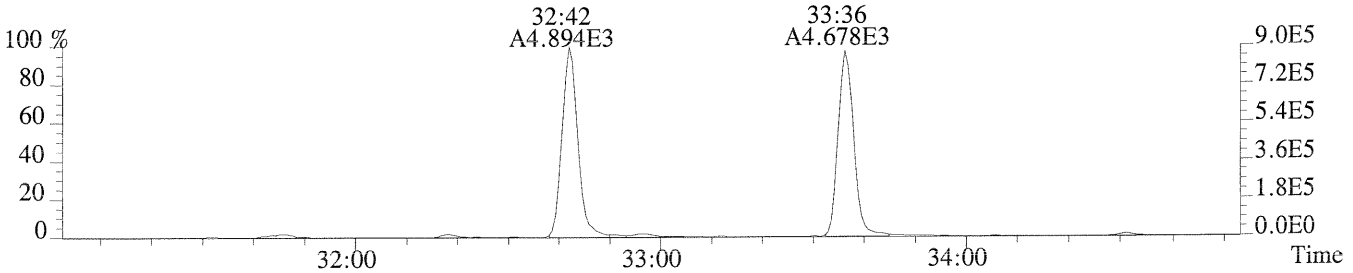
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



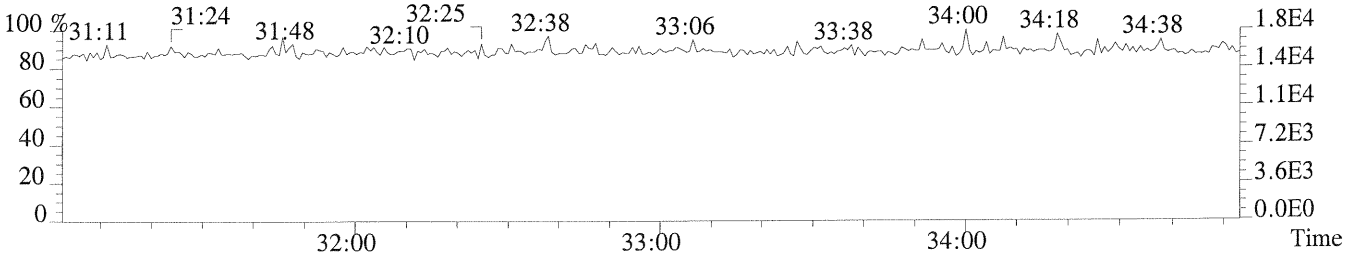
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



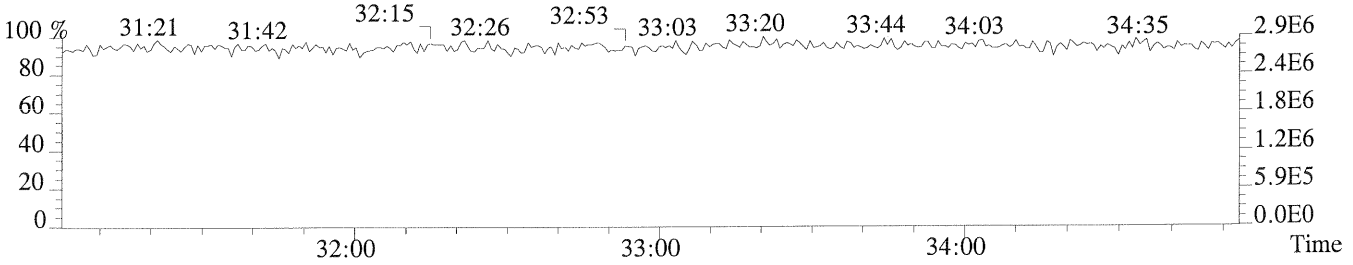
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

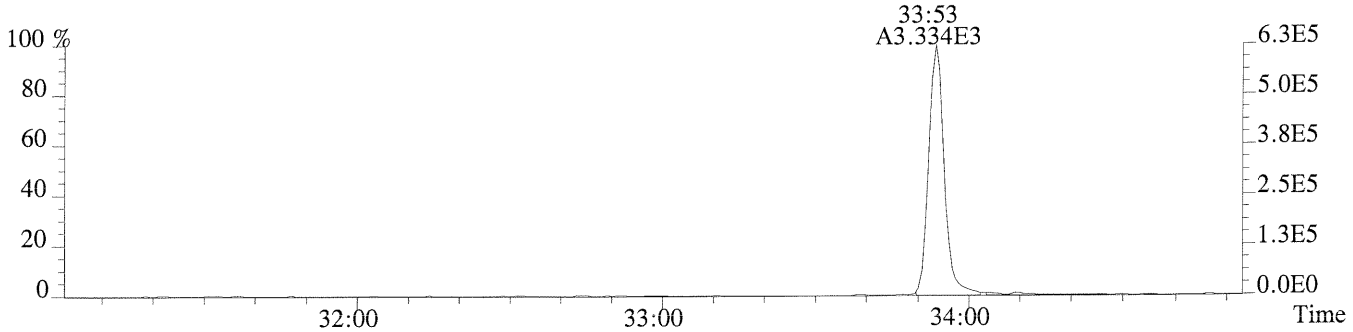


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

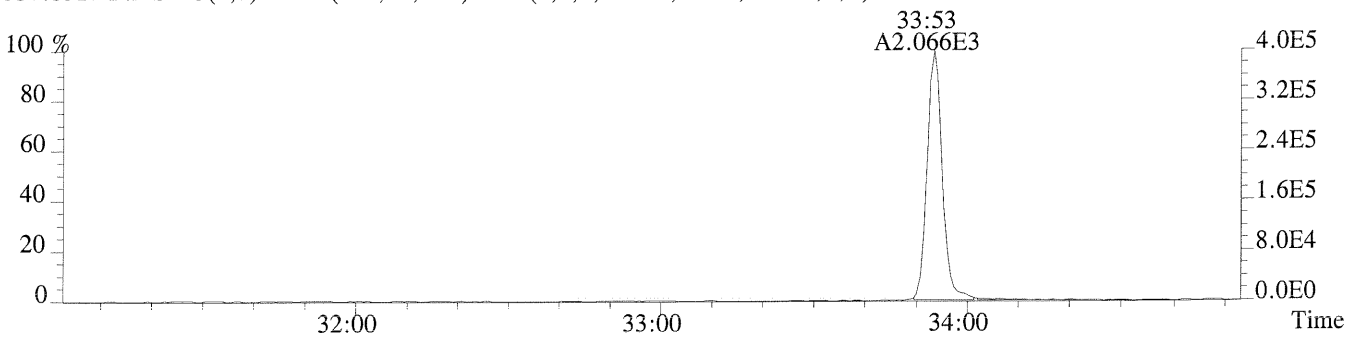


File:U149829 #1-349 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02

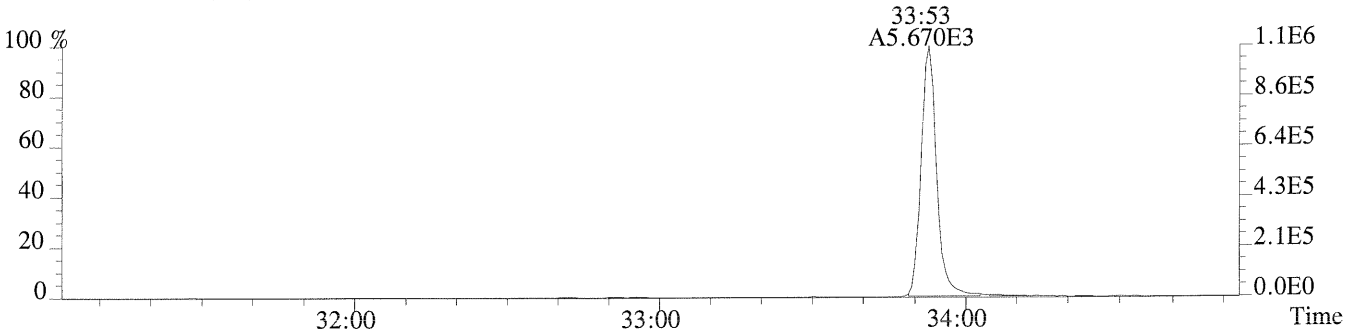
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



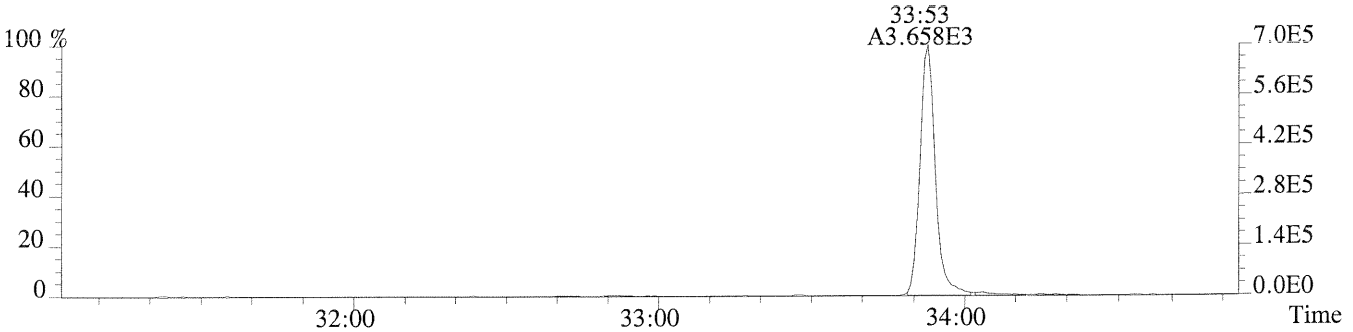
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



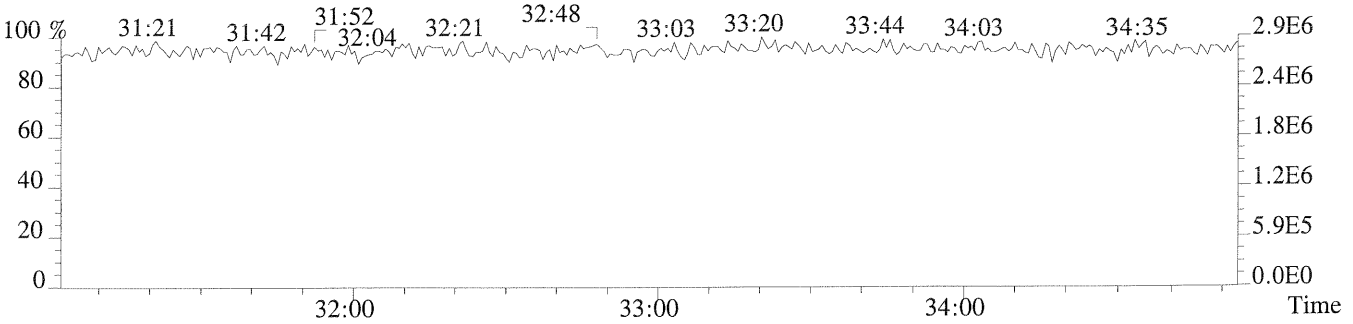
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)

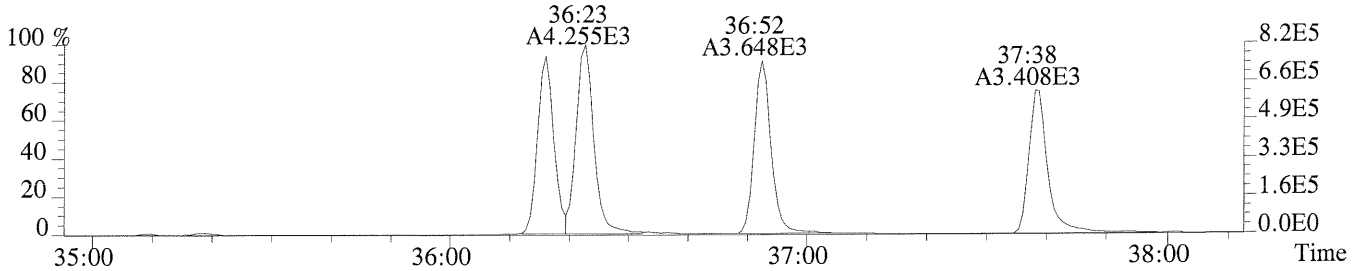


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

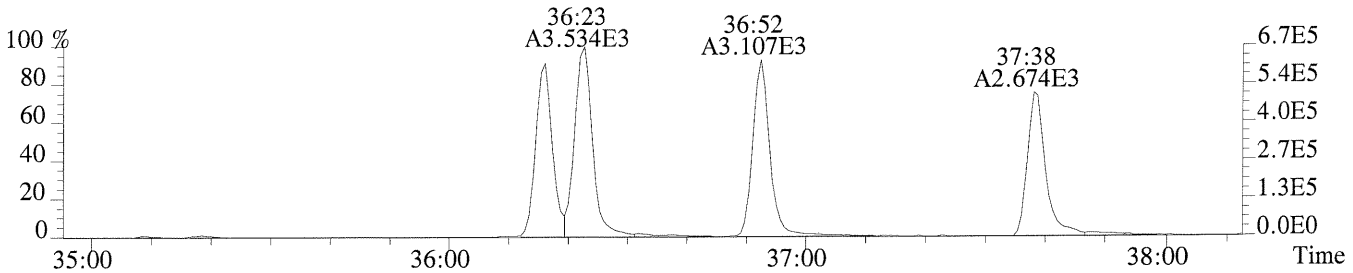


File:U149829 #1-299 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02

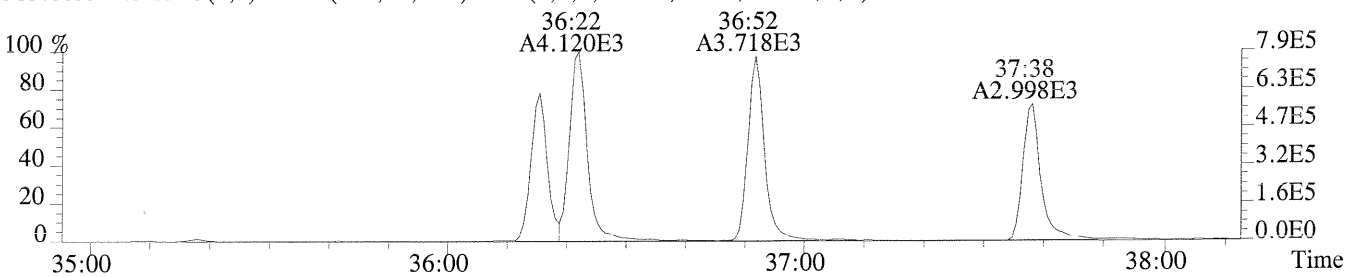
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



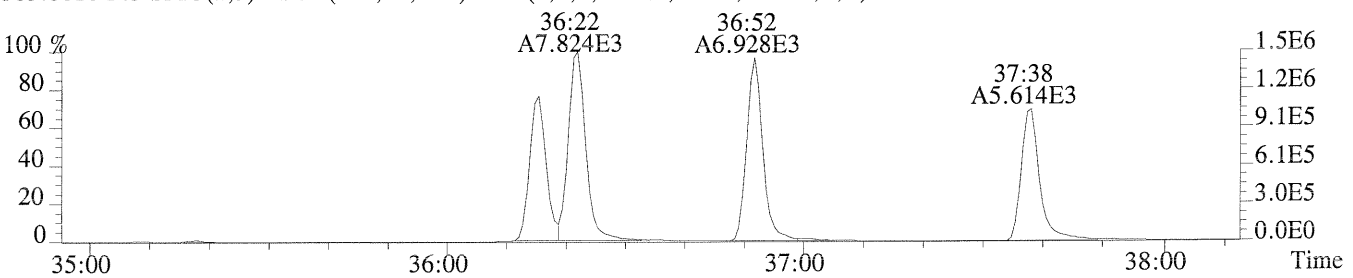
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



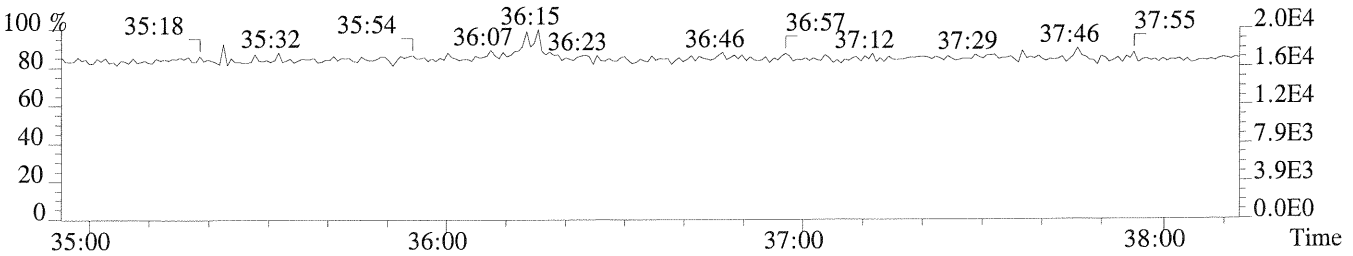
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



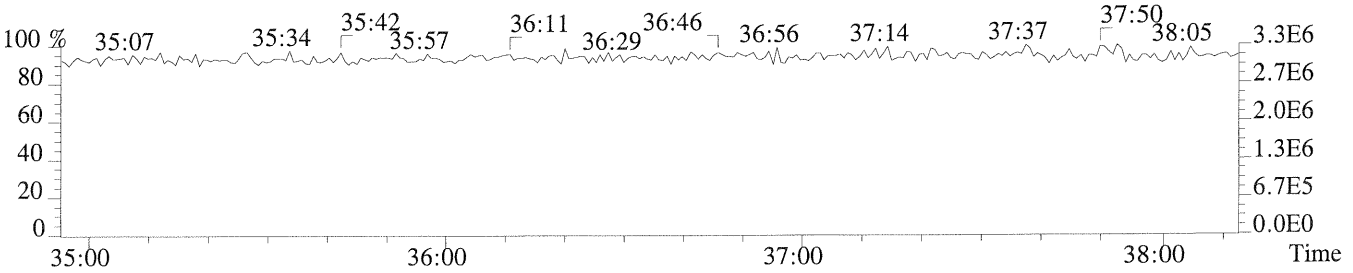
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

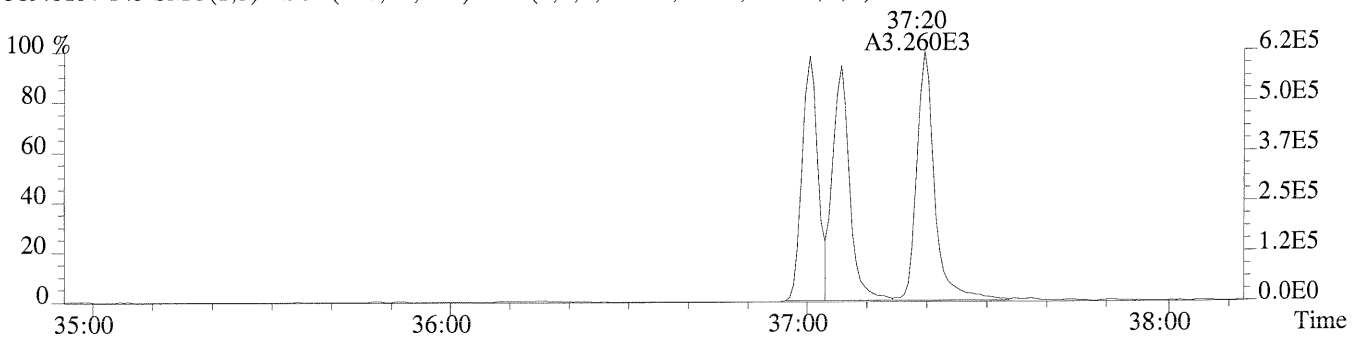


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

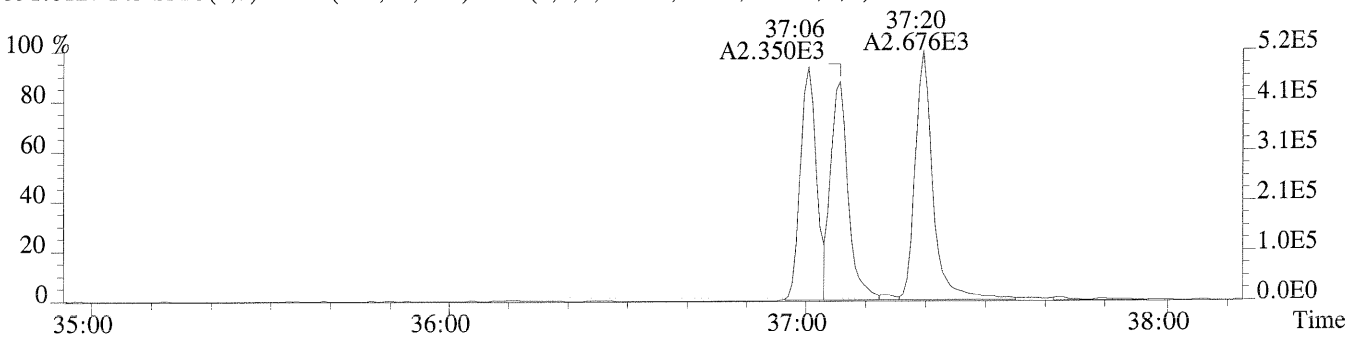


File:U149829 #1-299 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02

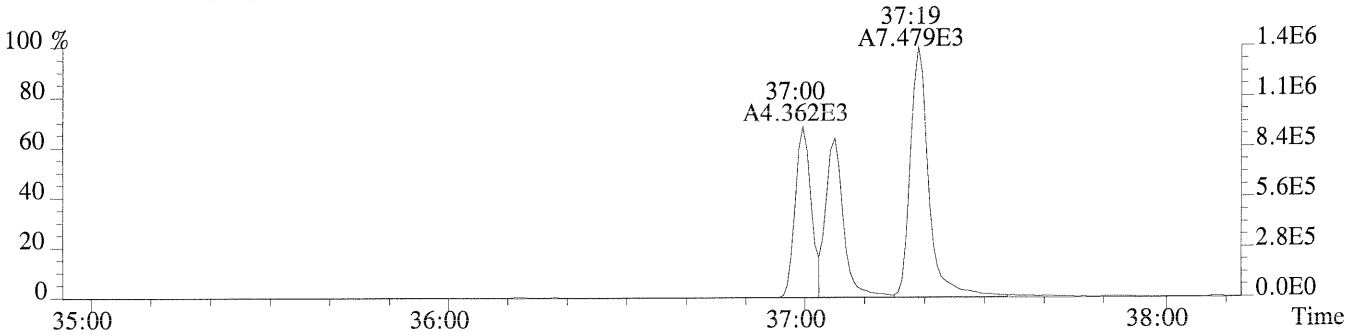
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



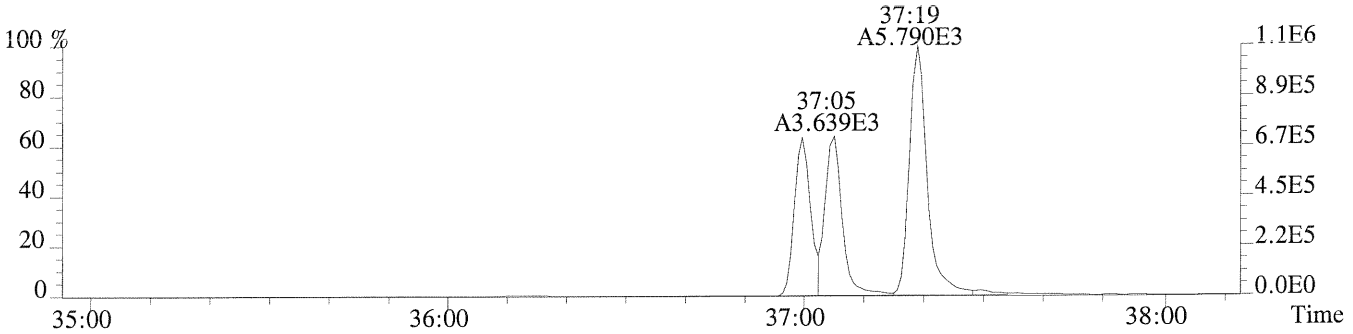
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



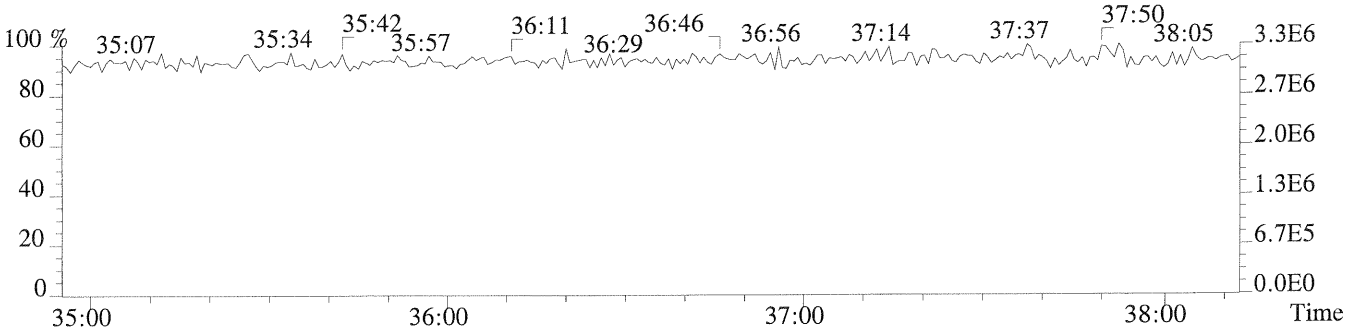
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)



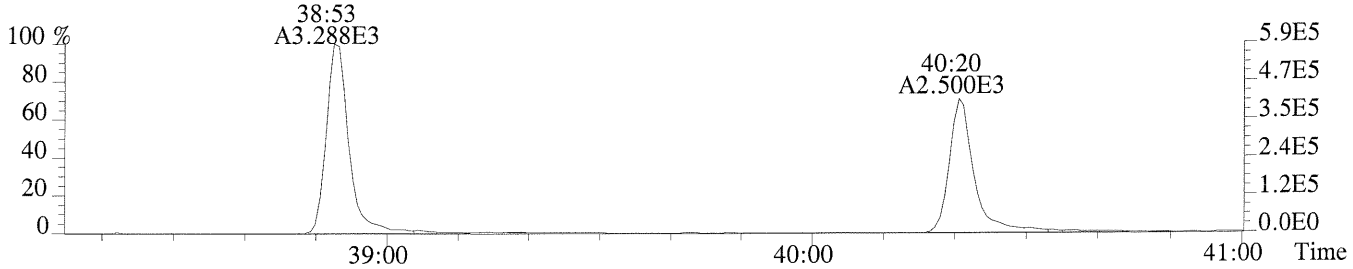
403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



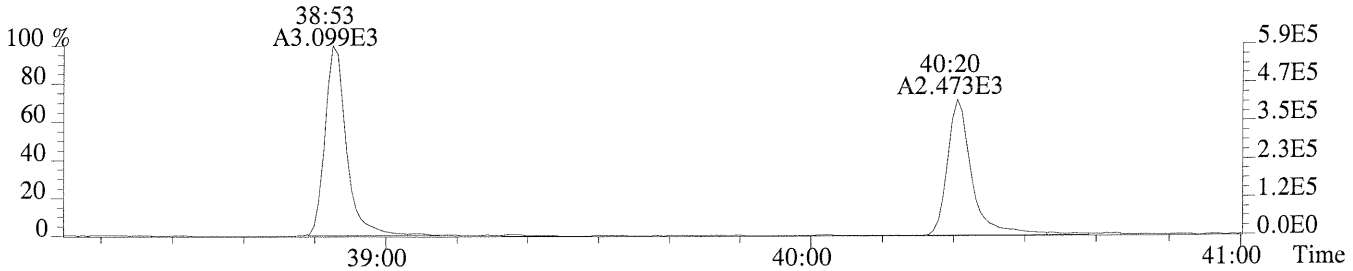
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



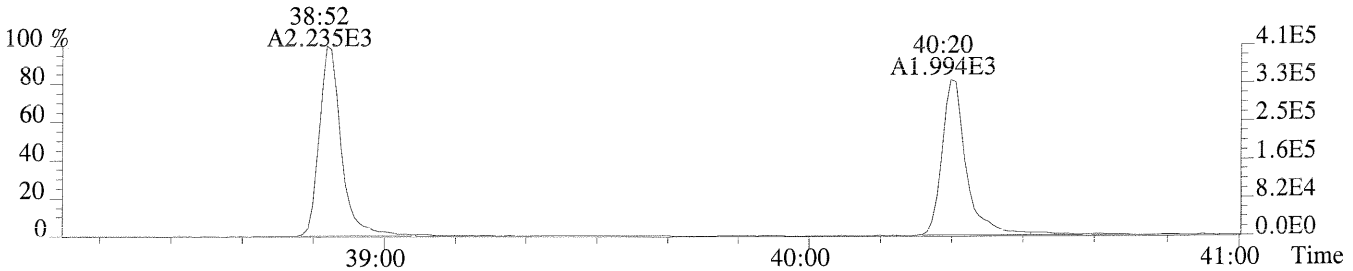
File:U149829 #1-251 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.50%,F,T)



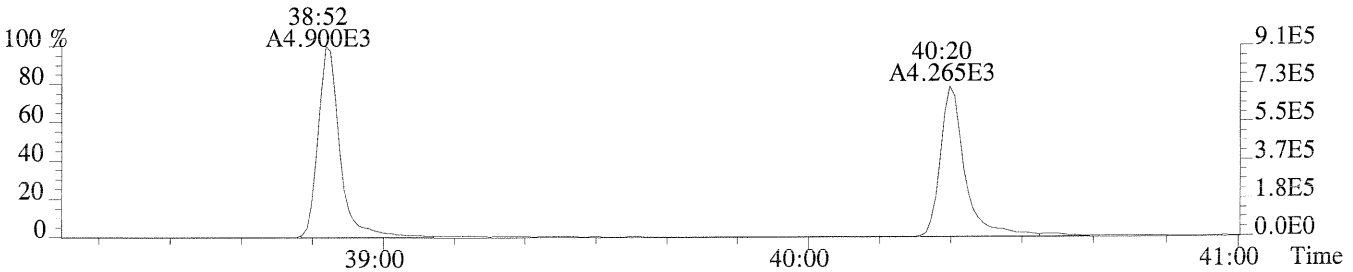
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.50%,F,T)



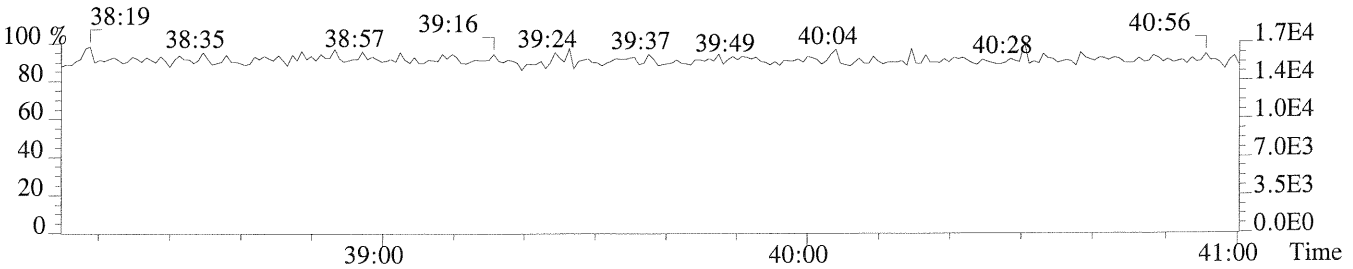
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.50%,F,T)



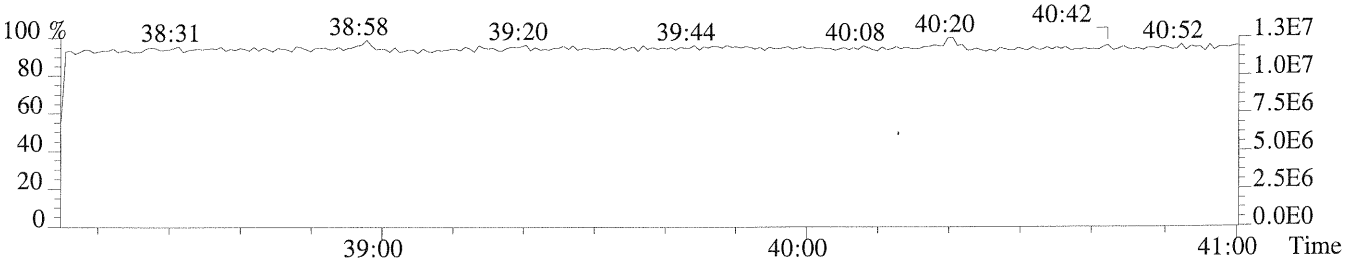
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.50%,F,T)



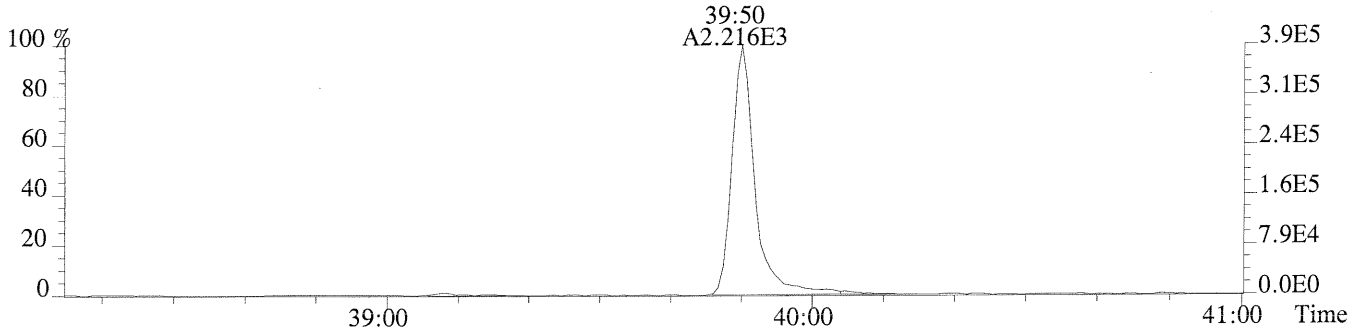
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



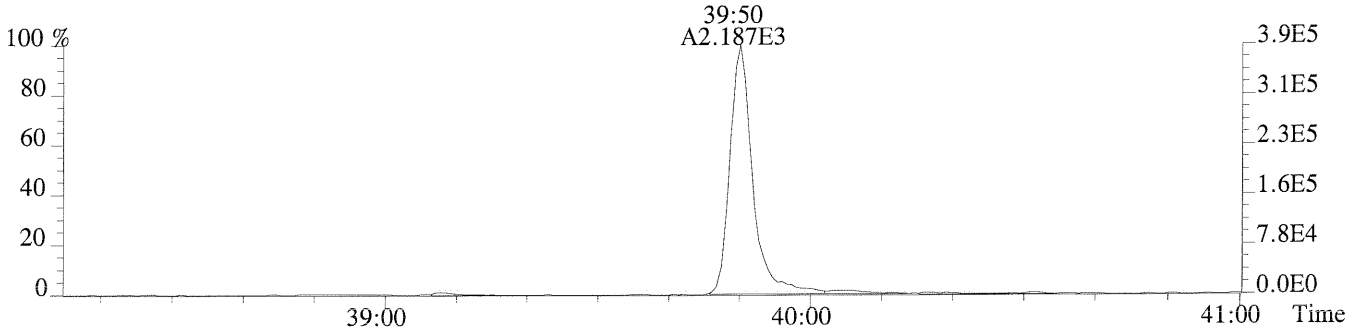
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



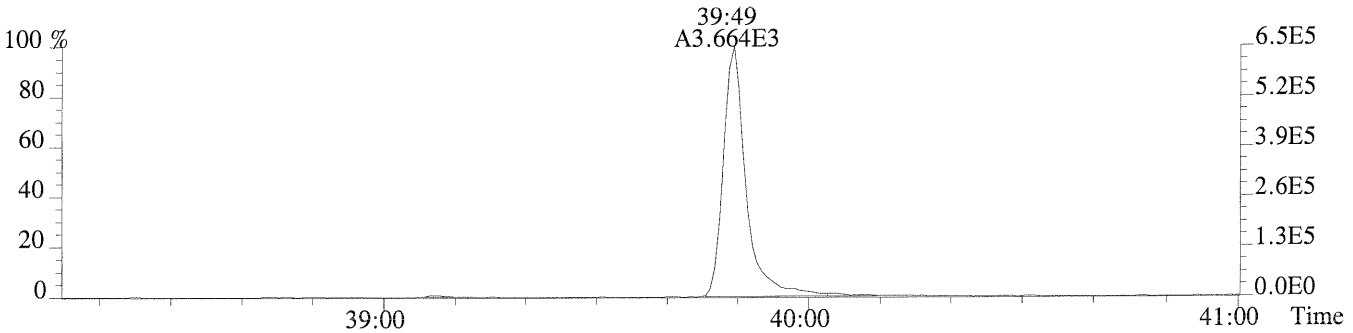
File:U149829 #1-251 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



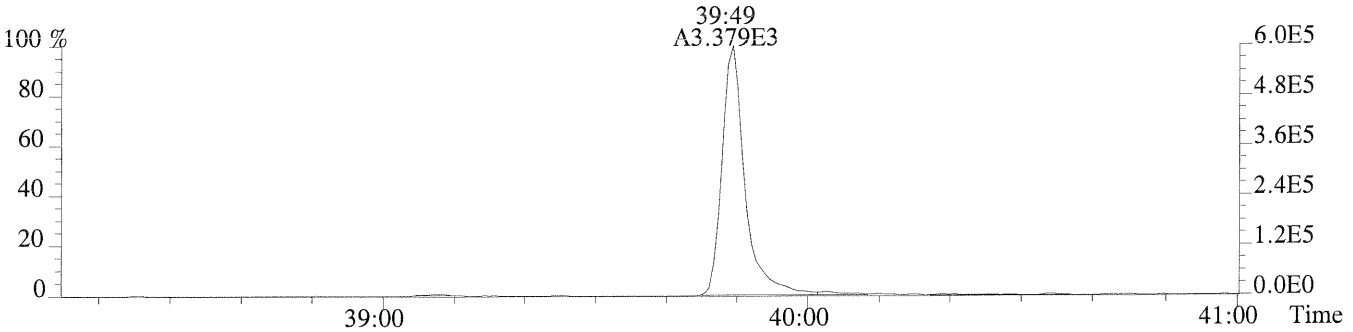
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



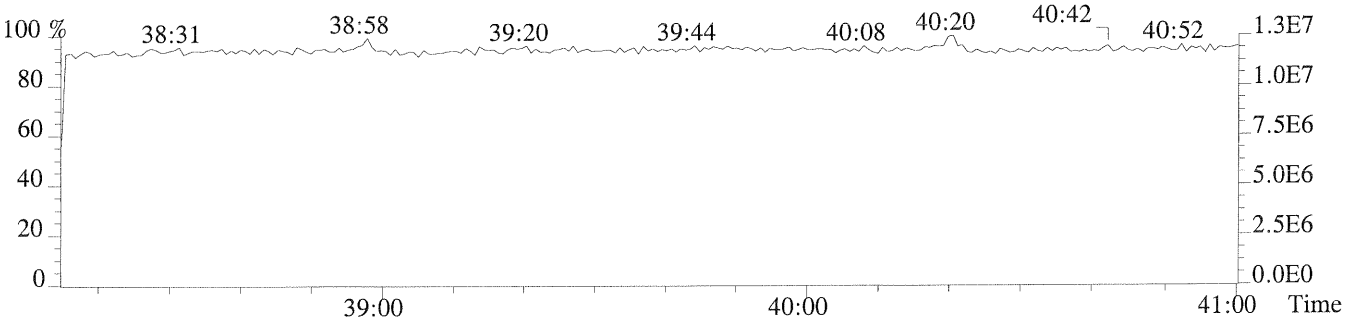
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



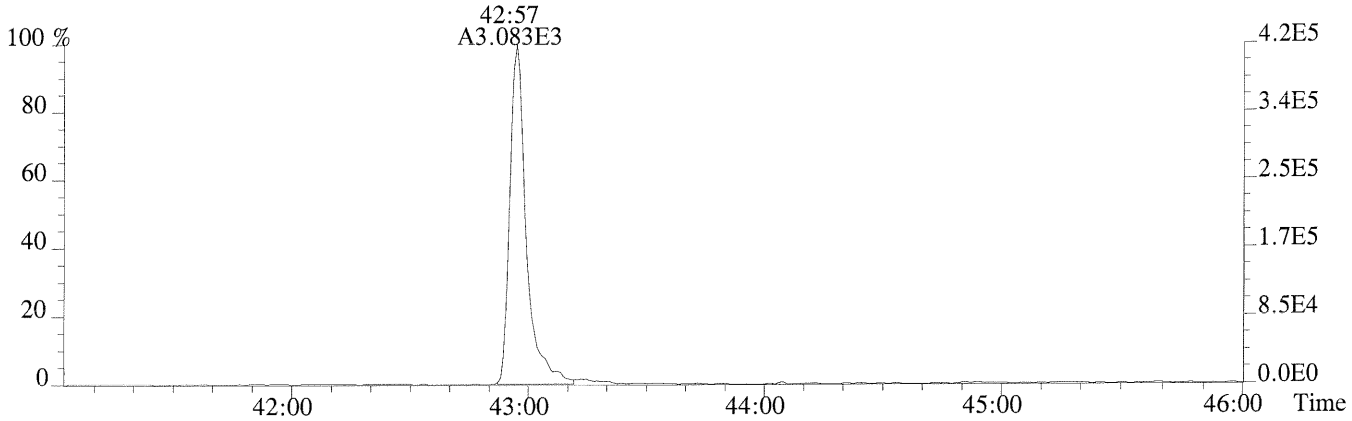
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



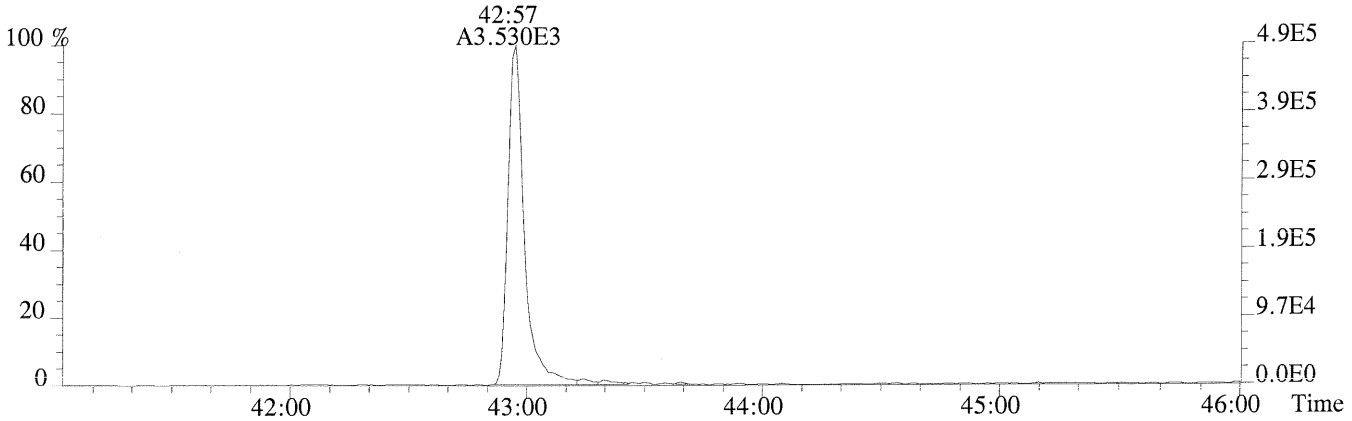
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



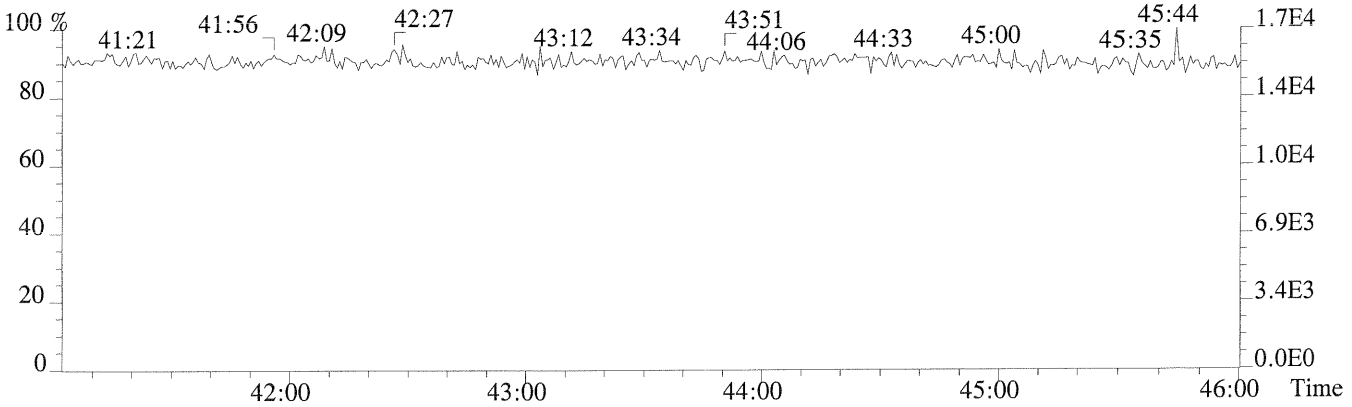
File:U149829 #1-451 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



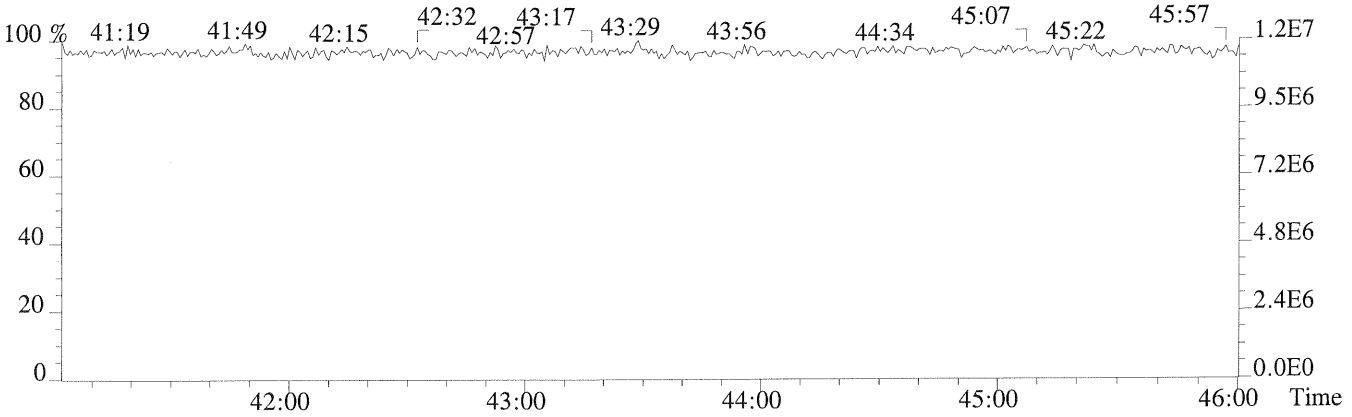
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



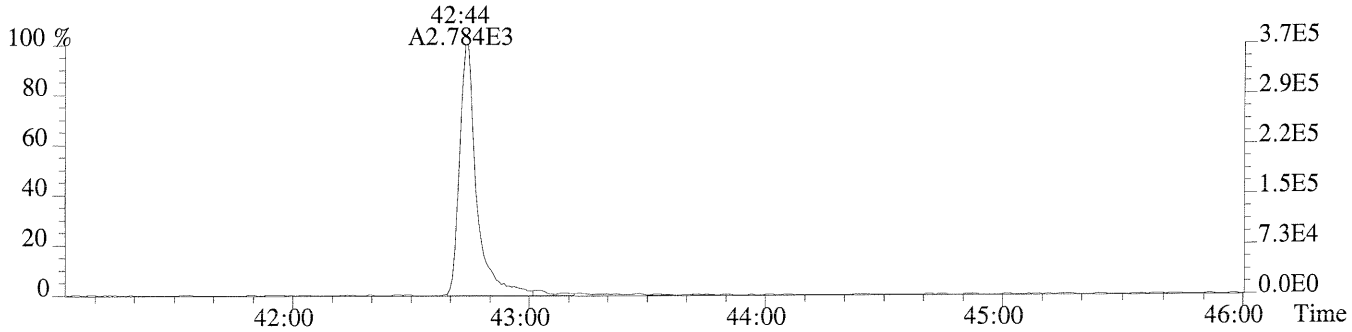
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



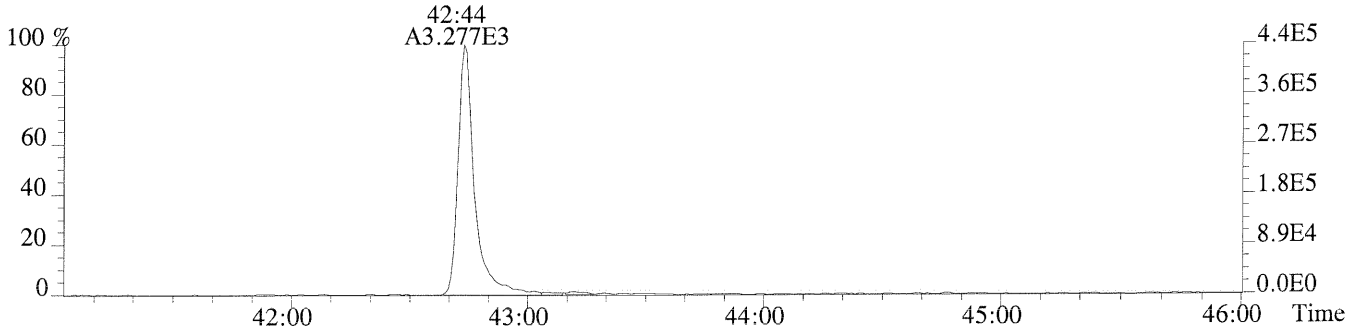
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



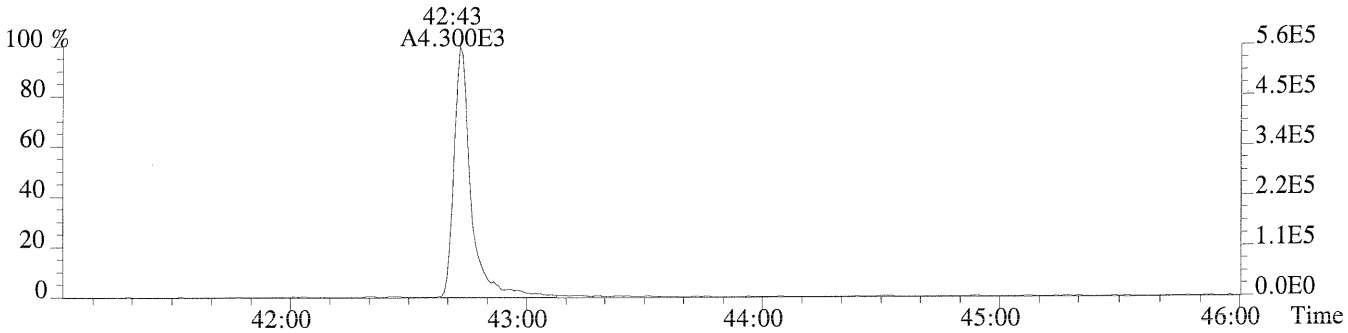
File:U149829 #1-451 Acq: 2-JUL-2014 22:35:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-02
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,520.0,0.40%,F,T)



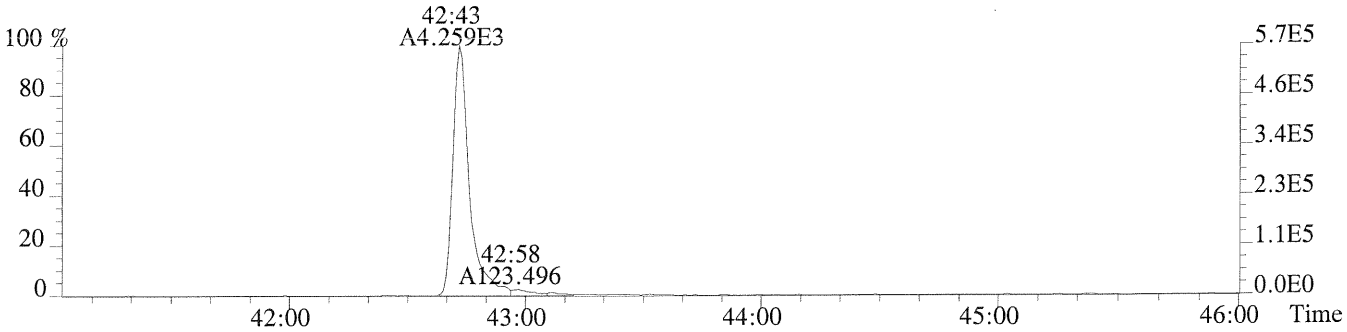
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,584.0,0.40%,F,T)



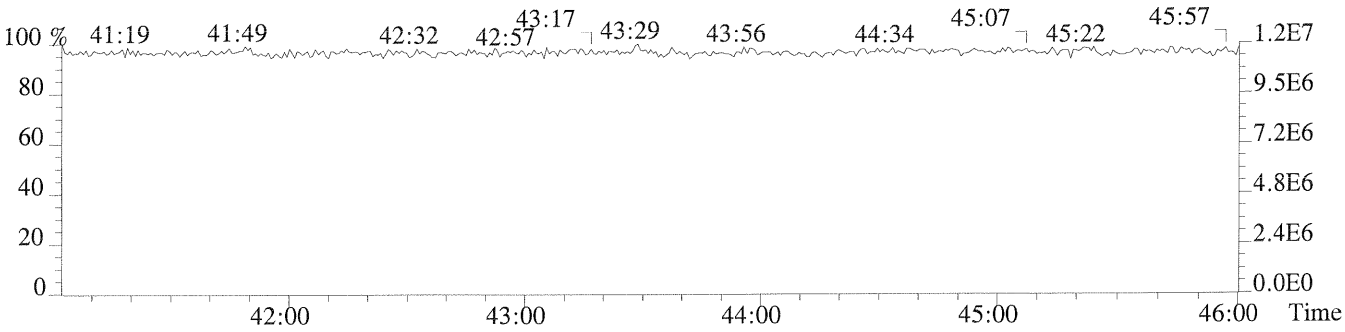
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,652.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406111503 20

Run #7 Filename P229940 Samp: 1 Inj: 1 Acquired: 3-JUL-14 06:55:00
Processed: 7-JUL-14 10:57:49 Sample ID: EQ1400342-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:40	6.331e+02	8.022e+02	0.79	yes	no	0.929
2	Unk	1,2,3,7,8-PeCDF	32:46	7.436e+03	4.729e+03	1.57	yes	no	1.048
3	Unk	2,3,4,7,8-PeCDF	33:39	6.530e+03	4.247e+03	1.54	yes	no	0.976
4	Unk	1,2,3,4,7,8-HxCDF	36:16	6.346e+03	4.954e+03	1.28	yes	no	1.254
5	Unk	1,2,3,6,7,8-HxCDF	36:23	7.456e+03	6.070e+03	1.23	yes	no	1.147
6	Unk	2,3,4,6,7,8-HxCDF	36:52	6.391e+03	5.184e+03	1.23	yes	no	1.161
7	Unk	1,2,3,7,8,9-HxCDF	37:37	5.851e+03	4.533e+03	1.29	yes	no	1.169
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	6.137e+03	6.168e+03	1.00	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:17	4.772e+03	4.630e+03	1.03	yes	no	1.309
10	Unk	OCDF	42:51	7.180e+03	8.044e+03	0.89	yes	no	1.462
11	Unk	2,3,7,8-TCDD	29:26	4.735e+02	5.653e+02	0.84	yes	no	0.989
12	Unk	1,2,3,7,8-PeCDD	33:55	4.827e+03	3.041e+03	1.59	yes	no	1.014
13	Unk	1,2,3,4,7,8-HxCDD	37:00	4.618e+03	3.565e+03	1.30	yes	no	1.114
14	Unk	1,2,3,6,7,8-HxCDD	37:04	4.699e+03	3.871e+03	1.21	yes	no	1.115
15	Unk	1,2,3,7,8,9-HxCDD	37:19	5.203e+03	4.010e+03	1.30	yes	no	1.207
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	4.175e+03	4.086e+03	1.02	yes	no	1.091
17	Unk	OCDD	42:37	6.266e+03	6.822e+03	0.92	yes	no	1.183
18	IS	13C-2,3,7,8-TCDF	28:39	4.827e+03	6.177e+03	0.78	yes	no	1.518
19	IS	13C-1,2,3,7,8-PeCDF	32:45	1.094e+04	6.808e+03	1.61	yes	no	2.114
20	IS	13C-2,3,4,7,8-PeCDF	33:38	1.061e+04	6.551e+03	1.62	yes	no	2.137
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	4.639e+03	9.286e+03	0.50	yes	no	1.126
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	6.733e+03	1.313e+04	0.51	yes	no	1.405
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	6.059e+03	1.169e+04	0.52	yes	no	1.260
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	4.795e+03	9.364e+03	0.51	yes	no	1.145
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	3.919e+03	9.228e+03	0.42	yes	no	1.049
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	3.374e+03	7.905e+03	0.43	yes	no	0.926
27	IS	13C-2,3,7,8-TCDD	29:24	3.197e+03	4.114e+03	0.78	yes	no	0.993
28	IS	13C-1,2,3,7,8-PeCDD	33:54	7.887e+03	4.947e+03	1.59	yes	no	1.363
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	6.904e+03	5.354e+03	1.29	yes	no	0.821
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	7.292e+03	5.687e+03	1.28	yes	no	0.960
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	6.526e+03	5.808e+03	1.12	yes	no	0.936
32	IS	13C-OCDD	42:37	8.360e+03	9.210e+03	0.91	yes	no	0.735
33	RS/RT	13C-1,2,3,4-TCDD	28:50	6.725e+03	8.739e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.239e+04	9.320e+03	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	2.887e+03				no	0.993

$$\text{OCDD} = \frac{(6.266e+03 + 6.822e+03) \times 4000 \text{ pg} \times 1}{(8.360e+03 + 9.210e+03) \times 10.14 \text{ g} \times 95.2 \times 1.183} = 260.891 \text{ ng/kg}$$

MLO 7/08/14

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406111503 200-S

Run #7 Filename P229940 Samp: 1 Inj: 1 Acquired: 3-JUL-14 06:55:00
Processed: 7-JUL-14 10:57:491 LAB. ID: EQ1400342-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.23e+05	1.68e+02	7.3e+02	1.41e+05	9.68e+02	1.5e+02
2	1,2,3,7,8-PeCDF	1.23e+06	1.44e+02	8.5e+03	7.90e+05	1.06e+03	7.4e+02
3	2,3,4,7,8-PeCDF	1.18e+06	1.44e+02	8.2e+03	7.57e+05	1.06e+03	7.1e+02
4	1,2,3,4,7,8-HxCDF	1.26e+06	2.36e+02	5.3e+03	1.00e+06	8.80e+01	1.1e+04
5	1,2,3,6,7,8-HxCDF	1.34e+06	2.36e+02	5.7e+03	1.11e+06	8.80e+01	1.3e+04
6	2,3,4,6,7,8-HxCDF	1.21e+06	2.36e+02	5.1e+03	1.00e+06	8.80e+01	1.1e+04
7	1,2,3,7,8,9-HxCDF	1.03e+06	2.36e+02	4.4e+03	8.15e+05	8.80e+01	9.3e+03
8	1,2,3,4,6,7,8-HpCDF	1.14e+06	5.68e+02	2.0e+03	1.12e+06	7.76e+02	1.4e+03
9	1,2,3,4,7,8,9-HpCDF	7.57e+05	5.68e+02	1.3e+03	7.40e+05	7.76e+02	9.5e+02
10	OCDF	9.34e+05	1.72e+02	5.4e+03	1.09e+06	5.48e+02	2.0e+03
11	2,3,7,8-TCDD	9.30e+04	4.56e+02	2.0e+02	1.09e+05	2.48e+02	4.4e+02
12	1,2,3,7,8-PeCDD	8.47e+05	4.24e+02	2.0e+03	5.35e+05	7.60e+01	7.0e+03
13	1,2,3,4,7,8-HxCDD	9.65e+05	7.60e+01	1.3e+04	7.28e+05	3.00e+02	2.4e+03
14	1,2,3,6,7,8-HxCDD	8.44e+05	7.60e+01	1.1e+04	7.11e+05	3.00e+02	2.4e+03
15	1,2,3,7,8,9-HxCDD	9.50e+05	7.60e+01	1.3e+04	7.29e+05	3.00e+02	2.4e+03
16	1,2,3,4,6,7,8-HpCDD	7.10e+05	2.24e+02	3.2e+03	6.90e+05	1.04e+02	6.6e+03
17	OCDD	8.34e+05	5.60e+01	1.5e+04	9.43e+05	3.28e+02	2.9e+03
18	13C-2,3,7,8-TCDF	9.12e+05	5.24e+02	1.7e+03	1.15e+06	5.92e+02	1.9e+03
19	13C-1,2,3,7,8-PeCDF	1.86e+06	6.40e+01	2.9e+04	1.15e+06	6.88e+02	1.7e+03
20	13C-2,3,4,7,8-PeCDF	1.92e+06	6.40e+01	3.0e+04	1.17e+06	6.88e+02	1.7e+03
21	13C-1,2,3,4,7,8-HxCDF	9.08e+05	2.56e+02	3.5e+03	1.84e+06	6.36e+02	2.9e+03
22	13C-1,2,3,6,7,8-HxCDF	1.23e+06	2.56e+02	4.8e+03	2.41e+06	6.36e+02	3.8e+03
23	13C-2,3,4,6,7,8-HxCDF	1.17e+06	2.56e+02	4.6e+03	2.25e+06	6.36e+02	3.5e+03
24	13C-1,2,3,7,8,9-HxCDF	8.63e+05	2.56e+02	3.4e+03	1.68e+06	6.36e+02	2.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.10e+05	6.80e+02	1.0e+03	1.69e+06	1.42e+03	1.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.33e+05	6.80e+02	7.8e+02	1.27e+06	1.42e+03	9.0e+02
27	13C-2,3,7,8-TCDD	6.20e+05	2.23e+03	2.8e+02	8.15e+05	6.96e+02	1.2e+03
28	13C-1,2,3,7,8-PeCDD	1.40e+06	4.16e+02	3.4e+03	8.78e+05	2.36e+02	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	1.43e+06	4.20e+02	3.4e+03	1.10e+06	3.64e+02	3.0e+03
30	13C-1,2,3,6,7,8-HxCDD	1.34e+06	4.20e+02	3.2e+03	1.04e+06	3.64e+02	2.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.10e+06	4.88e+02	2.3e+03	1.00e+06	4.40e+01	2.3e+04
32	13C-OCDD	1.15e+06	3.40e+02	3.4e+03	1.26e+06	2.44e+02	5.2e+03
33	13C-1,2,3,4-TCDD	1.33e+06	2.23e+03	6.0e+02	1.72e+06	6.96e+02	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	2.25e+06	4.20e+02	5.4e+03	1.70e+06	3.64e+02	4.7e+03
35	37Cl-2,3,7,8-TCDD	5.52e+05	1.56e+02	3.5e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 36 Totals Name: Total Tetra-Furans

Run: 7 File: P229940 Sample: 1 Injection: 1 Function: 1
Llim: 24:08 Ulim: 30:37
Acquired: 3-JUL-14 06:55:00 Processed: 7-JUL-14 10:57:49
Mass: 303.9020 305.8990 Tot Response: 1.53e+03 RRF: 0.9290

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:24	3.92e+01	5.29e+01	0.74	yes	9.21e+01		n	n
2	28:40	6.33e+02	8.02e+02	0.79	yes	1.44e+03	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 7 File: P229940 Sample: 1 Injection: 1 Function: 1
Llim: 26:02 Ulim: 30:25
Acquired: 3-JUL-14 06:55:00 Processed: 7-JUL-14 10:57:49
Mass: 319.8970 321.8940 Tot Response: 1.04e+03 RRF: 0.9891

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:26	4.73e+02	5.65e+02	0.84	yes	1.04e+03	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 39 Totals Name: Total Penta-Furan2

Run: 7 File: P229940 Sample: 1 Injection: 1 Function: 2
Llim: 30:18 Ulim: 34:43
Acquired: 3-JUL-14 06:55:00 Processed: 7-JUL-14 10:57:49
Mass: 339.8600 341.8570 Tot Response: 2.32e+04 RRF: 1.012

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:50	1.42e+02	9.64e+01	1.47	yes	2.38e+02		n	n
2	32:46	7.44e+03	4.73e+03	1.57	yes	1.22e+04	1,2,3,7,8-PeCDF	n	n
3	33:39	6.53e+03	4.25e+03	1.54	yes	1.08e+04	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 7 File: P229940 Sample: 1 Injection: 1 Function: 2
Llim: 31:47 Ulim: 34:26
Acquired: 3-JUL-14 06:55:00 Processed: 7-JUL-14 10:57:49
Mass: 355.8550 357.8520 Tot Response: 7.87e+03 RRF: 1.014

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:55	4.83e+03	3.04e+03	1.59	yes	7.87e+03	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 41 Totals Name: Total Hexa-Furans

Run: 7 File: P229940 Sample: 1 Injection: 1 Function: 3
Llim: 35:05 Ulim: 37:49
Acquired: 3-JUL-14 06:55:00 Processed: 7-JUL-14 10:57:49
Mass: 373.8210 375.8180 Tot Response: 4.68e+04 RRF: 1.180

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:16	6.35e+03	4.95e+03	1.28	yes	1.13e+04	1,2,3,4,7,8-HxCDF	n	n
2	36:23	7.46e+03	6.07e+03	1.23	yes	1.35e+04	1,2,3,6,7,8-HxCDF	n	n
3	36:52	6.39e+03	5.18e+03	1.23	yes	1.16e+04	2,3,4,6,7,8-HxCDF	n	n
4	37:37	5.85e+03	4.53e+03	1.29	yes	1.04e+04	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 7 File: P229940 Sample: 1 Injection: 1 Function: 3
Llim: 35:36 Ulim: 37:24
Acquired: 3-JUL-14 06:55:00 Processed: 7-JUL-14 10:57:49
Mass: 389.8160 391.8130 Tot Response: 2.60e+04 RRF: 1.145

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:00	4.62e+03	3.56e+03	1.30	yes	8.18e+03	1,2,3,4,7,8-HxCDD	n	n
2	37:04	4.70e+03	3.87e+03	1.21	yes	8.57e+03	1,2,3,6,7,8-HxCDD	n	n
3	37:19	5.20e+03	4.01e+03	1.30	yes	9.21e+03	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 43 Totals Name: Total Hepta-Furans

Run: 7 File: P229940 Sample: 1 Injection: 1 Function: 4
Llim: 38:46 Ulim: 40:28
Acquired: 3-JUL-14 06:55:00 Processed: 7-JUL-14 10:57:49
Mass: 407.7820 409.7790 Tot Response: 2.17e+04 RRF: 1.343

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:51	6.14e+03	6.17e+03 1.00	yes	1.23e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	40:17	4.77e+03	4.63e+03 1.03	yes	9.40e+03	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 7 File: P229940 Sample: 1 Injection: 1 Function: 4
Llim: 39:01 Ulim: 39:57
Acquired: 3-JUL-14 06:55:00 Processed: 7-JUL-14 10:57:49
Mass: 423.7770 425.7740 Tot Response: 8.26e+03 RRF: 1.091

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:47	4.18e+03	4.09e+03 1.02	yes	8.26e+03	1,2,3,4,6,7,8-HpCDD	n	n

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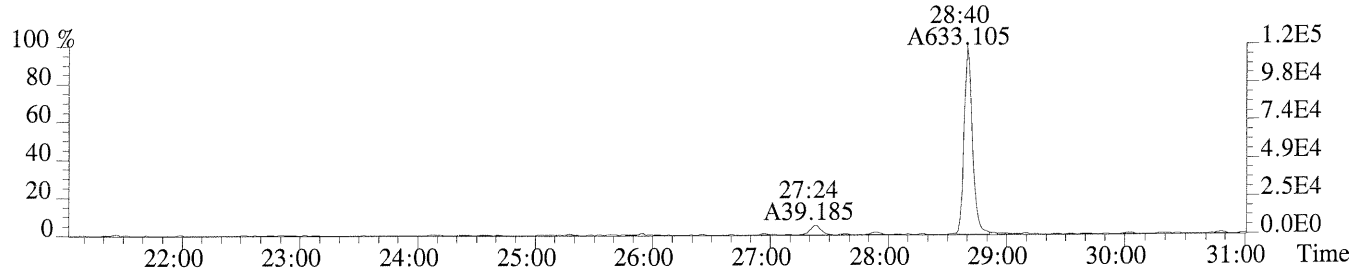
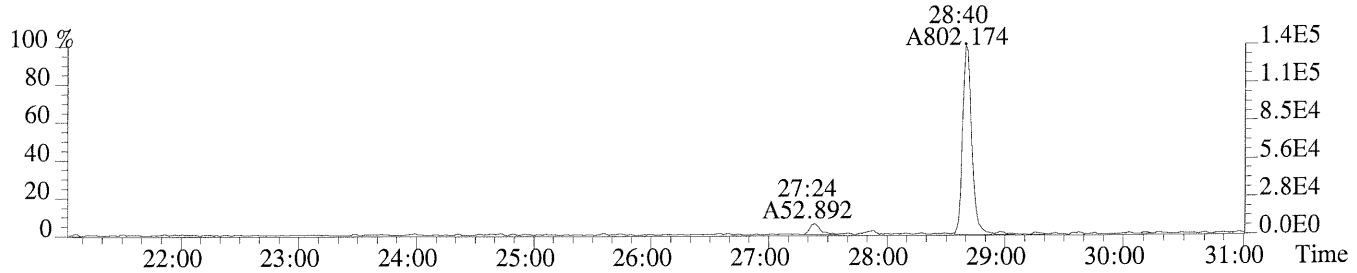
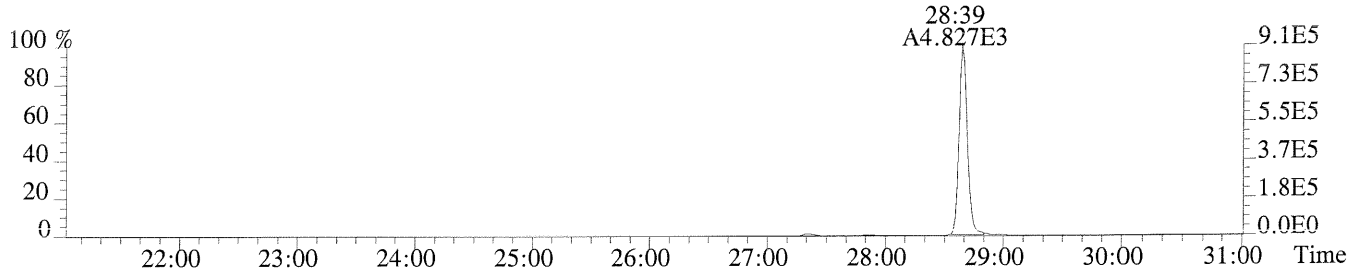
File:P229940 #1-627 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



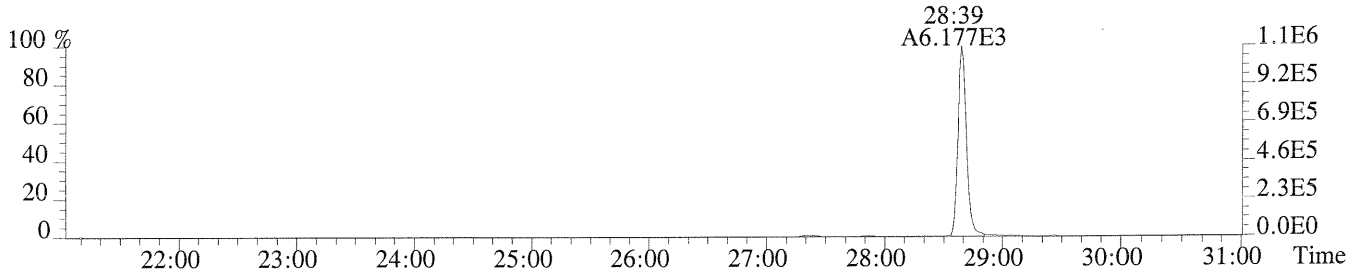
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



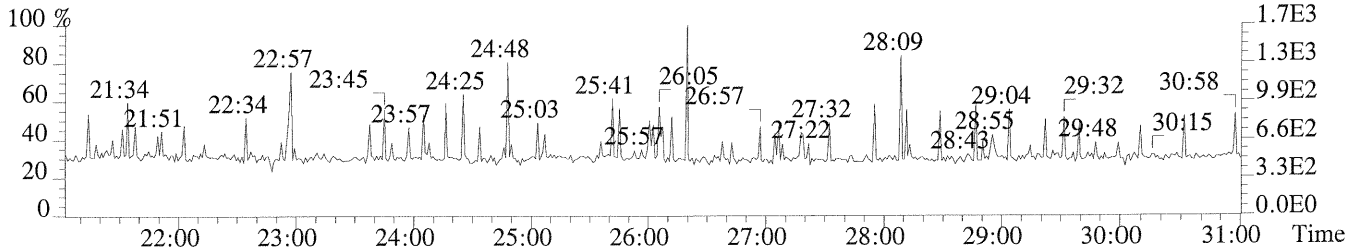
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



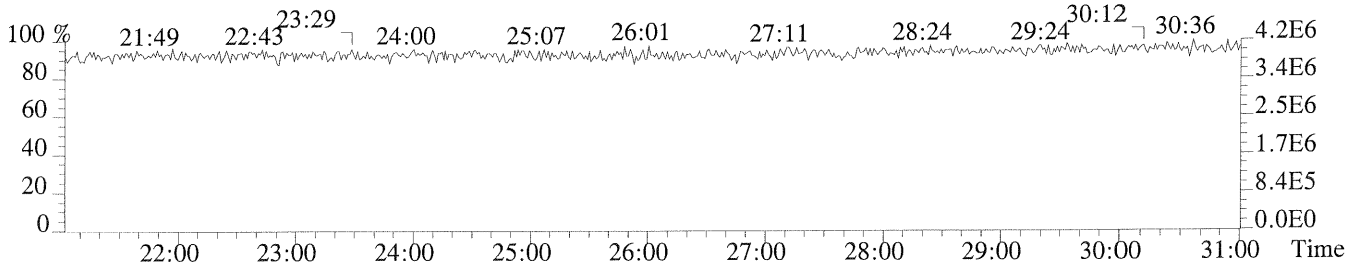
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



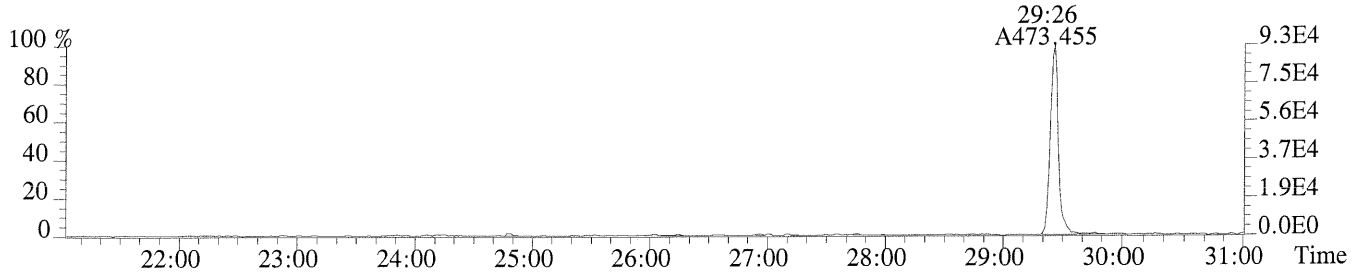
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



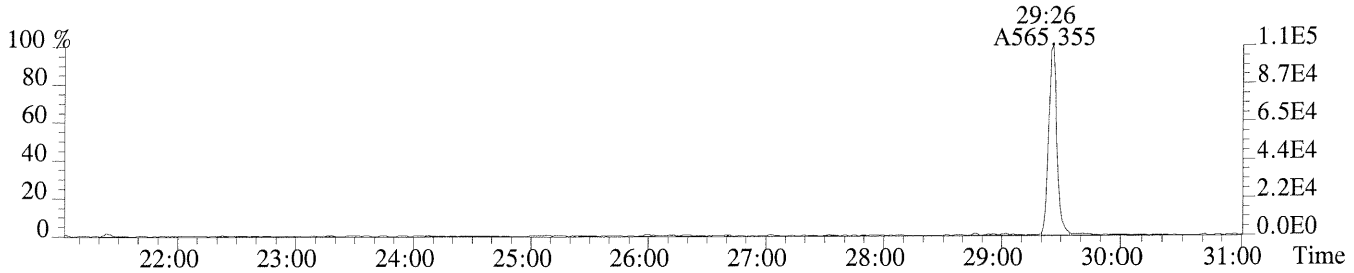
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



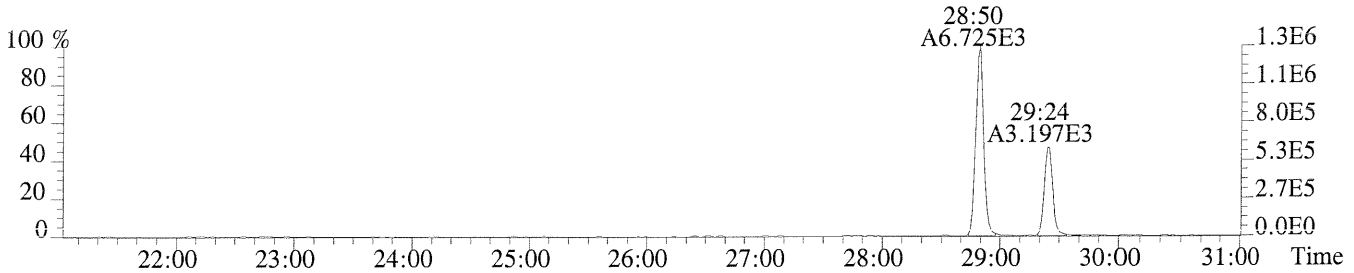
File:P229940 #1-627 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



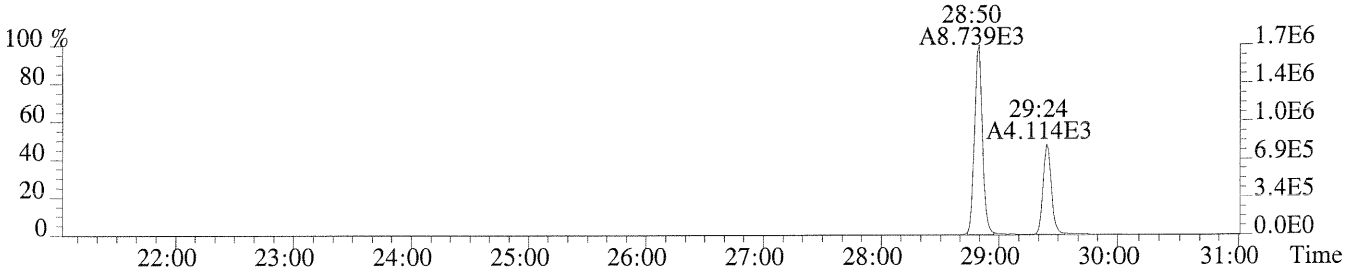
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



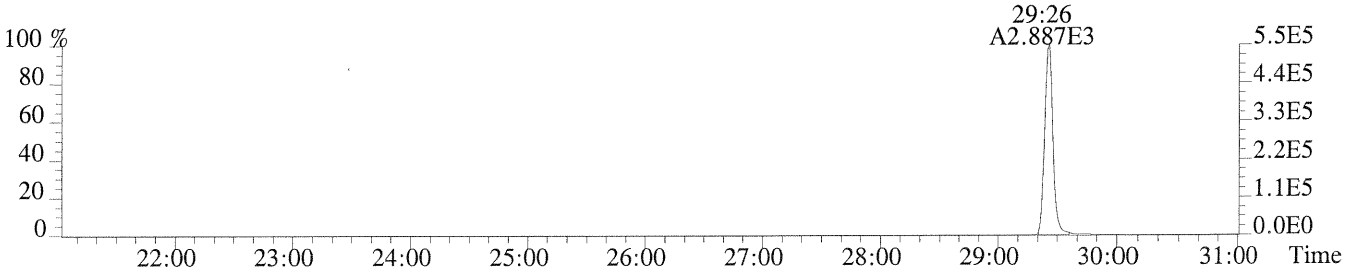
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2228.0,1.00%,F,T)



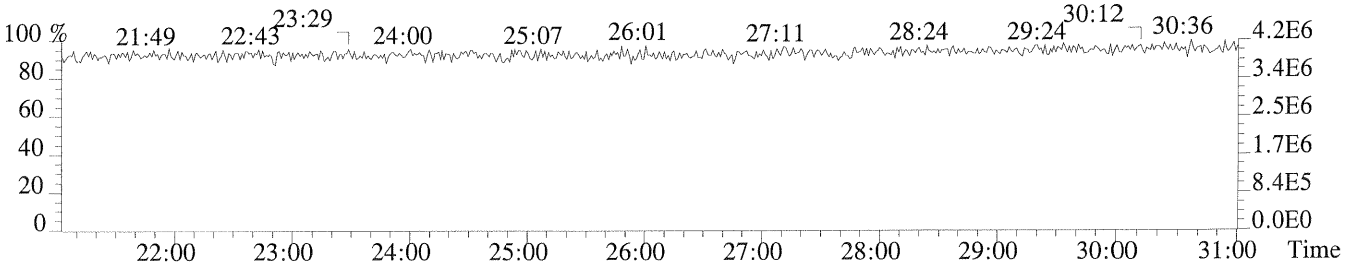
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



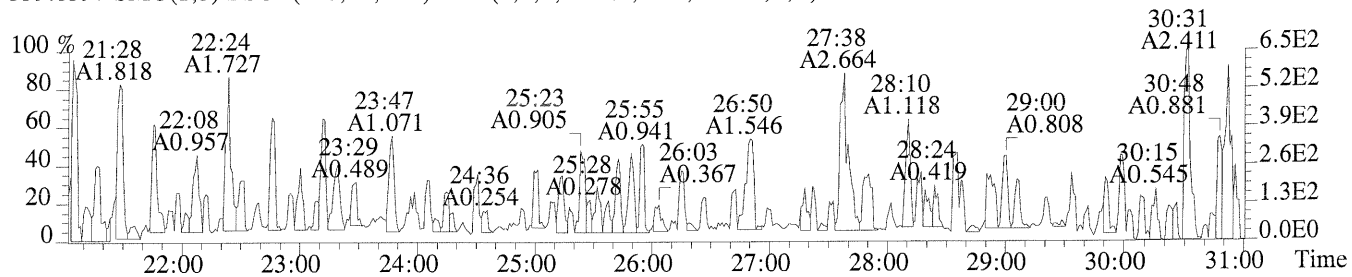
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,156.0,1.00%,F,T)



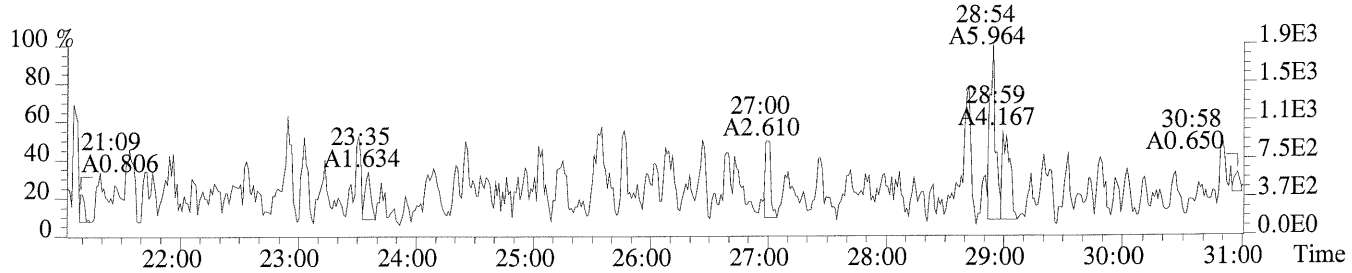
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



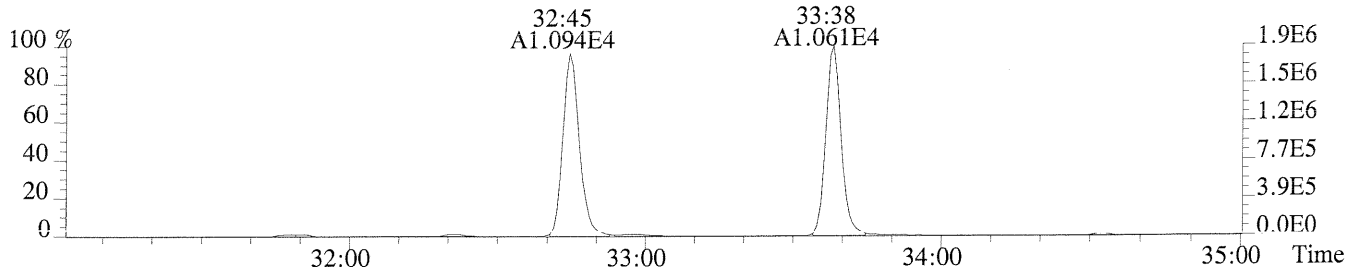
File:P229940 #1-627 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,72.0,1.00%,F,T)



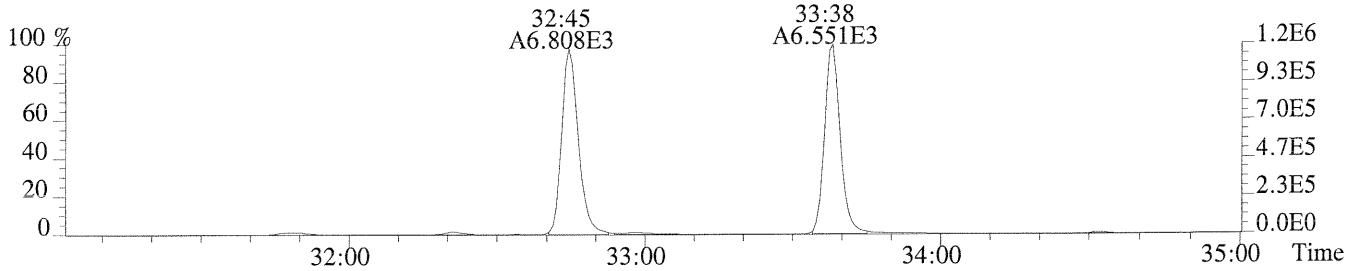
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



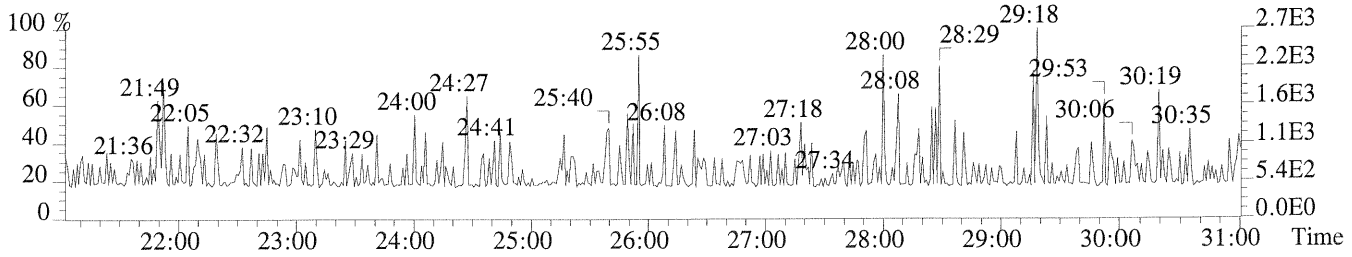
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,64.0,1.00%,F,T)



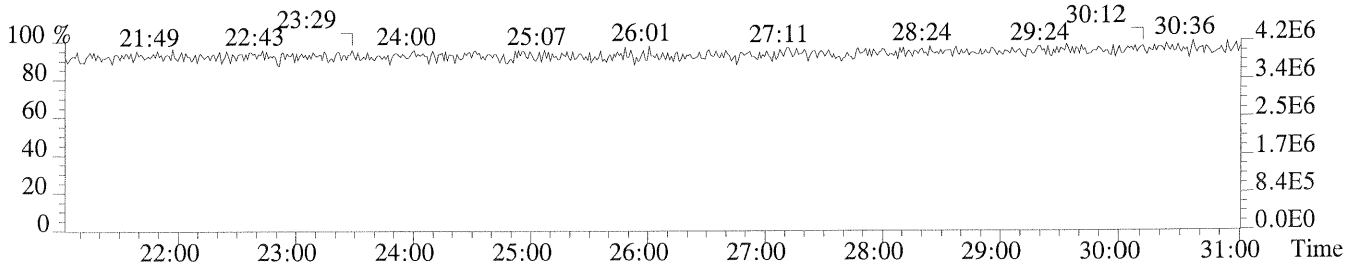
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

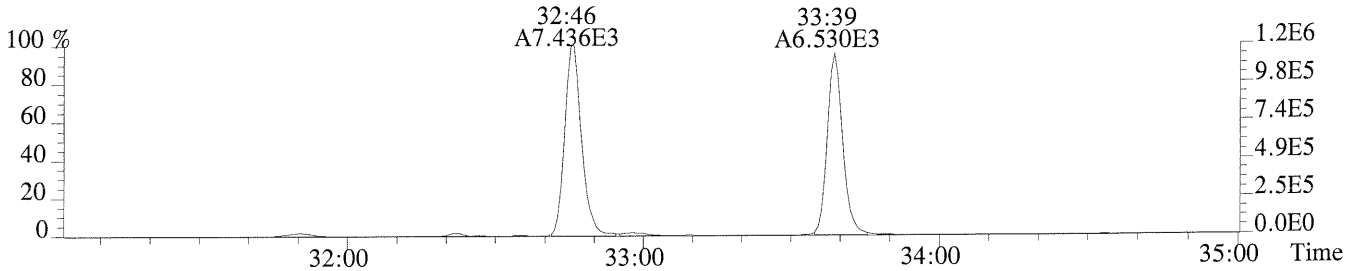


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

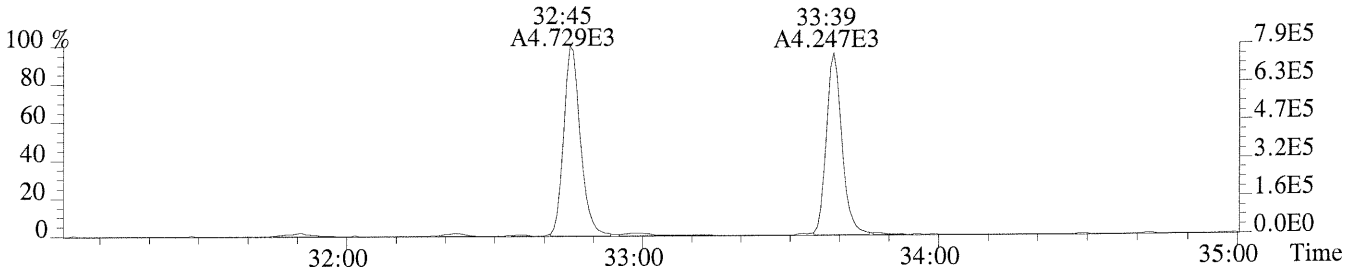


File:P229940 #1-360 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03

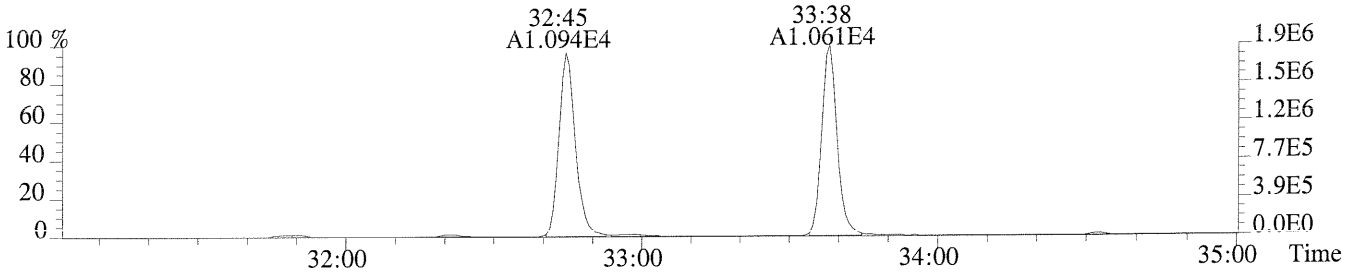
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,144.0,1.00%,F,T)



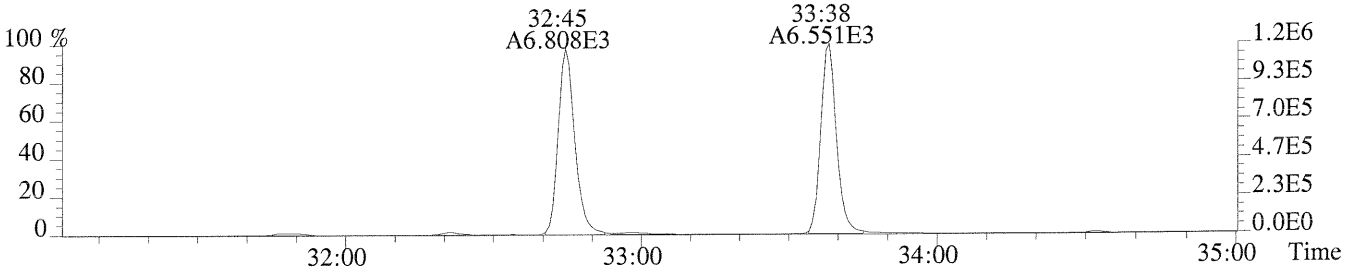
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



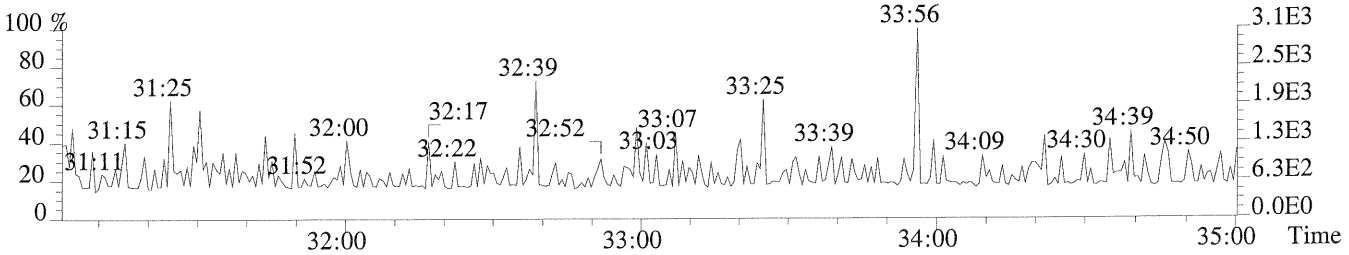
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,64.0,1.00%,F,T)



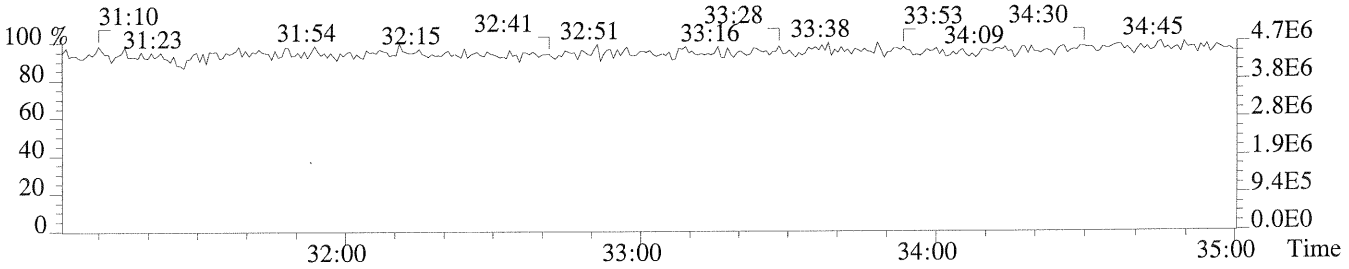
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



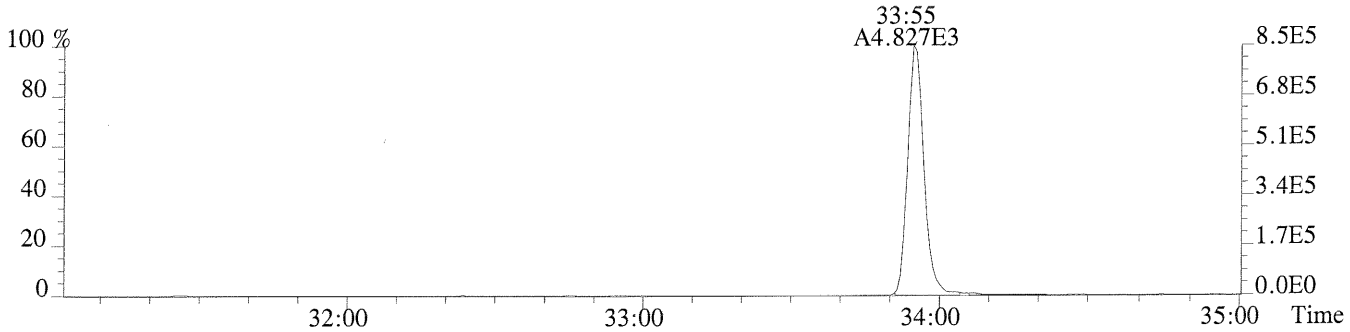
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



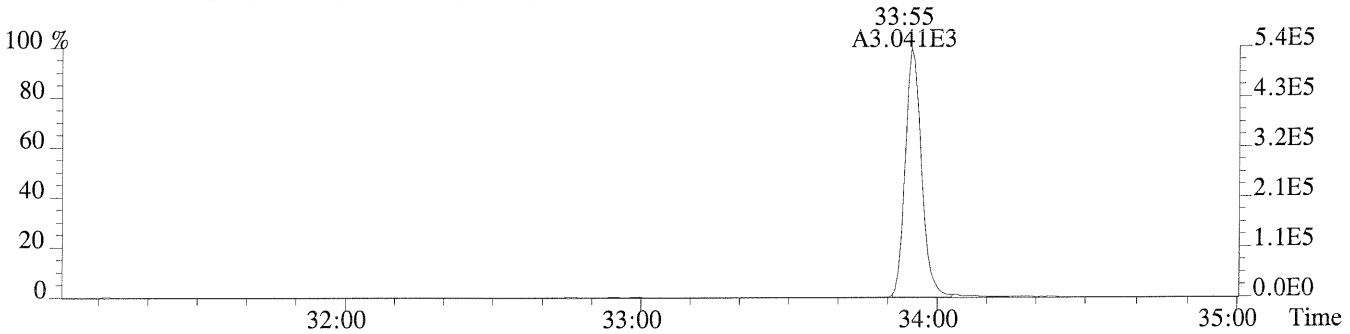
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



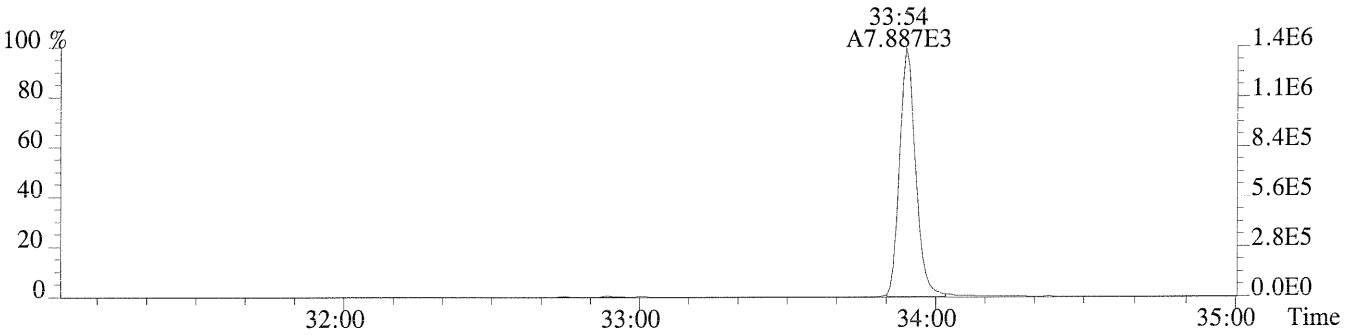
File:P229940 #1-360 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



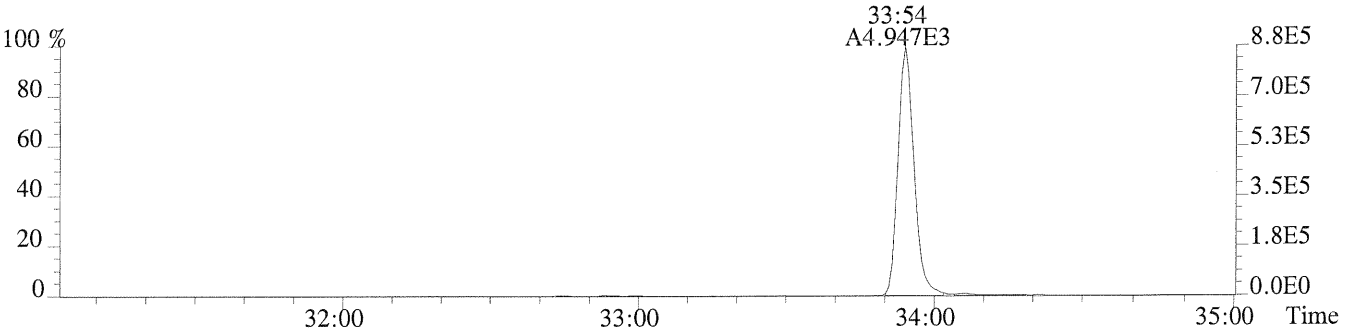
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,76.0,1.00%,F,T)



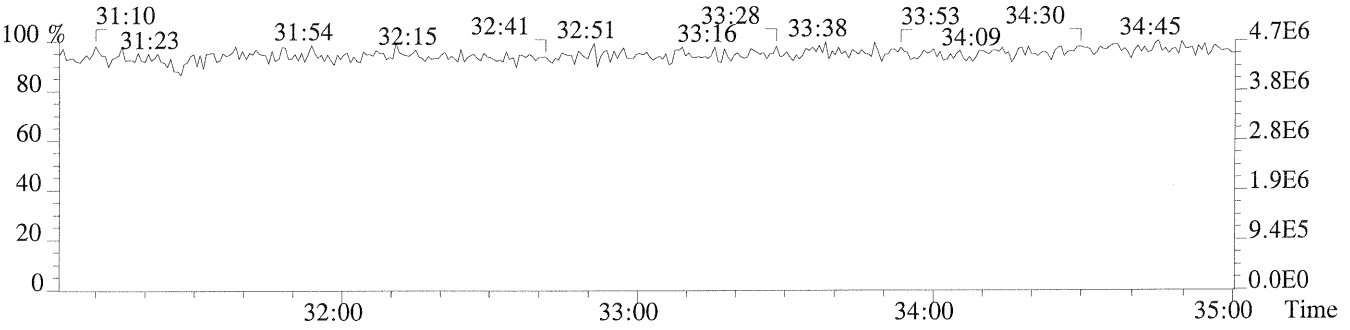
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)

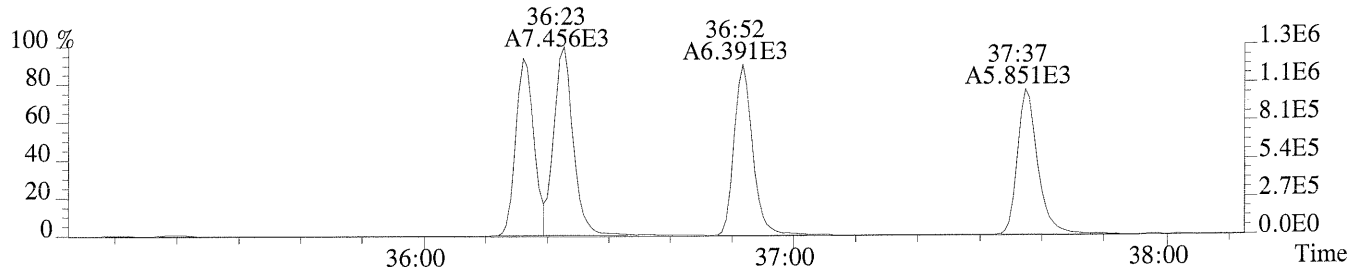


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

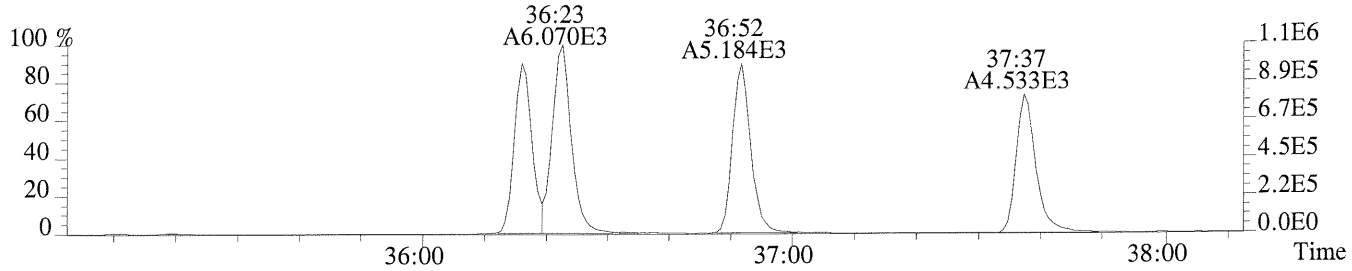


File:P229940 #1-288 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03

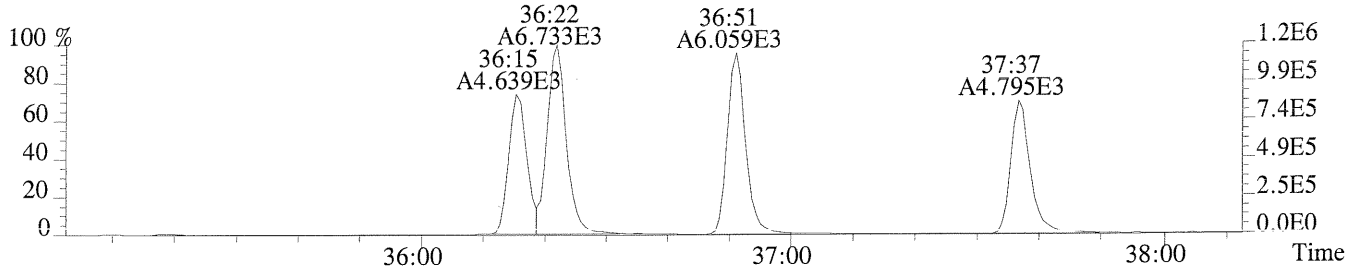
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



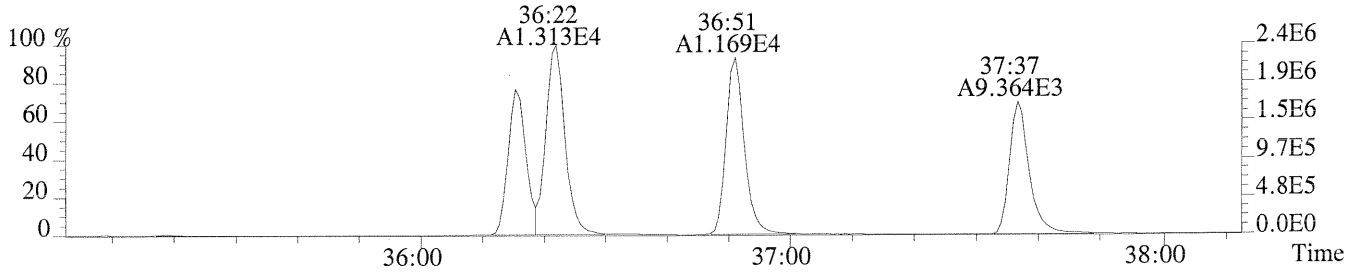
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,88.0,0.40%,F,T)



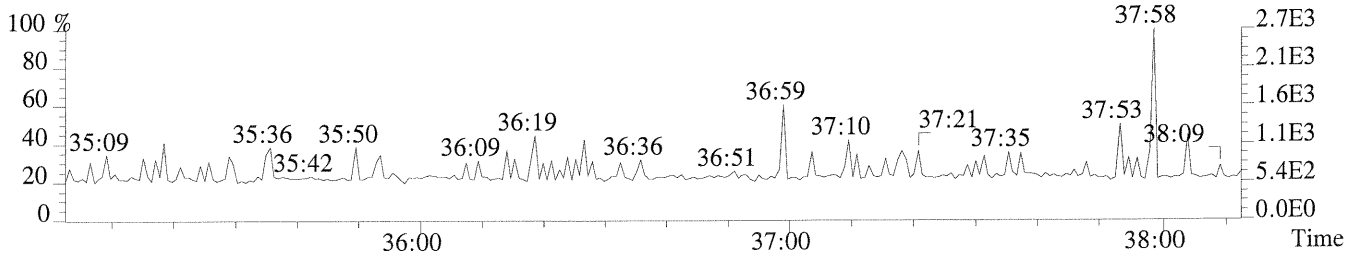
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



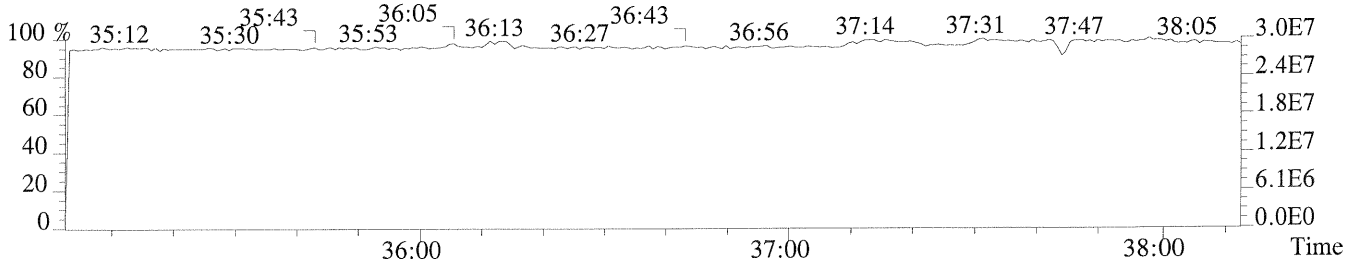
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



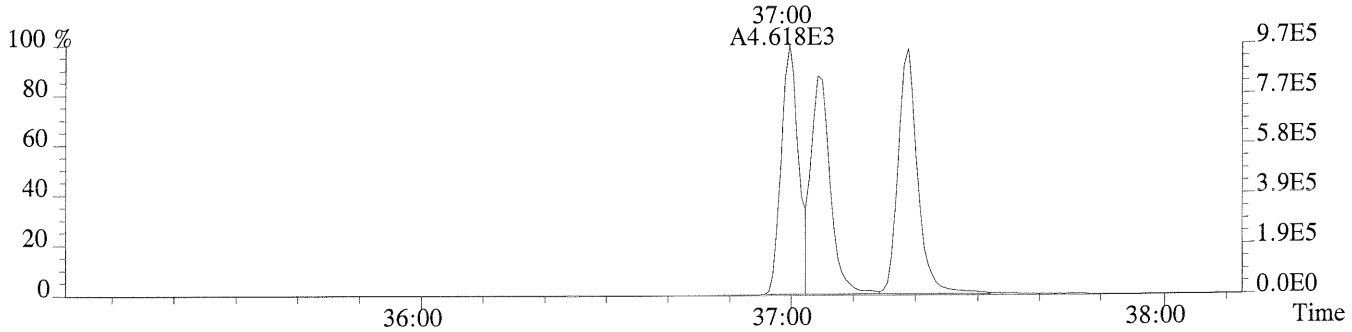
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



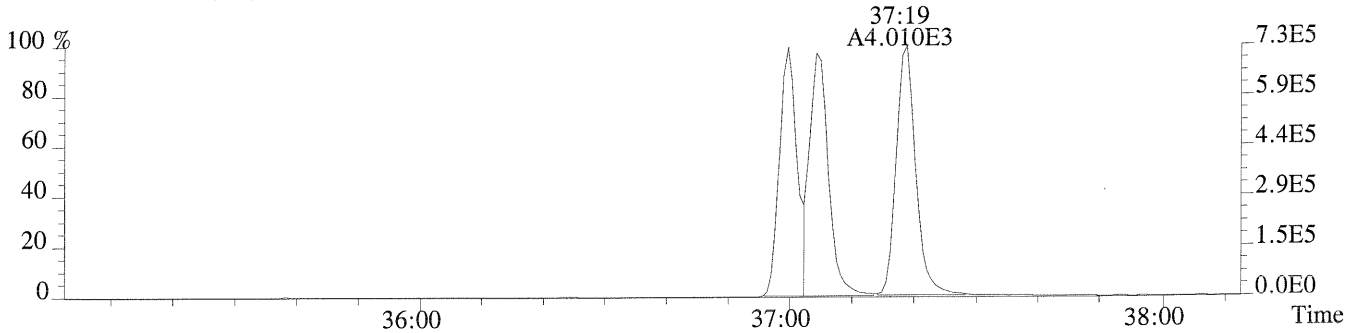
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



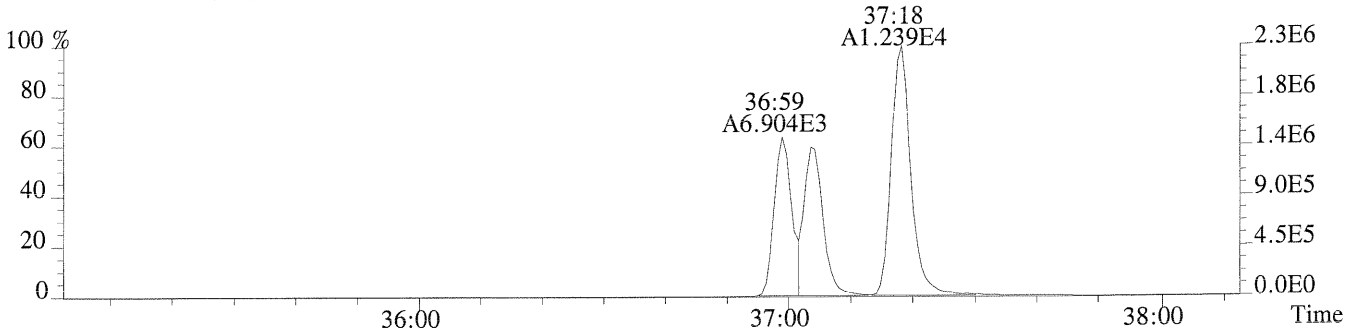
File:P229940 #1-288 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,76.0,0.40%,F,T)



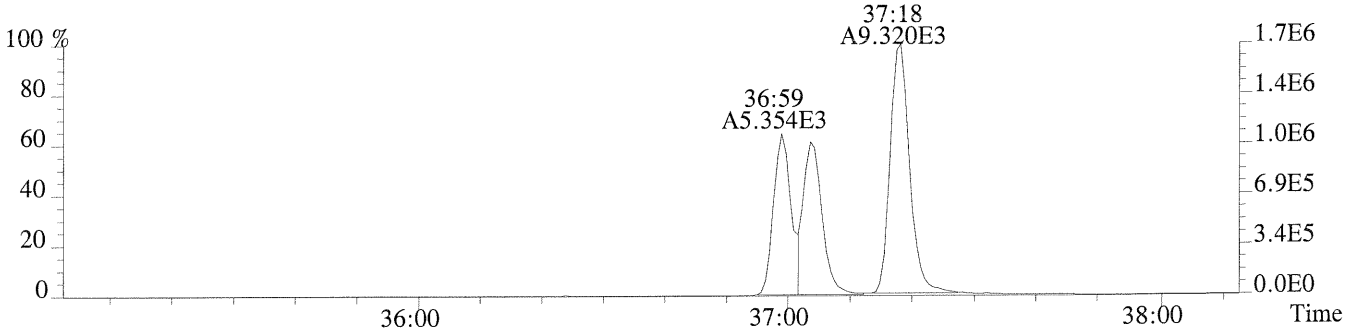
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



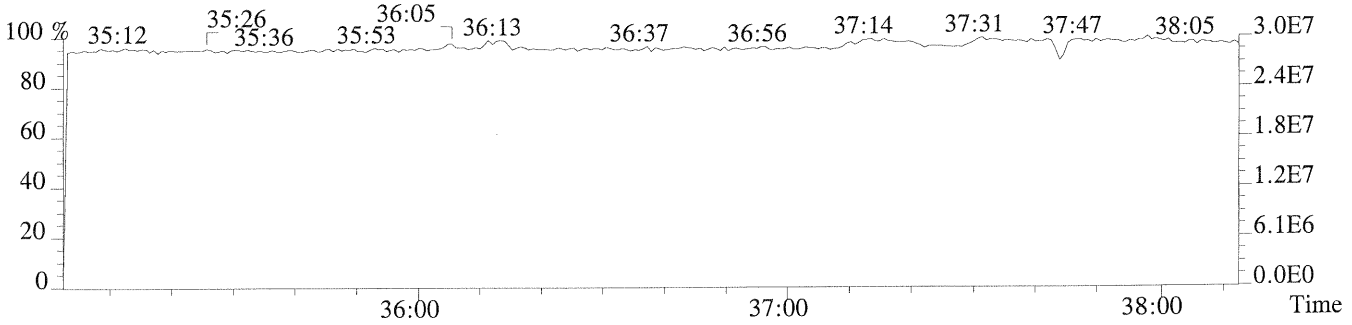
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)

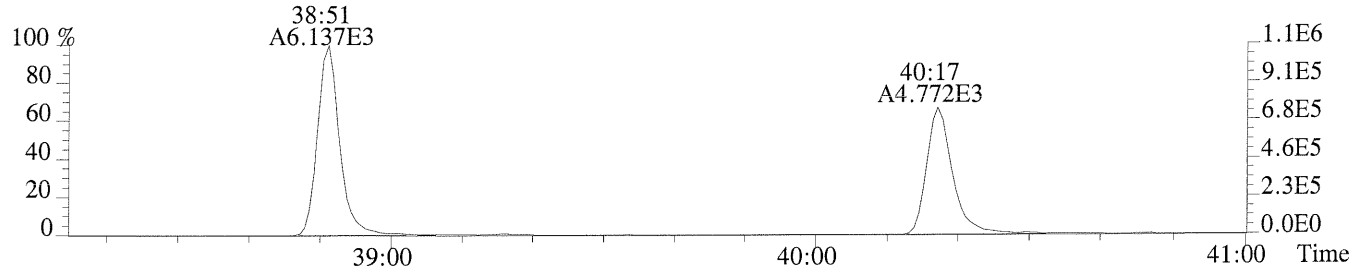


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

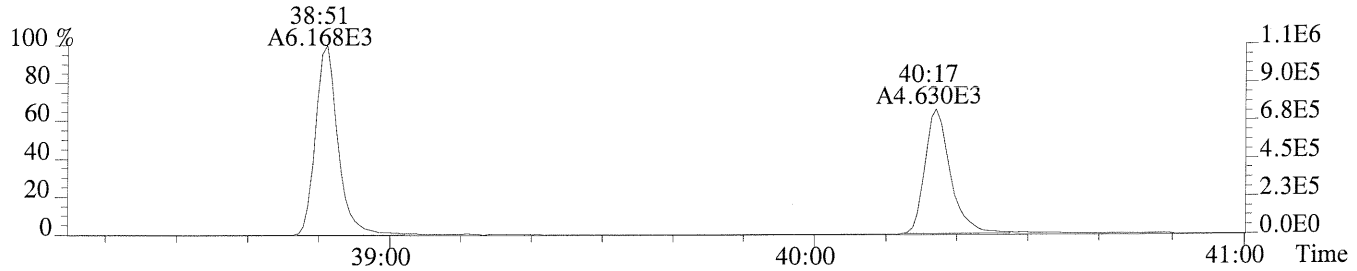


File:P229940 #1-251 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03

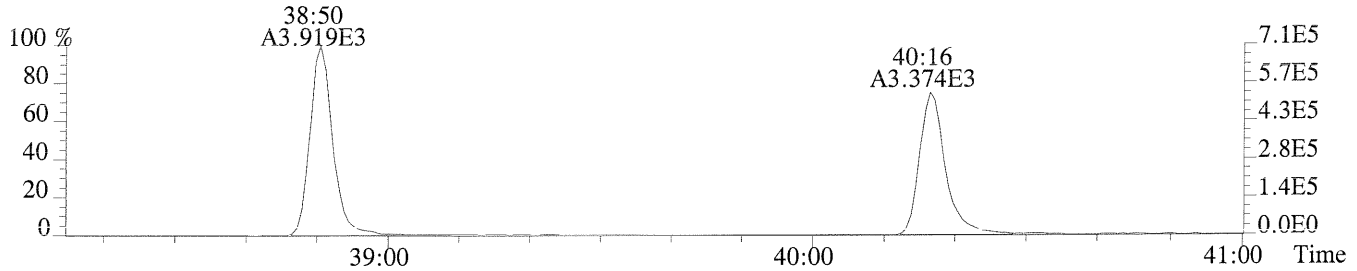
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.50%,F,T)



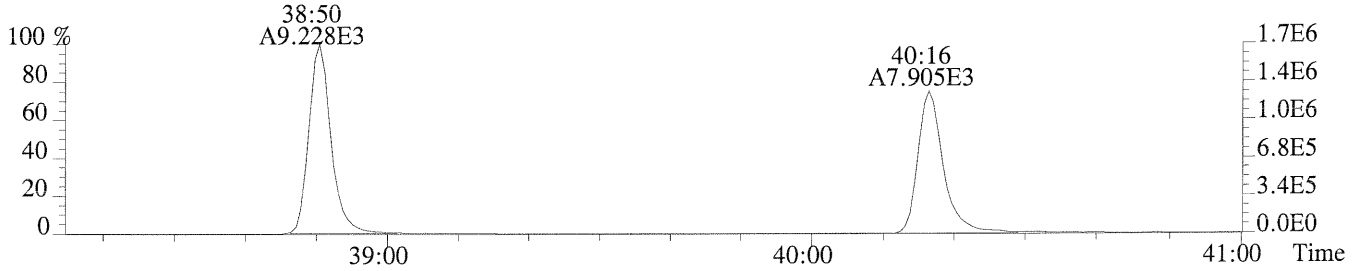
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.50%,F,T)



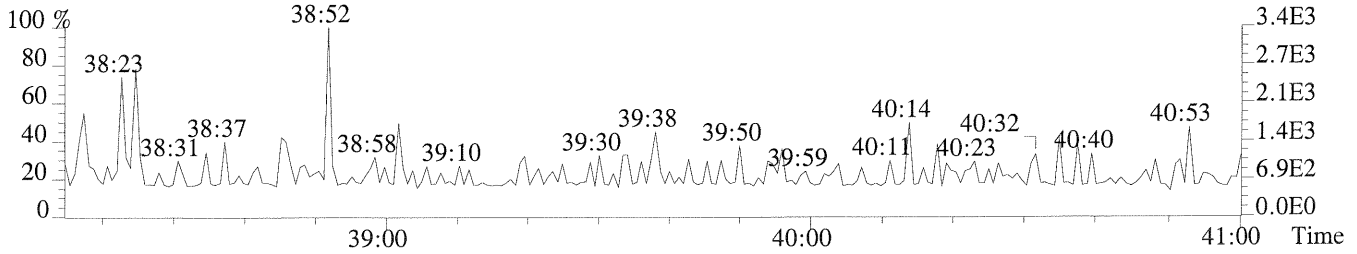
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.50%,F,T)



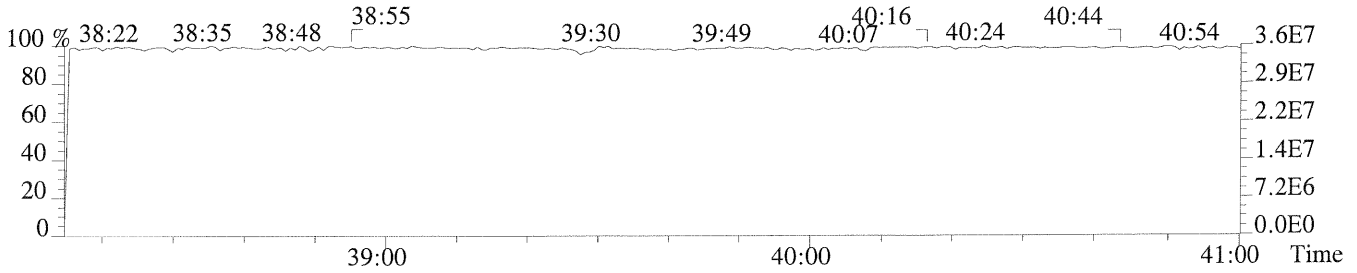
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1416.0,0.50%,F,T)



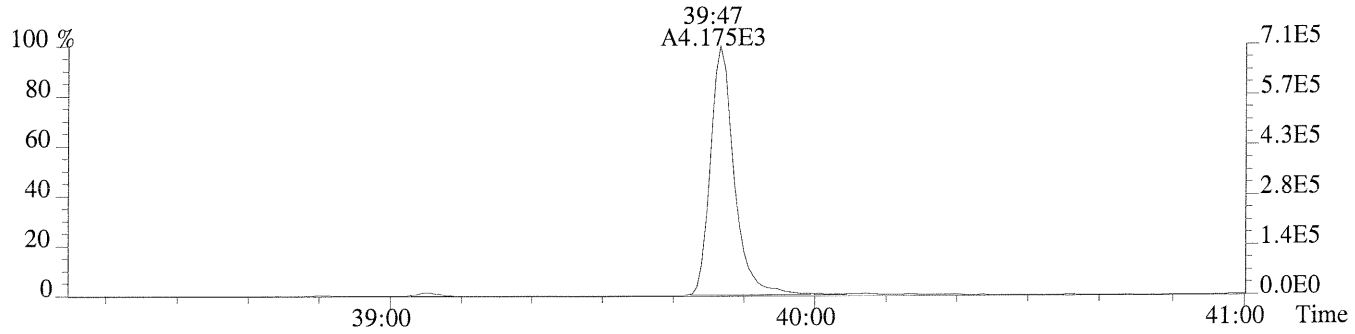
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



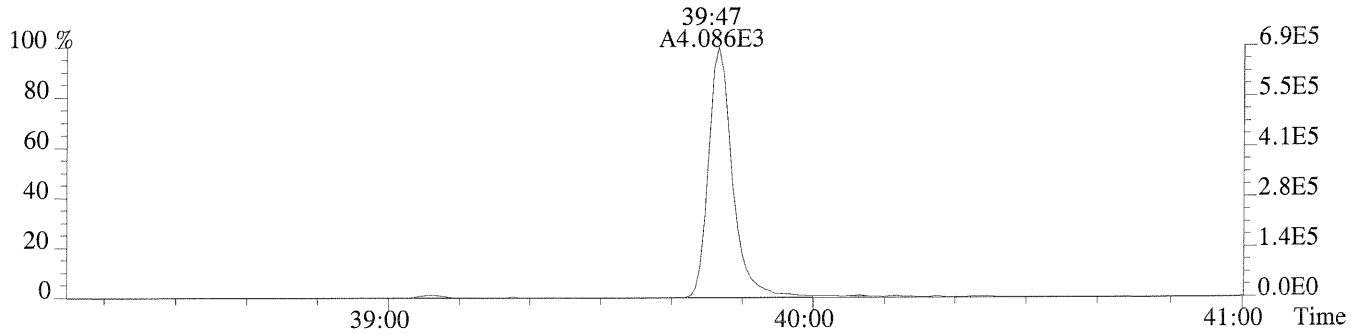
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



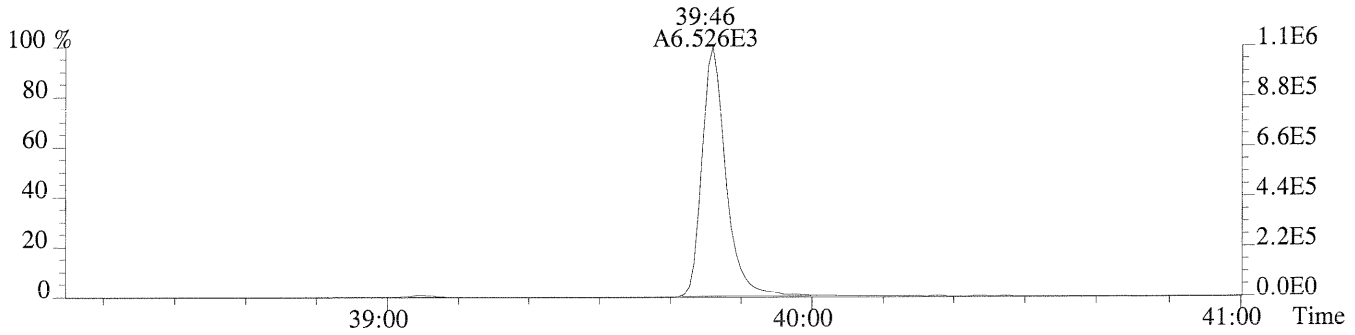
File:P229940 #1-251 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,224.0,0.40%,F,T)



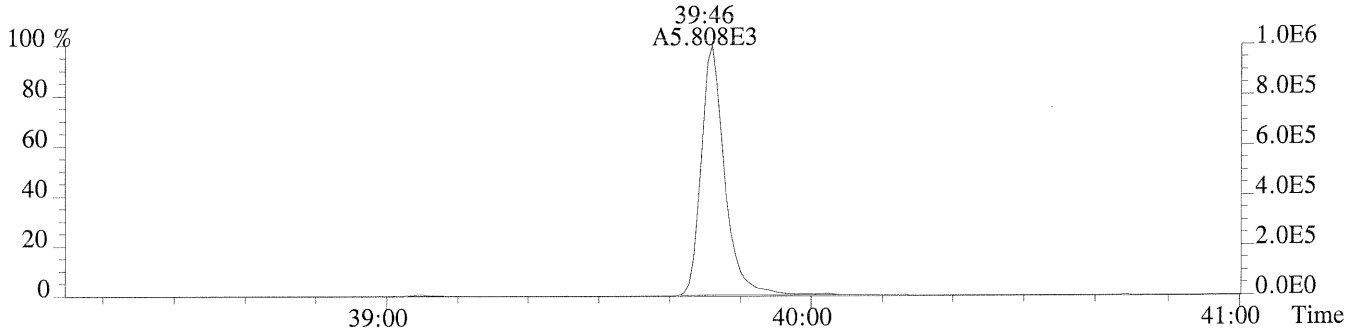
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,104.0,0.40%,F,T)



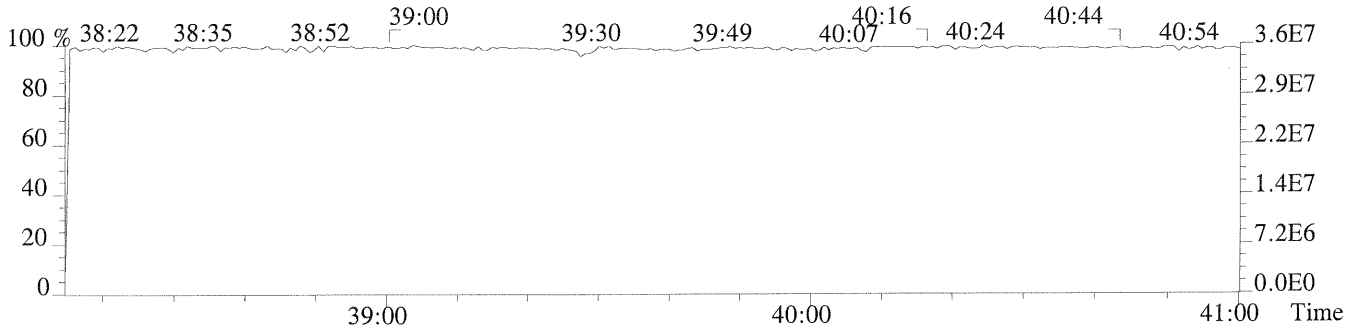
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



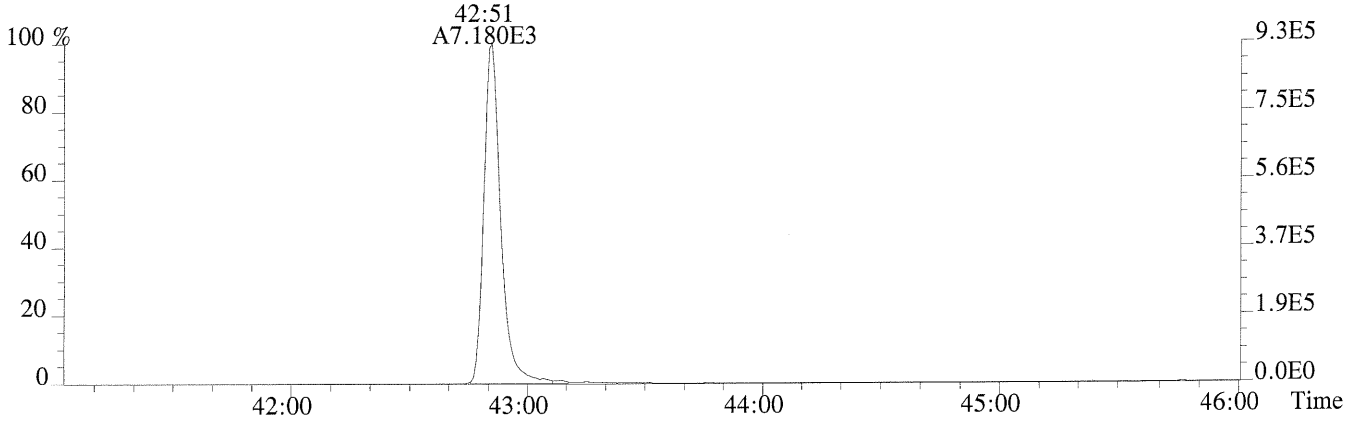
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,44.0,0.40%,F,T)



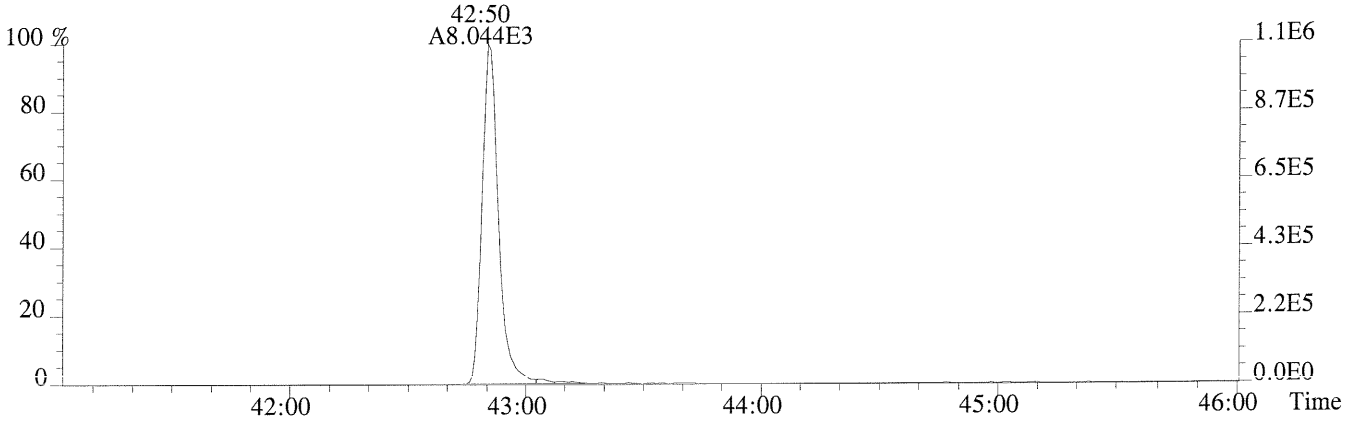
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



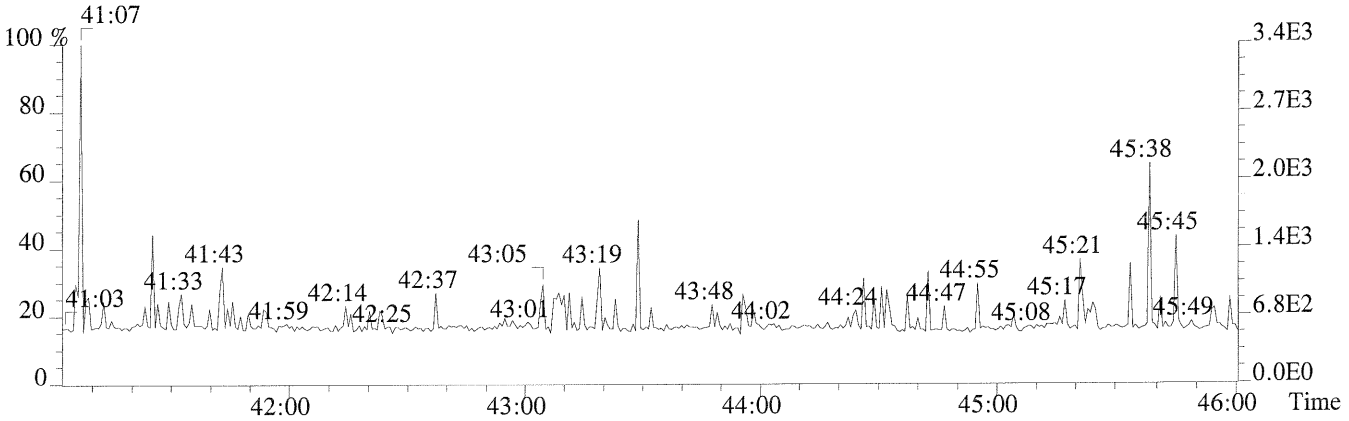
File:P229940 #1-457 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,172.0,0.40%,F,T)



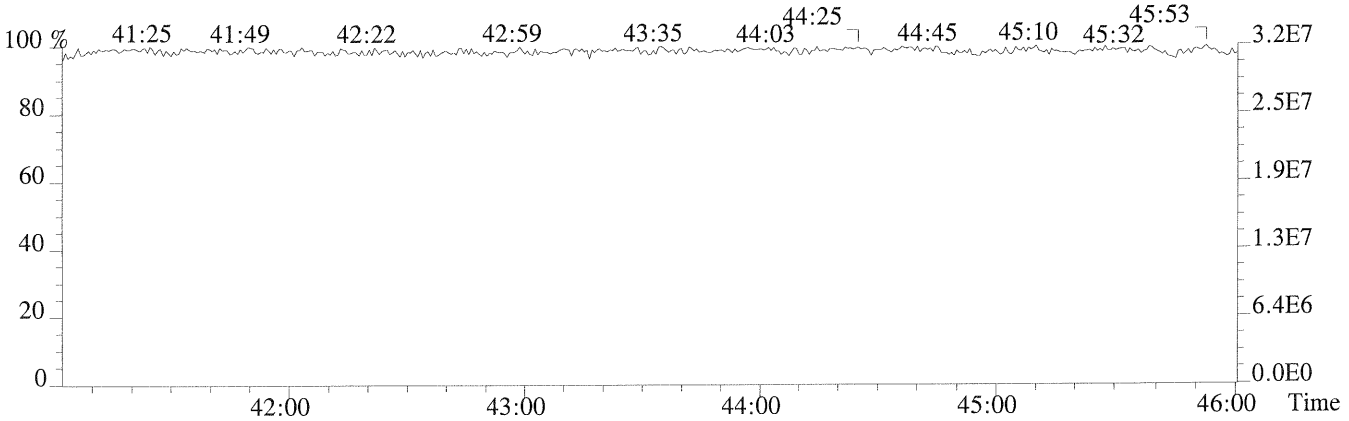
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,548.0,0.40%,F,T)



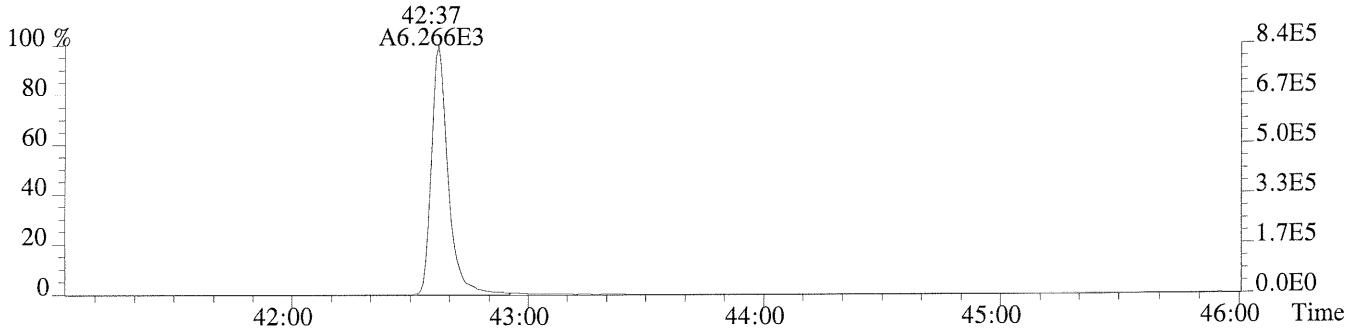
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



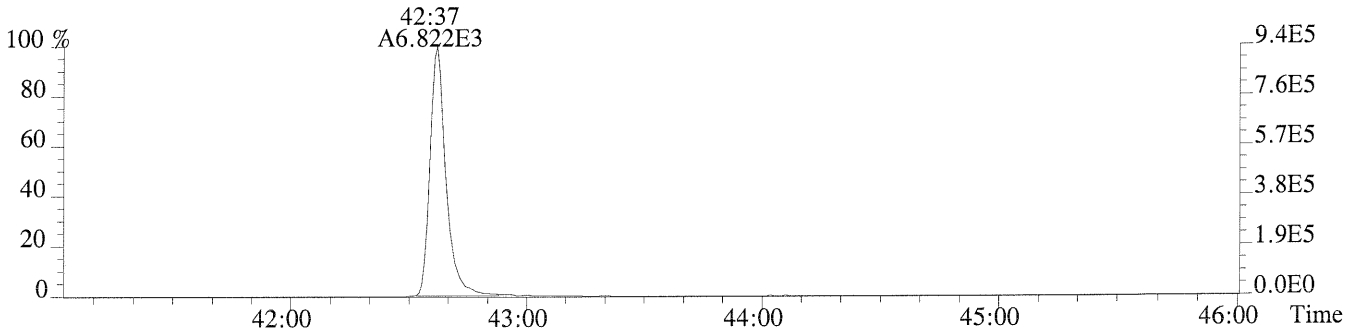
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



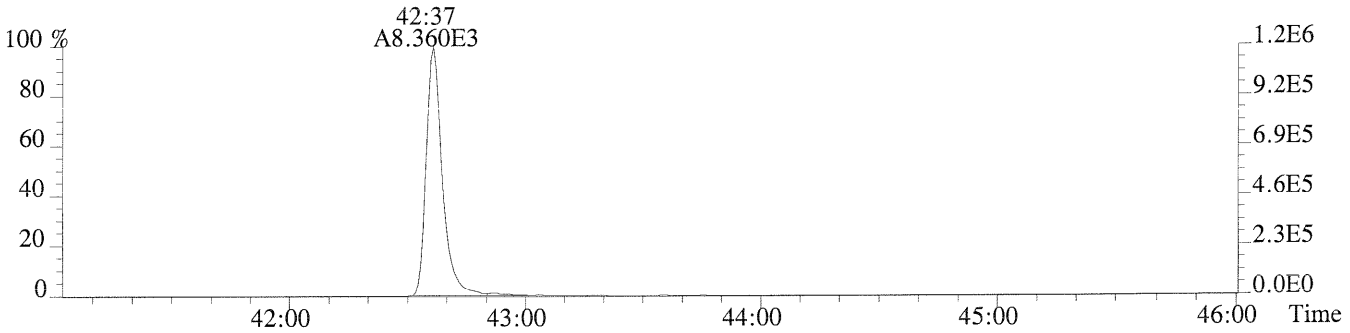
File:P229940 #1-457 Acq: 3-JUL-2014 06:55:00 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-03
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,56.0,0.40%,F,T)



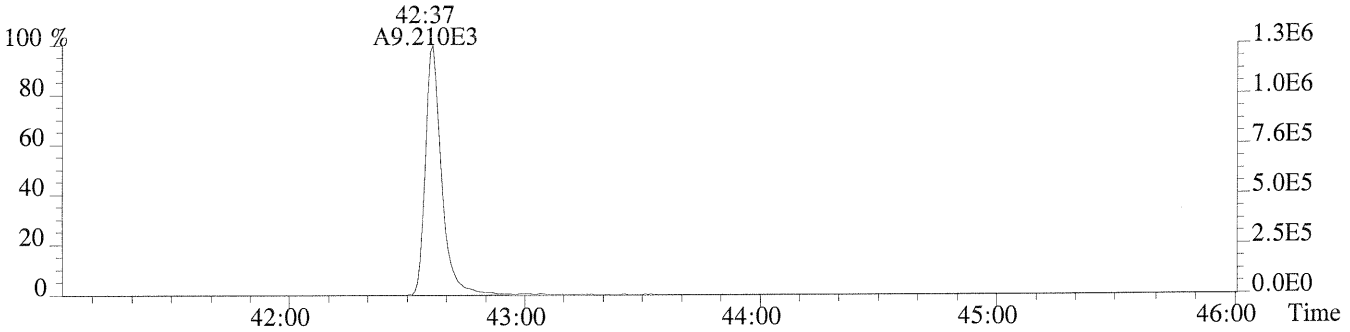
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,328.0,0.40%,F,T)



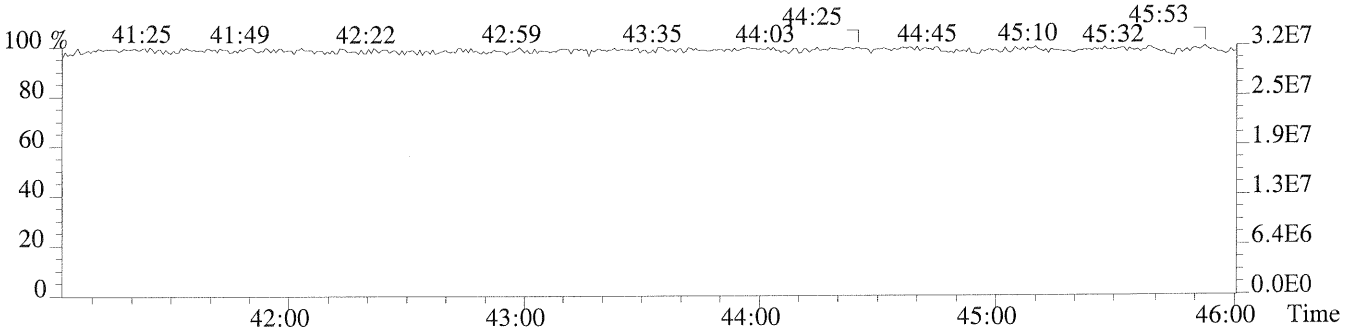
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,340.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406111503 20

Run #8 Filename P229941 Samp: 1 Inj: 1 Acquired: 3-JUL-14 07:42:52
Processed: 7-JUL-14 10:57:59 Sample ID: EQ1400342-04

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:41	6.205e+02	7.849e+02	0.79	yes	no	0.929
2	Unk	1,2,3,7,8-PeCDF	32:46	7.861e+03	5.085e+03	1.55	yes	no	1.048
3	Unk	2,3,4,7,8-PeCDF	33:39	7.199e+03	4.523e+03	1.59	yes	no	0.976
4	Unk	1,2,3,4,7,8-HxCDF	36:17	6.739e+03	5.359e+03	1.26	yes	no	1.254
5	Unk	1,2,3,6,7,8-HxCDF	36:23	7.711e+03	6.592e+03	1.17	yes	no	1.147
6	Unk	2,3,4,6,7,8-HxCDF	36:52	6.843e+03	5.531e+03	1.24	yes	no	1.161
7	Unk	1,2,3,7,8,9-HxCDF	37:38	6.359e+03	5.136e+03	1.24	yes	no	1.169
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	6.620e+03	6.573e+03	1.01	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:17	5.028e+03	5.052e+03	1.00	yes	no	1.309
10	Unk	OCDF	42:51	8.061e+03	9.038e+03	0.89	yes	no	1.462
11	Unk	2,3,7,8-TCDD	29:26	4.748e+02	6.213e+02	0.76	yes	no	0.989
12	Unk	1,2,3,7,8-PeCDD	33:55	5.279e+03	3.213e+03	1.64	yes	no	1.014
13	Unk	1,2,3,4,7,8-HxCDD	37:00	4.716e+03	3.683e+03	1.28	yes	no	1.114
14	Unk	1,2,3,6,7,8-HxCDD	37:05	5.432e+03	4.170e+03	1.30	yes	no	1.115
15	Unk	1,2,3,7,8,9-HxCDD	37:19	5.550e+03	4.299e+03	1.29	yes	no	1.207
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	5.444e+03	5.146e+03	1.06	yes	no	1.091
17	Unk	OCDD	42:37	1.378e+04	1.534e+04	0.90	yes	no	1.183
18	IS	13C-2,3,7,8-TCDF	28:39	4.952e+03	6.271e+03	0.79	yes	no	1.518
19	IS	13C-1,2,3,7,8-PeCDF	32:45	1.154e+04	7.106e+03	1.62	yes	no	2.114
20	IS	13C-2,3,4,7,8-PeCDF	33:38	1.091e+04	6.801e+03	1.60	yes	no	2.137
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	4.844e+03	9.436e+03	0.51	yes	no	1.126
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	7.245e+03	1.385e+04	0.52	yes	no	1.405
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	6.107e+03	1.180e+04	0.52	yes	no	1.260
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	5.267e+03	1.007e+04	0.52	yes	no	1.145
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	3.993e+03	9.248e+03	0.43	yes	no	1.049
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:17	3.418e+03	8.496e+03	0.40	yes	no	0.926
27	IS	13C-2,3,7,8-TCDD	29:25	3.313e+03	4.268e+03	0.78	yes	no	0.993
28	IS	13C-1,2,3,7,8-PeCDD	33:55	8.212e+03	5.154e+03	1.59	yes	no	1.363
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	6.937e+03	5.350e+03	1.30	yes	no	0.821
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	7.813e+03	6.031e+03	1.30	yes	no	0.960
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	6.456e+03	6.065e+03	1.06	yes	no	0.936
32	IS	13C-OCDD	42:37	8.474e+03	9.181e+03	0.92	yes	no	0.735
33	RS/RT	13C-1,2,3,4-TCDD	28:50	6.819e+03	8.662e+03	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.183e+04	9.500e+03	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	2.873e+03				no	0.993

$$\text{OCDD} = \frac{(1.378e+04 + 1.534e+04) \times 4000 \text{ pg} \times 1}{(8.474e+03 + 9.181e+03) \times 10.346\text{g} \times 95.2 \times 1.183} = 566.225 \text{ ng/kg}$$

MM 07/08/14

ALS ENVIRONMENTAL
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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406111503 200-S

Run #8 Filename P229941 Samp: 1 Inj: 1 Acquired: 3-JUL-14 07:42:52
Processed: 7-JUL-14 10:57:591 LAB. ID: EQ1400342-04

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.16e+05	6.40e+01	1.8e+03	1.44e+05	6.52e+02	2.2e+02
2	1,2,3,7,8-PeCDF	1.34e+06	1.12e+02	1.2e+04	8.58e+05	9.84e+02	8.7e+02
3	2,3,4,7,8-PeCDF	1.27e+06	1.12e+02	1.1e+04	8.25e+05	9.84e+02	8.4e+02
4	1,2,3,4,7,8-HxCDF	1.31e+06	3.88e+02	3.4e+03	1.06e+06	1.68e+02	6.3e+03
5	1,2,3,6,7,8-HxCDF	1.42e+06	3.88e+02	3.6e+03	1.22e+06	1.68e+02	7.2e+03
6	2,3,4,6,7,8-HxCDF	1.32e+06	3.88e+02	3.4e+03	1.05e+06	1.68e+02	6.3e+03
7	1,2,3,7,8,9-HxCDF	1.13e+06	3.88e+02	2.9e+03	8.88e+05	1.68e+02	5.3e+03
8	1,2,3,4,6,7,8-HpCDF	1.20e+06	5.76e+02	2.1e+03	1.17e+06	1.35e+03	8.7e+02
9	1,2,3,4,7,8,9-HpCDF	8.06e+05	5.76e+02	1.4e+03	8.04e+05	1.35e+03	5.9e+02
10	OCDF	1.07e+06	1.84e+02	5.8e+03	1.21e+06	6.16e+02	2.0e+03
11	2,3,7,8-TCDD	9.39e+04	3.28e+02	2.9e+02	1.26e+05	2.64e+02	4.8e+02
12	1,2,3,7,8-PeCDD	9.47e+05	4.04e+02	2.3e+03	5.60e+05	6.40e+01	8.8e+03
13	1,2,3,4,7,8-HxCDD	9.75e+05	5.60e+01	1.7e+04	7.53e+05	3.00e+02	2.5e+03
14	1,2,3,6,7,8-HxCDD	9.79e+05	5.60e+01	1.7e+04	7.44e+05	3.00e+02	2.5e+03
15	1,2,3,7,8,9-HxCDD	1.06e+06	5.60e+01	1.9e+04	8.13e+05	3.00e+02	2.7e+03
16	1,2,3,4,6,7,8-HpCDD	9.05e+05	4.24e+02	2.1e+03	8.53e+05	2.64e+02	3.2e+03
17	OCDD	1.92e+06	8.80e+01	2.2e+04	2.15e+06	1.44e+02	1.5e+04
18	13C-2,3,7,8-TCDF	9.20e+05	6.56e+02	1.4e+03	1.16e+06	6.12e+02	1.9e+03
19	13C-1,2,3,7,8-PeCDF	1.92e+06	1.84e+02	1.0e+04	1.18e+06	3.80e+02	3.1e+03
20	13C-2,3,4,7,8-PeCDF	1.94e+06	1.84e+02	1.1e+04	1.23e+06	3.80e+02	3.2e+03
21	13C-1,2,3,4,7,8-HxCDF	9.58e+05	2.08e+02	4.6e+03	1.85e+06	9.76e+02	1.9e+03
22	13C-1,2,3,6,7,8-HxCDF	1.31e+06	2.08e+02	6.3e+03	2.49e+06	9.76e+02	2.6e+03
23	13C-2,3,4,6,7,8-HxCDF	1.15e+06	2.08e+02	5.5e+03	2.28e+06	9.76e+02	2.3e+03
24	13C-1,2,3,7,8,9-HxCDF	9.20e+05	2.08e+02	4.4e+03	1.78e+06	9.76e+02	1.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.30e+05	8.88e+02	8.2e+02	1.66e+06	1.06e+03	1.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.34e+05	8.88e+02	6.0e+02	1.35e+06	1.06e+03	1.3e+03
27	13C-2,3,7,8-TCDD	6.55e+05	1.87e+03	3.5e+02	8.32e+05	6.84e+02	1.2e+03
28	13C-1,2,3,7,8-PeCDD	1.45e+06	4.64e+02	3.1e+03	9.09e+05	2.32e+02	3.9e+03
29	13C-1,2,3,4,7,8-HxCDD	1.42e+06	5.12e+02	2.8e+03	1.10e+06	3.60e+02	3.1e+03
30	13C-1,2,3,6,7,8-HxCDD	1.43e+06	5.12e+02	2.8e+03	1.10e+06	3.60e+02	3.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.09e+06	4.52e+02	2.4e+03	1.02e+06	1.00e+02	1.0e+04
32	13C-OCDD	1.15e+06	2.04e+02	5.6e+03	1.28e+06	2.16e+02	5.9e+03
33	13C-1,2,3,4-TCDD	1.35e+06	1.87e+03	7.2e+02	1.73e+06	6.84e+02	2.5e+03
34	13C-1,2,3,7,8,9-HxCDD	2.26e+06	5.12e+02	4.4e+03	1.78e+06	3.60e+02	4.9e+03
35	37Cl-2,3,7,8-TCDD	5.68e+05	2.00e+02	2.8e+03			

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Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 36 Totals Name: Total Tetra-Furans

Run: 8 File: P229941 Sample: 1 Injection: 1 Function: 1
Llim: 24:08 Ulim: 30:37
Acquired: 3-JUL-14 07:42:52 Processed: 7-JUL-14 10:57:59
Mass: 303.9020 305.8990 Tot Response: 1.41e+03 RRF: 0.9290

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:41	6.20e+02	7.85e+02	0.79	yes	1.41e+03	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406111503 200-S7

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 8 File: P229941 Sample: 1 Injection: 1 Function: 1
Llim: 26:02 Ulim: 30:25
Acquired: 3-JUL-14 07:42:52 Processed: 7-JUL-14 10:57:59
Mass: 319.8970 321.8940 Tot Response: 1.10e+03 RRF: 0.9891

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:26	4.75e+02	6.21e+02	0.76	yes	1.10e+03	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 39 Totals Name: Total Penta-Furan2

Run: 8 File: P229941 Sample: 1 Injection: 1 Function: 2
Llim: 30:18 Ulim: 34:43
Acquired: 3-JUL-14 07:42:52 Processed: 7-JUL-14 10:57:59
Mass: 339.8600 341.8570 Tot Response: 2.51e+04 RRF: 1.012

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	31:51	1.48e+02	1.04e+02	1.43	yes	2.52e+02		n	n
2	32:22	8.16e+01	5.18e+01	1.57	yes	1.33e+02		n	n
3	32:46	7.86e+03	5.08e+03	1.55	yes	1.29e+04	1,2,3,7,8-PeCDF	n	n
4	32:55	3.27e+01	2.38e+01	1.38	yes	5.65e+01		n	n
5	33:39	7.20e+03	4.52e+03	1.59	yes	1.17e+04	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.

1406111503 200-S7

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 8 File: P229941 Sample: 1 Injection: 1 Function: 2
Llim: 31:47 Ulim: 34:26
Acquired: 3-JUL-14 07:42:52 Processed: 7-JUL-14 10:57:59
Mass: 355.8550 357.8520 Tot Response: 8.50e+03 RRF: 1.014

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:55	4.76e+00	3.19e+00	1.49	yes	7.95e+00		n	n
2	33:55	5.28e+03	3.21e+03	1.64	yes	8.49e+03	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 41 Totals Name: Total Hexa-Furans

Run: 8 File: P229941 Sample: 1 Injection: 1 Function: 3
Llim: 35:05 Ulim: 37:49
Acquired: 3-JUL-14 07:42:52 Processed: 7-JUL-14 10:57:59
Mass: 373.8210 375.8180 Tot Response: 5.03e+04 RRF: 1.180

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:17	6.74e+03	5.36e+03	1.26	yes	1.21e+04	1,2,3,4,7,8-HxCDF	n	n
2	36:23	7.71e+03	6.59e+03	1.17	yes	1.43e+04	1,2,3,6,7,8-HxCDF	n	n
3	36:52	6.84e+03	5.53e+03	1.24	yes	1.24e+04	2,3,4,6,7,8-HxCDF	n	n
4	37:38	6.36e+03	5.14e+03	1.24	yes	1.15e+04	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.

1406111503 200-S

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 8 File: P229941 Sample: 1 Injection: 1 Function: 3
Llim: 35:36 Ulim: 37:24
Acquired: 3-JUL-14 07:42:52 Processed: 7-JUL-14 10:57:59
Mass: 389.8160 391.8130 Tot Response: 2.79e+04 RRF: 1.145

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:26	3.90e+01	2.83e+01	1.38	yes	6.72e+01		n	n
2	37:00	4.72e+03	3.68e+03	1.28	yes	8.40e+03	1,2,3,4,7,8-HxCDD	n	n
3	37:05	5.43e+03	4.17e+03	1.30	yes	9.60e+03	1,2,3,6,7,8-HxCDD	n	n
4	37:19	5.55e+03	4.30e+03	1.29	yes	9.85e+03	1,2,3,7,8,9-HxCDD	n	n

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Peak List Summary

CLIENT ID.

1406111503 200-S7

Entry: 43 Totals Name: Total Hepta-Furans

Run: 8 File: P229941 Sample: 1 Injection: 1 Function: 4
Llim: 38:46 Ulim: 40:28
Acquired: 3-JUL-14 07:42:52 Processed: 7-JUL-14 10:57:59
Mass: 407.7820 409.7790 Tot Response: 2.44e+04 RRF: 1.343

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:51	6.62e+03	6.57e+03	1.01	yes	1.32e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	39:16	5.23e+02	5.70e+02	0.92	yes	1.09e+03		n	n
3	40:17	5.03e+03	5.05e+03	1.00	yes	1.01e+04	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.

1406111503 200-S7

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 8 File: P229941 Sample: 1 Injection: 1 Function: 4
Llim: 39:01 Ulim: 39:57
Acquired: 3-JUL-14 07:42:52 Processed: 7-JUL-14 10:57:59
Mass: 423.7770 425.7740 Tot Response: 1.17e+04 RRF: 1.091

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	5.54e+02	5.66e+02	0.98	yes	1.12e+03		n	n
2	39:47	5.44e+03	5.15e+03	1.06	yes	1.06e+04	1,2,3,4,6,7,8-HpCDD	n	n

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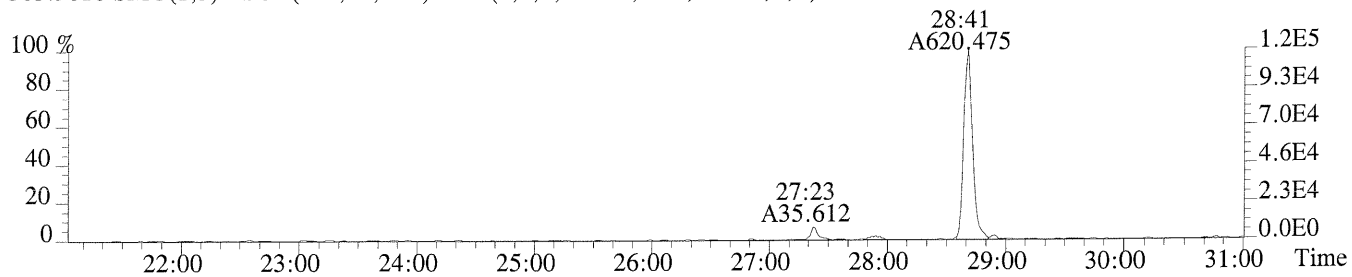
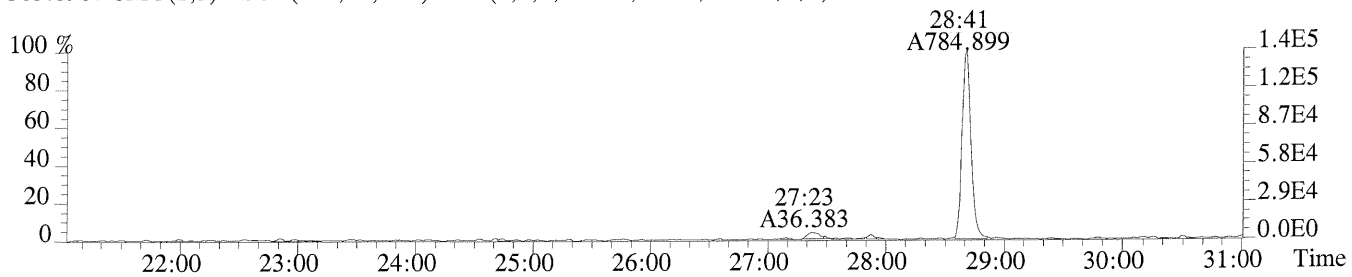
File:P229941 #1-627 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04

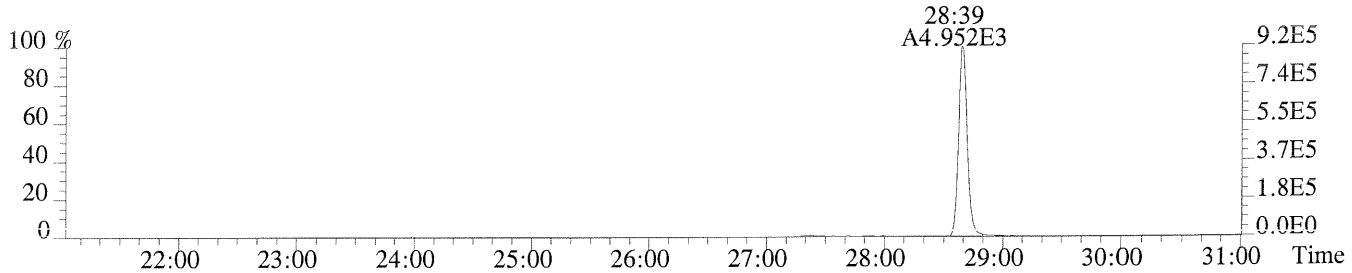
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,64.0,1.00%,F,T)



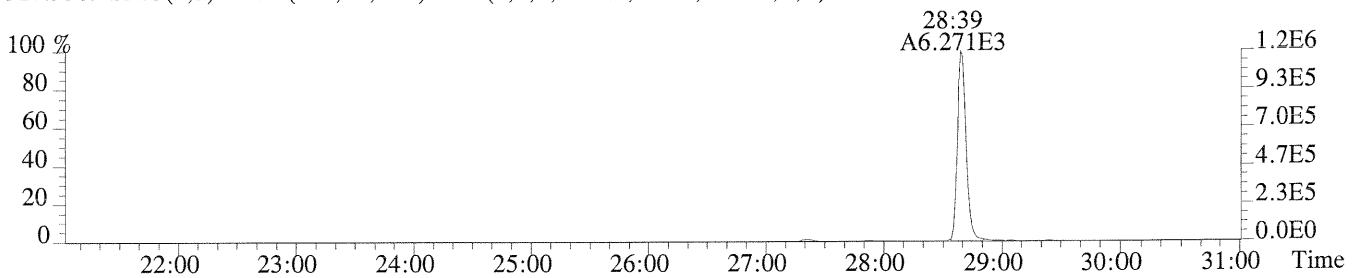
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



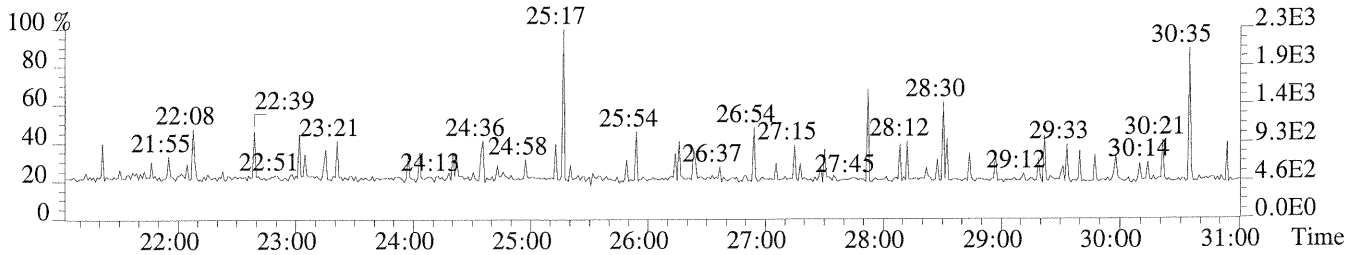
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,656.0,1.00%,F,T)



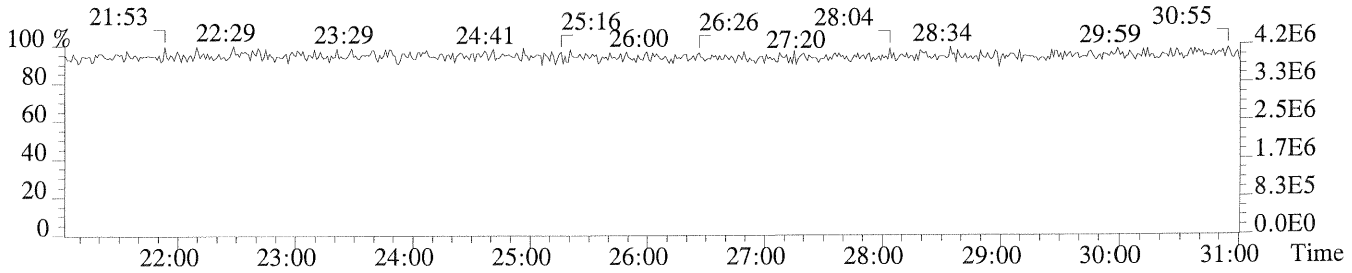
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

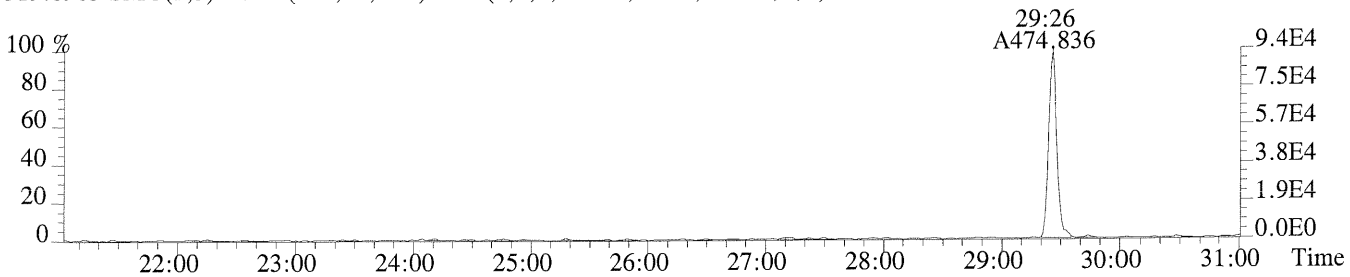


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

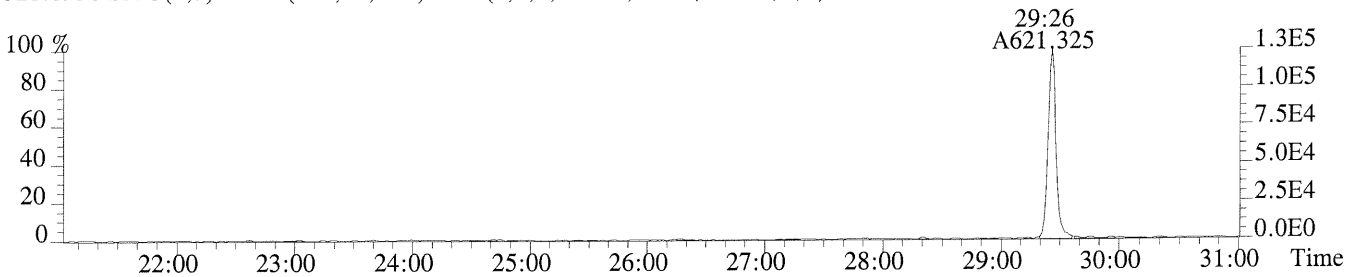


File:P229941 #1-627 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04

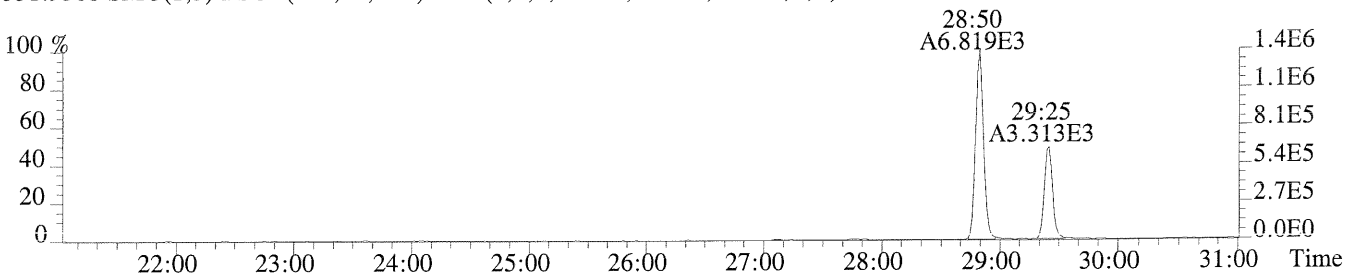
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,328.0,1.00%,F,T)



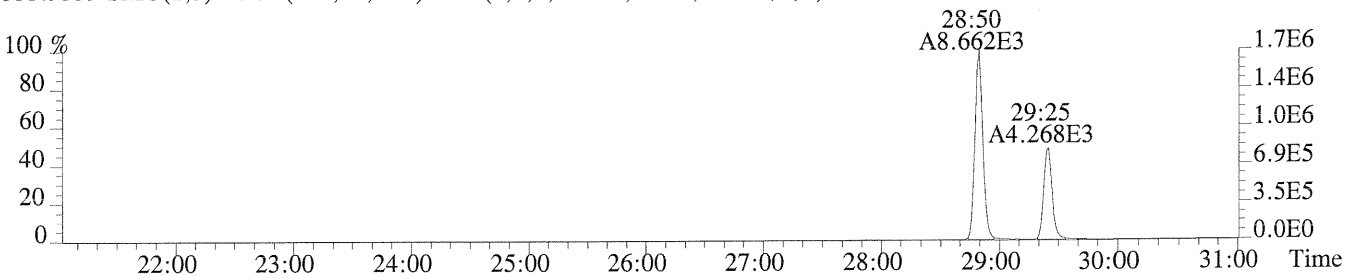
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,264.0,1.00%,F,T)



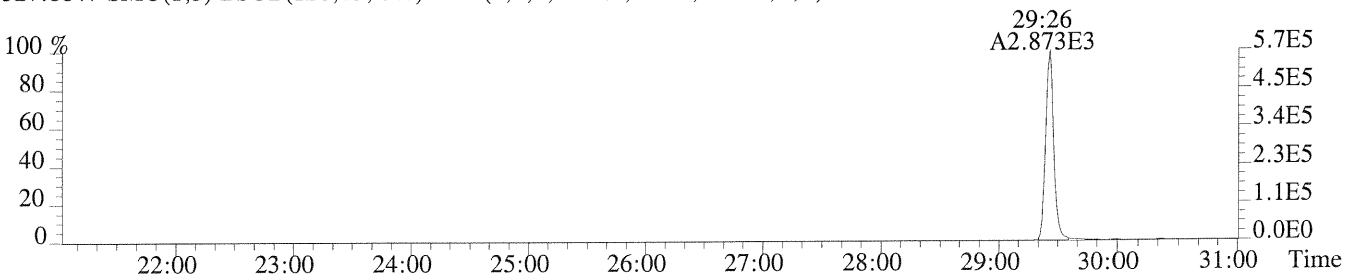
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1868.0,1.00%,F,T)



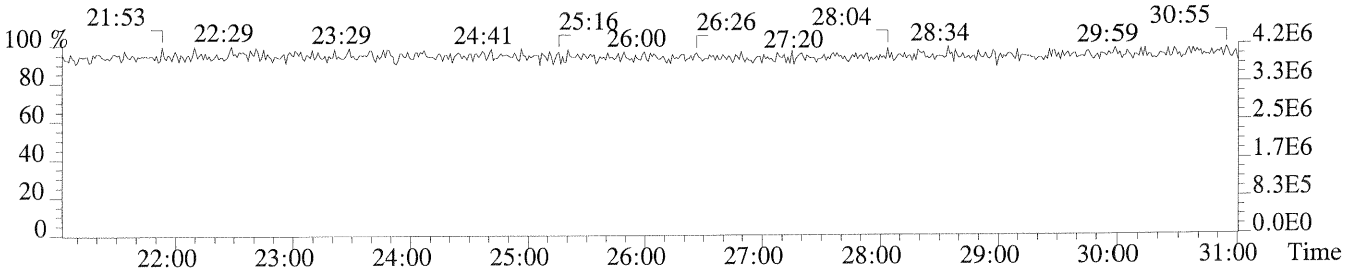
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



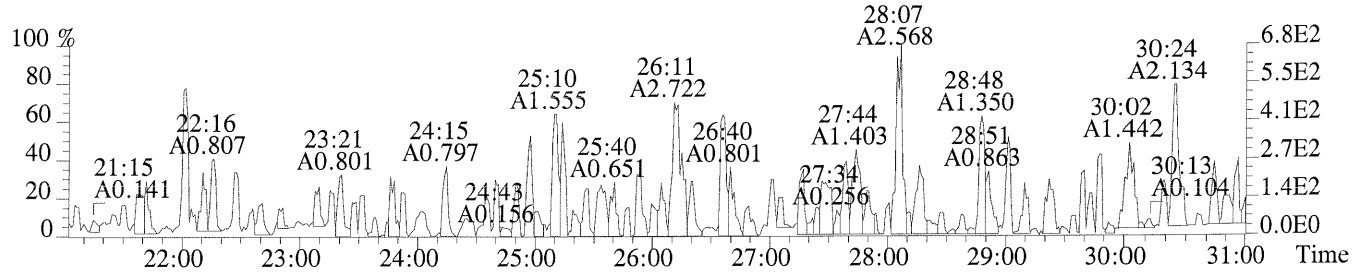
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



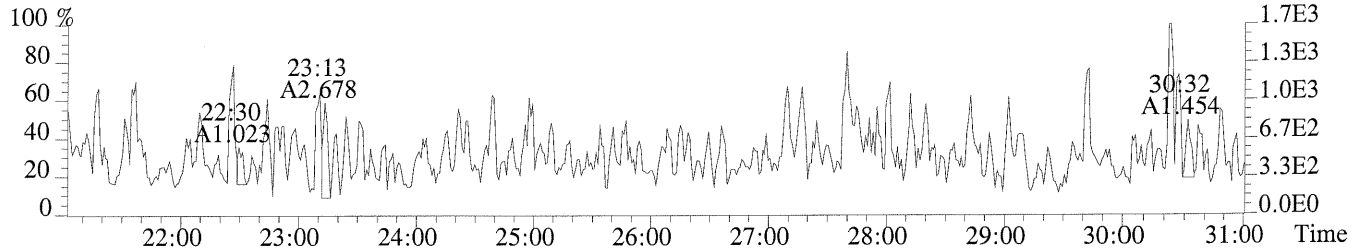
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



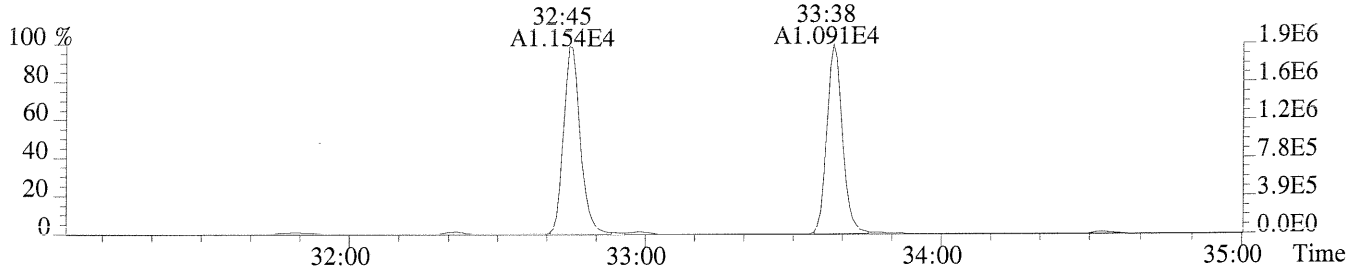
File:P229941 #1-627 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,48.0,1.00%,F,T)



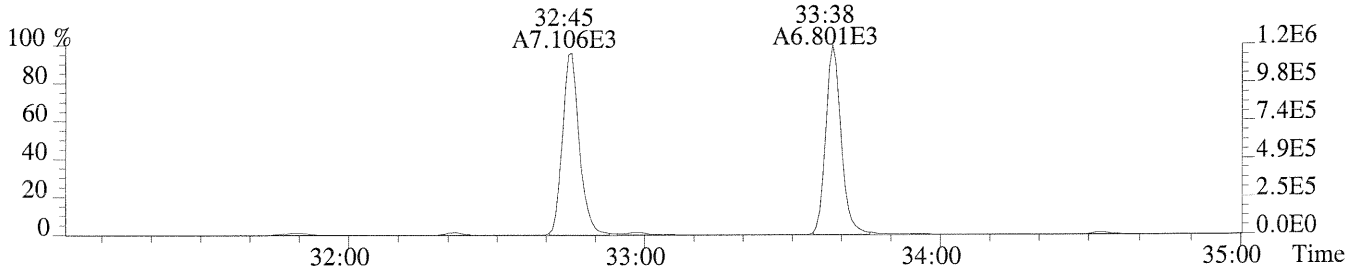
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)



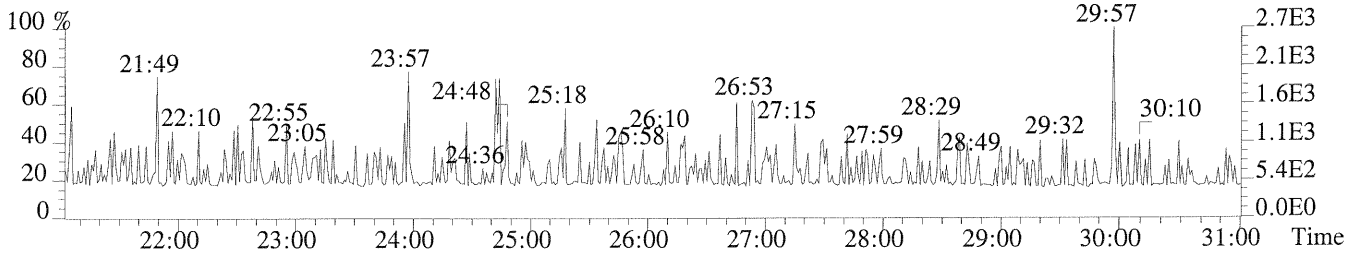
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



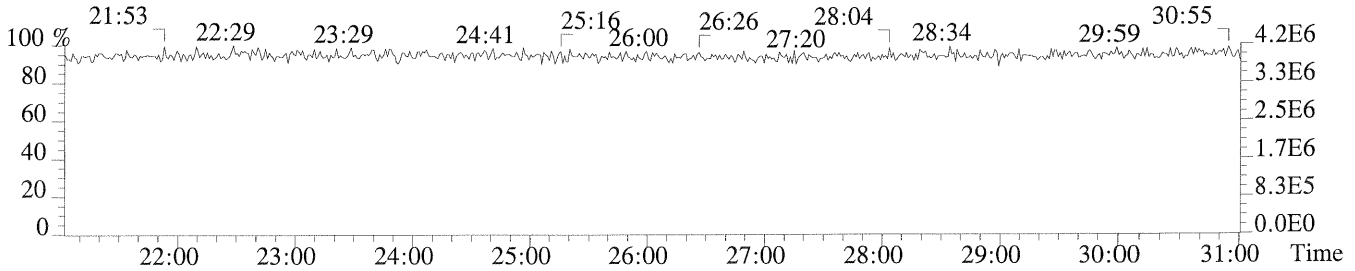
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

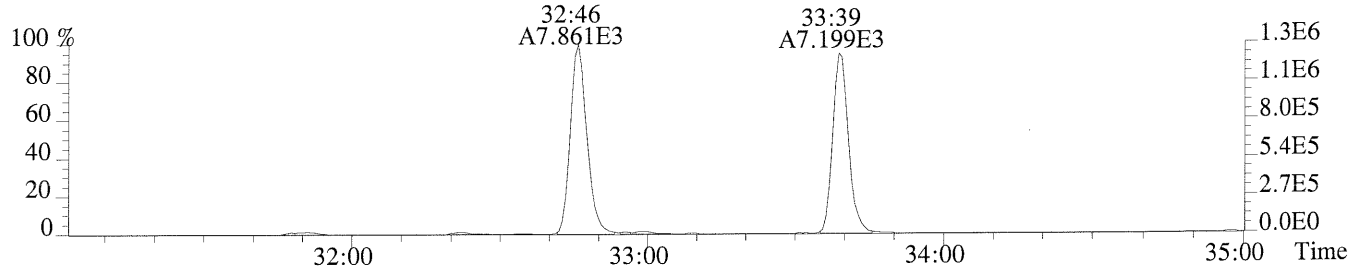


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

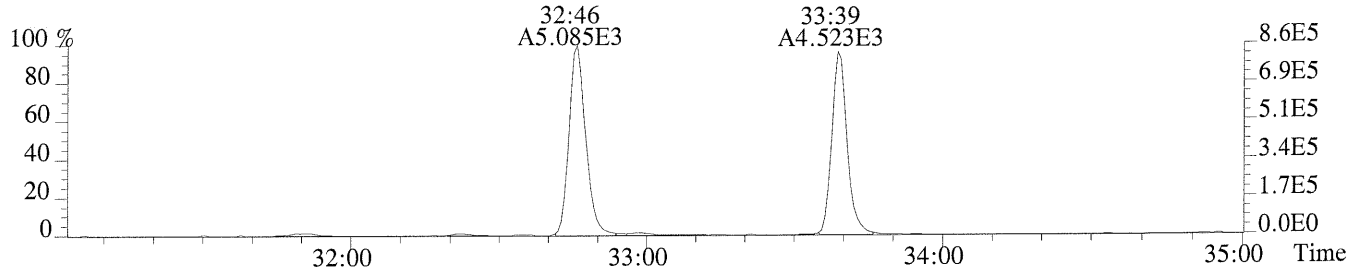


File:P229941 #1-360 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04

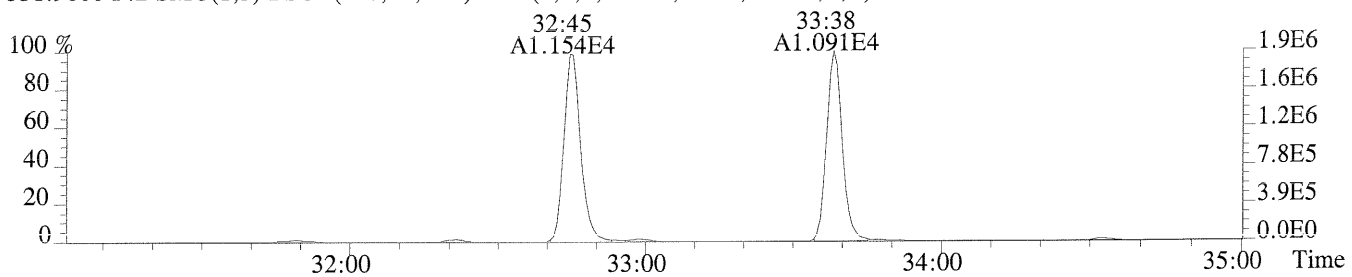
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,112.0,1.00%,F,T)



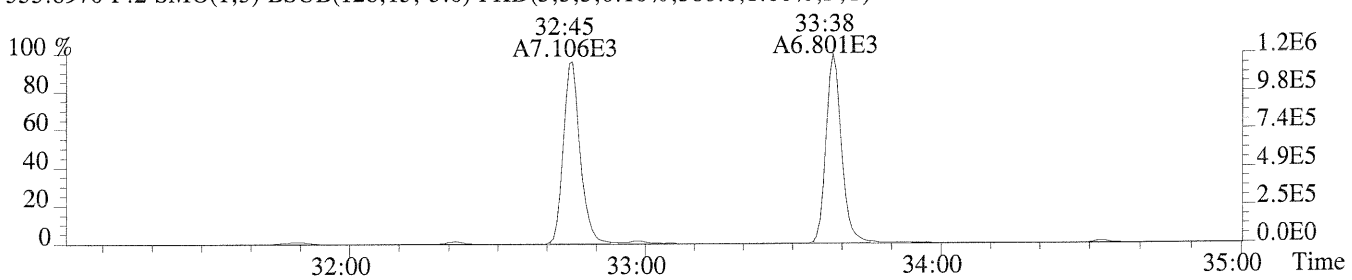
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



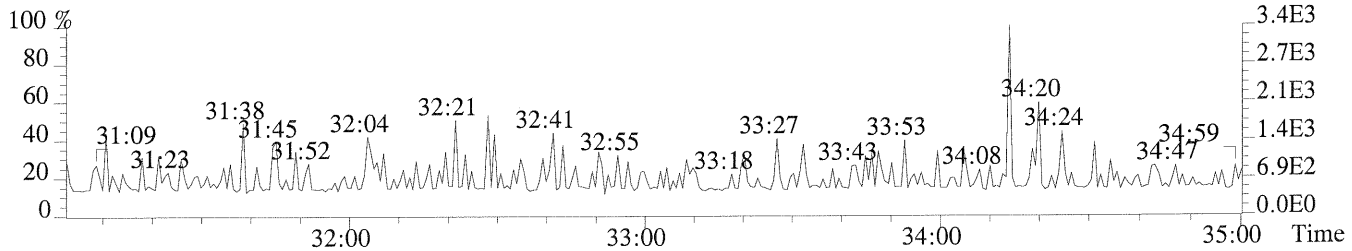
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,184.0,1.00%,F,T)



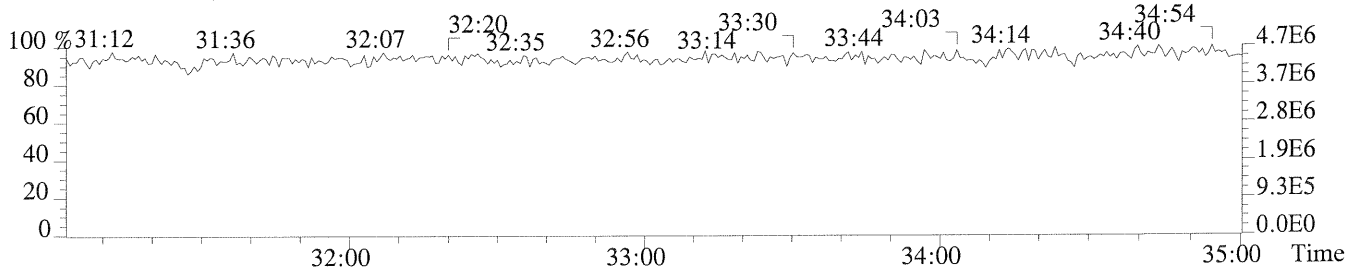
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,380.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

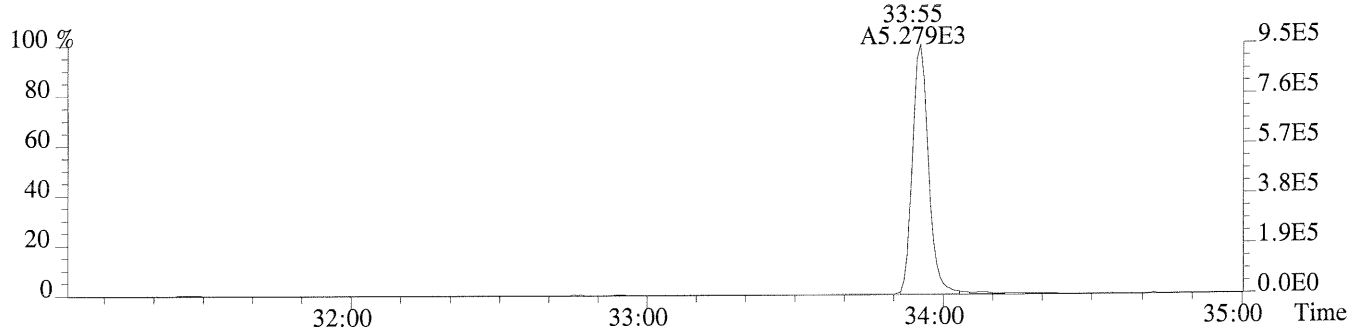


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

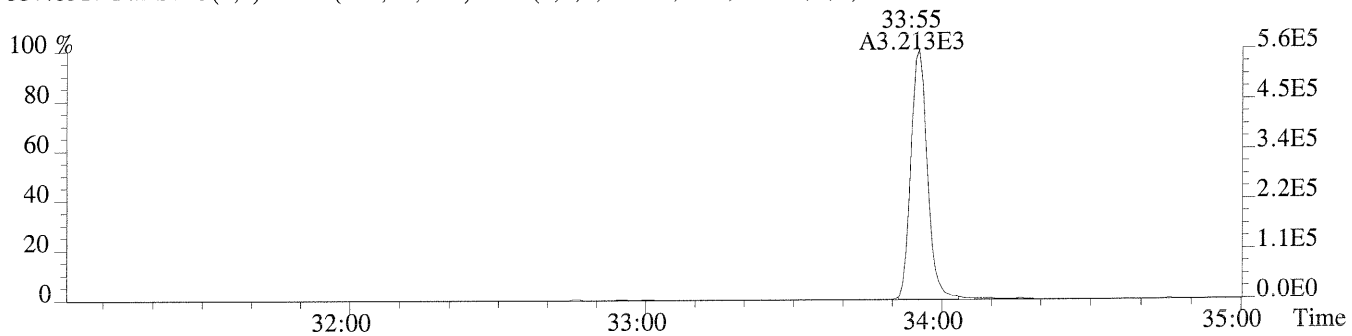


File:P229941 #1-360 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04

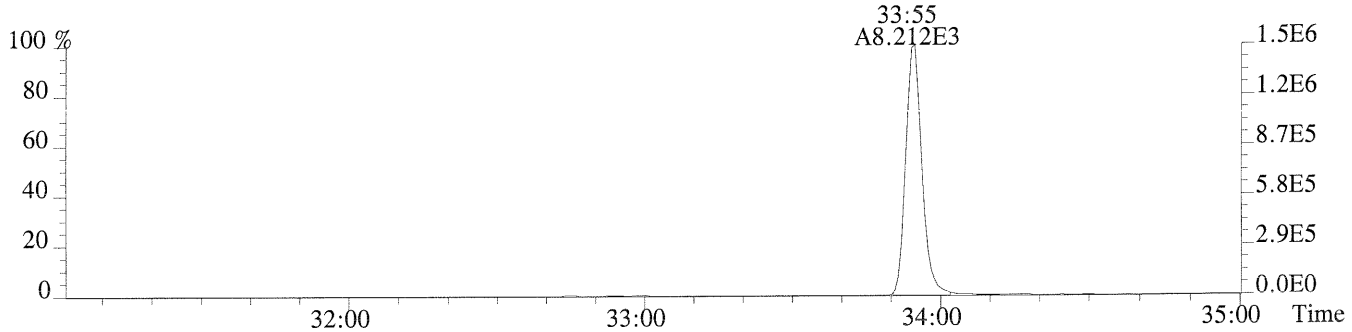
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



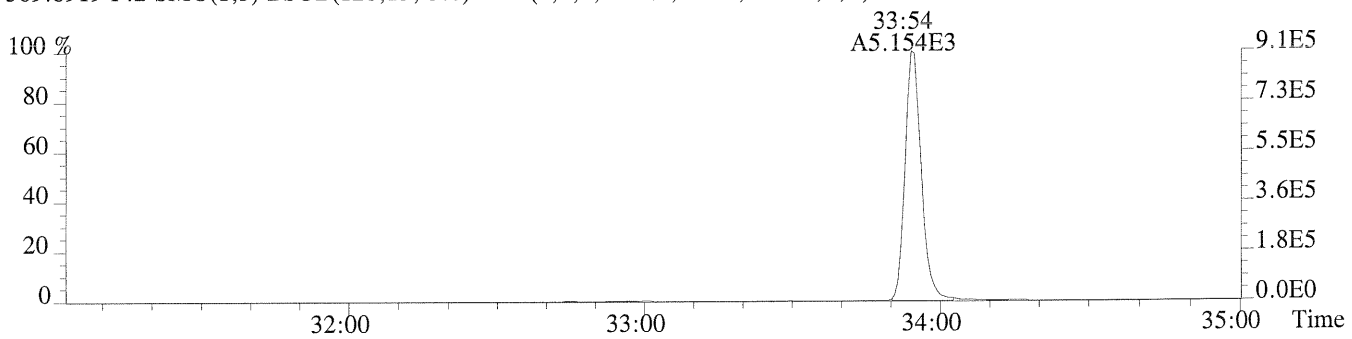
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,64.0,1.00%,F,T)



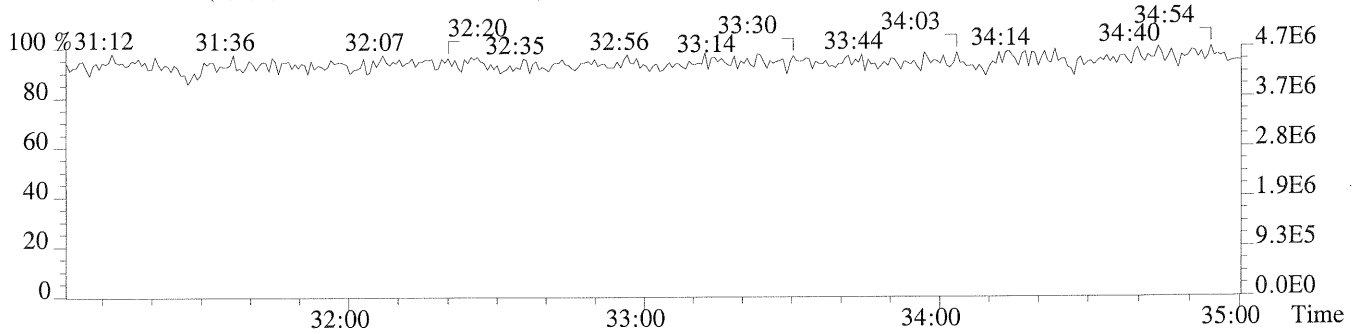
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)

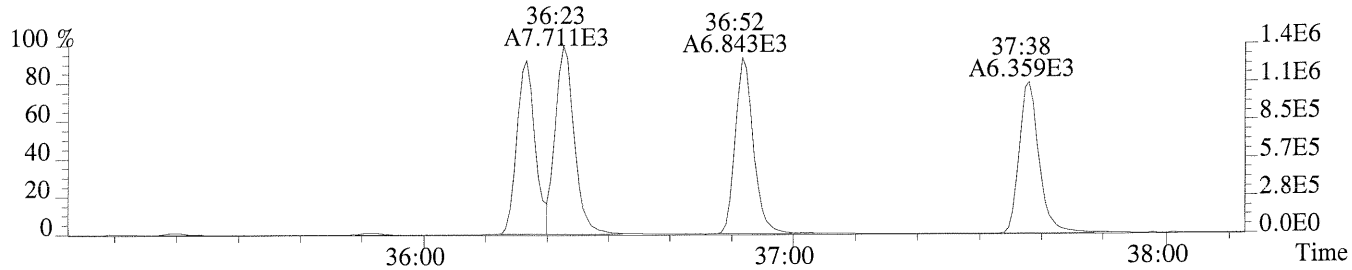


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

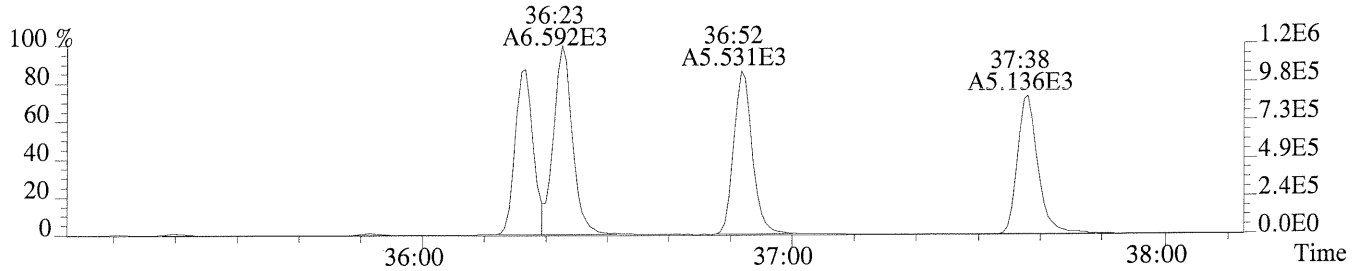


File:P229941 #1-288 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04

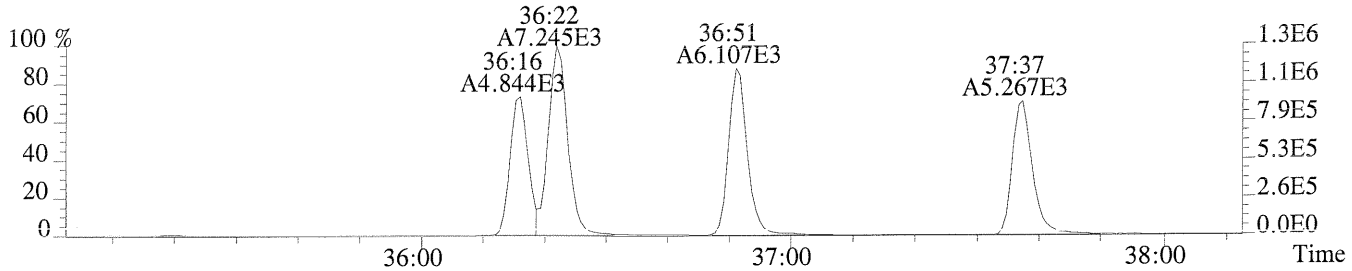
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



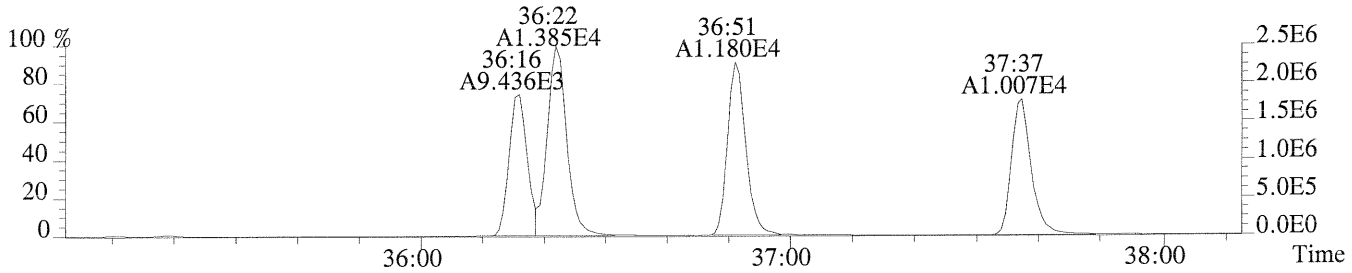
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



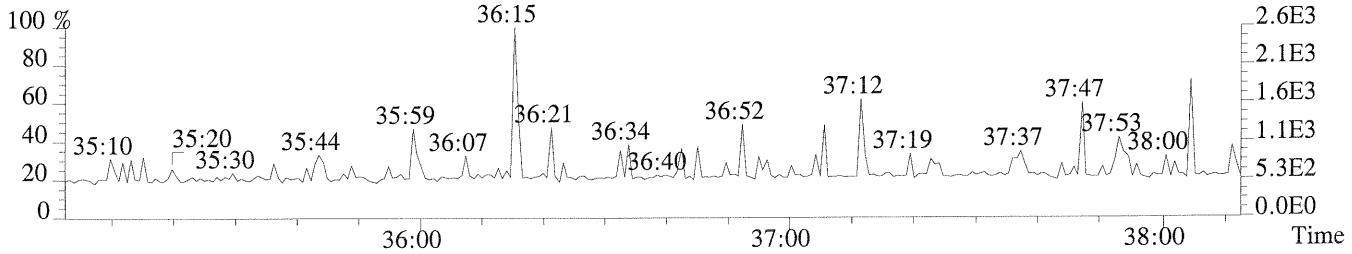
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,208.0,0.40%,F,T)



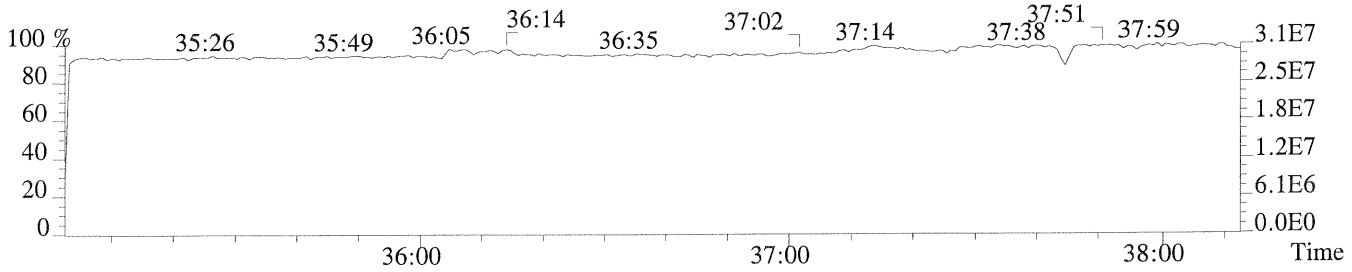
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

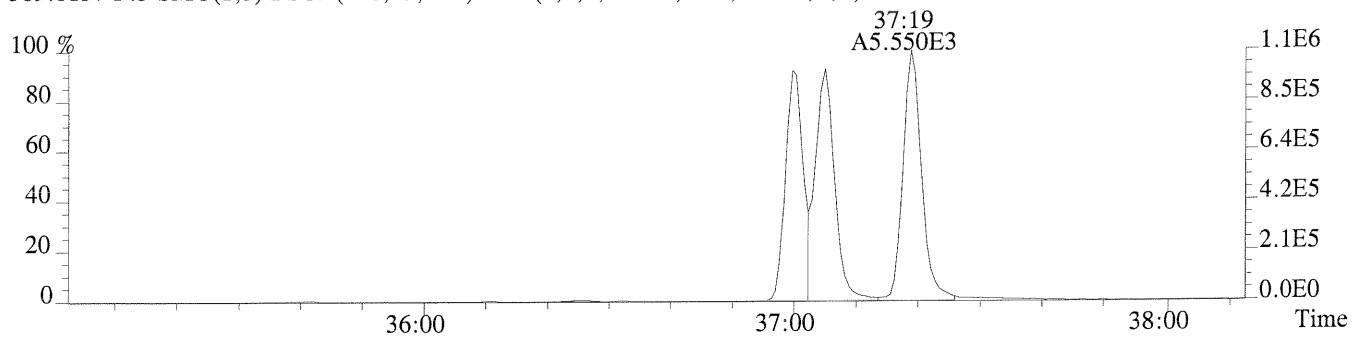


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

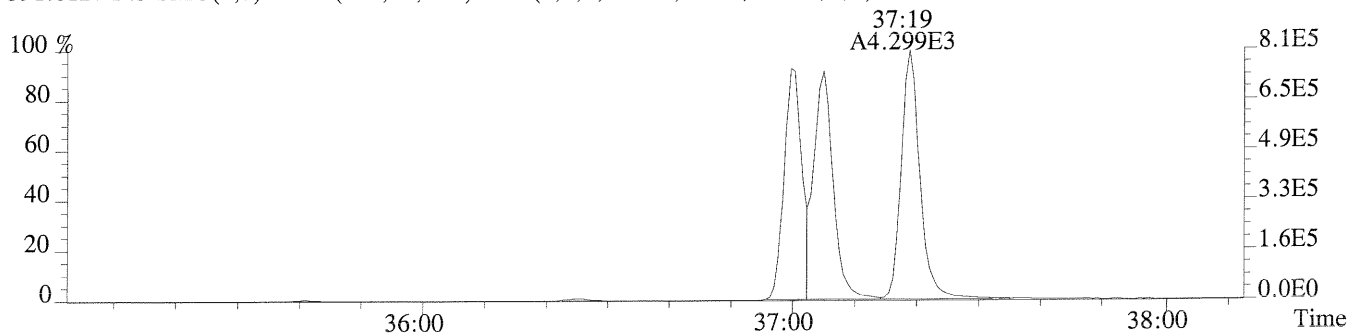


File:P229941 #1-288 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04

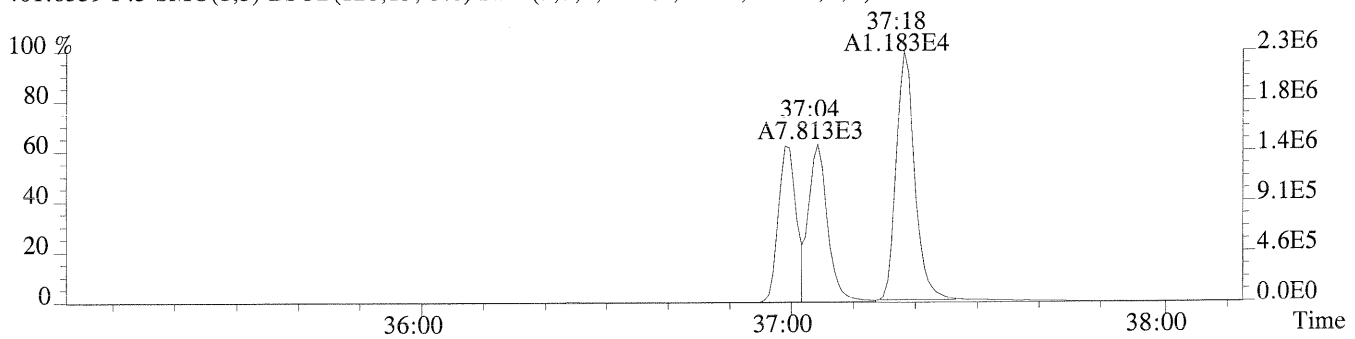
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,56.0,0.40%,F,T)



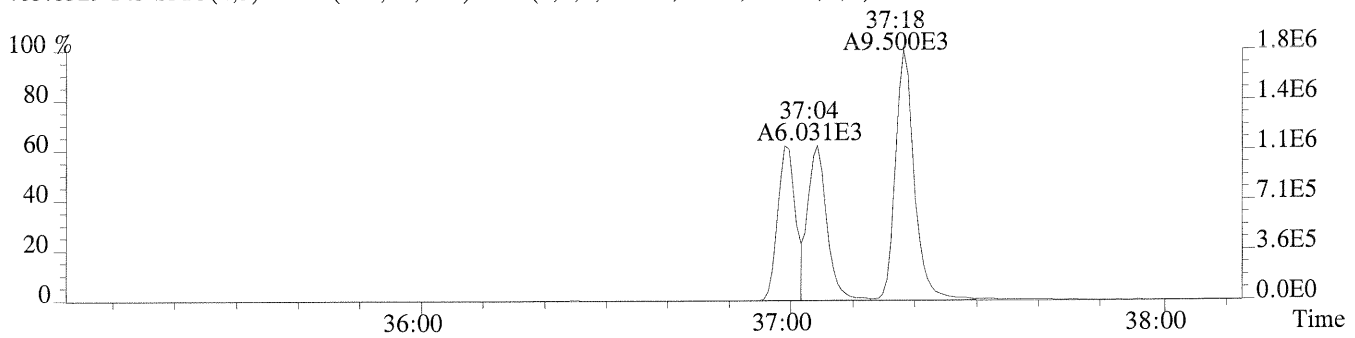
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,300.0,0.40%,F,T)



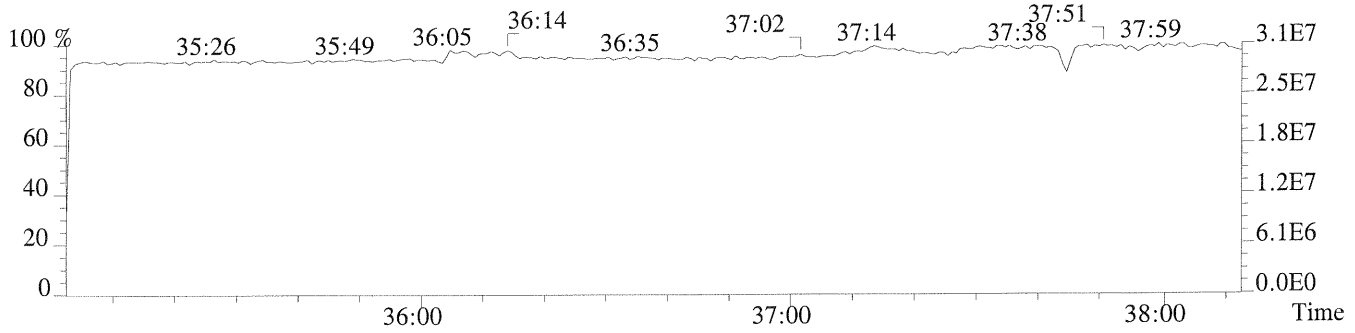
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)

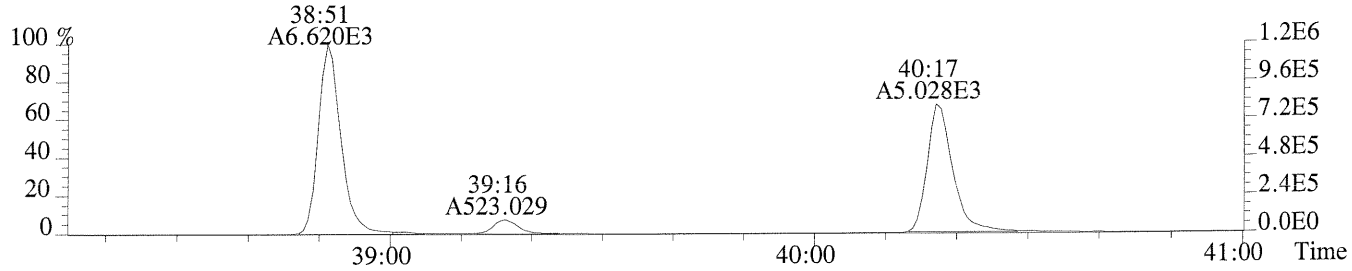


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

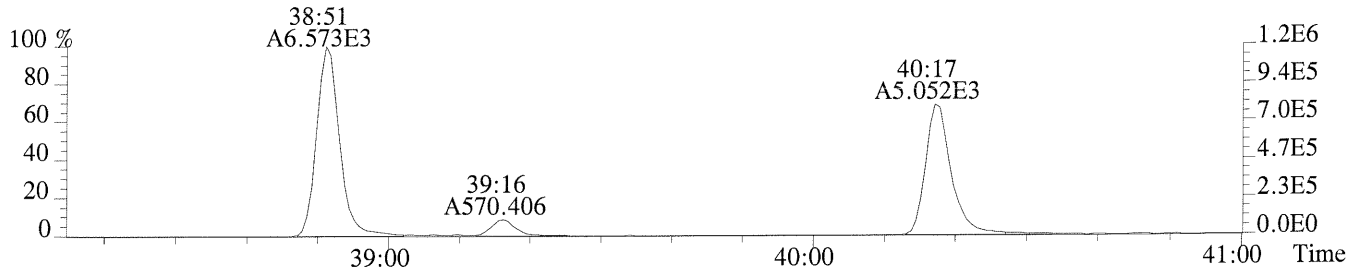


File:P229941 #1-251 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04

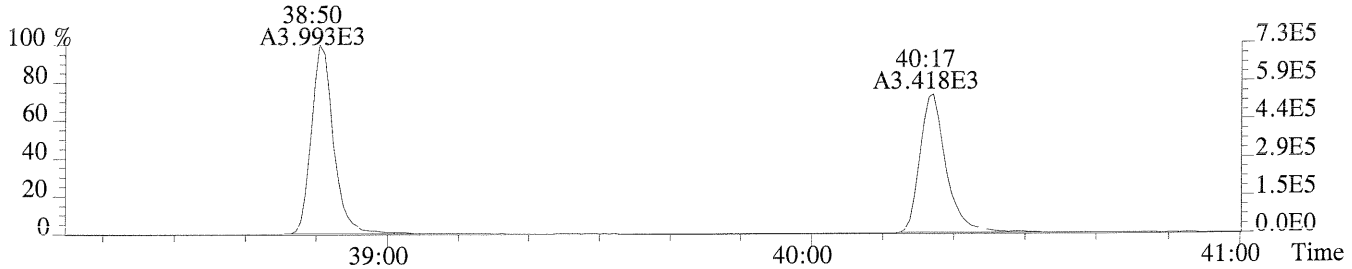
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.50%,F,T)



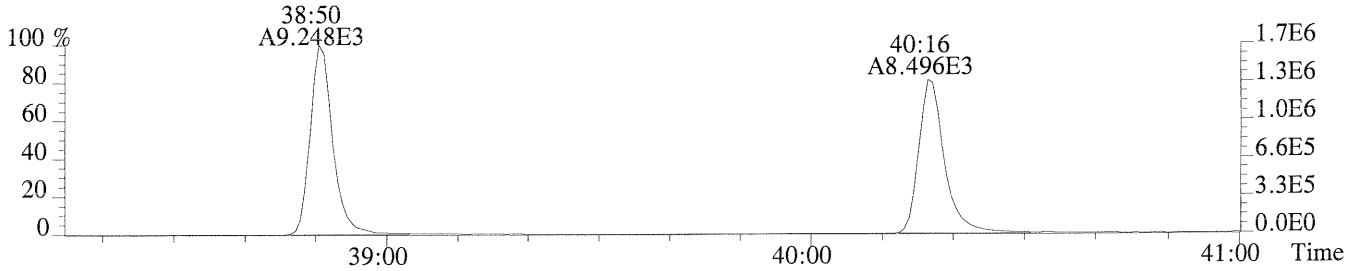
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1352.0,0.50%,F,T)



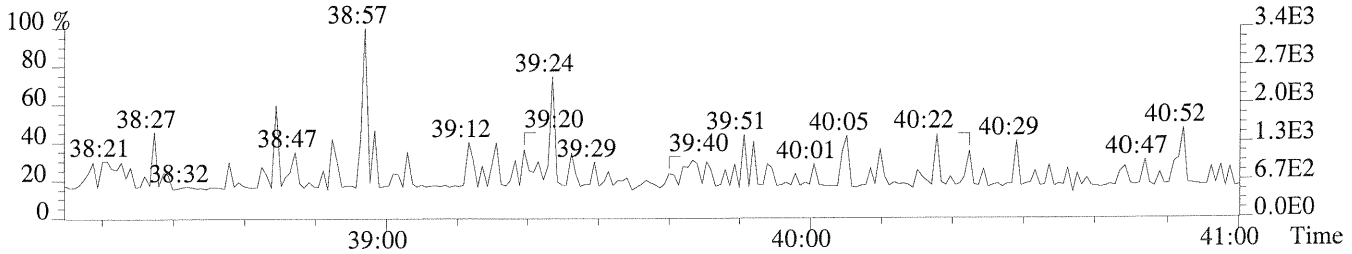
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.50%,F,T)



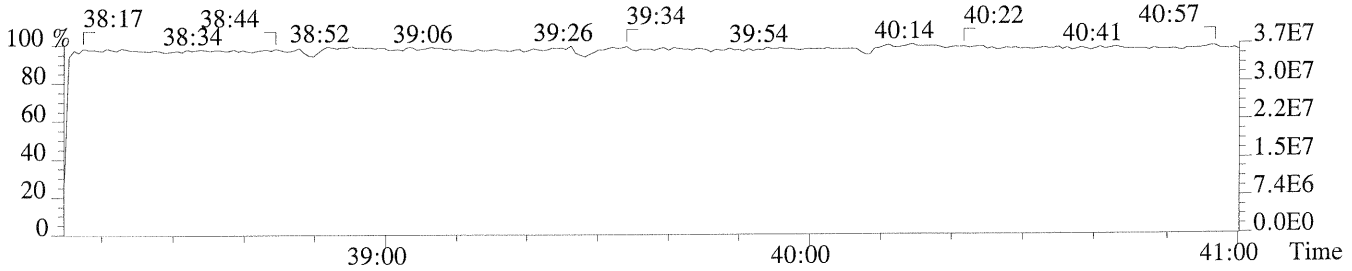
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.50%,F,T)



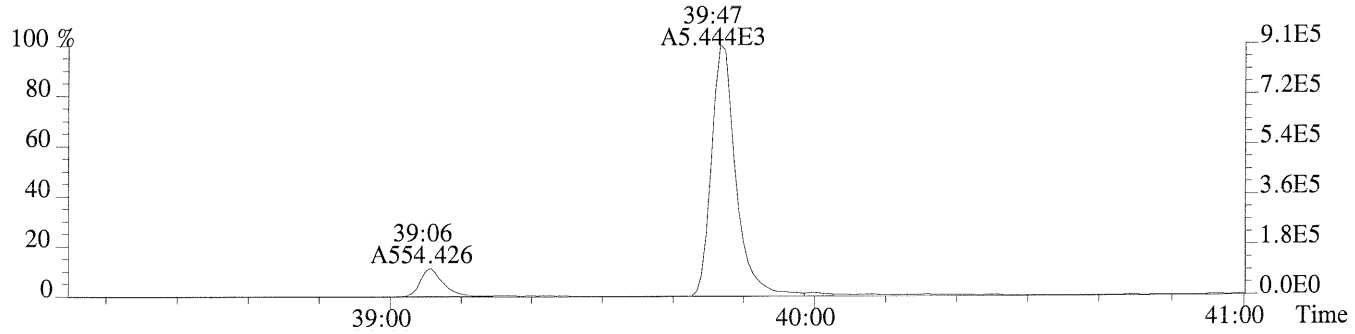
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



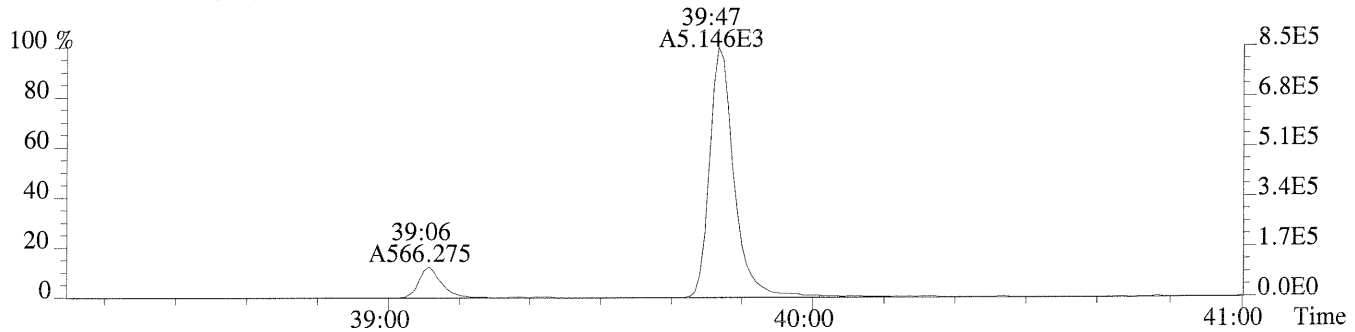
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



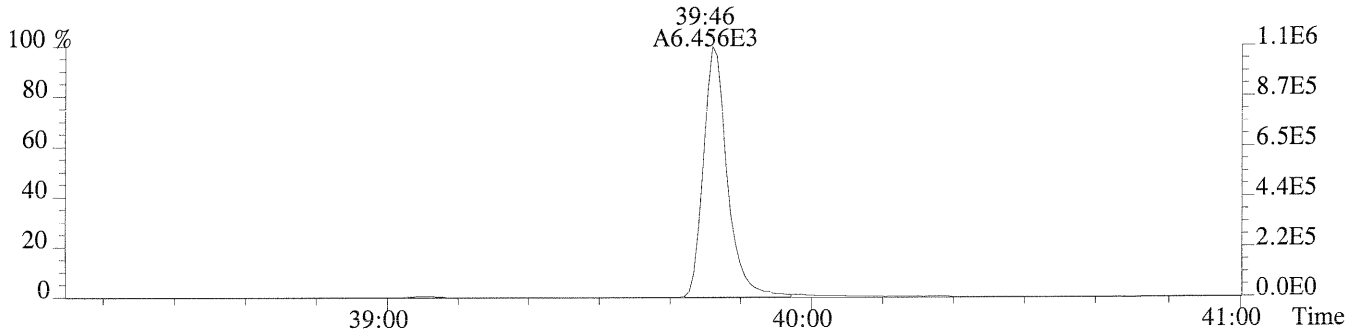
File:P229941 #1-251 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



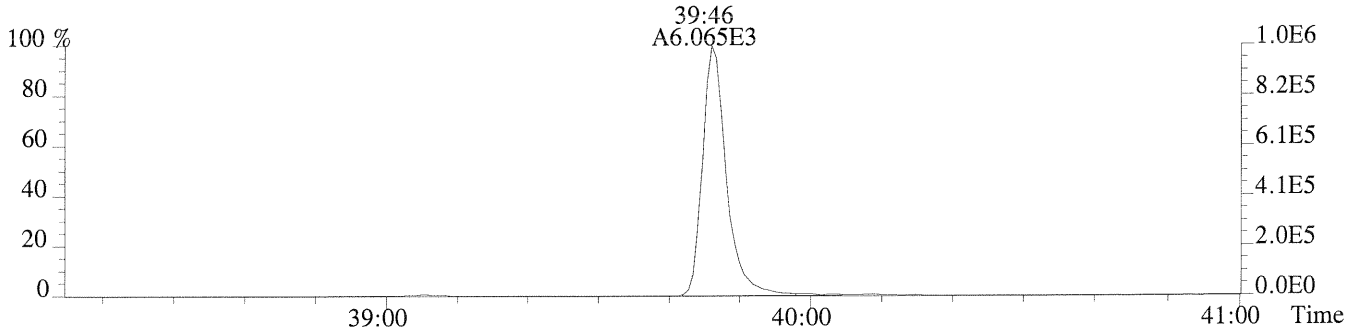
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,264.0,0.40%,F,T)



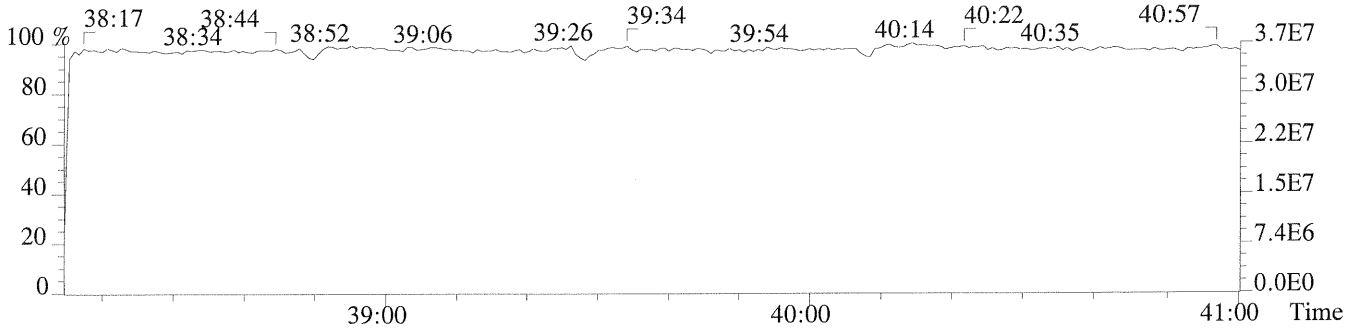
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



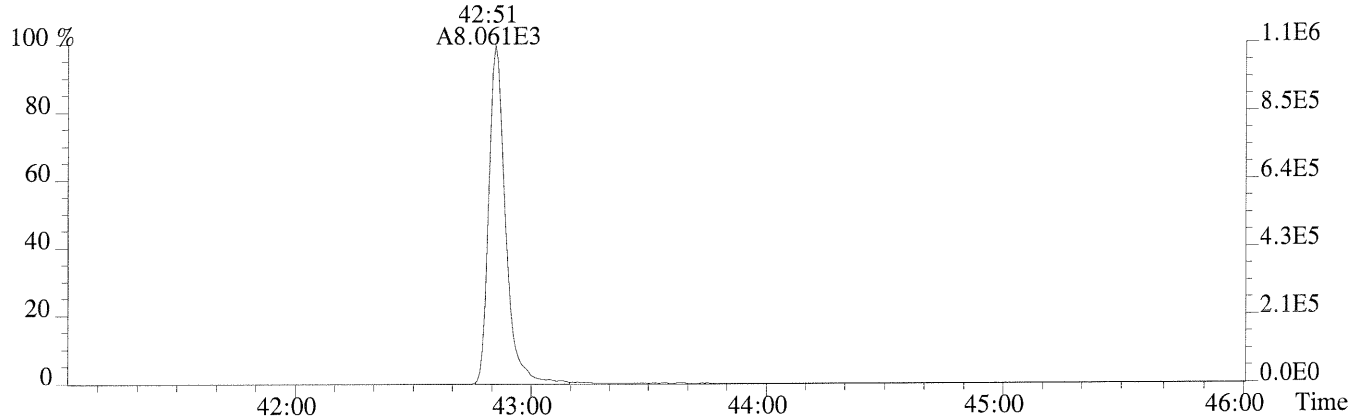
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,100.0,0.40%,F,T)



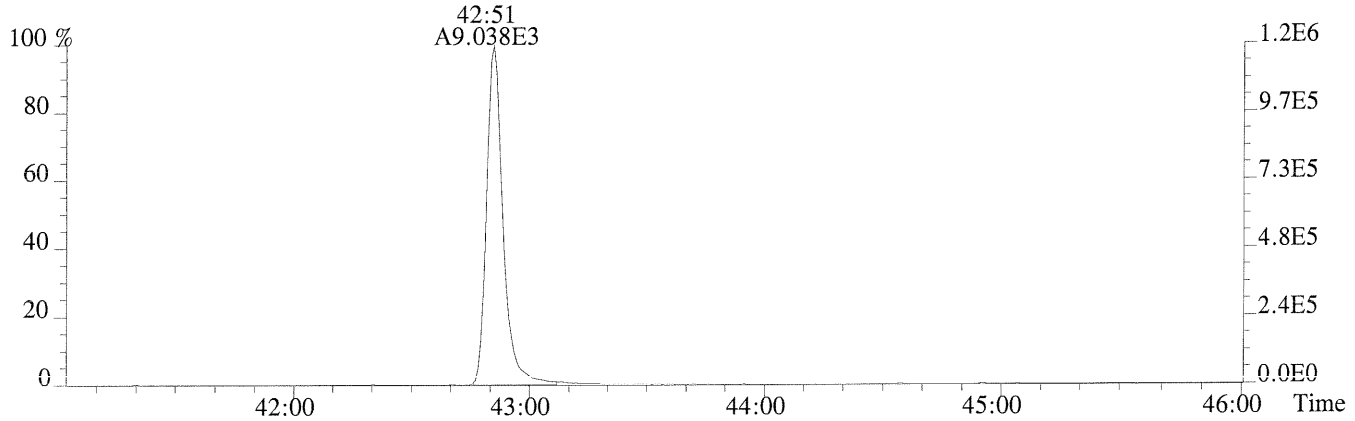
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



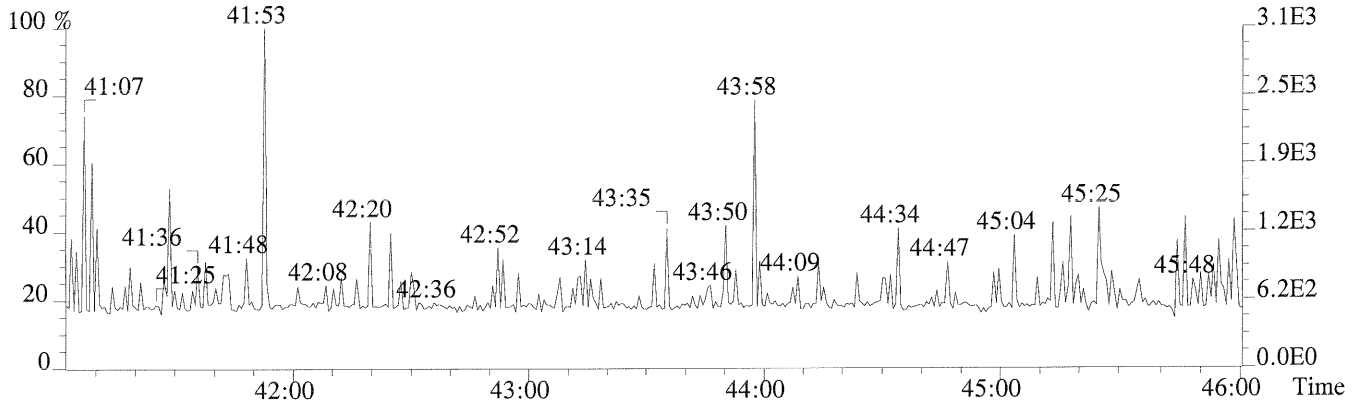
File:P229941 #1-457 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,184.0,0.40%,F,T)



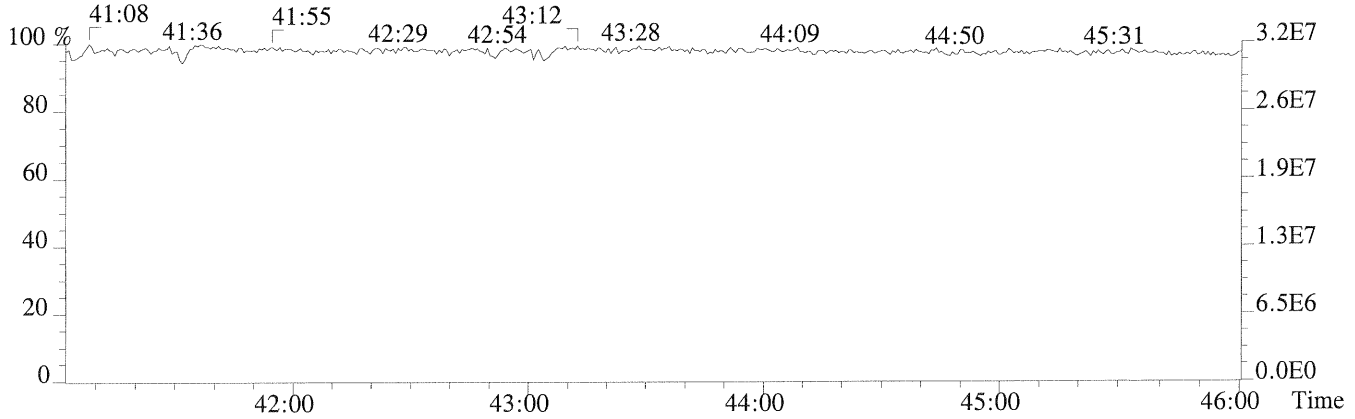
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



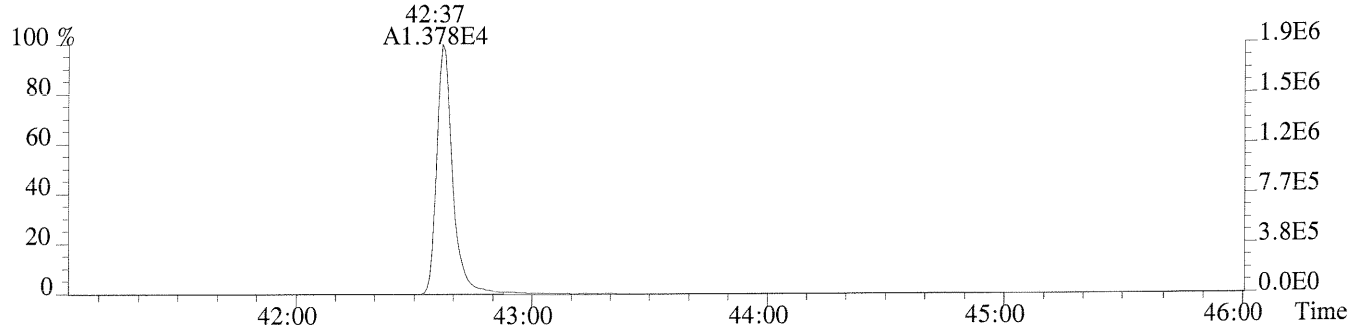
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



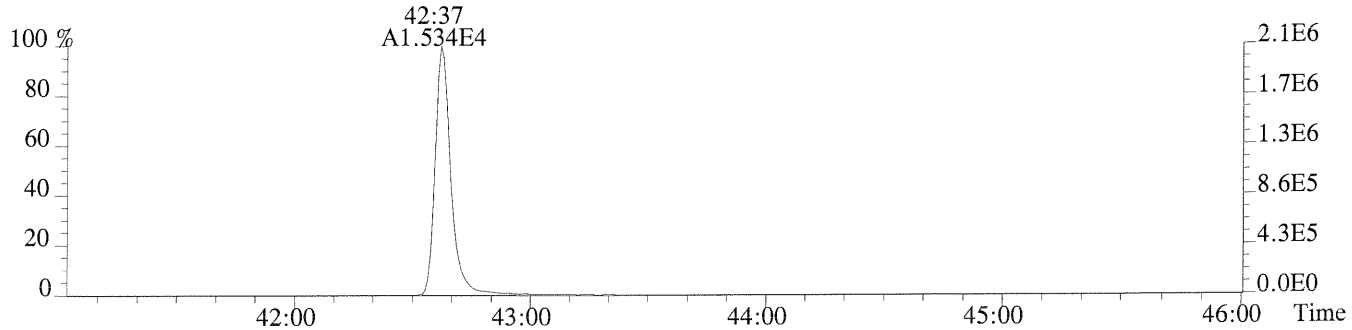
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



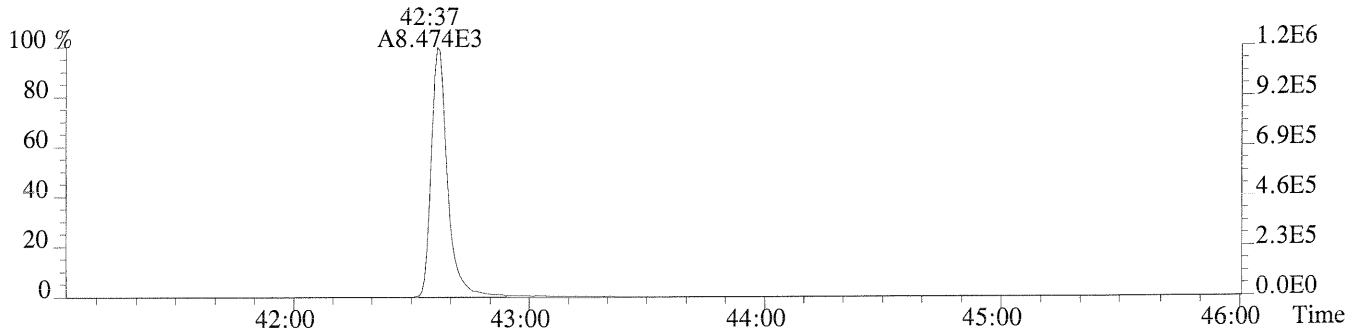
File:P229941 #1-457 Acq: 3-JUL-2014 07:42:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-04
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,88.0,0.40%,F,T)



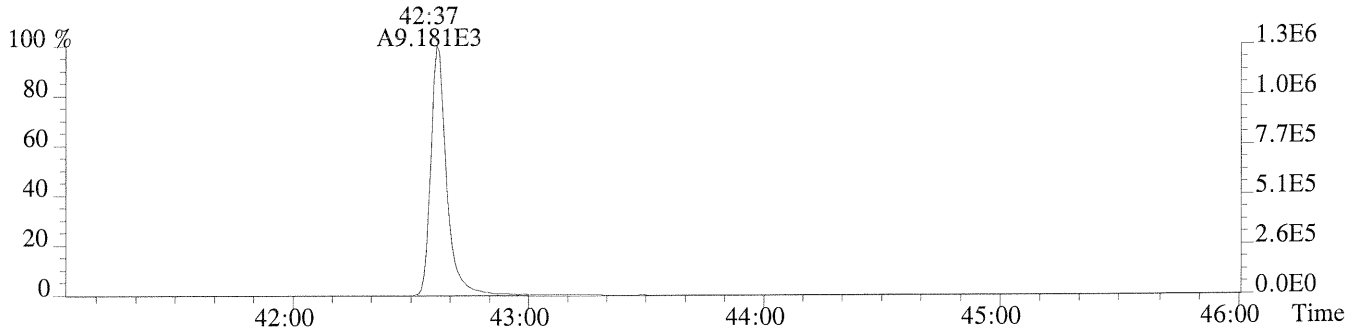
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



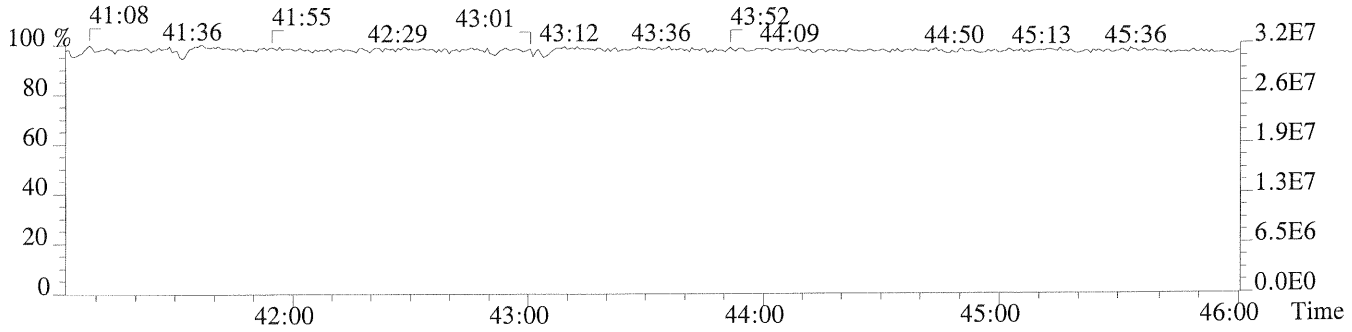
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,204.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,216.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406161548 20

Run #9 Filename P229942 Samp: 1 Inj: 1 Acquired: 3-JUL-14 08:30:45
Processed: 7-JUL-14 10:58:10 Sample ID: EQ1400342-05

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:40	6.633e+02	9.227e+02	0.72	yes	no	0.929
2	Unk	1,2,3,7,8-PeCDF	32:45	8.331e+03	5.261e+03	1.58	yes	no	1.048
3	Unk	2,3,4,7,8-PeCDF	33:39	7.373e+03	4.680e+03	1.58	yes	no	0.976
4	Unk	1,2,3,4,7,8-HxCDF	36:16	6.907e+03	5.665e+03	1.22	yes	no	1.254
5	Unk	1,2,3,6,7,8-HxCDF	36:23	8.209e+03	6.462e+03	1.27	yes	no	1.147
6	Unk	2,3,4,6,7,8-HxCDF	36:52	6.851e+03	5.538e+03	1.24	yes	no	1.161
7	Unk	1,2,3,7,8,9-HxCDF	37:37	6.170e+03	4.743e+03	1.30	yes	no	1.169
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	6.390e+03	6.330e+03	1.01	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:17	4.736e+03	4.746e+03	1.00	yes	no	1.309
10	Unk	OCDF	42:51	6.841e+03	7.431e+03	0.92	yes	no	1.462
11	Unk	2,3,7,8-TCDD	29:25	5.346e+02	6.567e+02	0.81	yes	no	0.989
12	Unk	1,2,3,7,8-PeCDD	33:55	5.405e+03	3.401e+03	1.59	yes	no	1.014
13	Unk	1,2,3,4,7,8-HxCDD	37:00	5.106e+03	3.779e+03	1.35	yes	no	1.114
14	Unk	1,2,3,6,7,8-HxCDD	37:04	5.184e+03	4.068e+03	1.27	yes	no	1.115
15	Unk	1,2,3,7,8,9-HxCDD	37:19	5.456e+03	4.303e+03	1.27	yes	no	1.207
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	4.194e+03	3.999e+03	1.05	yes	no	1.091
17	Unk	OCDD	42:37	5.545e+03	6.238e+03	0.89	yes	no	1.183
18	IS	13C-2,3,7,8-TCDF	28:39	5.698e+03	7.269e+03	0.78	yes	no	1.518
19	IS	13C-1,2,3,7,8-PeCDF	32:45	1.244e+04	7.913e+03	1.57	yes	no	2.114
20	IS	13C-2,3,4,7,8-PeCDF	33:38	1.183e+04	7.494e+03	1.58	yes	no	2.137
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	5.388e+03	1.033e+04	0.52	yes	no	1.126
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	7.544e+03	1.431e+04	0.53	yes	no	1.405
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	6.535e+03	1.291e+04	0.51	yes	no	1.260
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	4.965e+03	9.875e+03	0.50	yes	no	1.145
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	3.854e+03	9.130e+03	0.42	yes	no	1.049
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	3.484e+03	8.112e+03	0.43	yes	no	0.926
27	IS	13C-2,3,7,8-TCDD	29:24	3.828e+03	4.982e+03	0.77	yes	no	0.993
28	IS	13C-1,2,3,7,8-PeCDD	33:54	8.891e+03	5.461e+03	1.63	yes	no	1.363
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	7.659e+03	5.872e+03	1.30	yes	no	0.821
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	7.971e+03	5.989e+03	1.33	yes	no	0.960
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	6.728e+03	6.199e+03	1.09	yes	no	0.936
32	IS	13C-OCDD	42:37	7.678e+03	8.536e+03	0.90	yes	no	0.735
33	RS/RT	13C-1,2,3,4-TCDD	28:50	7.039e+03	9.097e+03	0.77	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.235e+04	9.475e+03	1.30	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:25	2.984e+03				no	0.993

$$\text{OCDD} = \frac{(5.545e+03 + 6.238e+03) \times 4000 \text{ pg} \times 1}{(7.678e+03 + 8.536e+03) \times 10.0969 \times 98.7 \times 1.183} = 246.589 \text{ ng/kg}$$

MM 07/08/14

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1613RESP1

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Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406161548 200-S

Run #9 Filename P229942 Samp: 1 Inj: 1 Acquired: 3-JUL-14 08:30:45
Processed: 7-JUL-14 10:58:101 LAB. ID: EQ1400342-05

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.27e+05	1.88e+02	6.8e+02	1.74e+05	8.08e+02	2.2e+02
2	1,2,3,7,8-PeCDF	1.42e+06	7.60e+01	1.9e+04	9.01e+05	3.96e+02	2.3e+03
3	2,3,4,7,8-PeCDF	1.35e+06	7.60e+01	1.8e+04	8.55e+05	3.96e+02	2.2e+03
4	1,2,3,4,7,8-HxCDF	1.36e+06	2.36e+02	5.8e+03	1.12e+06	4.00e+01	2.8e+04
5	1,2,3,6,7,8-HxCDF	1.48e+06	2.36e+02	6.3e+03	1.15e+06	4.00e+01	2.9e+04
6	2,3,4,6,7,8-HxCDF	1.31e+06	2.36e+02	5.6e+03	1.06e+06	4.00e+01	2.6e+04
7	1,2,3,7,8,9-HxCDF	1.09e+06	2.36e+02	4.6e+03	8.43e+05	4.00e+01	2.1e+04
8	1,2,3,4,6,7,8-HpCDF	1.15e+06	1.14e+03	1.0e+03	1.13e+06	7.96e+02	1.4e+03
9	1,2,3,4,7,8,9-HpCDF	7.91e+05	1.14e+03	6.9e+02	7.65e+05	7.96e+02	9.6e+02
10	OCDF	9.37e+05	1.80e+02	5.2e+03	9.98e+05	6.16e+02	1.6e+03
11	2,3,7,8-TCDD	9.95e+04	3.64e+02	2.7e+02	1.31e+05	3.36e+02	3.9e+02
12	1,2,3,7,8-PeCDD	9.88e+05	4.28e+02	2.3e+03	6.00e+05	4.40e+01	1.4e+04
13	1,2,3,4,7,8-HxCDD	1.02e+06	3.48e+02	2.9e+03	7.45e+05	3.60e+02	2.1e+03
14	1,2,3,6,7,8-HxCDD	9.53e+05	3.48e+02	2.7e+03	7.75e+05	3.60e+02	2.2e+03
15	1,2,3,7,8,9-HxCDD	1.01e+06	3.48e+02	2.9e+03	7.78e+05	3.60e+02	2.2e+03
16	1,2,3,4,6,7,8-HpCDD	7.25e+05	2.44e+02	3.0e+03	6.74e+05	1.40e+02	4.8e+03
17	OCDD	7.88e+05	2.64e+02	3.0e+03	8.69e+05	1.32e+02	6.6e+03
18	13C-2,3,7,8-TCDF	1.07e+06	7.40e+02	1.4e+03	1.37e+06	4.84e+02	2.8e+03
19	13C-1,2,3,7,8-PeCDF	2.10e+06	3.60e+01	5.8e+04	1.36e+06	2.32e+02	5.8e+03
20	13C-2,3,4,7,8-PeCDF	2.11e+06	3.60e+01	5.8e+04	1.33e+06	2.32e+02	5.7e+03
21	13C-1,2,3,4,7,8-HxCDF	1.06e+06	3.24e+02	3.3e+03	2.00e+06	8.20e+02	2.4e+03
22	13C-1,2,3,6,7,8-HxCDF	1.39e+06	3.24e+02	4.3e+03	2.57e+06	8.20e+02	3.1e+03
23	13C-2,3,4,6,7,8-HxCDF	1.25e+06	3.24e+02	3.9e+03	2.47e+06	8.20e+02	3.0e+03
24	13C-1,2,3,7,8,9-HxCDF	9.08e+05	3.24e+02	2.8e+03	1.78e+06	8.20e+02	2.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	7.03e+05	6.96e+02	1.0e+03	1.67e+06	7.16e+02	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.59e+05	6.96e+02	8.0e+02	1.32e+06	7.16e+02	1.8e+03
27	13C-2,3,7,8-TCDD	7.62e+05	2.12e+03	3.6e+02	1.00e+06	1.06e+03	9.4e+02
28	13C-1,2,3,7,8-PeCDD	1.60e+06	5.08e+02	3.2e+03	9.82e+05	1.68e+02	5.8e+03
29	13C-1,2,3,4,7,8-HxCDD	1.50e+06	3.96e+02	3.8e+03	1.16e+06	1.68e+02	6.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.50e+06	3.96e+02	3.8e+03	1.15e+06	1.68e+02	6.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.13e+06	5.92e+02	1.9e+03	1.04e+06	7.20e+01	1.5e+04
32	13C-OCDD	1.08e+06	2.24e+02	4.8e+03	1.18e+06	2.24e+02	5.3e+03
33	13C-1,2,3,4-TCDD	1.37e+06	2.12e+03	6.5e+02	1.78e+06	1.06e+03	1.7e+03
34	13C-1,2,3,7,8,9-HxCDD	2.27e+06	3.96e+02	5.7e+03	1.76e+06	1.68e+02	1.0e+04
35	37Cl-2,3,7,8-TCDD	5.86e+05	1.28e+02	4.6e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 36 Totals Name: Total Tetra-Furans

Run: 9 File: P229942 Sample: 1 Injection: 1 Function: 1
Llim: 24:08 Ulim: 30:37
Acquired: 3-JUL-14 08:30:45 Processed: 7-JUL-14 10:58:10
Mass: 303.9020 305.8990 Tot Response: 1.59e+03 RRF: 0.9290

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:40	6.63e+02	9.23e+02	0.72	yes	1.59e+03	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 9 File: P229942 Sample: 1 Injection: 1 Function: 1
Llim: 26:02 Ulim: 30:25
Acquired: 3-JUL-14 08:30:45 Processed: 7-JUL-14 10:58:10
Mass: 319.8970 321.8940 Tot Response: 1.19e+03 RRF: 0.9891

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:25	5.35e+02	6.57e+02	0.81	yes	1.19e+03	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 39 Totals Name: Total Penta-Furan2

Run: 9 File: P229942 Sample: 1 Injection: 1 Function: 2
Llim: 30:18 Ulim: 34:43
Acquired: 3-JUL-14 08:30:45 Processed: 7-JUL-14 10:58:10
Mass: 339.8600 341.8570 Tot Response: 2.60e+04 RRF: 1.012

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:21	9.52e+01	6.33e+01	1.50	yes	1.58e+02		n	n
2	32:45	8.33e+03	5.26e+03	1.58	yes	1.36e+04	1,2,3,7,8-PeCDF	n	n
3	32:59	1.38e+02	9.32e+01	1.48	yes	2.31e+02		n	n
4	33:39	7.37e+03	4.68e+03	1.58	yes	1.21e+04	2,3,4,7,8-PeCDF	n	n

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Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 9 File: P229942 Sample: 1 Injection: 1 Function: 2
Llim: 31:47 Ulim: 34:26
Acquired: 3-JUL-14 08:30:45 Processed: 7-JUL-14 10:58:10
Mass: 355.8550 357.8520 Tot Response: 8.81e+03 RRF: 1.014

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:55	5.41e+03	3.40e+03	1.59	yes	8.81e+03	1,2,3,7,8-PeCDD	n	n

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Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 41 Totals Name: Total Hexa-Furans

Run: 9 File: P229942 Sample: 1 Injection: 1 Function: 3
Llim: 35:05 Ulim: 37:49
Acquired: 3-JUL-14 08:30:45 Processed: 7-JUL-14 10:58:10
Mass: 373.8210 375.8180 Tot Response: 5.05e+04 RRF: 1.180

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:16	6.91e+03	5.67e+03	1.22	yes	1.26e+04	1,2,3,4,7,8-HxCDF	n	n
2	36:23	8.21e+03	6.46e+03	1.27	yes	1.47e+04	1,2,3,6,7,8-HxCDF	n	n
3	36:52	6.85e+03	5.54e+03	1.24	yes	1.24e+04	2,3,4,6,7,8-HxCDF	n	n
4	37:37	6.17e+03	4.74e+03	1.30	yes	1.09e+04	1,2,3,7,8,9-HxCDF	n	n

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Peak List Summary

CLIENT ID.

1406161548 200-S7

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 9 File: P229942 Sample: 1 Injection: 1 Function: 3
Llim: 35:36 Ulim: 37:24
Acquired: 3-JUL-14 08:30:45 Processed: 7-JUL-14 10:58:10
Mass: 389.8160 391.8130 Tot Response: 2.79e+04 RRF: 1.145

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:00	5.11e+03	3.78e+03	1.35	yes	8.88e+03	1,2,3,4,7,8-HxCDD	n	n
2	37:04	5.18e+03	4.07e+03	1.27	yes	9.25e+03	1,2,3,6,7,8-HxCDD	n	n
3	37:19	5.46e+03	4.30e+03	1.27	yes	9.76e+03	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 43 Totals Name: Total Hepta-Furans

Run: 9 File: P229942 Sample: 1 Injection: 1 Function: 4
Llim: 38:46 Ulim: 40:28
Acquired: 3-JUL-14 08:30:45 Processed: 7-JUL-14 10:58:10
Mass: 407.7820 409.7790 Tot Response: 2.22e+04 RRF: 1.343

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:51	6.39e+03	6.33e+03 1.01	yes	1.27e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	40:17	4.74e+03	4.75e+03 1.00	yes	9.48e+03	1,2,3,4,7,8,9-HpCDF	n	n

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Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 9 File: P229942 Sample: 1 Injection: 1 Function: 4
Llim: 39:01 Ulim: 39:57
Acquired: 3-JUL-14 08:30:45 Processed: 7-JUL-14 10:58:10
Mass: 423.7770 425.7740 Tot Response: 8.26e+03 RRF: 1.091

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:05	3.55e+01	3.08e+01	1.15	yes	6.63e+01		n	n
2	39:47	4.19e+03	4.00e+03	1.05	yes	8.19e+03	1,2,3,4,6,7,8-HpCDD	n	n

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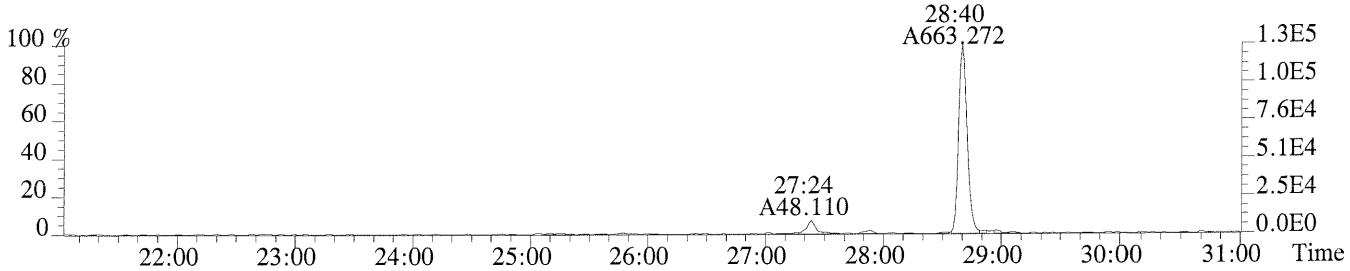
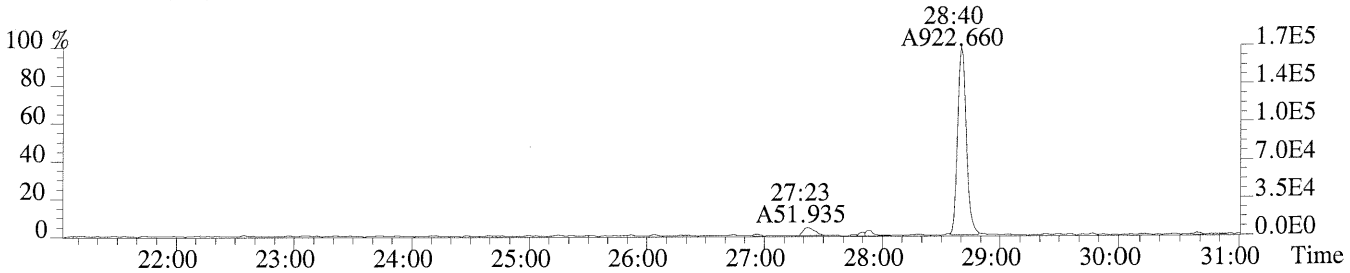
File:P229942 #1-627 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05

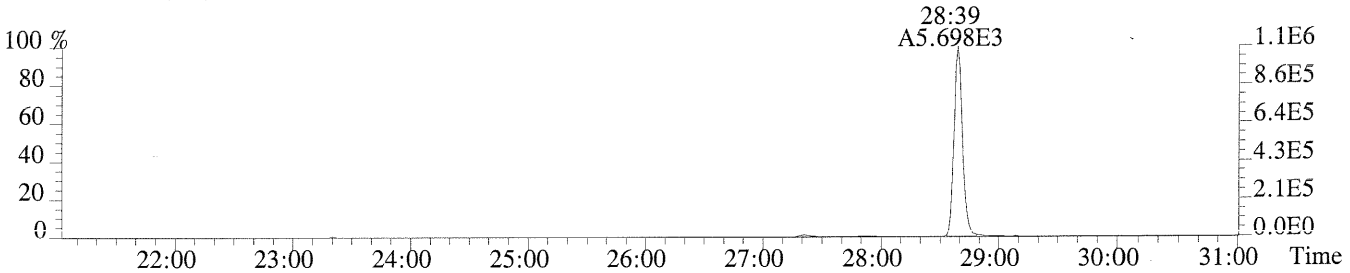
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,188.0,1.00%,F,T)



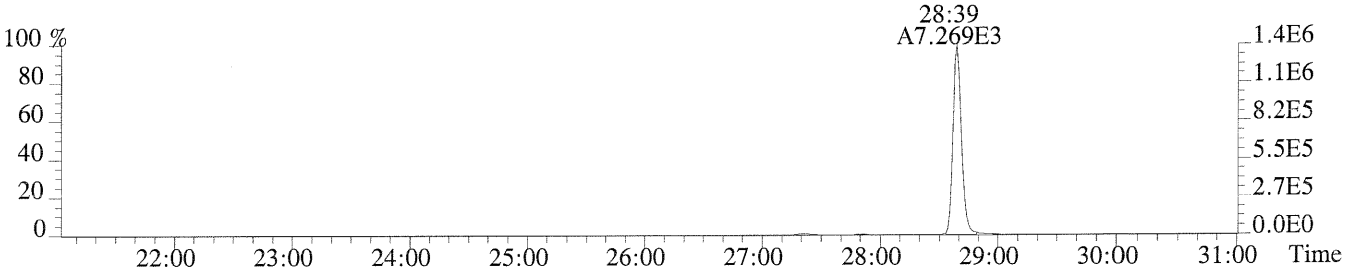
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



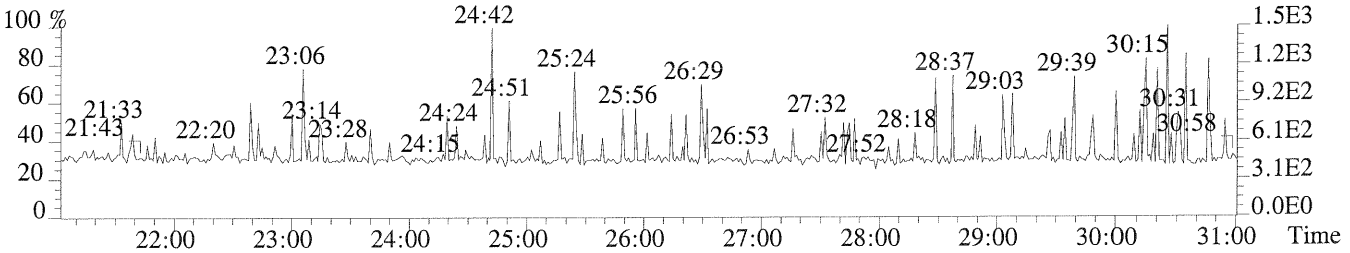
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



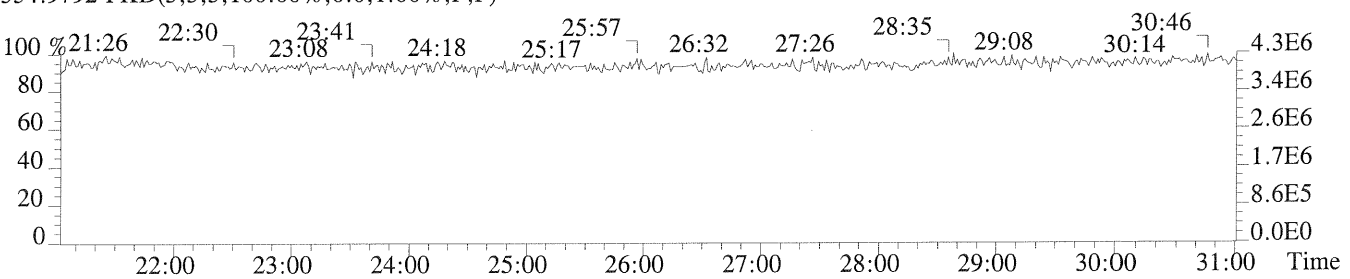
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



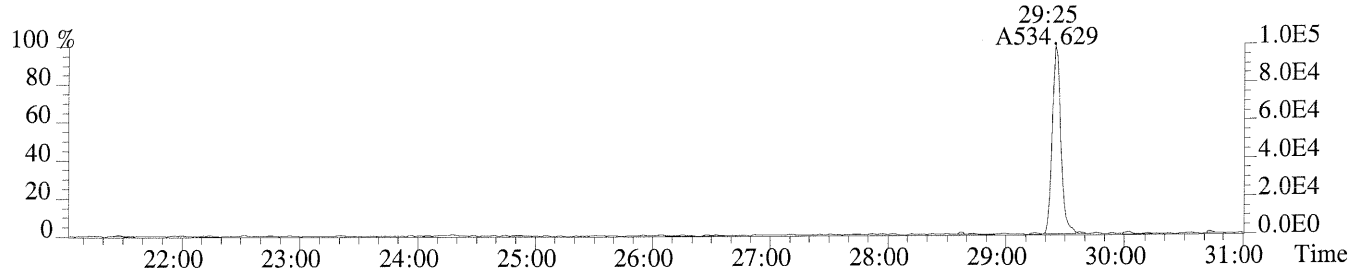
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



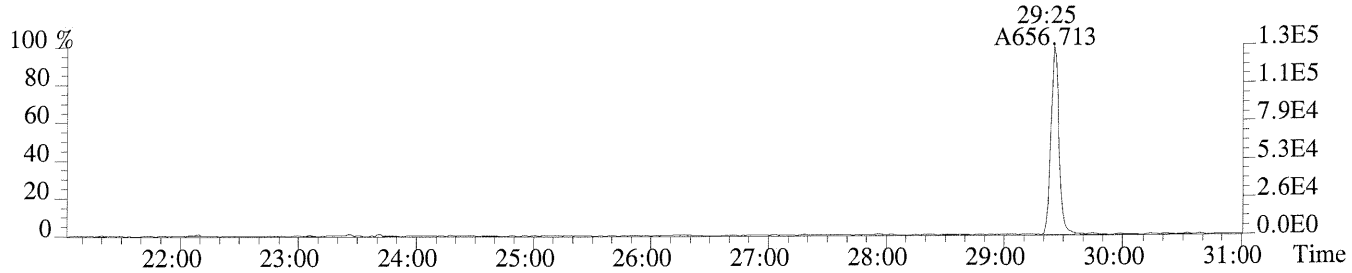
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



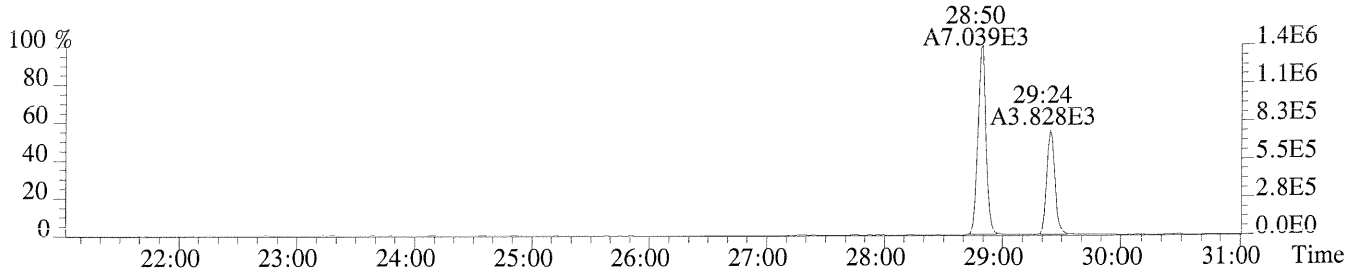
File:P229942 #1-627 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



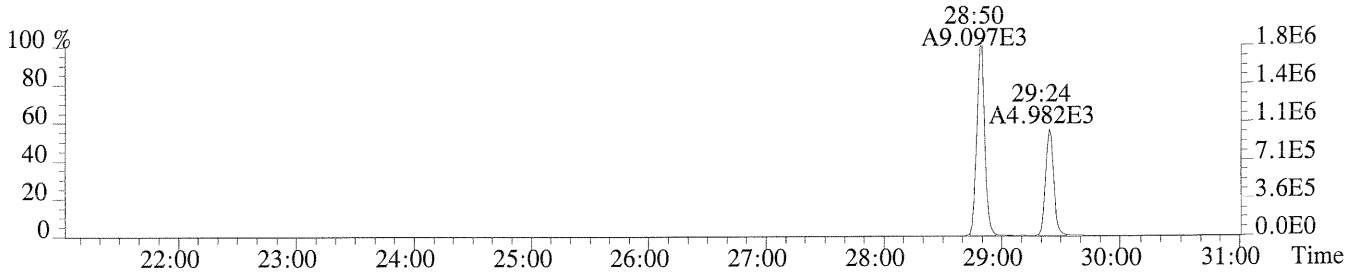
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



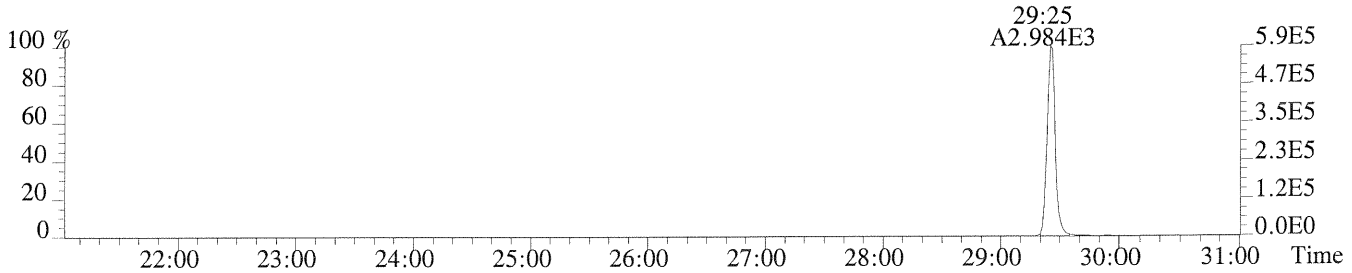
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2116.0,1.00%,F,T)



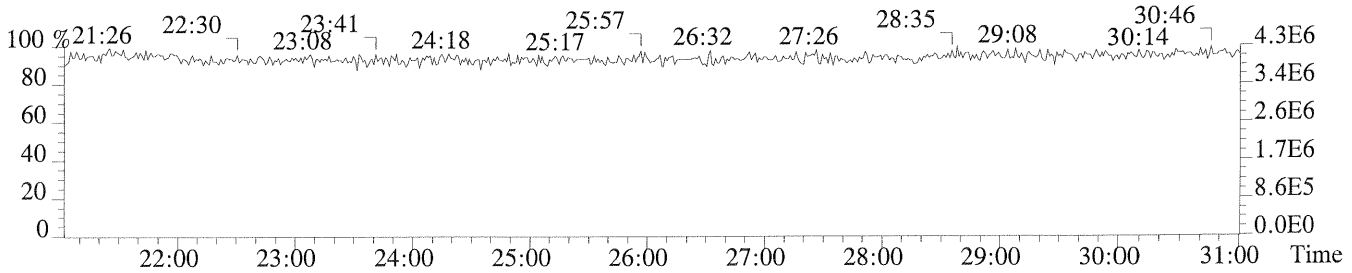
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



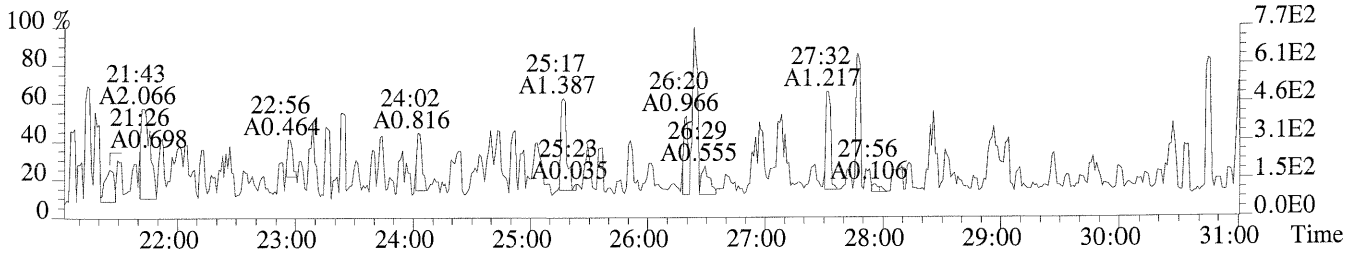
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)



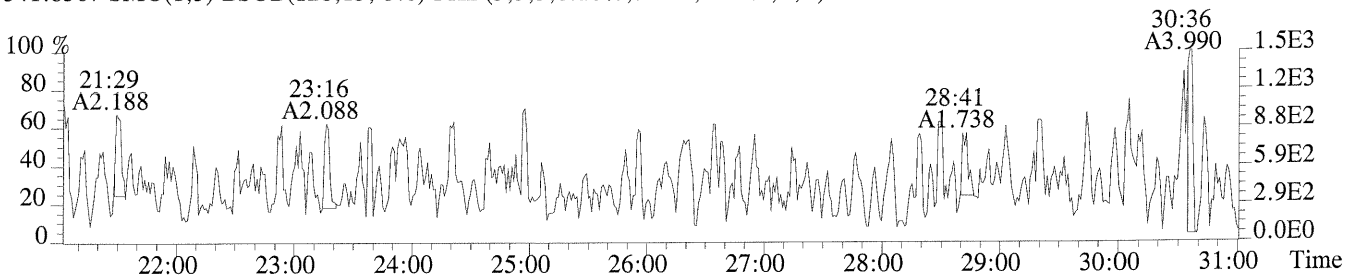
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



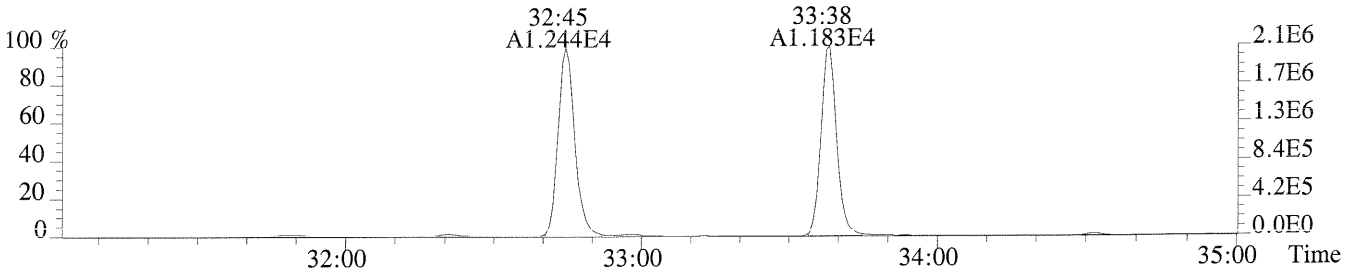
File:P229942 #1-627 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



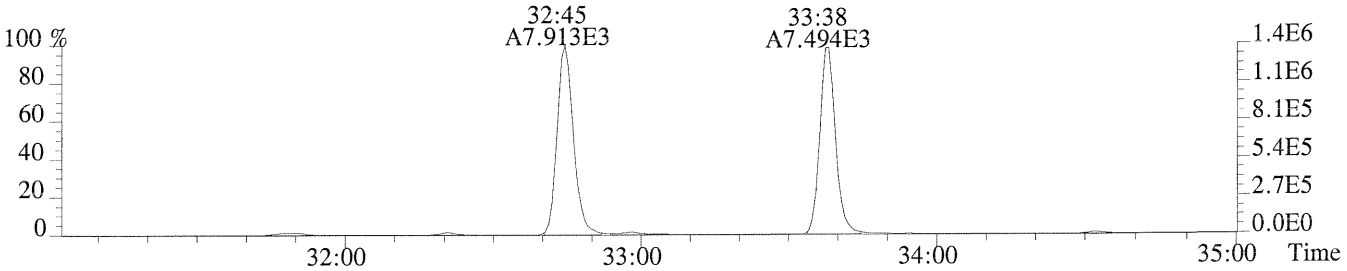
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



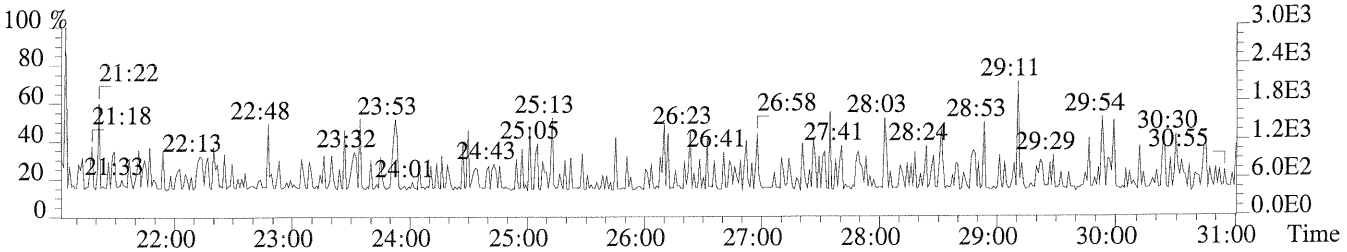
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,36.0,1.00%,F,T)



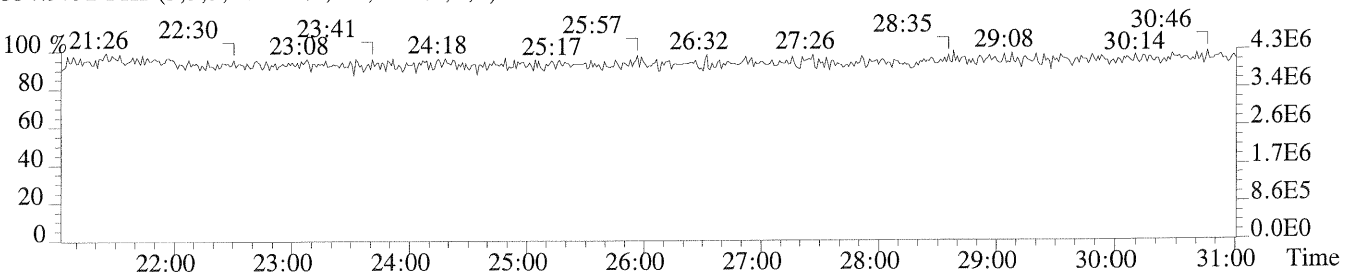
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

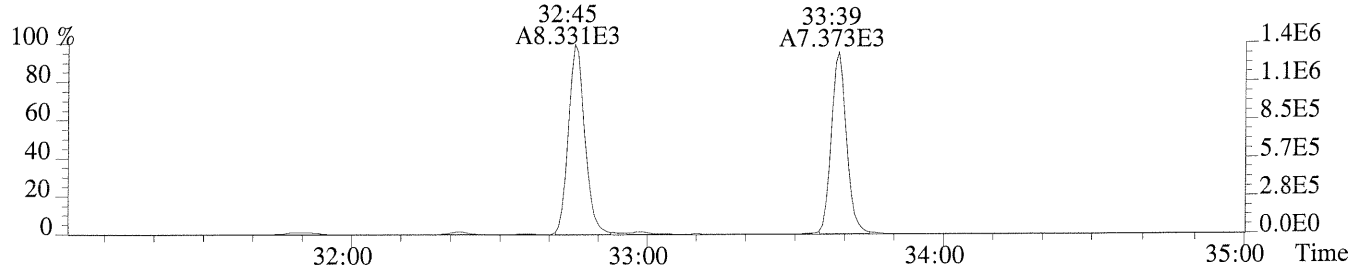


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

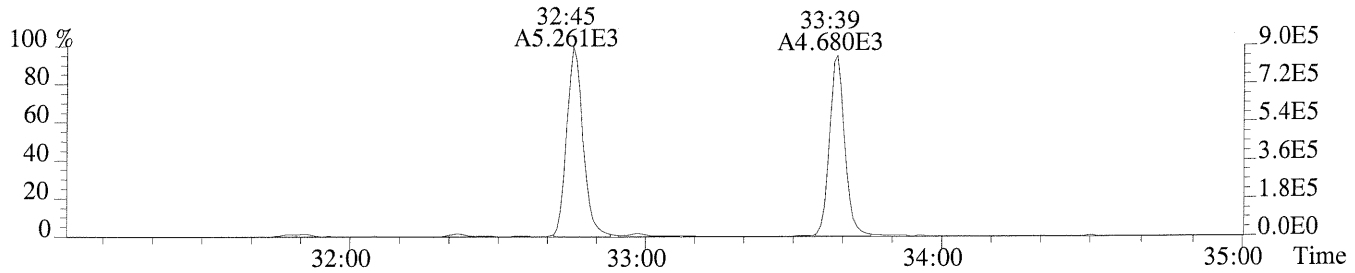


File:P229942 #1-360 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05

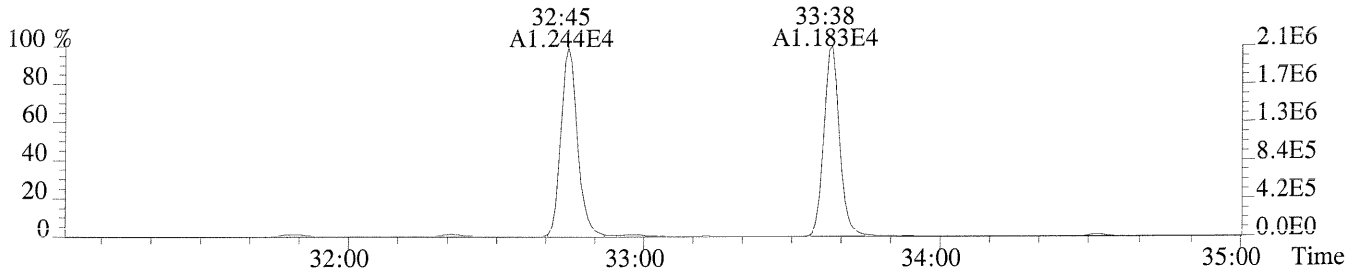
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,76.0,1.00%,F,T)



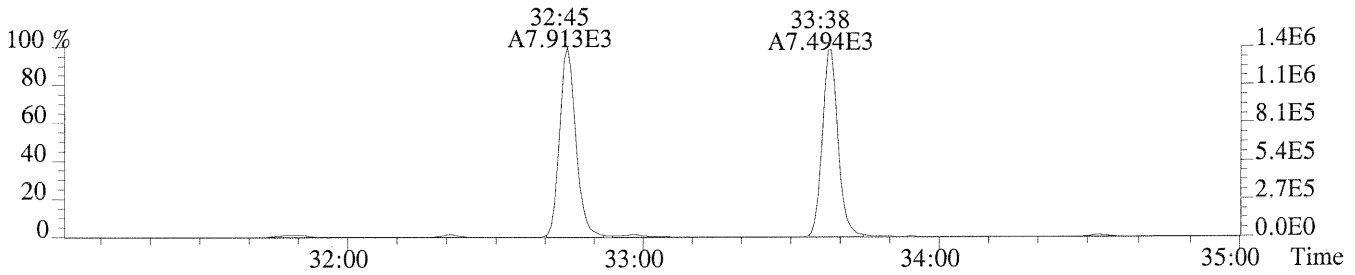
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



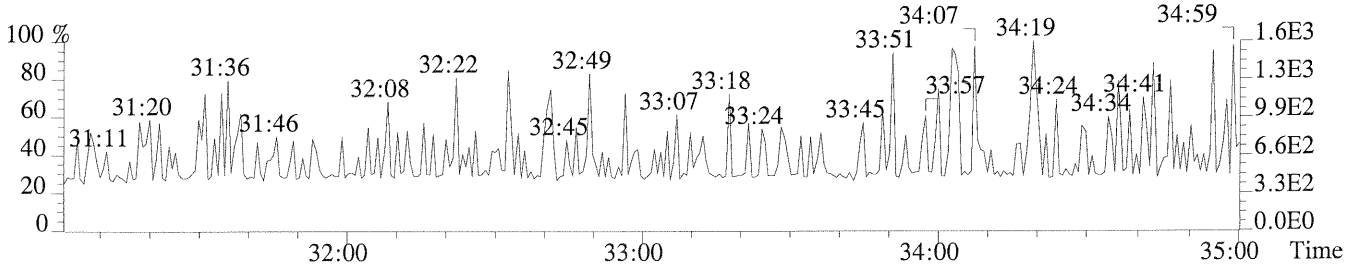
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,36.0,1.00%,F,T)



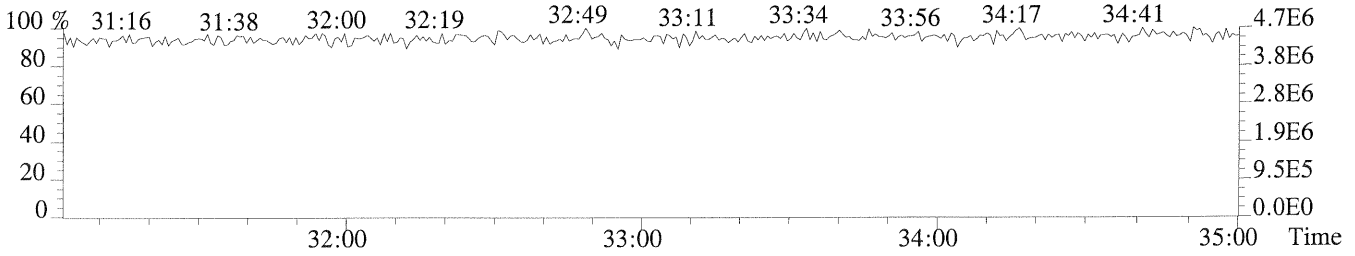
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,232.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

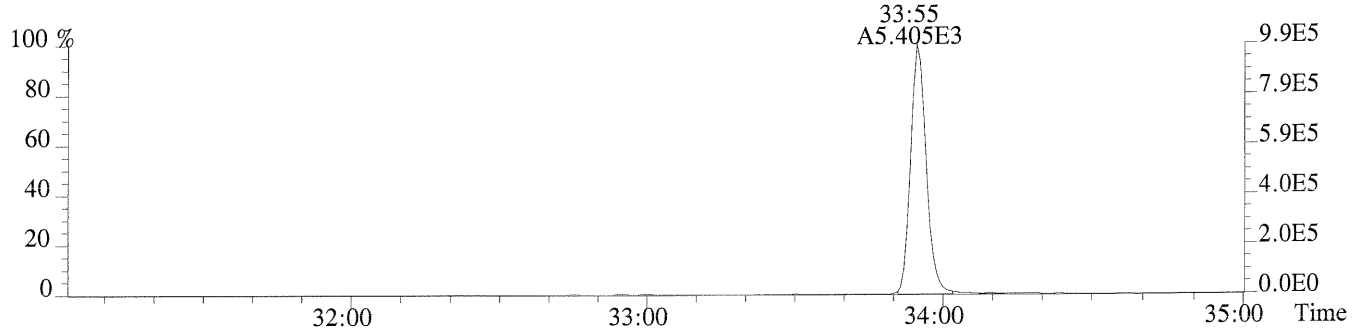


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

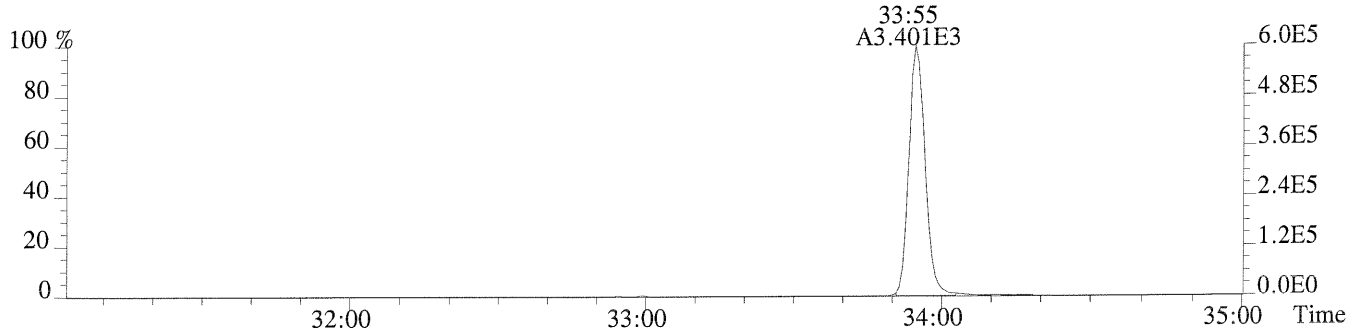


File:P229942 #1-360 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05

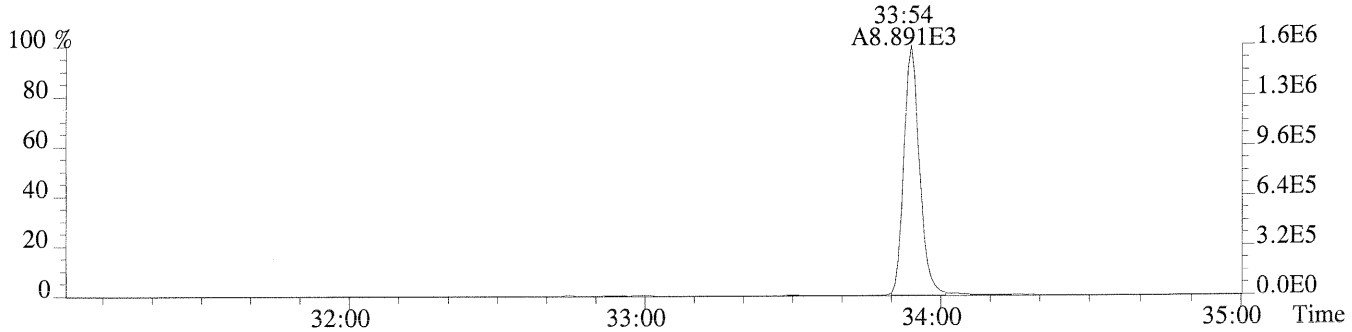
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



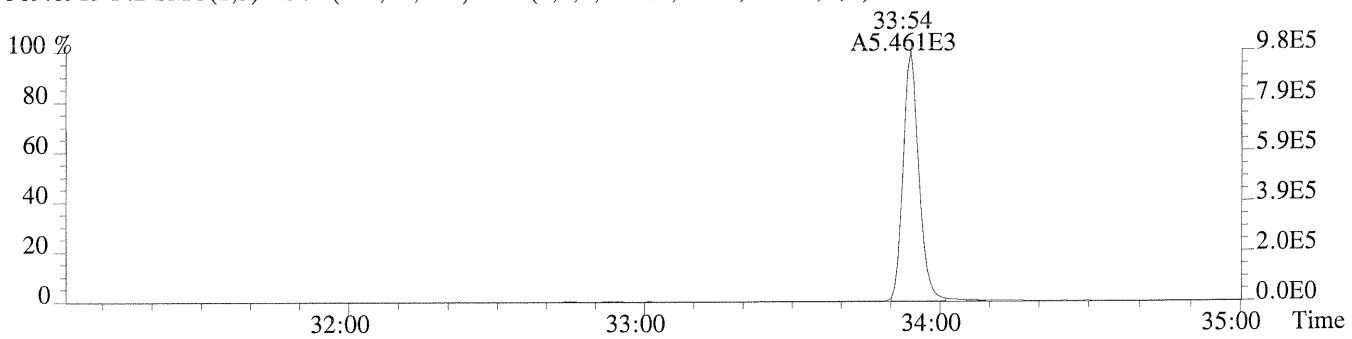
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,44.0,1.00%,F,T)



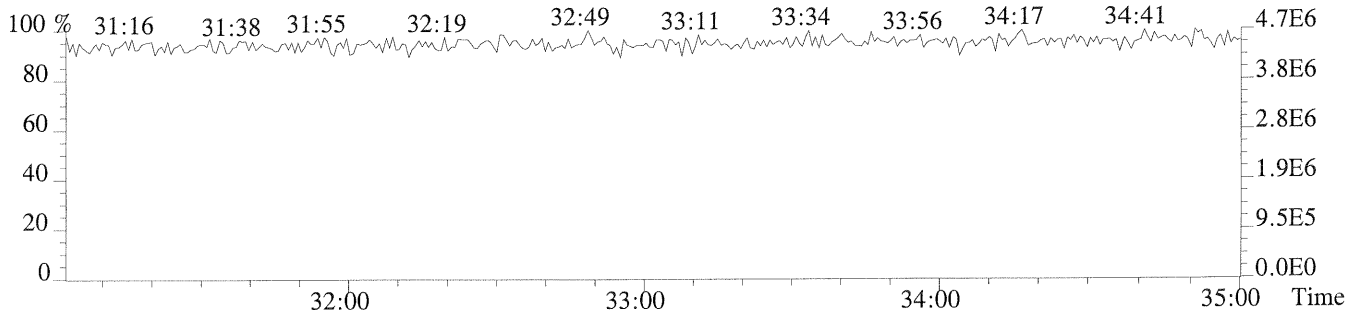
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,508.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)

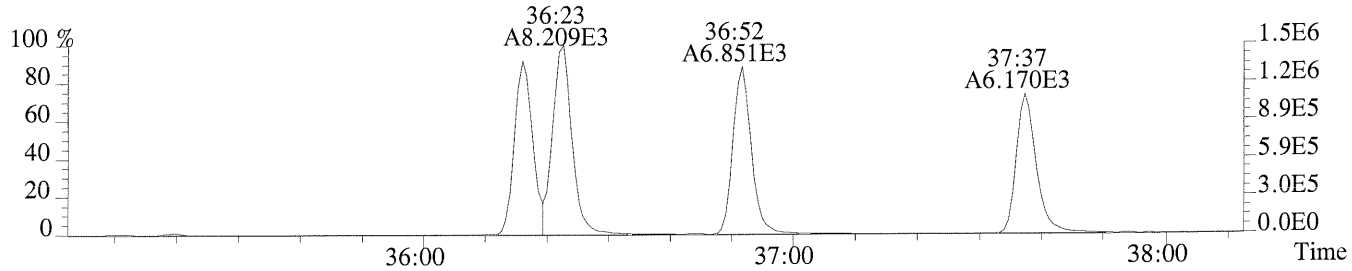


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

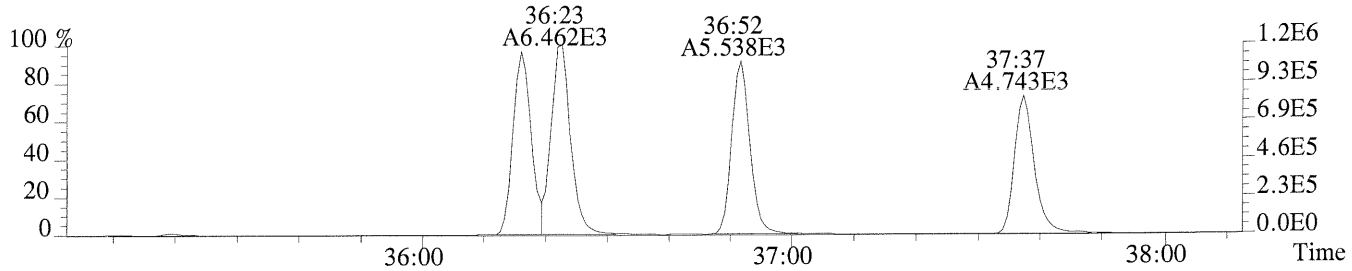


File:P229942 #1-288 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05

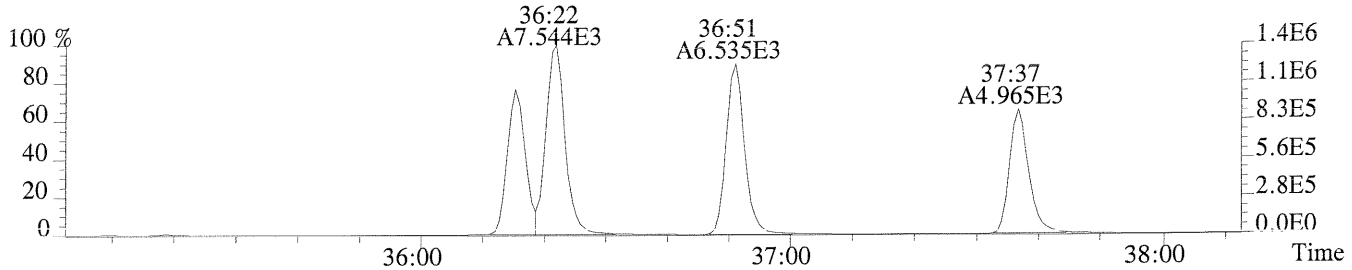
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,236.0,0.40%,F,T)



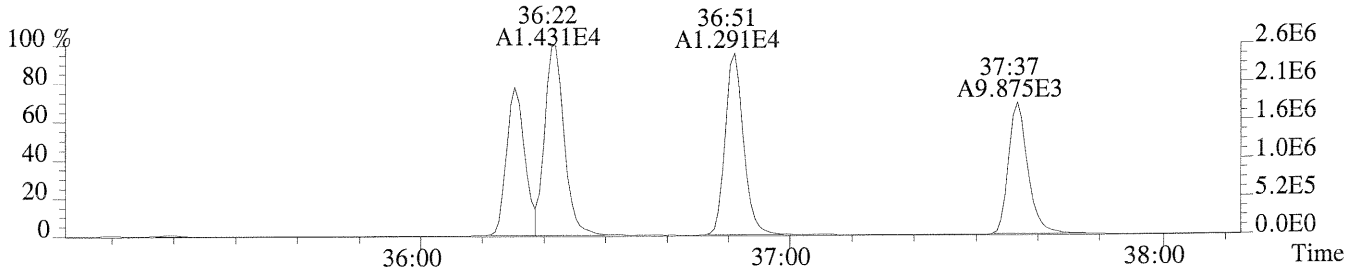
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,40.0,0.40%,F,T)



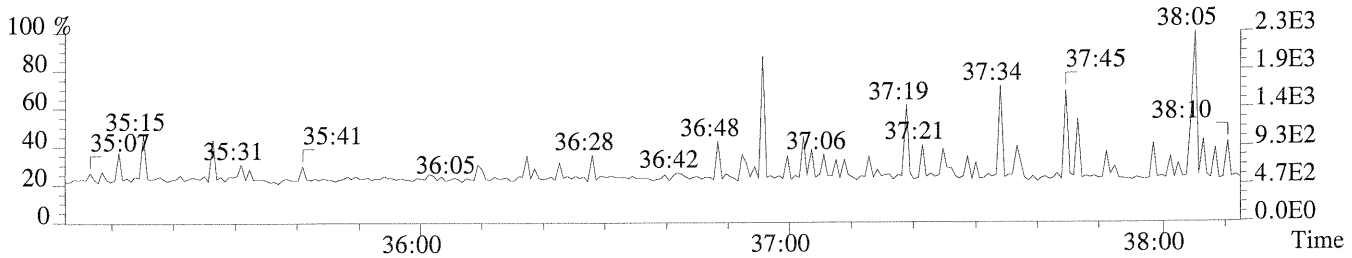
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,324.0,0.40%,F,T)



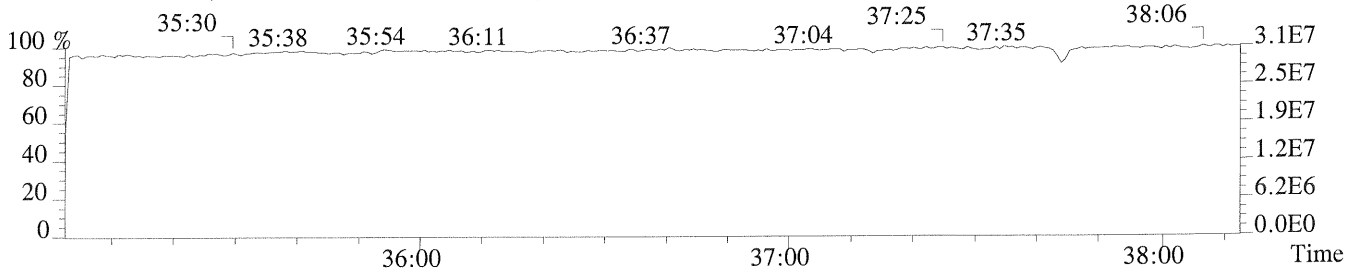
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

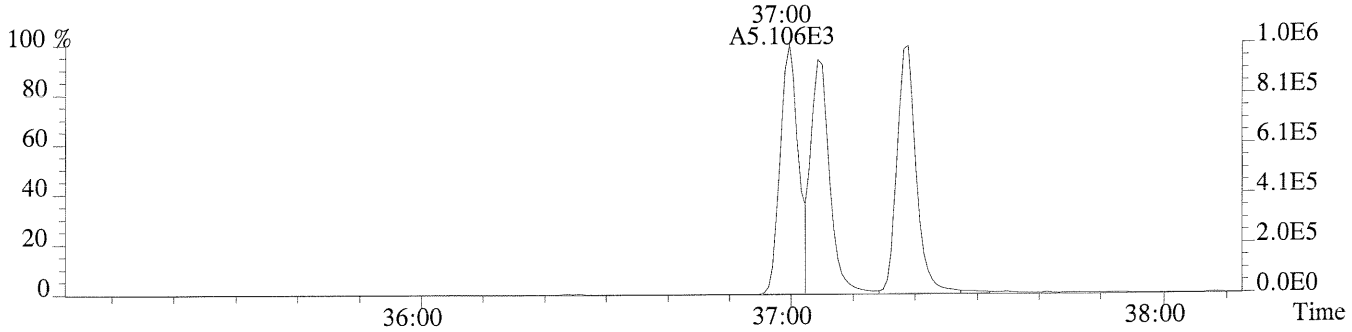


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

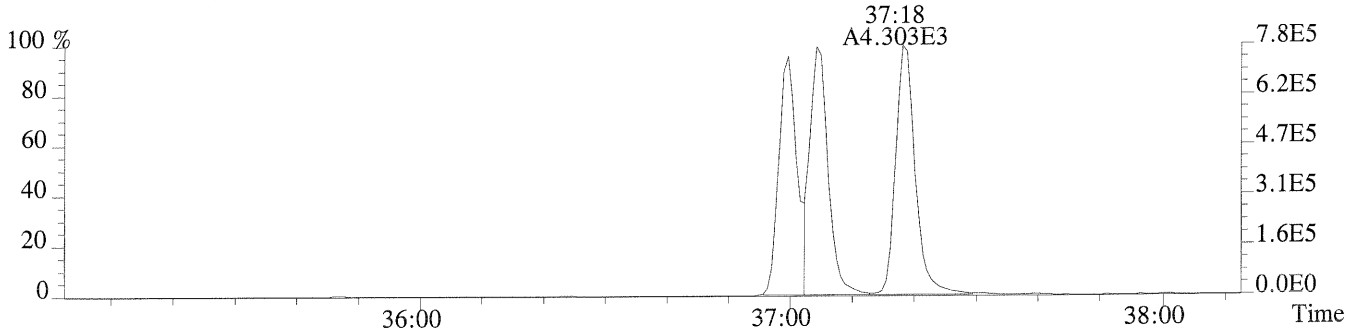


File:P229942 #1-288 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05

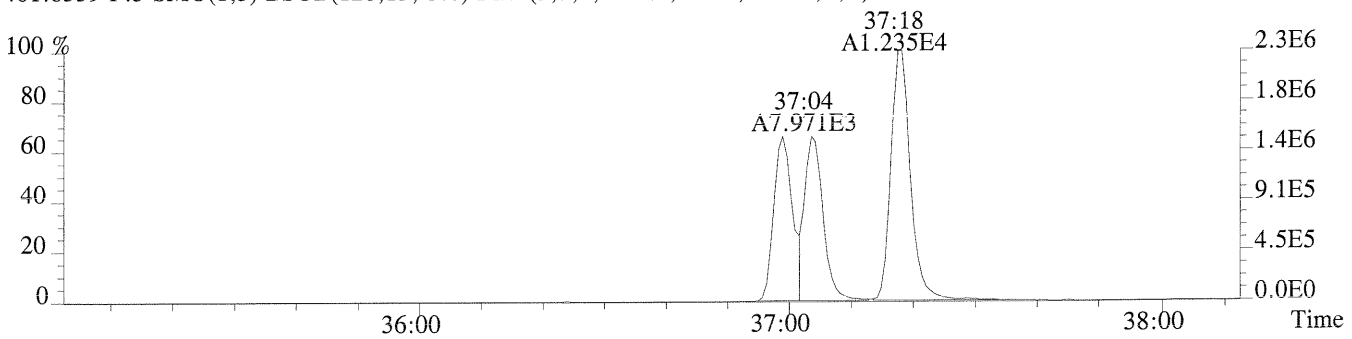
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,348.0,0.40%,F,T)



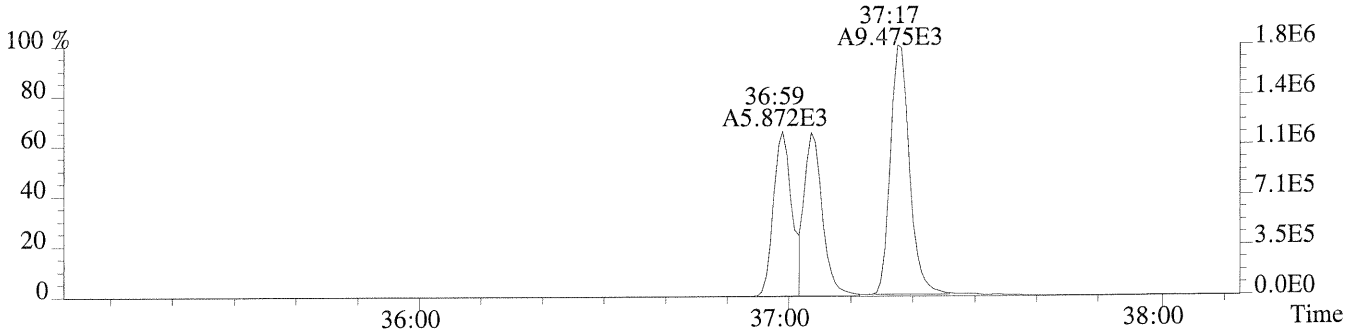
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,360.0,0.40%,F,T)



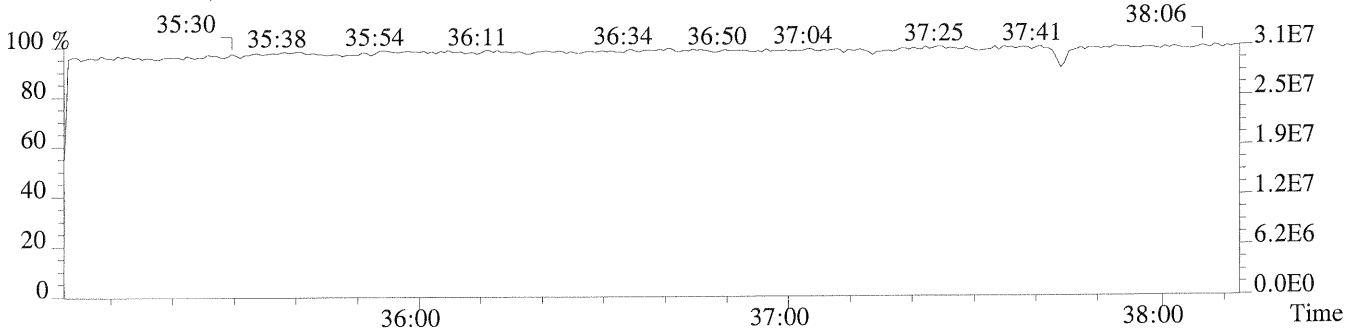
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,396.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)

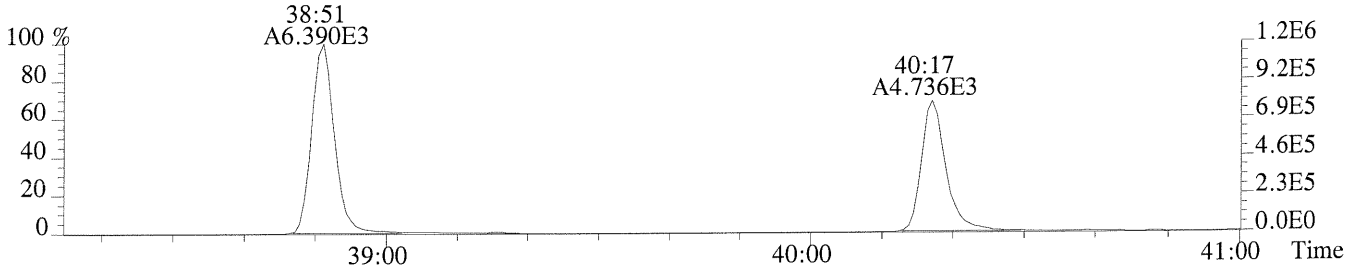


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

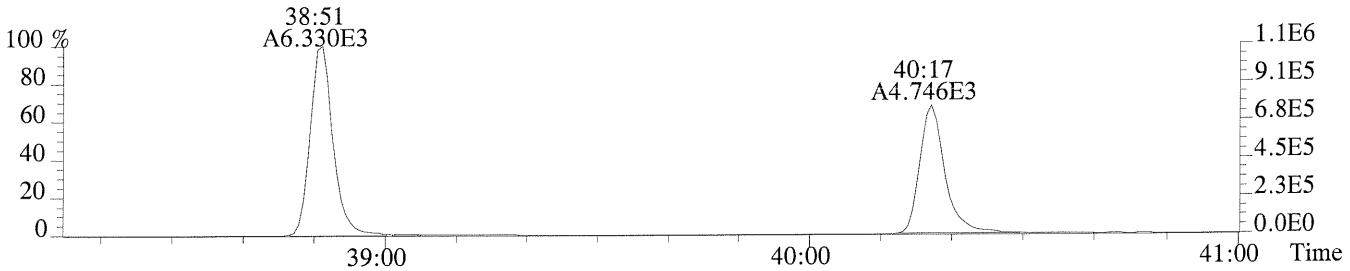


File:P229942 #1-251 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05

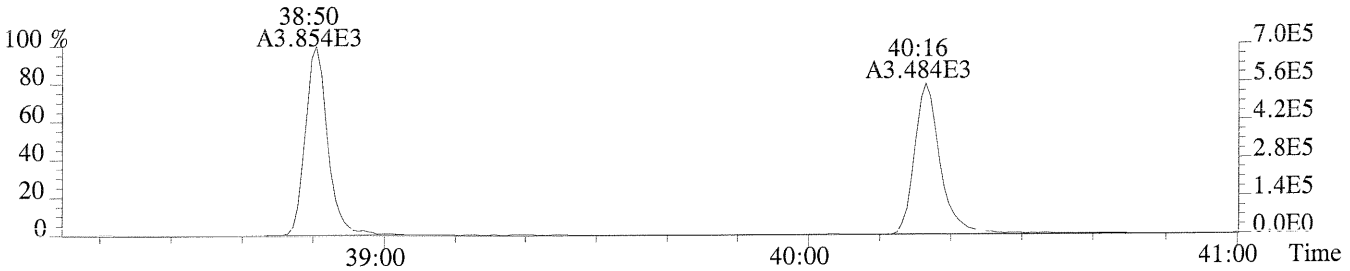
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.50%,F,T)



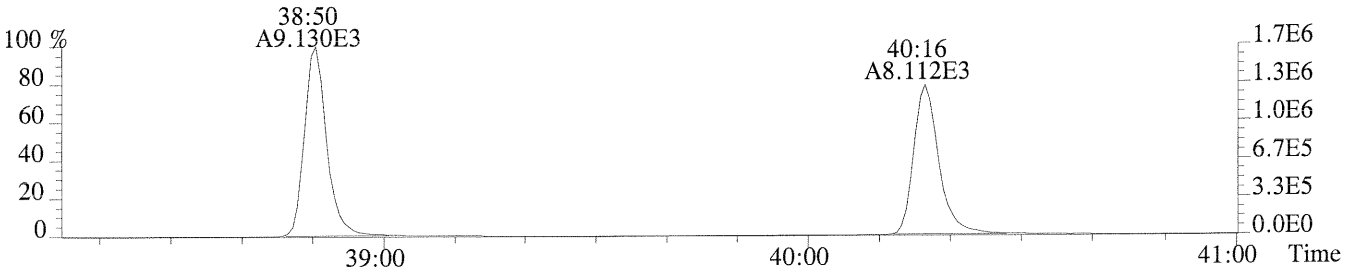
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.50%,F,T)



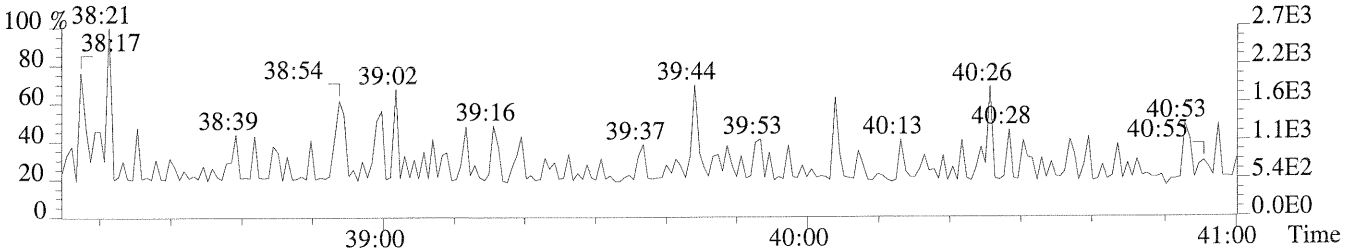
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.50%,F,T)



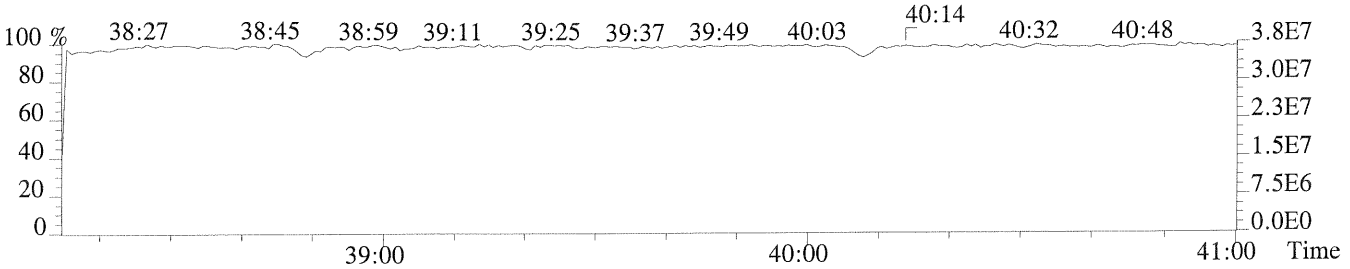
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.50%,F,T)



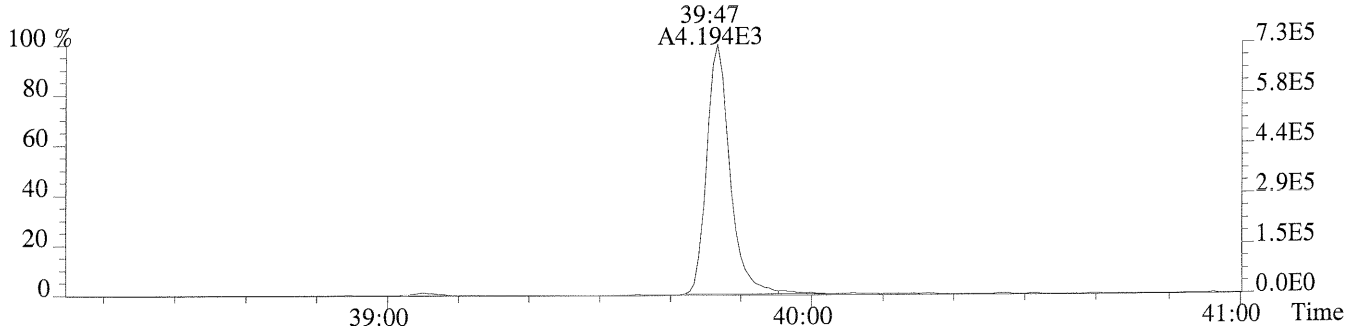
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



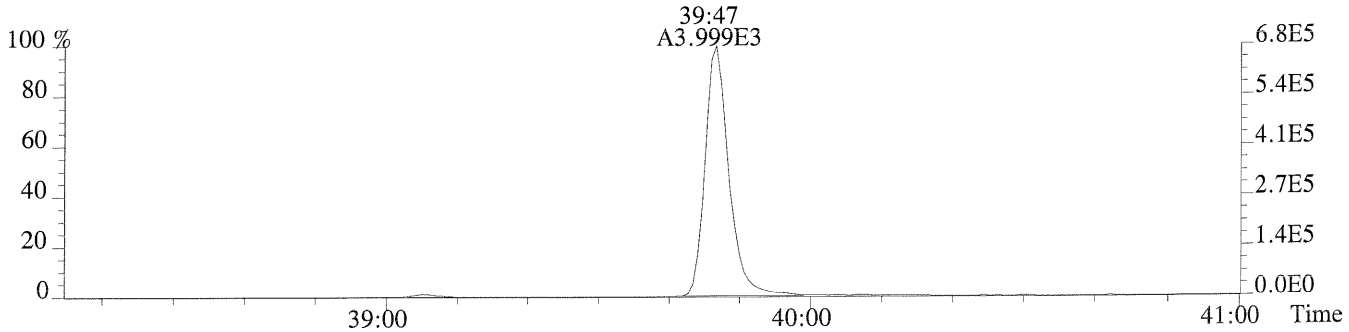
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



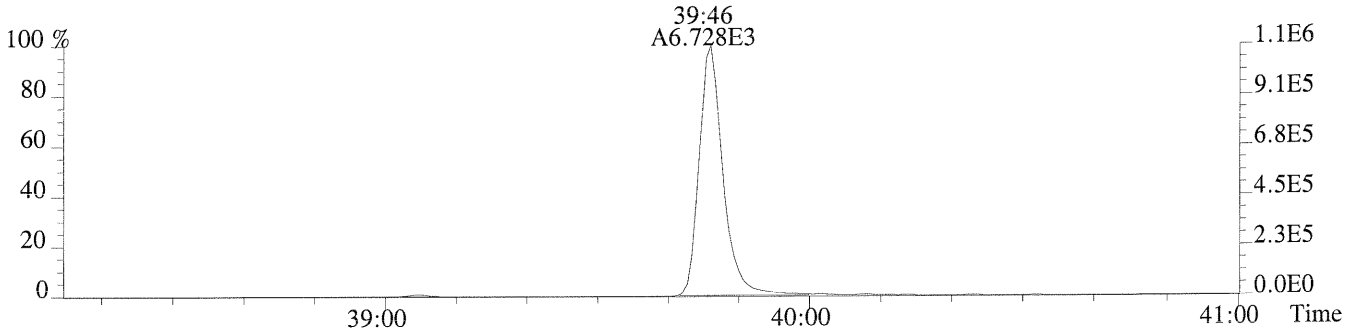
File:P229942 #1-251 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



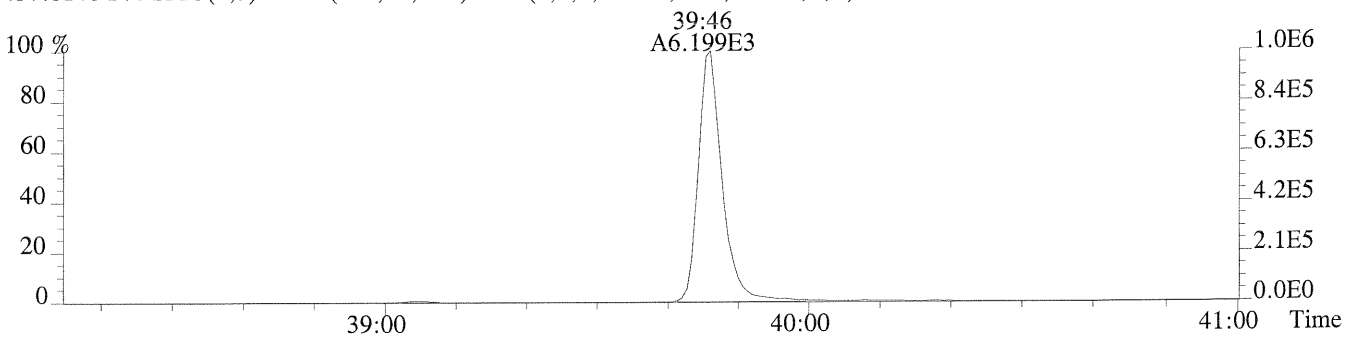
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,140.0,0.40%,F,T)



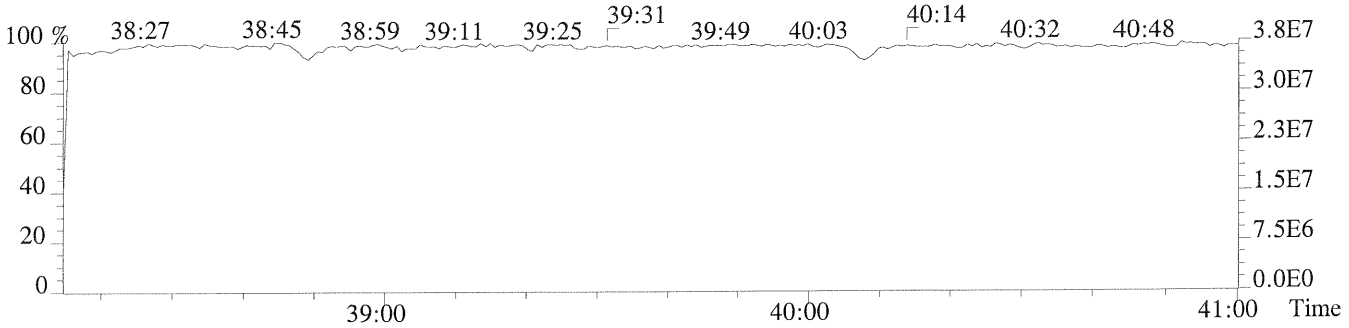
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



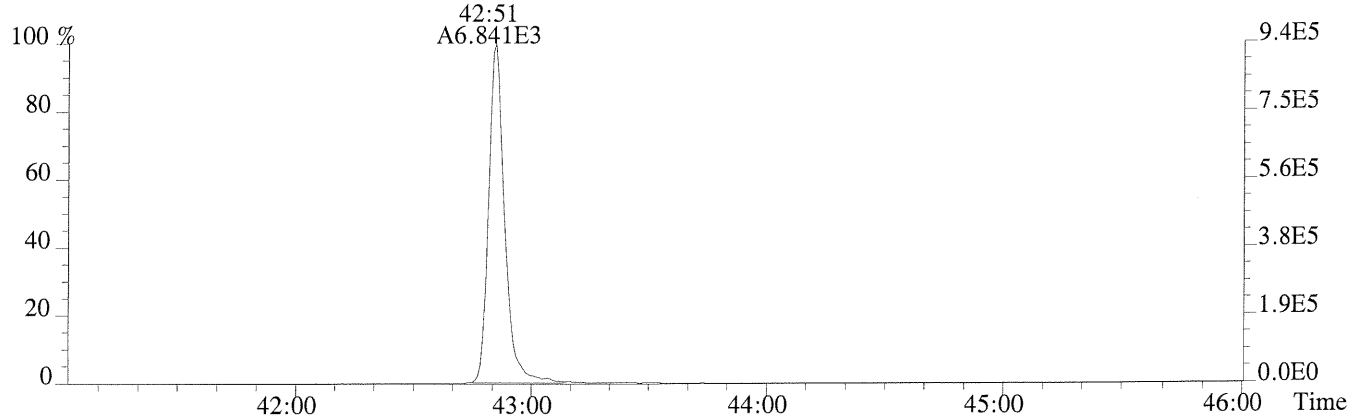
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,72.0,0.40%,F,T)



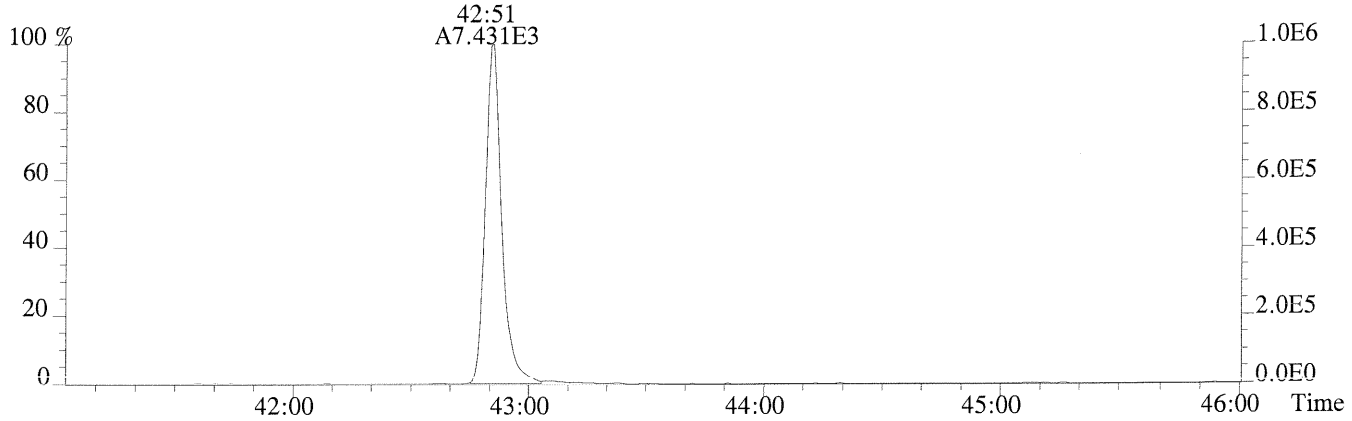
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



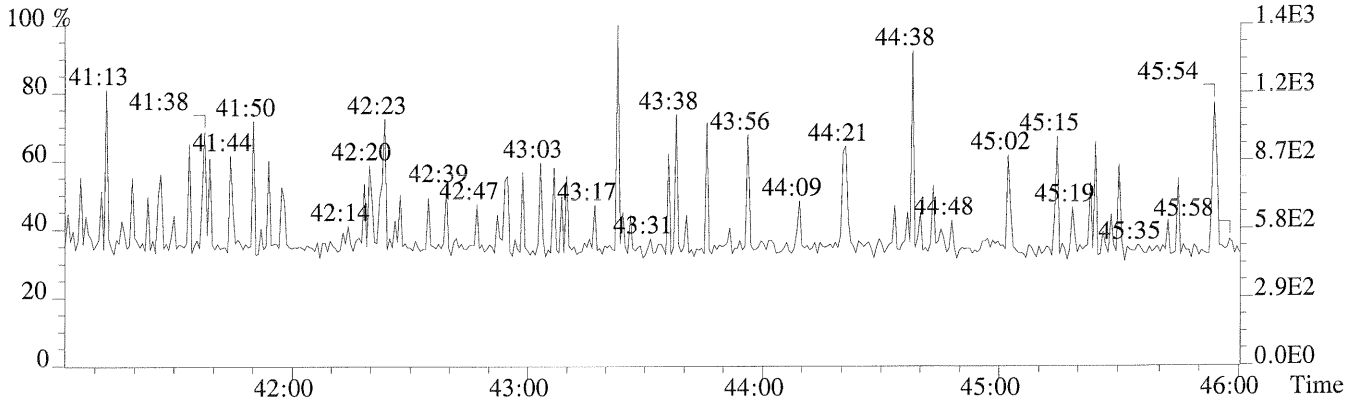
File:P229942 #1-457 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,180.0,0.40%,F,T)



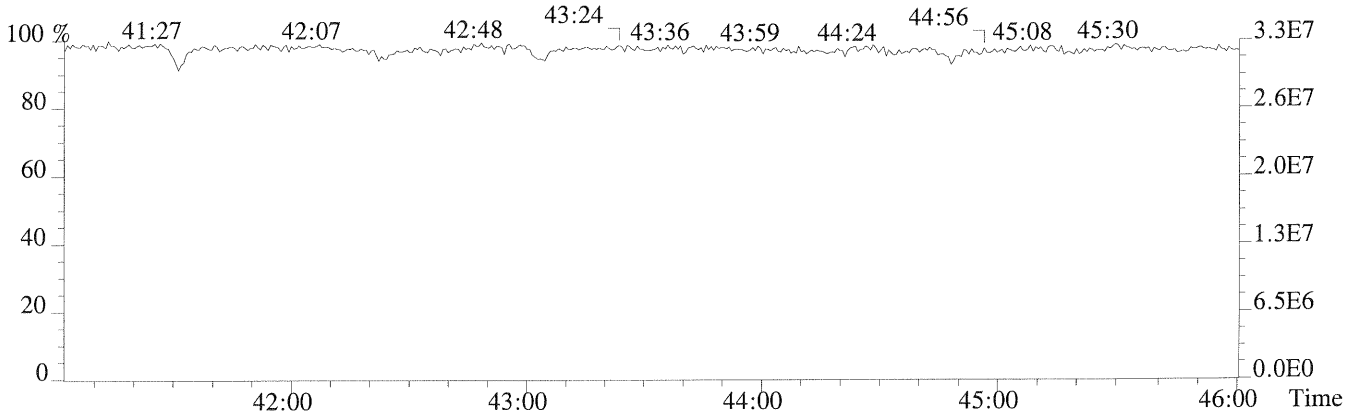
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



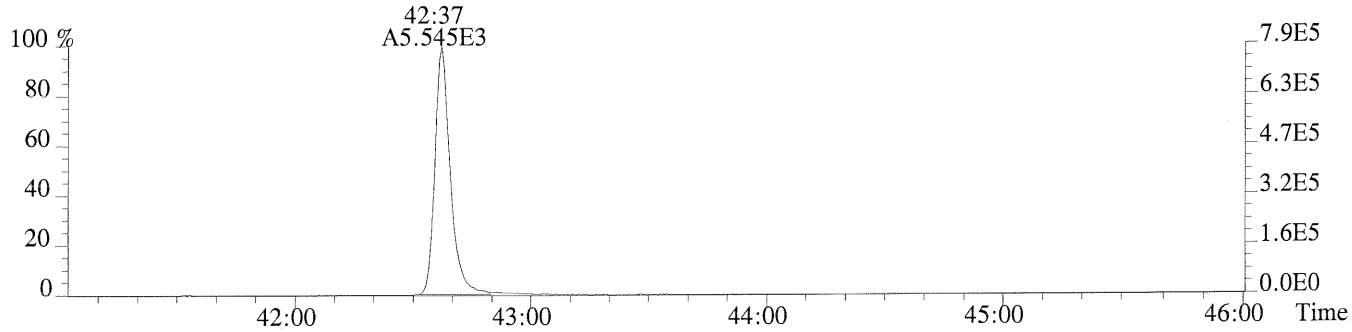
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



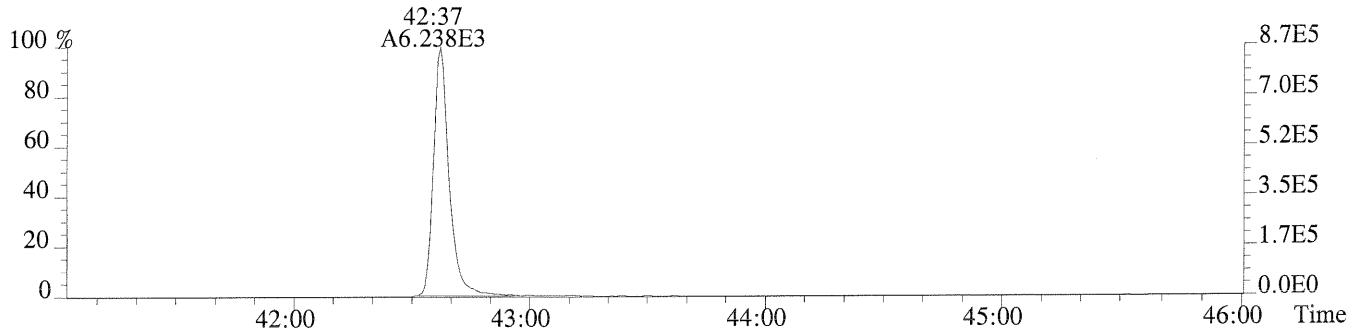
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



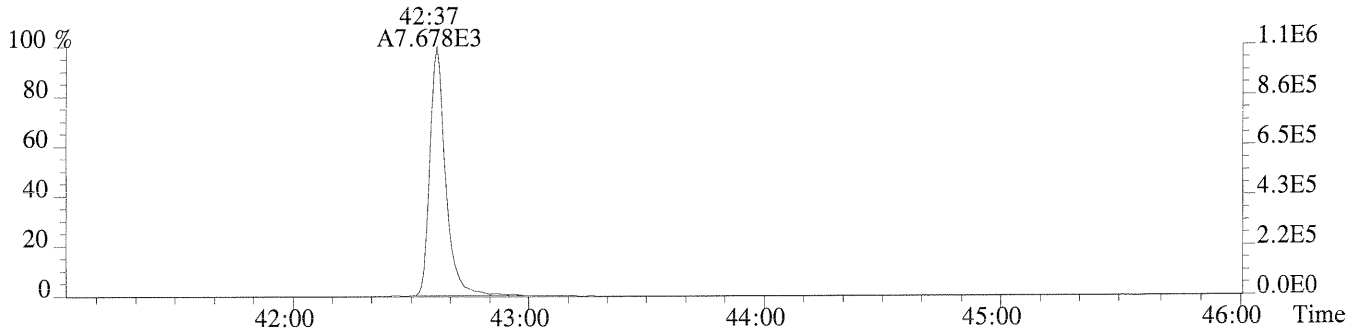
File:P229942 #1-457 Acq: 3-JUL-2014 08:30:45 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-05
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,264.0,0.40%,F,T)



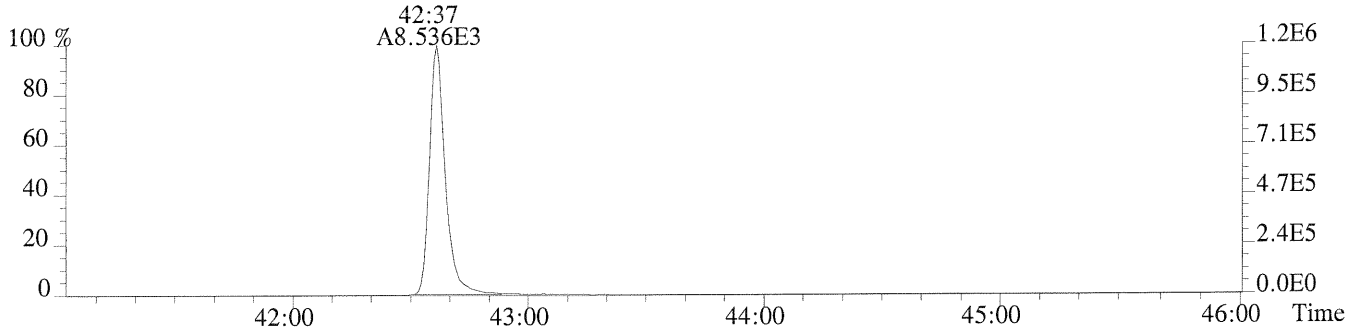
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,132.0,0.40%,F,T)



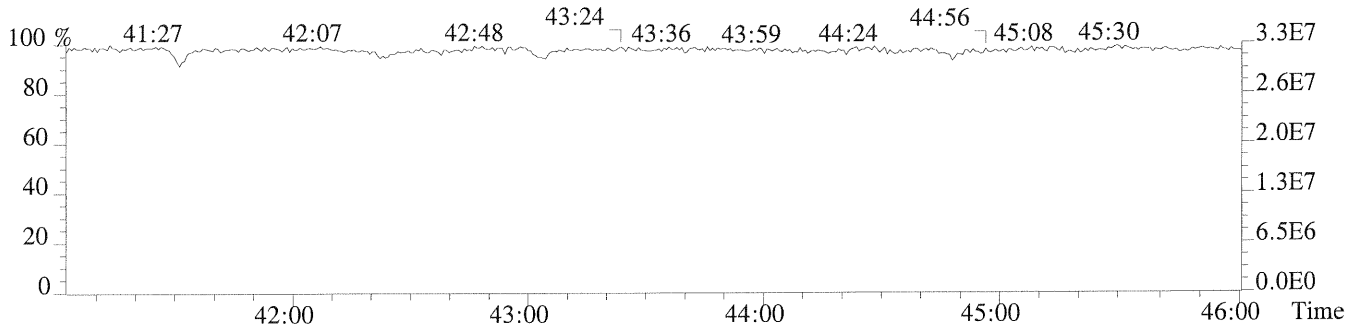
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,224.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
METHOD 1613B/8290A

CLIENT ID.
1406161548 20

Run #10 Filename P229943 Samp: 1 Inj: 1 Acquired: 3-JUL-14 09:18:32
Processed: 7-JUL-14 10:58:20 Sample ID: EQ1400342-06

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:40	7.769e+02	1.007e+03	0.77	yes	no	0.929
2	Unk	1,2,3,7,8-PeCDF	32:45	9.051e+03	5.710e+03	1.59	yes	no	1.048
3	Unk	2,3,4,7,8-PeCDF	33:39	8.106e+03	5.140e+03	1.58	yes	no	0.976
4	Unk	1,2,3,4,7,8-HxCDF	36:16	7.569e+03	6.085e+03	1.24	yes	no	1.254
5	Unk	1,2,3,6,7,8-HxCDF	36:23	8.652e+03	6.956e+03	1.24	yes	no	1.147
6	Unk	2,3,4,6,7,8-HxCDF	36:52	7.620e+03	6.139e+03	1.24	yes	no	1.161
7	Unk	1,2,3,7,8,9-HxCDF	37:37	6.827e+03	5.687e+03	1.20	yes	no	1.169
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	6.966e+03	6.839e+03	1.02	yes	no	1.373
9	Unk	1,2,3,4,7,8,9-HpCDF	40:17	5.455e+03	5.382e+03	1.01	yes	no	1.309
10	Unk	OCDF	42:50	7.777e+03	8.666e+03	0.90	yes	no	1.462
11	Unk	2,3,7,8-TCDD	29:26	5.905e+02	7.574e+02	0.78	yes	no	0.989
12	Unk	1,2,3,7,8-PeCDD	33:55	5.877e+03	3.590e+03	1.64	yes	no	1.014
13	Unk	1,2,3,4,7,8-HxCDD	37:00	5.065e+03	3.991e+03	1.27	yes	no	1.114
14	Unk	1,2,3,6,7,8-HxCDD	37:04	5.982e+03	4.662e+03	1.28	yes	no	1.115
15	Unk	1,2,3,7,8,9-HxCDD	37:18	6.046e+03	4.675e+03	1.29	yes	no	1.207
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	4.756e+03	4.492e+03	1.06	yes	no	1.091
17	Unk	OCDD	42:37	6.731e+03	7.357e+03	0.91	yes	no	1.183
18	IS	13C-2,3,7,8-TCDF	28:39	6.402e+03	8.083e+03	0.79	yes	no	1.518
19	IS	13C-1,2,3,7,8-PeCDF	32:45	1.365e+04	8.258e+03	1.65	yes	no	2.114
20	IS	13C-2,3,4,7,8-PeCDF	33:38	1.306e+04	8.218e+03	1.59	yes	no	2.137
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	5.778e+03	1.141e+04	0.51	yes	no	1.126
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	8.150e+03	1.565e+04	0.52	yes	no	1.405
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	7.286e+03	1.404e+04	0.52	yes	no	1.260
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	5.685e+03	1.117e+04	0.51	yes	no	1.145
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	4.541e+03	1.032e+04	0.44	yes	no	1.049
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:16	3.843e+03	9.146e+03	0.42	yes	no	0.926
27	IS	13C-2,3,7,8-TCDD	29:24	4.249e+03	5.539e+03	0.77	yes	no	0.993
28	IS	13C-1,2,3,7,8-PeCDD	33:54	9.681e+03	5.956e+03	1.63	yes	no	1.363
29	IS	13C-1,2,3,4,7,8-HxCDD	36:59	7.913e+03	6.094e+03	1.30	yes	no	0.821
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	9.130e+03	7.099e+03	1.29	yes	no	0.960
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:46	7.478e+03	6.817e+03	1.10	yes	no	0.936
32	IS	13C-OCDD	42:37	9.317e+03	1.024e+04	0.91	yes	no	0.735
33	RS/RT	13C-1,2,3,4-TCDD	28:49	7.135e+03	9.145e+03	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.266e+04	1.003e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:25	3.593e+03				no	0.993

$$\text{OCDD} = \frac{(6.731e+03 + 7.357e+03) \times 4000 \text{ pg} \times 1}{(9.317e+03 + 1.024e+04) \times 10.172\text{g} \times 98.7 \times 1.183} = 242.604 \text{ ng/kg}$$

MM 07/08/14

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1613RESP1

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
1406161548 200-S

Run #10 Filename P229943 Samp: 1 Inj: 1 Acquired: 3-JUL-14 09:18:32
Processed: 7-JUL-14 10:58:201 LAB. ID: EQ1400342-06

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.42e+05	7.60e+01	1.9e+03	1.94e+05	8.60e+02	2.3e+02
2	1,2,3,7,8-PeCDF	1.55e+06	2.28e+02	6.8e+03	9.69e+05	5.36e+02	1.8e+03
3	2,3,4,7,8-PeCDF	1.44e+06	2.28e+02	6.3e+03	9.16e+05	5.36e+02	1.7e+03
4	1,2,3,4,7,8-HxCDF	1.49e+06	2.04e+02	7.3e+03	1.20e+06	1.04e+02	1.2e+04
5	1,2,3,6,7,8-HxCDF	1.55e+06	2.04e+02	7.6e+03	1.27e+06	1.04e+02	1.2e+04
6	2,3,4,6,7,8-HxCDF	1.47e+06	2.04e+02	7.2e+03	1.17e+06	1.04e+02	1.1e+04
7	1,2,3,7,8,9-HxCDF	1.24e+06	2.04e+02	6.1e+03	1.07e+06	1.04e+02	1.0e+04
8	1,2,3,4,6,7,8-HpCDF	1.26e+06	4.16e+02	3.0e+03	1.22e+06	5.60e+02	2.2e+03
9	1,2,3,4,7,8,9-HpCDF	8.50e+05	4.16e+02	2.0e+03	8.45e+05	5.60e+02	1.5e+03
10	OCDF	1.05e+06	1.40e+02	7.5e+03	1.16e+06	6.16e+02	1.9e+03
11	2,3,7,8-TCDD	1.11e+05	2.40e+02	4.6e+02	1.44e+05	2.48e+02	5.8e+02
12	1,2,3,7,8-PeCDD	1.06e+06	3.68e+02	2.9e+03	6.44e+05	4.00e+01	1.6e+04
13	1,2,3,4,7,8-HxCDD	1.08e+06	1.28e+02	8.5e+03	8.35e+05	2.00e+02	4.2e+03
14	1,2,3,6,7,8-HxCDD	1.07e+06	1.28e+02	8.3e+03	8.37e+05	2.00e+02	4.2e+03
15	1,2,3,7,8,9-HxCDD	1.10e+06	1.28e+02	8.6e+03	8.75e+05	2.00e+02	4.4e+03
16	1,2,3,4,6,7,8-HpCDD	8.18e+05	3.52e+02	2.3e+03	7.67e+05	1.68e+02	4.6e+03
17	OCDD	9.39e+05	7.20e+01	1.3e+04	1.01e+06	1.76e+02	5.7e+03
18	13C-2,3,7,8-TCDF	1.22e+06	6.12e+02	2.0e+03	1.51e+06	4.72e+02	3.2e+03
19	13C-1,2,3,7,8-PeCDF	2.32e+06	1.96e+02	1.2e+04	1.40e+06	4.12e+02	3.4e+03
20	13C-2,3,4,7,8-PeCDF	2.30e+06	1.96e+02	1.2e+04	1.44e+06	4.12e+02	3.5e+03
21	13C-1,2,3,4,7,8-HxCDF	1.15e+06	2.76e+02	4.2e+03	2.25e+06	7.28e+02	3.1e+03
22	13C-1,2,3,6,7,8-HxCDF	1.47e+06	2.76e+02	5.3e+03	2.82e+06	7.28e+02	3.9e+03
23	13C-2,3,4,6,7,8-HxCDF	1.42e+06	2.76e+02	5.1e+03	2.70e+06	7.28e+02	3.7e+03
24	13C-1,2,3,7,8,9-HxCDF	1.04e+06	2.76e+02	3.8e+03	2.05e+06	7.28e+02	2.8e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.34e+05	5.32e+02	1.6e+03	1.83e+06	1.08e+03	1.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.28e+05	5.32e+02	1.2e+03	1.46e+06	1.08e+03	1.3e+03
27	13C-2,3,7,8-TCDD	8.48e+05	2.29e+03	3.7e+02	1.12e+06	9.88e+02	1.1e+03
28	13C-1,2,3,7,8-PeCDD	1.73e+06	3.76e+02	4.6e+03	1.05e+06	1.28e+02	8.2e+03
29	13C-1,2,3,4,7,8-HxCDD	1.69e+06	3.16e+02	5.4e+03	1.29e+06	4.60e+02	2.8e+03
30	13C-1,2,3,6,7,8-HxCDD	1.65e+06	3.16e+02	5.2e+03	1.27e+06	4.60e+02	2.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.28e+06	4.80e+02	2.7e+03	1.16e+06	5.20e+01	2.2e+04
32	13C-OCDD	1.31e+06	4.00e+01	3.3e+04	1.41e+06	3.04e+02	4.6e+03
33	13C-1,2,3,4-TCDD	1.38e+06	2.29e+03	6.0e+02	1.78e+06	9.88e+02	1.8e+03
34	13C-1,2,3,7,8,9-HxCDD	2.31e+06	3.16e+02	7.3e+03	1.84e+06	4.60e+02	4.0e+03
35	37Cl-2,3,7,8-TCDD	6.99e+05	1.56e+02	4.5e+03			

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 36 Totals Name: Total Tetra-Furans

Run: 10 File: P229943 Sample: 1 Injection: 1 Function: 1
Llim: 24:08 Ulim: 30:37
Acquired: 3-JUL-14 09:18:32 Processed: 7-JUL-14 10:58:20
Mass: 303.9020 305.8990 Tot Response: 1.78e+03 RRF: 0.9290

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:40	7.77e+02	1.01e+03	0.77	yes	1.78e+03	2,3,7,8-TCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 10 File: P229943 Sample: 1 Injection: 1 Function: 1
Llim: 26:02 Ulim: 30:25
Acquired: 3-JUL-14 09:18:32 Processed: 7-JUL-14 10:58:20
Mass: 319.8970 321.8940 Tot Response: 1.35e+03 RRF: 0.9891

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:26	5.90e+02	7.57e+02	0.78	yes	1.35e+03	2,3,7,8-TCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 39 Totals Name: Total Penta-Furan2

Run: 10 File: P229943 Sample: 1 Injection: 1 Function: 2
Llim: 30:18 Ulim: 34:43
Acquired: 3-JUL-14 09:18:32 Processed: 7-JUL-14 10:58:20
Mass: 339.8600 341.8570 Tot Response: 2.84e+04 RRF: 1.012

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	32:21	7.69e+01	4.55e+01	1.69	yes	1.22e+02		n	n
2	32:45	9.05e+03	5.71e+03	1.59	yes	1.48e+04	1,2,3,7,8-PeCDF	n	n
3	32:59	1.51e+02	1.03e+02	1.46	yes	2.54e+02		n	n
4	33:39	8.11e+03	5.14e+03	1.58	yes	1.32e+04	2,3,4,7,8-PeCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 40 Totals Name: Total Penta-Dioxins

Run: 10 File: P229943 Sample: 1 Injection: 1 Function: 2
Llim: 31:47 Ulim: 34:26
Acquired: 3-JUL-14 09:18:32 Processed: 7-JUL-14 10:58:20
Mass: 355.8550 357.8520 Tot Response: 9.47e+03 RRF: 1.014

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	33:55	5.88e+03	3.59e+03	1.64	yes	9.47e+03	1,2,3,7,8-PeCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 41 Totals Name: Total Hexa-Furans

Run: 10 File: P229943 Sample: 1 Injection: 1 Function: 3
Llim: 35:05 Ulim: 37:49
Acquired: 3-JUL-14 09:18:32 Processed: 7-JUL-14 10:58:20
Mass: 373.8210 375.8180 Tot Response: 5.55e+04 RRF: 1.180

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:16	7.57e+03	6.09e+03	1.24	yes	1.37e+04	1,2,3,4,7,8-HxCDF	n	n
2	36:23	8.65e+03	6.96e+03	1.24	yes	1.56e+04	1,2,3,6,7,8-HxCDF	n	n
3	36:52	7.62e+03	6.14e+03	1.24	yes	1.38e+04	2,3,4,6,7,8-HxCDF	n	n
4	37:37	6.83e+03	5.69e+03	1.20	yes	1.25e+04	1,2,3,7,8,9-HxCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 42 Totals Name: Total Hexa-Dioxins

Run: 10 File: P229943 Sample: 1 Injection: 1 Function: 3
Llim: 35:36 Ulim: 37:24
Acquired: 3-JUL-14 09:18:32 Processed: 7-JUL-14 10:58:20
Mass: 389.8160 391.8130 Tot Response: 3.04e+04 RRF: 1.145

#	RT	Resp	Resp	Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	37:00	5.07e+03	3.99e+03	1.27	yes	9.06e+03	1,2,3,4,7,8-HxCDD	n	n
2	37:04	5.98e+03	4.66e+03	1.28	yes	1.06e+04	1,2,3,6,7,8-HxCDD	n	n
3	37:18	6.05e+03	4.67e+03	1.29	yes	1.07e+04	1,2,3,7,8,9-HxCDD	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 43 Totals Name: Total Hepta-Furans

Run: 10 File: P229943 Sample: 1 Injection: 1 Function: 4
Llim: 38:46 Ulim: 40:28
Acquired: 3-JUL-14 09:18:32 Processed: 7-JUL-14 10:58:20
Mass: 407.7820 409.7790 Tot Response: 2.46e+04 RRF: 1.343

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	38:51	6.97e+03	6.84e+03 1.02	yes	1.38e+04	1,2,3,4,6,7,8-HpCDF	n	n
2	40:17	5.46e+03	5.38e+03 1.01	yes	1.08e+04	1,2,3,4,7,8,9-HpCDF	n	n

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ALS ENVIRONMENTAL
Peak List Summary

CLIENT ID.

1406161548 200-S

Entry: 44 Totals Name: Total Hepta-Dioxins

Run: 10 File: P229943 Sample: 1 Injection: 1 Function: 4
Llim: 39:01 Ulim: 39:57
Acquired: 3-JUL-14 09:18:32 Processed: 7-JUL-14 10:58:20
Mass: 423.7770 425.7740 Tot Response: 9.29e+03 RRF: 1.091

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	2.10e+01	2.27e+01	0.93	yes	4.37e+01		n	n
2	39:47	4.76e+03	4.49e+03	1.06	yes	9.25e+03	1,2,3,4,6,7,8-HpCDD	n	n

ALS ENVIRONMENTAL
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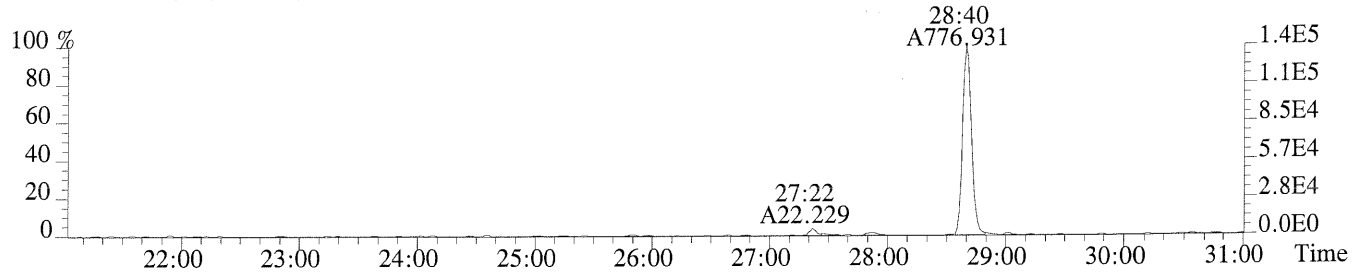
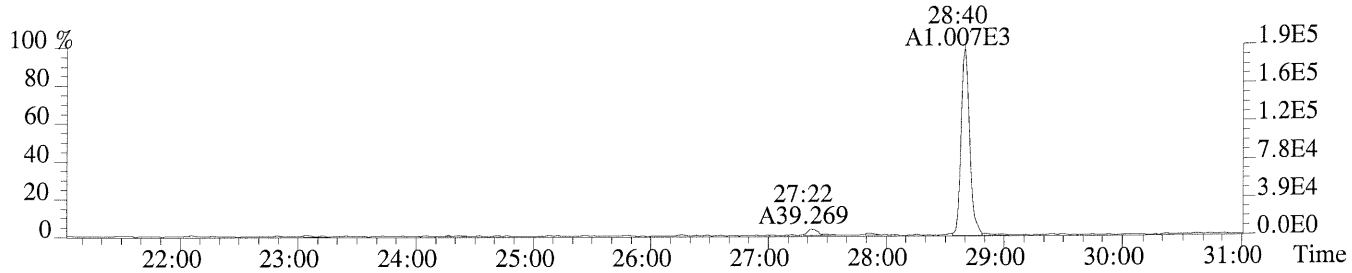
Office(713)266-1599. Fax(713)266-0130

File:P229943 #1-627 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06

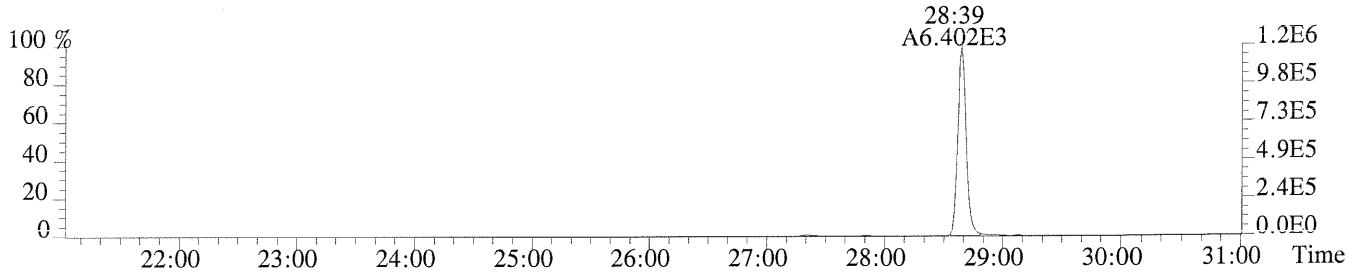
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,76.0,1.00%,F,T)



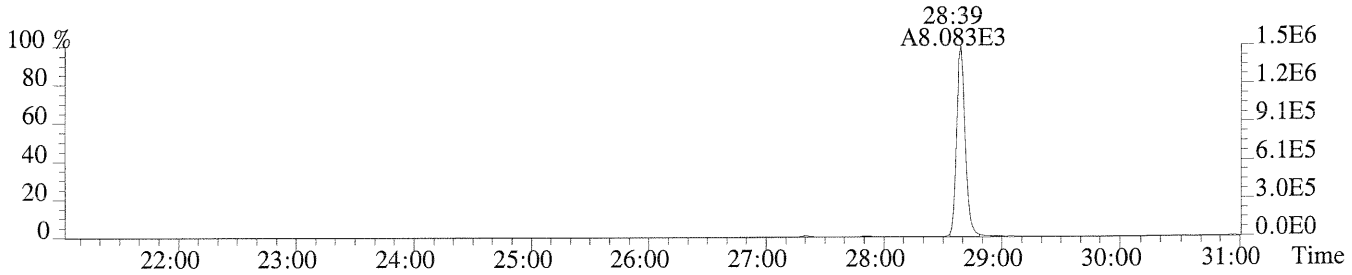
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



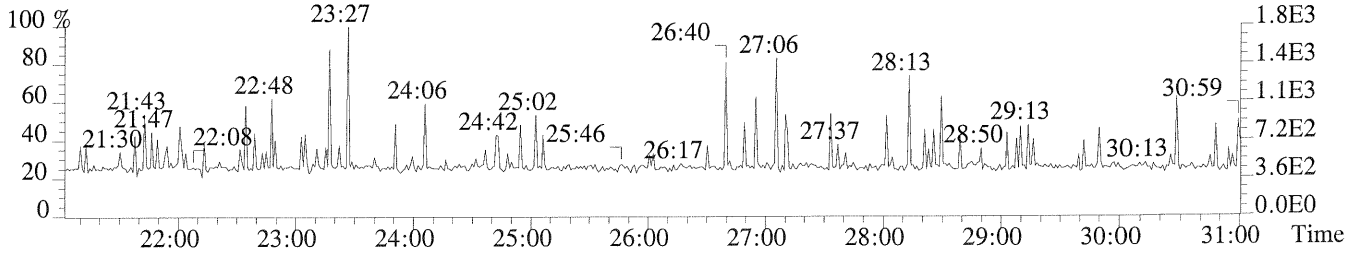
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)



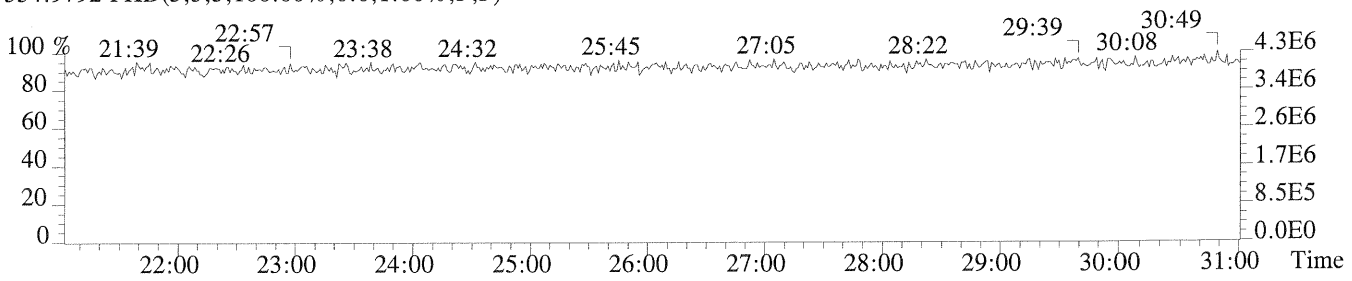
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

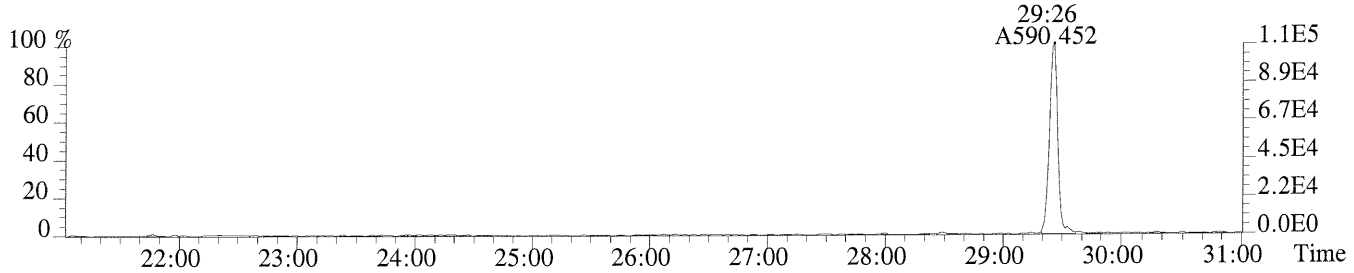


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

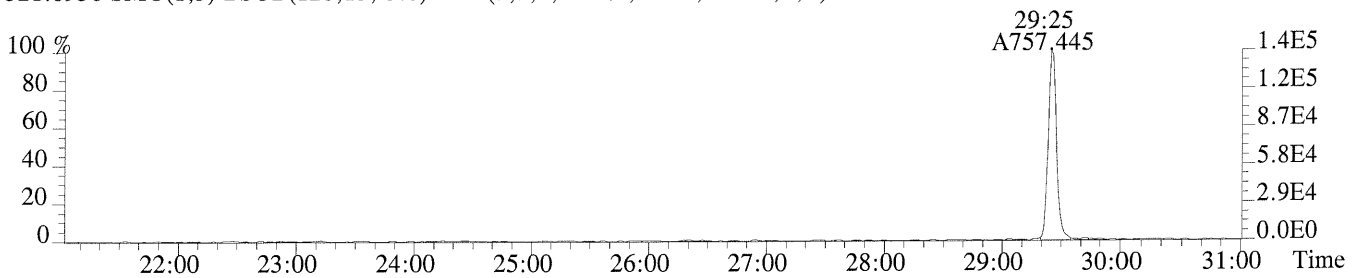


File:P229943 #1-627 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06

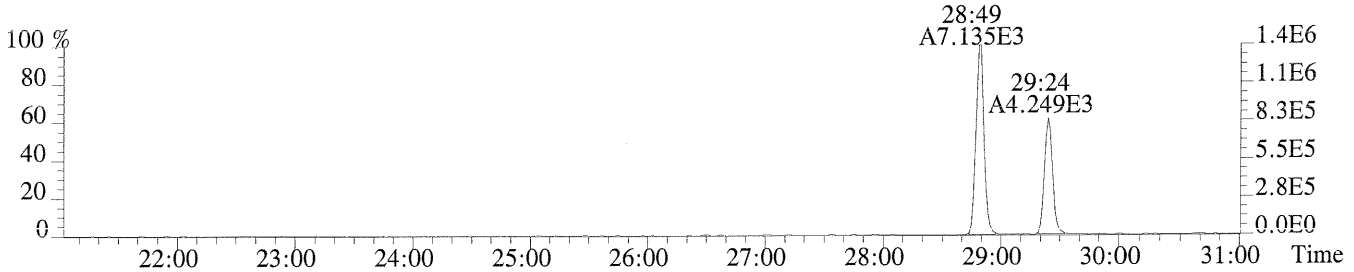
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,240.0,1.00%,F,T)



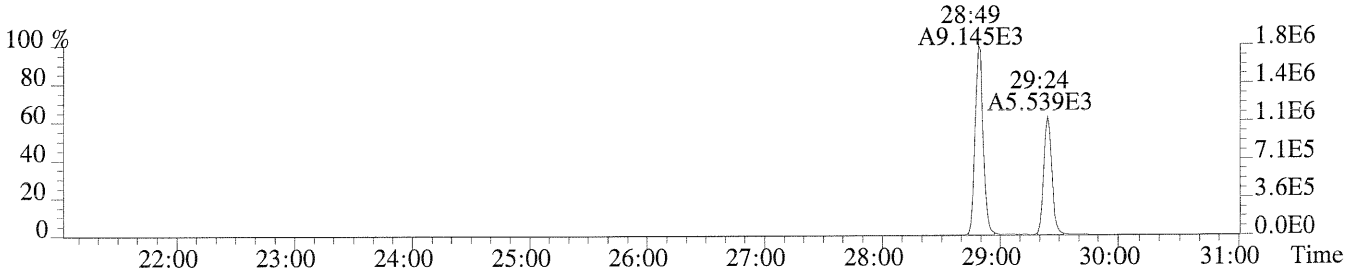
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



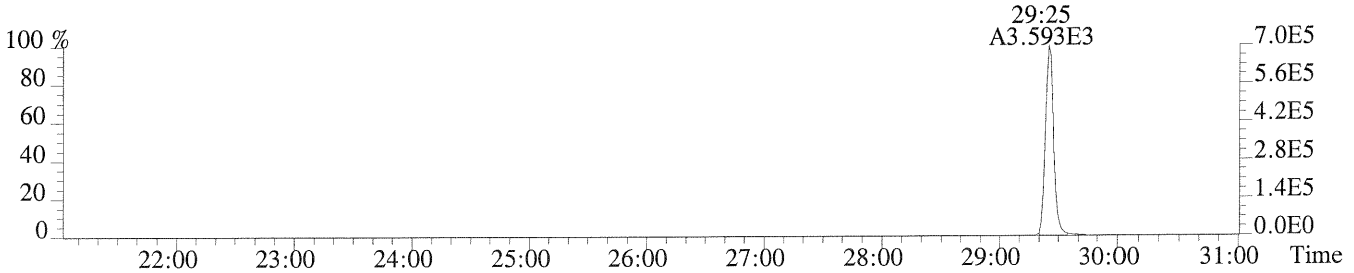
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2292.0,1.00%,F,T)



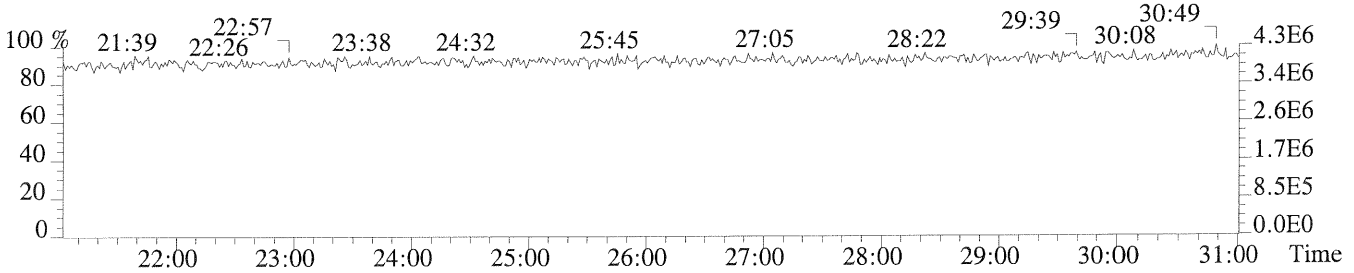
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



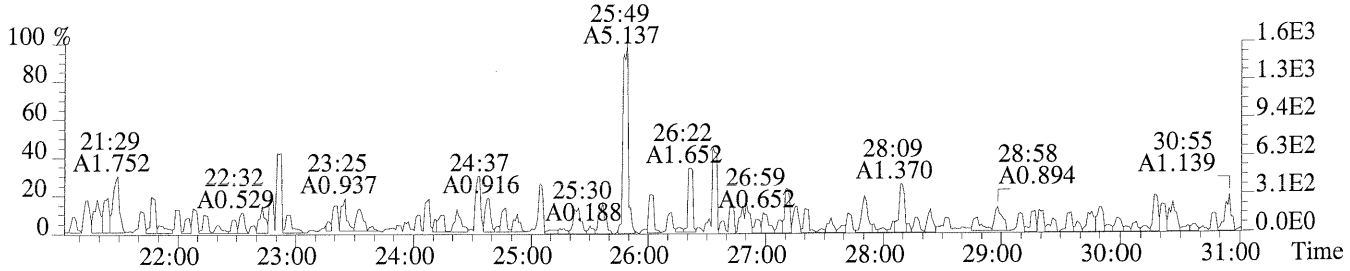
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,156.0,1.00%,F,T)



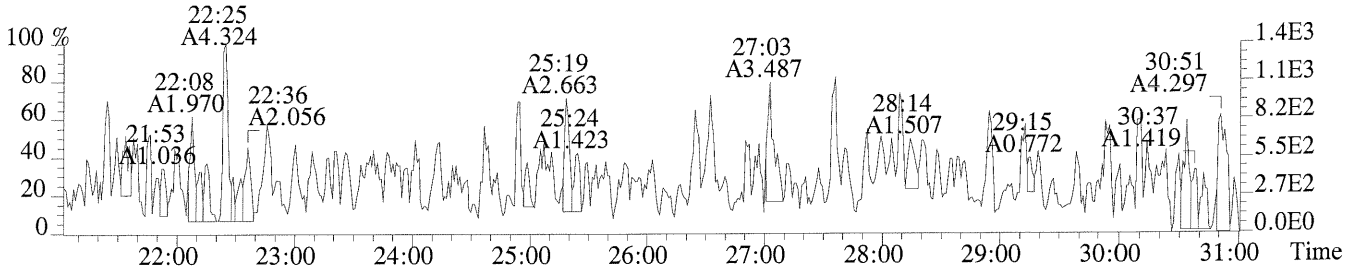
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



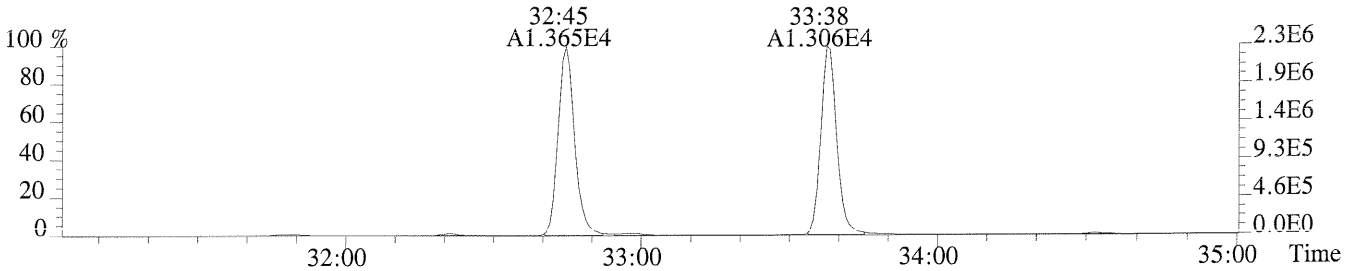
File:P229943 #1-627 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,40.0,1.00%,F,T)



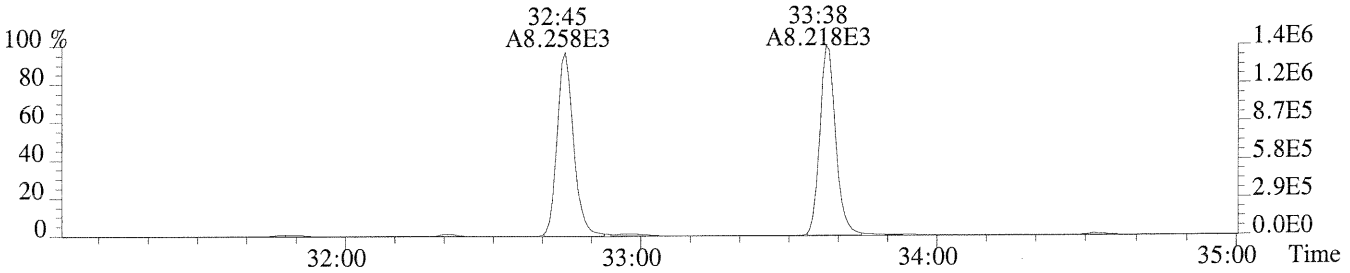
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,404.0,1.00%,F,T)



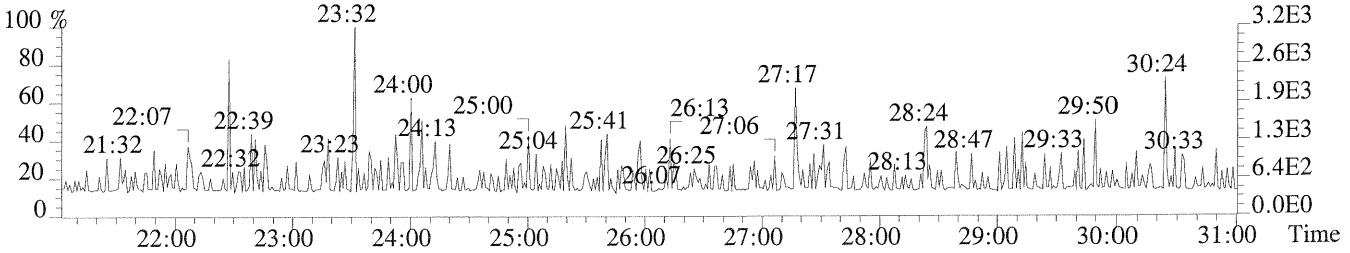
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



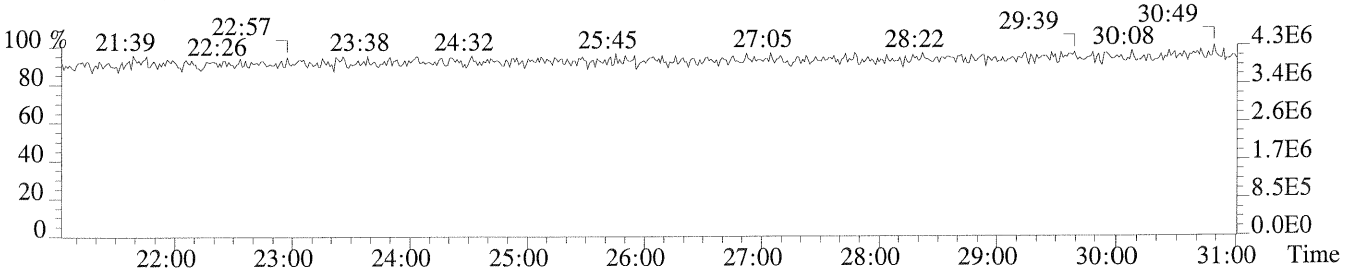
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

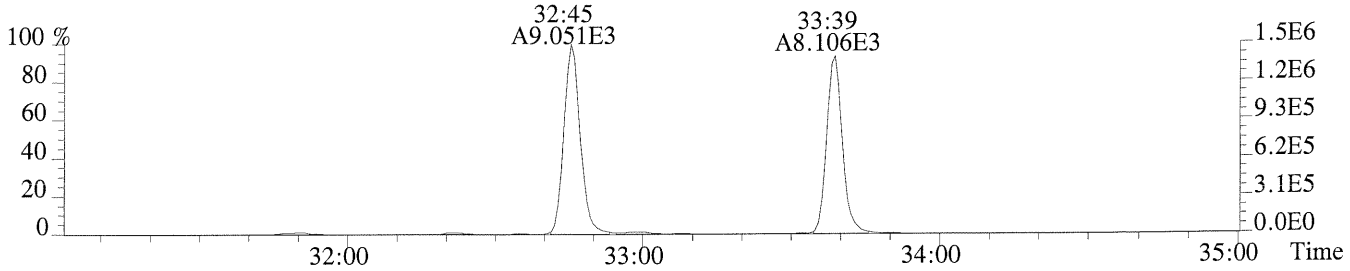


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

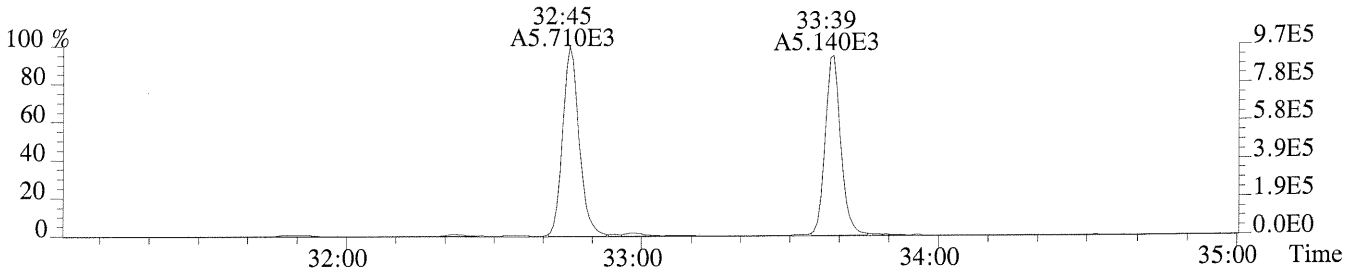


File:P229943 #1-360 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06

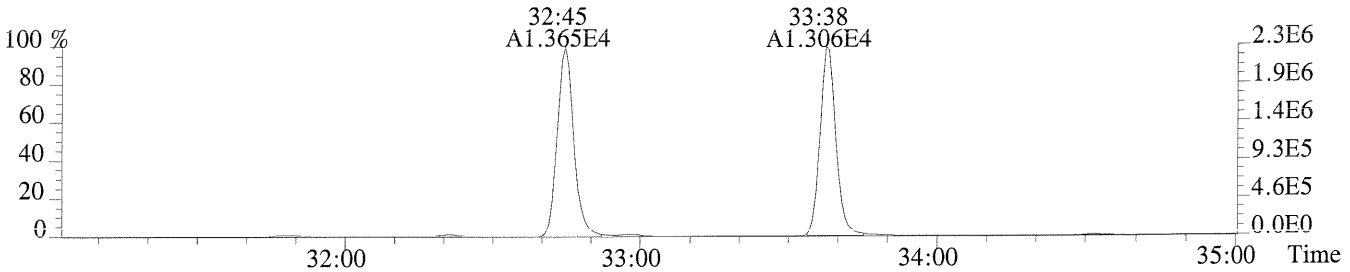
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,228.0,1.00%,F,T)



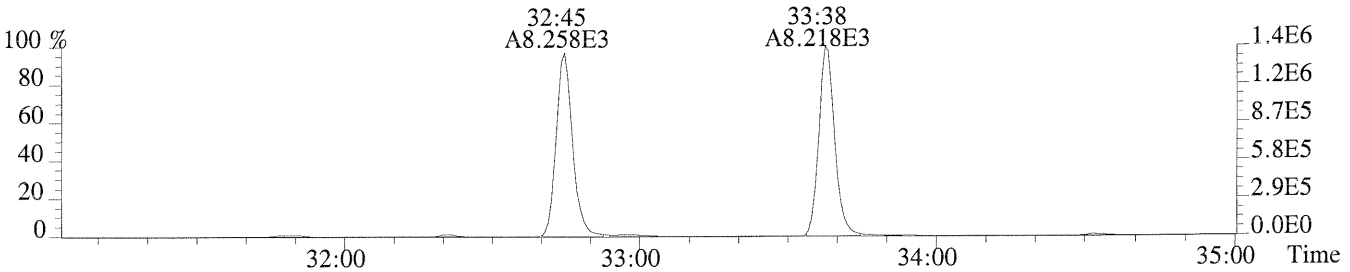
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



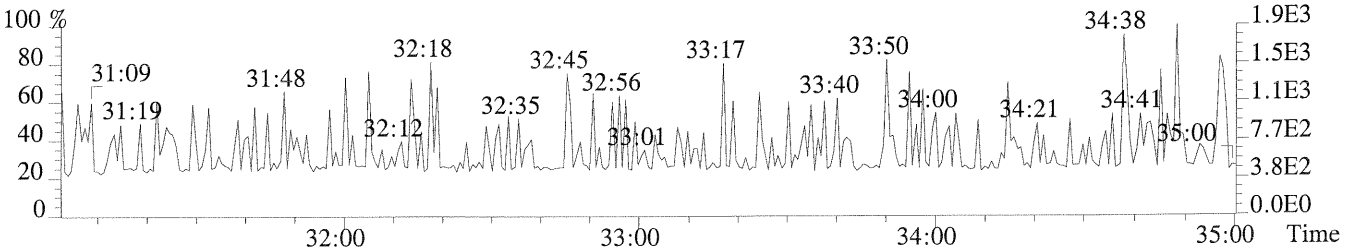
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



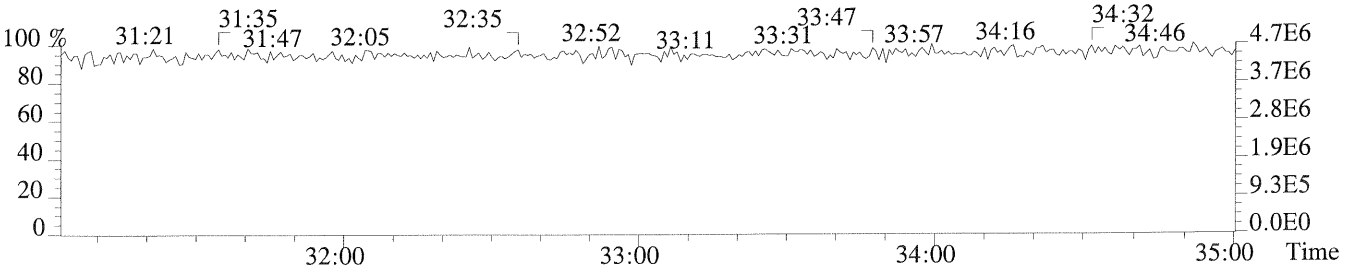
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,412.0,1.00%,F,T)



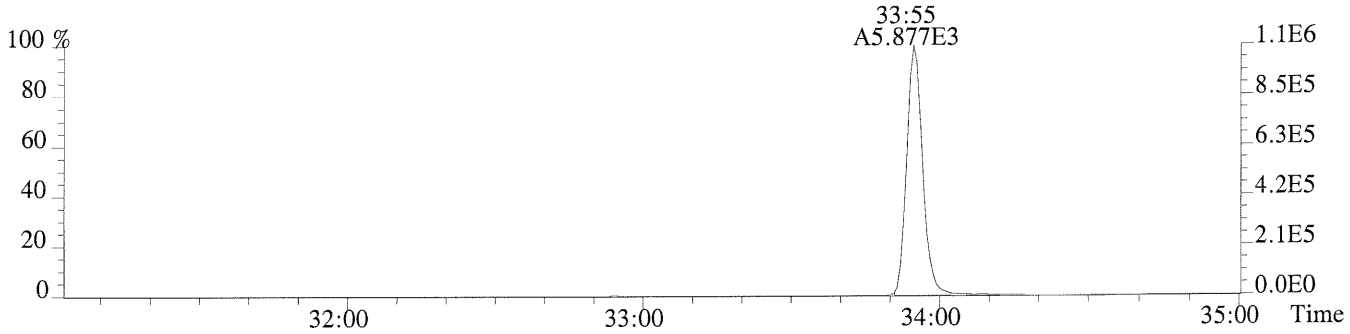
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



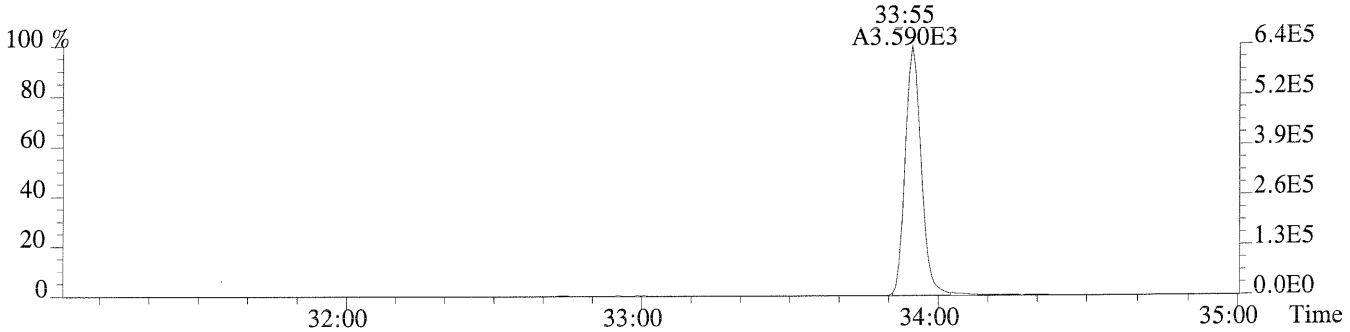
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



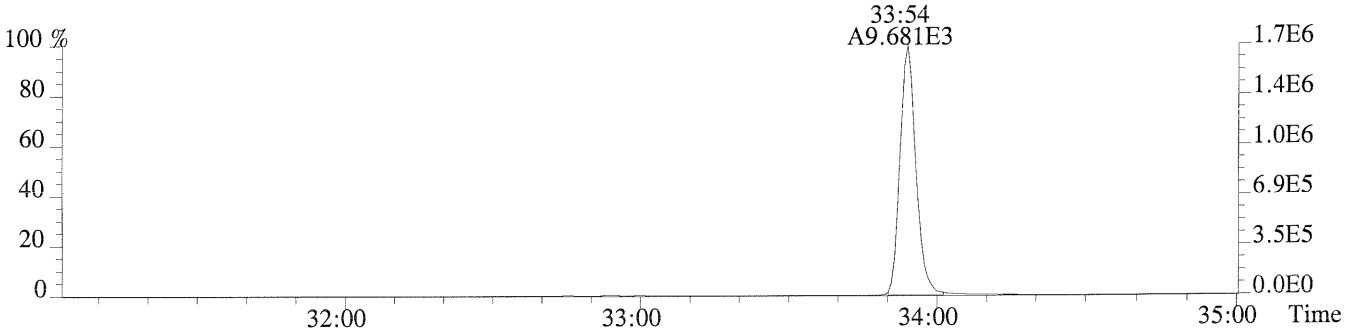
File:P229943 #1-360 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,368.0,1.00%,F,T)



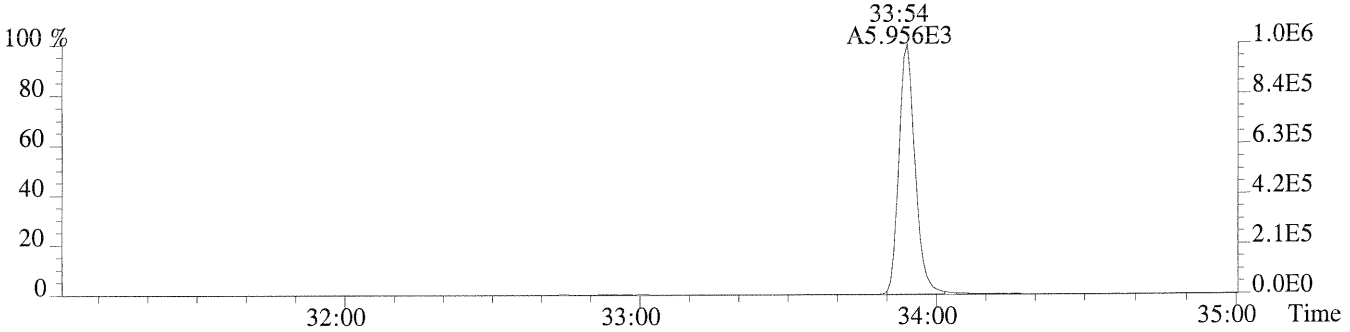
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,40.0,1.00%,F,T)



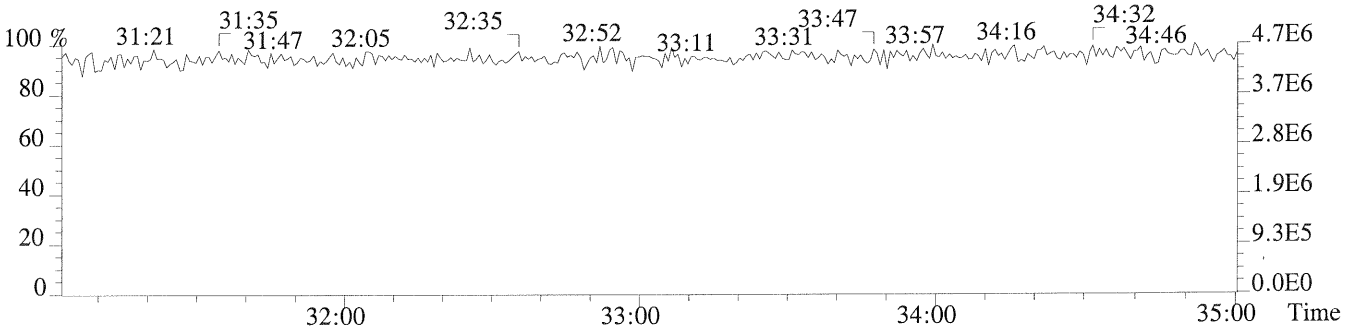
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,128.0,1.00%,F,T)

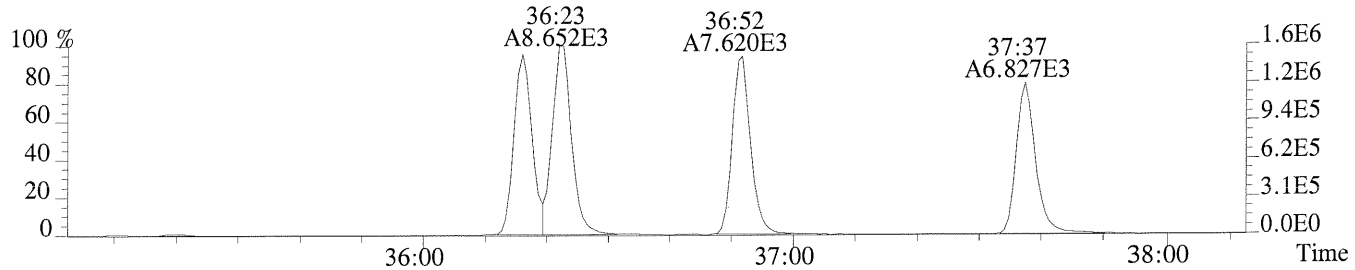


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

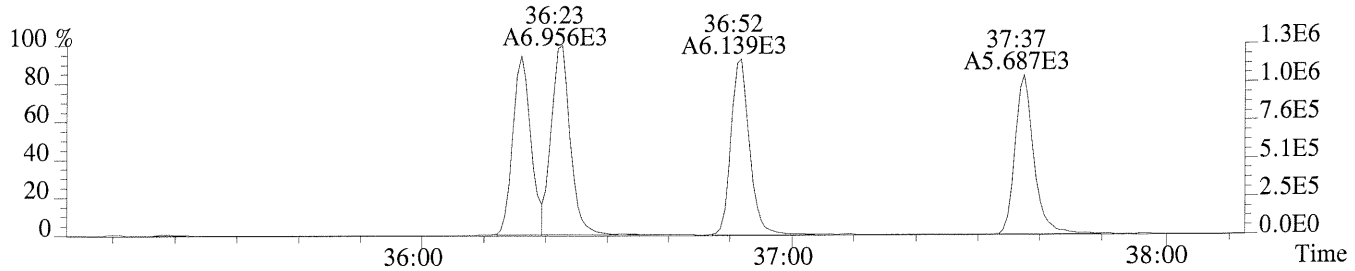


File:P229943 #1-288 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06

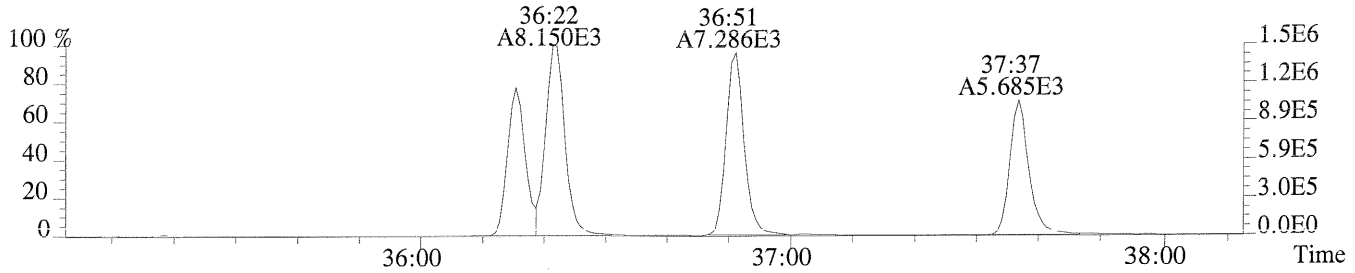
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,204.0,0.40%,F,T)



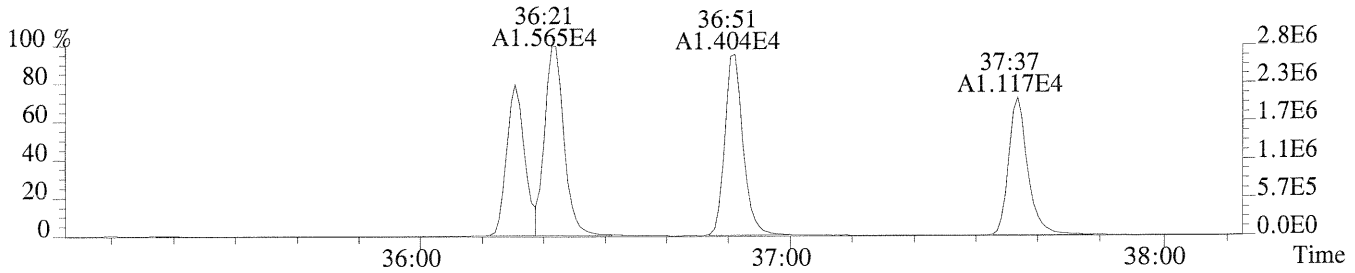
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,104.0,0.40%,F,T)



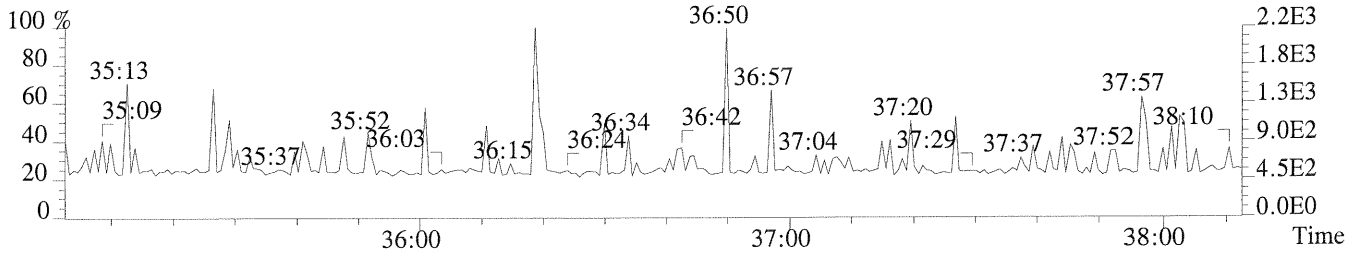
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,276.0,0.40%,F,T)



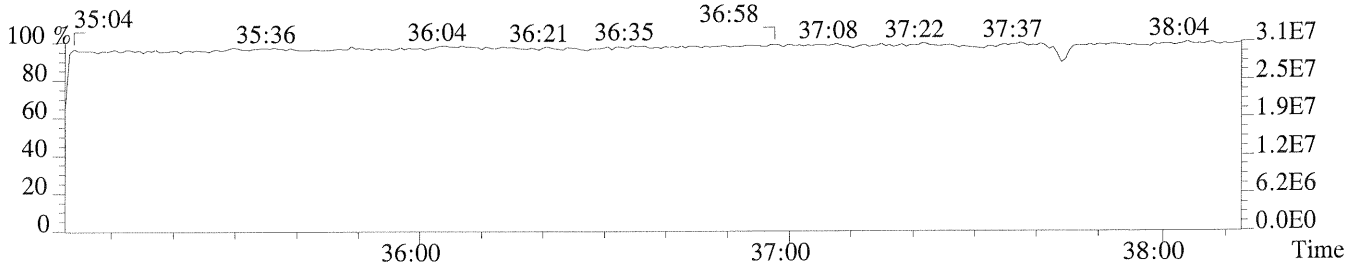
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

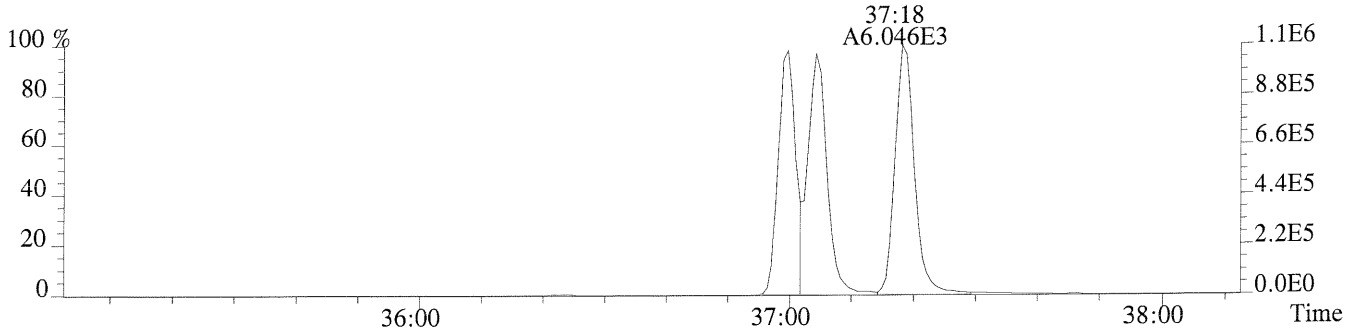


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

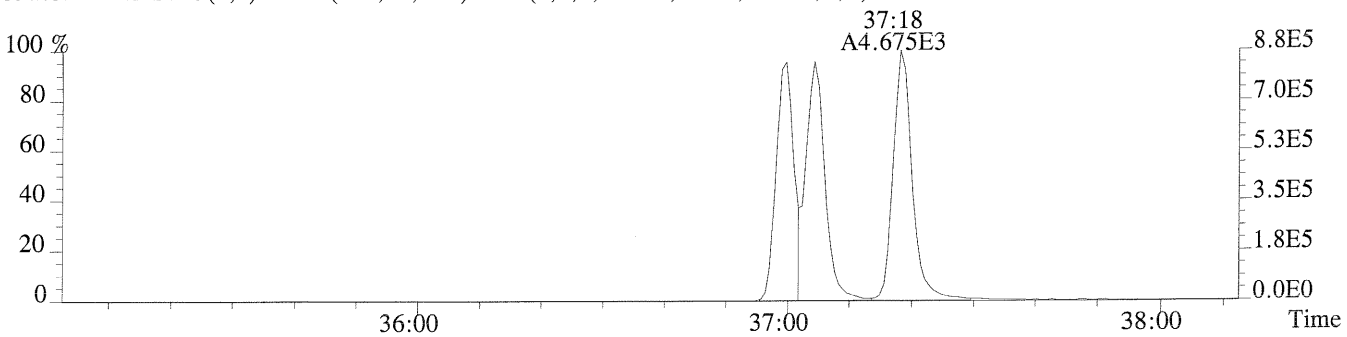


File:P229943 #1-288 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06

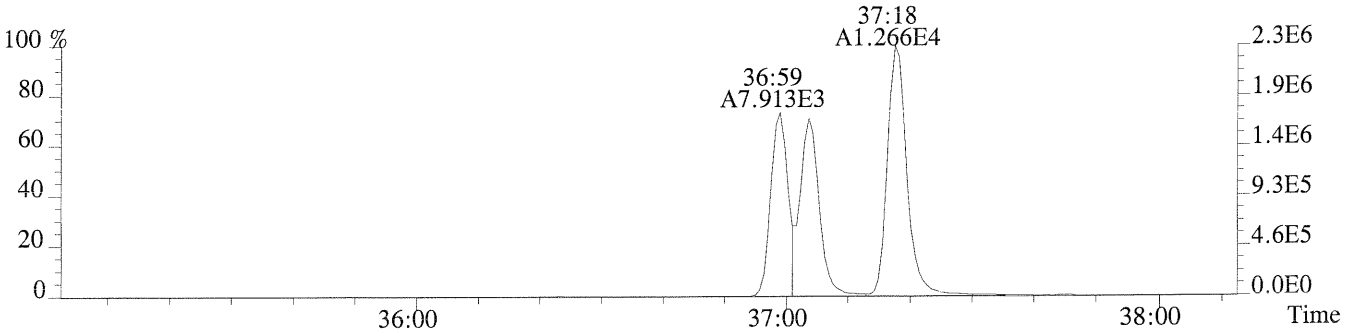
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,128.0,0.40%,F,T)



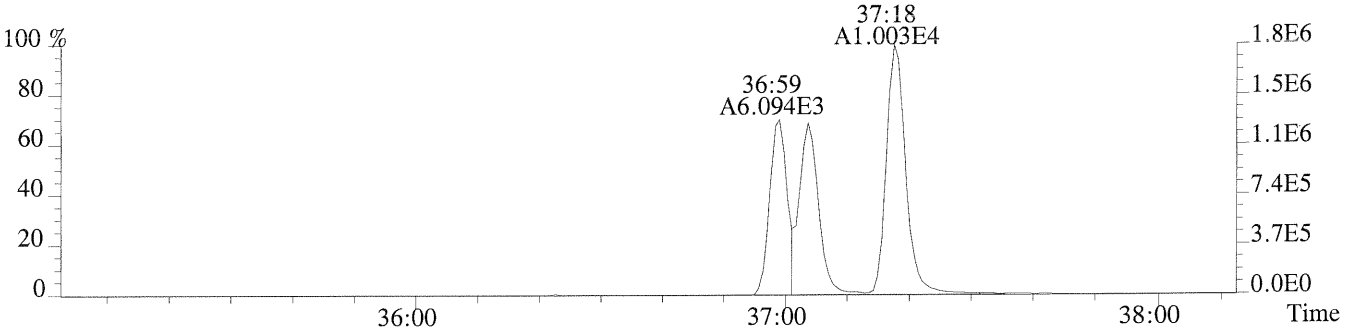
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



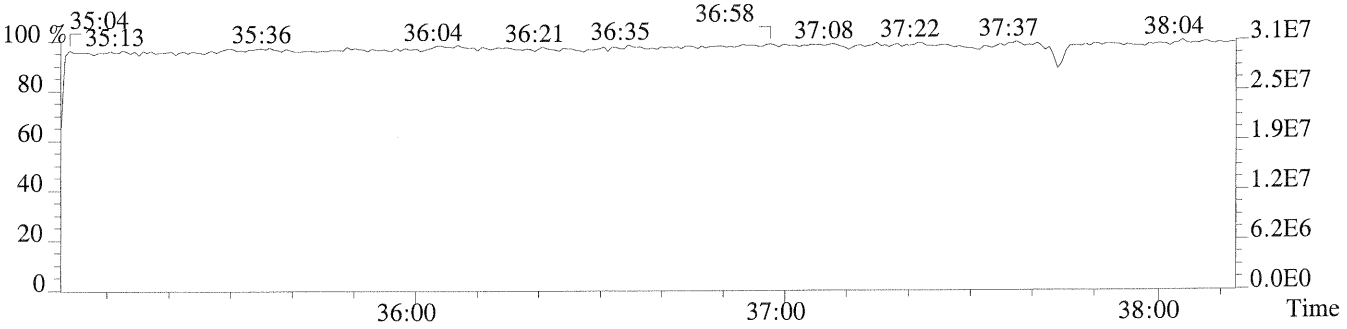
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)

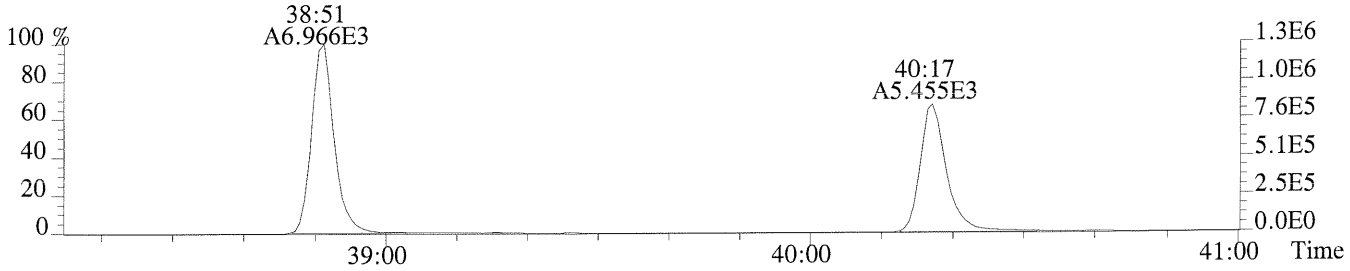


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

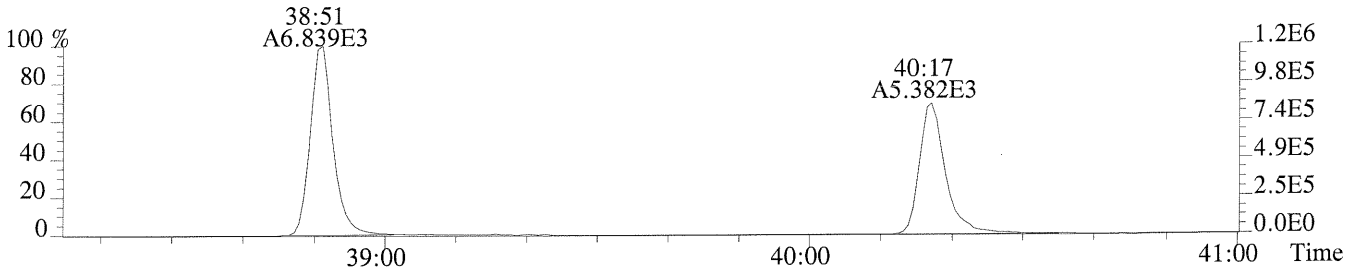


File:P229943 #1-251 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06

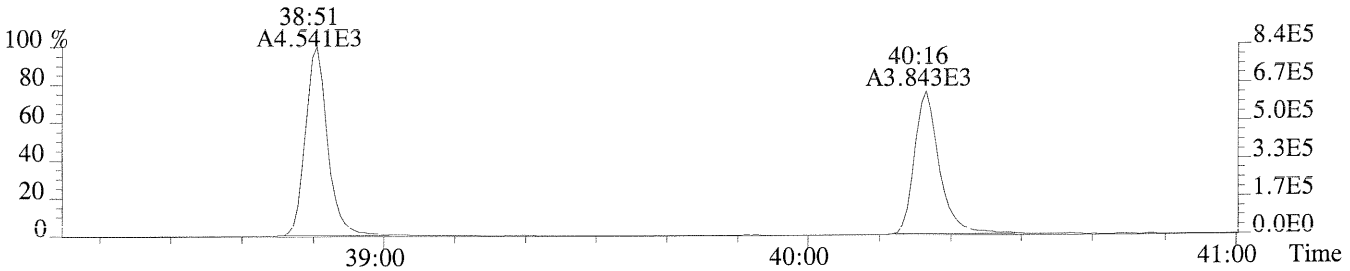
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,416.0,0.50%,F,T)



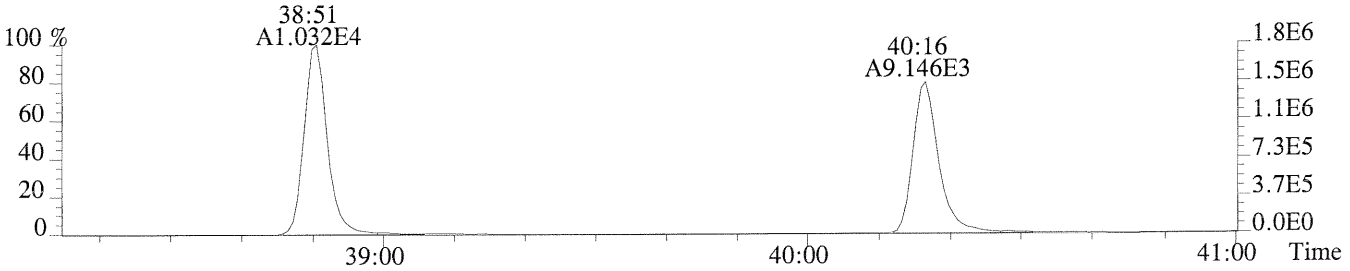
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.50%,F,T)



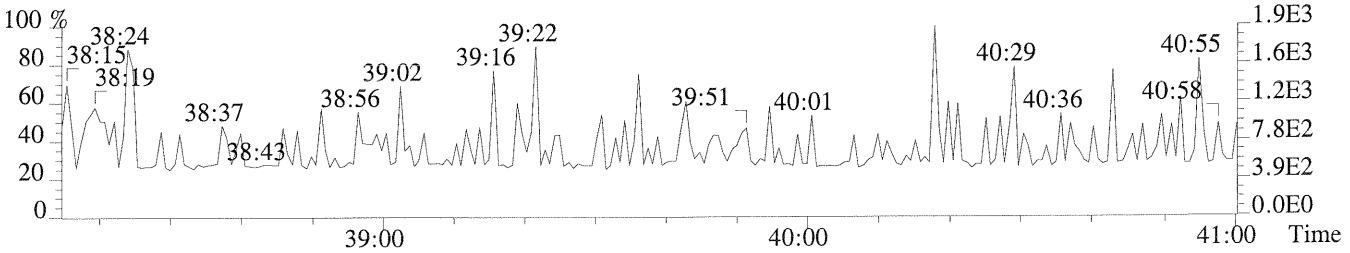
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.50%,F,T)



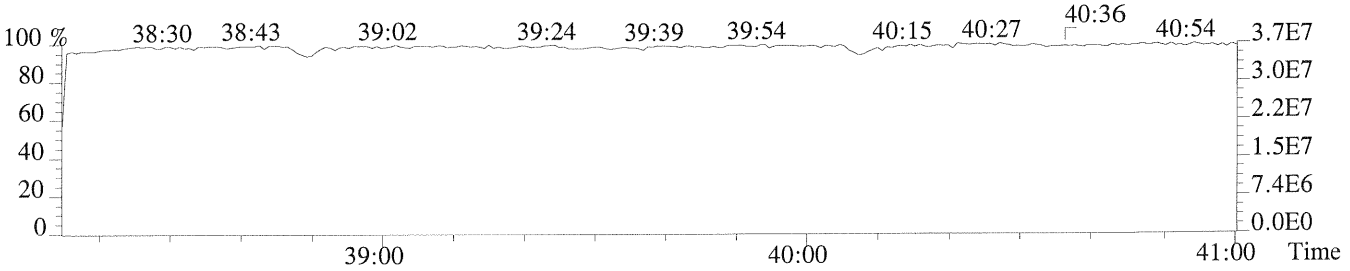
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1084.0,0.50%,F,T)



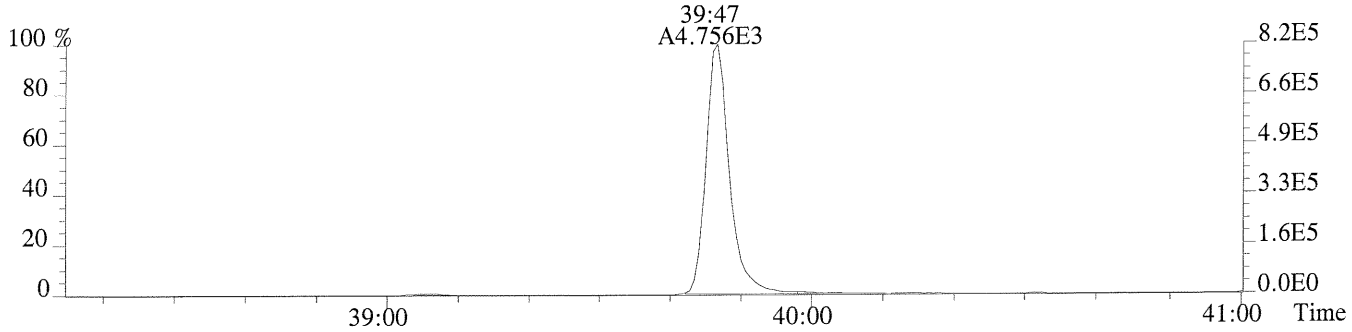
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



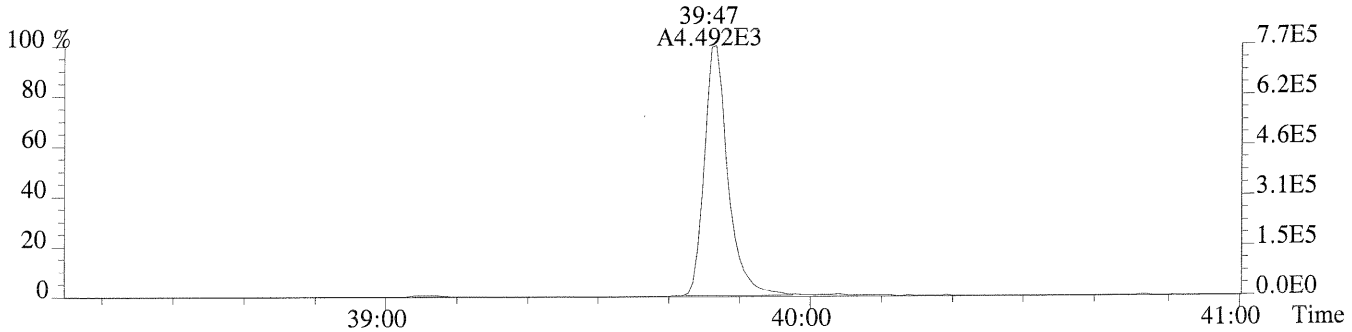
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



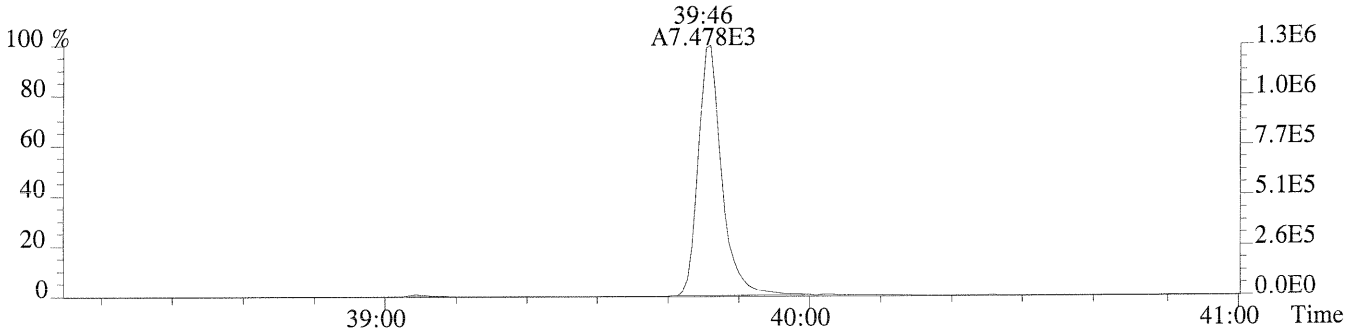
File:P229943 #1-251 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



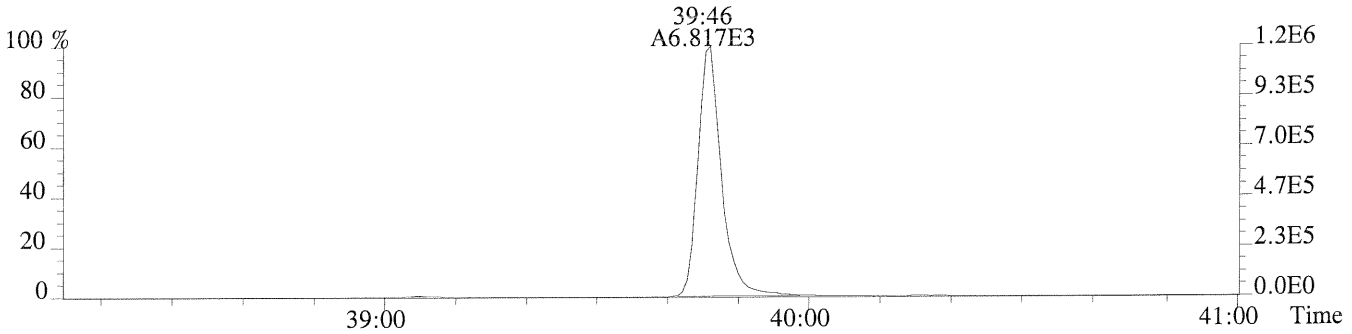
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,168.0,0.40%,F,T)



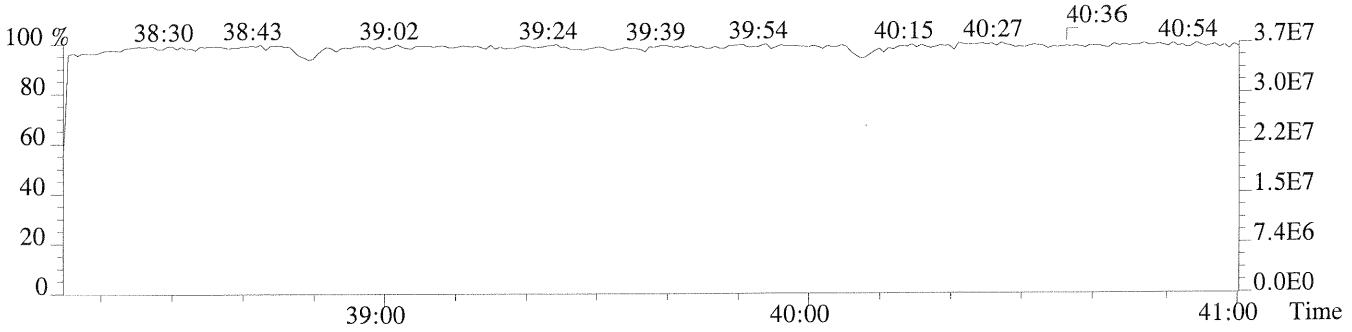
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



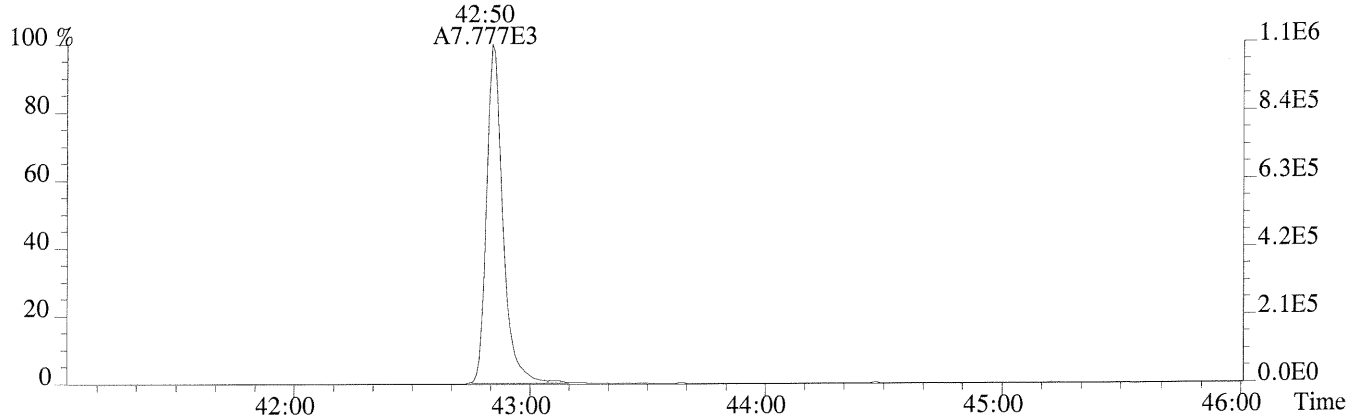
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,52.0,0.40%,F,T)



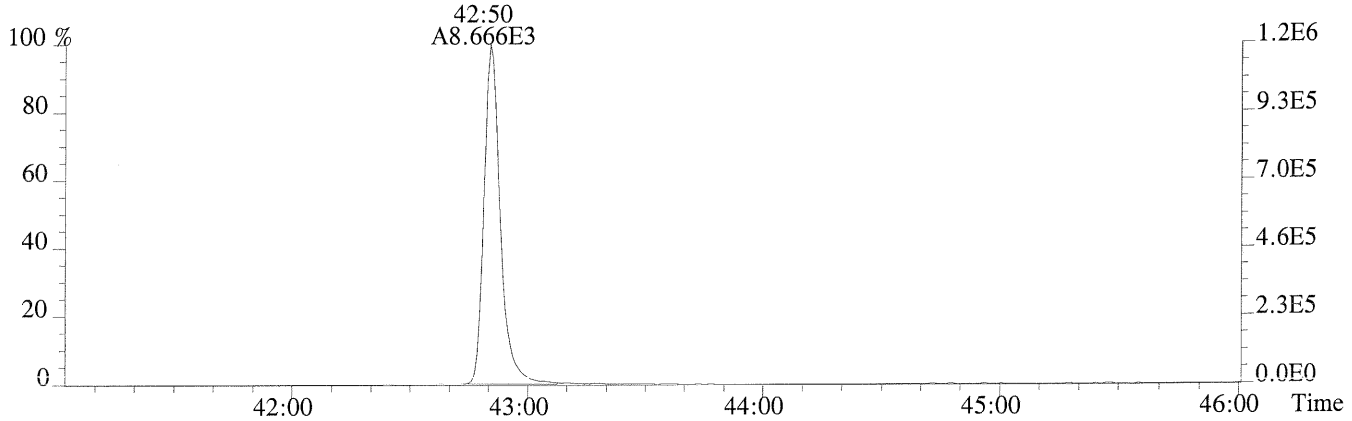
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



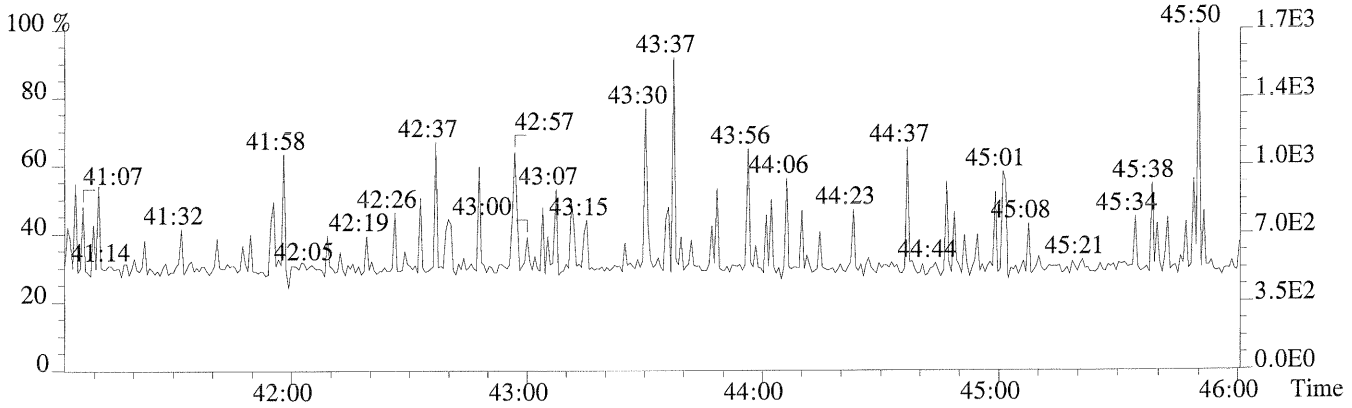
File:P229943 #1-457 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,140.0,0.40%,F,T)



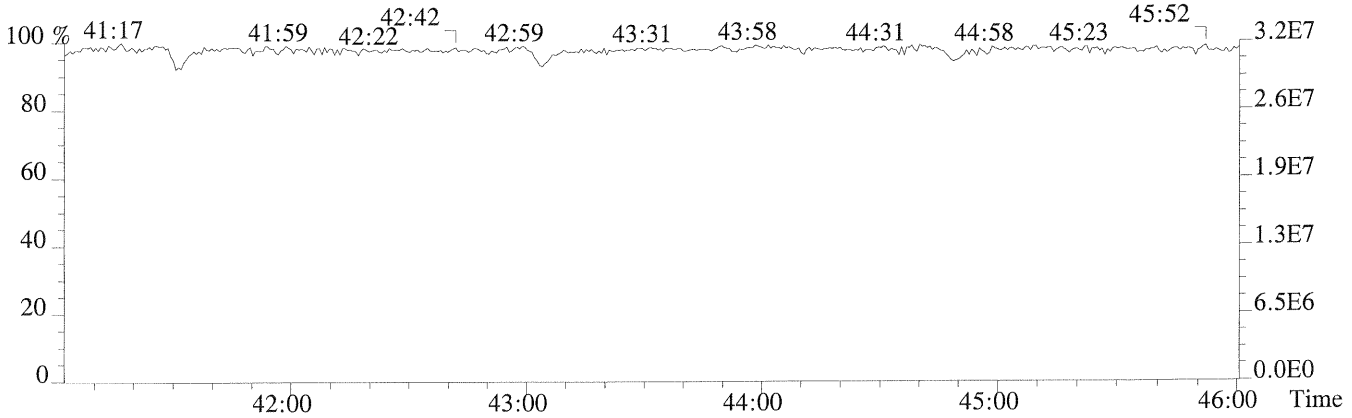
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



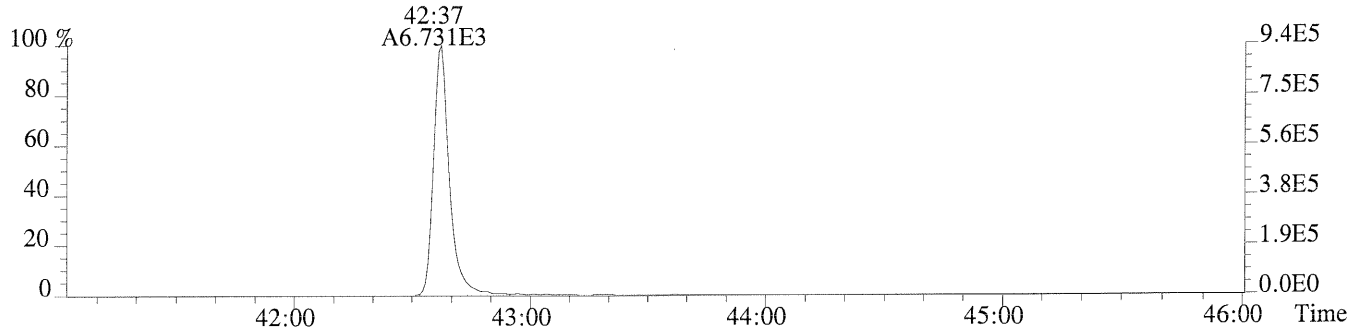
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



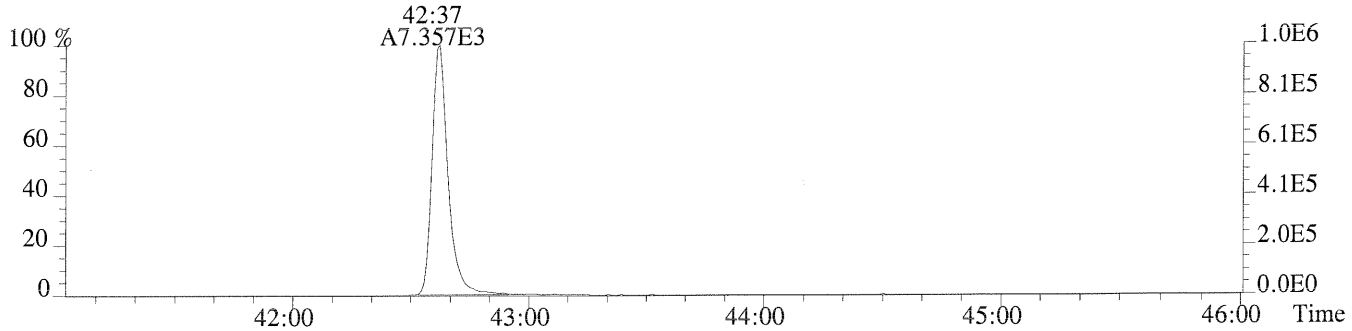
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



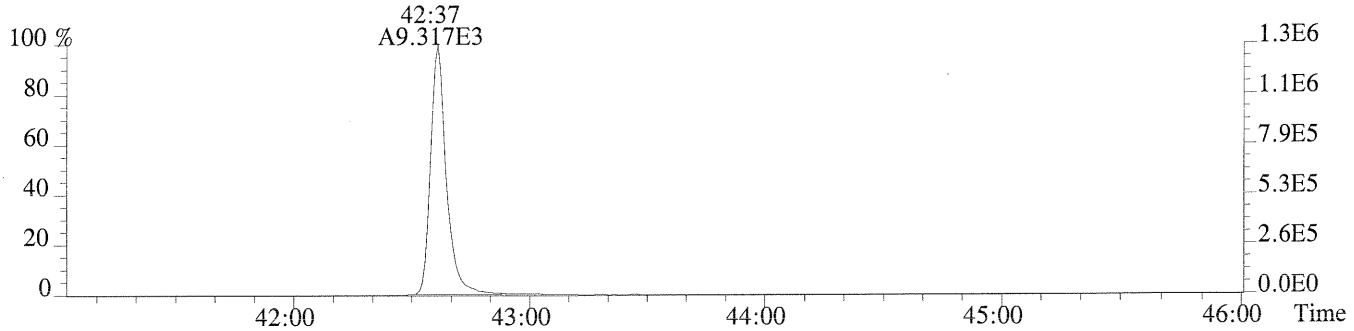
File:P229943 #1-457 Acq: 3-JUL-2014 09:18:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1400342-06
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,72.0,0.40%,F,T)



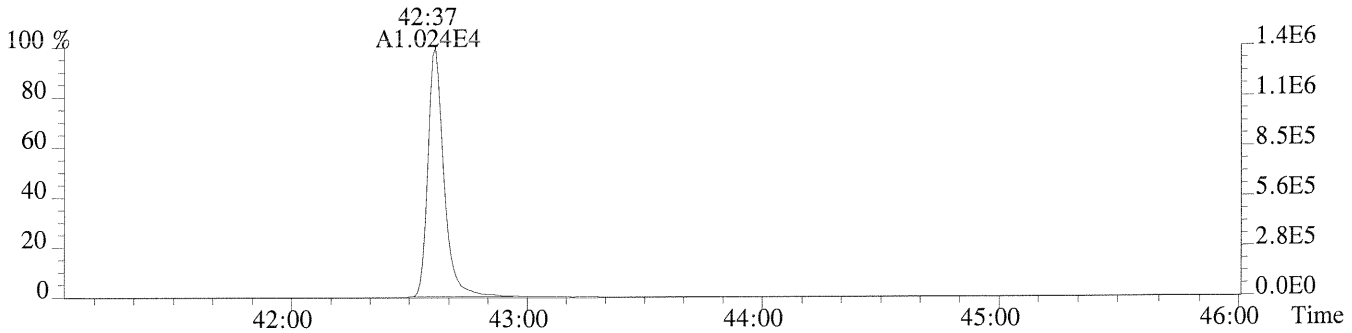
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,176.0,0.40%,F,T)



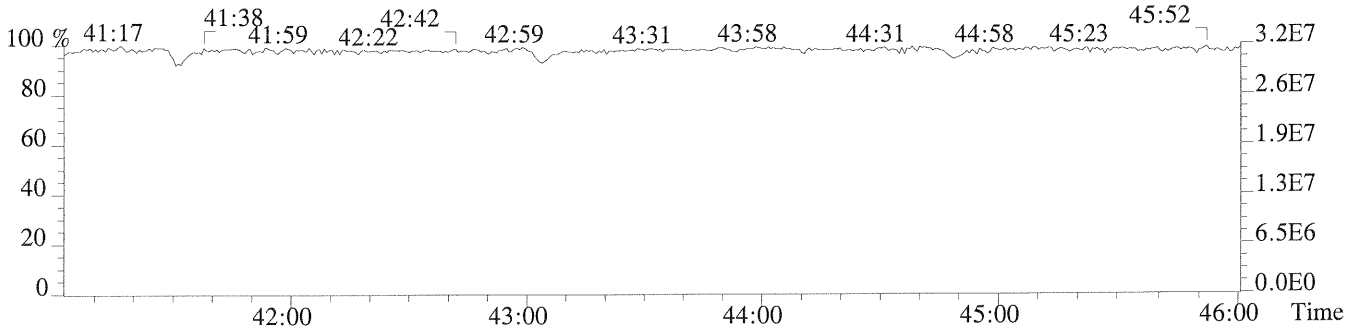
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,40.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,304.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Continuing Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P229921-P229934 Circle one: Beginning / Ending

Date: 07/02/14-07/03/14

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: [signature] Second QC: UKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-04

Init. Calib. Date: 02/01/14

Init. Calib.Times: 15:24

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	P229922	2-JUL-14	15:18:35
66131	CCAL HRCC3/CS3	P229921	2-JUL-14	14:11:01
METHOD BLANK	EQ1400344-01	P229923	2-JUL-14	17:23:13
CU-LCRS-061214-01-╗	E1400655-001	P229924	2-JUL-14	18:09:54
CU-LDCRS-061214-01╗	E1400655-002	P229925	2-JUL-14	18:57:46
CU-LYSIM-061214-01╗	E1400655-003	P229926	2-JUL-14	19:45:34
1406131304 200-SB-╗	R1404651-012	P229927	2-JUL-14	20:33:26
1406141704 200-SB-╗	R1404651-013	P229928	2-JUL-14	21:21:13
1406151129 200-SB-╗	R1404651-014	P229929	2-JUL-14	22:09:06
LCS	EQ1400344-02	P229930	2-JUL-14	22:56:54
DLCS	EQ1400344-03	P229931	2-JUL-14	23:44:46
TEST	TEST	P229932	3-JUL-14	00:32:33
TEST	TEST	P229933	3-JUL-14	01:20:26
66131	CCAL HRCC3/CS3	P229934	3-JUL-14	02:08:18

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2140702B.SPL

Last Modified: Thursday, July 03, 2014 08:38:20 Central Daylight Time

Printed: Thursday, July 03, 2014 08:38:47 Central Daylight Time

e: P22992|res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	07/02/14	14:11	P229921	CCAL HRCC3/CS3	66131	LL	HRMS check 15:11	8290CAS
2		15:18	P229922	WINDOW DEFINE	63680			8290CAS
3		17:23	P229923	EQ1400344-01	MB		HRMS check 17:15	8290CAS
4		18:09	P229924	E1400655-001	E1400655-001			8290CAS
5		18:57	P229925	E1400655-002	E1400655-002			8290CAS
6		19:45	P229926	E1400655-003	E1400655-003			8290CAS
7		20:33	P229927	R1404651-012	R1404651-012			8290CAS
8		21:21	P229928	R1404651-013	R1404651-013			8290CAS
9		22:09	P229929	R1404651-014	R1404651-014			8290CAS
10		22:56	P229930	EQ1400344-02	LCS			8290CAS
11		23:44	P229931	EQ1400344-03	DLCS			8290CAS
12	07/03/14	00:32	P229932	TEST	TEST			8290CAS
13		01:20	P229933	TEST	TEST			8290CAS
14		02:08	P229934	CCAL HRCC3/CS3	66131		HRMS check 10:15	8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
20			---	---	---			8290CAS
21			---	---	---			8290CAS
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			TCDFCAS
29			---	---	---			TCDFCAS
30			---	---	---			8290CAS
31	---	---	---	---	---	---	---	8290CAS
32	---	---	---	---	REVIEWED BY:	---	---	8290CAS
33	---	---	---	---	---	---	---	8290CAS
34	---	---	---	---	---	---	---	8290CAS
35	---	---	---	---	---	---	---	TCDFCAS
36	---	---	---	---	---	---	---	TCDFCAS
37	---	---	---	---	---	---	---	TCDFCAS
38	---	---	---	---	---	---	---	---
39	---	---	---	---	---	---	---	8290CAS

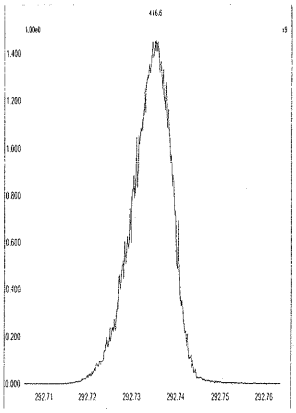
07/07/14

007

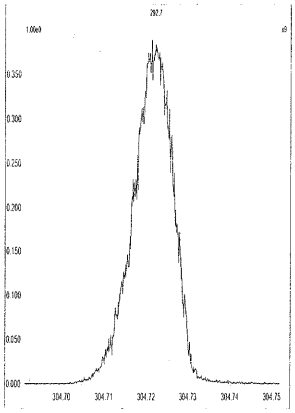
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 15:11:20 Central Daylight Time

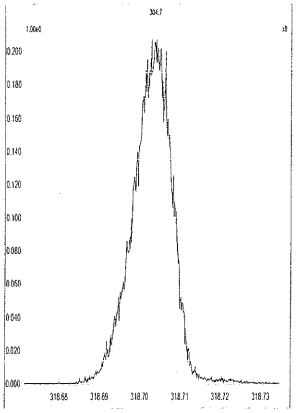
M 292.9824 R 13516



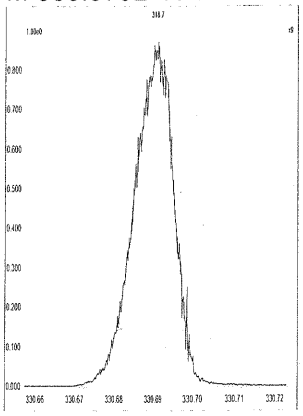
M 304.9824 R 13736



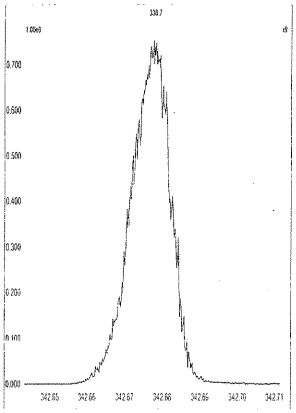
M 318.9792 R 14128



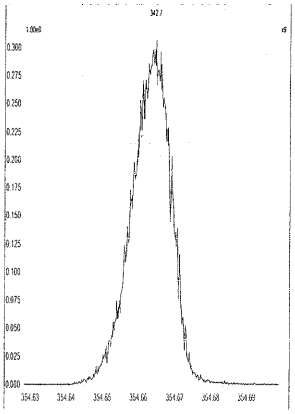
M 330.9792 R 14707



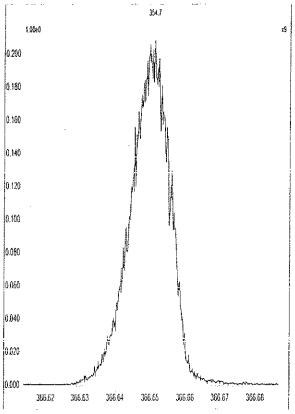
M 342.9792 R 14203



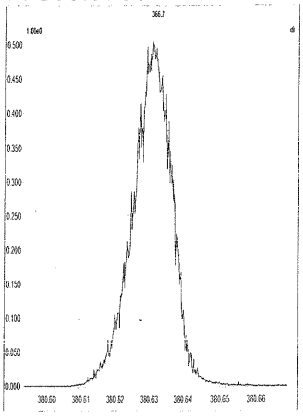
M 354.9792 R 13663



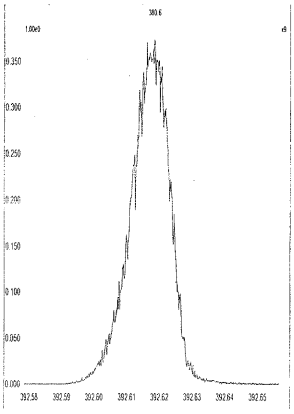
M 366.9792 R 14044



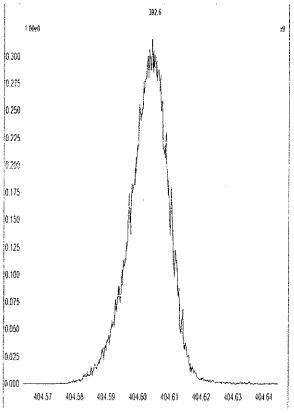
M 380.9760 R 14042



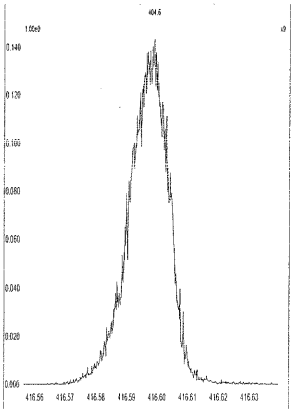
M 392.9760 R 13812



M 404.9760 R 13734



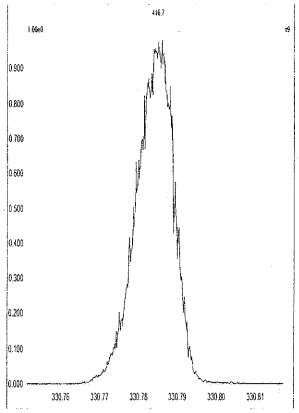
M 416.9760 R 13587



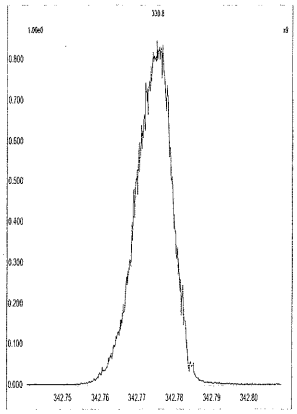
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 15:12:31 Central Daylight Time

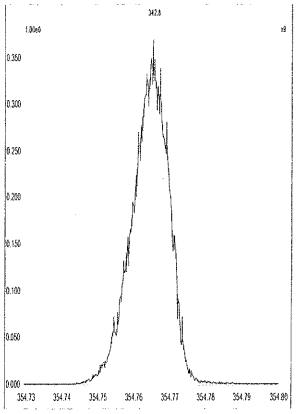
M 330.9792 R 14968



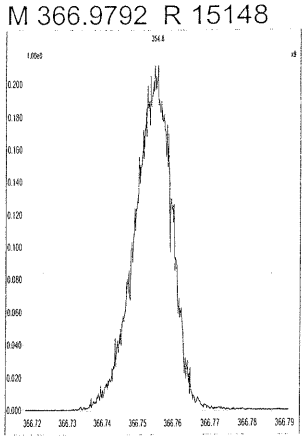
M 342.9792 R 15530



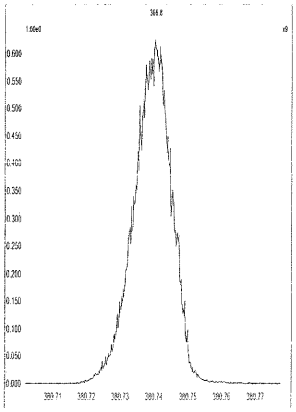
M 354.9792 R 14619



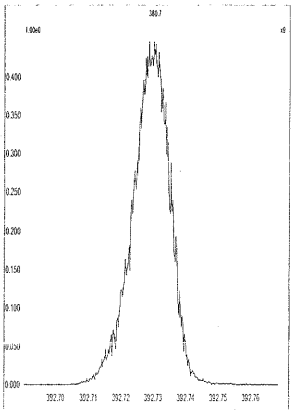
M 366.9792 R 15148



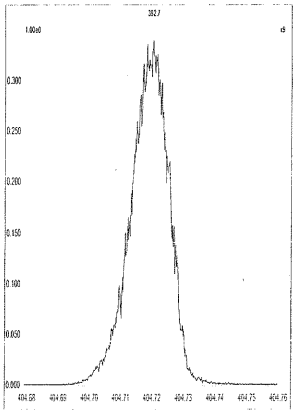
M 380.9760 R 14707



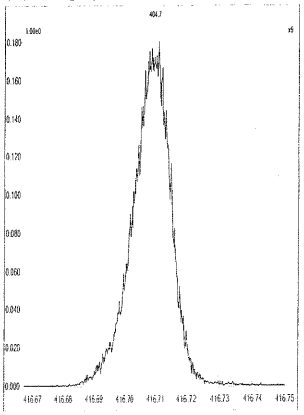
M 392.9760 R 14049



M 404.9760 R 14531



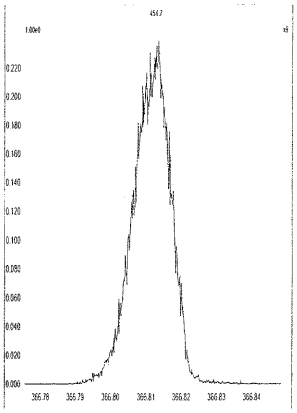
M 416.9760 R 14367



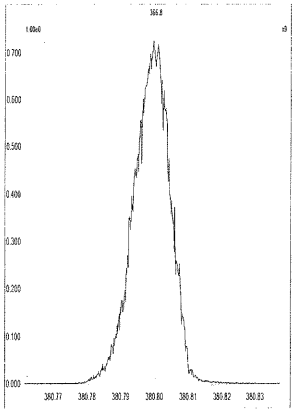
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 15:13:24 Central Daylight Time

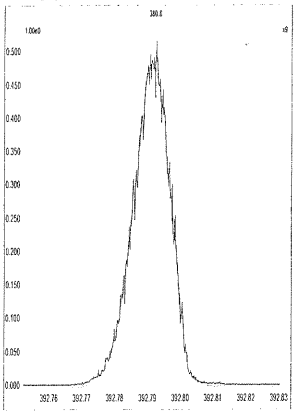
M 366.9792 R 14798



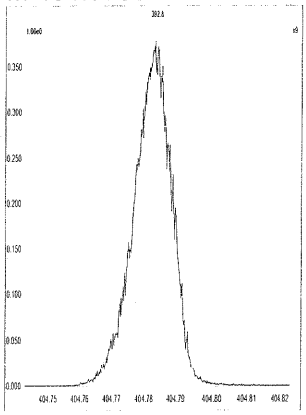
M 380.9760 R 15429



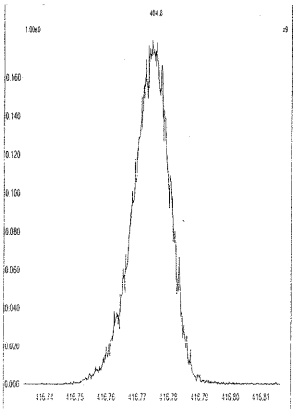
M 392.9760 R 15338



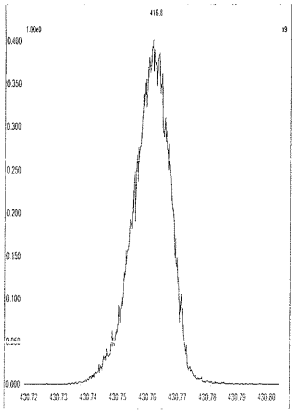
M 404.9760 R 14284



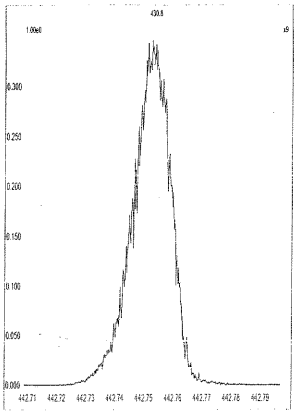
M 416.9760 R 14364



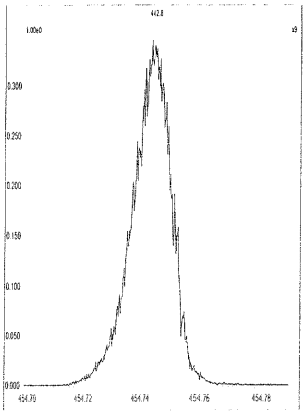
M 430.9728 R 14970



M 442.9728 R 14537



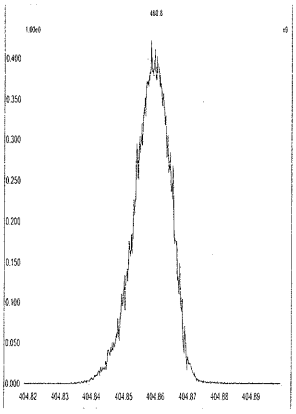
M 454.9728 R 14125



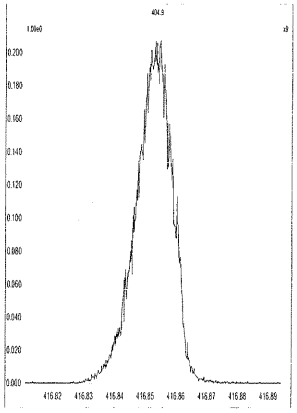
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 15:14:16 Central Daylight Time

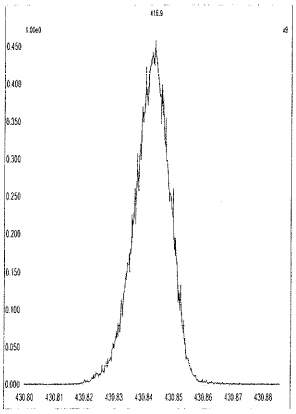
M 404.9760 R 16130



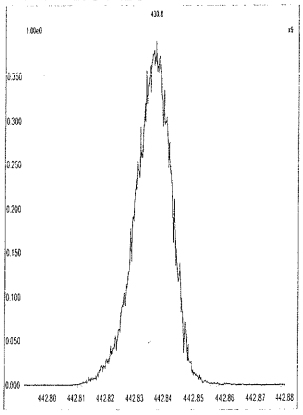
M 416.9760 R 15059



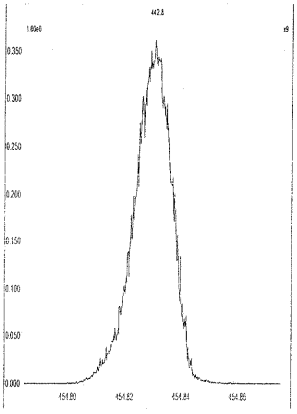
M 430.9728 R 14883



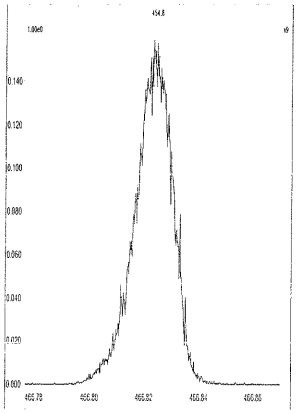
M 442.9728 R 14701



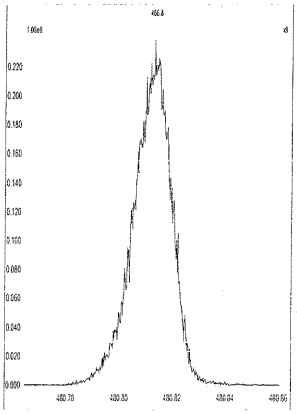
M 454.9728 R 14366



M 466.9728 R 13885



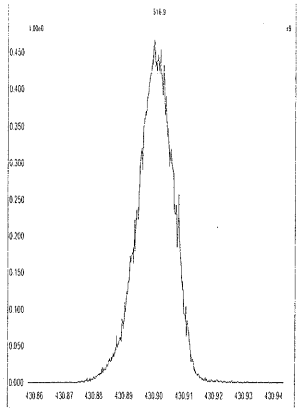
M 480.9696 R 14045



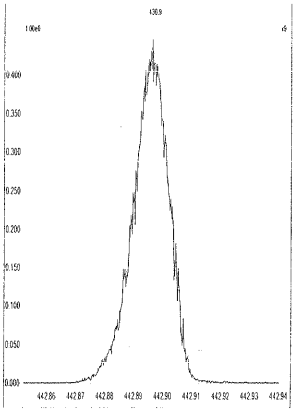
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 15:15:09 Central Daylight Time

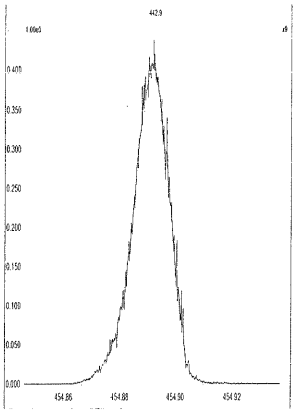
M 430.9728 R 14880



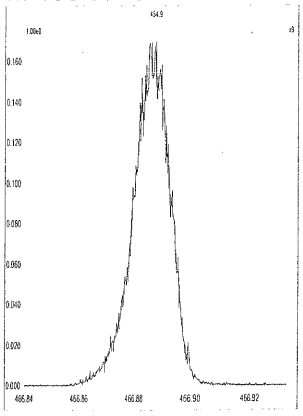
M 442.9728 R 14448



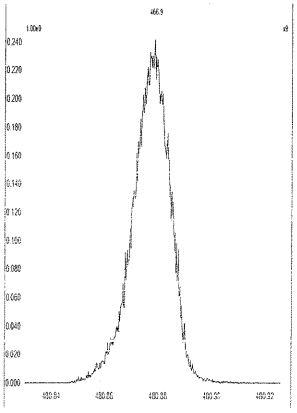
M 454.9728 R 14620



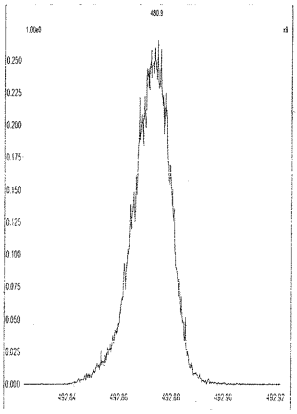
M 466.9728 R 15150



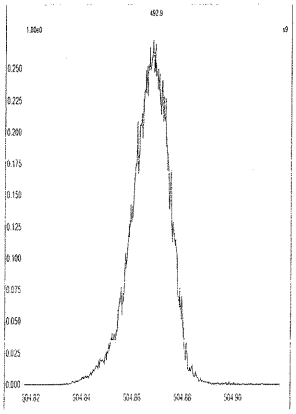
M 480.9696 R 14369



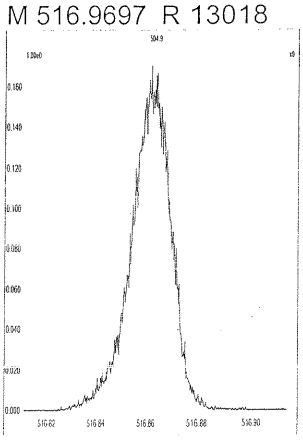
M 492.9696 R 13812



M 504.9696 R 14122



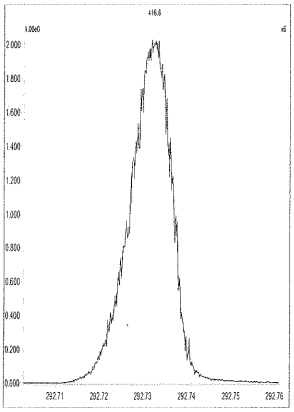
M 516.9697 R 13018



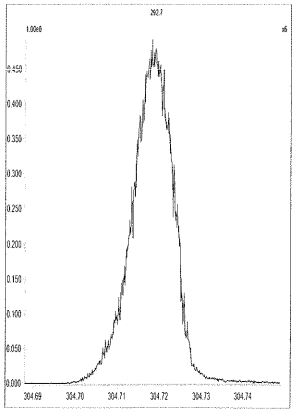
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:15:02 Central Daylight Time

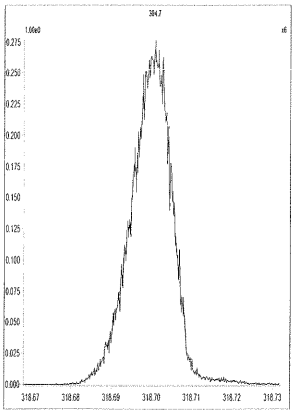
M 292.9824 R 12889



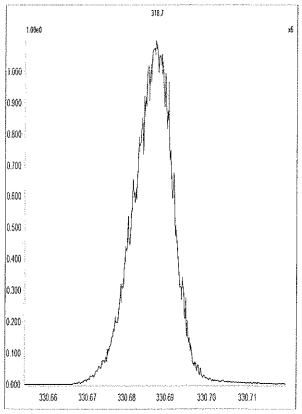
M 304.9824 R 13020



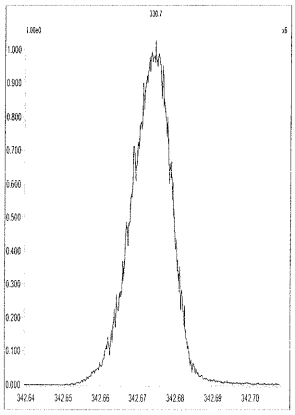
M 318.9792 R 13963



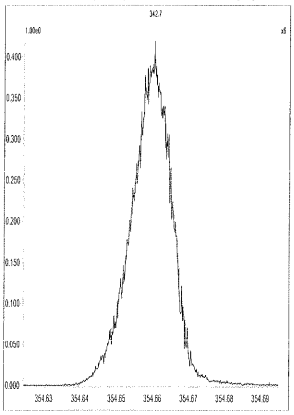
M 330.9792 R 13737



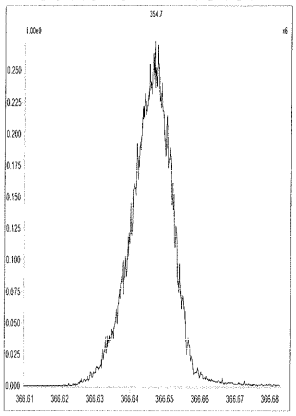
M 342.9792 R 13816



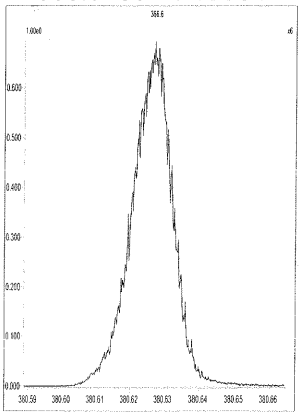
M 354.9792 R 12888



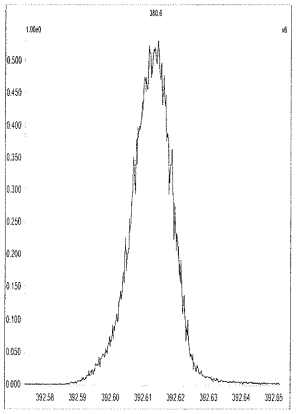
M 366.9792 R 13157



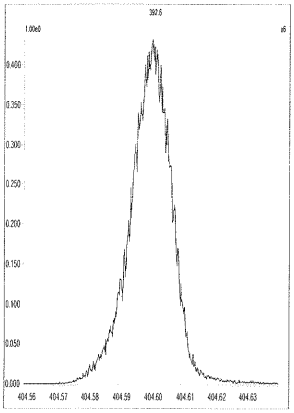
M 380.9760 R 13584



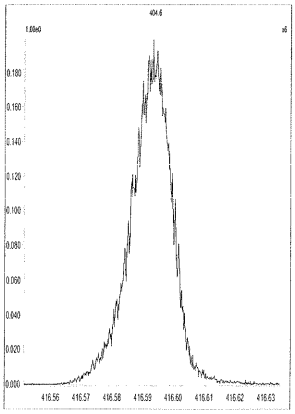
M 392.9760 R 12820



M 404.9760 R 12818



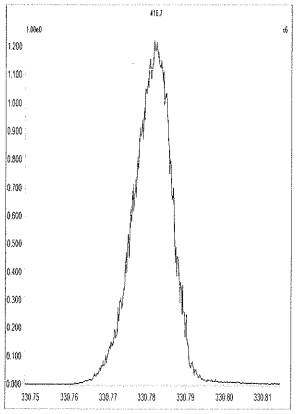
M 416.9760 R 12316



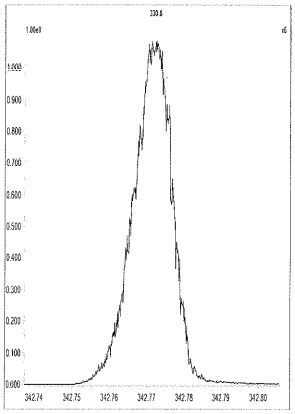
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:16:10 Central Daylight Time

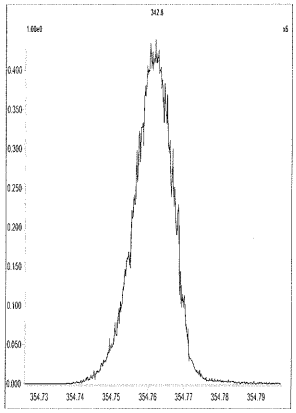
M 330.9792 R 13810



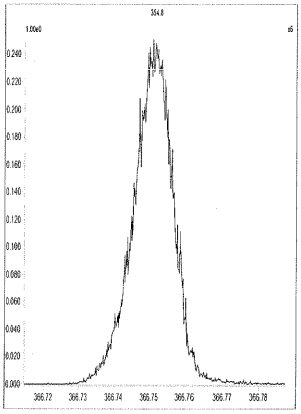
M 342.9792 R 14281



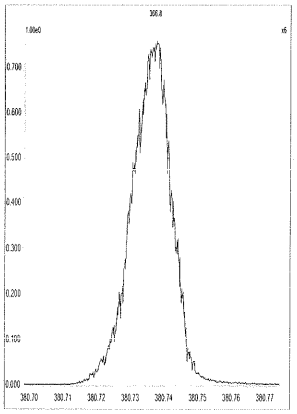
M 354.9792 R 13586



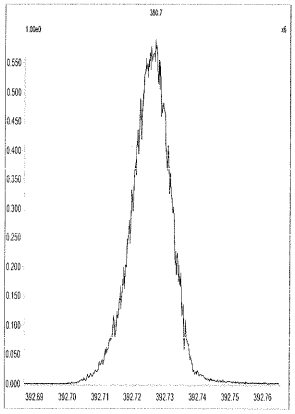
M 366.9792 R 13584



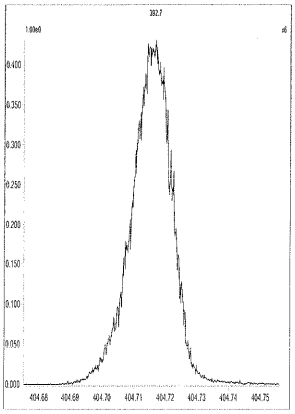
M 380.9760 R 13662



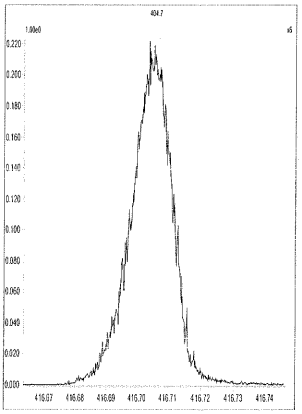
M 392.9760 R 13512



M 404.9760 R 13588



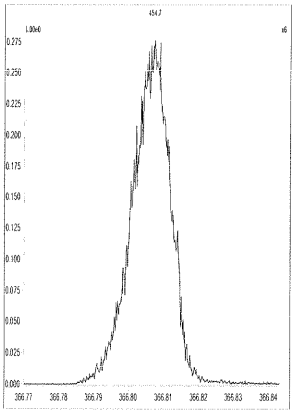
M 416.9760 R 13297



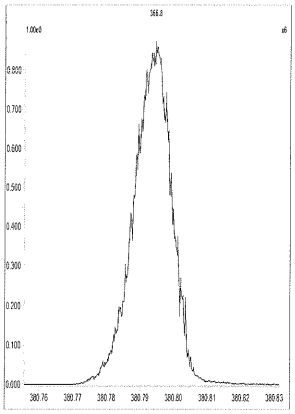
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:17:19 Central Daylight Time

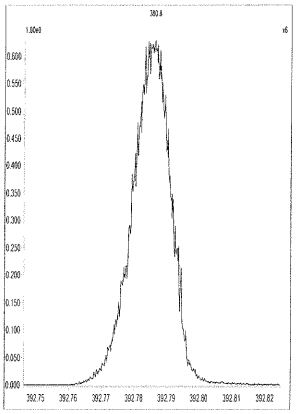
M 366.9792 R 14450



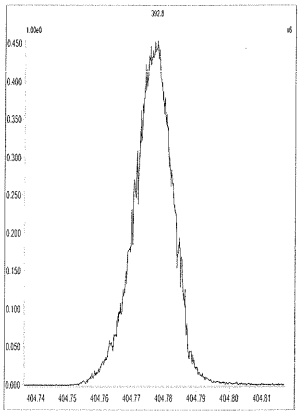
M 380.9760 R 13886



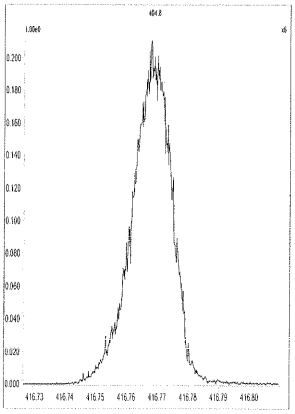
M 392.9760 R 14205



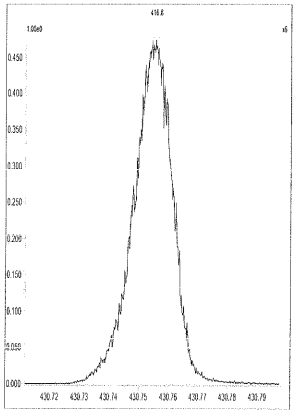
M 404.9760 R 13585



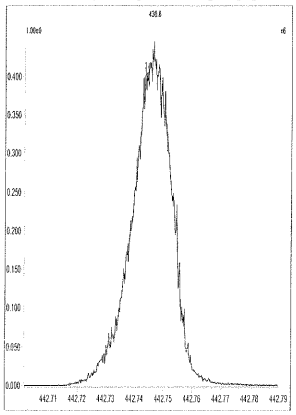
M 416.9760 R 13294



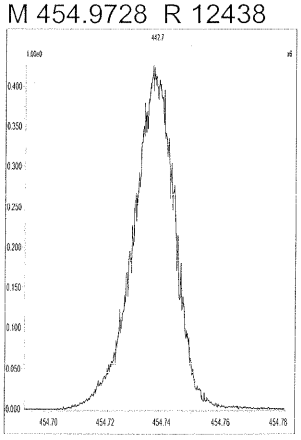
M 430.9728 R 13513



M 442.9728 R 13295



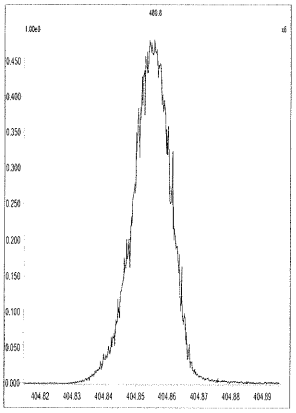
M 454.9728 R 12438



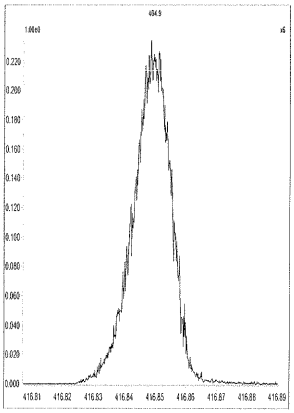
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:18:34 Central Daylight Time

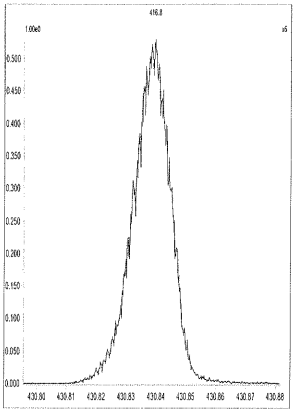
M 404.9760 R 14794



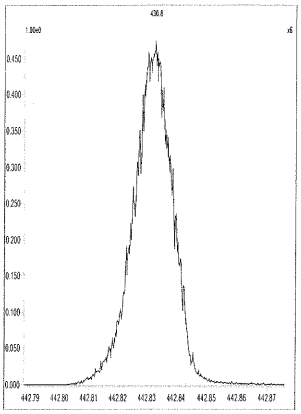
M 416.9760 R 14455



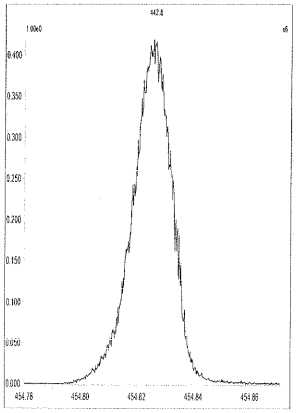
M 430.9728 R 14617



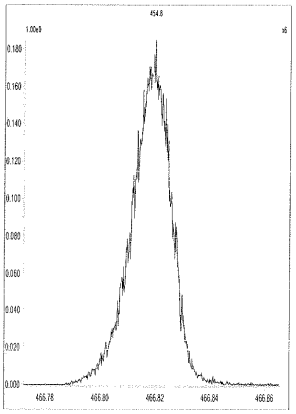
M 442.9728 R 13967



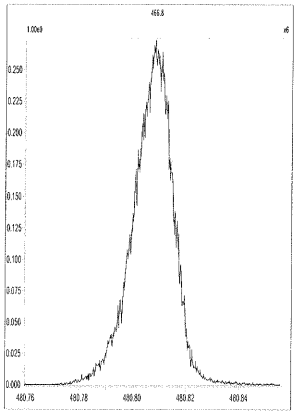
M 454.9728 R 13444



M 466.9728 R 13370



M 480.9696 R 13586



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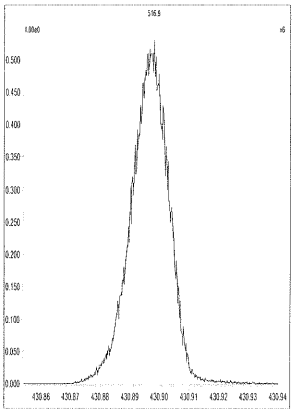

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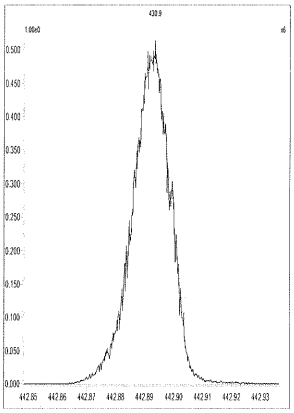

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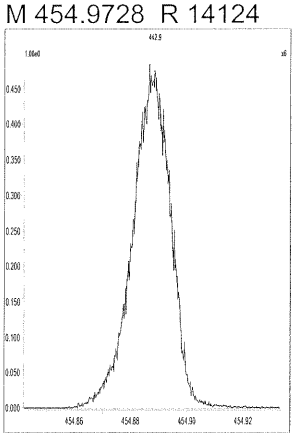

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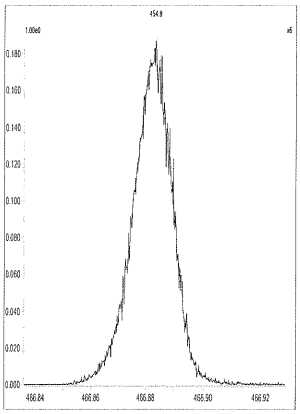

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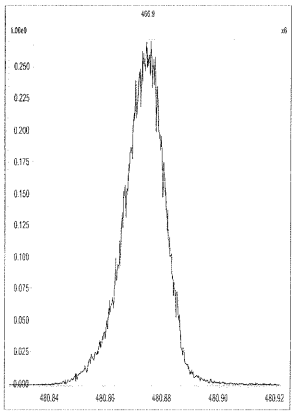

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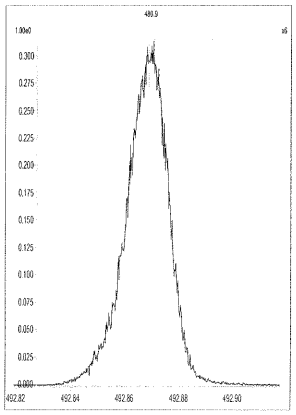

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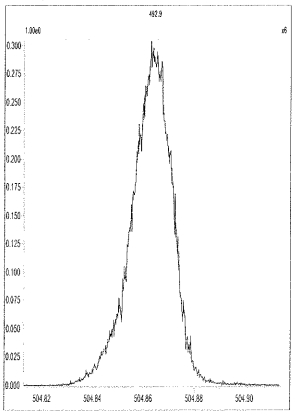

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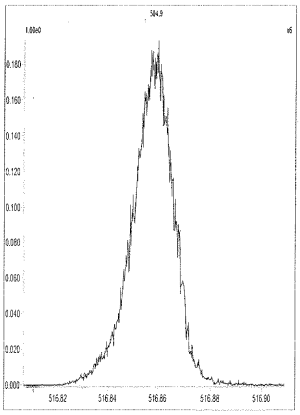

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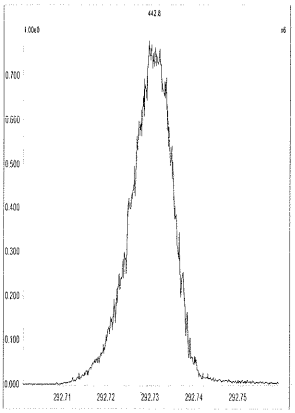

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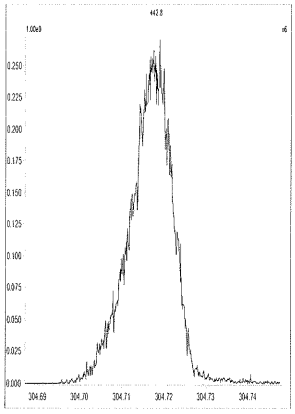

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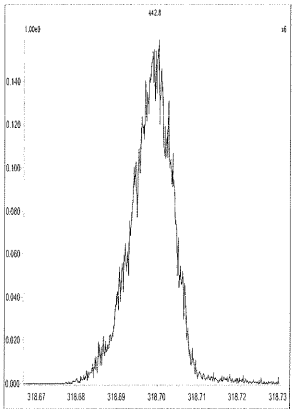

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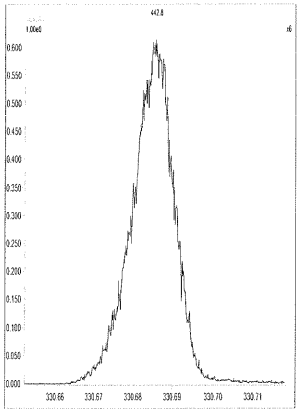

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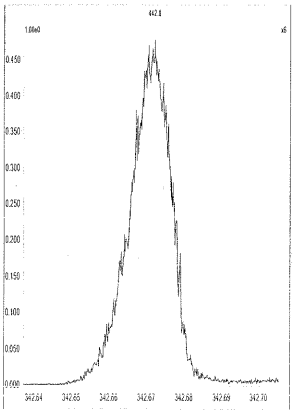

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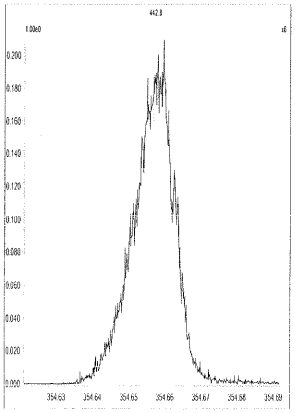

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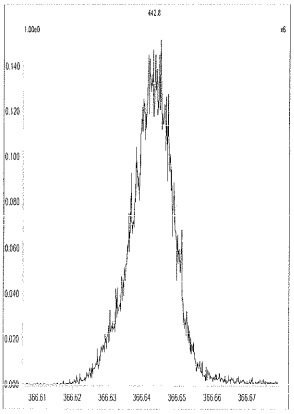

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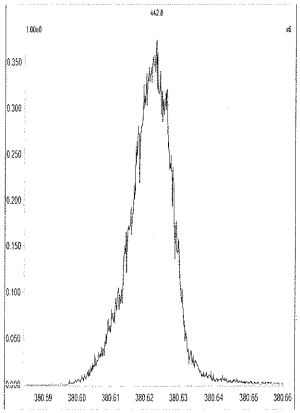

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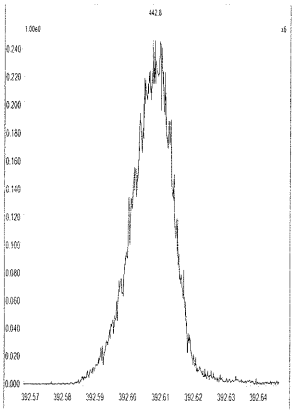

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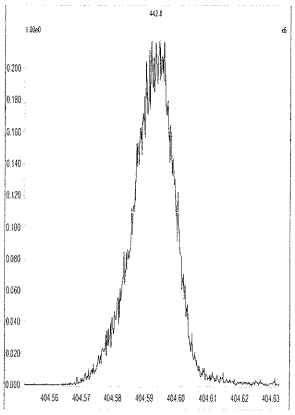

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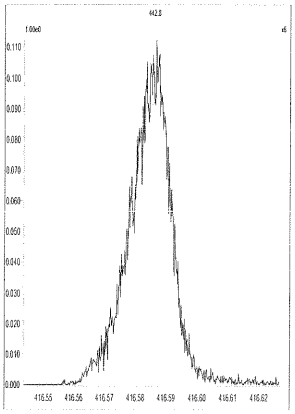

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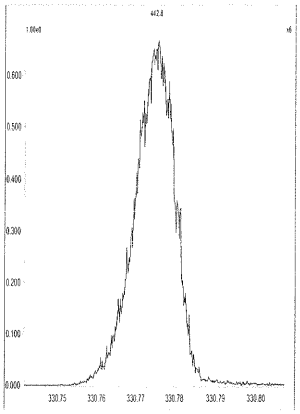

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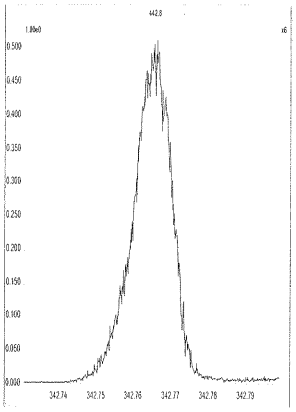

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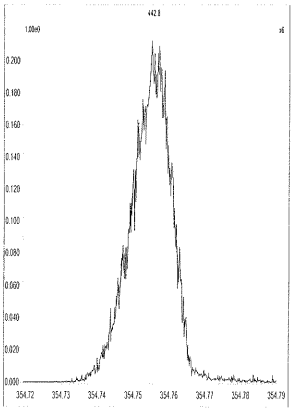

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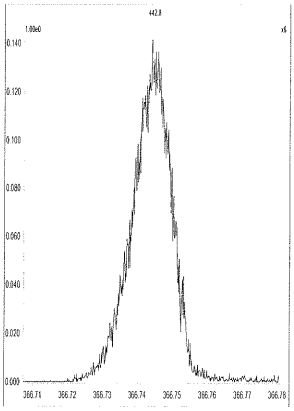

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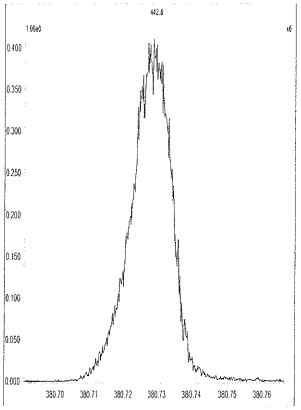

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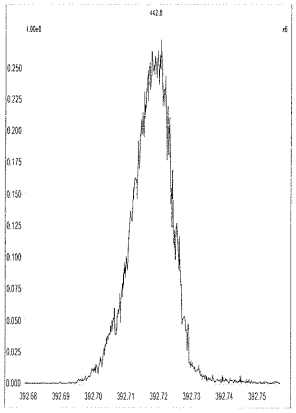

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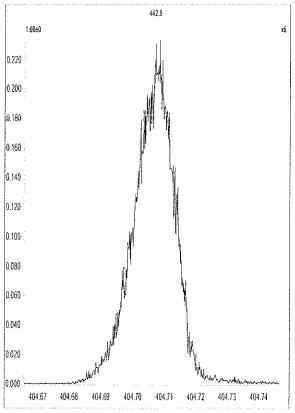

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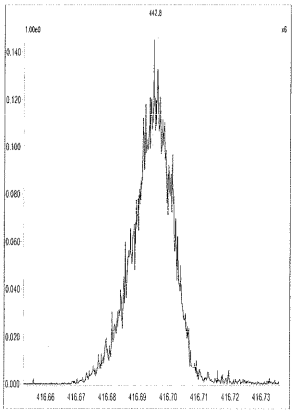

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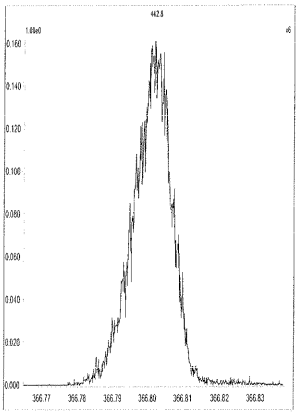

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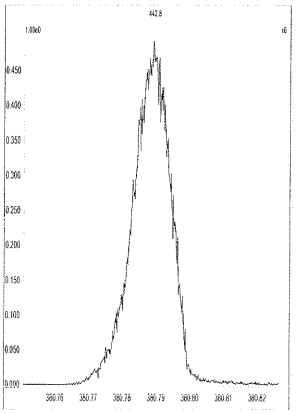

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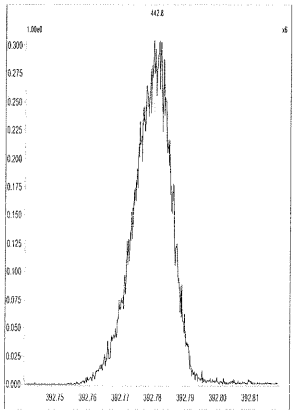

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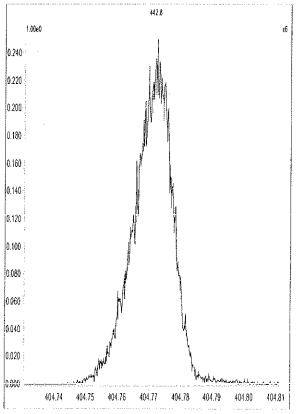

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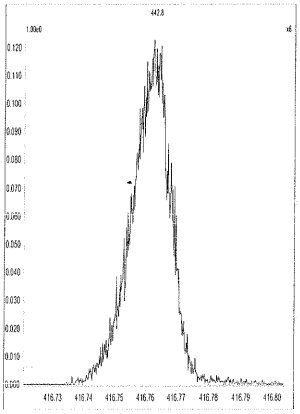

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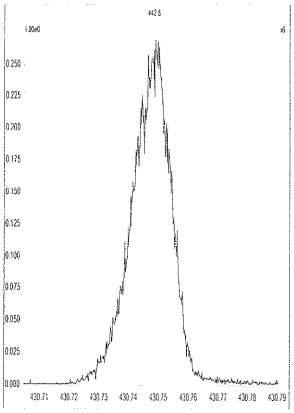

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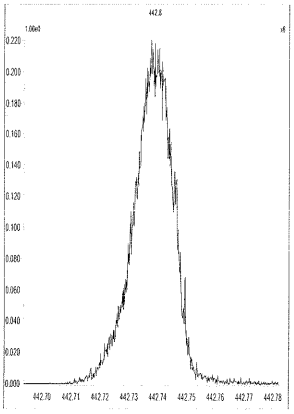

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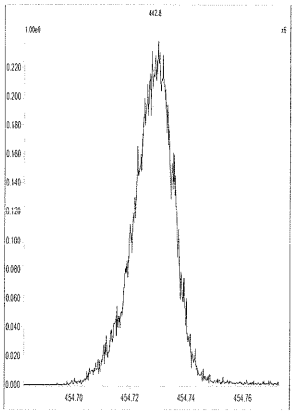

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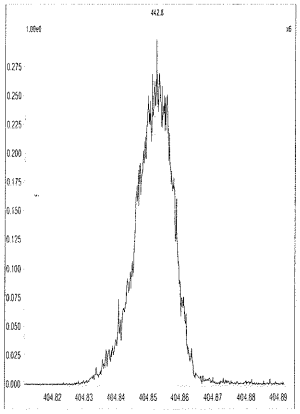

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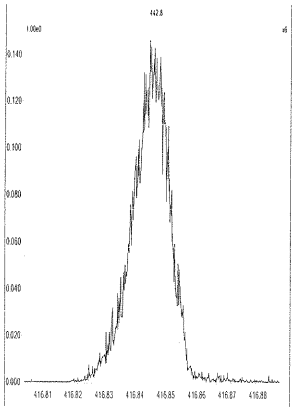

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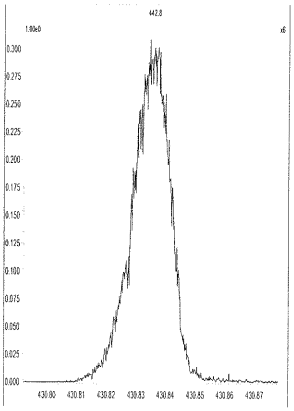

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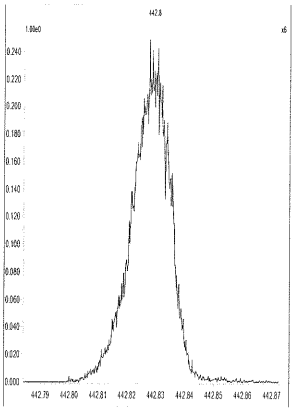

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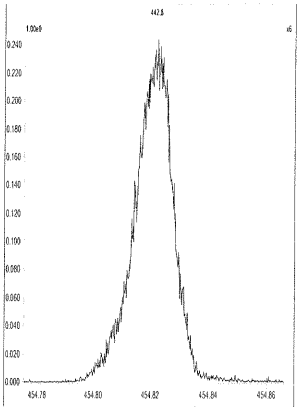

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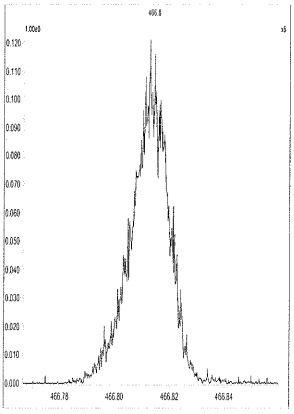

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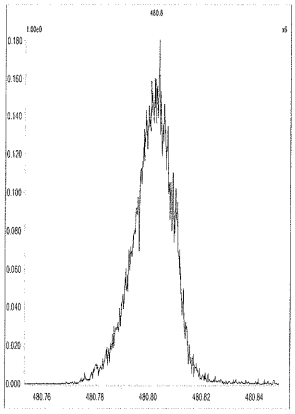

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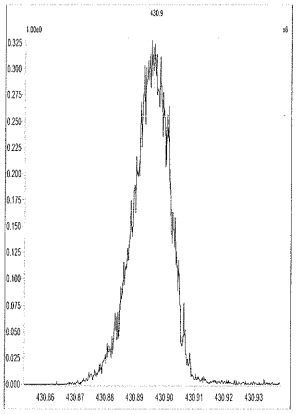

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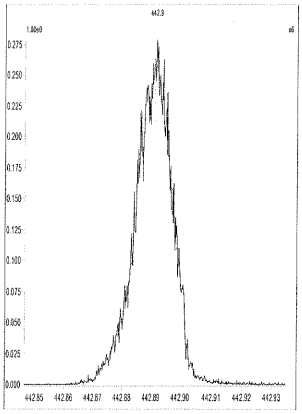

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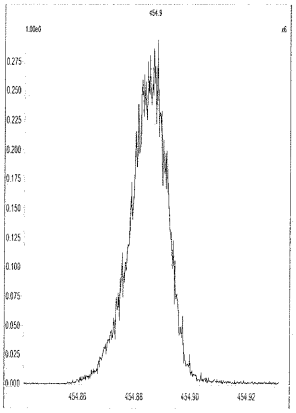

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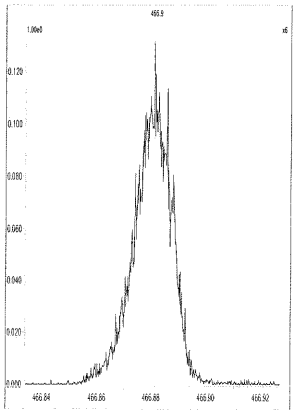

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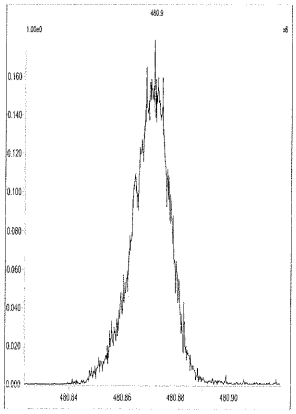

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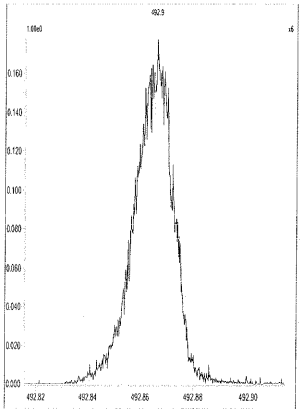

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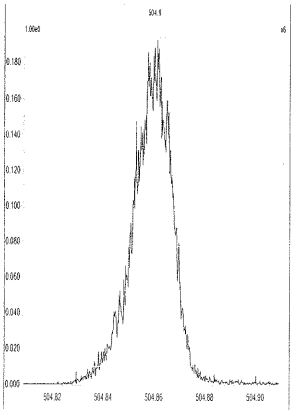

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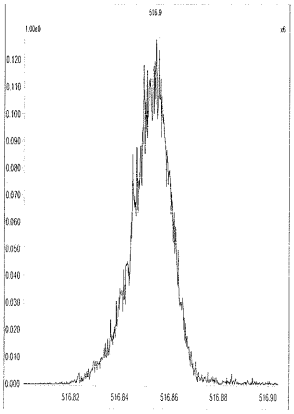


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

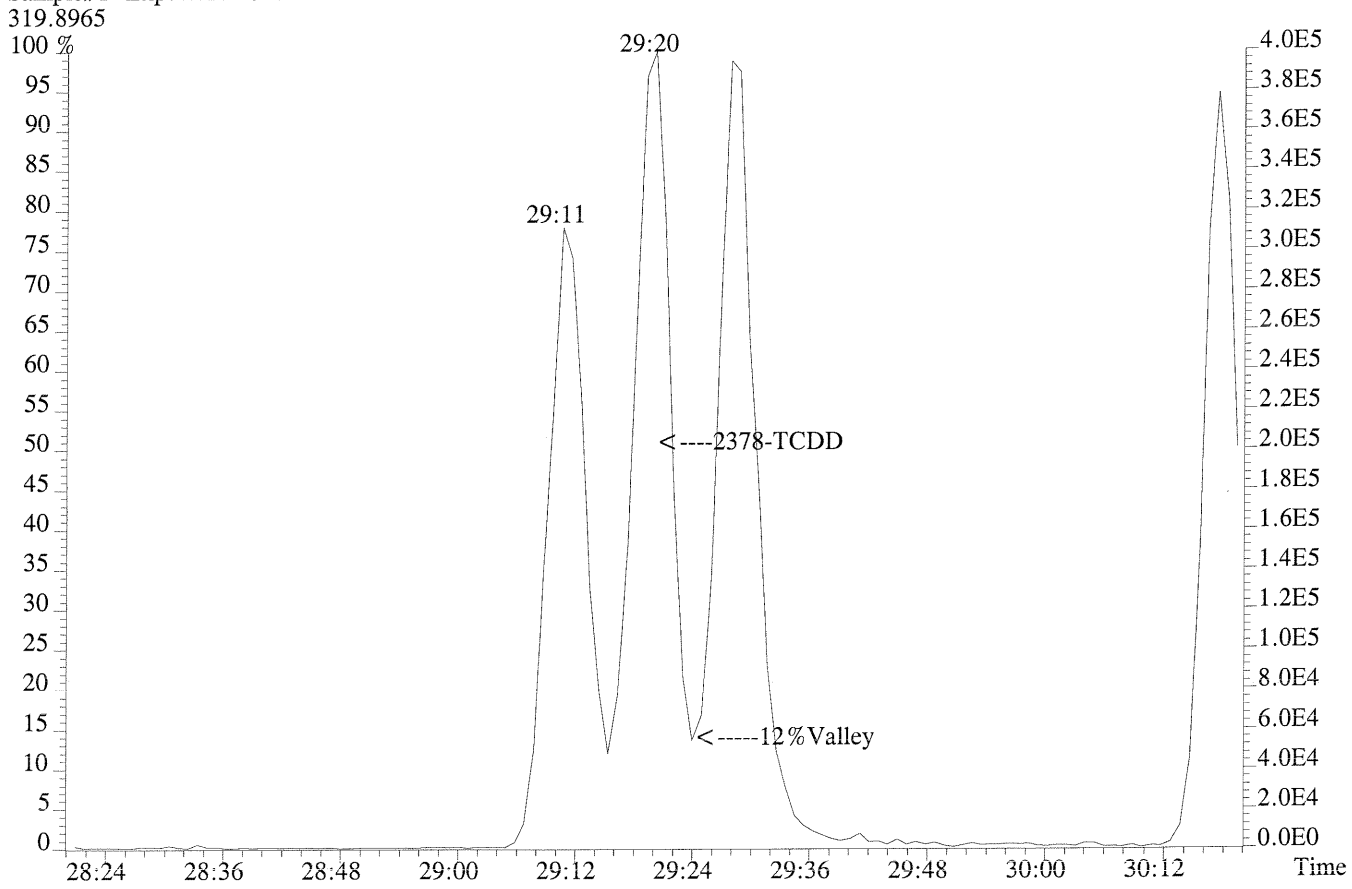
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411
GC Column: DB-5msUI

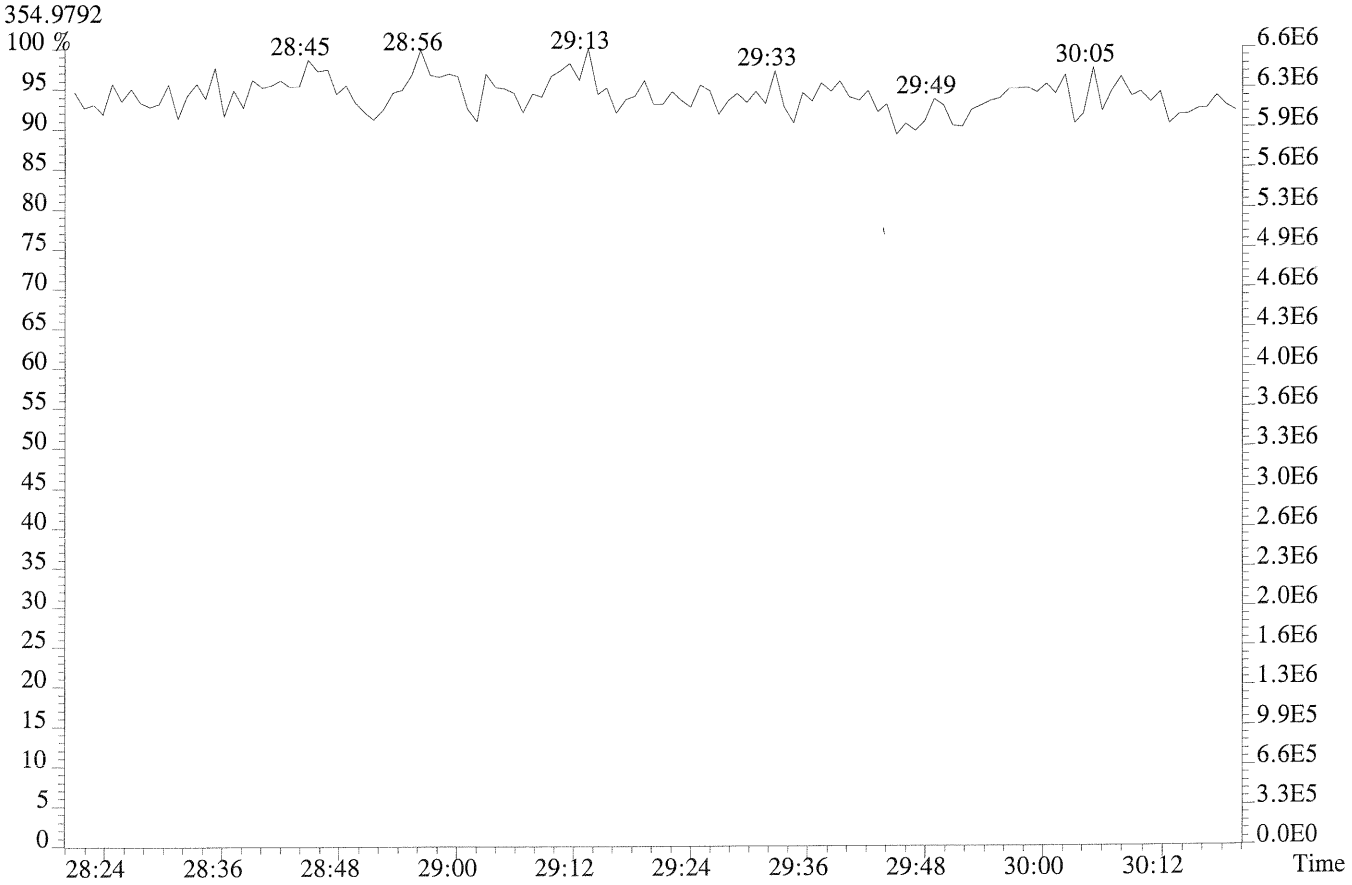
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P229922
Date Analyzed: 2-JUL-2014
Time Analyzed: 15:18:35

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:16	30:29
TCDD	26:10	30:17
PeCDF	30:25	34:35
PeCDD	31:55	34:19
HxCDF	35:13	37:41
HxCDD	35:42	37:16
HpCDF	38:53	40:19
HpCDD	39:08	39:49

% Valley 2378-TCDD: 12 %

File:P229922 #1-627 Acq: 2-JUL-2014 15:18:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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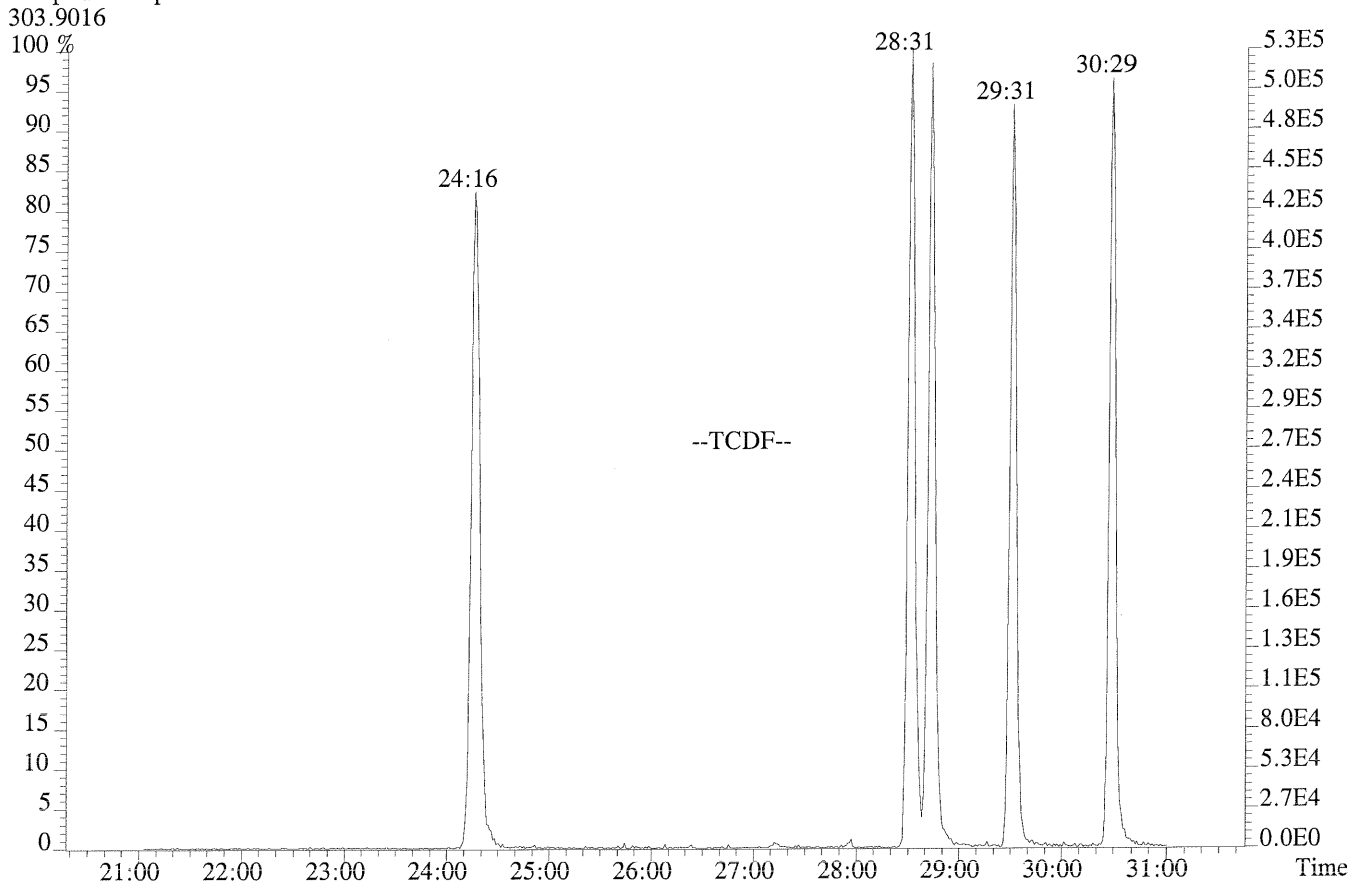
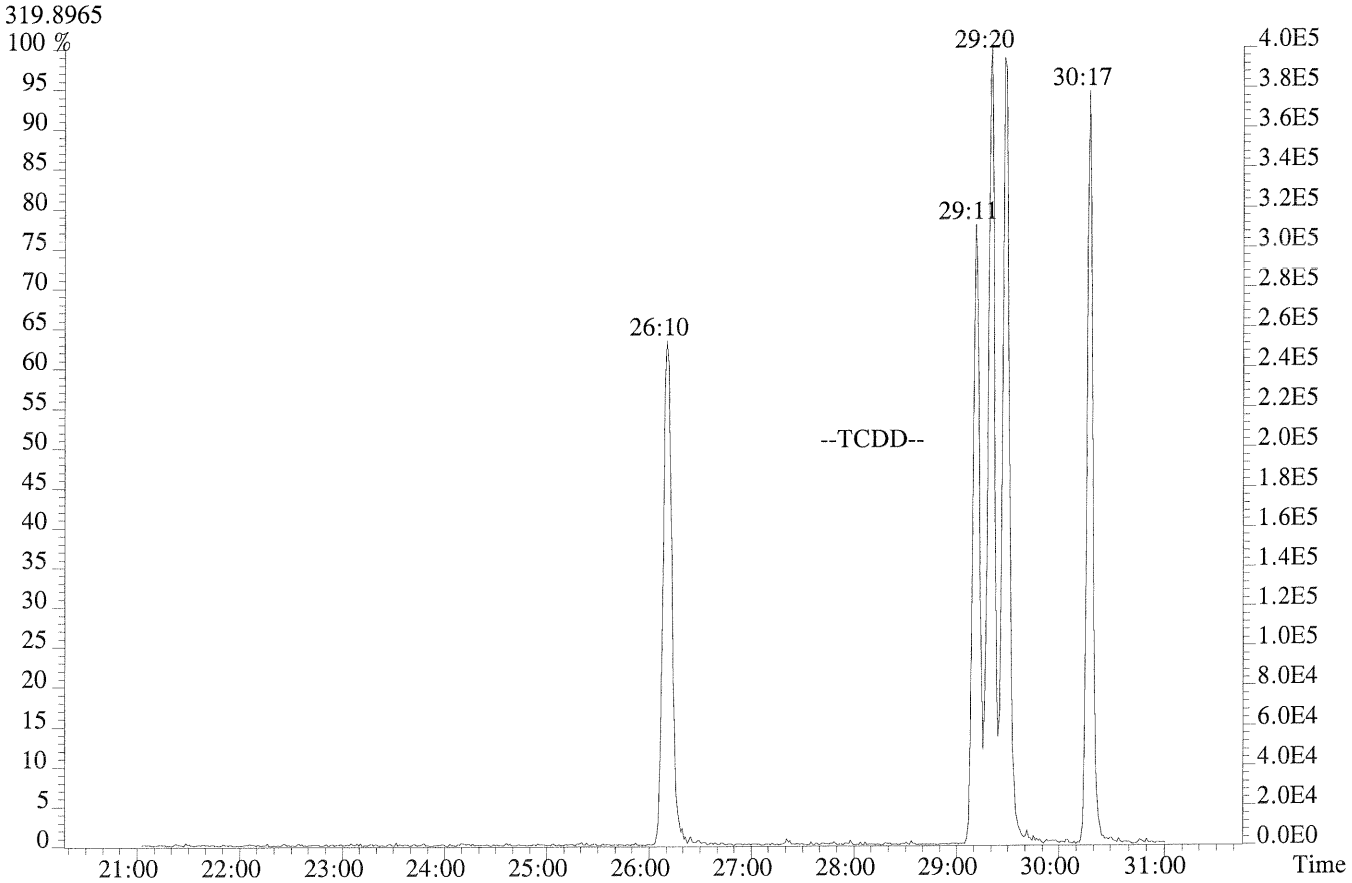
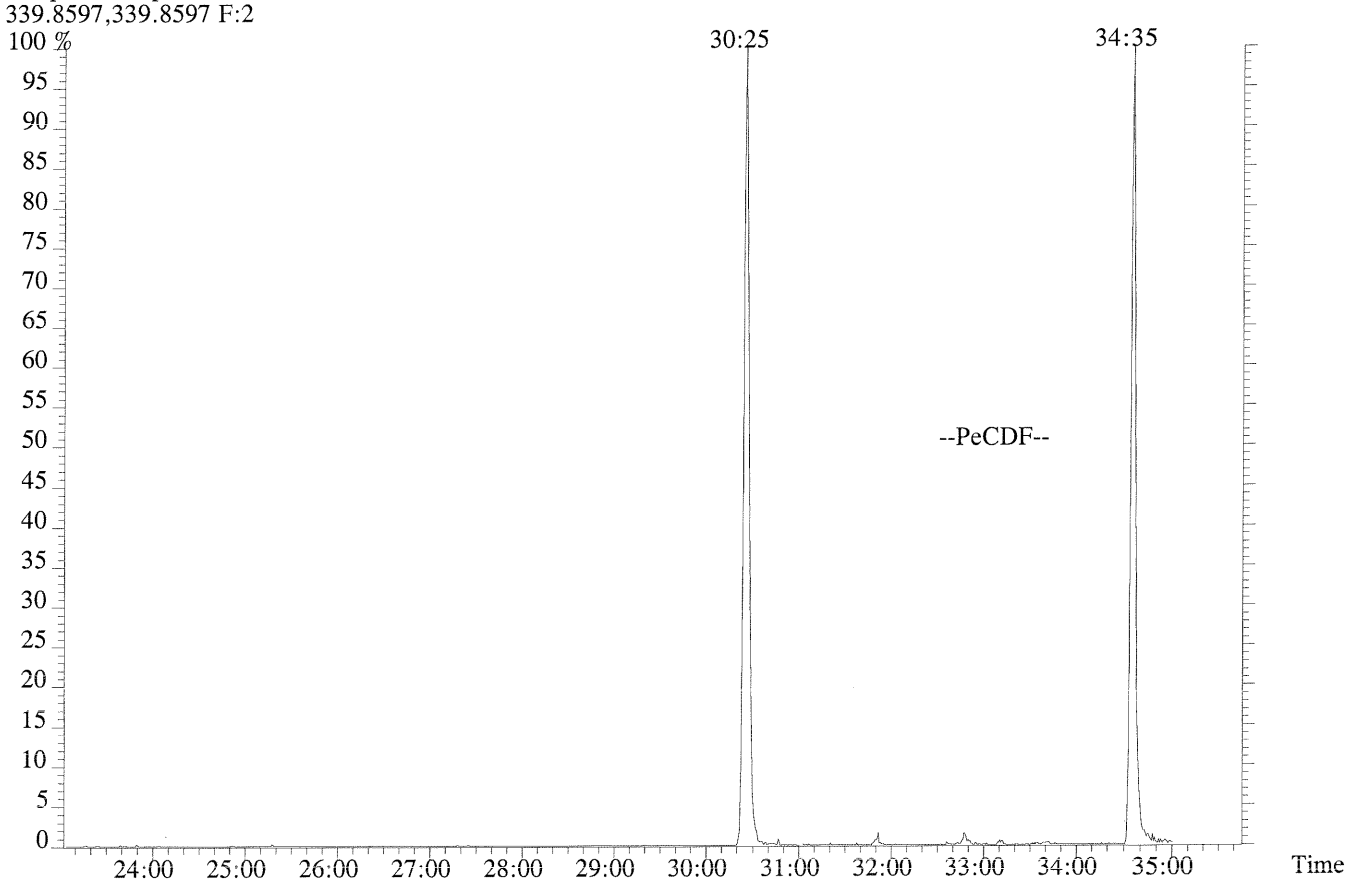
Sample#1 Exp:WINDOW DEFINE

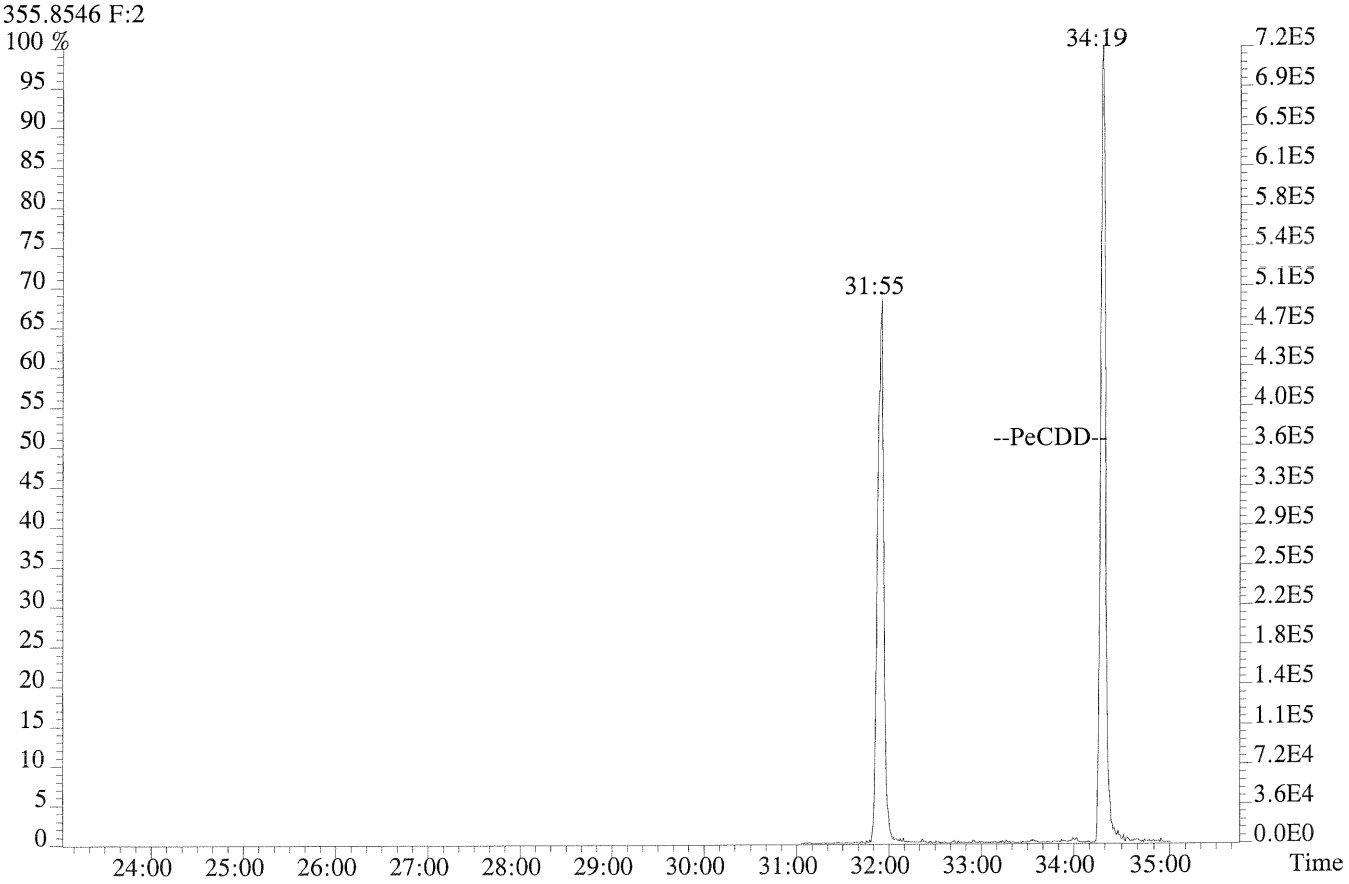




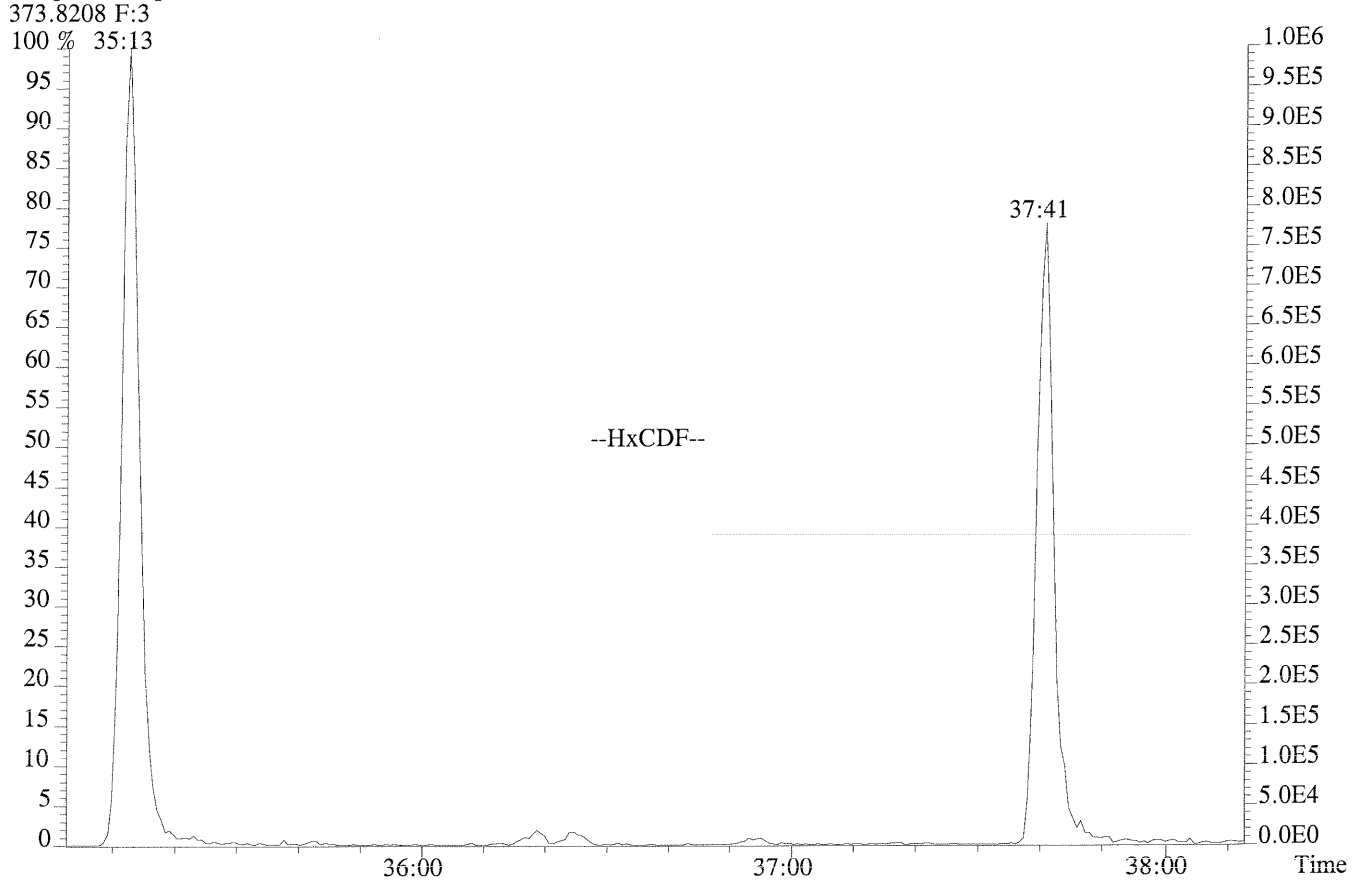
File:P229922 #1-627 Acq: 2-JUL-2014 15:18:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

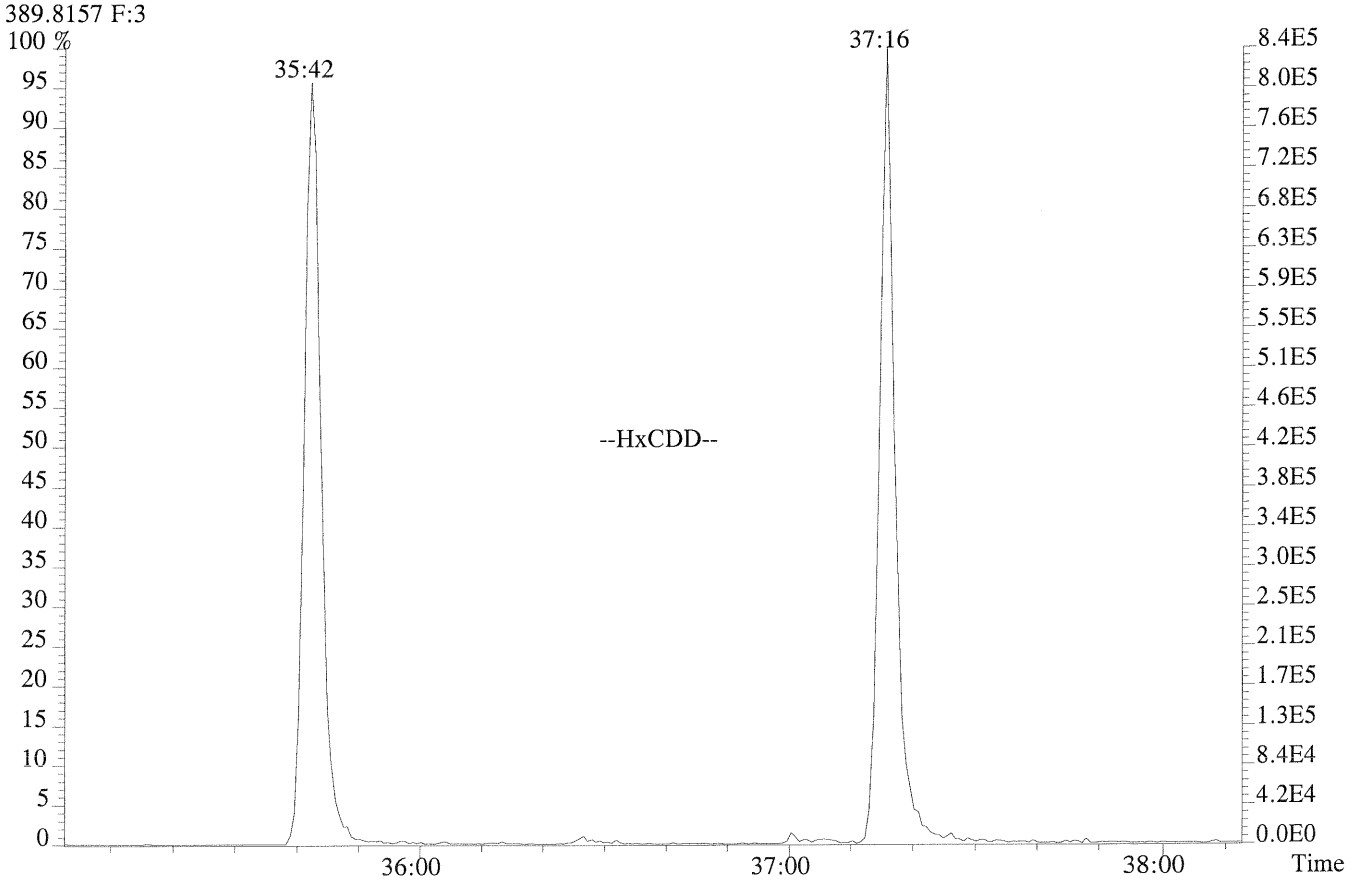


355.8546 F:2



File:P229922 #1-288 Acq: 2-JUL-2014 15:18:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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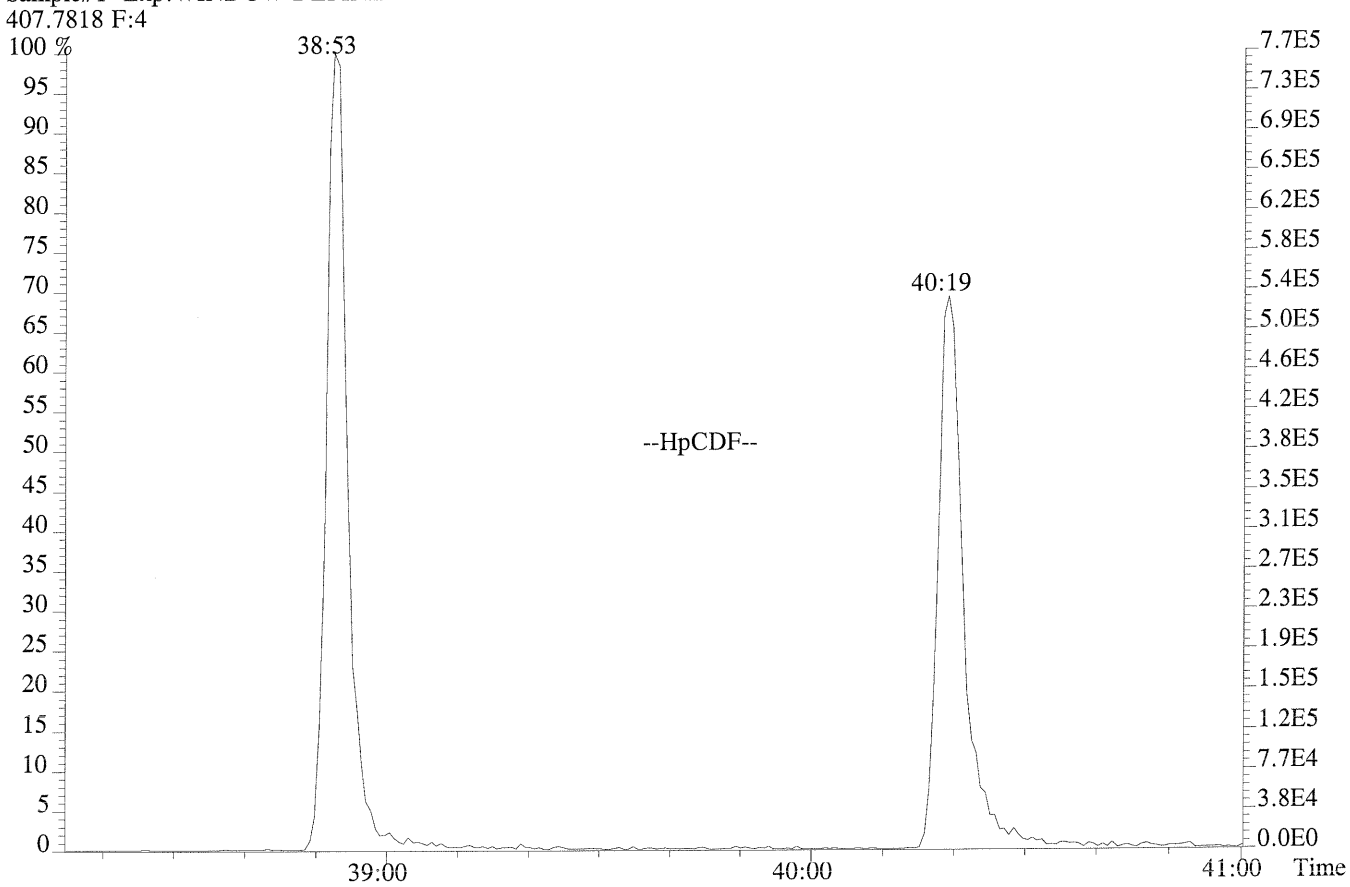
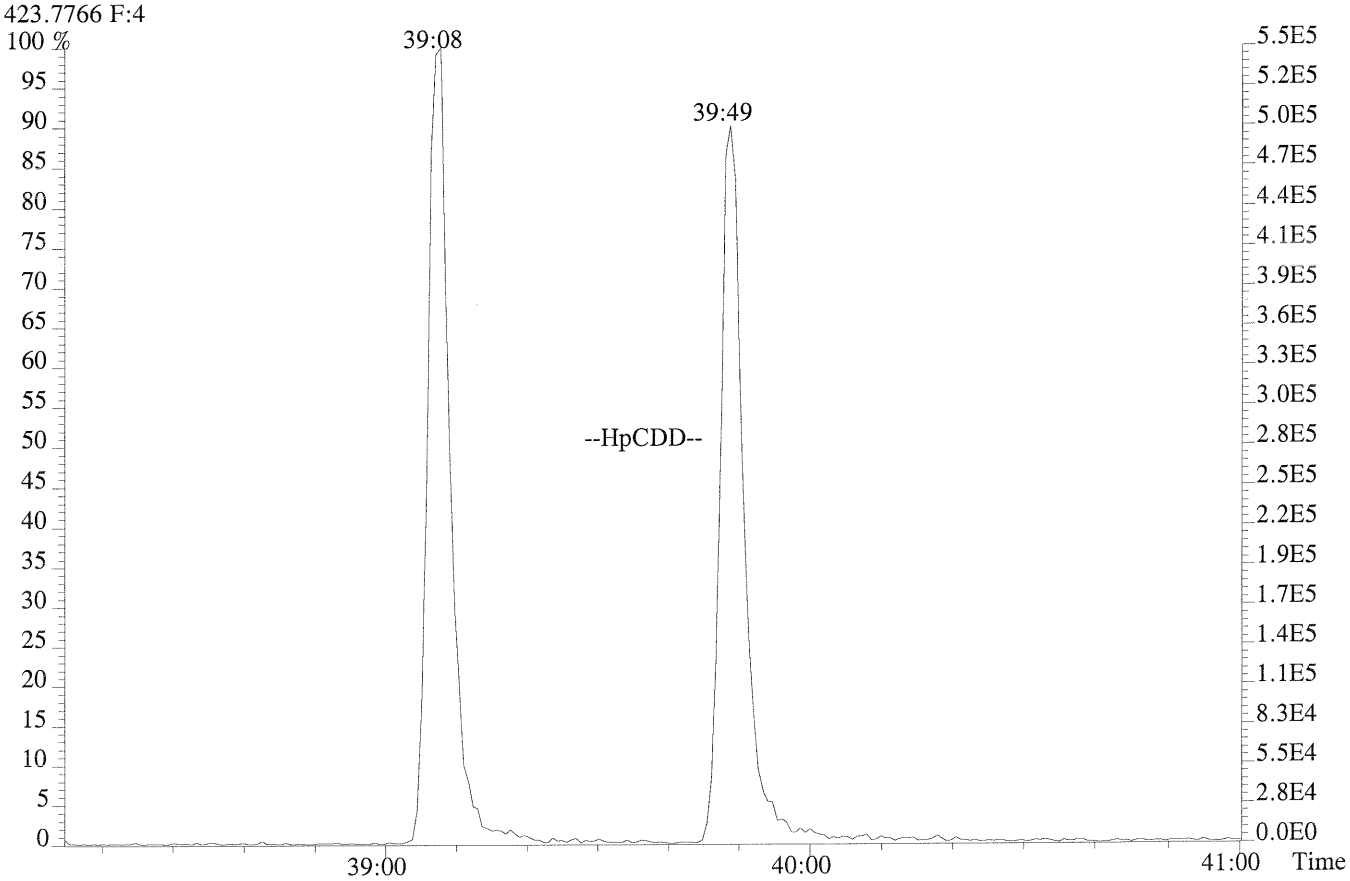
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5MSUI

VER Data Filename: P229921 | Analysis Date: 2-JUL-14 Time: 14:11:01

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.7	7.8 - 12.9	-3.1
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	49	39 - 65	-2.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	47	39 - 64	-6.2
1,2,3,6,7,8-HxCDD	M+2/M+4	1.35	1.05-1.43	49	39 - 64	-2.1
1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	51	41 - 61	1.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	47	43 - 58	-5.9
OCDD	M+2/M+4	0.90	0.76-1.02	95	79 - 126	-5.2
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	8.4	8.4 - 12.0	-16.0
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	47	41 - 60	-5.5
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	45	41 - 61	-9.4
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	47	45 - 56	-6.4
1,2,3,6,7,8-HxCDF	M+2/M+4	1.27	1.05-1.43	48	44 - 57	-3.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	46	45 - 56	-8.1
2,3,4,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	47	44 - 57	-5.7
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	51	45 - 55	1.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58	-4.6
OCDF	M+2/M+4	0.89	0.76-1.02	88	63 - 159	-12.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P229921 Analysis Date: 2-JUL-14 Time: 14:11:01

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	110	82 - 121	9.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.66	1.32-1.78	130	62 - 160	29.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	92	85 - 117	-7.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.33	1.05-1.43	94	85 - 118	-6.1
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	98	72 - 138	-2.3
13C-OCDD	M+2/M+4	0.92	0.76-1.02	196	96 - 415	-1.8
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	115	71 - 140	14.6
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.63	1.32-1.78	120	76 - 130	19.6
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.64	1.32-1.78	125	77 - 130	25.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	81	76 - 131	-18.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	84	70 - 143	-15.7
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	95	74 - 135	-4.7
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	89	73 - 137	-10.8
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.44	0.37-0.51	79	78 - 129	-20.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	93	77 - 129	-7.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				11.0	7.8 - 12.7	9.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #7 Filename P229921 Samp: 1 Inj: 1 Acquired: 2-JUL-14 14:11:01
Processed: 3-JUL-14 13:32:25 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:43	2.012e+03	2.598e+03	0.77	yes	no	1.127
2	Unk	1,2,3,7,8-PeCDF	32:48	2.201e+04	1.422e+04	1.55	yes	no	1.123
3	Unk	2,3,4,7,8-PeCDF	33:41	2.096e+04	1.351e+04	1.55	yes	no	1.101
4	Unk	1,2,3,4,7,8-HxCDF	36:18	1.917e+04	1.553e+04	1.23	yes	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	36:25	2.203e+04	1.738e+04	1.27	yes	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	36:54	1.969e+04	1.633e+04	1.21	yes	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	37:39	1.837e+04	1.482e+04	1.24	yes	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	1.657e+04	1.627e+04	1.02	yes	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	1.484e+04	1.451e+04	1.02	yes	no	1.381
10	Unk	OCDF	42:53	2.296e+04	2.569e+04	0.89	yes	no	1.703
11	Unk	2,3,7,8-TCDD	29:28	1.416e+03	1.772e+03	0.80	yes	no	1.053
12	Unk	1,2,3,7,8-PeCDD	33:57	1.413e+04	8.749e+03	1.61	yes	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	37:02	1.324e+04	1.039e+04	1.27	yes	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	37:07	1.459e+04	1.083e+04	1.35	yes	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	37:21	1.523e+04	1.174e+04	1.30	yes	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	1.238e+04	1.182e+04	1.05	yes	no	1.170
17	Unk	OCDD	42:40	1.879e+04	2.089e+04	0.90	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:42	2.181e+04	2.688e+04	0.81	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:47	4.232e+04	2.597e+04	1.63	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:40	4.294e+04	2.615e+04	1.64	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	1.895e+04	3.649e+04	0.52	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:24	2.298e+04	4.352e+04	0.53	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	2.133e+04	4.063e+04	0.52	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	1.944e+04	3.746e+04	0.52	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	1.392e+04	3.173e+04	0.44	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.358e+04	3.097e+04	0.44	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:27	1.366e+04	1.760e+04	0.78	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:56	2.742e+04	1.649e+04	1.66	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	2.338e+04	1.783e+04	1.31	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	2.533e+04	1.910e+04	1.33	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	2.283e+04	2.113e+04	1.08	yes	no	0.935
32	IS	13C-OCDD	42:39	3.113e+04	3.384e+04	0.92	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:52	1.344e+04	1.717e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	2.714e+04	2.097e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:28	3.176e+03				no	0.946

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #7 Filename P229921 Samp: 1 Inj: 1 Acquired: 2-JUL-14 14:11:01
Processed: 3-JUL-14 13:32:251 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.89e+05	1.64e+02	2.4e+03	5.15e+05	9.16e+02	5.6e+02
2	1,2,3,7,8-PeCDF	3.81e+06	2.00e+02	1.9e+04	2.39e+06	9.44e+02	2.5e+03
3	2,3,4,7,8-PeCDF	3.75e+06	2.00e+02	1.9e+04	2.43e+06	9.44e+02	2.6e+03
4	1,2,3,4,7,8-HxCDF	3.79e+06	3.72e+02	1.0e+04	3.04e+06	1.16e+02	2.6e+04
5	1,2,3,6,7,8-HxCDF	3.97e+06	3.72e+02	1.1e+04	3.17e+06	1.16e+02	2.7e+04
6	2,3,4,6,7,8-HxCDF	3.81e+06	3.72e+02	1.0e+04	3.11e+06	1.16e+02	2.7e+04
7	1,2,3,7,8,9-HxCDF	3.33e+06	3.72e+02	9.0e+03	2.70e+06	1.16e+02	2.3e+04
8	1,2,3,4,6,7,8-HpCDF	3.02e+06	2.41e+03	1.3e+03	2.92e+06	1.90e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	2.37e+06	2.41e+03	9.8e+02	2.32e+06	1.90e+03	1.2e+03
10	OCDF	3.13e+06	2.84e+02	1.1e+04	3.47e+06	1.22e+03	2.8e+03
11	2,3,7,8-TCDD	2.76e+05	4.28e+02	6.4e+02	3.51e+05	4.44e+02	7.9e+02
12	1,2,3,7,8-PeCDD	2.47e+06	6.28e+02	3.9e+03	1.55e+06	6.80e+01	2.3e+04
13	1,2,3,4,7,8-HxCDD	2.65e+06	2.84e+02	9.3e+03	2.09e+06	3.08e+02	6.8e+03
14	1,2,3,6,7,8-HxCDD	2.63e+06	2.84e+02	9.3e+03	1.97e+06	3.08e+02	6.4e+03
15	1,2,3,7,8,9-HxCDD	2.75e+06	2.84e+02	9.7e+03	2.13e+06	3.08e+02	6.9e+03
16	1,2,3,4,6,7,8-HpCDD	2.10e+06	4.36e+02	4.8e+03	2.02e+06	1.96e+02	1.0e+04
17	OCDD	2.60e+06	7.60e+01	3.4e+04	2.89e+06	3.36e+02	8.6e+03
18	13C-2,3,7,8-TCDF	4.26e+06	5.72e+02	7.4e+03	5.21e+06	9.56e+02	5.5e+03
19	13C-1,2,3,7,8-PeCDF	7.06e+06	7.20e+01	9.8e+04	4.33e+06	5.36e+02	8.1e+03
20	13C-2,3,4,7,8-PeCDF	7.70e+06	7.20e+01	1.1e+05	4.71e+06	5.36e+02	8.8e+03
21	13C-1,2,3,4,7,8-HxCDF	3.71e+06	6.44e+02	5.8e+03	7.13e+06	1.30e+03	5.5e+03
22	13C-1,2,3,6,7,8-HxCDF	4.10e+06	6.44e+02	6.4e+03	7.79e+06	1.30e+03	6.0e+03
23	13C-2,3,4,6,7,8-HxCDF	4.09e+06	6.44e+02	6.4e+03	7.68e+06	1.30e+03	5.9e+03
24	13C-1,2,3,7,8,9-HxCDF	3.54e+06	6.44e+02	5.5e+03	6.78e+06	1.30e+03	5.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.53e+06	1.54e+03	1.6e+03	5.69e+06	4.16e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.15e+06	1.54e+03	1.4e+03	4.90e+06	4.16e+03	1.2e+03
27	13C-2,3,7,8-TCDD	2.75e+06	2.15e+03	1.3e+03	3.55e+06	1.02e+03	3.5e+03
28	13C-1,2,3,7,8-PeCDD	4.86e+06	6.00e+02	8.1e+03	2.92e+06	2.16e+02	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	4.69e+06	5.32e+02	8.8e+03	3.60e+06	5.44e+02	6.6e+03
30	13C-1,2,3,6,7,8-HxCDD	4.54e+06	5.32e+02	8.5e+03	3.50e+06	5.44e+02	6.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.85e+06	1.00e+03	3.8e+03	3.54e+06	2.44e+02	1.5e+04
32	13C-OCDD	4.27e+06	1.68e+02	2.5e+04	4.55e+06	2.20e+02	2.1e+04
33	13C-1,2,3,4-TCDD	2.63e+06	2.15e+03	1.2e+03	3.36e+06	1.02e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	4.93e+06	5.32e+02	9.3e+03	3.73e+06	5.44e+02	6.9e+03
35	37Cl-2,3,7,8-TCDD	6.29e+05	1.60e+02	3.9e+03			

ALS ENVIRONMENTAL
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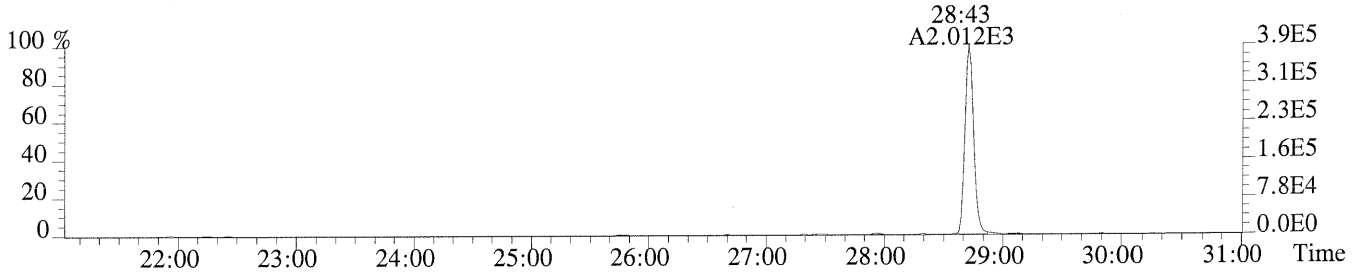
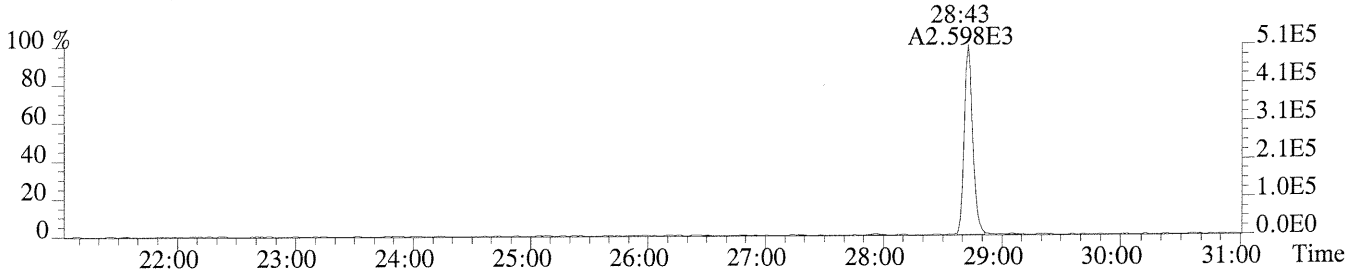
Office:(713)266-1599. Fax:(713)266-0130

File:P229921 #1-627 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

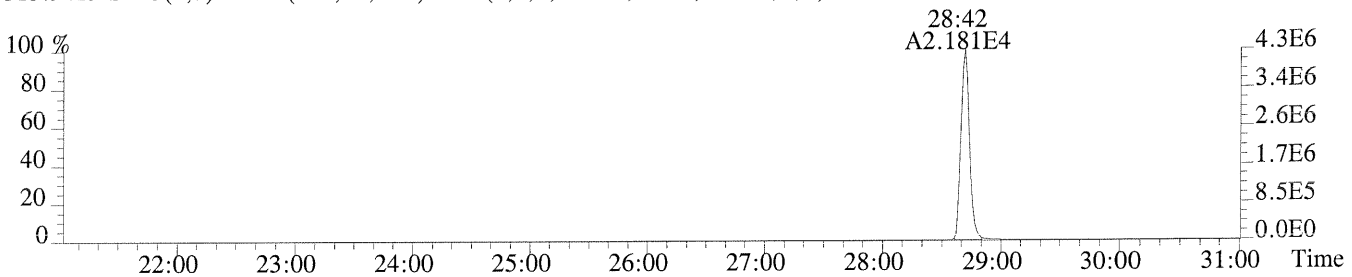
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



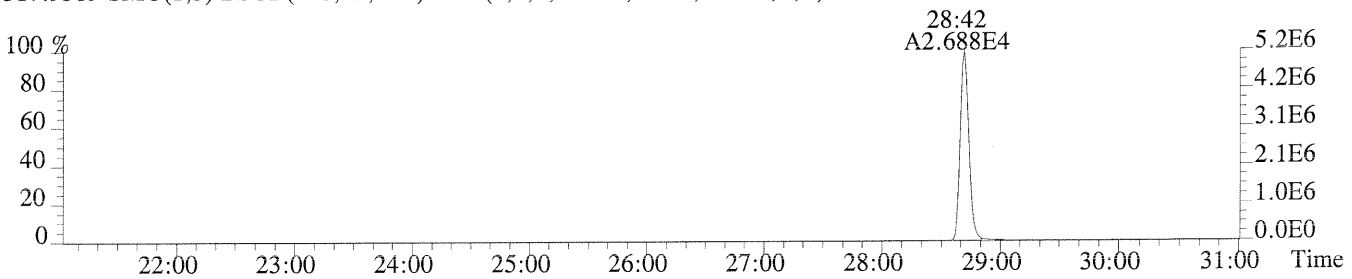
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



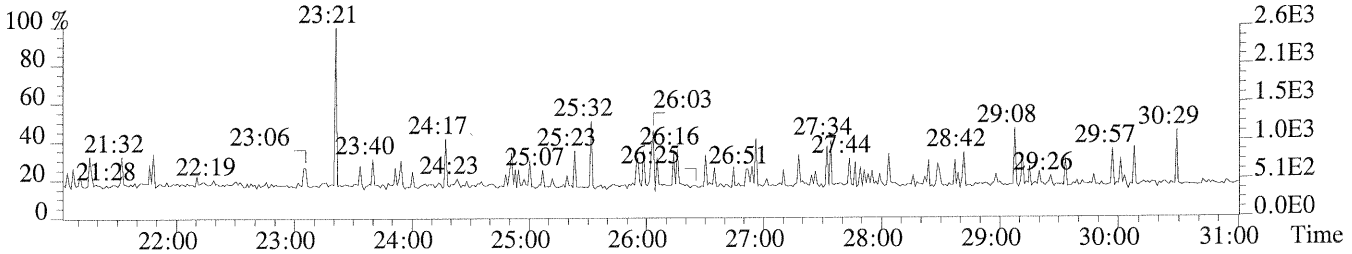
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



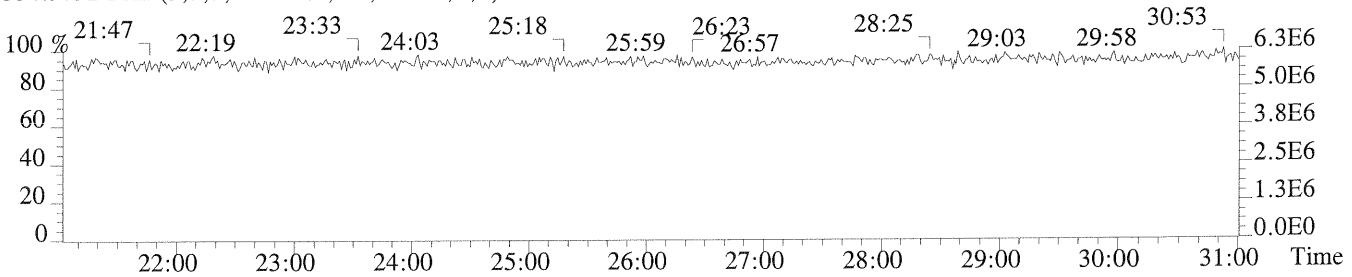
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

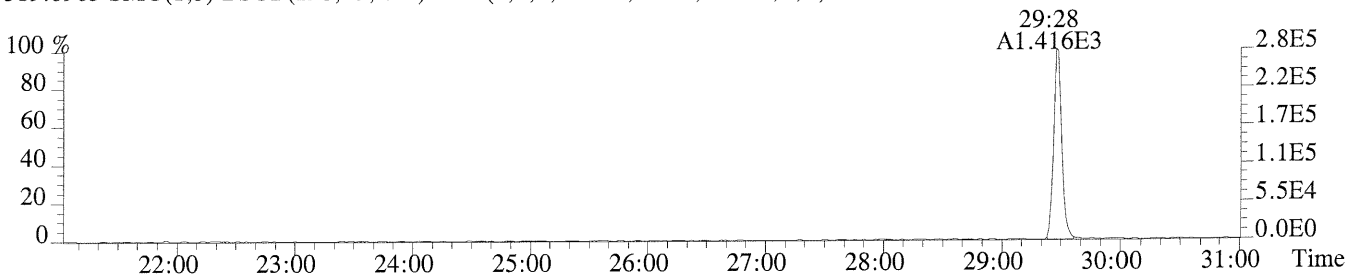


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

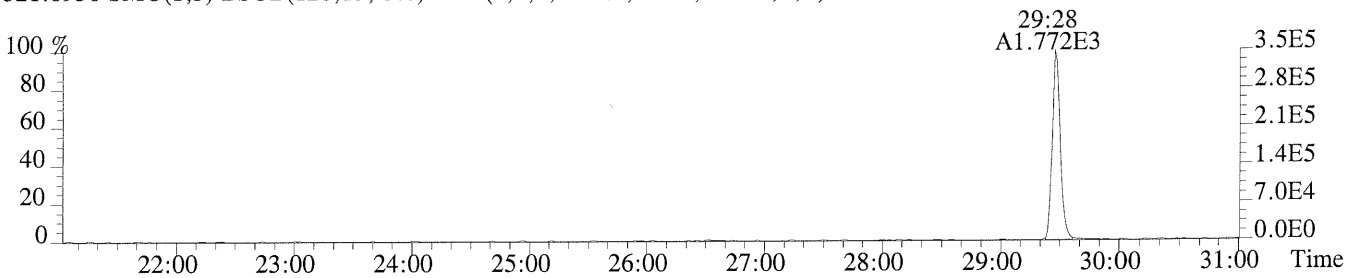


File:P229921 #1-627 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

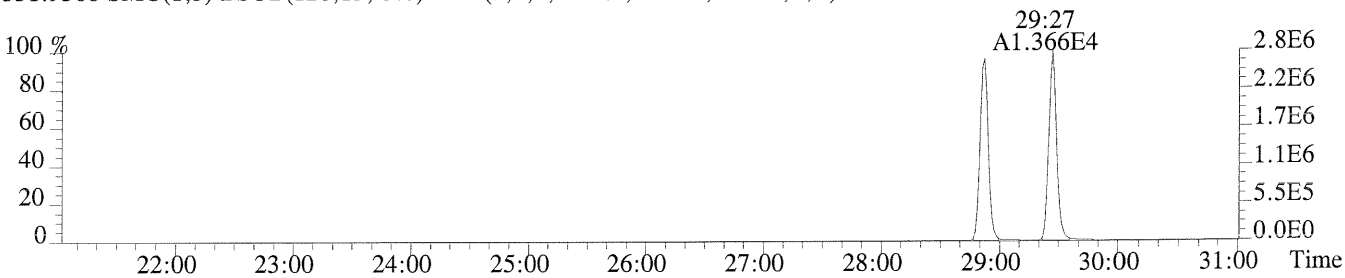
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



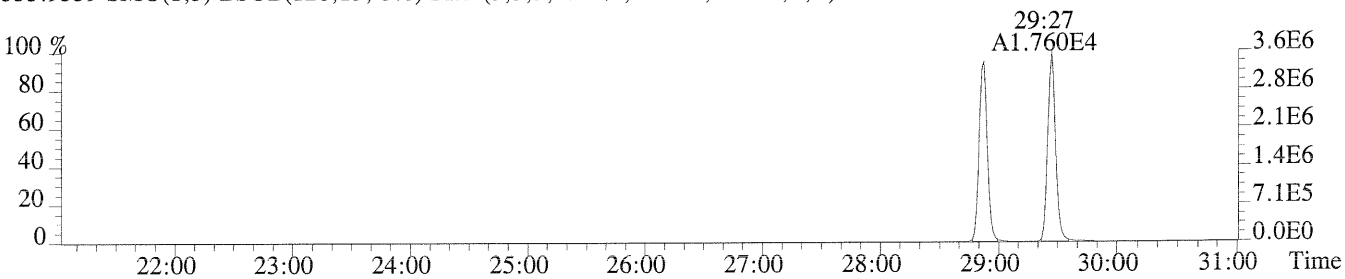
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



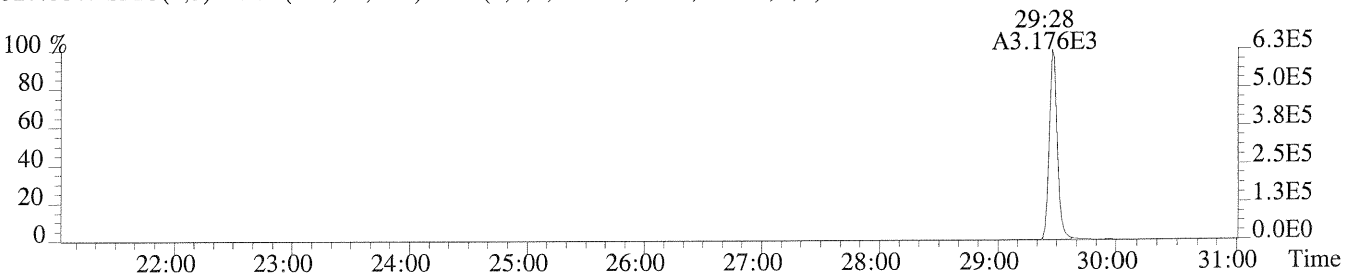
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2152.0,1.00%,F,T)



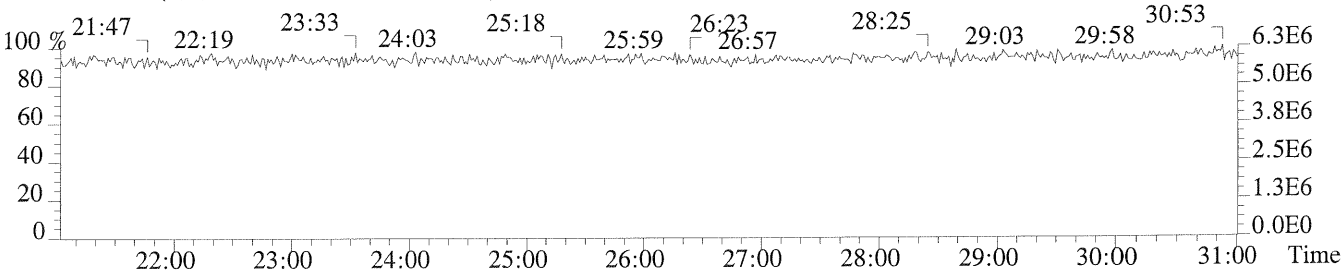
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1016.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,160.0,1.00%,F,T)

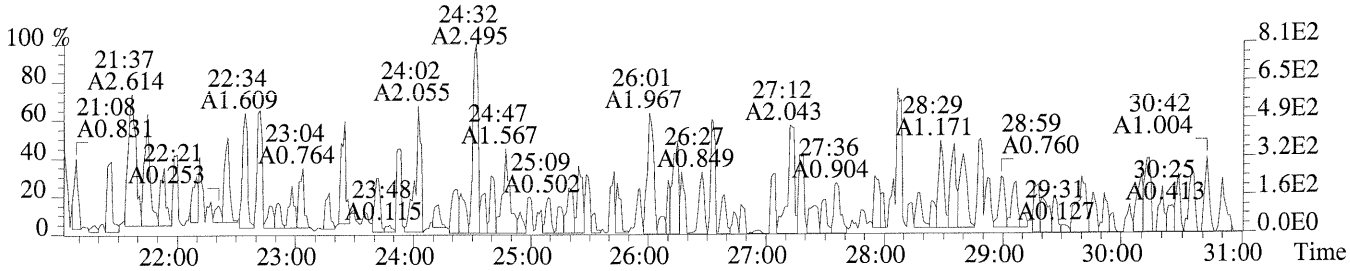


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

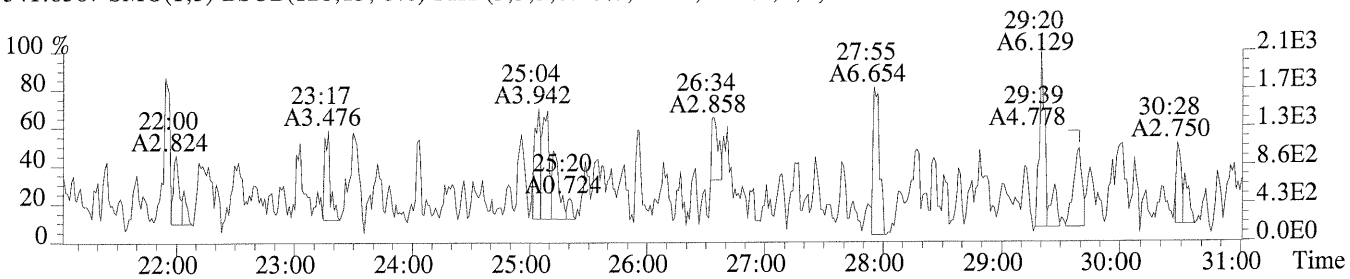


File:P229921 #1-627 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

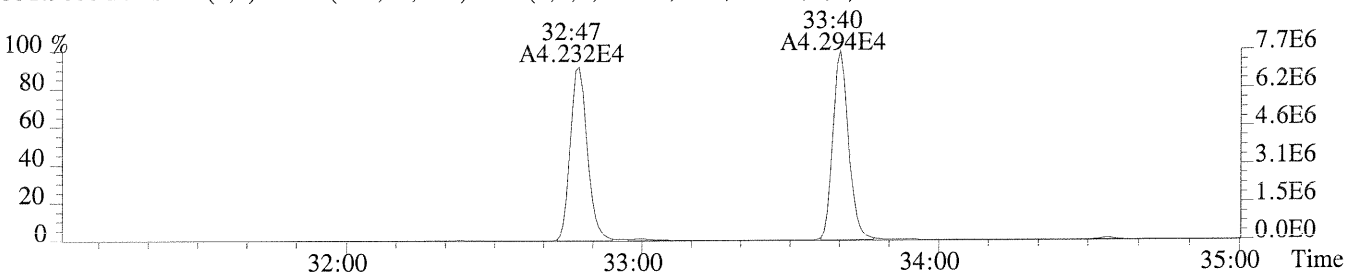
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,60.0,1.00%,F,T)



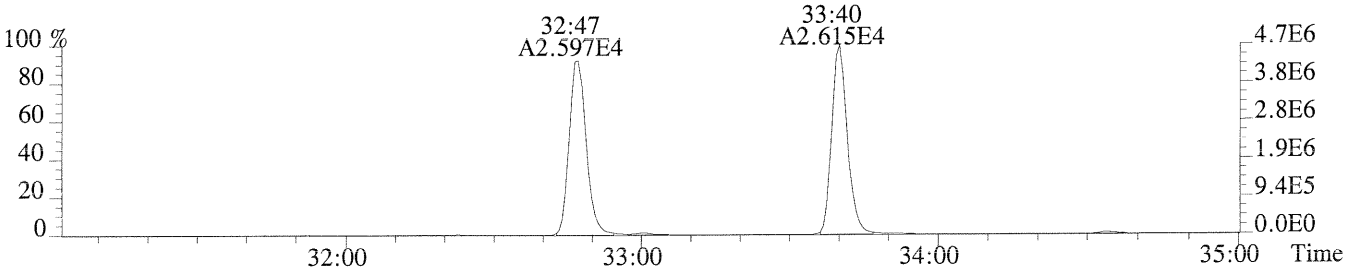
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,624.0,1.00%,F,T)



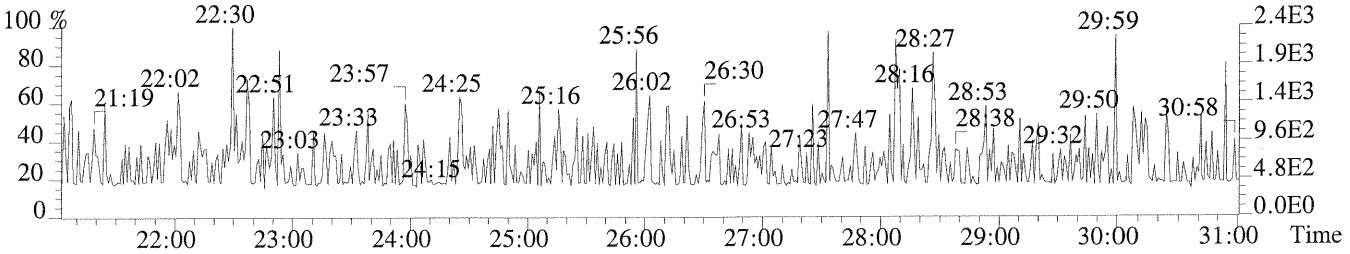
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,72.0,1.00%,F,T)



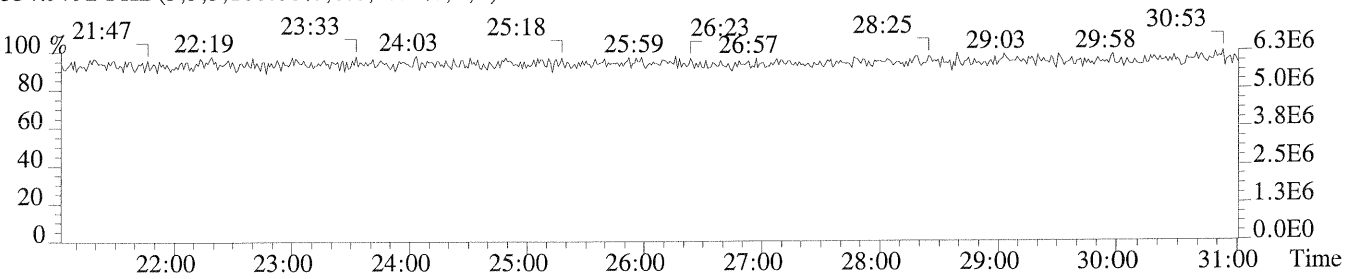
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

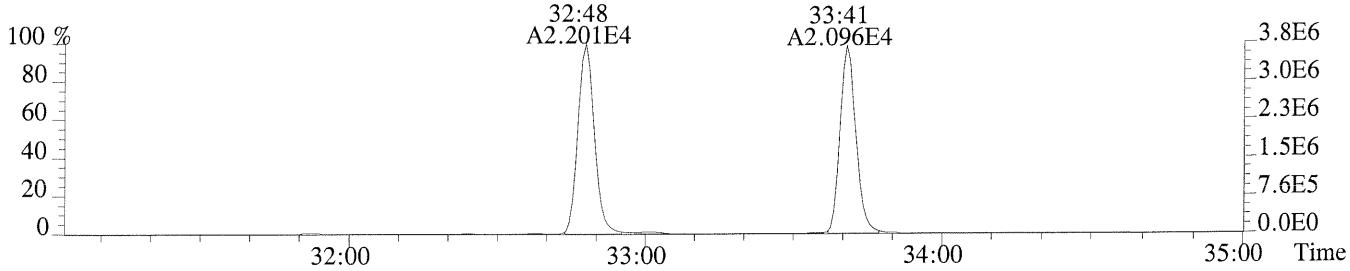


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

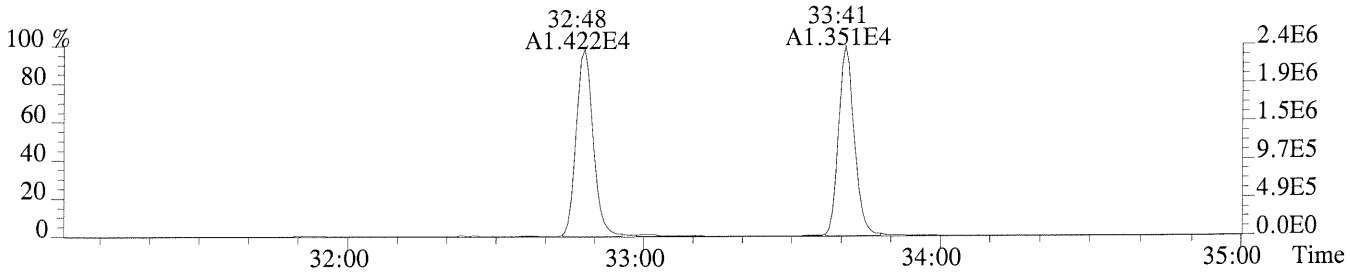


File:P229921 #1-360 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

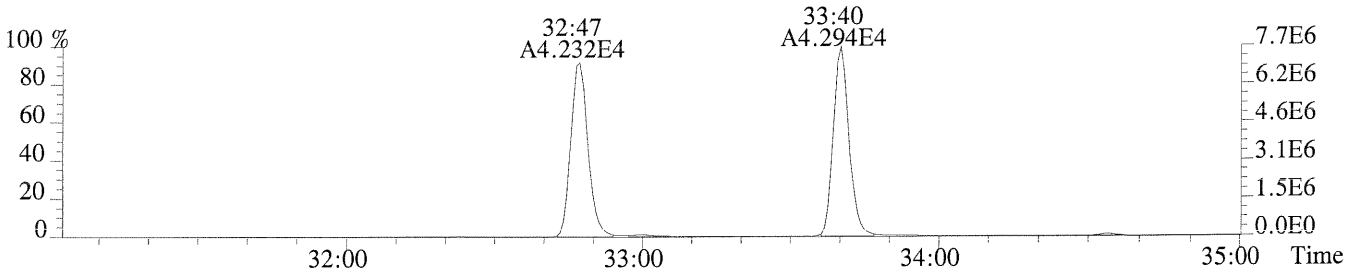
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,200.0,1.00%,F,T)



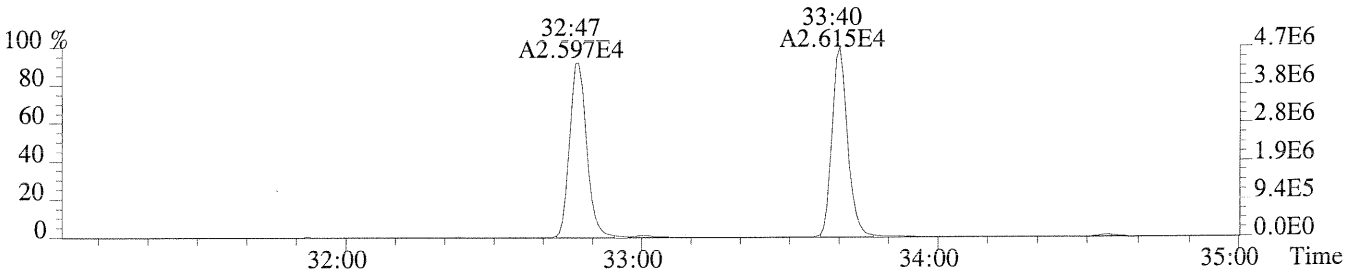
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



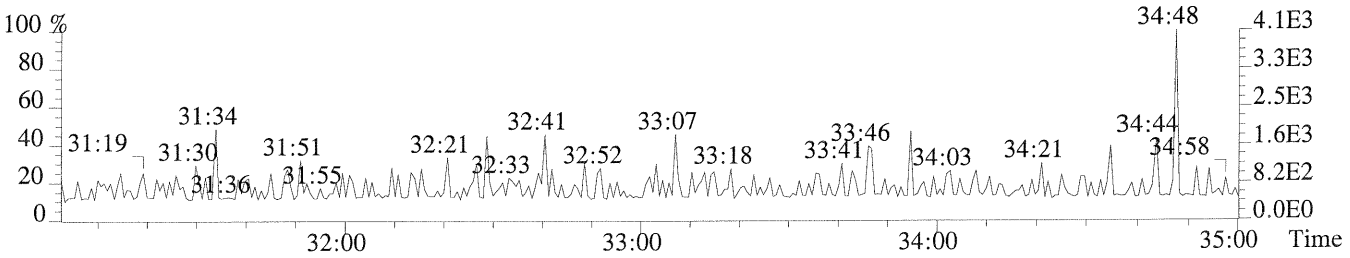
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,72.0,1.00%,F,T)



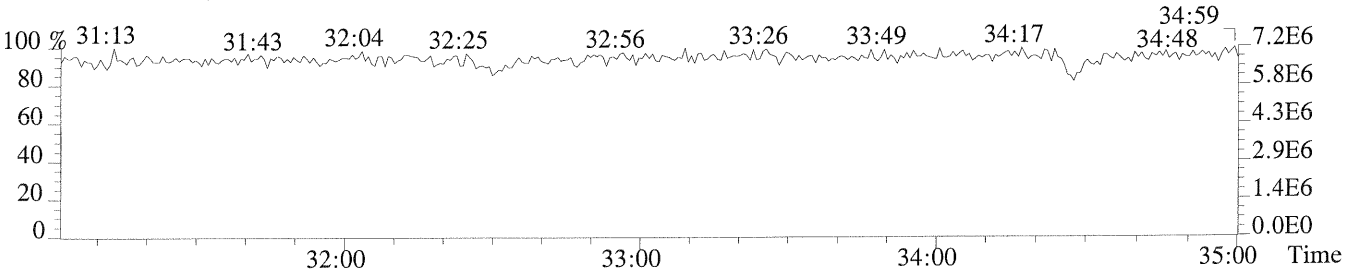
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



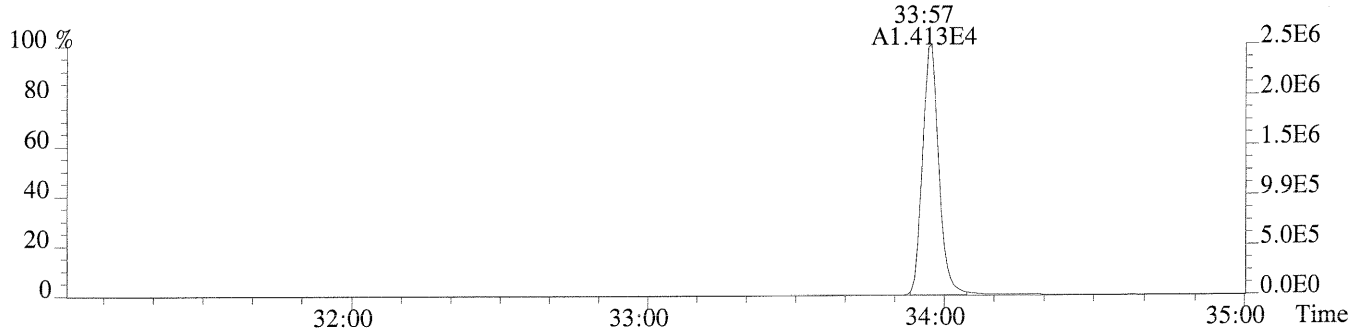
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



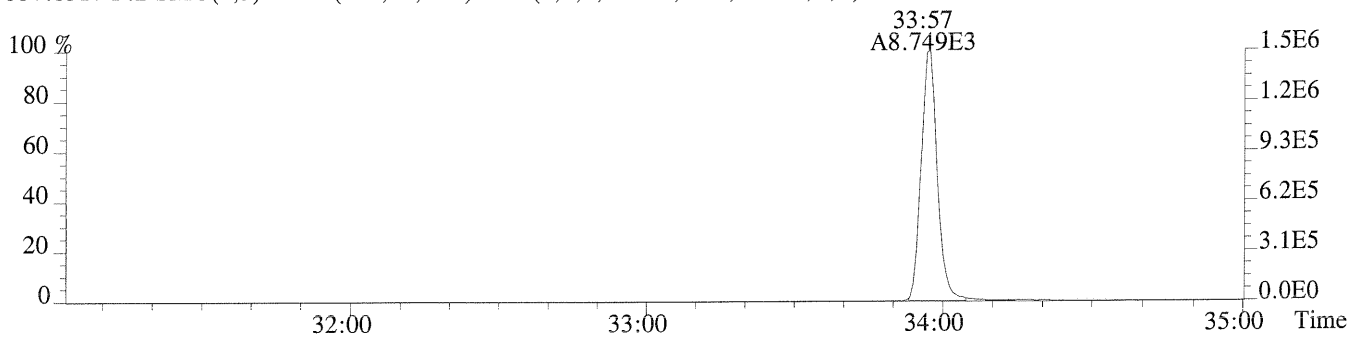
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



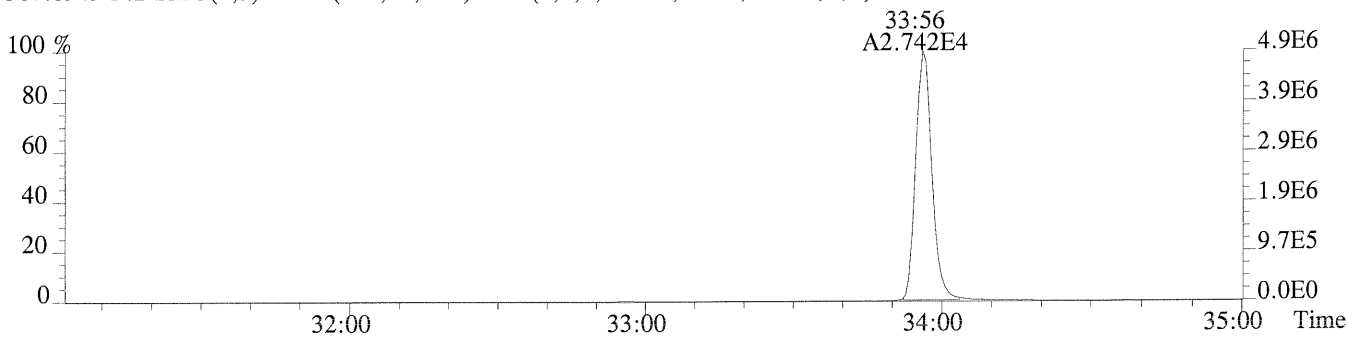
File:P229921 #1-360 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



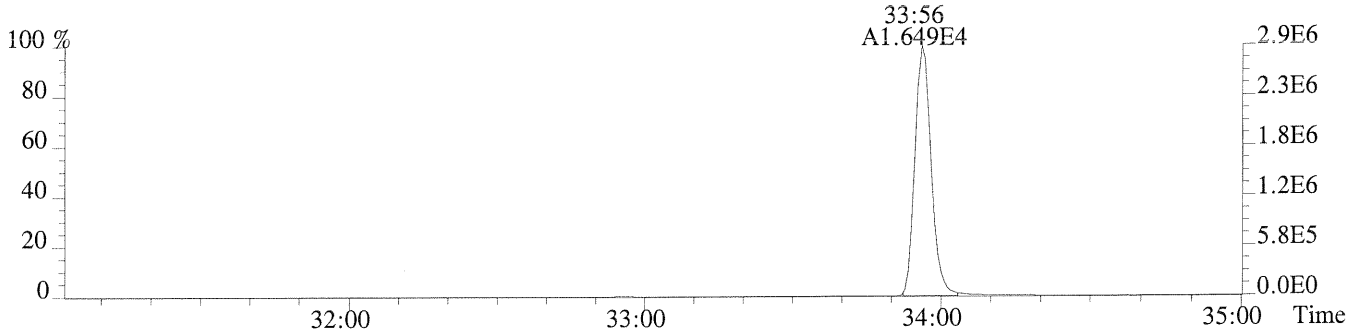
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,68.0,1.00%,F,T)



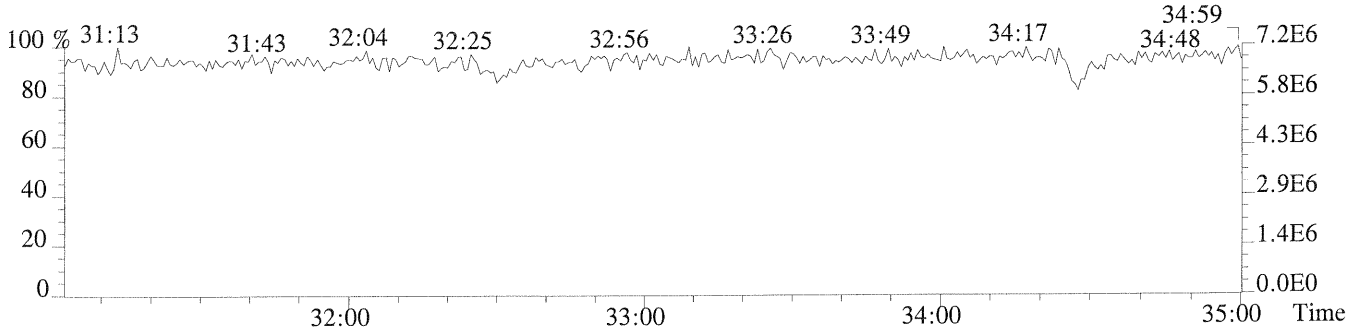
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,216.0,1.00%,F,T)

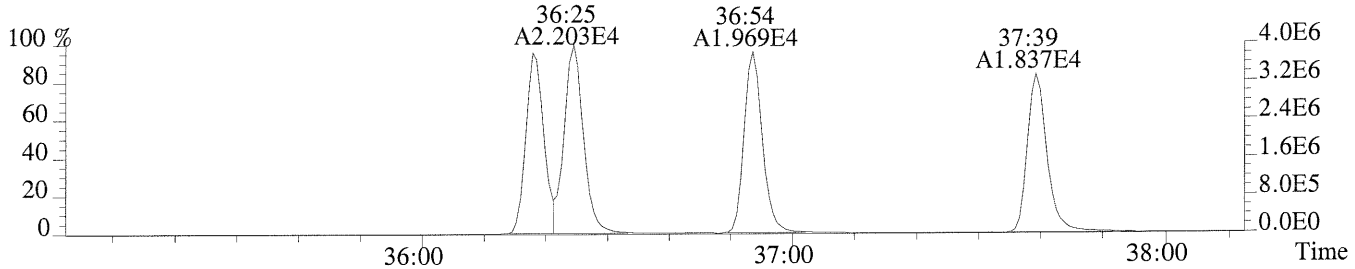


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

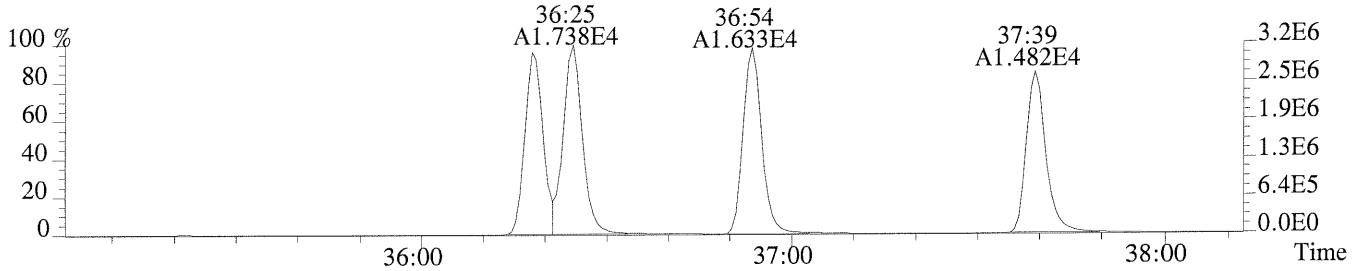


File:P229921 #1-288 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

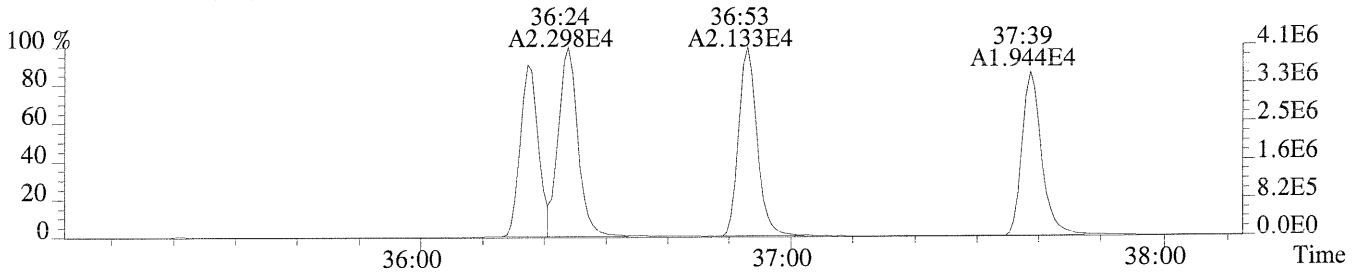
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,372.0,0.40%,F,T)



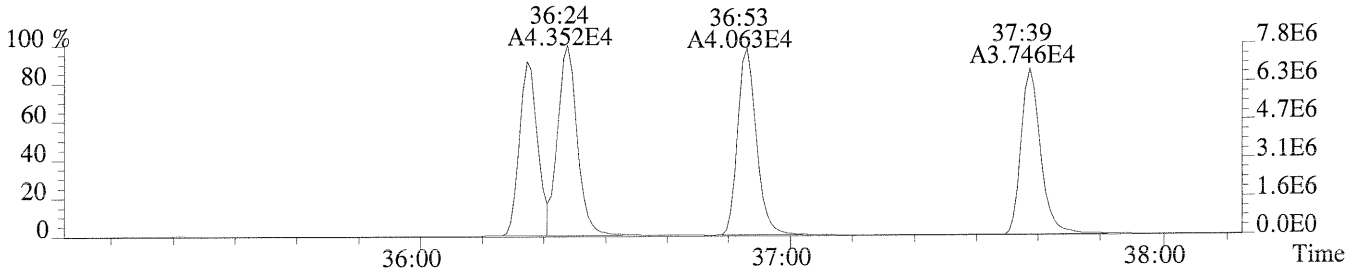
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,116.0,0.40%,F,T)



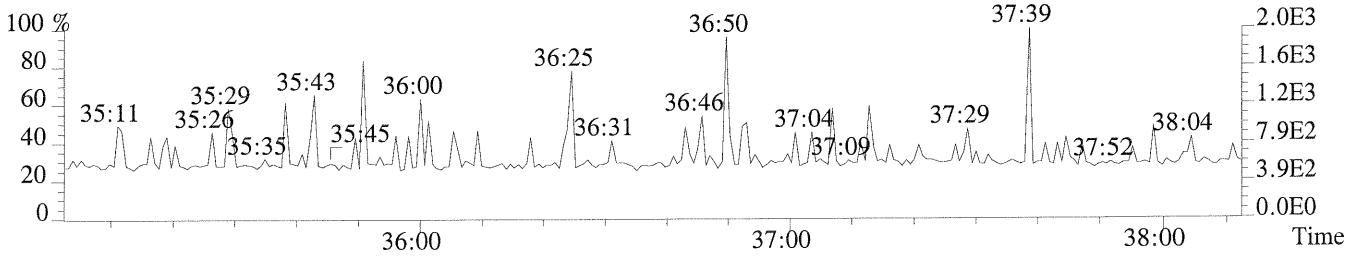
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



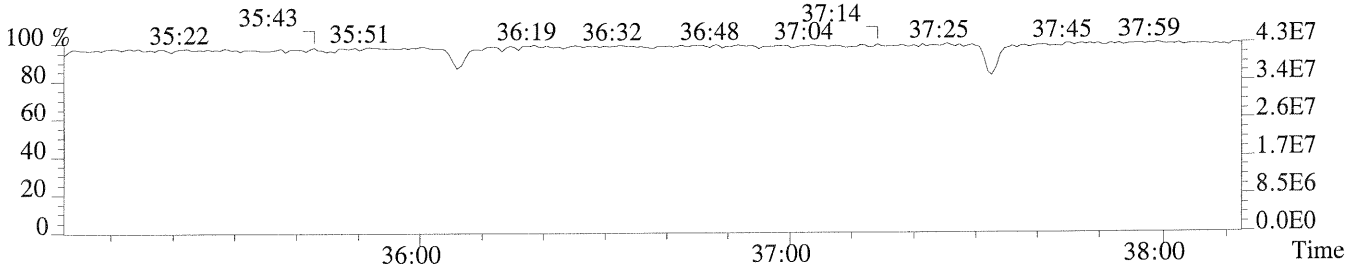
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1296.0,0.40%,F,T)



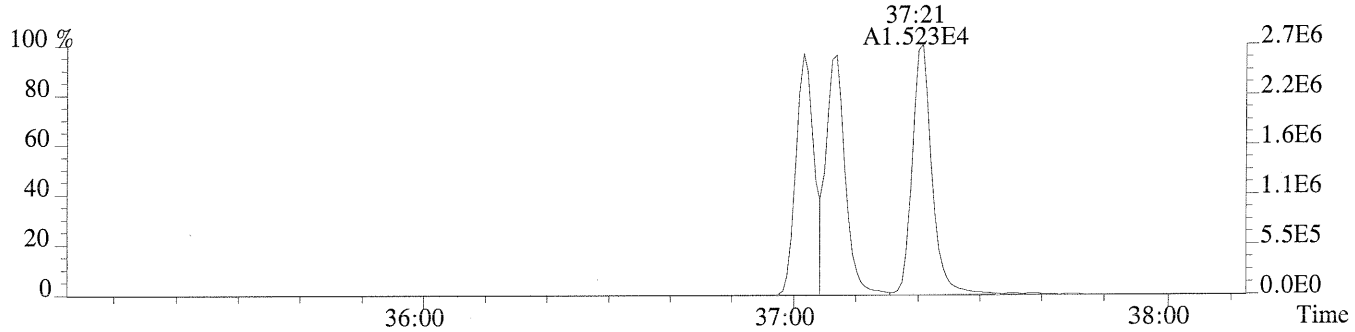
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



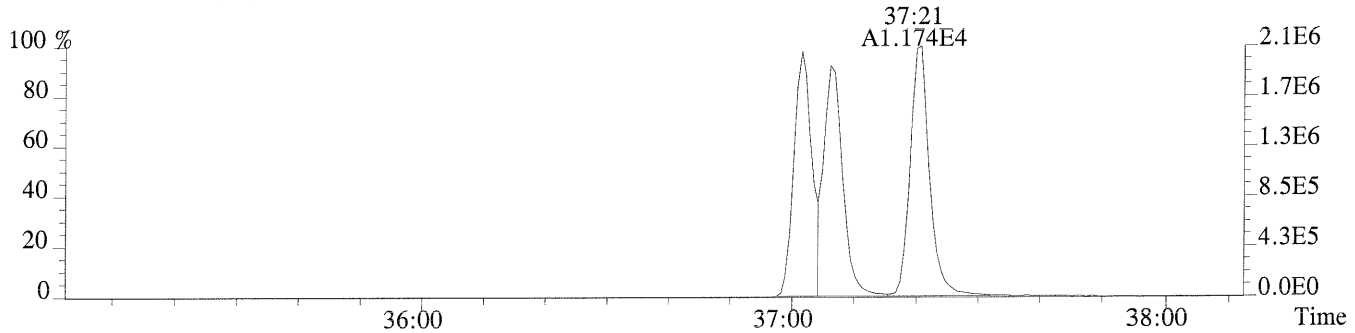
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



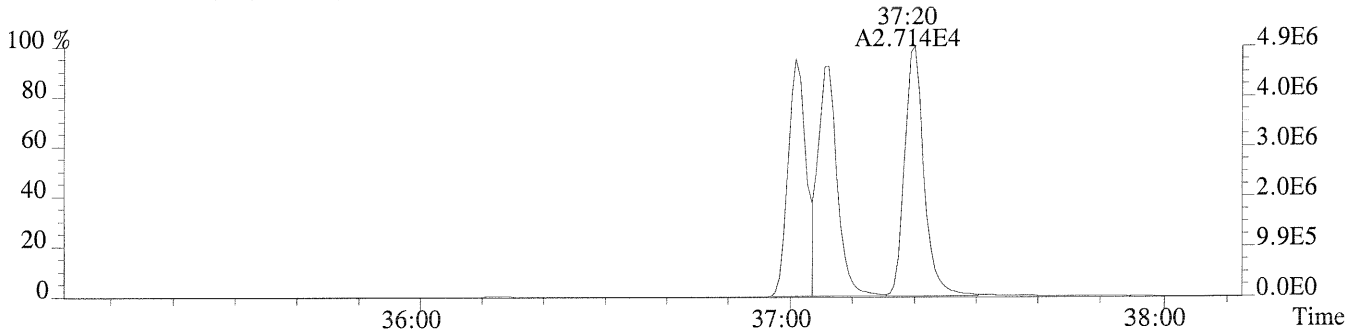
File:P229921 #1-288 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,284.0,0.40%,F,T)



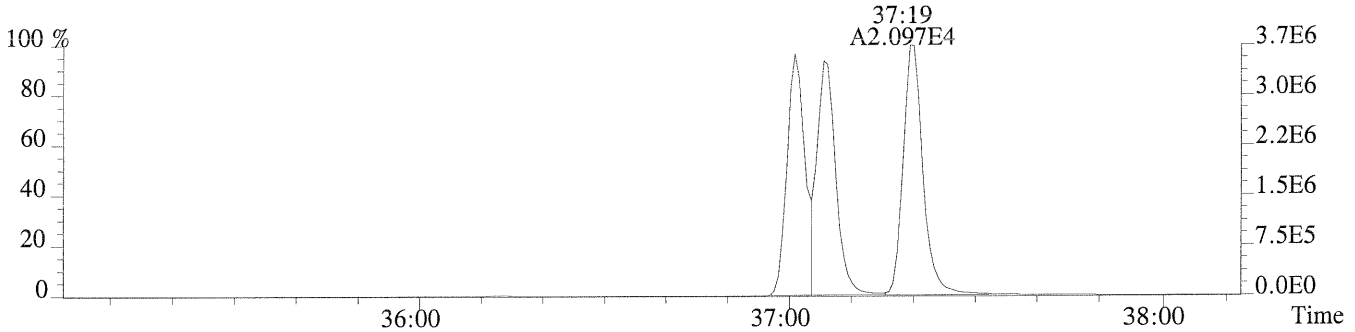
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,308.0,0.40%,F,T)



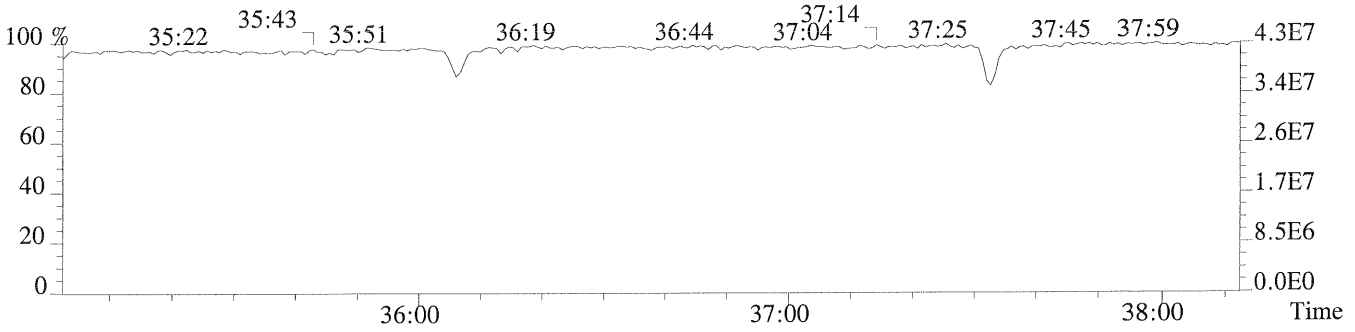
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)

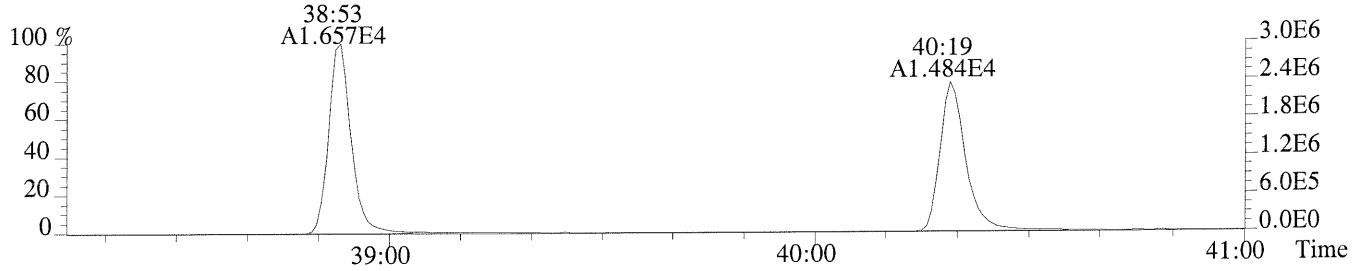


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

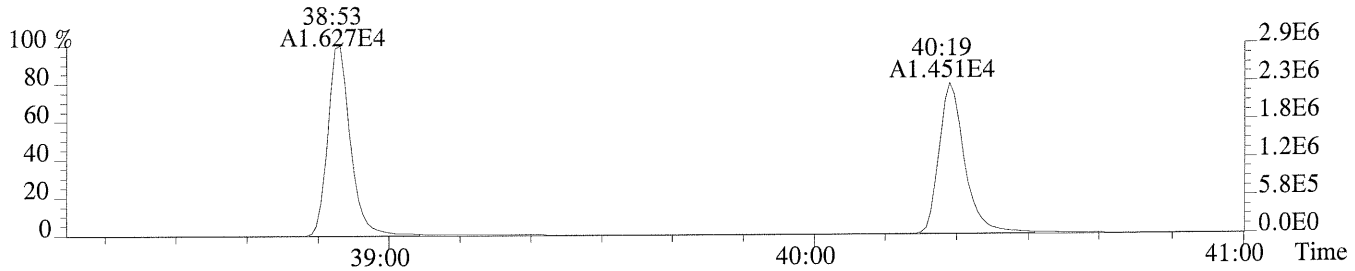


File:P229921 #1-251 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

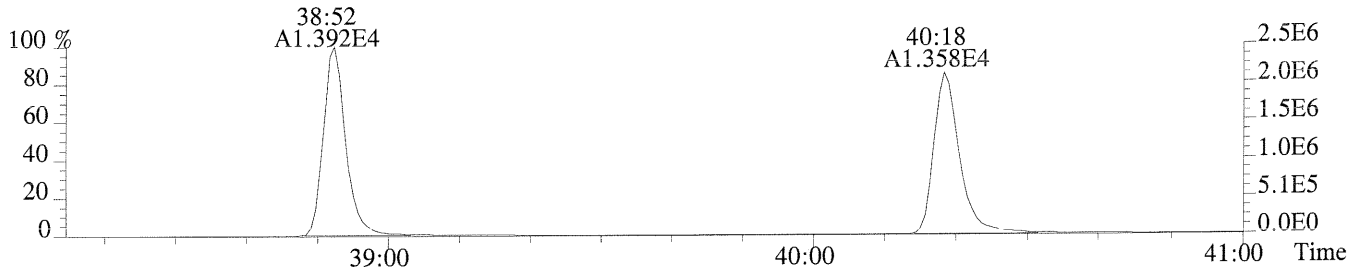
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2412.0,0.50%,F,T)



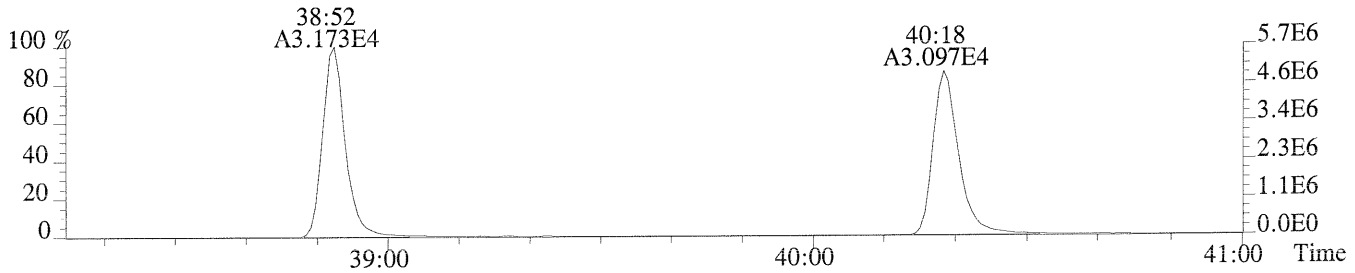
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1904.0,0.50%,F,T)



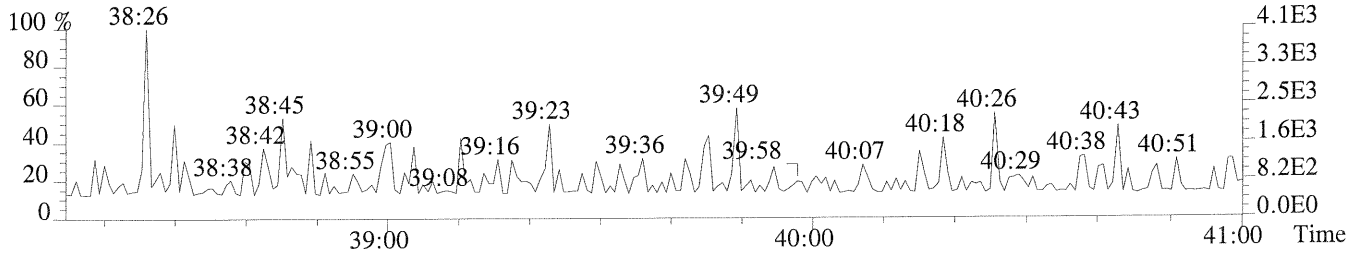
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1544.0,0.50%,F,T)



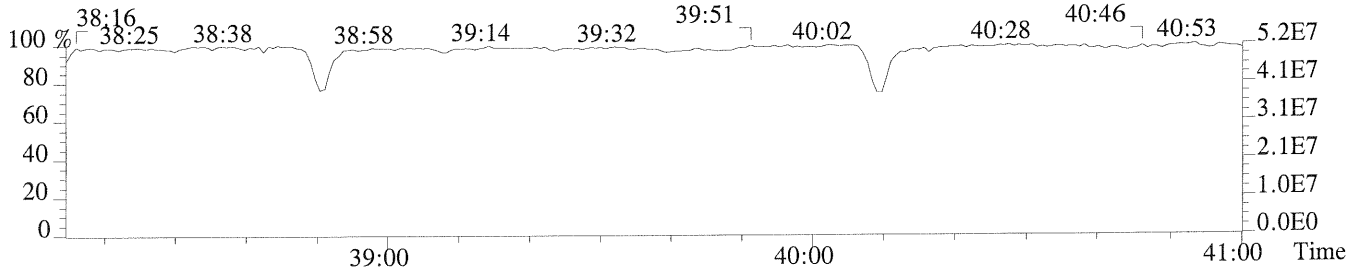
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4156.0,0.50%,F,T)



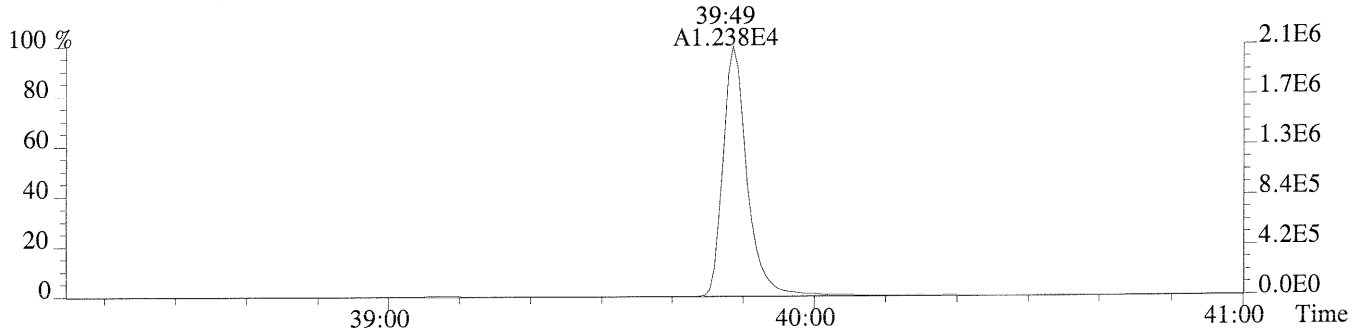
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



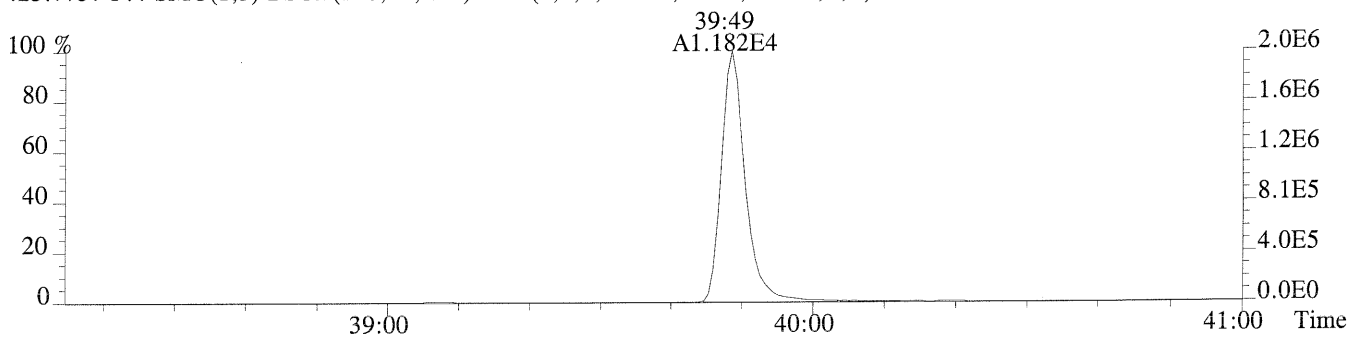
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



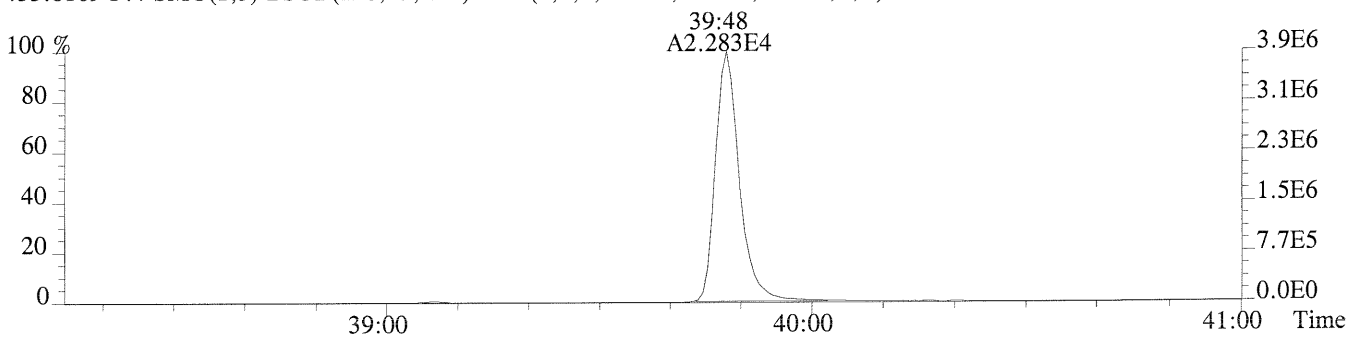
File:P229921 #1-251 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



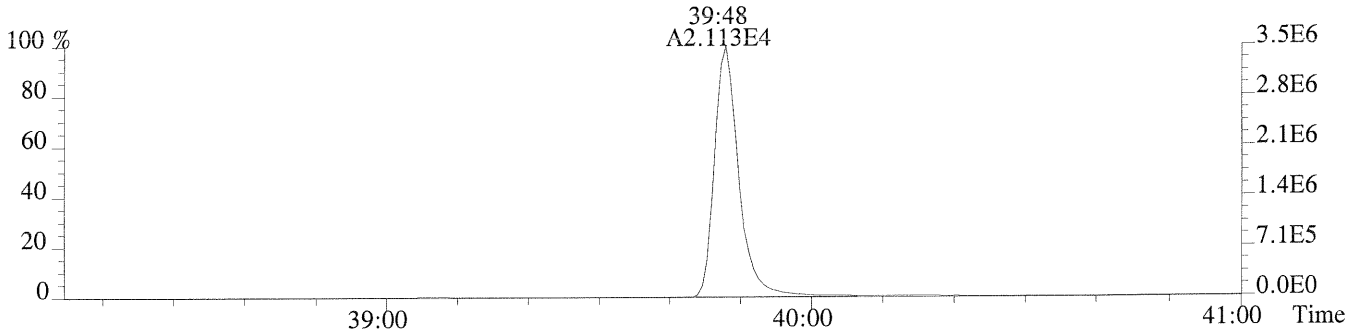
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,196.0,0.40%,F,T)



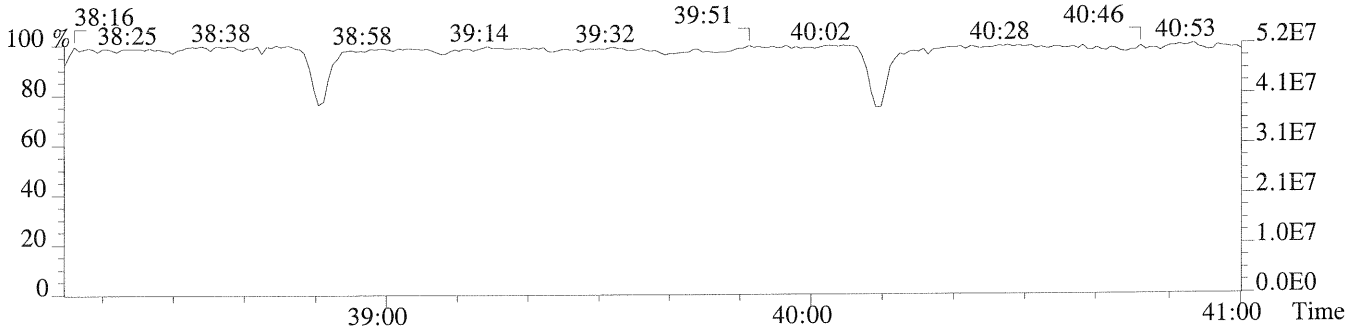
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



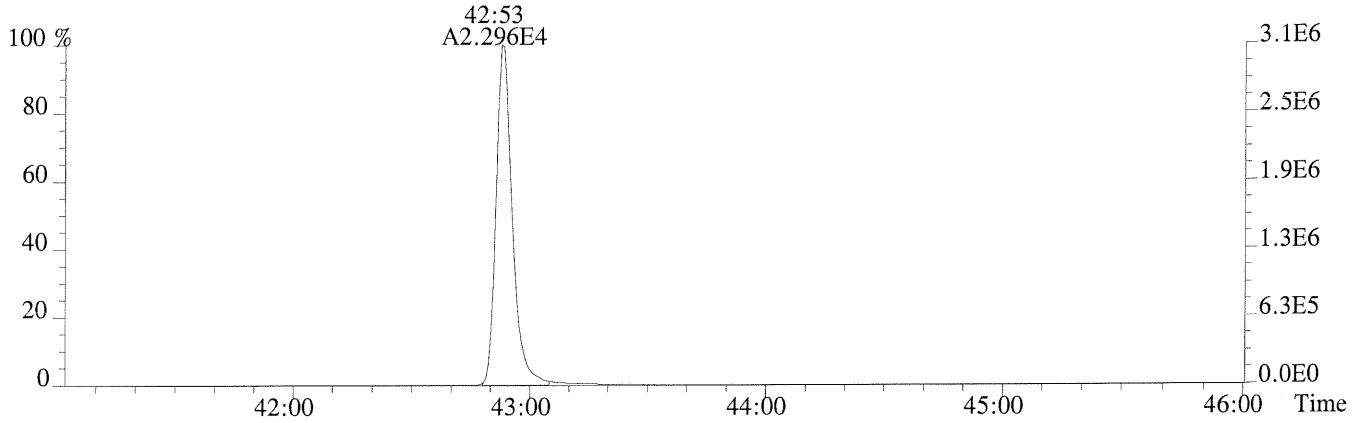
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,244.0,0.40%,F,T)



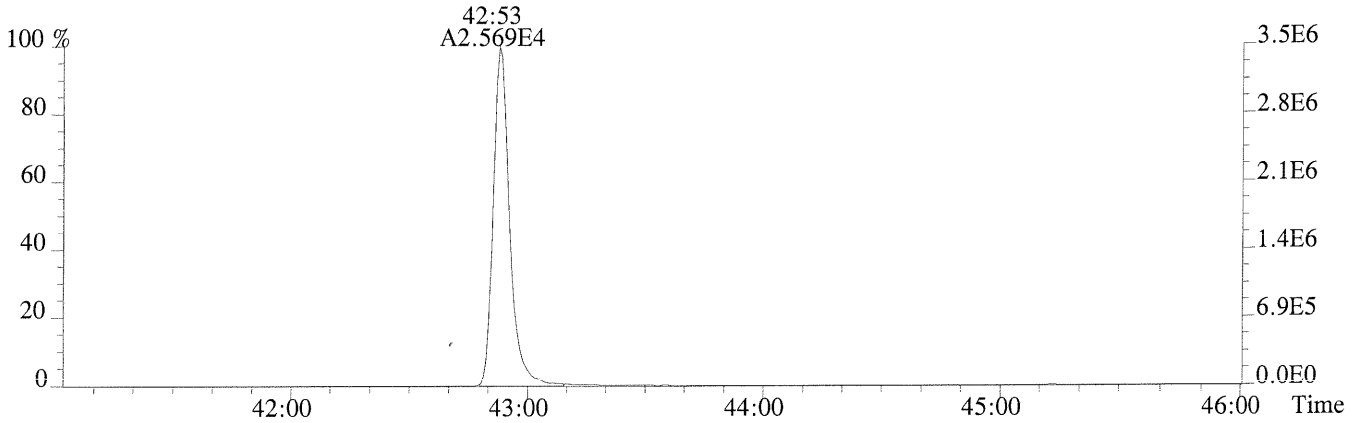
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



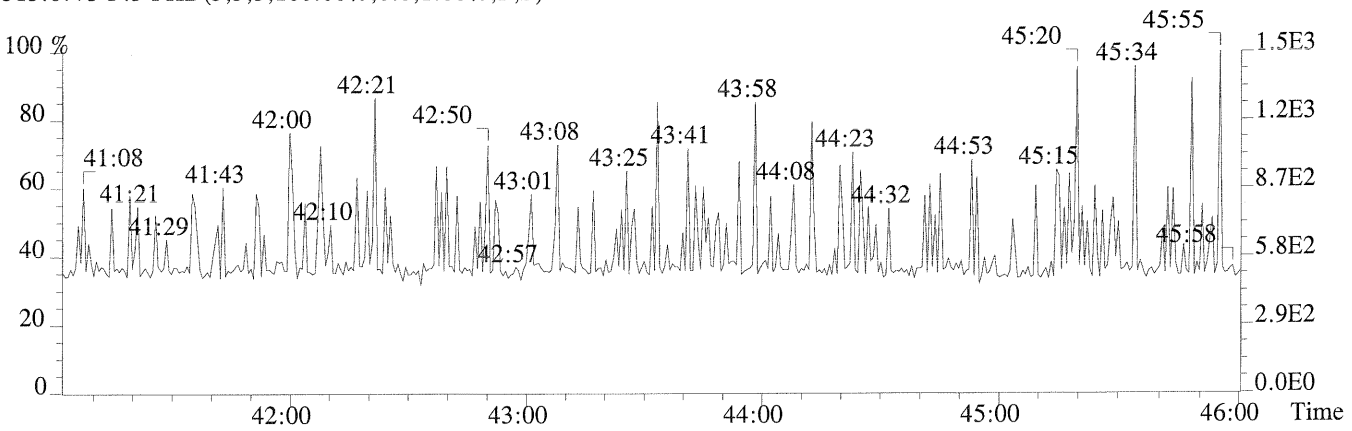
File:P229921 #1-457 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,284.0,0.40%,F,T)



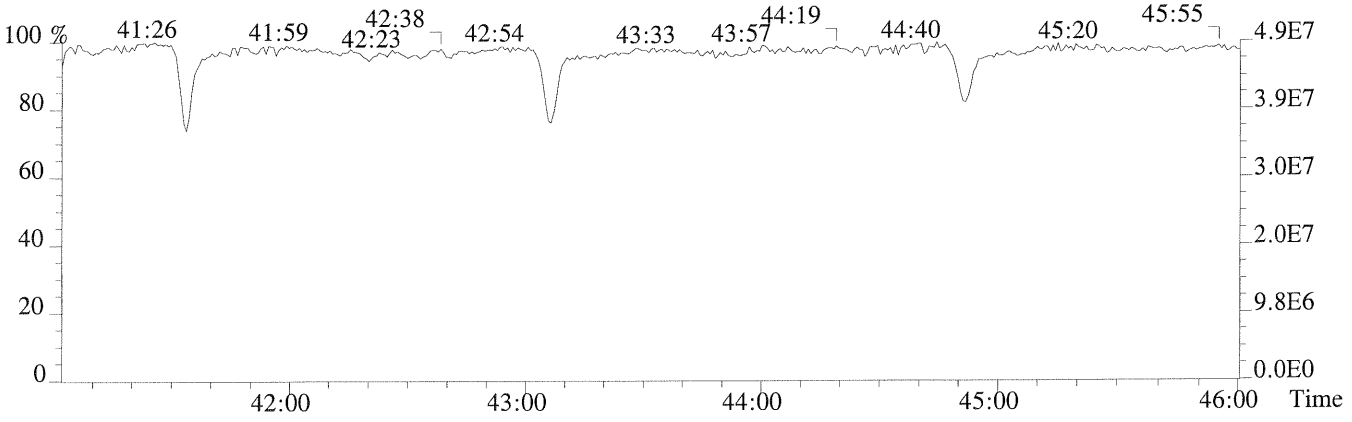
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



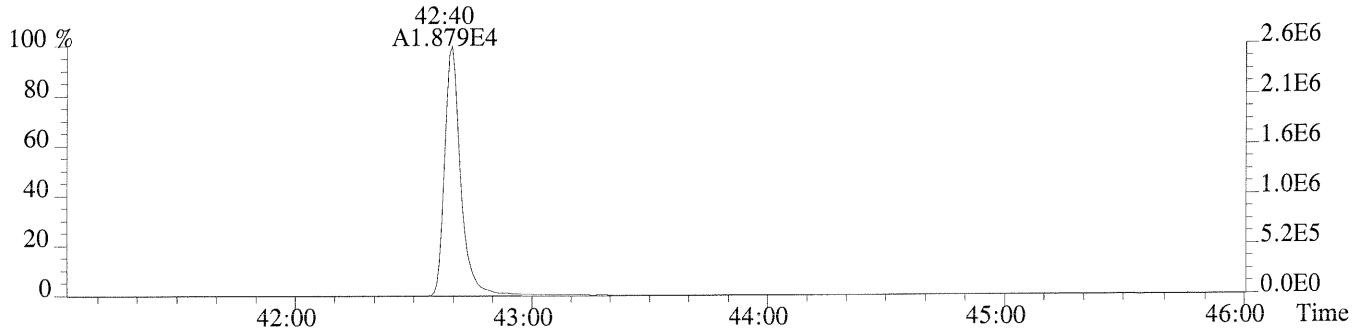
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



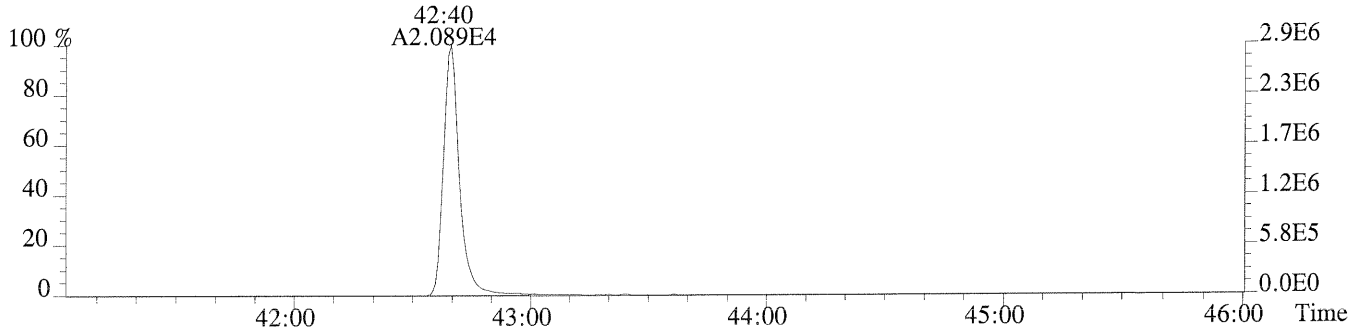
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



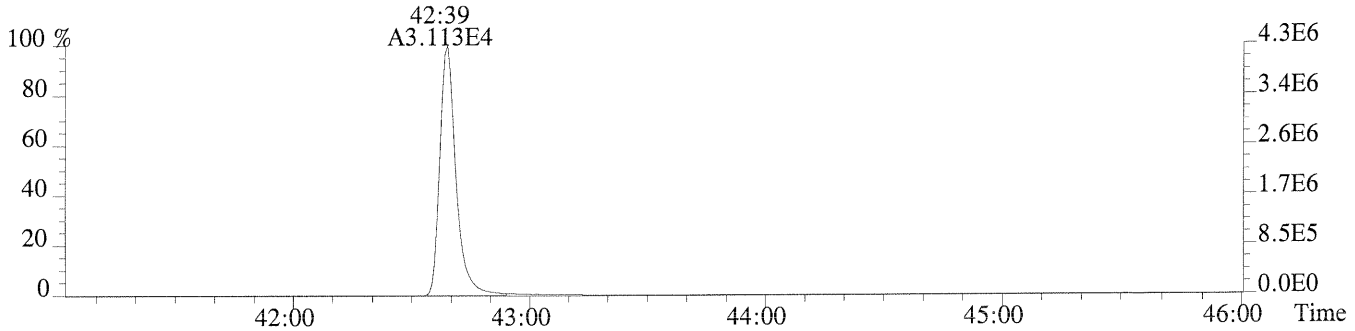
File:P229921 #1-457 Acq: 2-JUL-2014 14:11:01 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,76.0,0.40%,F,T)



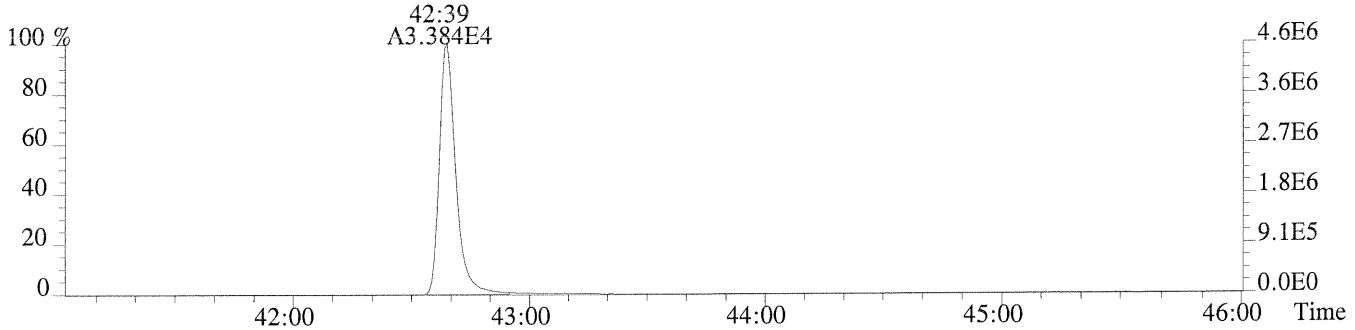
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



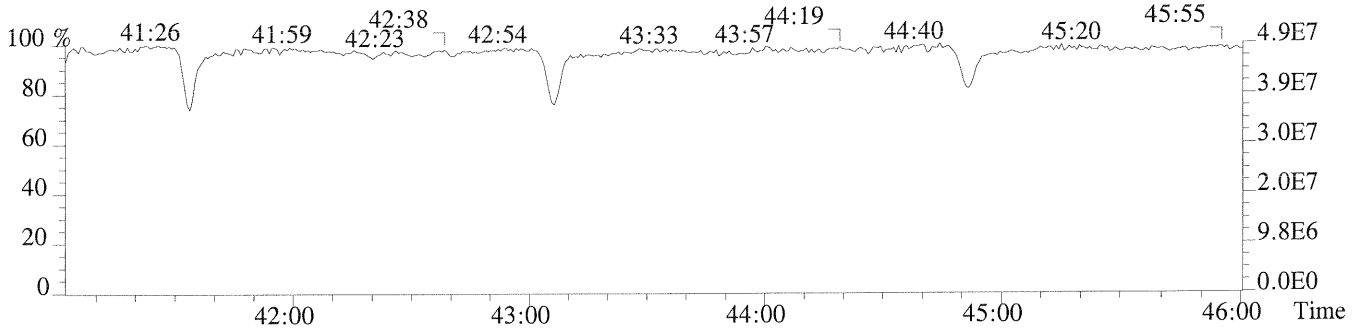
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,220.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5MSUI

VER Data Filename: P229934 | Analysis Date: 3-JUL-14 Time: 02:08:18

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.4	7.8 - 12.9	-6.4
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	48	39 - 65	-3.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	46	39 - 64	-7.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	49	39 - 64	-3.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	49	41 - 61	-1.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	46	43 - 58	-7.1
OCDD	M+2/M+4	0.89	0.76-1.02	92	79 - 126	-7.5
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	8.5	8.4 - 12.0	-14.9
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	48	41 - 60	-4.5
2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	45	41 - 61	-9.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.31	1.05-1.43	48	45 - 56	-3.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	46	44 - 57	-7.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	46	45 - 56	-7.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	47	44 - 57	-5.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	49	45 - 55	-1.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	48	43 - 58	-4.5
OCDF	M+2/M+4	0.92	0.76-1.02	87	63 - 159	-12.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P229934 Analysis Date: 3-JUL-14 Time: 02:08:18

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	107	82 - 121	7.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	129	62 - 160	29.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	91	85 - 117	-8.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	96	85 - 118	-4.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.10	0.88-1.20	104	72 - 138	3.6
13C-OCDD	M+2/M+4	0.92	0.76-1.02	222	96 - 415	11.0
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	108	71 - 140	8.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	119	76 - 130	18.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	124	77 - 130	23.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	79	76 - 131	-20.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	86	70 - 143	-13.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	94	74 - 135	-6.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	73 - 137	-12.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	90	78 - 129	-10.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	97	77 - 129	-2.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.5	7.8 - 12.7	5.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #19 Filename P229934 Samp: 1 Inj: 1 Acquired: 3-JUL-14 02:08:18
Processed: 3-JUL-14 13:34:31 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:41	1.525e+03	2.015e+03	0.76	yes	no	1.127
2	Unk	1,2,3,7,8-PeCDF	32:47	1.785e+04	1.132e+04	1.58	yes	no	1.123
3	Unk	2,3,4,7,8-PeCDF	33:39	1.688e+04	1.050e+04	1.61	yes	no	1.101
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.620e+04	1.238e+04	1.31	yes	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.750e+04	1.448e+04	1.21	yes	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.615e+04	1.314e+04	1.23	yes	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	37:38	1.522e+04	1.200e+04	1.27	yes	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	1.500e+04	1.475e+04	1.02	yes	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	1.286e+04	1.244e+04	1.03	yes	no	1.381
10	Unk	OCDF	42:51	2.147e+04	2.344e+04	0.92	yes	no	1.703
11	Unk	2,3,7,8-TCDD	29:27	1.060e+03	1.360e+03	0.78	yes	no	1.053
12	Unk	1,2,3,7,8-PeCDD	33:56	1.124e+04	6.985e+03	1.61	yes	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.061e+04	8.343e+03	1.27	yes	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	37:06	1.197e+04	9.221e+03	1.30	yes	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.205e+04	9.620e+03	1.25	yes	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	1.077e+04	1.007e+04	1.07	yes	no	1.170
17	Unk	OCDD	42:38	1.690e+04	1.906e+04	0.89	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:40	1.637e+04	2.053e+04	0.80	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:45	3.361e+04	2.078e+04	1.62	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:39	3.382e+04	2.115e+04	1.60	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	1.517e+04	2.929e+04	0.52	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	1.915e+04	3.671e+04	0.52	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	1.723e+04	3.304e+04	0.52	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.591e+04	3.020e+04	0.53	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	1.279e+04	2.964e+04	0.43	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:17	1.147e+04	2.688e+04	0.43	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:25	1.092e+04	1.365e+04	0.80	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.173e+04	1.352e+04	1.61	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	1.900e+04	1.459e+04	1.30	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.115e+04	1.621e+04	1.30	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	2.007e+04	1.829e+04	1.10	yes	no	0.935
32	IS	13C-OCDD	42:37	2.889e+04	3.149e+04	0.92	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:50	1.092e+04	1.368e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.215e+04	1.742e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	2.445e+03				no	0.946

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #19 Filename P229934 Samp: 1 Inj: 1 Acquired: 3-JUL-14 02:08:18
Processed: 3-JUL-14 13:34:311 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.75e+05	3.36e+02	8.2e+02	3.84e+05	8.60e+02	4.5e+02
2	1,2,3,7,8-PeCDF	3.00e+06	1.96e+02	1.5e+04	1.86e+06	8.84e+02	2.1e+03
3	2,3,4,7,8-PeCDF	2.99e+06	1.96e+02	1.5e+04	1.87e+06	8.84e+02	2.1e+03
4	1,2,3,4,7,8-HxCDF	3.00e+06	3.16e+02	9.5e+03	2.40e+06	1.08e+02	2.2e+04
5	1,2,3,6,7,8-HxCDF	3.21e+06	3.16e+02	1.0e+04	2.57e+06	1.08e+02	2.4e+04
6	2,3,4,6,7,8-HxCDF	3.10e+06	3.16e+02	9.8e+03	2.53e+06	1.08e+02	2.3e+04
7	1,2,3,7,8,9-HxCDF	2.67e+06	3.16e+02	8.5e+03	2.13e+06	1.08e+02	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	2.66e+06	1.74e+03	1.5e+03	2.61e+06	1.57e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	2.03e+06	1.74e+03	1.2e+03	1.99e+06	1.57e+03	1.3e+03
10	OCDF	2.82e+06	2.44e+02	1.2e+04	3.15e+06	6.72e+02	4.7e+03
11	2,3,7,8-TCDD	2.04e+05	4.44e+02	4.6e+02	2.55e+05	3.84e+02	6.6e+02
12	1,2,3,7,8-PeCDD	1.96e+06	2.52e+02	7.8e+03	1.22e+06	5.60e+01	2.2e+04
13	1,2,3,4,7,8-HxCDD	2.16e+06	2.00e+02	1.1e+04	1.68e+06	3.52e+02	4.8e+03
14	1,2,3,6,7,8-HxCDD	2.17e+06	2.00e+02	1.1e+04	1.68e+06	3.52e+02	4.8e+03
15	1,2,3,7,8,9-HxCDD	2.19e+06	2.00e+02	1.1e+04	1.75e+06	3.52e+02	5.0e+03
16	1,2,3,4,6,7,8-HpCDD	1.84e+06	3.40e+02	5.4e+03	1.73e+06	1.08e+02	1.6e+04
17	OCDD	2.27e+06	6.00e+01	3.8e+04	2.57e+06	1.36e+02	1.9e+04
18	13C-2,3,7,8-TCDF	3.09e+06	5.20e+02	6.0e+03	3.88e+06	5.52e+02	7.0e+03
19	13C-1,2,3,7,8-PeCDF	5.53e+06	2.36e+02	2.3e+04	3.42e+06	2.20e+02	1.6e+04
20	13C-2,3,4,7,8-PeCDF	5.96e+06	2.36e+02	2.5e+04	3.73e+06	2.20e+02	1.7e+04
21	13C-1,2,3,4,7,8-HxCDF	2.91e+06	2.56e+02	1.1e+04	5.63e+06	6.36e+02	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	3.38e+06	2.56e+02	1.3e+04	6.49e+06	6.36e+02	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	3.31e+06	2.56e+02	1.3e+04	6.32e+06	6.36e+02	9.9e+03
24	13C-1,2,3,7,8,9-HxCDF	2.78e+06	2.56e+02	1.1e+04	5.32e+06	6.36e+02	8.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.30e+06	1.60e+03	1.4e+03	5.14e+06	3.88e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.82e+06	1.60e+03	1.1e+03	4.20e+06	3.88e+03	1.1e+03
27	13C-2,3,7,8-TCDD	2.14e+06	1.68e+03	1.3e+03	2.67e+06	9.16e+02	2.9e+03
28	13C-1,2,3,7,8-PeCDD	3.84e+06	5.92e+02	6.5e+03	2.41e+06	2.24e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	3.85e+06	4.20e+02	9.2e+03	2.98e+06	2.32e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	3.80e+06	4.20e+02	9.0e+03	2.95e+06	2.32e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.37e+06	5.56e+02	6.1e+03	3.11e+06	2.28e+02	1.4e+04
32	13C-OCDD	3.79e+06	1.04e+02	3.6e+04	4.12e+06	1.68e+02	2.5e+04
33	13C-1,2,3,4-TCDD	2.13e+06	1.68e+03	1.3e+03	2.67e+06	9.16e+02	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	4.02e+06	4.20e+02	9.6e+03	3.14e+06	2.32e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	4.73e+05	1.68e+02	2.8e+03			

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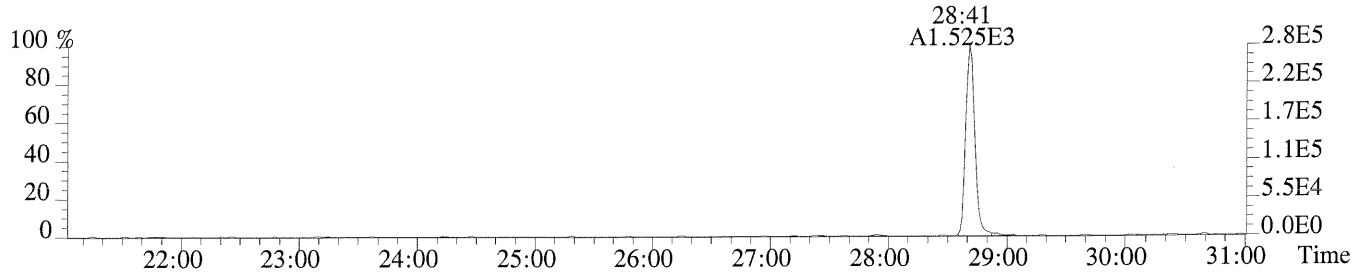
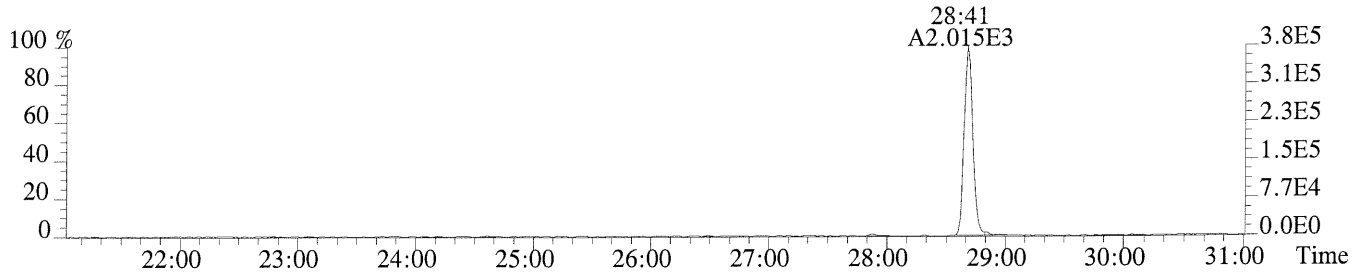
File:P229934 #1-627 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

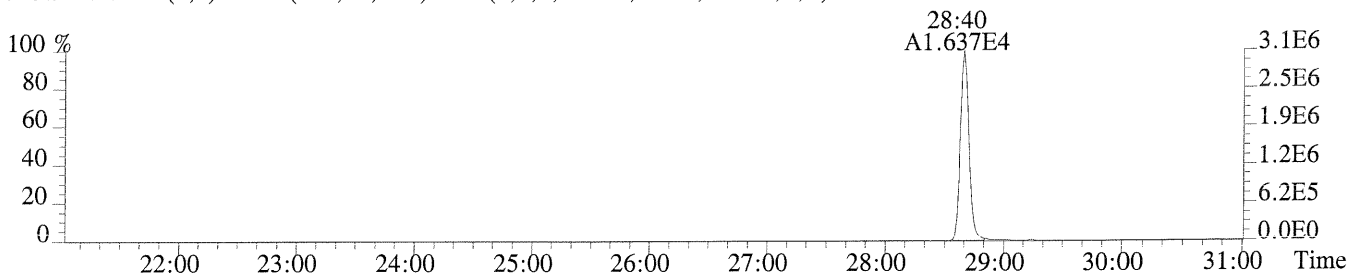
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



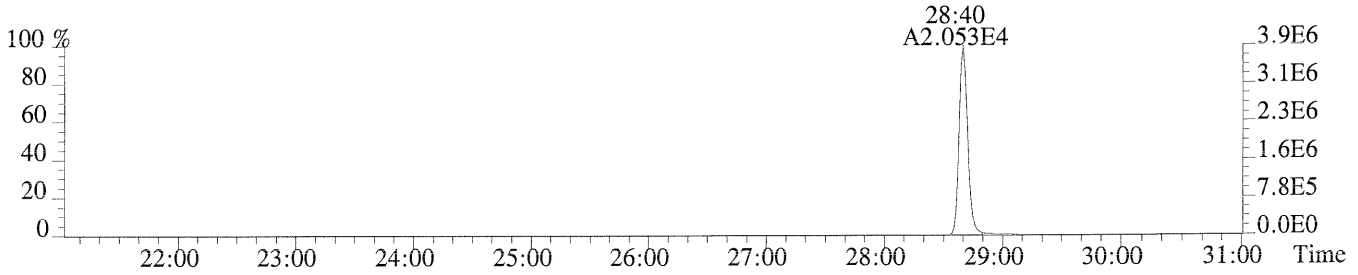
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



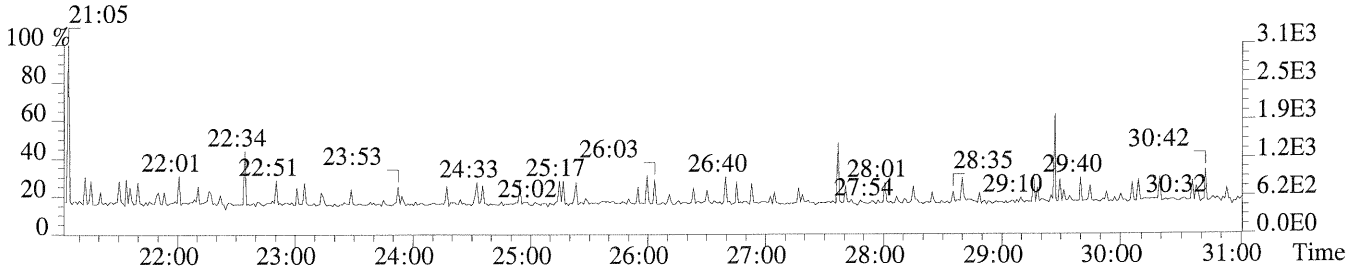
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



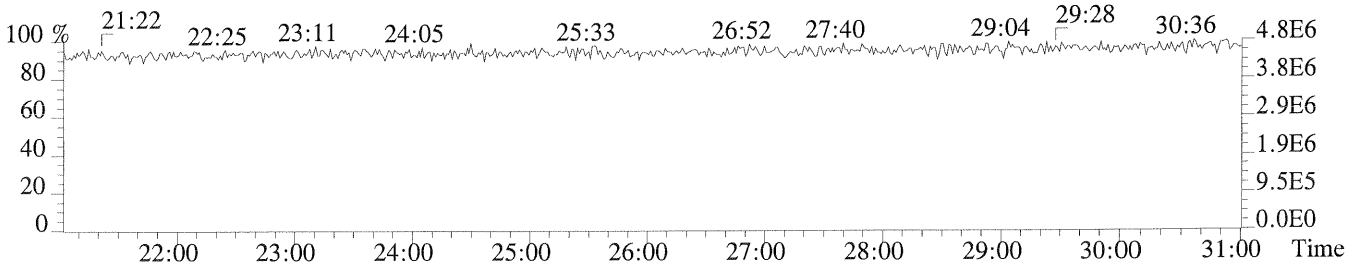
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



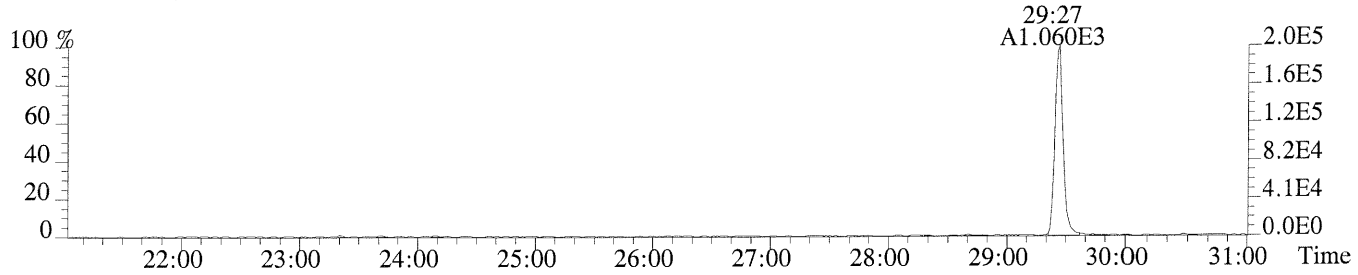
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



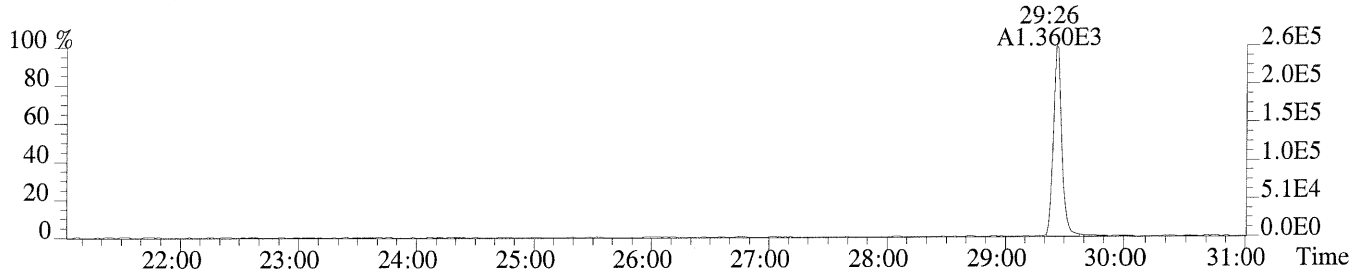
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



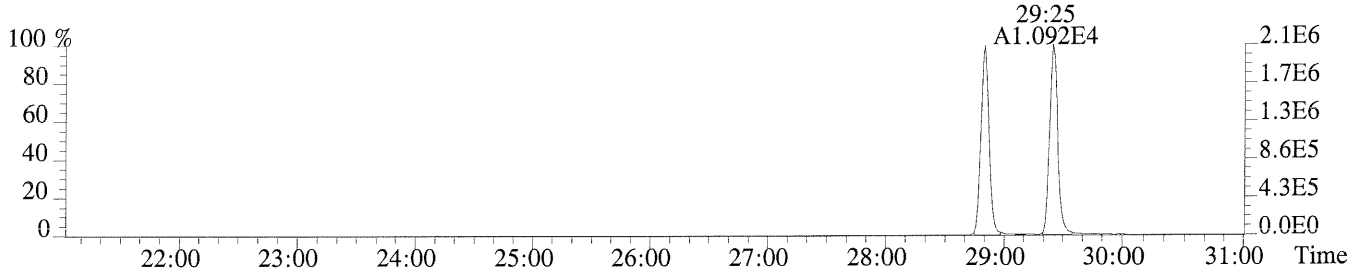
File:P229934 #1-627 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



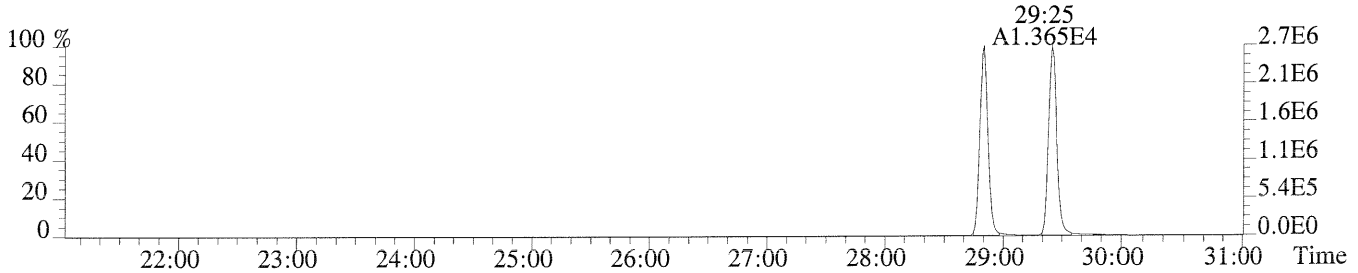
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



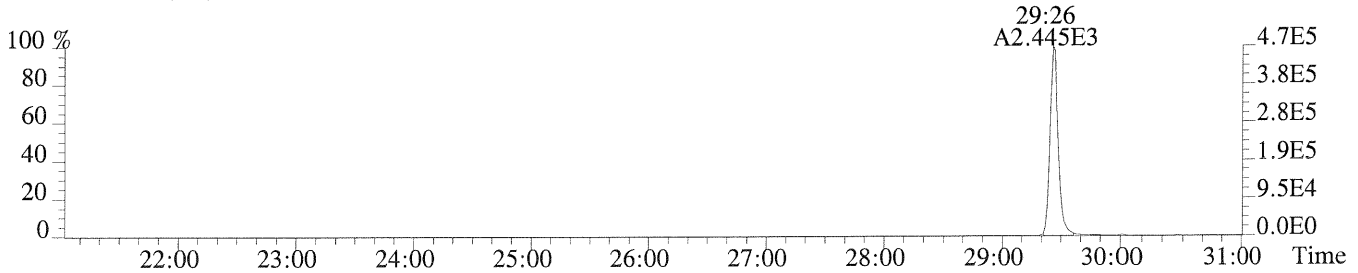
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



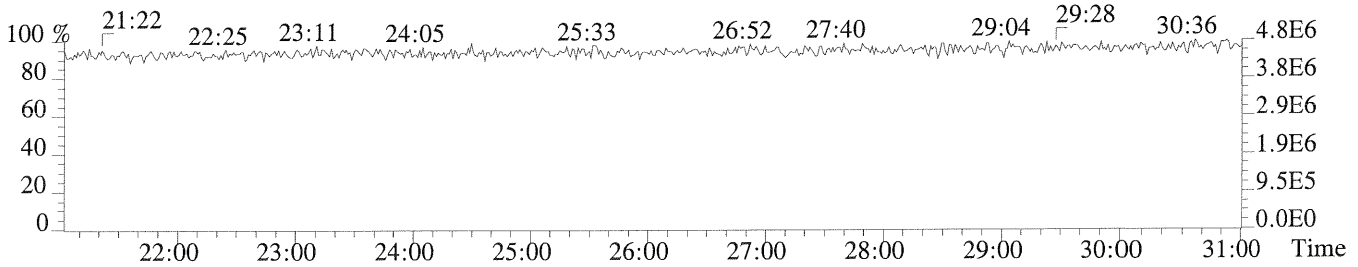
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



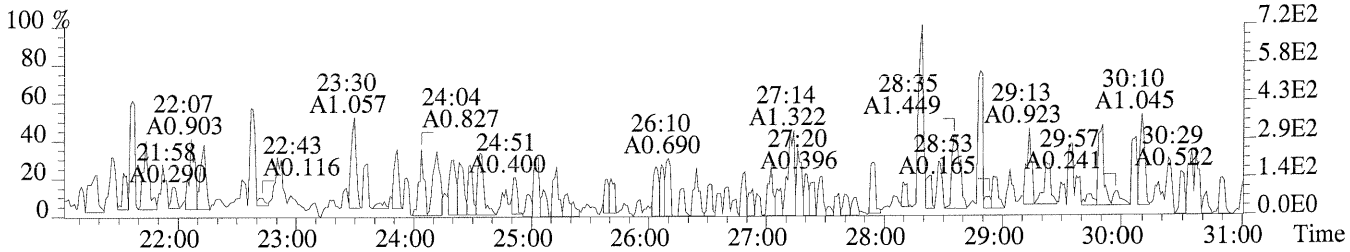
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



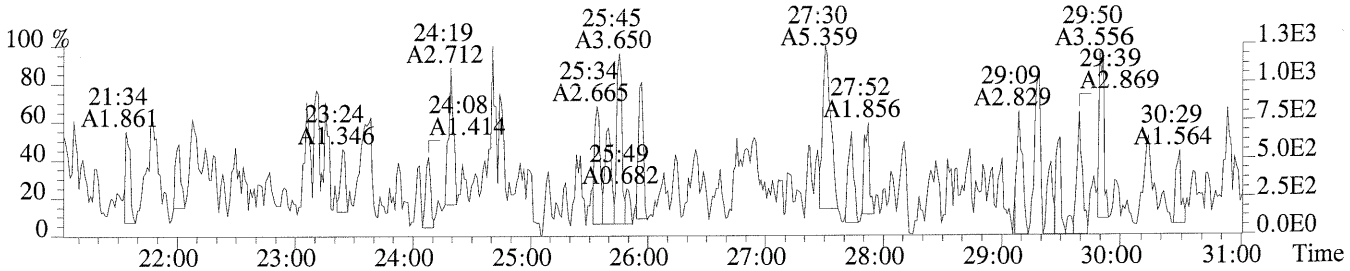
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



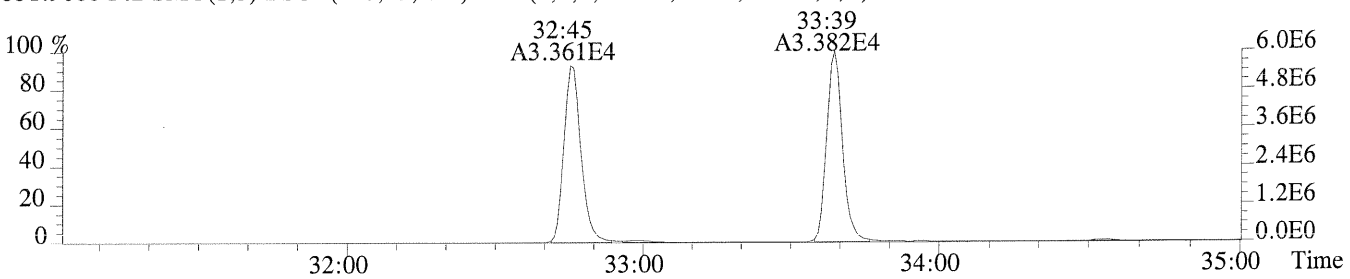
File:P229934 #1-627 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,68.0,1.00%,F,T)



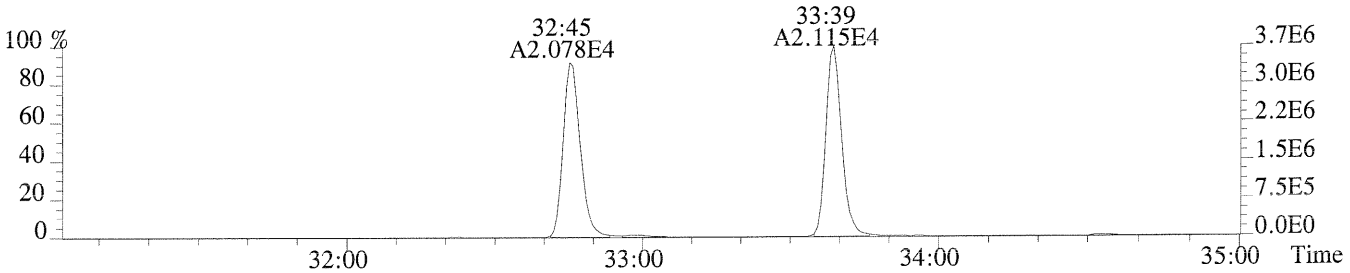
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



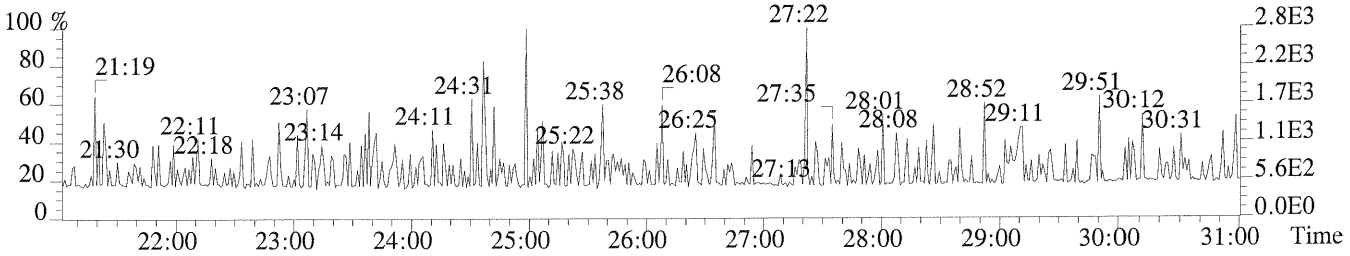
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



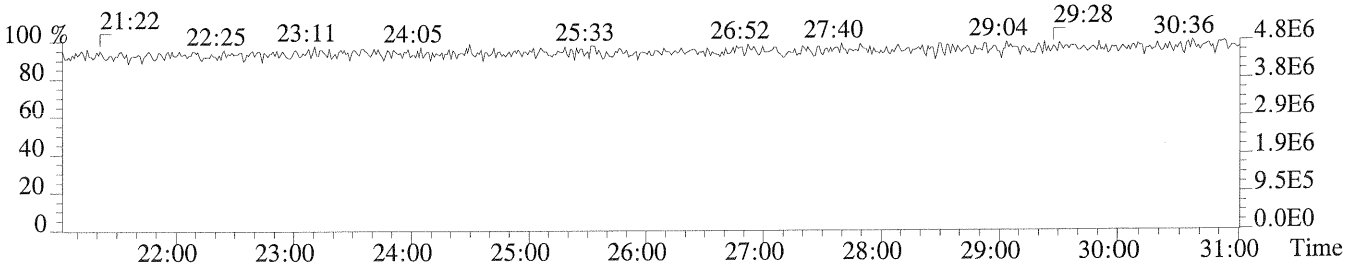
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

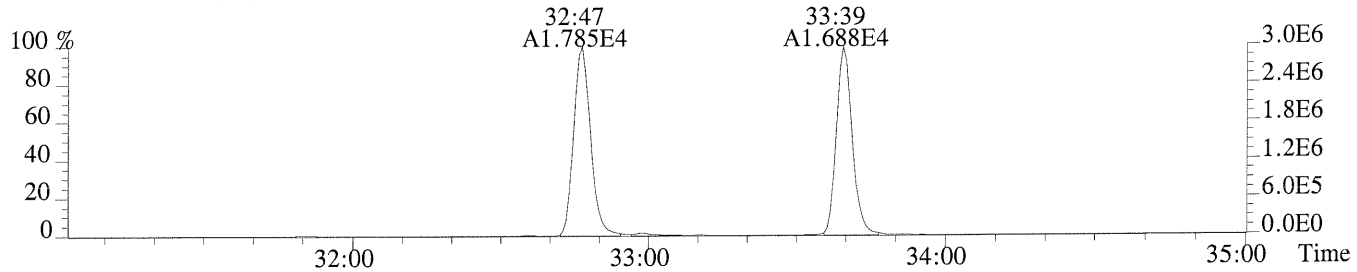


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

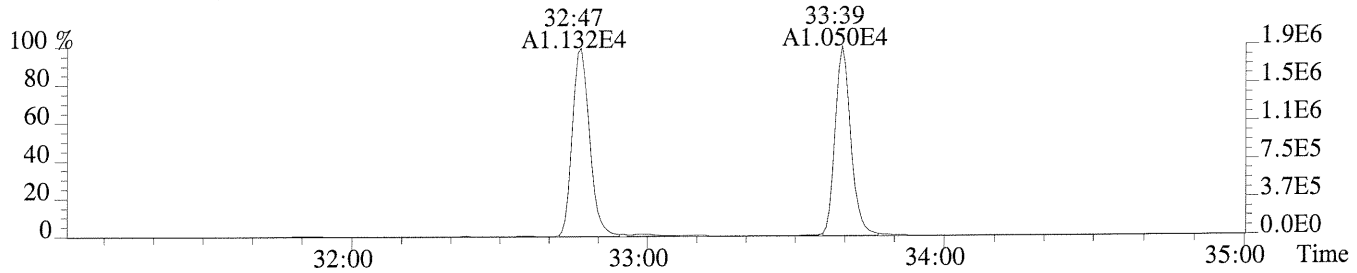


File:P229934 #1-360 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

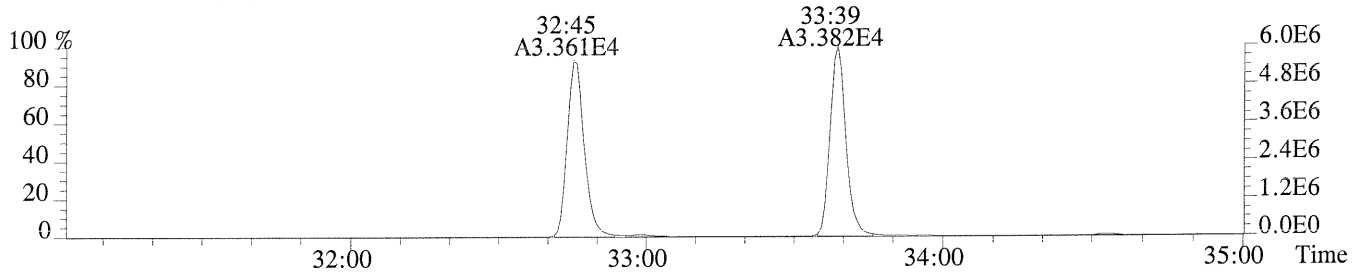
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



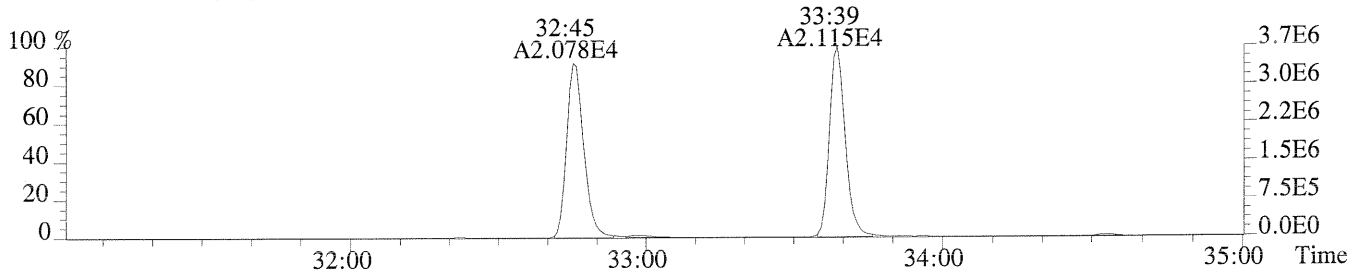
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



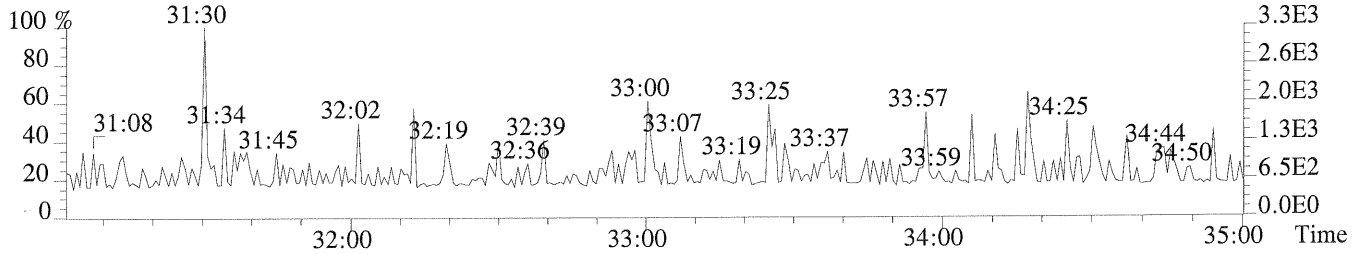
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



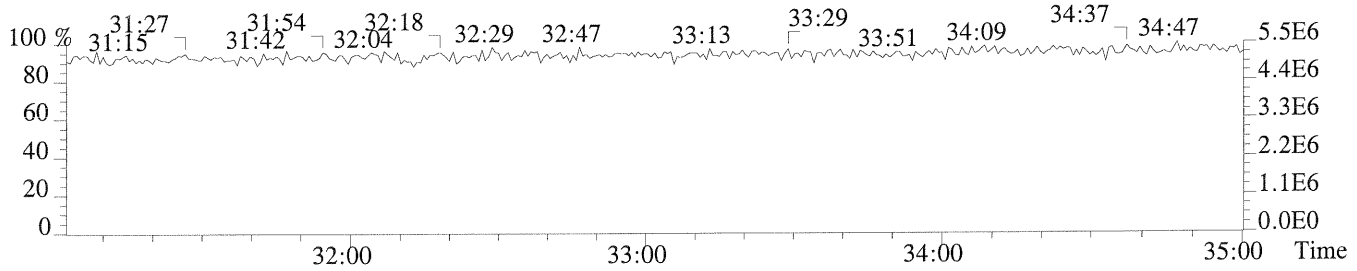
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

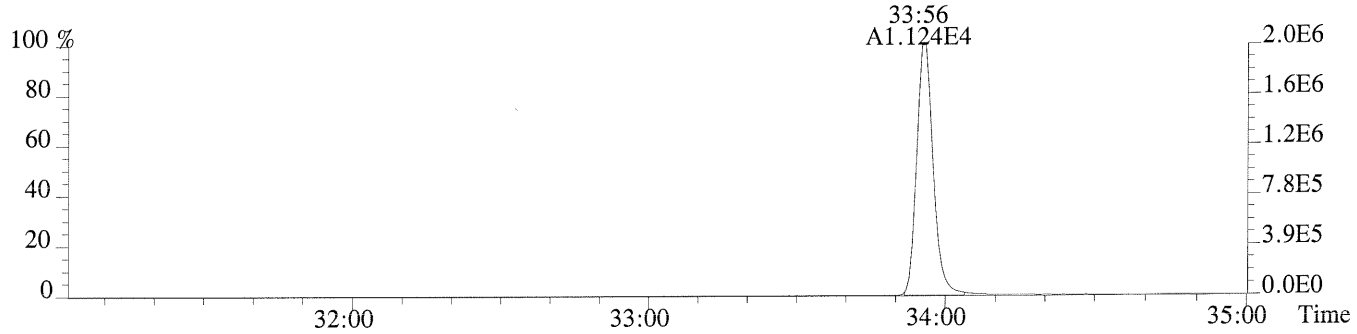


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

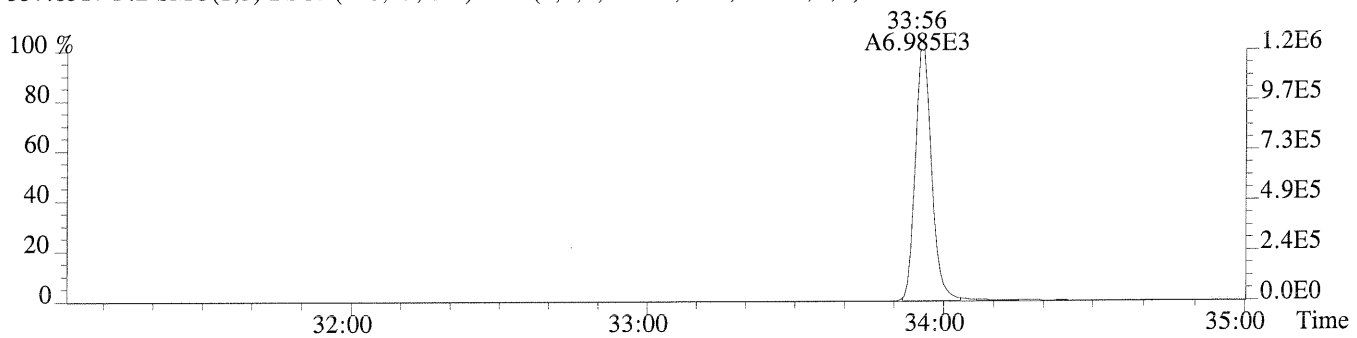


File:P229934 #1-360 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

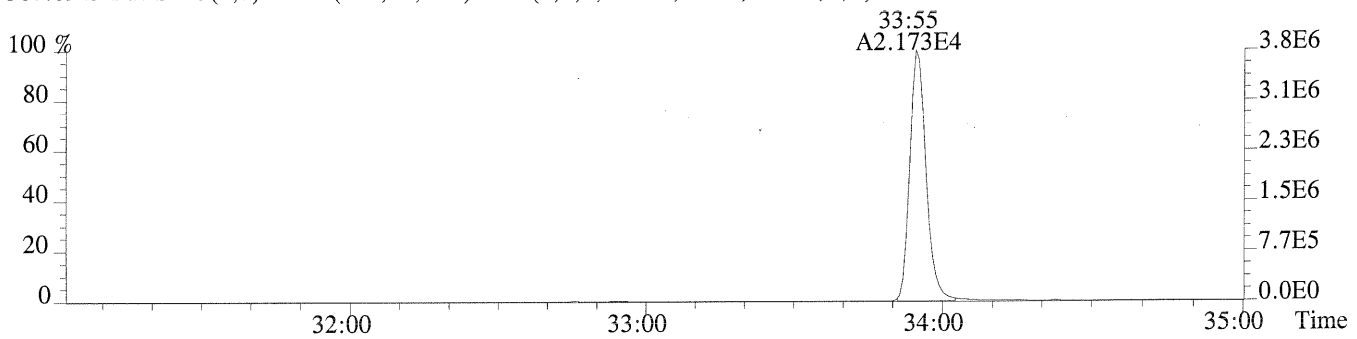
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



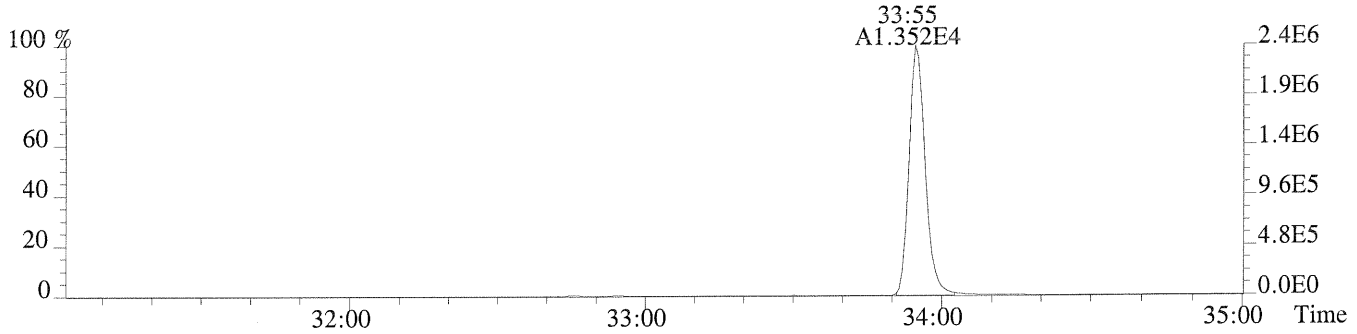
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,56.0,1.00%,F,T)



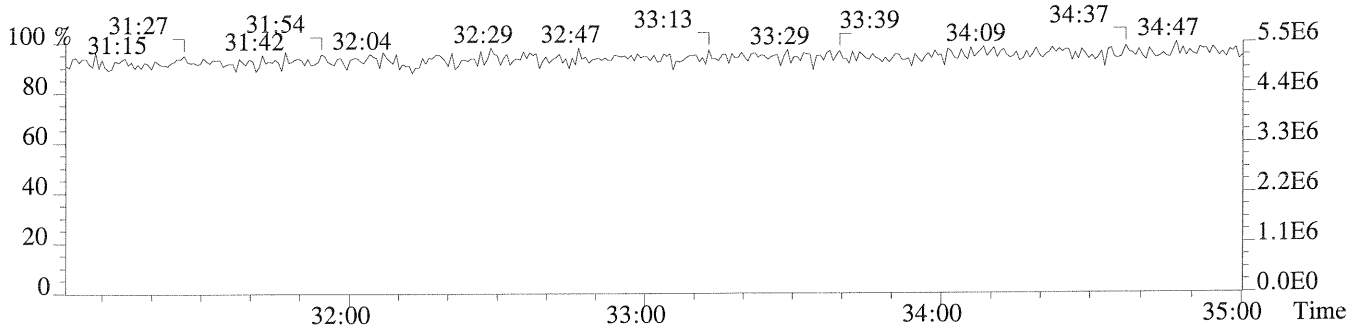
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)

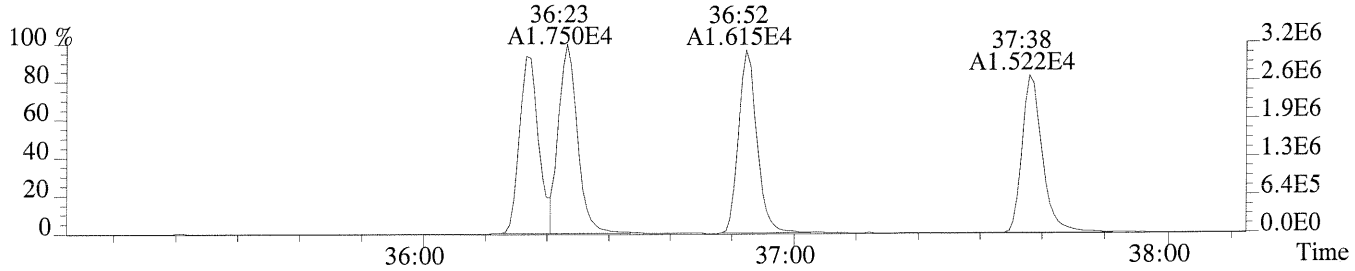


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

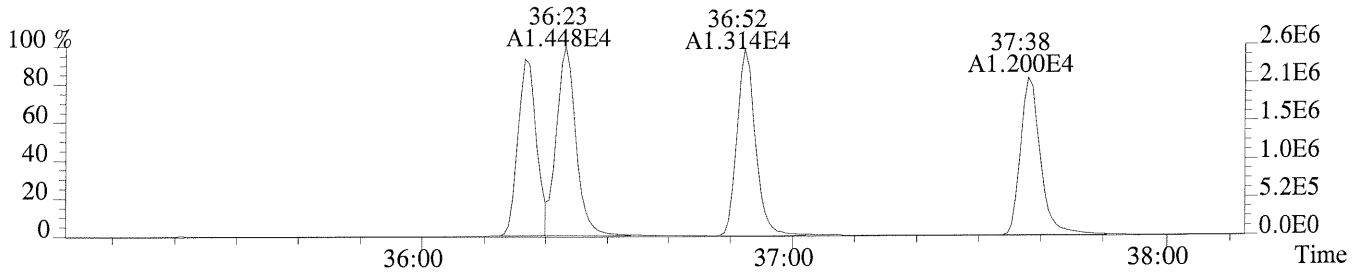


File:P229934 #1-288 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

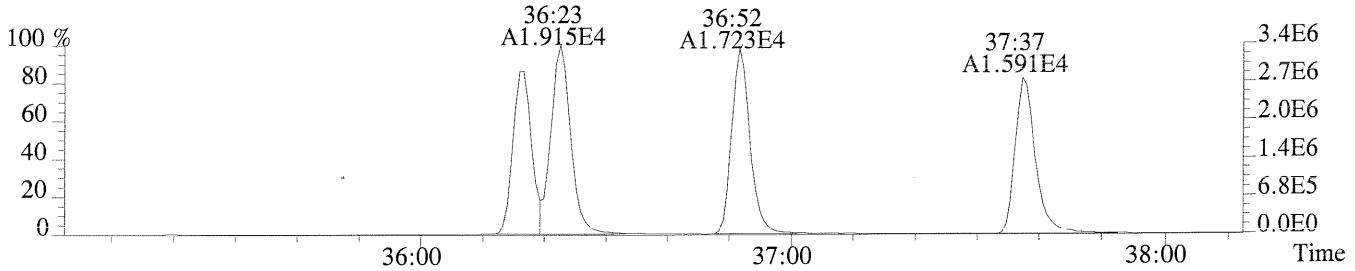
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



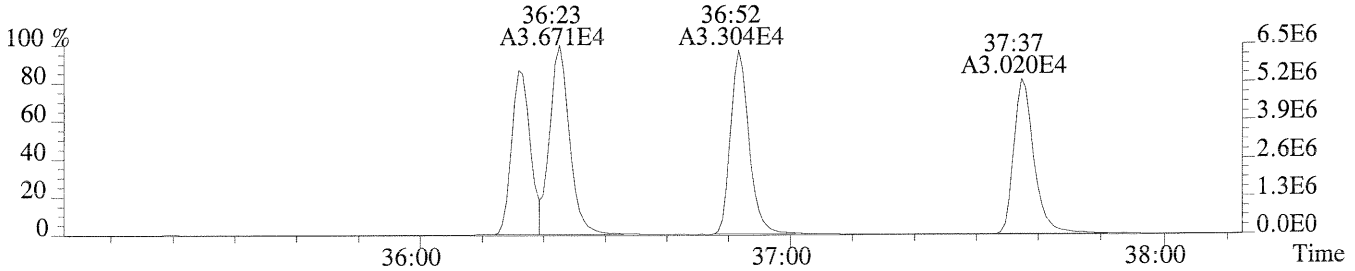
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,108.0,0.40%,F,T)



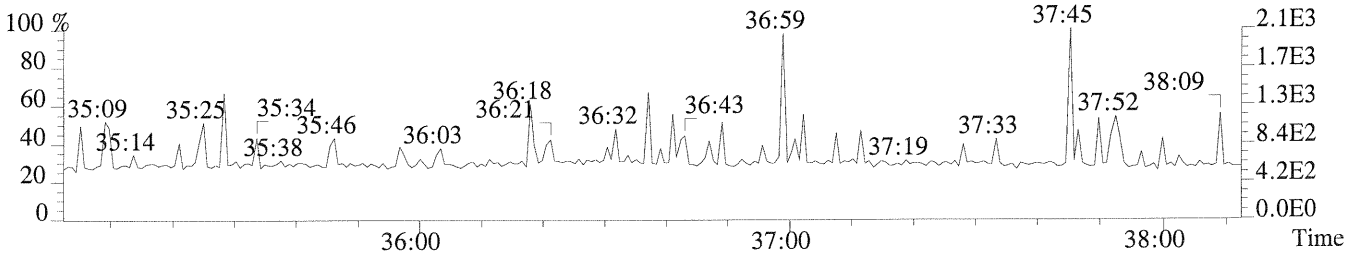
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



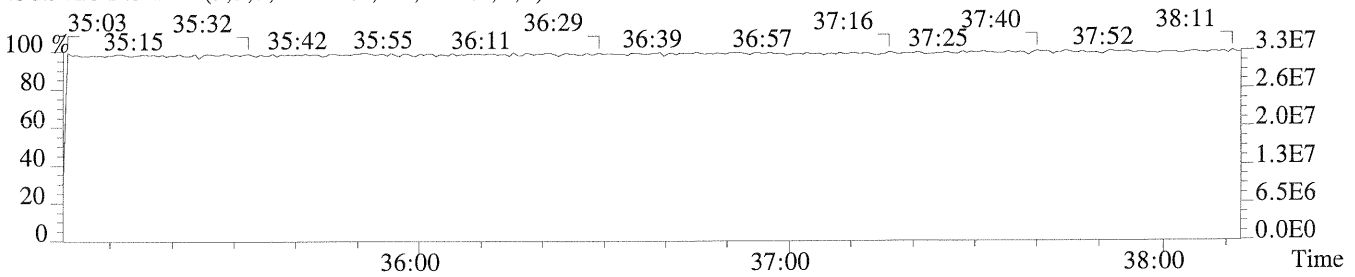
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



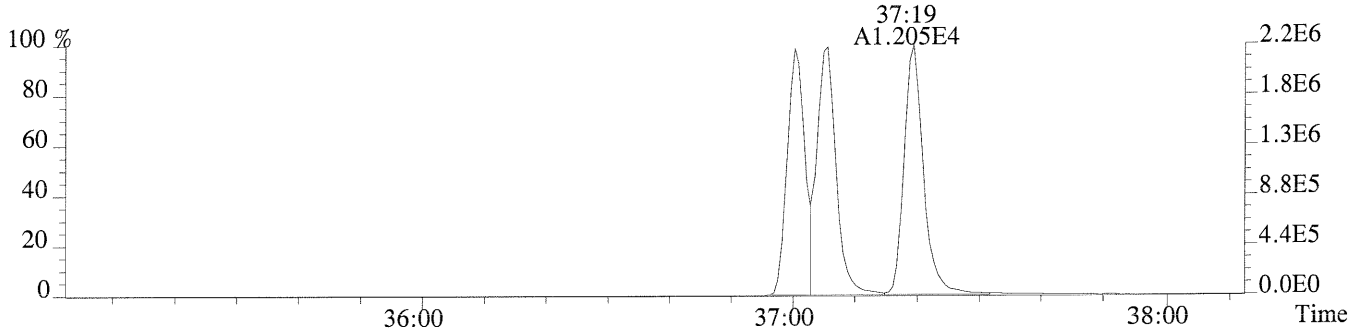
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



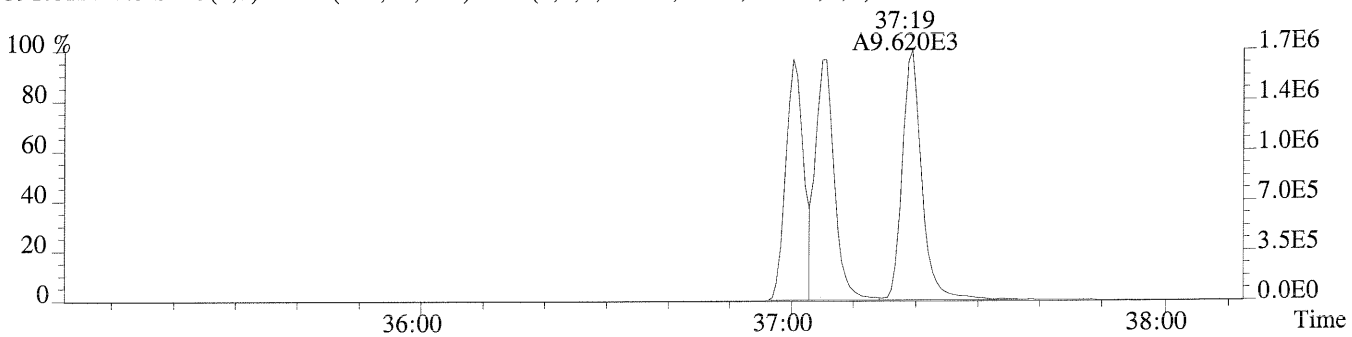
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



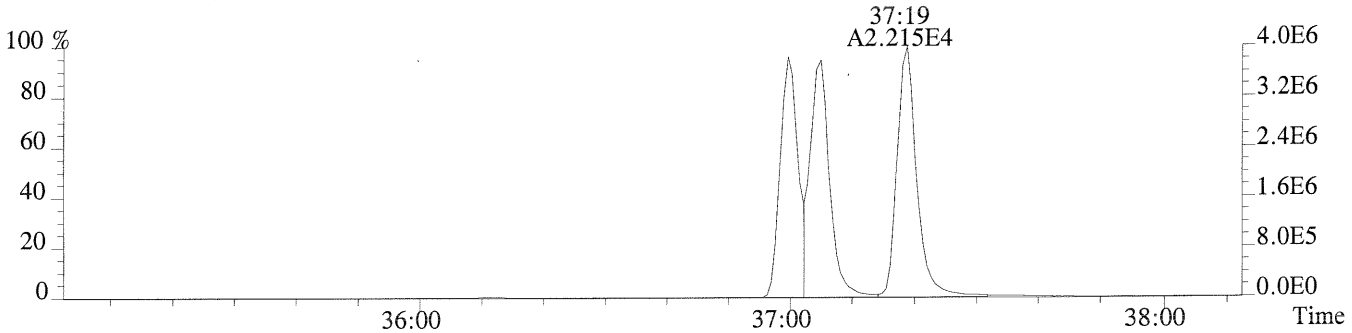
File:P229934 #1-288 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



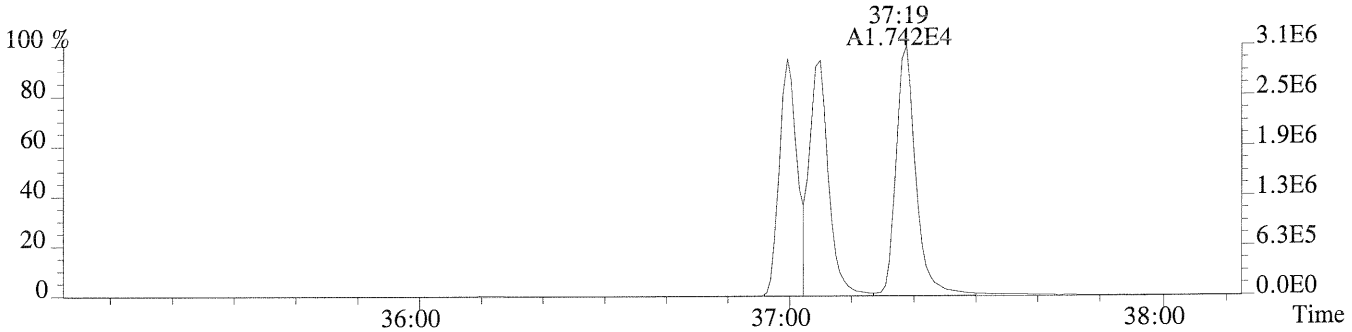
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



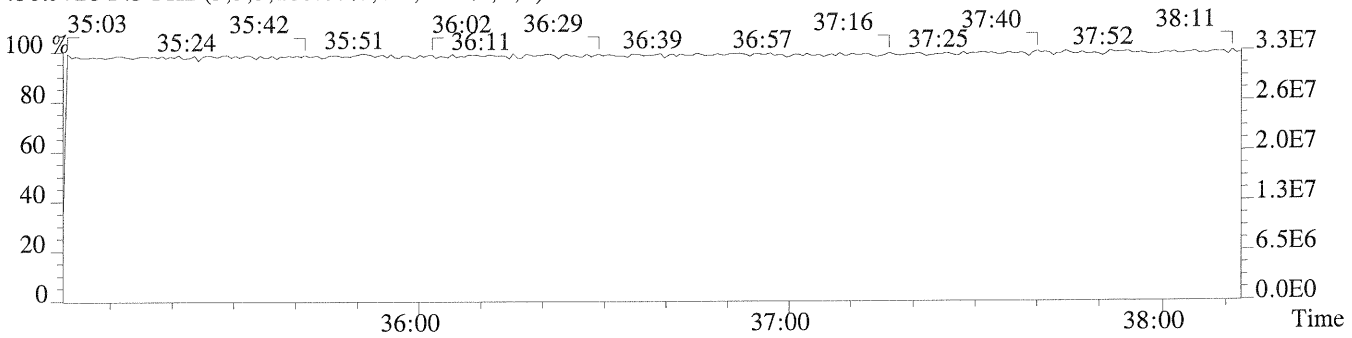
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)

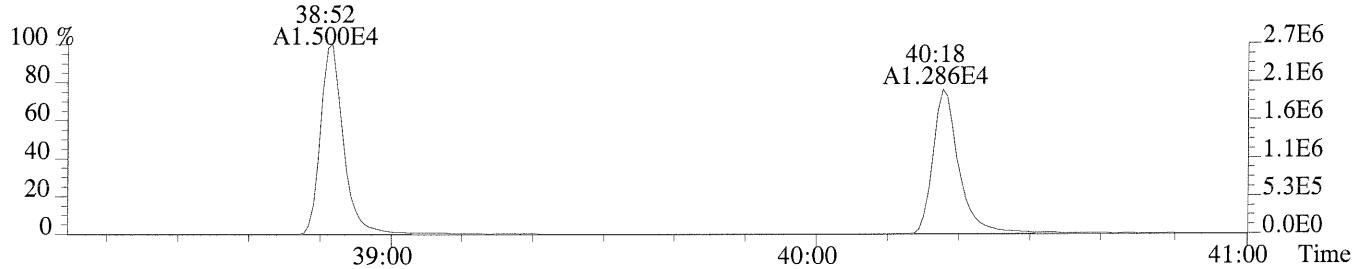


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

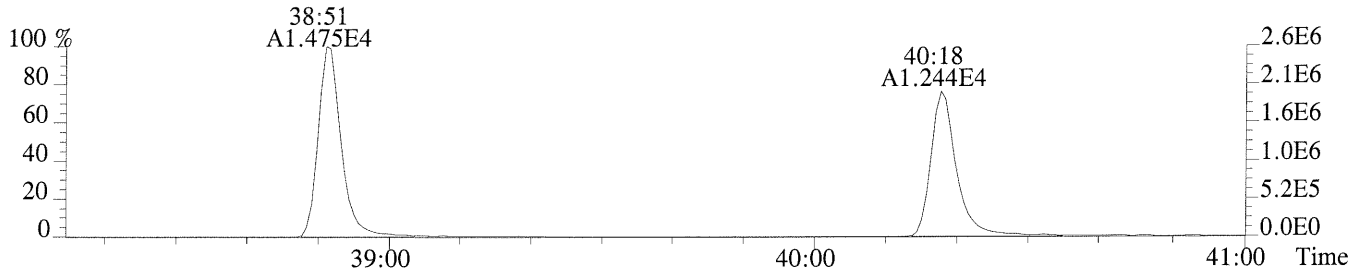


File:P229934 #1-251 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

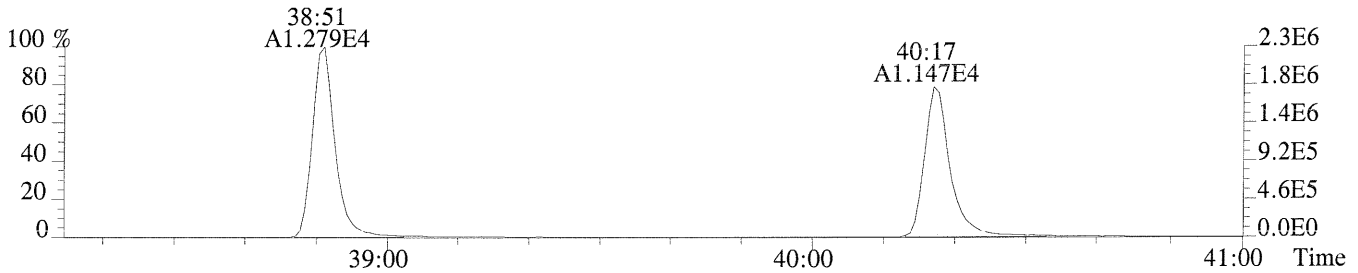
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1744.0,0.50%,F,T)



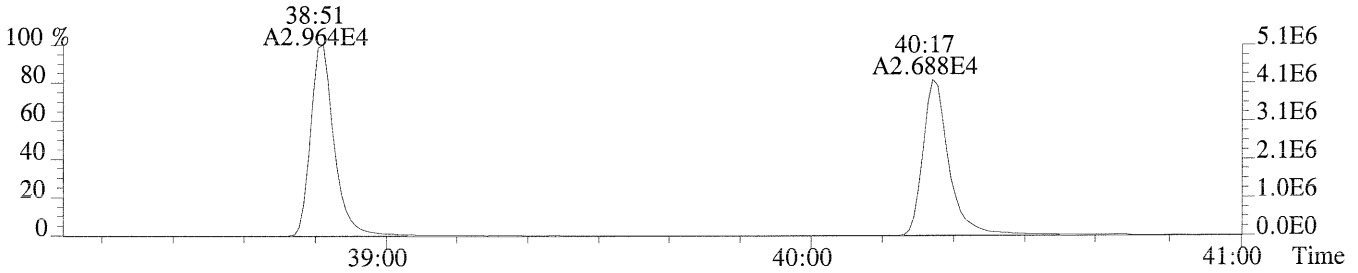
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.50%,F,T)



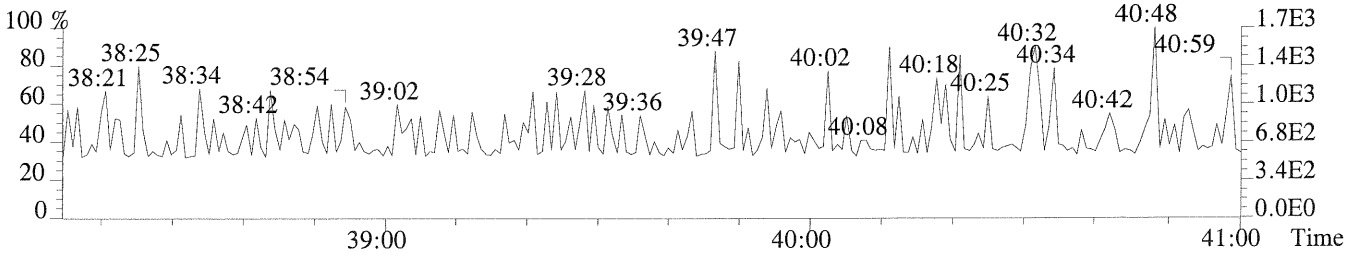
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.50%,F,T)



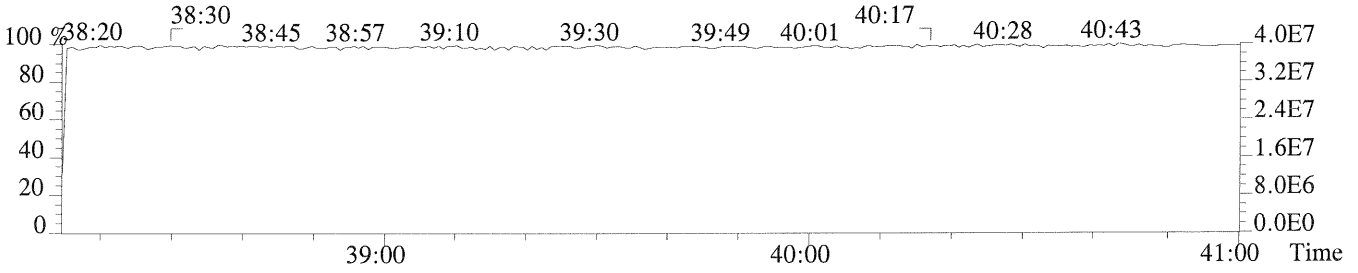
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3884.0,0.50%,F,T)



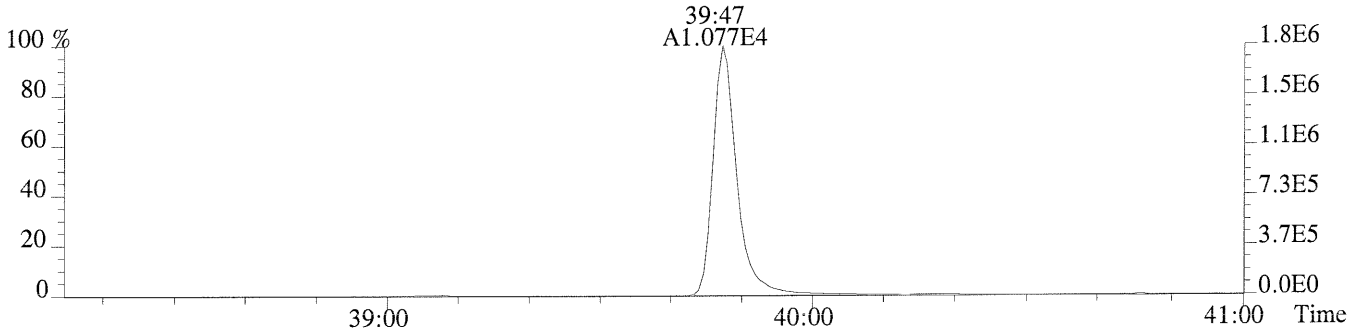
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



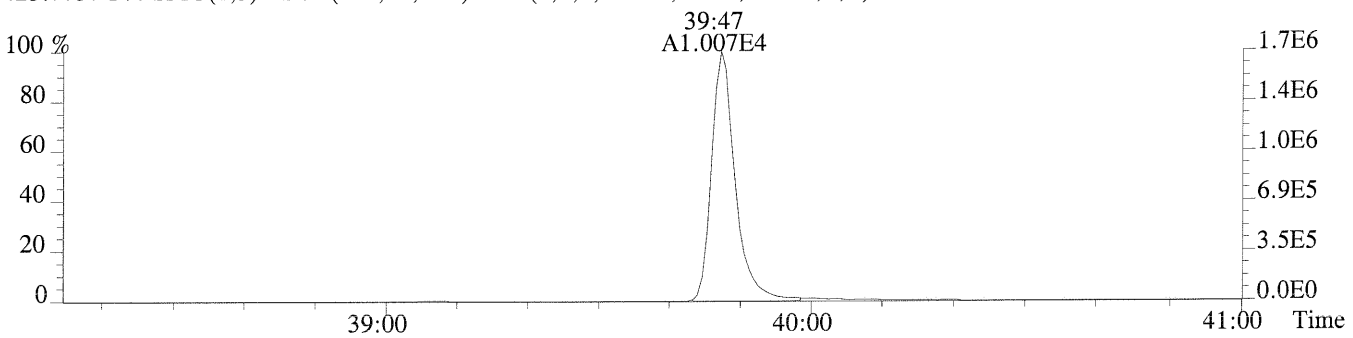
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



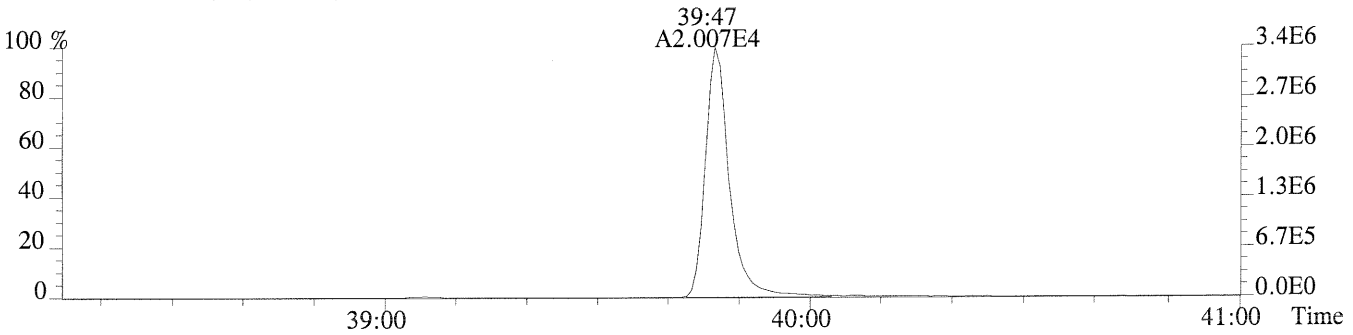
File:P229934 #1-251 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



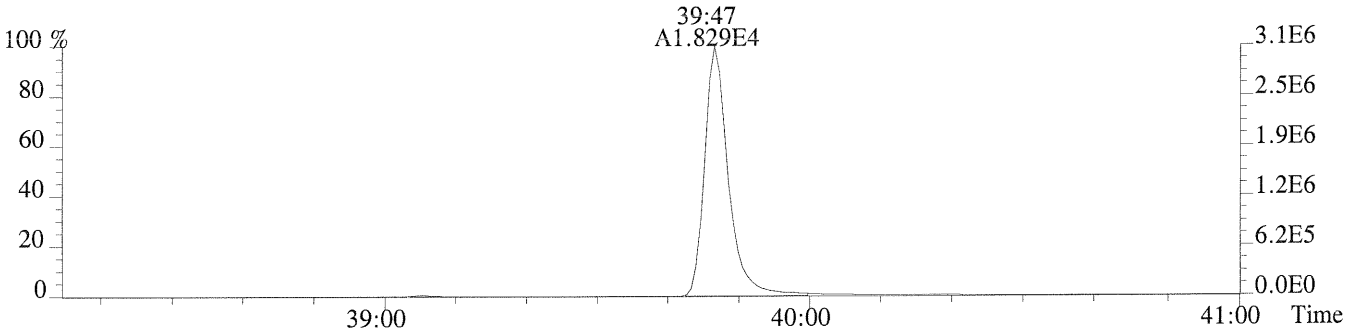
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,108.0,0.40%,F,T)



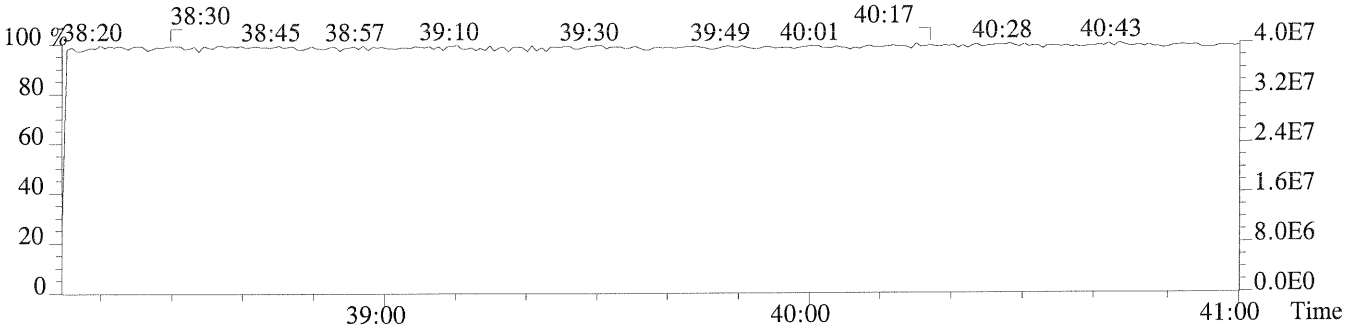
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



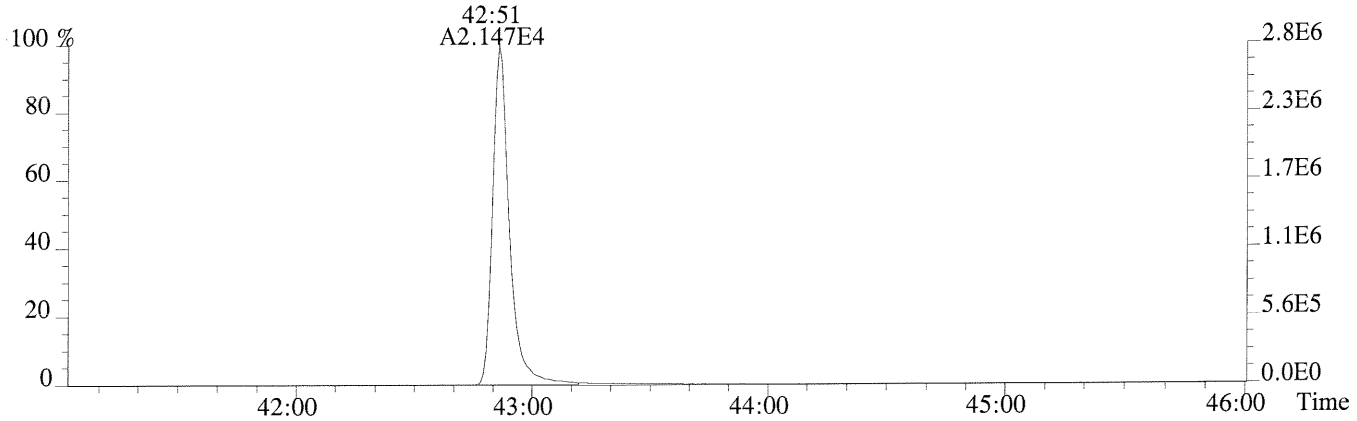
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



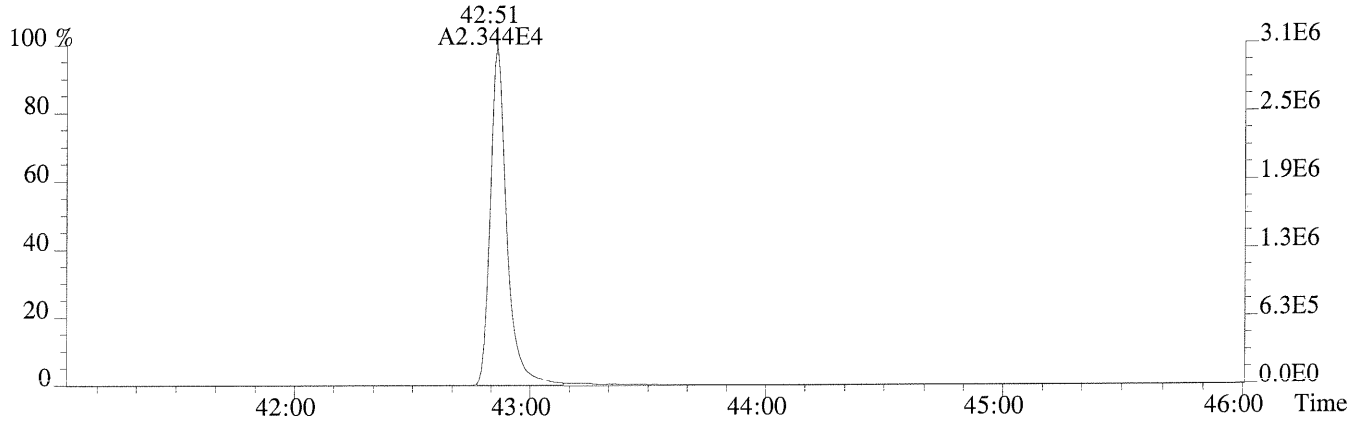
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



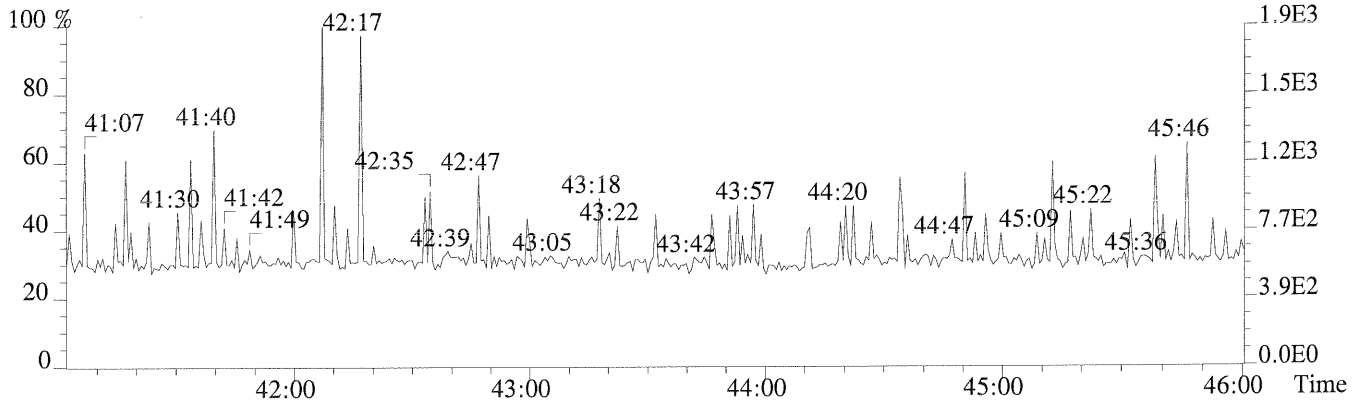
File:P229934 #1-457 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



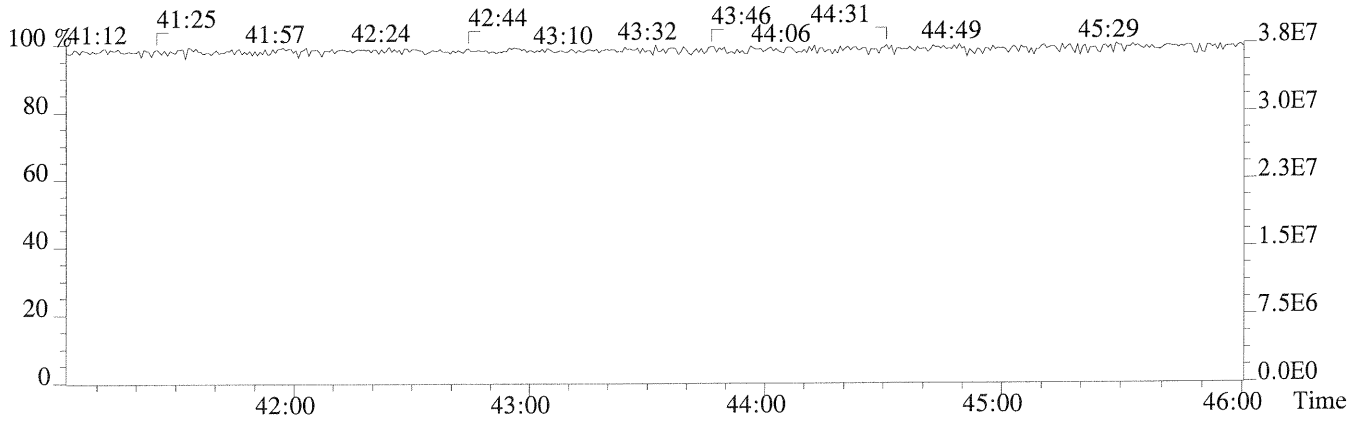
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



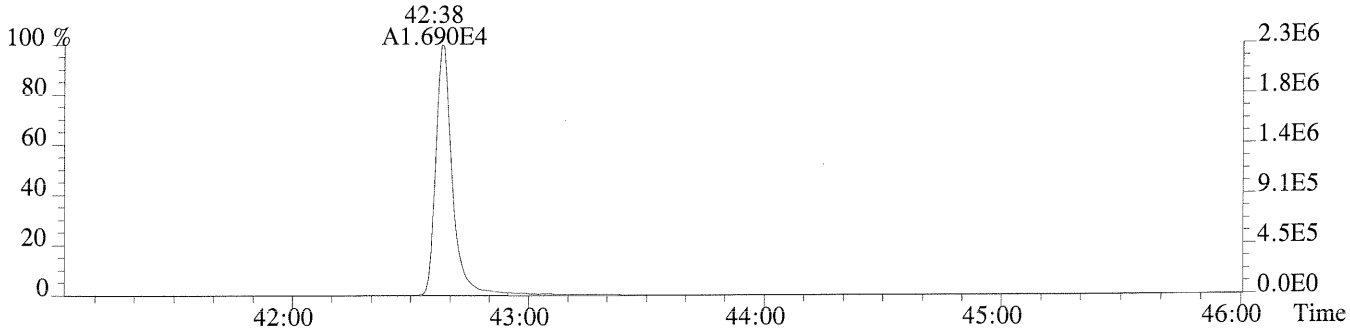
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



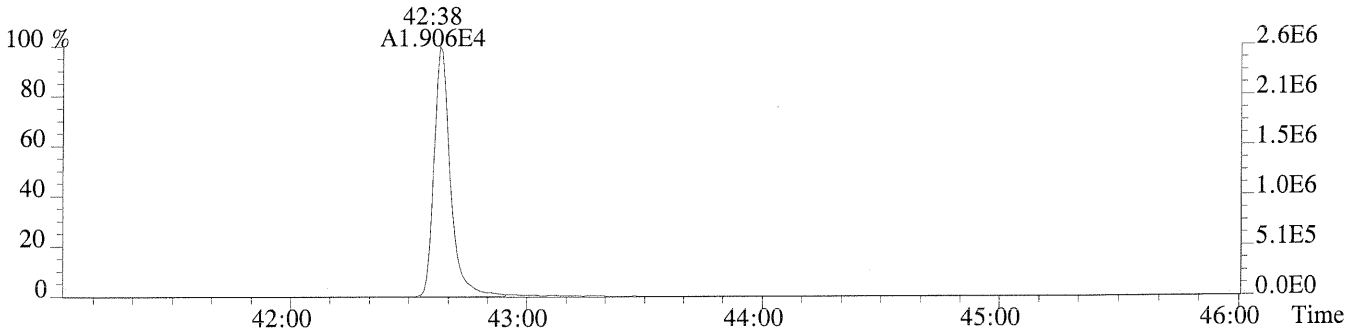
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



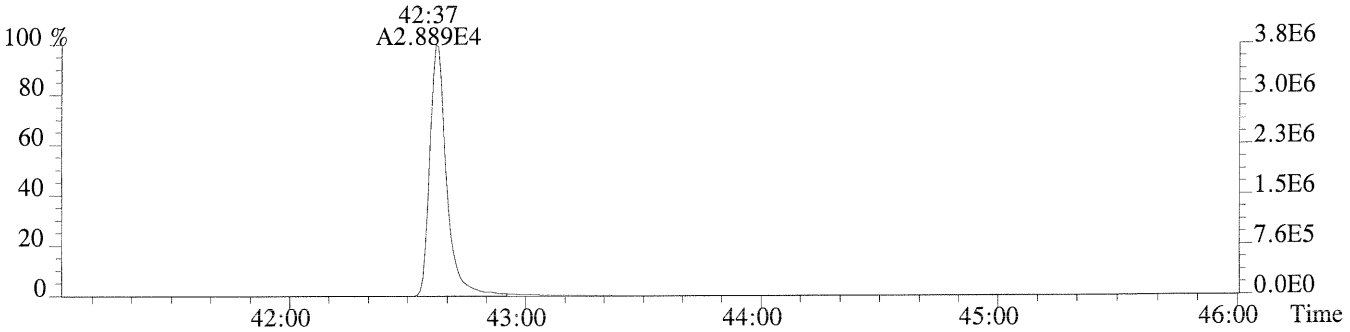
File:P229934 #1-457 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



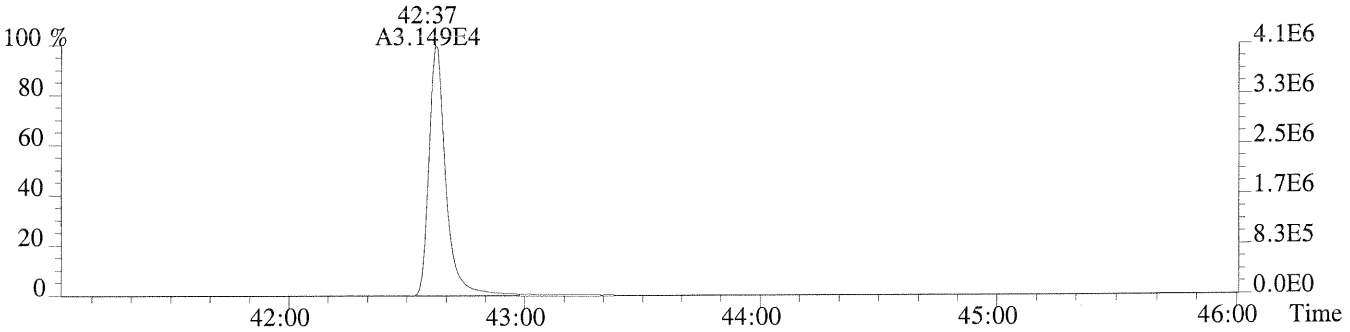
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,136.0,0.40%,F,T)



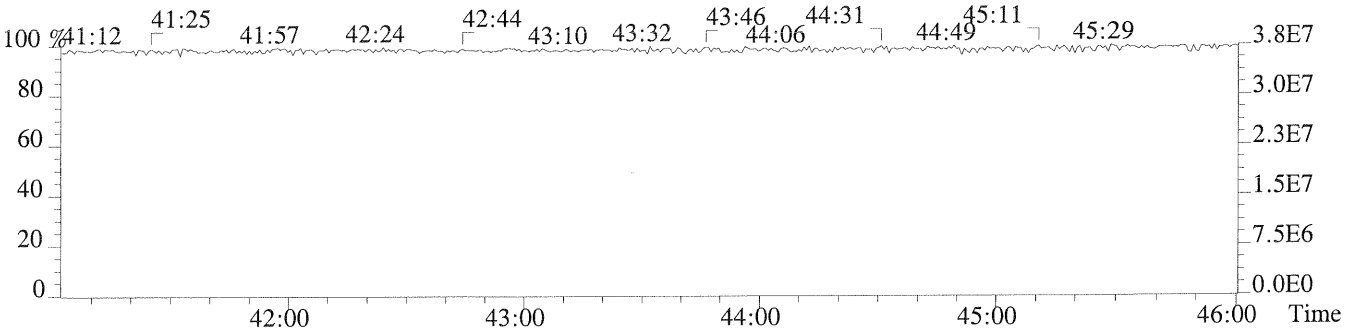
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,104.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: P229934-P229946 Circle one: Beginning / Ending

Date: 07/03/14

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	Use Avg ✓	Use Avg
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: [signature] Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Episode No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-04

Init. Calib. Date: 02/01/14

Init. Calib.Times: 15:24

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	P229935	3-JUL-14	02:56:05
66131	CCAL HRCC3/CS3	P229934	3-JUL-14	02:08:18
66131	CCAL HRCC3/CS3	P229946	3-JUL-14	12:48:14
METHOD BLANK	EQ1400344-01	P229936	3-JUL-14	03:43:51
1406151145 200-SB-5╗	R1404651-015	P229937	3-JUL-14	04:31:37
1406161404 200-SB-1╗	R1404651-016	P229938	3-JUL-14	05:19:25
1406161548 200-SB-1╗	R1404651-017	P229939	3-JUL-14	06:07:13
1406111503 200-SB-7╗	EQ1400342-03	P229940	3-JUL-14	06:55:00
1406111503 200-SB-7╗	EQ1400342-04	P229941	3-JUL-14	07:42:52
1406161548 200-SB-1╗	EQ1400342-05	P229942	3-JUL-14	08:30:45
1406161548 200-SB-1╗	EQ1400342-06	P229943	3-JUL-14	09:18:32
TEST	TEST	P229944	3-JUL-14	10:39:43
TEST	TEST	P229945	3-JUL-14	11:34:01

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2140703B.SPL
Last Modified: Thursday, July 03, 2014 15:02:26 Central Daylight Time
Printed: Thursday, July 03, 2014 15:03:17 Central Daylight Time

e: P229934cal e: P229934res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	07/03/14	02:08	P229934	CCAL HRCC3/CS3	66131	LL	HRMS check 15:11	8290CAS
2		02:56	P229935	WINDOW DEFINE	63680		HRMS Check 17:15	8290CAS
3		03:43	P229936	EQ1400344-01	MB			8290CAS
4		04:31	P229937	R1404651-015	R1404651-015			8290CAS
5		05:19	P229938	R1404651-016	R1404651-016			8290CAS
6		06:07	P229939	R1404651-017	R1404651-017			8290CAS
7		06:55	P229940	EQ1400342-03	MS			8290CAS
8		07:42	P229941	EQ1400342-04	DMS			8290CAS
9		08:30	P229942	EQ1400342-05	MS			8290CAS
10		09:18	P229943	EQ1400342-06	DMS		HRMS Check 10:30	8290CAS
11		10:39	P229944	TEST	TEST			8290CAS
12		11:34	P229945	TEST	TEST			8290CAS
13		12:48	P229946 *	CCAL HRCC3/CS3	66131		HRMS Check 13:43	8290CAS
14			---	---	---			8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19		* Use Average	---	---	---			8290CAS
20			---	---	---			8290CAS
21			---	---	---			8290CAS
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			TCDFCAS
29			---	---	---			TCDFCAS
30			---	---	---			8290CAS
31	---	---	---	---	---	---	---	8290CAS
32	---	---	---	---	REVIEWED BY:	---	---	8290CAS
33	---	---	---	---	---	---	---	8290CAS
34	---	---	---	---	---	---	---	8290CAS
35	---	---	---	---	---	---	---	TCDFCAS
36	---	---	---	---	---	---	---	TCDFCAS
37	---	---	---	---	---	---	---	TCDFCAS
38	---	---	---	---	---	---	---	---
39	---	---	---	---	---	---	---	8290CAS

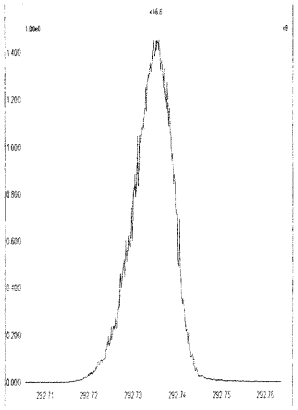
JC 07/07/14

008

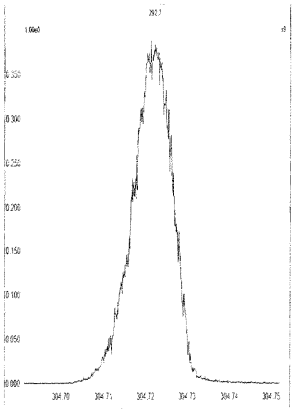
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 15:11:20 Central Daylight Time

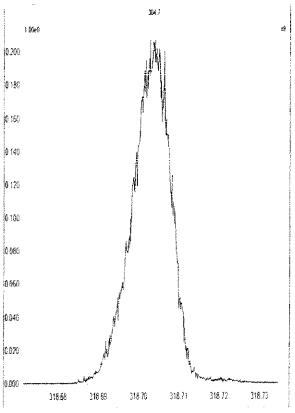
M 292.9824 R 13516



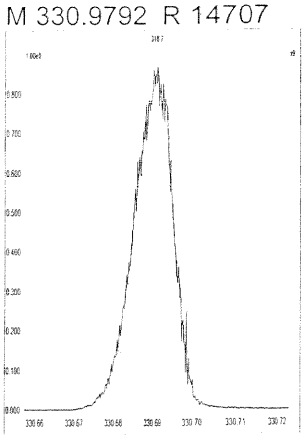
M 304.9824 R 13736



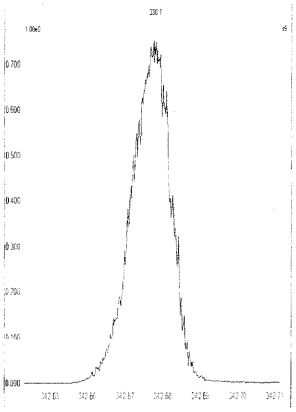
M 318.9792 R 14128



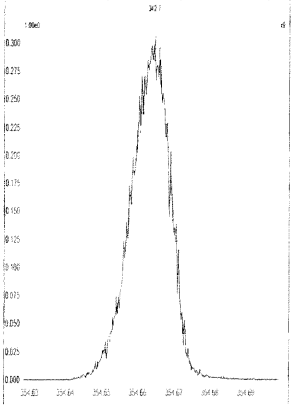
M 330.9792 R 14707



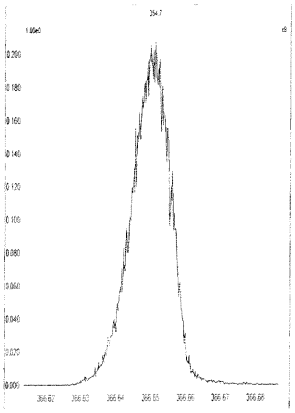
M 342.9792 R 14203



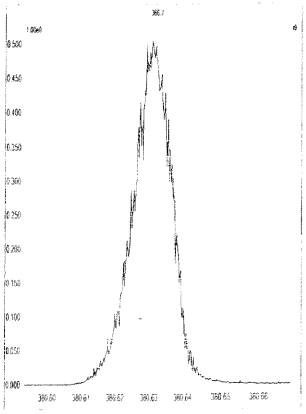
M 354.9792 R 13663



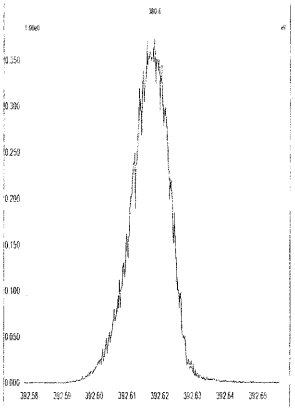
M 366.9792 R 14044



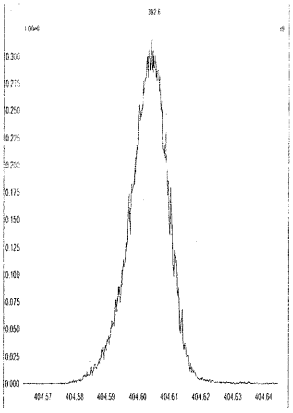
M 380.9760 R 14042



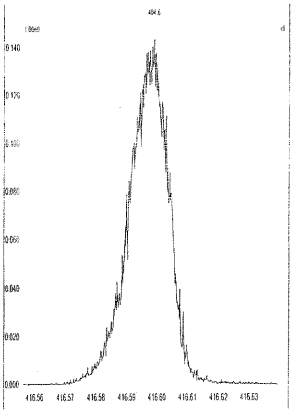
M 392.9760 R 13812



M 404.9760 R 13734



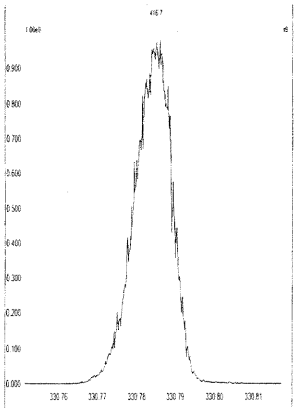
M 416.9760 R 13587



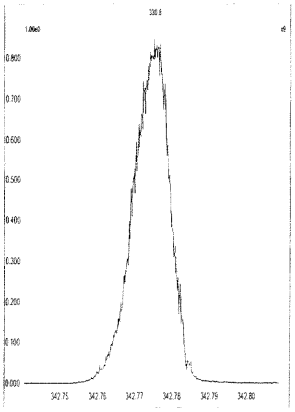
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 15:12:31 Central Daylight Time

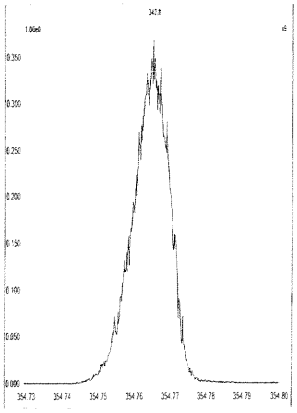
M 330.9792 R 14968



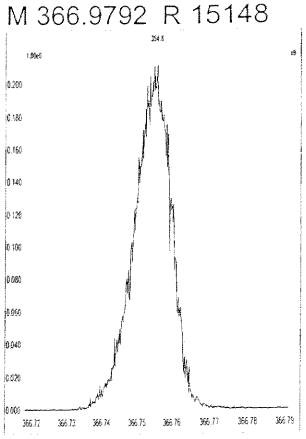
M 342.9792 R 15530



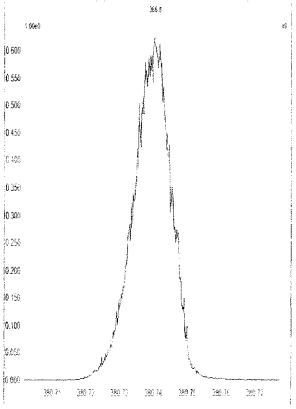
M 354.9792 R 14619



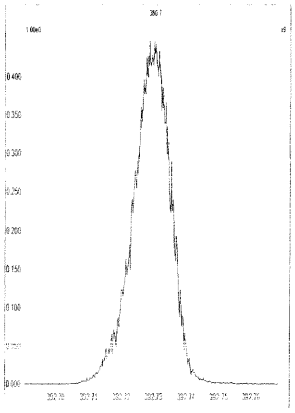
M 366.9792 R 15148



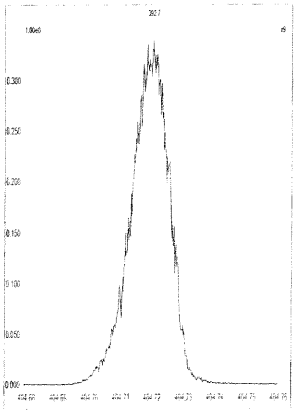
M 380.9760 R 14707



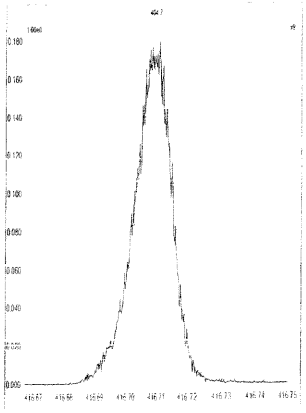
M 392.9760 R 14049



M 404.9760 R 14531



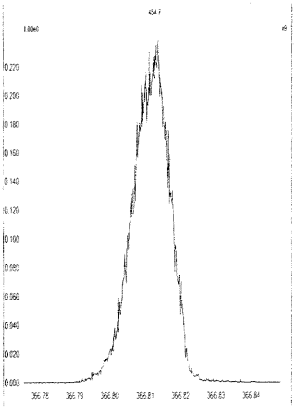
M 416.9760 R 14367



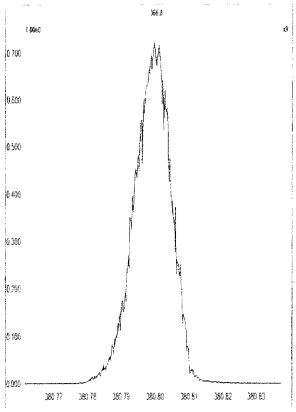
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 15:13:24 Central Daylight Time

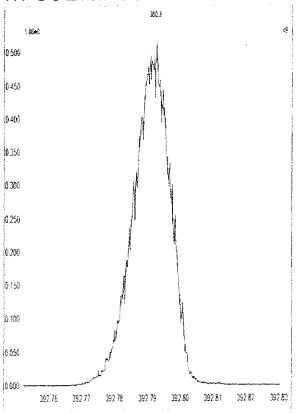
M 366.9792 R 14798



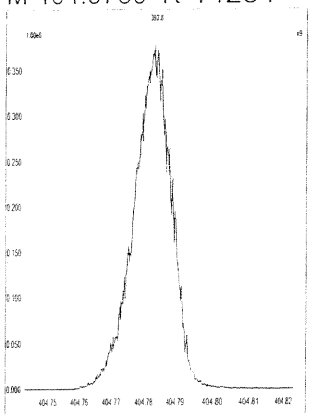
M 380.9760 R 15429



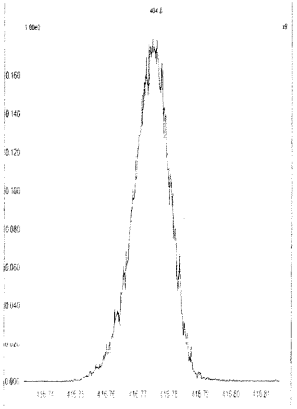
M 392.9760 R 15338



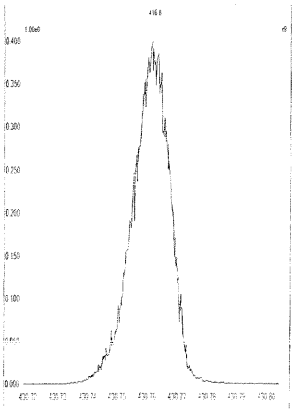
M 404.9760 R 14284



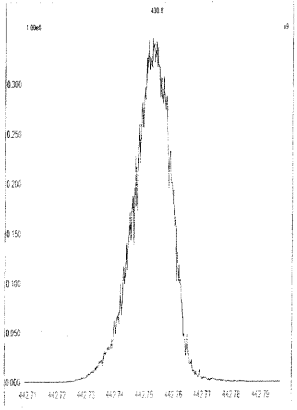
M 416.9760 R 14364



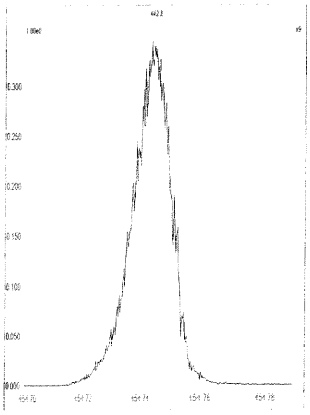
M 430.9728 R 14970



M 442.9728 R 14537



M 454.9728 R 14125

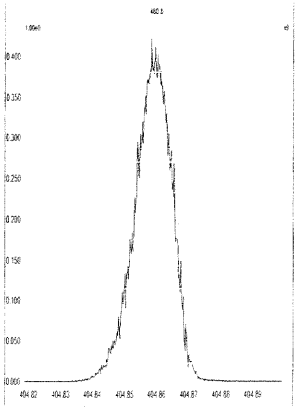


Experiment Calibration Report **MassLynx 4.1**

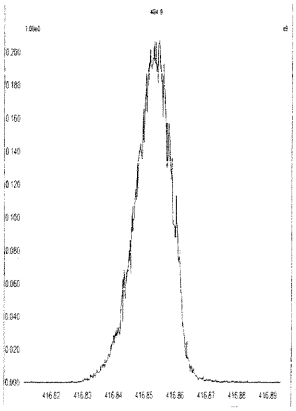
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 15:14:16 Central Daylight Time

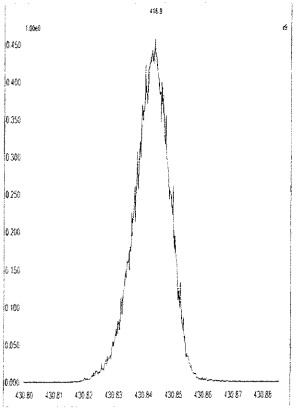
M 404.9760 R 16130



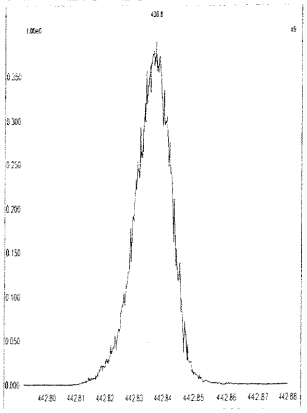
M 416.9760 R 15059



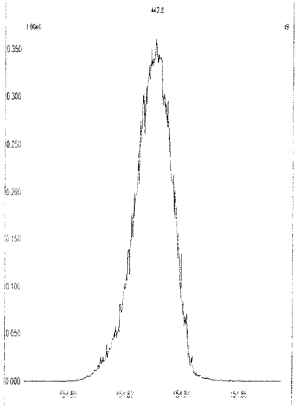
M 430.9728 R 14883



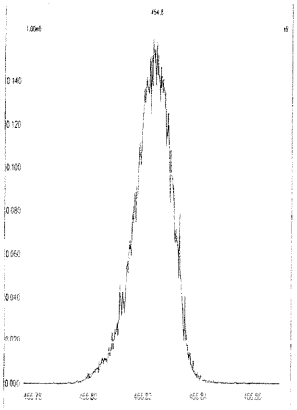
M 442.9728 R 14701



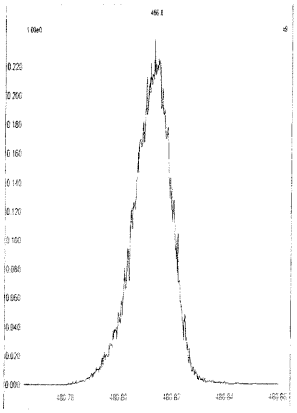
M 454.9728 R 14366



M 466.9728 R 13885



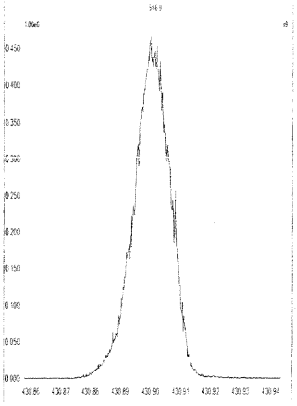
M 480.9696 R 14045



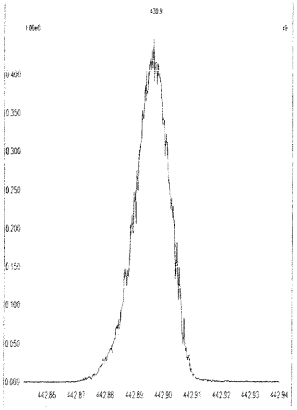
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 15:15:09 Central Daylight Time

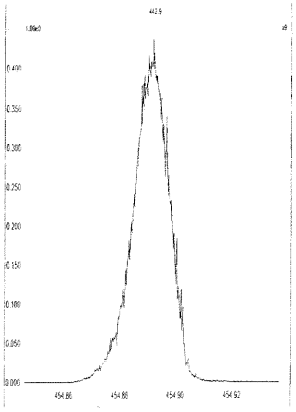
M 430.9728 R 14880



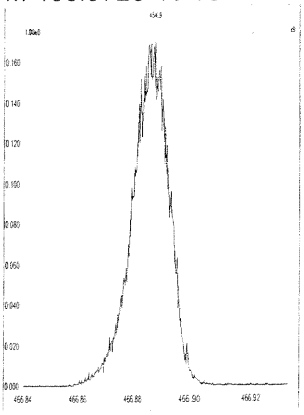
M 442.9728 R 14448



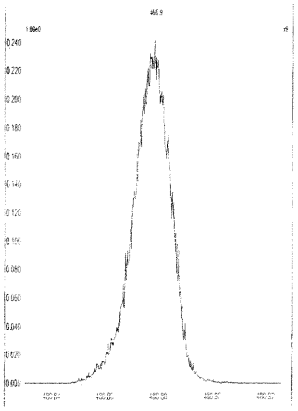
M 454.9728 R 14620



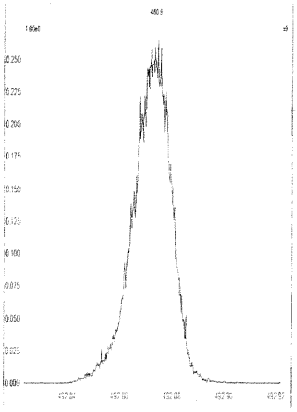
M 466.9728 R 15150



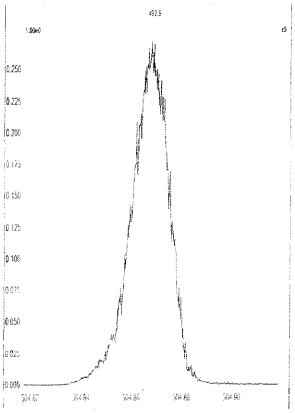
M 480.9696 R 14369



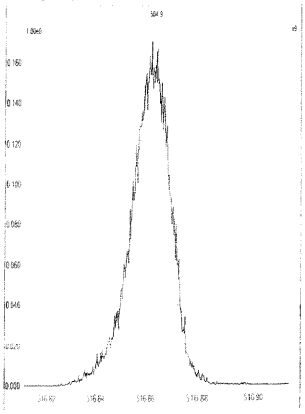
M 492.9696 R 13812



M 504.9696 R 14122



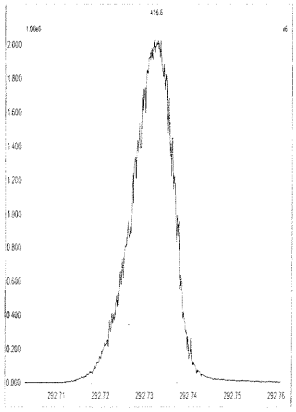
M 516.9697 R 13018



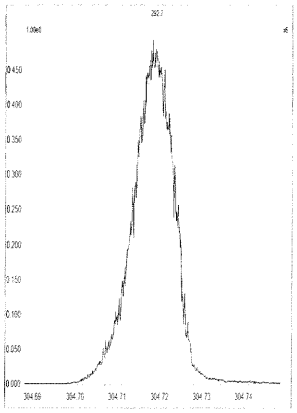
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:15:02 Central Daylight Time

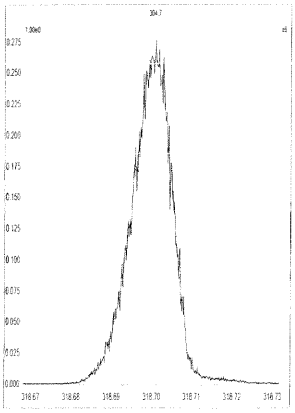
M 292.9824 R 12889



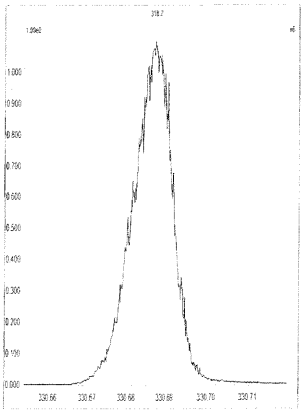
M 304.9824 R 13020



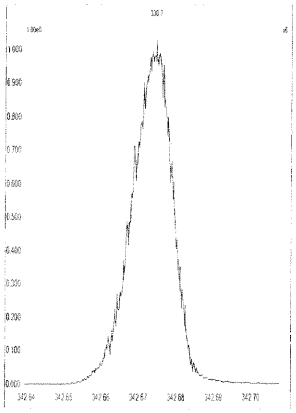
M 318.9792 R 13963



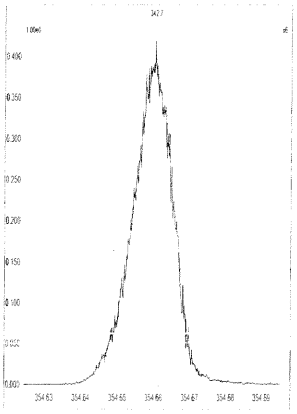
M 330.9792 R 13737



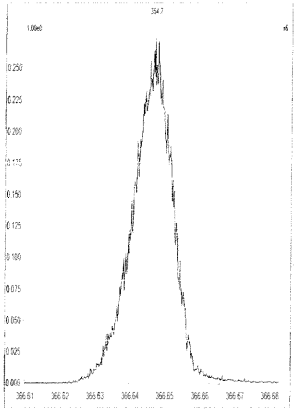
M 342.9792 R 13816



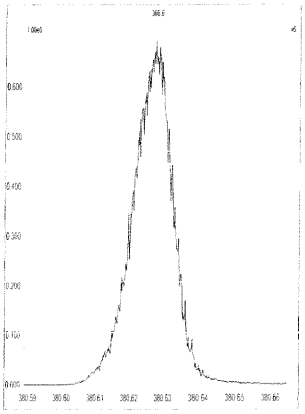
M 354.9792 R 12888



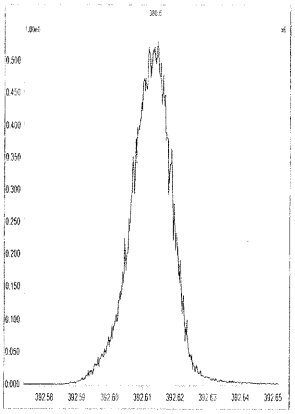
M 366.9792 R 13157



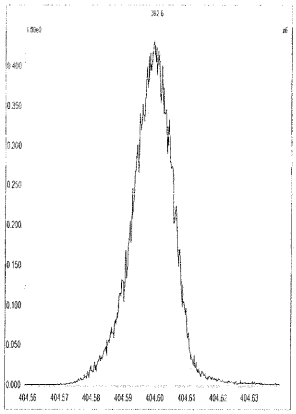
M 380.9760 R 13584



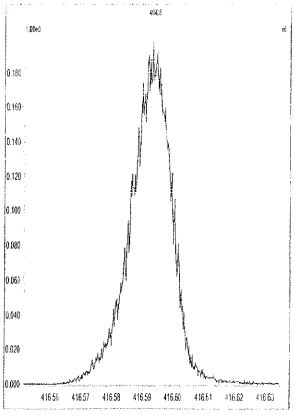
M 392.9760 R 12820



M 404.9760 R 12818



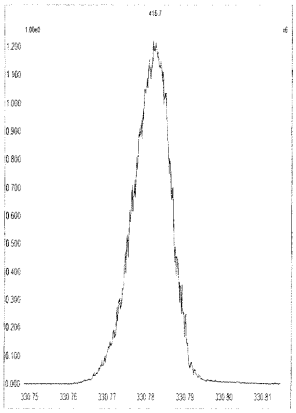
M 416.9760 R 12316



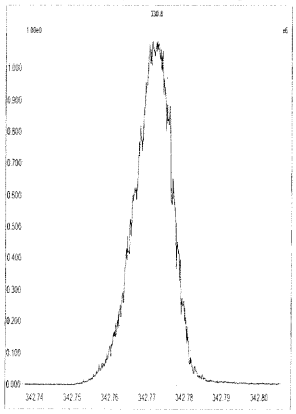
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:16:10 Central Daylight Time

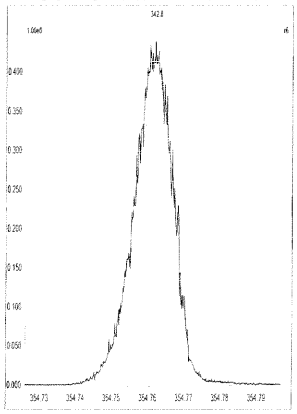
M 330.9792 R 13810



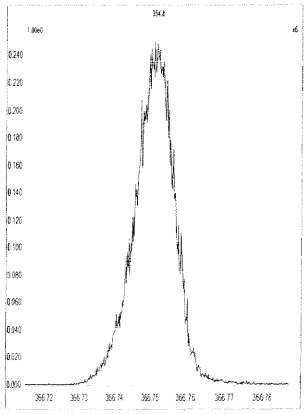
M 342.9792 R 14281



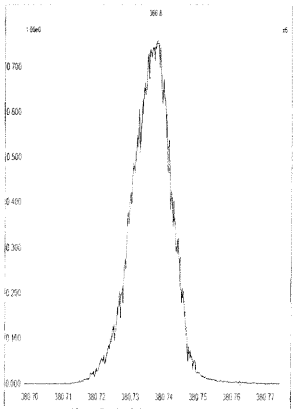
M 354.9792 R 13586



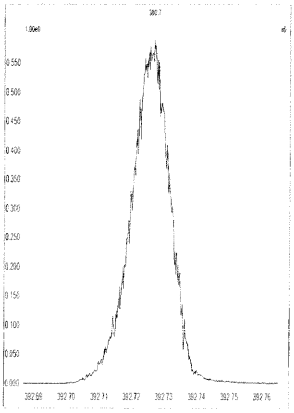
M 366.9792 R 13584



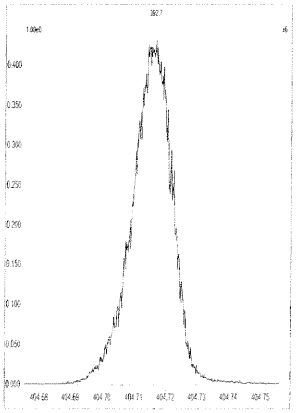
M 380.9760 R 13662



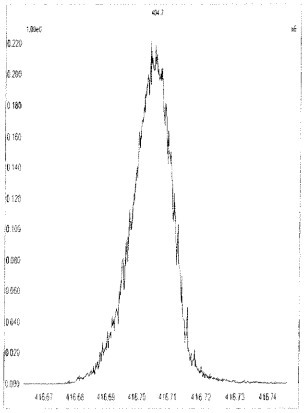
M 392.9760 R 13512



M 404.9760 R 13588



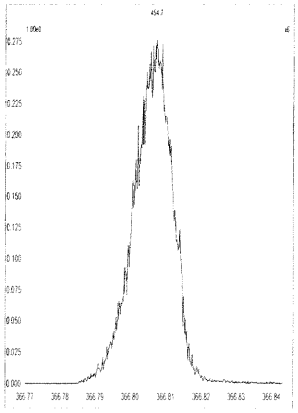
M 416.9760 R 13297



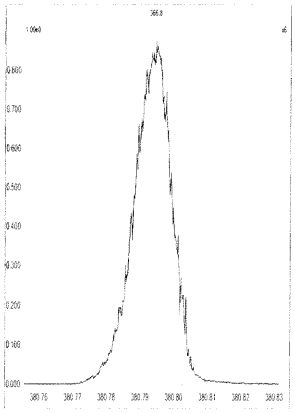
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:17:19 Central Daylight Time

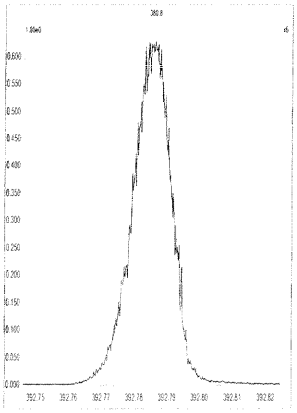
M 366.9792 R 14450



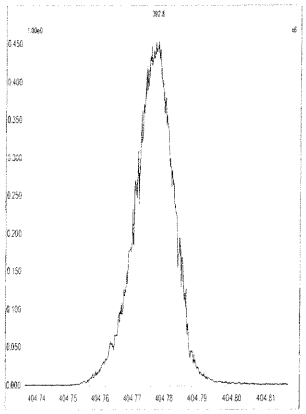
M 380.9760 R 13886



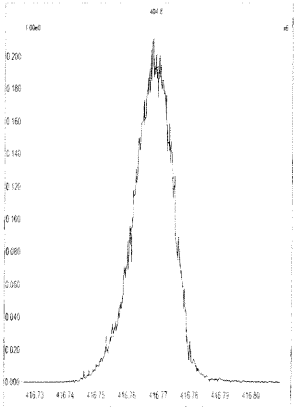
M 392.9760 R 14205



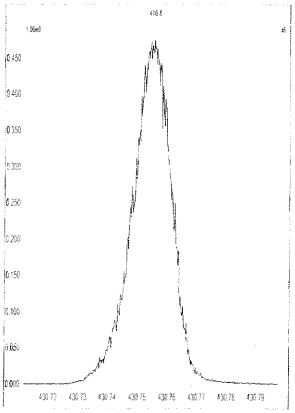
M 404.9760 R 13585



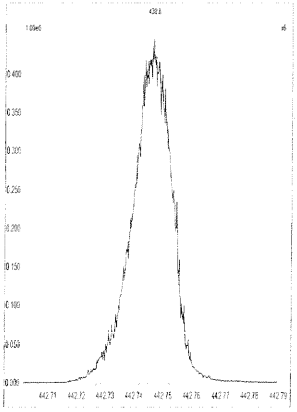
M 416.9760 R 13294



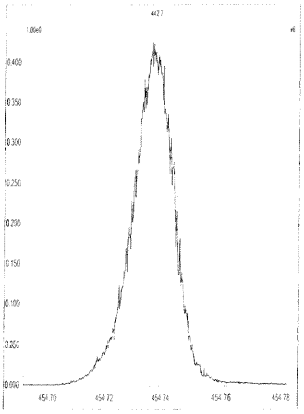
M 430.9728 R 13513



M 442.9728 R 13295



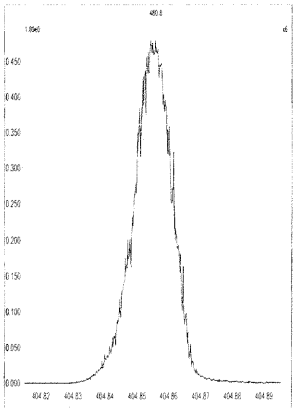
M 454.9728 R 12438



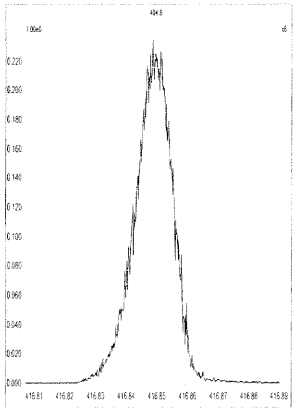
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:18:34 Central Daylight Time

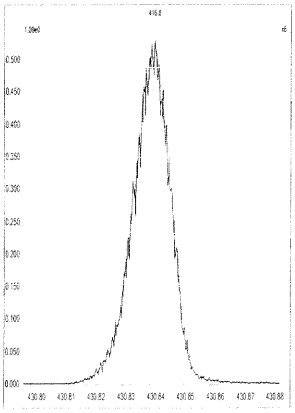
M 404.9760 R 14794



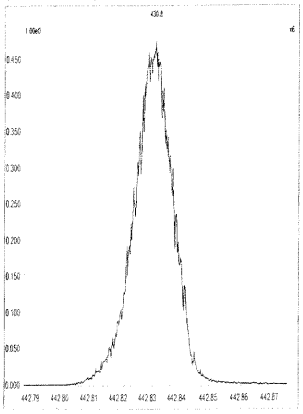
M 416.9760 R 14455



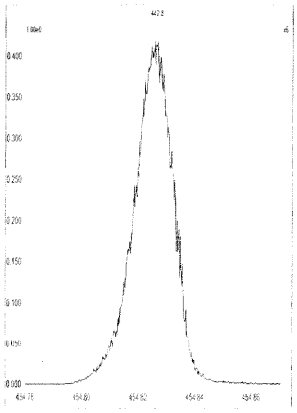
M 430.9728 R 14617



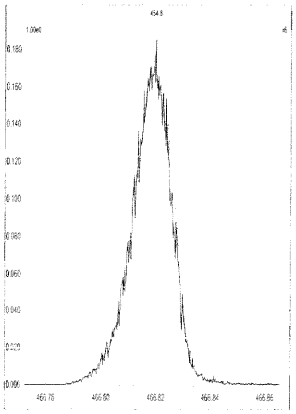
M 442.9728 R 13967



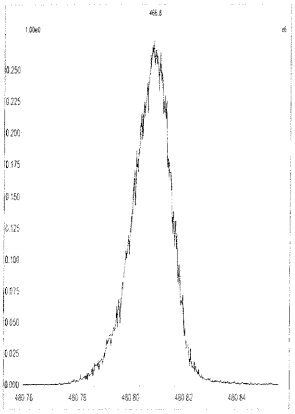
M 454.9728 R 13444



M 466.9728 R 13370



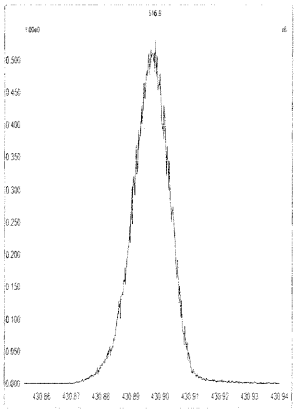
M 480.9696 R 13586



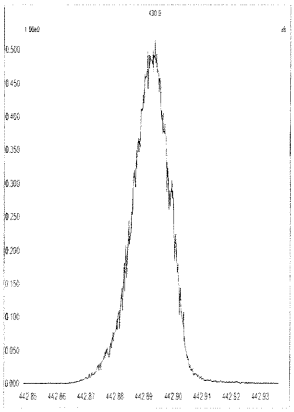
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:19:48 Central Daylight Time

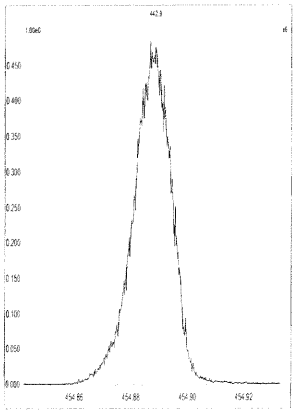
M 430.9728 R 14450



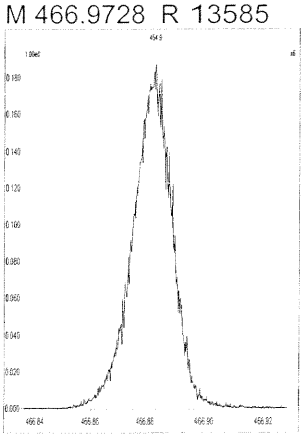
M 442.9728 R 14622



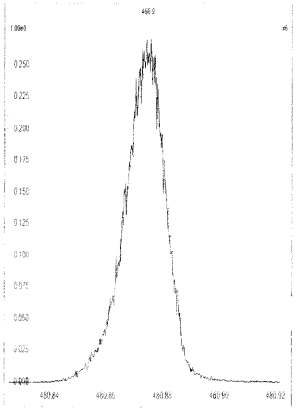
M 454.9728 R 14124



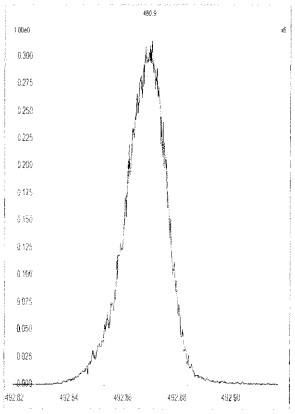
M 466.9728 R 13585



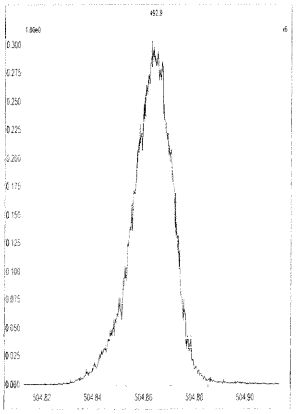
M 480.9696 R 13299



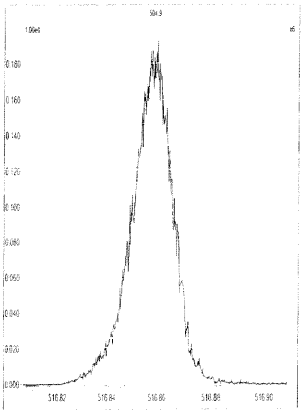
M 492.9696 R 12820



M 504.9696 R 13156



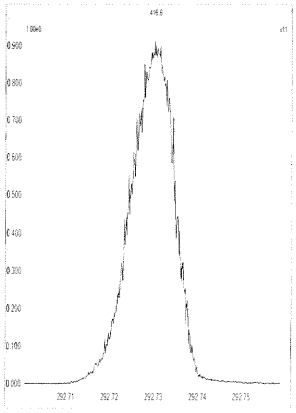
M 516.9697 R 12133



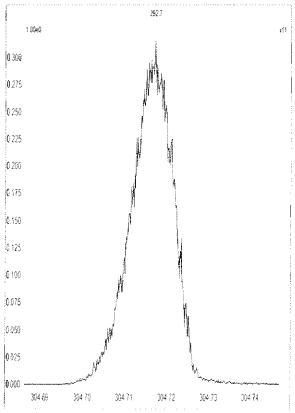
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, July 03, 2014 10:30:26 Central Daylight Time

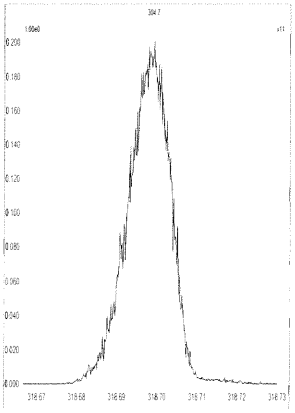
M 292.9824 R 12751



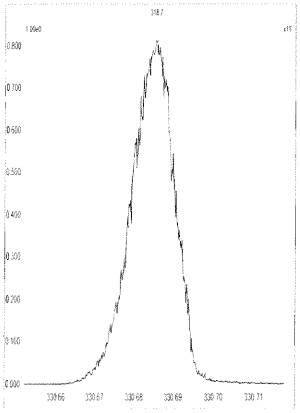
M 304.9824 R 13368



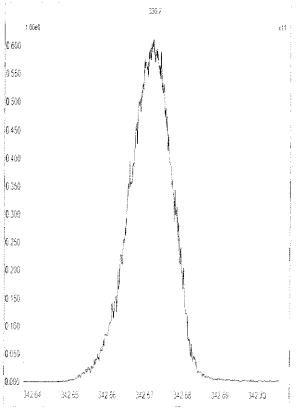
M 318.9792 R 13511



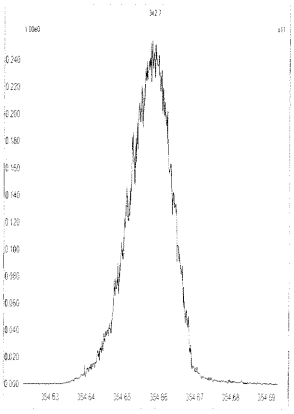
M 330.9792 R 13021



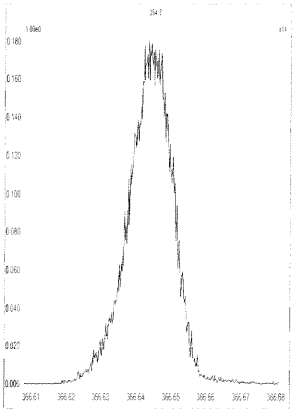
M 342.9792 R 12498



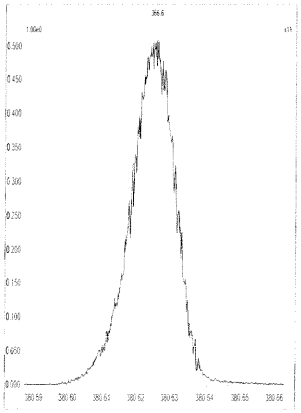
M 354.9792 R 13223



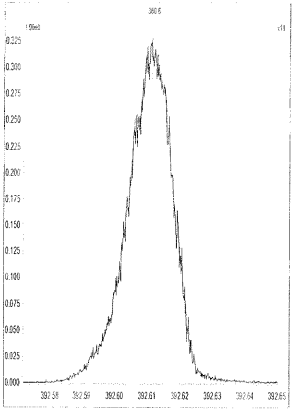
M 366.9792 R 12076



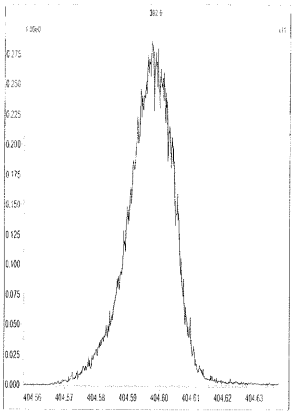
M 380.9760 R 12257



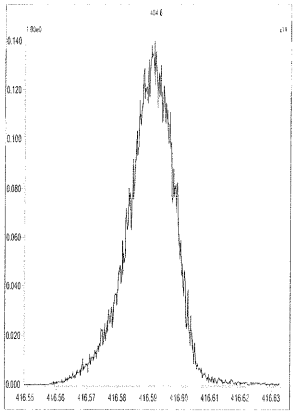
M 392.9760 R 11904



M 404.9760 R 12079



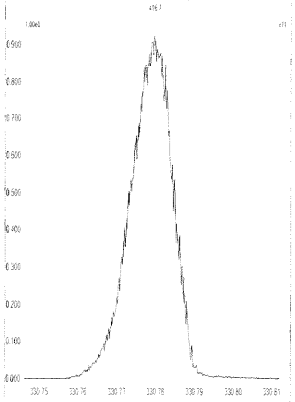
M 416.9760 R 11574



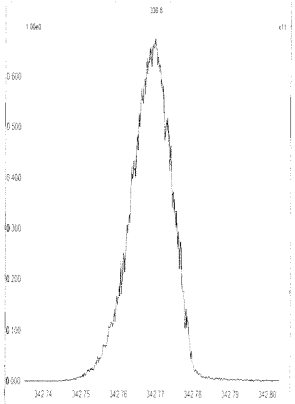
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, July 03, 2014 10:31:58 Central Daylight Time

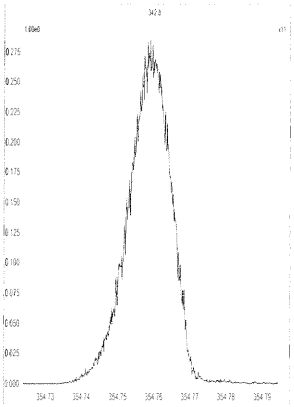
M 330.9792 R 13367



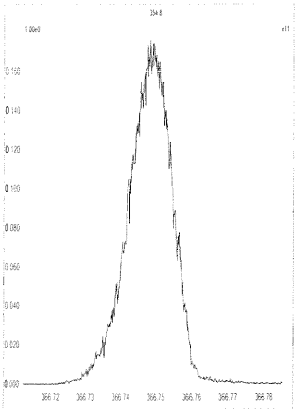
M 342.9792 R 12888



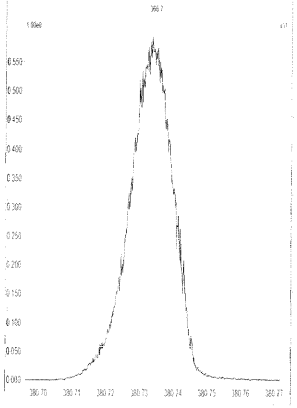
M 354.9792 R 12953



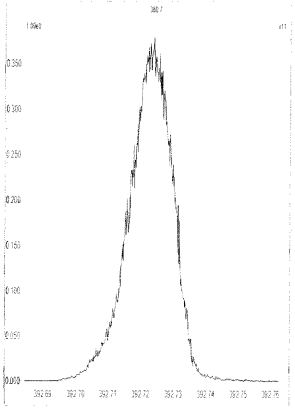
M 366.9792 R 12889



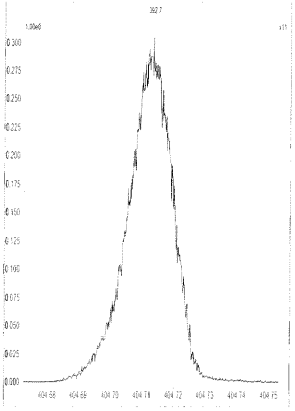
M 380.9760 R 12311



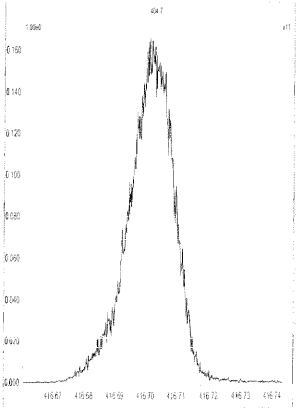
M 392.9760 R 12313



M 404.9760 R 11624



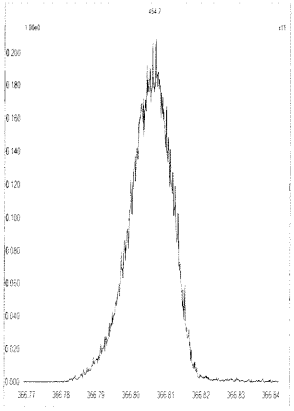
M 416.9760 R 11791



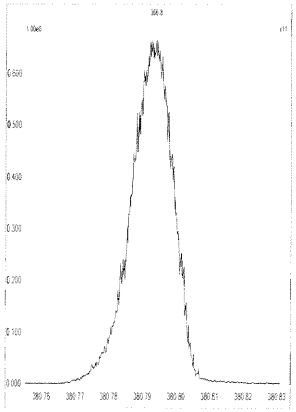
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, July 03, 2014 10:33:16 Central Daylight Time

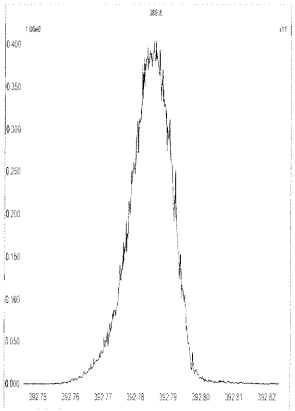
M 366.9792 R 12562



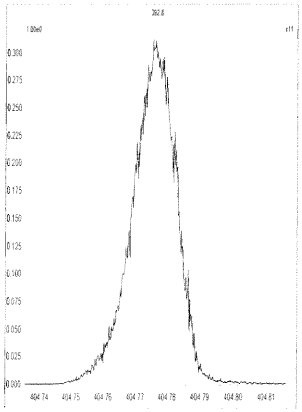
M 380.9760 R 13371



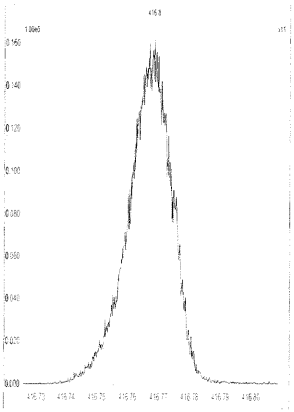
M 392.9760 R 12882



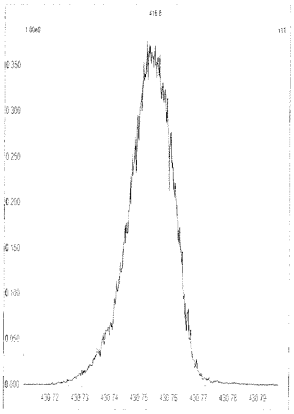
M 404.9760 R 12566



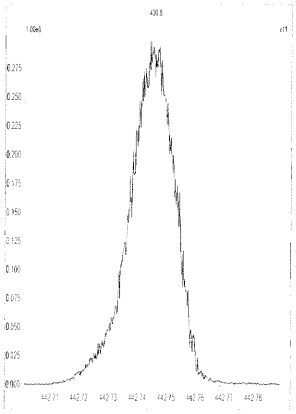
M 416.9760 R 12256



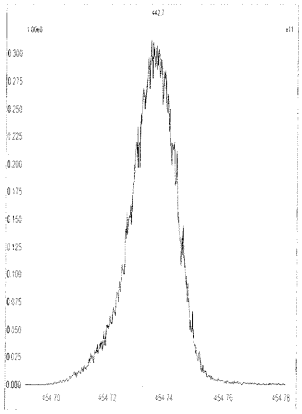
M 430.9728 R 11682



M 442.9728 R 11739



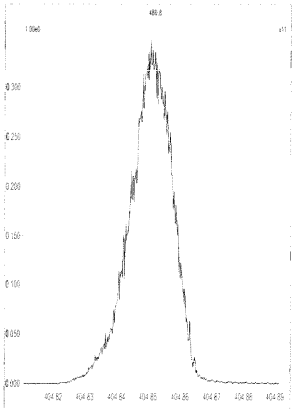
M 454.9728 R 11412



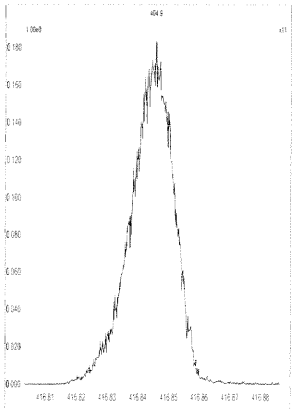
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, July 03, 2014 10:34:12 Central Daylight Time

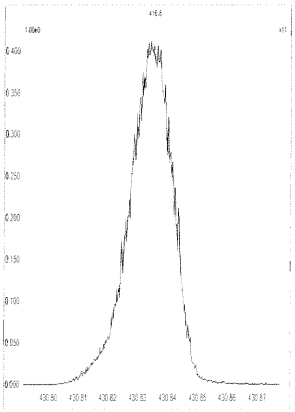
M 404.9760 R 12501



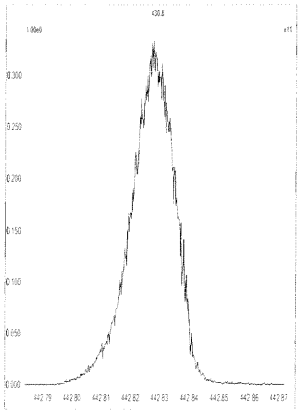
M 416.9760 R 12314



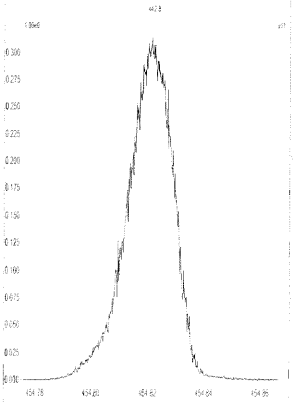
M 430.9728 R 12257



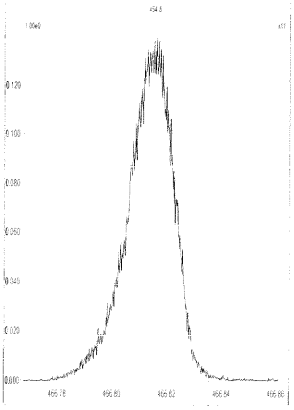
M 442.9728 R 12315



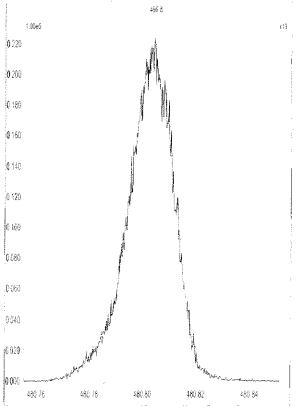
M 454.9728 R 11626



M 466.9728 R 11262



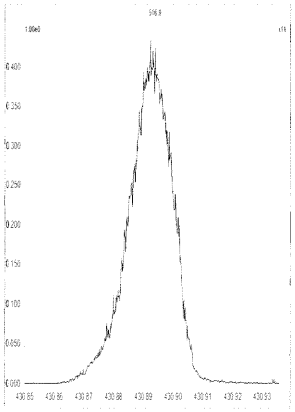
M 480.9696 R 11210



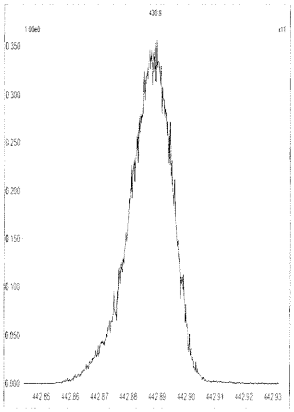
File: Experiment: 8290DB5MSUIF1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, July 03, 2014 10:35:15 Central Daylight Time

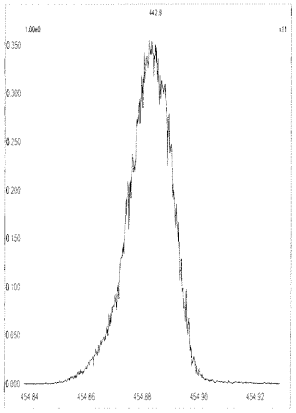
M 430.9728 R 12018



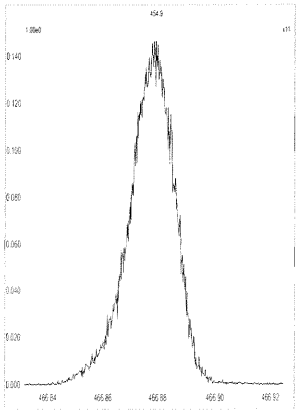
M 442.9728 R 12317



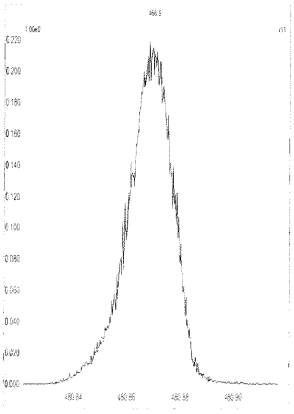
M 454.9728 R 11848



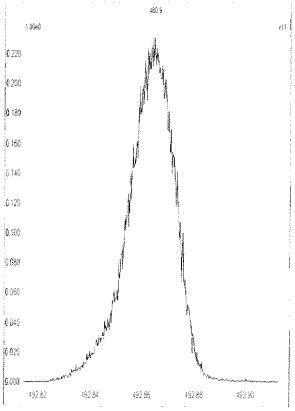
M 466.9728 R 12193



M 480.9696 R 11208



M 492.9696 R 10917



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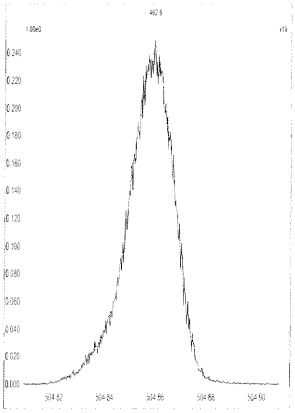

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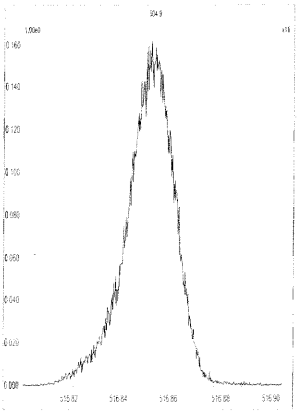

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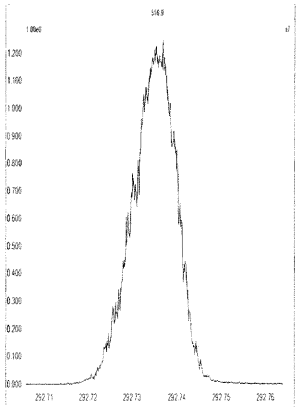

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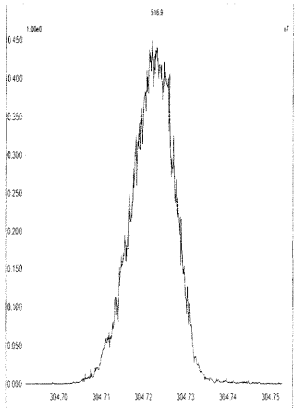

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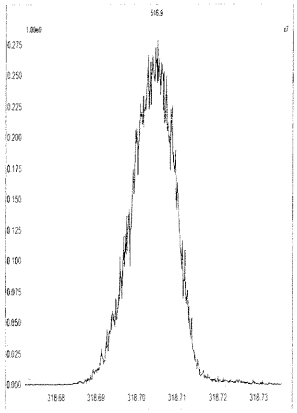

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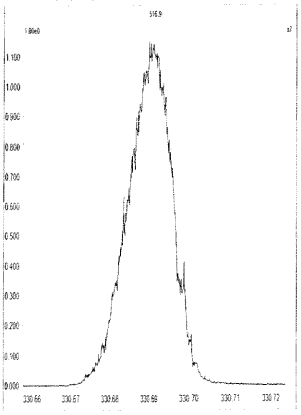

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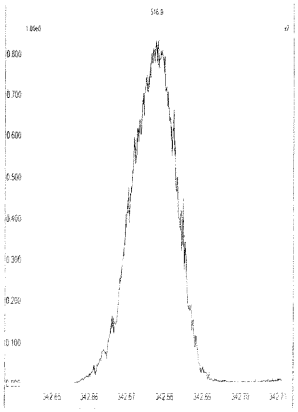

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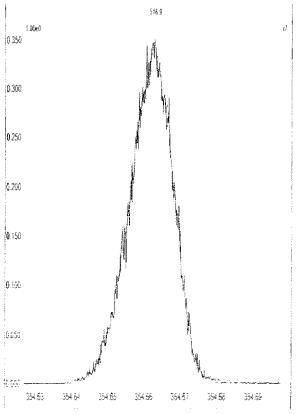

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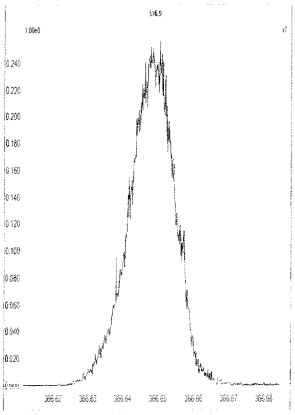

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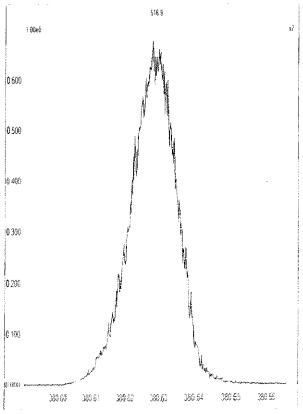

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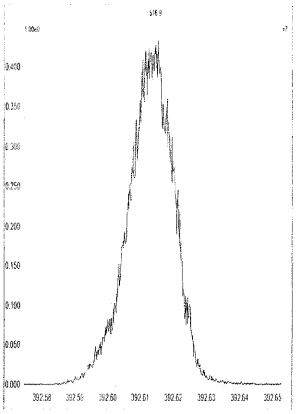

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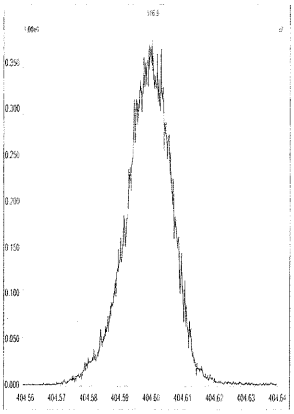

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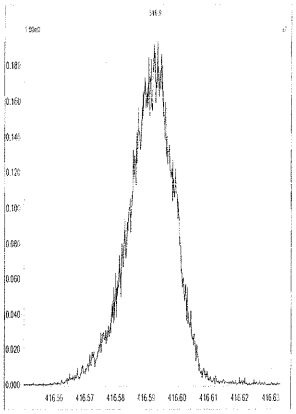

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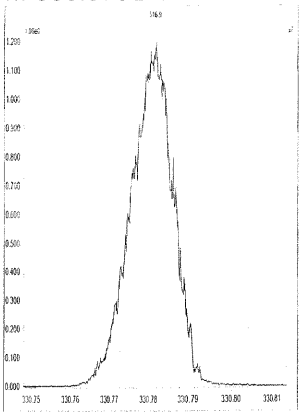

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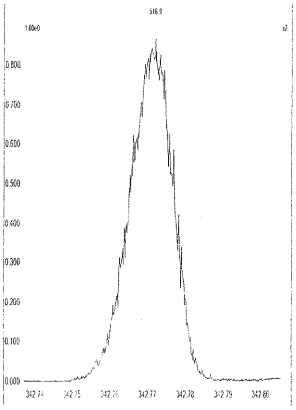

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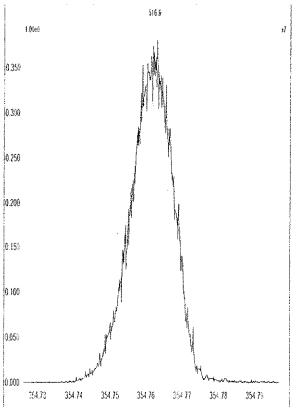

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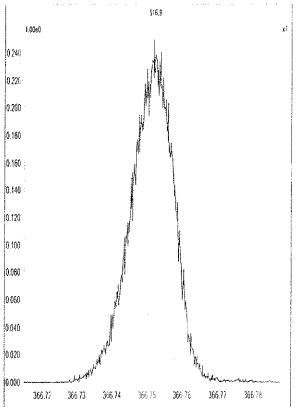

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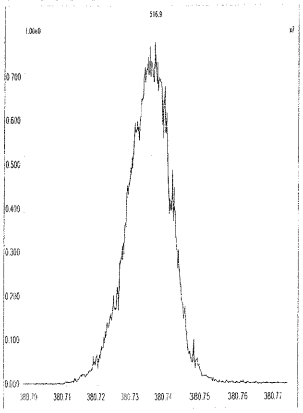

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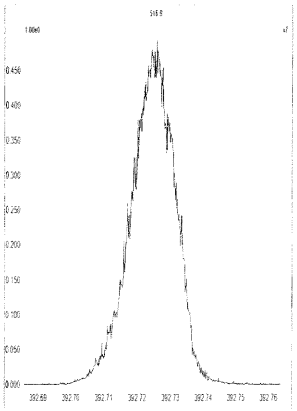

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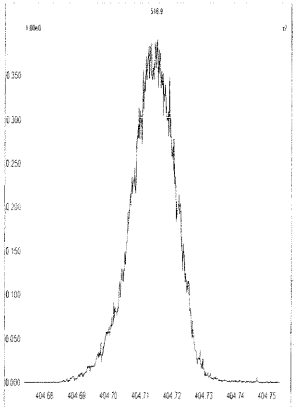

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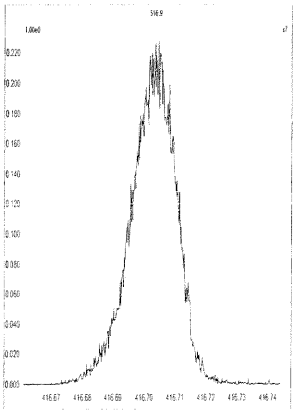

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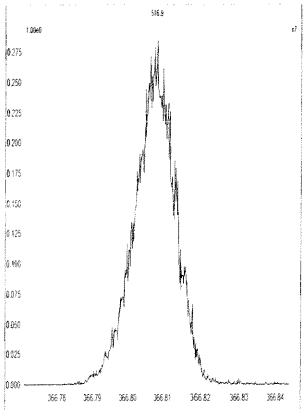

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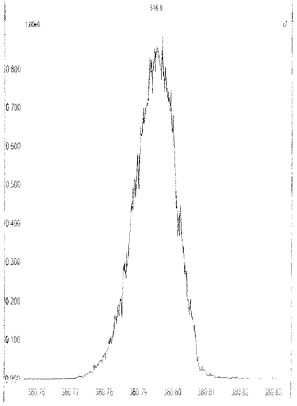

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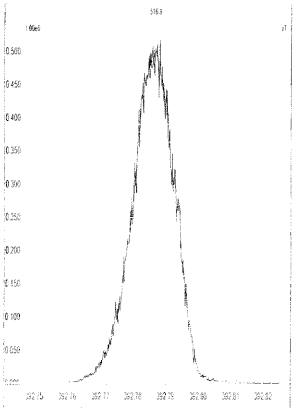

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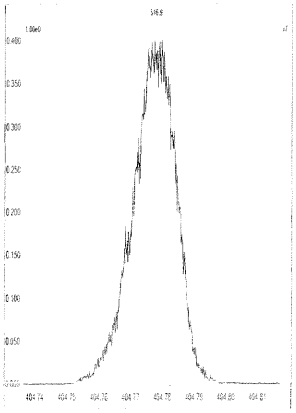

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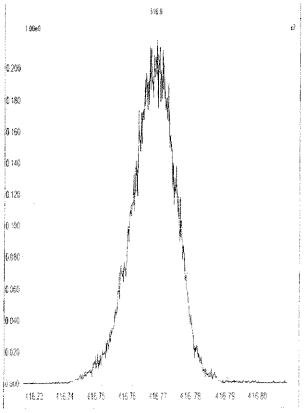

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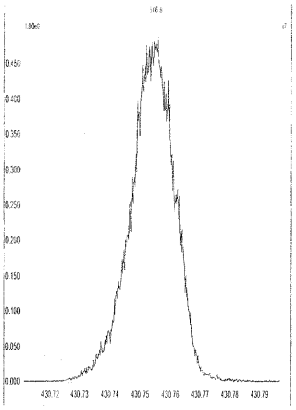

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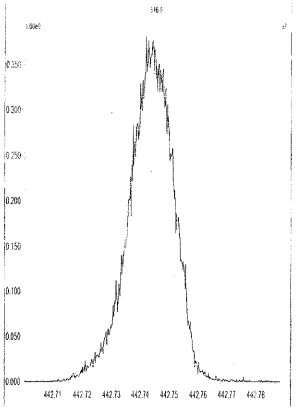

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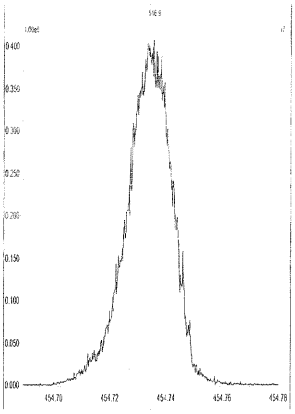

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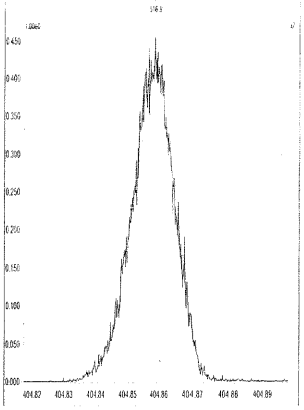

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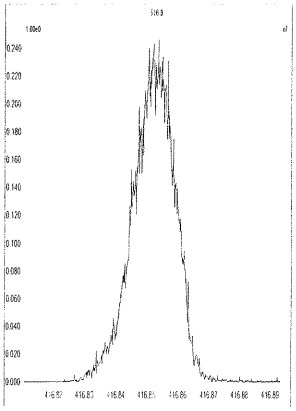

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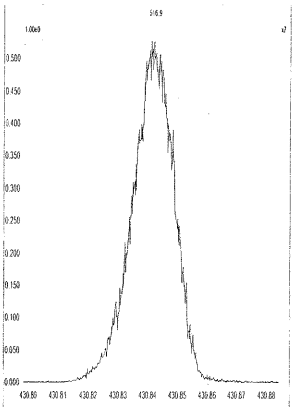

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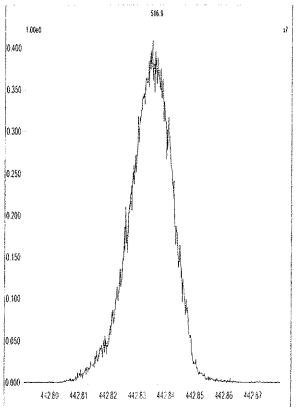
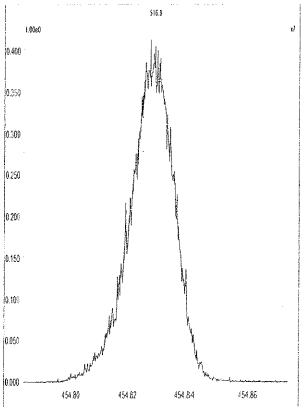


M 454.9728 R 12255



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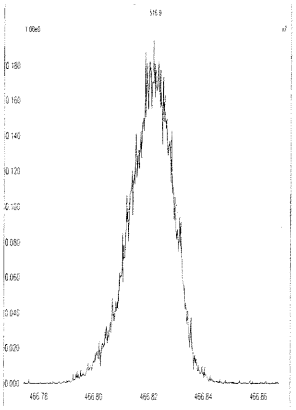

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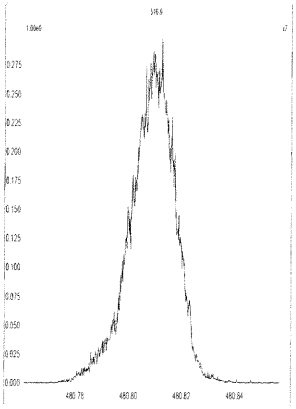

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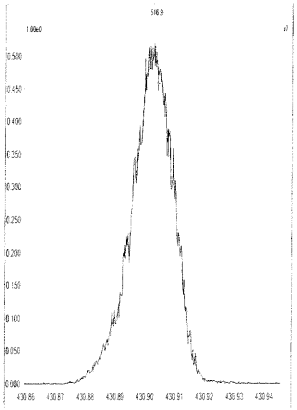

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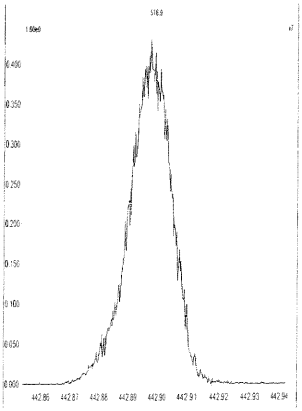

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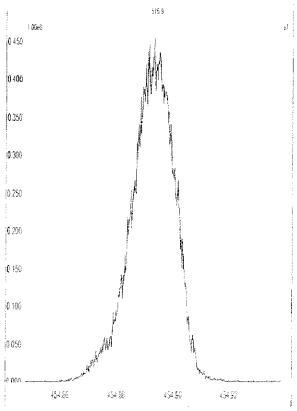

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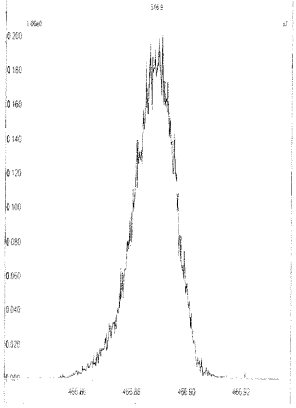

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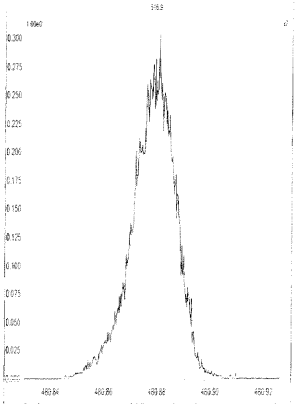

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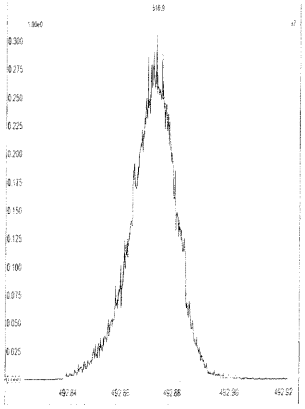

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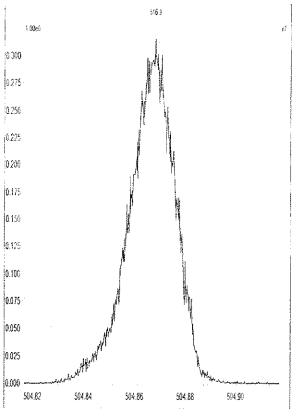

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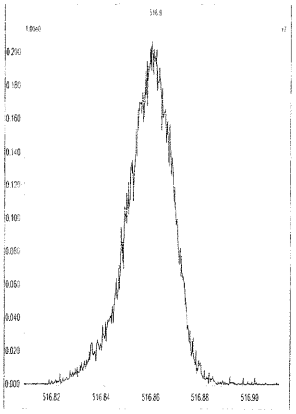


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

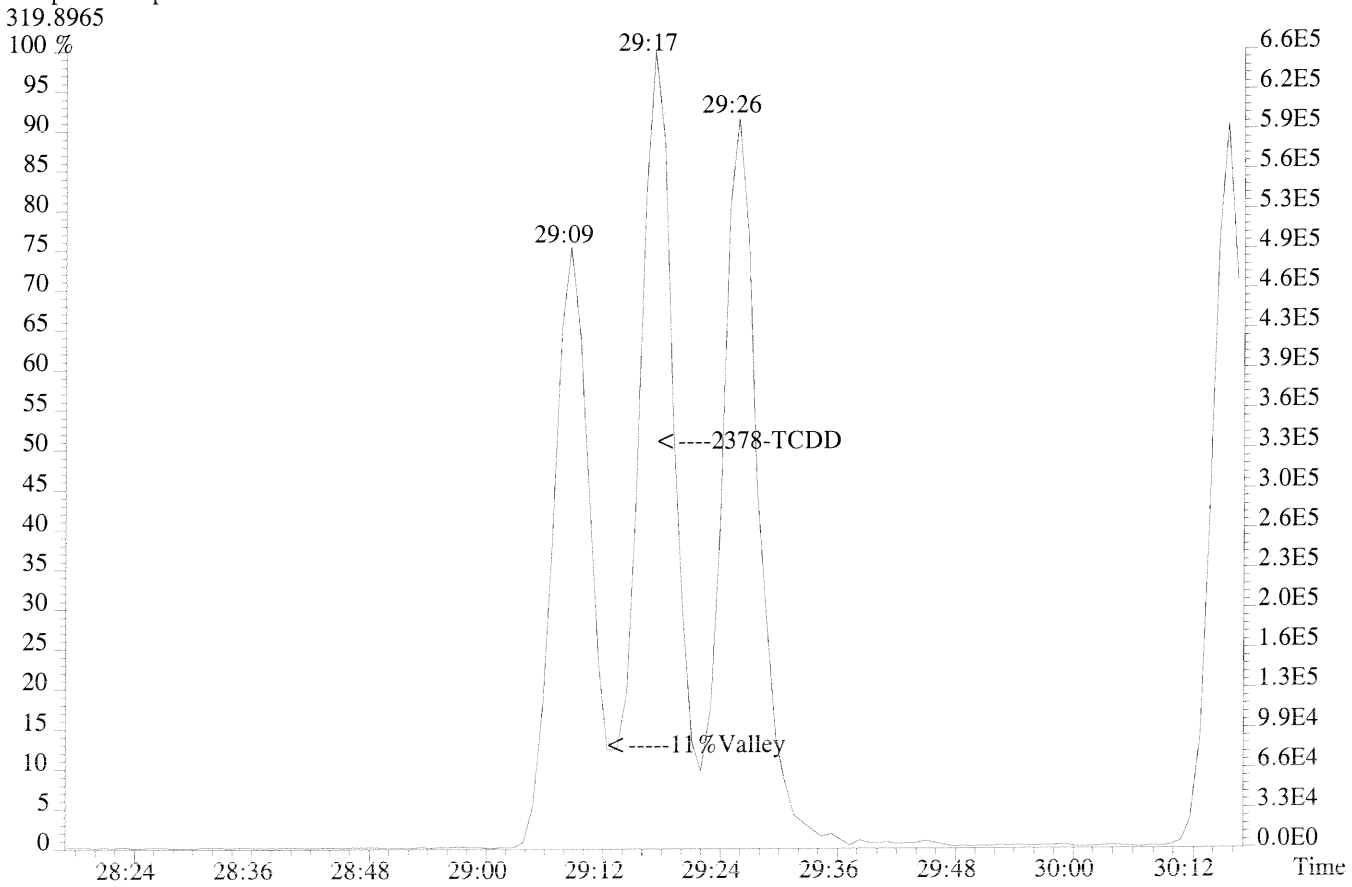
WDM

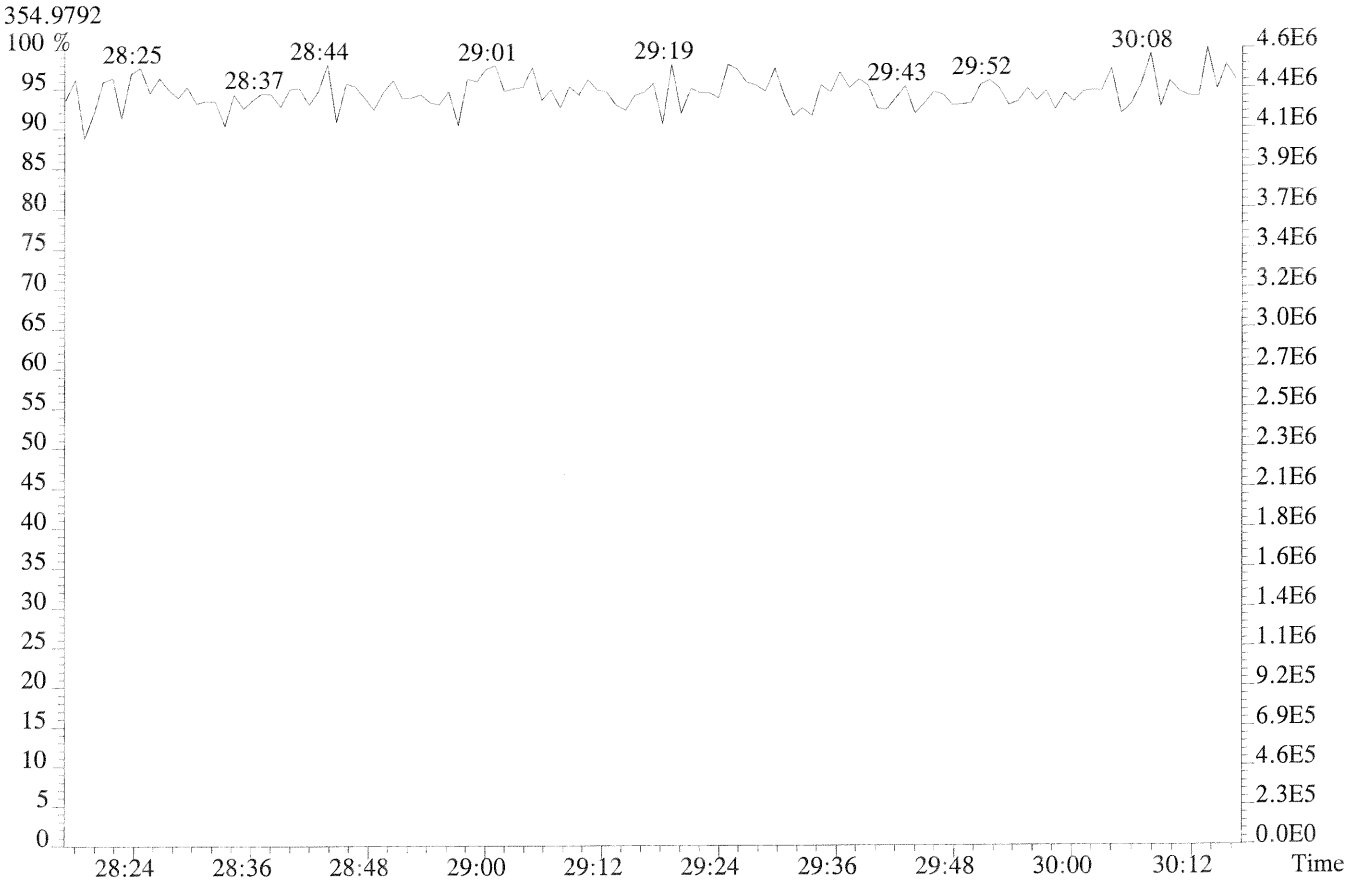
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: _____ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: P229935
Date Analyzed: 3-JUL-2014
Time Analyzed: 02:56:05

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:13	30:27
TCDD	26:07	30:15
PeCDF	30:23	34:33
PeCDD	31:52	34:16
HxCDF	35:10	37:39
HxCDD	35:41	37:14
HpCDF	38:51	40:18
HpCDD	39:06	39:47

% Valley 2378-TCDD: 11 %

File:P229935 #1-627 Acq: 3-JUL-2014 02:56:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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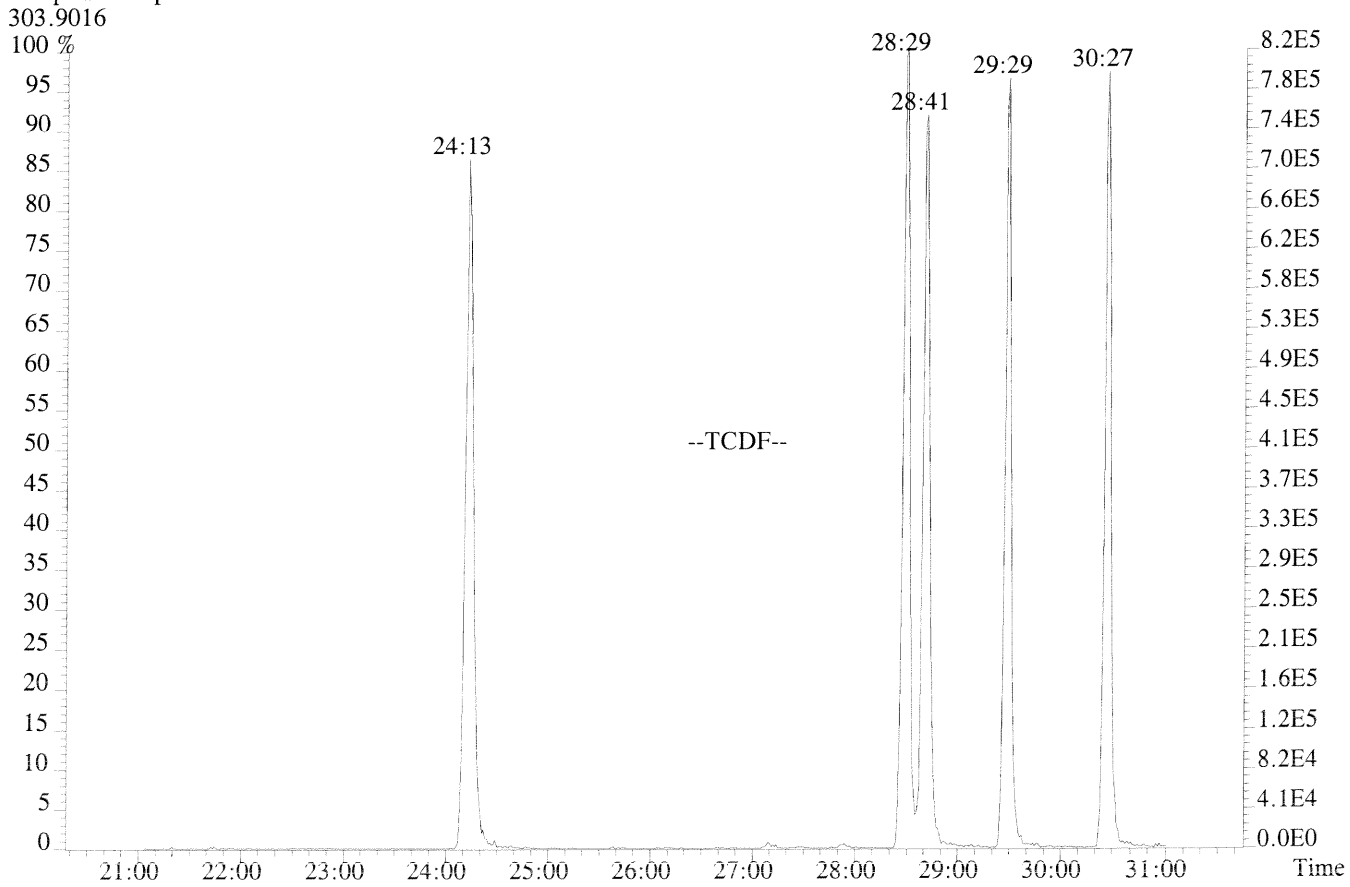
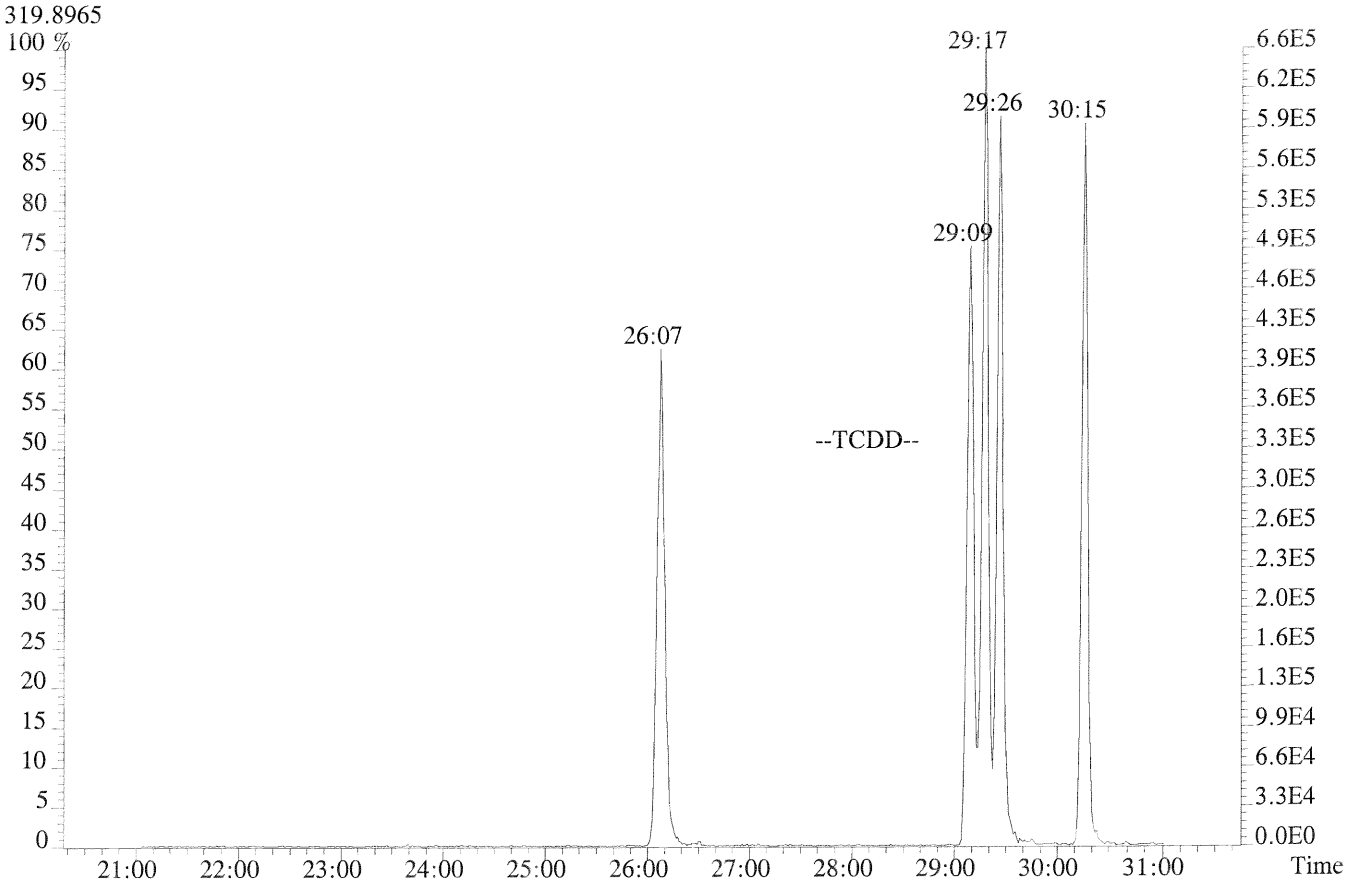
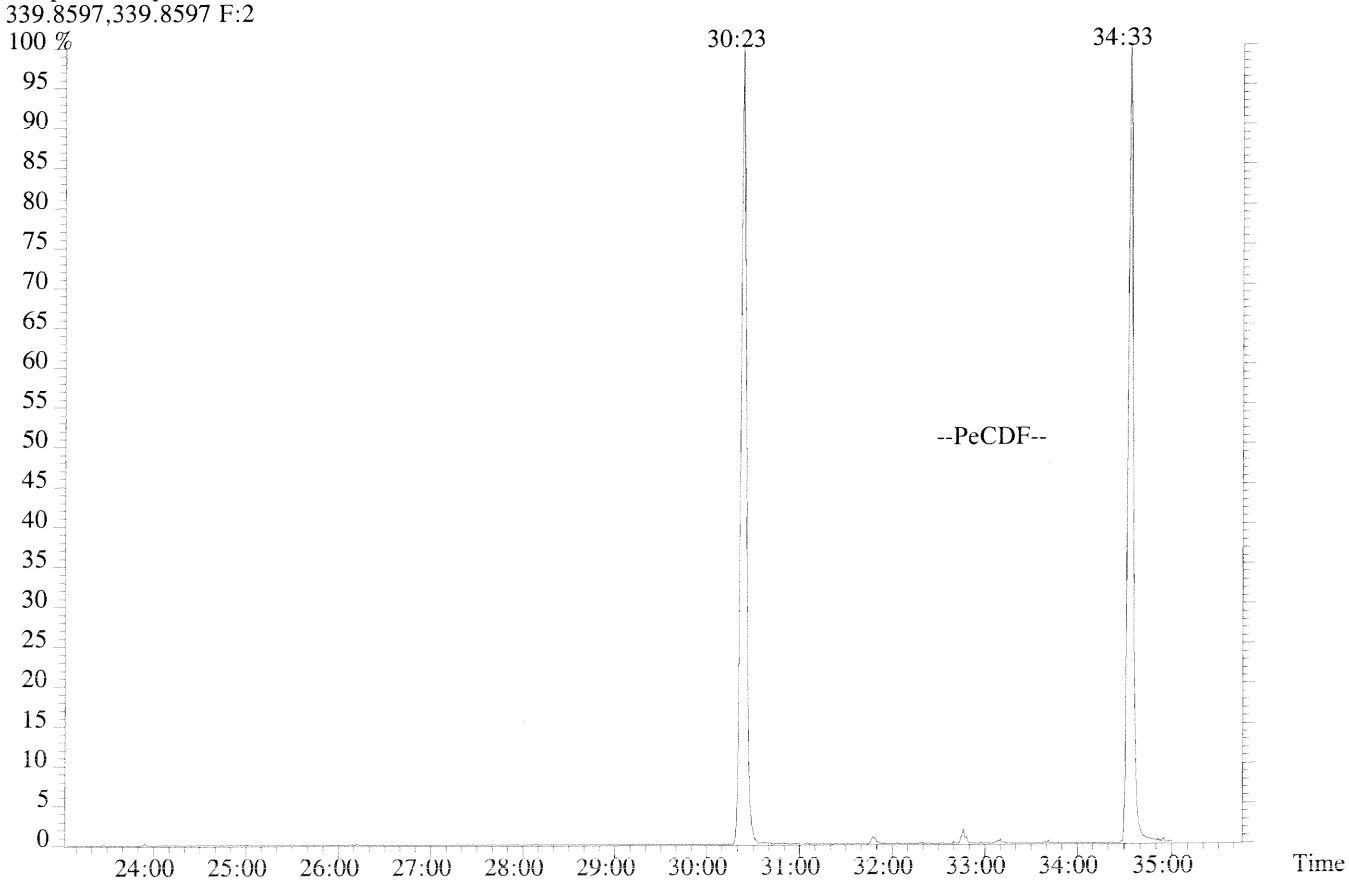
Sample#1 Exp:WINDOW DEFINE





File:P229935 #1-627 Acq: 3-JUL-2014 02:56:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



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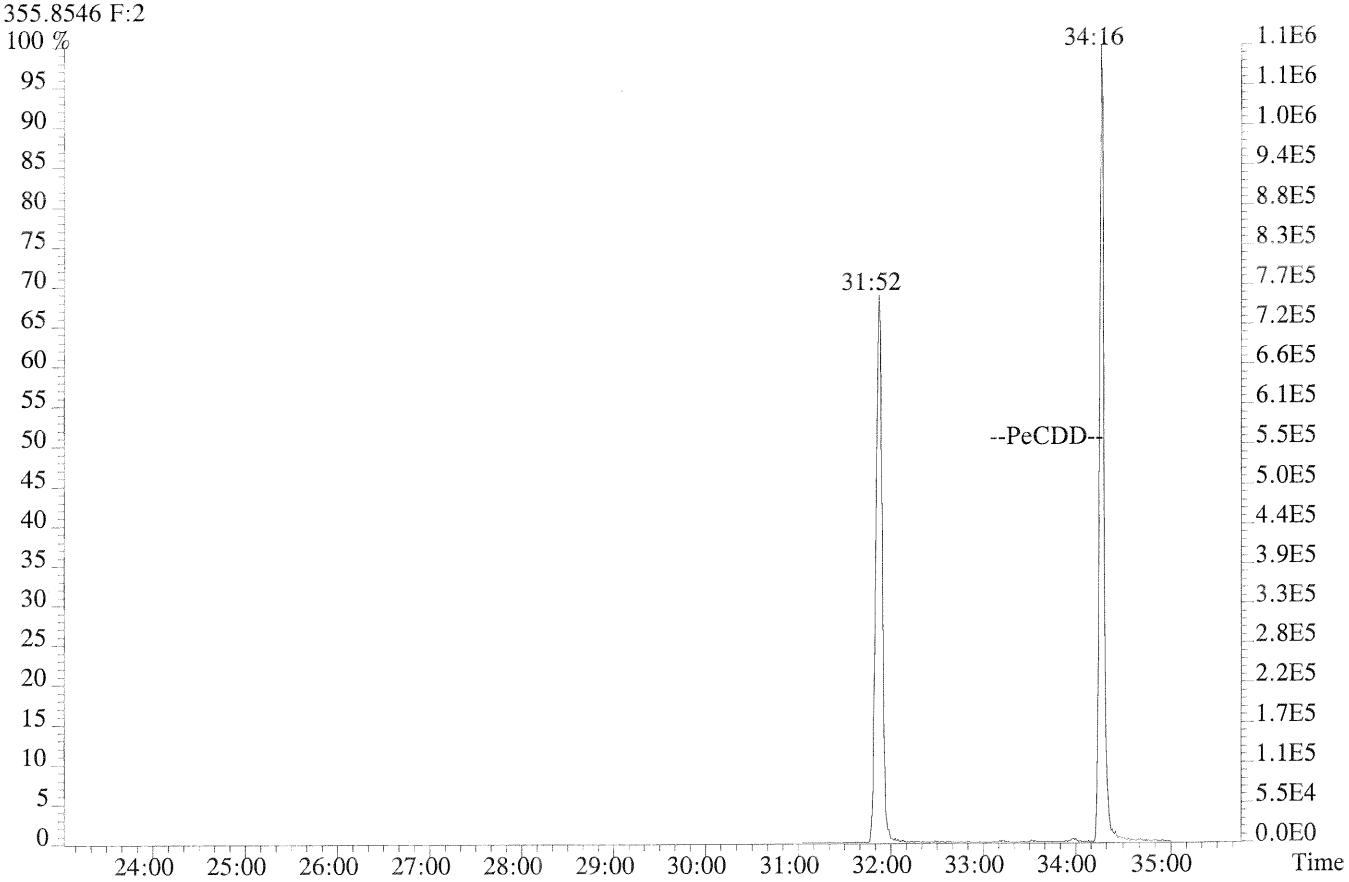

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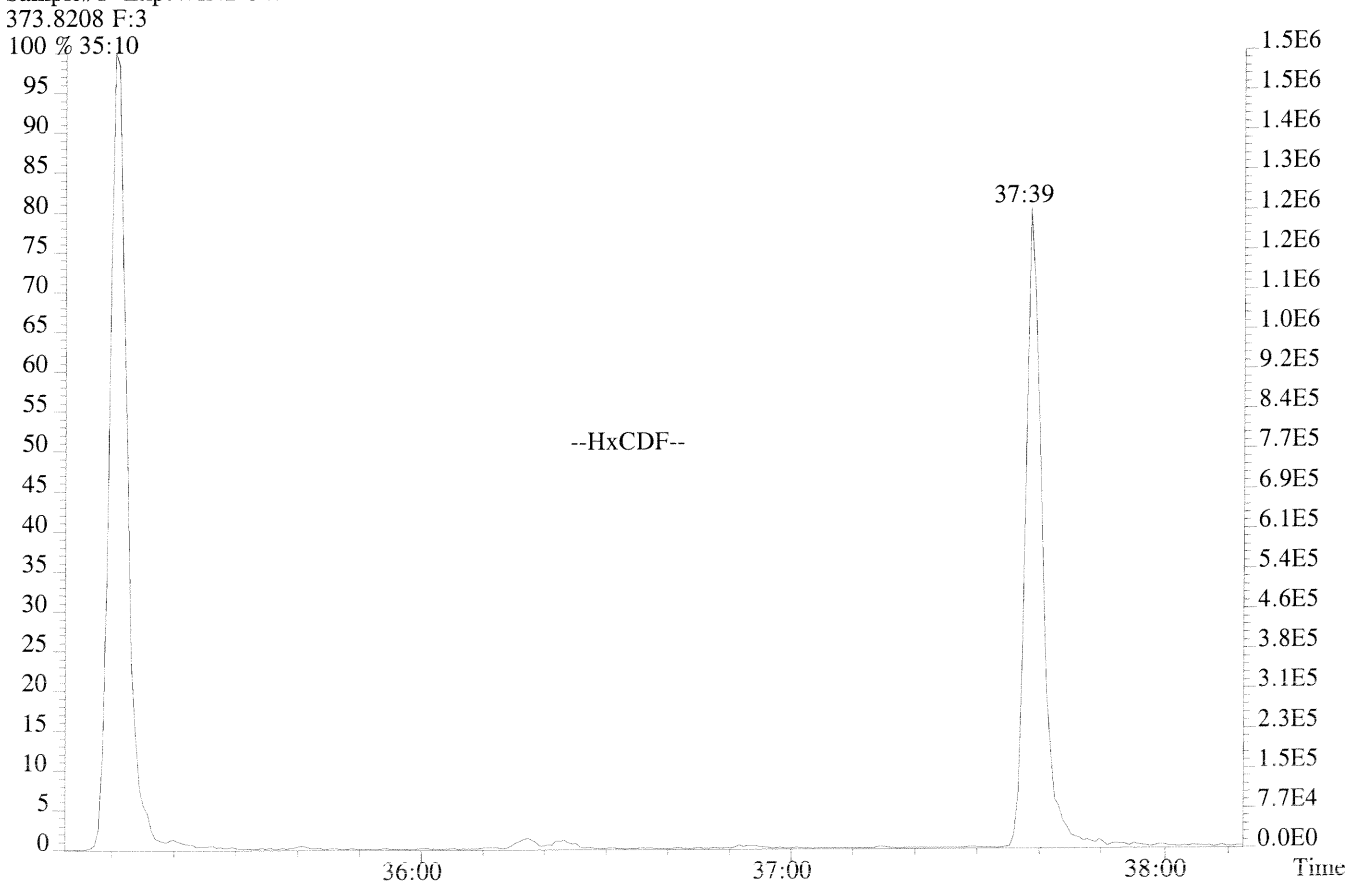
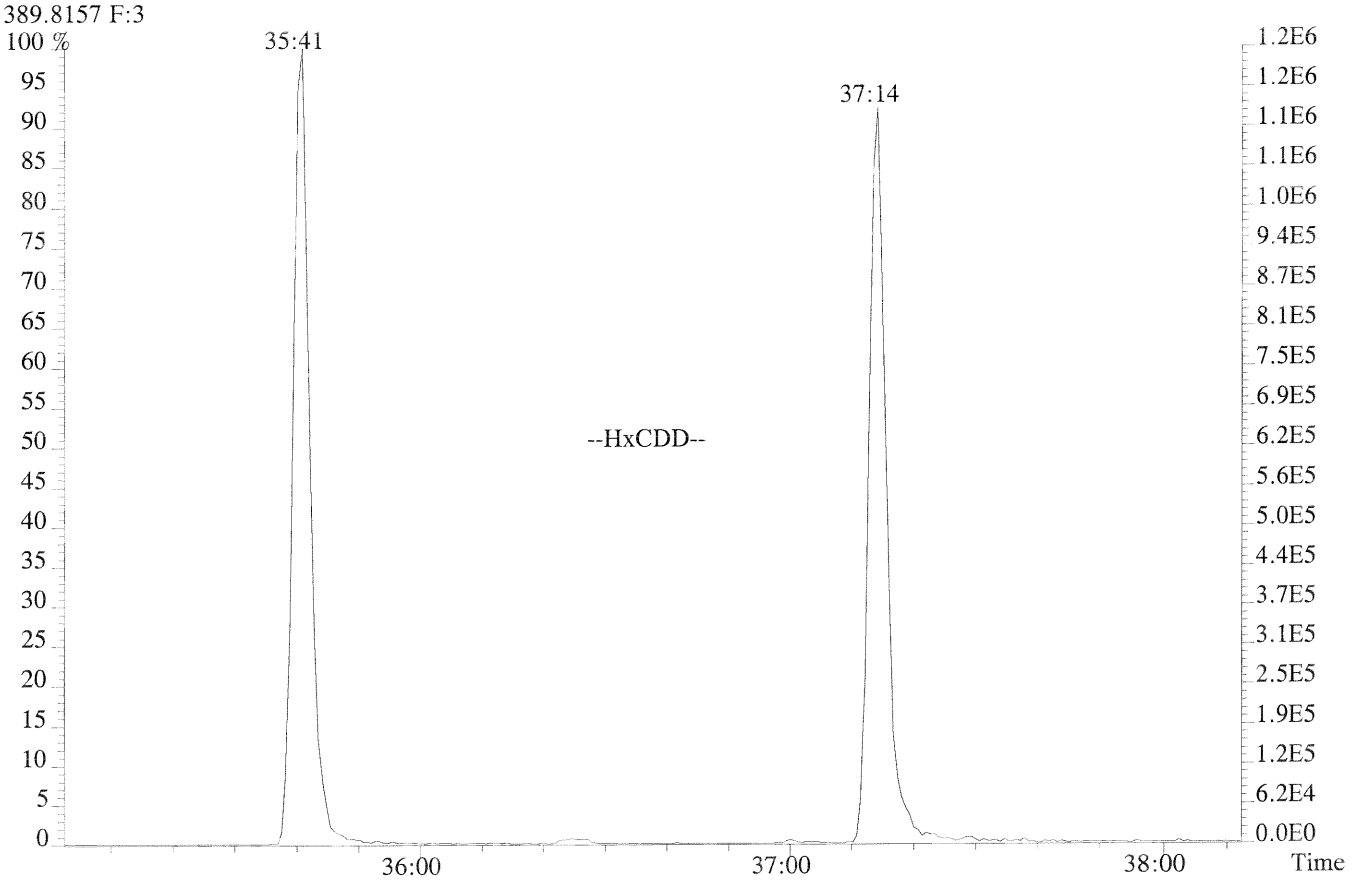
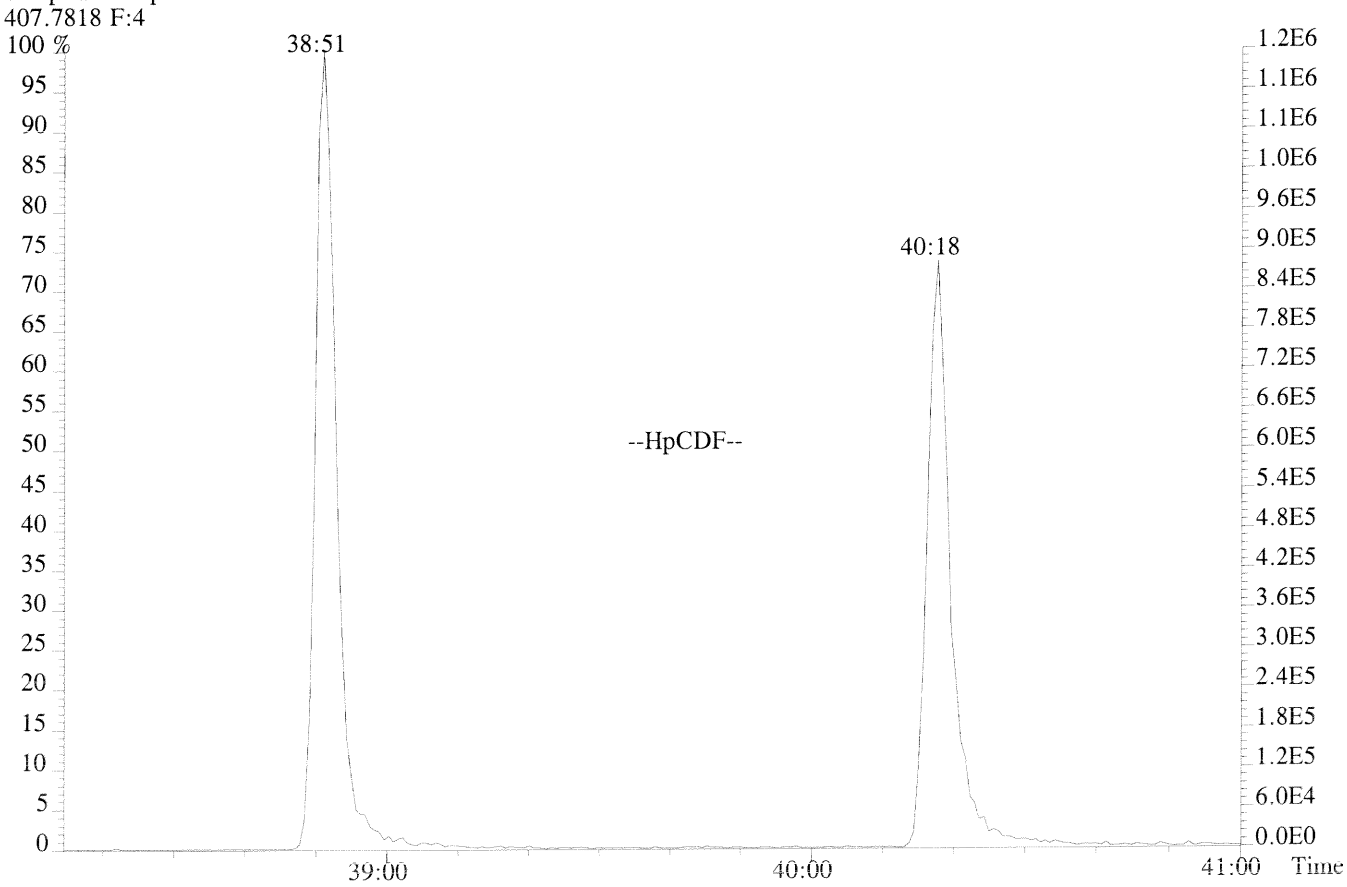
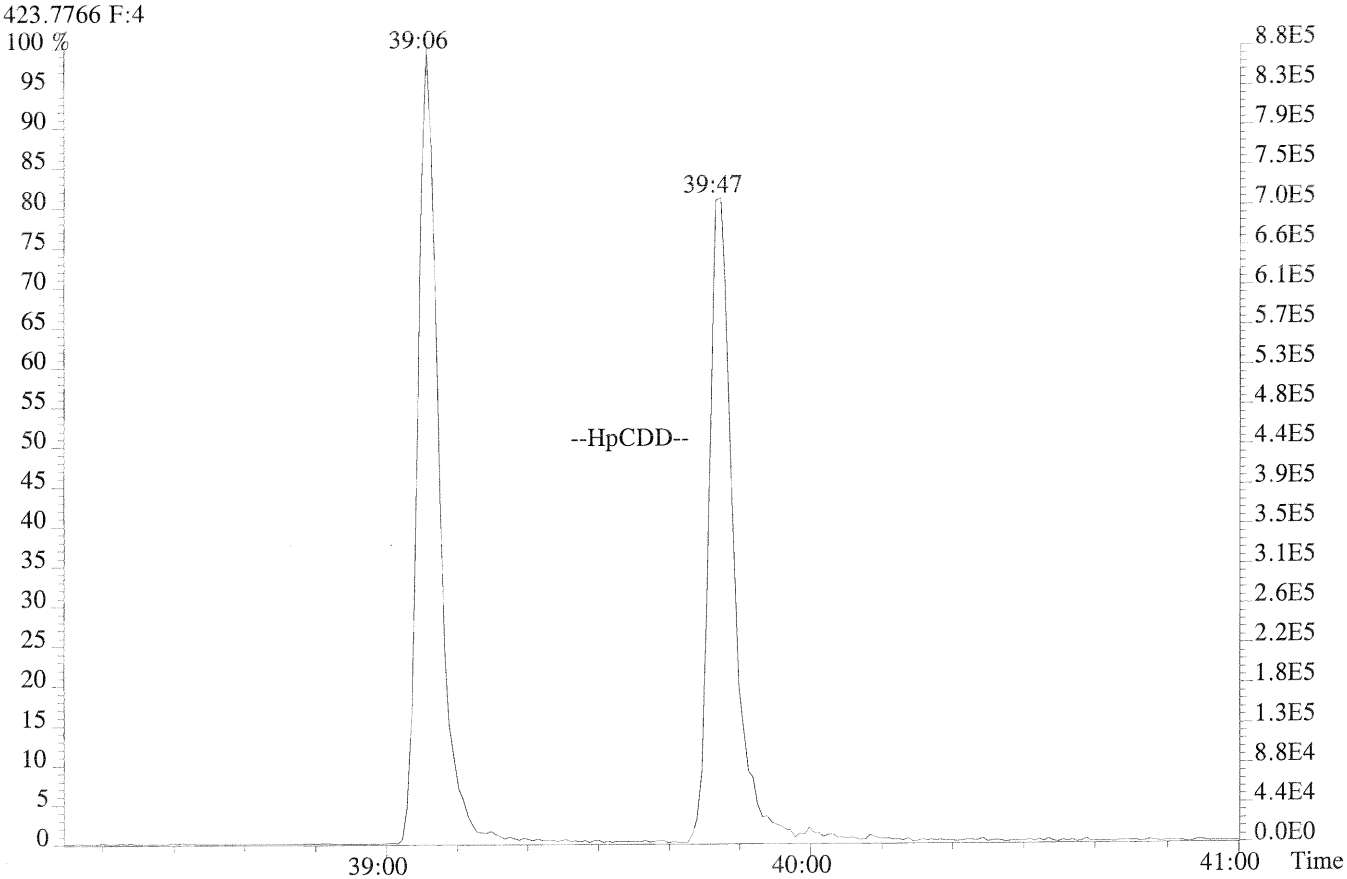
Sample#1 Exp:WINDOW DEFINE





File:P229935 #1-251 Acq: 3-JUL-2014 02:56:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





FORM 6A
PCDD/PCDF DAILY CALIBRATION RELATIVE RESPONSES

Lab Name: ALS ENVIRONMENTAL, HOUSTON Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

Begin CCAL Filename: P229934

End CCAL Filename: P229946

	RELATIVE RESPONSE (RR)		MEAN RR(1)	Cv (RSD)
	Begin CCAL	End CCAL		
NATIVE ANALYTES				
2,3,7,8-TCDD	0.99	0.99	0.99	0.59
1,2,3,7,8-PeCDD	1.03	0.99	1.01	2.77
1,2,3,4,7,8-HxCDD	1.13	1.10	1.11	1.83
1,2,3,6,7,8-HxCDD	1.13	1.10	1.12	2.38
1,2,3,7,8,9-HxCDD	1.22	1.19	1.21	1.66
1,2,3,4,6,7,8-HpCDD	1.09	1.10	1.09	0.54
OCDD	1.19	1.18	1.18	0.94
2,3,7,8-TCDF	0.96	0.90	0.93	4.60
1,2,3,7,8-PeCDF	1.07	1.02	1.05	3.35
2,3,4,7,8-PeCDF	1.00	0.96	0.98	2.88
1,2,3,4,7,8-HxCDF	1.29	1.22	1.25	3.63
1,2,3,6,7,8-HxCDF	1.15	1.15	1.15	0.28
1,2,3,7,8,9-HxCDF	1.18	1.16	1.17	1.40
2,3,4,6,7,8-HxCDF	1.17	1.16	1.16	0.54
1,2,3,4,6,7,8-HpCDF	1.40	1.34	1.37	2.94
1,2,3,4,7,8,9-HpCDF	1.32	1.30	1.31	1.17
OCDF	1.49	1.44	1.46	2.43

(1) Two daily mean RF values are used to compute the analyte and and labeled compounds, see Section 8.3.2.4, Method 8290.

8290F6A

FORM 6B
PCDD/PCDF DAILY CALIBRATION RELATIVE RESPONSES

Lab Name: ALS ENVIRONMENTAL, HOUSTON Episode No.:

Contract No.: SDG No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

Begin CCAL Filename: P229934
End CCAL Filename: P229946

LABELED COMPOUNDS	RELATIVE RESPONSE (RR) Begin CCAL	End CCAL	MEAN RR(1)	Cv (RSD)
13C-2,3,7,8-TCDF	1.50	1.54	1.52	1.68
13C-1,2,3,7,8-PeCDF	2.21	2.02	2.11	6.51
13C-2,3,4,7,8-PeCDF	2.23	2.04	2.14	6.47
13C-1,2,3,4,7,8-HxCDF	1.12	1.13	1.13	0.31
13C-1,2,3,6,7,8-HxCDF	1.41	1.40	1.41	0.62
13C-2,3,4,6,7,8-HxCDF	1.27	1.25	1.26	1.16
13C-1,2,3,7,8,9-HxCDF	1.17	1.12	1.15	2.49
13C-1,2,3,4,6,7,8-HpCDF	1.07	1.03	1.05	3.17
13C-1,2,3,4,7,8,9-HpCDF	0.97	0.88	0.93	6.59
13C-2,3,7,8-TCDD	1.00	0.99	0.99	0.80
13C-1,2,3,7,8-PeCDD	1.43	1.29	1.36	7.26
13C-1,2,3,4,7,8-HxCDD	0.85	0.79	0.82	4.81
13C-1,2,3,6,7,8-HxCDD	0.94	0.98	0.96	2.31
13C-1,2,3,4,6,7,8-HpCDD	0.97	0.90	0.94	5.10
13C-OCDD	0.76	0.71	0.73	5.43
CLEANUP STANDARD				
37Cl-2,3,7,8-TCDD	0.99	0.99	0.99	0.20

(1) Two daily mean RF values are used to compute the analyte and labeled compounds, see Section 8.3.2.4, Method 8290.

8290F6B

USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5MSUI

VER Data Filename: P229934 | Analysis Date: 3-JUL-14 Time: 02:08:18

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.4	7.8 - 12.9	-6.4
1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	48	39 - 65	-3.3
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	46	39 - 64	-7.7
1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	49	39 - 64	-3.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	49	41 - 61	-1.2
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	46	43 - 58	-7.1
OCDD	M+2/M+4	0.89	0.76-1.02	92	79 - 126	-7.5
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	8.5	8.4 - 12.0	-14.9
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	48	41 - 60	-4.5
2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	45	41 - 61	-9.5
1,2,3,4,7,8-HxCDF	M+2/M+4	1.31	1.05-1.43	48	45 - 56	-3.9
1,2,3,6,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	46	44 - 57	-7.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	46	45 - 56	-7.0
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	47	44 - 57	-5.5
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	49	45 - 55	-1.3
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	48	43 - 58	-4.5
OCDF	M+2/M+4	0.92	0.76-1.02	87	63 - 159	-12.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P229934 Analysis Date: 3-JUL-14 Time: 02:08:18

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	107	82 - 121	7.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.61	1.32-1.78	129	62 - 160	29.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	91	85 - 117	-8.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	96	85 - 118	-4.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.10	0.88-1.20	104	72 - 138	3.6
13C-OCDD	M+2/M+4	0.92	0.76-1.02	222	96 - 415	11.0
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	108	71 - 140	8.0
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	119	76 - 130	18.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	124	77 - 130	23.9
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	79	76 - 131	-20.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	86	70 - 143	-13.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	94	74 - 135	-6.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	88	73 - 137	-12.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	90	78 - 129	-10.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.43	0.37-0.51	97	77 - 129	-2.8
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.5	7.8 - 12.7	5.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #7 Filename P229934 Samp: 1 Inj: 1 Acquired: 3-JUL-14 02:08:18
Processed: 7-JUL-14 10:49:22 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:41	1.525e+03	2.015e+03	0.76	yes	no	1.127
2	Unk	1,2,3,7,8-PeCDF	32:47	1.785e+04	1.132e+04	1.58	yes	no	1.123
3	Unk	2,3,4,7,8-PeCDF	33:39	1.688e+04	1.050e+04	1.61	yes	no	1.101
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.620e+04	1.238e+04	1.31	yes	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.750e+04	1.448e+04	1.21	yes	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	36:52	1.615e+04	1.314e+04	1.23	yes	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	37:38	1.522e+04	1.200e+04	1.27	yes	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	1.500e+04	1.475e+04	1.02	yes	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	1.286e+04	1.244e+04	1.03	yes	no	1.381
10	Unk	OCDF	42:51	2.147e+04	2.344e+04	0.92	yes	no	1.703
11	Unk	2,3,7,8-TCDD	29:27	1.060e+03	1.360e+03	0.78	yes	no	1.053
12	Unk	1,2,3,7,8-PeCDD	33:56	1.124e+04	6.985e+03	1.61	yes	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	37:00	1.061e+04	8.343e+03	1.27	yes	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	37:06	1.197e+04	9.221e+03	1.30	yes	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	37:19	1.205e+04	9.620e+03	1.25	yes	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:47	1.077e+04	1.007e+04	1.07	yes	no	1.170
17	Unk	OCDD	42:38	1.690e+04	1.906e+04	0.89	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:40	1.637e+04	2.053e+04	0.80	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:45	3.361e+04	2.078e+04	1.62	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:39	3.382e+04	2.115e+04	1.60	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	1.517e+04	2.929e+04	0.52	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	1.915e+04	3.671e+04	0.52	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	1.723e+04	3.304e+04	0.52	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	1.591e+04	3.020e+04	0.53	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	1.279e+04	2.964e+04	0.43	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:17	1.147e+04	2.688e+04	0.43	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:25	1.092e+04	1.365e+04	0.80	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.173e+04	1.352e+04	1.61	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	1.900e+04	1.459e+04	1.30	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.115e+04	1.621e+04	1.30	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	2.007e+04	1.829e+04	1.10	yes	no	0.935
32	IS	13C-OCDD	42:37	2.889e+04	3.149e+04	0.92	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:50	1.092e+04	1.368e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.215e+04	1.742e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	2.445e+03				no	0.946

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #7 Filename P229934 Samp: 1 Inj: 1 Acquired: 3-JUL-14 02:08:18
Processed: 7-JUL-14 10:49:221 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.75e+05	3.36e+02	8.2e+02	3.84e+05	8.60e+02	4.5e+02
2	1,2,3,7,8-PeCDF	3.00e+06	1.96e+02	1.5e+04	1.86e+06	8.84e+02	2.1e+03
3	2,3,4,7,8-PeCDF	2.99e+06	1.96e+02	1.5e+04	1.87e+06	8.84e+02	2.1e+03
4	1,2,3,4,7,8-HxCDF	3.00e+06	3.16e+02	9.5e+03	2.40e+06	1.08e+02	2.2e+04
5	1,2,3,6,7,8-HxCDF	3.21e+06	3.16e+02	1.0e+04	2.57e+06	1.08e+02	2.4e+04
6	2,3,4,6,7,8-HxCDF	3.10e+06	3.16e+02	9.8e+03	2.53e+06	1.08e+02	2.3e+04
7	1,2,3,7,8,9-HxCDF	2.67e+06	3.16e+02	8.5e+03	2.13e+06	1.08e+02	2.0e+04
8	1,2,3,4,6,7,8-HpCDF	2.66e+06	1.74e+03	1.5e+03	2.61e+06	1.57e+03	1.7e+03
9	1,2,3,4,7,8,9-HpCDF	2.03e+06	1.74e+03	1.2e+03	1.99e+06	1.57e+03	1.3e+03
10	OCDF	2.82e+06	2.44e+02	1.2e+04	3.15e+06	6.72e+02	4.7e+03
11	2,3,7,8-TCDD	2.04e+05	4.44e+02	4.6e+02	2.55e+05	3.84e+02	6.6e+02
12	1,2,3,7,8-PeCDD	1.96e+06	2.52e+02	7.8e+03	1.22e+06	5.60e+01	2.2e+04
13	1,2,3,4,7,8-HxCDD	2.16e+06	2.00e+02	1.1e+04	1.68e+06	3.52e+02	4.8e+03
14	1,2,3,6,7,8-HxCDD	2.17e+06	2.00e+02	1.1e+04	1.68e+06	3.52e+02	4.8e+03
15	1,2,3,7,8,9-HxCDD	2.19e+06	2.00e+02	1.1e+04	1.75e+06	3.52e+02	5.0e+03
16	1,2,3,4,6,7,8-HpCDD	1.84e+06	3.40e+02	5.4e+03	1.73e+06	1.08e+02	1.6e+04
17	OCDD	2.27e+06	6.00e+01	3.8e+04	2.57e+06	1.36e+02	1.9e+04
18	13C-2,3,7,8-TCDF	3.09e+06	5.20e+02	6.0e+03	3.88e+06	5.52e+02	7.0e+03
19	13C-1,2,3,7,8-PeCDF	5.53e+06	2.36e+02	2.3e+04	3.42e+06	2.20e+02	1.6e+04
20	13C-2,3,4,7,8-PeCDF	5.96e+06	2.36e+02	2.5e+04	3.73e+06	2.20e+02	1.7e+04
21	13C-1,2,3,4,7,8-HxCDF	2.91e+06	2.56e+02	1.1e+04	5.63e+06	6.36e+02	8.9e+03
22	13C-1,2,3,6,7,8-HxCDF	3.38e+06	2.56e+02	1.3e+04	6.49e+06	6.36e+02	1.0e+04
23	13C-2,3,4,6,7,8-HxCDF	3.31e+06	2.56e+02	1.3e+04	6.32e+06	6.36e+02	9.9e+03
24	13C-1,2,3,7,8,9-HxCDF	2.78e+06	2.56e+02	1.1e+04	5.32e+06	6.36e+02	8.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.30e+06	1.60e+03	1.4e+03	5.14e+06	3.88e+03	1.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.82e+06	1.60e+03	1.1e+03	4.20e+06	3.88e+03	1.1e+03
27	13C-2,3,7,8-TCDD	2.14e+06	1.68e+03	1.3e+03	2.67e+06	9.16e+02	2.9e+03
28	13C-1,2,3,7,8-PeCDD	3.84e+06	5.92e+02	6.5e+03	2.41e+06	2.24e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	3.85e+06	4.20e+02	9.2e+03	2.98e+06	2.32e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	3.80e+06	4.20e+02	9.0e+03	2.95e+06	2.32e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	3.37e+06	5.56e+02	6.1e+03	3.11e+06	2.28e+02	1.4e+04
32	13C-OCDD	3.79e+06	1.04e+02	3.6e+04	4.12e+06	1.68e+02	2.5e+04
33	13C-1,2,3,4-TCDD	2.13e+06	1.68e+03	1.3e+03	2.67e+06	9.16e+02	2.9e+03
34	13C-1,2,3,7,8,9-HxCDD	4.02e+06	4.20e+02	9.6e+03	3.14e+06	2.32e+02	1.4e+04
35	37Cl-2,3,7,8-TCDD	4.73e+05	1.68e+02	2.8e+03			

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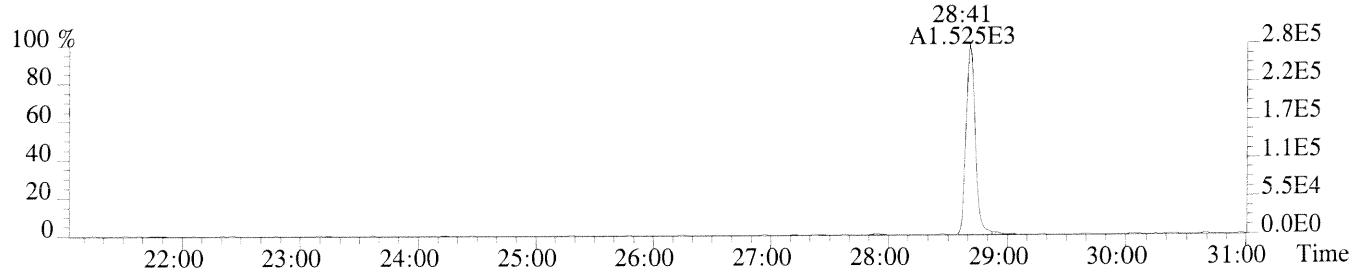
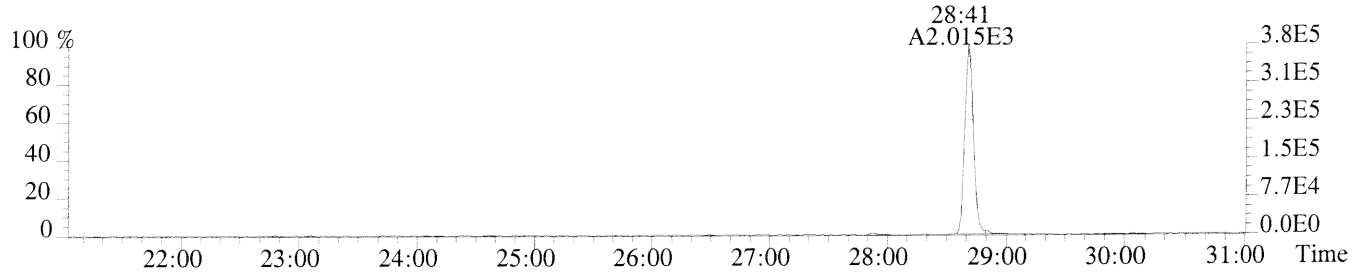
File:P229934 #1-627 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

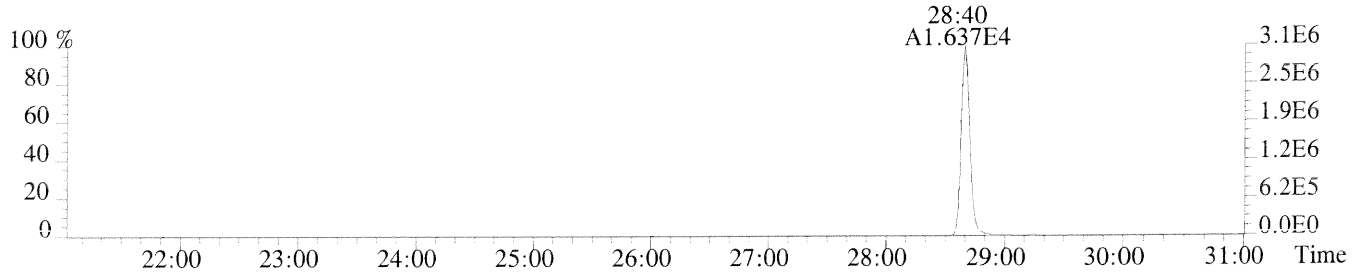
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,336.0,1.00%,F,T)



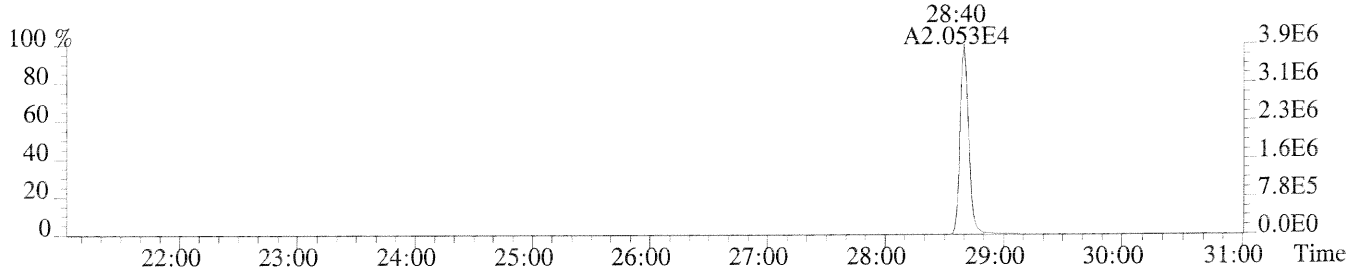
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



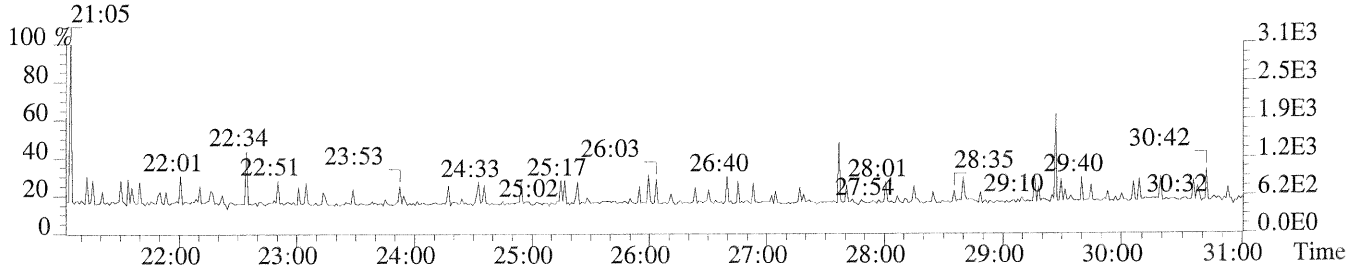
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



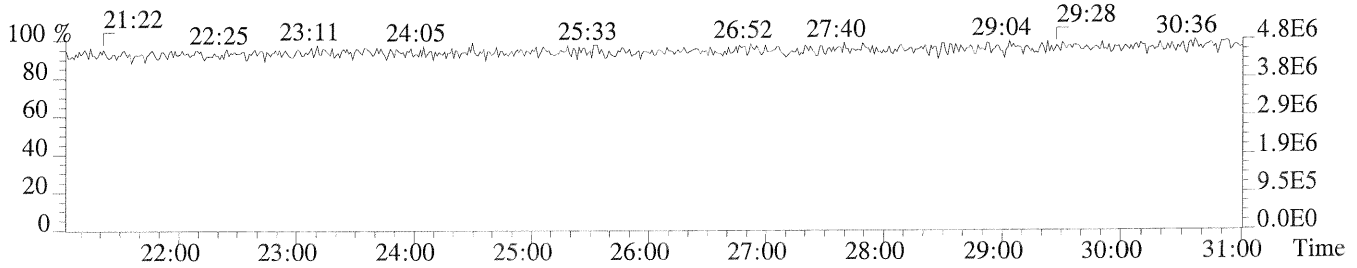
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

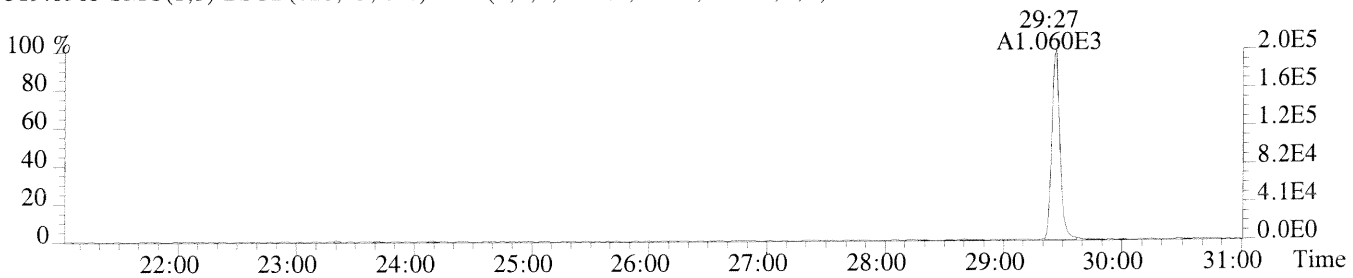


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

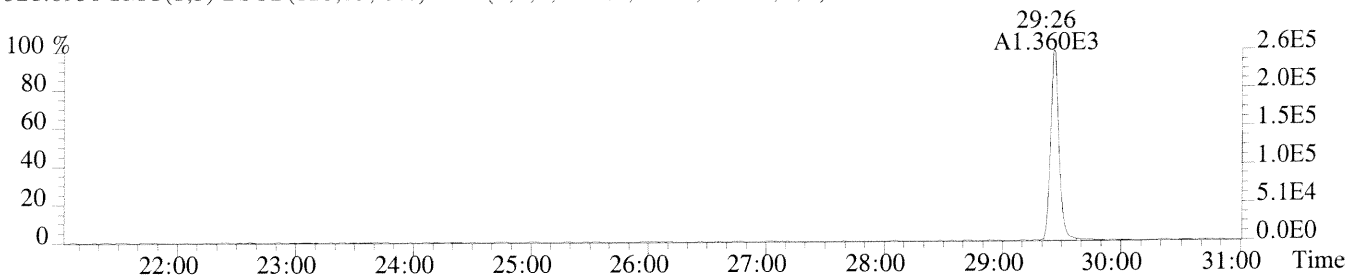


File:P229934 #1-627 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

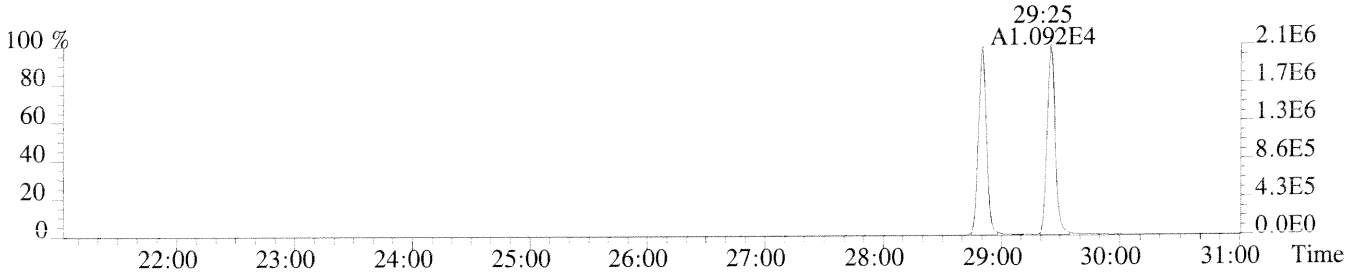
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



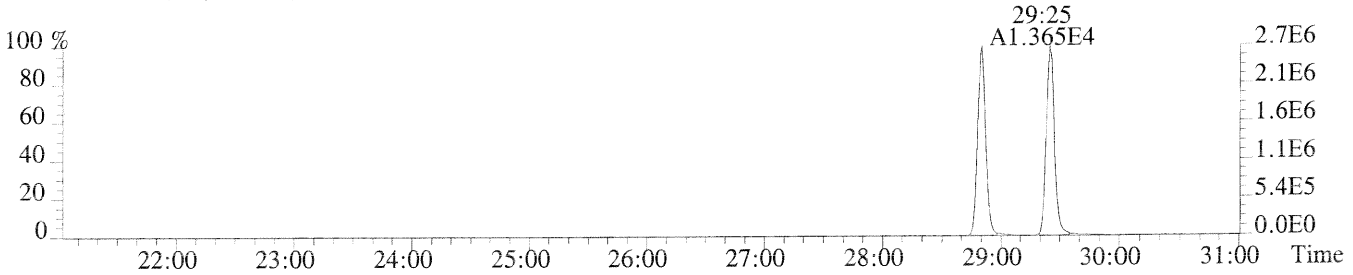
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,384.0,1.00%,F,T)



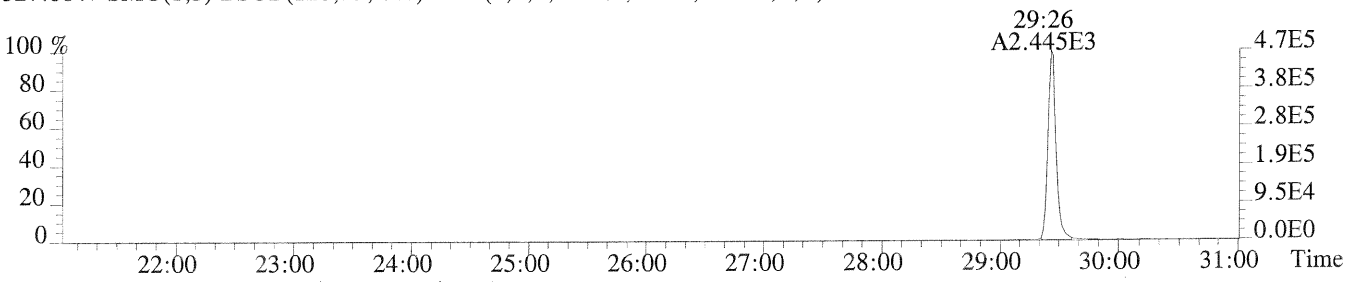
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1684.0,1.00%,F,T)



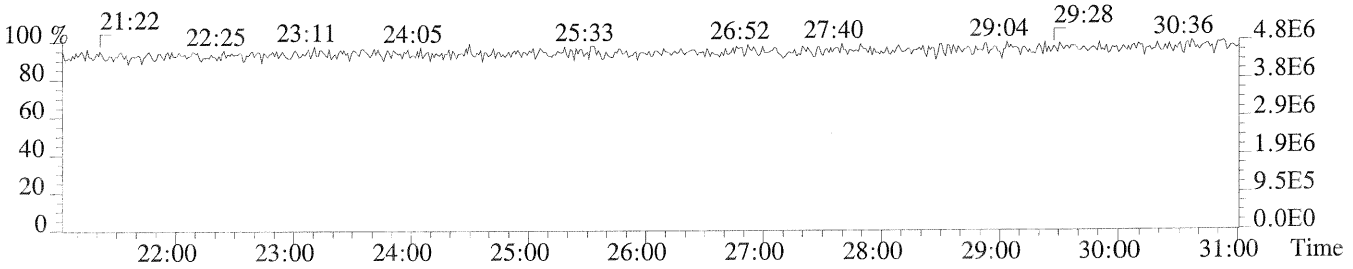
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



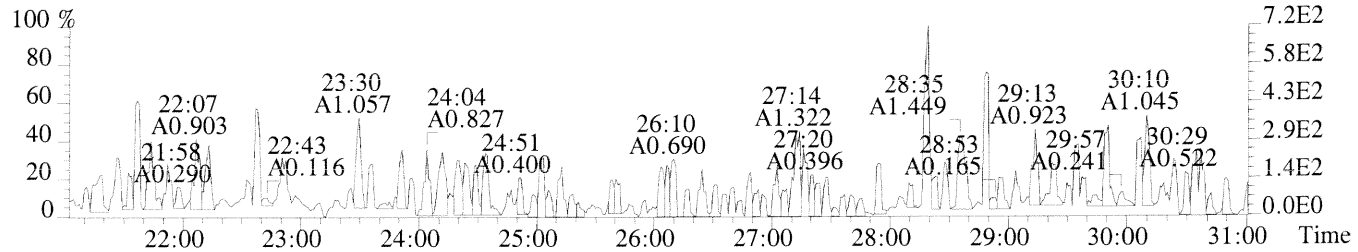
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,168.0,1.00%,F,T)



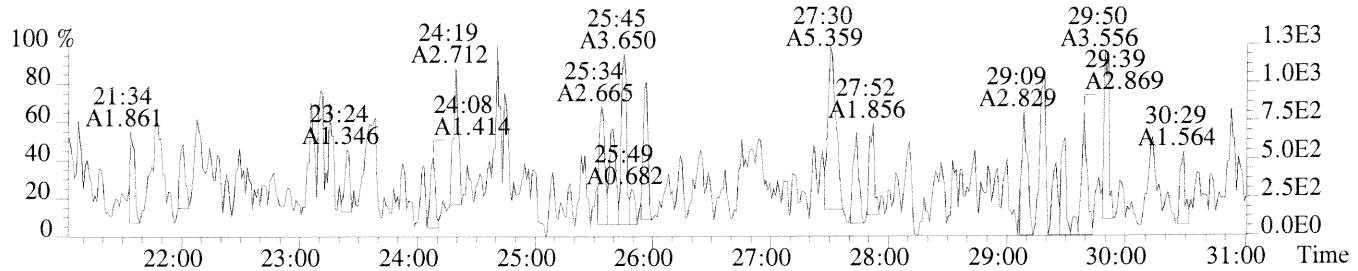
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



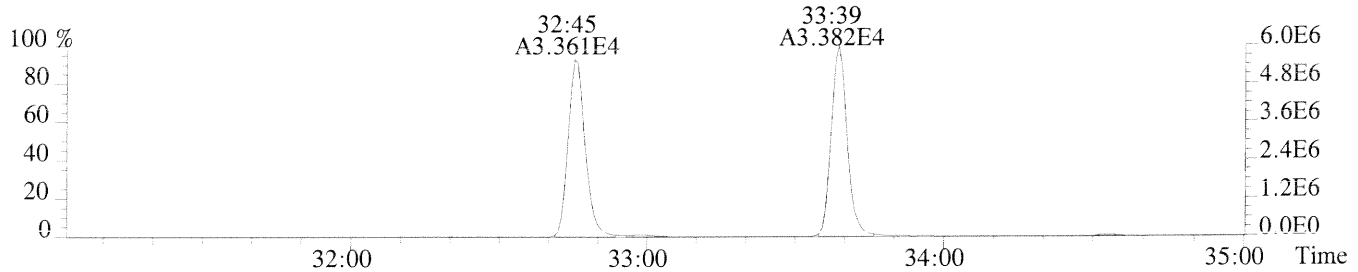
File:P229934 #1-627 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,68.0,1.00%,F,T)



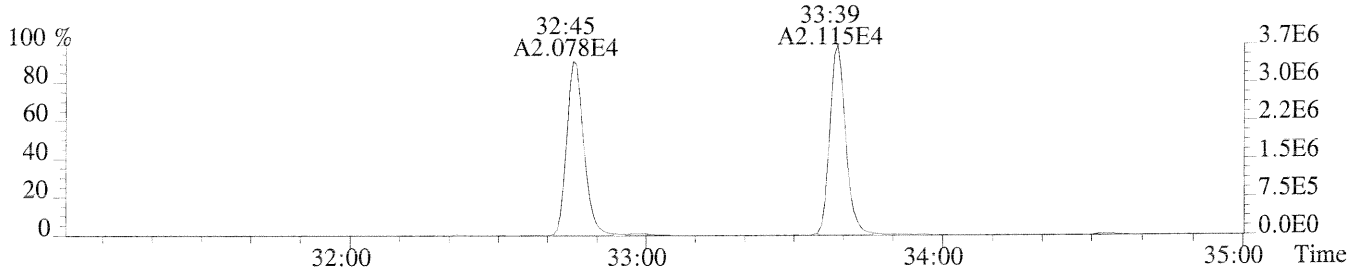
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,356.0,1.00%,F,T)



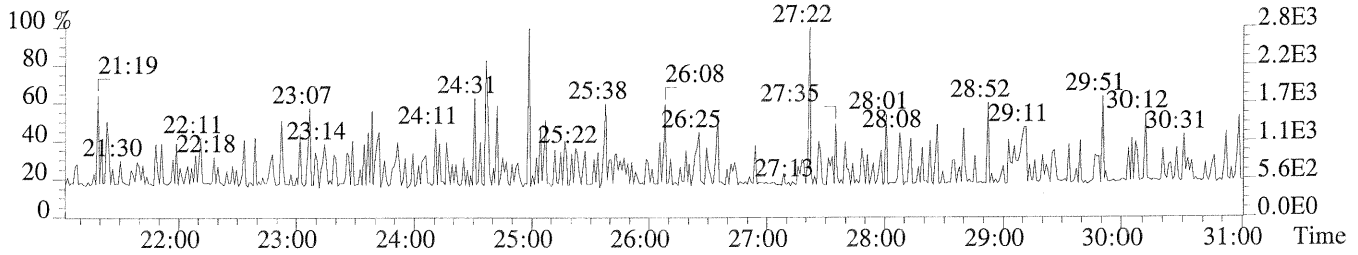
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



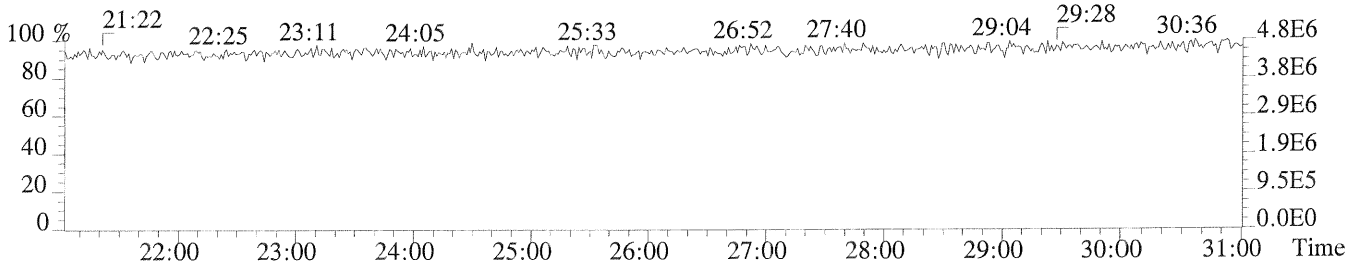
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

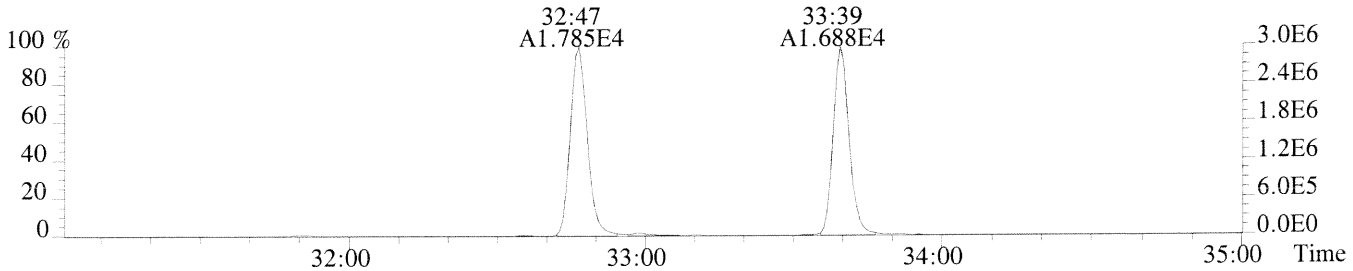


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

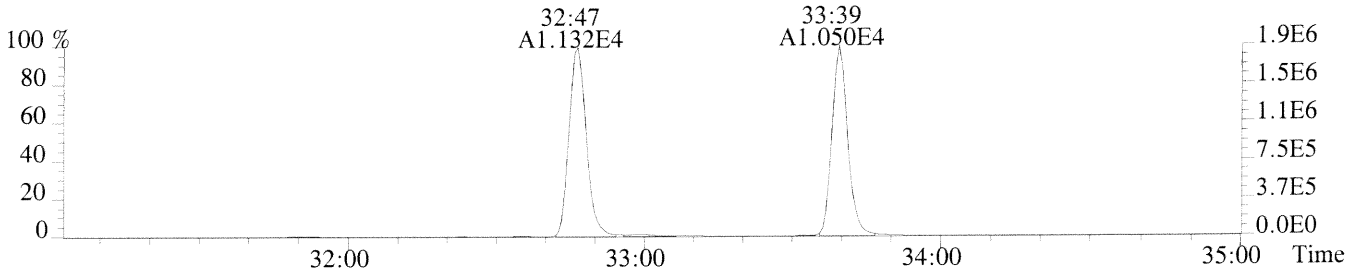


File:P229934 #1-360 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

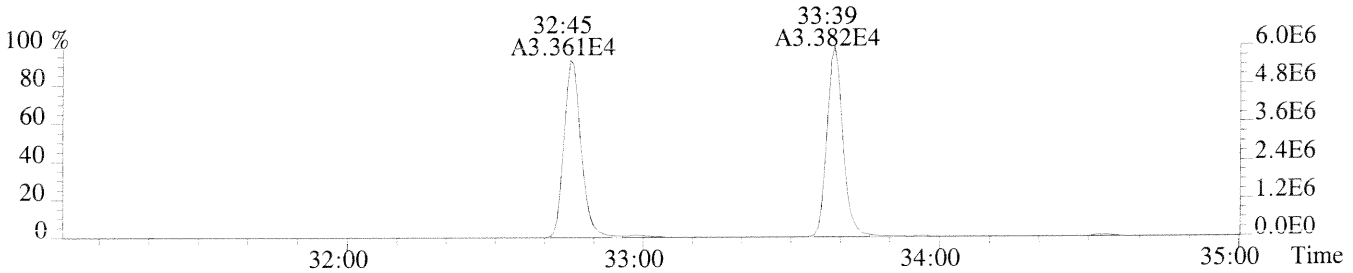
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,196.0,1.00%,F,T)



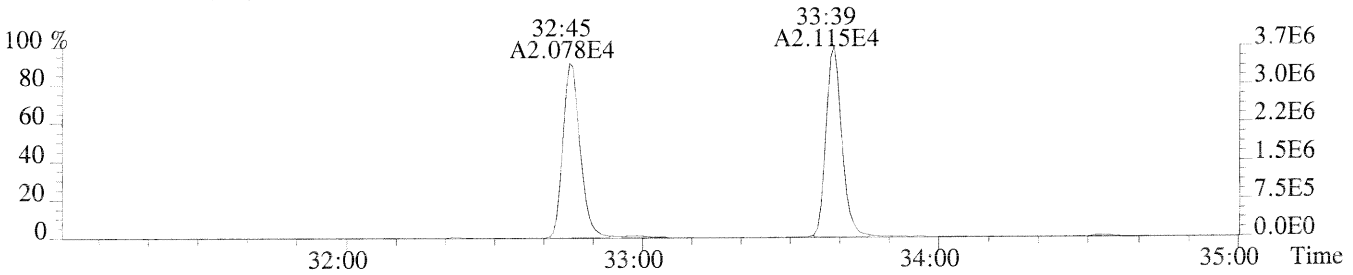
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,884.0,1.00%,F,T)



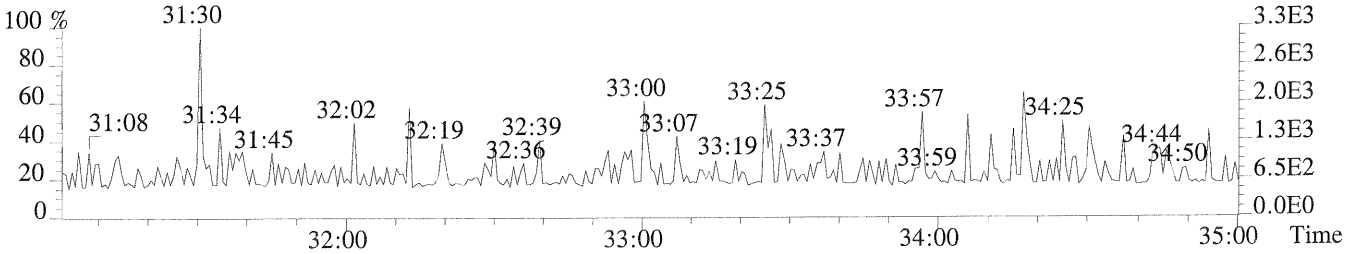
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



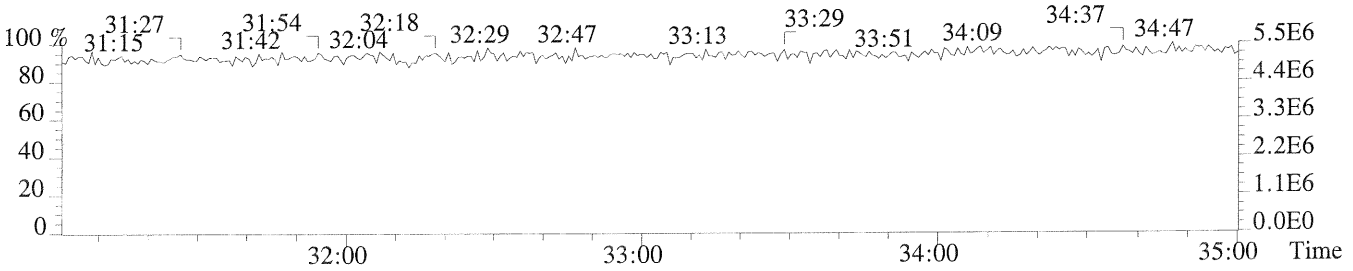
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,220.0,1.00%,F,T)



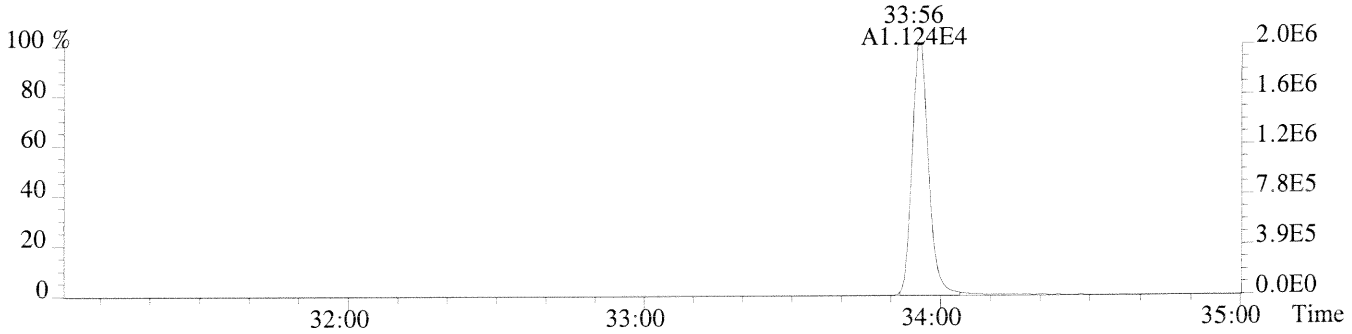
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



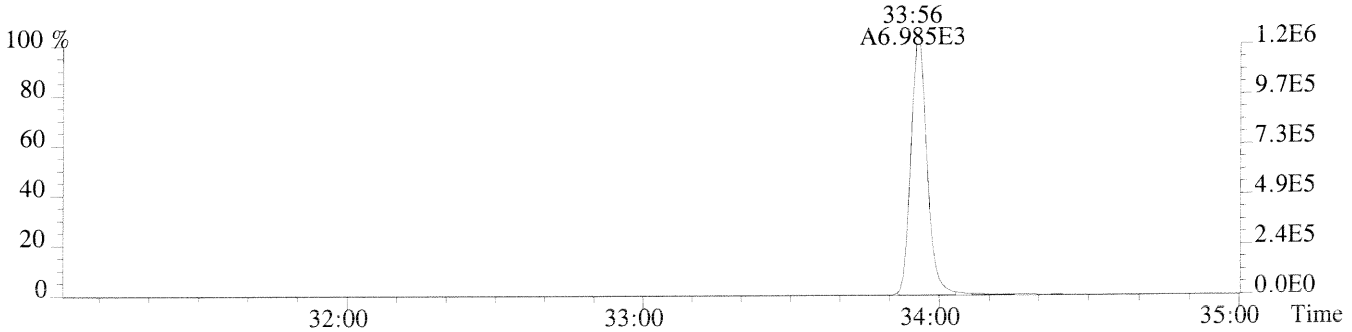
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



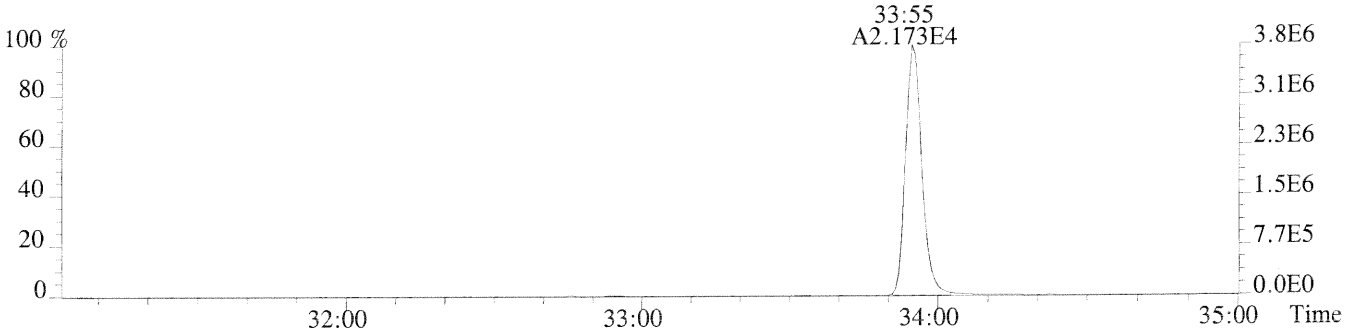
File:P229934 #1-360 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,252.0,1.00%,F,T)



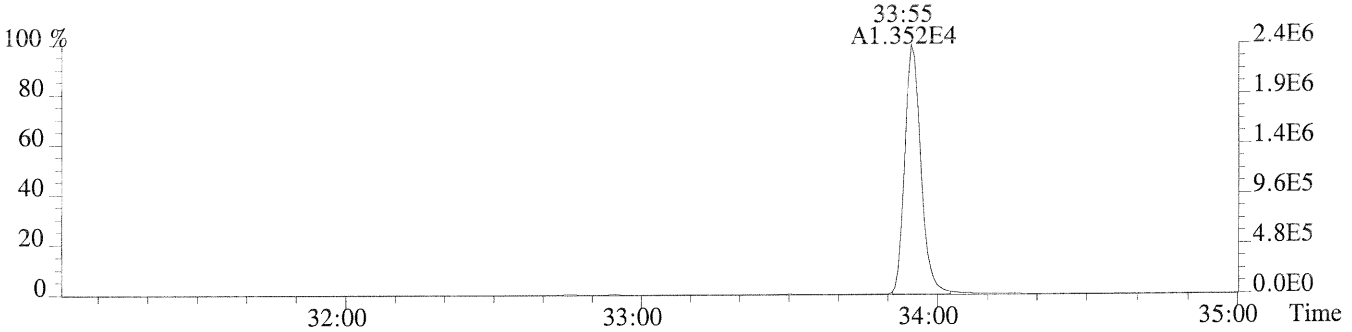
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,56.0,1.00%,F,T)



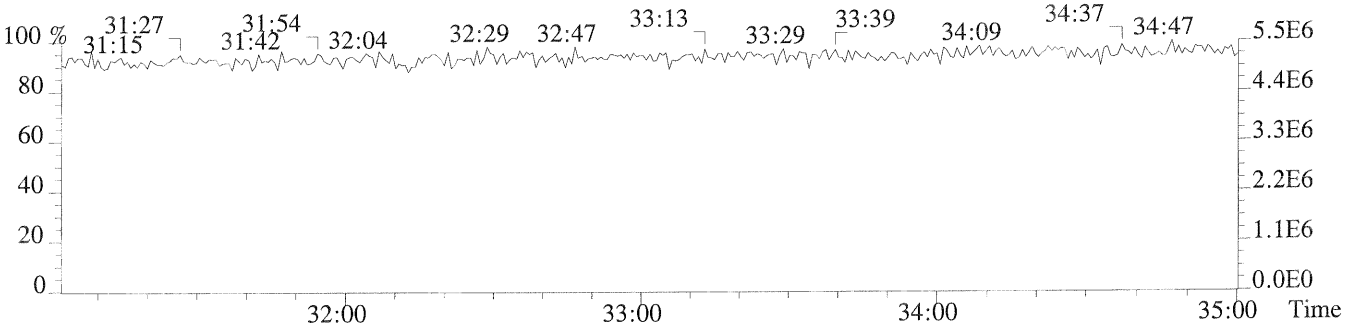
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,224.0,1.00%,F,T)

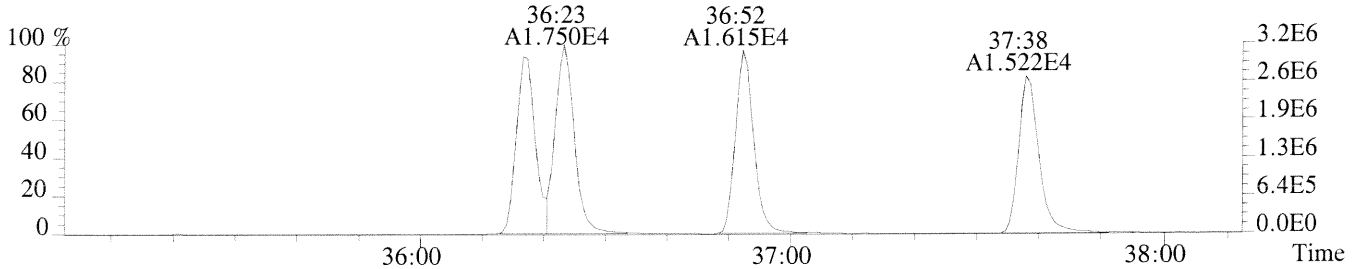


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

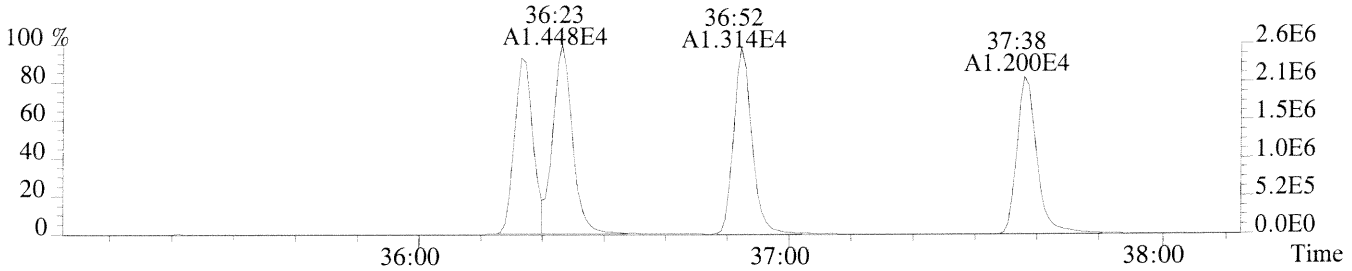


File:P229934 #1-288 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

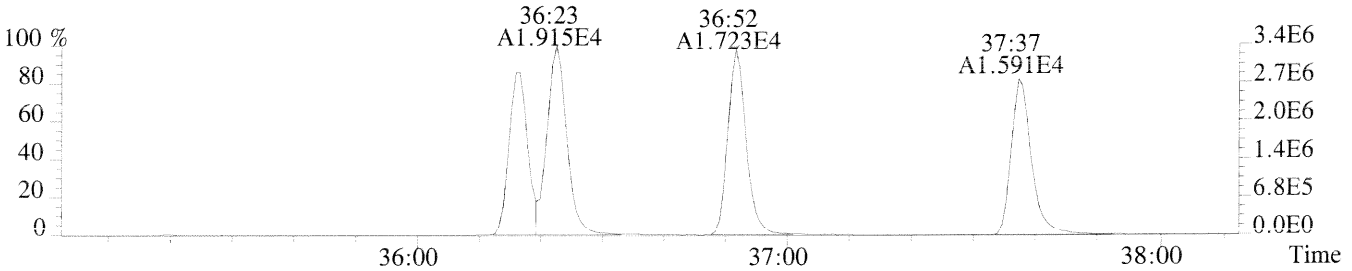
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,316.0,0.40%,F,T)



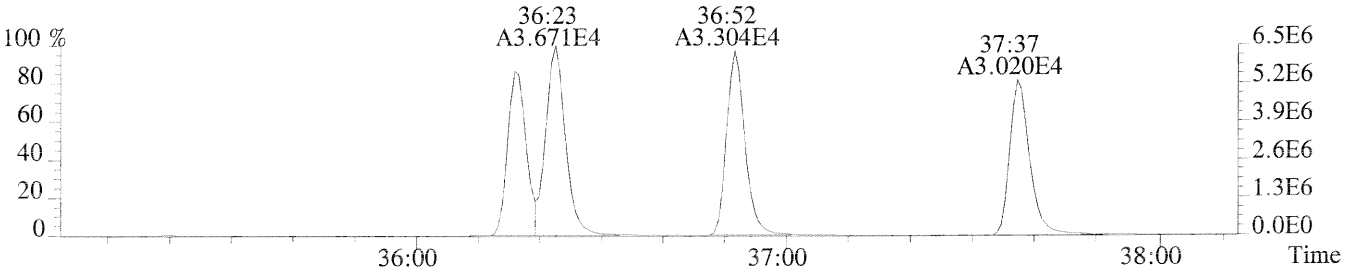
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,108.0,0.40%,F,T)



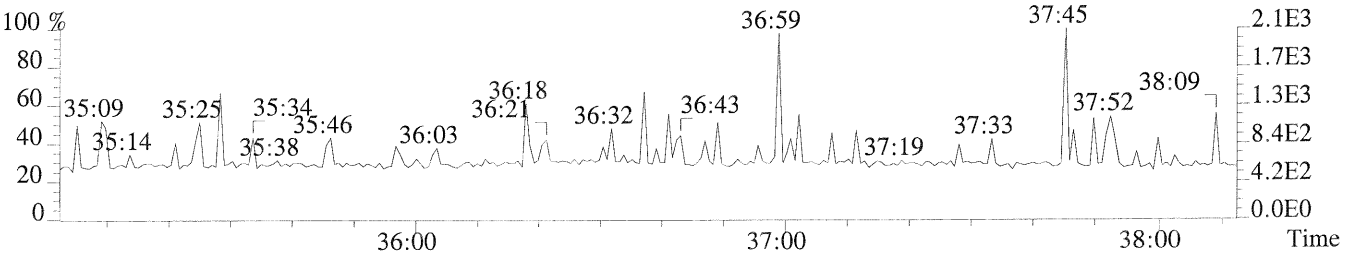
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,256.0,0.40%,F,T)



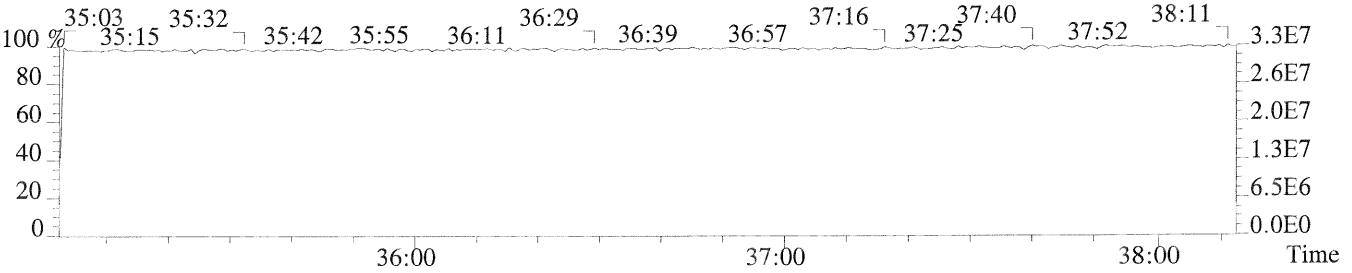
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



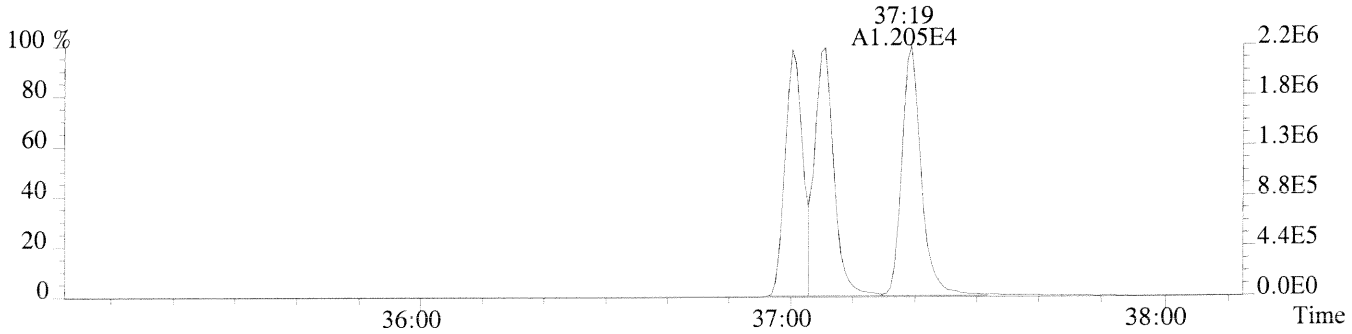
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



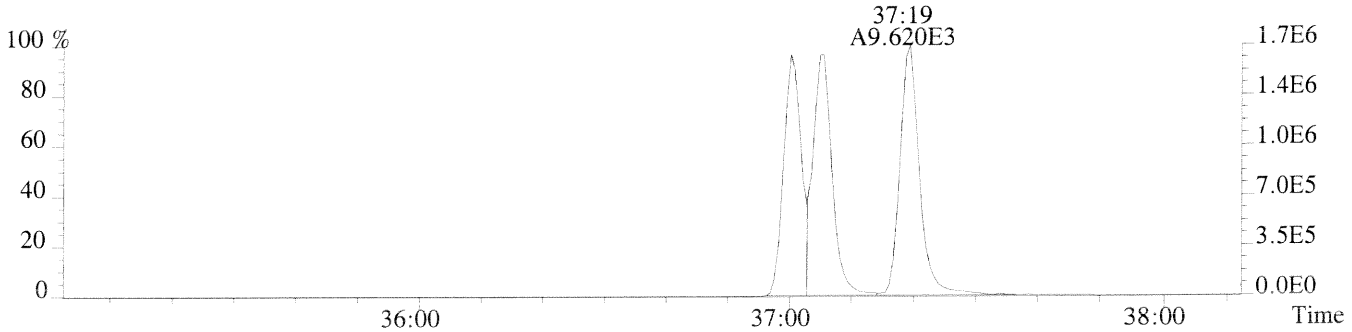
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



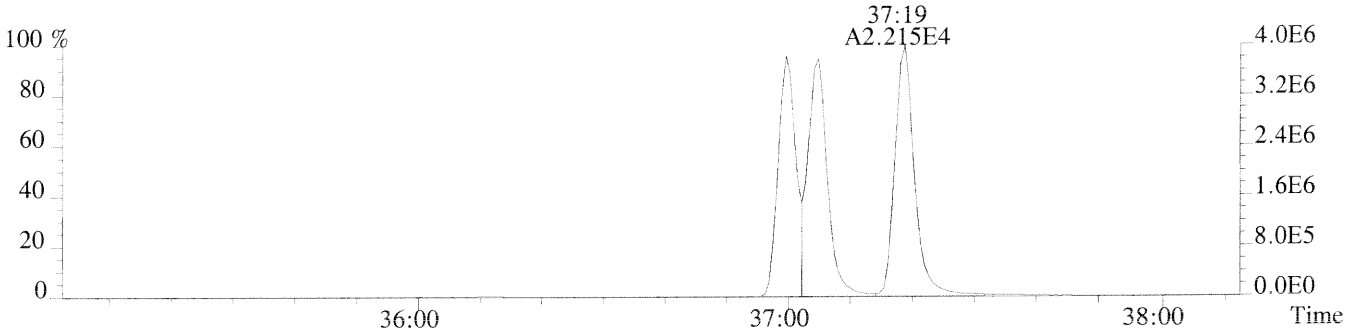
File:P229934 #1-288 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,200.0,0.40%,F,T)



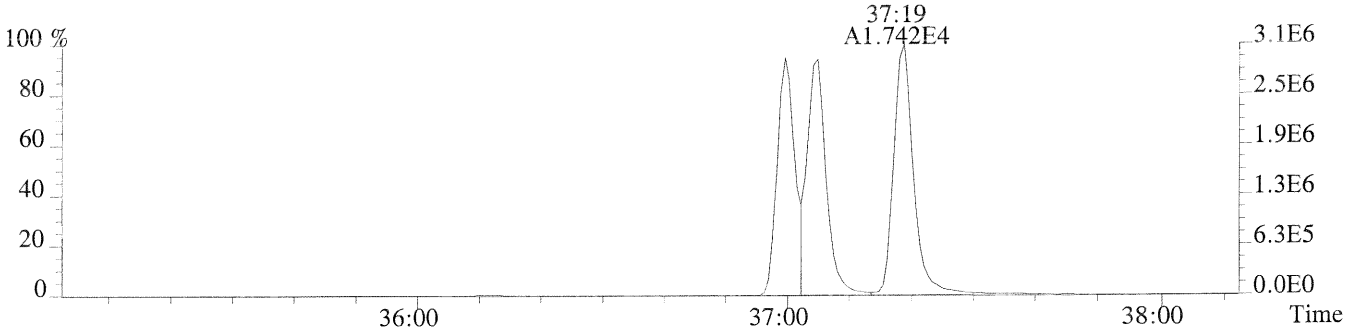
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,352.0,0.40%,F,T)



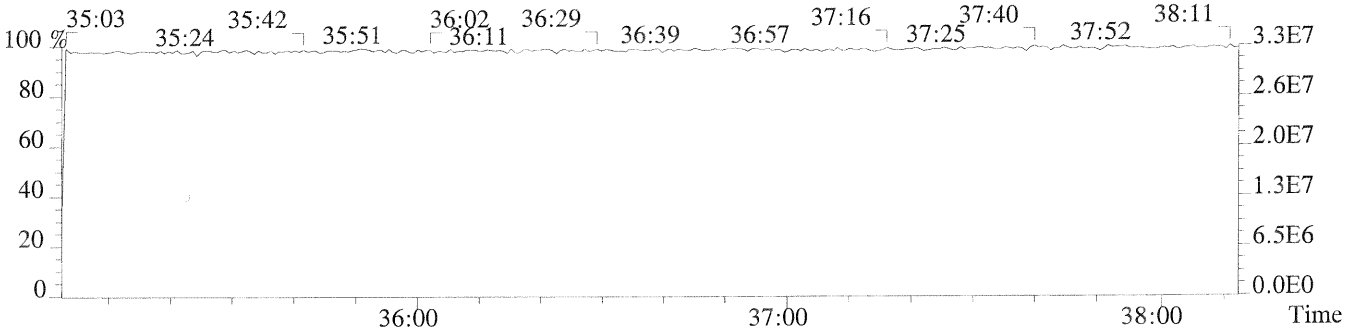
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,420.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,232.0,0.40%,F,T)

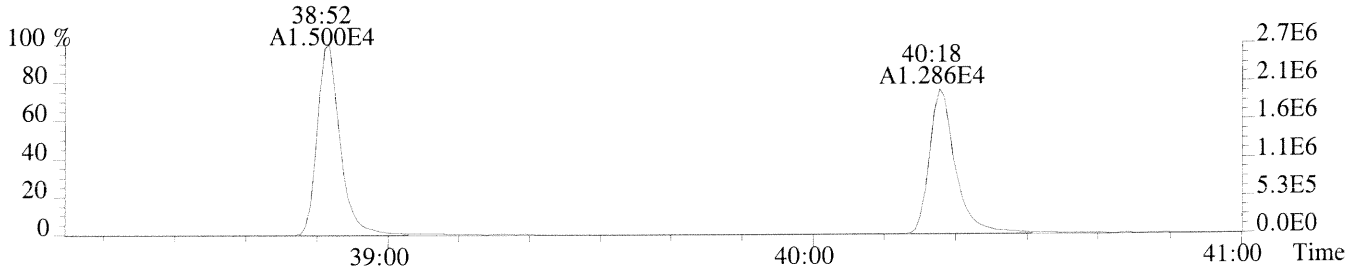


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

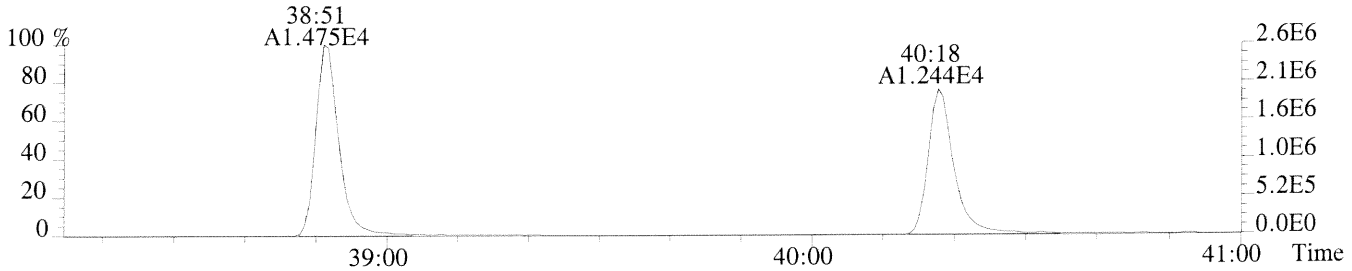


File:P229934 #1-251 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

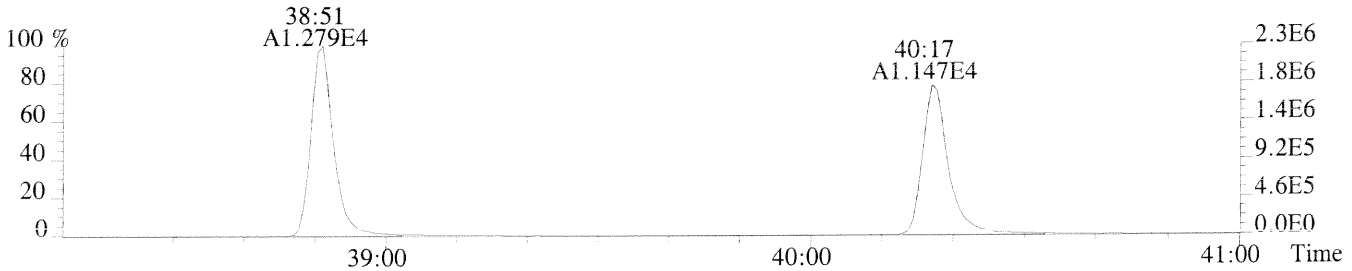
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1744.0,0.50%,F,T)



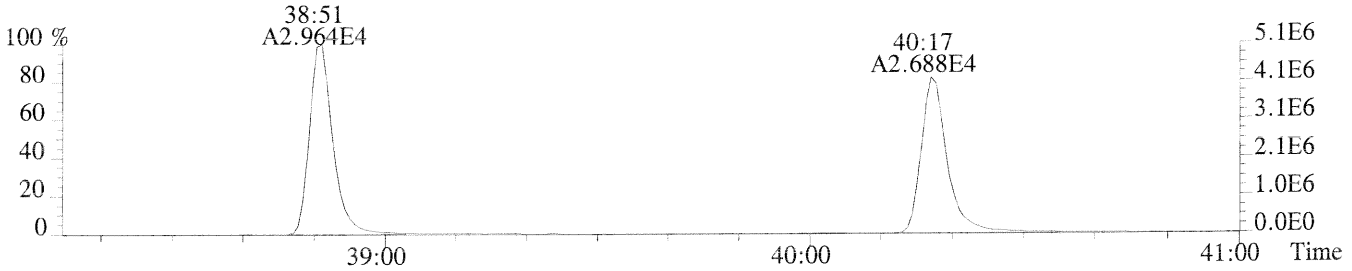
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.50%,F,T)



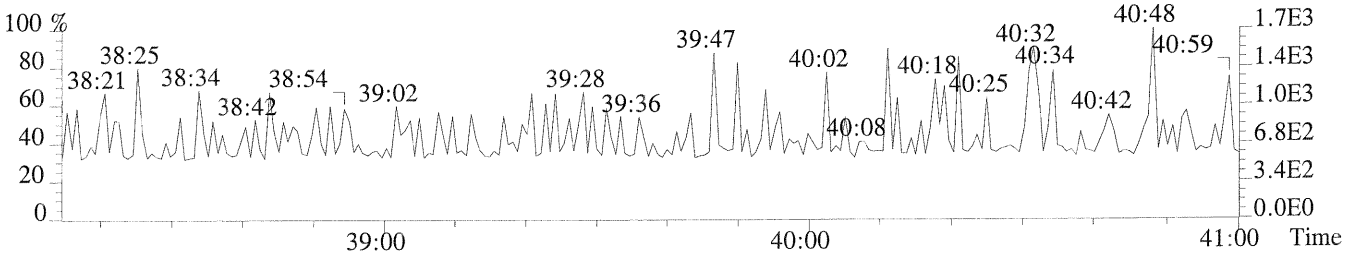
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1600.0,0.50%,F,T)



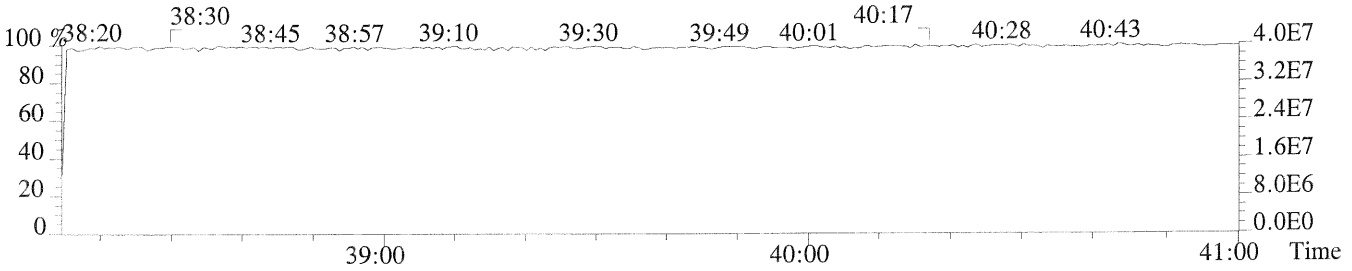
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3884.0,0.50%,F,T)



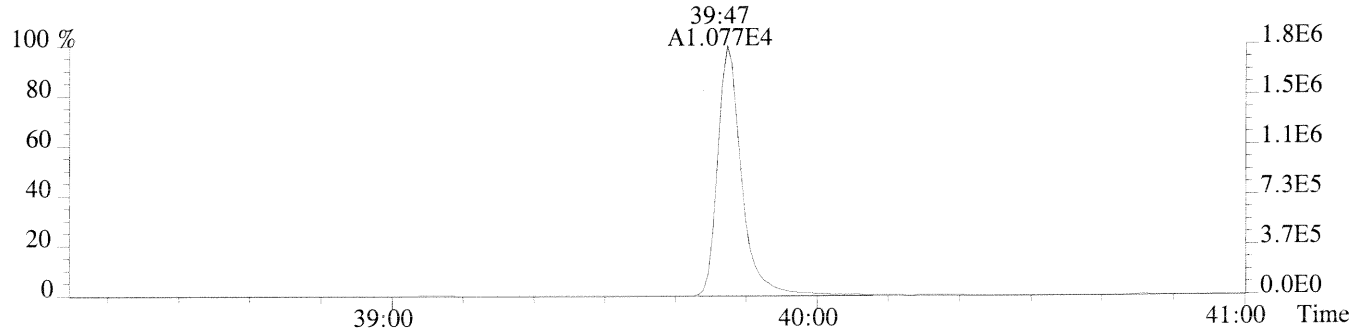
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



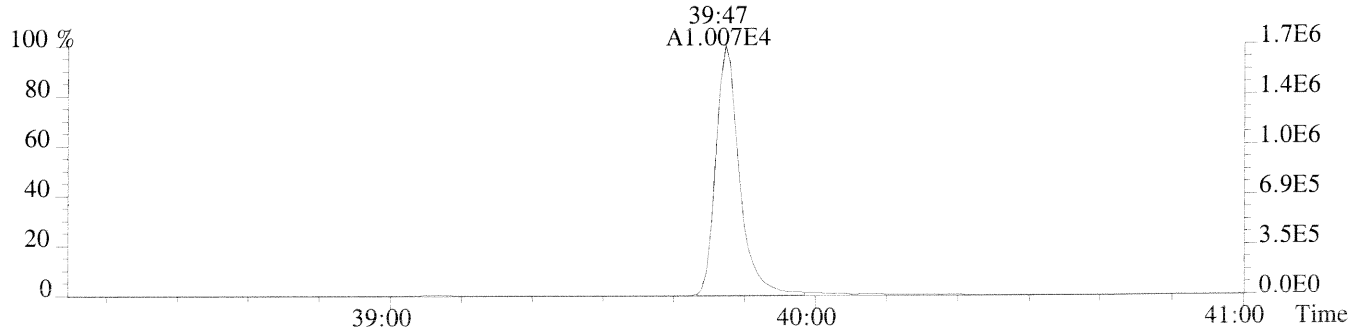
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



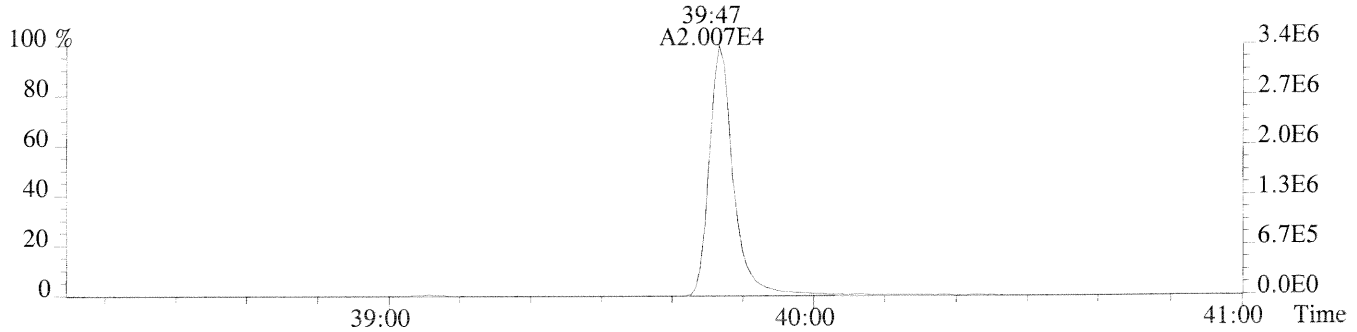
File:P229934 #1-251 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,340.0,0.40%,F,T)



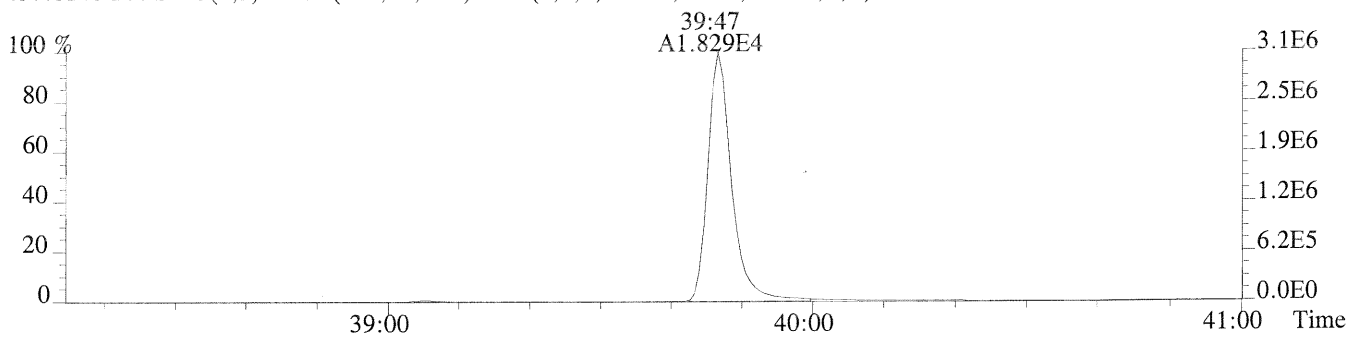
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,108.0,0.40%,F,T)



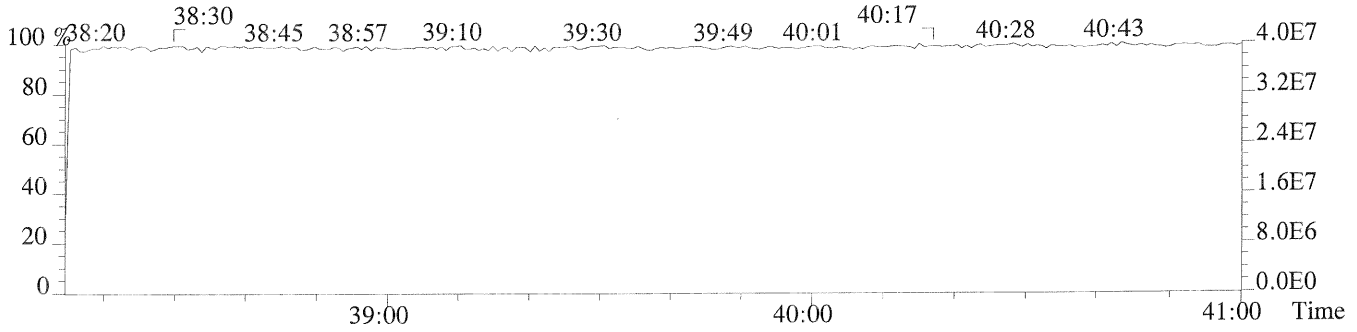
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



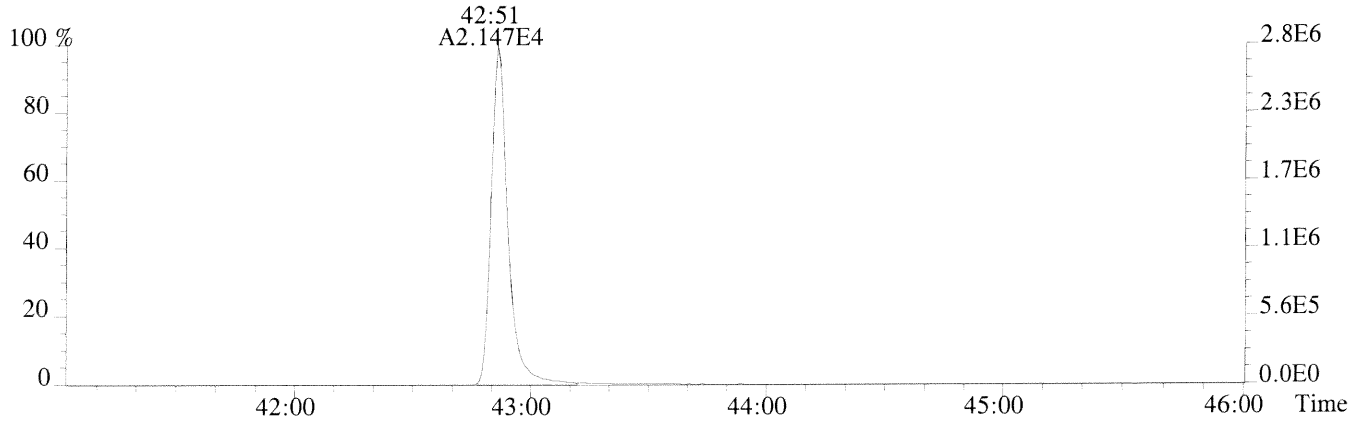
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,228.0,0.40%,F,T)



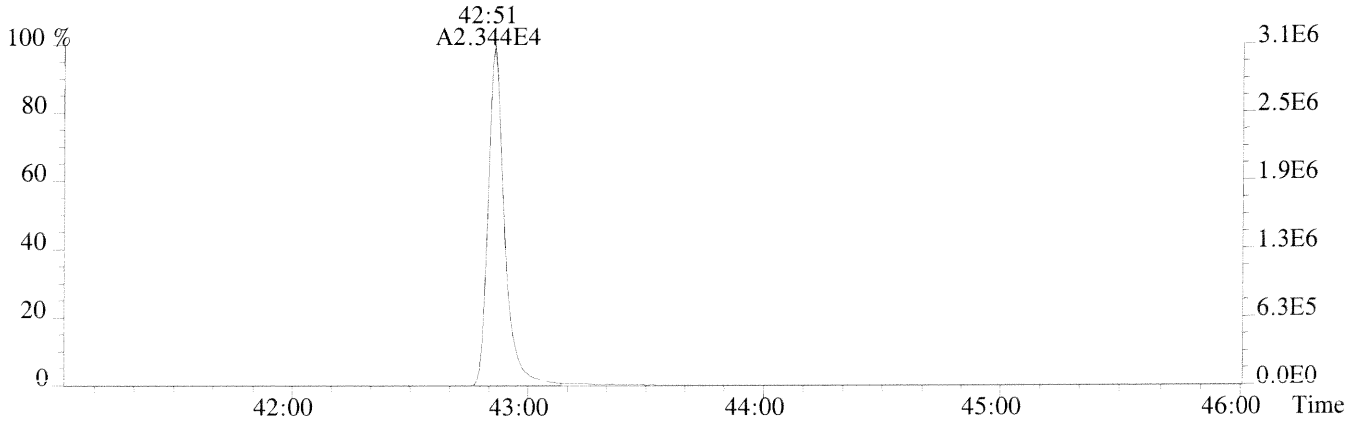
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



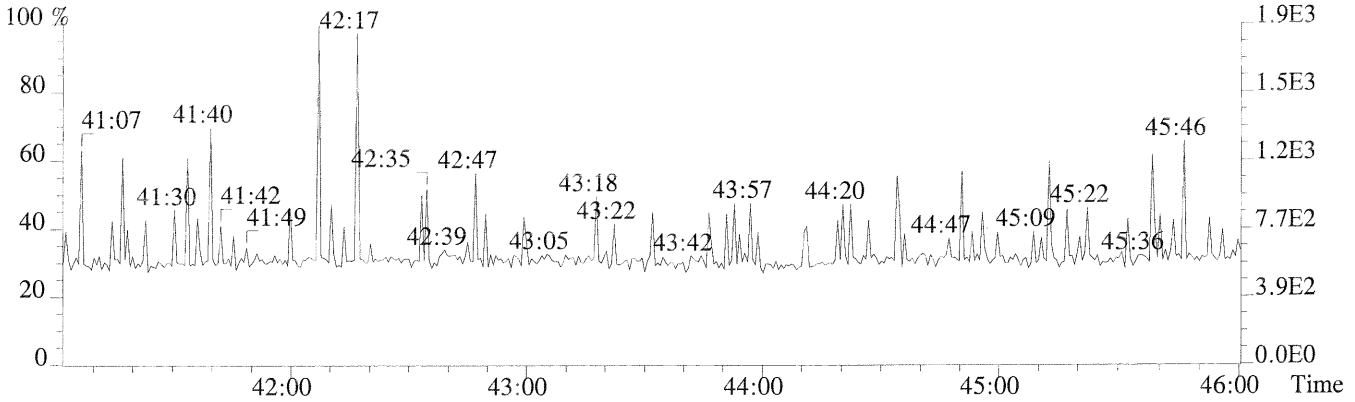
File:P229934 #1-457 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,244.0,0.40%,F,T)



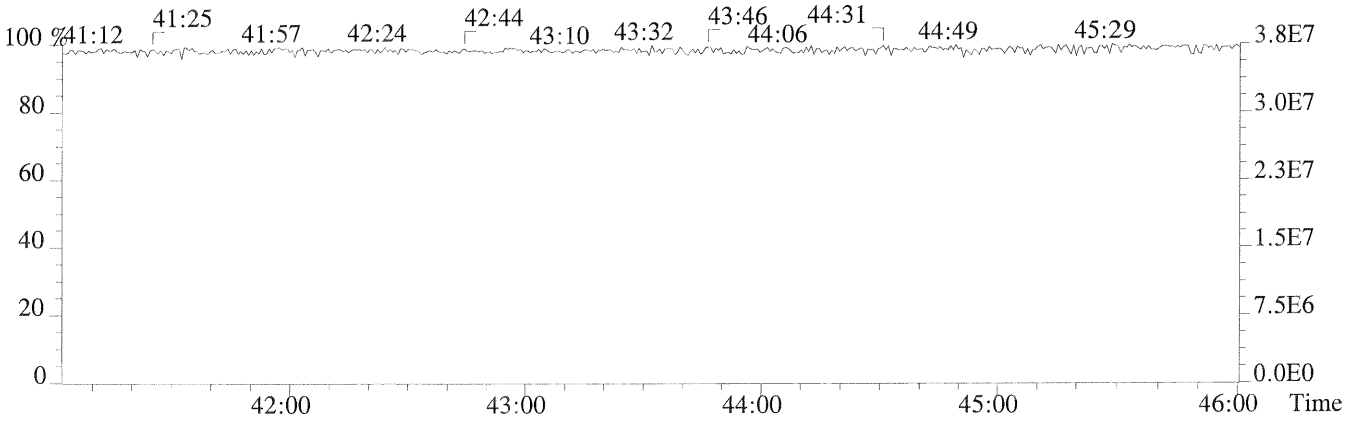
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



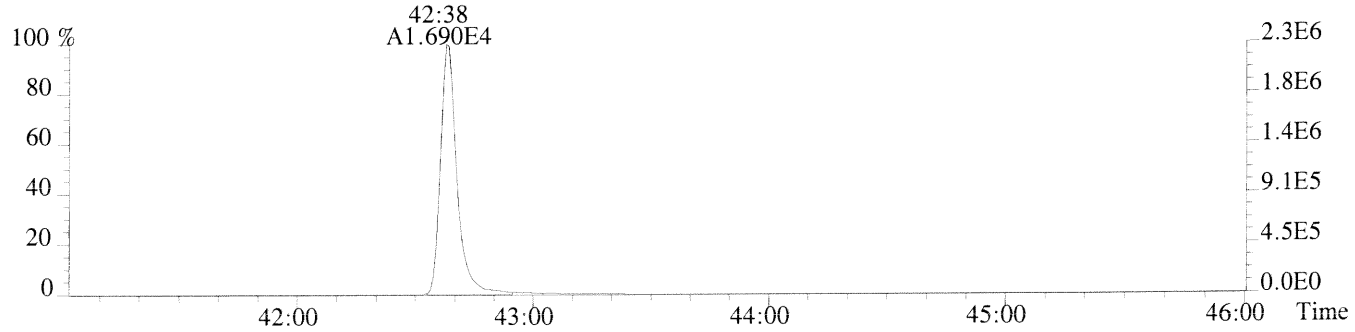
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



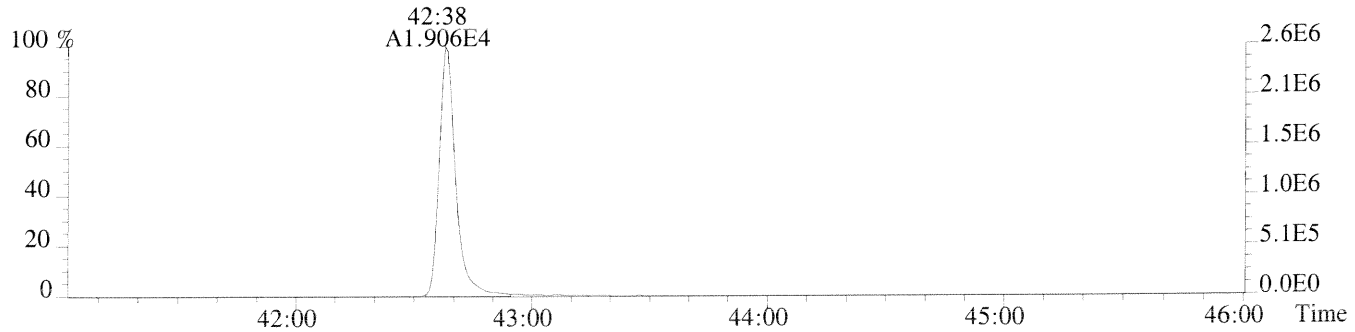
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



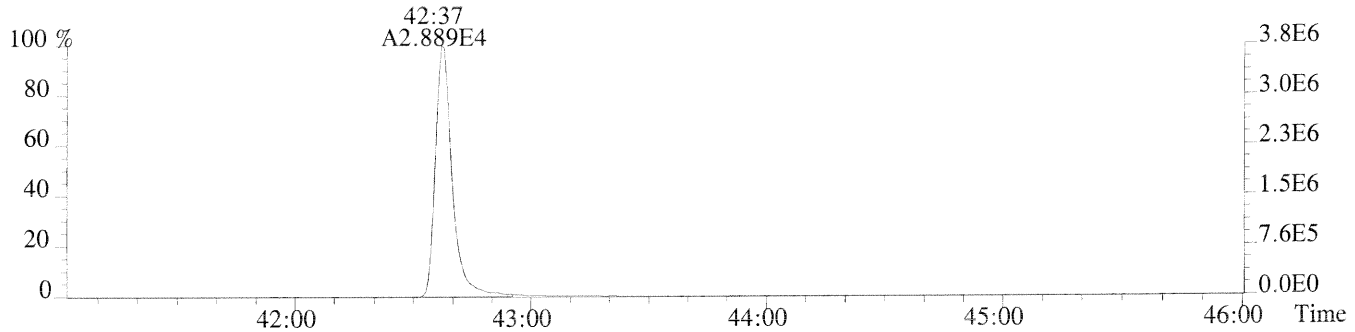
File:P229934 #1-457 Acq: 3-JUL-2014 02:08:18 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,60.0,0.40%,F,T)



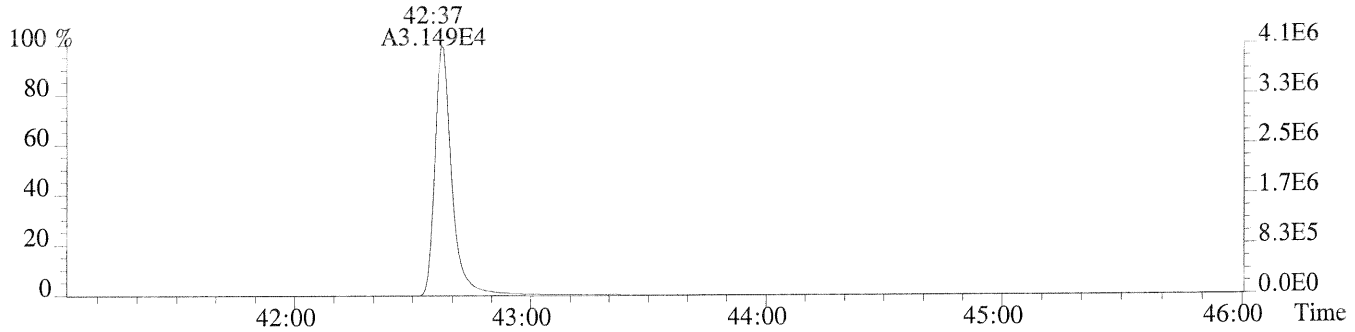
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,136.0,0.40%,F,T)



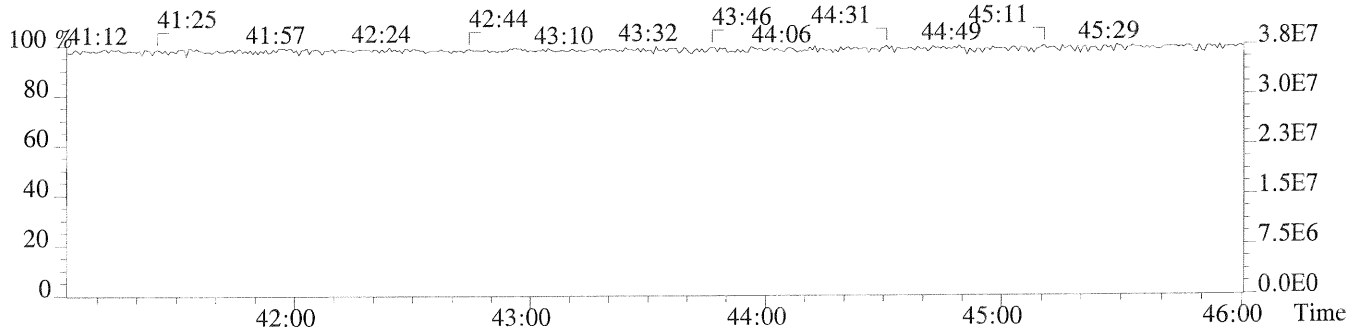
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,104.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,168.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5MSUI

VER Data Filename: P229946 | Analysis Date: 3-JUL-14 Time: 12:48:14

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	9.4	7.8 - 12.9	-5.7
1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	47	39 - 65	-7.0
1,2,3,4,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	45	39 - 64	-10.1
1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	47	39 - 64	-6.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.28	1.05-1.43	48	41 - 61	-3.5
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	47	43 - 58	-6.4
OCDD	M+2/M+4	0.90	0.76-1.02	91	79 - 126	-8.8
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	8.0	8.4 - 12.0	-20.3
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	46	41 - 60	-8.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	43	41 - 61	-13.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	46	45 - 56	-8.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.27	1.05-1.43	47	44 - 57	-6.8
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	46	45 - 56	-8.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	47	44 - 57	-6.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	47	45 - 55	-5.4
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	47	43 - 58	-6.0
OCDF	M+2/M+4	0.90	0.76-1.02	84	63 - 159	-15.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5MSUI

VER Data Filename: P229946 Analysis Date: 3-JUL-14 Time: 12:48:14

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	106	82 - 121	6.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.64	1.32-1.78	117	62 - 160	16.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.33	1.05-1.43	85	85 - 117	-14.7
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.31	1.05-1.43	99	85 - 118	-0.8
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	96	72 - 138	-3.6
13C-OCDD	M+2/M+4	0.92	0.76-1.02	206	96 - 415	2.8
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	111	71 - 140	10.6
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	108	76 - 130	8.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.63	1.32-1.78	113	77 - 130	13.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	79	76 - 131	-20.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	85	70 - 143	-14.6
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	91	74 - 135	-9.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	87	73 - 137	-13.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.43	0.37-0.51	86	78 - 129	-14.4
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.42	0.37-0.51	89	77 - 129	-11.4
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.5	7.8 - 12.7	4.8

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #8 Filename P229946 Samp: 1 Inj: 1 Acquired: 3-JUL-14 12:48:14
Processed: 7-JUL-14 10:49:32 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:40	1.006e+03	1.308e+03	0.77	yes	no	1.127
2	Unk	1,2,3,7,8-PeCDF	32:45	1.053e+04	6.756e+03	1.56	yes	no	1.123
3	Unk	2,3,4,7,8-PeCDF	33:39	9.959e+03	6.383e+03	1.56	yes	no	1.101
4	Unk	1,2,3,4,7,8-HxCDF	36:16	8.754e+03	7.073e+03	1.24	yes	no	1.338
5	Unk	1,2,3,6,7,8-HxCDF	36:22	1.033e+04	8.142e+03	1.27	yes	no	1.234
6	Unk	2,3,4,6,7,8-HxCDF	36:51	9.195e+03	7.395e+03	1.24	yes	no	1.233
7	Unk	1,2,3,7,8,9-HxCDF	37:37	8.363e+03	6.585e+03	1.27	yes	no	1.269
8	Unk	1,2,3,4,6,7,8-HpCDF	38:51	8.011e+03	7.822e+03	1.02	yes	no	1.421
9	Unk	1,2,3,4,7,8,9-HpCDF	40:17	6.664e+03	6.490e+03	1.03	yes	no	1.381
10	Unk	OCDF	42:50	1.103e+04	1.228e+04	0.90	yes	no	1.703
11	Unk	2,3,7,8-TCDD	29:26	7.360e+02	9.074e+02	0.81	yes	no	1.053
12	Unk	1,2,3,7,8-PeCDD	33:55	6.657e+03	4.118e+03	1.62	yes	no	1.069
13	Unk	1,2,3,4,7,8-HxCDD	37:00	5.683e+03	4.327e+03	1.31	yes	no	1.223
14	Unk	1,2,3,6,7,8-HxCDD	37:04	6.915e+03	5.366e+03	1.29	yes	no	1.168
15	Unk	1,2,3,7,8,9-HxCDD	37:18	6.812e+03	5.302e+03	1.28	yes	no	1.236
16	Unk	1,2,3,4,6,7,8-HpCDD	39:46	5.885e+03	5.453e+03	1.08	yes	no	1.170
17	Unk	OCDD	42:37	9.041e+03	1.003e+04	0.90	yes	no	1.288
18	IS	13C-2,3,7,8-TCDF	28:39	1.133e+04	1.442e+04	0.79	yes	no	1.389
19	IS	13C-1,2,3,7,8-PeCDF	32:45	2.092e+04	1.288e+04	1.62	yes	no	1.865
20	IS	13C-2,3,4,7,8-PeCDF	33:38	2.116e+04	1.301e+04	1.63	yes	no	1.804
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	8.800e+03	1.711e+04	0.51	yes	no	1.421
22	IS	13C-1,2,3,6,7,8-HxCDF	36:21	1.108e+04	2.104e+04	0.53	yes	no	1.639
23	IS	13C-2,3,4,6,7,8-HxCDF	36:51	9.972e+03	1.873e+04	0.53	yes	no	1.444
24	IS	13C-1,2,3,7,8,9-HxCDF	37:37	8.782e+03	1.705e+04	0.52	yes	no	1.241
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:50	7.029e+03	1.652e+04	0.43	yes	no	1.198
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:17	5.971e+03	1.430e+04	0.42	yes	no	0.997
27	IS	13C-2,3,7,8-TCDD	29:24	7.173e+03	9.373e+03	0.77	yes	no	0.930
28	IS	13C-1,2,3,7,8-PeCDD	33:54	1.345e+04	8.213e+03	1.64	yes	no	1.107
29	IS	13C-1,2,3,4,7,8-HxCDD	36:58	1.040e+04	7.814e+03	1.33	yes	no	0.930
30	IS	13C-1,2,3,6,7,8-HxCDD	37:04	1.268e+04	9.717e+03	1.31	yes	no	0.983
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:45	1.068e+04	1.003e+04	1.06	yes	no	0.935
32	IS	13C-OCDD	42:36	1.551e+04	1.693e+04	0.92	yes	no	0.687
33	RS/RT	13C-1,2,3,4-TCDD	28:50	7.433e+03	9.326e+03	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:18	1.290e+04	1.006e+04	1.28	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:26	1.661e+03				no	0.946

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #8 Filename P229946 Samp: 1 Inj: 1 Acquired: 3-JUL-14 12:48:14
Processed: 7-JUL-14 10:49:321 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.76e+05	1.16e+02	1.5e+03	2.25e+05	1.36e+03	1.7e+02
2	1,2,3,7,8-PeCDF	1.66e+06	2.48e+02	6.7e+03	1.08e+06	1.23e+03	8.8e+02
3	2,3,4,7,8-PeCDF	1.66e+06	2.48e+02	6.7e+03	1.04e+06	1.23e+03	8.4e+02
4	1,2,3,4,7,8-HxCDF	1.62e+06	5.16e+02	3.1e+03	1.29e+06	7.60e+01	1.7e+04
5	1,2,3,6,7,8-HxCDF	1.67e+06	5.16e+02	3.2e+03	1.35e+06	7.60e+01	1.8e+04
6	2,3,4,6,7,8-HxCDF	1.63e+06	5.16e+02	3.2e+03	1.32e+06	7.60e+01	1.7e+04
7	1,2,3,7,8,9-HxCDF	1.36e+06	5.16e+02	2.6e+03	1.05e+06	7.60e+01	1.4e+04
8	1,2,3,4,6,7,8-HpCDF	1.32e+06	4.00e+02	3.3e+03	1.32e+06	9.00e+02	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	9.63e+05	4.00e+02	2.4e+03	9.49e+05	9.00e+02	1.1e+03
10	OCDF	1.29e+06	2.36e+02	5.5e+03	1.46e+06	8.00e+02	1.8e+03
11	2,3,7,8-TCDD	1.32e+05	4.60e+02	2.9e+02	1.64e+05	4.16e+02	3.9e+02
12	1,2,3,7,8-PeCDD	1.10e+06	5.52e+02	2.0e+03	6.66e+05	6.80e+01	9.8e+03
13	1,2,3,4,7,8-HxCDD	1.11e+06	4.28e+02	2.6e+03	8.33e+05	4.08e+02	2.0e+03
14	1,2,3,6,7,8-HxCDD	1.14e+06	4.28e+02	2.7e+03	8.75e+05	4.08e+02	2.1e+03
15	1,2,3,7,8,9-HxCDD	1.13e+06	4.28e+02	2.6e+03	8.82e+05	4.08e+02	2.2e+03
16	1,2,3,4,6,7,8-HpCDD	8.96e+05	3.64e+02	2.5e+03	8.16e+05	4.80e+01	1.7e+04
17	OCDD	1.07e+06	1.44e+02	7.5e+03	1.18e+06	3.36e+02	3.5e+03
18	13C-2,3,7,8-TCDF	2.02e+06	6.52e+02	3.1e+03	2.56e+06	1.10e+03	2.3e+03
19	13C-1,2,3,7,8-PeCDF	3.27e+06	1.64e+02	2.0e+04	2.06e+06	1.24e+02	1.7e+04
20	13C-2,3,4,7,8-PeCDF	3.50e+06	1.64e+02	2.1e+04	2.17e+06	1.24e+02	1.7e+04
21	13C-1,2,3,4,7,8-HxCDF	1.62e+06	1.32e+02	1.2e+04	3.13e+06	3.88e+02	8.1e+03
22	13C-1,2,3,6,7,8-HxCDF	1.77e+06	1.32e+02	1.3e+04	3.48e+06	3.88e+02	9.0e+03
23	13C-2,3,4,6,7,8-HxCDF	1.78e+06	1.32e+02	1.3e+04	3.32e+06	3.88e+02	8.6e+03
24	13C-1,2,3,7,8,9-HxCDF	1.41e+06	1.32e+02	1.1e+04	2.69e+06	3.88e+02	6.9e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.14e+06	1.32e+03	8.6e+02	2.70e+06	3.22e+03	8.4e+02
26	13C-1,2,3,4,7,8,9-HpCDF	8.71e+05	1.32e+03	6.6e+02	2.04e+06	3.22e+03	6.3e+02
27	13C-2,3,7,8-TCDD	1.33e+06	2.26e+03	5.9e+02	1.74e+06	1.22e+03	1.4e+03
28	13C-1,2,3,7,8-PeCDD	2.21e+06	6.08e+02	3.6e+03	1.35e+06	3.72e+02	3.6e+03
29	13C-1,2,3,4,7,8-HxCDD	2.01e+06	5.92e+02	3.4e+03	1.52e+06	4.60e+02	3.3e+03
30	13C-1,2,3,6,7,8-HxCDD	2.08e+06	5.92e+02	3.5e+03	1.61e+06	4.60e+02	3.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.61e+06	4.72e+02	3.4e+03	1.50e+06	4.40e+01	3.4e+04
32	13C-OCDD	1.86e+06	3.44e+02	5.4e+03	2.02e+06	2.96e+02	6.8e+03
33	13C-1,2,3,4-TCDD	1.40e+06	2.26e+03	6.2e+02	1.74e+06	1.22e+03	1.4e+03
34	13C-1,2,3,7,8,9-HxCDD	2.14e+06	5.92e+02	3.6e+03	1.69e+06	4.60e+02	3.7e+03
35	37Cl-2,3,7,8-TCDD	3.04e+05	2.36e+02	1.3e+03			

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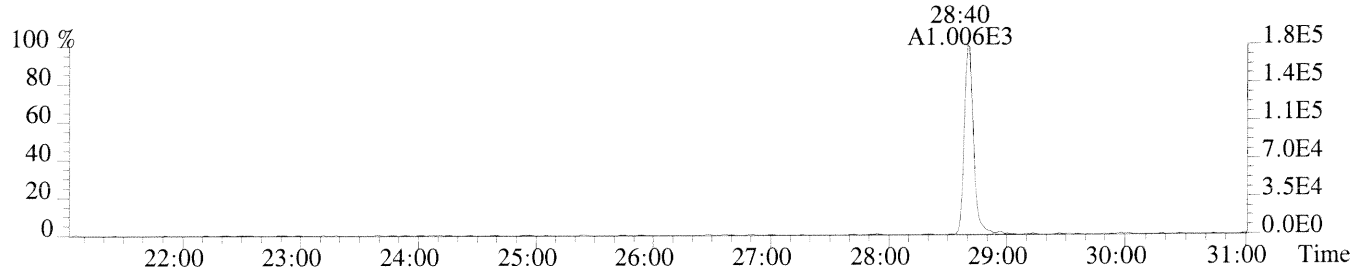
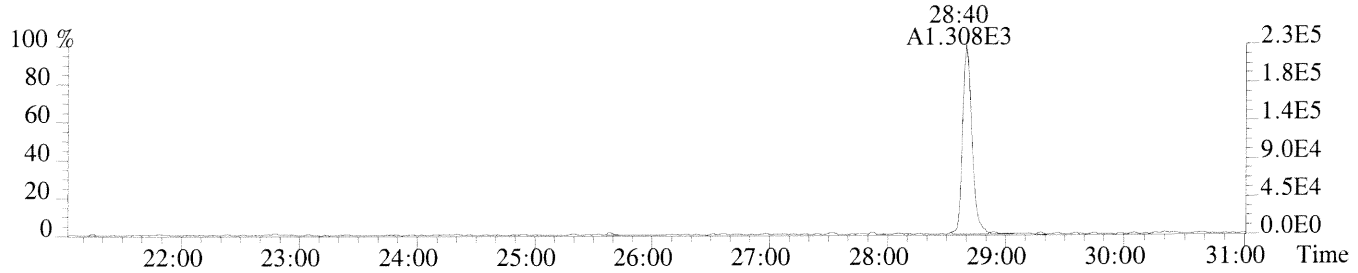
File:P229946 #1-627 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

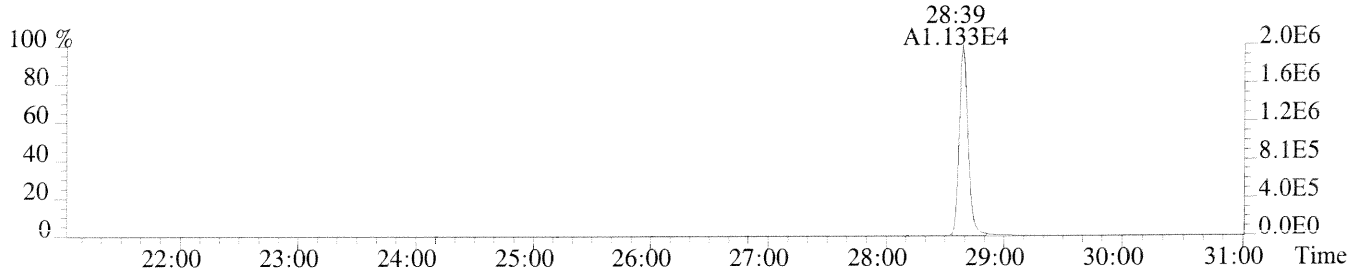
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,116.0,1.00%,F,T)



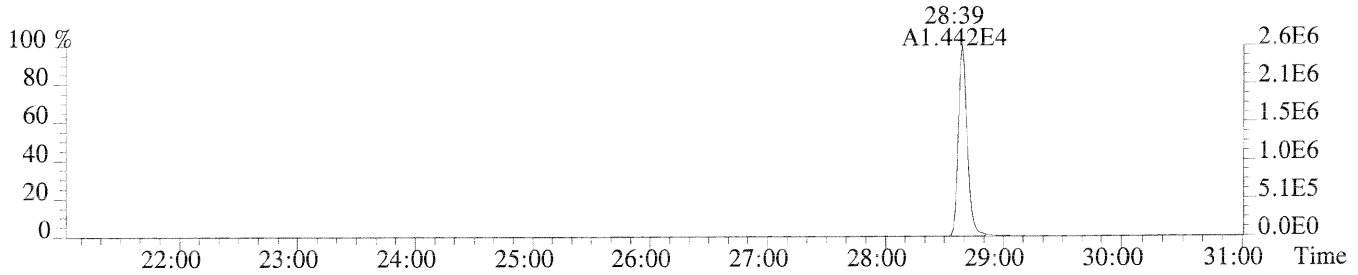
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1356.0,1.00%,F,T)



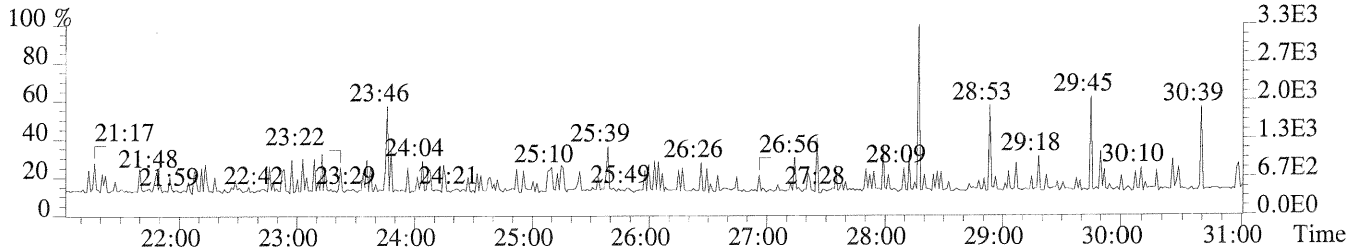
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



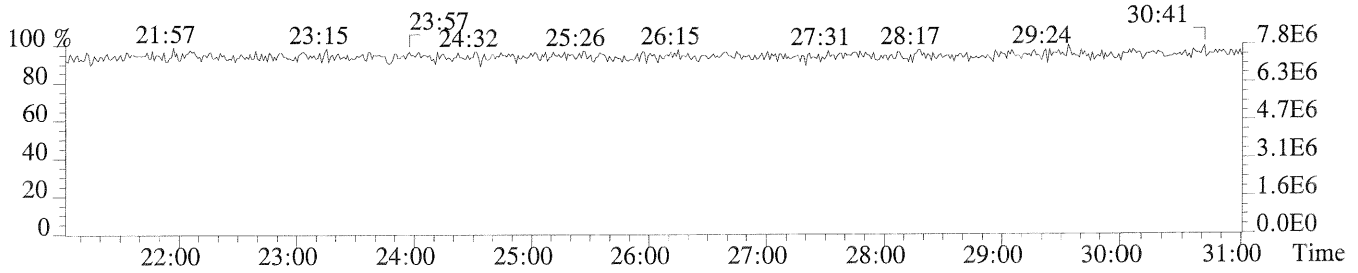
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

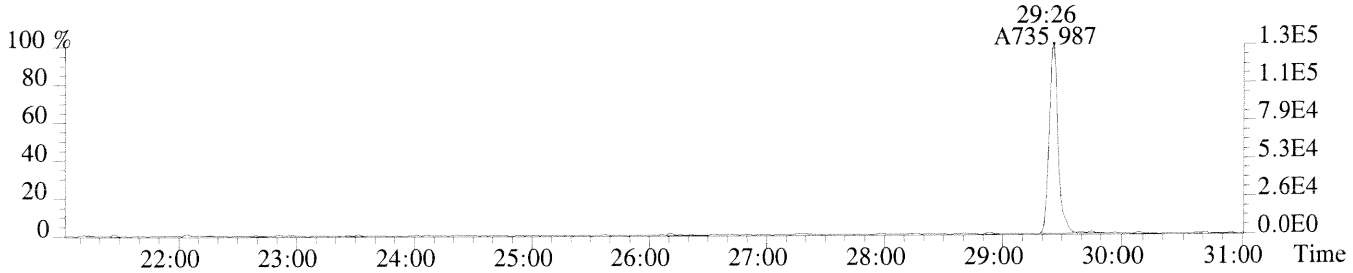


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

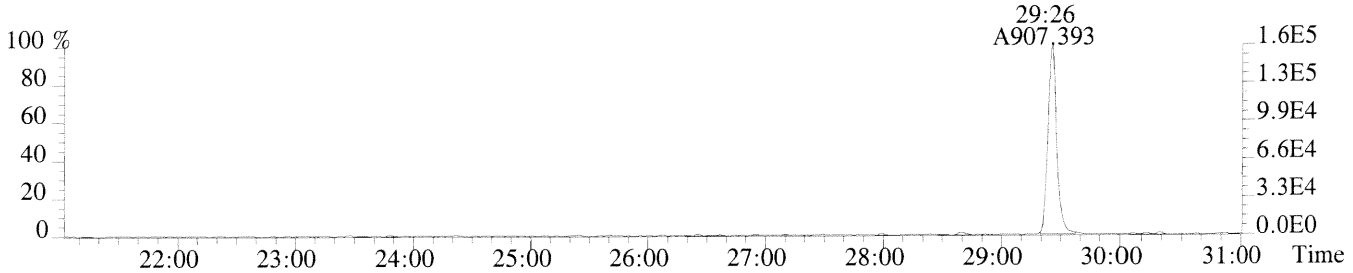


File:P229946 #1-627 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

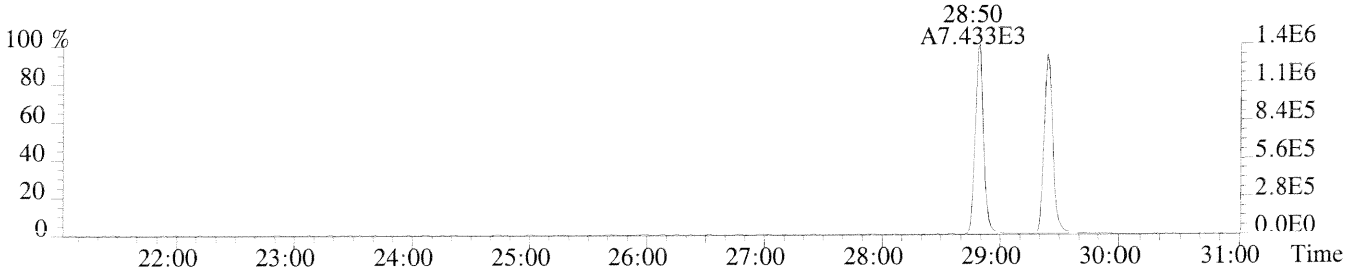
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,460.0,1.00%,F,T)



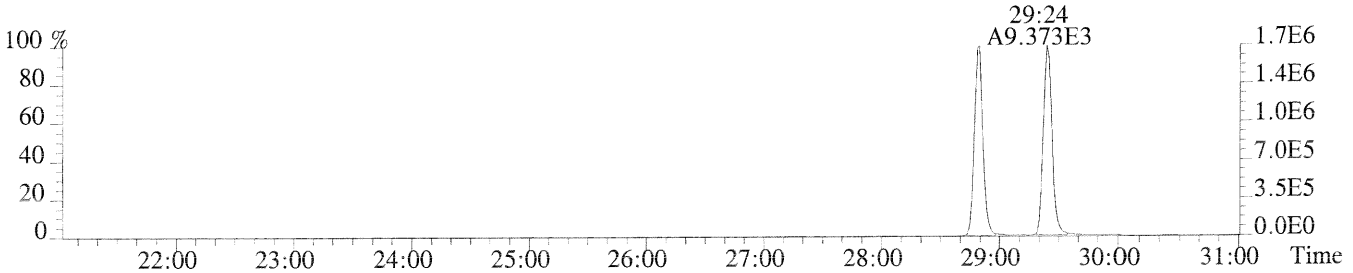
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,416.0,1.00%,F,T)



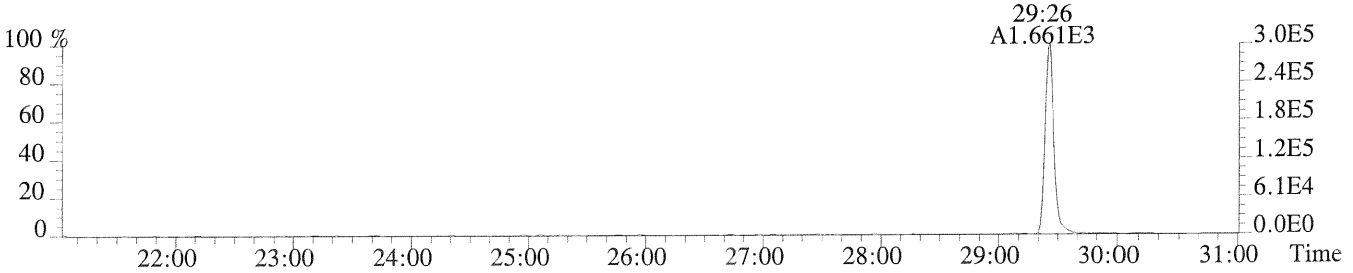
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2264.0,1.00%,F,T)



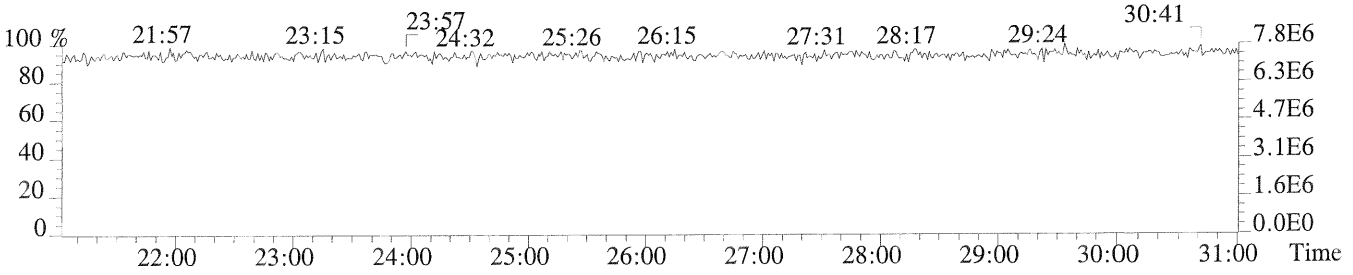
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



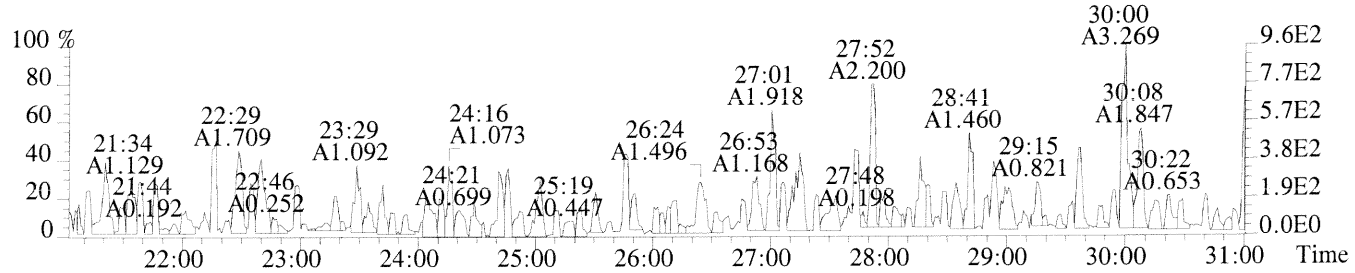
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,236.0,1.00%,F,T)



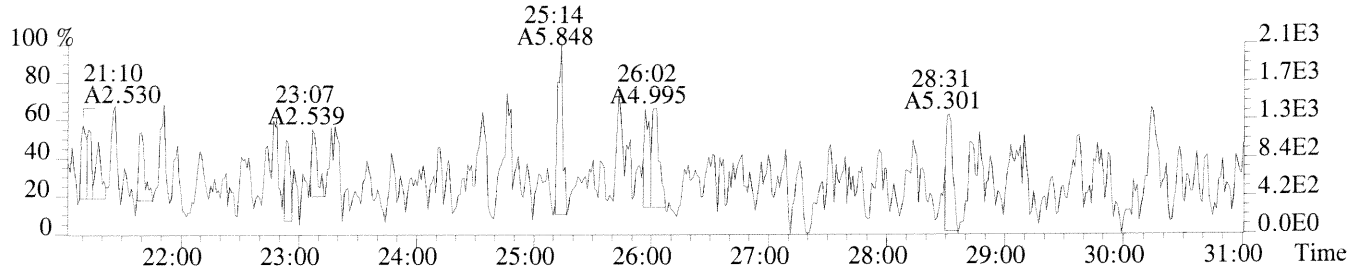
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



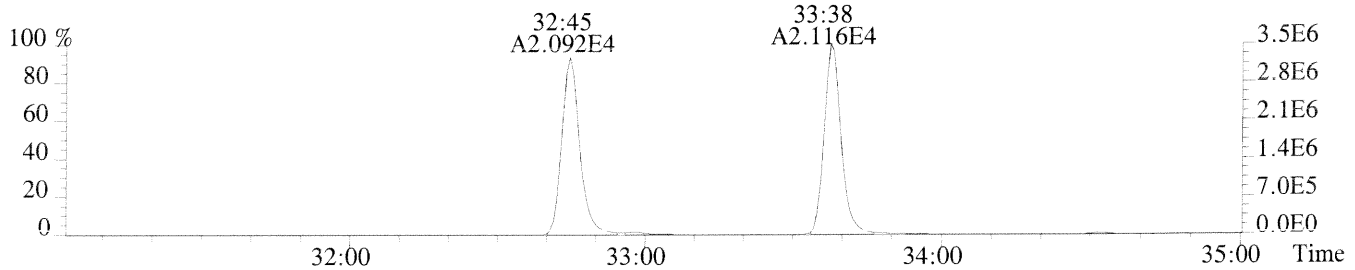
File:P229946 #1-627 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,64.0,1.00%,F,T)



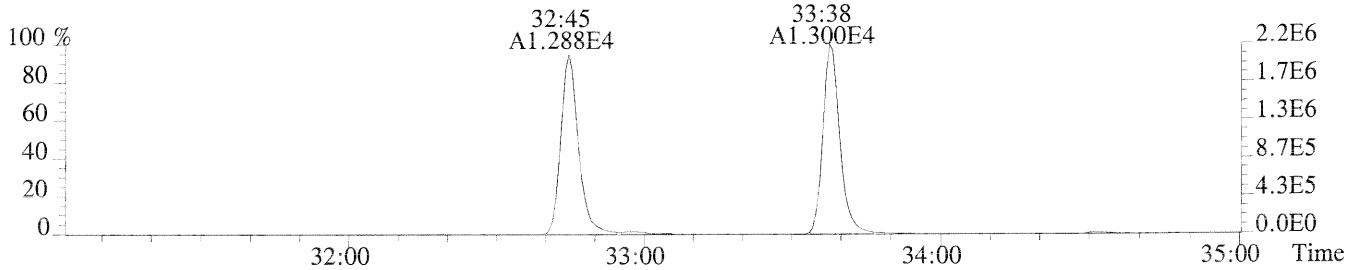
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



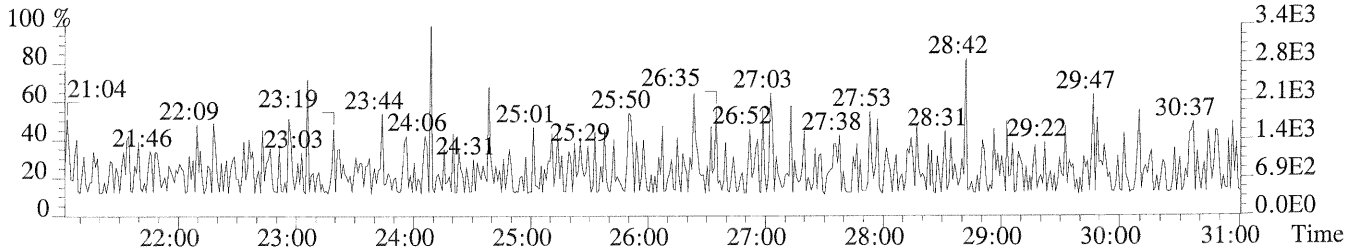
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



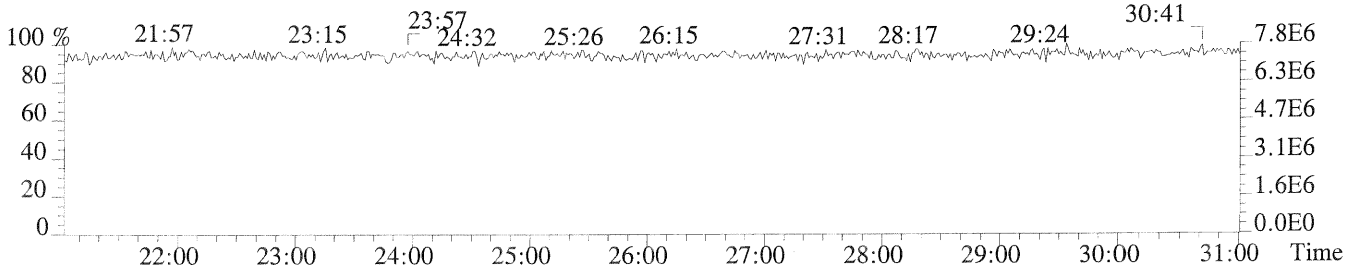
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,124.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

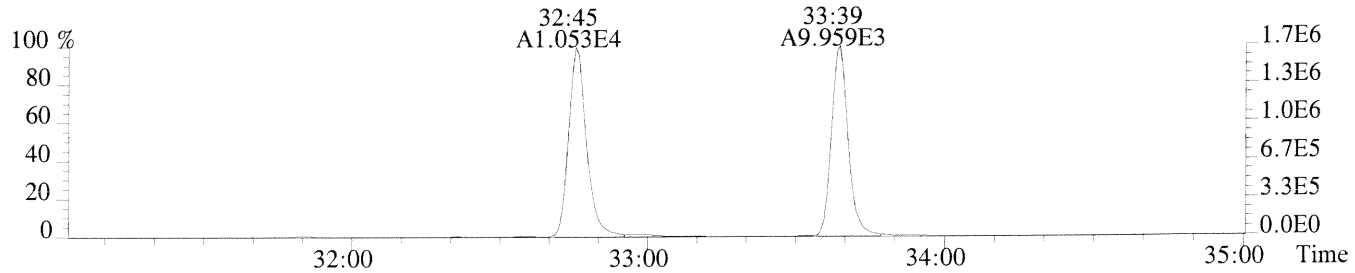


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

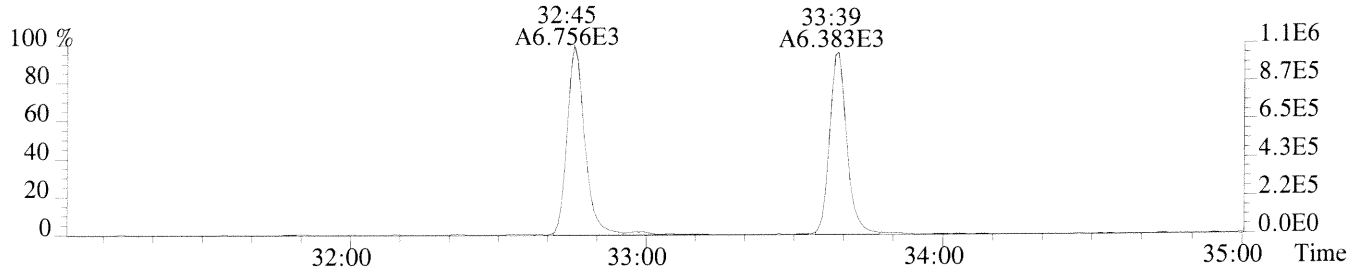


File:P229946 #1-360 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

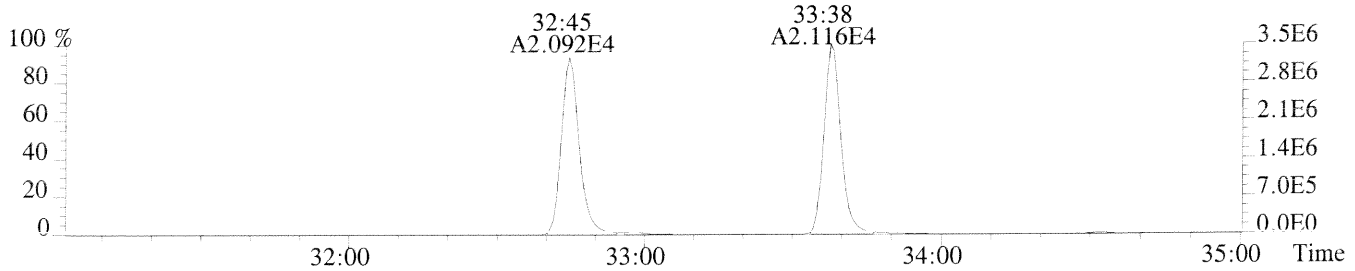
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,248.0,1.00%,F,T)



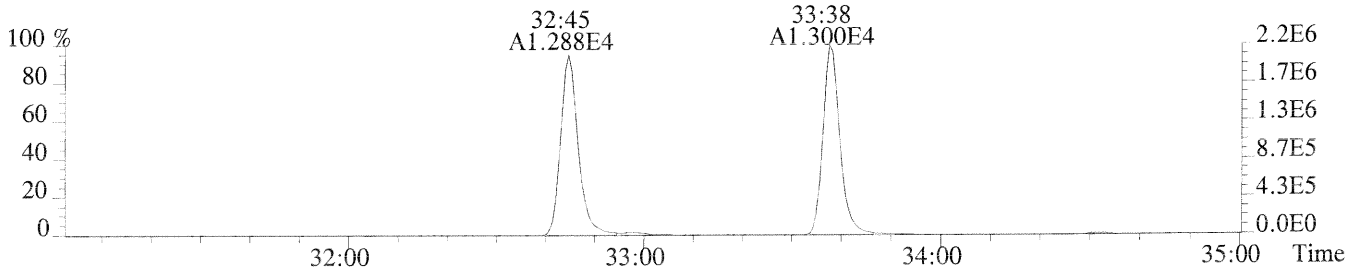
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



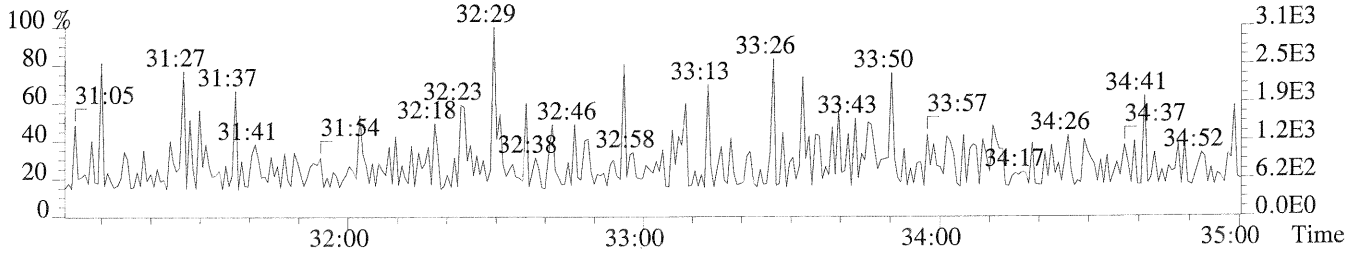
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,164.0,1.00%,F,T)



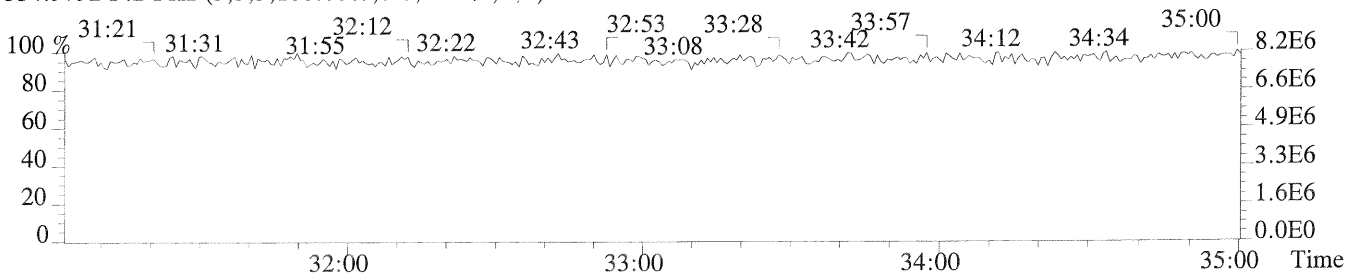
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,124.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

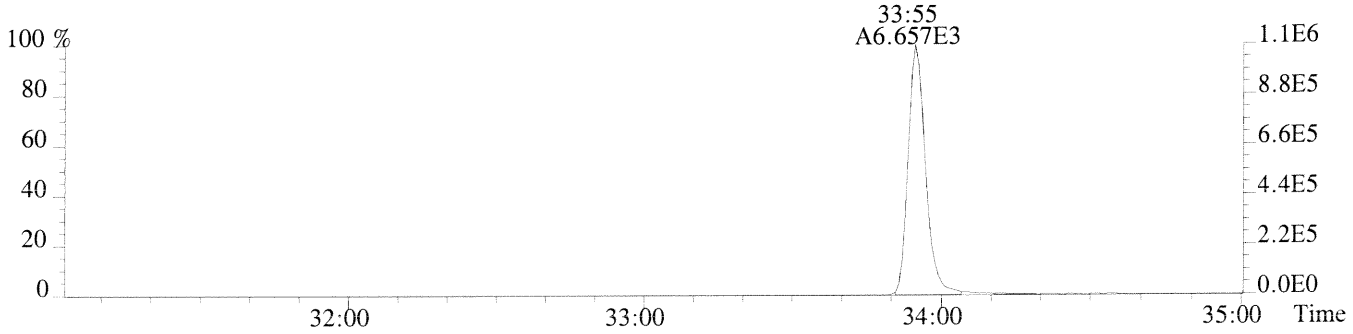


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

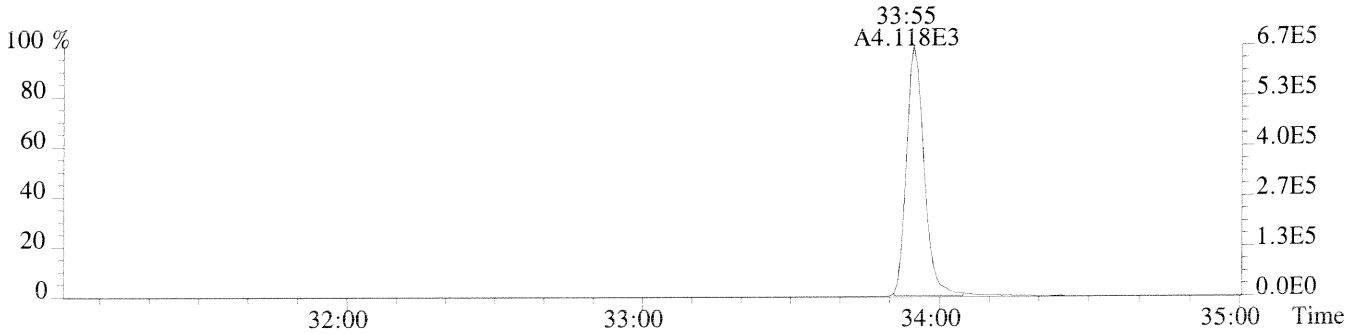


File:P229946 #1-360 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

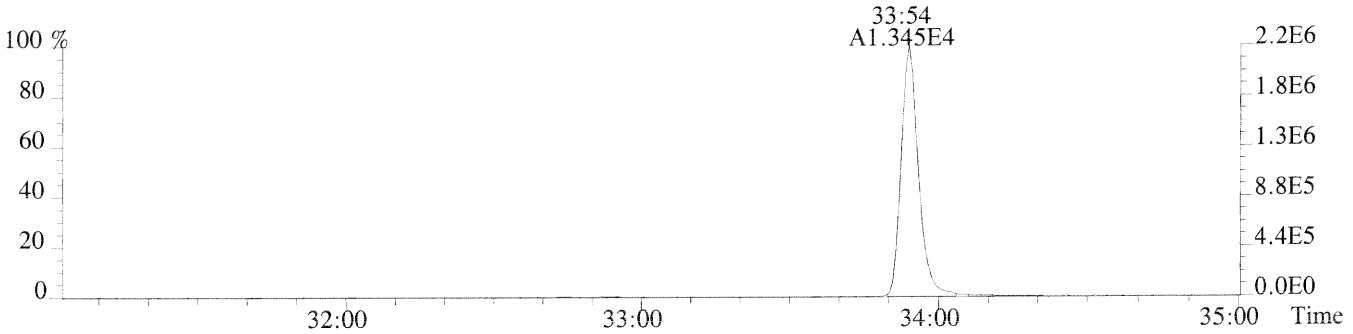
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



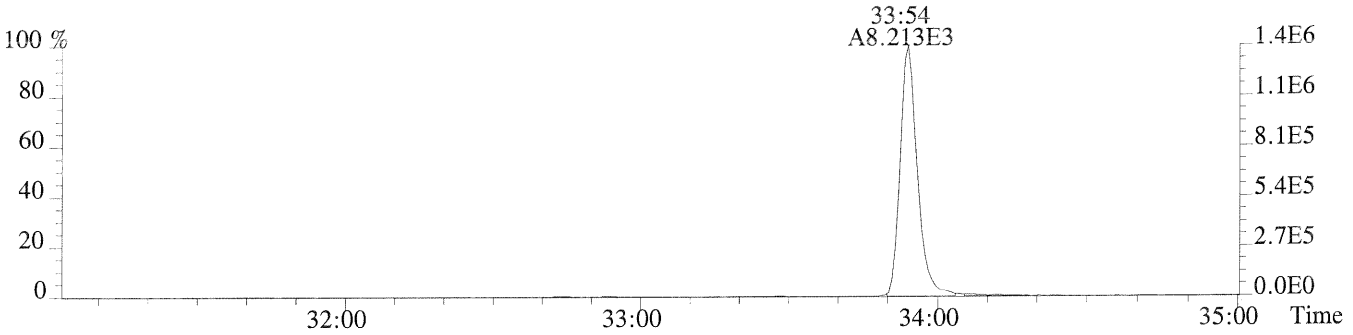
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,68.0,1.00%,F,T)



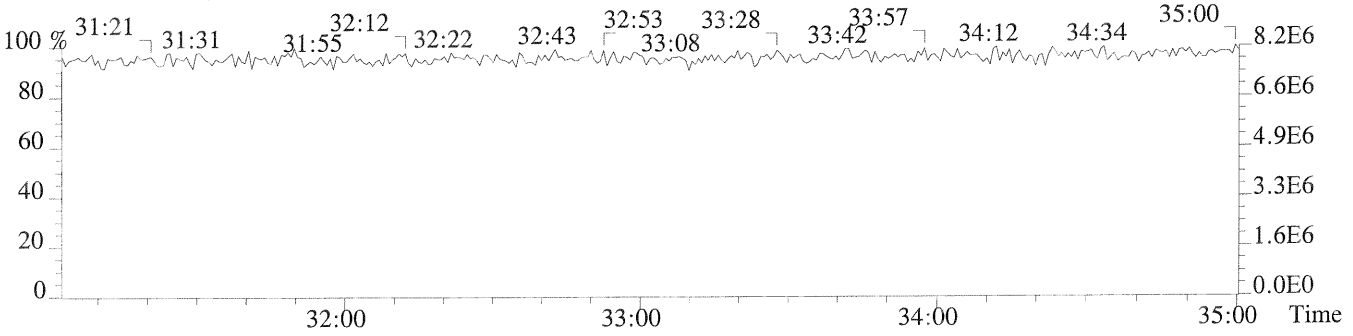
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)

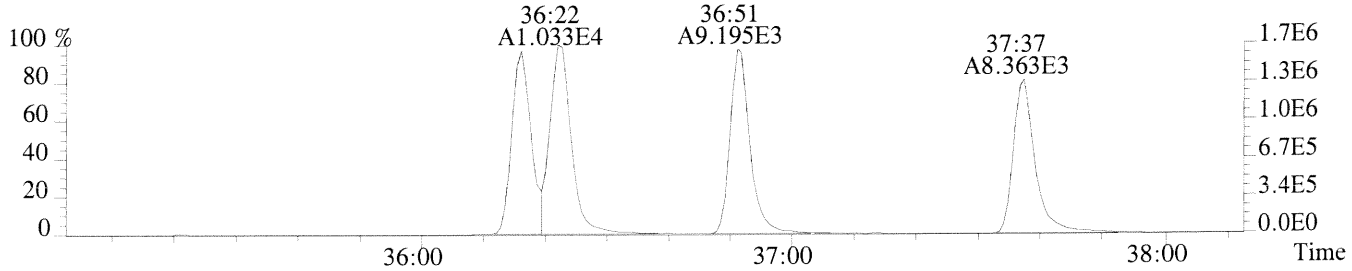


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

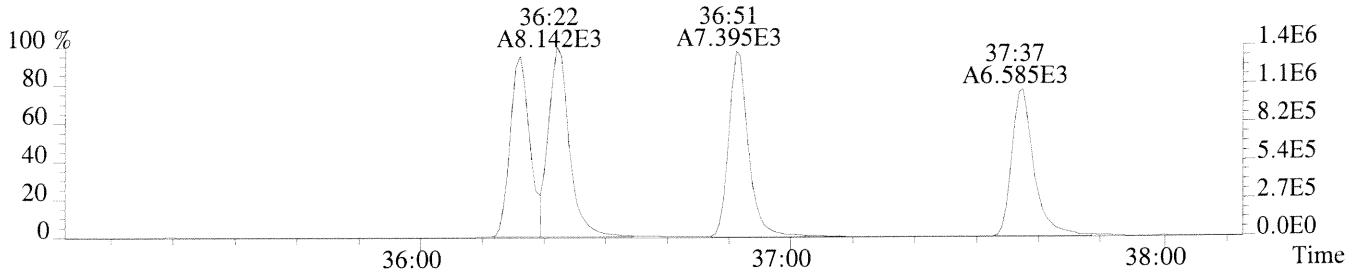


File:P229946 #1-288 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

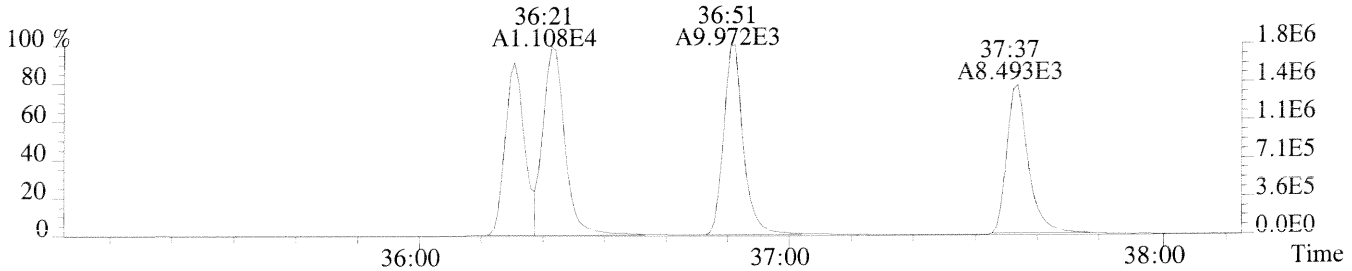
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



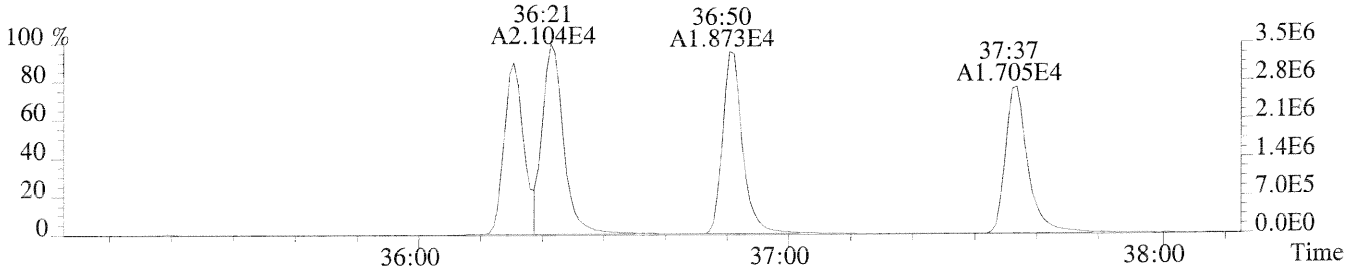
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,76.0,0.40%,F,T)



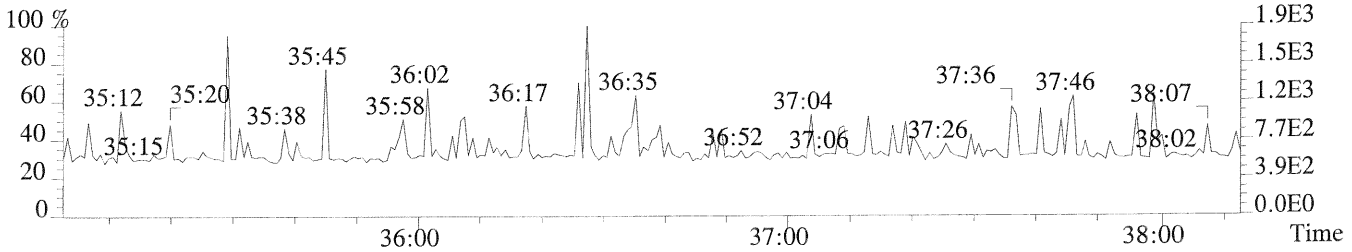
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,132.0,0.40%,F,T)



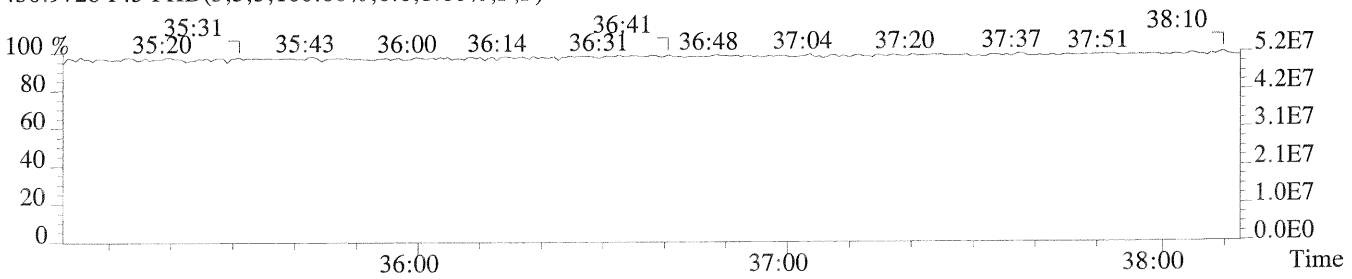
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,388.0,0.40%,F,T)



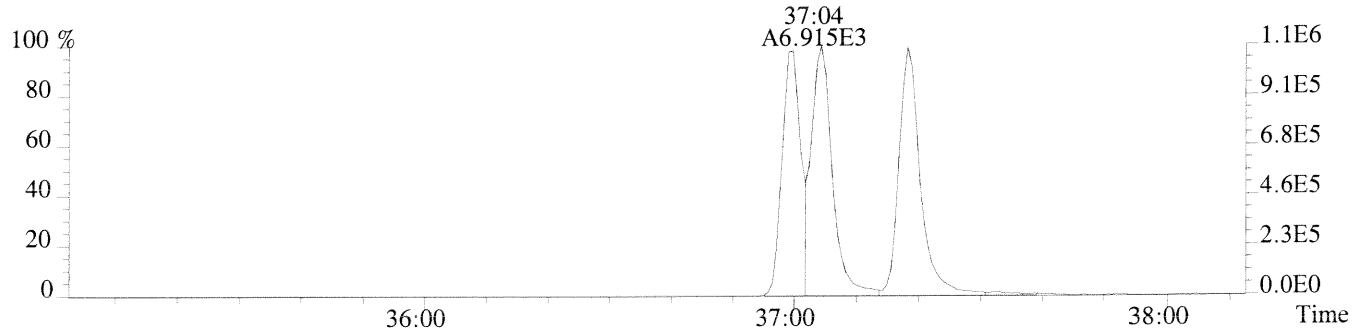
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



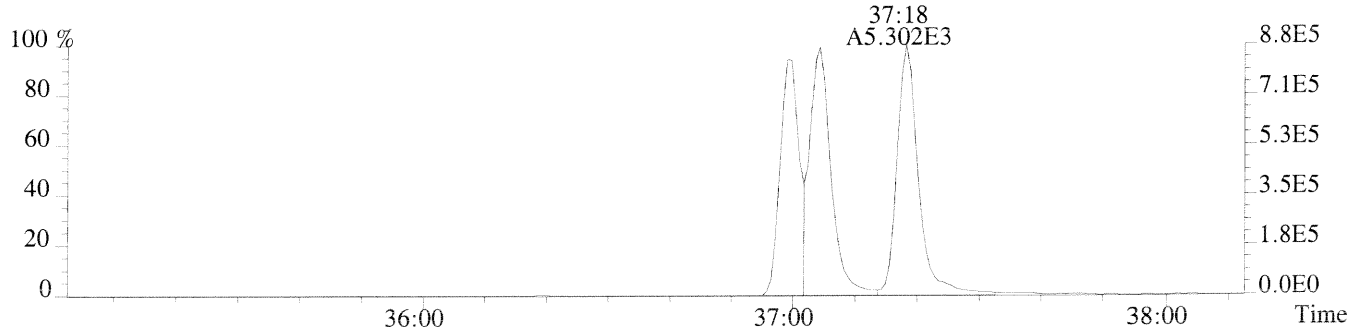
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



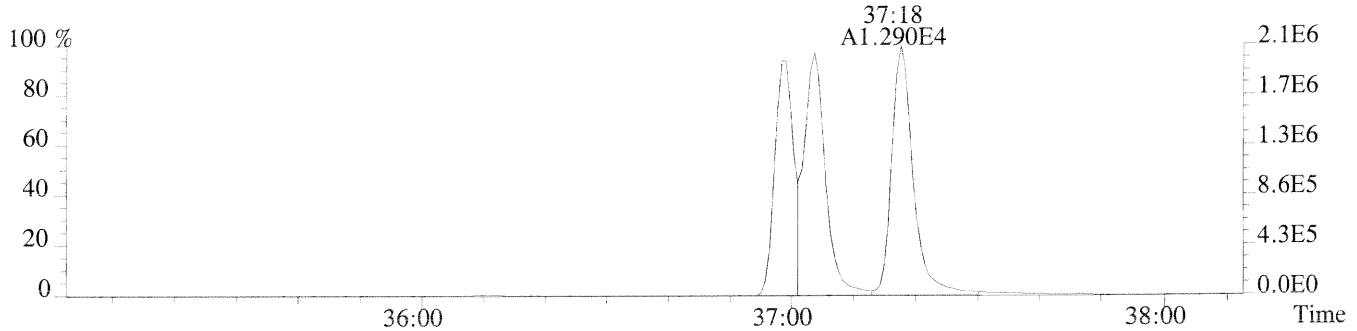
File:P229946 #1-288 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



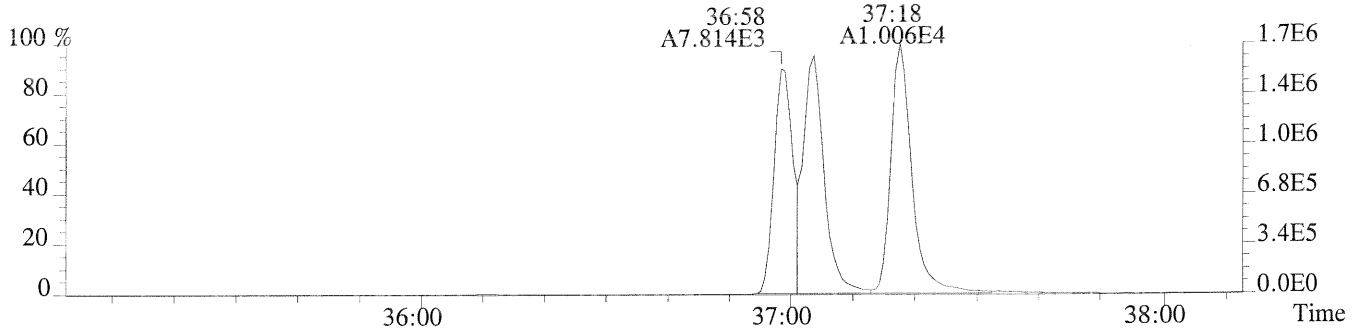
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



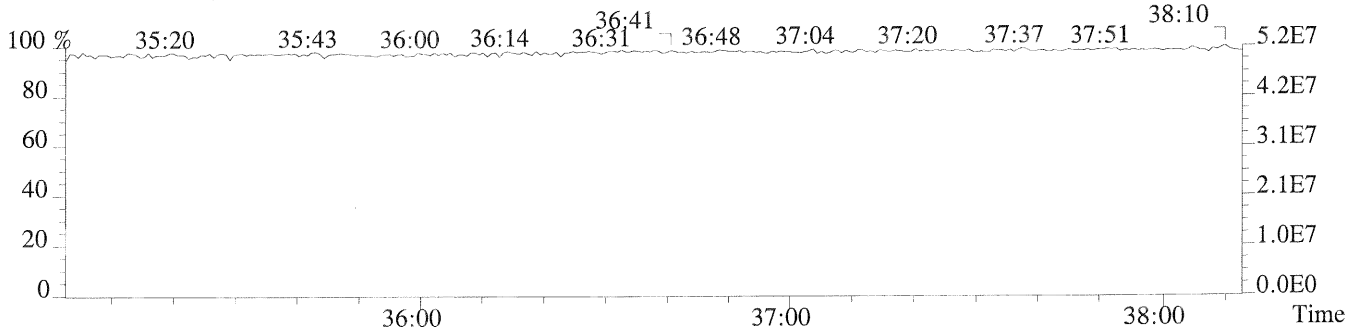
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,460.0,0.40%,F,T)

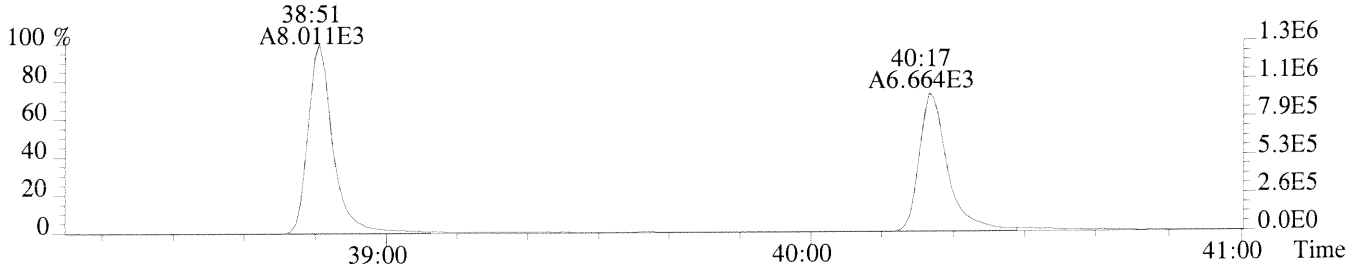


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

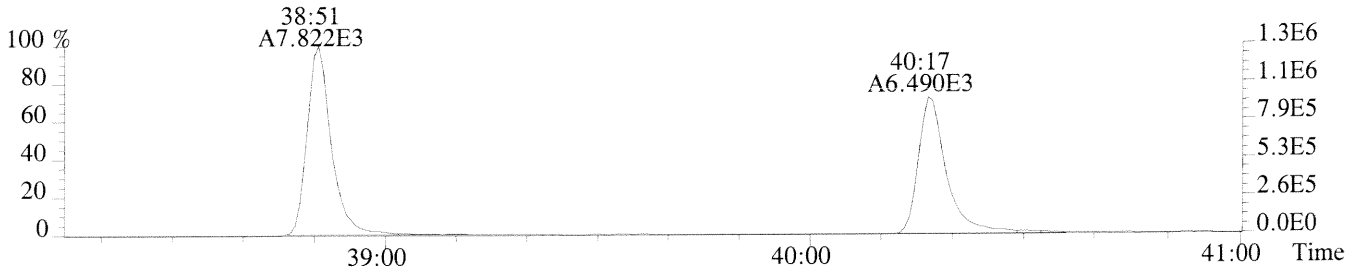


File:P229946 #1-251 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

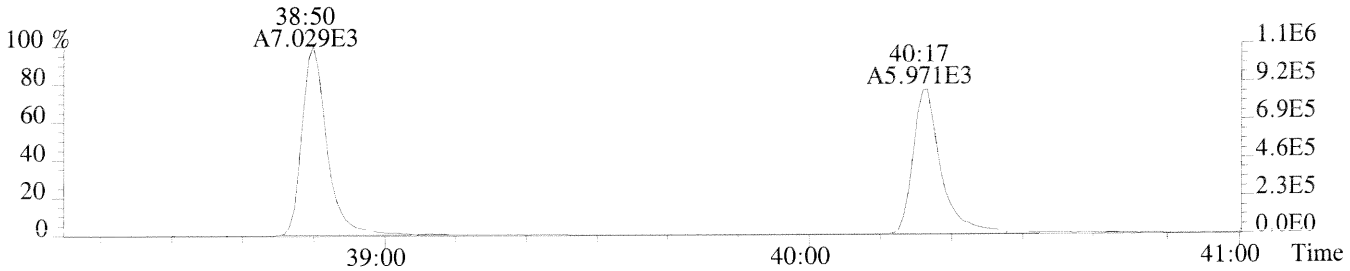
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,400.0,0.50%,F,T)



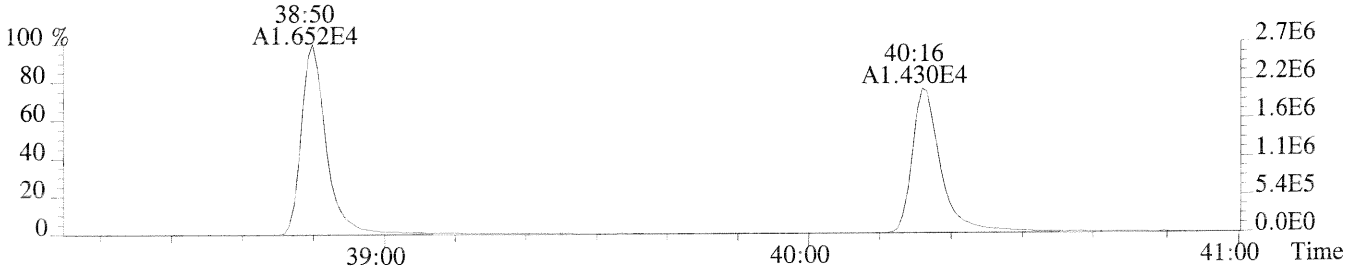
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.50%,F,T)



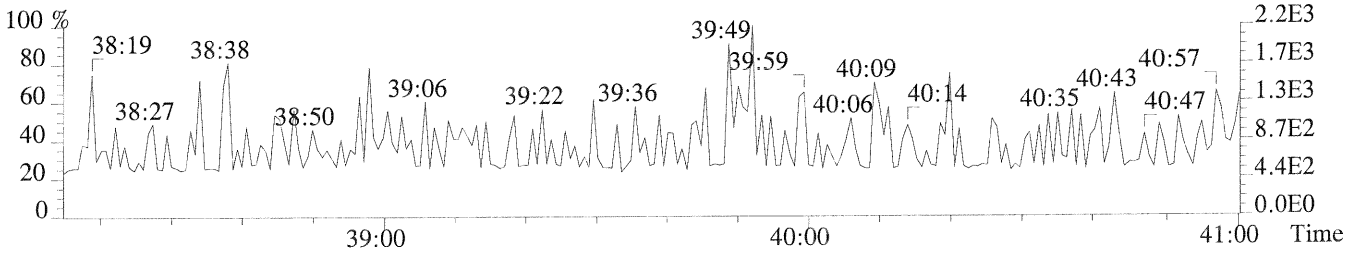
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1320.0,0.50%,F,T)



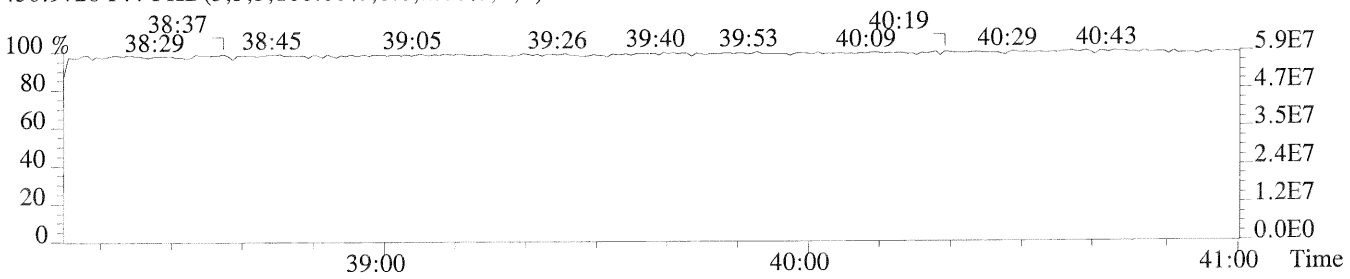
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3224.0,0.50%,F,T)



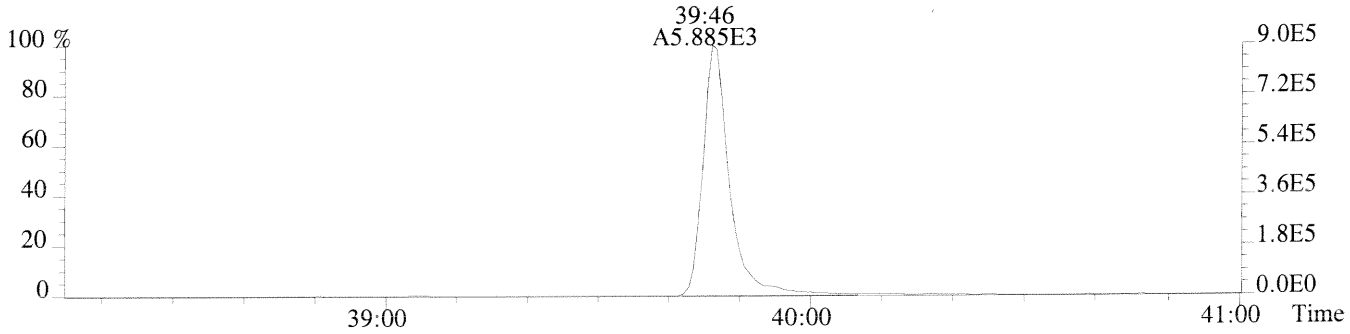
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



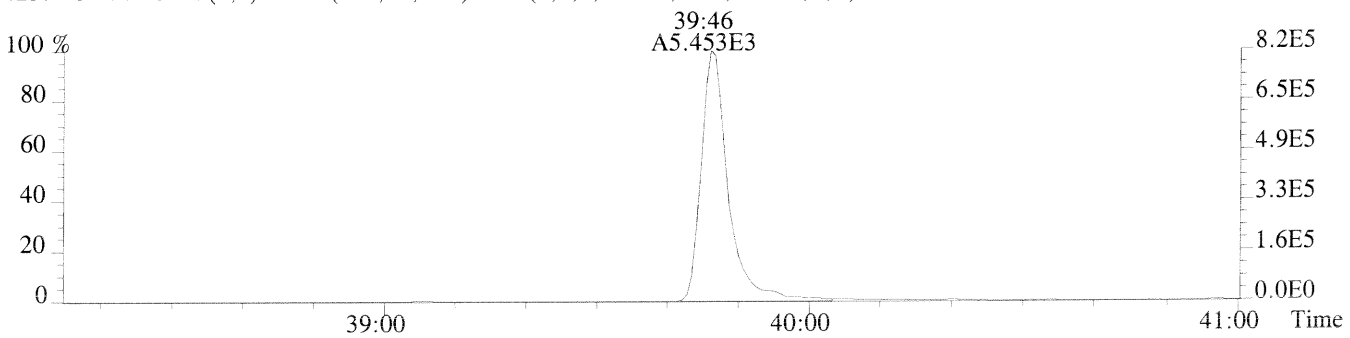
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



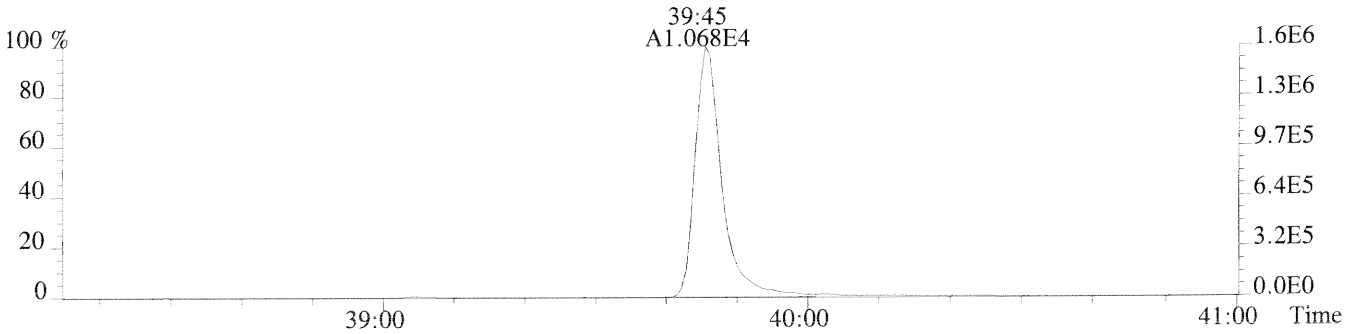
File:P229946 #1-251 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,364.0,0.40%,F,T)



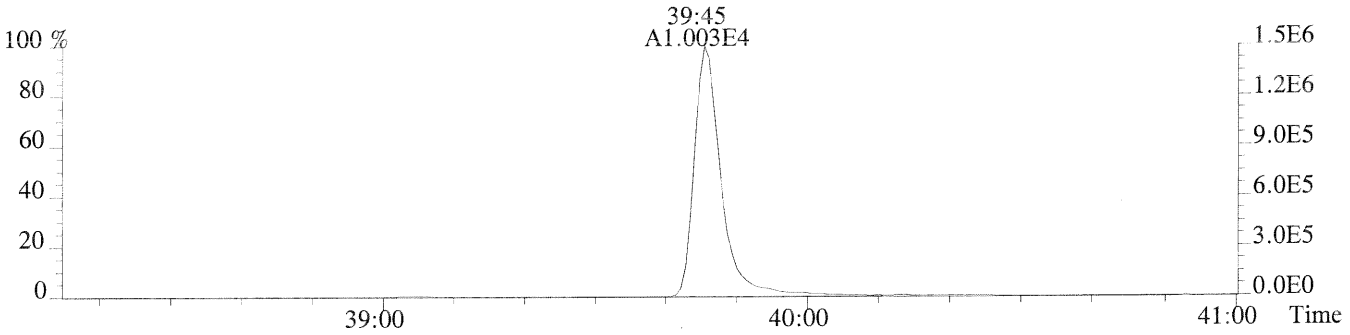
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,48.0,0.40%,F,T)



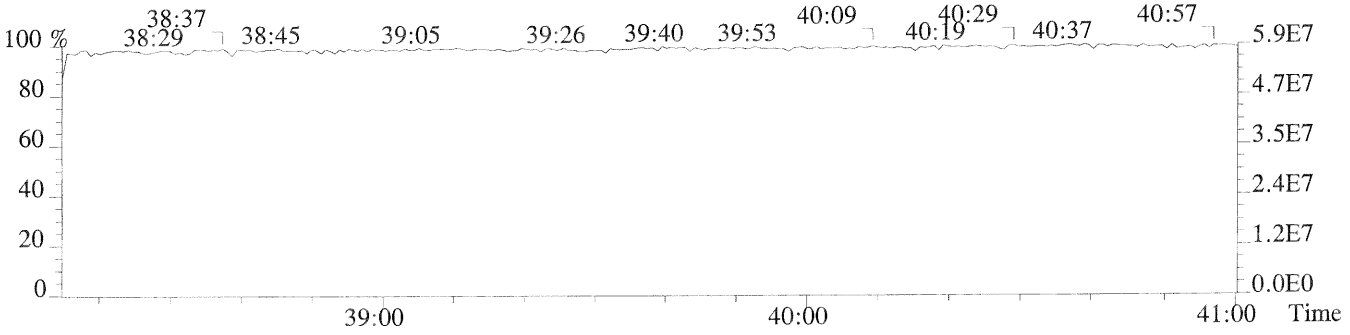
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)



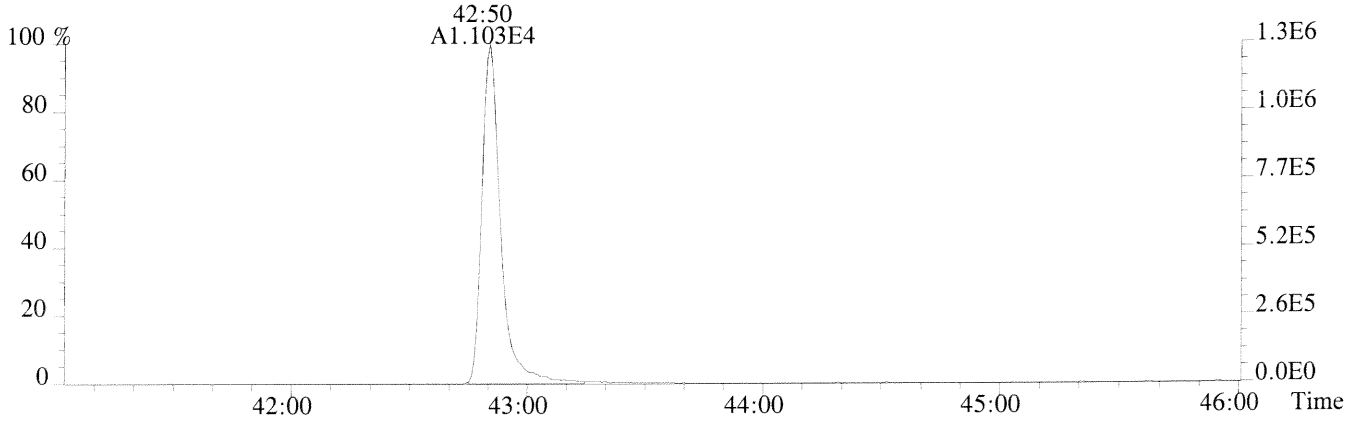
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,44.0,0.40%,F,T)



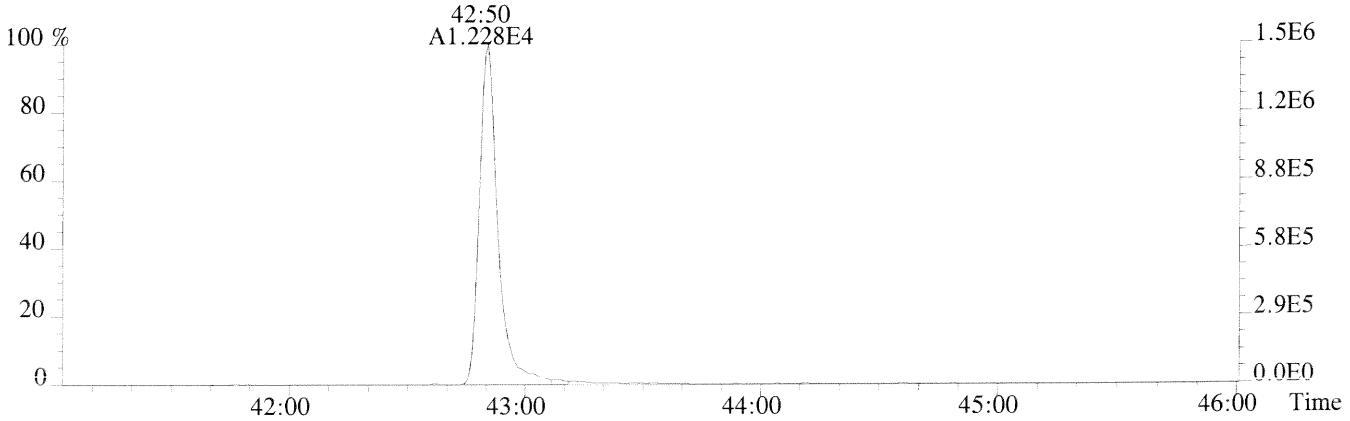
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



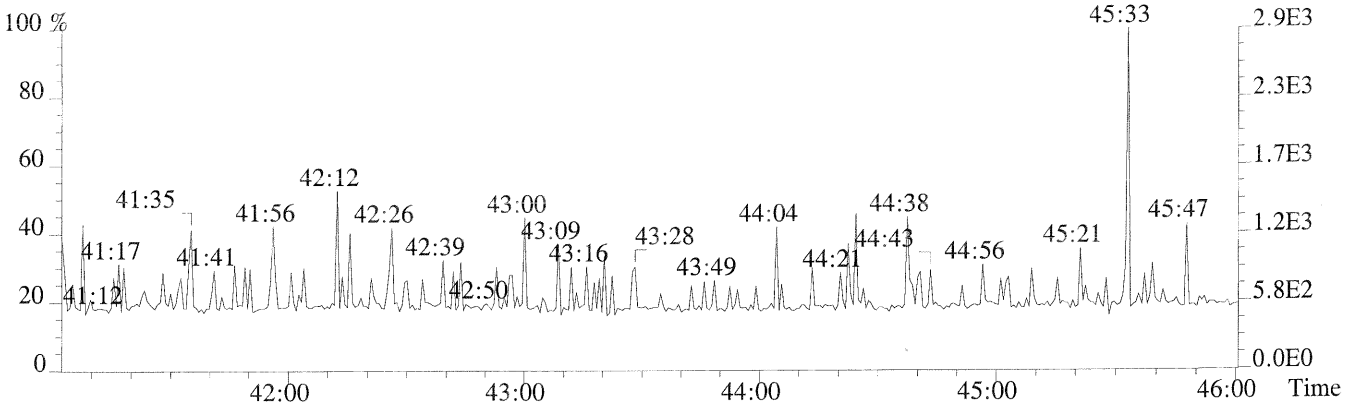
File:P229946 #1-457 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,236.0,0.40%,F,T)



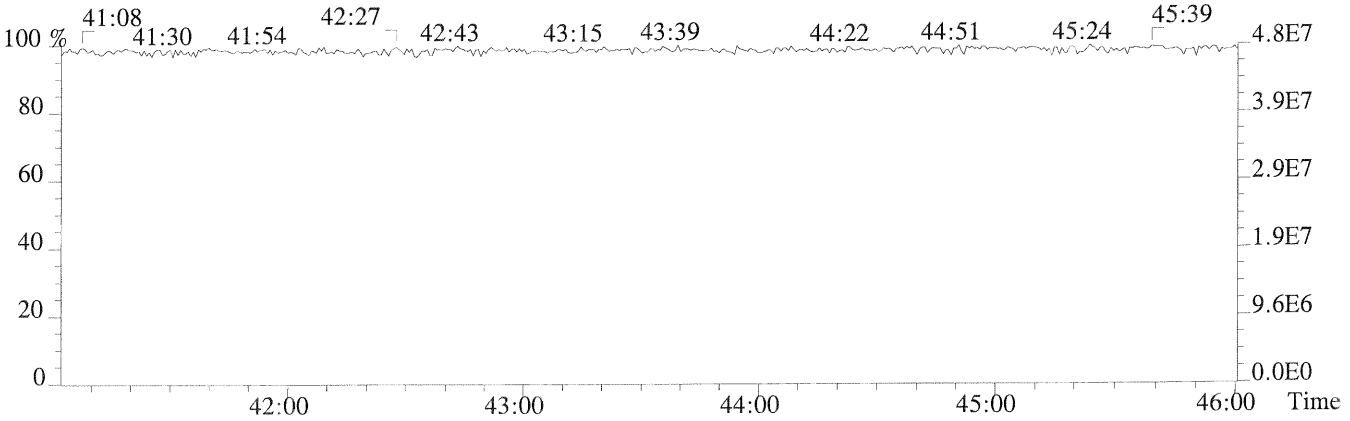
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



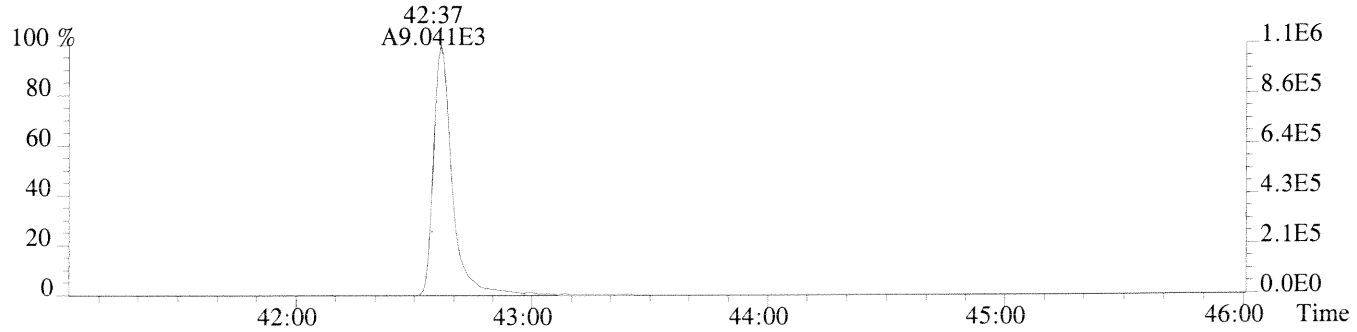
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



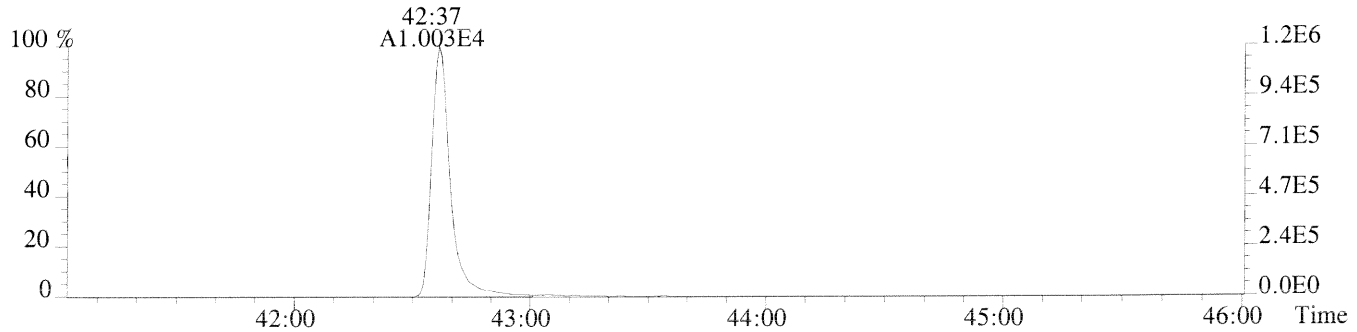
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



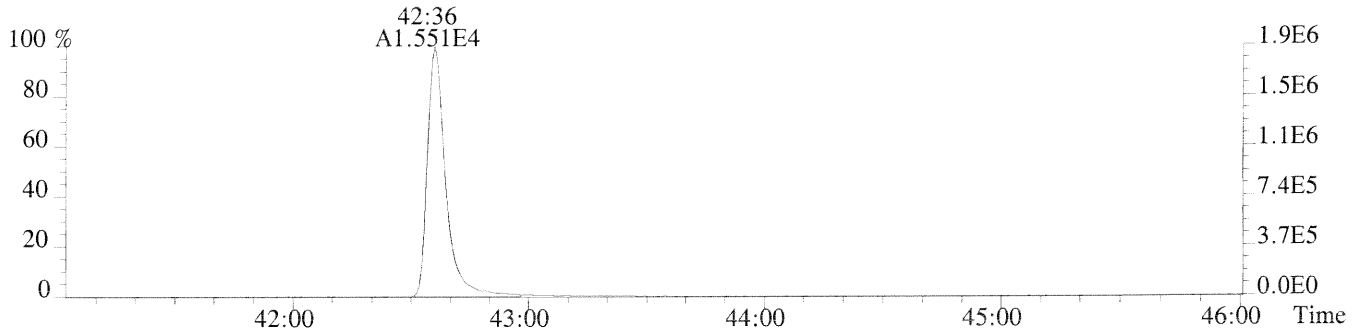
File:P229946 #1-457 Acq: 3-JUL-2014 12:48:14 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,144.0,0.40%,F,T)



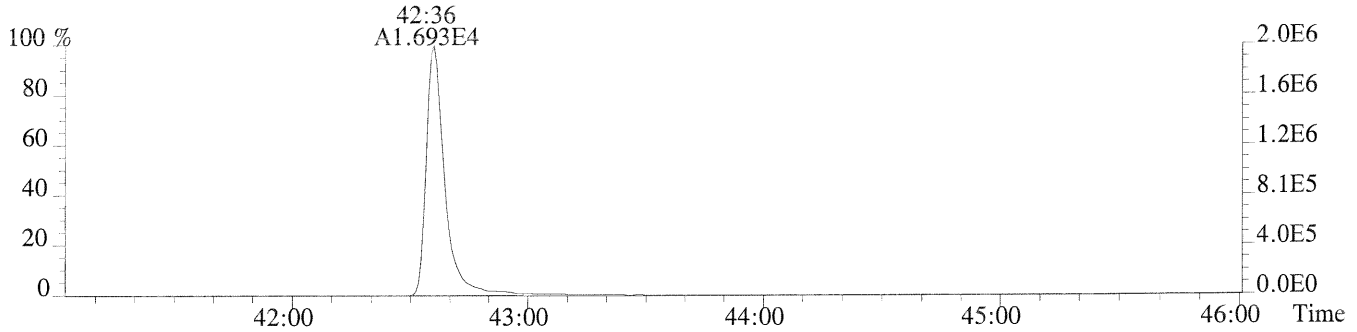
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,336.0,0.40%,F,T)



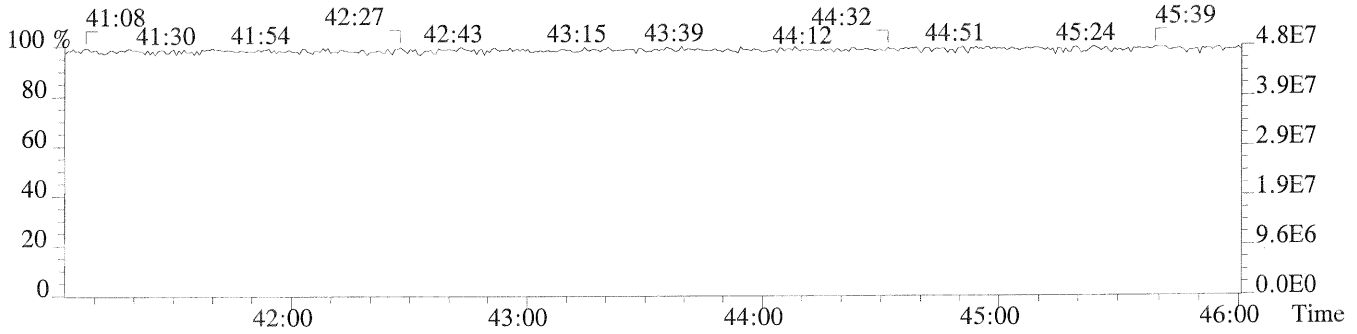
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,296.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: U149801/U149813

Circle one: Beginning / Ending

Date: 1-2 Jul 14

Method: 1613 / 1613E / 8290 / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	—	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	—	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	—	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	—	✓
All relative abundance ratios meet method criteria	—	✓
No QC ion deflections of greater than 20% (HRMS Only)	—	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	—	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	—	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	—	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	N/A
Ending Calibration injected prior to end of 12 hour clock	—	✓

Analyst: lee

Second QC: LKL

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-01

Init. Calib. Date: 05/21/2014

Init. Calib.Times: 13:12:29

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	63680	U149802	1-JUL-14	19:14:52
CCAL HRCC3/CS3	66131	U149801	1-JUL-14	18:00:57
CCAL HRCC3/CS3	66131	U149813	2-JUL-14	04:09:06
METHOD BLANK	don't use	U149803	1-JUL-14	20:02:26
METHOD BLANK	EQ1400342-01	U149804	1-JUL-14	20:51:06
1406041205 200-SBB╗	R1404651-001	U149805	1-JUL-14	21:39:46
1406041724 200-SBB╗	R1404651-002	U149806	1-JUL-14	22:28:26
1406091139 200-SB-╗	R1404651-003	U149807	1-JUL-14	23:17:05
1406091614 200-SB-╗	R1404651-004	U149808	2-JUL-14	00:05:46
1406091749 200-SB0╗	R1404651-005	U149809	2-JUL-14	00:54:26
1406111503 200-SB-╗	R1404651-006	U149810	2-JUL-14	01:43:06

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U1140701B.SPL

Last Modified: Wednesday, July 02, 2014 07:29:10 Central Daylight Time

Printed: Wednesday, July 02, 2014 07:46:58 Central Daylight Time

C:U149801RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	07/01/14	18:00	U149801	CCAL HRCC3/CS4	66131	LL	HRMS check 19:04	8290cas
2		19:14	U149802	WINDOW DEFINE	63680			8290cas
3		20:02	U149803	EQ1400342-01	MB		Needs reinject	8290cas
4		20:51	U149804	EQ1400342-01	MB			8290cas
5		21:39	U149805	R1404651-001	R1404651-001			8290cas
6		22:28	U149806	R1404651-002	R1404651-002			8290cas
7		23:17	U149807	R1404651-003	R1404651-003			8290cas
8	07/02/14	00:05	U149808	R1404651-004	R1404651-004			8290cas
9		00:54	U149809	R1404651-005	R1404651-005			8290cas
10		01:43	U149810	R1404651-006	R1404651-006			8290cas
11		02:31	U149811	TEST	TEST			8290cas
12		03:20	U149812	TEST	TEST			8290cas
13		04:09	U149813	CCAL HRCC3/CS4	66131		HRMS check 07:49	8290cas
14			---	---	---			8290cas
15			---	---	---			8290cas
16			---	---	---			8290cas
17			---	---	---			8290cas
18			---	---	---			8290cas
19			---	---	---			8290cas
20			---	---	---			8290cas
21			---	---	---			8290cas
22			---	---	---			8290cas
23			---	---	---			8290cas
24			---	---	---			8290cas
25			---	---	---			1668EPA
26			---	---	---			1668EPA
27			---	---	---			1668EPA
28			---	---	---			1668EPA
29			---	---	---			1668EPA
30			---	---	---			1668EPA
31			---	---	---			1668EPA
32			---	---	---			---
33			---	---	---			---
34			---	---	---			TCDFCAS
35			---	---	---			TCDFCAS
36			---	---	---			TCDFCAS
37			---	---	---			TCDFCAS
38			---	---	---			TCDFCAS
39			---	---	---			TCDFCAS

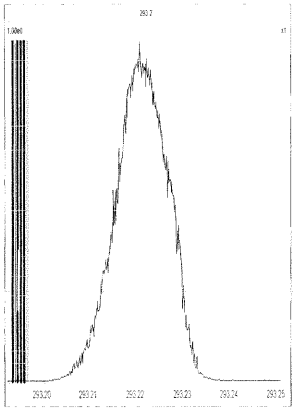
cee 7/2/14

066

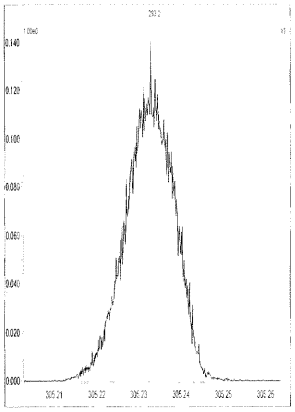
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, July 01, 2014 19:04:21 Central Daylight Time

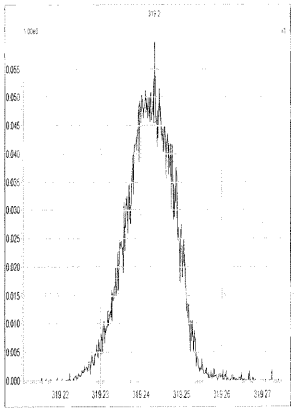
M 292.9824 R 11741



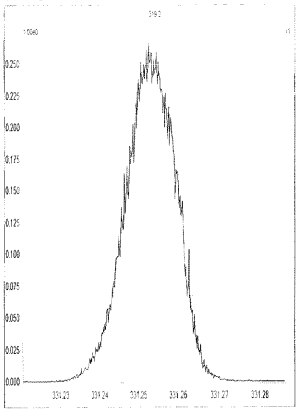
M 304.9824 R 12015



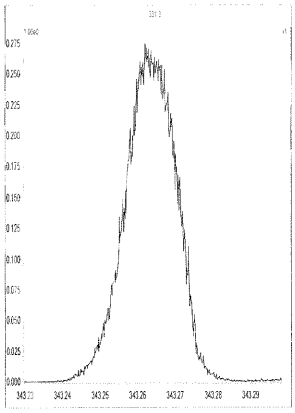
M 318.9792 R 12014



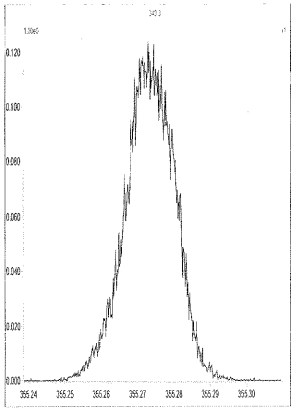
M 330.9792 R 11573



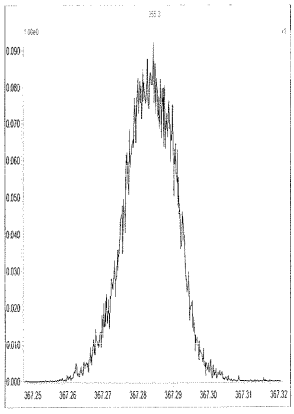
M 342.9792 R 11114



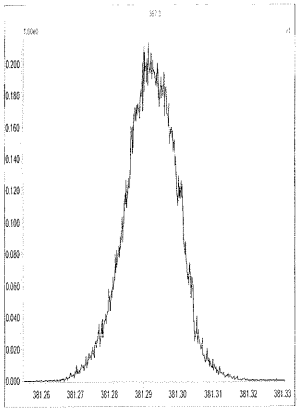
M 354.9792 R 11313



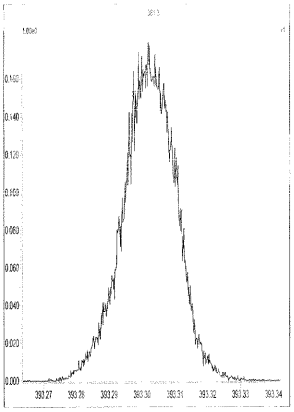
M 366.9792 R 11062



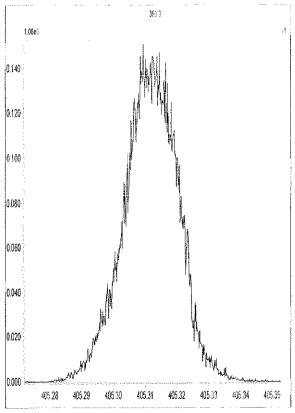
M 380.9760 R 10728



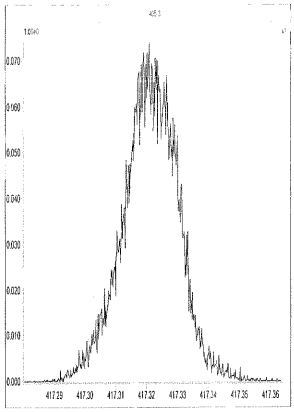
M 392.9760 R 10824



M 404.9760 R 10041



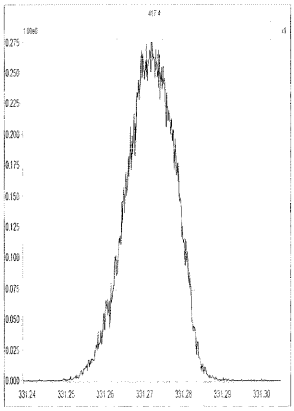
M 416.9760 R 10548



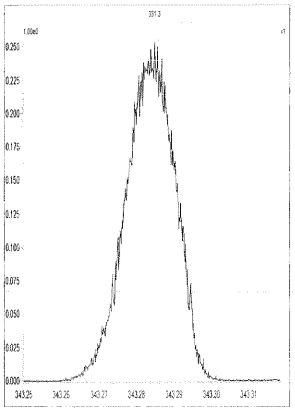
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, July 01, 2014 19:05:30 Central Daylight Time

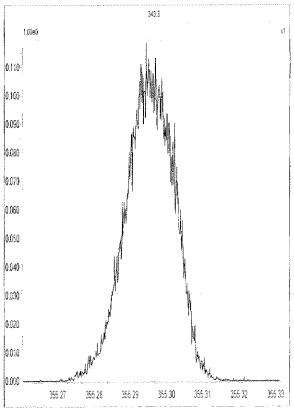
M 330.9792 R 11792



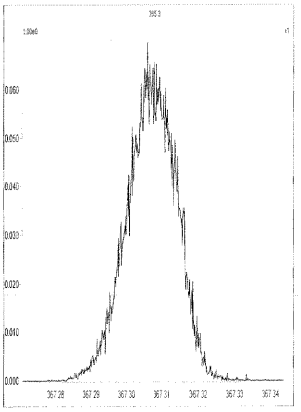
M 342.9792 R 11846



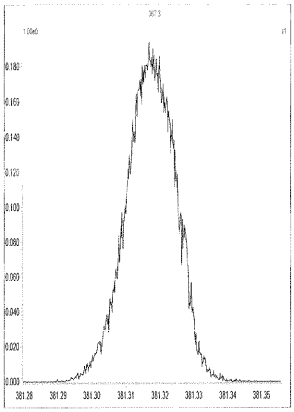
M 354.9792 R 11630



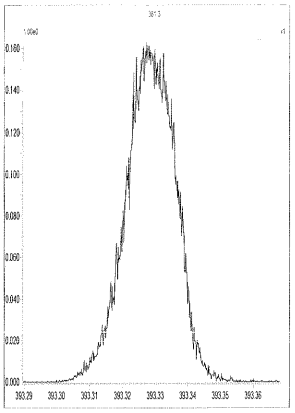
M 366.9792 R 11962



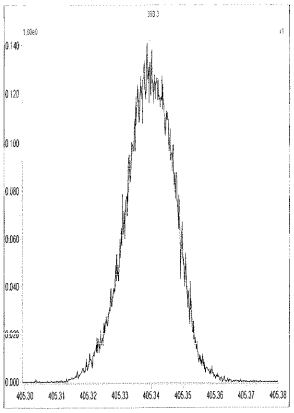
M 380.9760 R 11261



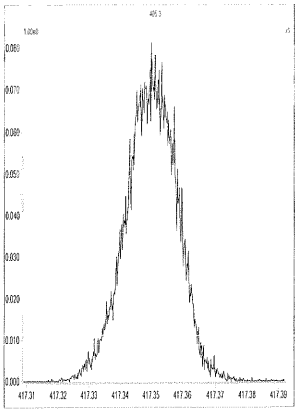
M 392.9760 R 11060



M 404.9760 R 11469



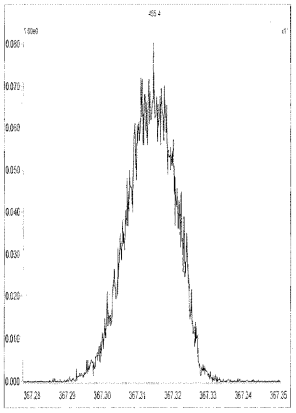
M 416.9760 R 11848



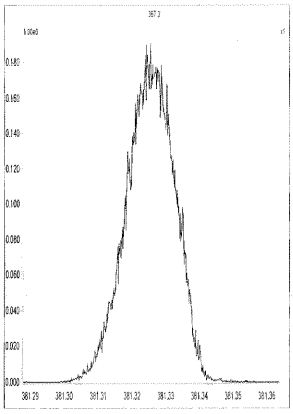
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, July 01, 2014 19:06:55 Central Daylight Time

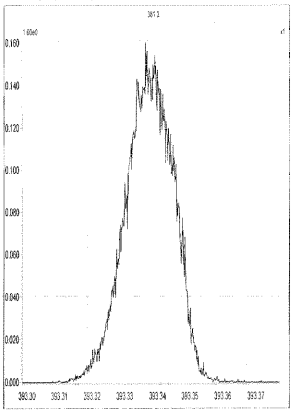
M 366.9792 R 12078



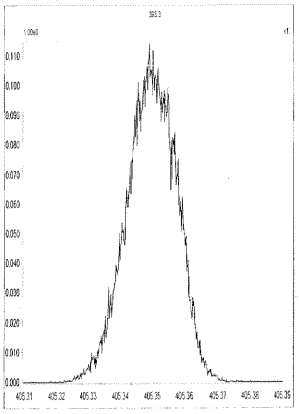
M 380.9760 R 11574



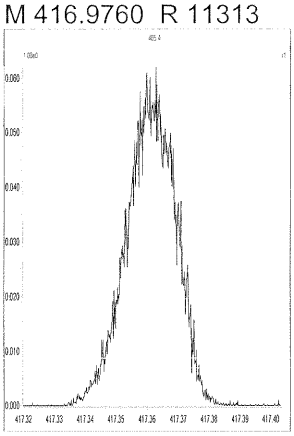
M 392.9760 R 11960



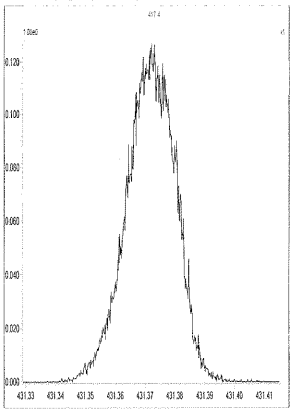
M 404.9760 R 11314



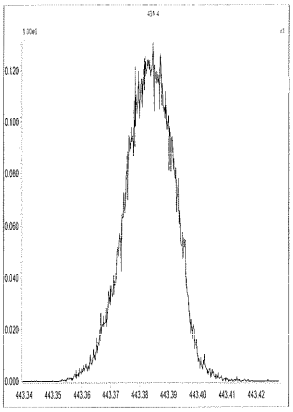
M 416.9760 R 11313



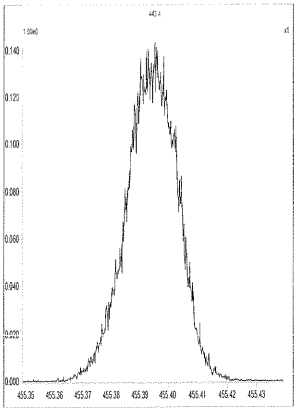
M 430.9728 R 11628



M 442.9728 R 11626



M 454.9728 R 10773

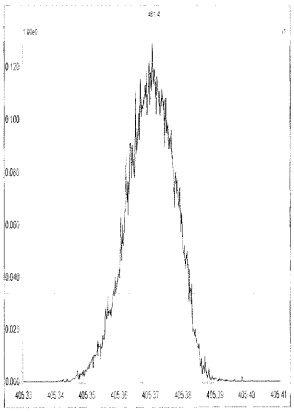


Experiment Calibration Report **MassLynx 4.1**

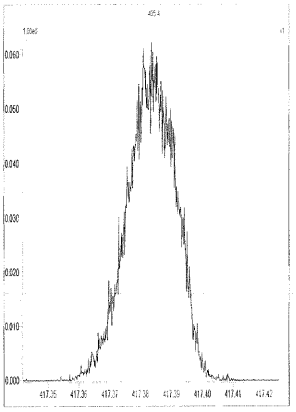
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, July 01, 2014 19:07:55 Central Daylight Time

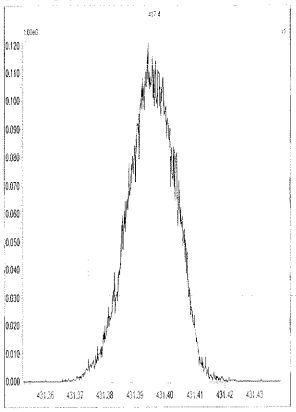
M 404.9760 R 12134



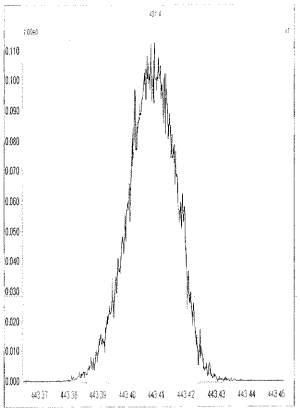
M 416.9760 R 12196



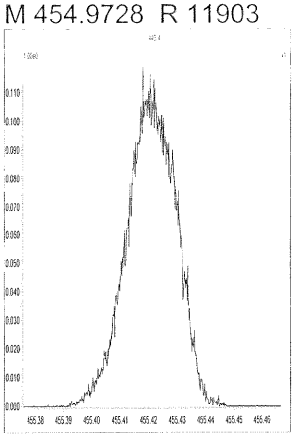
M 430.9728 R 11962



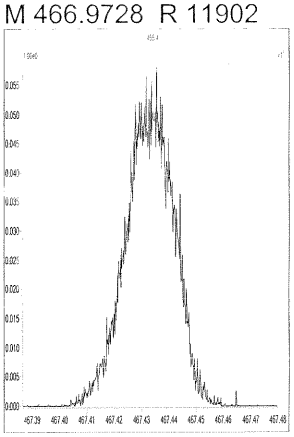
M 442.9728 R 12018



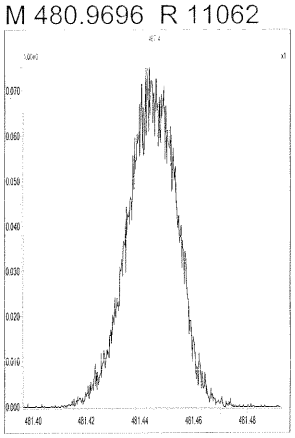
M 454.9728 R 11903



M 466.9728 R 11902



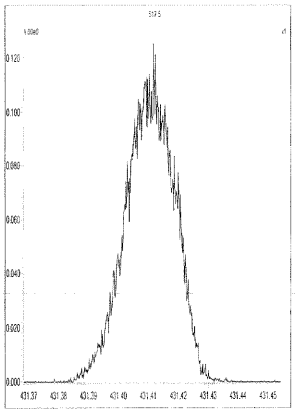
M 480.9696 R 11062



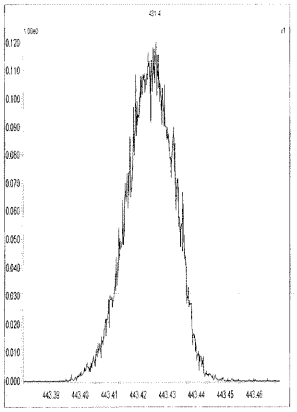
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, July 01, 2014 19:08:49 Central Daylight Time

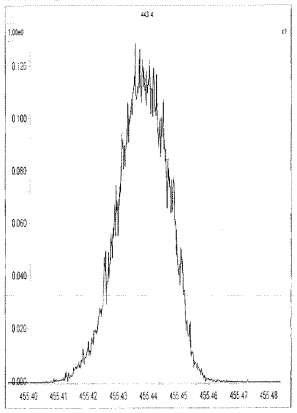
M 430.9728 R 11571



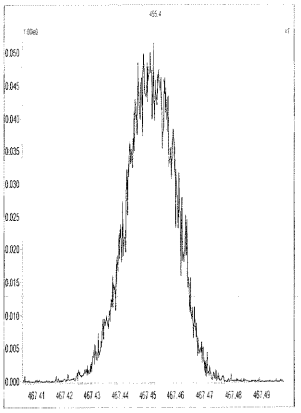
M 442.9728 R 12437



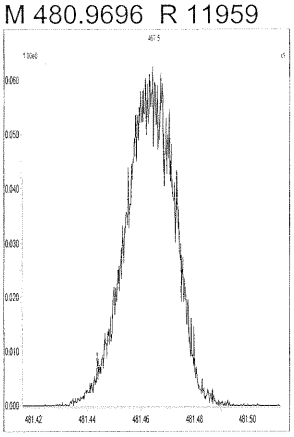
M 454.9728 R 12134



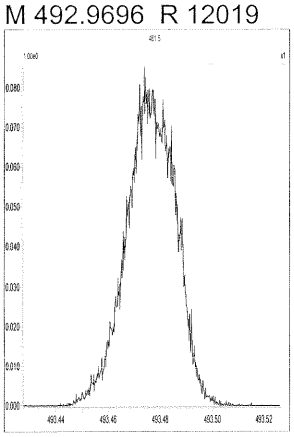
M 466.9728 R 11738



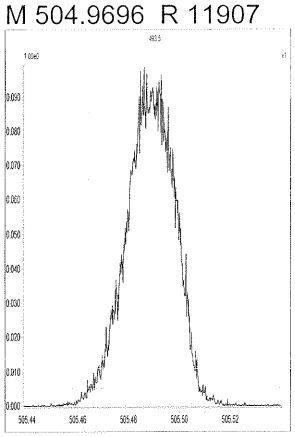
M 480.9696 R 11959



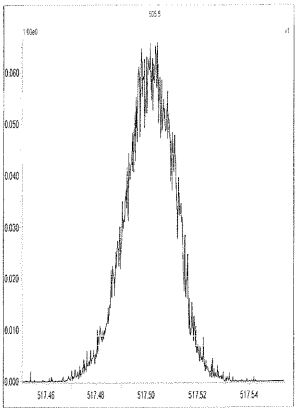
M 492.9696 R 12019



M 504.9696 R 11907



M 516.9697 R 11159

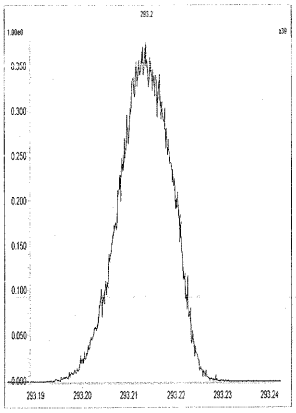


Experiment Calibration Report **MassLynx 4.1**

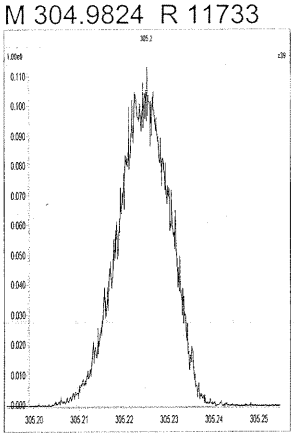
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 07:49:47 Central Daylight Time

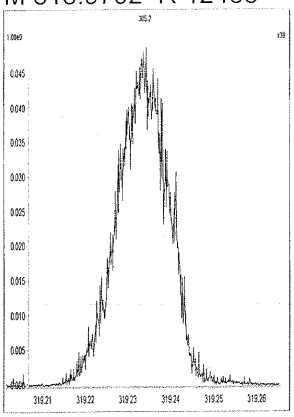
M 292.9824 R 11465



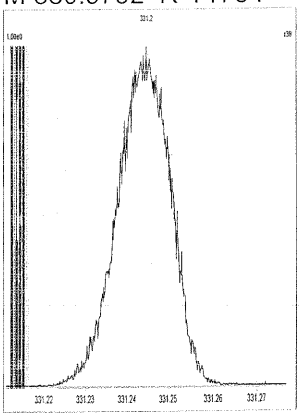
M 304.9824 R 11733



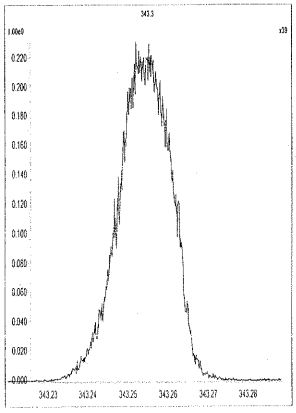
M 318.9792 R 12438



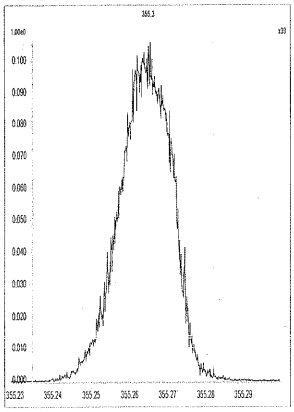
M 330.9792 R 11791



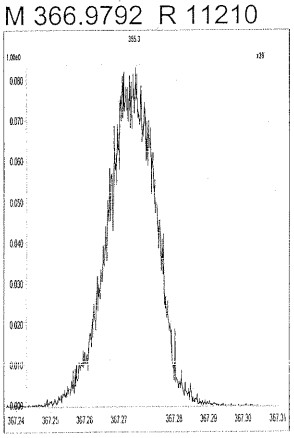
M 342.9792 R 11571



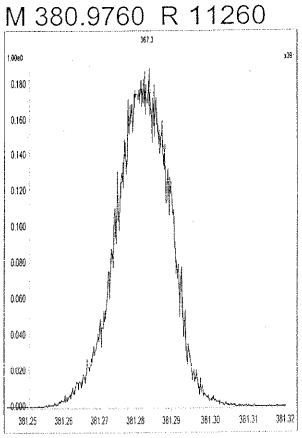
M 354.9792 R 11313



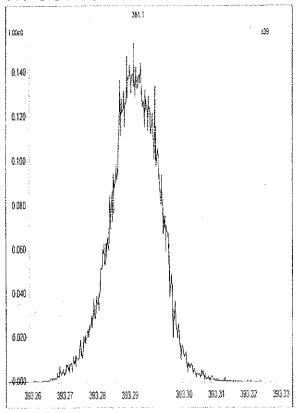
M 366.9792 R 11210



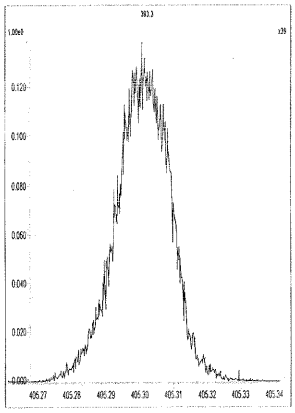
M 380.9760 R 11260



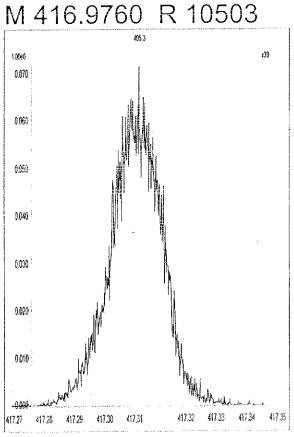
M 392.9760 R 11162



M 404.9760 R 10593



M 416.9760 R 10503

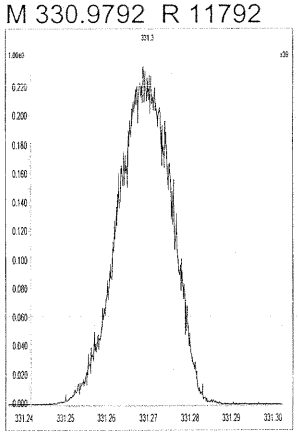


Experiment Calibration Report **MassLynx 4.1**

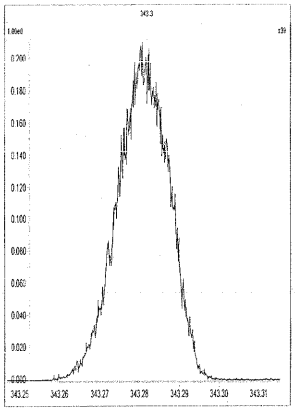
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 07:51:40 Central Daylight Time

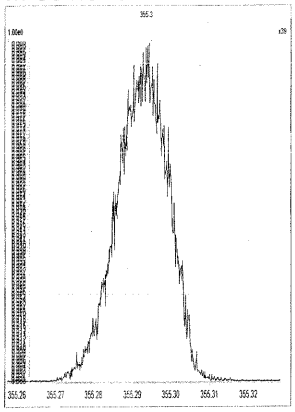
M 330.9792 R 11792



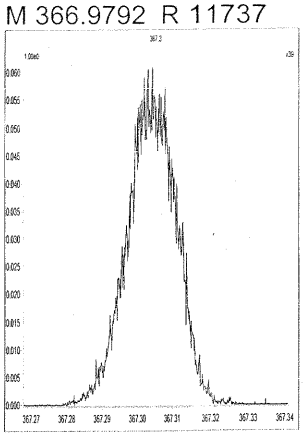
M 342.9792 R 11852



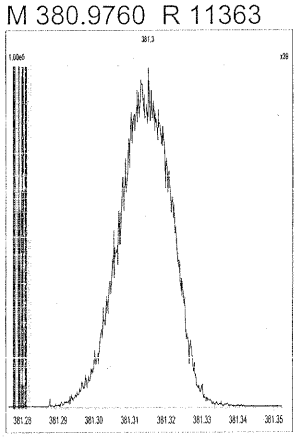
M 354.9792 R 12138



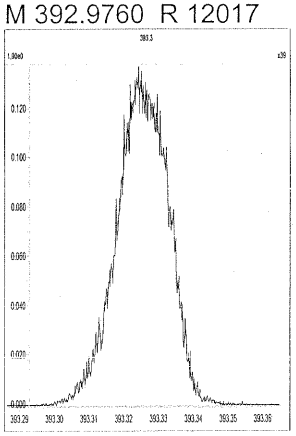
M 366.9792 R 11737



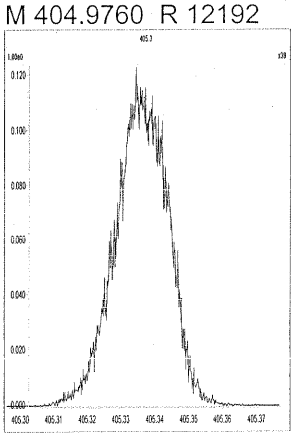
M 380.9760 R 11363



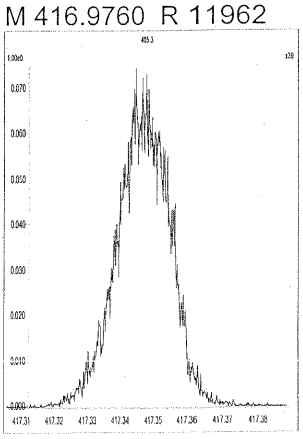
M 392.9760 R 12017



M 404.9760 R 12192



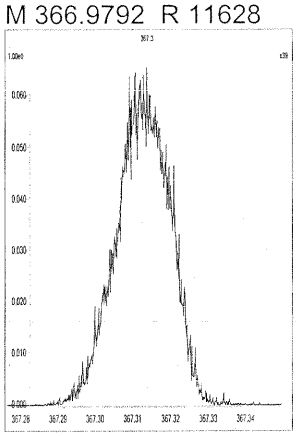
M 416.9760 R 11962



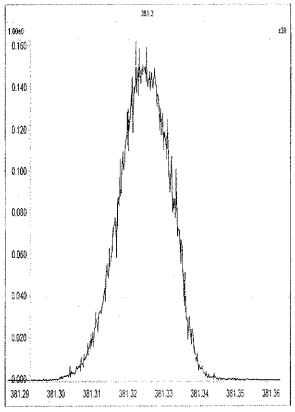
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 07:53:35 Central Daylight Time

M 366.9792 R 11628



M 380.9760 R 11904



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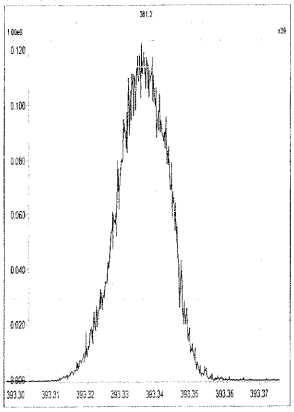
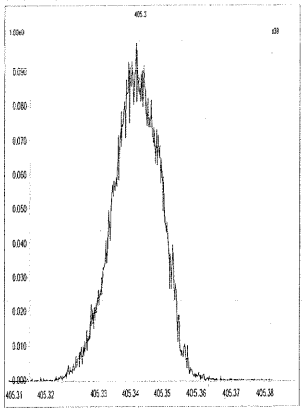
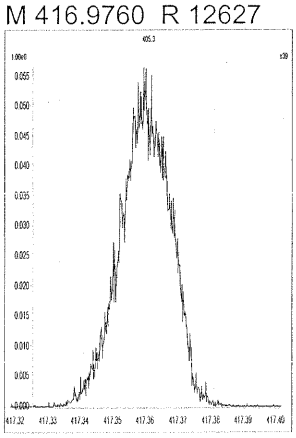


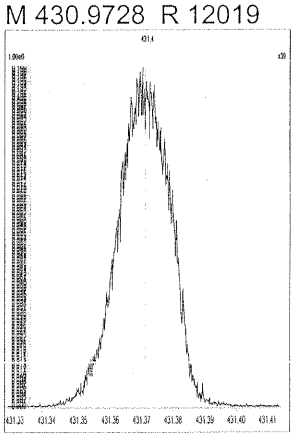
M 404.9760 R 11790



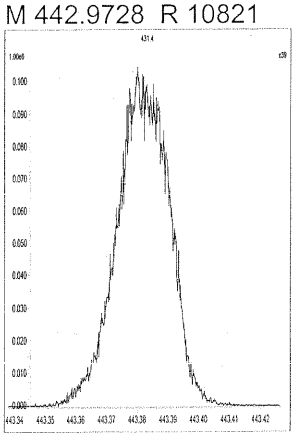
M 416.9760 R 12627



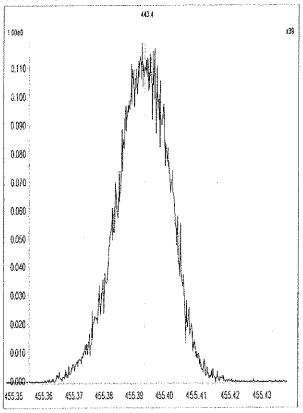
M 430.9728 R 12019



M 442.9728 R 10821



M 454.9728 R 11212

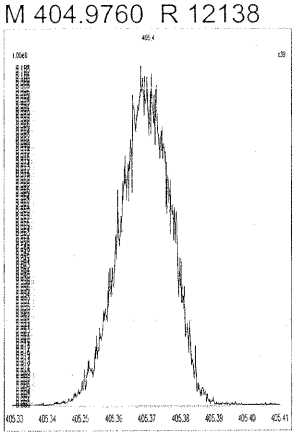


Experiment Calibration Report **MassLynx 4.1**

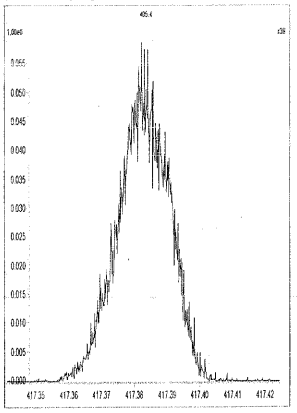
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 07:55:01 Central Daylight Time

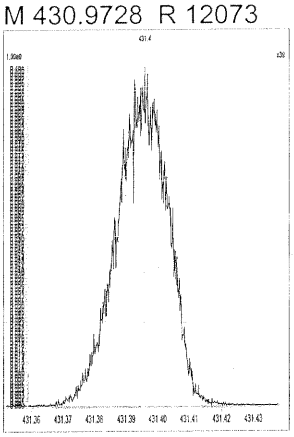
M 404.9760 R 12138



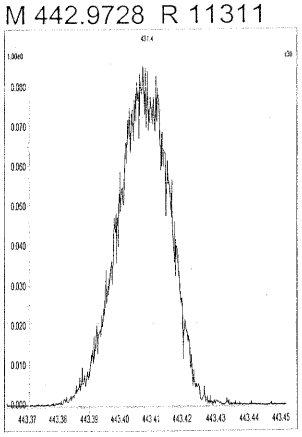
M 416.9760 R 11849



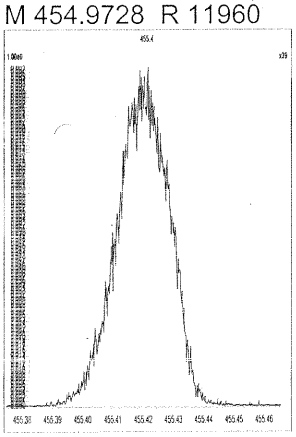
M 430.9728 R 12073



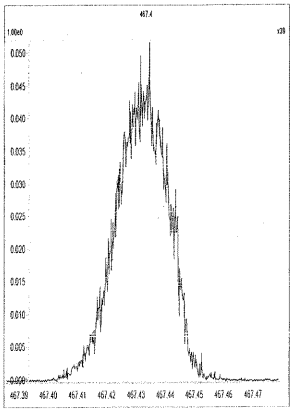
M 442.9728 R 11311



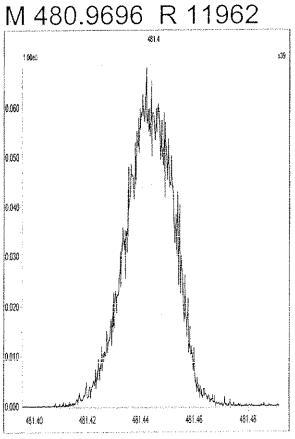
M 454.9728 R 11960



M 466.9728 R 12439



M 480.9696 R 11962



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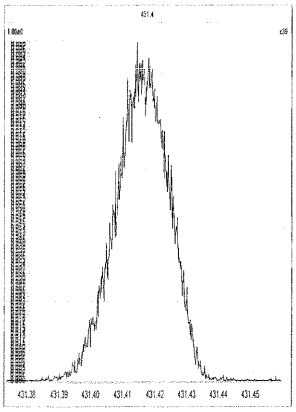
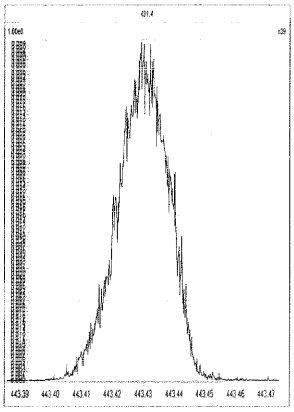
Printed: Wednesday, July 02, 2014 07:57:43 Central Daylight Time

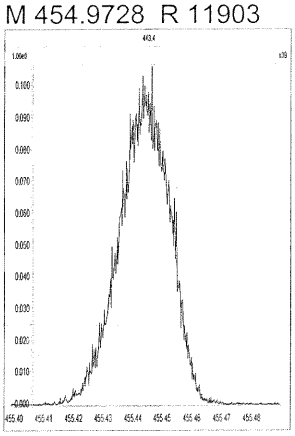
M 430.9728 R 11416



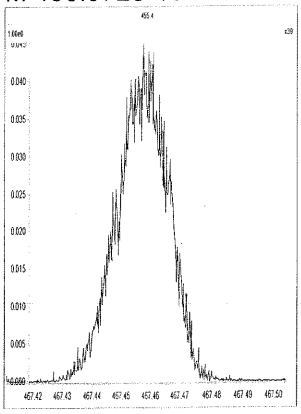
M 442.9728 R 12315



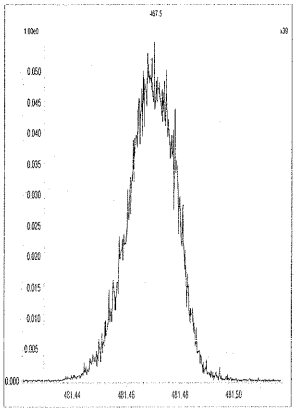
M 454.9728 R 11903



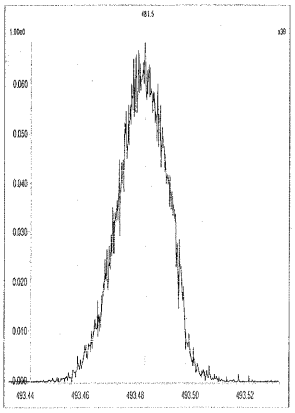
M 466.9728 R 12313



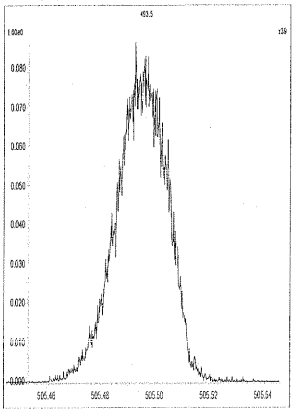
M 480.9696 R 11469



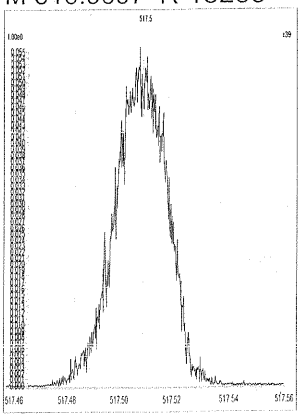
M 492.9696 R 11905



M 504.9696 R 12135



M 516.9697 R 13233



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

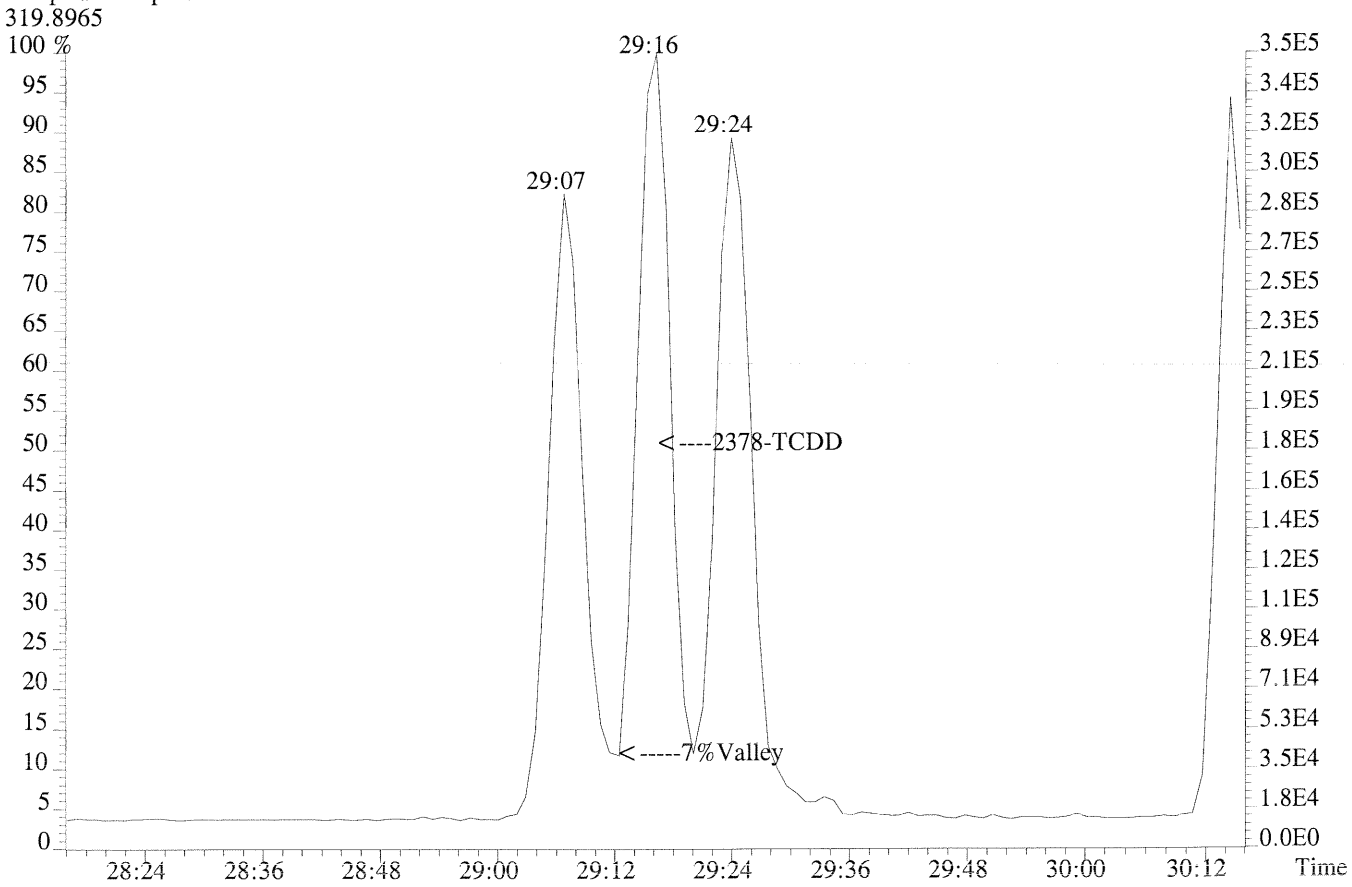
WDM

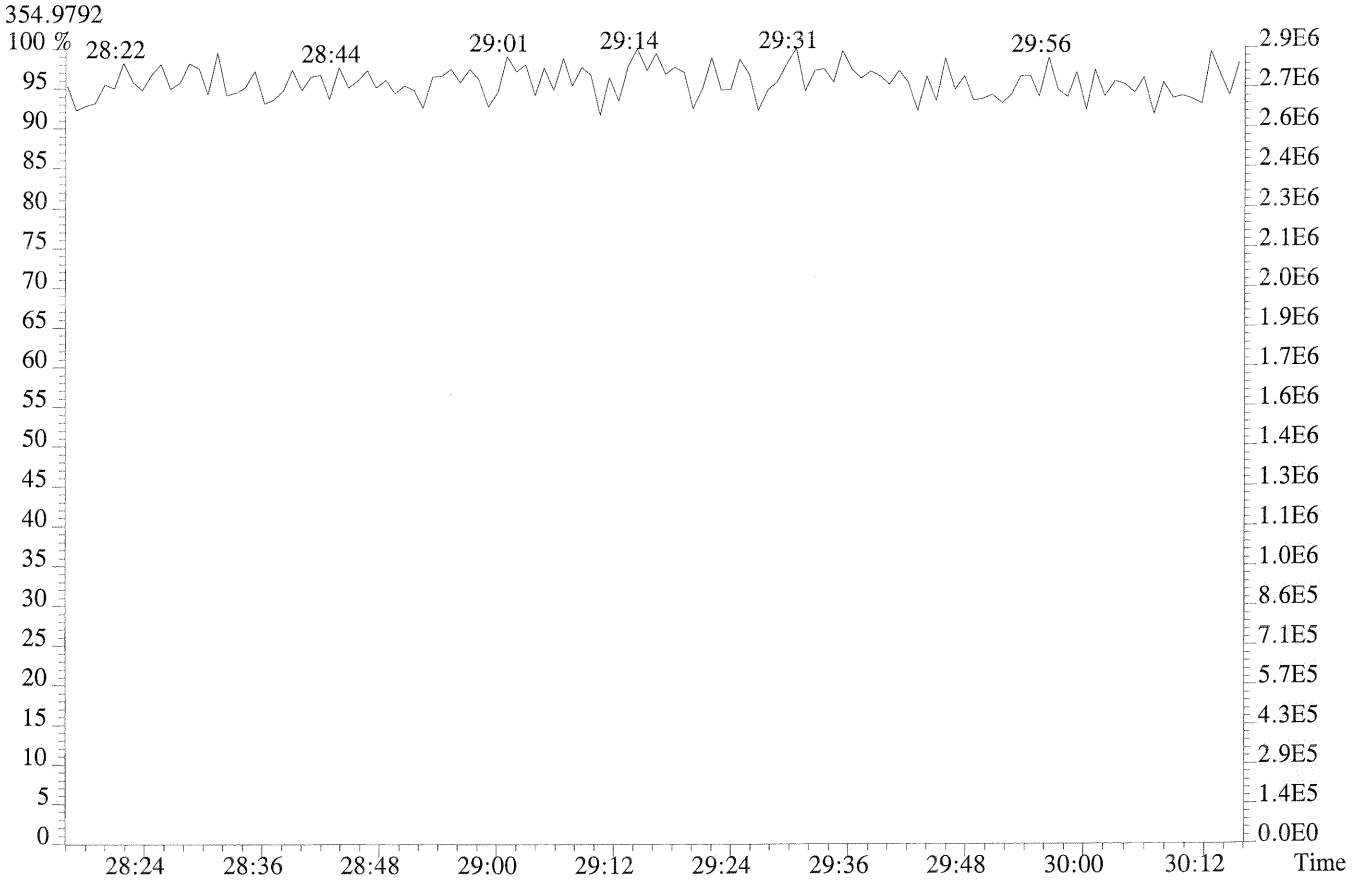
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: U149802
Date Analyzed: 1-JUL-2014
Time Analyzed: 19:14:52

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:09	30:25
TCDD	26:03	30:15
PeCDF	30:20	34:34
PeCDD	31:51	34:17
HxCDF	35:11	37:42
HxCDD	35:42	37:17
HpCDF	38:55	40:23
HpCDD	39:10	39:52

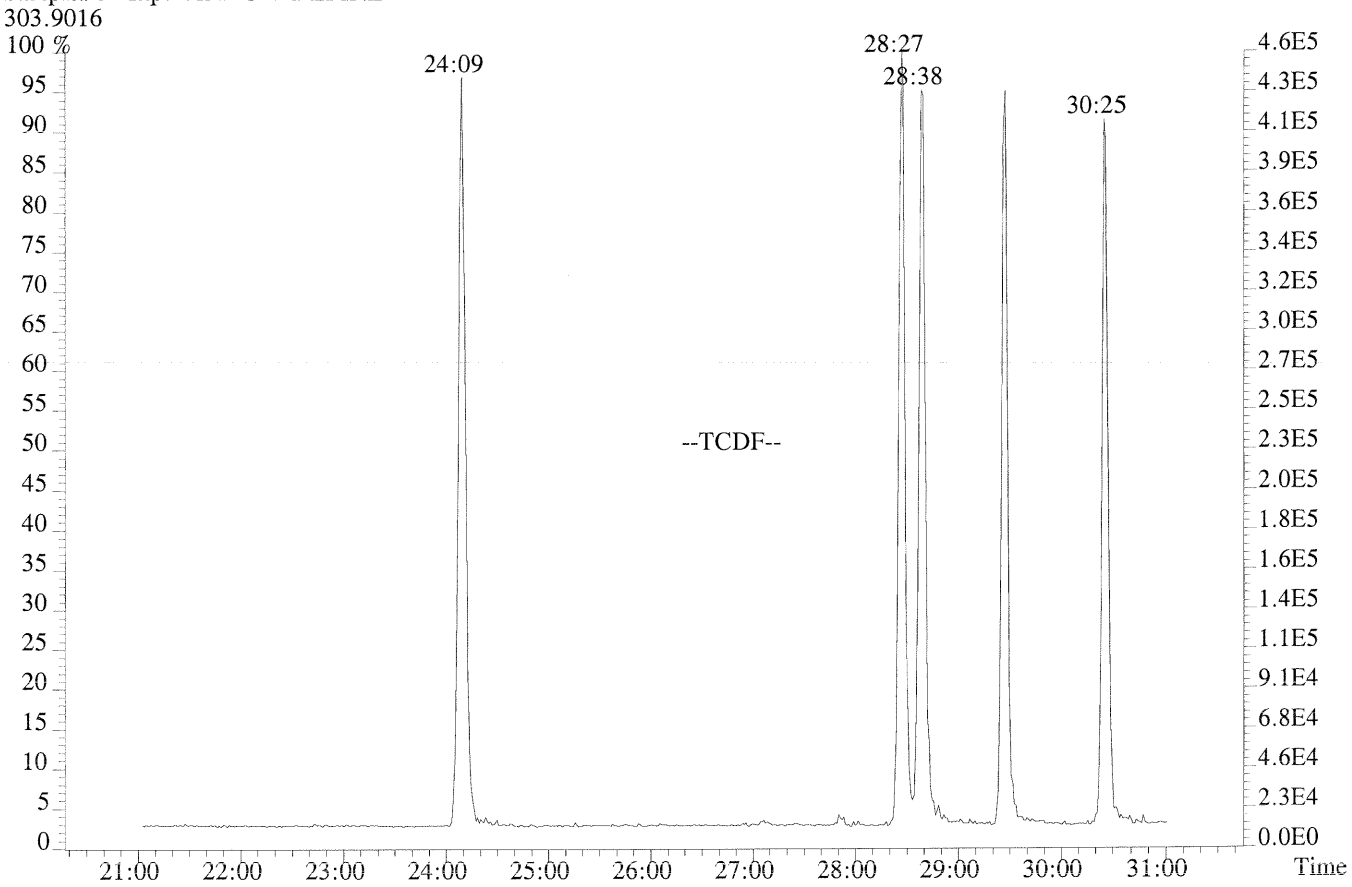
% Valley 2378-TCDD: 7 %

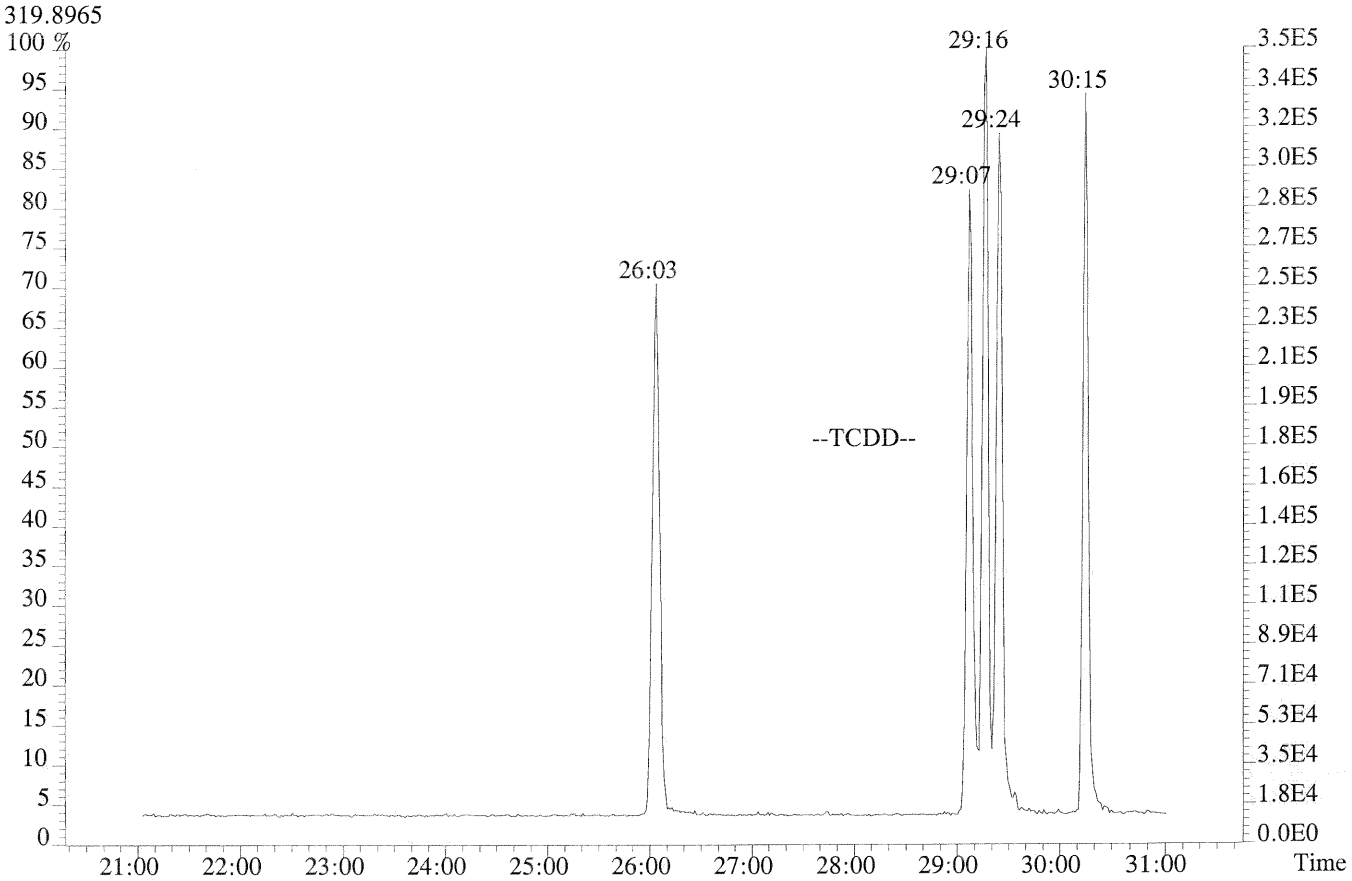
File:U149802 #1-627 Acq: 1-JUL-2014 19:14:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



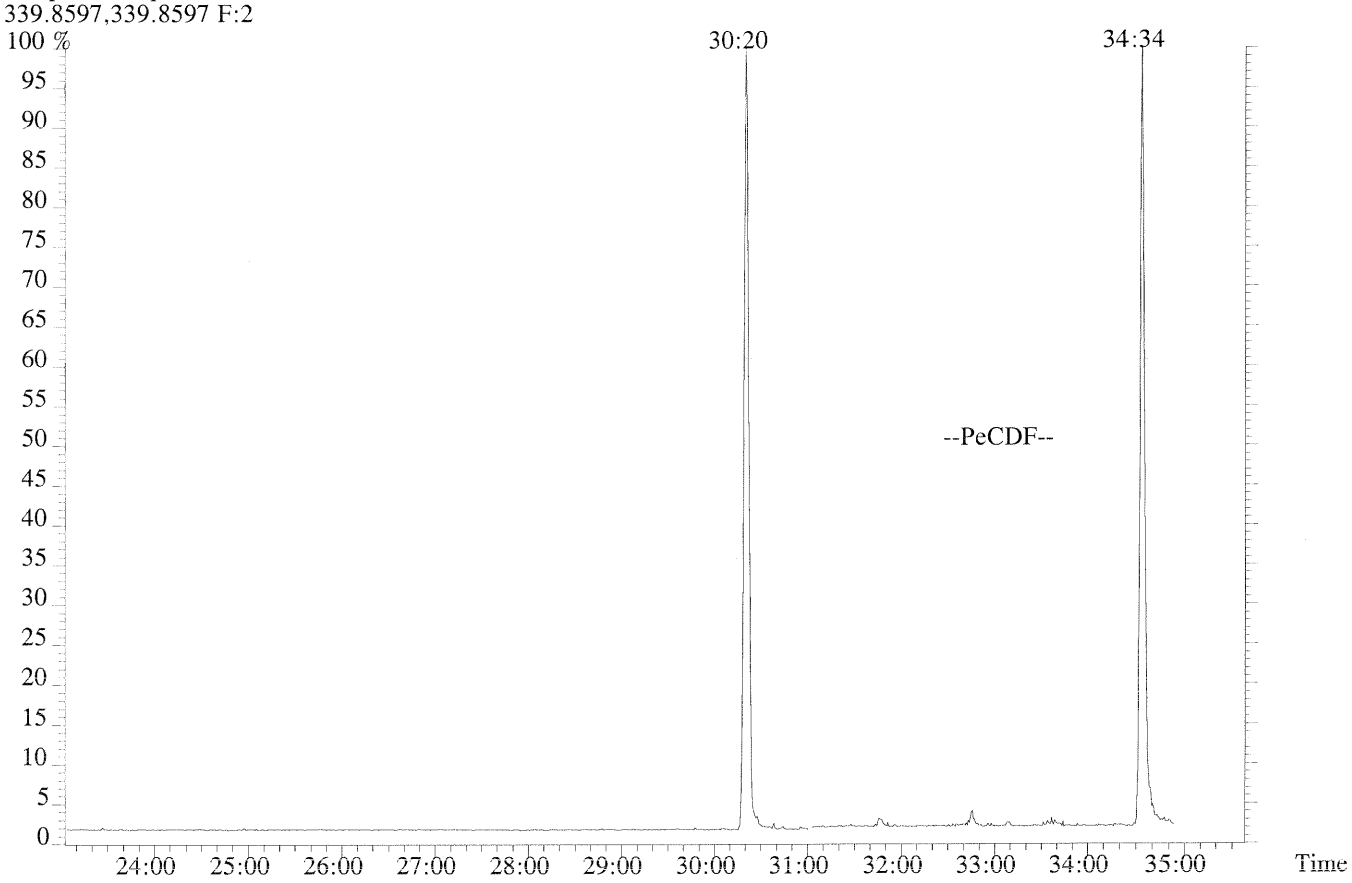


File:U149802 #1-627 Acq: 1-JUL-2014 19:14:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

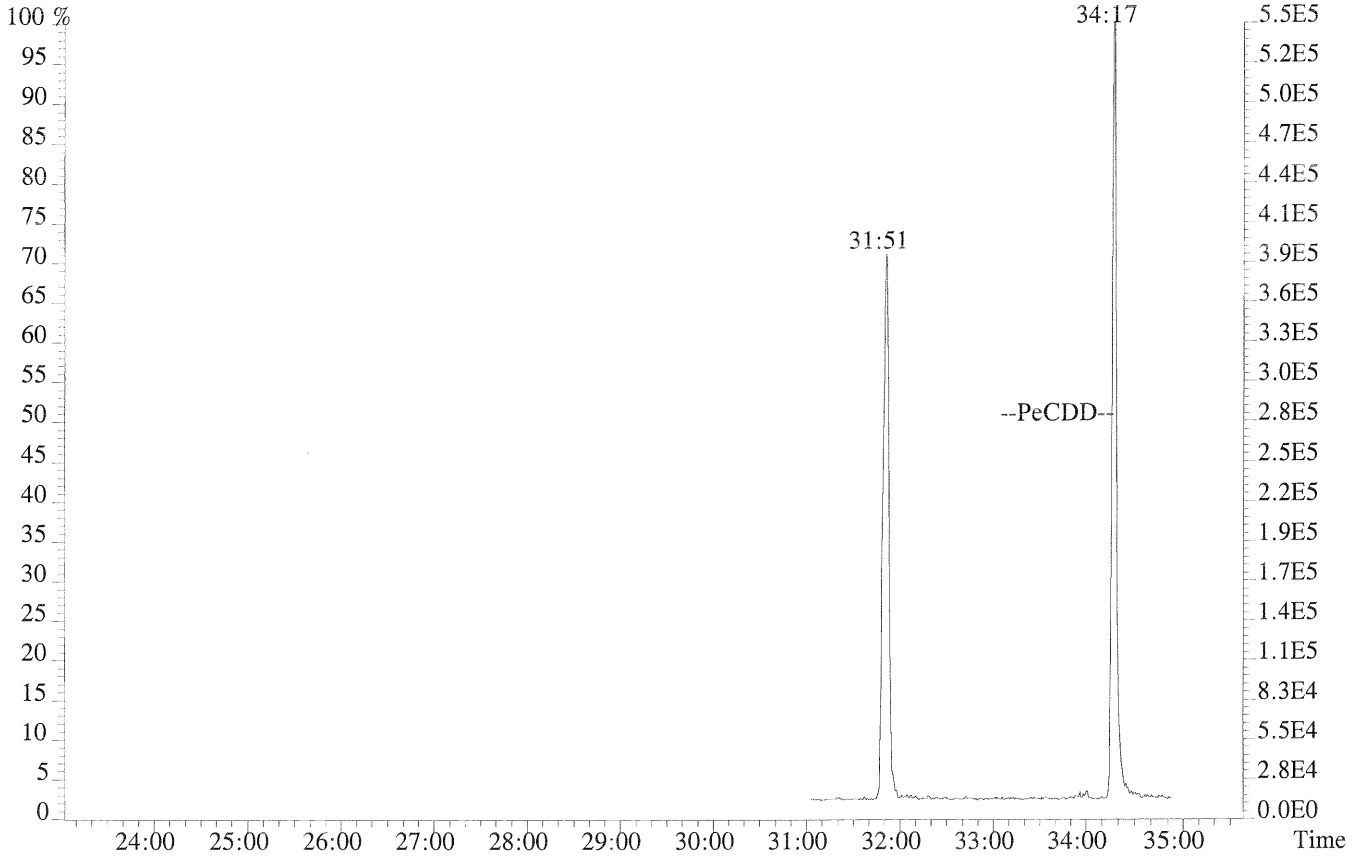




File:U149802 #1-627 Acq: 1-JUL-2014 19:14:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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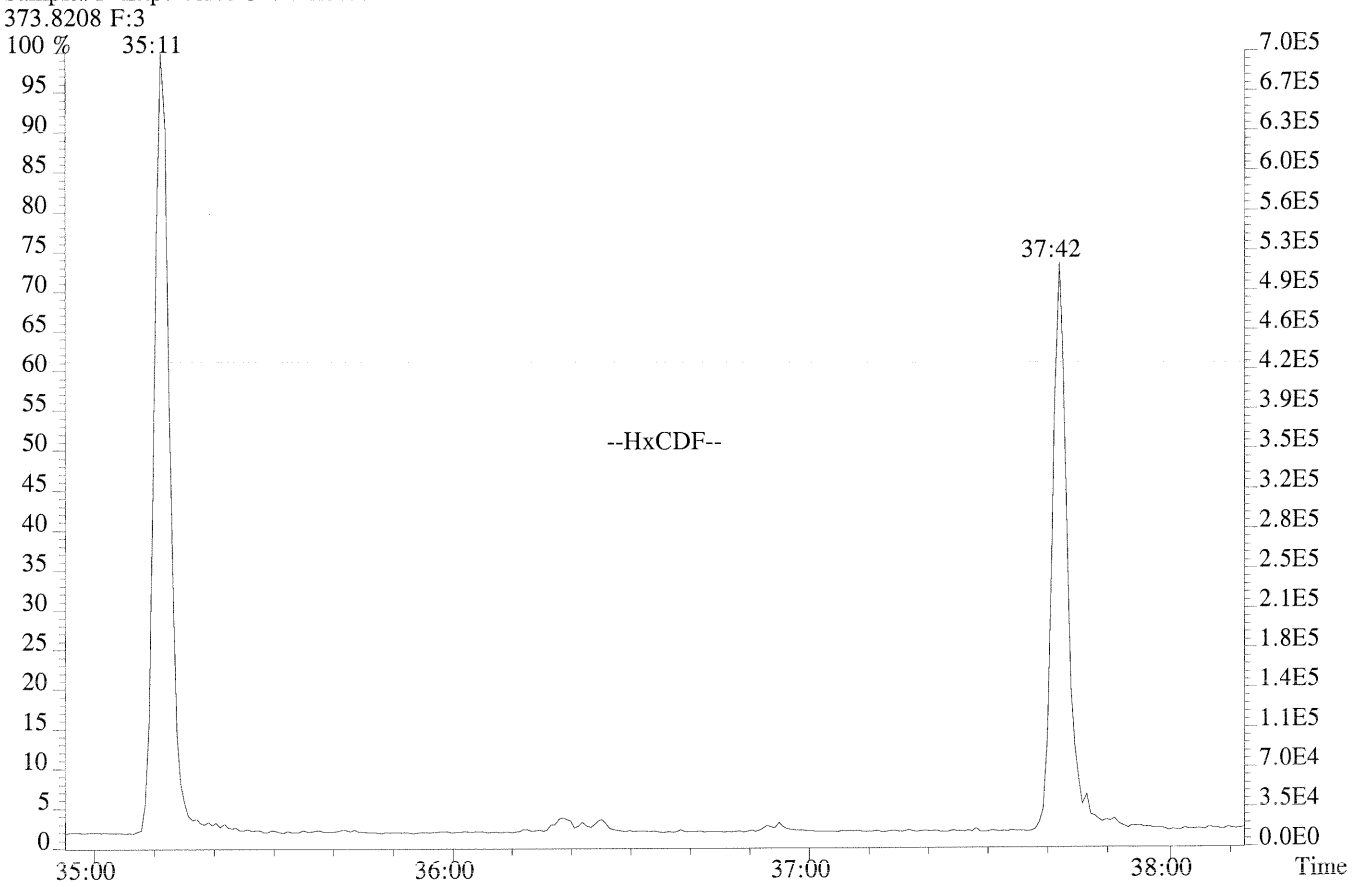
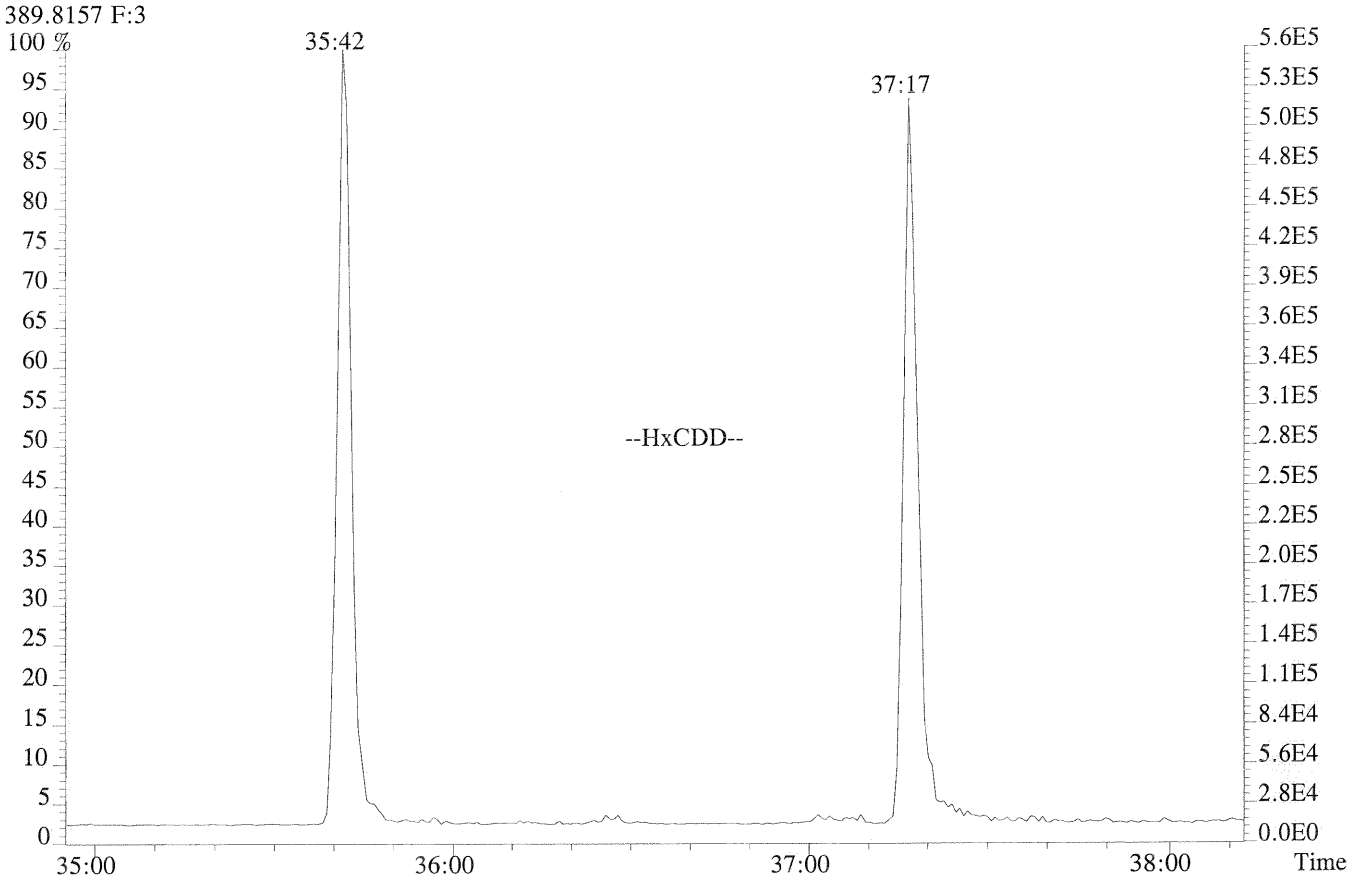
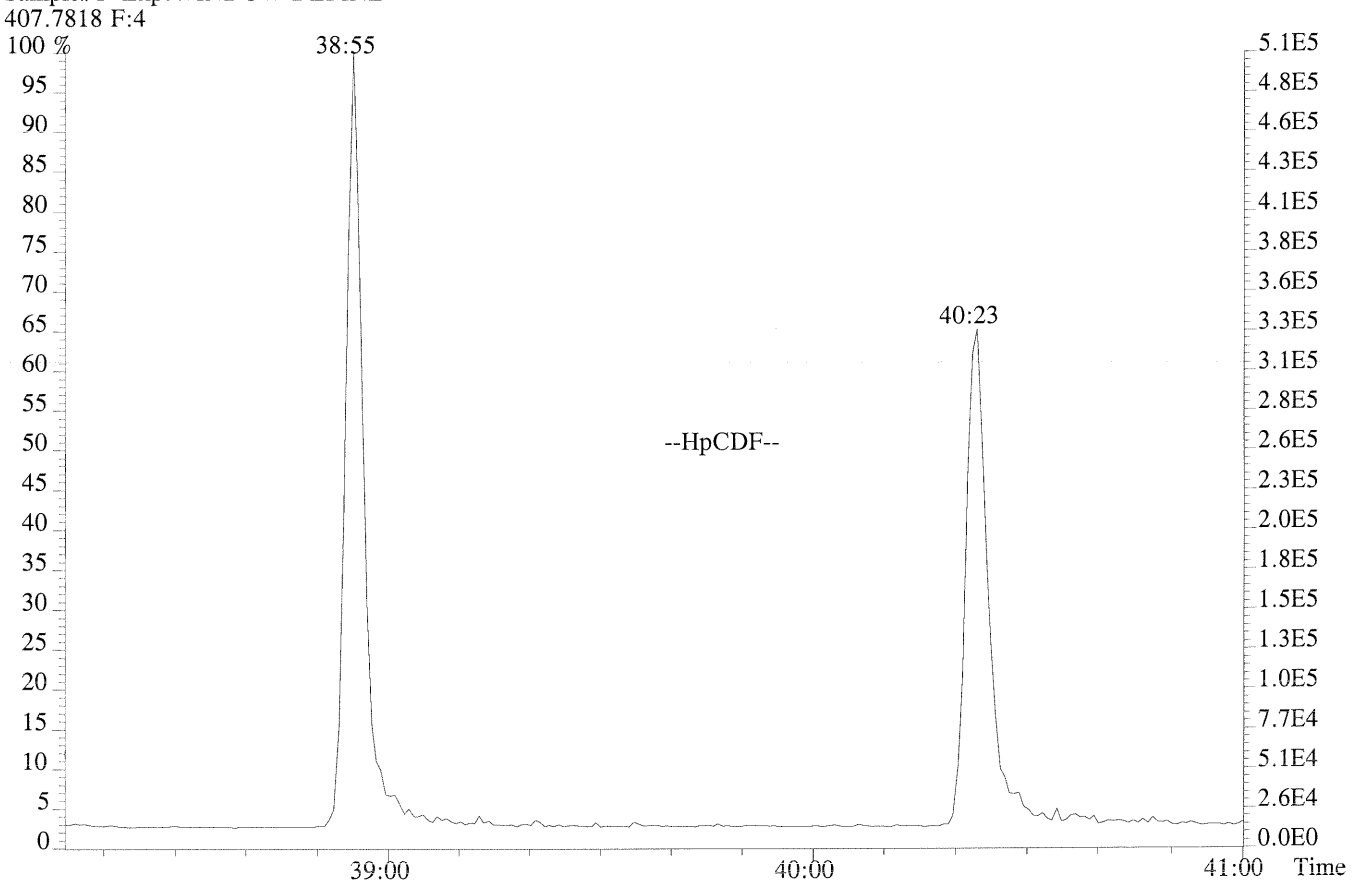
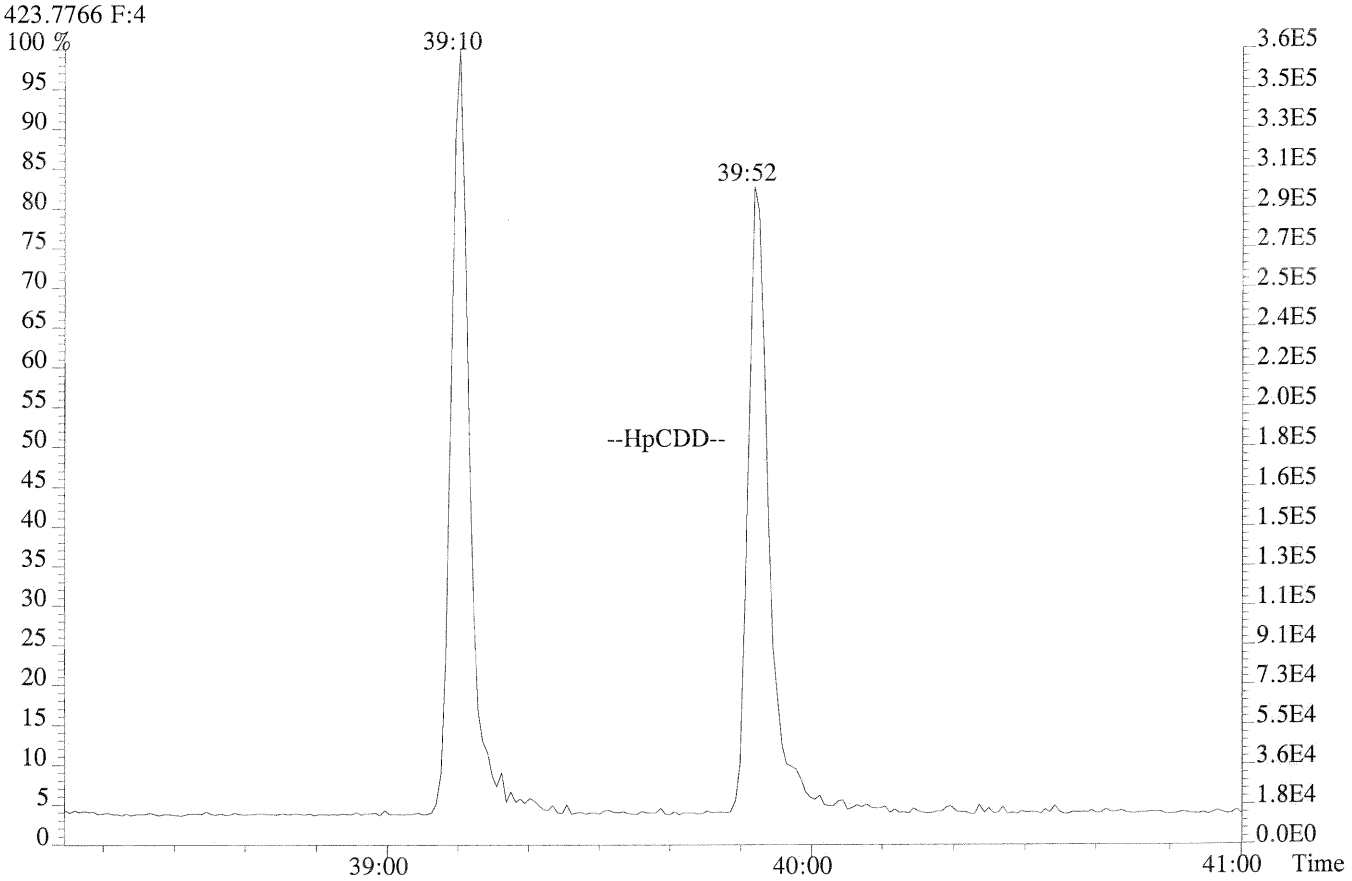
Sample#1 Exp:WINDOW DEFINE





File:U149802 #1-251 Acq: 1-JUL-2014 19:14:52 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 | GC Column ID: DB-5MSUI

VER Data Filename: U149801 | Analysis Date: 1-JUL-14 Time: 18:00:57

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.82	0.65-0.89	9.7	7.8 - 12.9	-3.3
1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	51	39 - 65	1.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	53	39 - 64	6.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	52	39 - 64	4.2
1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	51	41 - 61	1.1
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	50	43 - 58	-0.9
OCDD	M+2/M+4	0.90	0.76-1.02	104	79 - 126	3.8
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	10.5	8.4 - 12.0	5.0
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	53	41 - 60	5.2
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	53	41 - 61	5.2
1,2,3,4,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	45 - 56	3.3
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	51	44 - 57	2.5
1,2,3,7,8,9-HxCDF	M+2/M+4	1.27	1.05-1.43	51	45 - 56	2.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	51	45 - 55	1.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.07	0.88-1.20	51	43 - 58	2.2
OCDF	M+2/M+4	0.89	0.76-1.02	106	63 - 159	5.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 GC Column ID: DB-5MSUI

VER Data Filename: U149801 Analysis Date: 1-JUL-14 Time: 18:00:57

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	96	82 - 121	-4.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	97	62 - 160	-3.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.36	1.05-1.43	100	85 - 117	-0.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.21	1.05-1.43	101	85 - 118	1.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	99	72 - 138	-1.0
13C-OCDD	M+2/M+4	0.91	0.76-1.02	171	96 - 415	-14.3
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	100	71 - 140	-0.4
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	97	76 - 130	-3.5
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	97	77 - 130	-3.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	97	76 - 131	-2.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	2.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	96	74 - 135	-4.0
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	103	73 - 137	2.7
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	98	78 - 129	-2.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	98	77 - 129	-2.0
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-3.5

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CCAL HRCC3/CS3

Run #7 Filename U149801 Samp: 1 Inj: 1 Acquired: 1-JUL-14 18:00:57
Processed: 2-JUL-14 11:33:04 Sample ID: 66131

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:38	3.617e+03	4.605e+03	0.79	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:45	3.367e+04	2.155e+04	1.56	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:39	3.164e+04	2.036e+04	1.55	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	2.691e+04	2.185e+04	1.23	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:24	3.022e+04	2.425e+04	1.25	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	2.756e+04	2.250e+04	1.22	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:40	2.437e+04	1.922e+04	1.27	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:54	2.340e+04	2.279e+04	1.03	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:22	2.093e+04	1.956e+04	1.07	yes	no	1.358
10	Unk	OCDF	42:59	2.874e+04	3.219e+04	0.89	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:23	2.588e+03	3.156e+03	0.82	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:55	2.235e+04	1.380e+04	1.62	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:02	1.988e+04	1.566e+04	1.27	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:07	2.097e+04	1.647e+04	1.27	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:21	2.154e+04	1.651e+04	1.30	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:52	1.695e+04	1.609e+04	1.05	yes	no	1.065
17	Unk	OCDD	42:47	2.468e+04	2.753e+04	0.90	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:37	3.717e+04	4.573e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:44	6.591e+04	4.155e+04	1.59	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:38	6.470e+04	4.043e+04	1.60	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	2.634e+04	5.061e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	3.157e+04	6.086e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:54	2.947e+04	5.657e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	2.544e+04	4.872e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:54	1.967e+04	4.414e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:22	1.793e+04	4.042e+04	0.44	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:22	2.552e+04	3.310e+04	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:54	4.229e+04	2.696e+04	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:02	3.381e+04	2.490e+04	1.36	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	3.566e+04	2.937e+04	1.21	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:51	3.265e+04	2.999e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:46	4.061e+04	4.487e+04	0.91	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:48	2.543e+04	3.256e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:21	3.776e+04	2.983e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:23	5.845e+03				no	1.044

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1613RESP

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Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CCAL HRCC3/CS3

Run #7 Filename U149801 Samp: 1 Inj: 1 Acquired: 1-JUL-14 18:00:57
Processed: 2-JUL-14 11:33:041 LAB. ID: 66131

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.47e+05	5.64e+02	1.3e+03	9.58e+05	8.80e+02	1.1e+03
2	1,2,3,7,8-PeCDF	6.35e+06	7.24e+02	8.8e+03	4.07e+06	9.32e+02	4.4e+03
3	2,3,4,7,8-PeCDF	6.40e+06	7.24e+02	8.8e+03	4.12e+06	9.32e+02	4.4e+03
4	1,2,3,4,7,8-HxCDF	5.72e+06	6.64e+02	8.6e+03	4.67e+06	6.40e+02	7.3e+03
5	1,2,3,6,7,8-HxCDF	6.04e+06	6.64e+02	9.1e+03	4.90e+06	6.40e+02	7.7e+03
6	2,3,4,6,7,8-HxCDF	5.70e+06	6.64e+02	8.6e+03	4.60e+06	6.40e+02	7.2e+03
7	1,2,3,7,8,9-HxCDF	4.52e+06	6.64e+02	6.8e+03	3.60e+06	6.40e+02	5.6e+03
8	1,2,3,4,6,7,8-HpCDF	4.55e+06	3.53e+03	1.3e+03	4.51e+06	1.27e+03	3.6e+03
9	1,2,3,4,7,8,9-HpCDF	3.91e+06	3.53e+03	1.1e+03	3.68e+06	1.27e+03	2.9e+03
10	OCDF	4.20e+06	4.96e+02	8.5e+03	4.73e+06	6.88e+02	6.9e+03
11	2,3,7,8-TCDD	5.52e+05	7.48e+02	7.4e+02	6.76e+05	7.24e+02	9.3e+02
12	1,2,3,7,8-PeCDD	4.25e+06	5.28e+02	8.1e+03	2.64e+06	5.84e+02	4.5e+03
13	1,2,3,4,7,8-HxCDD	4.26e+06	7.84e+02	5.4e+03	3.31e+06	7.04e+02	4.7e+03
14	1,2,3,6,7,8-HxCDD	4.28e+06	7.84e+02	5.5e+03	3.41e+06	7.04e+02	4.8e+03
15	1,2,3,7,8,9-HxCDD	4.07e+06	7.84e+02	5.2e+03	3.22e+06	7.04e+02	4.6e+03
16	1,2,3,4,6,7,8-HpCDD	3.09e+06	8.24e+02	3.8e+03	2.94e+06	6.60e+02	4.5e+03
17	OCDD	3.61e+06	4.56e+02	7.9e+03	3.99e+06	6.40e+02	6.2e+03
18	13C-2,3,7,8-TCDF	7.59e+06	1.01e+03	7.5e+03	9.27e+06	1.00e+03	9.2e+03
19	13C-1,2,3,7,8-PeCDF	1.24e+07	6.68e+02	1.9e+04	7.82e+06	6.52e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	1.30e+07	6.68e+02	2.0e+04	8.06e+06	6.52e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	5.60e+06	6.60e+02	8.5e+03	1.08e+07	1.11e+03	9.8e+03
22	13C-1,2,3,6,7,8-HxCDF	6.40e+06	6.60e+02	9.7e+03	1.23e+07	1.11e+03	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	6.05e+06	6.60e+02	9.2e+03	1.15e+07	1.11e+03	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	4.78e+06	6.60e+02	7.2e+03	9.22e+06	1.11e+03	8.3e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.85e+06	9.40e+02	4.1e+03	8.70e+06	3.86e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+06	9.40e+02	3.6e+03	7.48e+06	3.86e+03	1.9e+03
27	13C-2,3,7,8-TCDD	5.58e+06	1.98e+03	2.8e+03	7.28e+06	9.12e+02	8.0e+03
28	13C-1,2,3,7,8-PeCDD	8.23e+06	6.92e+02	1.2e+04	5.30e+06	5.68e+02	9.3e+03
29	13C-1,2,3,4,7,8-HxCDD	7.09e+06	5.84e+02	1.2e+04	5.46e+06	6.08e+02	9.0e+03
30	13C-1,2,3,6,7,8-HxCDD	7.20e+06	5.84e+02	1.2e+04	5.71e+06	6.08e+02	9.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	5.93e+06	8.56e+02	6.9e+03	5.40e+06	9.56e+02	5.6e+03
32	13C-OCDD	5.84e+06	7.80e+02	7.5e+03	6.37e+06	5.76e+02	1.1e+04
33	13C-1,2,3,4-TCDD	5.48e+06	1.98e+03	2.8e+03	7.03e+06	9.12e+02	7.7e+03
34	13C-1,2,3,7,8,9-HxCDD	7.18e+06	5.84e+02	1.2e+04	5.63e+06	6.08e+02	9.3e+03
35	37Cl-2,3,7,8-TCDD	1.25e+06	8.40e+02	1.5e+03			

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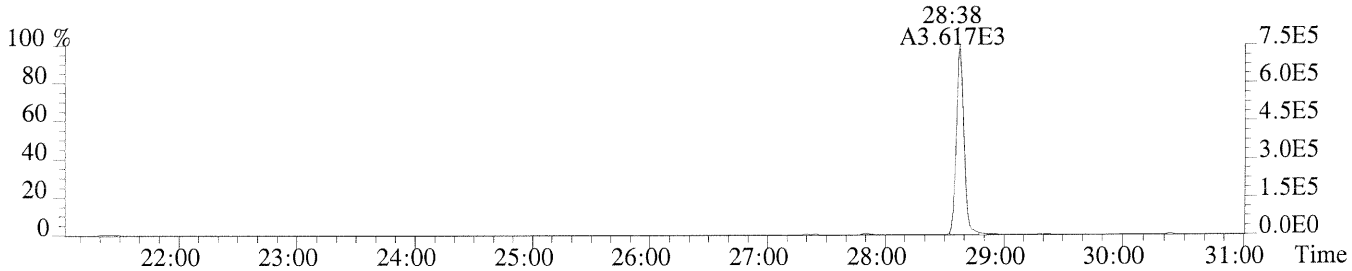
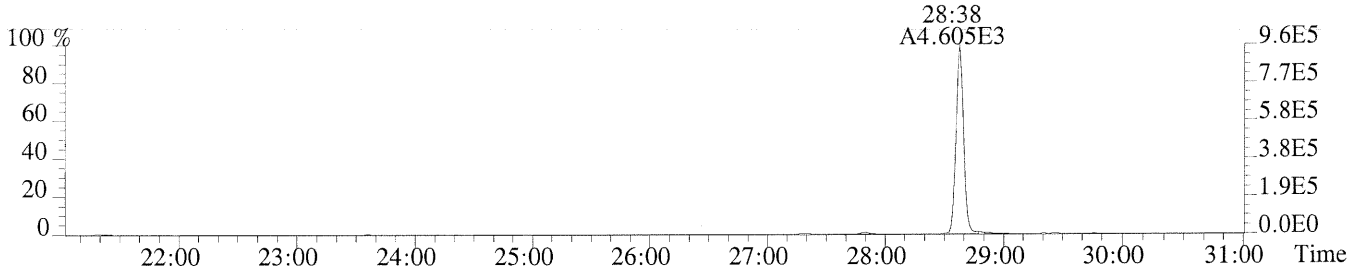
File:U149801 #1-627 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

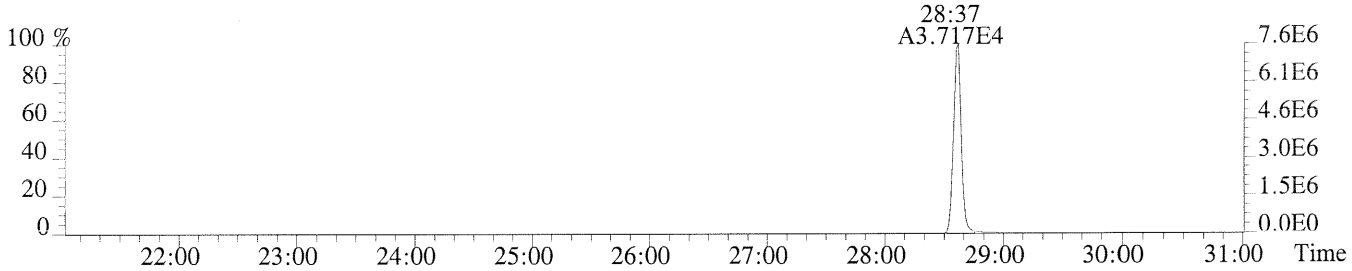
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



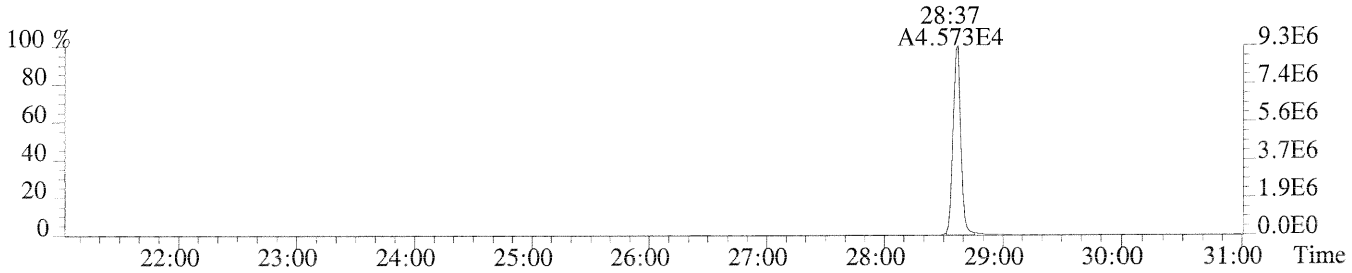
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



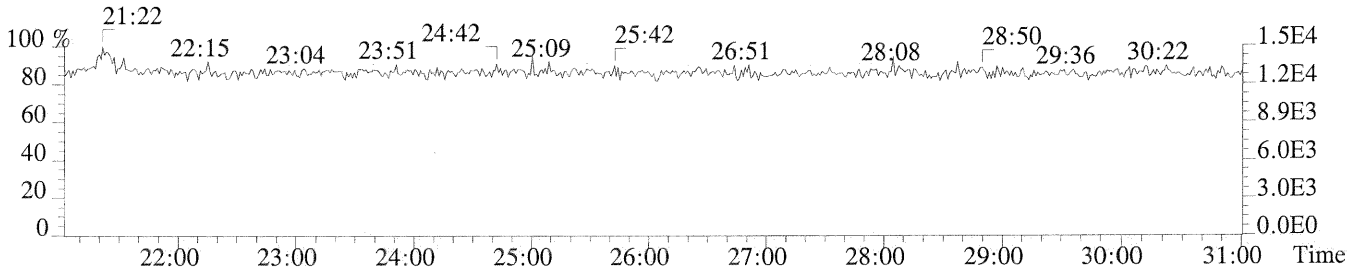
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1012.0,1.00%,F,T)



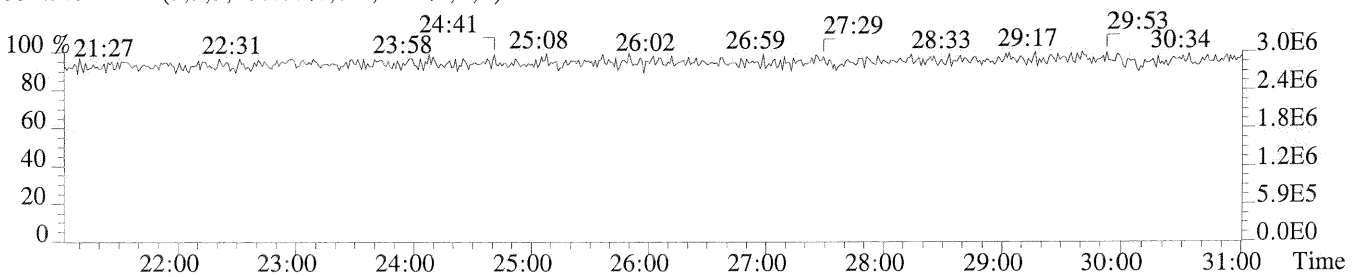
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1004.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

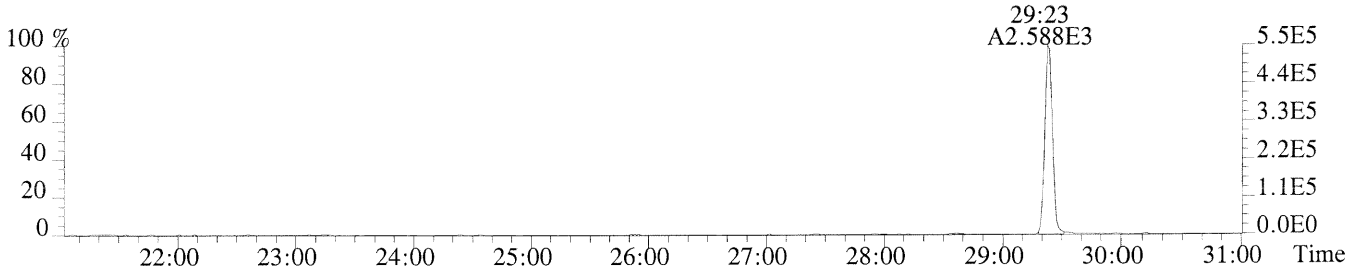


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

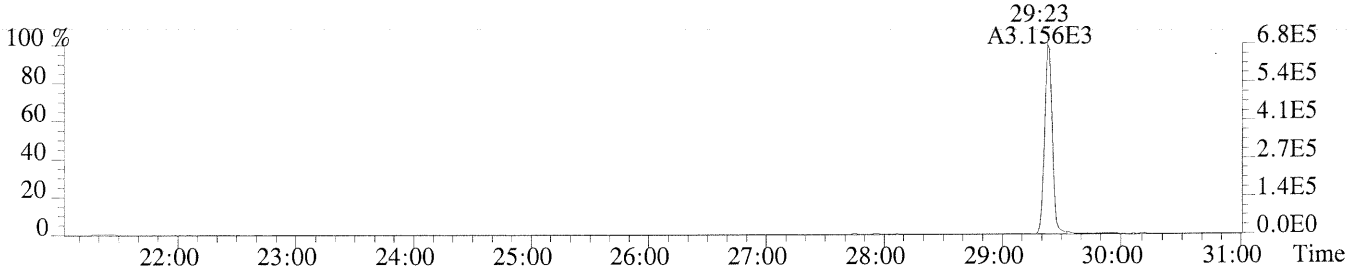


File:U149801 #1-627 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

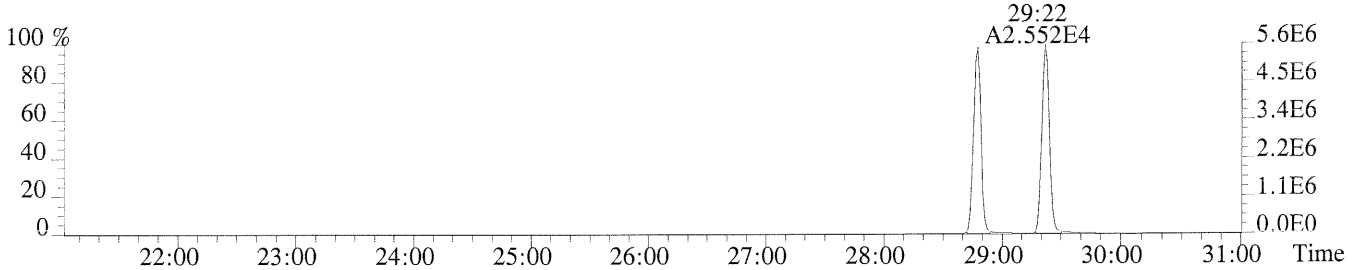
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



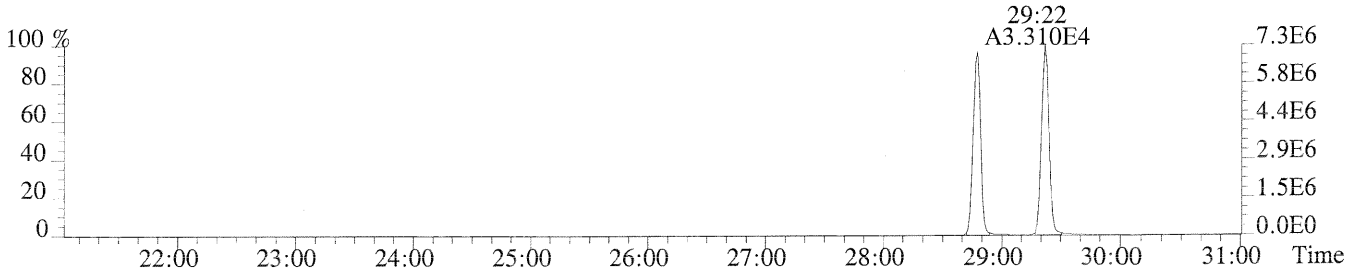
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



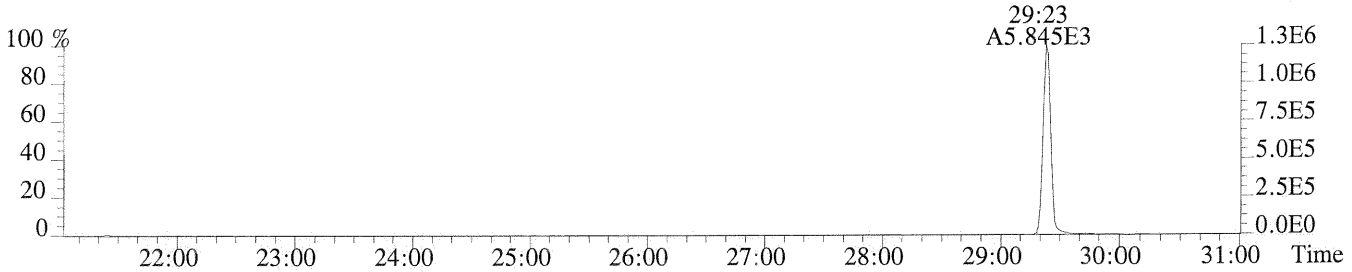
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



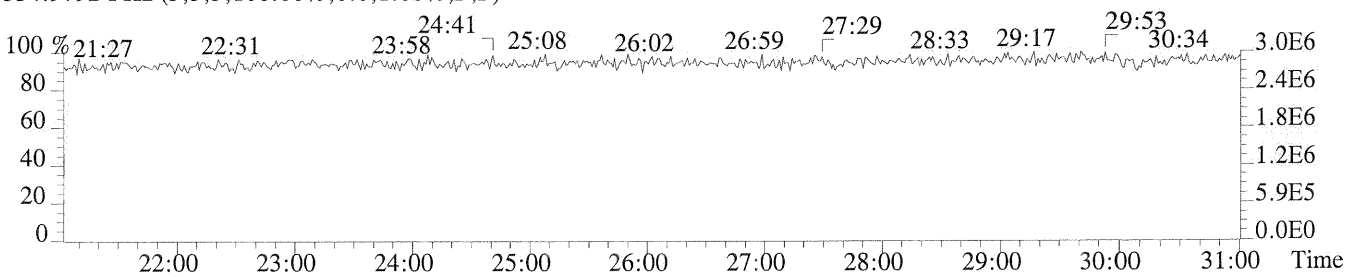
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



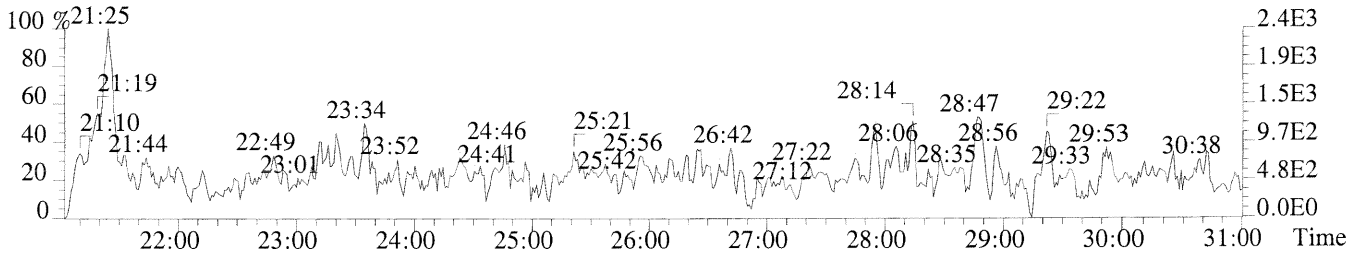
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



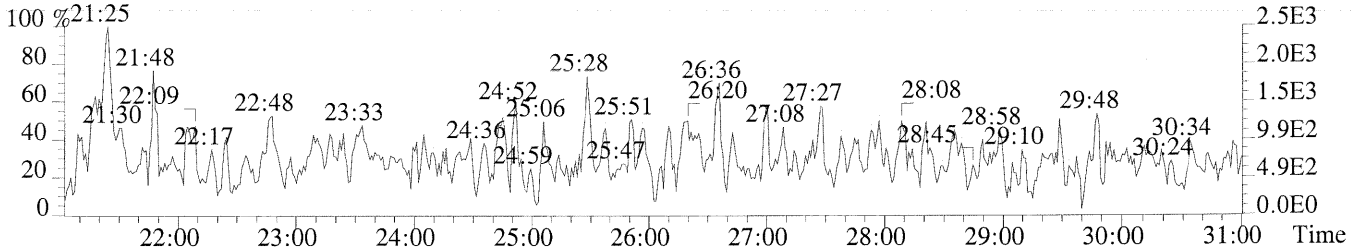
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



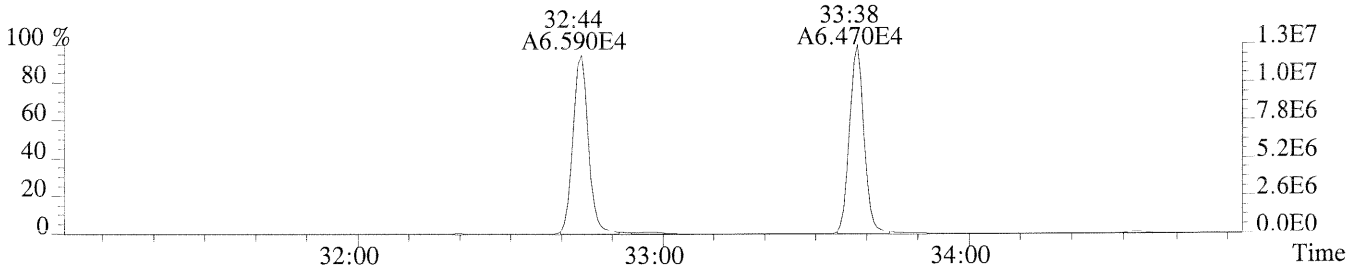
File:U149801 #1-627 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



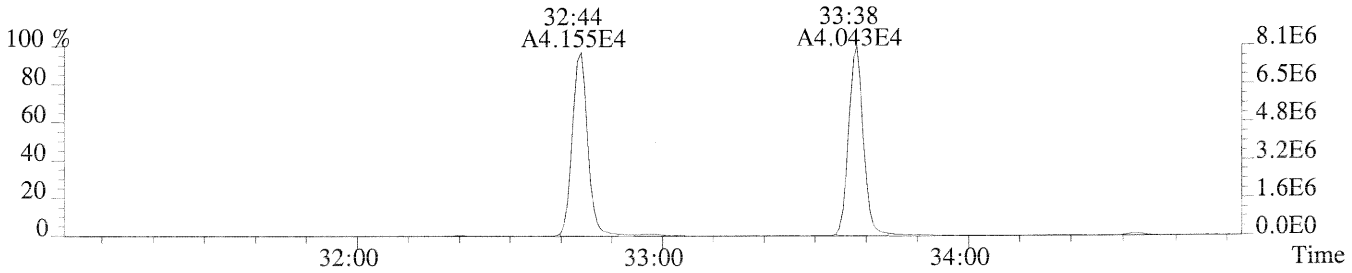
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



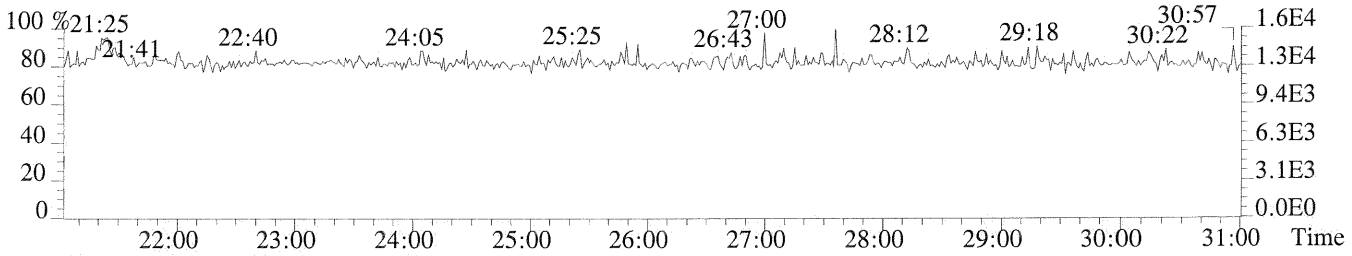
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



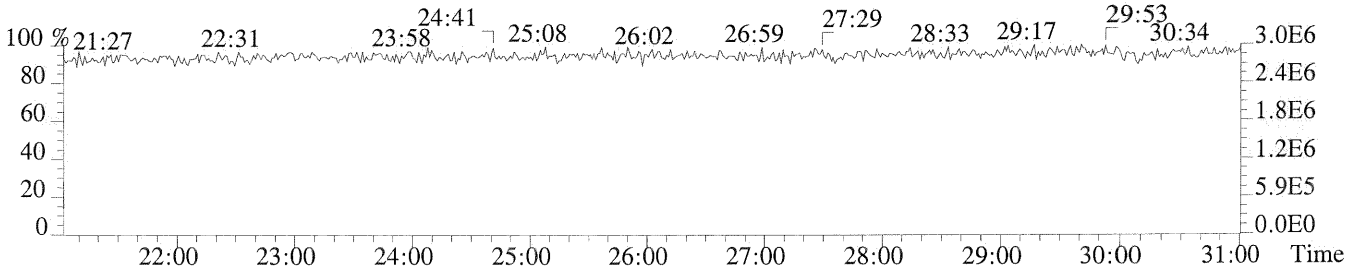
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

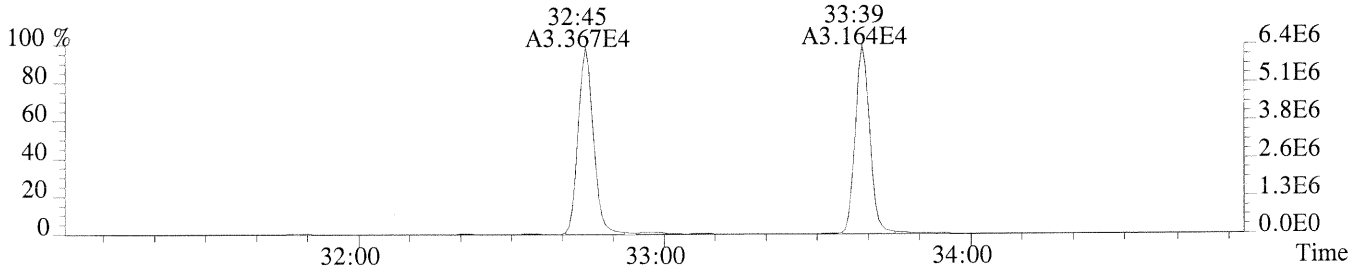


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

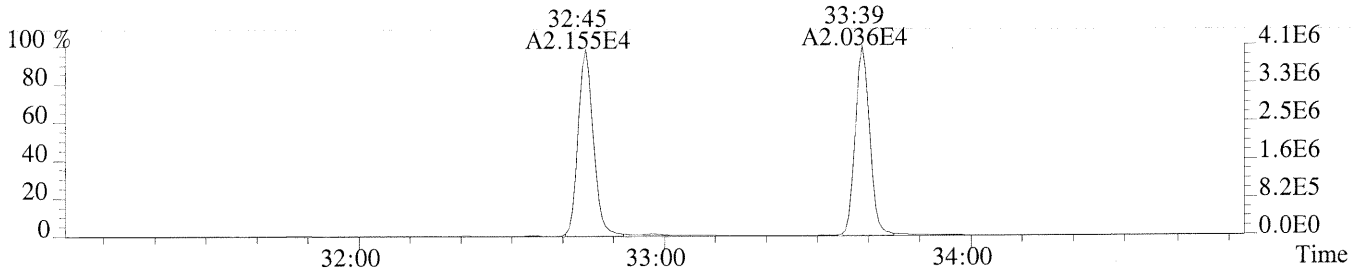


File:U149801 #1-349 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

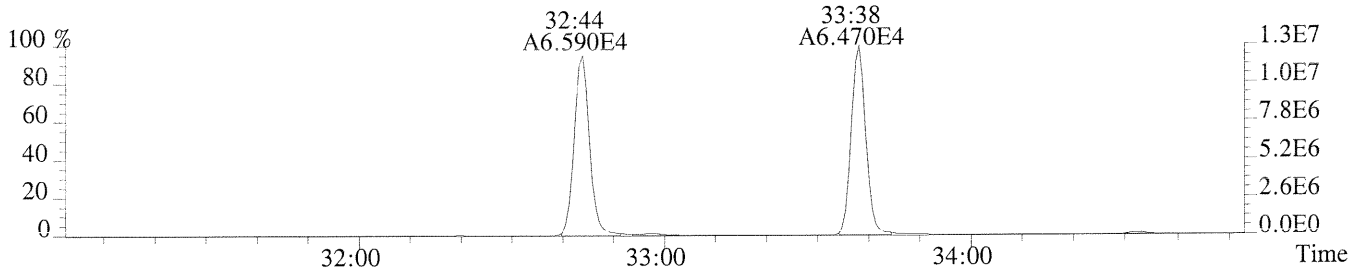
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



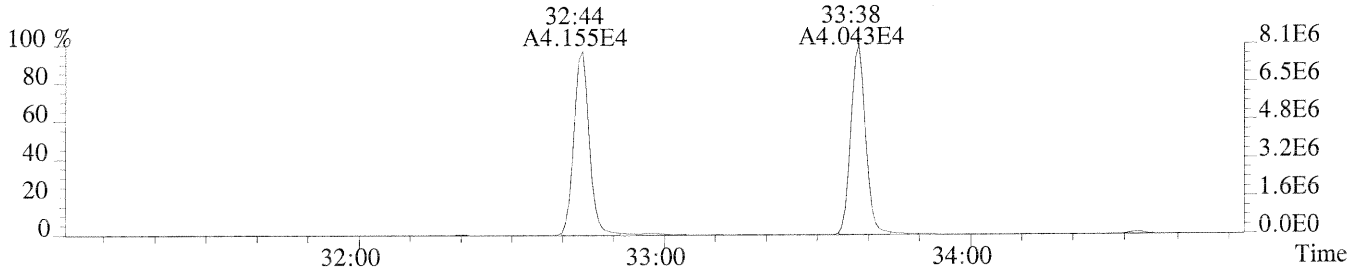
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



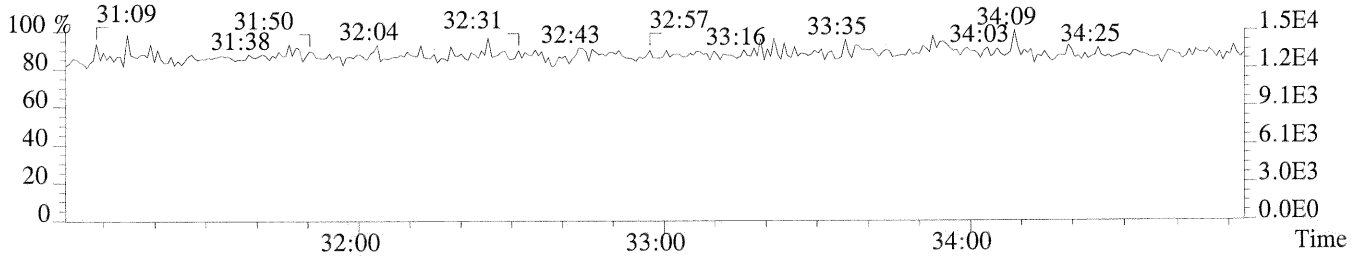
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



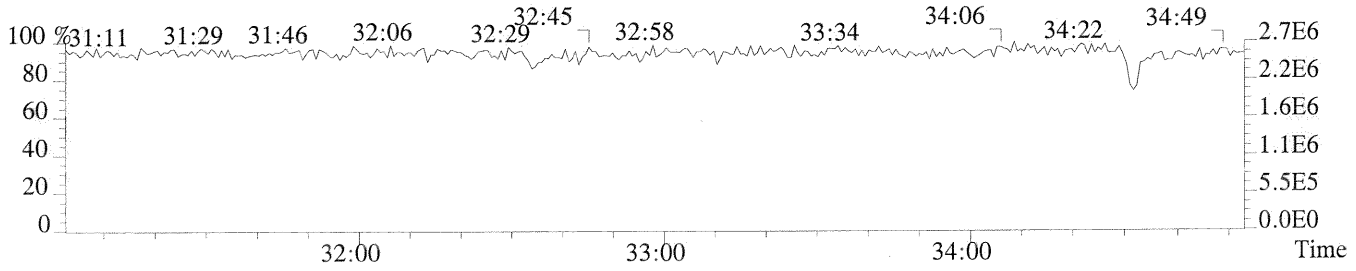
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



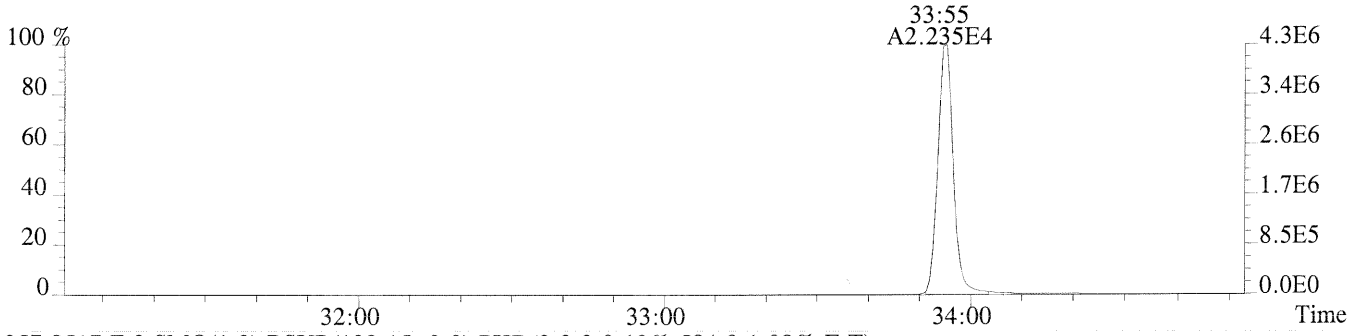
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



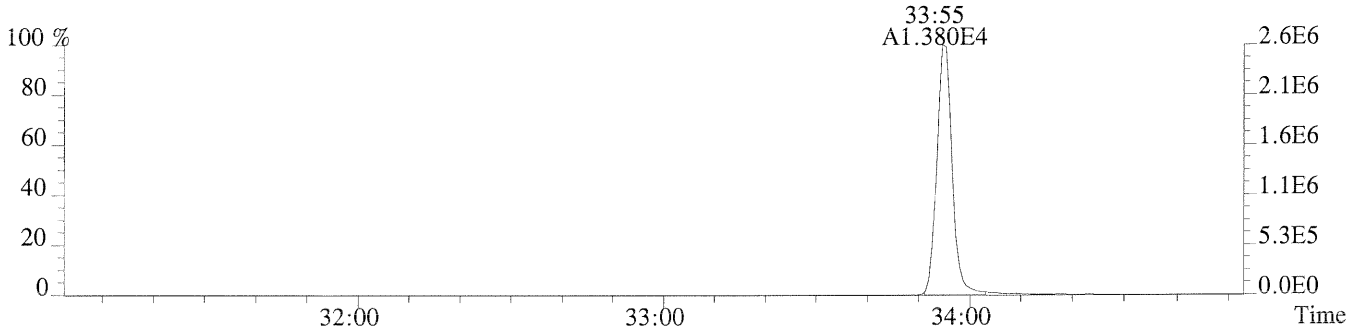
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



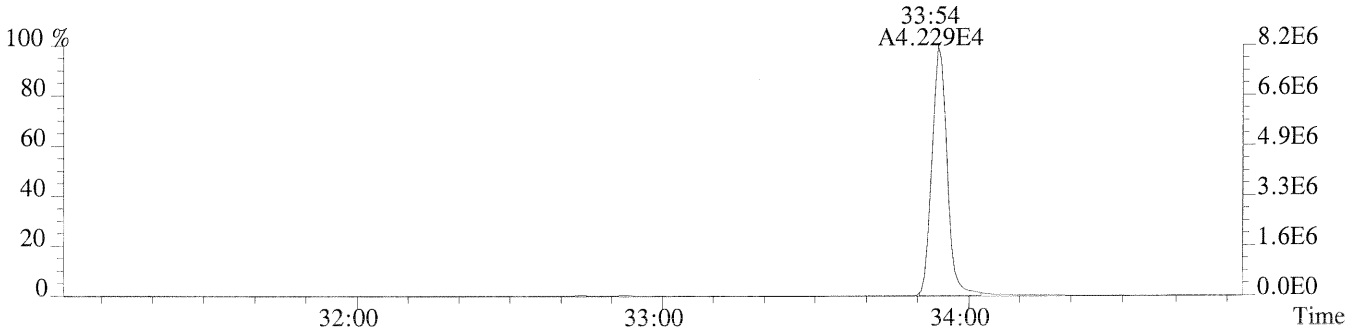
File:U149801 #1-349 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



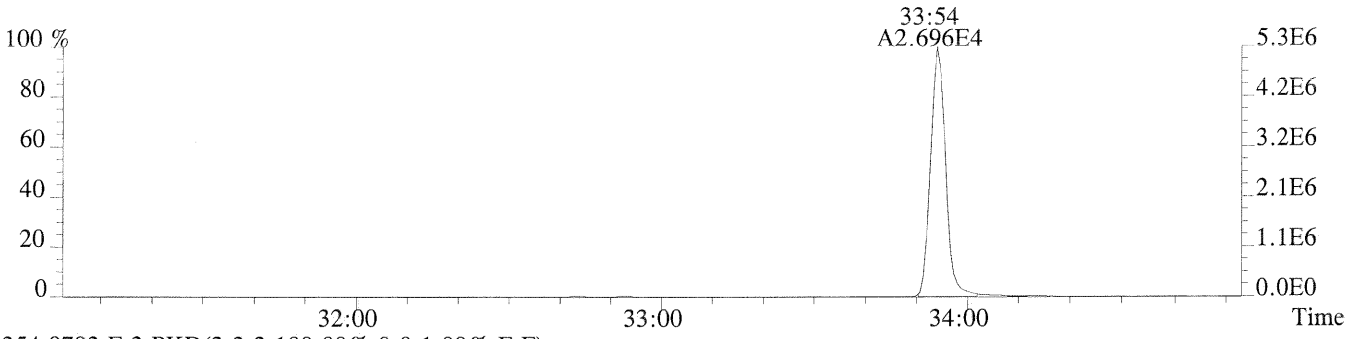
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



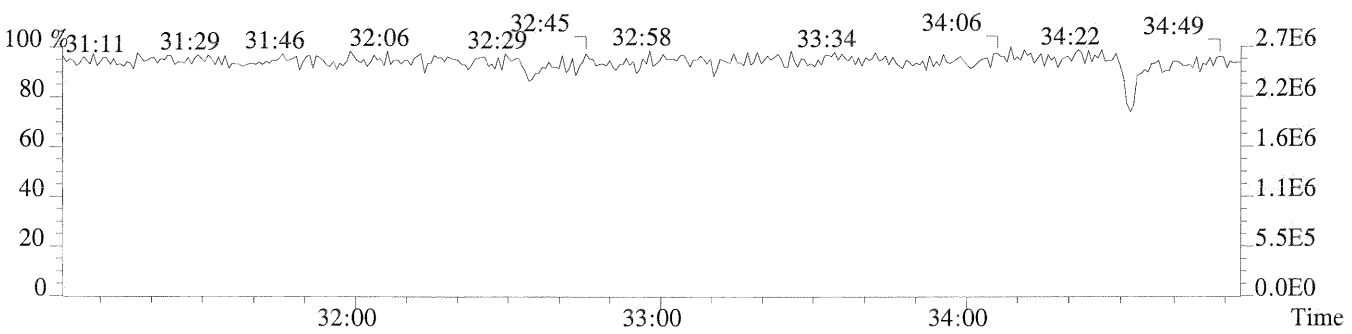
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)

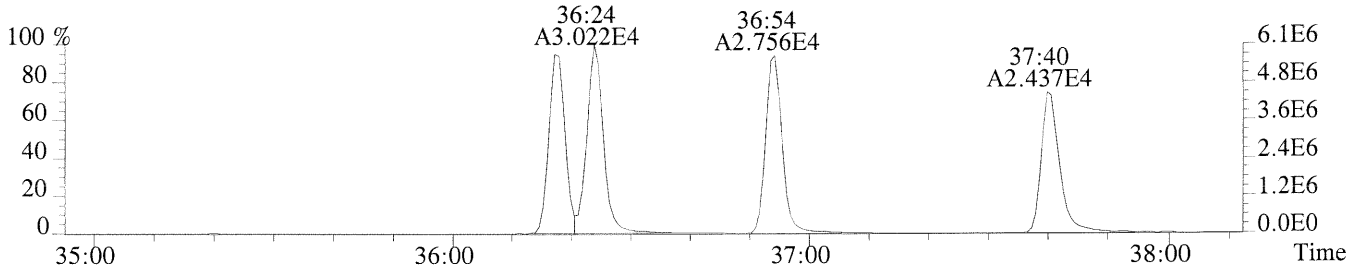


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

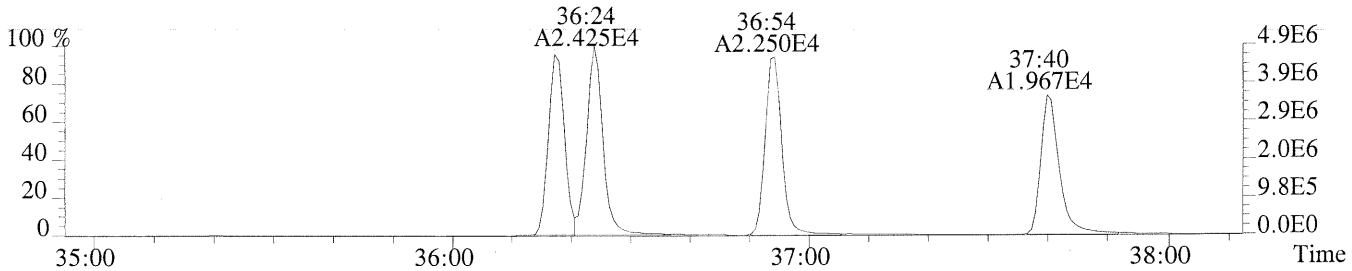


File:U149801 #1-299 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

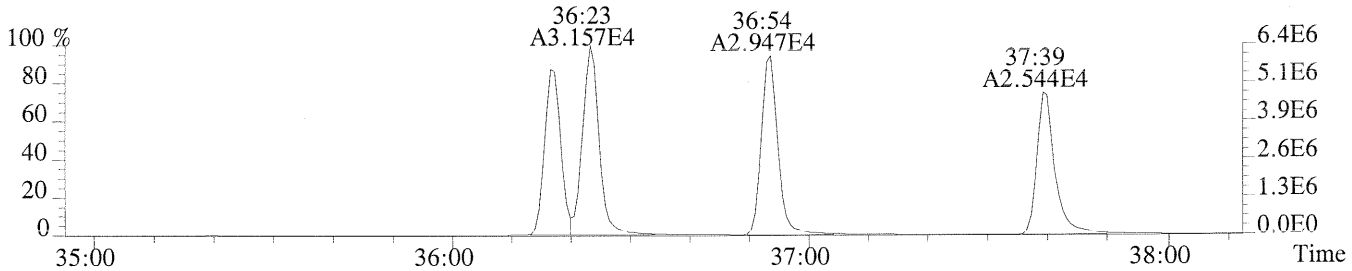
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



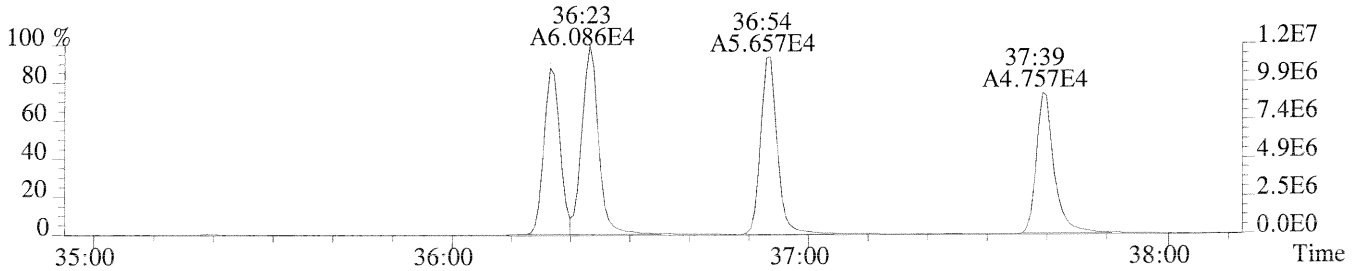
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



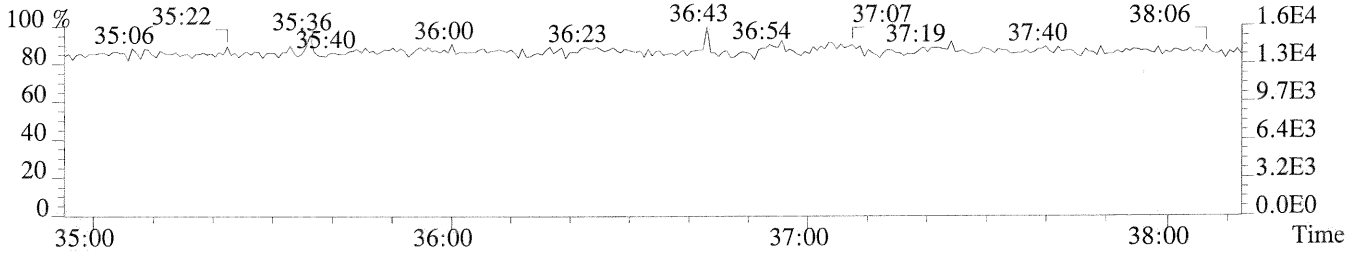
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



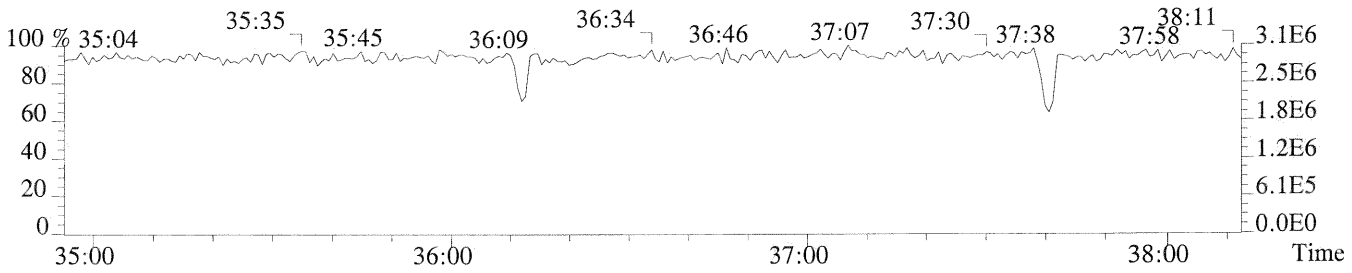
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1108.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

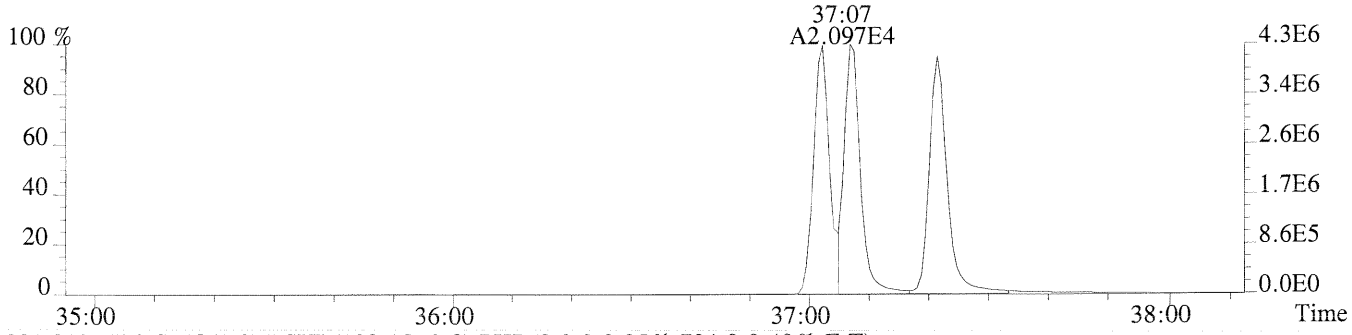


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

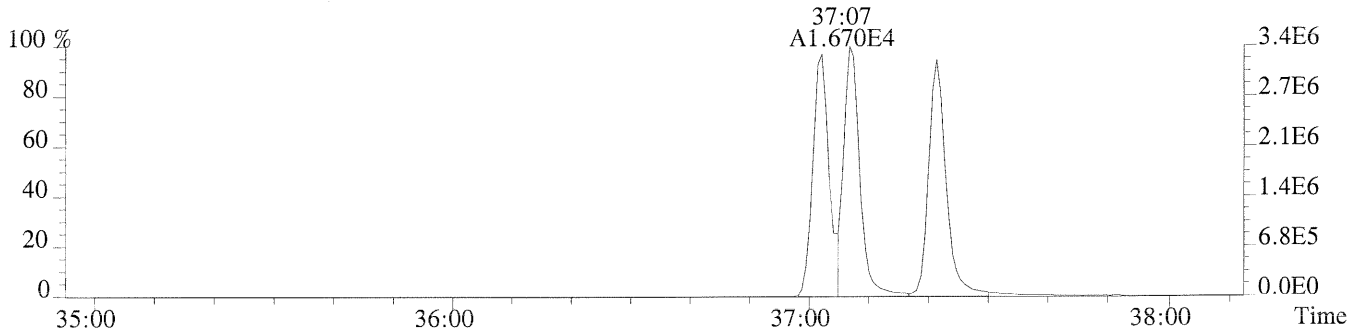


File:U149801 #1-299 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

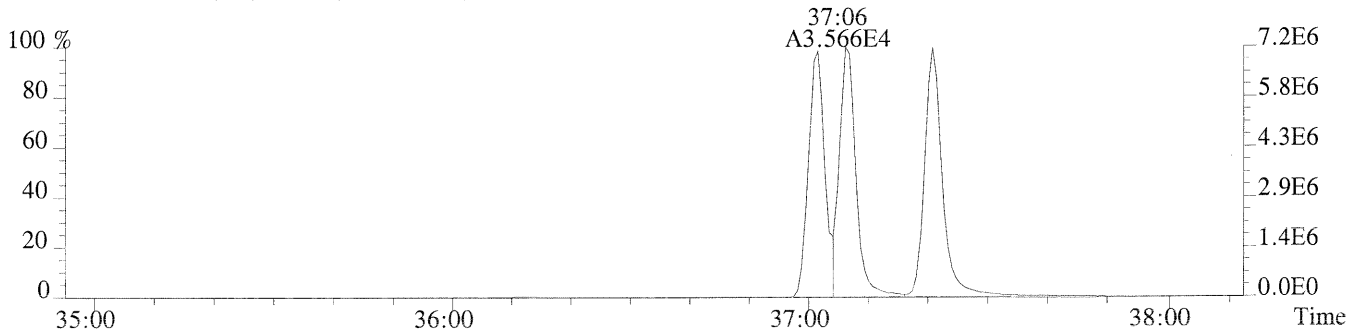
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



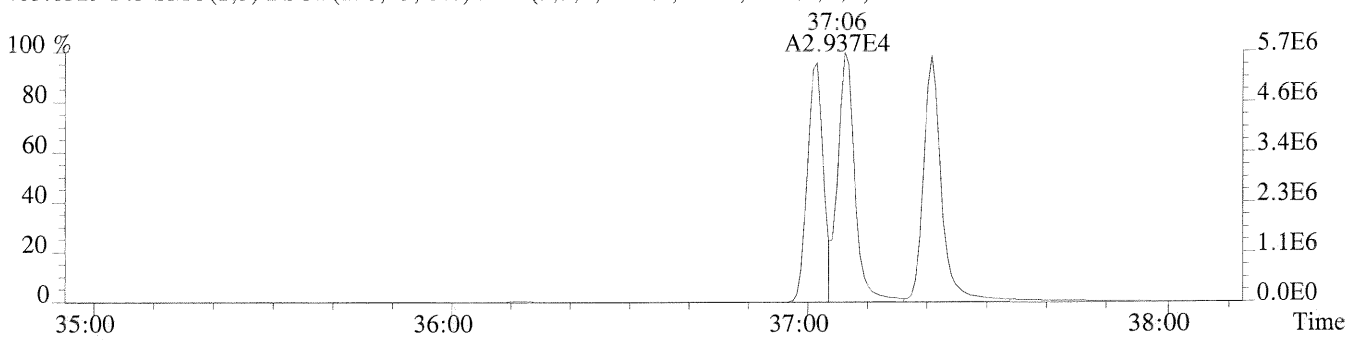
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,704.0,0.40%,F,T)



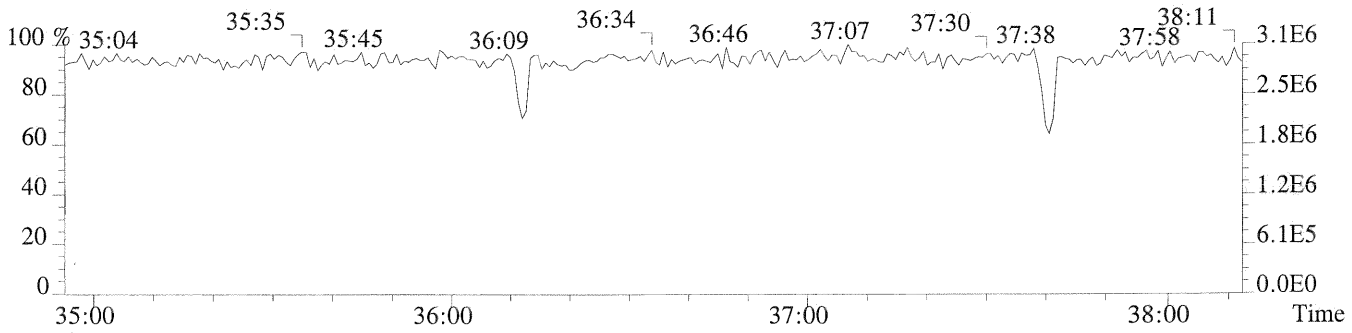
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,608.0,0.40%,F,T)

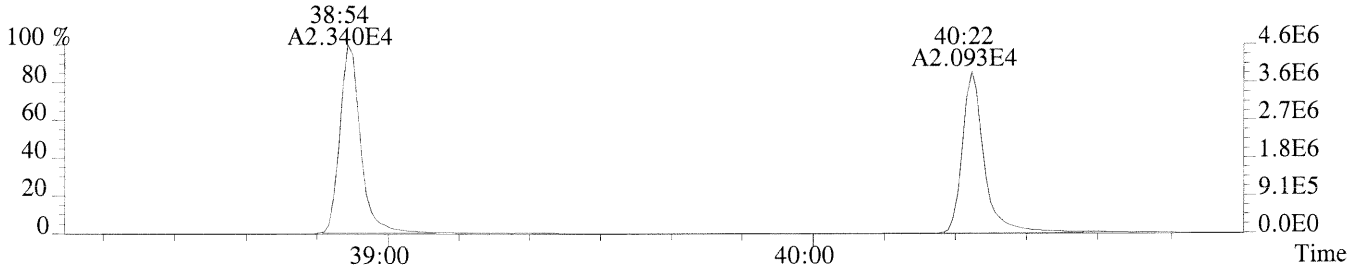


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

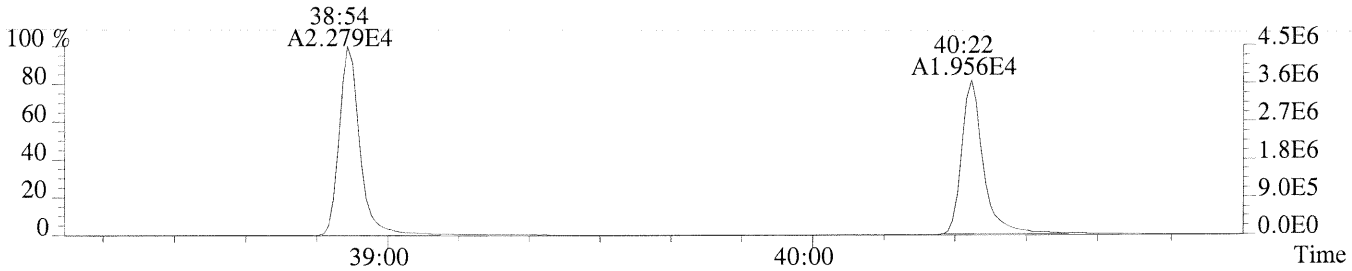


File:U149801 #1-251 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

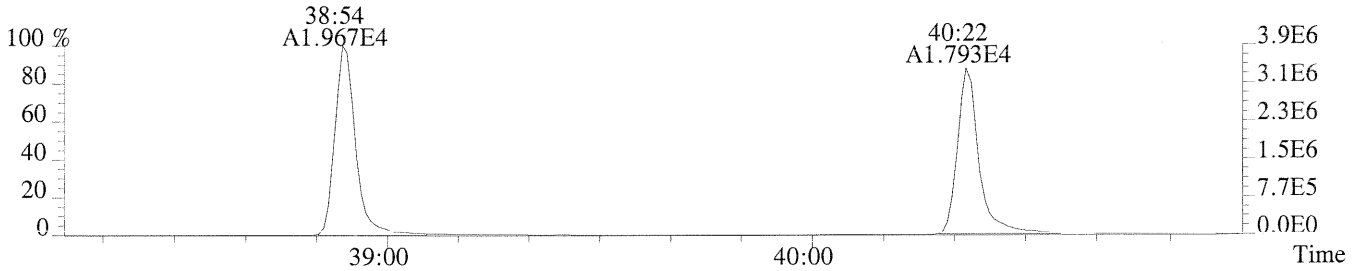
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3528.0,0.50%,F,T)



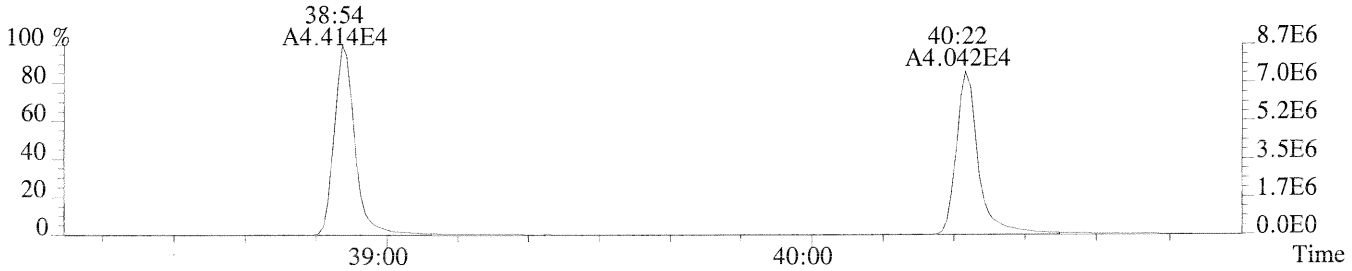
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.50%,F,T)



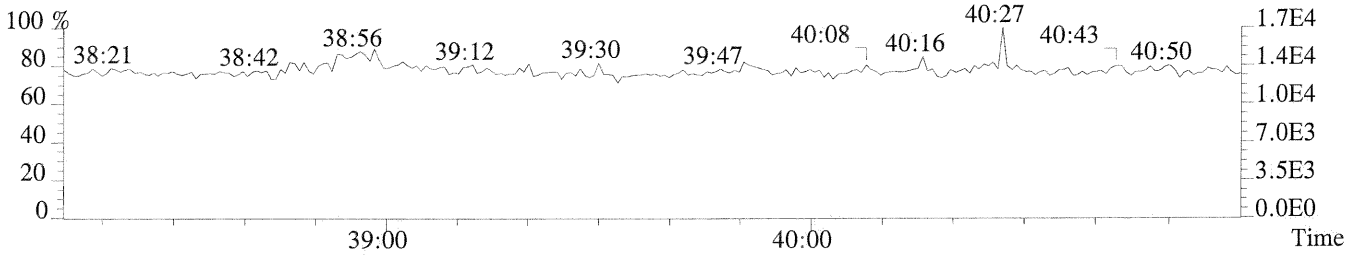
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.50%,F,T)



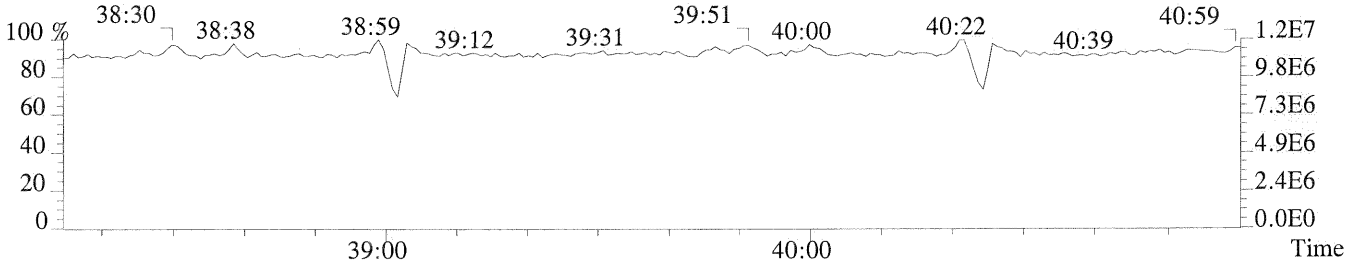
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3864.0,0.50%,F,T)



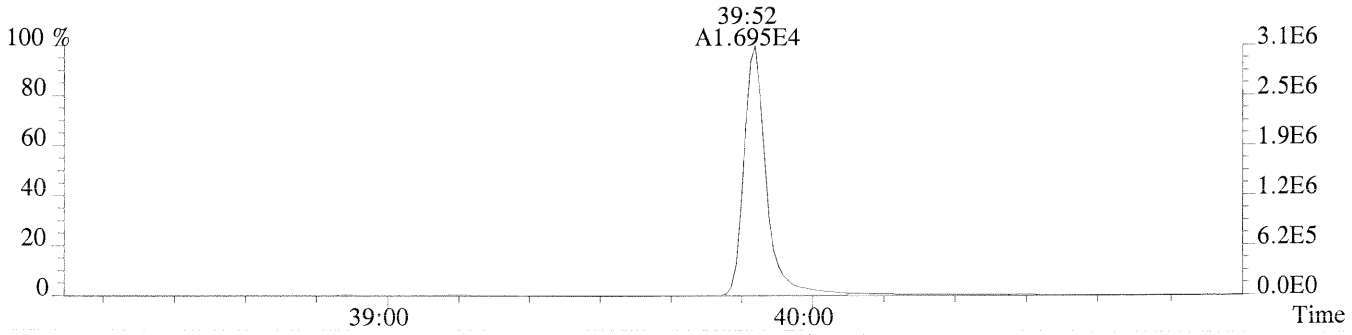
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



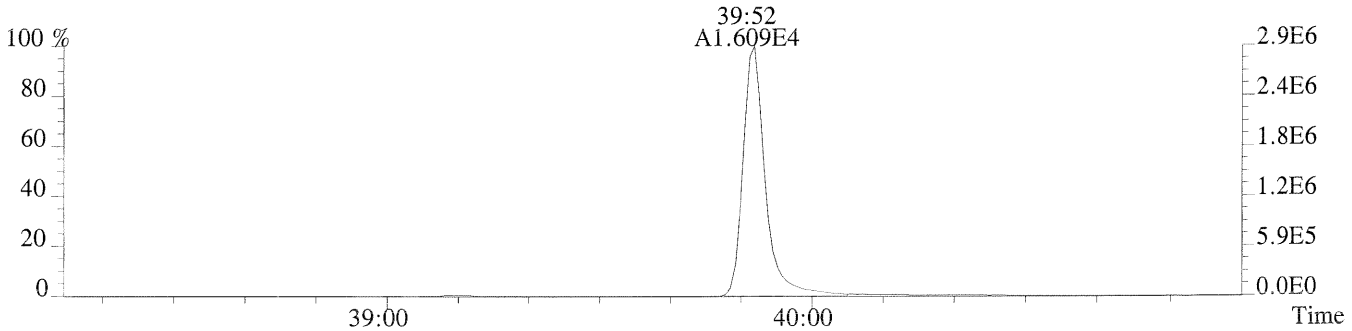
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



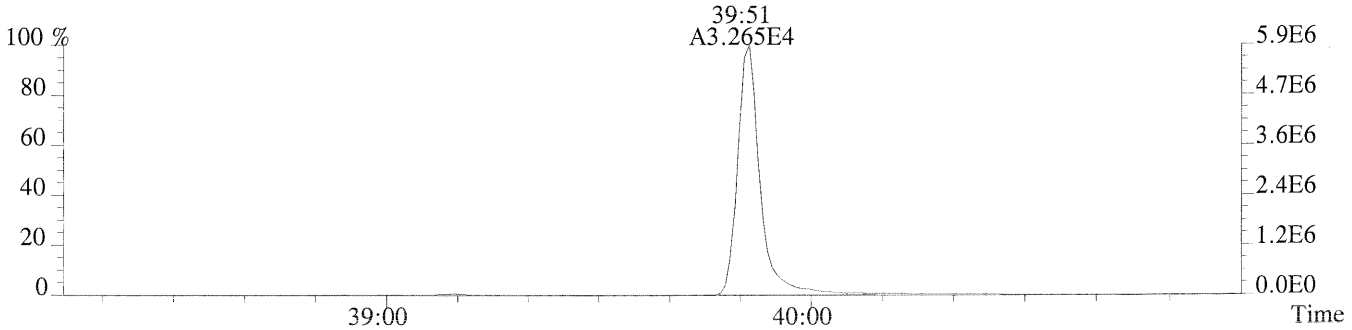
File:U149801 #1-251 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



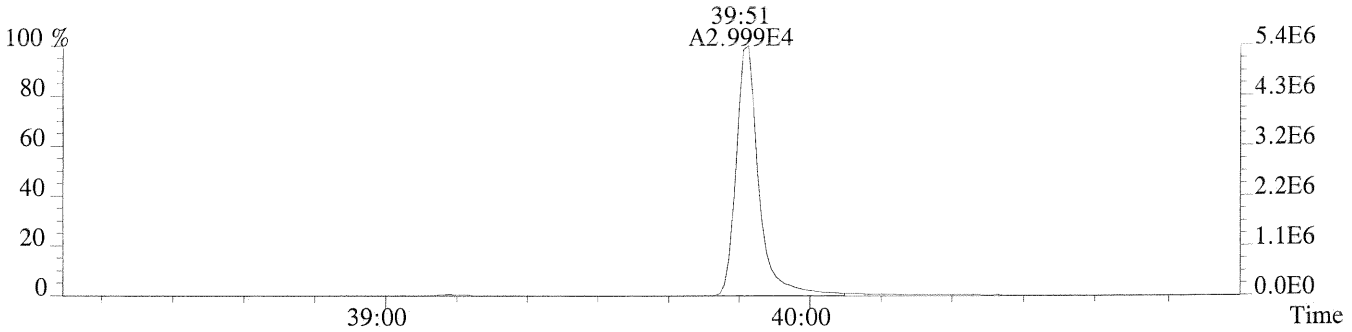
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



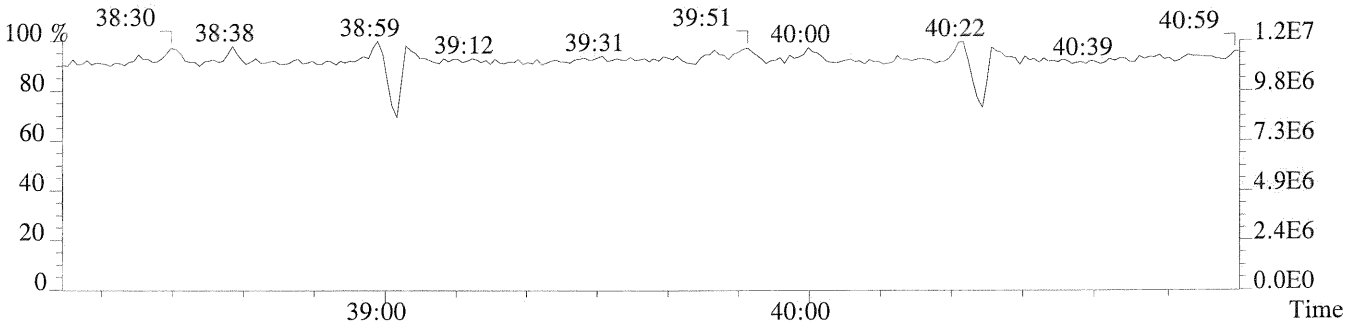
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



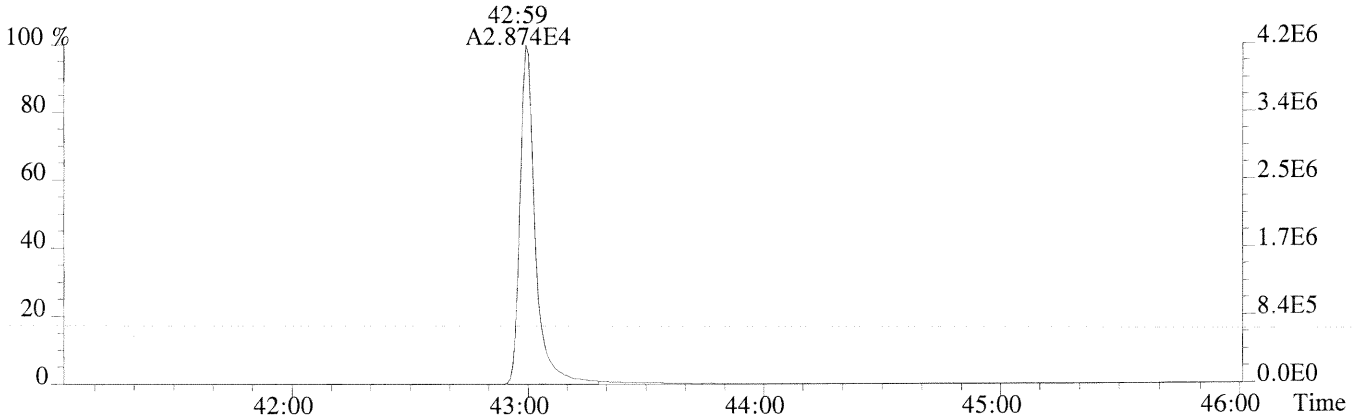
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



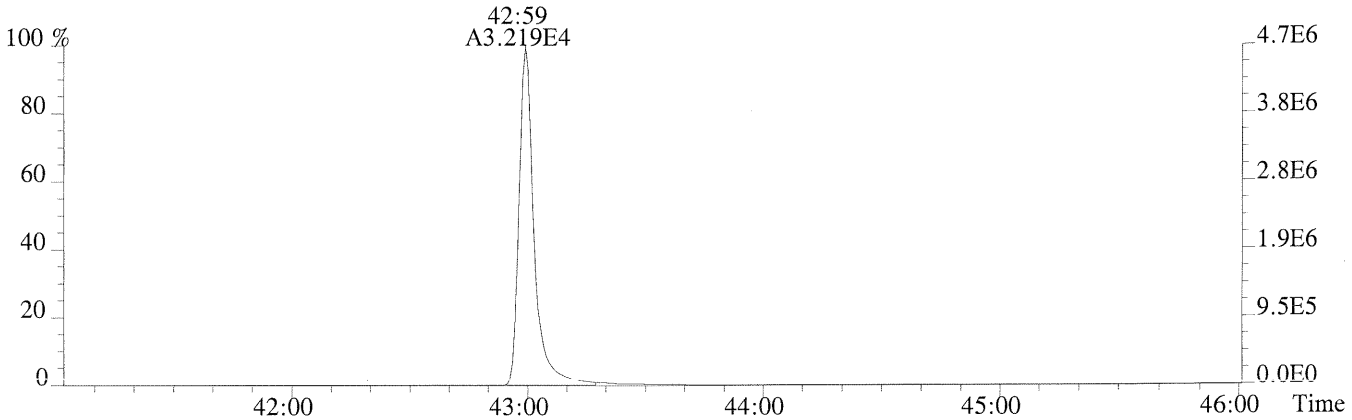
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



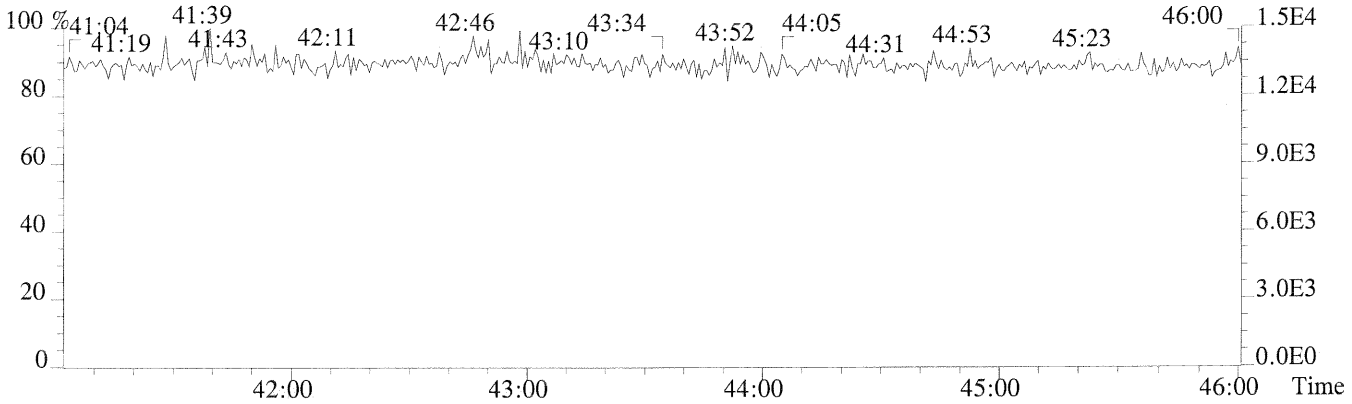
File:U149801 #1-452 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,496.0,0.40%,F,T)



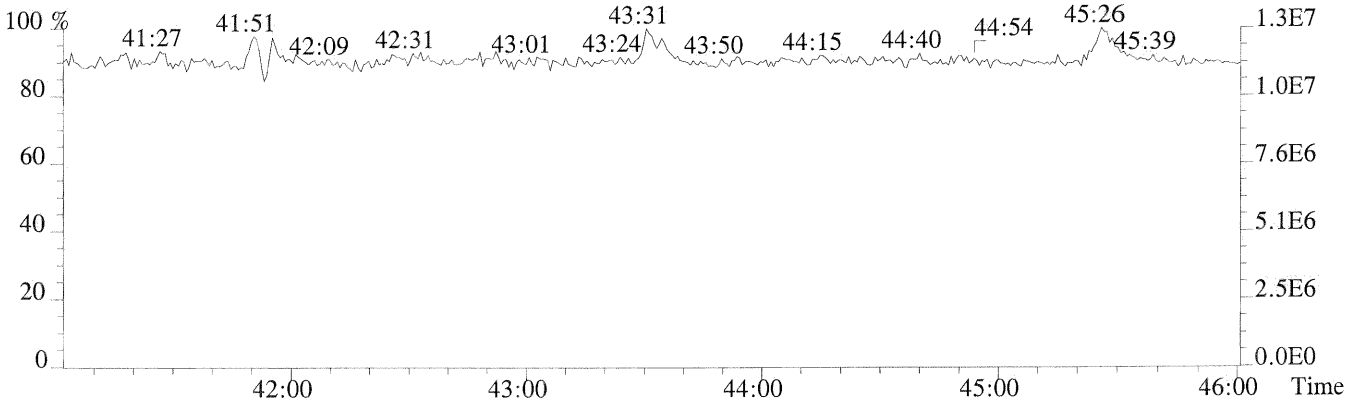
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

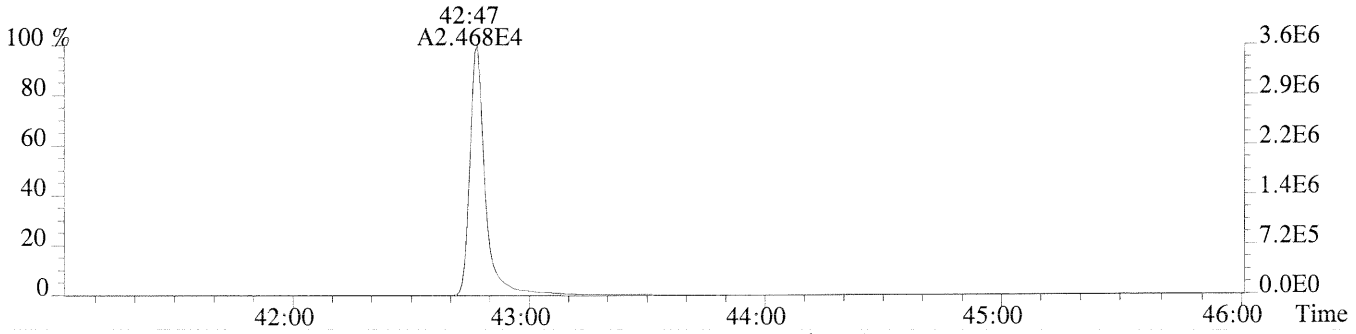


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

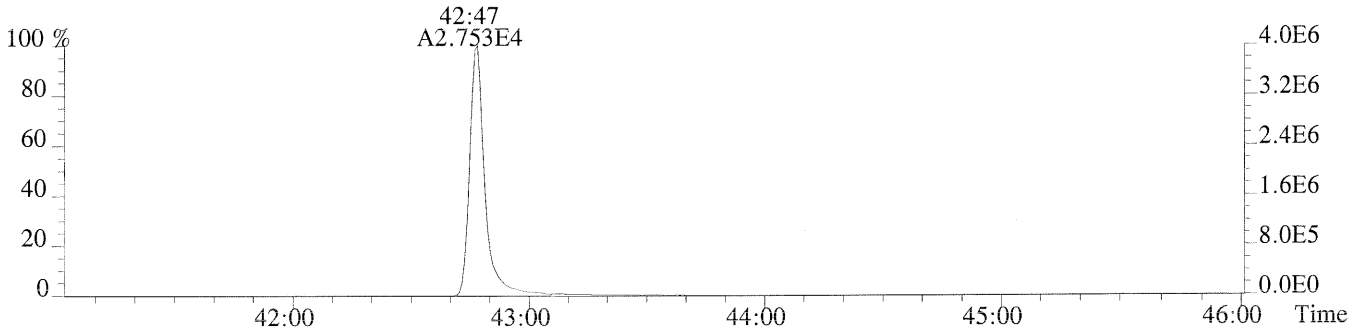


File:U149801 #1-452 Acq: 1-JUL-2014 18:00:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

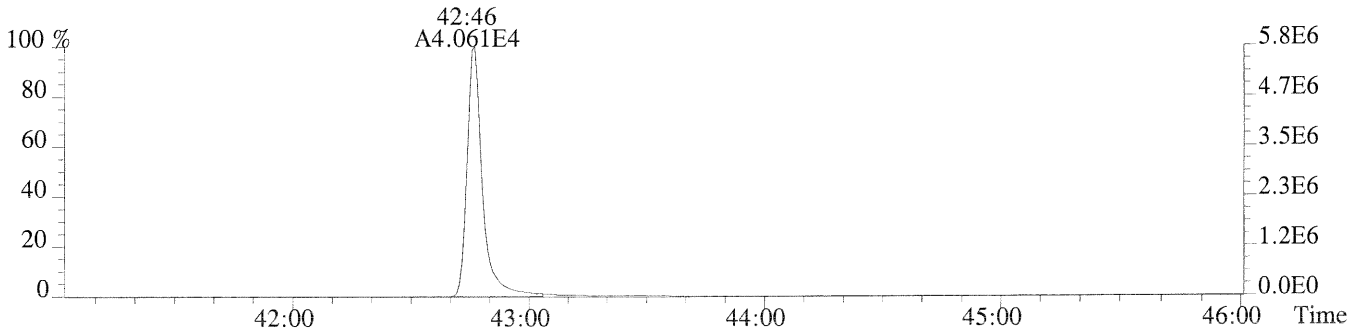
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,456.0,0.40%,F,T)



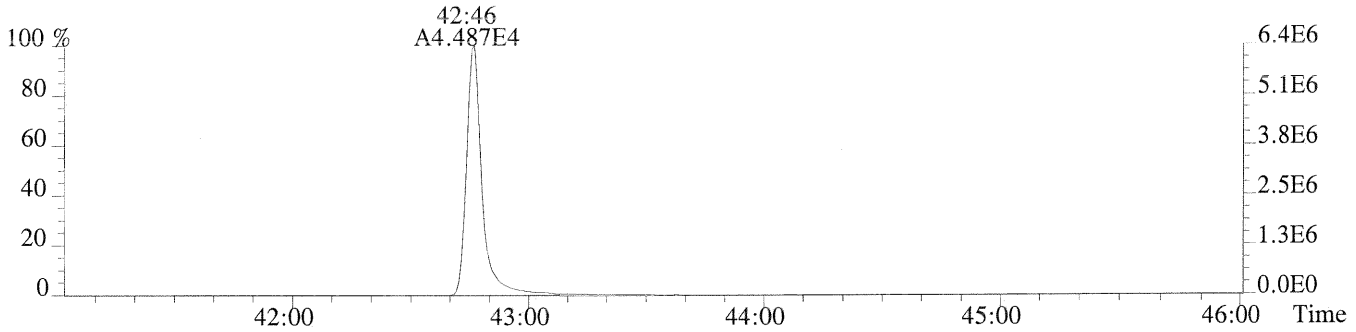
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



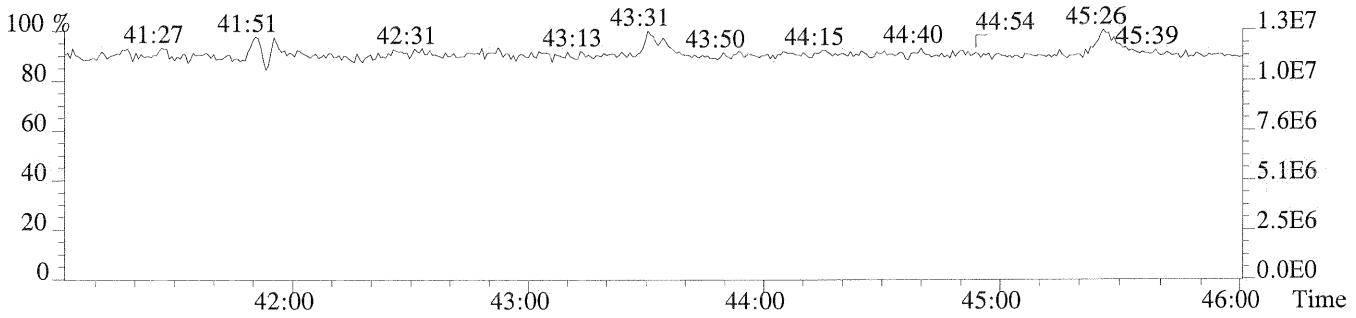
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,780.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 | GC Column ID: DB-5MSUI

VER Data Filename: U149813 | Analysis Date: 2-JUL-14 Time: 04:09:06

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.8	7.8 - 12.9	-1.8
1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	50	39 - 65	0.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	52	39 - 64	3.4
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	53	39 - 64	5.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	53	41 - 61	5.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	50	43 - 58	0.6
OCDD	M+2/M+4	0.88	0.76-1.02	105	79 - 126	4.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.4	8.4 - 12.0	3.9
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	52	41 - 60	4.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	2.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	52	45 - 56	3.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	52	44 - 57	3.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	53	45 - 56	5.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	51	45 - 55	1.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	49	43 - 58	-1.6
OCDF	M+2/M+4	0.89	0.76-1.02	107	63 - 159	7.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 GC Column ID: DB-5MSUI

VER Data Filename: U149813 Analysis Date: 2-JUL-14 Time: 04:09:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	97	82 - 121	-3.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	101	62 - 160	0.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	0.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	95	85 - 118	-4.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	97	72 - 138	-3.3
13C-OCDD	M+2/M+4	0.91	0.76-1.02	179	96 - 415	-10.3
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	101	71 - 140	1.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	100	76 - 130	-0.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	104	77 - 130	4.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	99	76 - 131	-0.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	70 - 143	0.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	102	74 - 135	1.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	73 - 137	2.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	102	78 - 129	1.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	102	77 - 129	1.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CCAL HRCC3/CS3

Run #8 Filename U149813 Samp: 1 Inj: 1 Acquired: 2-JUL-14 04:09:06
Processed: 2-JUL-14 11:34:43 Sample ID: 66131

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	3.879e+03	5.066e+03	0.77	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:44	3.737e+04	2.433e+04	1.54	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:38	3.567e+04	2.291e+04	1.56	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	3.153e+04	2.536e+04	1.24	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.435e+04	2.737e+04	1.25	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.100e+04	2.542e+04	1.22	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	3.030e+04	2.397e+04	1.26	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	2.808e+04	2.681e+04	1.05	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:21	2.346e+04	2.264e+04	1.04	yes	no	1.358
10	Unk	OCDF	42:57	3.468e+04	3.899e+04	0.89	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:22	2.842e+03	3.545e+03	0.80	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:54	2.494e+04	1.542e+04	1.62	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	2.204e+04	1.754e+04	1.26	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	2.270e+04	1.815e+04	1.25	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	2.463e+04	1.966e+04	1.25	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:51	1.931e+04	1.809e+04	1.07	yes	no	1.065
17	Unk	OCDD	42:44	2.941e+04	3.352e+04	0.88	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:36	4.085e+04	5.034e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	7.365e+04	4.683e+04	1.57	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	7.479e+04	4.723e+04	1.58	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	3.052e+04	5.892e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	3.574e+04	6.832e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	3.319e+04	6.419e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	3.031e+04	5.927e+04	0.51	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	2.353e+04	5.225e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.178e+04	4.720e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:21	2.830e+04	3.589e+04	0.79	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	4.772e+04	3.046e+04	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.806e+04	2.949e+04	1.29	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	3.960e+04	3.037e+04	1.30	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:50	3.635e+04	3.344e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:44	4.853e+04	5.340e+04	0.91	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:47	2.749e+04	3.533e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	4.408e+04	3.295e+04	1.34	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	6.485e+03				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CCAL HRCC3/CS3

Run #8 Filename U149813 Samp: 1 Inj: 1 Acquired: 2-JUL-14 04:09:06
Processed: 2-JUL-14 11:34:431 LAB. ID: 66131

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.01e+05	5.88e+02	1.4e+03	1.03e+06	8.92e+02	1.2e+03
2	1,2,3,7,8-PeCDF	7.13e+06	7.60e+02	9.4e+03	4.57e+06	6.84e+02	6.7e+03
3	2,3,4,7,8-PeCDF	7.03e+06	7.60e+02	9.3e+03	4.49e+06	6.84e+02	6.6e+03
4	1,2,3,4,7,8-HxCDF	6.95e+06	9.24e+02	7.5e+03	5.59e+06	8.80e+02	6.3e+03
5	1,2,3,6,7,8-HxCDF	7.08e+06	9.24e+02	7.7e+03	5.65e+06	8.80e+02	6.4e+03
6	2,3,4,6,7,8-HxCDF	6.66e+06	9.24e+02	7.2e+03	5.53e+06	8.80e+02	6.3e+03
7	1,2,3,7,8,9-HxCDF	5.98e+06	9.24e+02	6.5e+03	4.65e+06	8.80e+02	5.3e+03
8	1,2,3,4,6,7,8-HpCDF	5.80e+06	2.53e+03	2.3e+03	5.57e+06	1.58e+03	3.5e+03
9	1,2,3,4,7,8,9-HpCDF	4.27e+06	2.53e+03	1.7e+03	4.05e+06	1.58e+03	2.6e+03
10	OCDF	5.04e+06	6.08e+02	8.3e+03	5.64e+06	7.60e+02	7.4e+03
11	2,3,7,8-TCDD	5.89e+05	8.44e+02	7.0e+02	7.64e+05	8.48e+02	9.0e+02
12	1,2,3,7,8-PeCDD	5.03e+06	6.76e+02	7.4e+03	3.11e+06	5.04e+02	6.2e+03
13	1,2,3,4,7,8-HxCDD	5.05e+06	4.80e+02	1.1e+04	4.02e+06	6.92e+02	5.8e+03
14	1,2,3,6,7,8-HxCDD	4.77e+06	4.80e+02	9.9e+03	3.78e+06	6.92e+02	5.5e+03
15	1,2,3,7,8,9-HxCDD	4.94e+06	4.80e+02	1.0e+04	4.04e+06	6.92e+02	5.8e+03
16	1,2,3,4,6,7,8-HpCDD	3.59e+06	9.16e+02	3.9e+03	3.36e+06	7.92e+02	4.2e+03
17	OCDD	4.68e+06	4.92e+02	9.5e+03	5.31e+06	6.40e+02	8.3e+03
18	13C-2,3,7,8-TCDF	8.26e+06	9.32e+02	8.9e+03	1.02e+07	8.32e+02	1.2e+04
19	13C-1,2,3,7,8-PeCDF	1.38e+07	8.68e+02	1.6e+04	8.82e+06	6.08e+02	1.5e+04
20	13C-2,3,4,7,8-PeCDF	1.47e+07	8.68e+02	1.7e+04	9.37e+06	6.08e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	6.73e+06	8.16e+02	8.2e+03	1.30e+07	8.48e+02	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	7.45e+06	8.16e+02	9.1e+03	1.42e+07	8.48e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	7.10e+06	8.16e+02	8.7e+03	1.38e+07	8.48e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	6.05e+06	8.16e+02	7.4e+03	1.16e+07	8.48e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.78e+06	2.31e+03	2.1e+03	1.07e+07	3.13e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.91e+06	2.31e+03	1.7e+03	8.55e+06	3.13e+03	2.7e+03
27	13C-2,3,7,8-TCDD	6.12e+06	2.06e+03	3.0e+03	7.78e+06	1.14e+03	6.8e+03
28	13C-1,2,3,7,8-PeCDD	9.70e+06	8.36e+02	1.2e+04	6.23e+06	7.32e+02	8.5e+03
29	13C-1,2,3,4,7,8-HxCDD	8.67e+06	8.36e+02	1.0e+04	6.76e+06	8.76e+02	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	8.23e+06	8.36e+02	9.8e+03	6.31e+06	8.76e+02	7.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.77e+06	9.56e+02	7.1e+03	6.13e+06	6.92e+02	8.9e+03
32	13C-OCDD	7.70e+06	7.08e+02	1.1e+04	8.43e+06	4.40e+02	1.9e+04
33	13C-1,2,3,4-TCDD	5.82e+06	2.06e+03	2.8e+03	7.51e+06	1.14e+03	6.6e+03
34	13C-1,2,3,7,8,9-HxCDD	8.90e+06	8.36e+02	1.1e+04	6.94e+06	8.76e+02	7.9e+03
35	37Cl-2,3,7,8-TCDD	1.37e+06	6.32e+02	2.2e+03			

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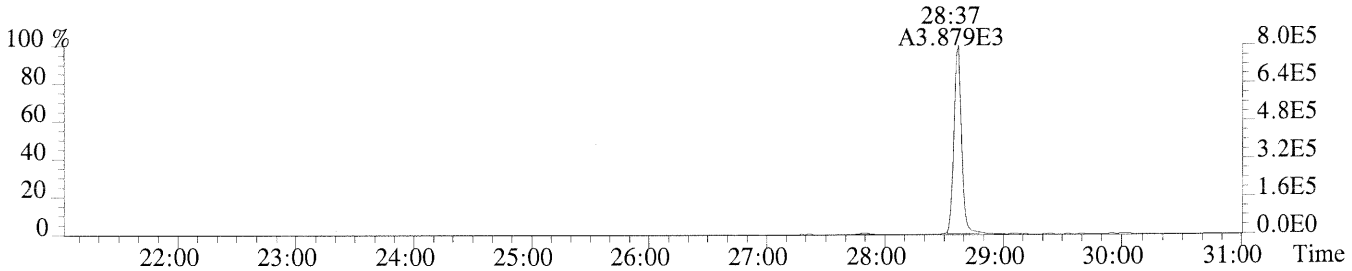
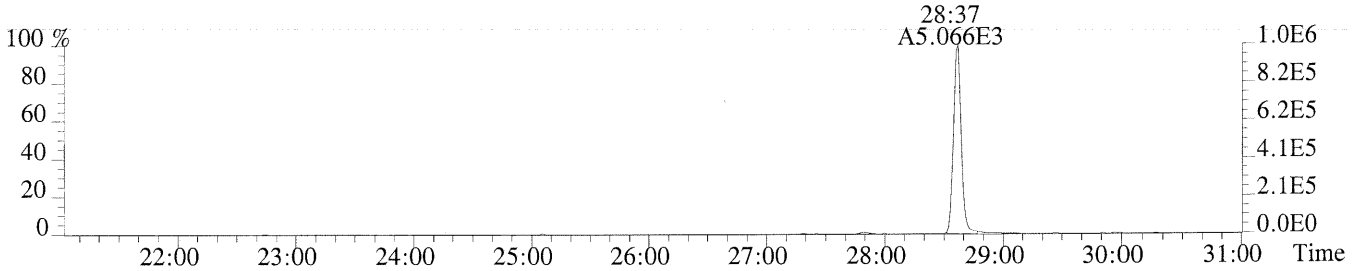
File:U149813 #1-627 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

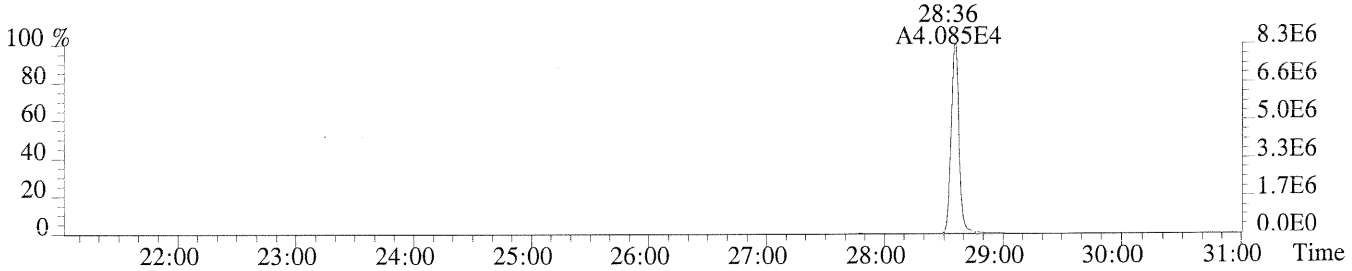
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



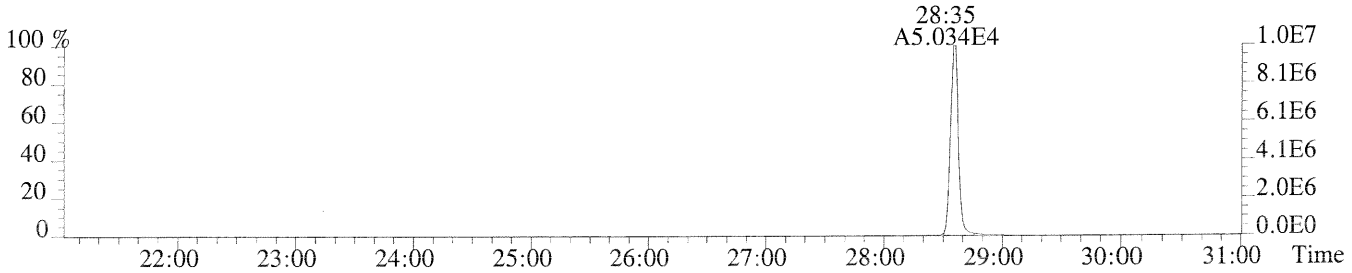
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



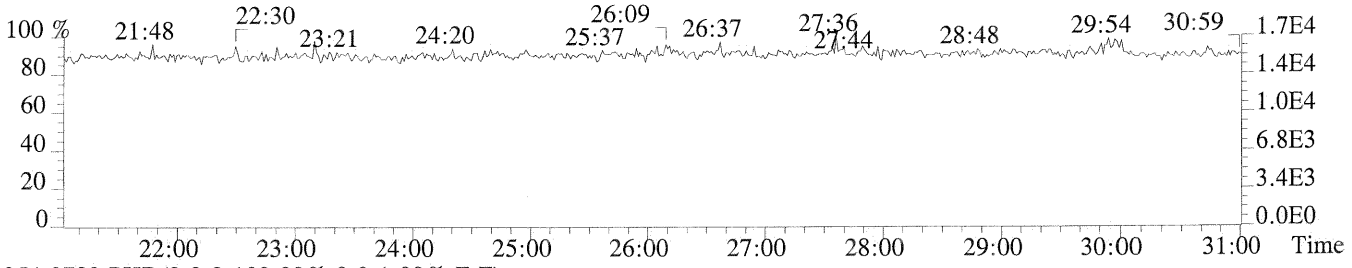
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



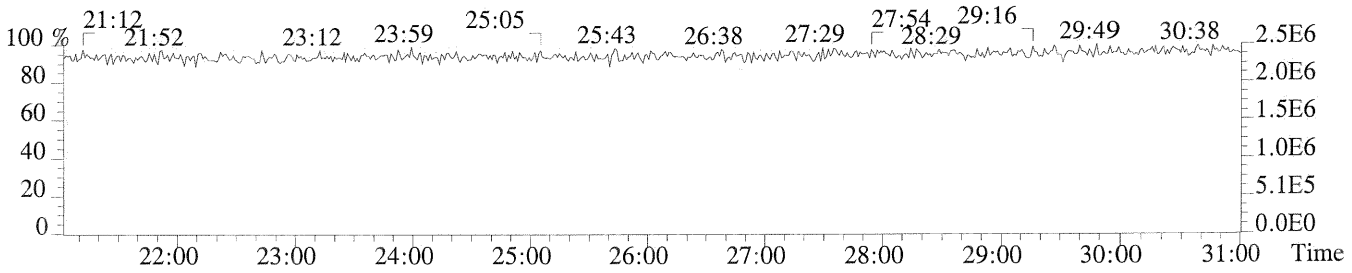
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

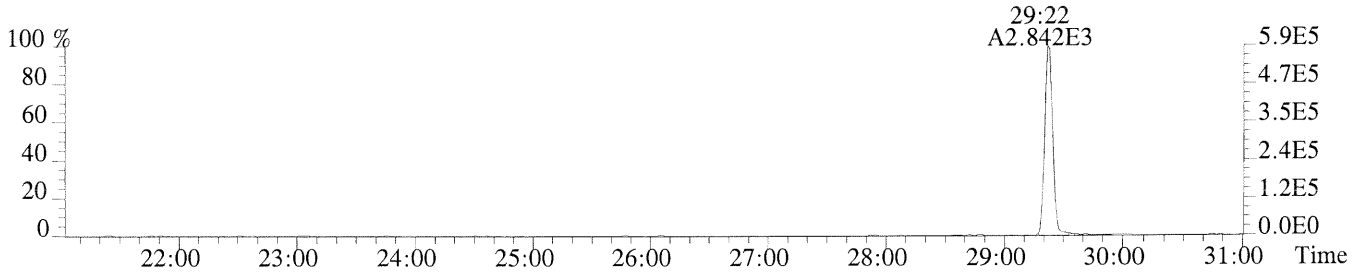


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

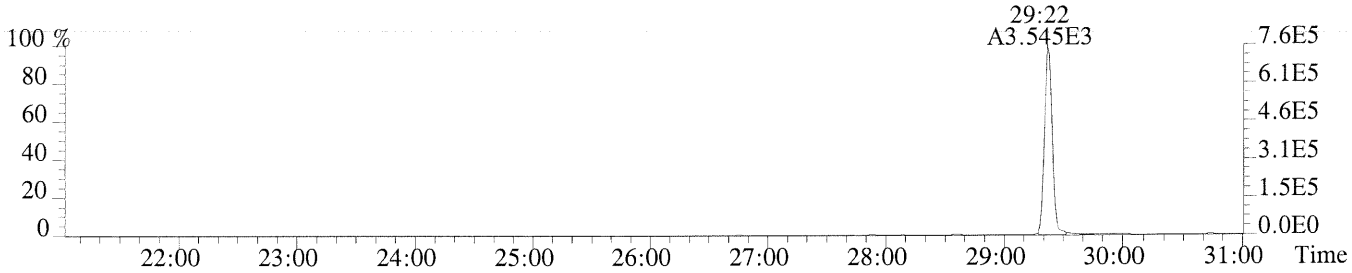


File:U149813 #1-627 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

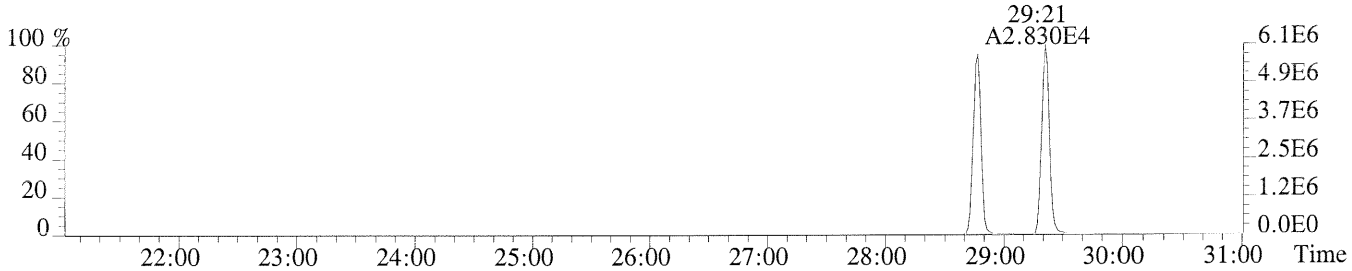
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



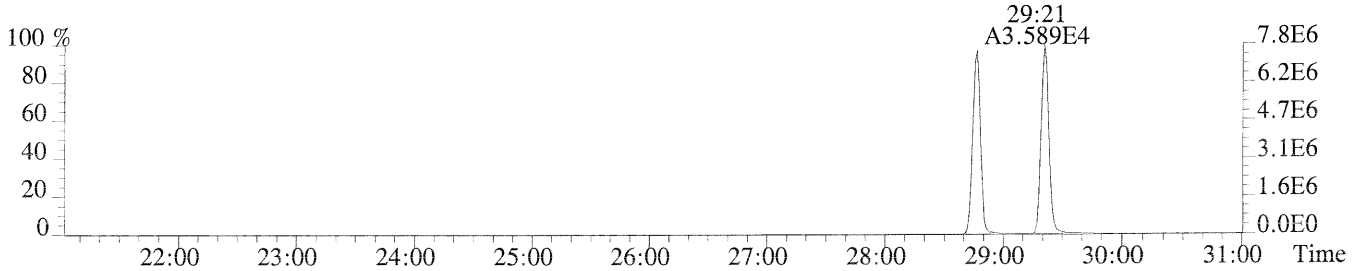
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



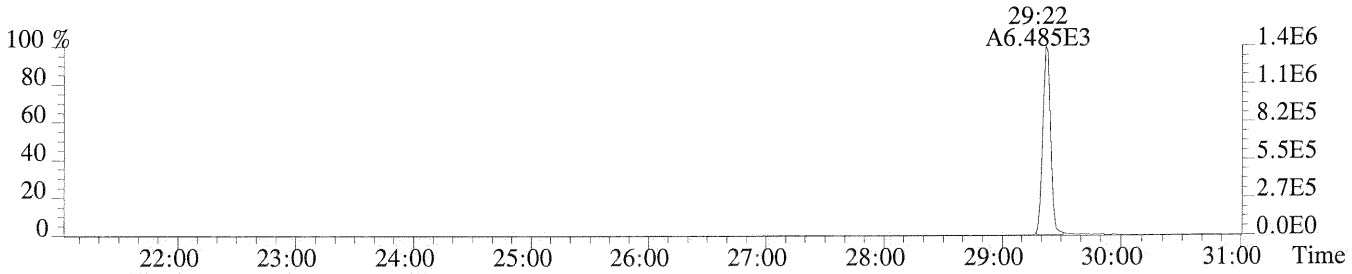
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



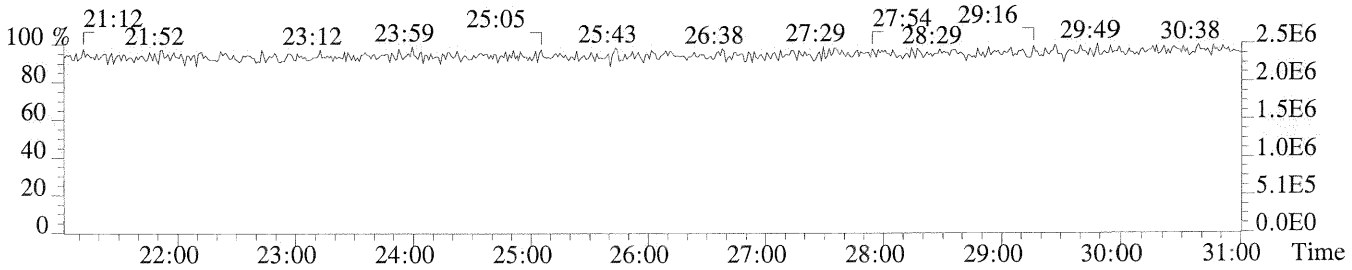
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



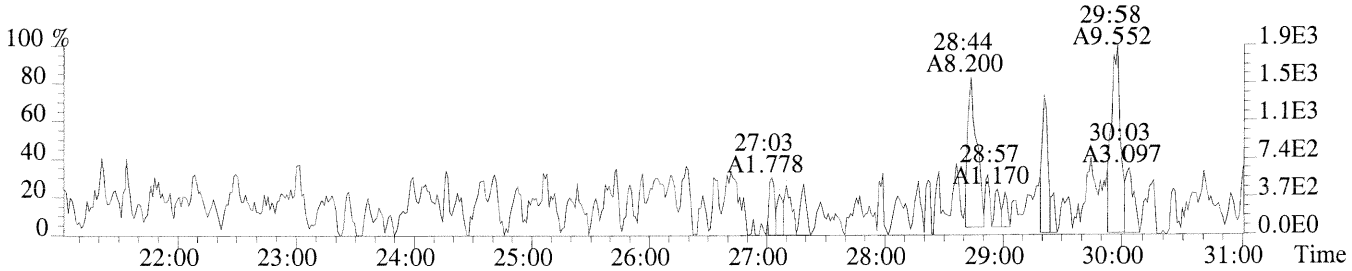
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



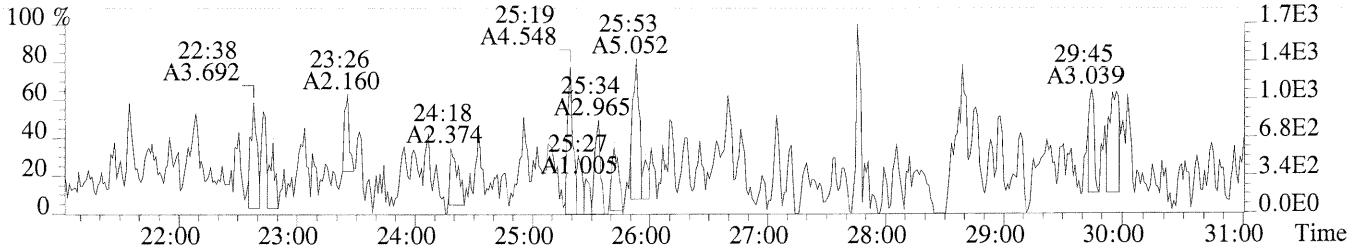
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



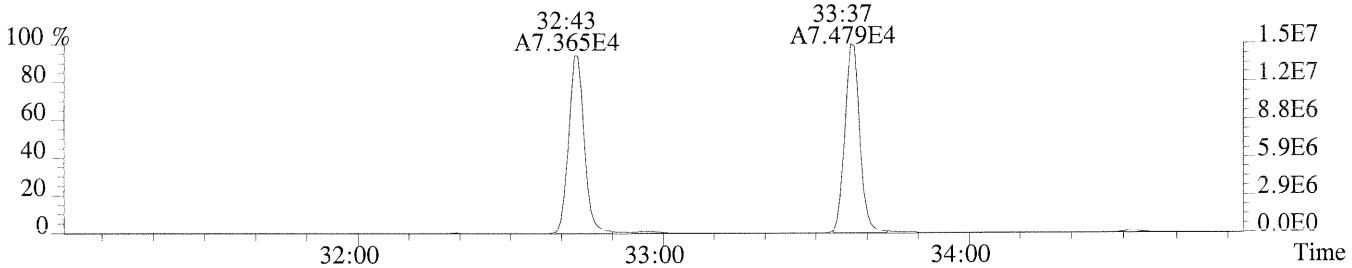
File:U149813 #1-627 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



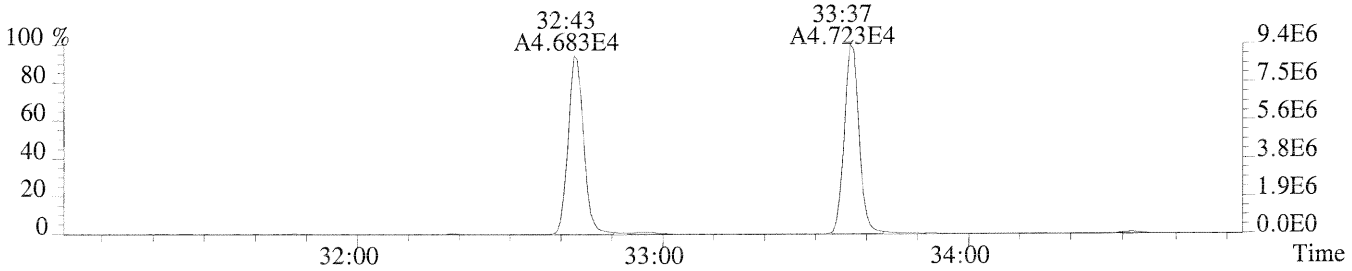
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



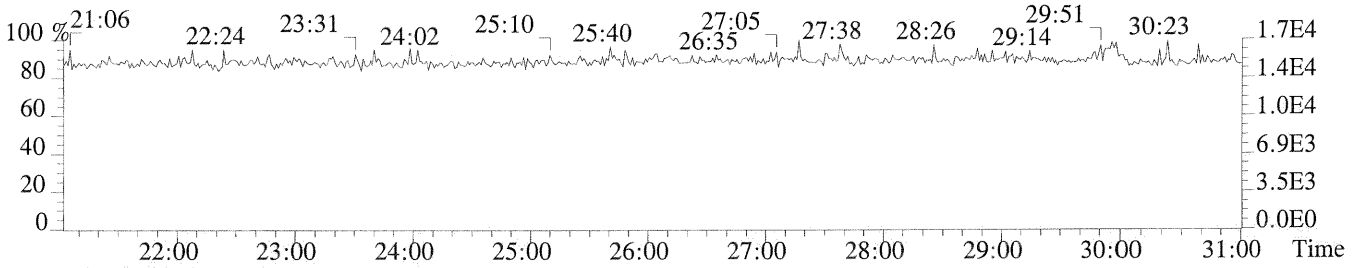
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



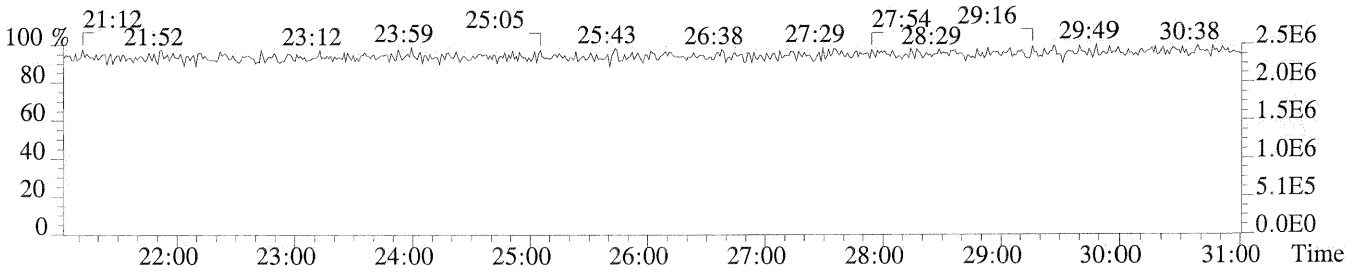
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

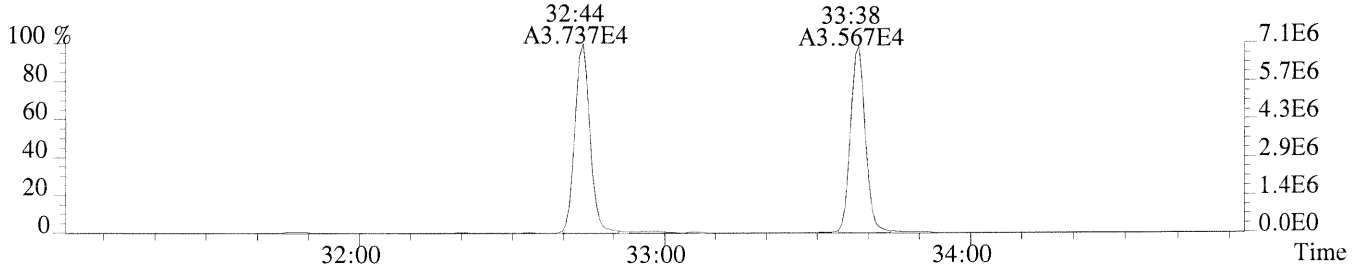


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

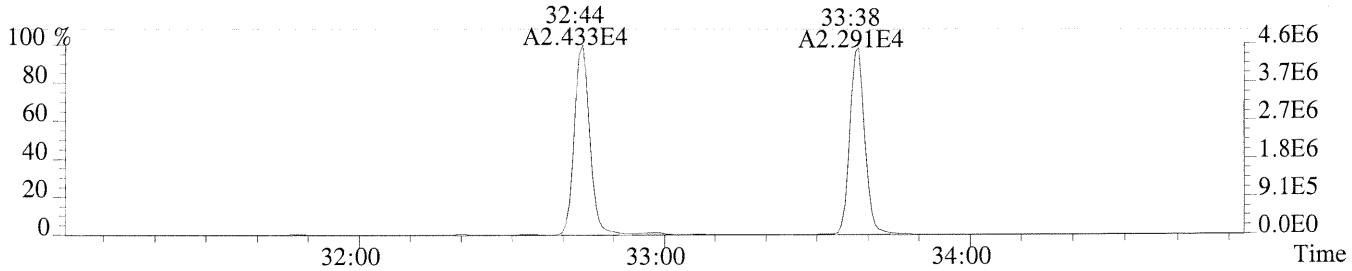


File:U149813 #1-349 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

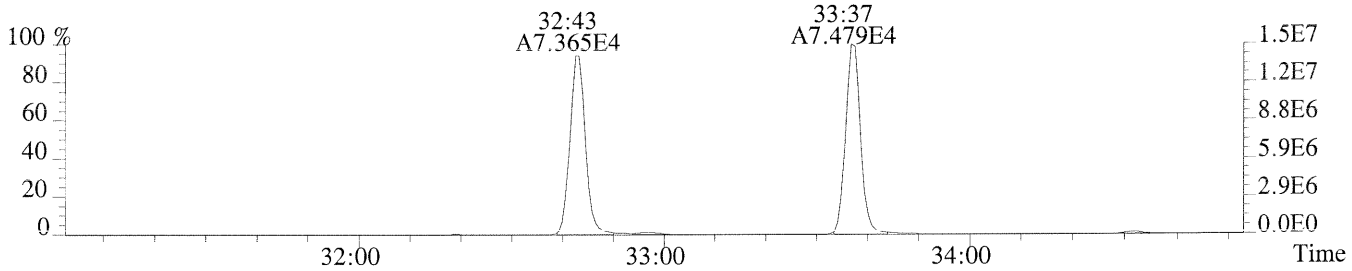
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



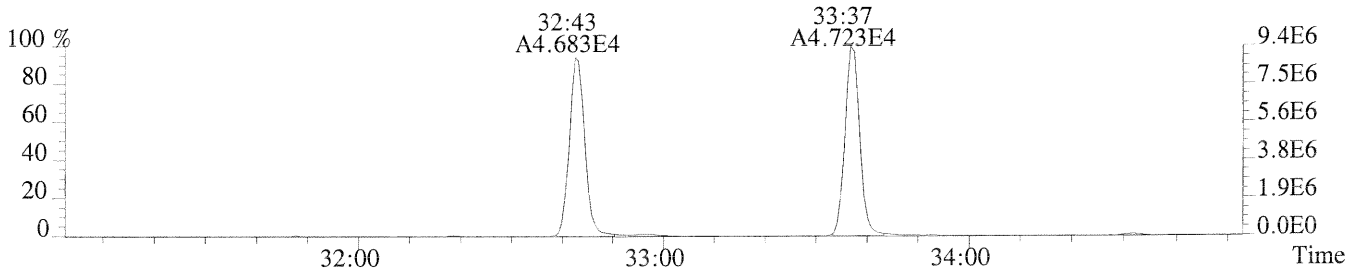
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



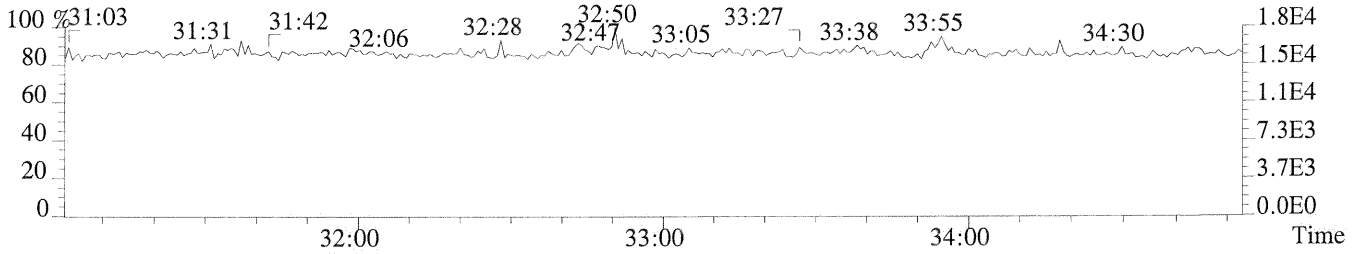
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



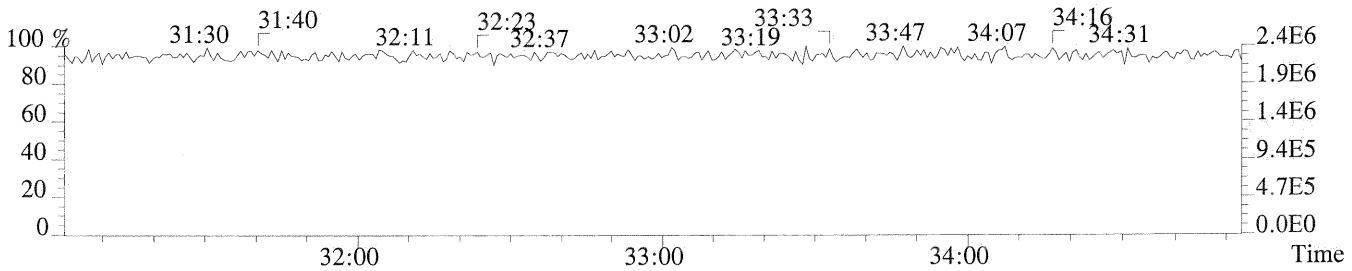
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



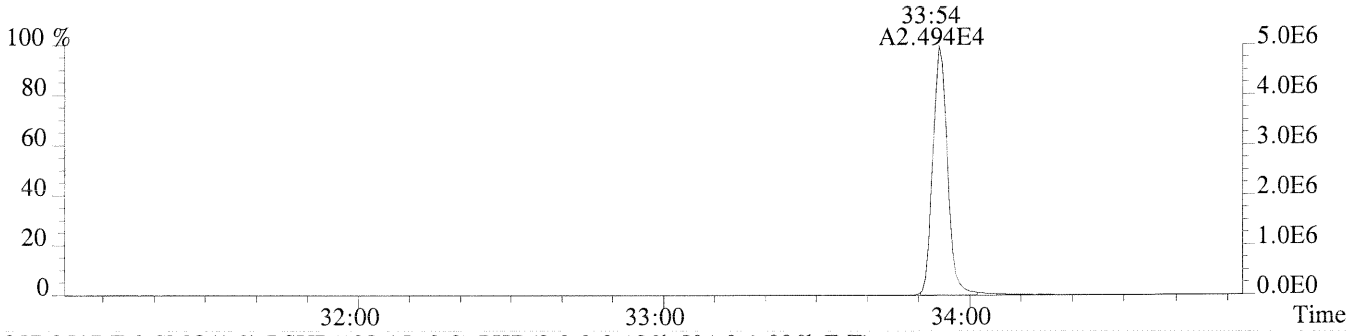
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



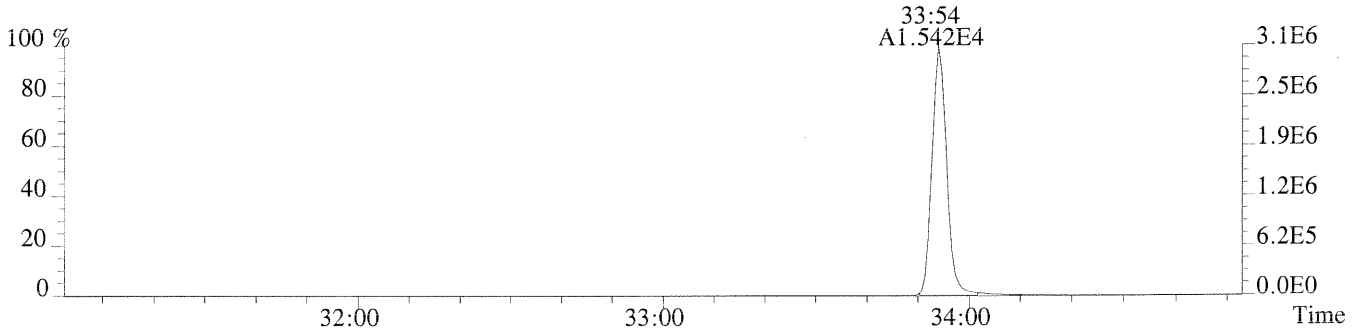
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



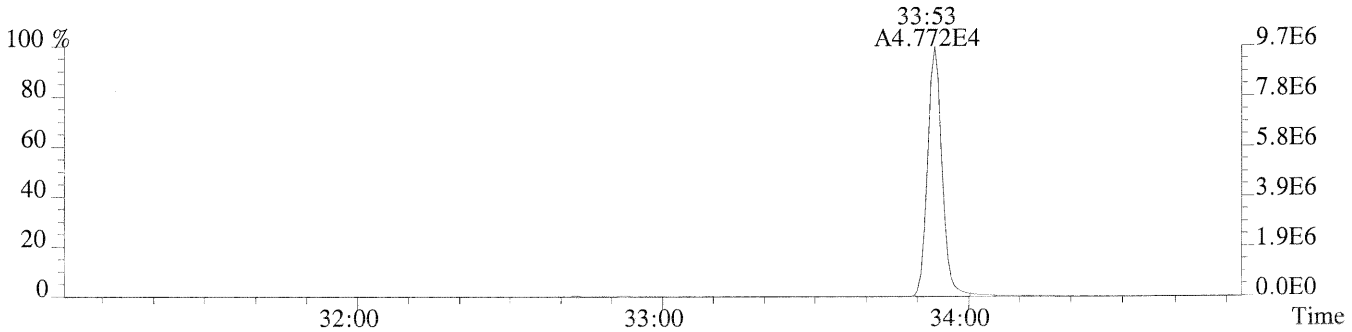
File:U149813 #1-349 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



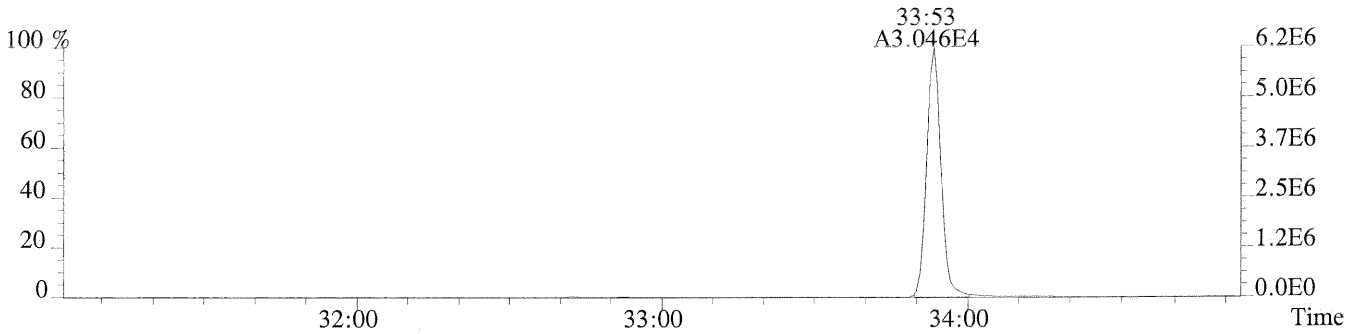
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



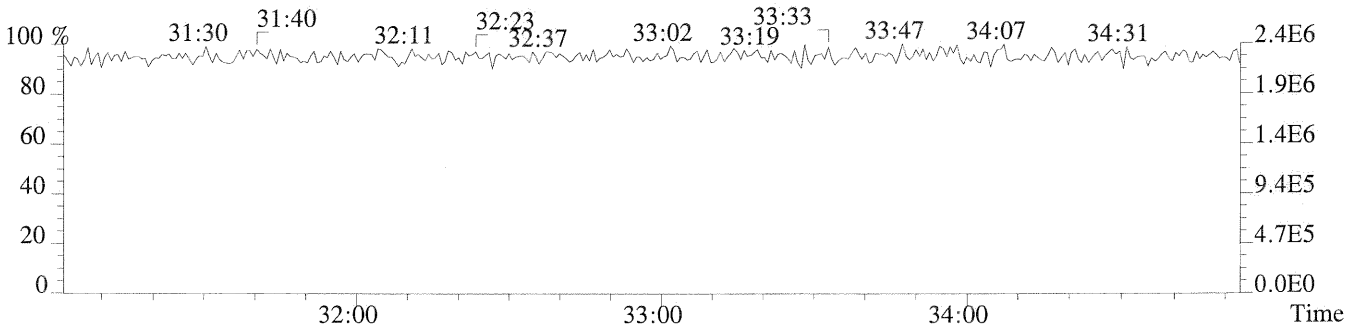
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)

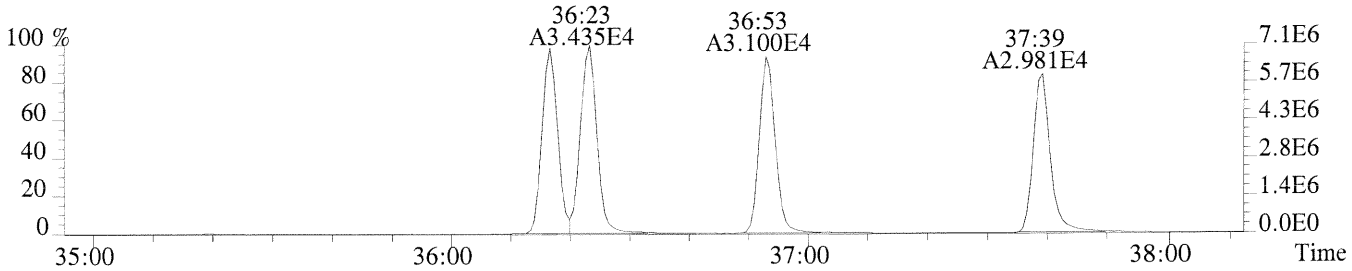


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

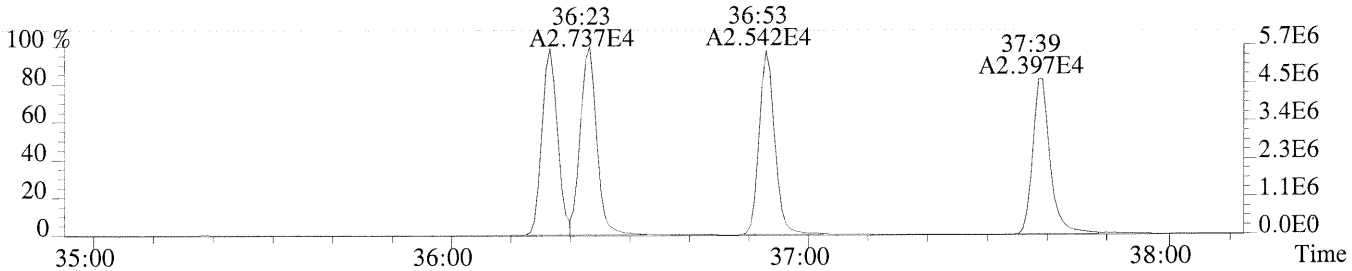


File:U149813 #1-299 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

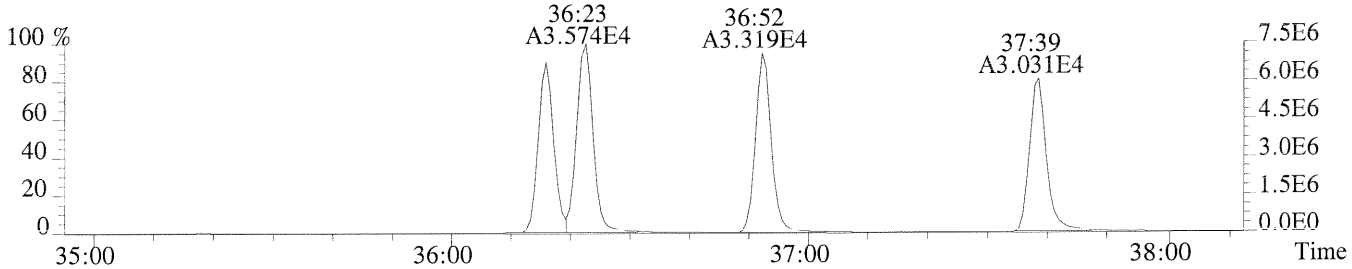
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



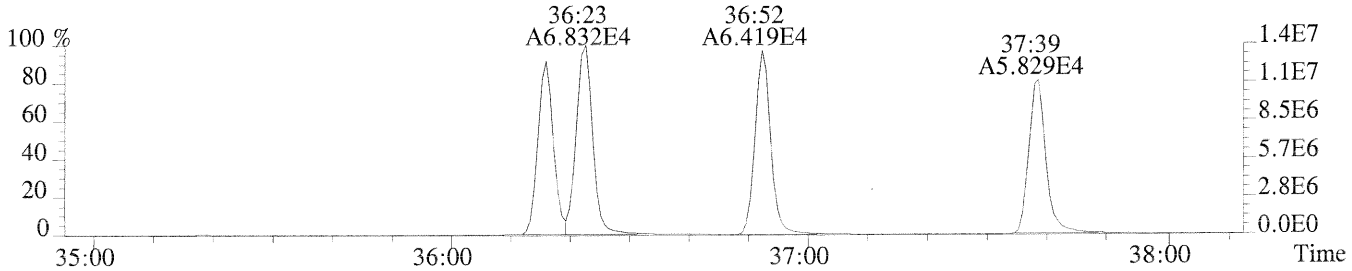
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



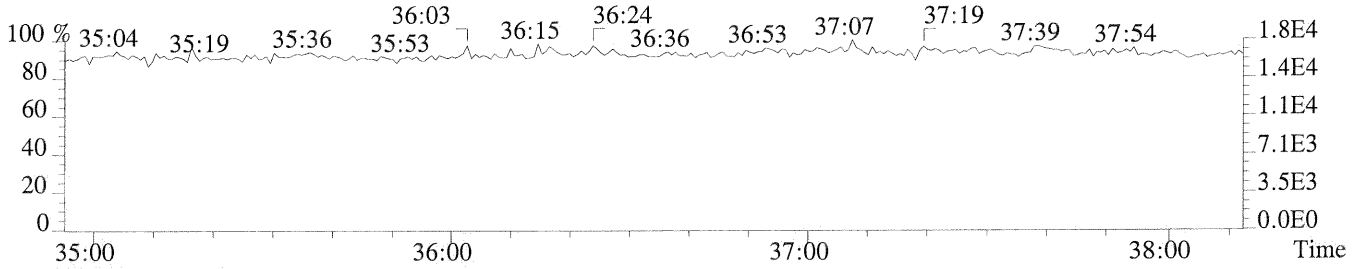
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



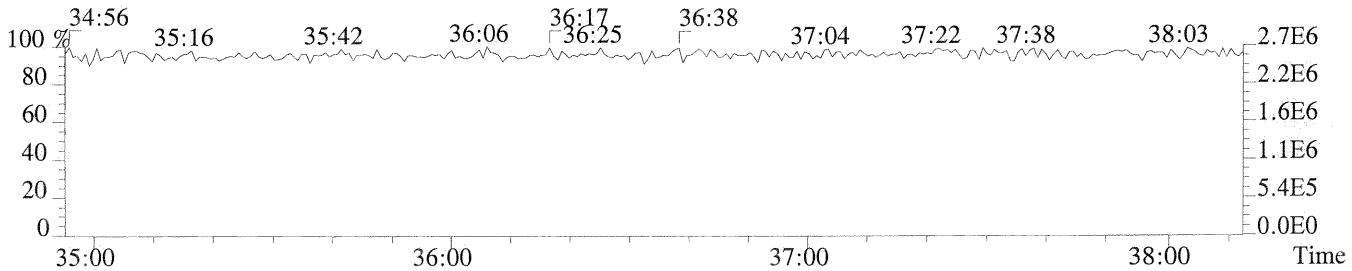
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

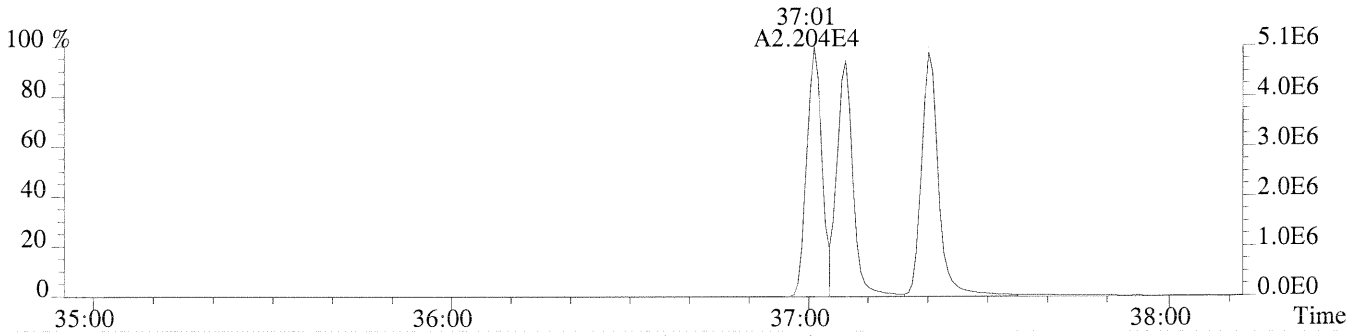


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

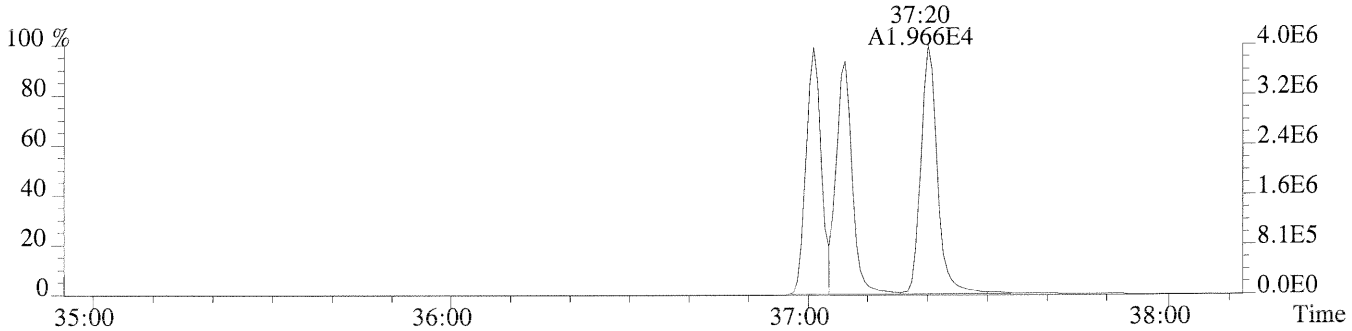


File:U149813 #1-299 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

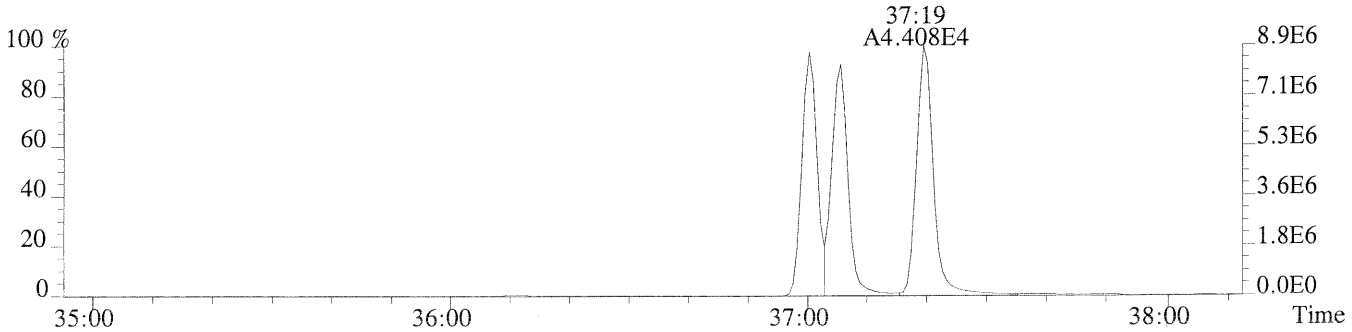
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



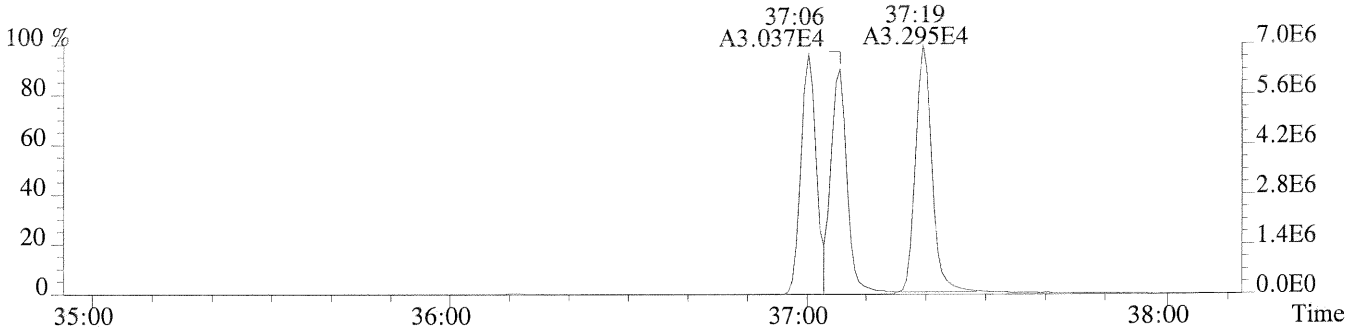
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



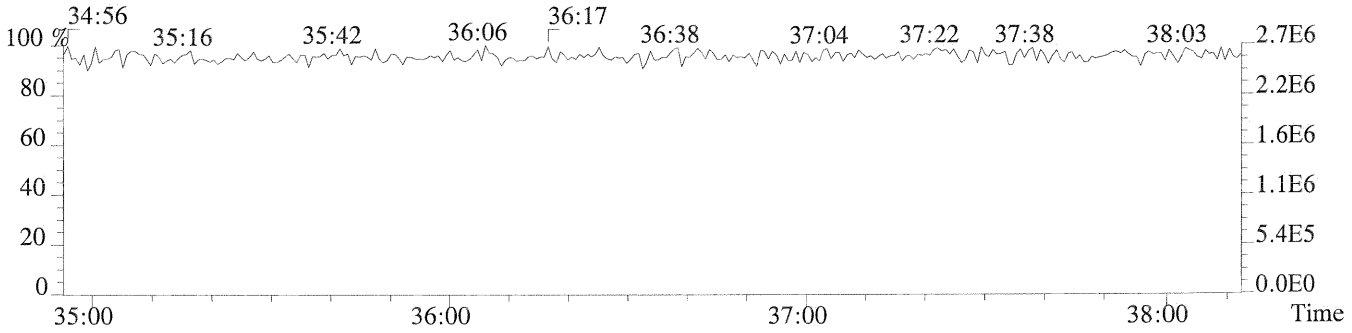
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)

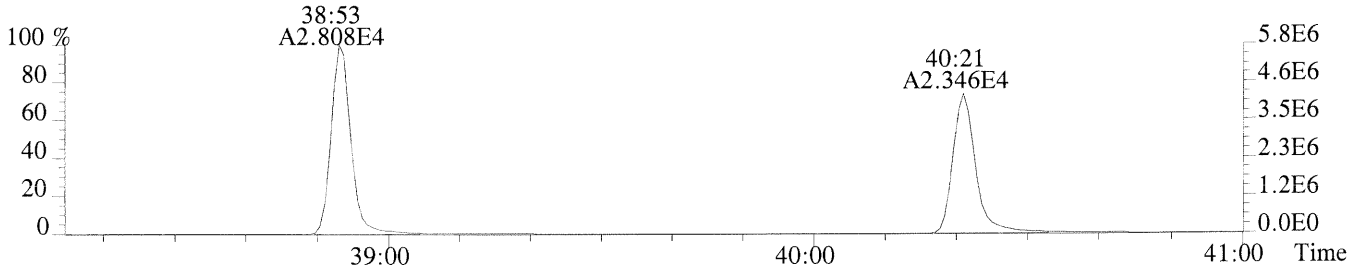


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

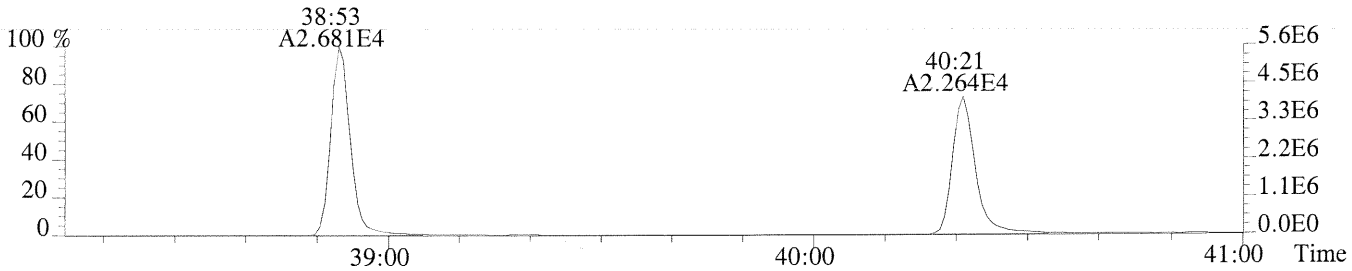


File:U149813 #1-251 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

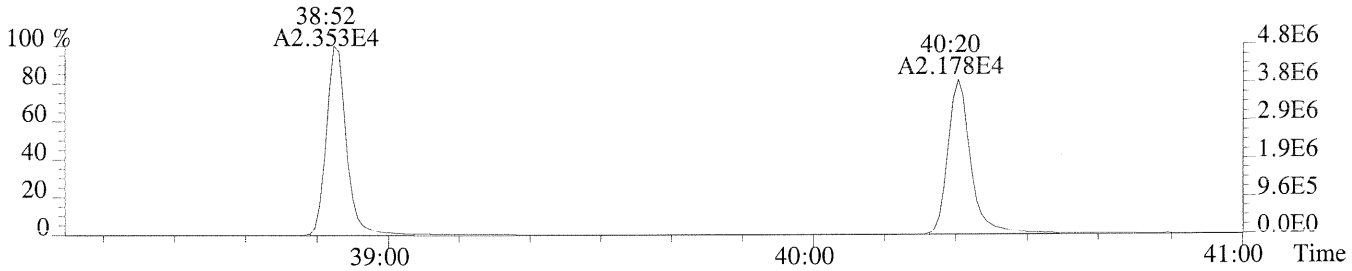
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2528.0,0.50%,F,T)



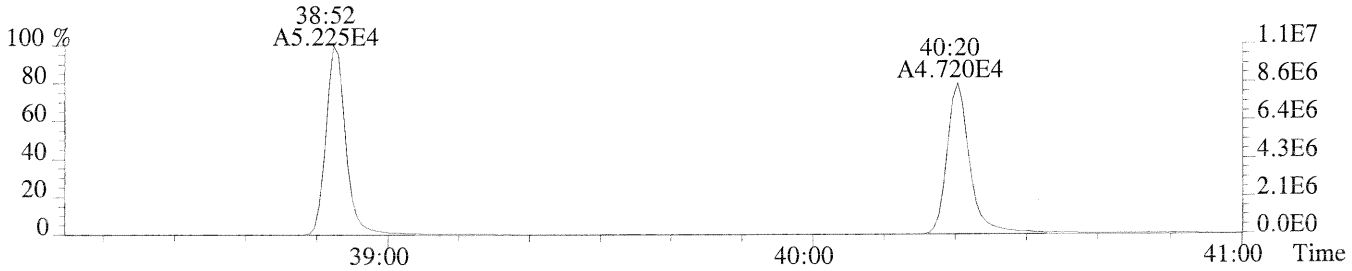
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.50%,F,T)



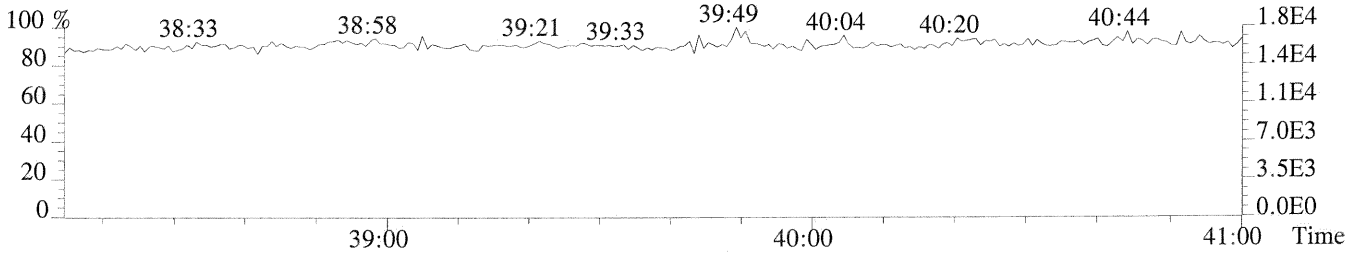
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2308.0,0.50%,F,T)



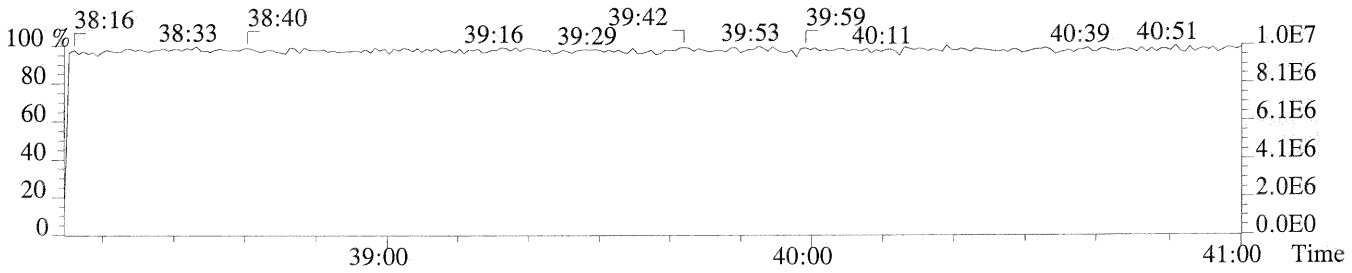
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.50%,F,T)



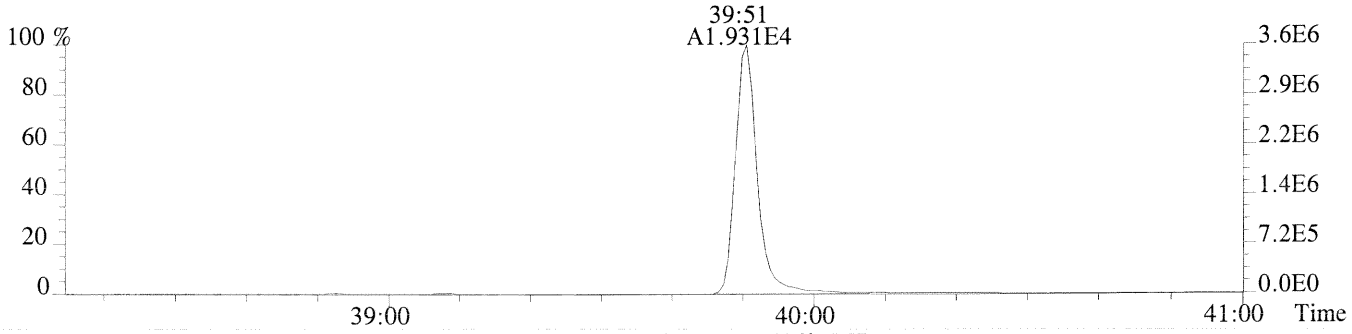
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



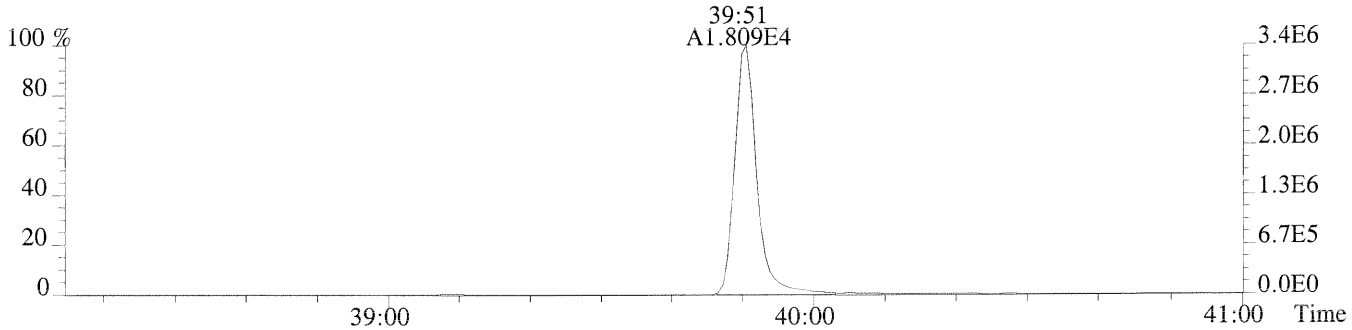
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



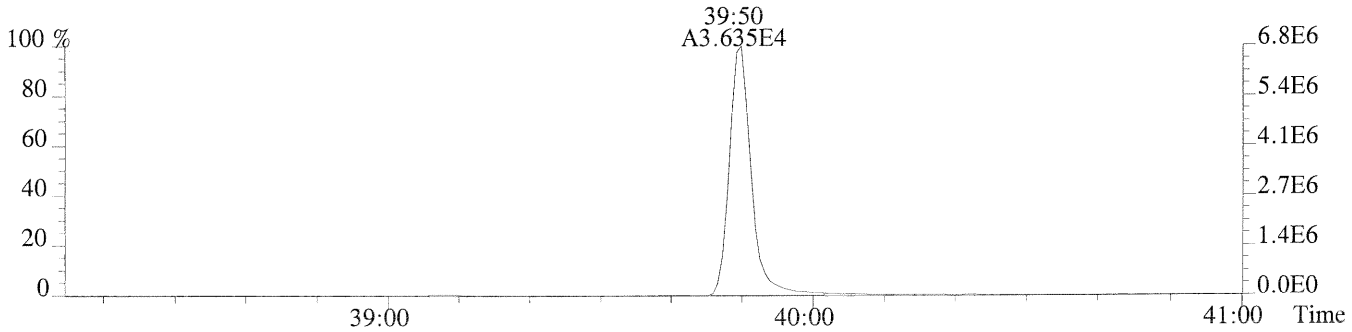
File:U149813 #1-251 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



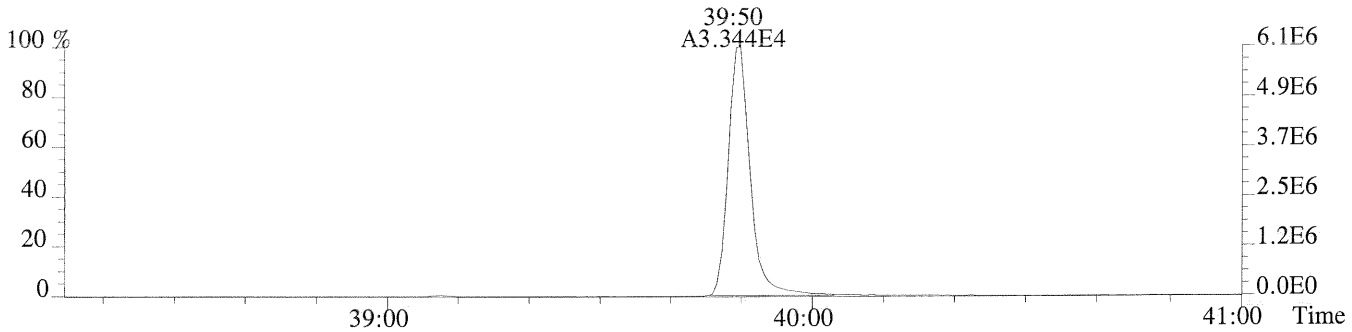
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



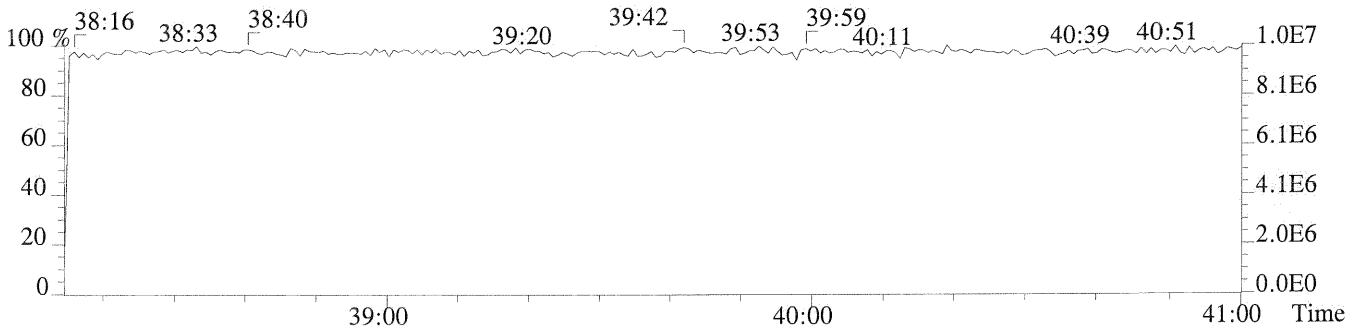
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



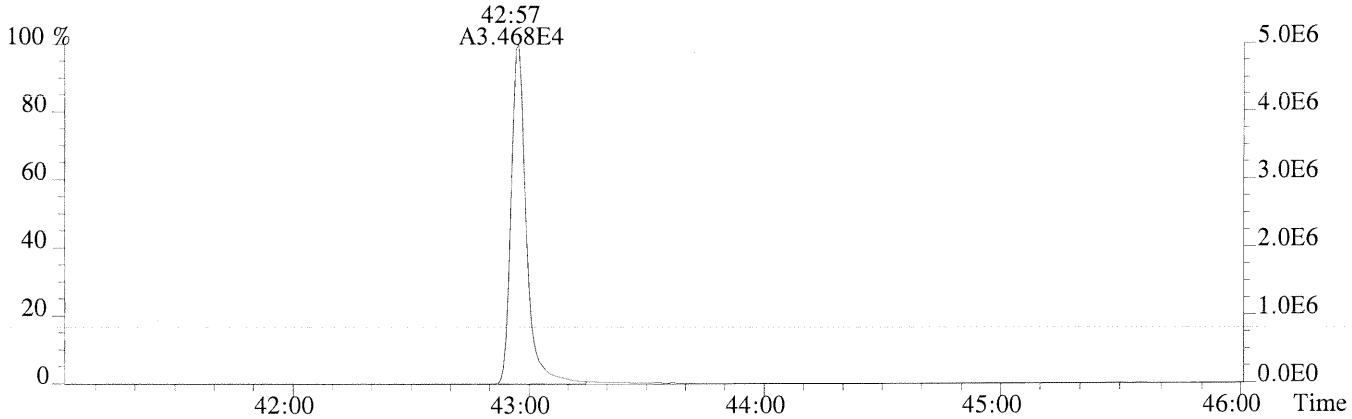
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



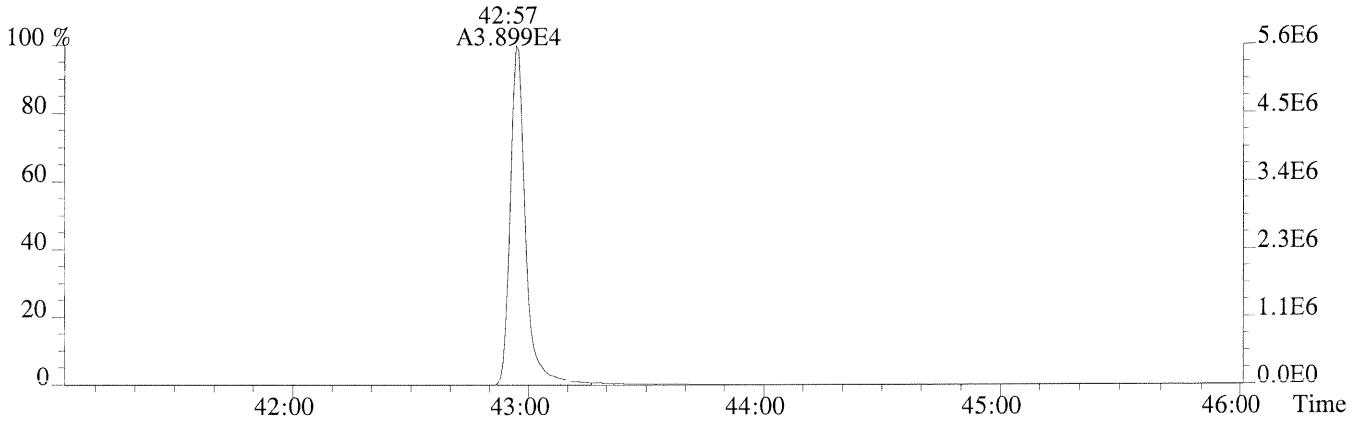
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



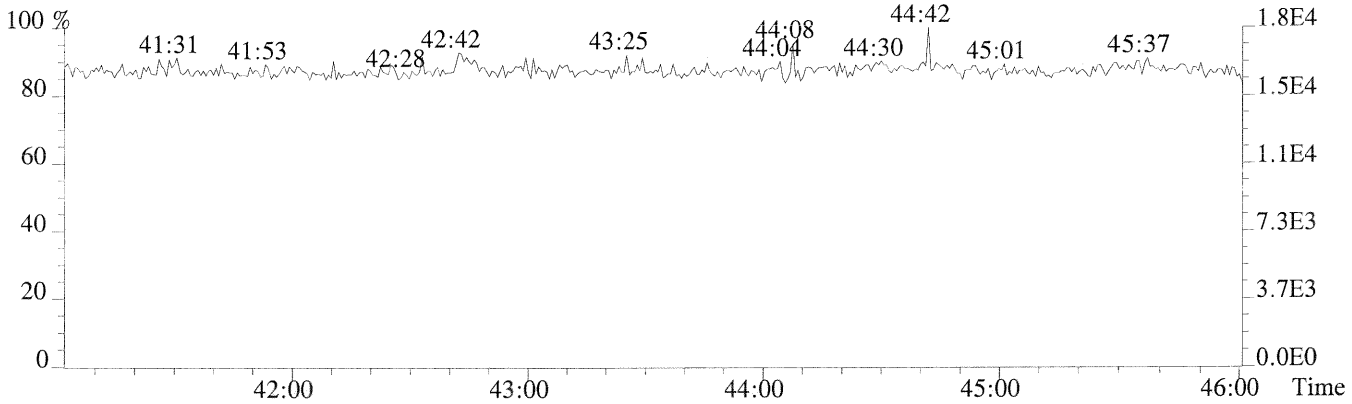
File:U149813 #1-452 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



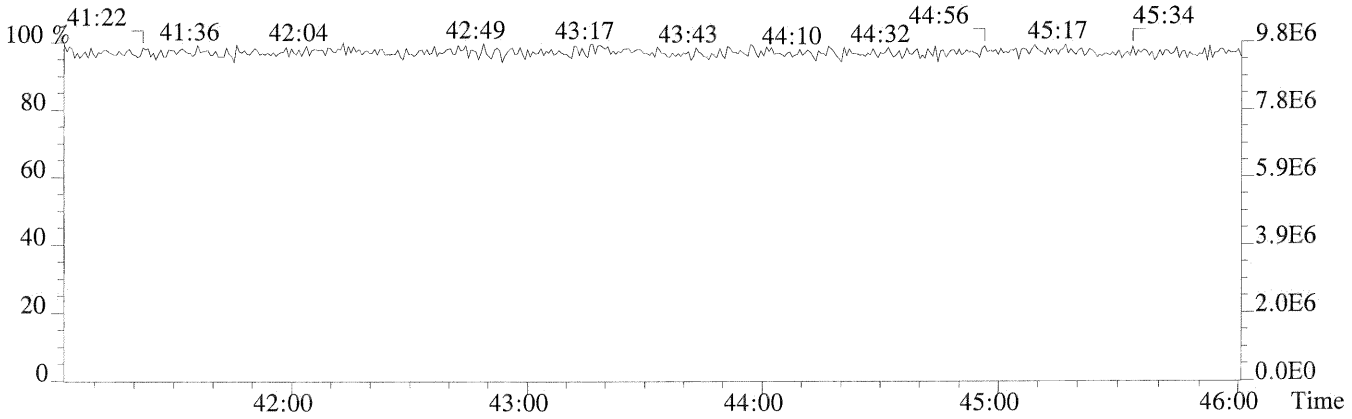
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



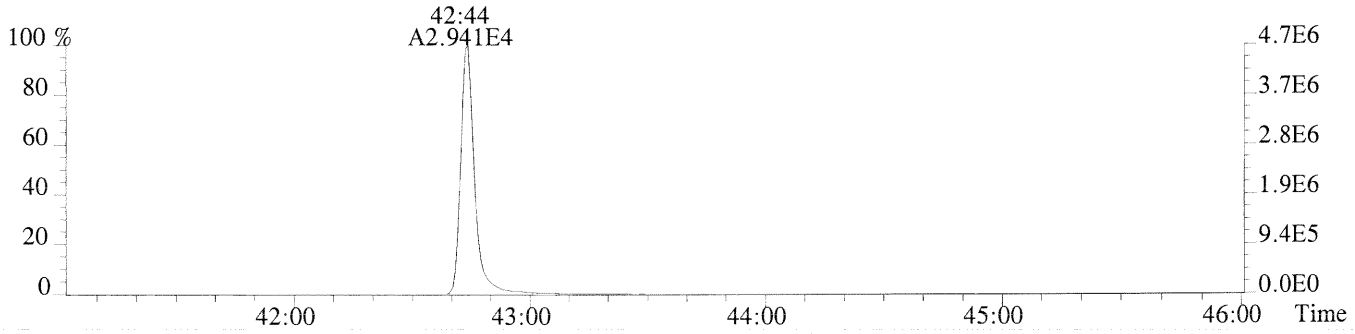
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



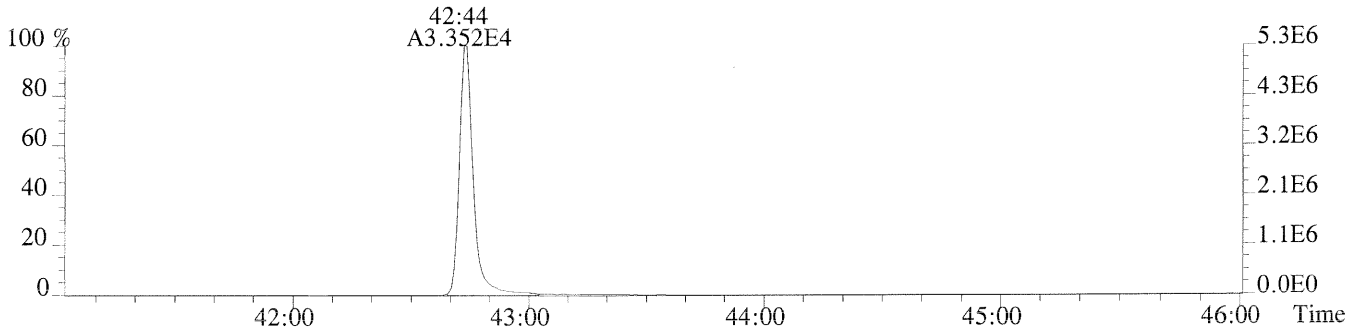
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



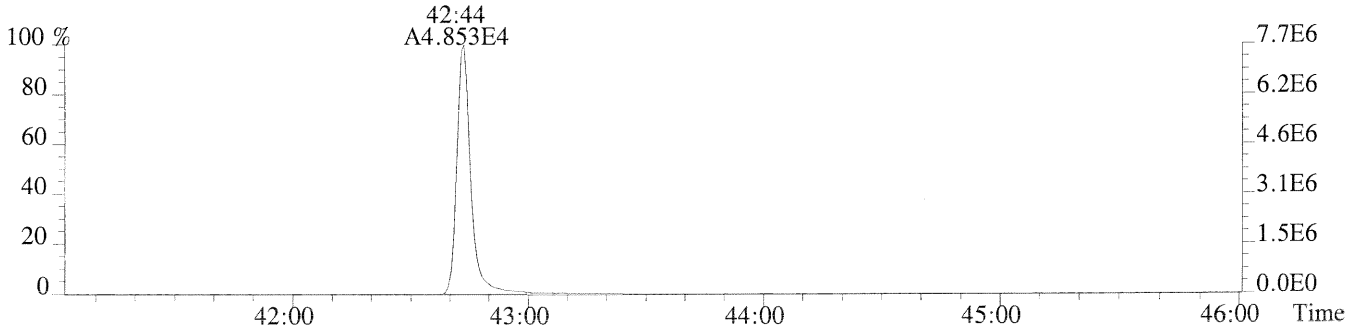
File:U149813 #1-452 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



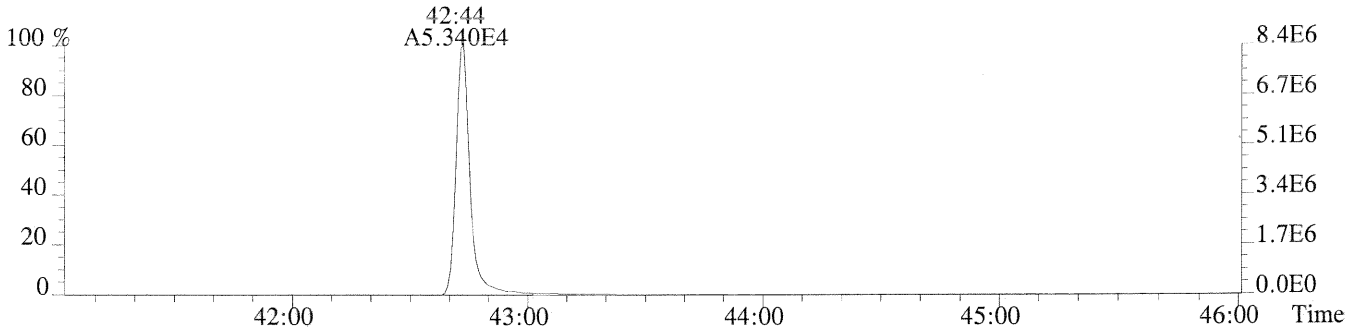
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



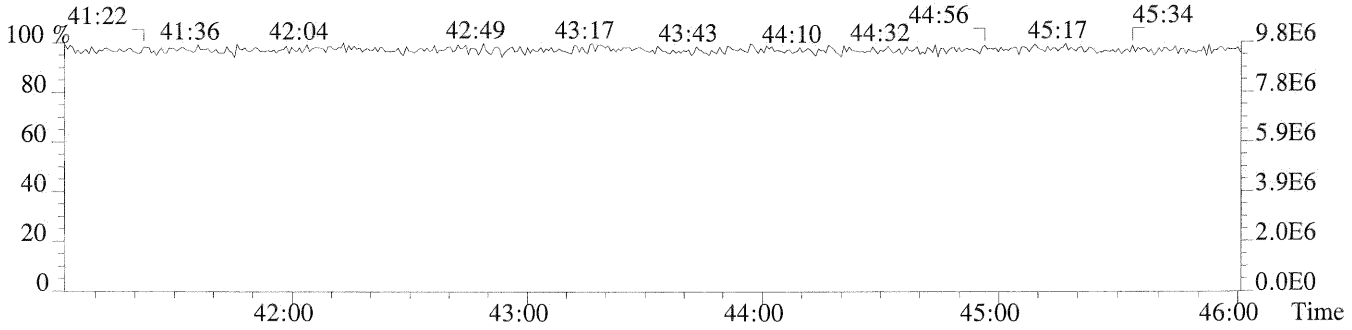
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,708.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: U14981 3-U14982 1

Circle one: Beginning / Ending

Date: 07/02/14

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: _____ Second QC: _____

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 05/21/2014

Init. Calib.Times: 13:12

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	U149814	2-JUL-14	08:18:23
66131	CCAL HRCC3/CS3	U149813	2-JUL-14	04:09:06
METHOD BLANK	EQ1400342-01	U149815	2-JUL-14	09:50:32
1406111634 200-SB-╗	R1404651-007	U149816	2-JUL-14	10:59:11
1406120934 200-SB-╗	R1404651-008	U149817	2-JUL-14	11:47:51
1406130804 200-SB-╗	R1404651-009	U149818	2-JUL-14	12:36:29
1406130814 200-SB-╗	R1404651-010	U149819	2-JUL-14	13:25:14
1406130814 200-SB-╗	R1404651-011	U149820	2-JUL-14	14:13:54
66131	CCAL HRCC3/CS3	U149821	2-JUL-14	15:02:27

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U1140702.SPL

Last Modified: Wednesday, July 02, 2014 09:12:49 Central Daylight Time

Printed: Wednesday, July 02, 2014 16:01:07 Central Daylight Time

e: U149813res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	07/02/14	04:09	U149813	CCAL HRCC3/CS4	66131	LL	HRMS check 07:49	8290cas
2		08:18	U149814	WINDOW DEFINE	63680			8290cas
3		09:50	U149815	EQ1400342-01	MB			8290cas
4		10:59	U149816	R1404651-007	R1404651-007			8290cas
5		11:47	U149817	R1404651-008	R1404651-008			8290cas
6		12:36	U149818	R1404651-009	R1404651-009			8290cas
7		13:25	U149819	R1404651-010	R1404651-010			8290cas
8		14:13	U149820	R1404651-011	R1404651-011			8290cas
9		15:02	U149821	CCAL HRCC3/CS4	66131		HRMS check 16:02	8290cas
10			---	---	---			8290cas
11			---	---	---			8290cas
12			---	---	---			8290cas
13			---	---	---			8290cas
14			---	---	---			8290cas
15			---	---	---			8290cas
16			---	---	---			8290cas
17			---	---	---			8290cas
18			---	---	---			8290cas
19			---	---	---			8290cas
20			---	---	---			8290cas
21			---	---	---			8290cas
22			---	---	---			8290cas
23			---	---	---			8290cas
24			---	---	---			8290cas
25			---	---	---			1668EPA
26			---	---	---			1668EPA
27			---	---	---			1668EPA
28			---	---	---			1668EPA
29			---	---	---			1668EPA
30			---	---	---			1668EPA
31			---	---	---			1668EPA
32			---	---	---			---
33			---	---	---			---
34			---	---	---			TCDFCAS
35			---	---	---			TCDFCAS
36			---	---	---			TCDFCAS
37			---	---	---			TCDFCAS
38			---	---	---			TCDFCAS
39			---	---	---			TCDFCAS

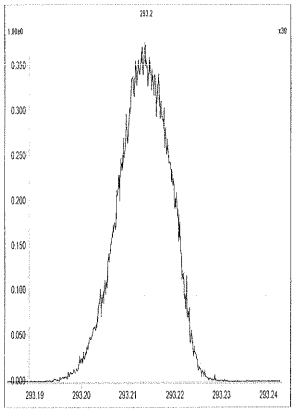
gc 07/03/14

067

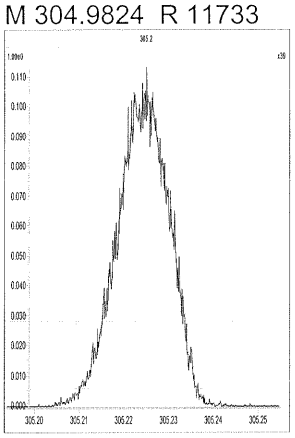
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 07:49:47 Central Daylight Time

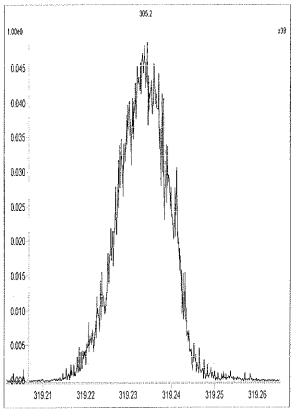
M 292.9824 R 11465



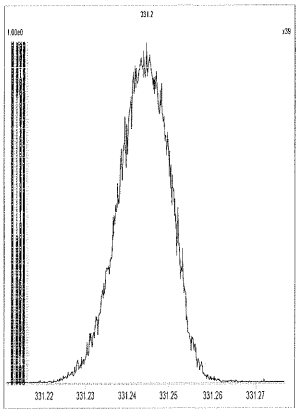
M 304.9824 R 11733



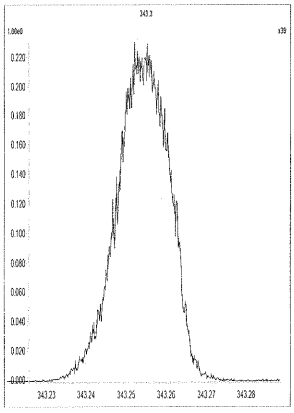
M 318.9792 R 12438



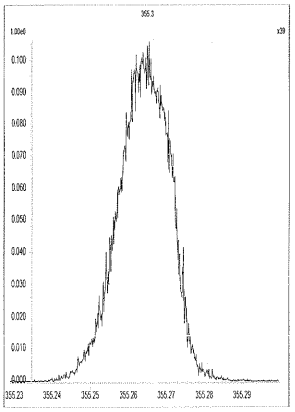
M 330.9792 R 11791



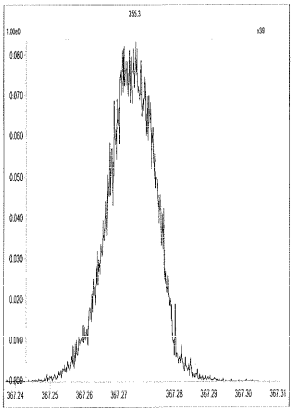
M 342.9792 R 11571



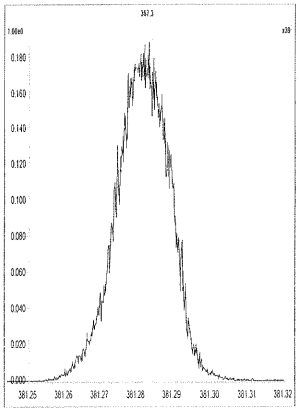
M 354.9792 R 11313



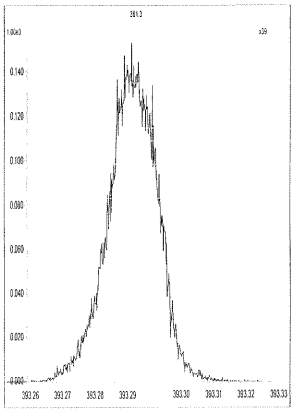
M 366.9792 R 11210



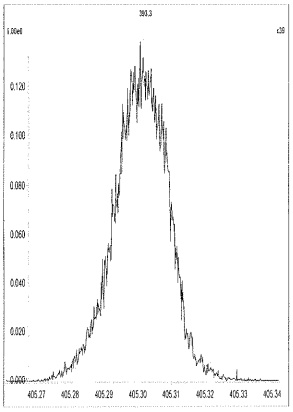
M 380.9760 R 11260



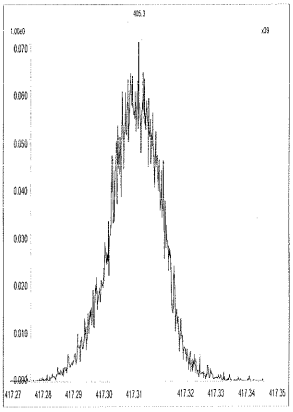
M 392.9760 R 11162



M 404.9760 R 10593



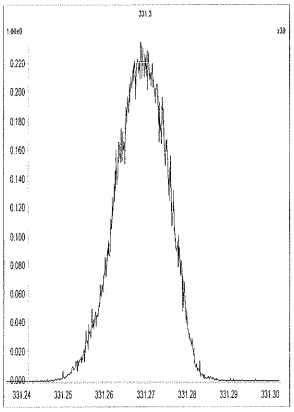
M 416.9760 R 10503



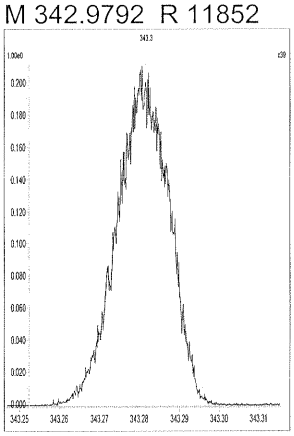
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 07:51:40 Central Daylight Time

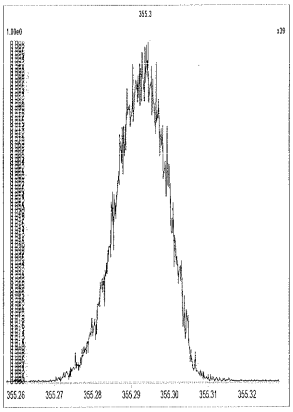
M 330.9792 R 11792



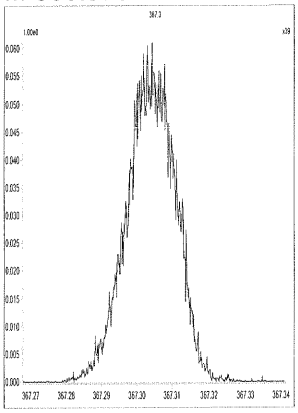
M 342.9792 R 11852



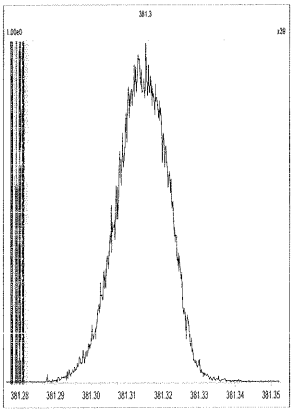
M 354.9792 R 12138



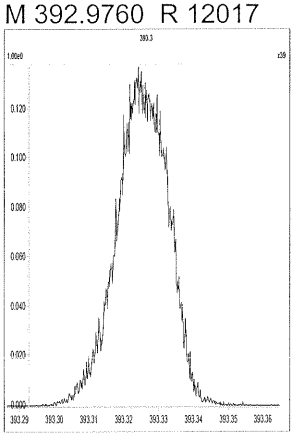
M 366.9792 R 11737



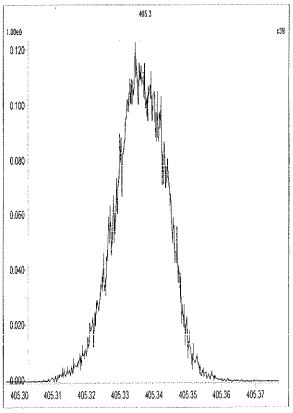
M 380.9760 R 11363



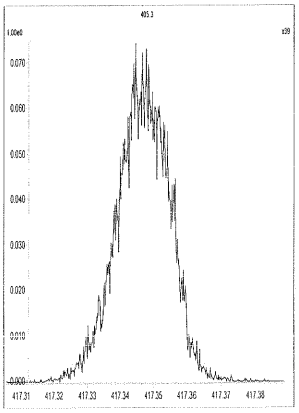
M 392.9760 R 12017



M 404.9760 R 12192



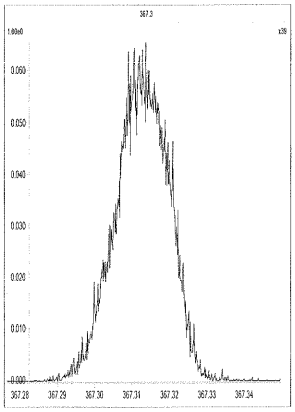
M 416.9760 R 11962



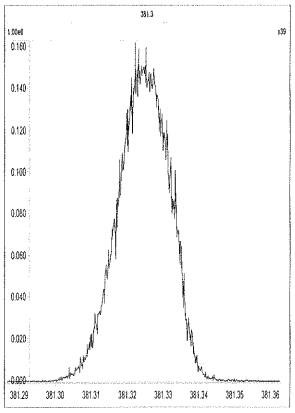
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 07:53:35 Central Daylight Time

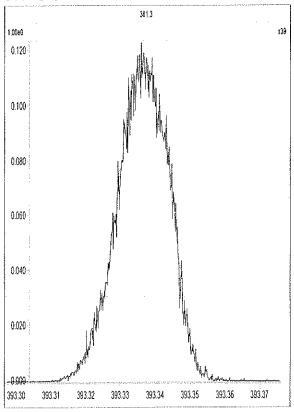
M 366.9792 R 11628



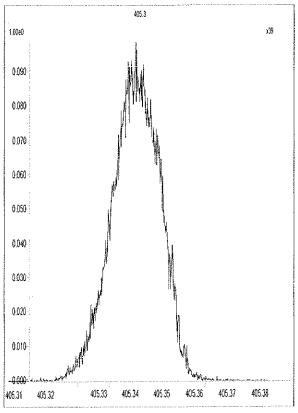
M 380.9760 R 11904



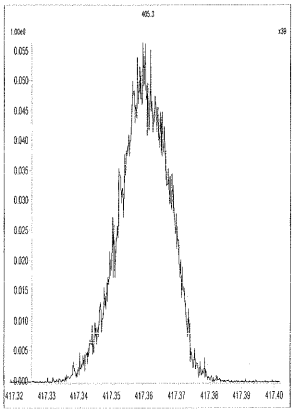
M 392.9760 R 11791



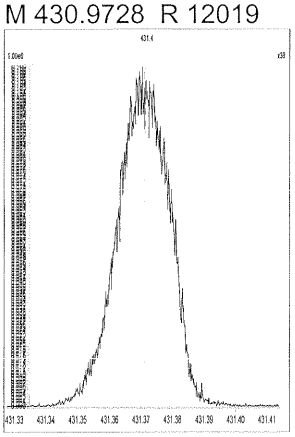
M 404.9760 R 11790



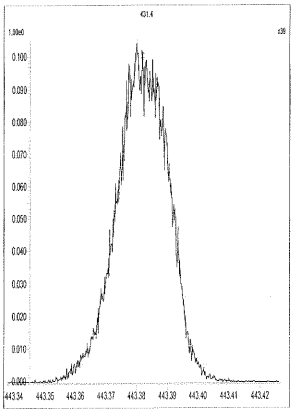
M 416.9760 R 12627



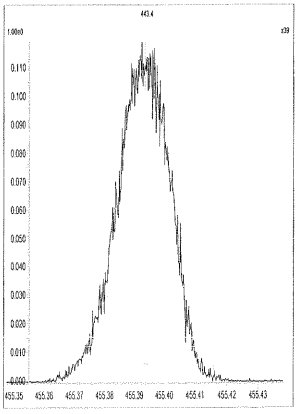
M 430.9728 R 12019



M 442.9728 R 10821



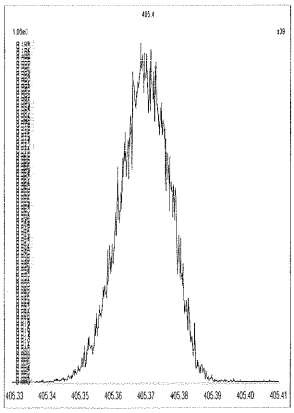
M 454.9728 R 11212



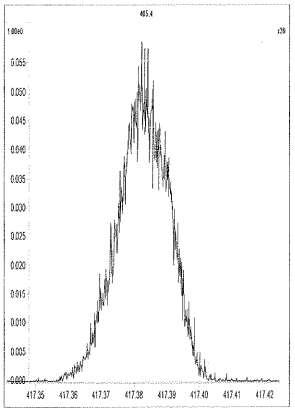
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 07:55:01 Central Daylight Time

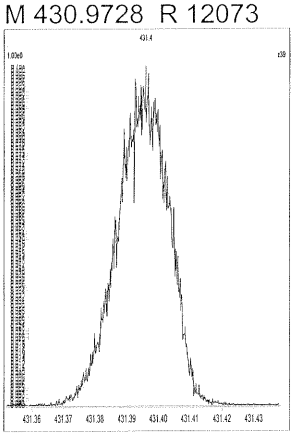
M 404.9760 R 12138



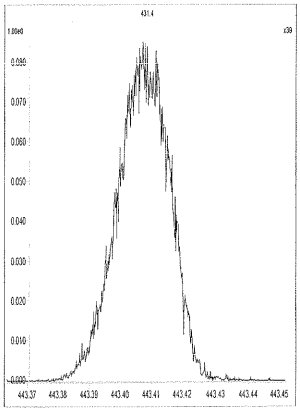
M 416.9760 R 11849



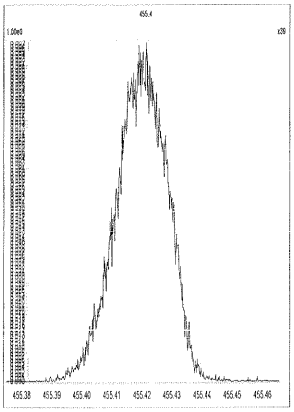
M 430.9728 R 12073



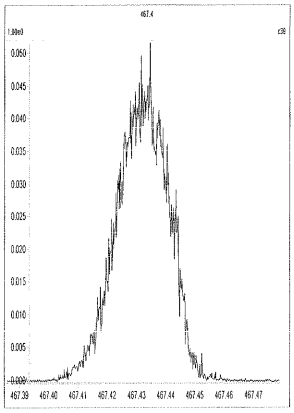
M 442.9728 R 11311



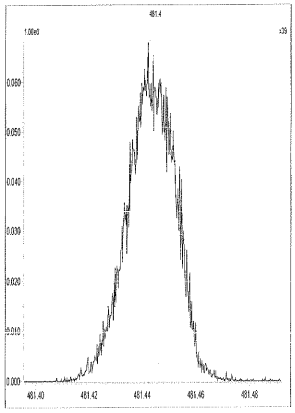
M 454.9728 R 11960



M 466.9728 R 12439



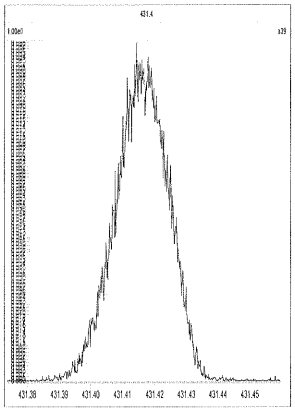
M 480.9696 R 11962



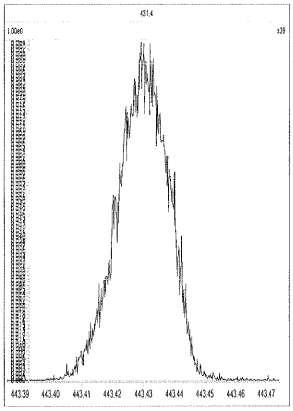
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 07:57:43 Central Daylight Time

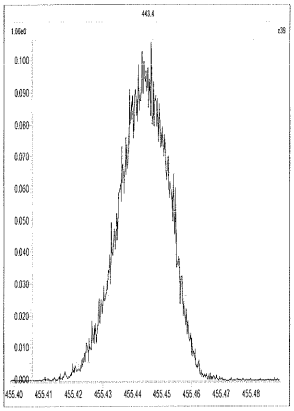
M 430.9728 R 11416



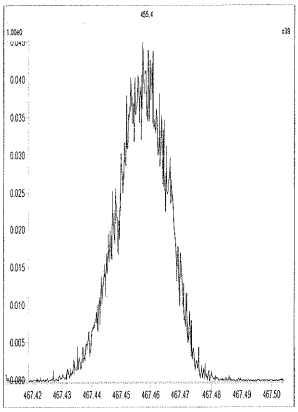
M 442.9728 R 12315



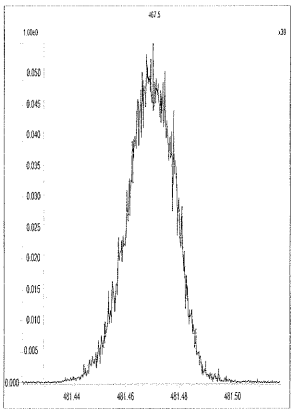
M 454.9728 R 11903



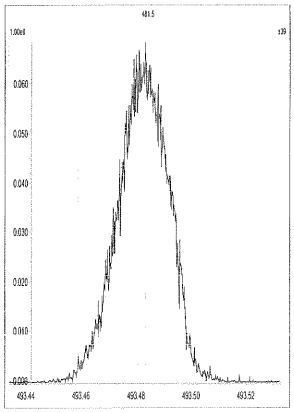
M 466.9728 R 12313



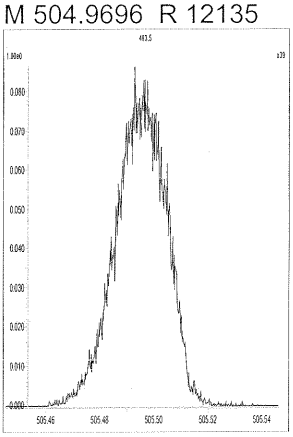
M 480.9696 R 11469



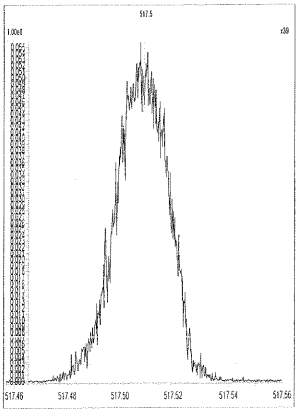
M 492.9696 R 11905



M 504.9696 R 12135



M 516.9697 R 13233

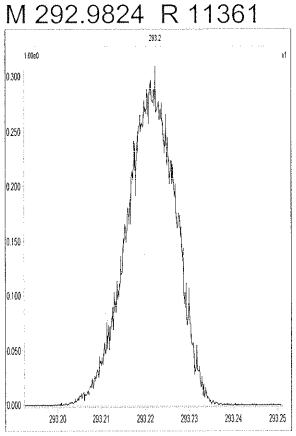


Experiment Calibration Report **MassLynx 4.1**

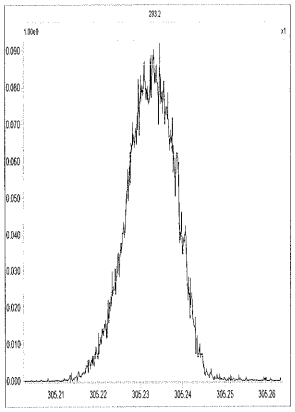
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 16:02:21 Central Daylight Time

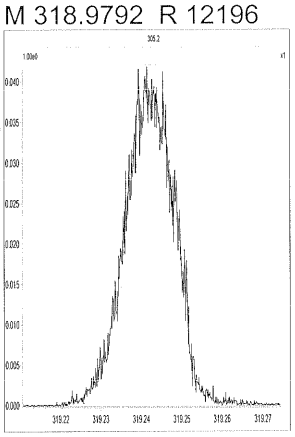
M 292.9824 R 11361



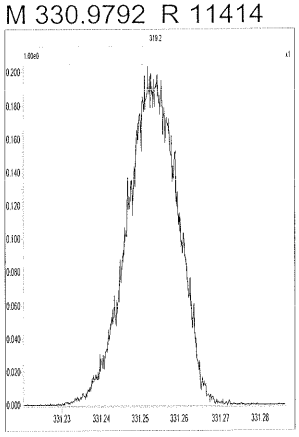
M 304.9824 R 11411



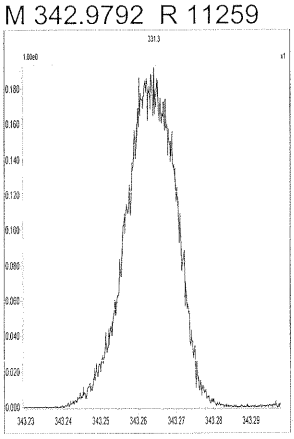
M 318.9792 R 12196



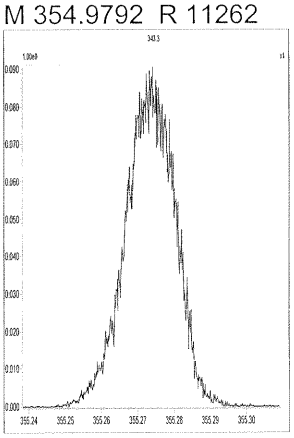
M 330.9792 R 11414



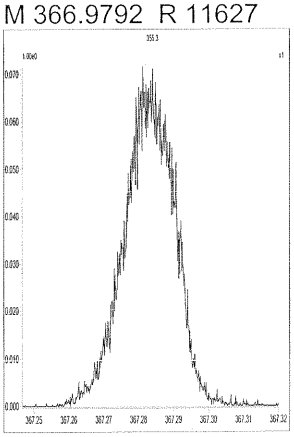
M 342.9792 R 11259



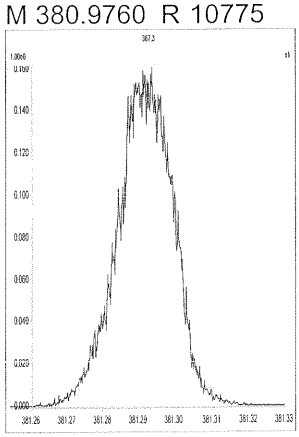
M 354.9792 R 11262



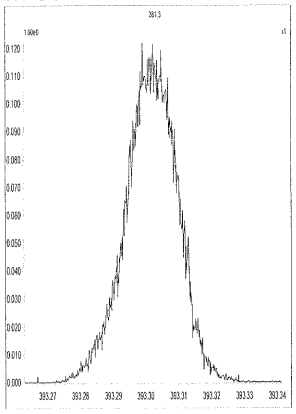
M 366.9792 R 11627



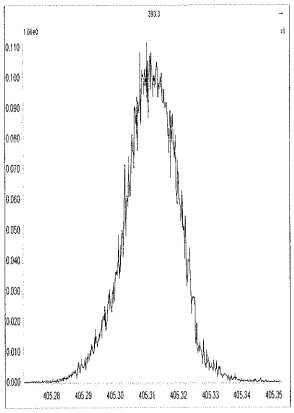
M 380.9760 R 10775



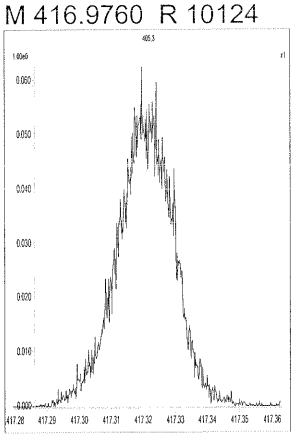
M 392.9760 R 11163



M 404.9760 R 10776



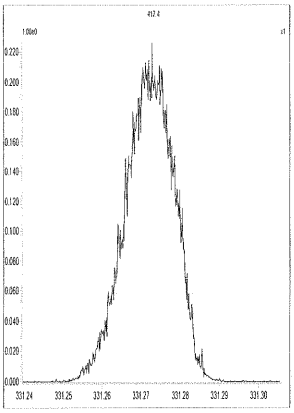
M 416.9760 R 10124



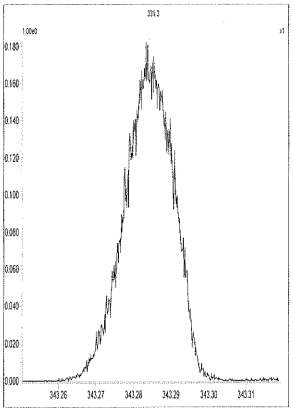
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 16:03:47 Central Daylight Time

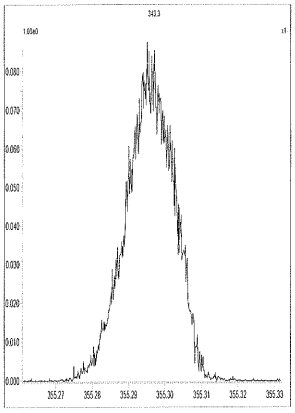
M 330.9792 R 11574



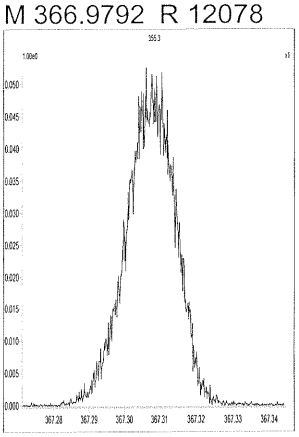
M 342.9792 R 11626



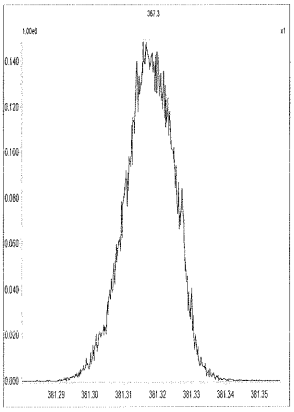
M 354.9792 R 11794



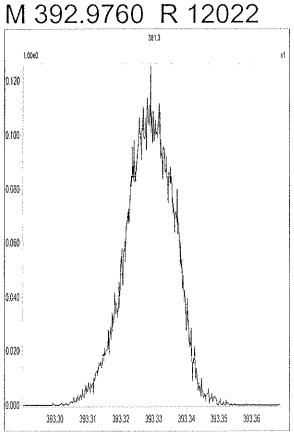
M 366.9792 R 12078



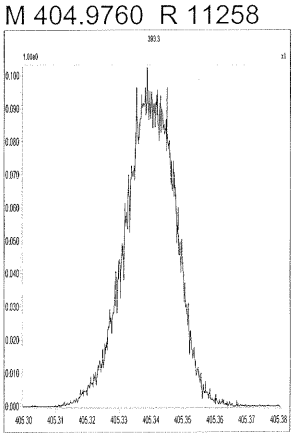
M 380.9760 R 11737



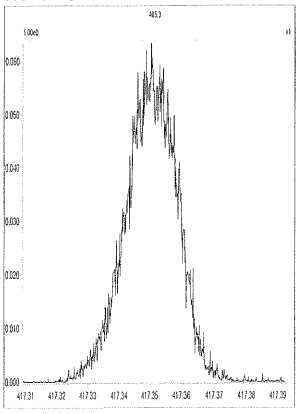
M 392.9760 R 12022



M 404.9760 R 11258



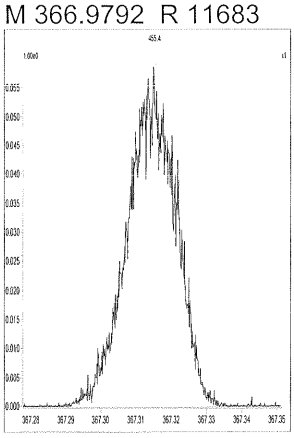
M 416.9760 R 11628



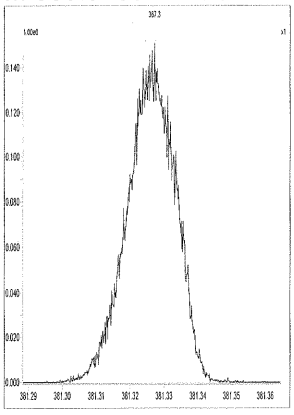
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 16:05:25 Central Daylight Time

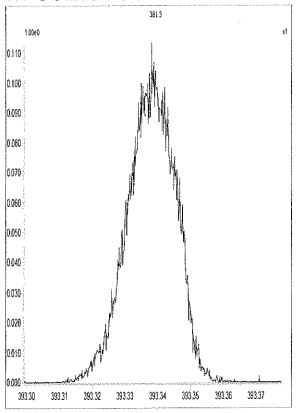
M 366.9792 R 11683



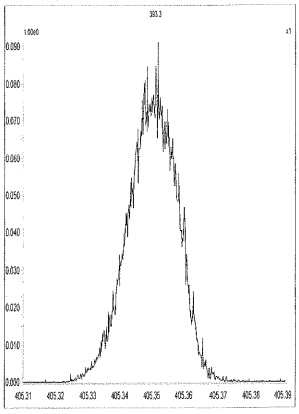
M 380.9760 R 12077



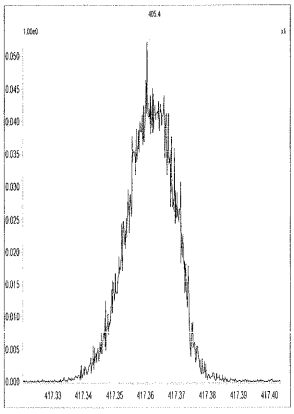
M 392.9760 R 12134



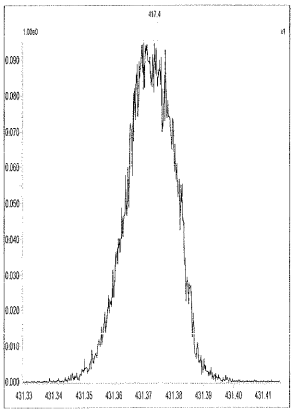
M 404.9760 R 11734



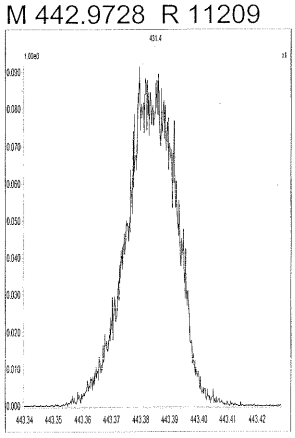
M 416.9760 R 11901



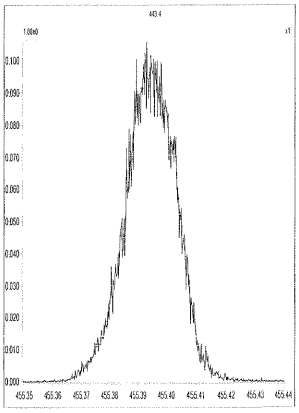
M 430.9728 R 11737



M 442.9728 R 11209



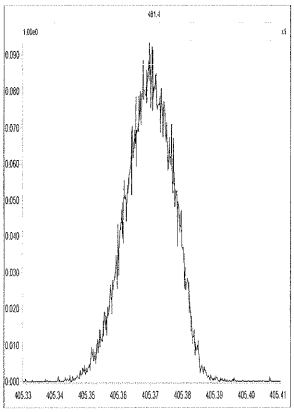
M 454.9728 R 11259



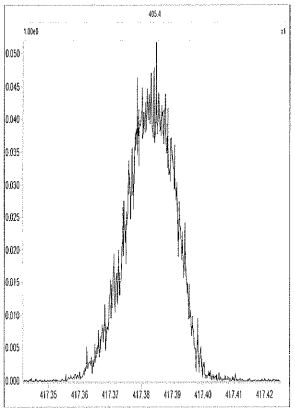
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 16:06:40 Central Daylight Time

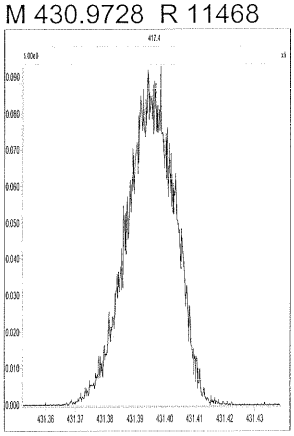
M 404.9760 R 11795



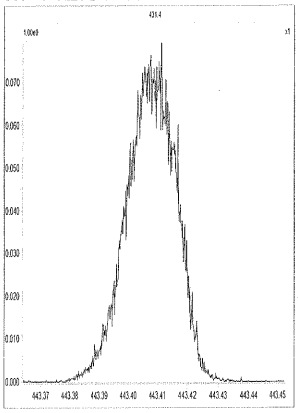
M 416.9760 R 12439



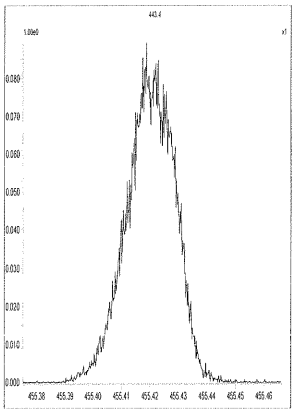
M 430.9728 R 11468



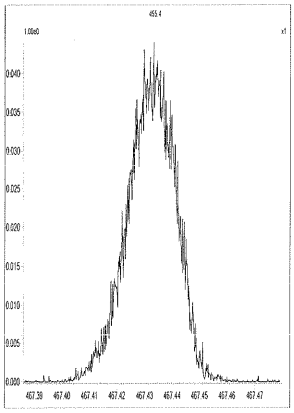
M 442.9728 R 11847



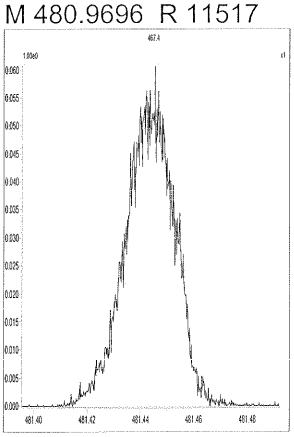
M 454.9728 R 11366



M 466.9728 R 11522



M 480.9696 R 11517

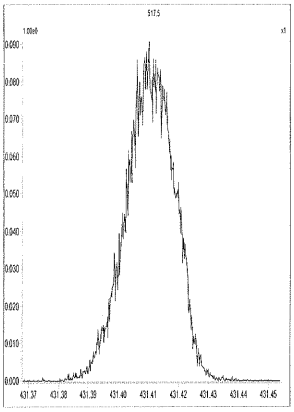


Experiment Calibration Report **MassLynx 4.1**

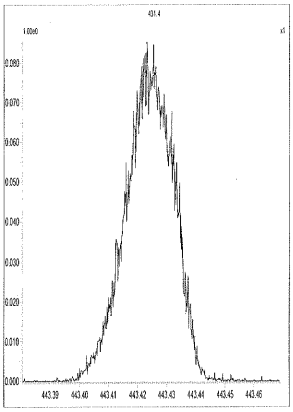
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 16:07:36 Central Daylight Time

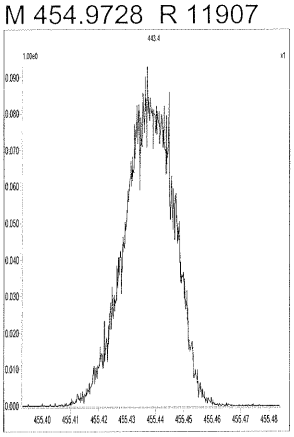
M 430.9728 R 11521



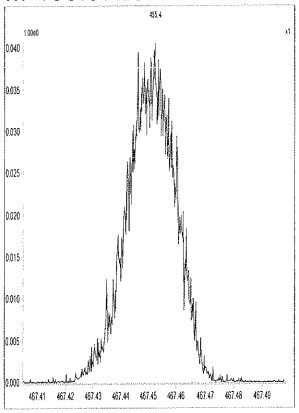
M 442.9728 R 11574



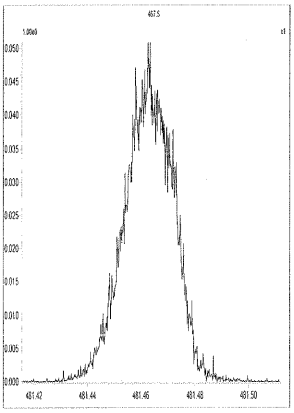
M 454.9728 R 11907



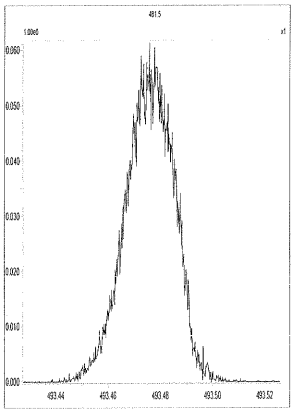
M 466.9728 R 11735



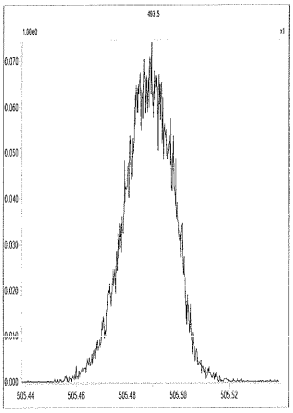
M 480.9696 R 12439



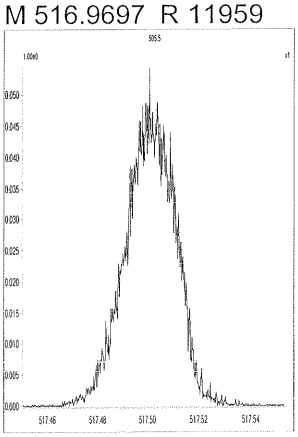
M 492.9696 R 11574



M 504.9696 R 11209



M 516.9697 R 11959



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

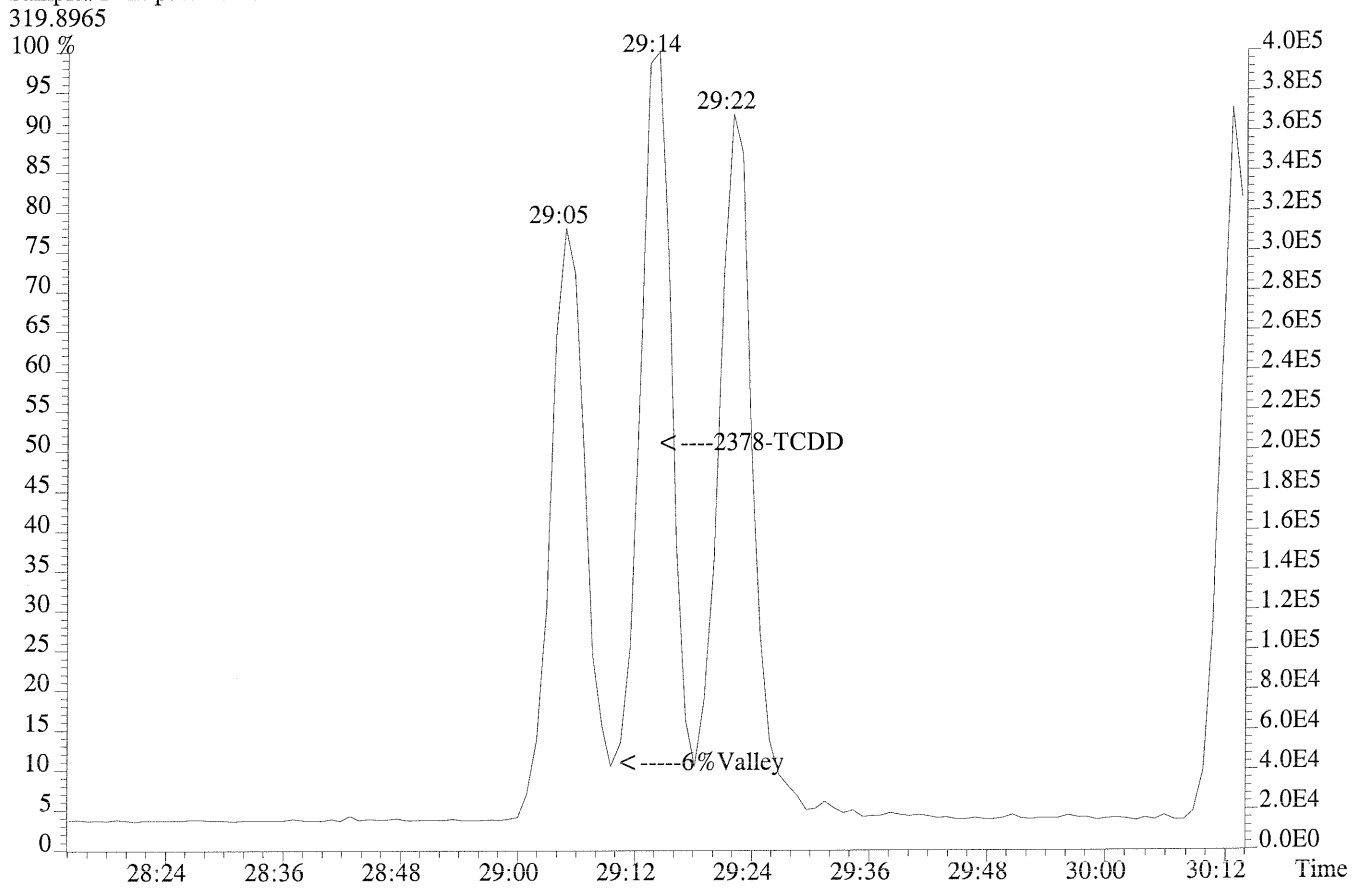
WDM

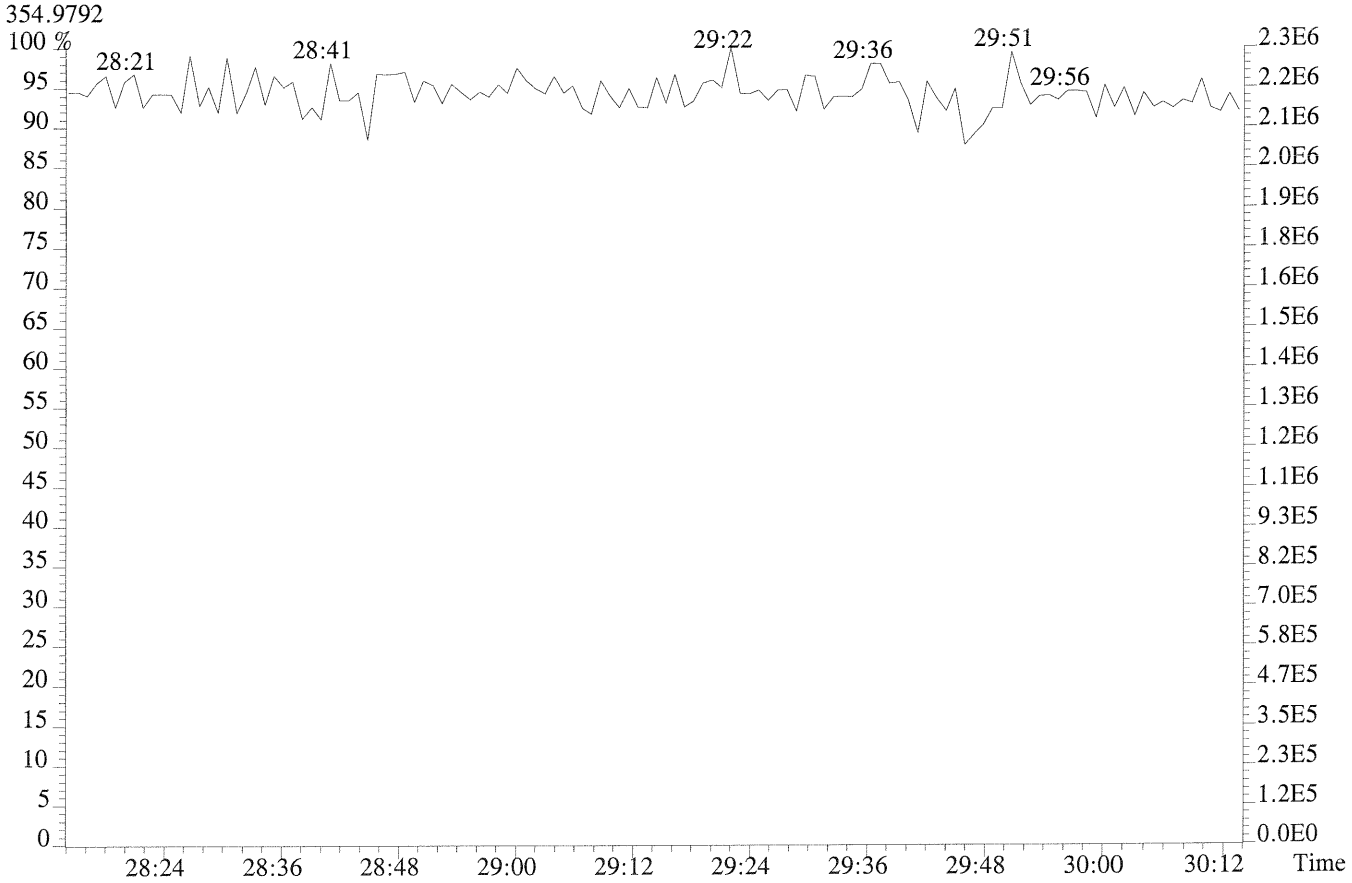
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: _____ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: U149814
Date Analyzed: 2-JUL-2014
Time Analyzed: 08:18:23

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:07	30:24
TCDD	26:01	30:13
PeCDF	30:19	34:32
PeCDD	31:49	34:16
HxCDF	35:09	37:40
HxCDD	35:40	37:15
HpCDF	38:53	40:21
HpCDD	39:08	39:50

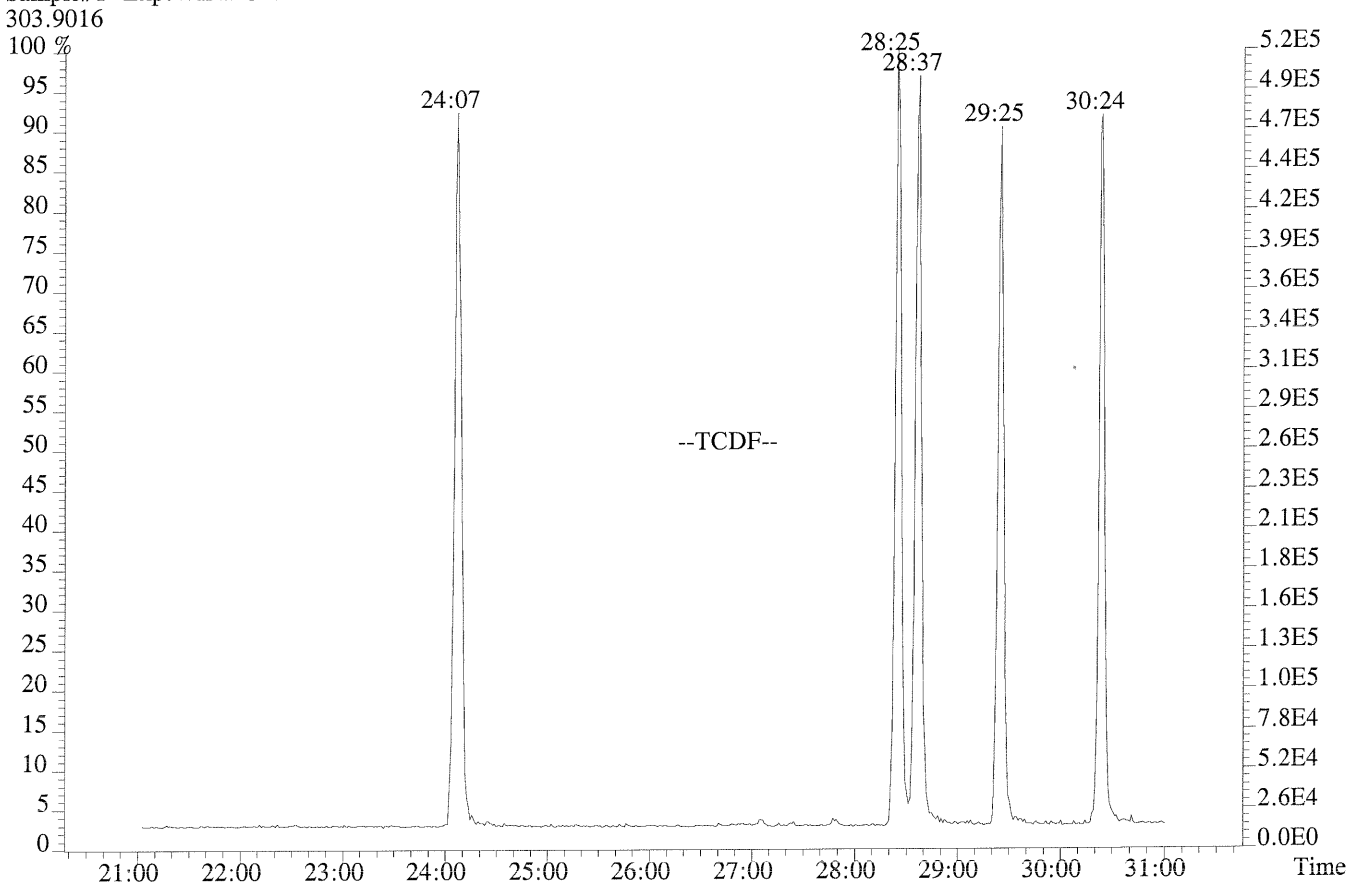
% Valley 2378-TCDD: 6 %

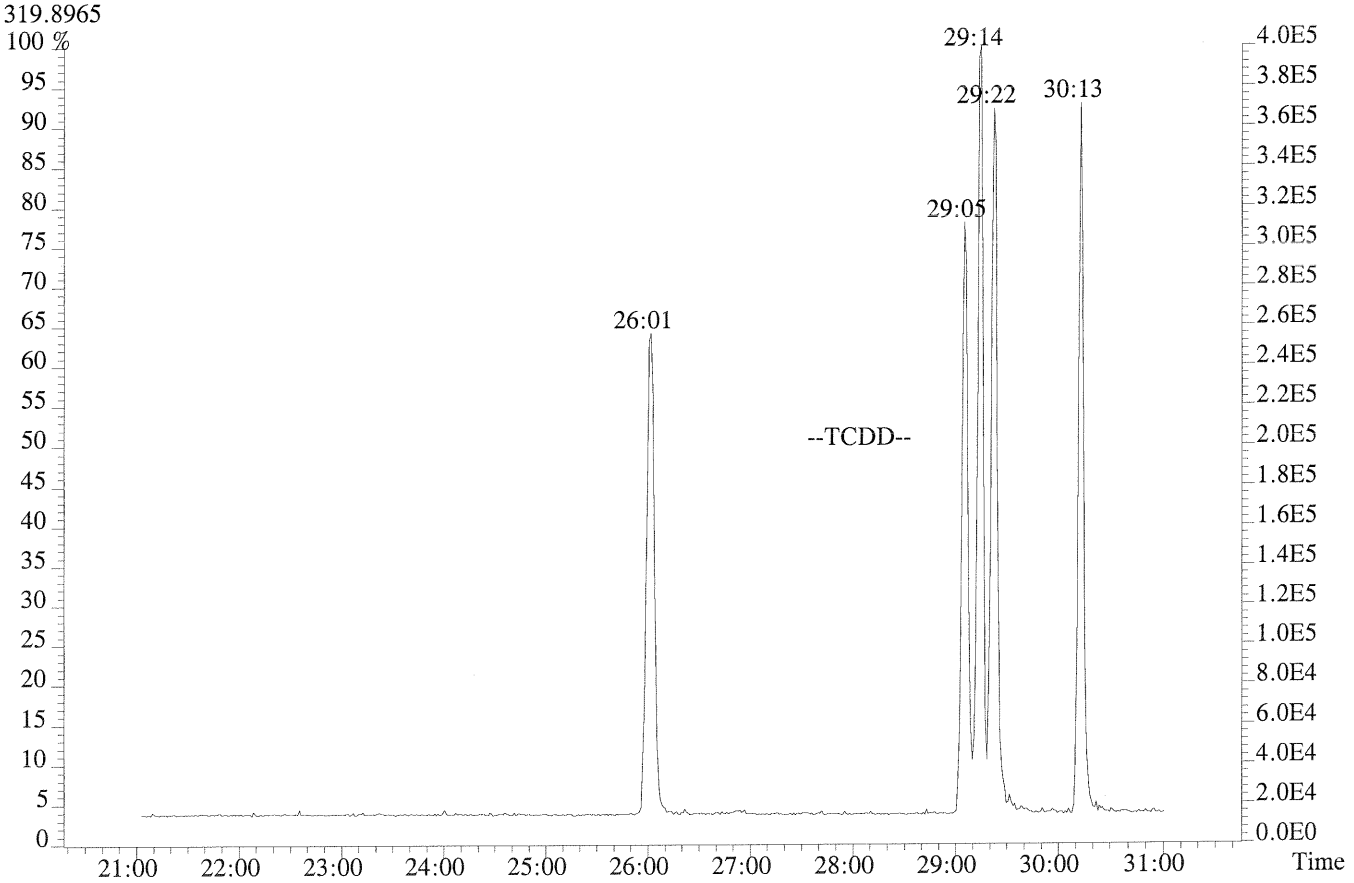
File:U149814 #1-627 Acq: 2-JUL-2014 08:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



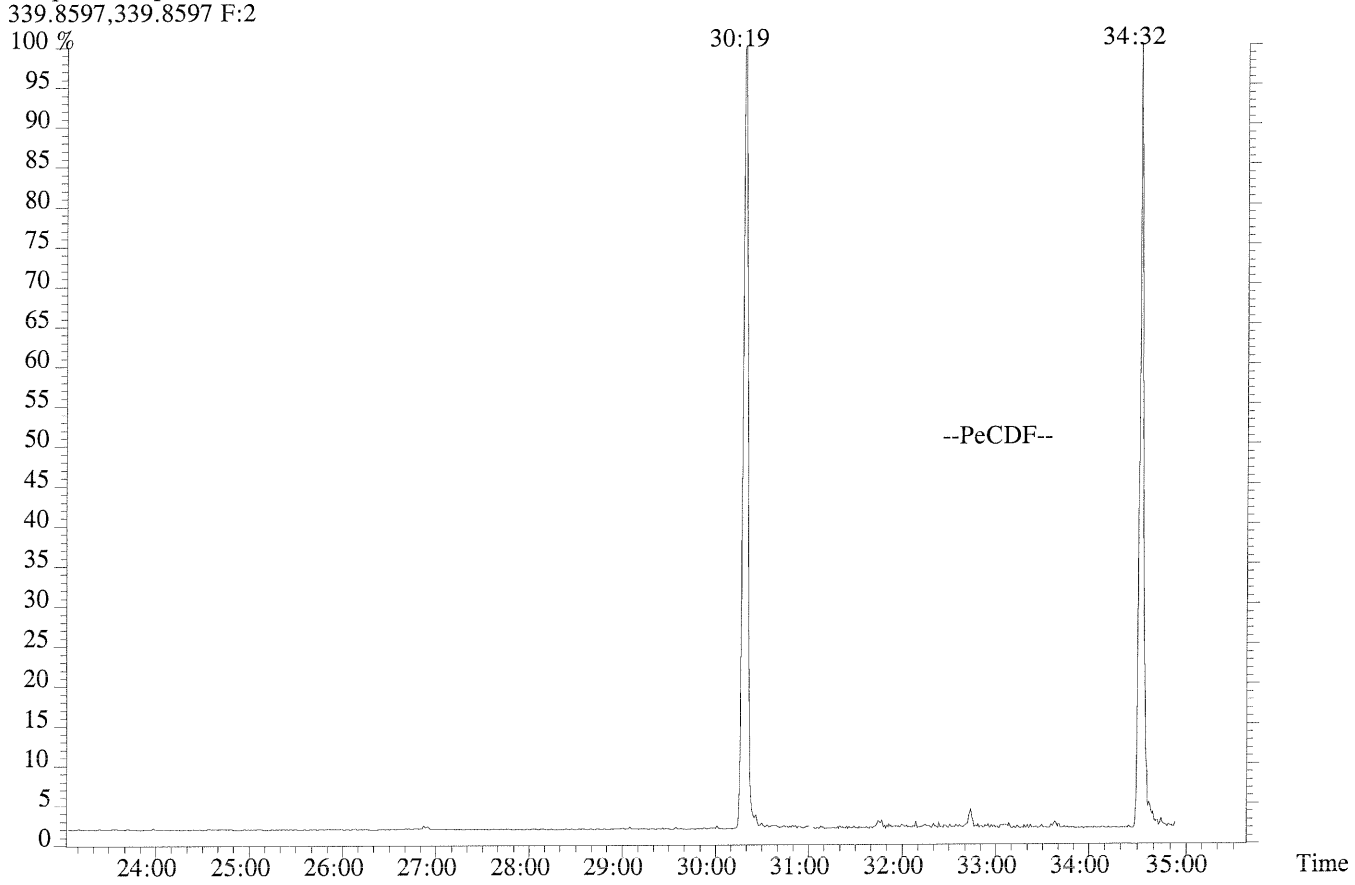


File:U149814 #1-627 Acq: 2-JUL-2014 08:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

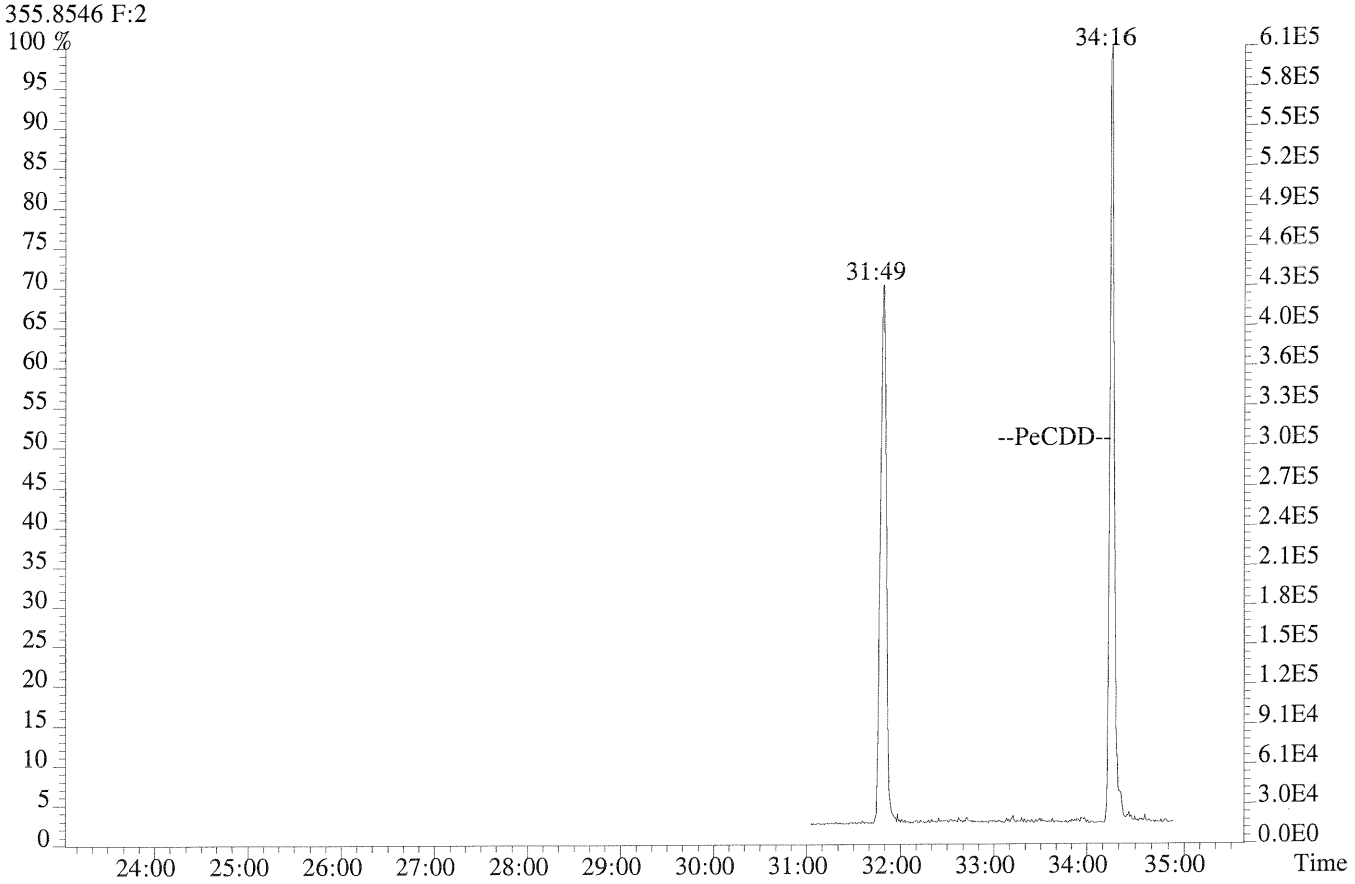




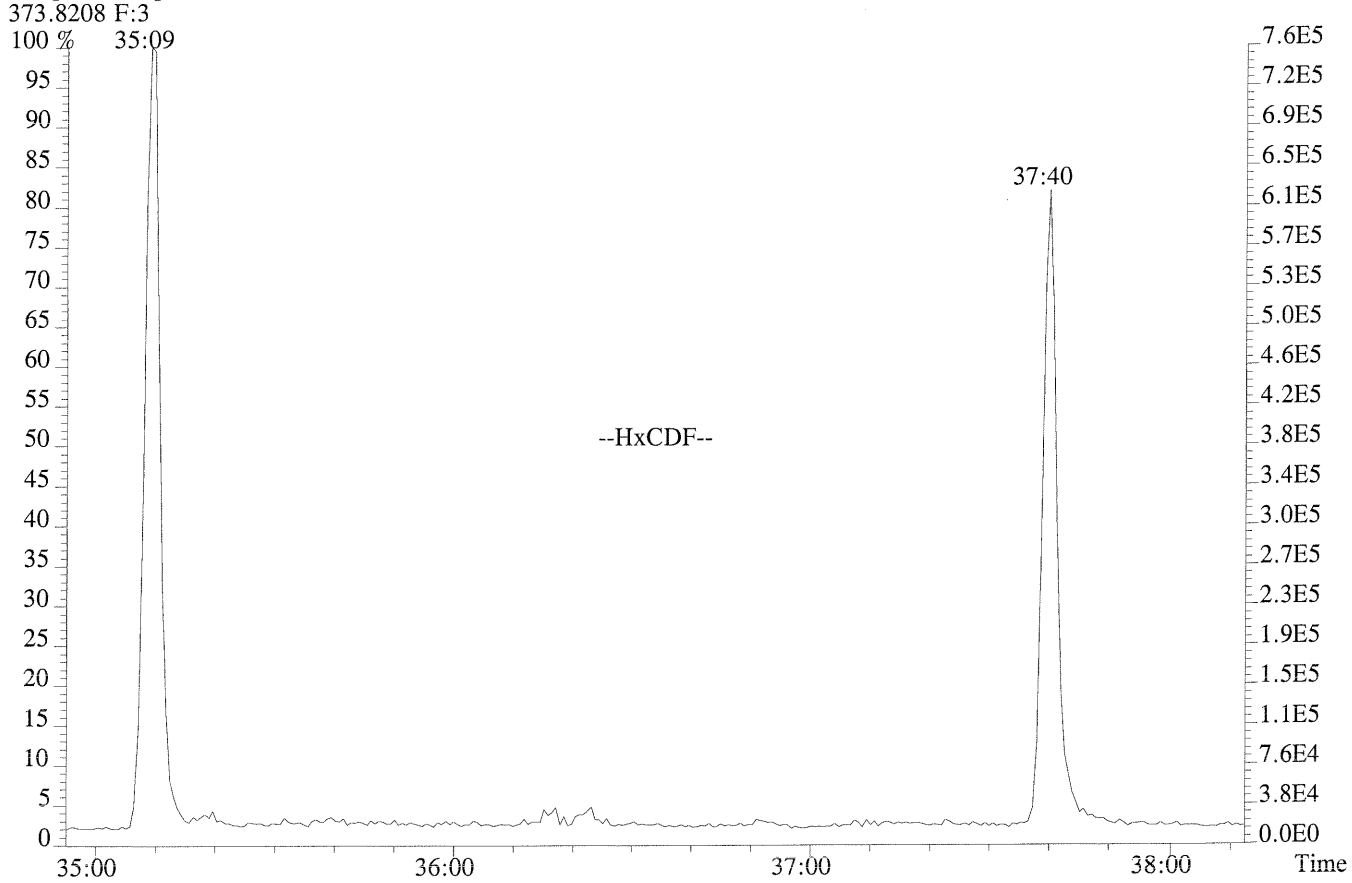
File:U149814 #1-627 Acq: 2-JUL-2014 08:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2

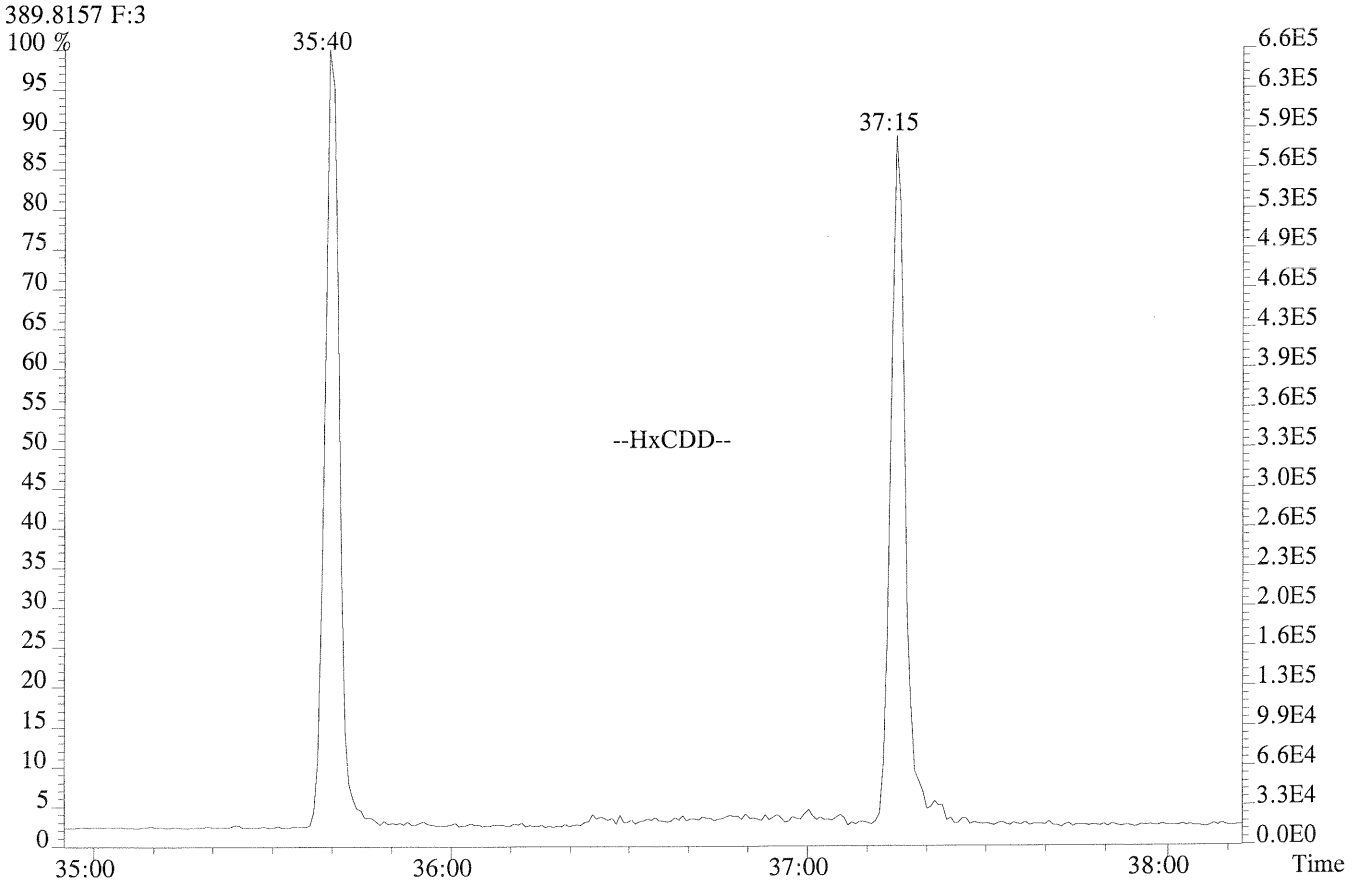


355.8546 F:2

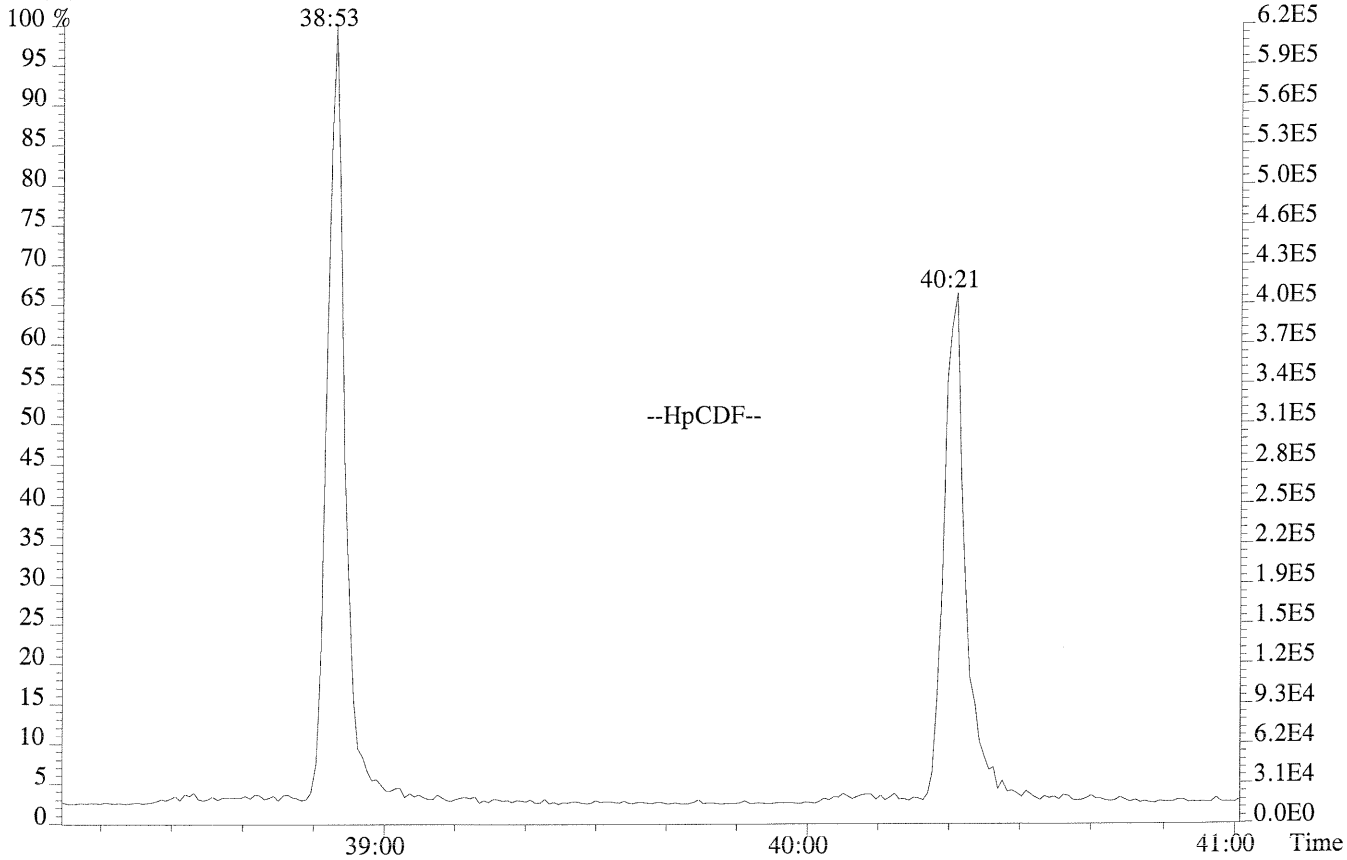


File:U149814 #1-299 Acq: 2-JUL-2014 08:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

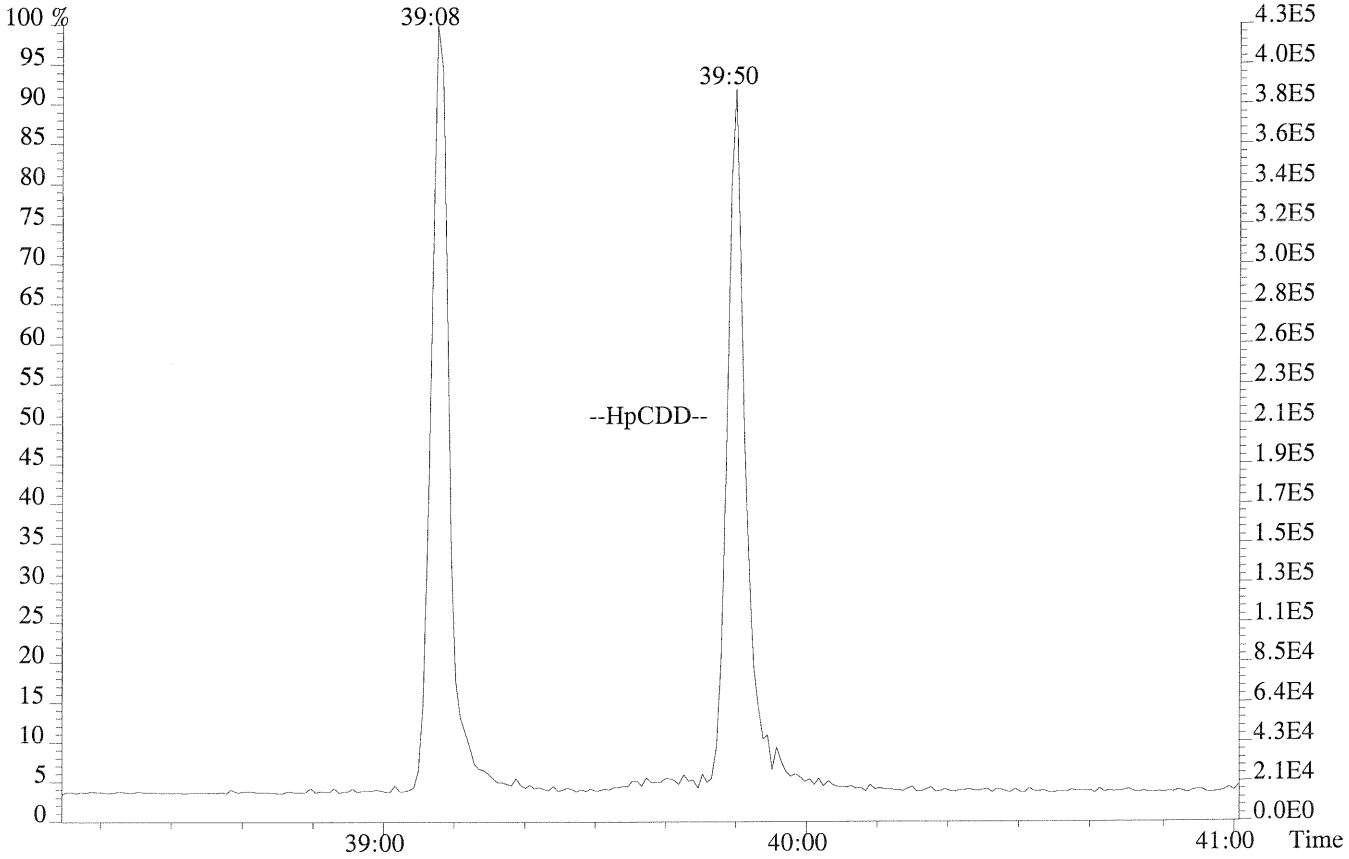




File:U149814 #1-252 Acq: 2-JUL-2014 08:18:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 | GC Column ID: DB-5MSUI

VER Data Filename: U149813 | Analysis Date: 2-JUL-14 Time: 04:09:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.8	7.8 - 12.9	-1.8
1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	50	39 - 65	0.7
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	52	39 - 64	3.4
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	53	39 - 64	5.6
1,2,3,7,8,9-HxCDD	M+2/M+4	1.25	1.05-1.43	53	41 - 61	5.9
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	50	43 - 58	0.6
OCDD	M+2/M+4	0.88	0.76-1.02	105	79 - 126	4.9
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.4	8.4 - 12.0	3.9
1,2,3,7,8-PeCDF	M+2/M+4	1.54	1.32-1.78	52	41 - 60	4.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	51	41 - 61	2.1
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	52	45 - 56	3.7
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	52	44 - 57	3.1
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	53	45 - 56	5.4
2,3,4,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	51	44 - 57	2.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	51	45 - 55	1.6
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	49	43 - 58	-1.6
OCDF	M+2/M+4	0.89	0.76-1.02	107	63 - 159	7.0

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 GC Column ID: DB-5MSUI

VER Data Filename: U149813 Analysis Date: 2-JUL-14 Time: 04:09:06

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	97	82 - 121	-3.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	101	62 - 160	0.7
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	101	85 - 117	0.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	95	85 - 118	-4.6
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	97	72 - 138	-3.3
13C-OCDD	M+2/M+4	0.91	0.76-1.02	179	96 - 415	-10.3
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	101	71 - 140	1.2
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	100	76 - 130	-0.1
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	104	77 - 130	4.0
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	99	76 - 131	-0.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	70 - 143	0.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.51	0.43-0.59	102	74 - 135	1.8
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	73 - 137	2.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	102	78 - 129	1.8
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.46	0.37-0.51	102	77 - 129	1.6
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.9	7.8 - 12.7	-1.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #7 Filename U149813 Samp: 1 Inj: 1 Acquired: 2-JUL-14 04:09:06
Processed: 3-JUL-14 11:00:23 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:37	3.879e+03	5.066e+03	0.77	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:44	3.737e+04	2.433e+04	1.54	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:38	3.567e+04	2.291e+04	1.56	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	3.153e+04	2.536e+04	1.24	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.435e+04	2.737e+04	1.25	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:53	3.100e+04	2.542e+04	1.22	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	3.030e+04	2.397e+04	1.26	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	2.808e+04	2.681e+04	1.05	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:21	2.346e+04	2.264e+04	1.04	yes	no	1.358
10	Unk	OCDF	42:57	3.468e+04	3.899e+04	0.89	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:22	2.842e+03	3.545e+03	0.80	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:54	2.494e+04	1.542e+04	1.62	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	2.204e+04	1.754e+04	1.26	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	2.270e+04	1.815e+04	1.25	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	2.463e+04	1.966e+04	1.25	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:51	1.931e+04	1.809e+04	1.07	yes	no	1.065
17	Unk	OCDD	42:44	2.941e+04	3.352e+04	0.88	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:36	4.085e+04	5.034e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:43	7.365e+04	4.683e+04	1.57	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:37	7.479e+04	4.723e+04	1.58	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	3.052e+04	5.892e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	3.574e+04	6.832e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	3.319e+04	6.419e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	3.031e+04	5.927e+04	0.51	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	2.353e+04	5.225e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.178e+04	4.720e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:21	2.830e+04	3.589e+04	0.79	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	4.772e+04	3.046e+04	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.806e+04	2.949e+04	1.29	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	3.960e+04	3.037e+04	1.30	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:50	3.635e+04	3.344e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:44	4.853e+04	5.340e+04	0.91	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:47	2.749e+04	3.533e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	4.408e+04	3.295e+04	1.34	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:22	6.485e+03				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #7 Filename U149813 Samp: 1 Inj: 1 Acquired: 2-JUL-14 04:09:06
Processed: 3-JUL-14 11:00:231 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	8.01e+05	5.88e+02	1.4e+03	1.03e+06	8.92e+02	1.2e+03
2	1,2,3,7,8-PeCDF	7.13e+06	7.60e+02	9.4e+03	4.57e+06	6.84e+02	6.7e+03
3	2,3,4,7,8-PeCDF	7.03e+06	7.60e+02	9.3e+03	4.49e+06	6.84e+02	6.6e+03
4	1,2,3,4,7,8-HxCDF	6.95e+06	9.24e+02	7.5e+03	5.59e+06	8.80e+02	6.3e+03
5	1,2,3,6,7,8-HxCDF	7.08e+06	9.24e+02	7.7e+03	5.65e+06	8.80e+02	6.4e+03
6	2,3,4,6,7,8-HxCDF	6.66e+06	9.24e+02	7.2e+03	5.53e+06	8.80e+02	6.3e+03
7	1,2,3,7,8,9-HxCDF	5.98e+06	9.24e+02	6.5e+03	4.65e+06	8.80e+02	5.3e+03
8	1,2,3,4,6,7,8-HpCDF	5.80e+06	2.53e+03	2.3e+03	5.57e+06	1.58e+03	3.5e+03
9	1,2,3,4,7,8,9-HpCDF	4.27e+06	2.53e+03	1.7e+03	4.05e+06	1.58e+03	2.6e+03
10	OCDF	5.04e+06	6.08e+02	8.3e+03	5.64e+06	7.60e+02	7.4e+03
11	2,3,7,8-TCDD	5.89e+05	8.44e+02	7.0e+02	7.64e+05	8.48e+02	9.0e+02
12	1,2,3,7,8-PeCDD	5.03e+06	6.76e+02	7.4e+03	3.11e+06	5.04e+02	6.2e+03
13	1,2,3,4,7,8-HxCDD	5.05e+06	4.80e+02	1.1e+04	4.02e+06	6.92e+02	5.8e+03
14	1,2,3,6,7,8-HxCDD	4.77e+06	4.80e+02	9.9e+03	3.78e+06	6.92e+02	5.5e+03
15	1,2,3,7,8,9-HxCDD	4.94e+06	4.80e+02	1.0e+04	4.04e+06	6.92e+02	5.8e+03
16	1,2,3,4,6,7,8-HpCDD	3.59e+06	9.16e+02	3.9e+03	3.36e+06	7.92e+02	4.2e+03
17	OCDD	4.68e+06	4.92e+02	9.5e+03	5.31e+06	6.40e+02	8.3e+03
18	13C-2,3,7,8-TCDF	8.26e+06	9.32e+02	8.9e+03	1.02e+07	8.32e+02	1.2e+04
19	13C-1,2,3,7,8-PeCDF	1.38e+07	8.68e+02	1.6e+04	8.82e+06	6.08e+02	1.5e+04
20	13C-2,3,4,7,8-PeCDF	1.47e+07	8.68e+02	1.7e+04	9.37e+06	6.08e+02	1.5e+04
21	13C-1,2,3,4,7,8-HxCDF	6.73e+06	8.16e+02	8.2e+03	1.30e+07	8.48e+02	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	7.45e+06	8.16e+02	9.1e+03	1.42e+07	8.48e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	7.10e+06	8.16e+02	8.7e+03	1.38e+07	8.48e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	6.05e+06	8.16e+02	7.4e+03	1.16e+07	8.48e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.78e+06	2.31e+03	2.1e+03	1.07e+07	3.13e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.91e+06	2.31e+03	1.7e+03	8.55e+06	3.13e+03	2.7e+03
27	13C-2,3,7,8-TCDD	6.12e+06	2.06e+03	3.0e+03	7.78e+06	1.14e+03	6.8e+03
28	13C-1,2,3,7,8-PeCDD	9.70e+06	8.36e+02	1.2e+04	6.23e+06	7.32e+02	8.5e+03
29	13C-1,2,3,4,7,8-HxCDD	8.67e+06	8.36e+02	1.0e+04	6.76e+06	8.76e+02	7.7e+03
30	13C-1,2,3,6,7,8-HxCDD	8.23e+06	8.36e+02	9.8e+03	6.31e+06	8.76e+02	7.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.77e+06	9.56e+02	7.1e+03	6.13e+06	6.92e+02	8.9e+03
32	13C-OCDD	7.70e+06	7.08e+02	1.1e+04	8.43e+06	4.40e+02	1.9e+04
33	13C-1,2,3,4-TCDD	5.82e+06	2.06e+03	2.8e+03	7.51e+06	1.14e+03	6.6e+03
34	13C-1,2,3,7,8,9-HxCDD	8.90e+06	8.36e+02	1.1e+04	6.94e+06	8.76e+02	7.9e+03
35	37Cl-2,3,7,8-TCDD	1.37e+06	6.32e+02	2.2e+03			

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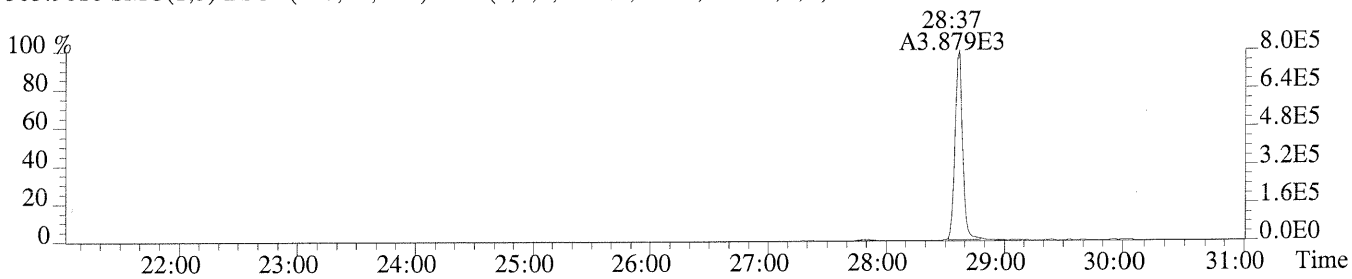
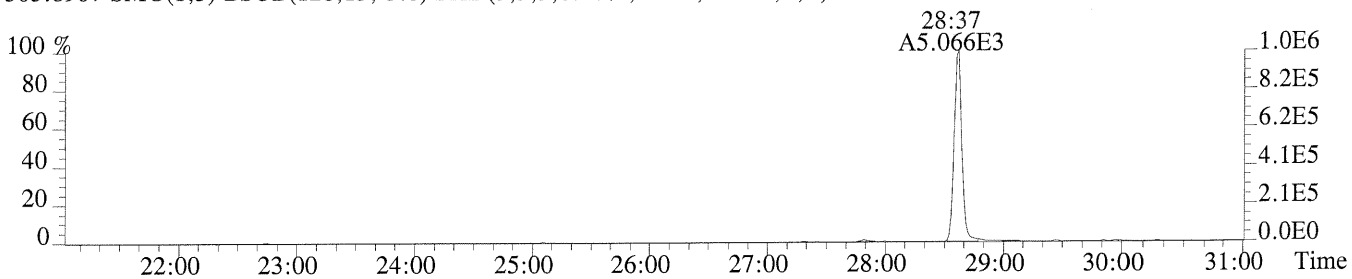
File:U149813 #1-627 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

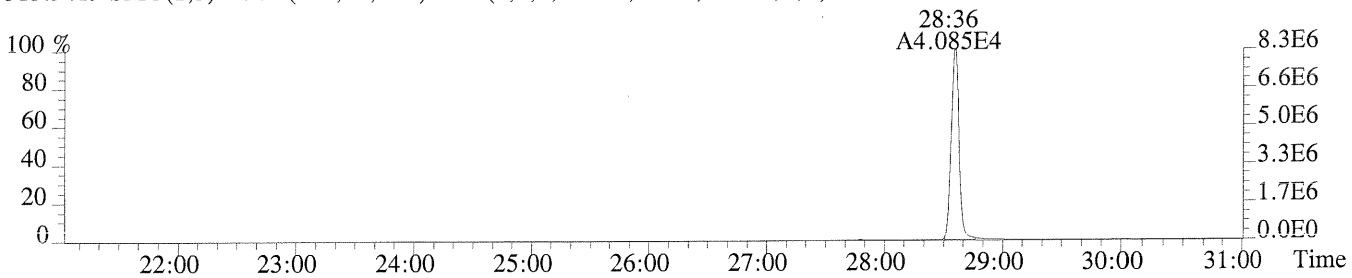
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



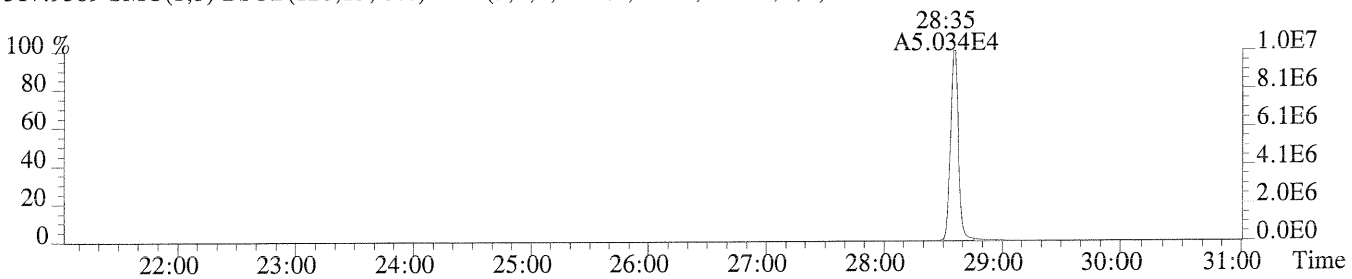
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,892.0,1.00%,F,T)



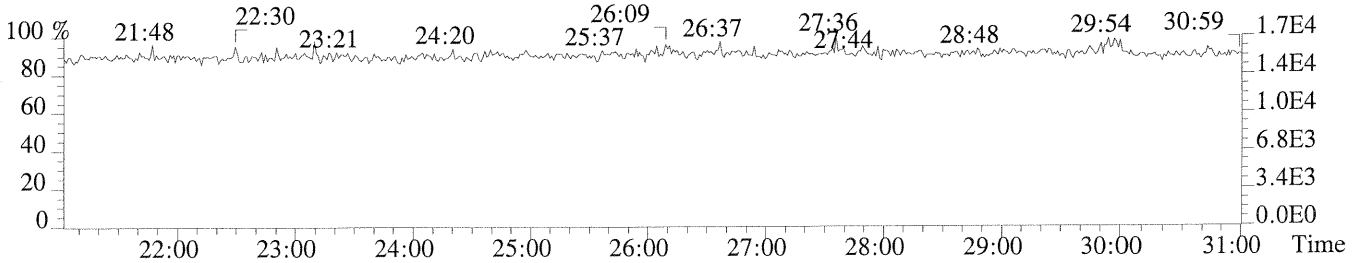
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



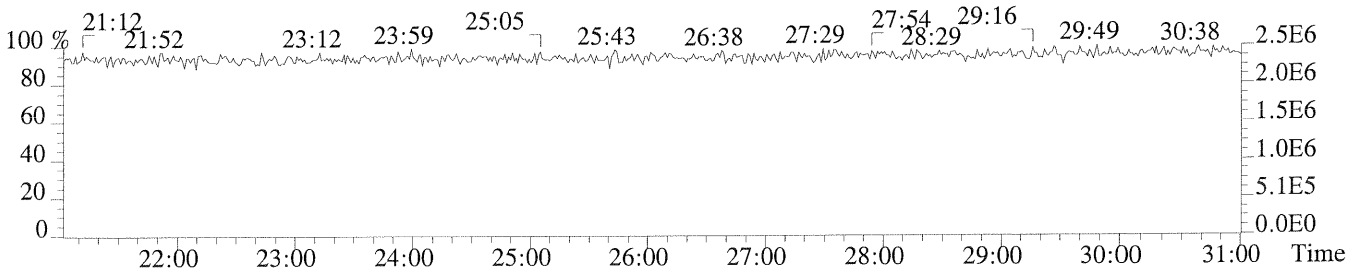
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

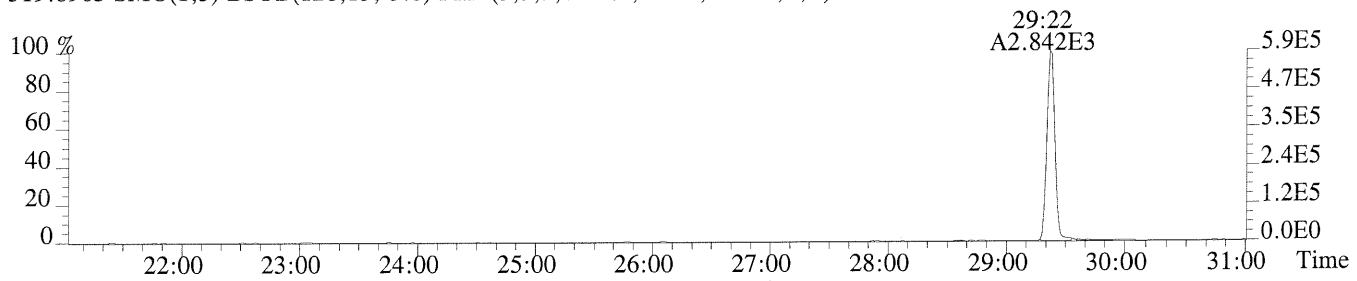


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

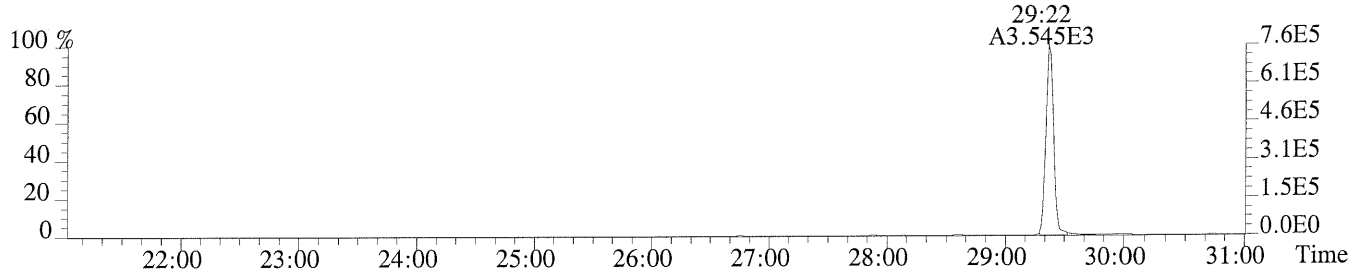


File:U149813 #1-627 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

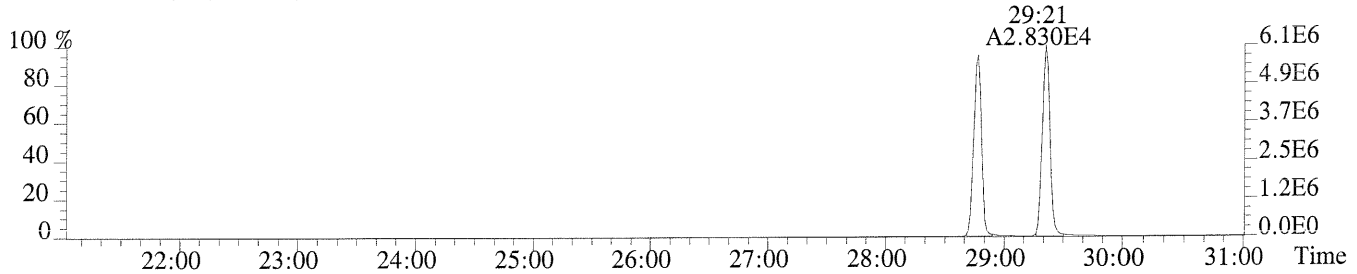
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



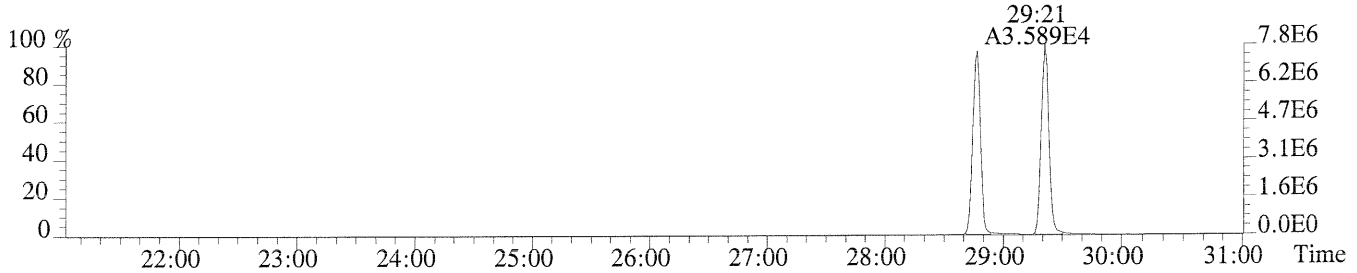
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



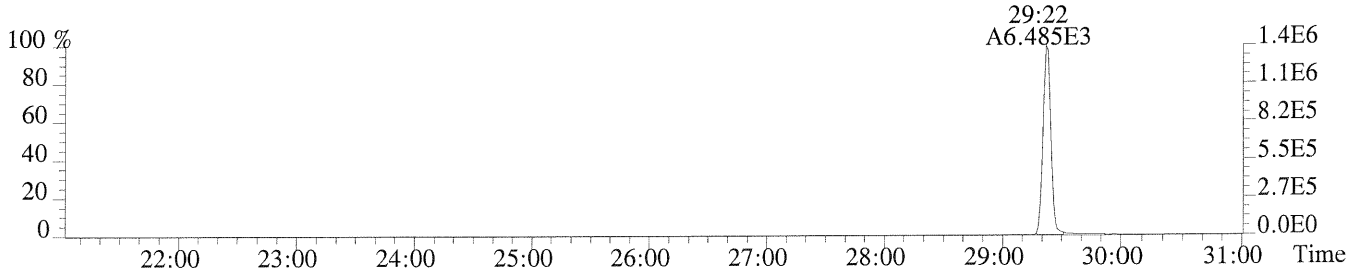
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2060.0,1.00%,F,T)



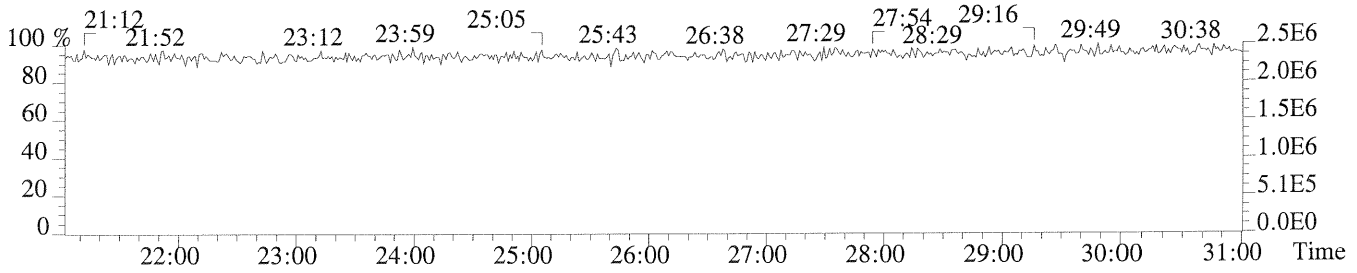
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



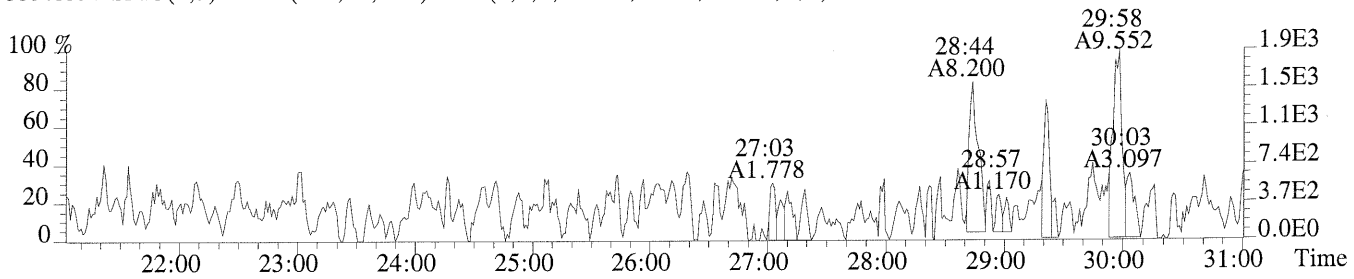
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



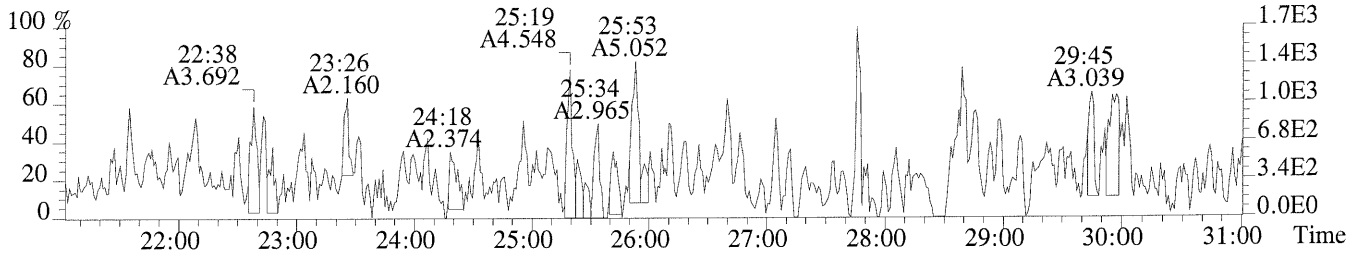
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



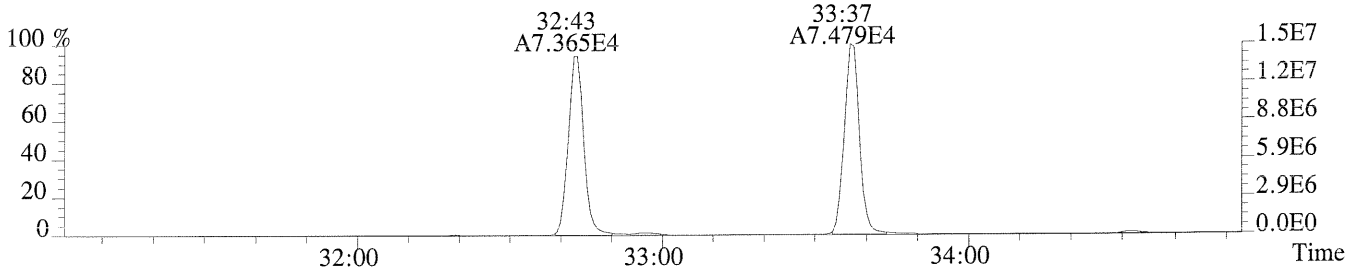
File:U149813 #1-627 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,396.0,1.00%,F,T)



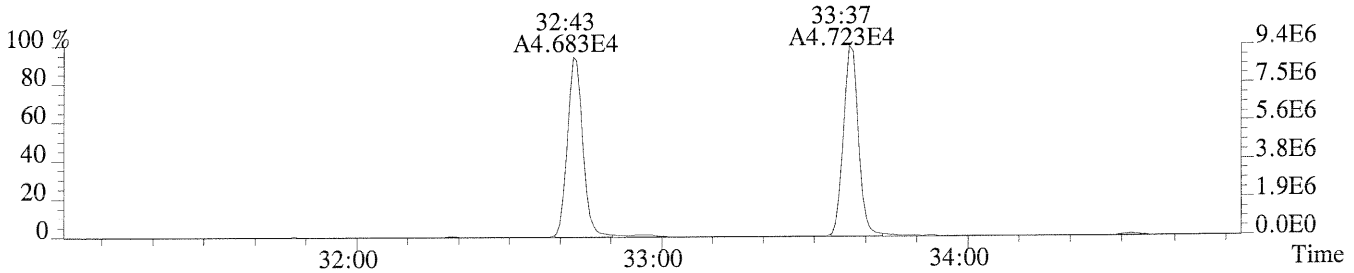
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



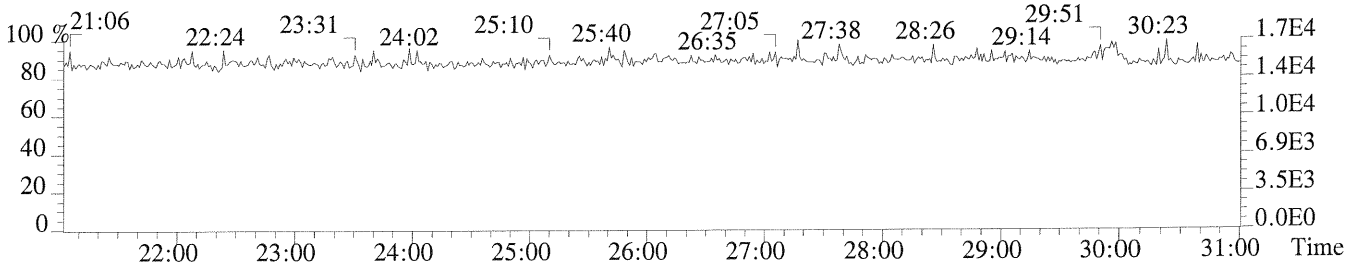
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



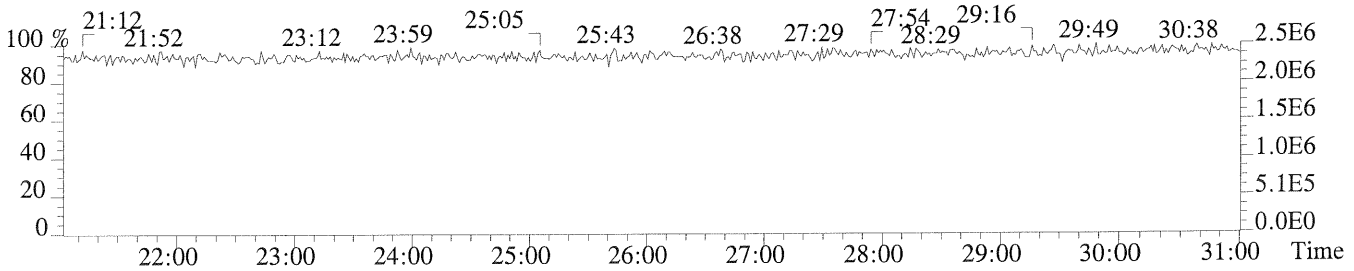
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

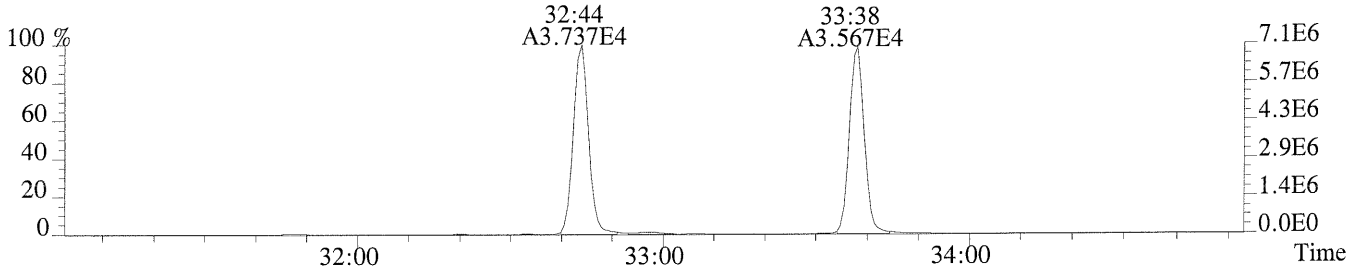


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

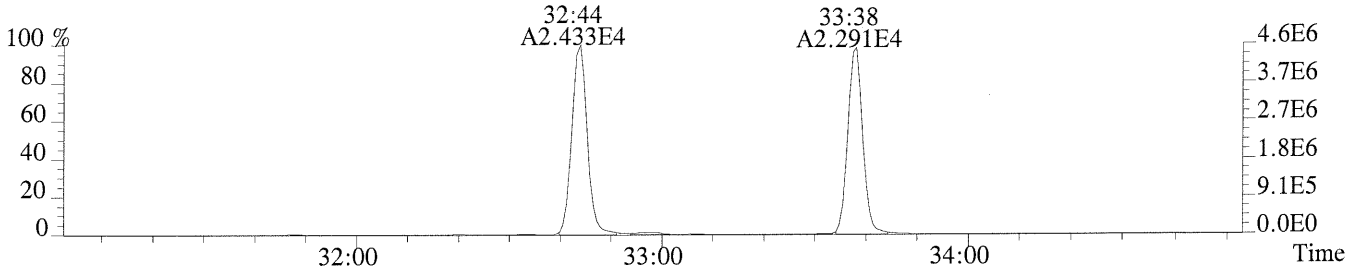


File:U149813 #1-349 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

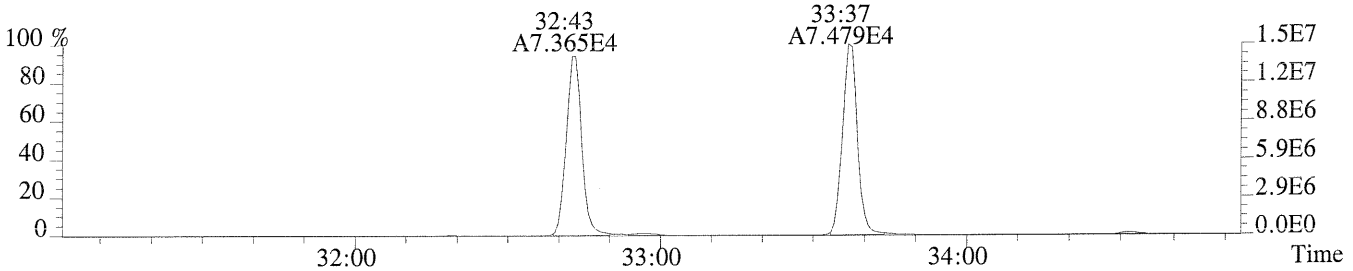
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



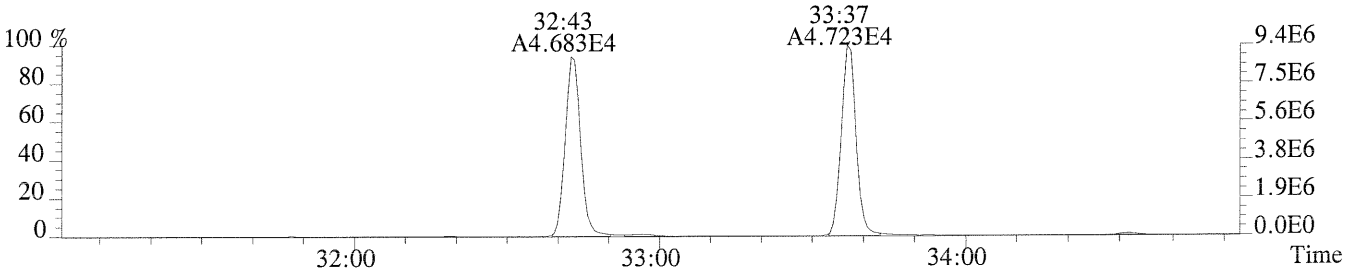
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



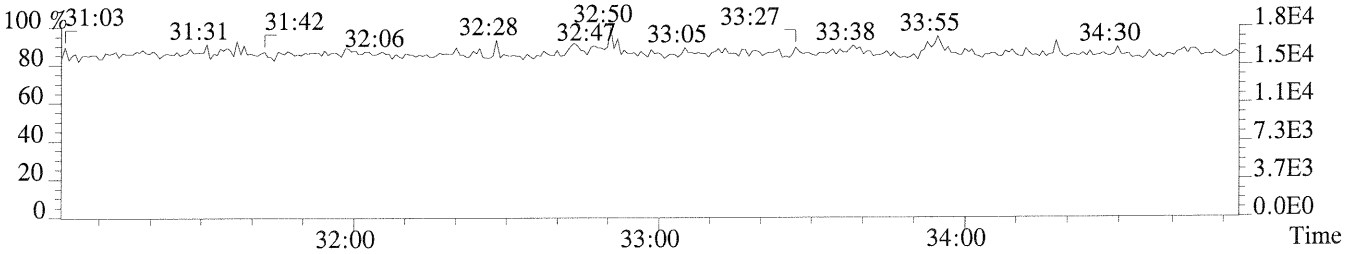
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



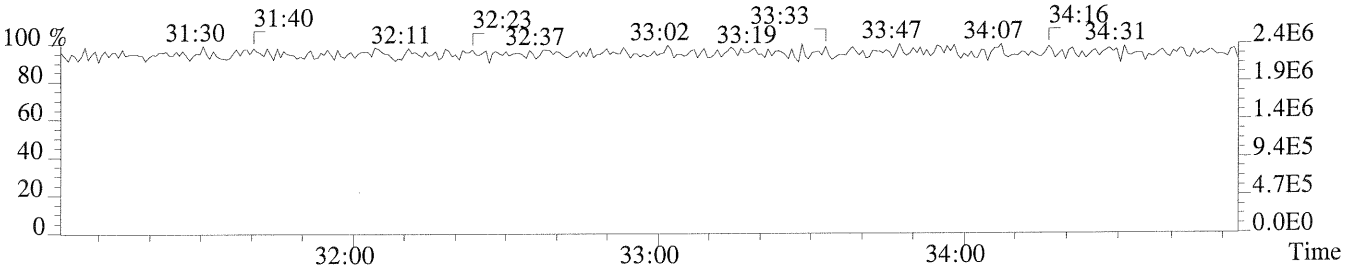
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

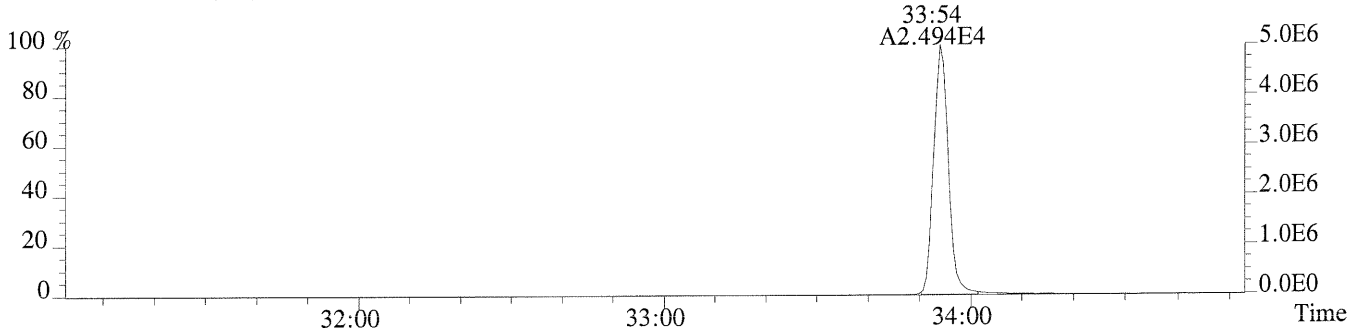


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

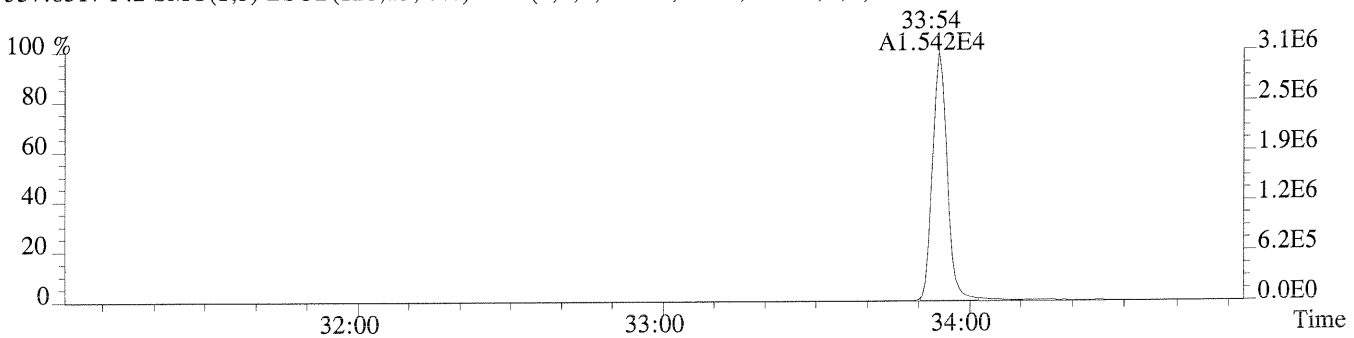


File:U149813 #1-349 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

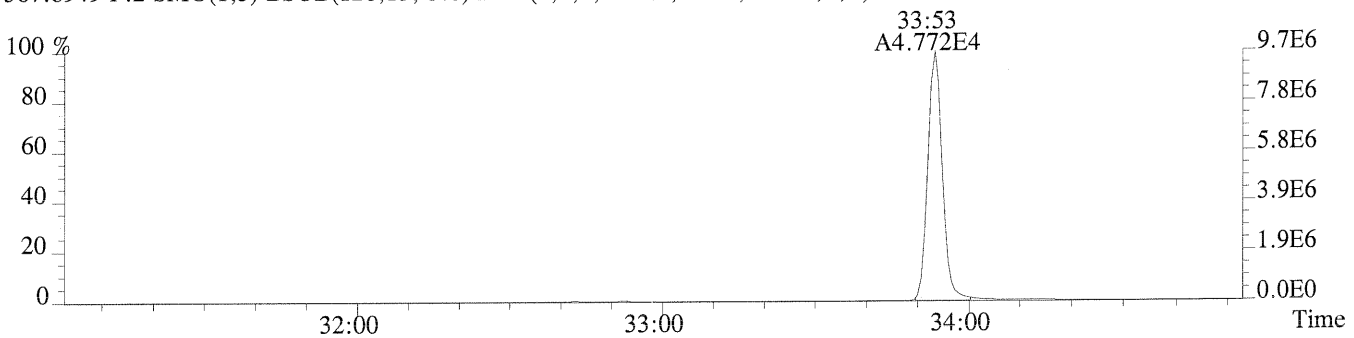
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



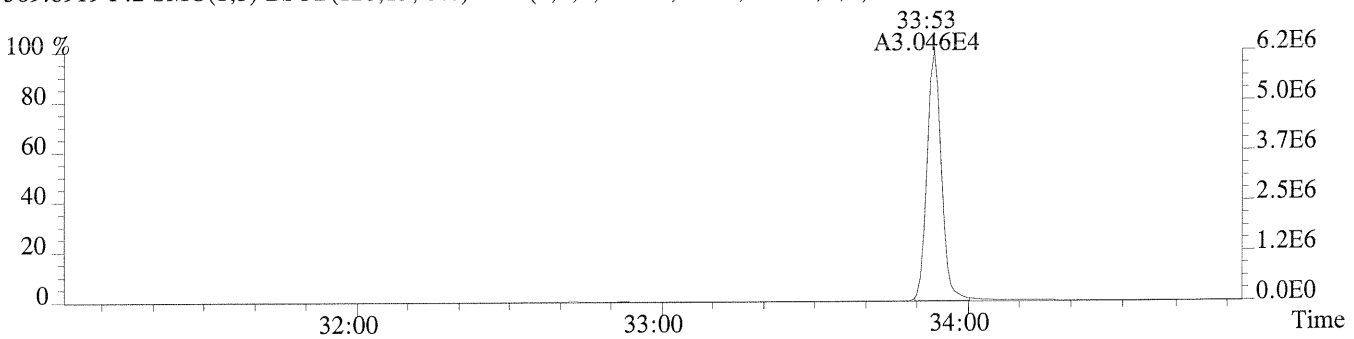
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



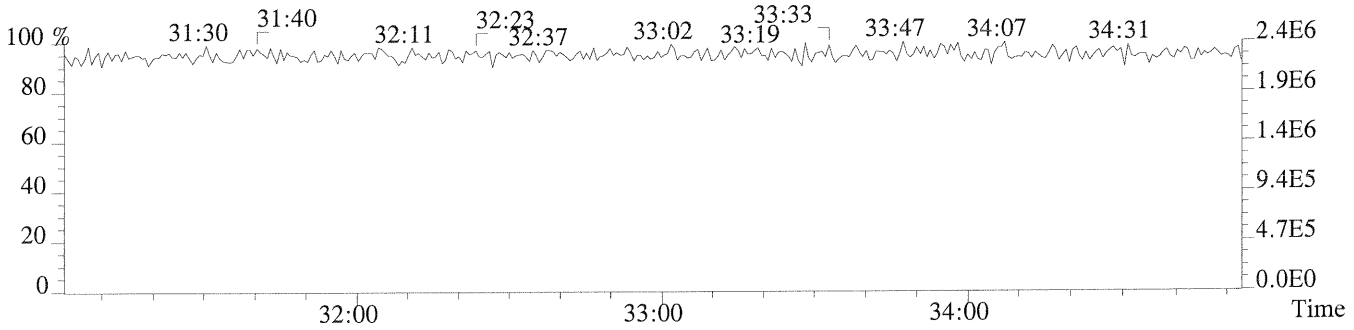
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)

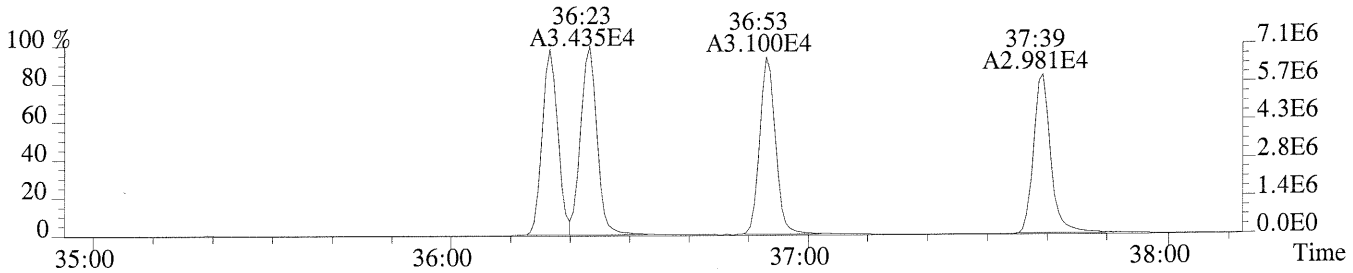


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

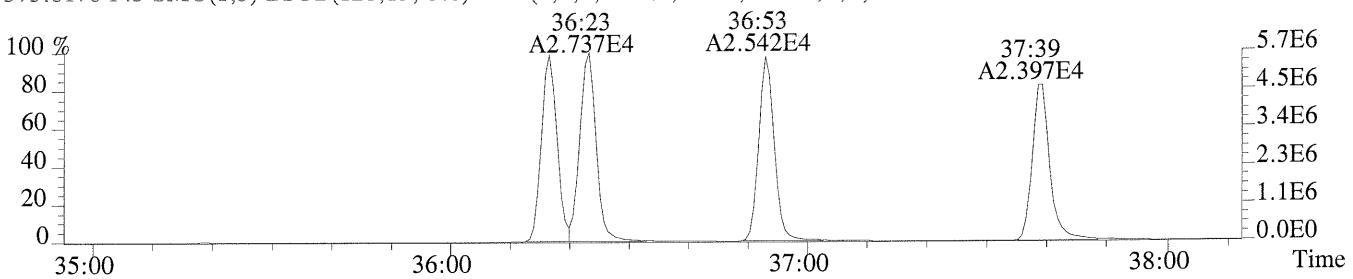


File:U149813 #1-299 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

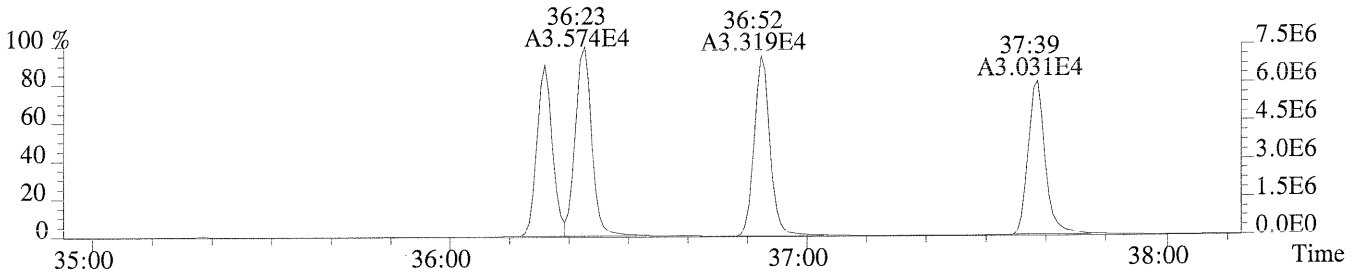
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



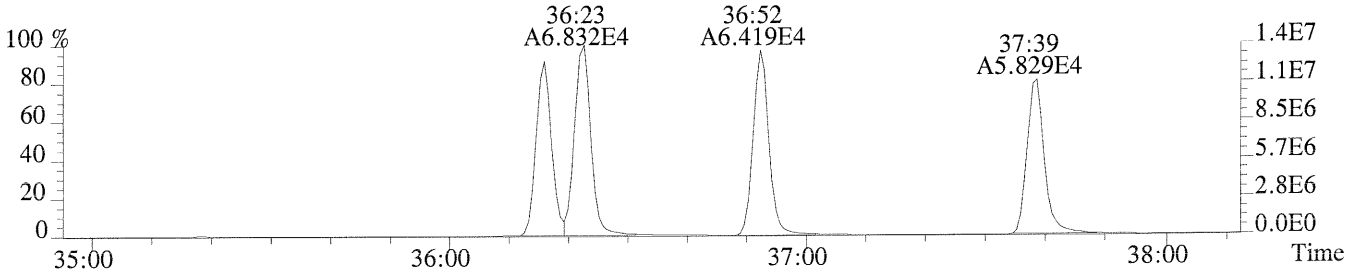
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



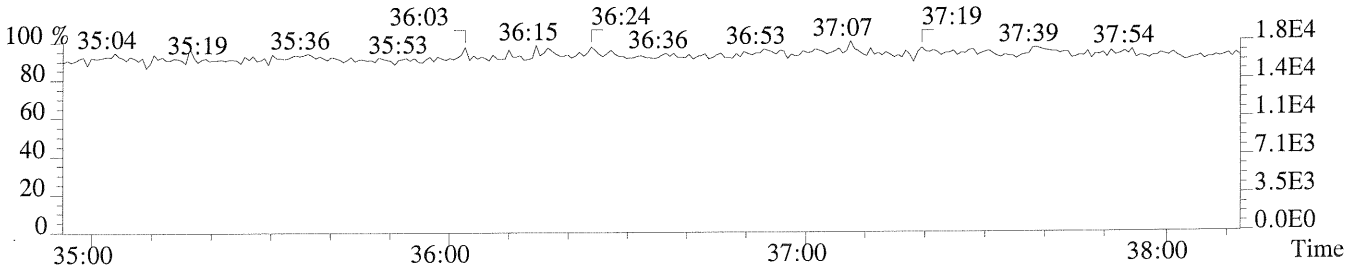
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



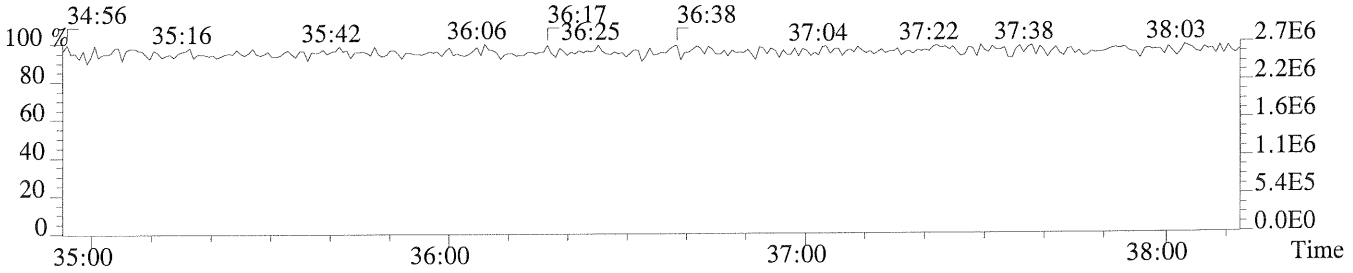
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



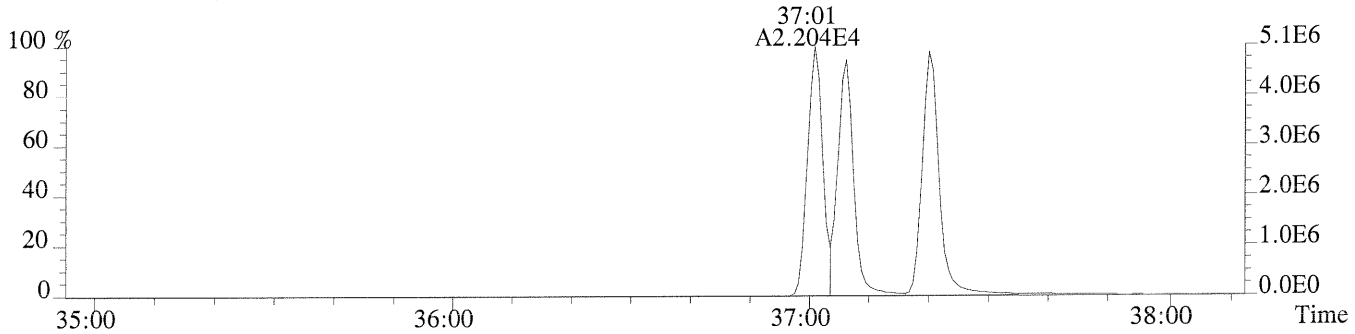
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



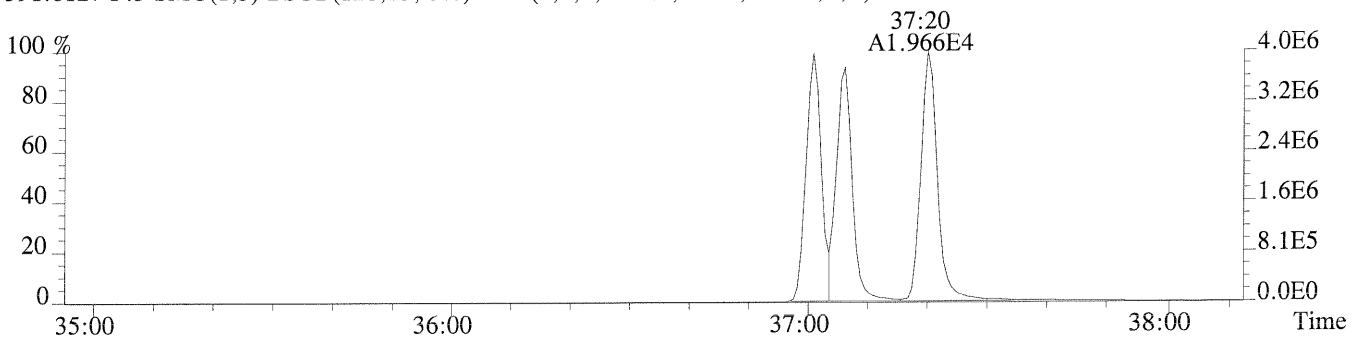
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



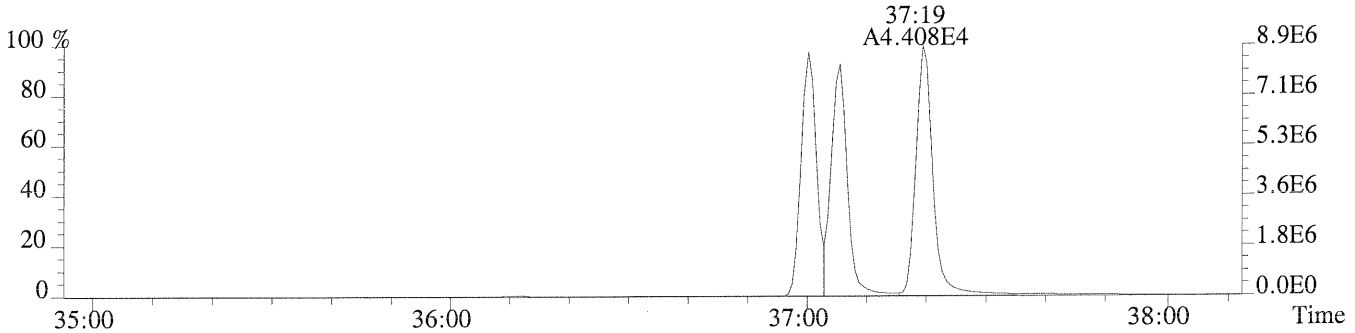
File:U149813 #1-299 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



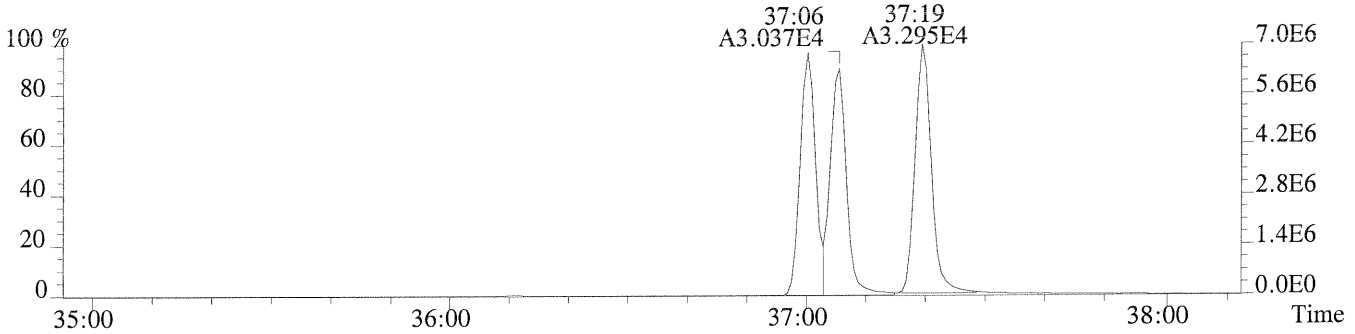
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



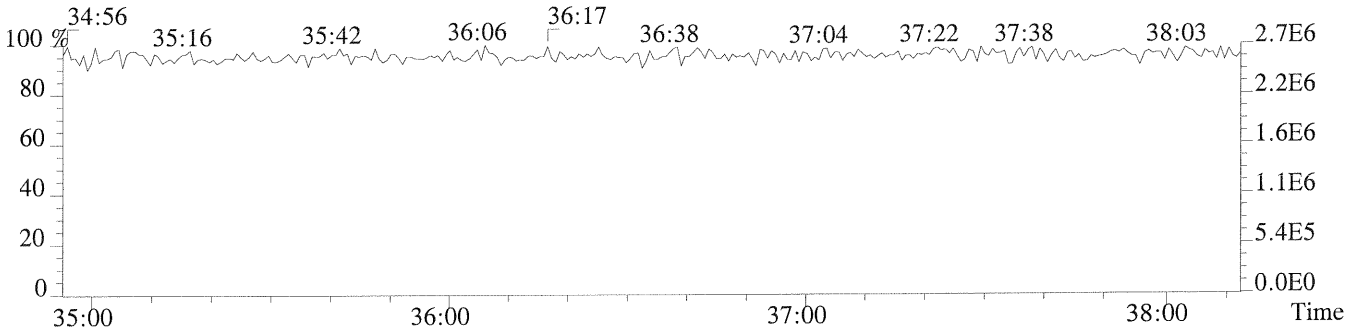
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)

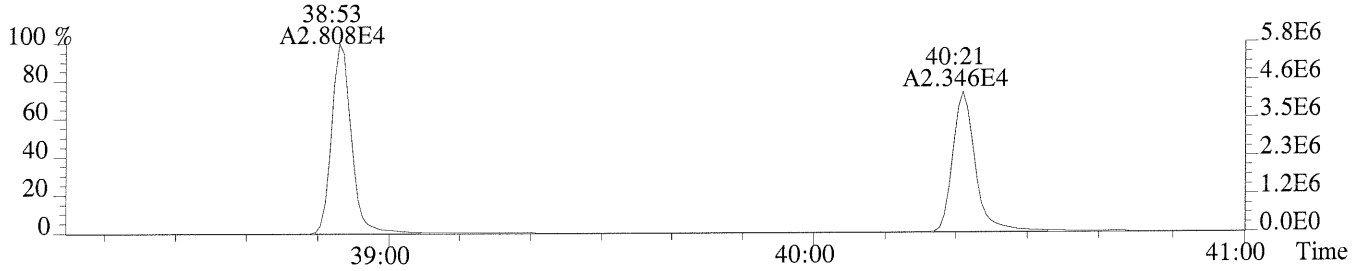


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

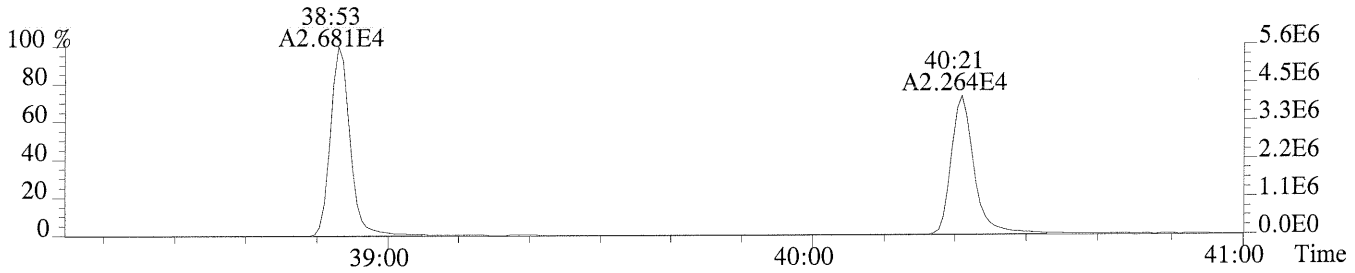


File:U149813 #1-251 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

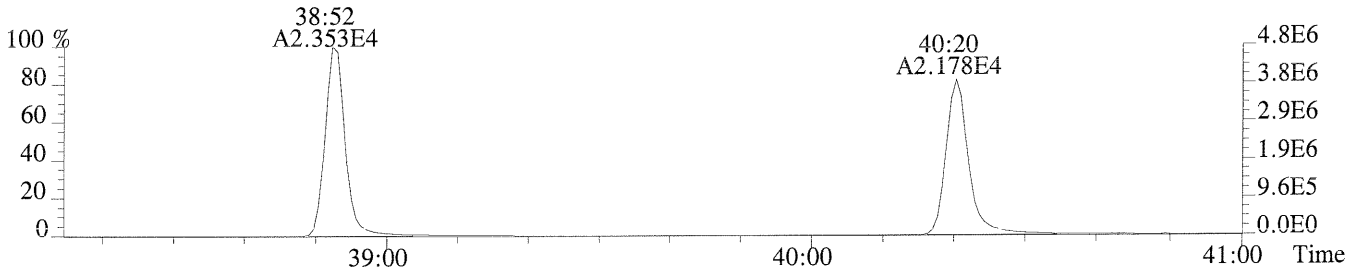
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2528.0,0.50%,F,T)



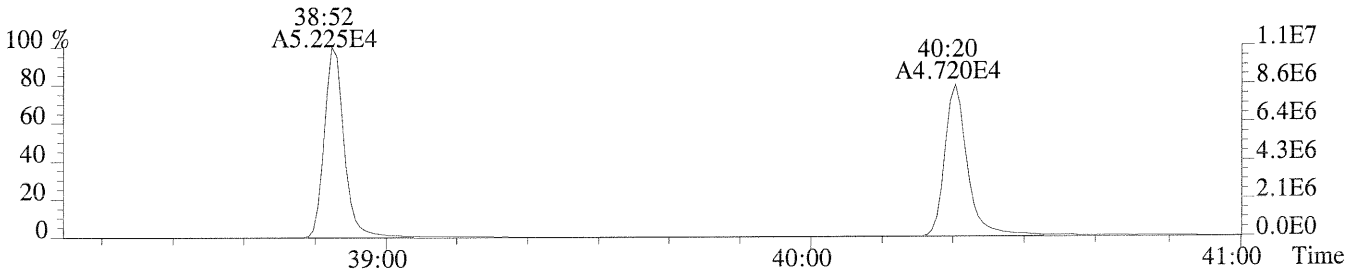
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.50%,F,T)



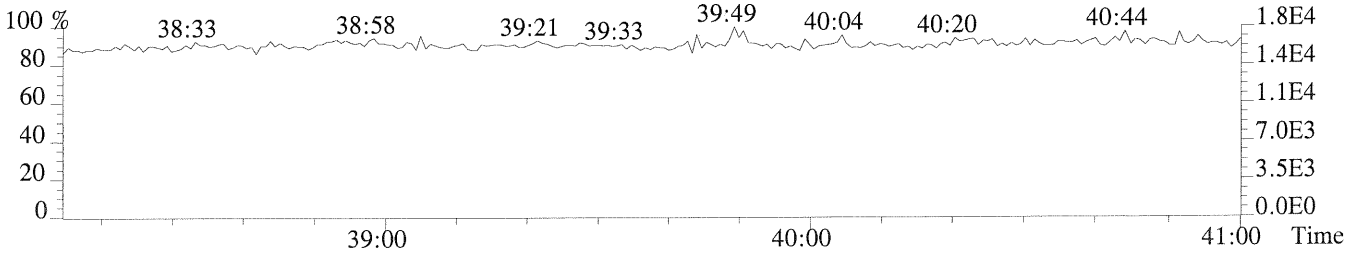
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2308.0,0.50%,F,T)



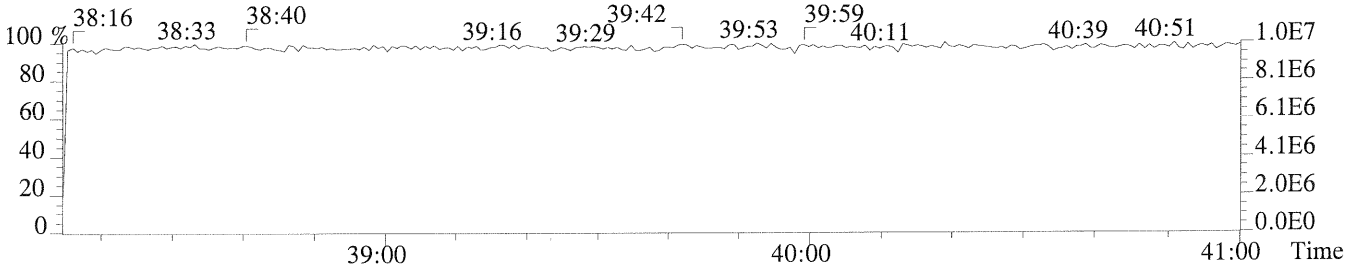
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3128.0,0.50%,F,T)



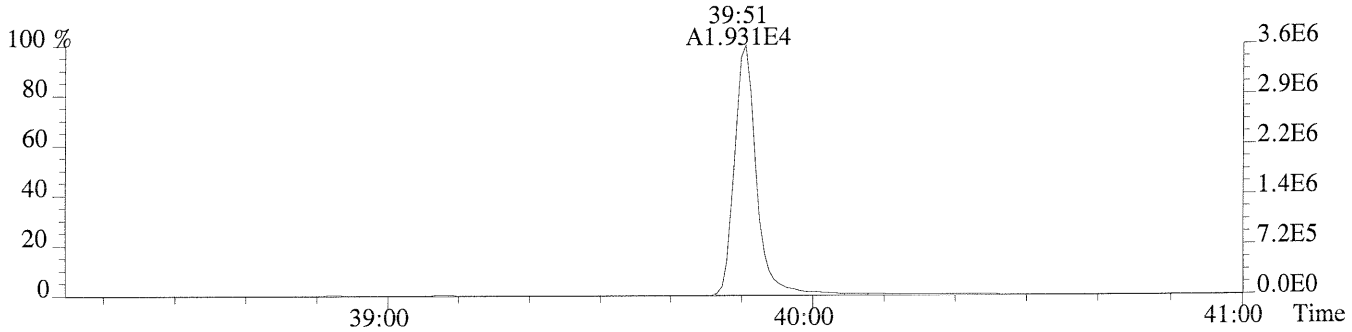
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



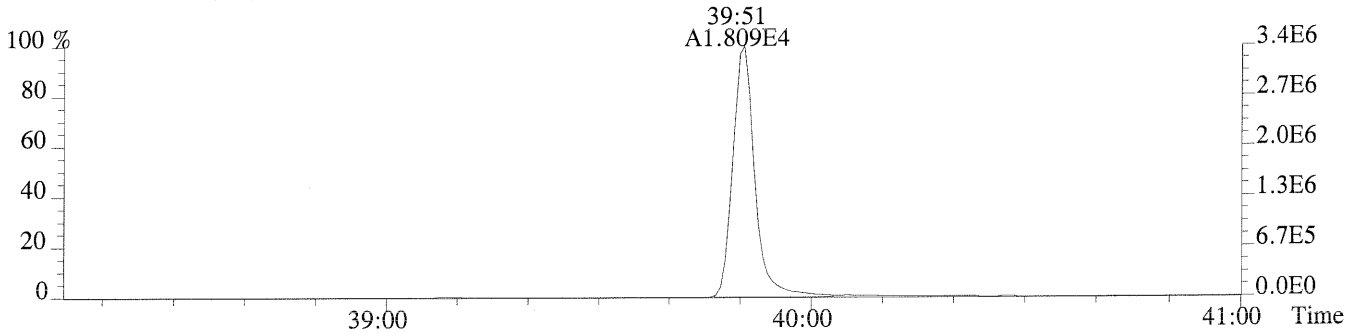
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



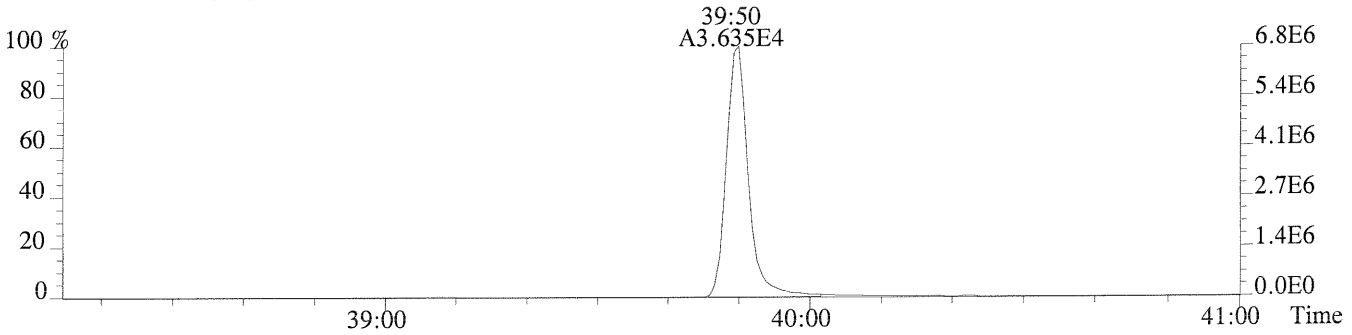
File:U149813 #1-251 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,916.0,0.40%,F,T)



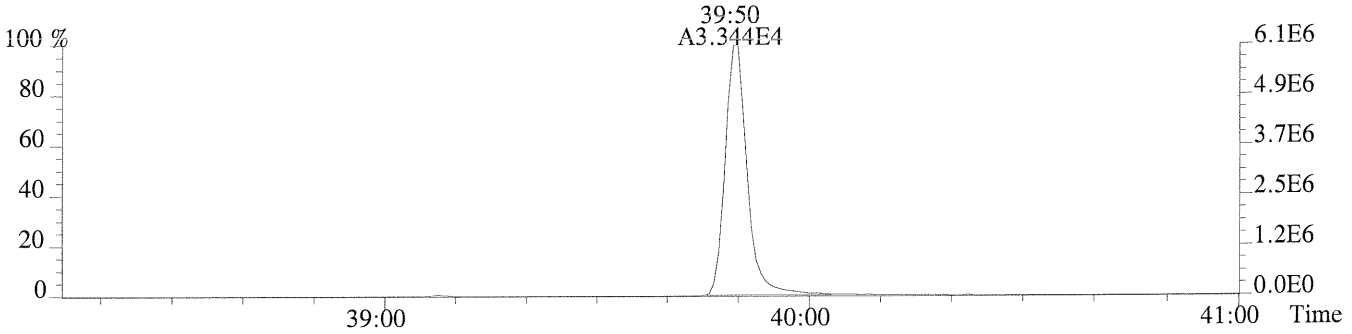
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



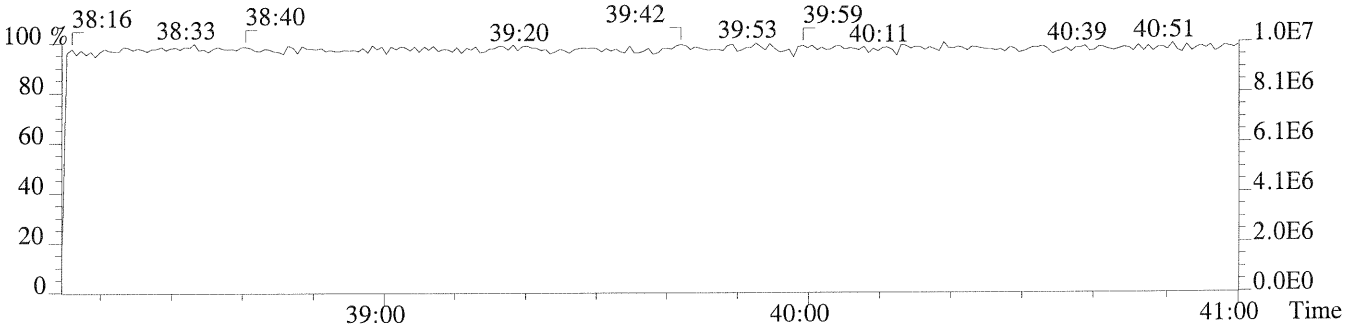
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



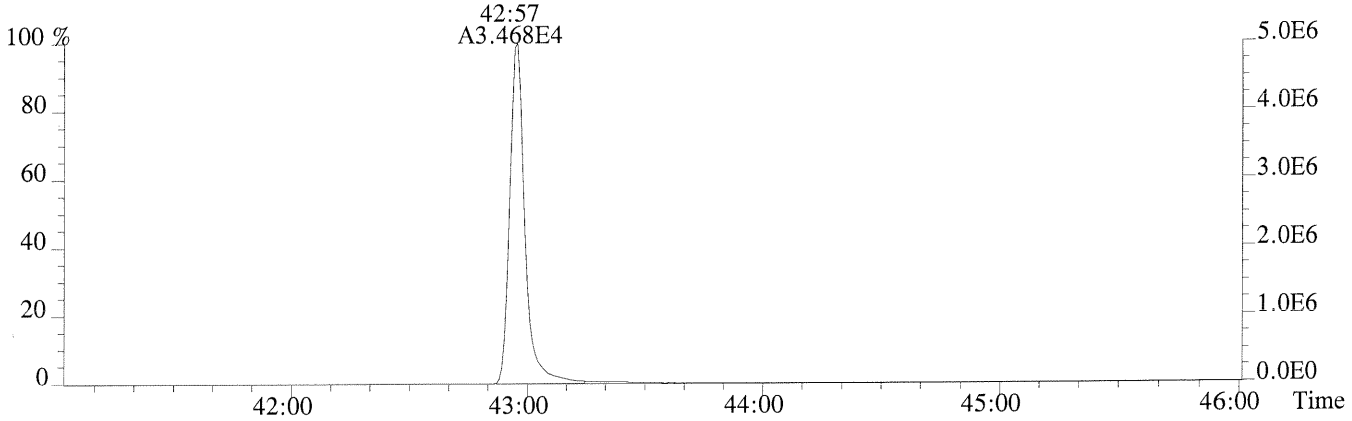
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



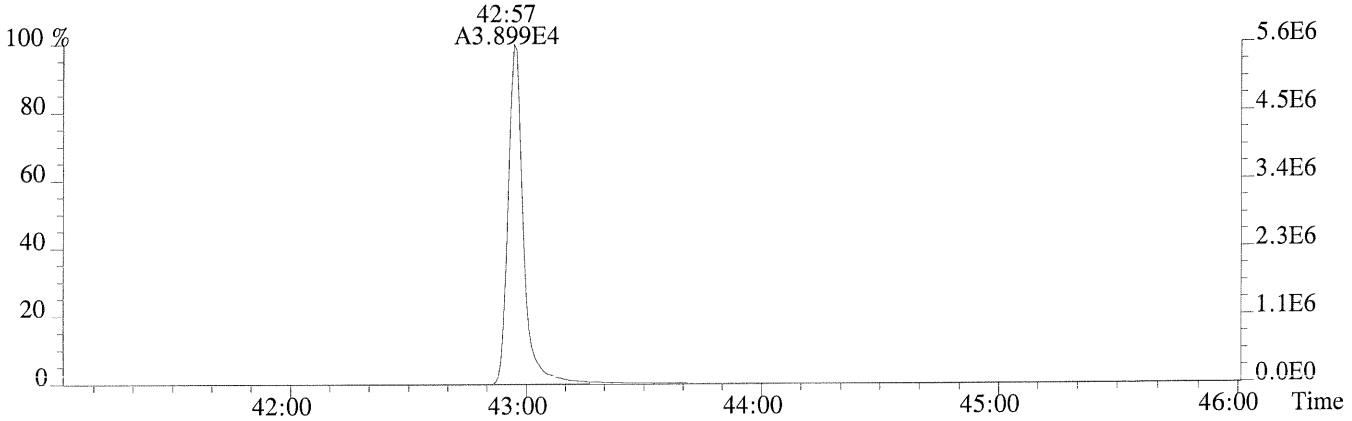
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



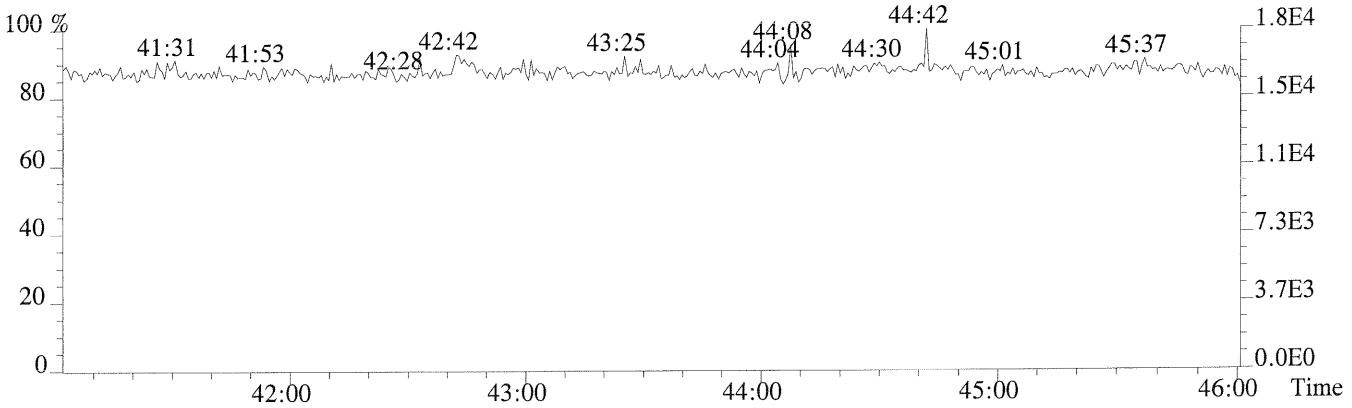
File:U149813 #1-452 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



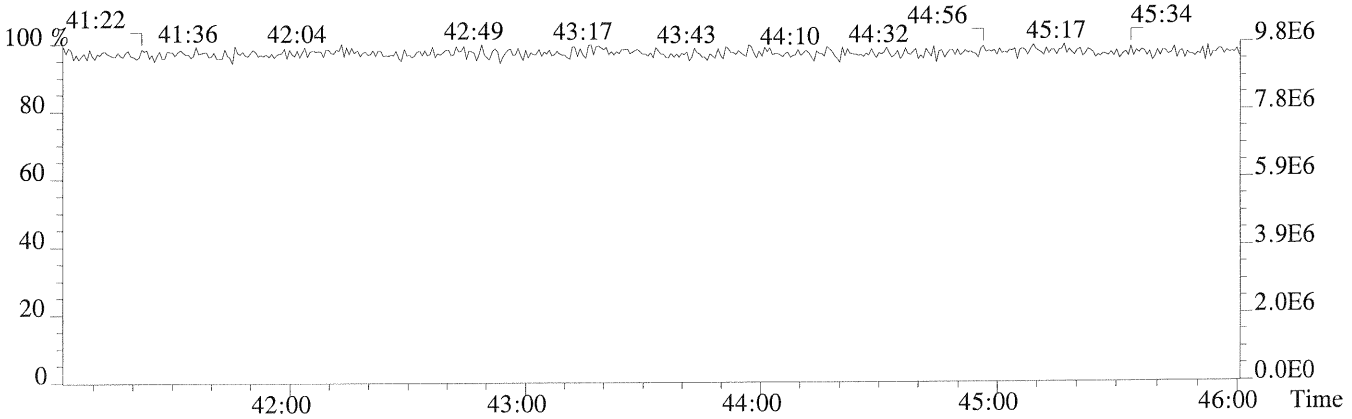
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



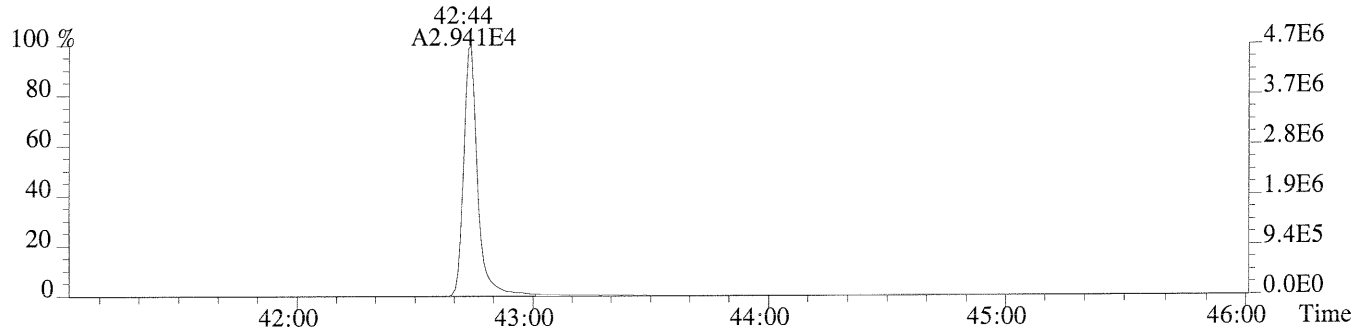
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



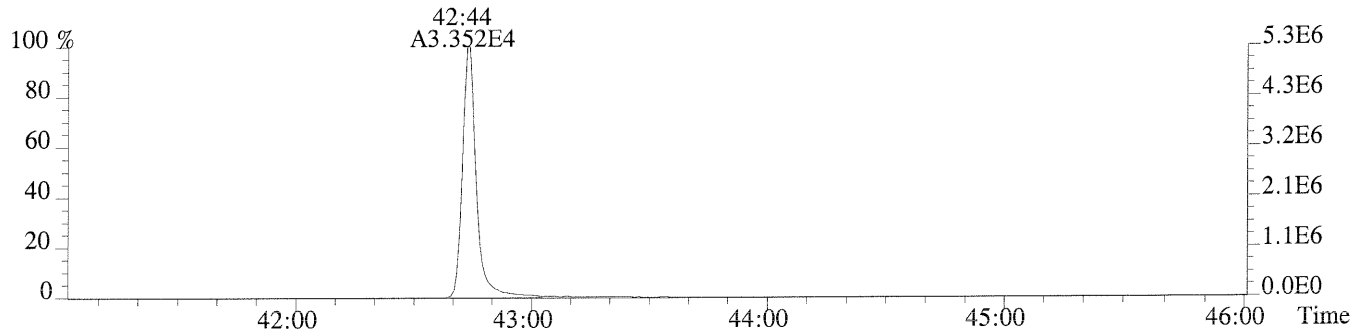
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



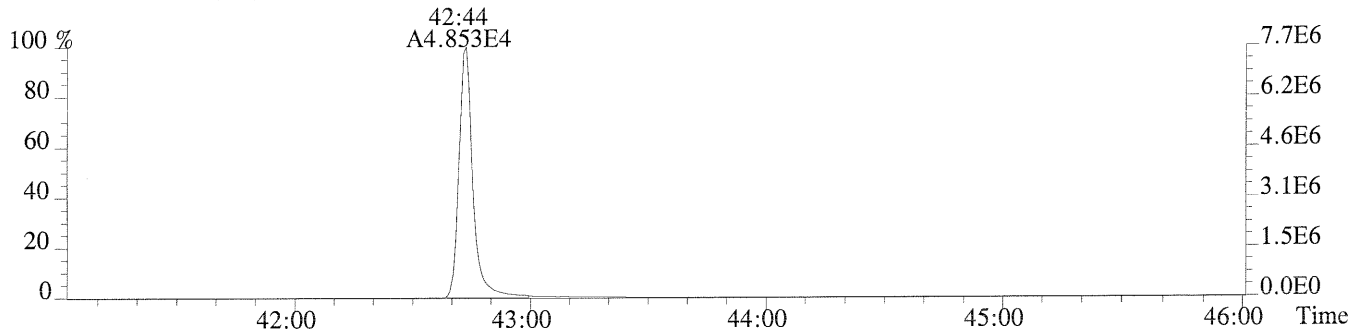
File:U149813 #1-452 Acq: 2-JUL-2014 04:09:06 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,492.0,0.40%,F,T)



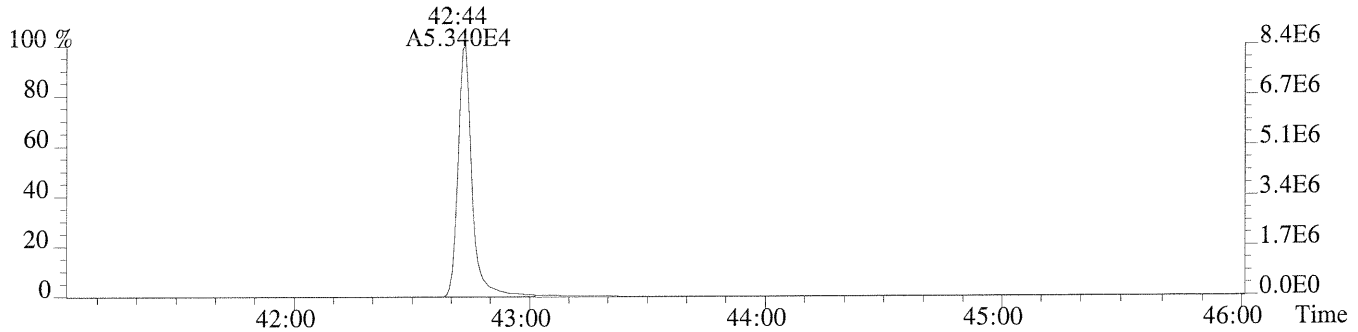
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,640.0,0.40%,F,T)



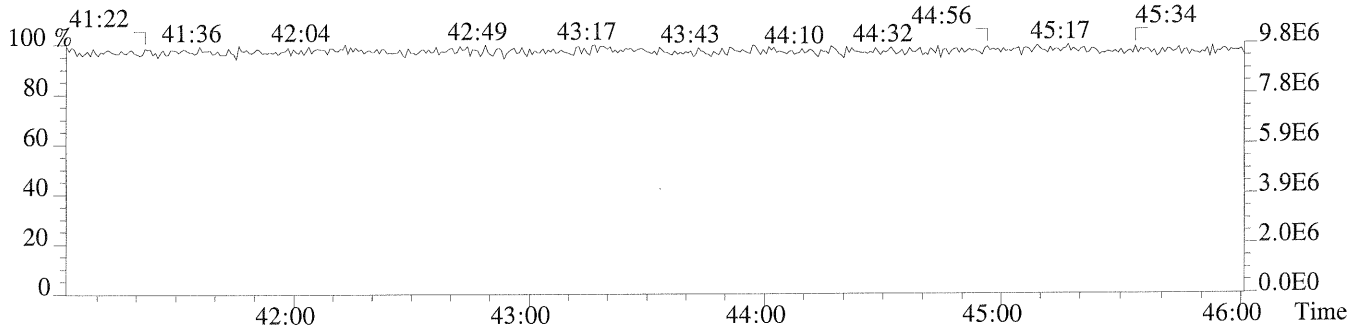
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,708.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 | GC Column ID: DB-5MSUI

VER Data Filename: U149821 | Analysis Date: 2-JUL-14 Time: 15:02:27

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.7	7.8 - 12.9	-3.4
1,2,3,7,8-PeCDD	M+2/M+4	1.65	1.32-1.78	51	39 - 65	1.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	52	39 - 64	4.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	53	39 - 64	6.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	53	41 - 61	6.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.1
OCDD	M+2/M+4	0.90	0.76-1.02	104	79 - 126	4.1
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.6	8.4 - 12.0	5.6
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	53	41 - 60	6.0
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	52	41 - 61	4.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	52	44 - 57	3.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	52	45 - 56	4.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	44 - 57	4.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	51	45 - 55	1.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	49	43 - 58	-1.5
OCDF	M+2/M+4	0.90	0.76-1.02	107	63 - 159	7.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 GC Column ID: DB-5MSUI

VER Data Filename: U149821 Analysis Date: 2-JUL-14 Time: 15:02:27

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	96	82 - 121	-4.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	100	62 - 160	0.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	98	85 - 117	-2.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	99	85 - 118	-1.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	100	72 - 138	-0.4
13C-OCDD	M+2/M+4	0.90	0.76-1.02	178	96 - 415	-11.0
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	101	71 - 140	0.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	101	76 - 130	0.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	103	77 - 130	3.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	97	76 - 131	-2.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	70 - 143	0.3
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	101	74 - 135	0.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	103	73 - 137	3.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	102	78 - 129	2.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	101	77 - 129	0.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-1.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #14 Filename U149821 Samp: 1 Inj: 1 Acquired: 2-JUL-14 15:02:27
Processed: 3-JUL-14 11:00:34 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:36	3.779e+03	4.909e+03	0.77	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:43	3.677e+04	2.366e+04	1.55	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:38	3.459e+04	2.220e+04	1.56	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.084e+04	2.490e+04	1.24	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.403e+04	2.732e+04	1.25	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.197e+04	2.598e+04	1.23	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	2.962e+04	2.356e+04	1.26	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	2.813e+04	2.671e+04	1.05	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:21	2.324e+04	2.245e+04	1.04	yes	no	1.358
10	Unk	OCDF	42:58	3.448e+04	3.846e+04	0.90	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:21	2.615e+03	3.342e+03	0.78	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:53	2.429e+04	1.472e+04	1.65	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.139e+04	1.722e+04	1.24	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	2.358e+04	1.870e+04	1.26	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	2.512e+04	1.929e+04	1.30	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:51	1.947e+04	1.865e+04	1.04	yes	no	1.065
17	Unk	OCDD	42:44	2.924e+04	3.254e+04	0.90	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:35	3.890e+04	4.824e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:42	7.142e+04	4.533e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:36	7.129e+04	4.481e+04	1.59	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.970e+04	5.772e+04	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.544e+04	6.777e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	3.375e+04	6.437e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	3.013e+04	5.809e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	2.376e+04	5.201e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.125e+04	4.706e+04	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:20	2.649e+04	3.439e+04	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	4.559e+04	2.914e+04	1.56	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.680e+04	2.872e+04	1.28	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	4.052e+04	3.168e+04	1.28	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	3.736e+04	3.432e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:44	4.788e+04	5.298e+04	0.90	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:46	2.641e+04	3.381e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	4.331e+04	3.353e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:21	6.190e+03				no	1.044

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #14 Filename U149821 Samp: 1 Inj: 1 Acquired: 2-JUL-14 15:02:27
Processed: 3-JUL-14 11:00:341 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.78e+05	5.40e+02	1.4e+03	1.00e+06	6.16e+02	1.6e+03
2	1,2,3,7,8-PeCDF	6.89e+06	8.52e+02	8.1e+03	4.39e+06	1.17e+03	3.7e+03
3	2,3,4,7,8-PeCDF	6.74e+06	8.52e+02	7.9e+03	4.29e+06	1.17e+03	3.7e+03
4	1,2,3,4,7,8-HxCDF	6.70e+06	5.92e+02	1.1e+04	5.49e+06	6.88e+02	8.0e+03
5	1,2,3,6,7,8-HxCDF	6.85e+06	5.92e+02	1.2e+04	5.57e+06	6.88e+02	8.1e+03
6	2,3,4,6,7,8-HxCDF	6.53e+06	5.92e+02	1.1e+04	5.34e+06	6.88e+02	7.8e+03
7	1,2,3,7,8,9-HxCDF	5.83e+06	5.92e+02	9.8e+03	4.71e+06	6.88e+02	6.8e+03
8	1,2,3,4,6,7,8-HpCDF	5.77e+06	2.33e+03	2.5e+03	5.45e+06	9.00e+02	6.1e+03
9	1,2,3,4,7,8,9-HpCDF	4.07e+06	2.33e+03	1.7e+03	3.87e+06	9.00e+02	4.3e+03
10	OCDF	4.85e+06	6.60e+02	7.4e+03	5.53e+06	6.44e+02	8.6e+03
11	2,3,7,8-TCDD	5.45e+05	5.64e+02	9.7e+02	6.89e+05	5.84e+02	1.2e+03
12	1,2,3,7,8-PeCDD	4.75e+06	7.76e+02	6.1e+03	2.89e+06	6.72e+02	4.3e+03
13	1,2,3,4,7,8-HxCDD	4.72e+06	6.52e+02	7.2e+03	3.83e+06	6.16e+02	6.2e+03
14	1,2,3,6,7,8-HxCDD	4.63e+06	6.52e+02	7.1e+03	3.71e+06	6.16e+02	6.0e+03
15	1,2,3,7,8,9-HxCDD	4.85e+06	6.52e+02	7.4e+03	3.69e+06	6.16e+02	6.0e+03
16	1,2,3,4,6,7,8-HpCDD	3.48e+06	8.00e+02	4.4e+03	3.31e+06	6.64e+02	5.0e+03
17	OCDD	4.47e+06	4.60e+02	9.7e+03	4.94e+06	5.64e+02	8.8e+03
18	13C-2,3,7,8-TCDF	7.79e+06	6.96e+02	1.1e+04	9.63e+06	7.28e+02	1.3e+04
19	13C-1,2,3,7,8-PeCDF	1.32e+07	6.84e+02	1.9e+04	8.44e+06	3.88e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	1.38e+07	6.84e+02	2.0e+04	8.76e+06	3.88e+02	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	6.42e+06	8.80e+02	7.3e+03	1.25e+07	7.96e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	7.30e+06	8.80e+02	8.3e+03	1.38e+07	7.96e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	6.90e+06	8.80e+02	7.8e+03	1.33e+07	7.96e+02	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	5.90e+06	8.80e+02	6.7e+03	1.15e+07	7.96e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.83e+06	2.53e+03	1.9e+03	1.06e+07	2.60e+03	4.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.68e+06	2.53e+03	1.5e+03	8.13e+06	2.60e+03	3.1e+03
27	13C-2,3,7,8-TCDD	5.69e+06	1.28e+03	4.5e+03	7.35e+06	6.36e+02	1.2e+04
28	13C-1,2,3,7,8-PeCDD	9.07e+06	4.80e+02	1.9e+04	5.79e+06	7.16e+02	8.1e+03
29	13C-1,2,3,4,7,8-HxCDD	8.18e+06	6.96e+02	1.2e+04	6.41e+06	5.12e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	8.01e+06	6.96e+02	1.2e+04	6.30e+06	5.12e+02	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.72e+06	6.52e+02	1.0e+04	6.22e+06	6.60e+02	9.4e+03
32	13C-OCDD	7.22e+06	6.36e+02	1.1e+04	7.96e+06	7.60e+02	1.0e+04
33	13C-1,2,3,4-TCDD	5.58e+06	1.28e+03	4.4e+03	7.12e+06	6.36e+02	1.1e+04
34	13C-1,2,3,7,8,9-HxCDD	8.34e+06	6.96e+02	1.2e+04	6.43e+06	5.12e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	1.29e+06	5.20e+02	2.5e+03			

ALS ENVIRONMENTAL
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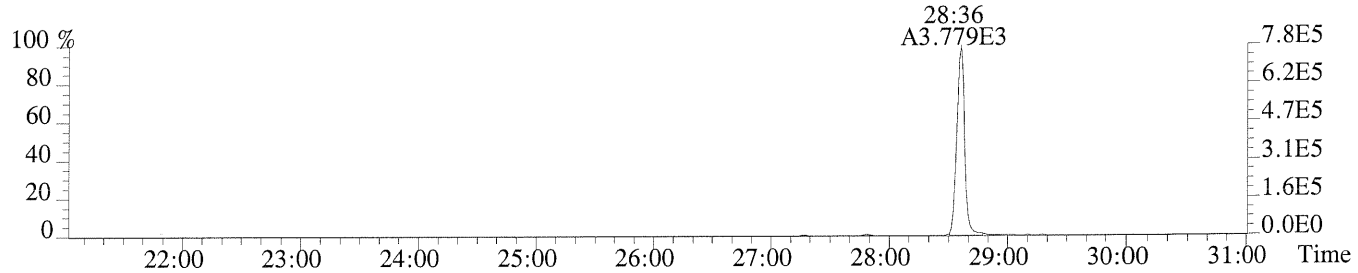
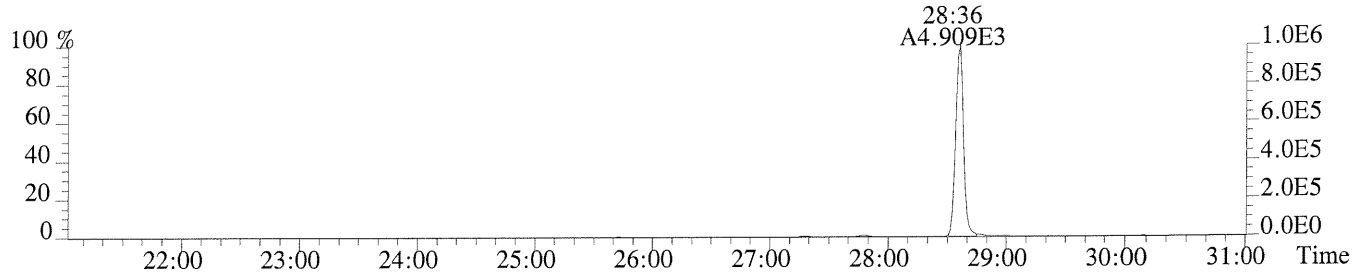
File:U149821 #1-627 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

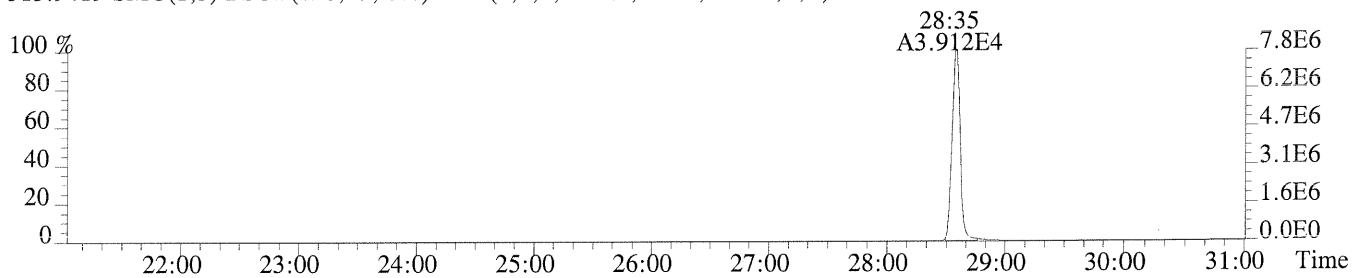
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



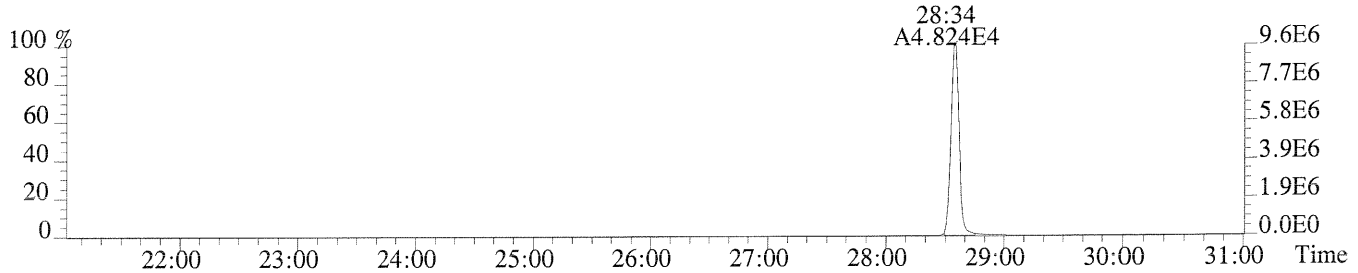
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



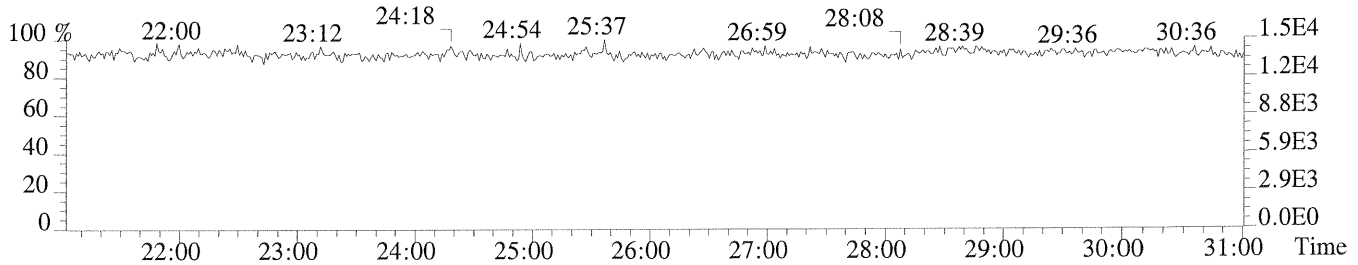
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



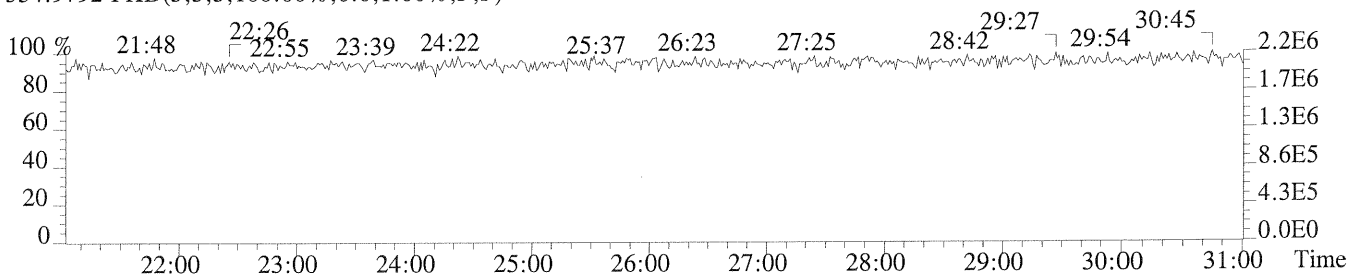
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



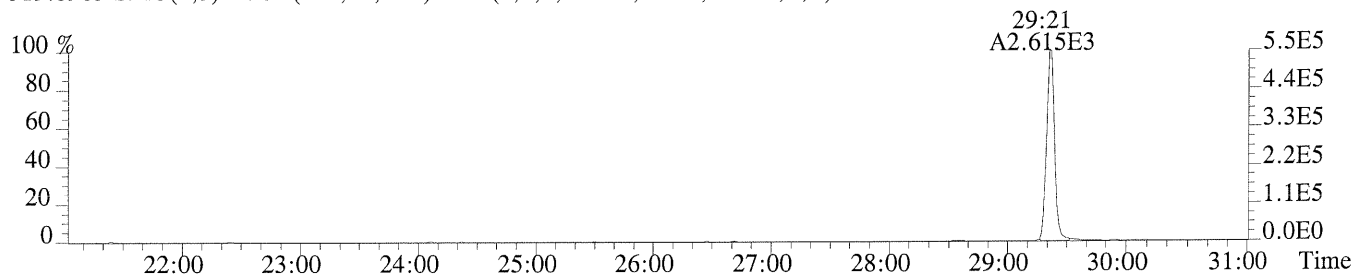
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



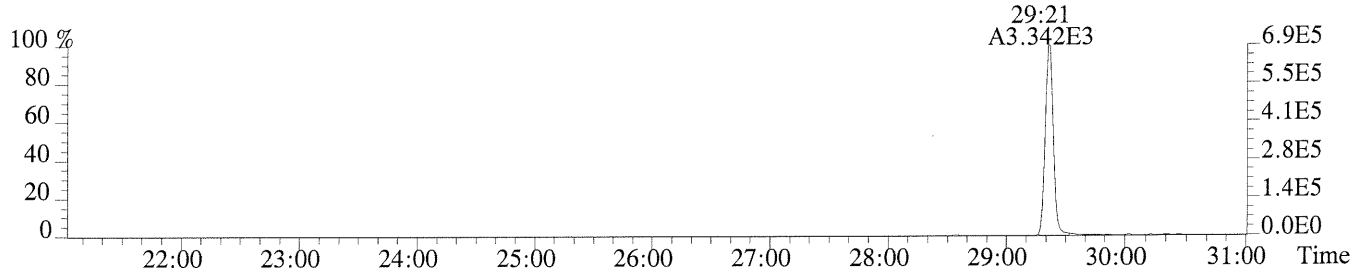
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



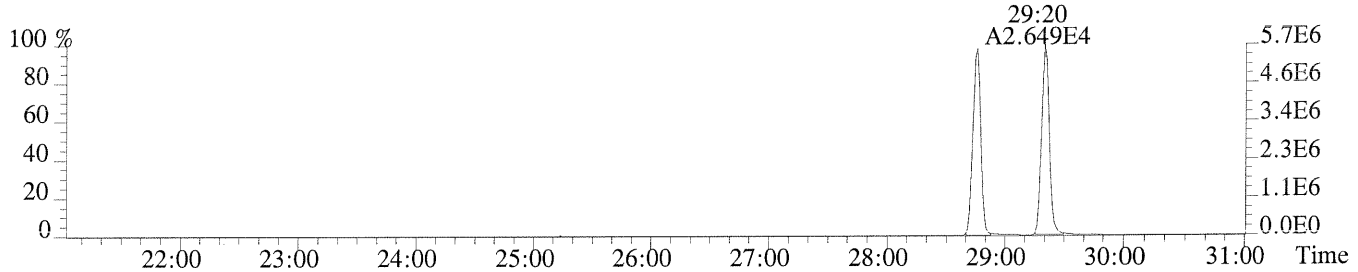
File:U149821 #1-627 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



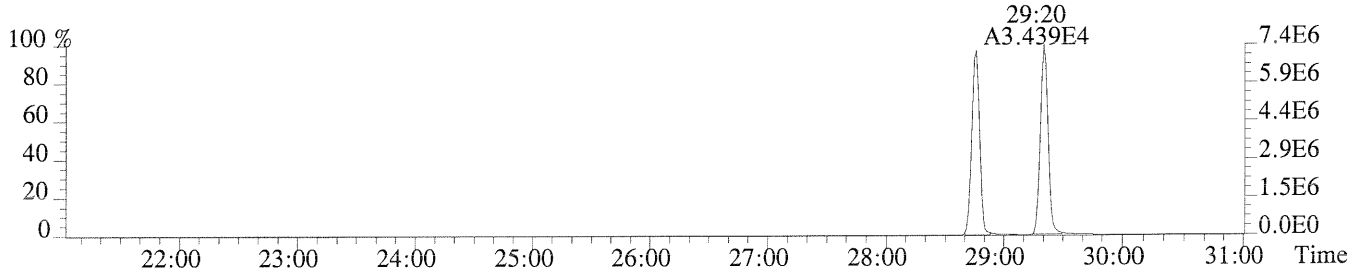
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



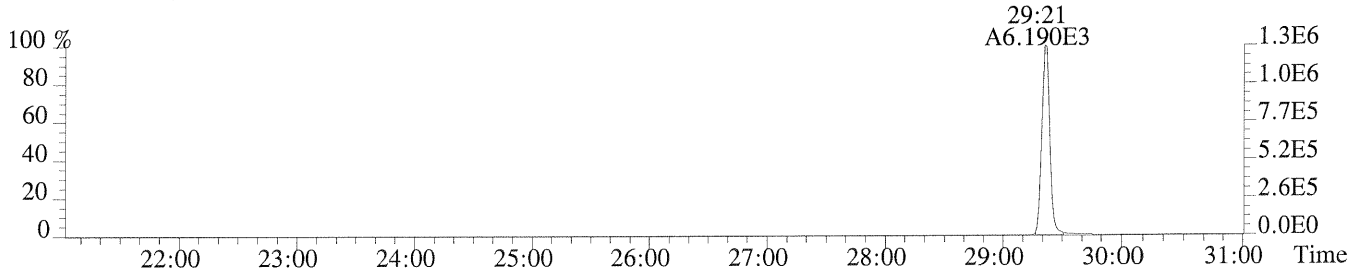
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



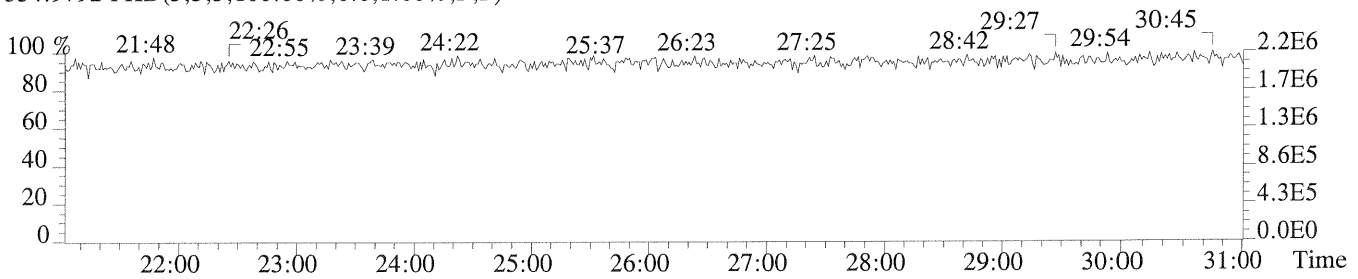
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)

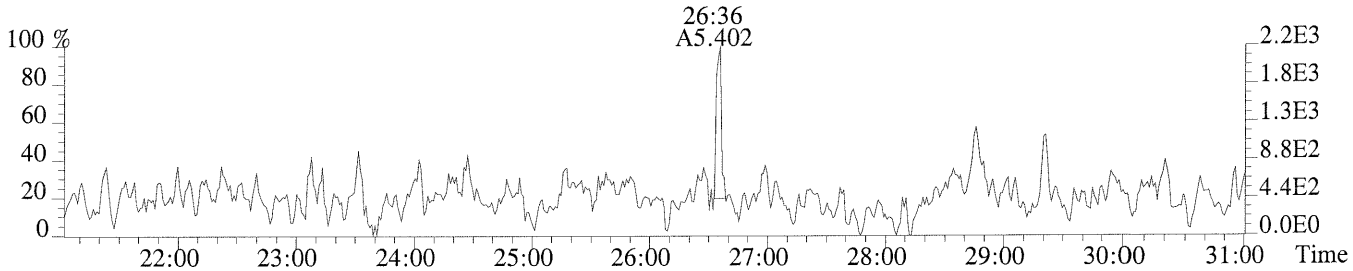


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

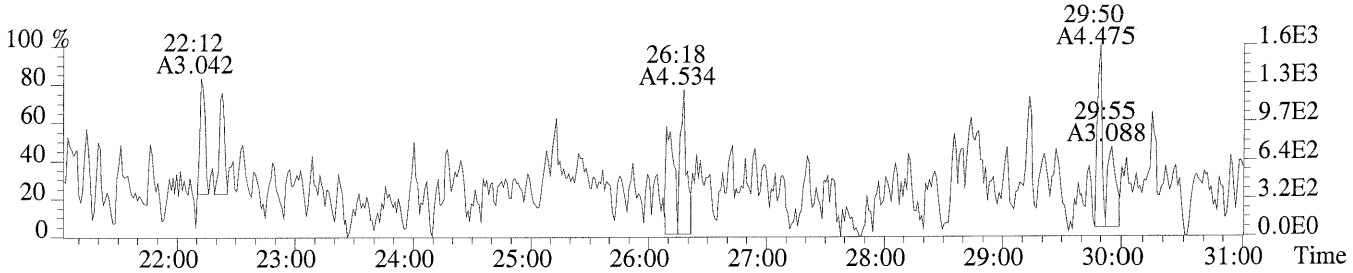


File:U149821 #1-627 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

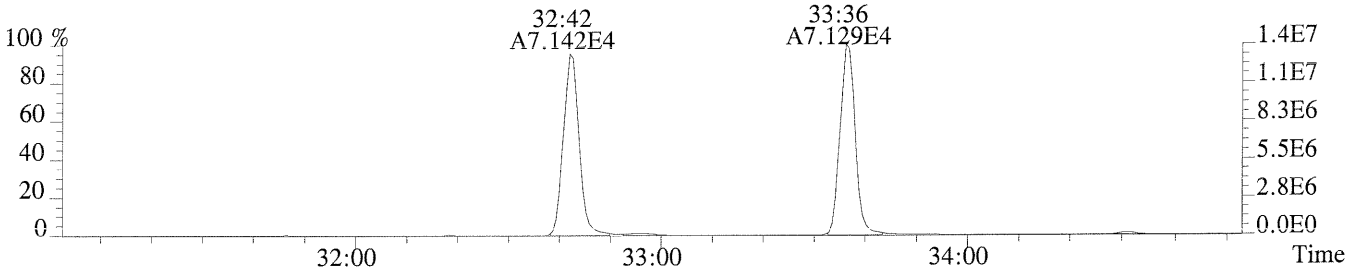
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



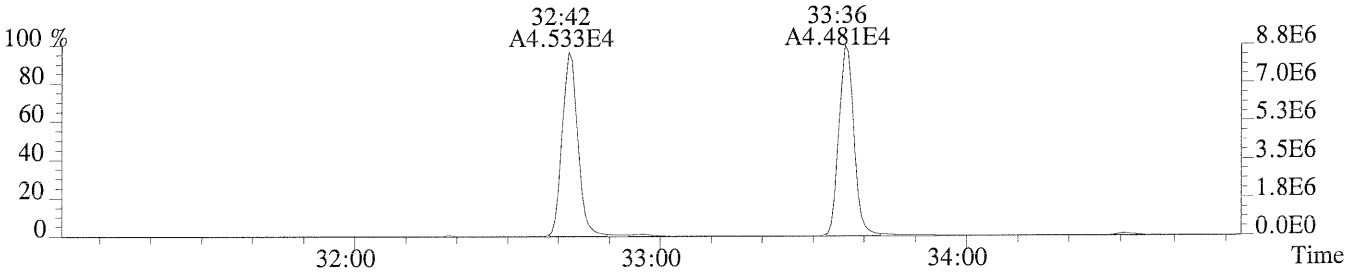
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



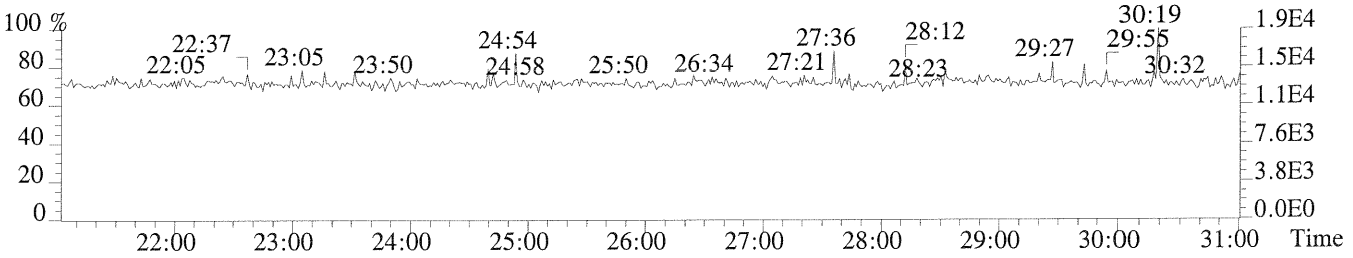
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



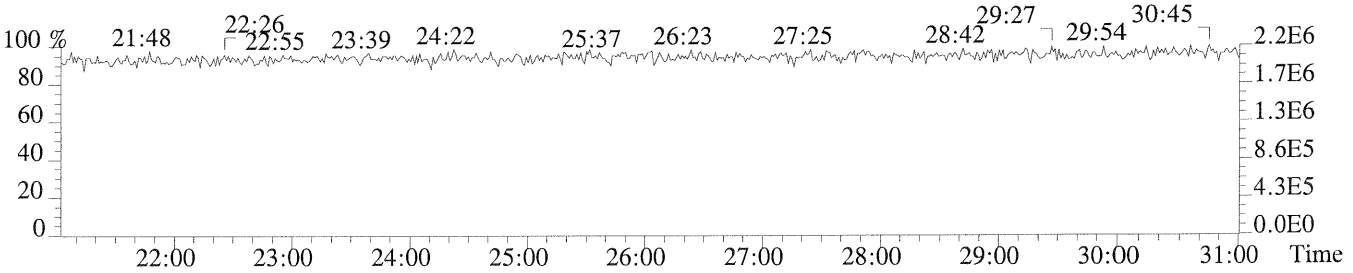
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

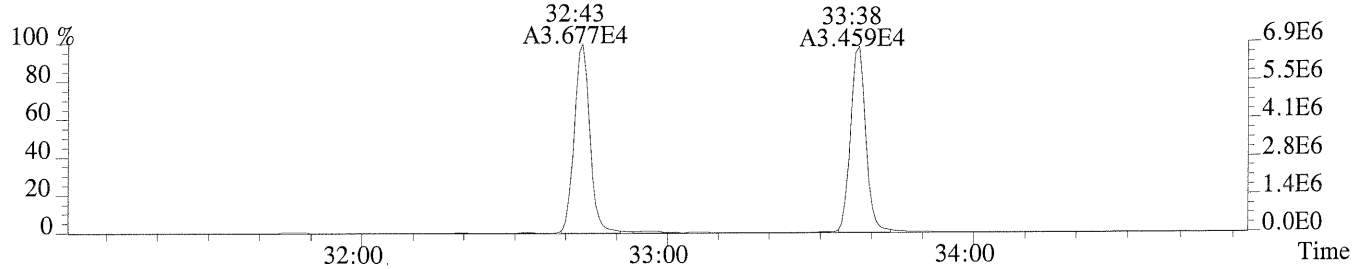


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

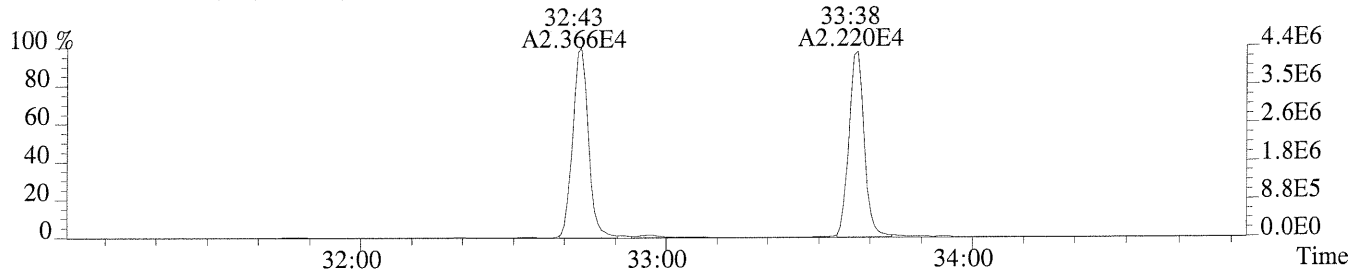


File:U149821 #1-349 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

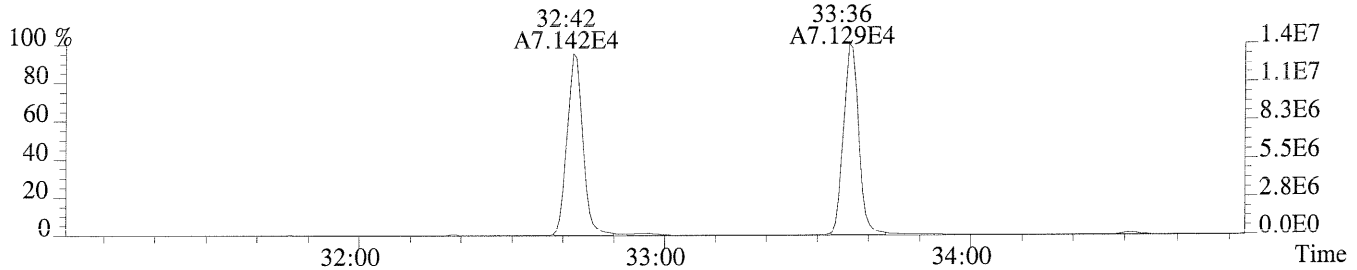
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



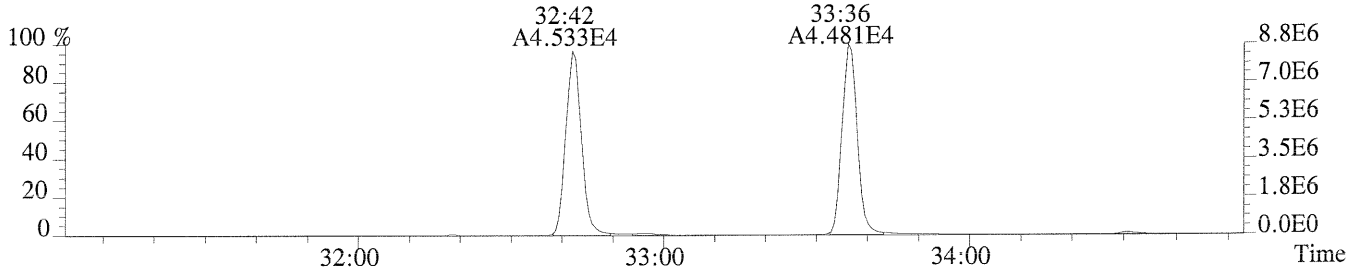
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



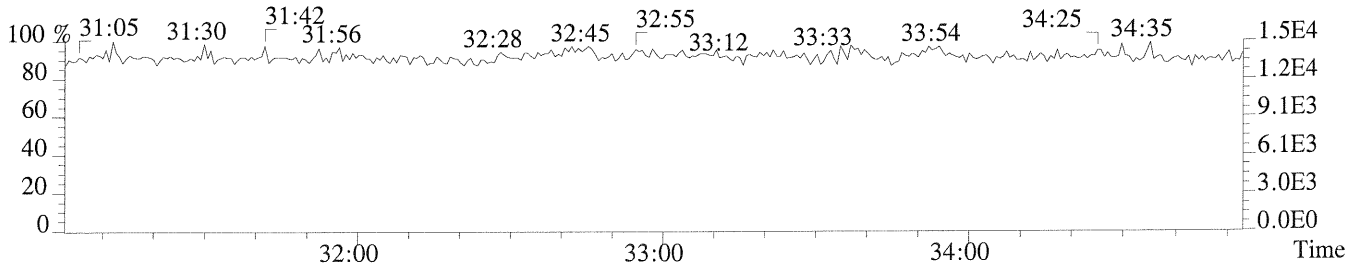
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



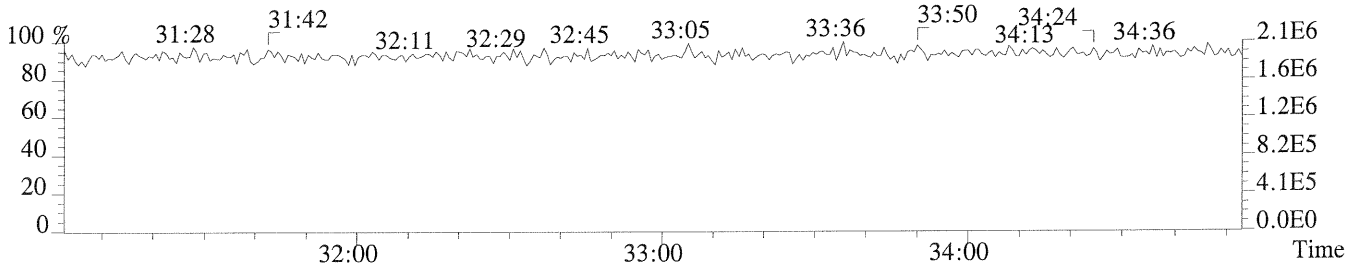
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



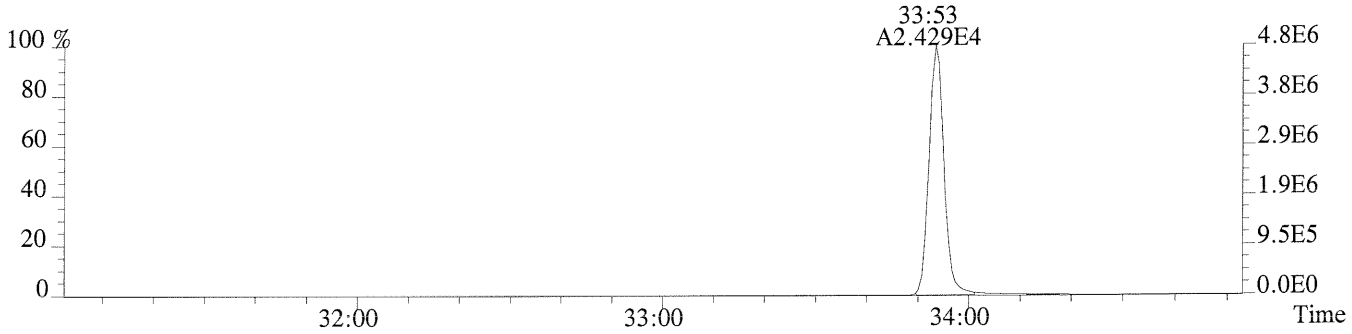
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



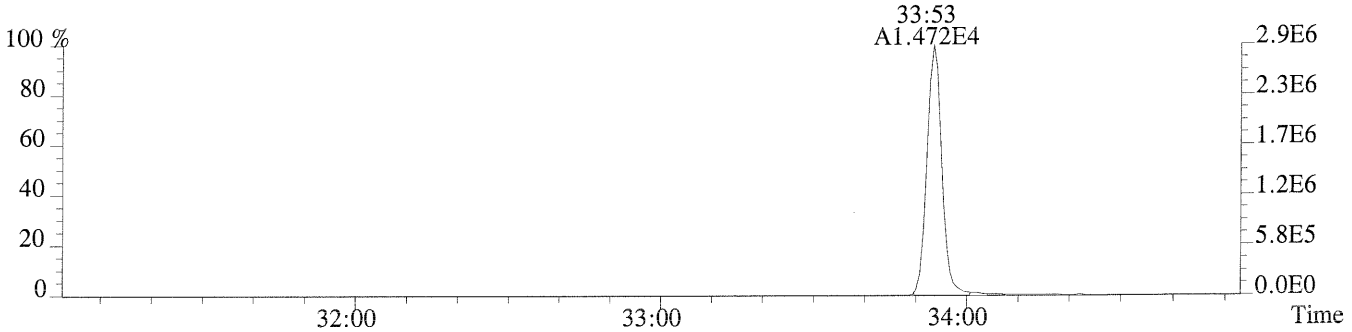
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



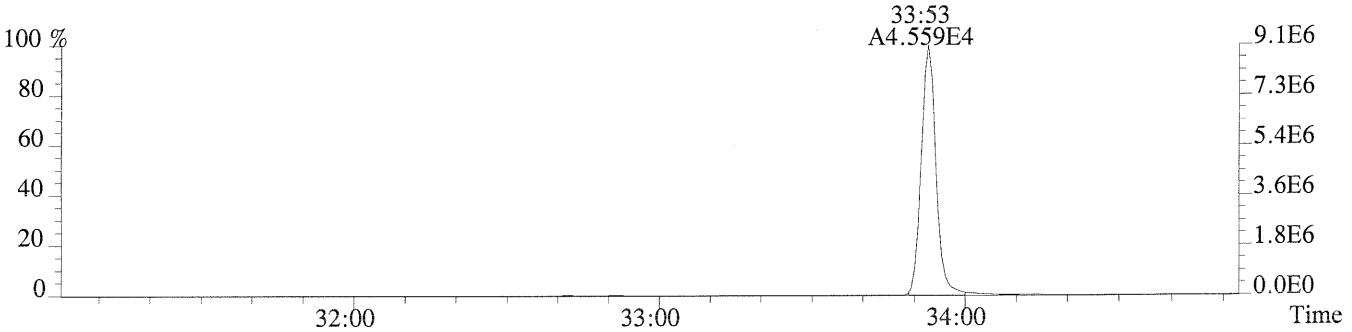
File:U149821 #1-349 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



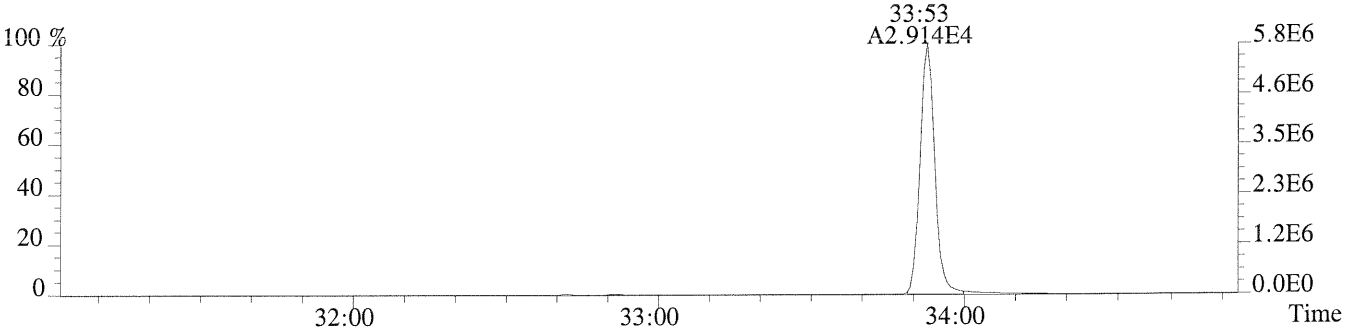
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



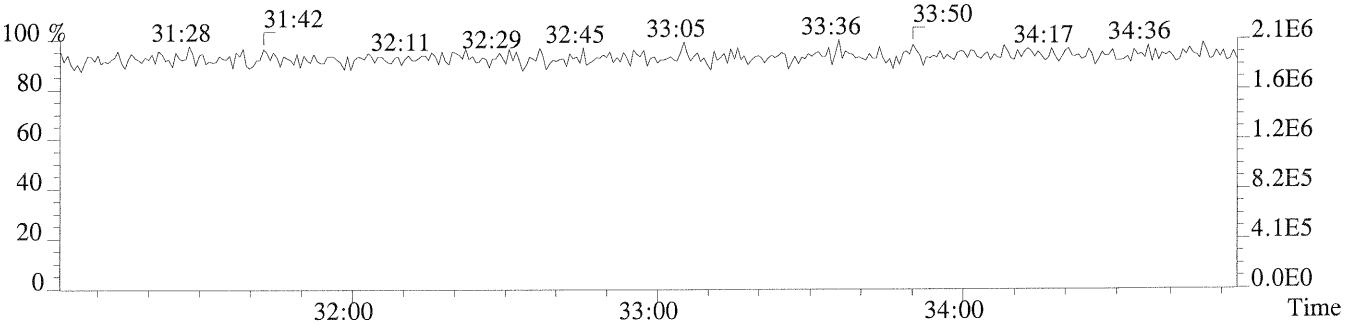
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)

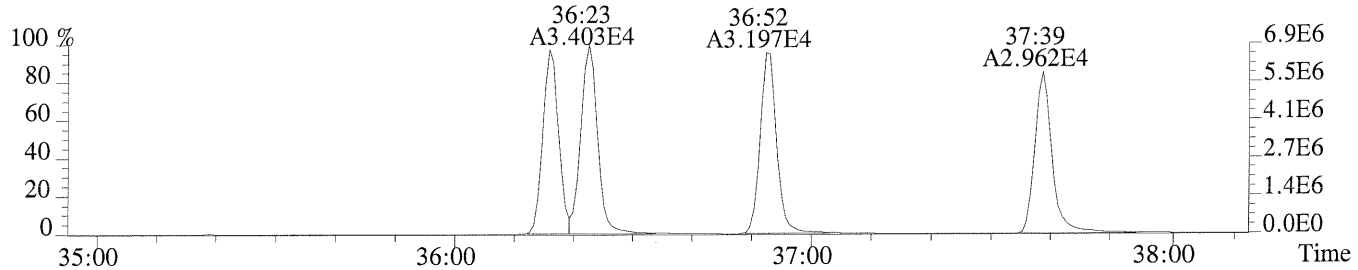


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

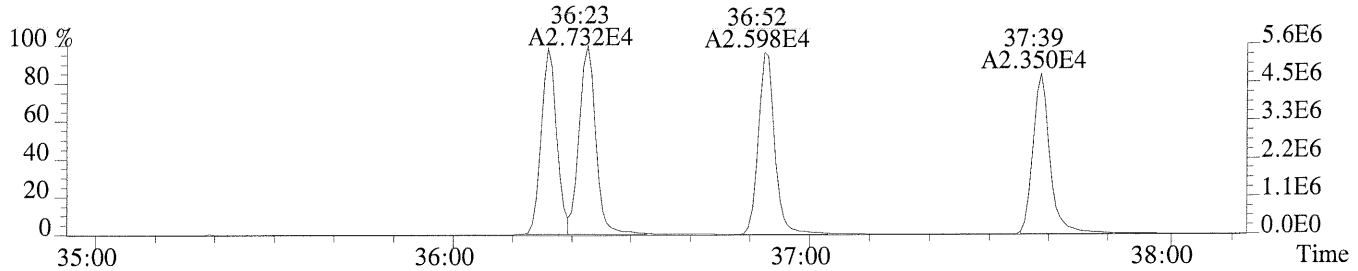


File:U149821 #1-299 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

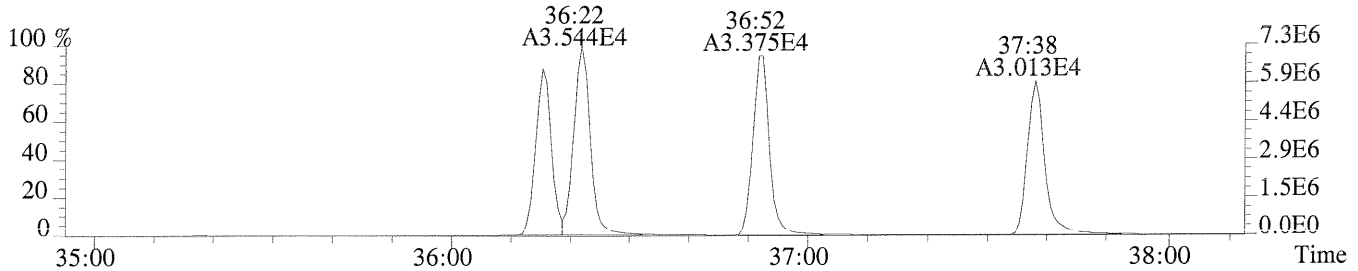
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



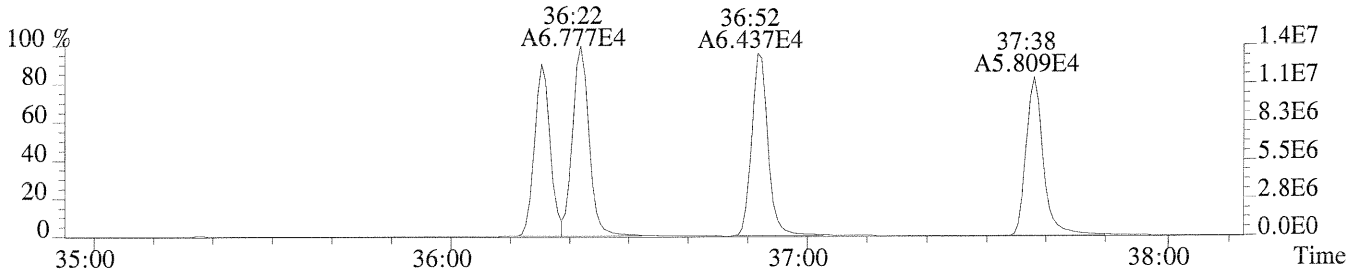
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



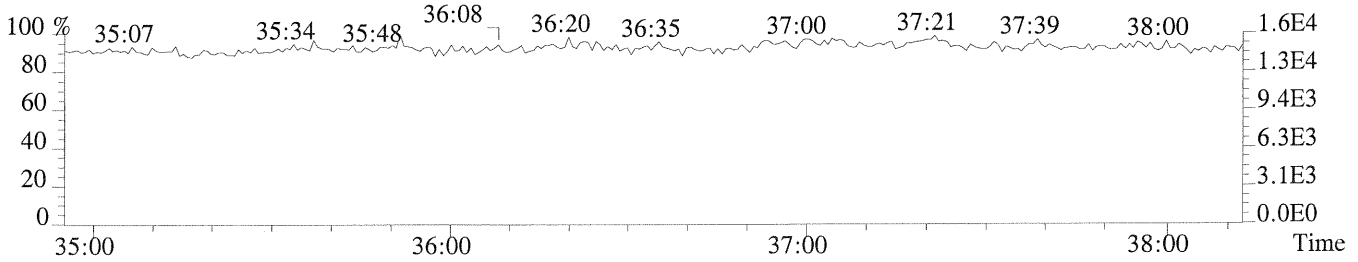
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



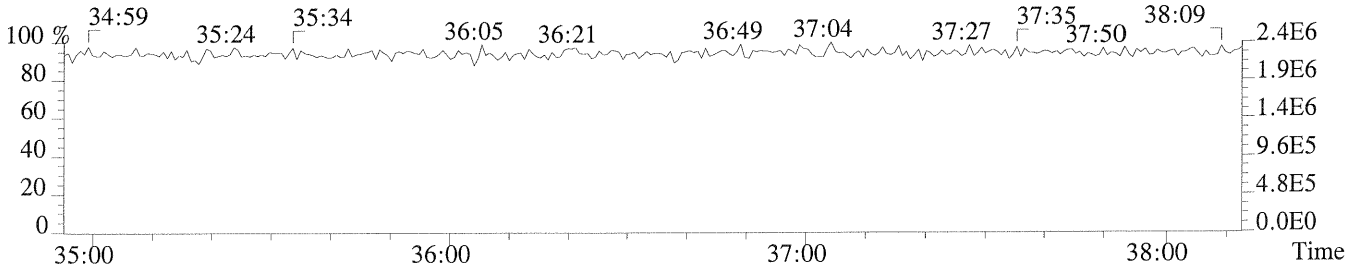
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

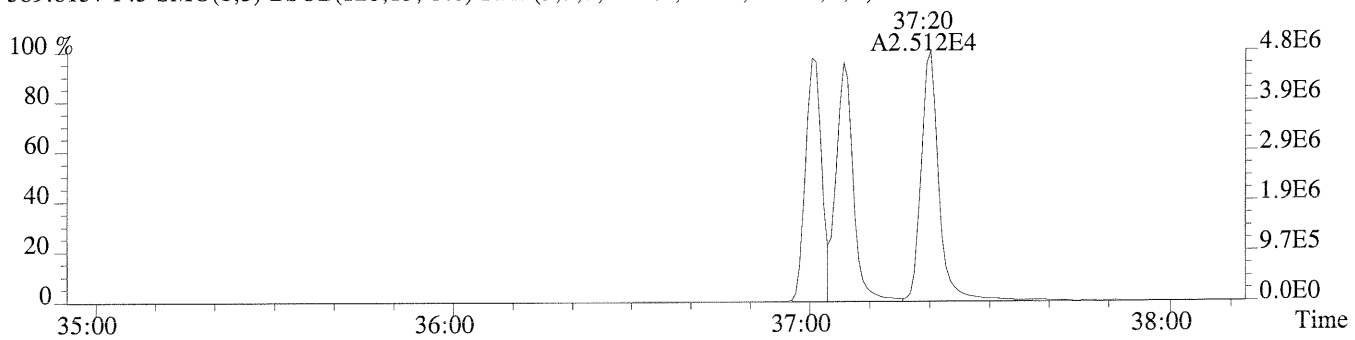


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

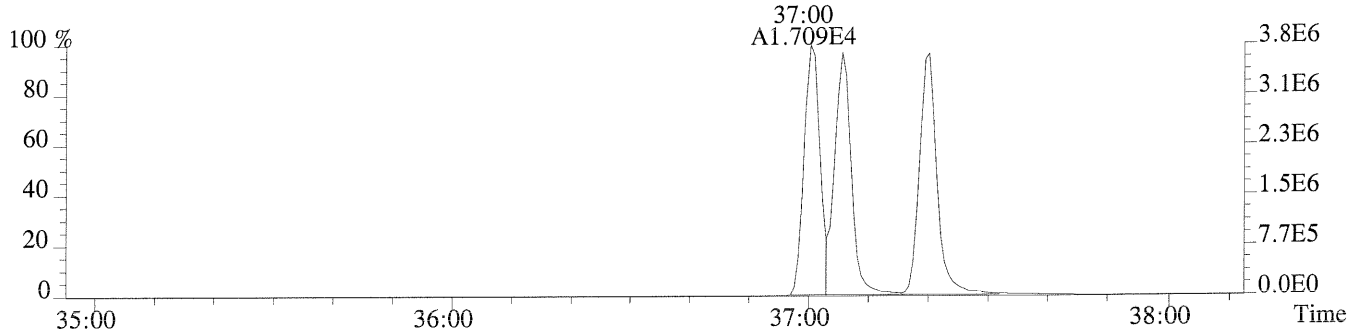


File:U149821 #1-299 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

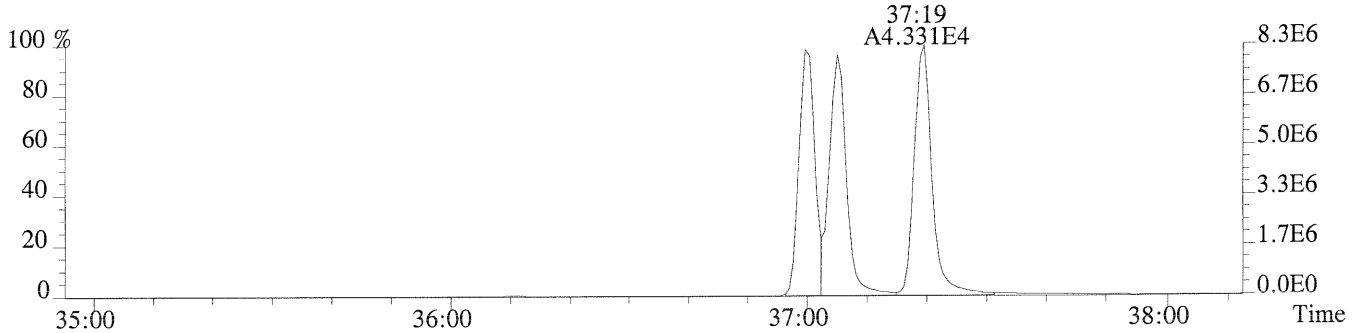
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



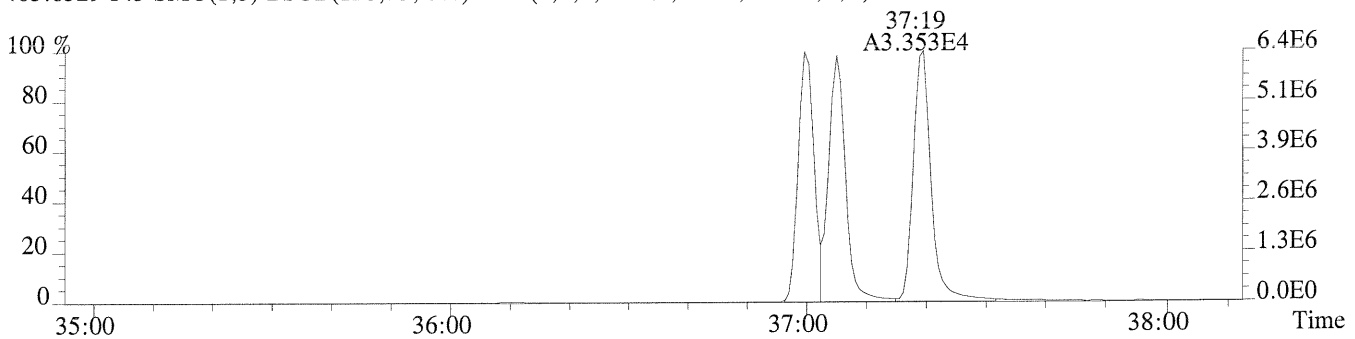
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



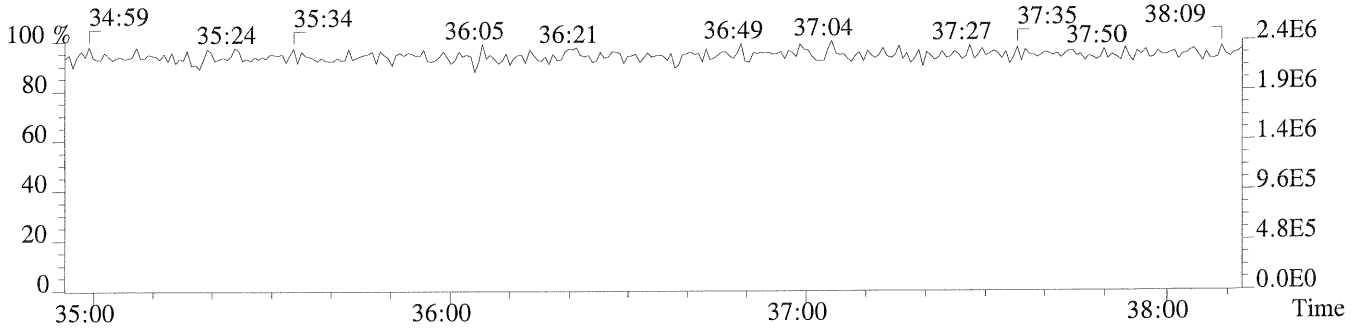
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)

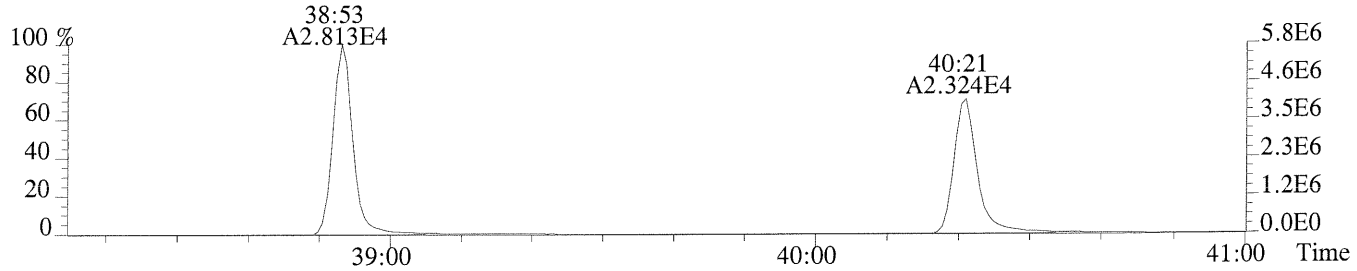


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

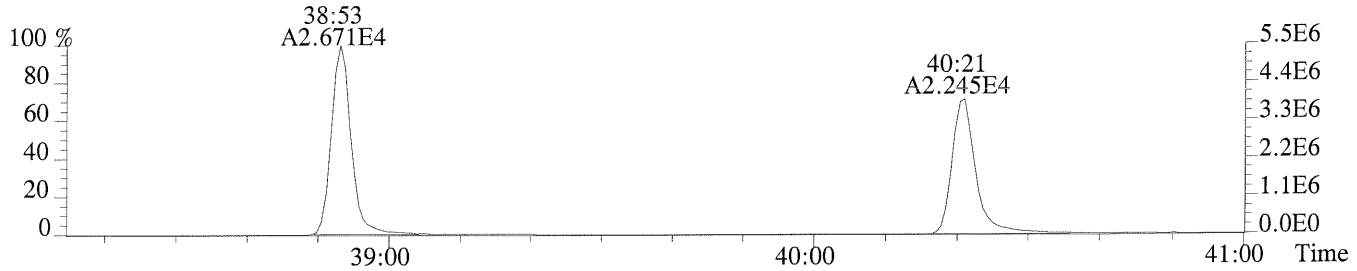


File:U149821 #1-251 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

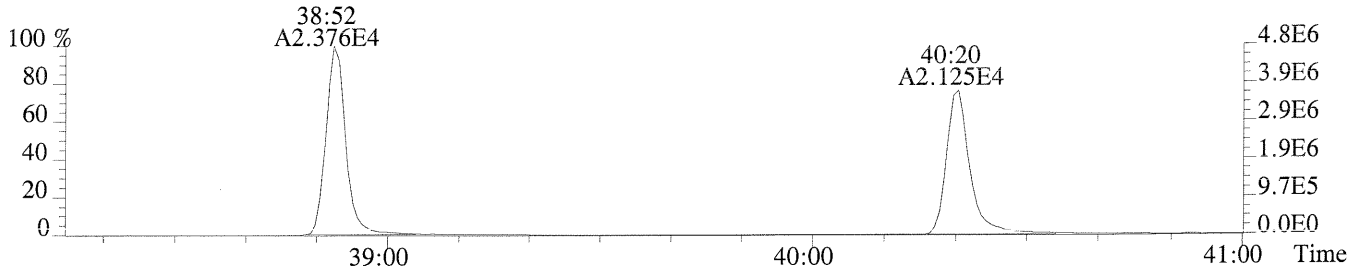
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.50%,F,T)



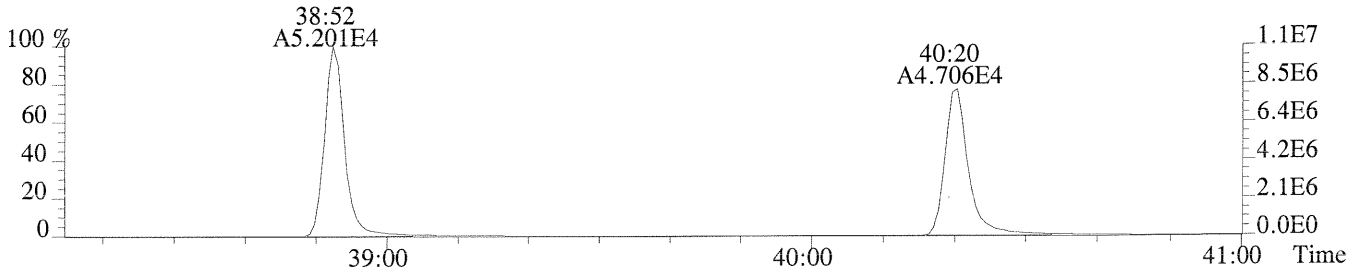
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.50%,F,T)



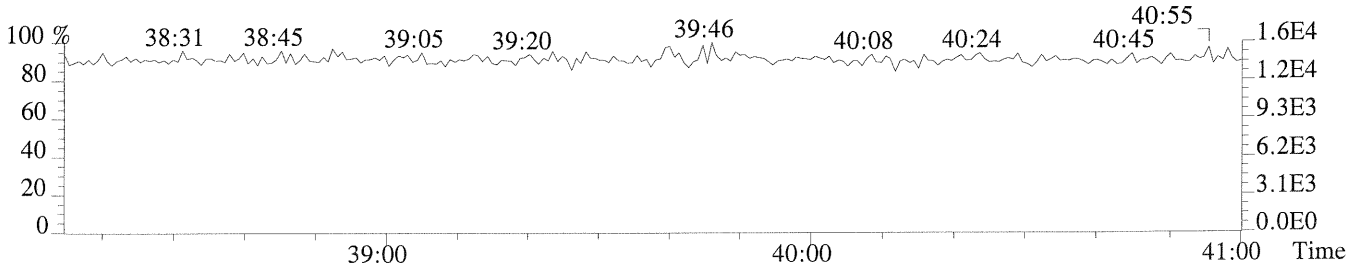
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2528.0,0.50%,F,T)



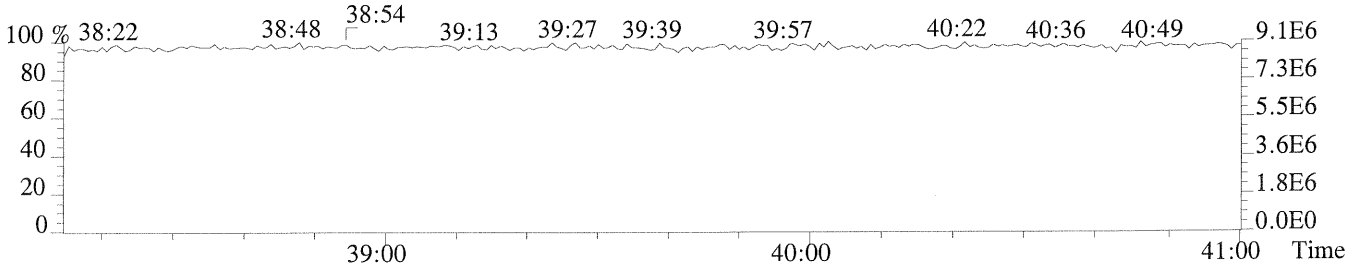
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.50%,F,T)



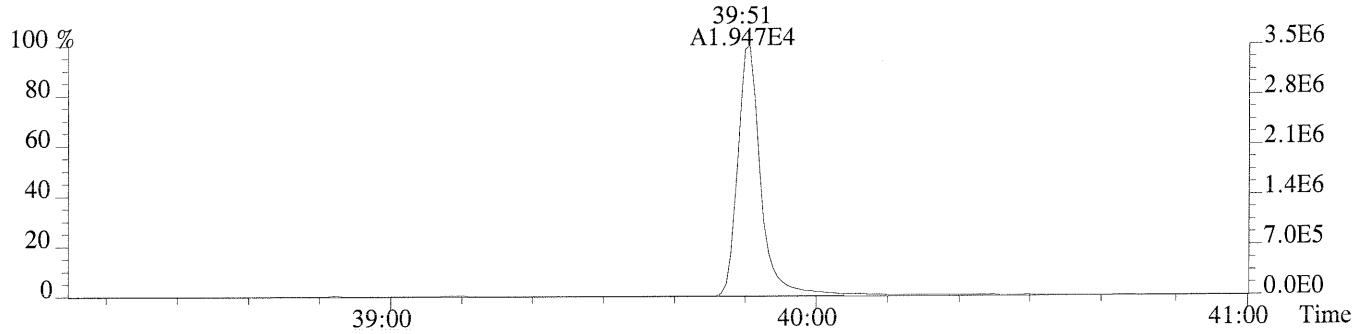
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



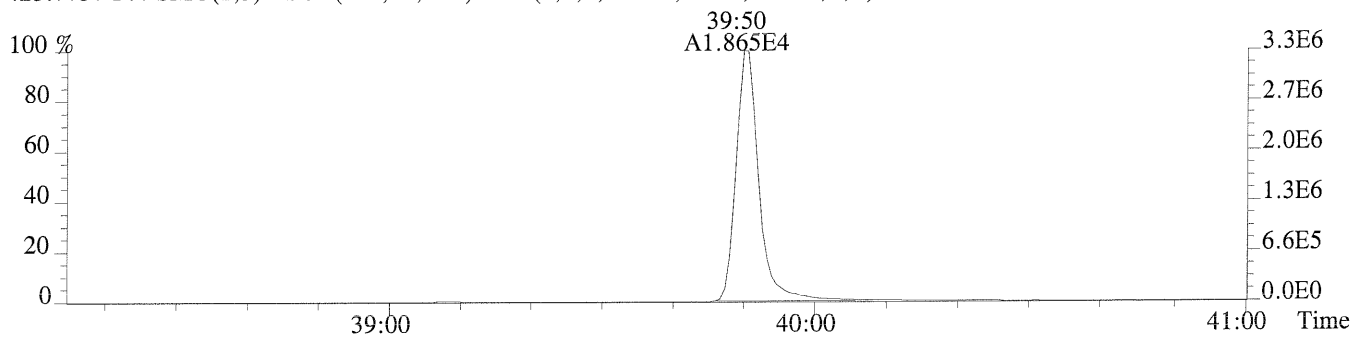
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



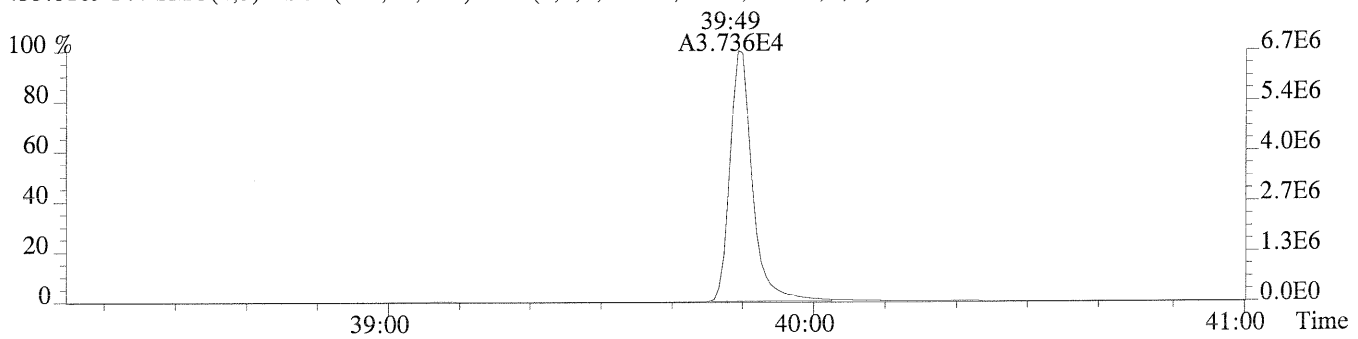
File:U149821 #1-251 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



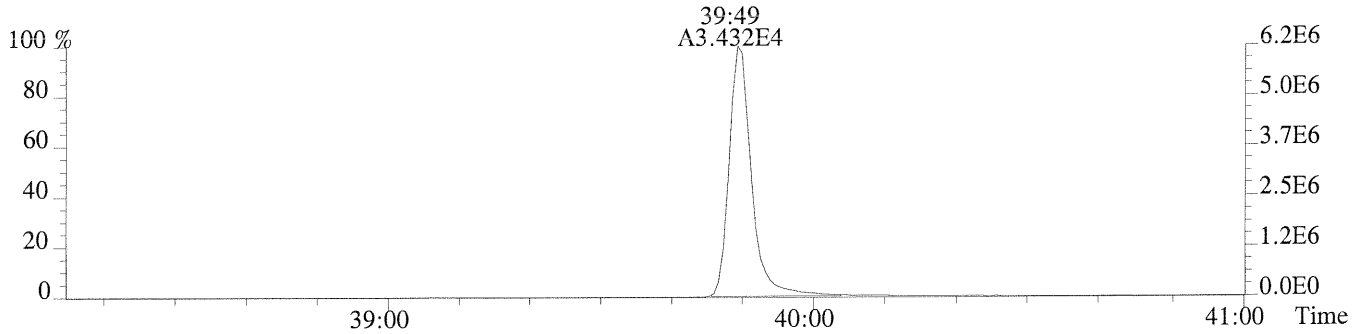
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



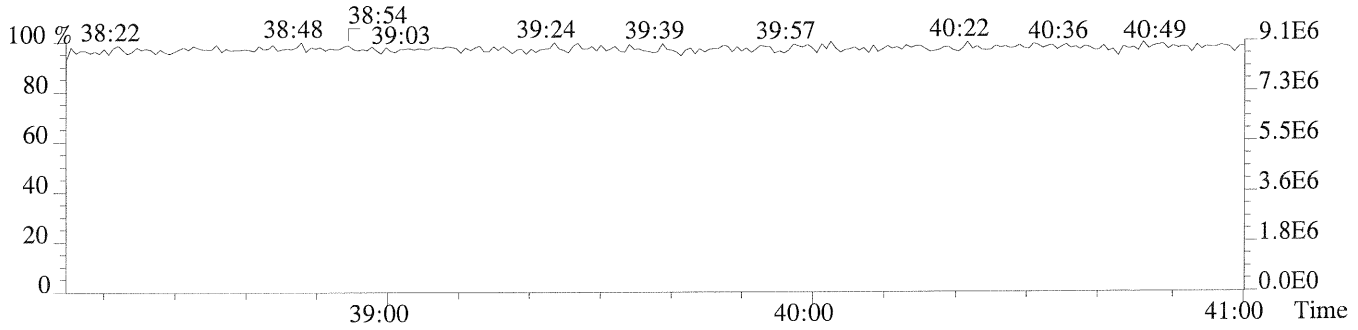
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



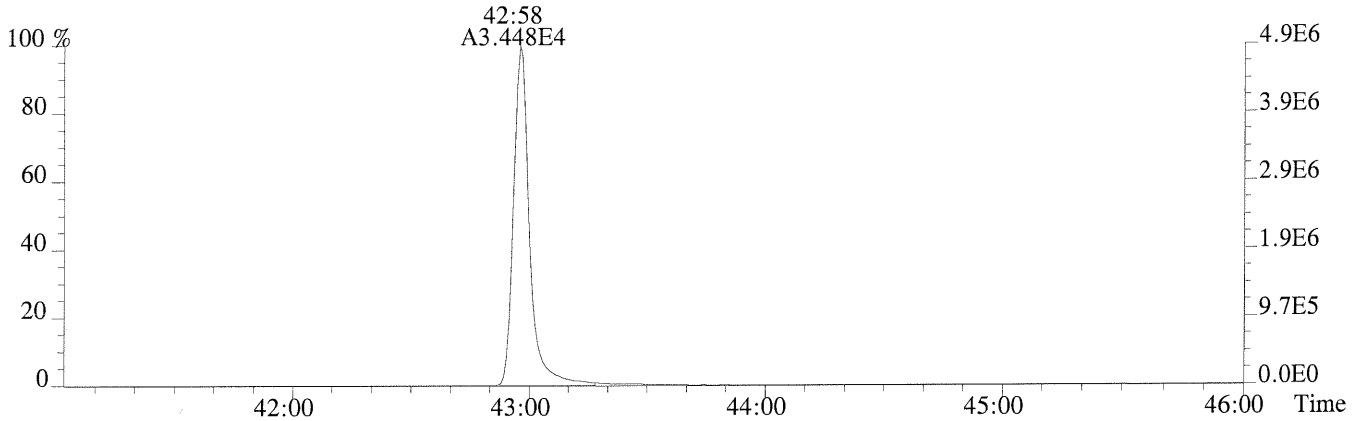
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



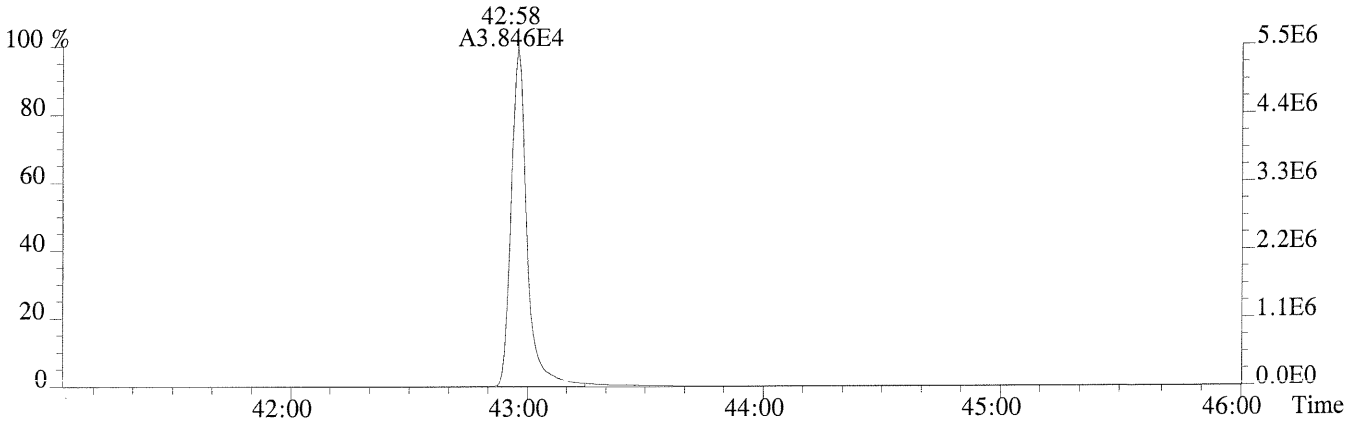
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



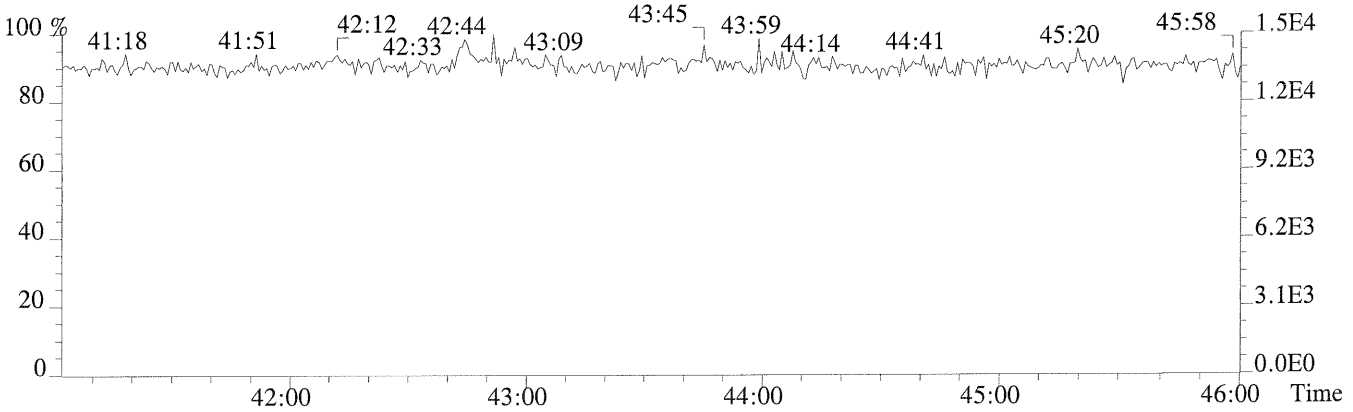
File:U149821 #1-451 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



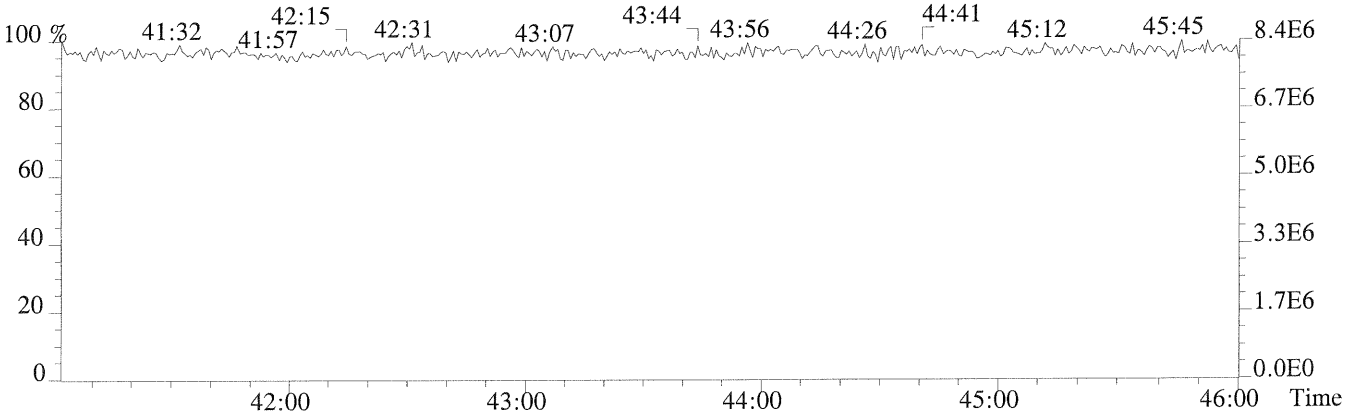
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



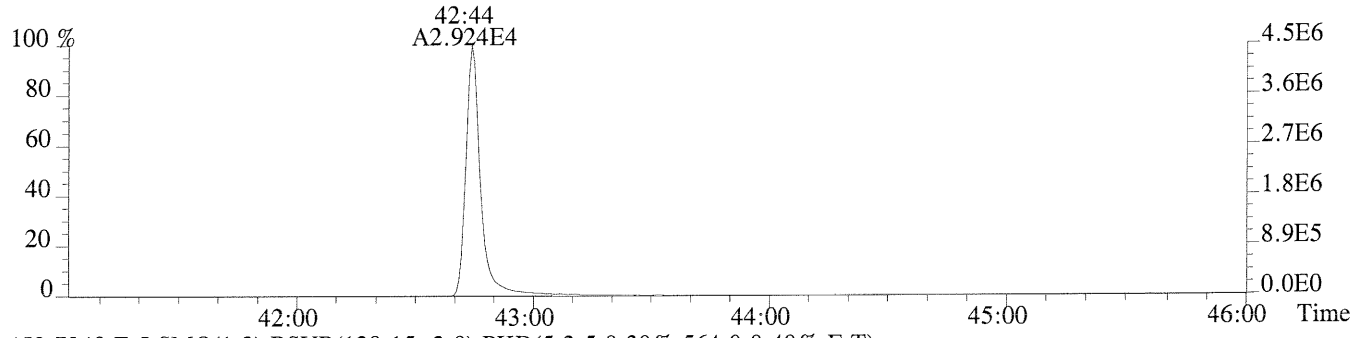
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



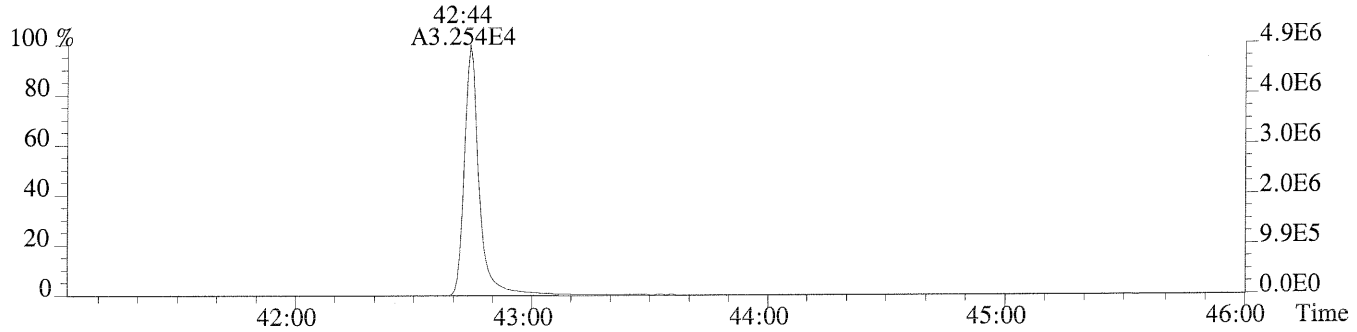
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



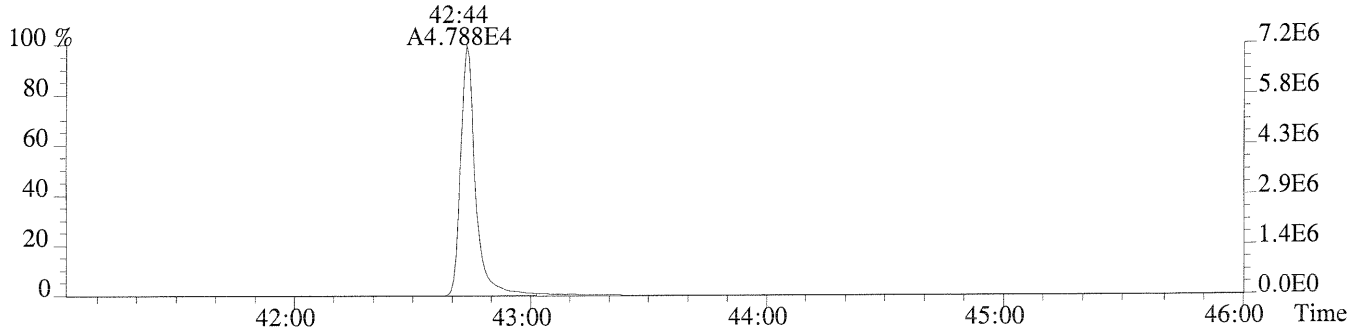
File:U149821 #1-451 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



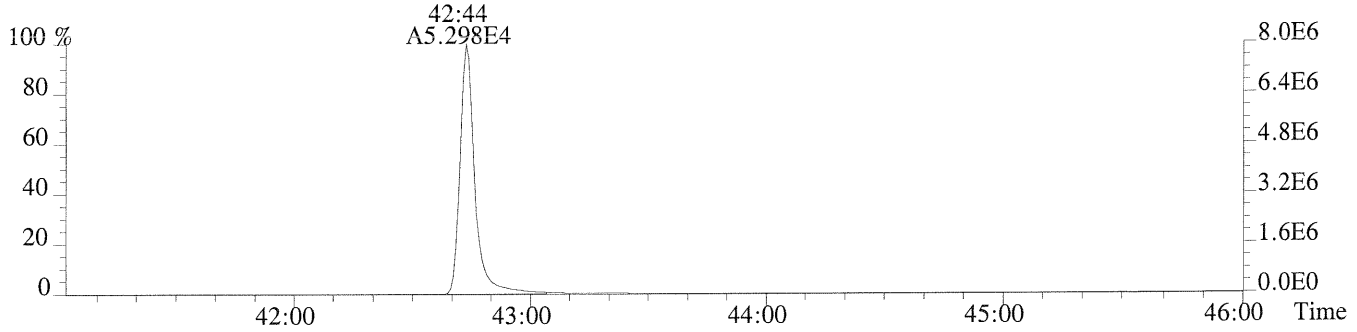
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



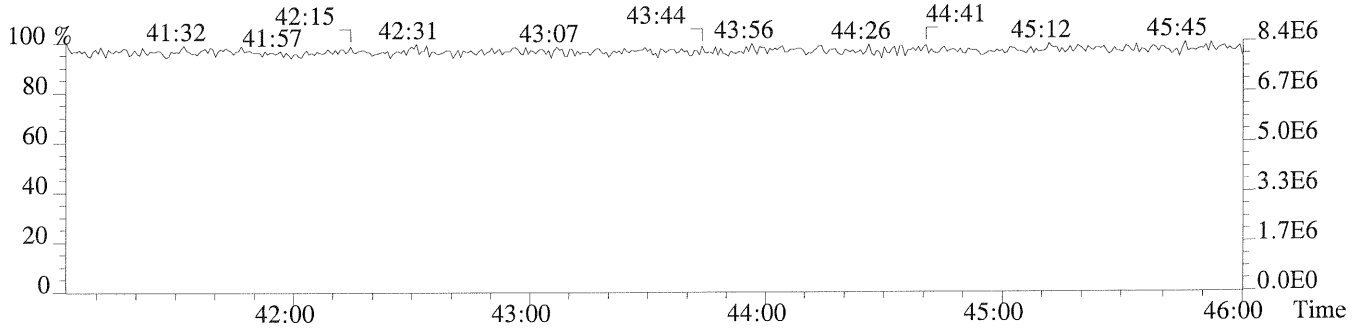
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



CCAL HRCC3/CS3 Daily Calibration QC Checklist

Calibration File Name: U149821-U149834

Date: 07/03/14-07/03/14

Circle one: Beginning / Ending

Method: 1613 / 1613E / 8290/ VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column / DB-5MSUI column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: _____ Second QC: _____

ccalqc.xls 07/17/12

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: Case No.: Client No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm)

Init. Calib. Date: 05/21/2014

Init. Calib.Times: 13:12

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
63680	WINDOW DEFINE	U149822	2-JUL-14	16:08:46
66131	CCAL HRCC3/CS3	U149821	2-JUL-14	15:02:27
METHOD BLANK	EQ1400349-01	U149823	2-JUL-14	17:45:18
CS22-WPCS-W06-02NS	E1400725-001	U149824	2-JUL-14	18:32:41
CS22-WPCS-W07-02NS	E1400725-002	U149825	2-JUL-14	19:21:19
CS22-WPCS-W13-02NS	E1400725-003	U149826	2-JUL-14	20:10:00
CS22-WPCS-W13-03NS	E1400725-004	U149827	2-JUL-14	20:58:38
CS22-WPCS-W13-04NS	E1400725-005	U149828	2-JUL-14	21:47:18
LCS	EQ1400342-02	U149829	2-JUL-14	22:35:58
LCS	EQ1400349-02	U149830	2-JUL-14	23:24:37
DLCS	EQ1400349-03	U149831	3-JUL-14	00:13:17
TEST	TEST	U149832	3-JUL-14	01:01:56
TEST	TEST	U149833	3-JUL-14	01:50:35
66131	CCAL HRCC3/CS3	U149834	3-JUL-14	02:39:15

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U1140702B.SPL

Last Modified: Wednesday, July 02, 2014 17:29:13 Central Daylight Time

Printed: Thursday, July 03, 2014 07:31:33 Central Daylight Time

e: U149821|res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	07/02/14	15:02	U149821	CCAL HRCC3/CS3	66131	ZZ	HRMS Check 16:02	8290cas
2		16:08	U149822	WINDOW DEFINE	63680			8290cas
3		17:45	U149823	EQ1400349-01	MB		HRMS Check 17:38	8290cas
4		18:32	U149824	E1400725-001	E1400725-001			8290cas
5		19:21	U149825	E1400725-002	E1400725-002			8290cas
6		20:10	U149826	E1400725-003	E1400725-003			8290cas
7		20:58	U149827	E1400725-004	E1400725-004			8290cas
8		21:47	U149828	E1400725-005	E1400725-005			8290cas
9		22:35	U149829	EQ1400342-02	LCS			8290cas
10		23:24	U149830	EQ1400349-02	LCS			8290cas
11	07/03/14	00:13	U149831	EQ1400349-03	DLCS			8290cas
12		01:01	U149832	TEST	TEST			8290cas
13		01:50	U149833	TEST	TEST			8290cas
14		02:39	U149834	CCAL HRCC3/CS3	66131		HRMS Check 03:36	8290cas
15			---	---	---			8290cas
16			---	---	---			8290cas
17			---	---	---			8290cas
18			---	---	---			8290cas
19			---	---	---			8290cas
20			---	---	---			8290cas
21			---	---	---			8290cas
22			---	---	---			8290cas
23			---	---	---			8290cas
24			---	---	---			8290cas
25			---	---	---			1668EPA
26			---	---	---			1668EPA
27			---	---	---			1668EPA
28			---	---	---			1668EPA
29			---	---	---			1668EPA
30			---	---	---			1668EPA
31			---	---	---			1668EPA
32			---	---	---			---
33			---	---	---			---
34			---	---	---			TCDFCAS
35			---	---	---			TCDFCAS
36			---	---	---			TCDFCAS
37			---	---	---			TCDFCAS
38			---	---	---			TCDFCAS
39			---	---	---			TCDFCAS

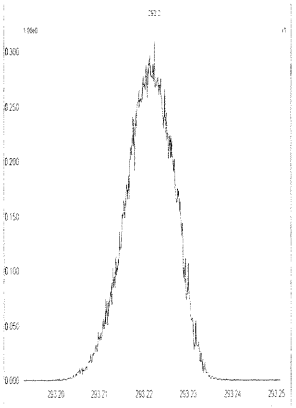
gc 07/03/14

068

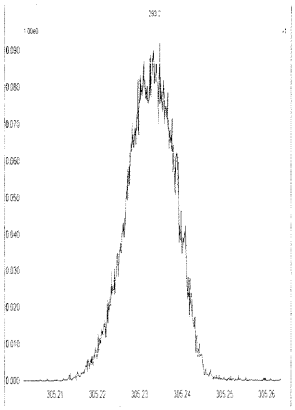
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 16:02:21 Central Daylight Time

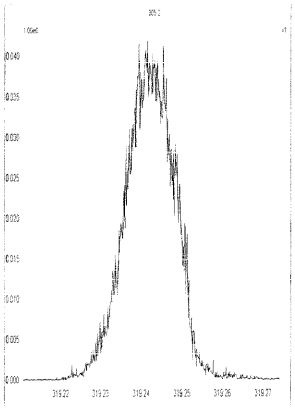
M 292.9824 R 11361



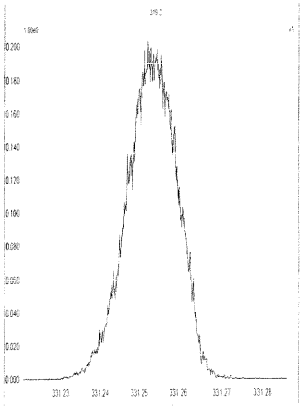
M 304.9824 R 11411



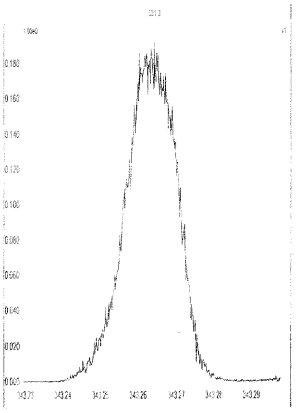
M 318.9792 R 12196



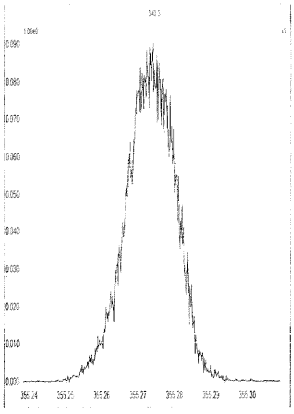
M 330.9792 R 11414



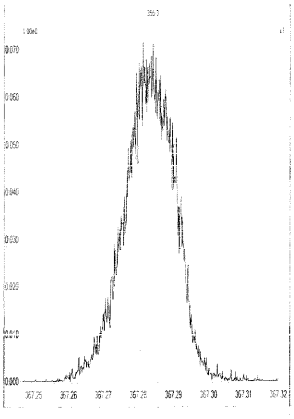
M 342.9792 R 11259



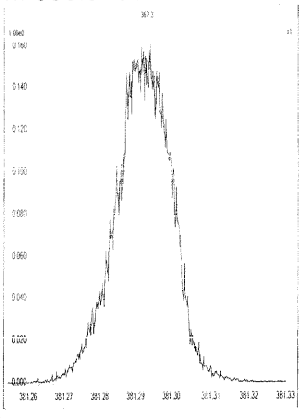
M 354.9792 R 11262



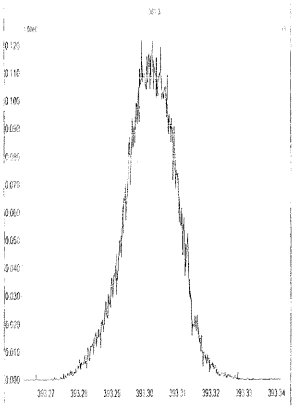
M 366.9792 R 11627



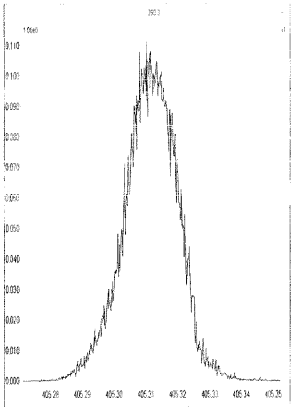
M 380.9760 R 10775



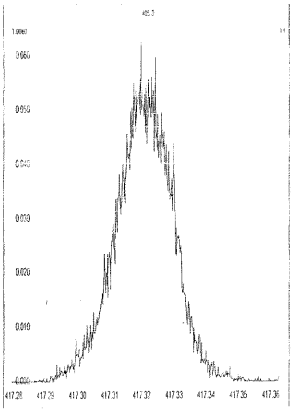
M 392.9760 R 11163



M 404.9760 R 10776



M 416.9760 R 10124

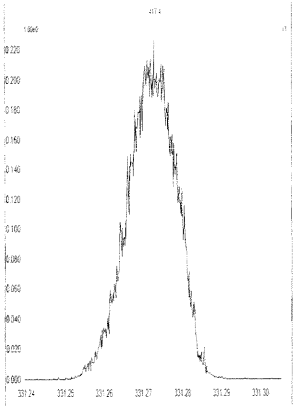


Experiment Calibration Report **MassLynx 4.1**

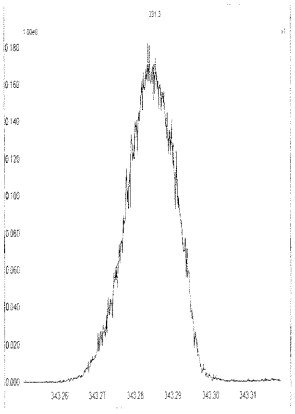
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 16:03:47 Central Daylight Time

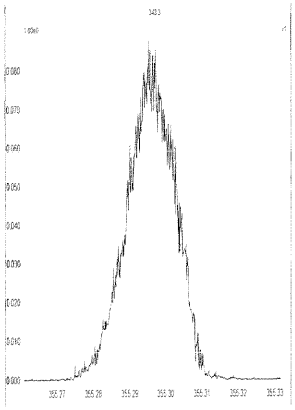
M 330.9792 R 11574



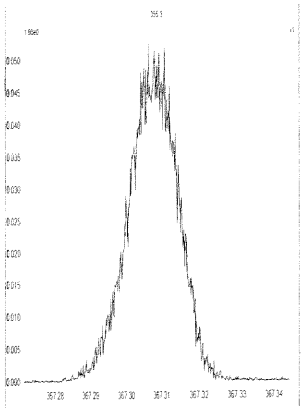
M 342.9792 R 11626



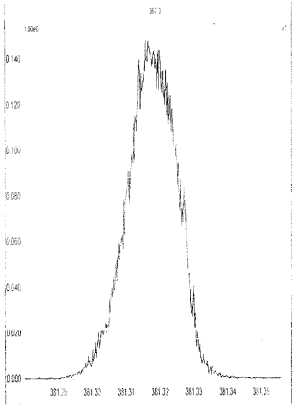
M 354.9792 R 11794



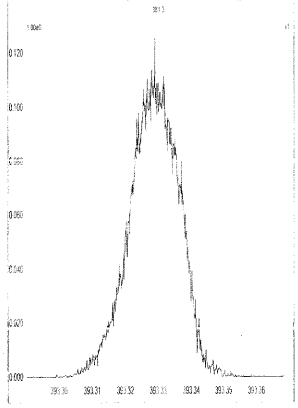
M 366.9792 R 12078



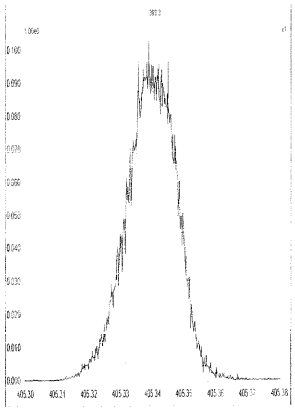
M 380.9760 R 11737



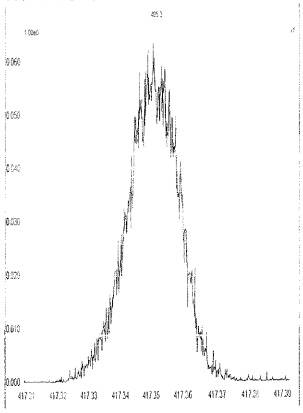
M 392.9760 R 12022



M 404.9760 R 11258



M 416.9760 R 11628

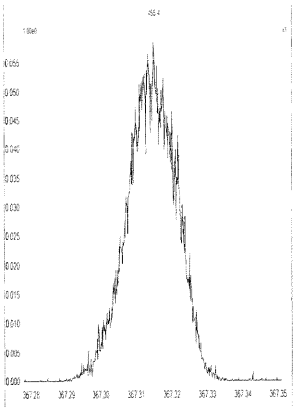


Experiment Calibration Report **MassLynx 4.1**

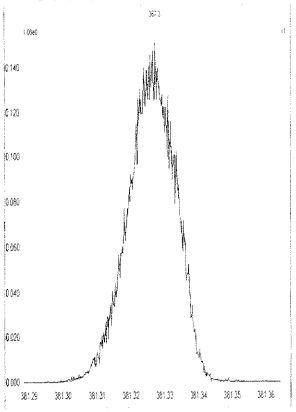
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 16:05:25 Central Daylight Time

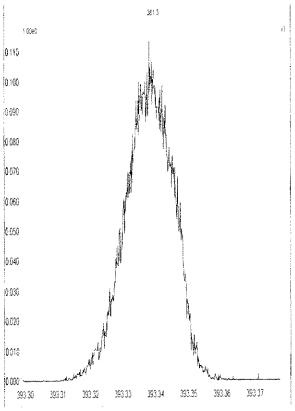
M 366.9792 R 11683



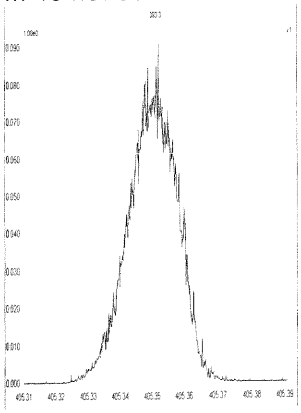
M 380.9760 R 12077



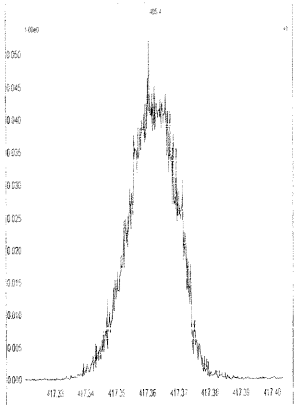
M 392.9760 R 12134



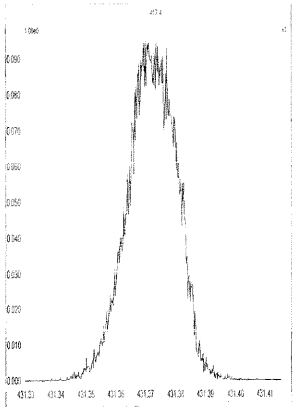
M 404.9760 R 11734



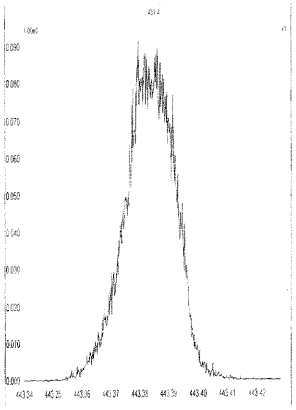
M 416.9760 R 11901



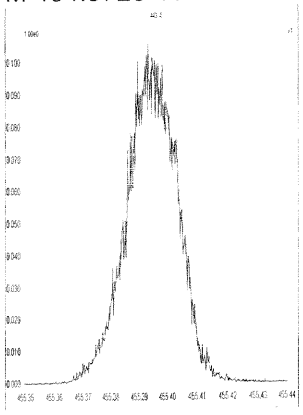
M 430.9728 R 11737



M 442.9728 R 11209



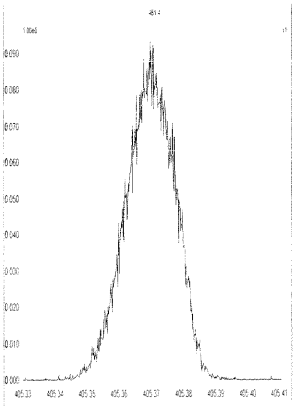
M 454.9728 R 11259



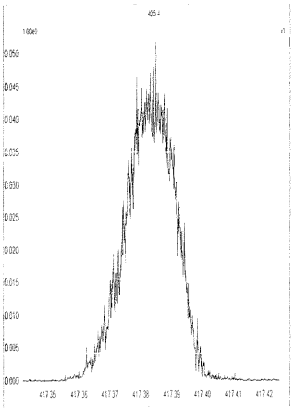
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 16:06:40 Central Daylight Time

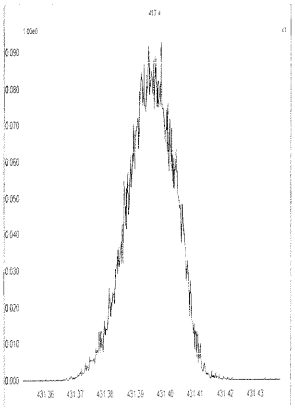
M 404.9760 R 11795



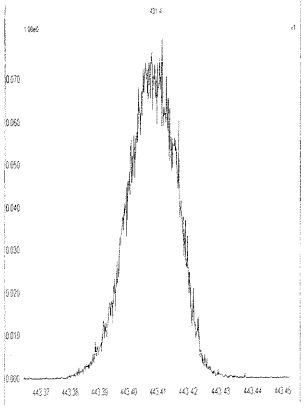
M 416.9760 R 12439



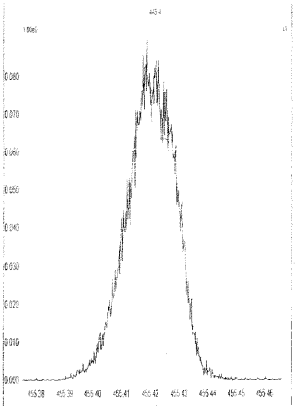
M 430.9728 R 11468



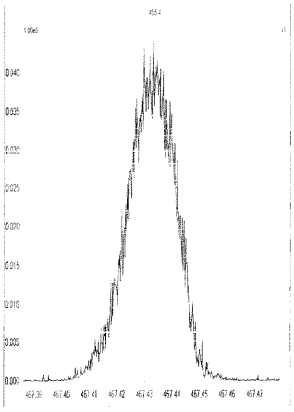
M 442.9728 R 11847



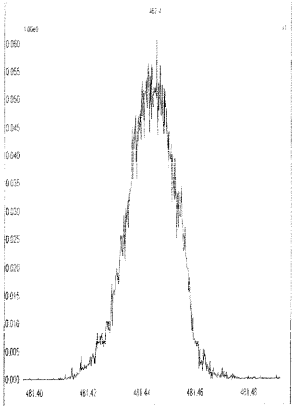
M 454.9728 R 11366



M 466.9728 R 11522



M 480.9696 R 11517

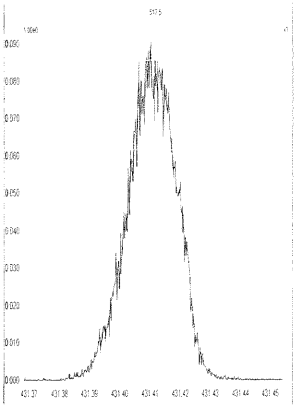


Experiment Calibration Report **MassLynx 4.1**

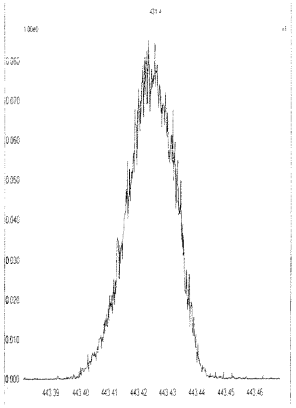
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 16:07:36 Central Daylight Time

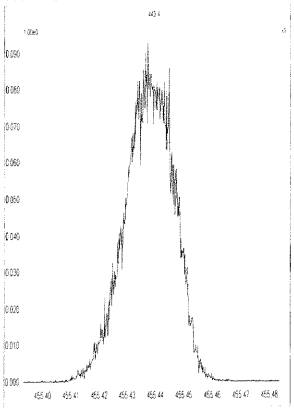
M 430.9728 R 11521



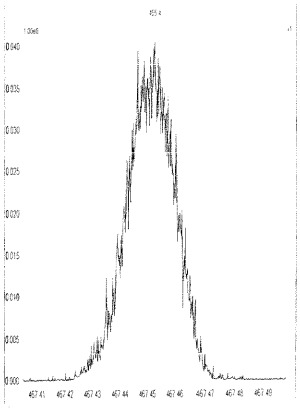
M 442.9728 R 11574



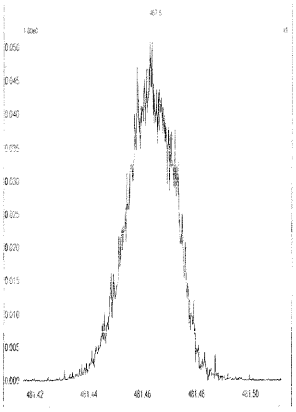
M 454.9728 R 11907



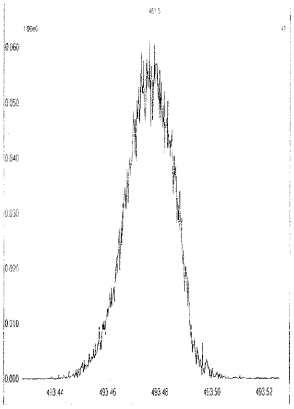
M 466.9728 R 11735



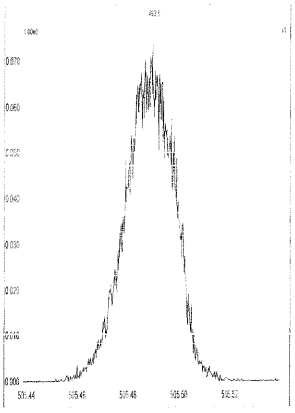
M 480.9696 R 12439



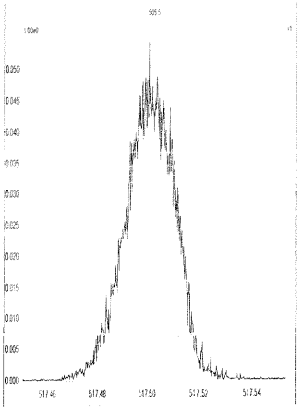
M 492.9696 R 11574



M 504.9696 R 11209



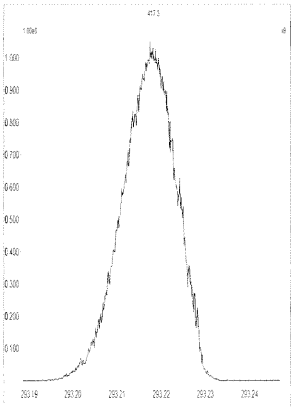
M 516.9697 R 11959



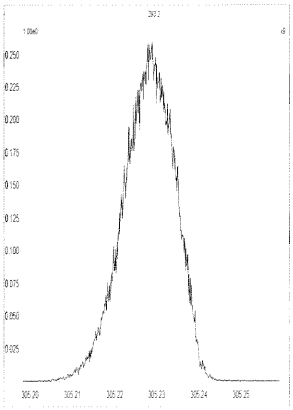
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:38:07 Central Daylight Time

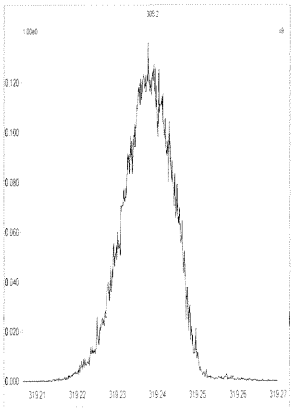
M 292.9824 R 10727



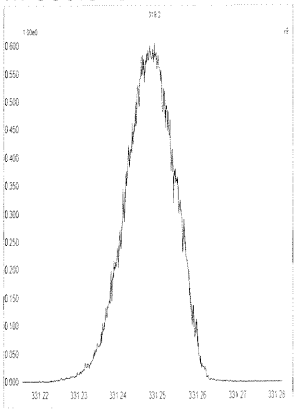
M 304.9824 R 11112



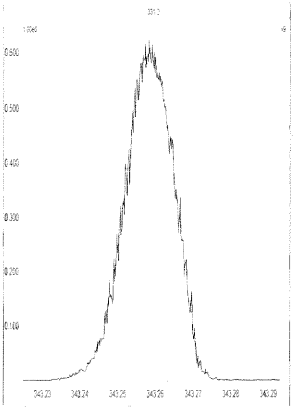
M 318.9792 R 11683



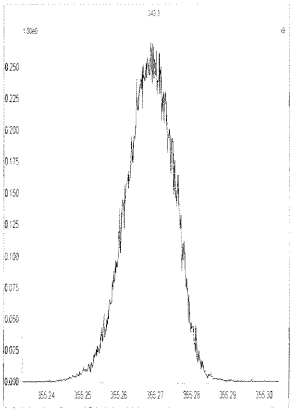
M 330.9792 R 11736



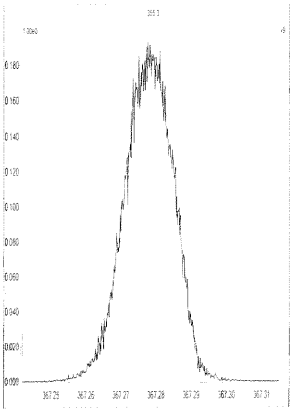
M 342.9792 R 11795



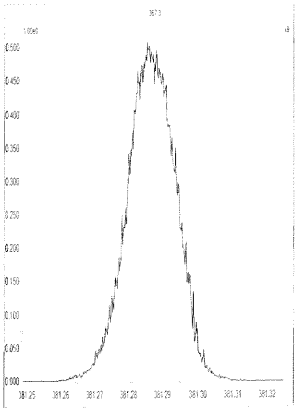
M 354.9792 R 11963



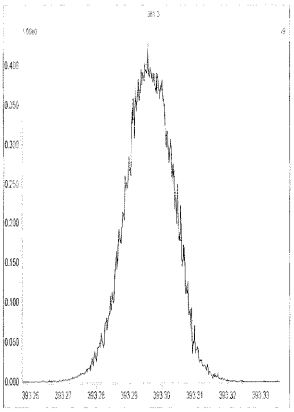
M 366.9792 R 12077



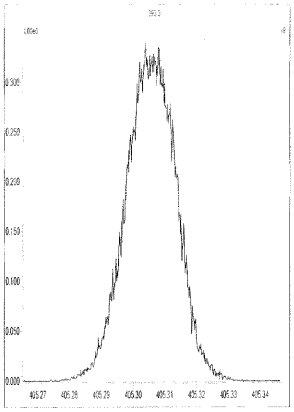
M 380.9760 R 11847



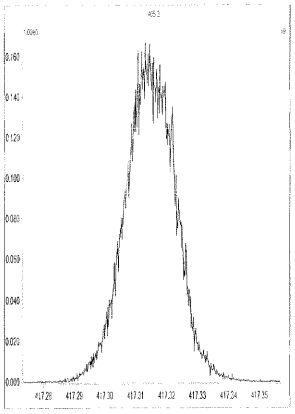
M 392.9760 R 11263



M 404.9760 R 11262



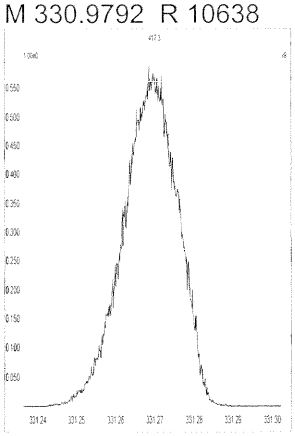
M 416.9760 R 11110



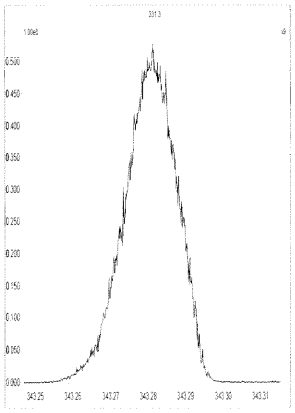
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:39:14 Central Daylight Time

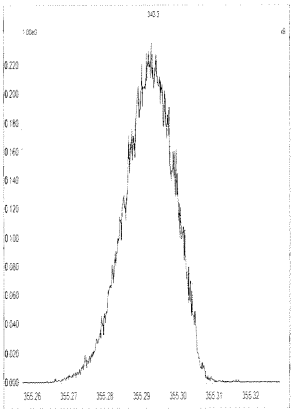
M 330.9792 R 10638



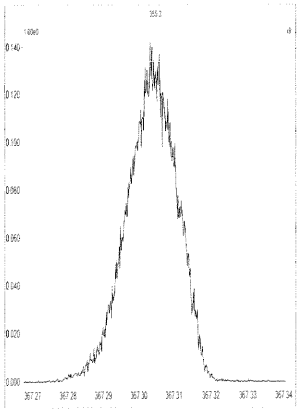
M 342.9792 R 10728



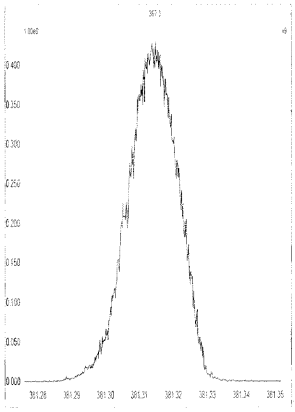
M 354.9792 R 11417



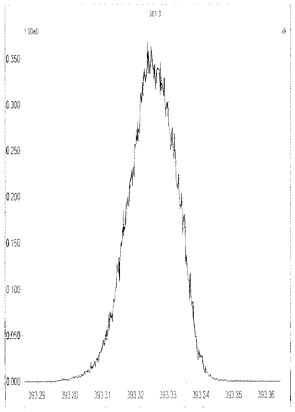
M 366.9792 R 11312



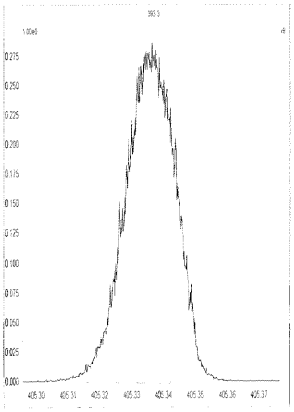
M 380.9760 R 11682



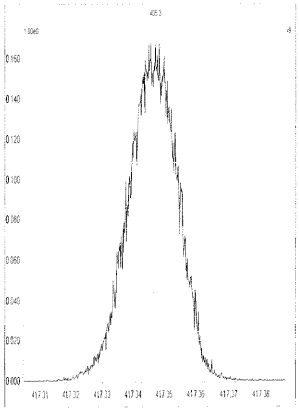
M 392.9760 R 11960



M 404.9760 R 11684



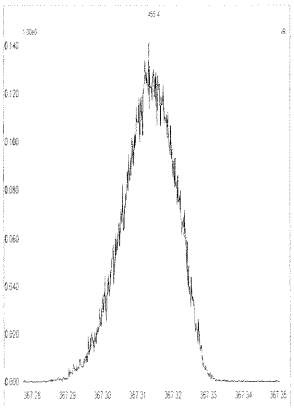
M 416.9760 R 11682



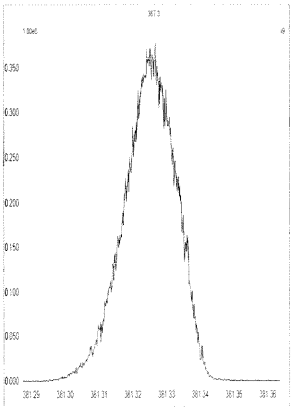
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:40:31 Central Daylight Time

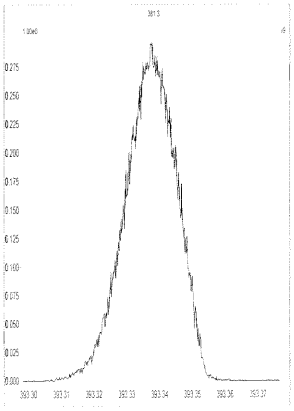
M 366.9792 R 10823



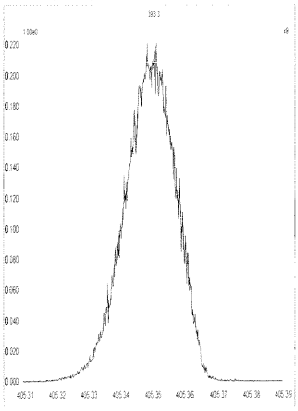
M 380.9760 R 10683



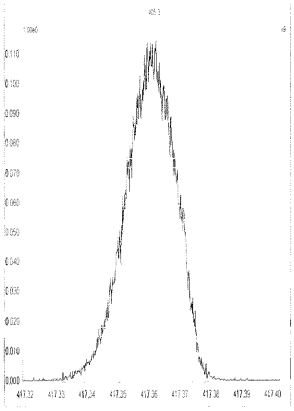
M 392.9760 R 11110



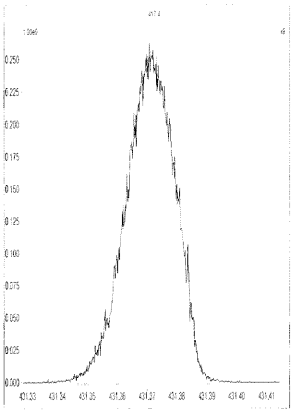
M 404.9760 R 11522



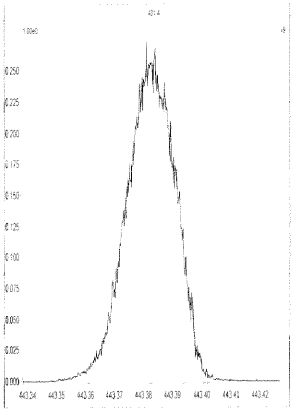
M 416.9760 R 11313



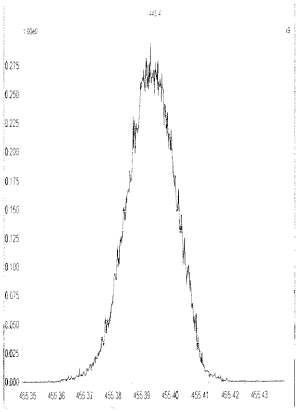
M 430.9728 R 11574



M 442.9728 R 11736



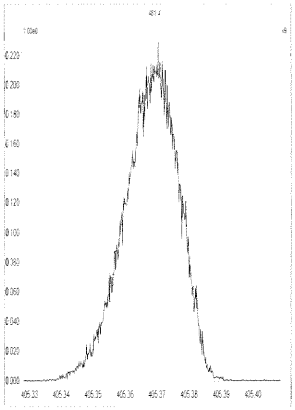
M 454.9728 R 11684



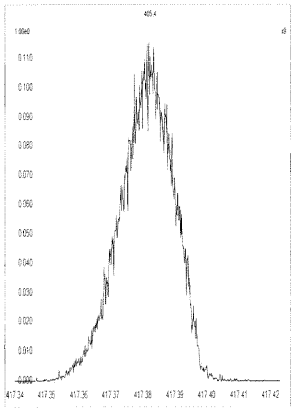
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, July 02, 2014 17:41:52 Central Daylight Time

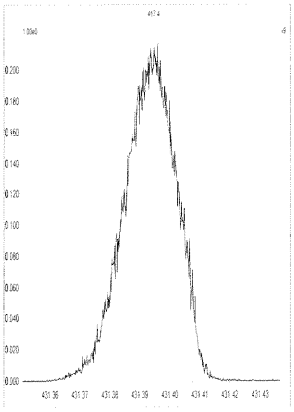
M 404.9760 R 10640



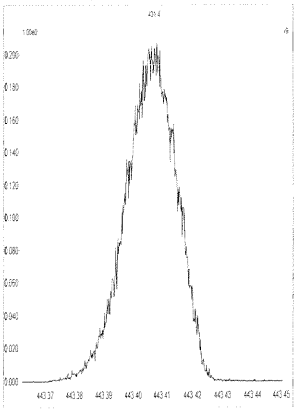
M 416.9760 R 10635



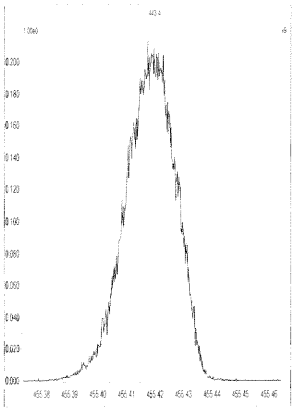
M 430.9728 R 11312



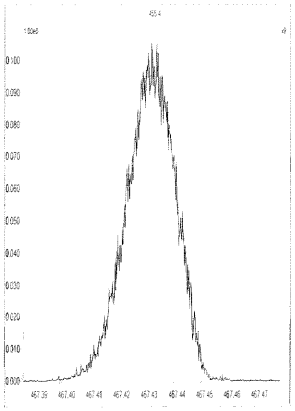
M 442.9728 R 11160



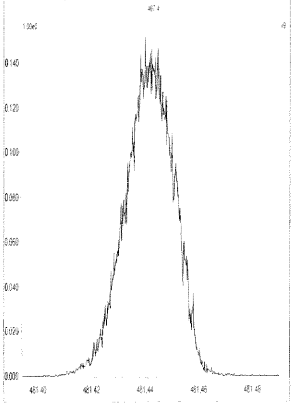
M 454.9728 R 11417



M 466.9728 R 11789



M 480.9696 R 11962



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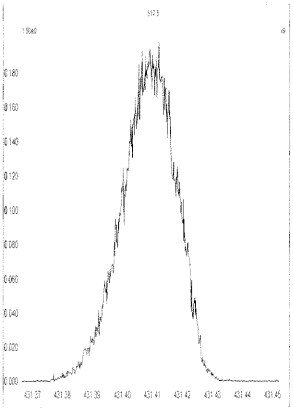
Printed: Wednesday, July 02, 2014 17:43:11 Central Daylight Time

M 430.9728 R 10594



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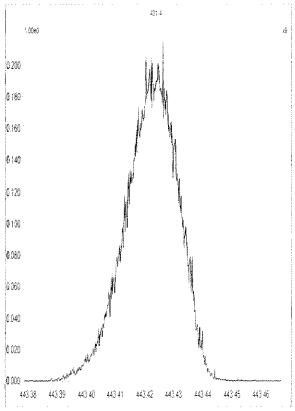

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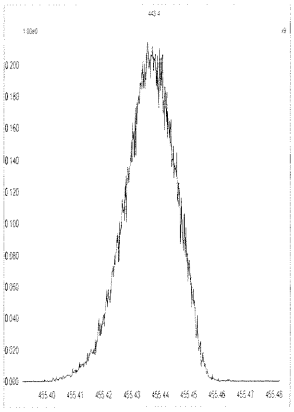

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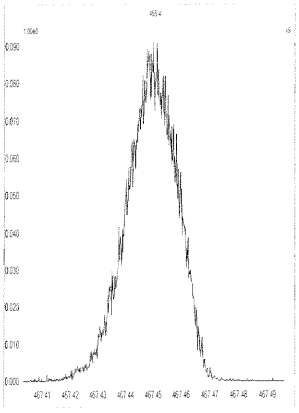

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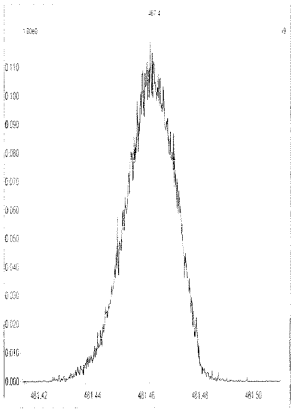

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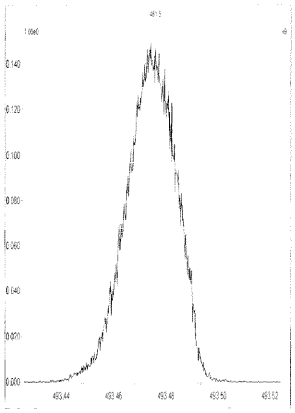
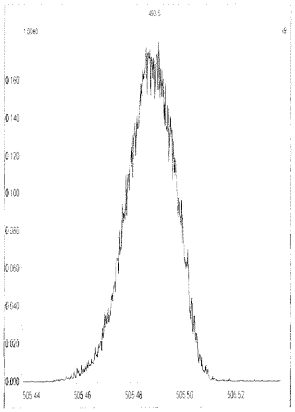


M 504.9696 R 11627



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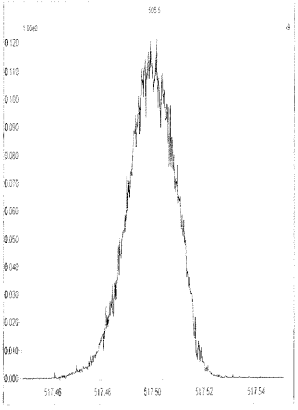

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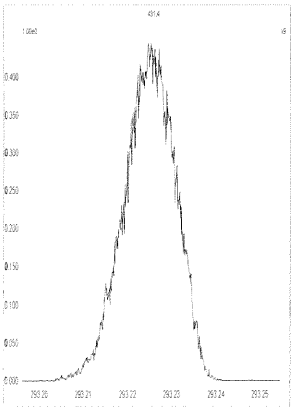

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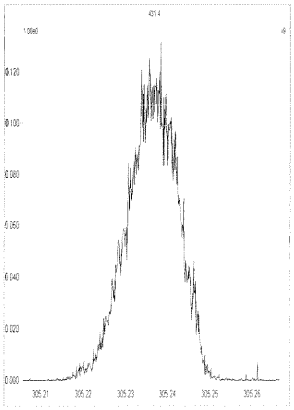

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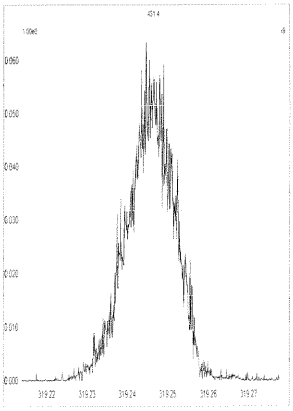

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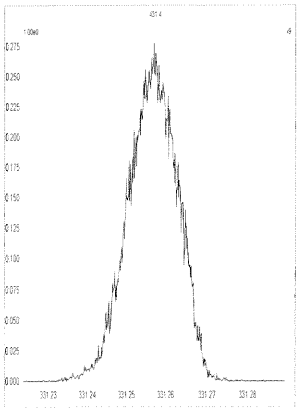

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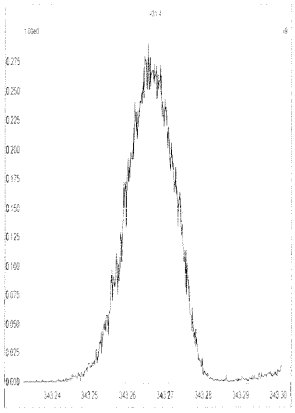

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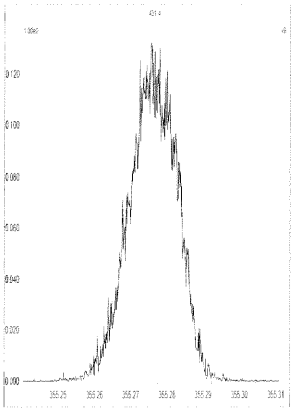

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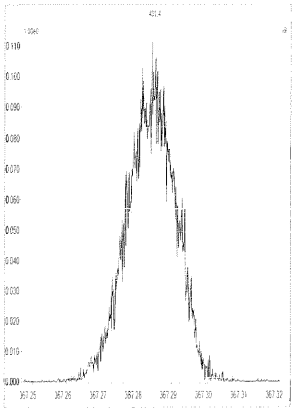

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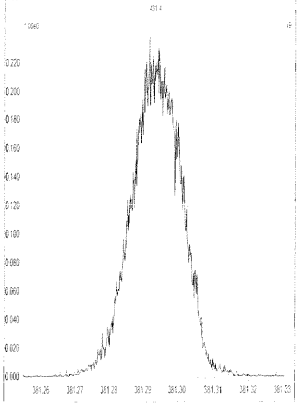

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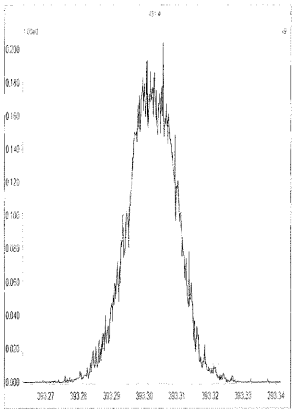

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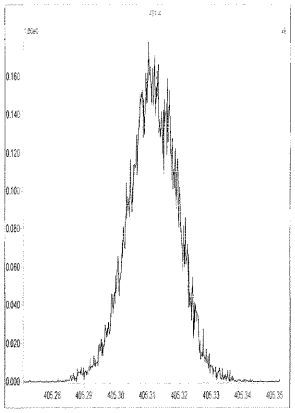

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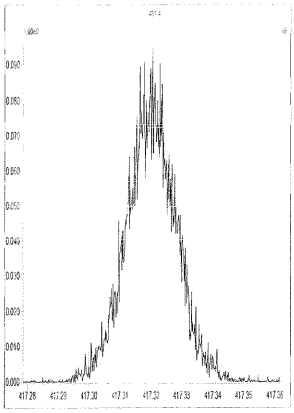

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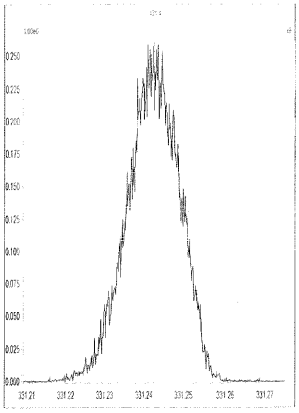

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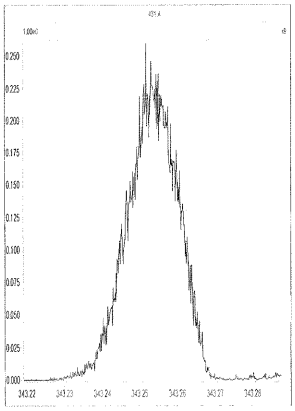

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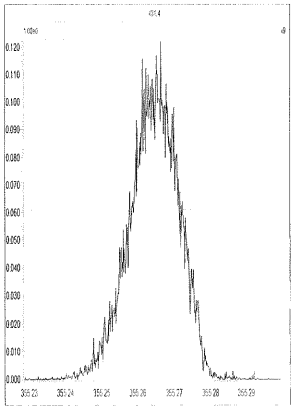

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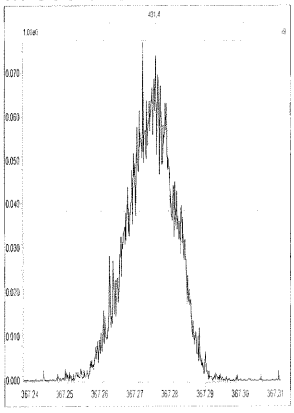

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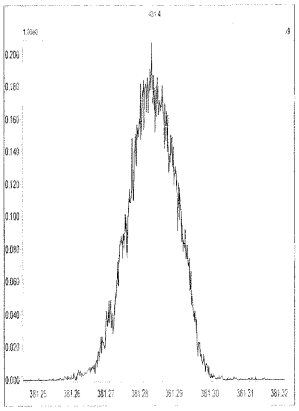

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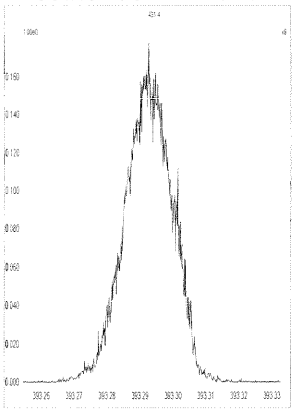

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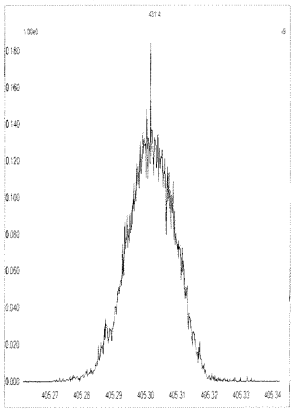

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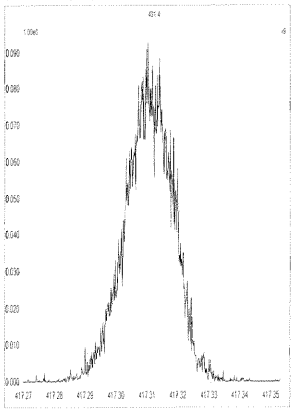

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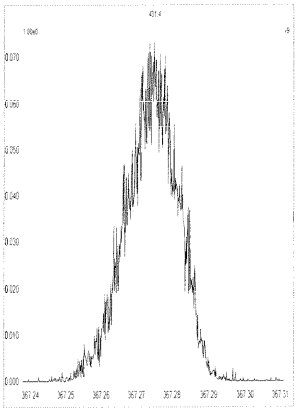

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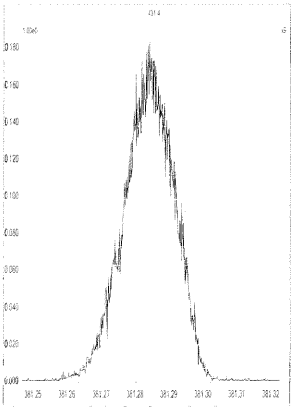

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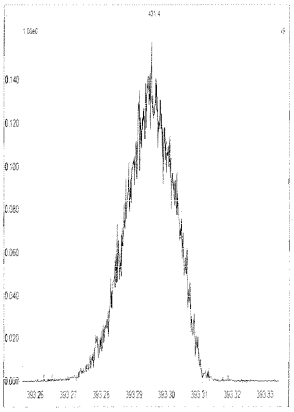

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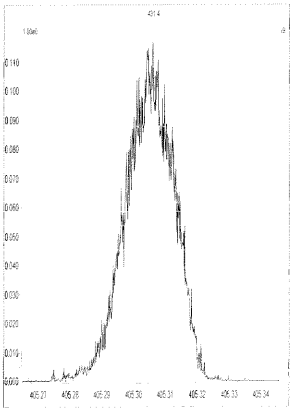

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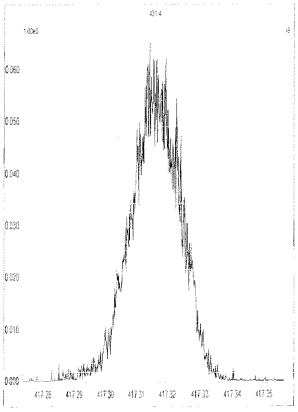

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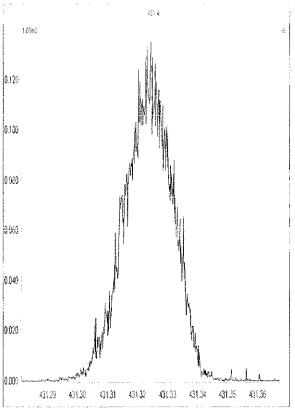

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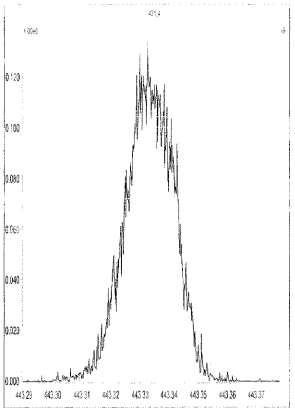

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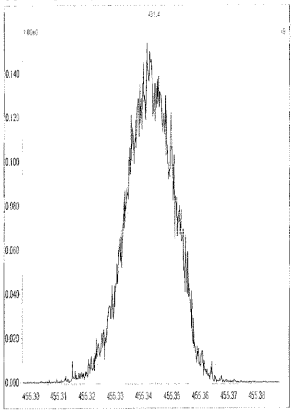

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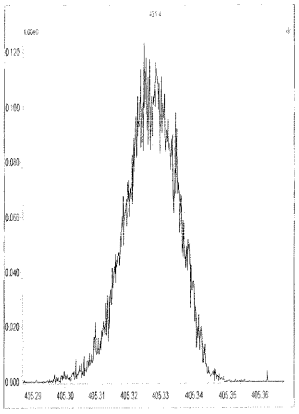

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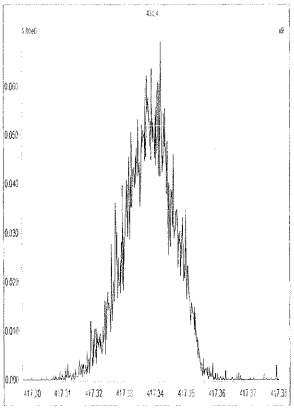

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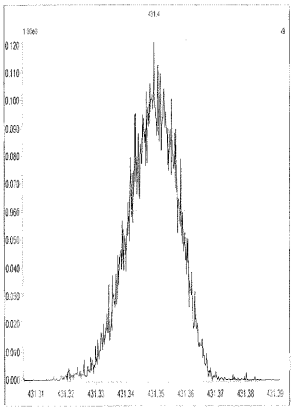

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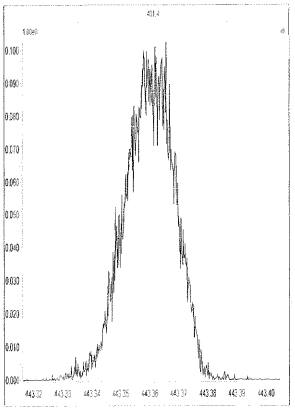

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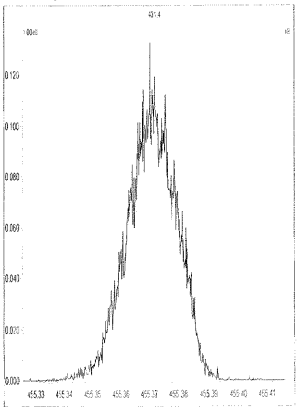

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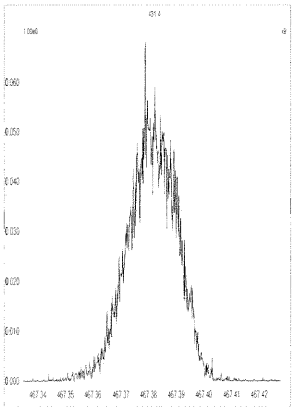

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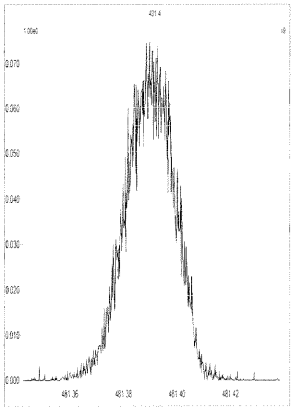

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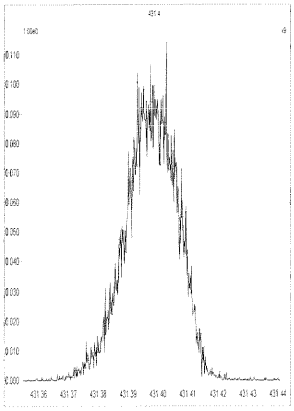
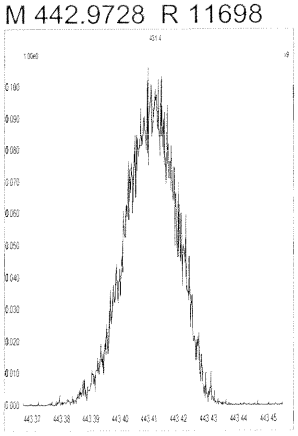


M 442.9728 R 11698



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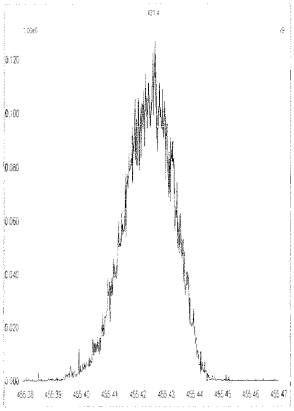

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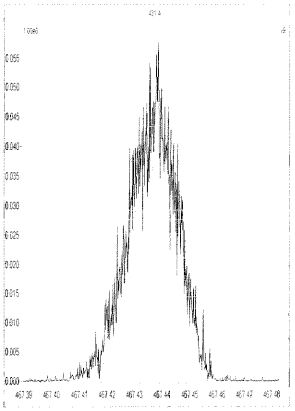

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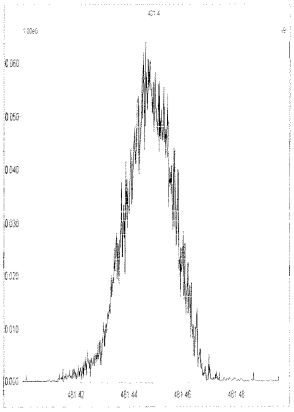

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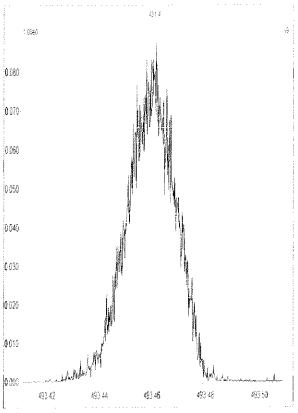

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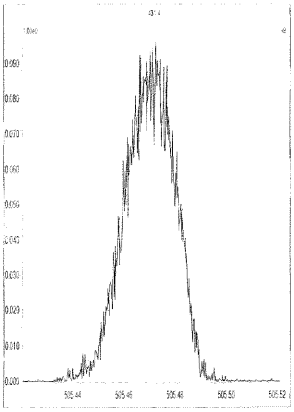

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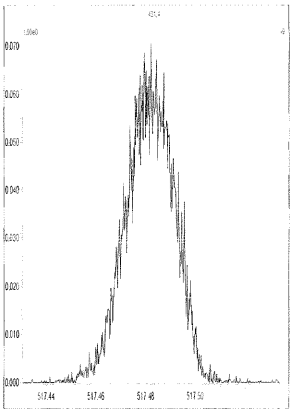


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

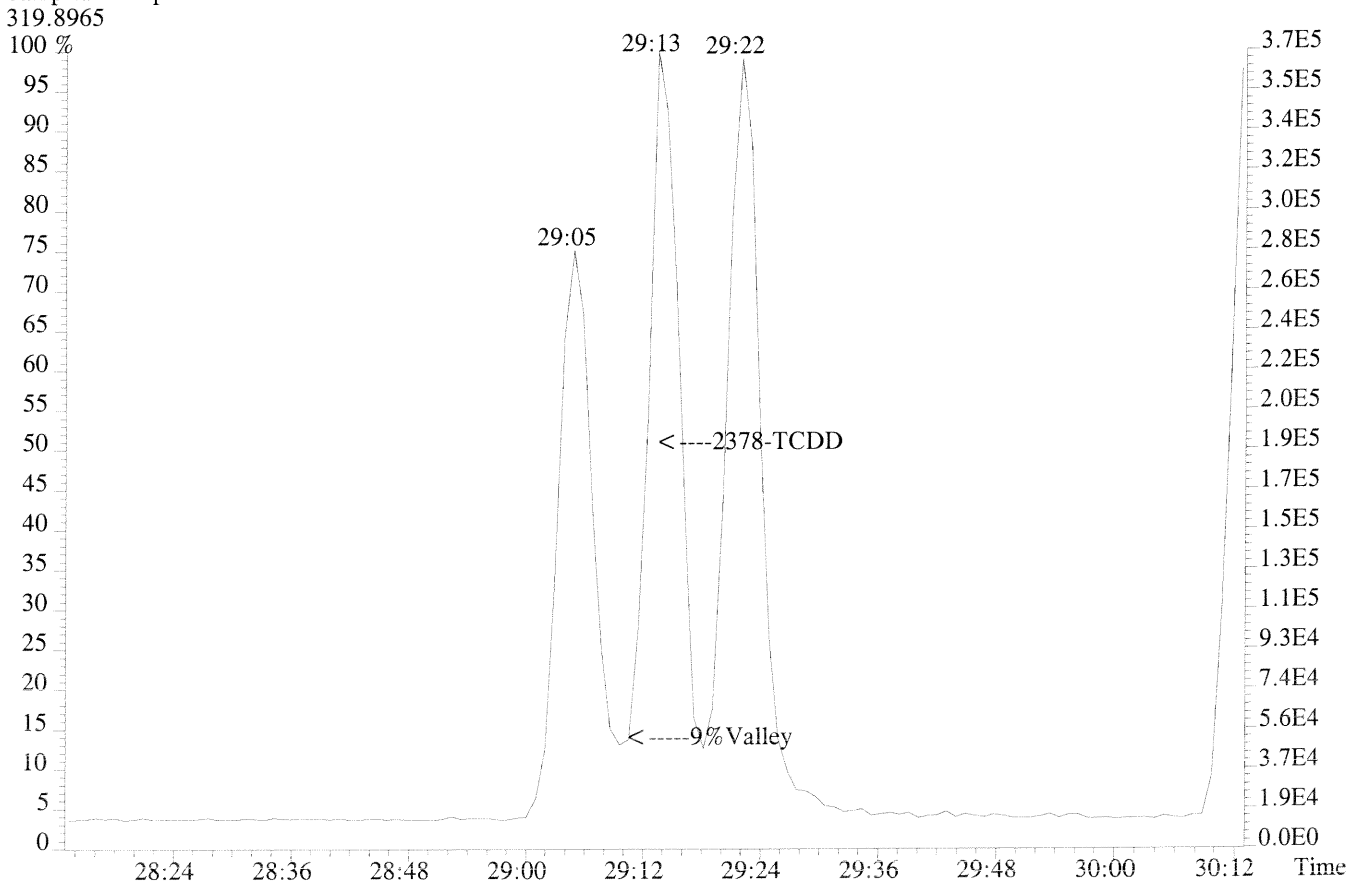
WDM

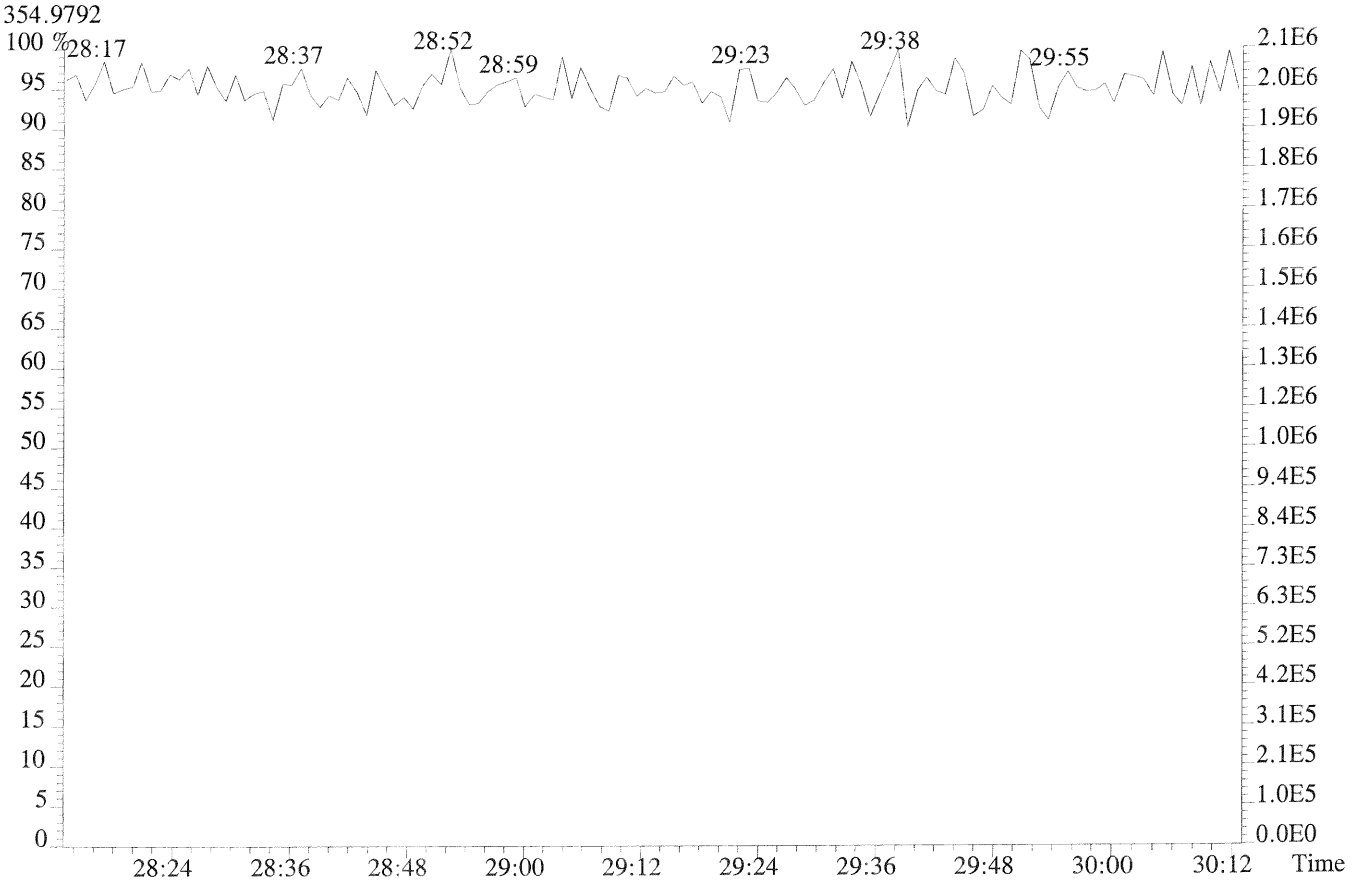
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: _____ SDG No.:
GC Column: DB-5msUI ID: 0.25 (mm) Lab File ID: U149822
Date Analyzed: 2-JUL-2014
Time Analyzed: 16:08:46

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:07	30:24
TCDD	26:01	30:13
PeCDF	30:18	34:32
PeCDD	31:50	34:16
HxCDF	35:10	37:41
HxCDD	35:40	37:15
HpCDF	38:54	40:21
HpCDD	39:09	39:51

% Valley 2378-TCDD: 9 %

File:U149822 #1-627 Acq: 2-JUL-2014 16:08:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





File:U149822 #1-627 Acq: 2-JUL-2014 16:08:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
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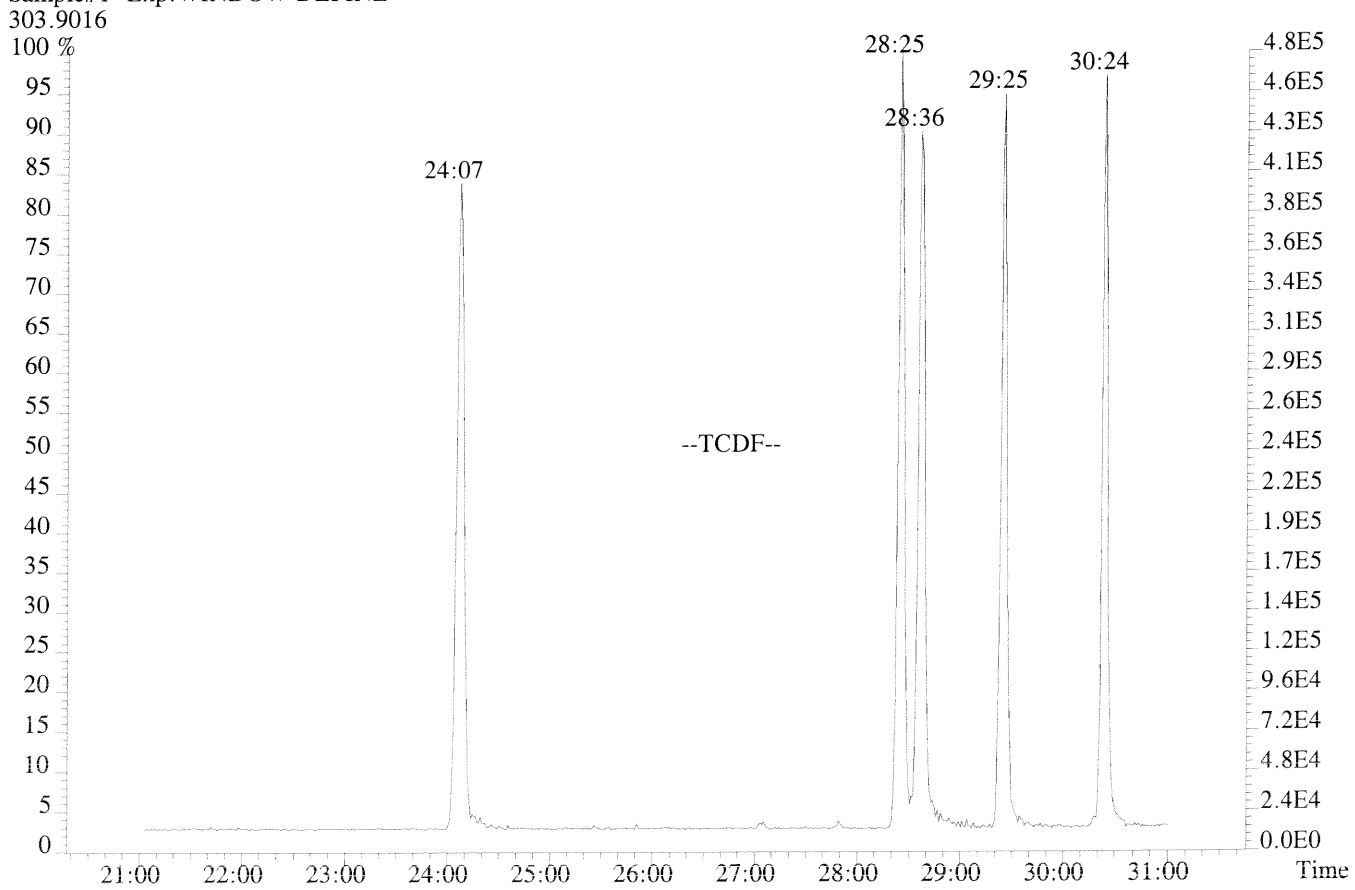
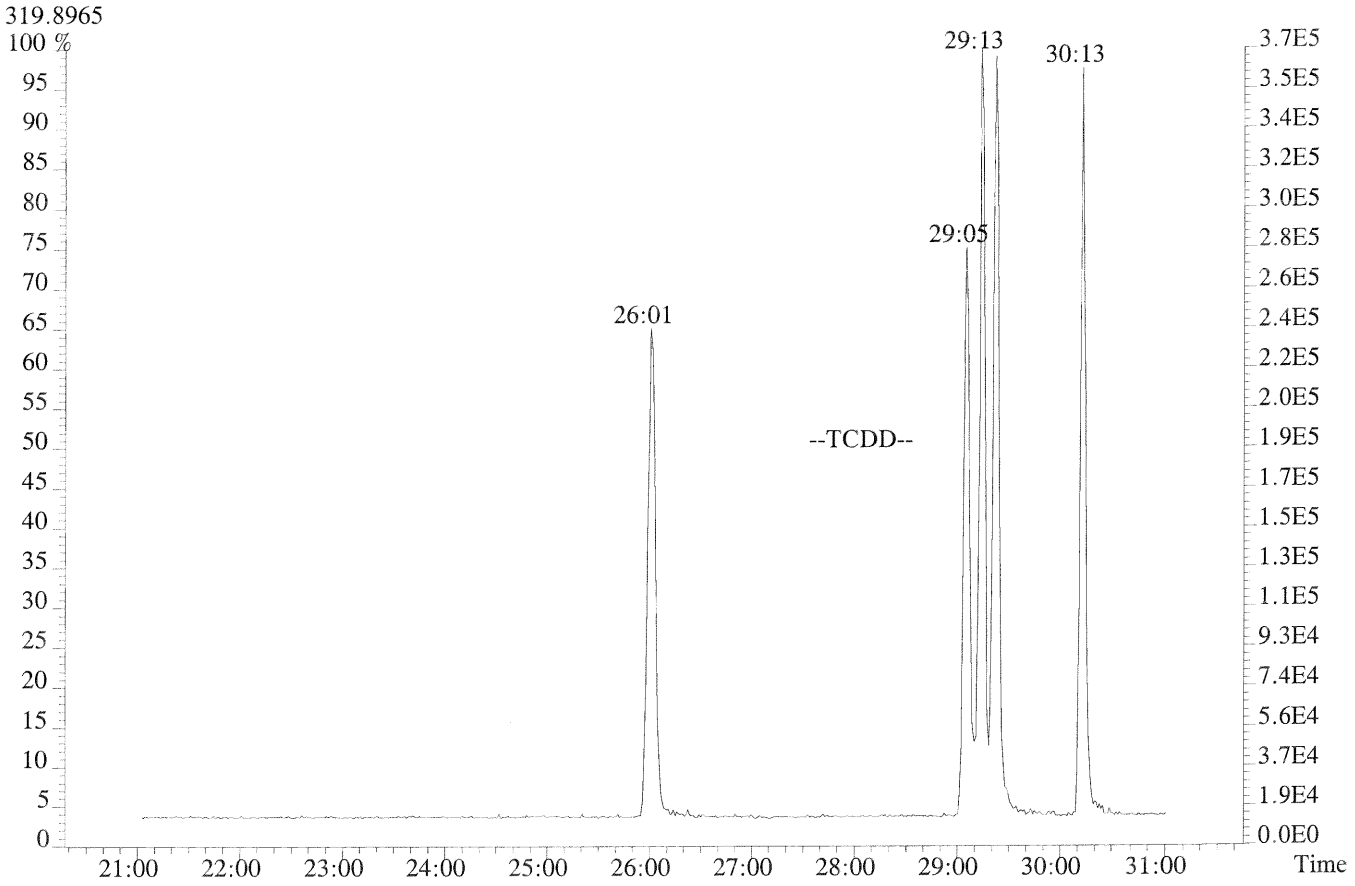
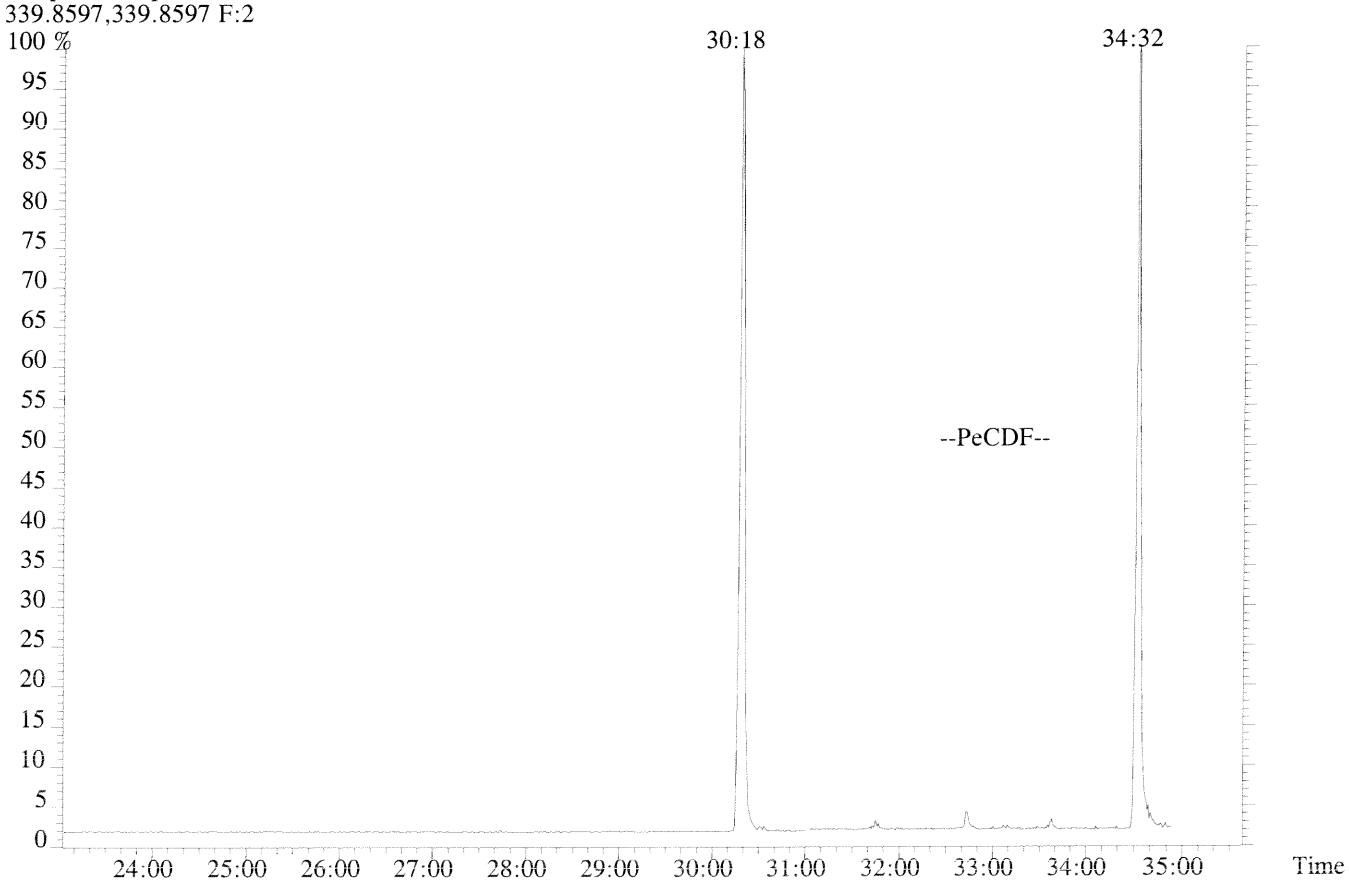
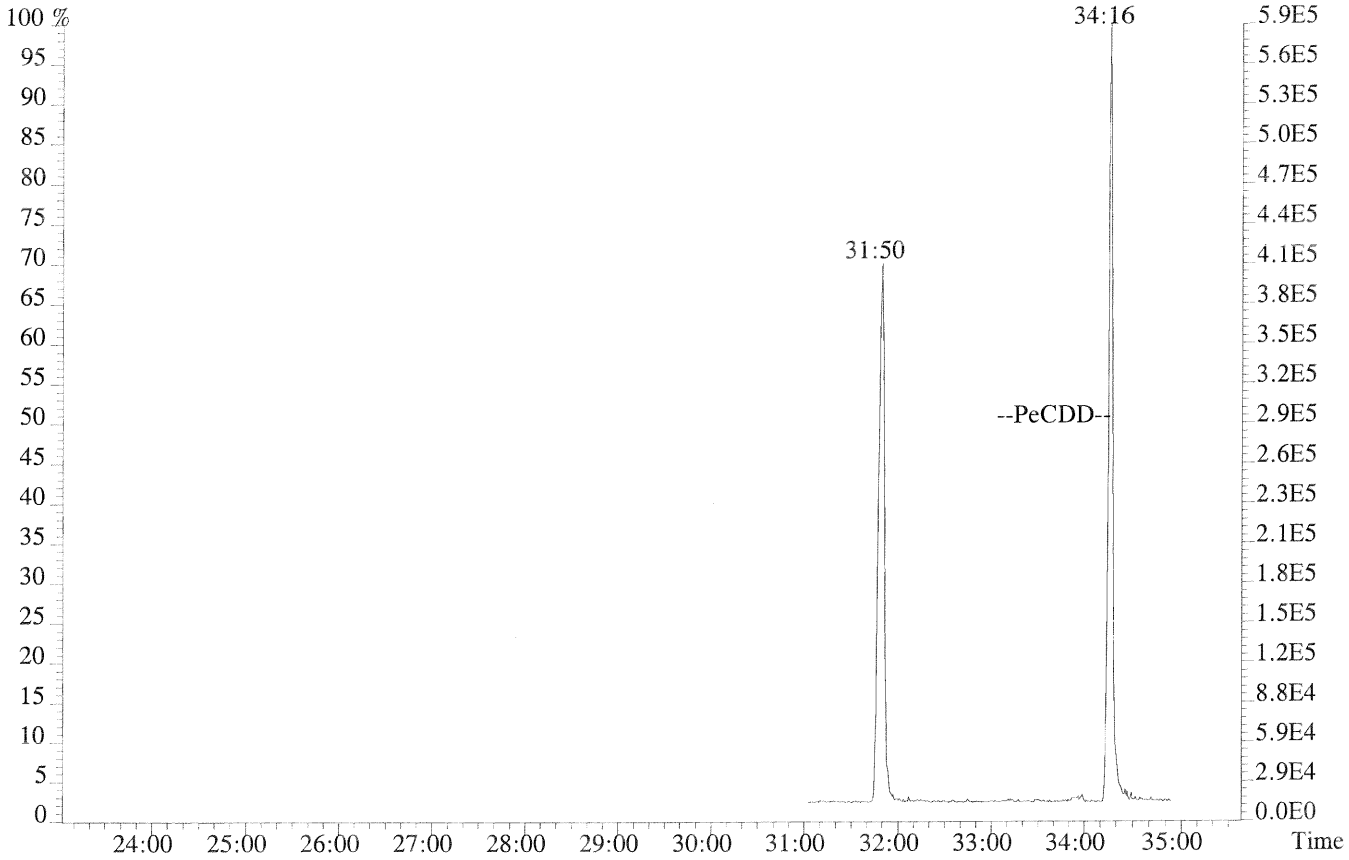




File:U149822 #1-627 Acq: 2-JUL-2014 16:08:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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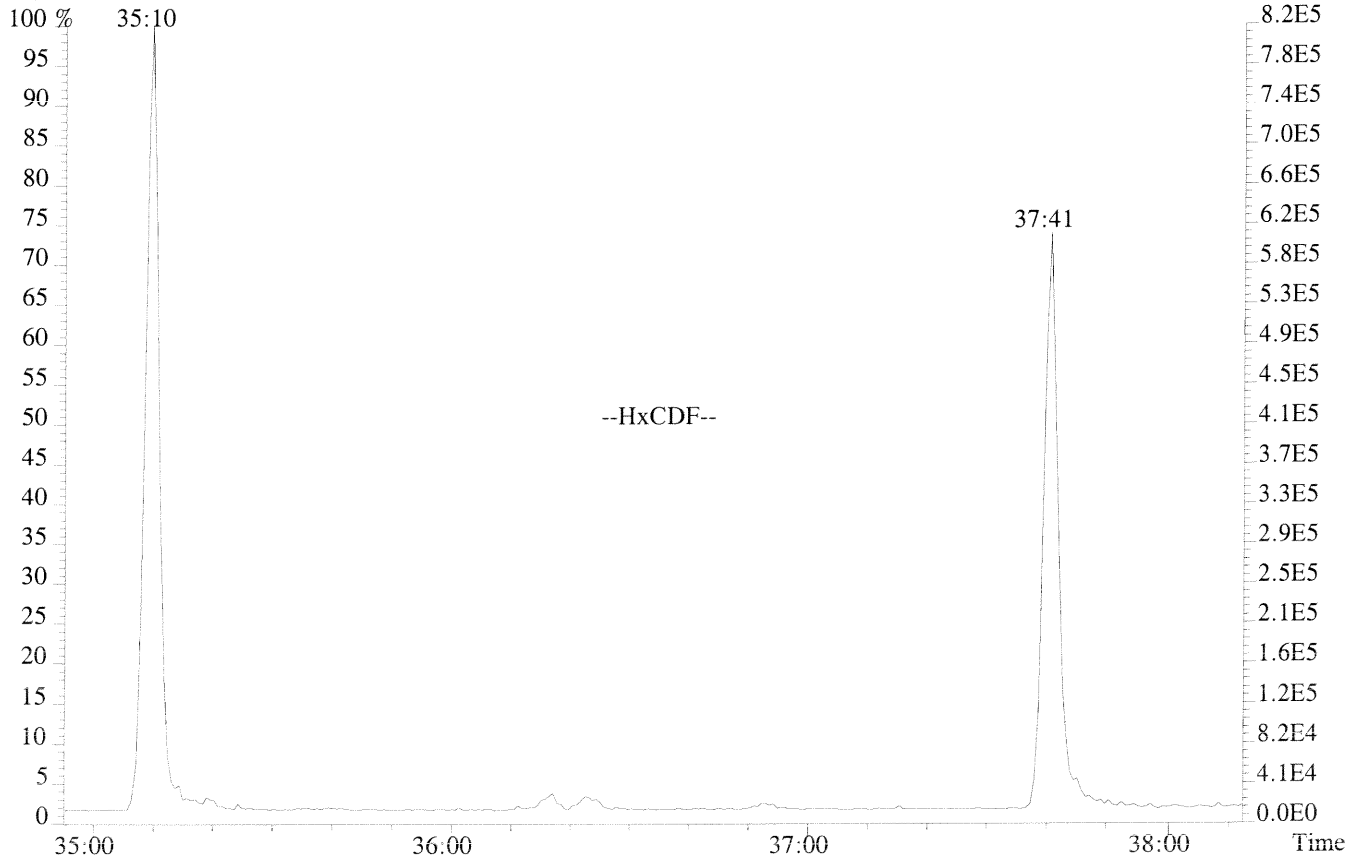
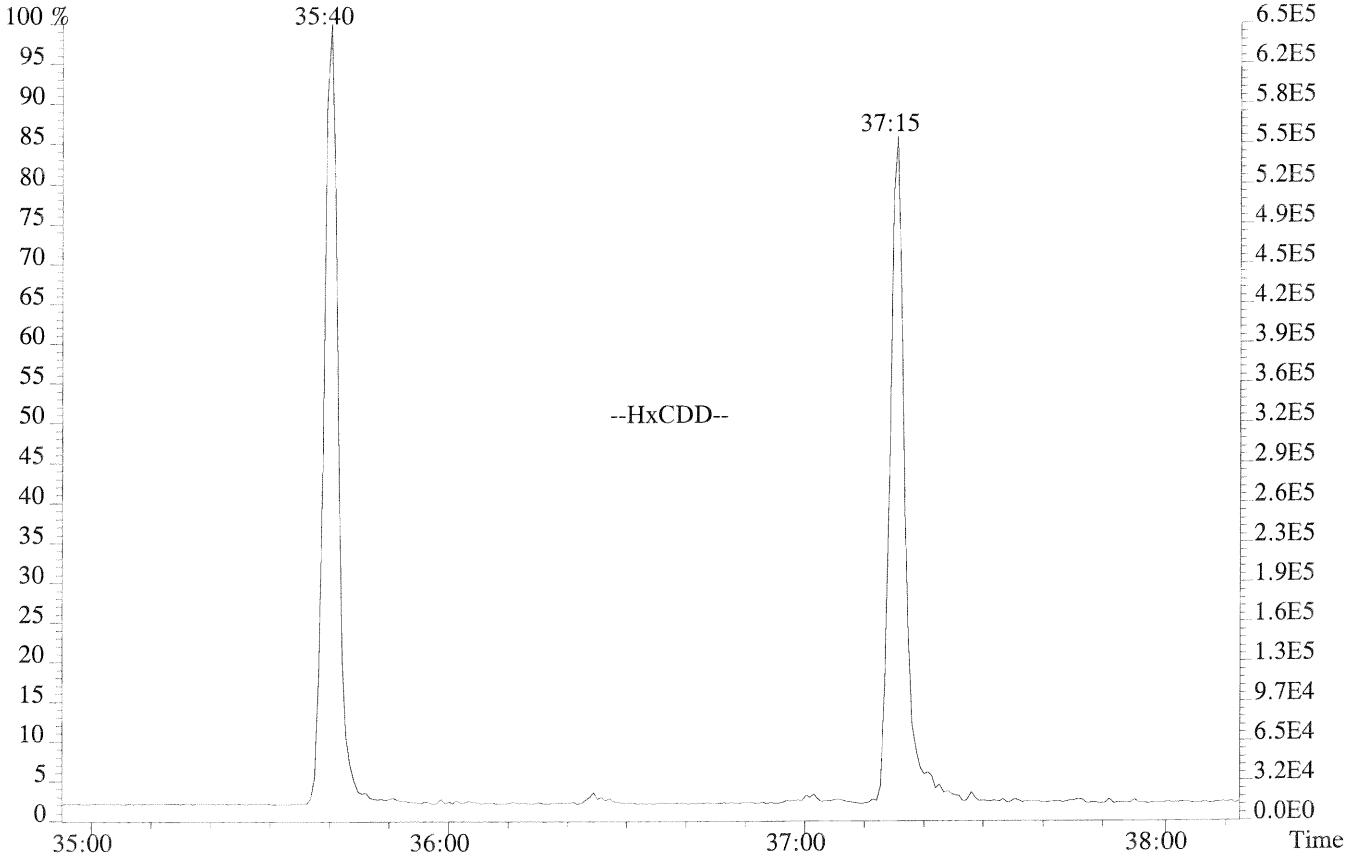
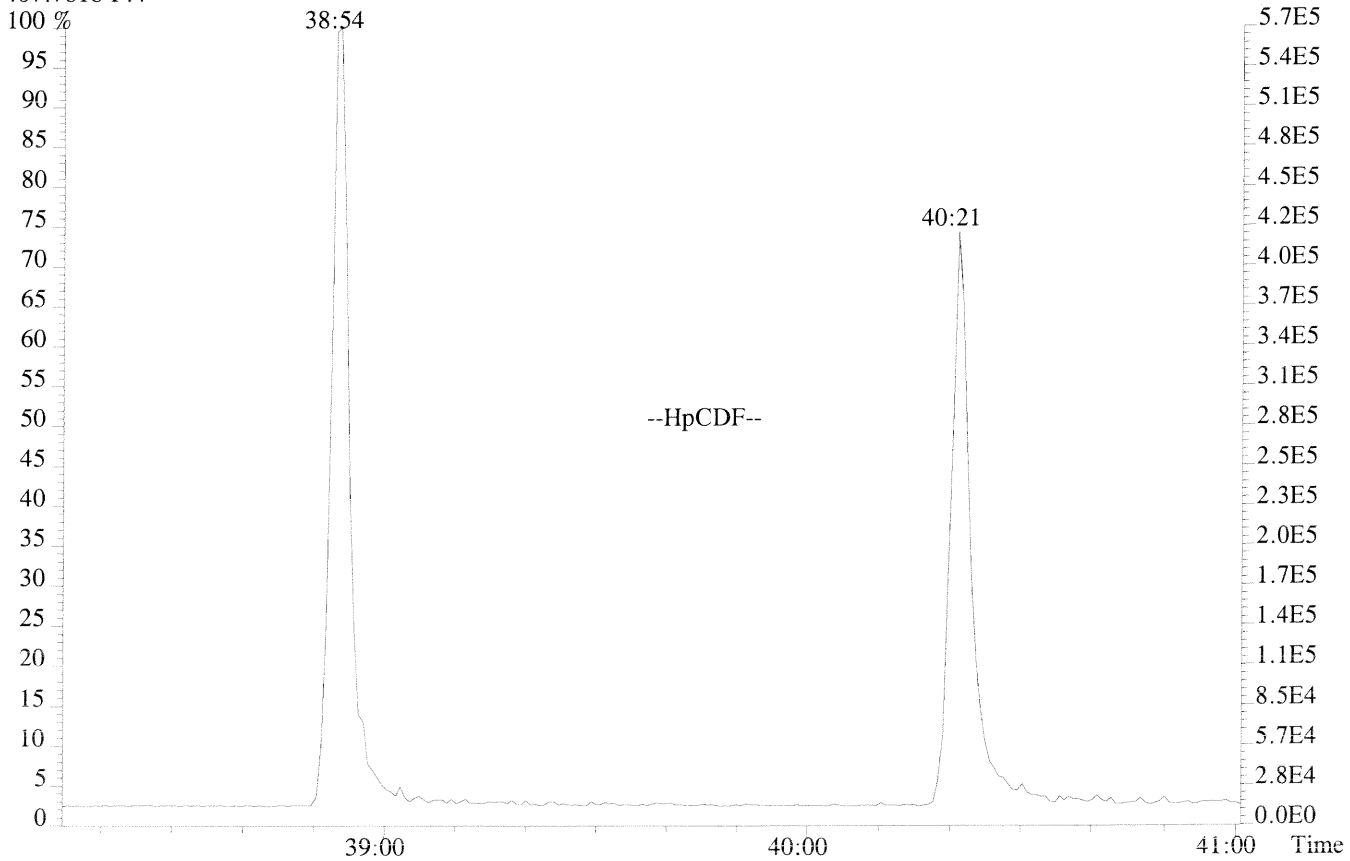
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



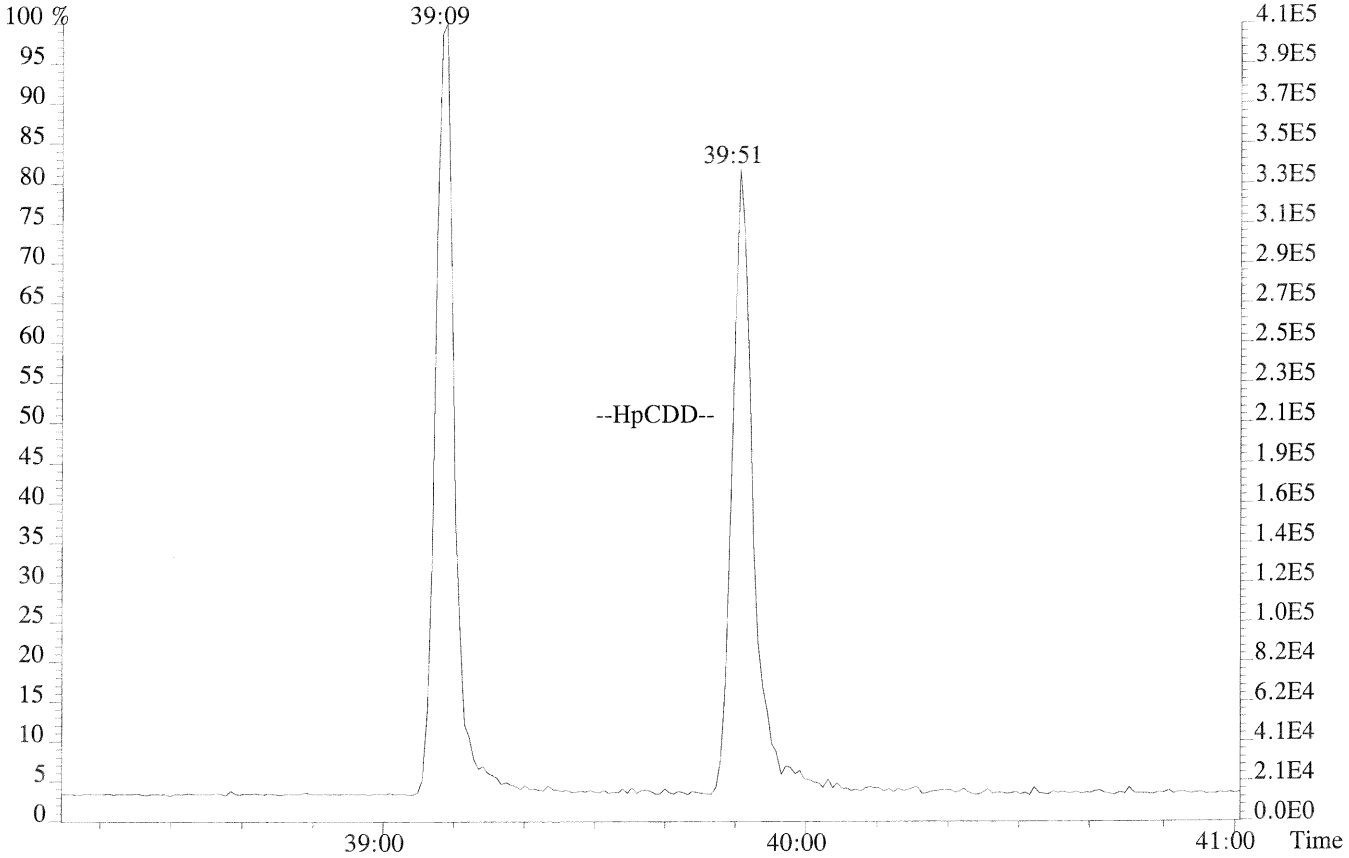
389.8157 F:3



File:U149822 #1-252 Acq: 2-JUL-2014 16:08:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 | GC Column ID: DB-5MSUI

VER Data Filename: U149821 | Analysis Date: 2-JUL-14 Time: 15:02:27

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	9.7	7.8 - 12.9	-3.4
1,2,3,7,8-PeCDD	M+2/M+4	1.65	1.32-1.78	51	39 - 65	1.8
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	52	39 - 64	4.0
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	53	39 - 64	6.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	53	41 - 61	6.0
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58	-0.1
OCDD	M+2/M+4	0.90	0.76-1.02	104	79 - 126	4.1
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	10.6	8.4 - 12.0	5.6
1,2,3,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	53	41 - 60	6.0
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	52	41 - 61	4.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	52	45 - 56	4.0
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	52	44 - 57	3.4
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	52	45 - 56	4.8
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	52	44 - 57	4.0
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.05	0.88-1.20	51	45 - 55	1.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	49	43 - 58	-1.5
OCDF	M+2/M+4	0.90	0.76-1.02	107	63 - 159	7.1

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 GC Column ID: DB-5MSUI

VER Data Filename: U149821 Analysis Date: 2-JUL-14 Time: 15:02:27

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	96	82 - 121	-4.0
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.56	1.32-1.78	100	62 - 160	0.4
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	98	85 - 117	-2.0
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	99	85 - 118	-1.4
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	100	72 - 138	-0.4
13C-OCDD	M+2/M+4	0.90	0.76-1.02	178	96 - 415	-11.0
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	101	71 - 140	0.8
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	101	76 - 130	0.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	103	77 - 130	3.2
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.51	0.43-0.59	97	76 - 131	-2.7
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	70 - 143	0.3
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	101	74 - 135	0.5
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	103	73 - 137	3.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	102	78 - 129	2.1
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	101	77 - 129	0.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-1.6

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #7 Filename U149821 Samp: 1 Inj: 1 Acquired: 2-JUL-14 15:02:27
Processed: 3-JUL-14 07:18:16 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:36	3.779e+03	4.909e+03	0.77	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:43	3.677e+04	2.366e+04	1.55	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:38	3.459e+04	2.220e+04	1.56	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:16	3.084e+04	2.490e+04	1.24	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	3.403e+04	2.732e+04	1.25	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:52	3.197e+04	2.598e+04	1.23	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	2.962e+04	2.356e+04	1.26	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	2.813e+04	2.671e+04	1.05	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:21	2.324e+04	2.245e+04	1.04	yes	no	1.358
10	Unk	OCDF	42:58	3.448e+04	3.846e+04	0.90	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:21	2.615e+03	3.342e+03	0.78	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:53	2.429e+04	1.472e+04	1.65	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:00	2.139e+04	1.722e+04	1.24	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	2.358e+04	1.870e+04	1.26	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	2.512e+04	1.929e+04	1.30	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:51	1.947e+04	1.865e+04	1.04	yes	no	1.065
17	Unk	OCDD	42:44	2.924e+04	3.254e+04	0.90	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:35	3.890e+04	4.824e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:42	7.142e+04	4.533e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:36	7.129e+04	4.481e+04	1.59	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	2.970e+04	5.772e+04	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.544e+04	6.777e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	3.375e+04	6.437e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	3.013e+04	5.809e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	2.376e+04	5.201e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	2.125e+04	4.706e+04	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:20	2.649e+04	3.439e+04	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	4.559e+04	2.914e+04	1.56	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.680e+04	2.872e+04	1.28	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	4.052e+04	3.168e+04	1.28	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:49	3.736e+04	3.432e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:44	4.788e+04	5.298e+04	0.90	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:46	2.641e+04	3.381e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	4.331e+04	3.353e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:21	6.190e+03				no	1.044

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
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Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #7 Filename U149821 Samp: 1 Inj: 1 Acquired: 2-JUL-14 15:02:27
Processed: 3-JUL-14 07:18:161 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	7.78e+05	5.40e+02	1.4e+03	1.00e+06	6.16e+02	1.6e+03
2	1,2,3,7,8-PeCDF	6.89e+06	8.52e+02	8.1e+03	4.39e+06	1.17e+03	3.7e+03
3	2,3,4,7,8-PeCDF	6.74e+06	8.52e+02	7.9e+03	4.29e+06	1.17e+03	3.7e+03
4	1,2,3,4,7,8-HxCDF	6.70e+06	5.92e+02	1.1e+04	5.49e+06	6.88e+02	8.0e+03
5	1,2,3,6,7,8-HxCDF	6.85e+06	5.92e+02	1.2e+04	5.57e+06	6.88e+02	8.1e+03
6	2,3,4,6,7,8-HxCDF	6.53e+06	5.92e+02	1.1e+04	5.34e+06	6.88e+02	7.8e+03
7	1,2,3,7,8,9-HxCDF	5.83e+06	5.92e+02	9.8e+03	4.71e+06	6.88e+02	6.8e+03
8	1,2,3,4,6,7,8-HpCDF	5.77e+06	2.33e+03	2.5e+03	5.45e+06	9.00e+02	6.1e+03
9	1,2,3,4,7,8,9-HpCDF	4.07e+06	2.33e+03	1.7e+03	3.87e+06	9.00e+02	4.3e+03
10	OCDF	4.85e+06	6.60e+02	7.4e+03	5.53e+06	6.44e+02	8.6e+03
11	2,3,7,8-TCDD	5.45e+05	5.64e+02	9.7e+02	6.89e+05	5.84e+02	1.2e+03
12	1,2,3,7,8-PeCDD	4.75e+06	7.76e+02	6.1e+03	2.89e+06	6.72e+02	4.3e+03
13	1,2,3,4,7,8-HxCDD	4.72e+06	6.52e+02	7.2e+03	3.83e+06	6.16e+02	6.2e+03
14	1,2,3,6,7,8-HxCDD	4.63e+06	6.52e+02	7.1e+03	3.71e+06	6.16e+02	6.0e+03
15	1,2,3,7,8,9-HxCDD	4.85e+06	6.52e+02	7.4e+03	3.69e+06	6.16e+02	6.0e+03
16	1,2,3,4,6,7,8-HpCDD	3.48e+06	8.00e+02	4.4e+03	3.31e+06	6.64e+02	5.0e+03
17	OCDD	4.47e+06	4.60e+02	9.7e+03	4.94e+06	5.64e+02	8.8e+03
18	13C-2,3,7,8-TCDF	7.79e+06	6.96e+02	1.1e+04	9.63e+06	7.28e+02	1.3e+04
19	13C-1,2,3,7,8-PeCDF	1.32e+07	6.84e+02	1.9e+04	8.44e+06	3.88e+02	2.2e+04
20	13C-2,3,4,7,8-PeCDF	1.38e+07	6.84e+02	2.0e+04	8.76e+06	3.88e+02	2.3e+04
21	13C-1,2,3,4,7,8-HxCDF	6.42e+06	8.80e+02	7.3e+03	1.25e+07	7.96e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	7.30e+06	8.80e+02	8.3e+03	1.38e+07	7.96e+02	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	6.90e+06	8.80e+02	7.8e+03	1.33e+07	7.96e+02	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	5.90e+06	8.80e+02	6.7e+03	1.15e+07	7.96e+02	1.4e+04
25	13C-1,2,3,4,6,7,8-HpCDF	4.83e+06	2.53e+03	1.9e+03	1.06e+07	2.60e+03	4.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.68e+06	2.53e+03	1.5e+03	8.13e+06	2.60e+03	3.1e+03
27	13C-2,3,7,8-TCDD	5.69e+06	1.28e+03	4.5e+03	7.35e+06	6.36e+02	1.2e+04
28	13C-1,2,3,7,8-PeCDD	9.07e+06	4.80e+02	1.9e+04	5.79e+06	7.16e+02	8.1e+03
29	13C-1,2,3,4,7,8-HxCDD	8.18e+06	6.96e+02	1.2e+04	6.41e+06	5.12e+02	1.3e+04
30	13C-1,2,3,6,7,8-HxCDD	8.01e+06	6.96e+02	1.2e+04	6.30e+06	5.12e+02	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	6.72e+06	6.52e+02	1.0e+04	6.22e+06	6.60e+02	9.4e+03
32	13C-OCDD	7.22e+06	6.36e+02	1.1e+04	7.96e+06	7.60e+02	1.0e+04
33	13C-1,2,3,4-TCDD	5.58e+06	1.28e+03	4.4e+03	7.12e+06	6.36e+02	1.1e+04
34	13C-1,2,3,7,8,9-HxCDD	8.34e+06	6.96e+02	1.2e+04	6.43e+06	5.12e+02	1.3e+04
35	37Cl-2,3,7,8-TCDD	1.29e+06	5.20e+02	2.5e+03			

ALS ENVIRONMENTAL
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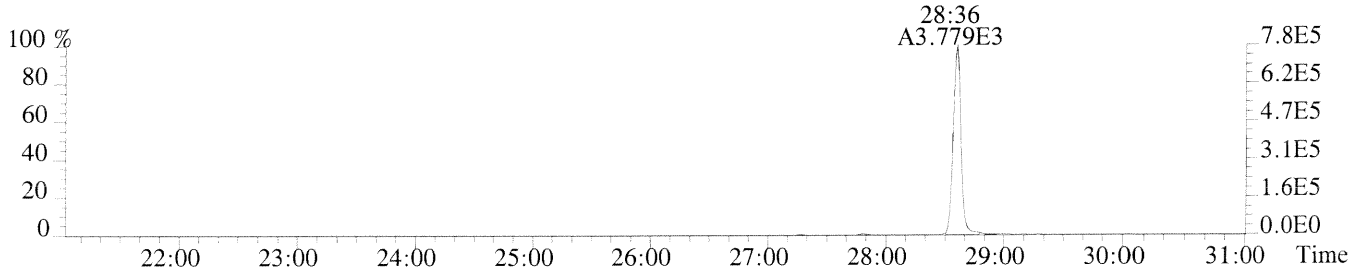
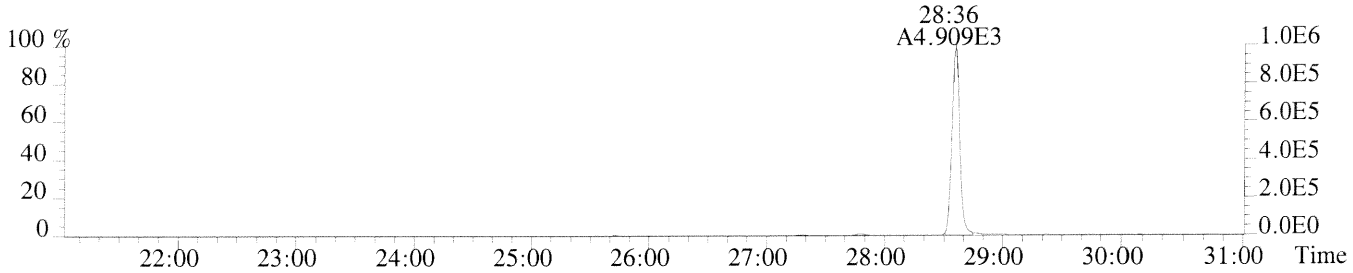
File:U149821 #1-627 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

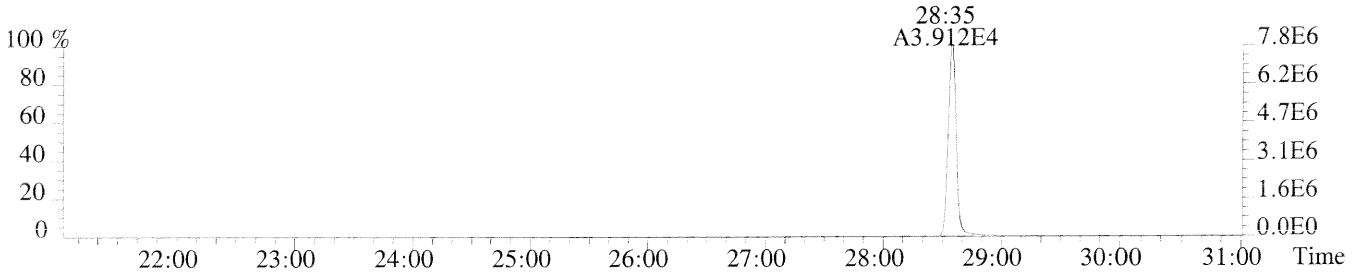
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



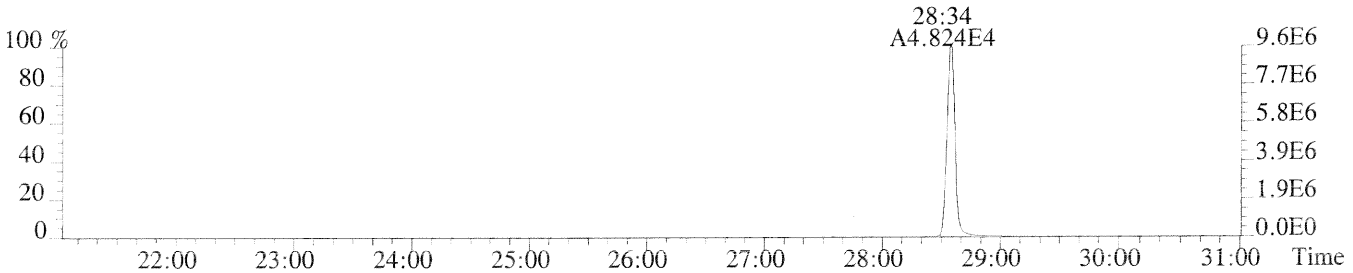
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



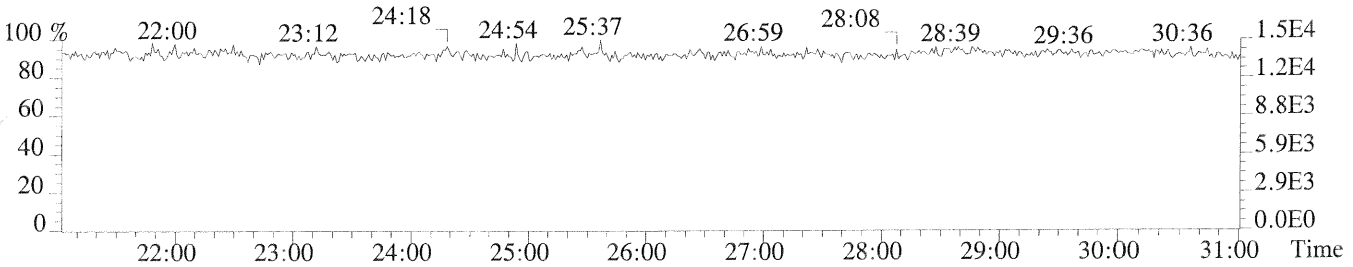
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



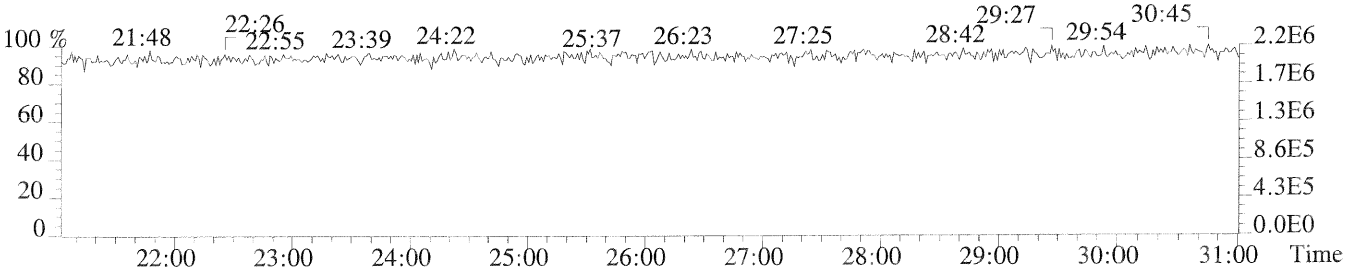
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

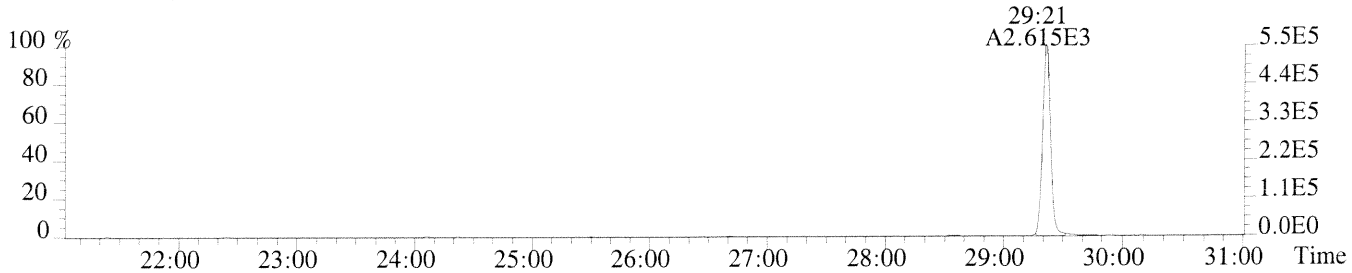


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

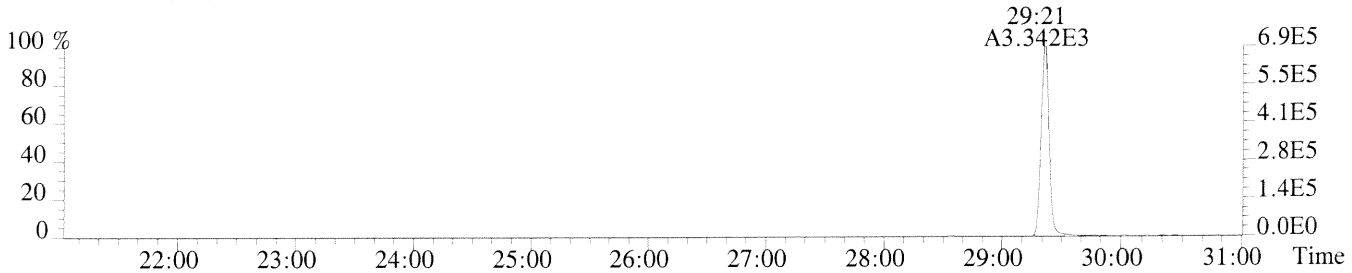


File:U149821 #1-627 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

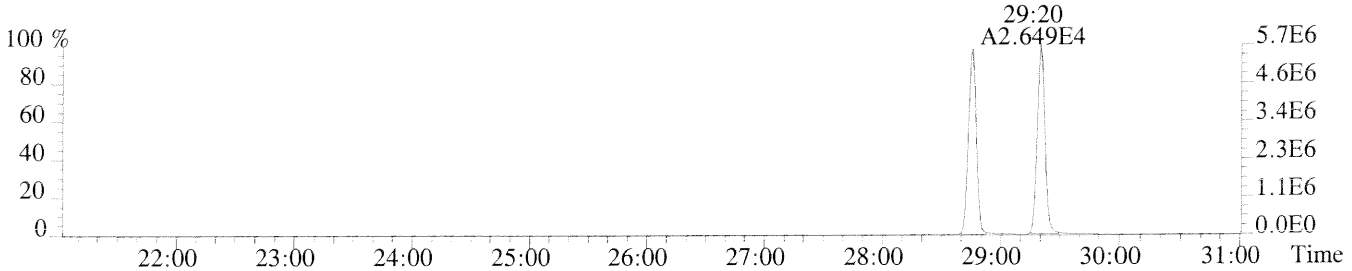
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



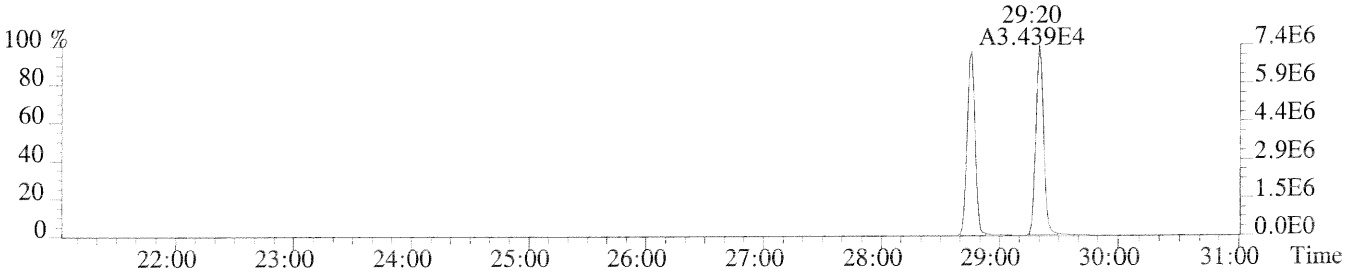
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



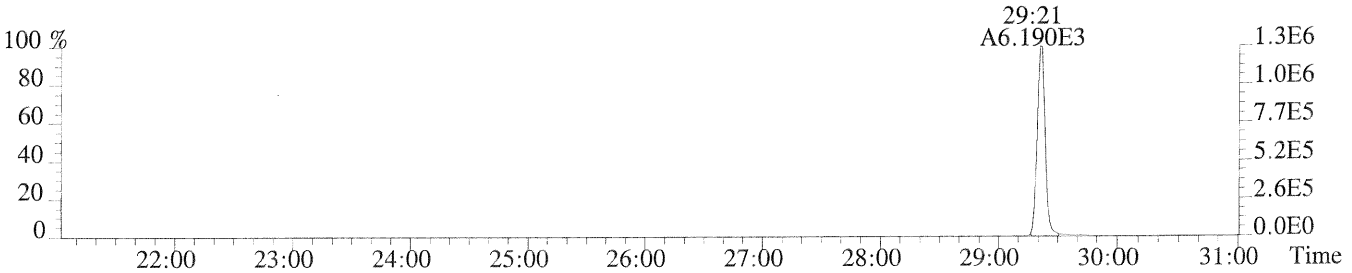
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1276.0,1.00%,F,T)



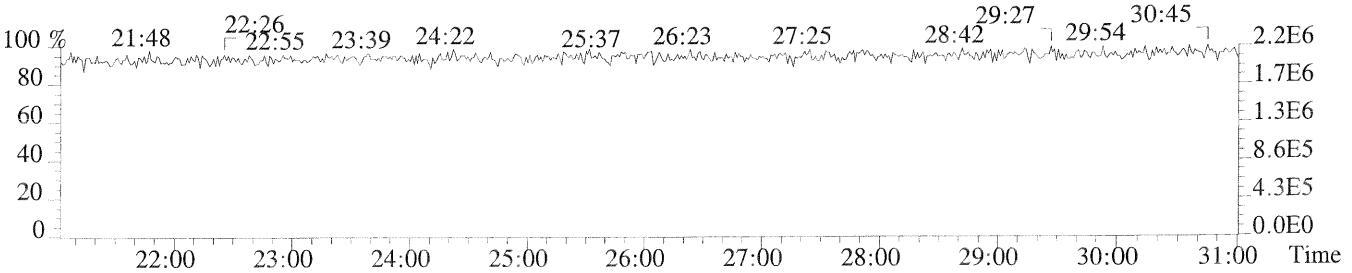
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)

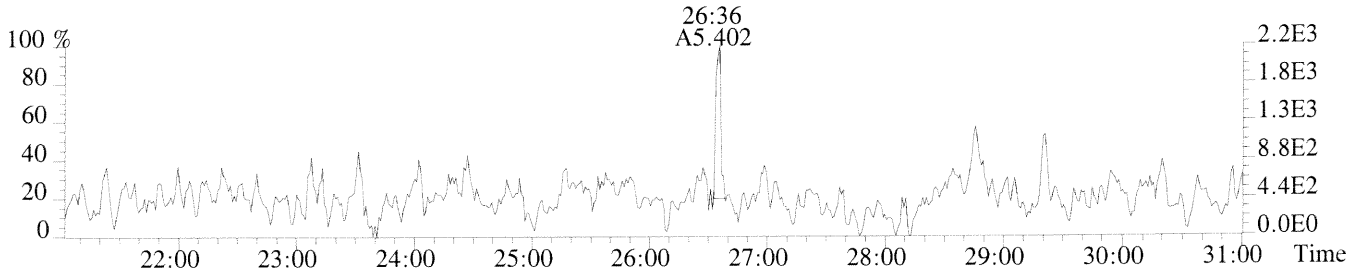


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

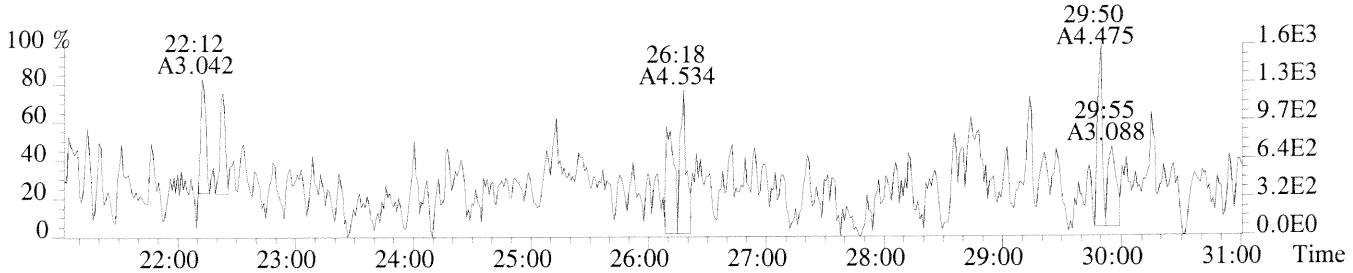


File:U149821 #1-627 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

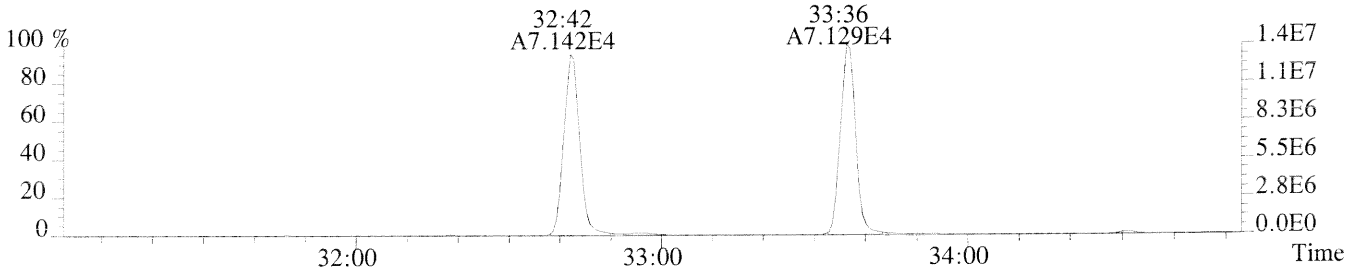
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



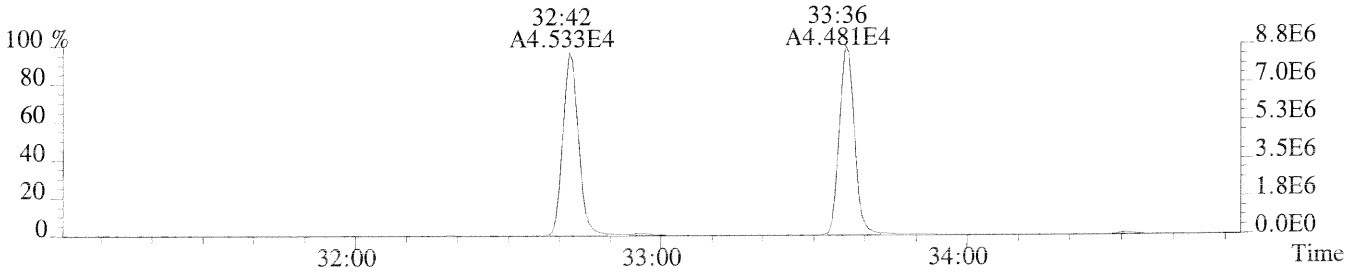
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



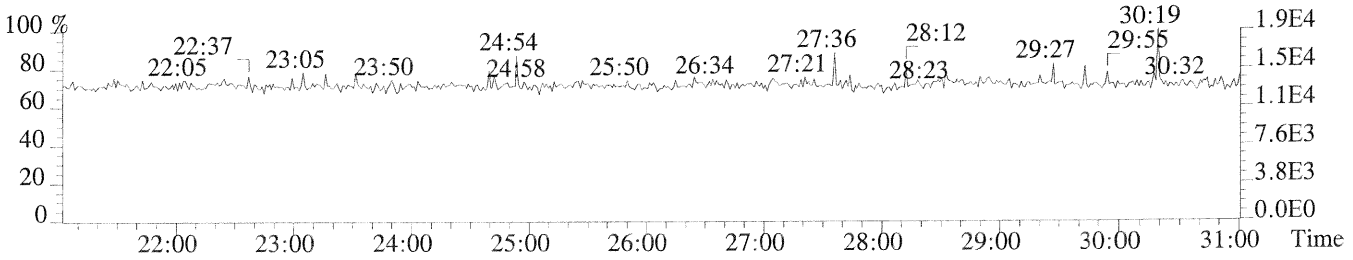
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



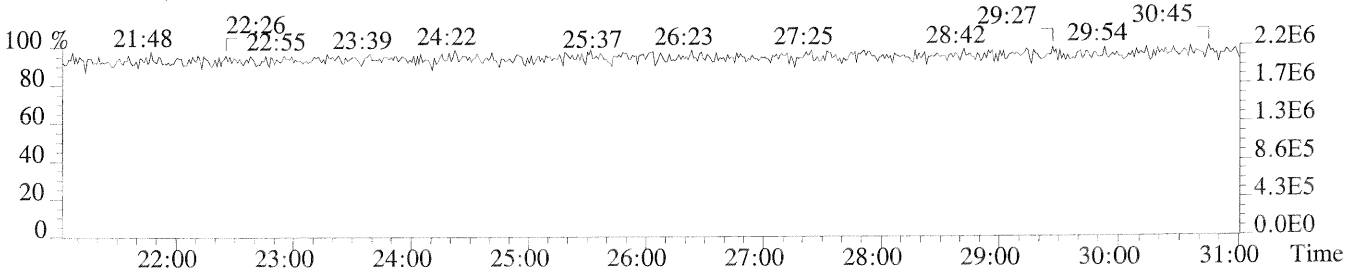
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

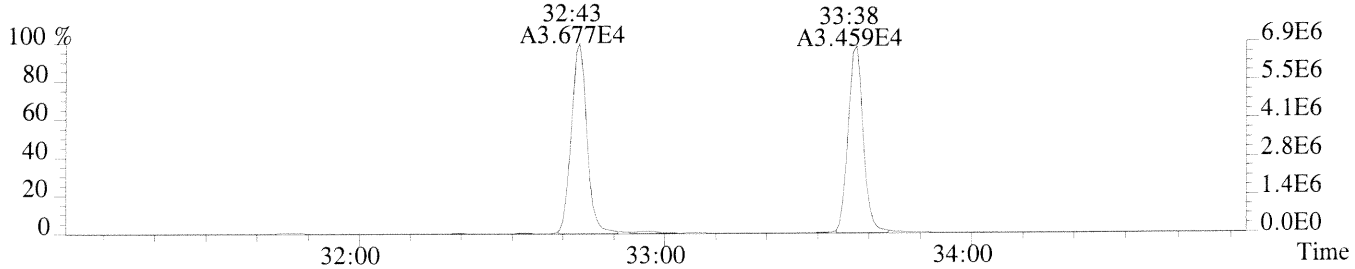


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

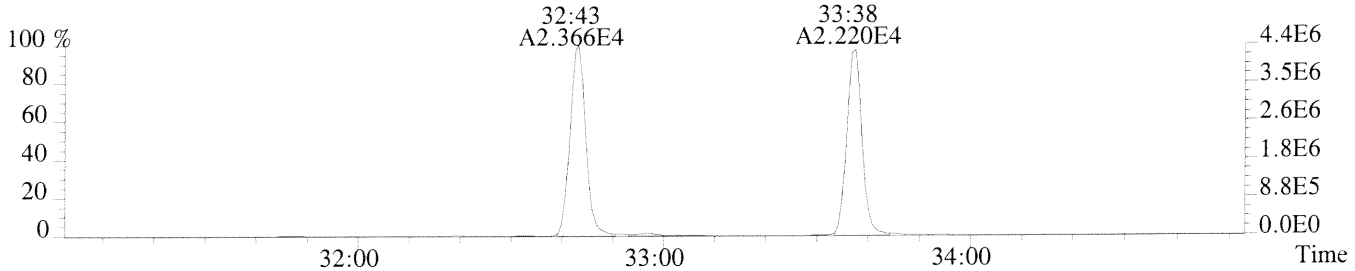


File:U149821 #1-349 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

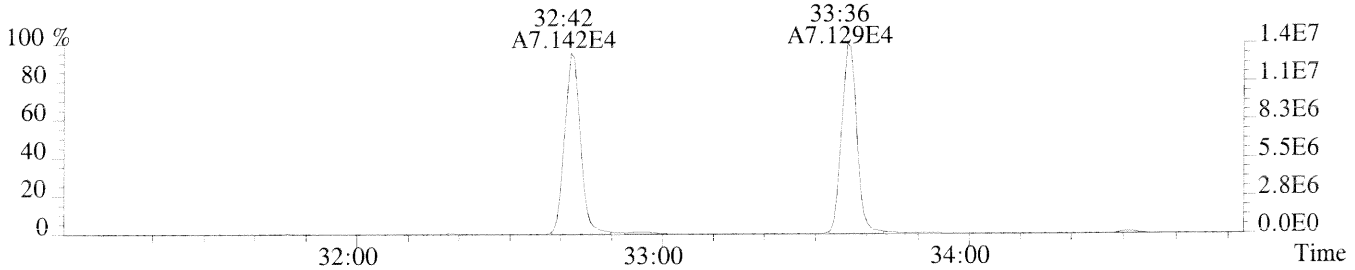
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



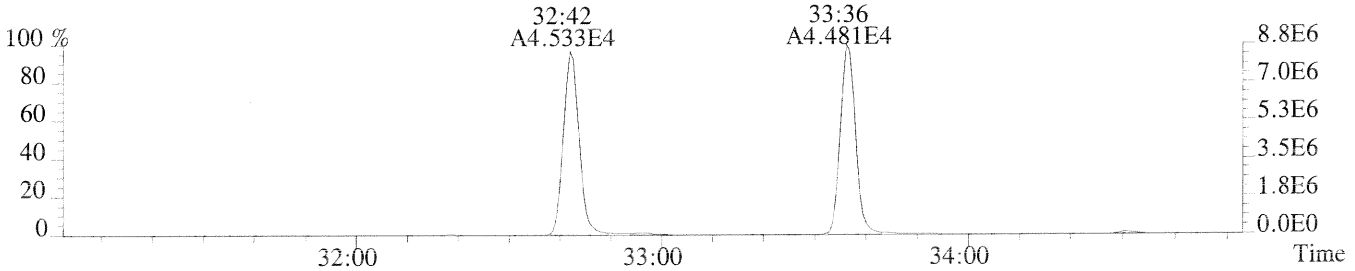
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1172.0,1.00%,F,T)



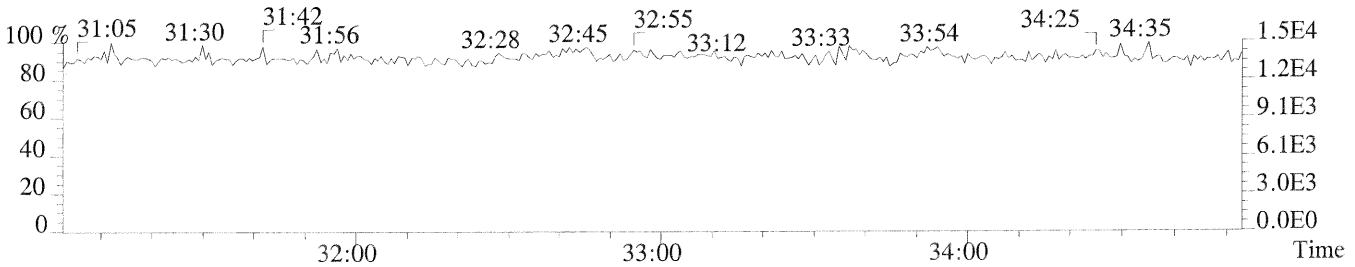
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



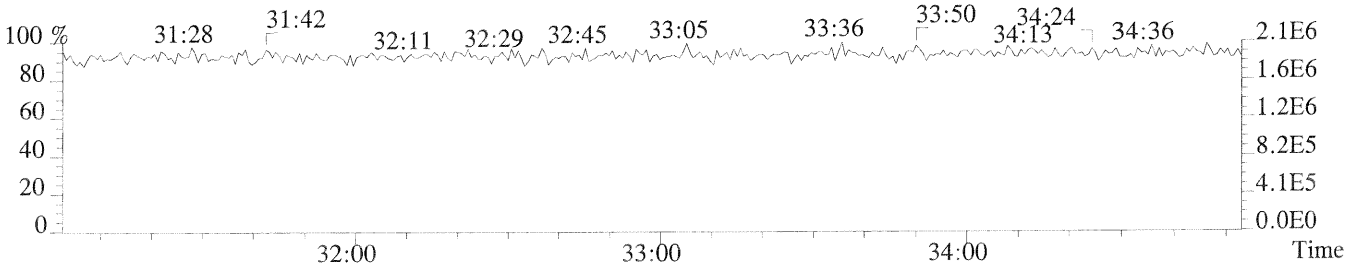
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,388.0,1.00%,F,T)



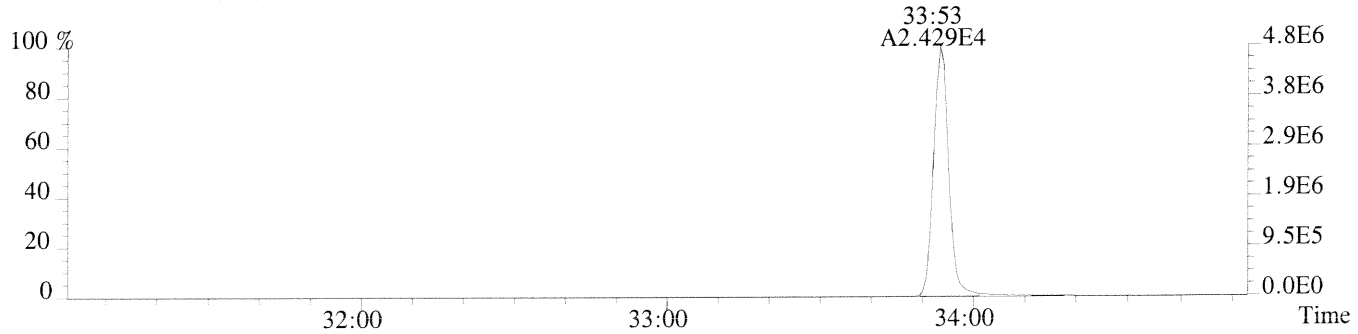
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



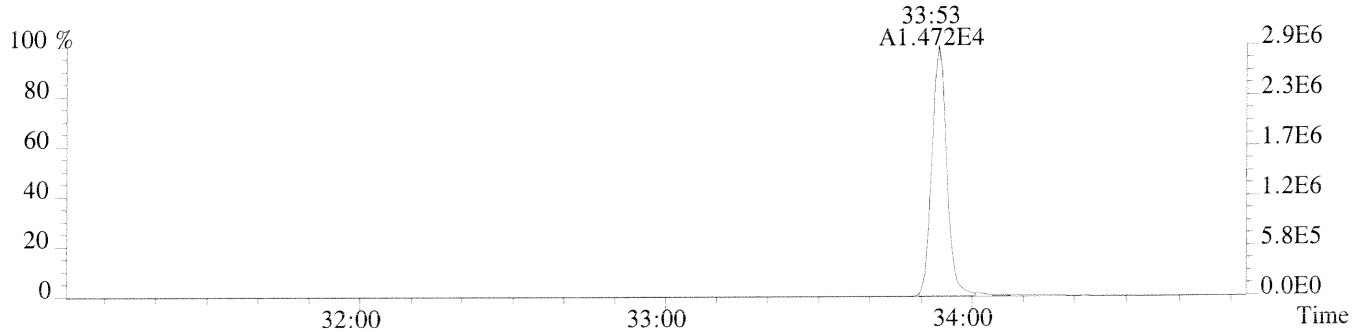
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



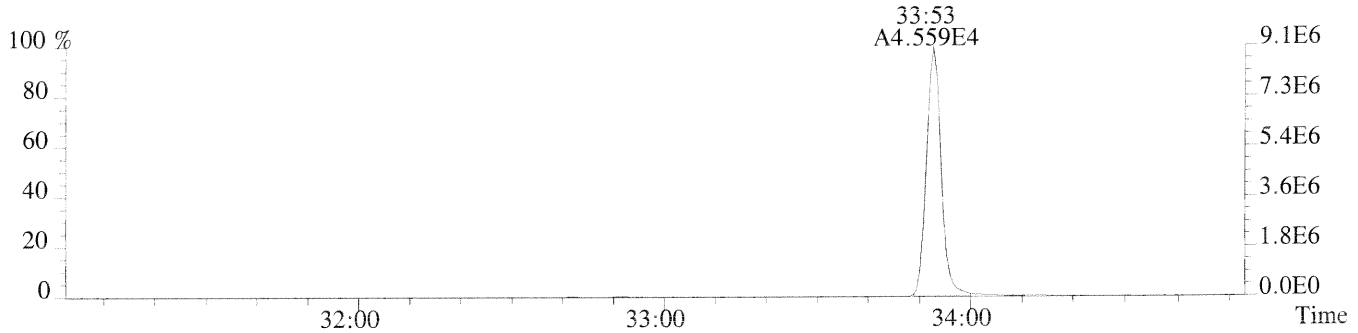
File:U149821 #1-349 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



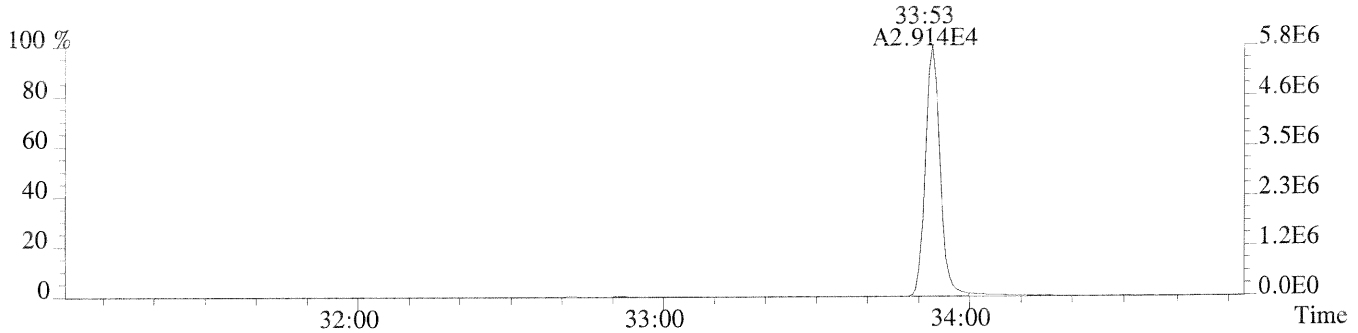
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



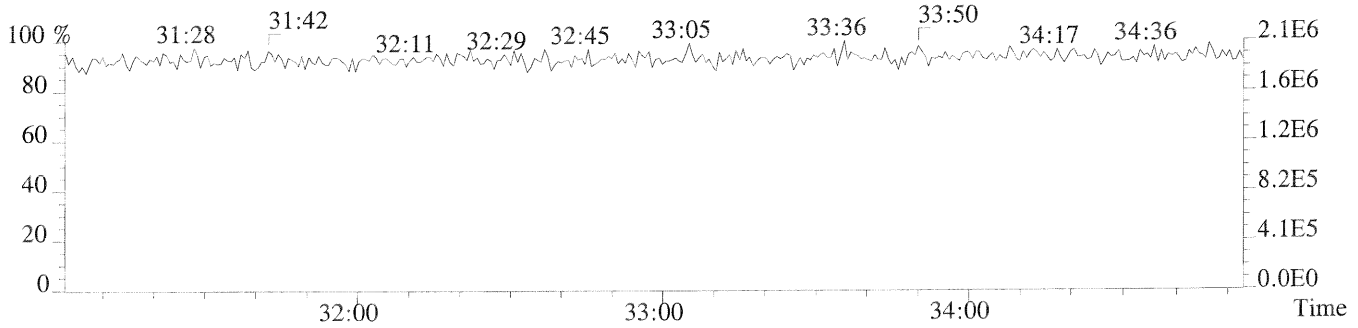
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)

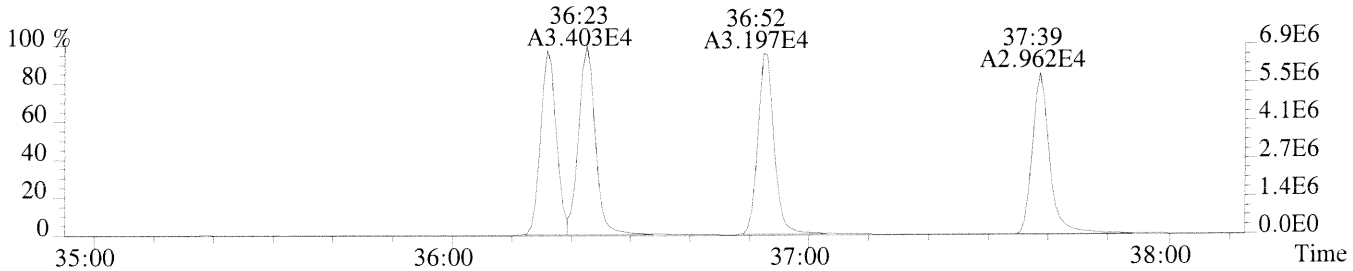


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

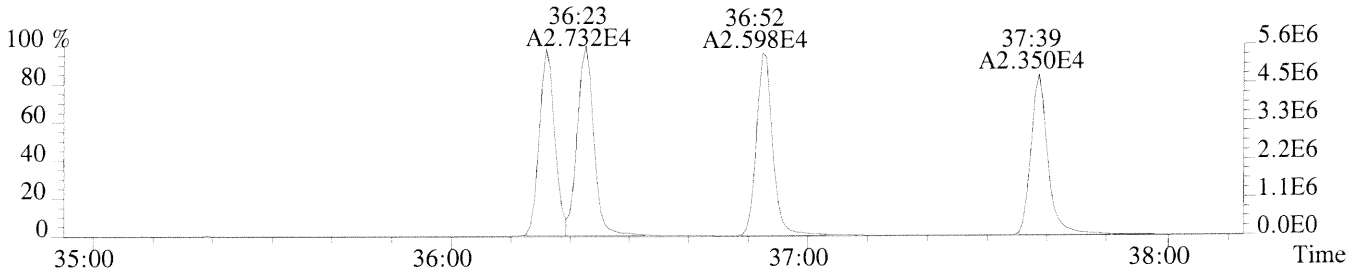


File:U149821 #1-299 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

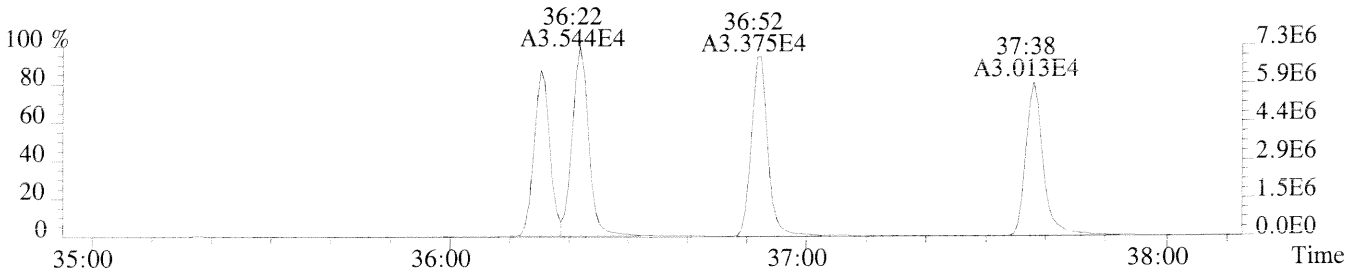
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,592.0,0.40%,F,T)



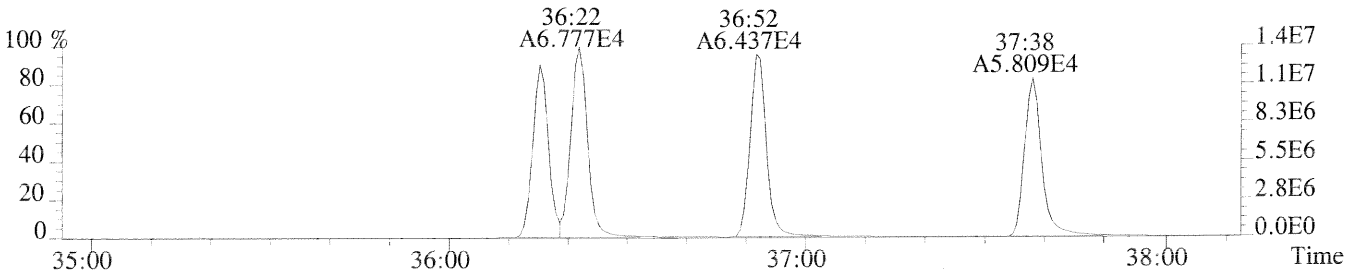
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



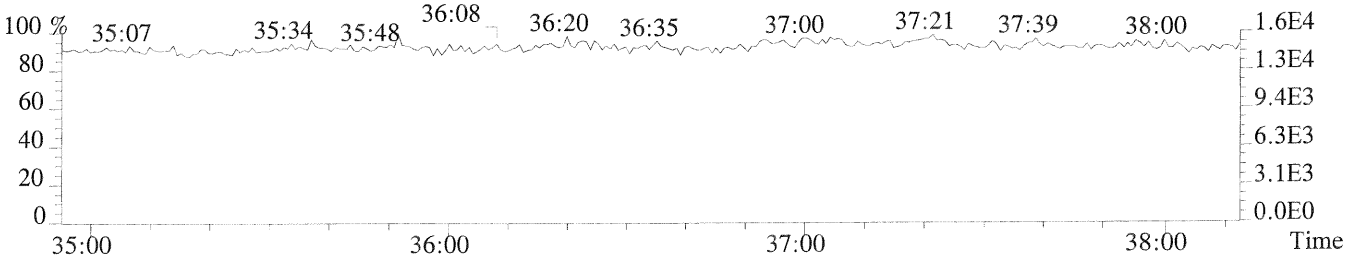
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



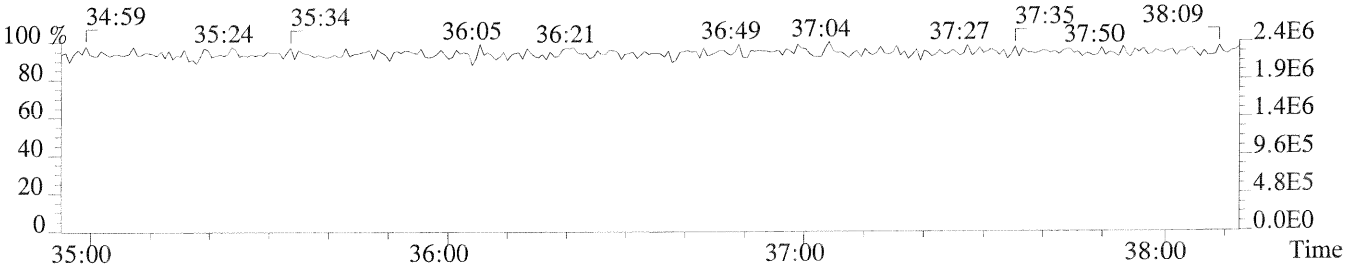
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



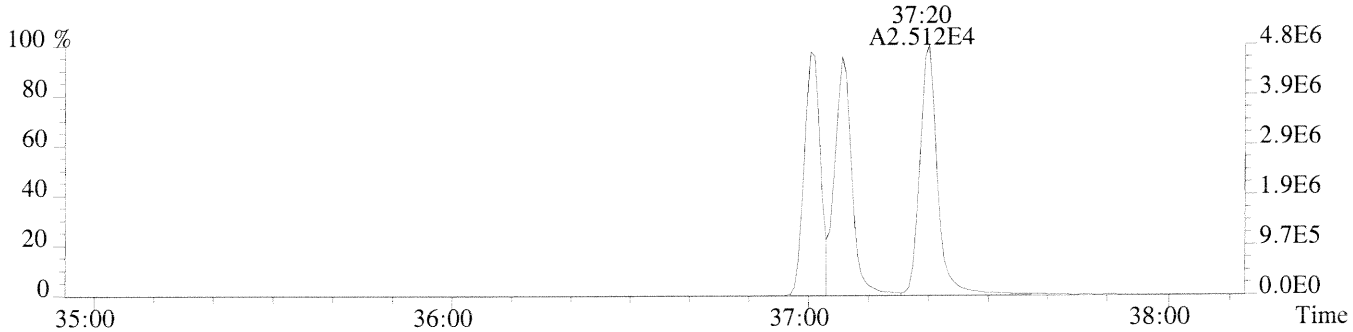
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



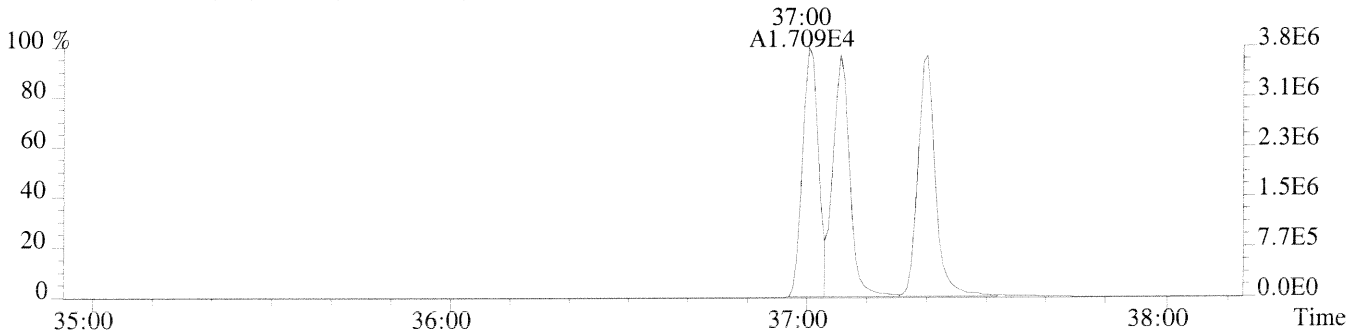
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



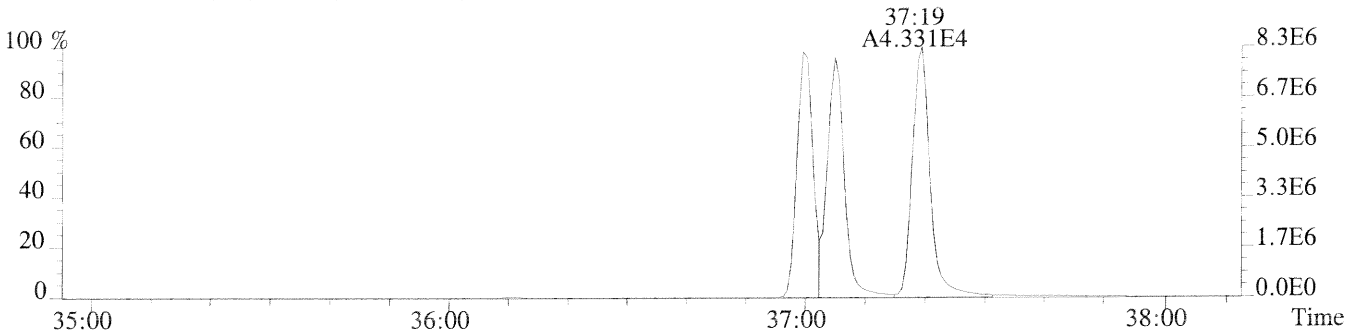
File:U149821 #1-299 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



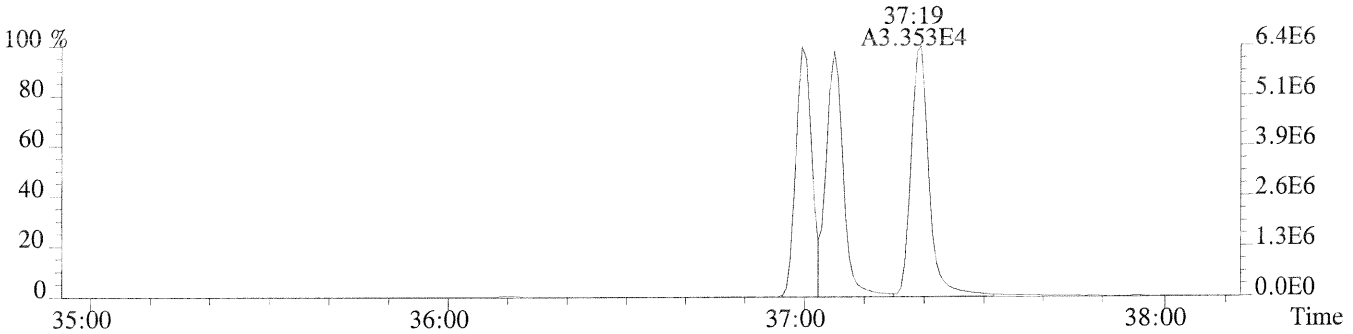
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



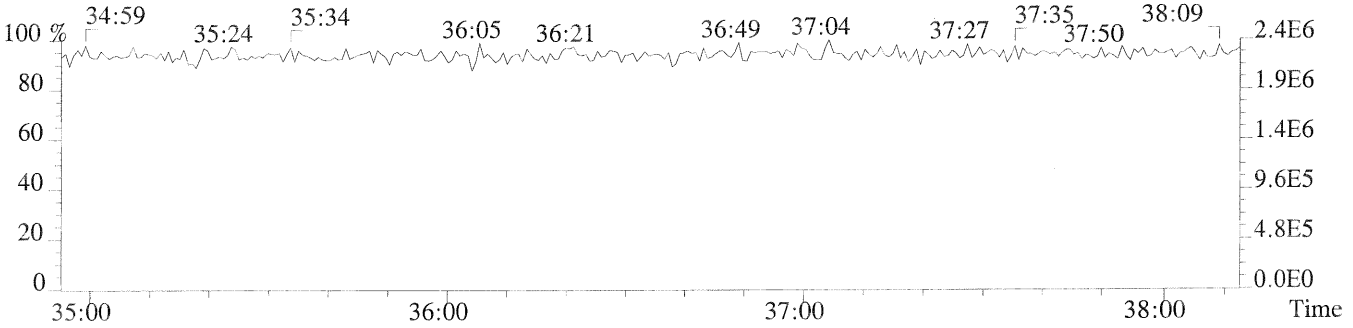
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)

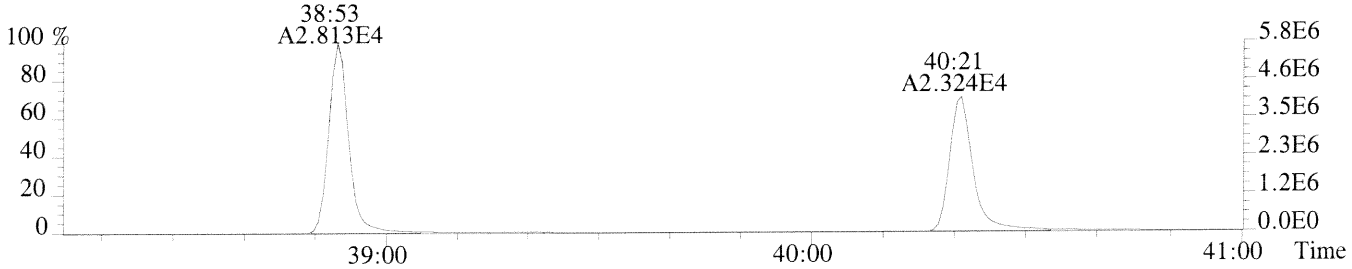


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

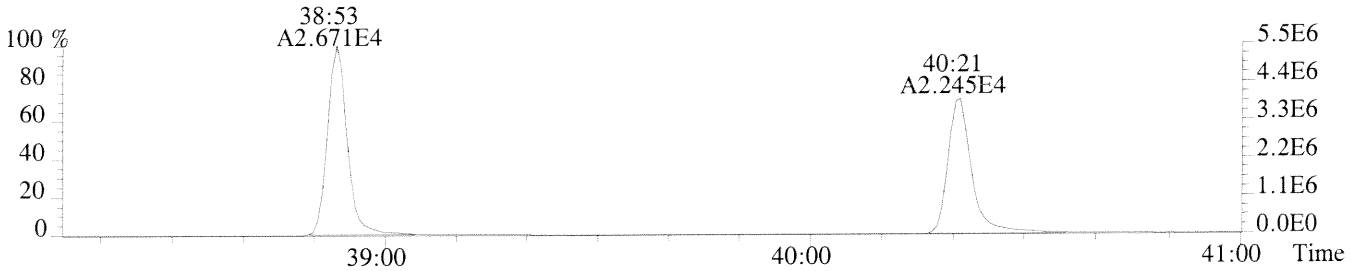


File:U149821 #1-251 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

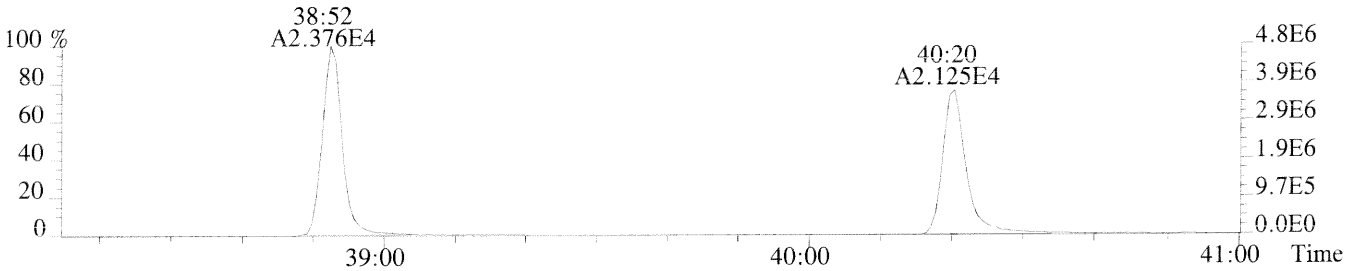
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2332.0,0.50%,F,T)



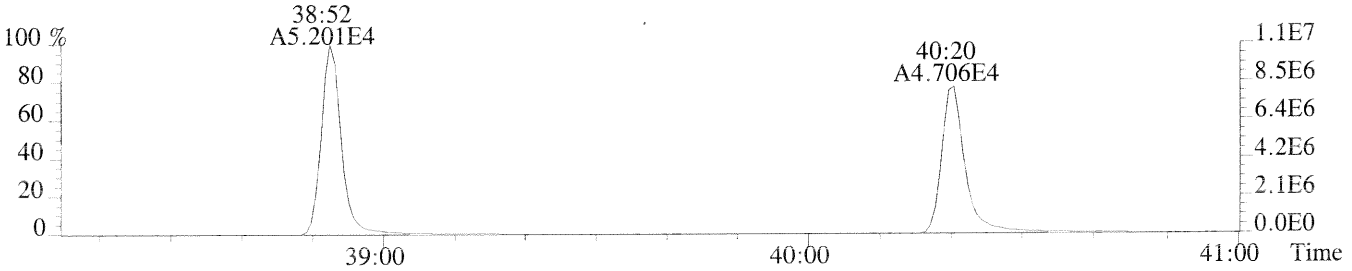
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.50%,F,T)



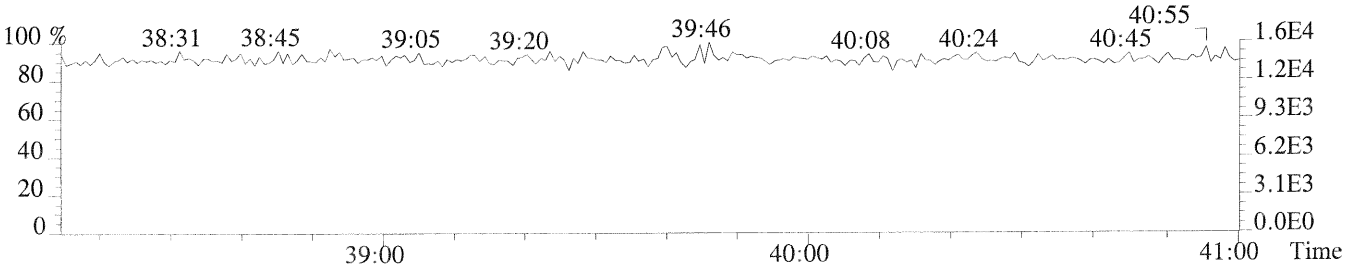
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2528.0,0.50%,F,T)



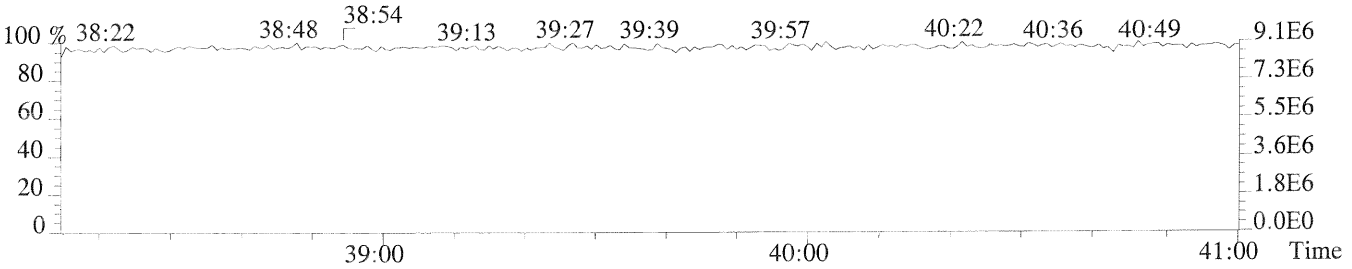
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2596.0,0.50%,F,T)



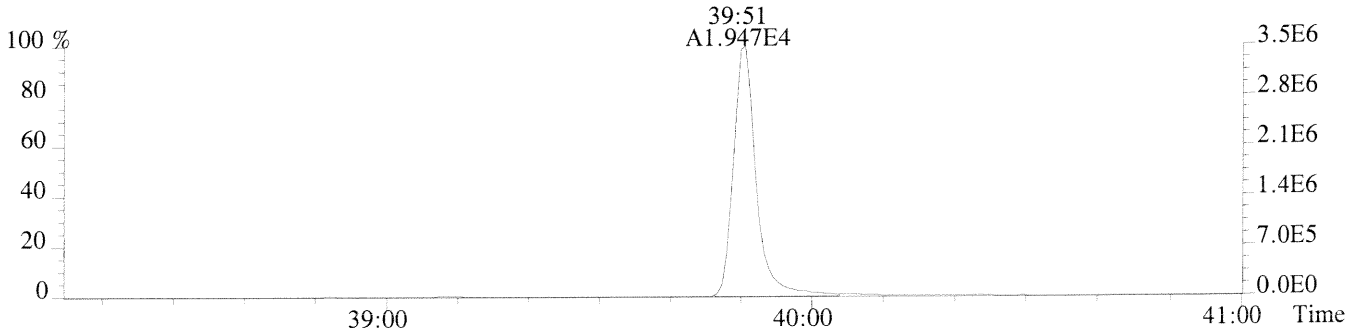
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



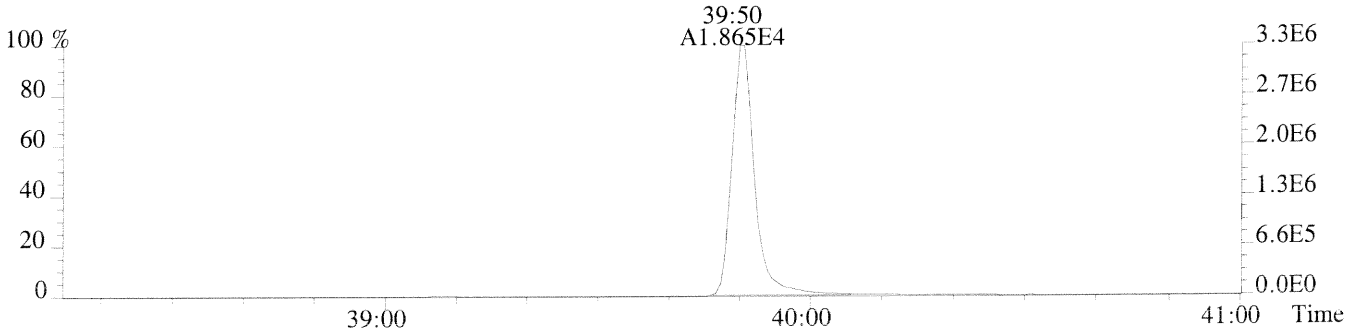
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



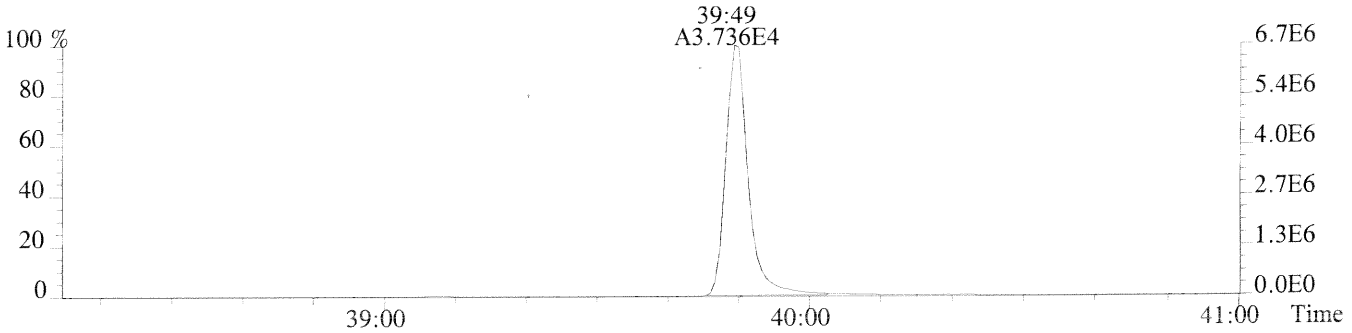
File:U149821 #1-251 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



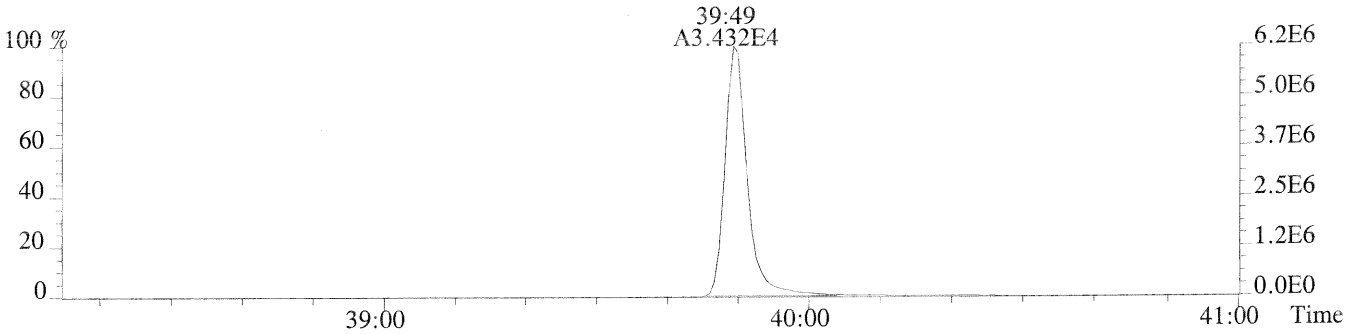
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



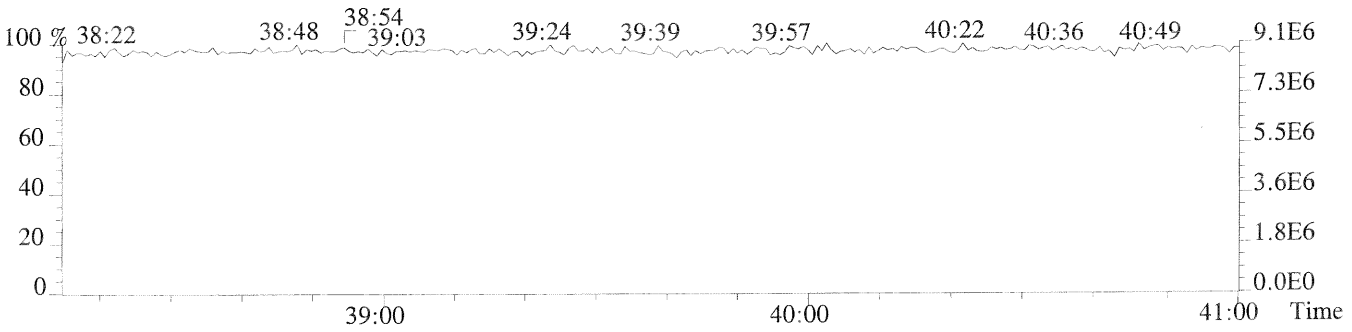
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,652.0,0.40%,F,T)



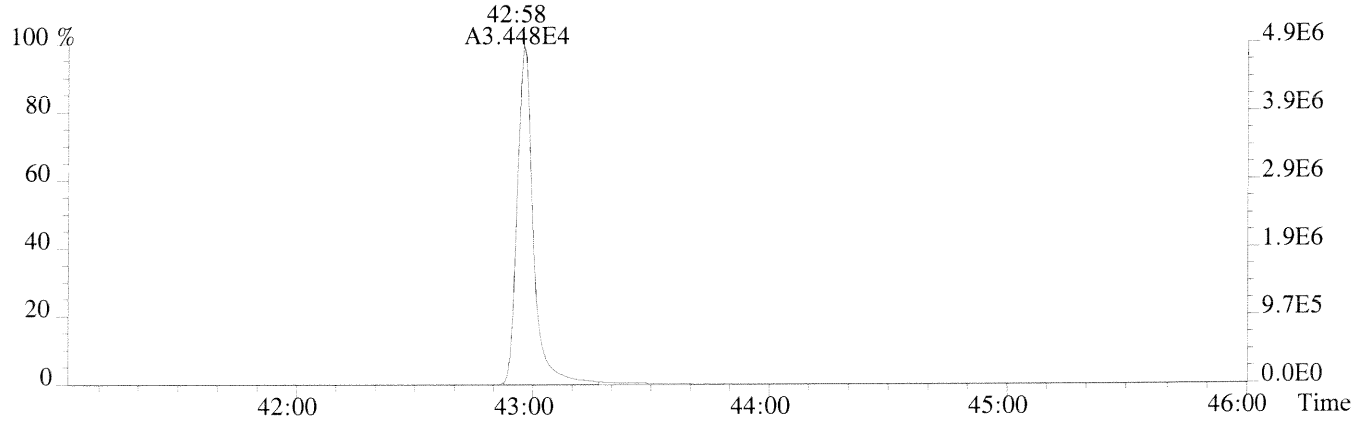
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,660.0,0.40%,F,T)



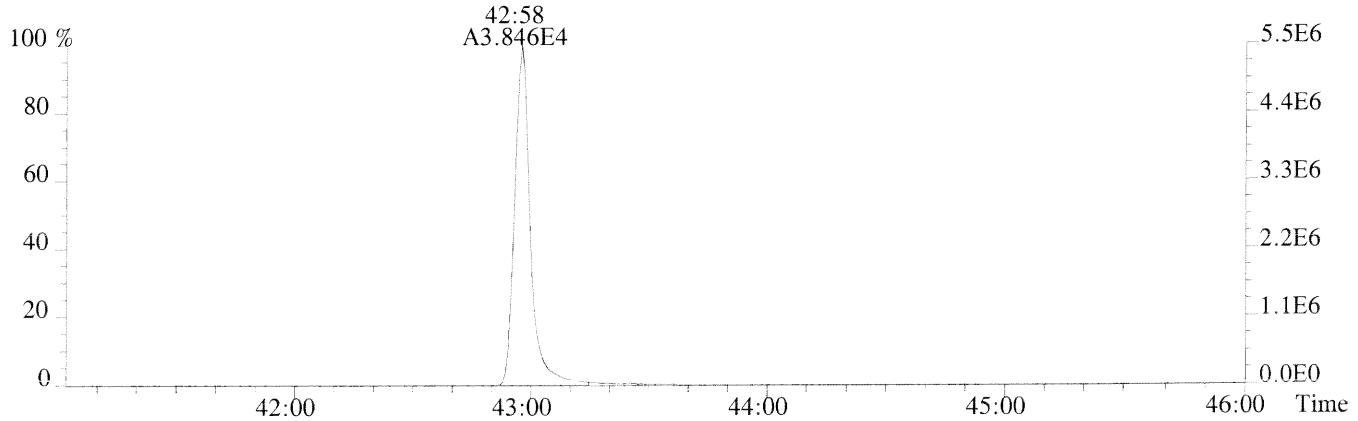
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



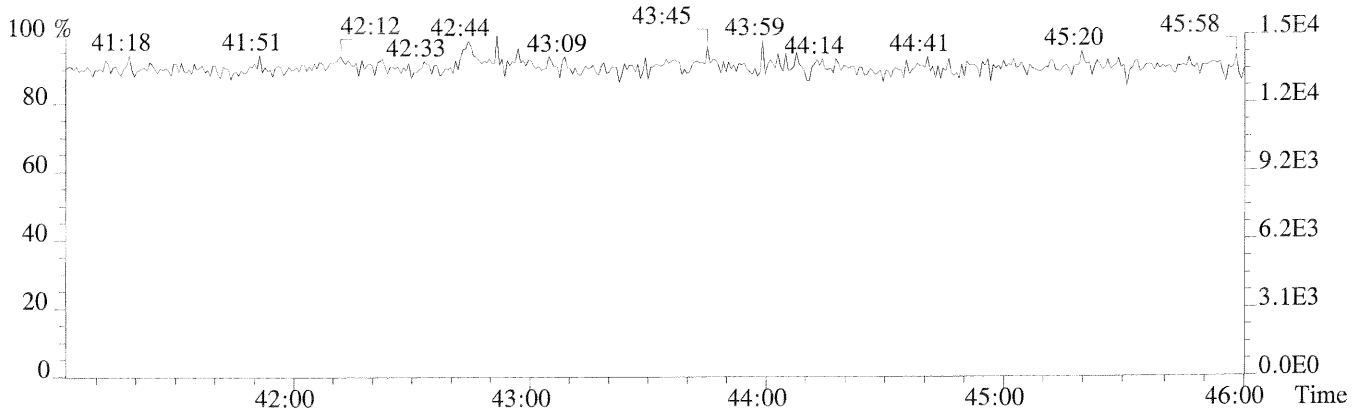
File:U149821 #1-451 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,660.0,0.40%,F,T)



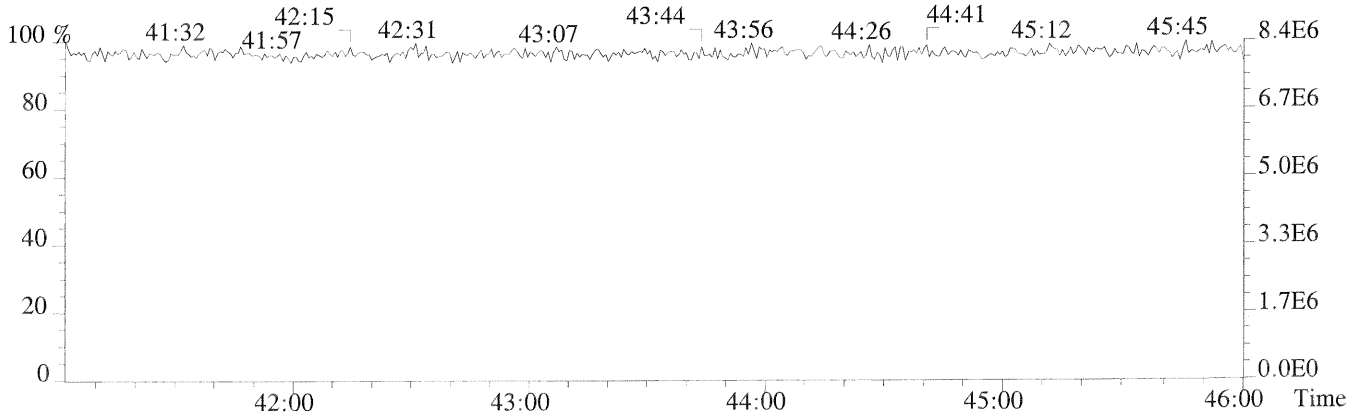
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



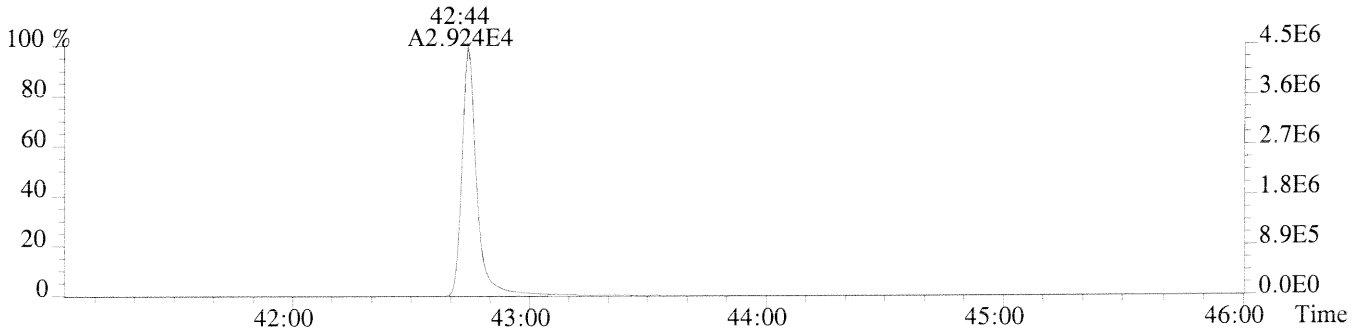
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



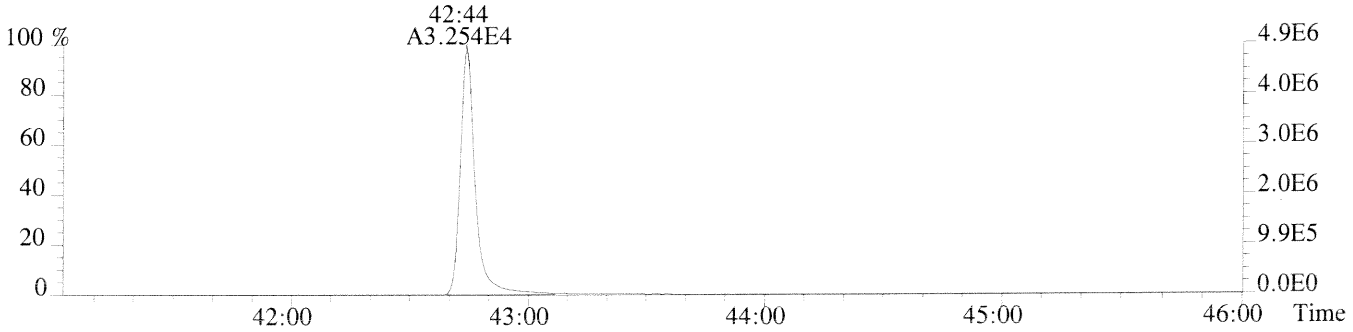
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



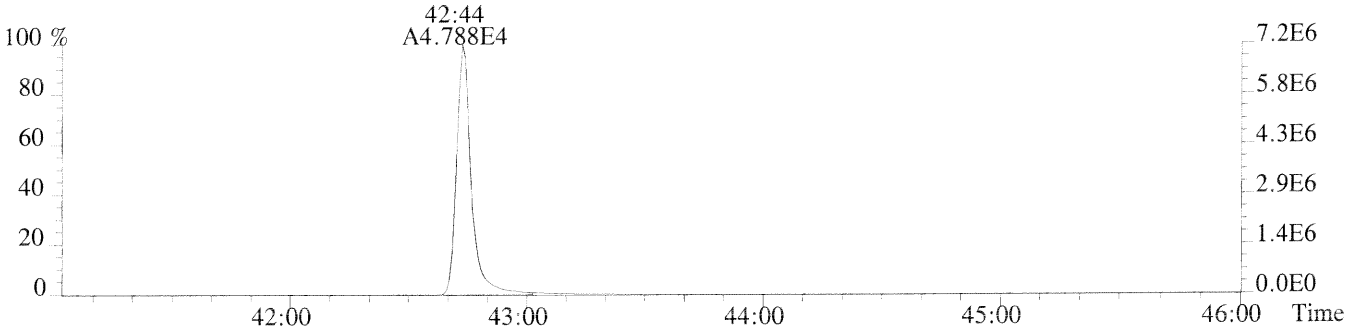
File:U149821 #1-451 Acq: 2-JUL-2014 15:02:27 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



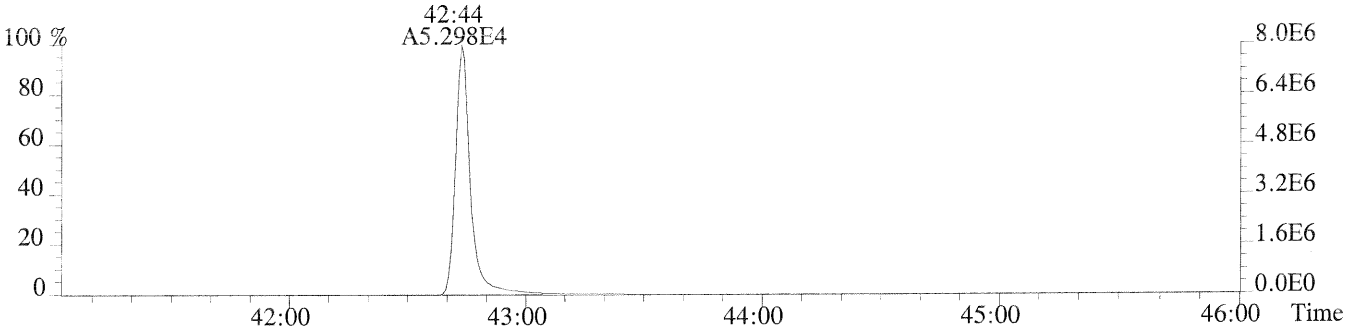
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



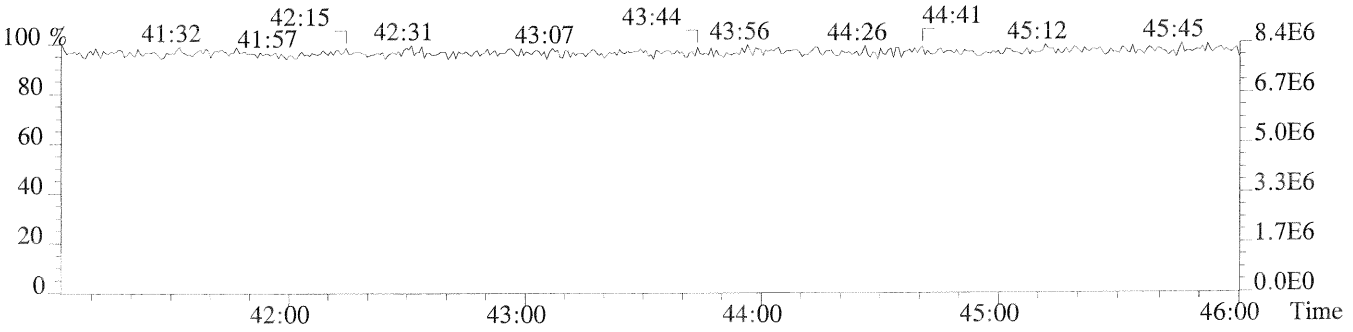
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 | GC Column ID: DB-5MSUI

VER Data Filename: U149834 | Analysis Date: 3-JUL-14 Time: 02:39:15

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.74	0.65-0.89	9.6	7.8 - 12.9	-3.5
1,2,3,7,8-PeCDD	M+2/M+4	1.58	1.32-1.78	49	39 - 65	-1.2
1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	50	39 - 64	0.5
1,2,3,6,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	52	39 - 64	3.4
1,2,3,7,8,9-HxCDD	M+2/M+4	1.27	1.05-1.43	50	41 - 61	0.8
1,2,3,4,6,7,8-HpCDD	M+2/M+4	0.99	0.88-1.20	48	43 - 58	-3.1
OCDD	M+2/M+4	0.90	0.76-1.02	99	79 - 126	-0.6
2,3,7,8-TCDF	M/M+2	0.76	0.65-0.89	10.0	8.4 - 12.0	0.5
1,2,3,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	52	41 - 60	4.6
2,3,4,7,8-PeCDF	M+2/M+4	1.52	1.32-1.78	50	41 - 61	0.8
1,2,3,4,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	52	45 - 56	3.3
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	51	44 - 57	2.2
1,2,3,7,8,9-HxCDF	M+2/M+4	1.24	1.05-1.43	52	45 - 56	4.3
2,3,4,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	51	44 - 57	1.2
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	51	45 - 55	1.1
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.03	0.88-1.20	48	43 - 58	-3.2
OCDF	M+2/M+4	0.88	0.76-1.02	103	63 - 159	2.6

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 GC Column ID: DB-5MSUI

VER Data Filename: U149834 Analysis Date: 3-JUL-14 Time: 02:39:15

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.77	0.65-0.89	97	82 - 121	-3.4
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	102	62 - 160	1.6
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	96	85 - 117	-4.2
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	97	85 - 118	-2.7
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.08	0.88-1.20	92	72 - 138	-8.5
13C-OCDD	M+2/M+4	0.91	0.76-1.02	155	96 - 415	-22.7
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	96	71 - 140	-3.5
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	98	76 - 130	-2.0
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	102	77 - 130	2.1
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	94	76 - 131	-5.8
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	99	70 - 143	-0.9
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.50	0.43-0.59	93	74 - 135	-6.6
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	98	73 - 137	-1.6
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	95	78 - 129	-5.0
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	89	77 - 129	-10.9
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.7	7.8 - 12.7	-3.1

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
66131

Run #19 Filename U149834 Samp: 1 Inj: 1 Acquired: 3-JUL-14 02:39:15
Processed: 3-JUL-14 07:18:37 Sample ID: CCAL HRCC3/CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:36	1.091e+03	1.429e+03	0.76	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:43	1.125e+04	7.200e+03	1.56	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:38	1.048e+04	6.879e+03	1.52	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:16	9.270e+03	7.440e+03	1.25	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.034e+04	8.347e+03	1.24	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:52	9.253e+03	7.539e+03	1.23	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	8.492e+03	6.844e+03	1.24	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:53	8.078e+03	7.759e+03	1.04	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:21	6.274e+03	6.081e+03	1.03	yes	no	1.358
10	Unk	OCDF	42:58	8.834e+03	1.008e+04	0.88	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:22	8.109e+02	1.097e+03	0.74	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:53	7.484e+03	4.726e+03	1.58	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:00	6.331e+03	5.040e+03	1.26	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	7.059e+03	5.623e+03	1.26	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	7.238e+03	5.691e+03	1.27	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:51	5.263e+03	5.330e+03	0.99	yes	no	1.065
17	Unk	OCDD	42:44	7.574e+03	8.393e+03	0.90	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:35	1.189e+04	1.467e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:42	2.221e+04	1.391e+04	1.60	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:36	2.238e+04	1.422e+04	1.57	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:15	8.989e+03	1.740e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	1.093e+04	2.086e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	1.005e+04	1.916e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	8.483e+03	1.708e+04	0.50	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	6.903e+03	1.507e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:20	5.848e+03	1.295e+04	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:20	8.506e+03	1.101e+04	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:53	1.471e+04	9.394e+03	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	1.126e+04	8.698e+03	1.29	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	1.252e+04	9.668e+03	1.30	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:50	1.065e+04	9.877e+03	1.08	yes	no	0.936
32	IS	13C-OCDD	42:44	1.299e+04	1.432e+04	0.91	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:46	8.446e+03	1.074e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	1.349e+04	1.046e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:21	1.941e+03				no	1.044

ALS ENVIRONMENTAL
10450 Stancliff Rd., Suite 115
Houston, TX 77099
Office(713)266-1599. Fax(713)266-0130

1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
66131

Run #19 Filename U149834 Samp: 1 Inj: 1 Acquired: 3-JUL-14 02:39:15
Processed: 3-JUL-14 07:18:371 LAB. ID: CCAL HRCC3/CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.16e+05	7.92e+02	2.7e+02	2.78e+05	1.04e+03	2.7e+02
2	1,2,3,7,8-PeCDF	2.04e+06	7.04e+02	2.9e+03	1.31e+06	1.09e+03	1.2e+03
3	2,3,4,7,8-PeCDF	2.02e+06	7.04e+02	2.9e+03	1.32e+06	1.09e+03	1.2e+03
4	1,2,3,4,7,8-HxCDF	1.95e+06	4.28e+02	4.6e+03	1.56e+06	5.76e+02	2.7e+03
5	1,2,3,6,7,8-HxCDF	2.00e+06	4.28e+02	4.7e+03	1.66e+06	5.76e+02	2.9e+03
6	2,3,4,6,7,8-HxCDF	1.87e+06	4.28e+02	4.4e+03	1.52e+06	5.76e+02	2.6e+03
7	1,2,3,7,8,9-HxCDF	1.59e+06	4.28e+02	3.7e+03	1.32e+06	5.76e+02	2.3e+03
8	1,2,3,4,6,7,8-HpCDF	1.56e+06	1.84e+03	8.5e+02	1.53e+06	1.00e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	1.08e+06	1.84e+03	5.8e+02	1.03e+06	1.00e+03	1.0e+03
10	OCDF	1.22e+06	6.28e+02	2.0e+03	1.38e+06	7.52e+02	1.8e+03
11	2,3,7,8-TCDD	1.67e+05	7.08e+02	2.4e+02	2.21e+05	7.48e+02	3.0e+02
12	1,2,3,7,8-PeCDD	1.42e+06	5.88e+02	2.4e+03	9.12e+05	5.48e+02	1.7e+03
13	1,2,3,4,7,8-HxCDD	1.38e+06	5.68e+02	2.4e+03	1.09e+06	8.08e+02	1.3e+03
14	1,2,3,6,7,8-HxCDD	1.37e+06	5.68e+02	2.4e+03	1.09e+06	8.08e+02	1.4e+03
15	1,2,3,7,8,9-HxCDD	1.39e+06	5.68e+02	2.4e+03	1.11e+06	8.08e+02	1.4e+03
16	1,2,3,4,6,7,8-HpCDD	9.77e+05	6.72e+02	1.5e+03	9.43e+05	5.20e+02	1.8e+03
17	OCDD	1.06e+06	6.20e+02	1.7e+03	1.18e+06	5.68e+02	2.1e+03
18	13C-2,3,7,8-TCDF	2.32e+06	7.52e+02	3.1e+03	2.91e+06	8.20e+02	3.5e+03
19	13C-1,2,3,7,8-PeCDF	4.06e+06	5.04e+02	8.1e+03	2.56e+06	4.80e+02	5.3e+03
20	13C-2,3,4,7,8-PeCDF	4.22e+06	5.04e+02	8.4e+03	2.70e+06	4.80e+02	5.6e+03
21	13C-1,2,3,4,7,8-HxCDF	1.89e+06	5.16e+02	3.7e+03	3.69e+06	9.32e+02	4.0e+03
22	13C-1,2,3,6,7,8-HxCDF	2.16e+06	5.16e+02	4.2e+03	4.18e+06	9.32e+02	4.5e+03
23	13C-2,3,4,6,7,8-HxCDF	2.00e+06	5.16e+02	3.9e+03	3.91e+06	9.32e+02	4.2e+03
24	13C-1,2,3,7,8,9-HxCDF	1.63e+06	5.16e+02	3.2e+03	3.25e+06	9.32e+02	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.37e+06	1.18e+03	1.2e+03	2.96e+06	1.22e+03	2.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.03e+06	1.18e+03	8.8e+02	2.23e+06	1.22e+03	1.8e+03
27	13C-2,3,7,8-TCDD	1.80e+06	1.56e+03	1.2e+03	2.32e+06	8.36e+02	2.8e+03
28	13C-1,2,3,7,8-PeCDD	2.82e+06	7.40e+02	3.8e+03	1.81e+06	6.04e+02	3.0e+03
29	13C-1,2,3,4,7,8-HxCDD	2.45e+06	8.08e+02	3.0e+03	1.90e+06	9.64e+02	2.0e+03
30	13C-1,2,3,6,7,8-HxCDD	2.43e+06	8.08e+02	3.0e+03	1.89e+06	9.64e+02	2.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.90e+06	7.00e+02	2.7e+03	1.77e+06	5.68e+02	3.1e+03
32	13C-OCDD	1.82e+06	5.80e+02	3.1e+03	1.96e+06	5.36e+02	3.7e+03
33	13C-1,2,3,4-TCDD	1.77e+06	1.56e+03	1.1e+03	2.25e+06	8.36e+02	2.7e+03
34	13C-1,2,3,7,8,9-HxCDD	2.56e+06	8.08e+02	3.2e+03	1.94e+06	9.64e+02	2.0e+03
35	37Cl-2,3,7,8-TCDD	3.99e+05	7.08e+02	5.6e+02			

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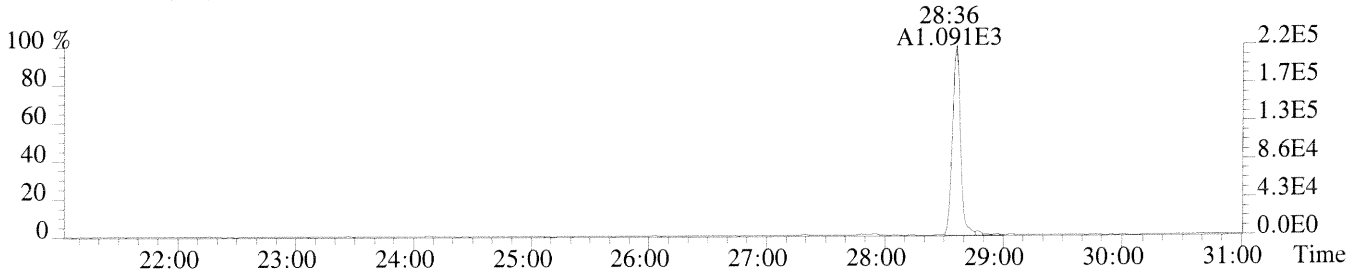
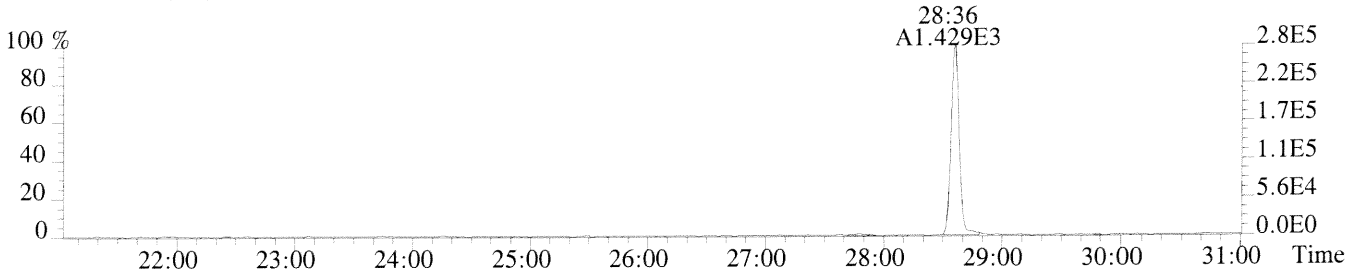
File:U149834 #1-627 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

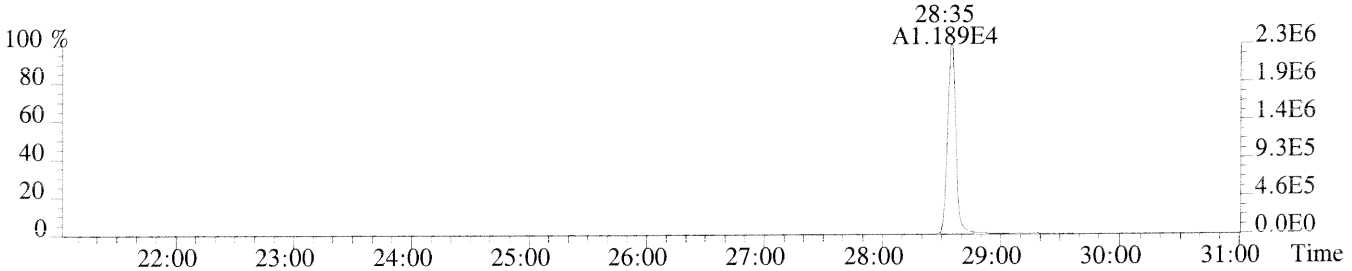
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



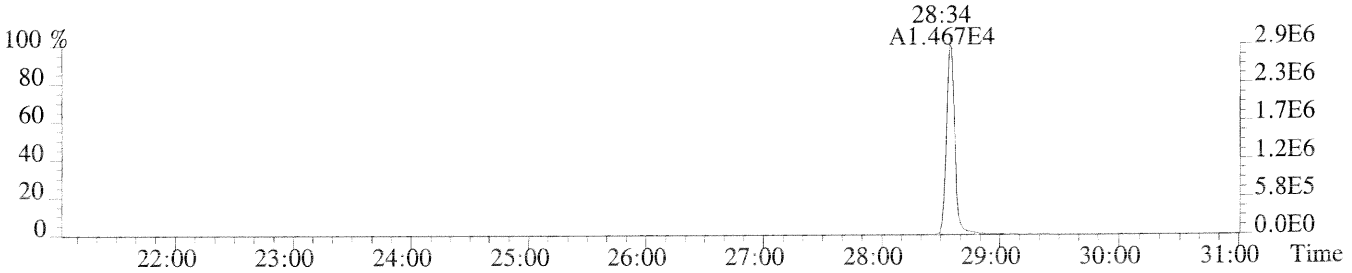
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



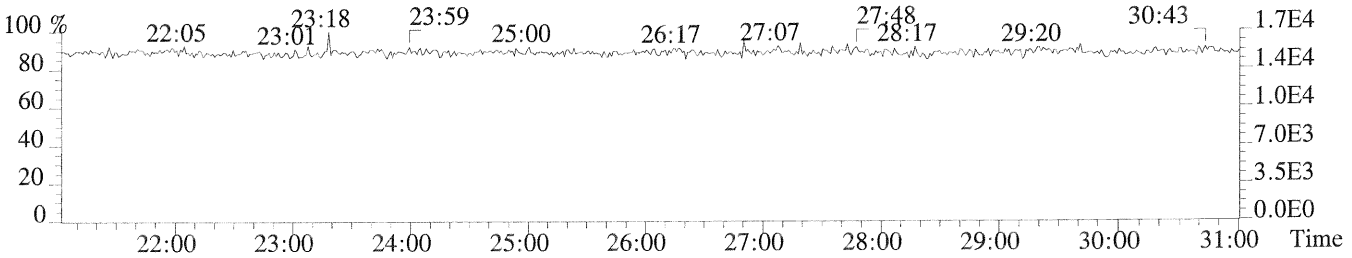
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



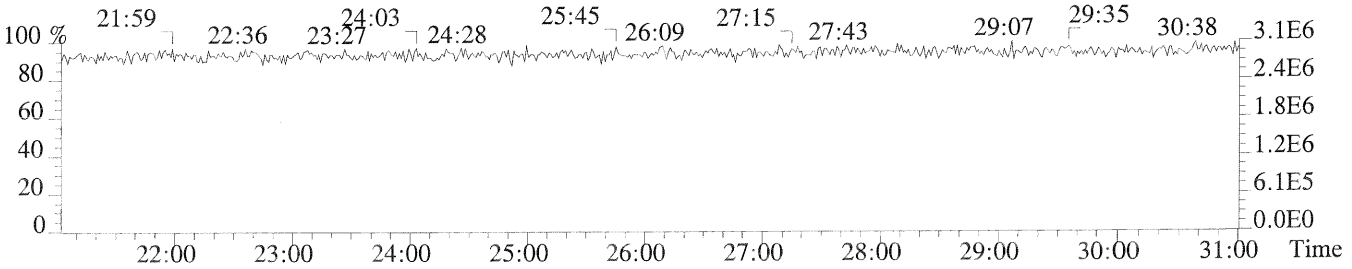
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

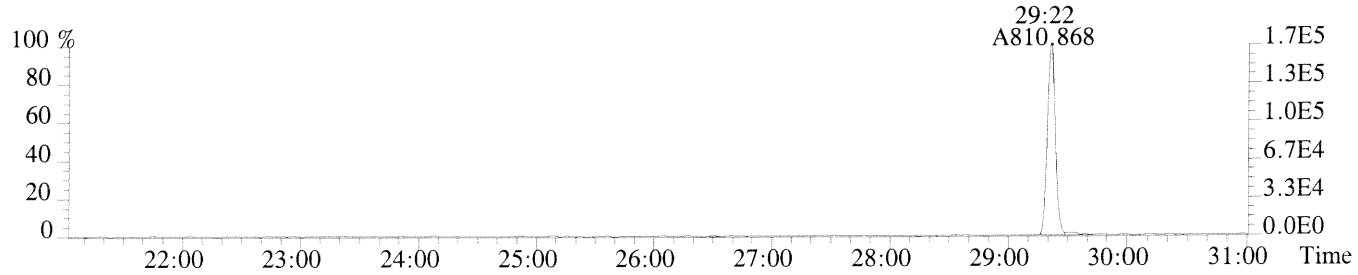


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

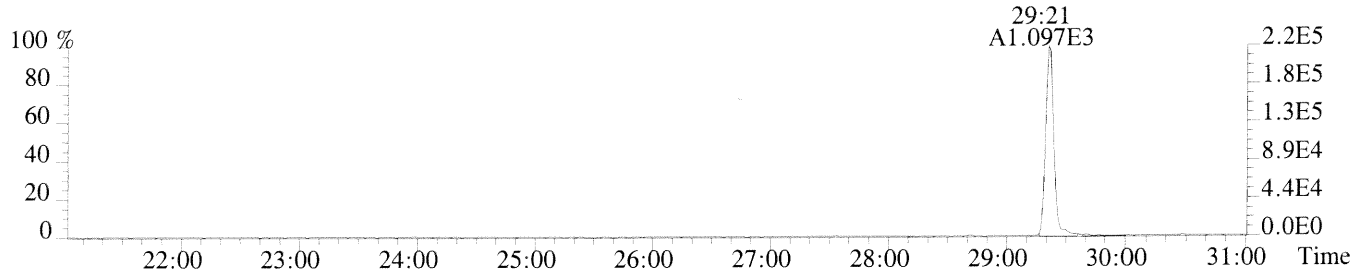


File:U149834 #1-627 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

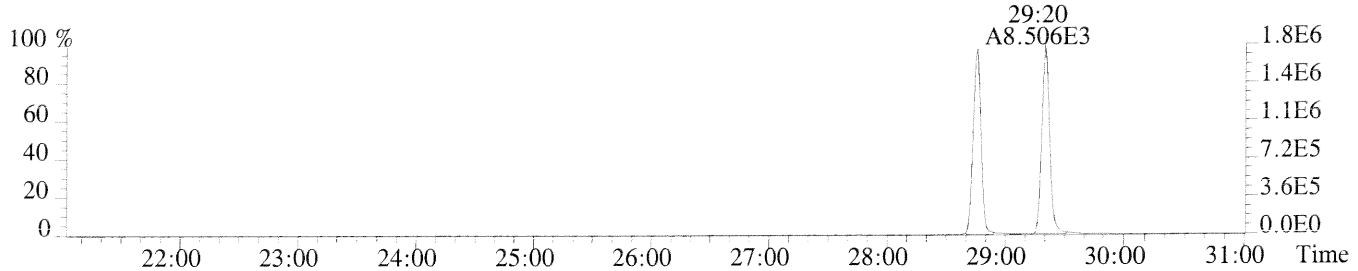
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



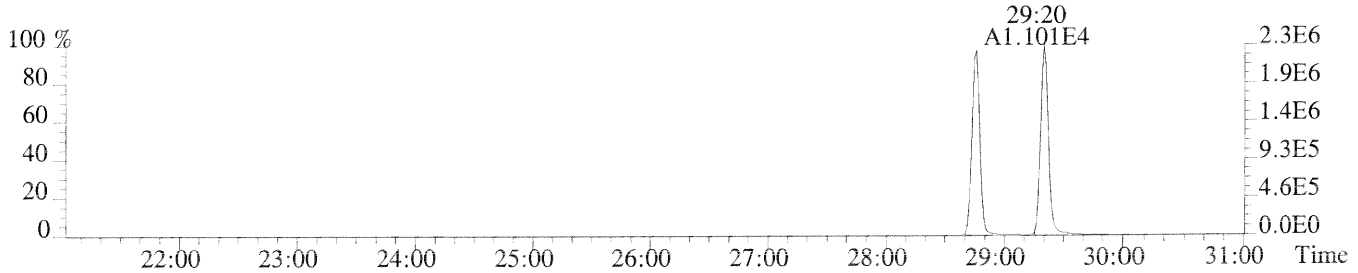
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



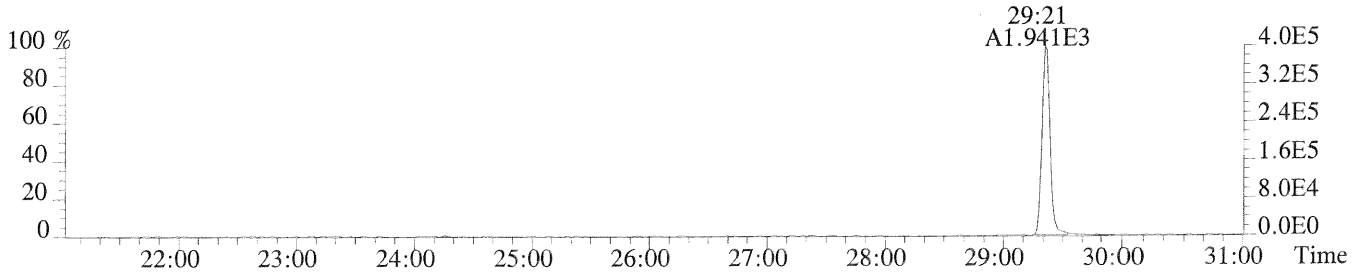
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



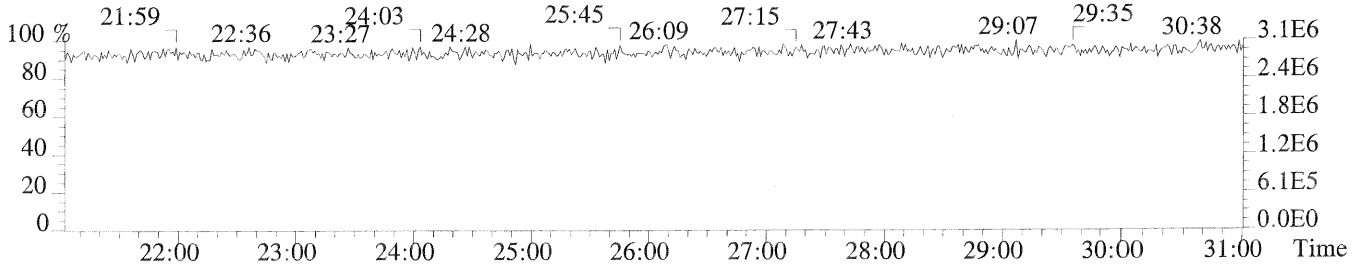
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)

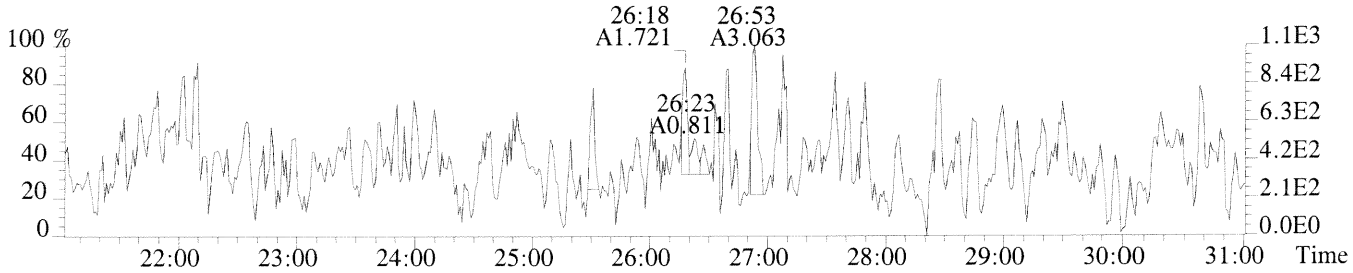


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

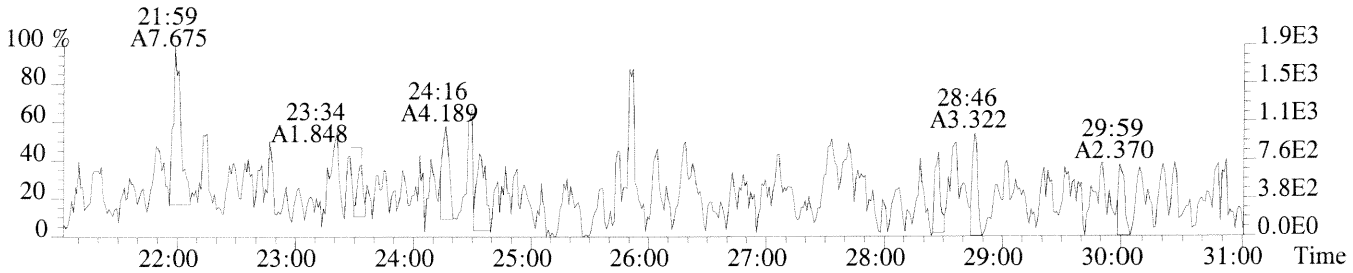


File:U149834 #1-627 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

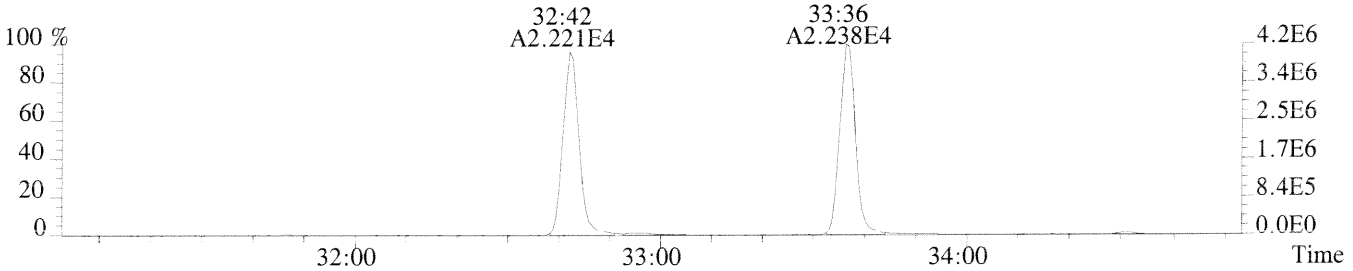
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,488.0,1.00%,F,T)



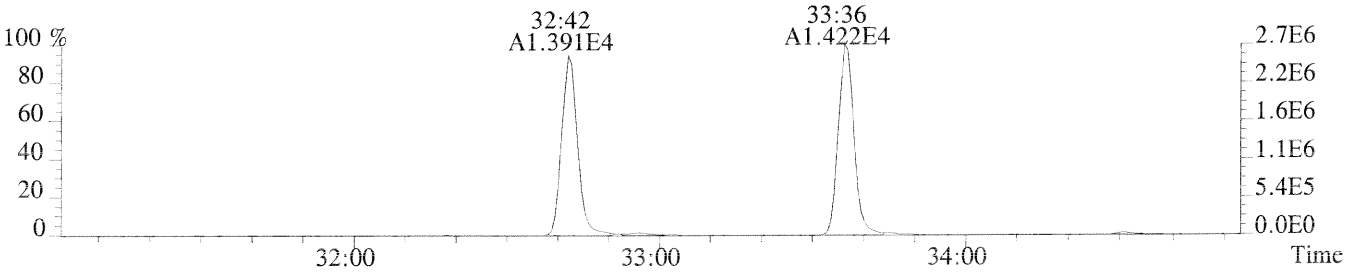
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



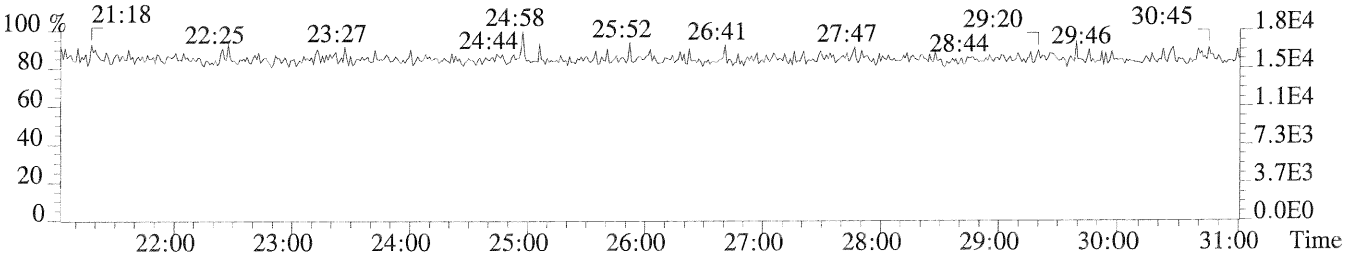
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



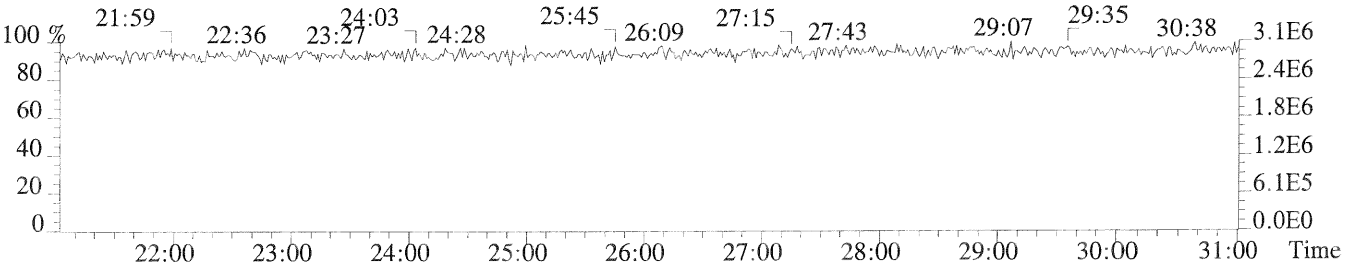
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

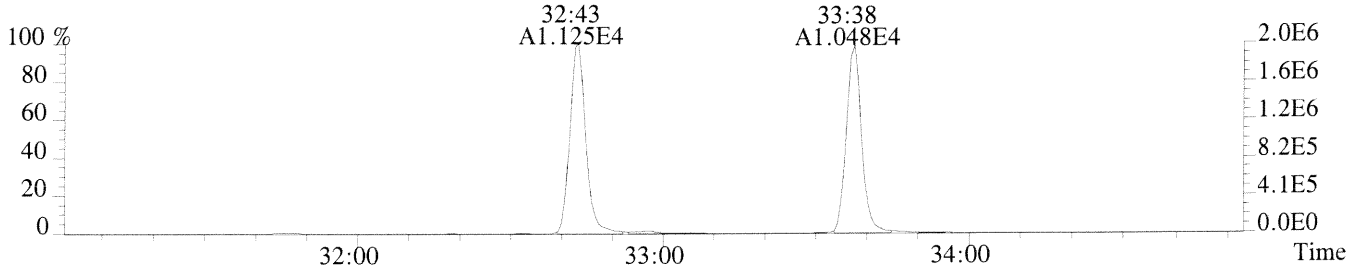


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

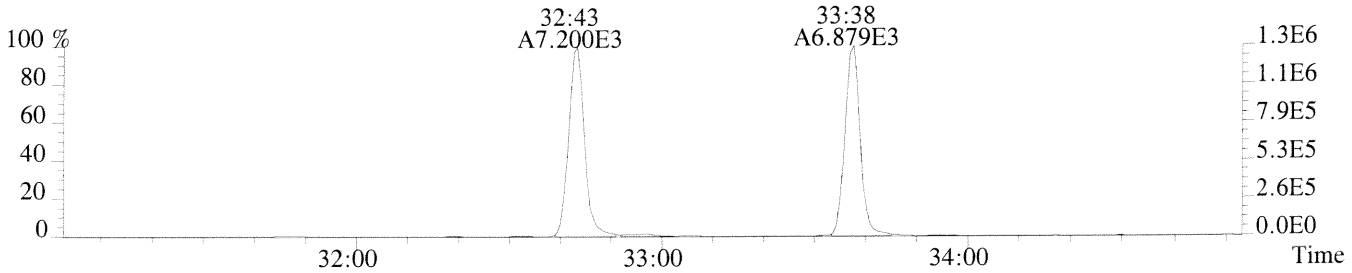


File:U149834 #1-349 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

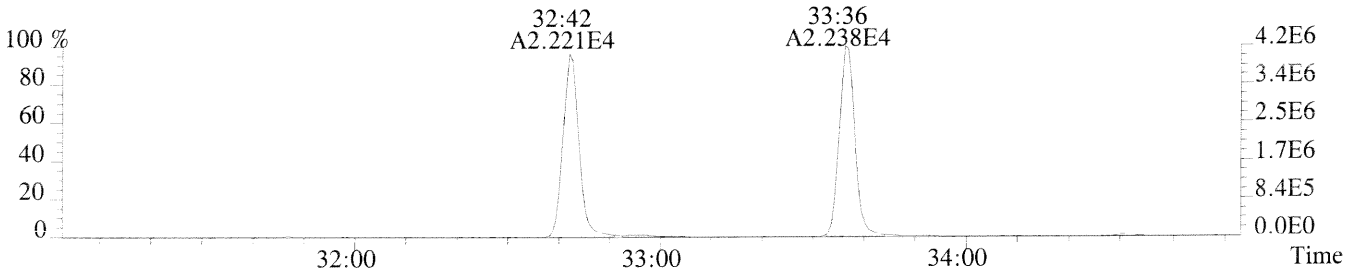
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



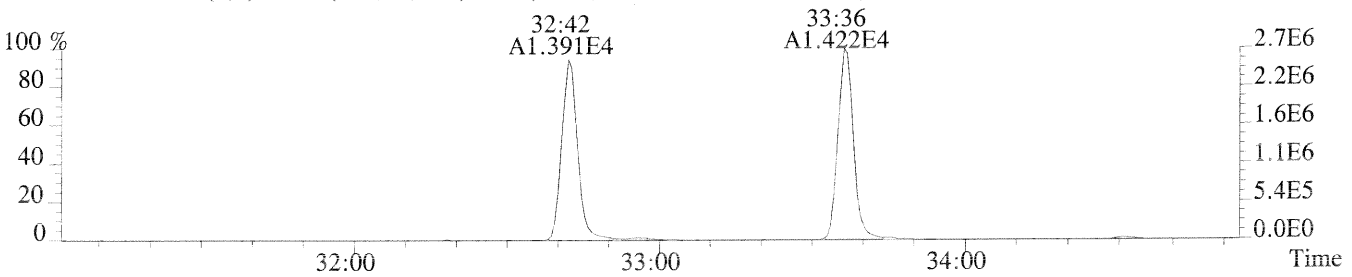
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1088.0,1.00%,F,T)



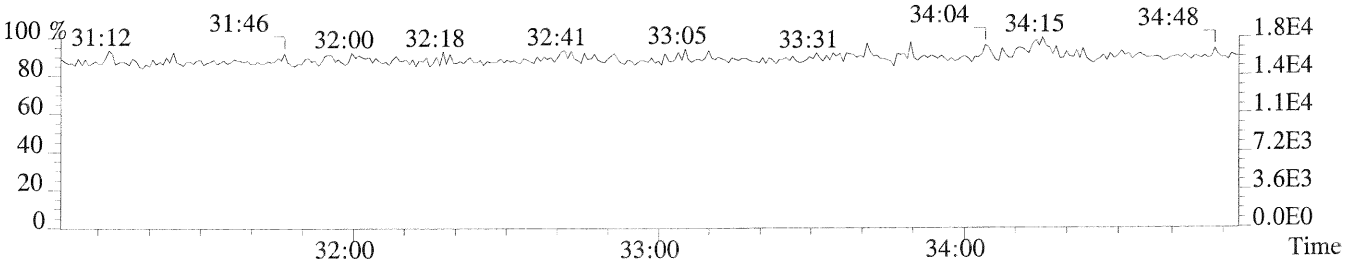
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



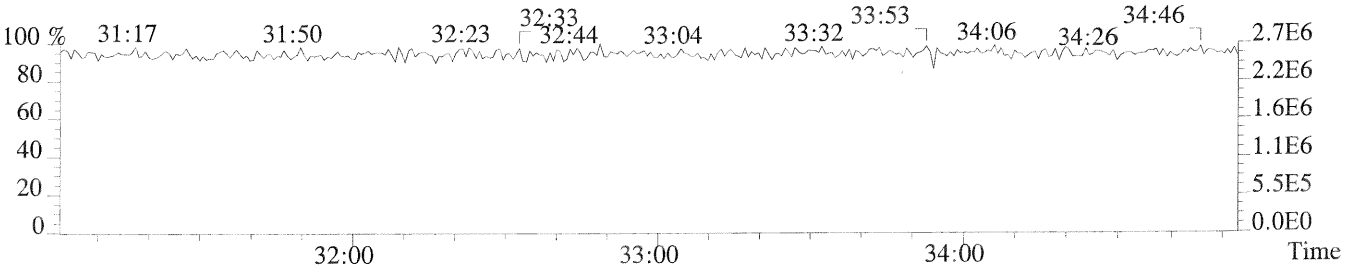
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



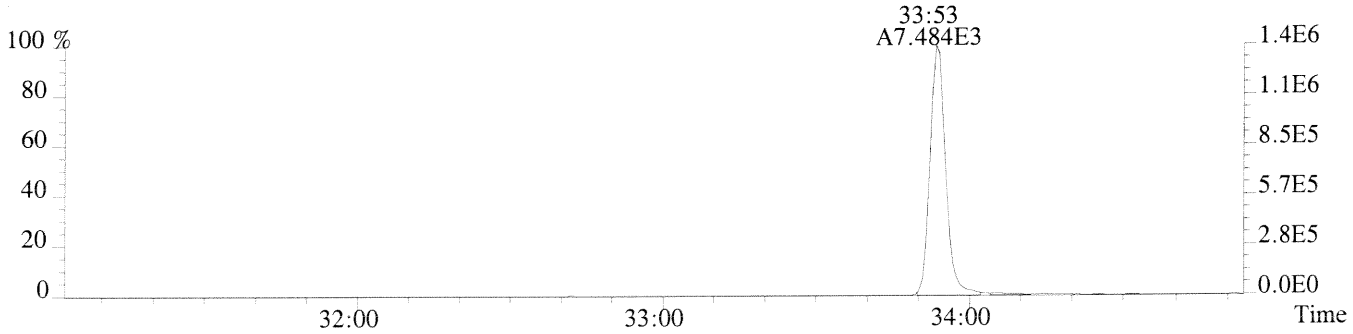
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



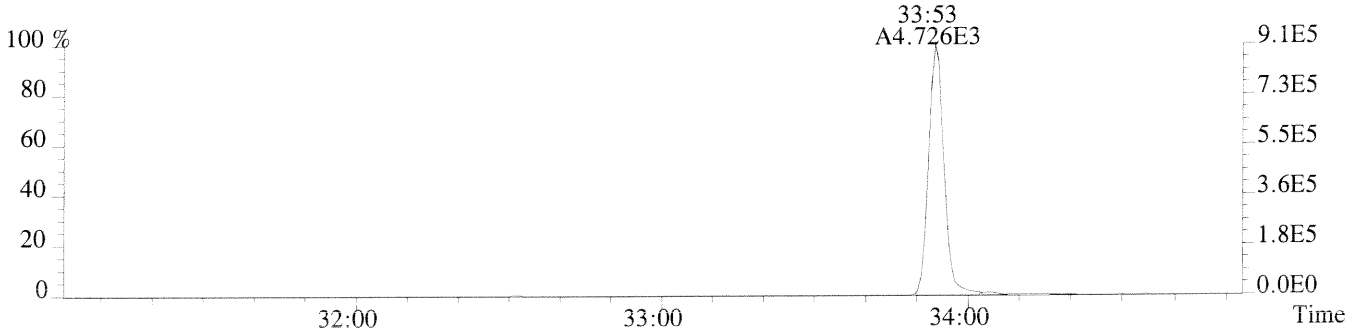
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



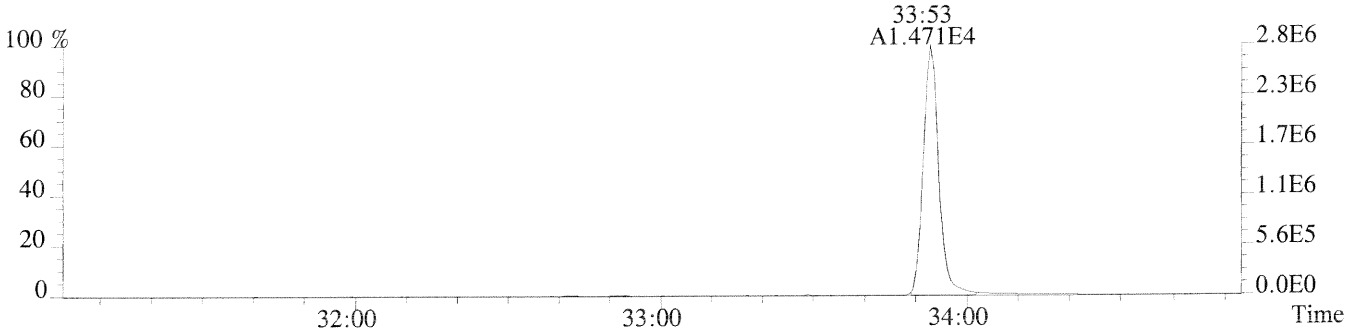
File:U149834 #1-349 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



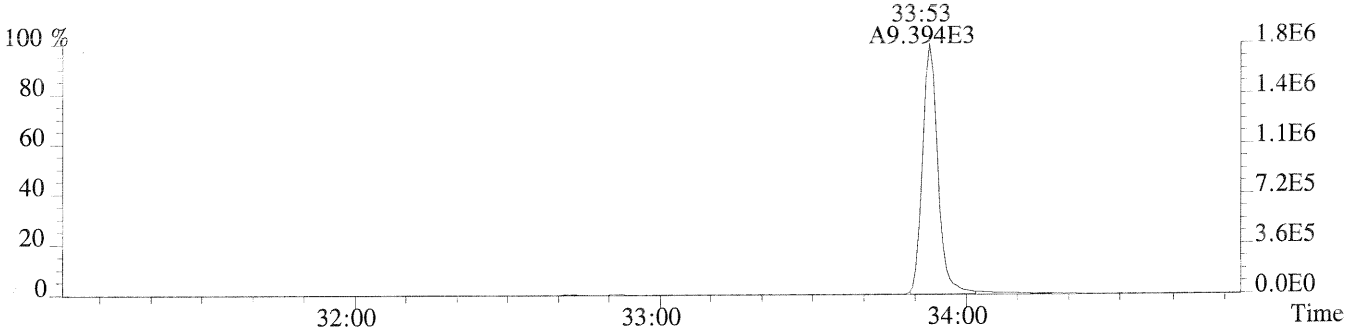
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



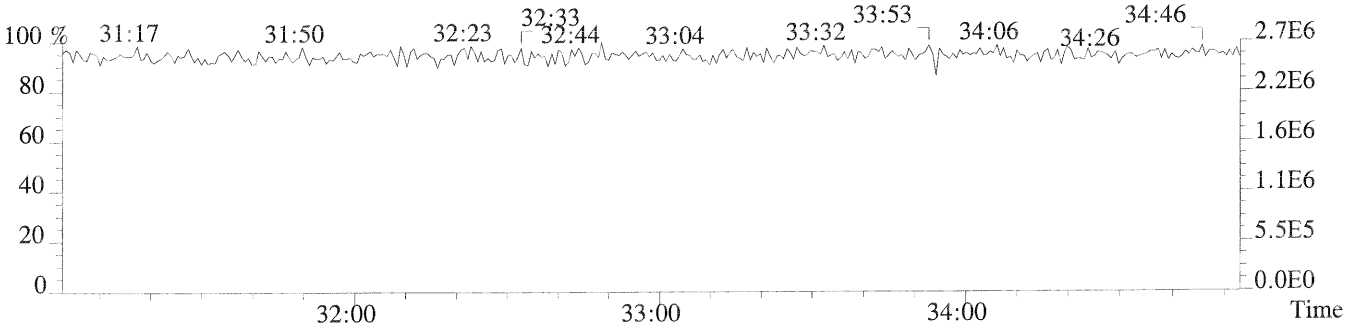
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)

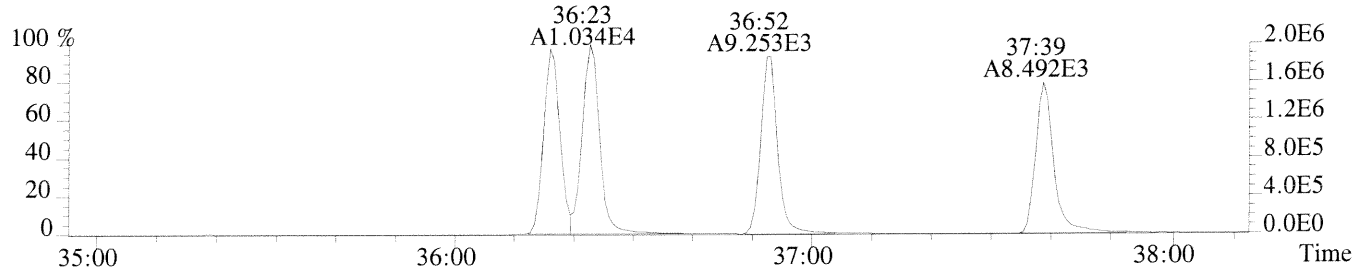


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

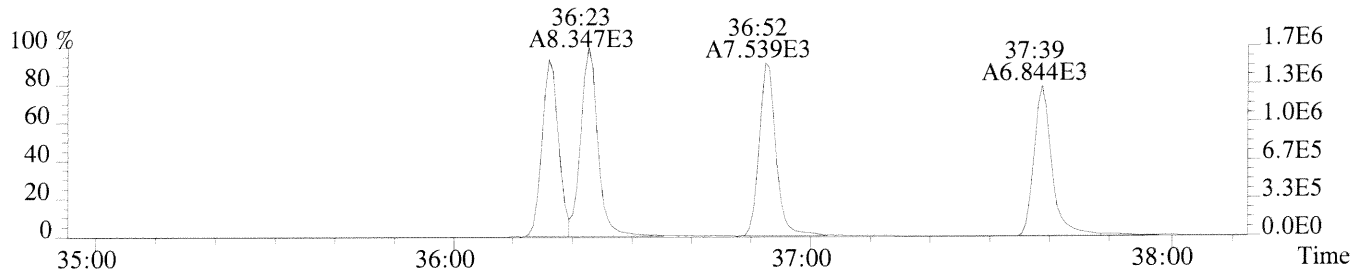


File:U149834 #1-299 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

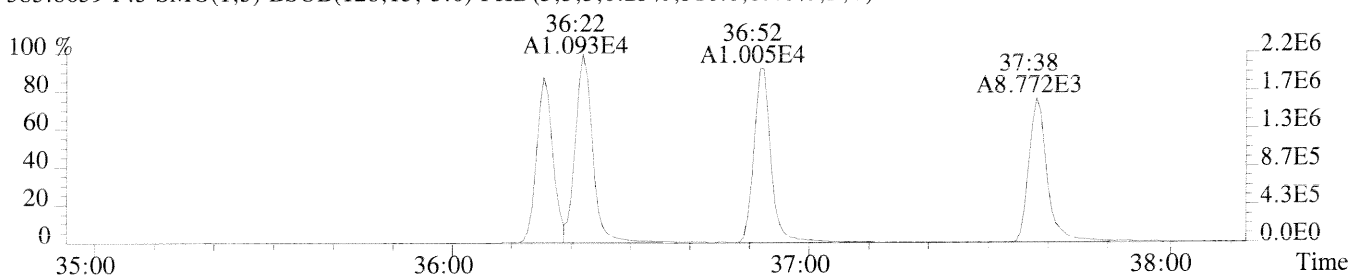
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,428.0,0.40%,F,T)



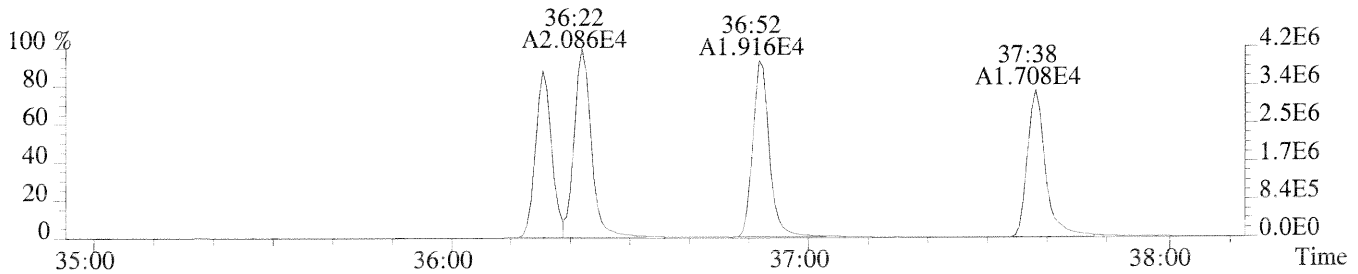
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



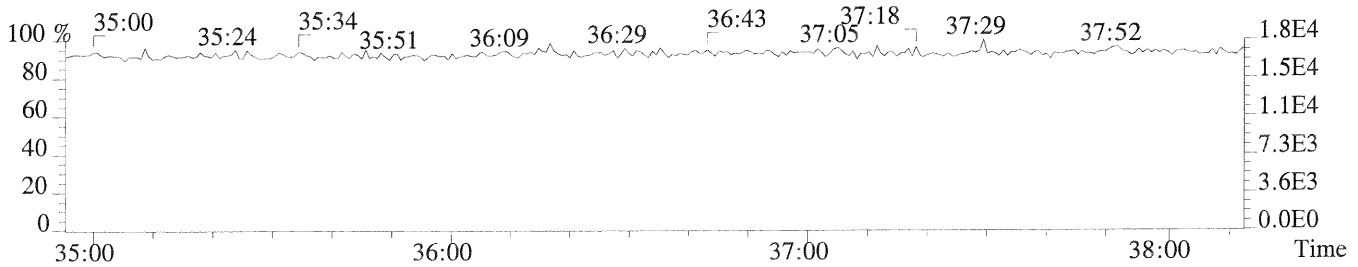
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



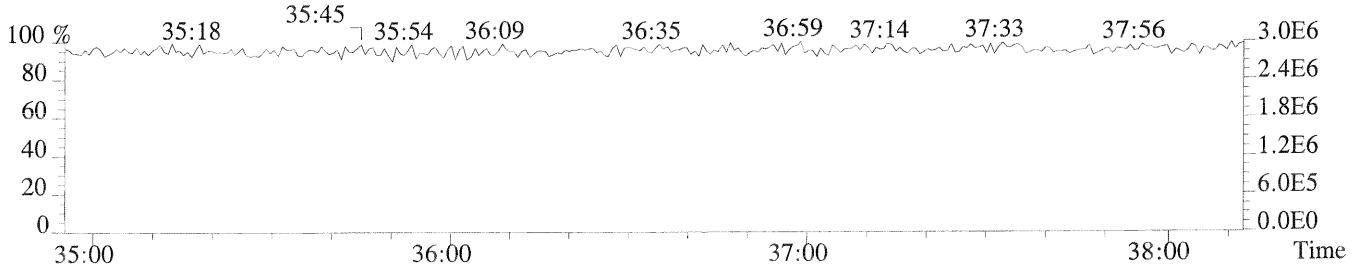
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



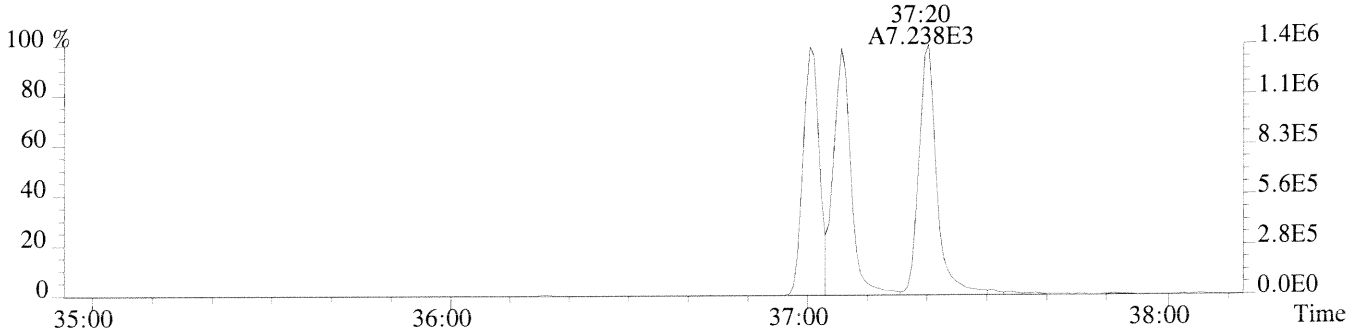
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



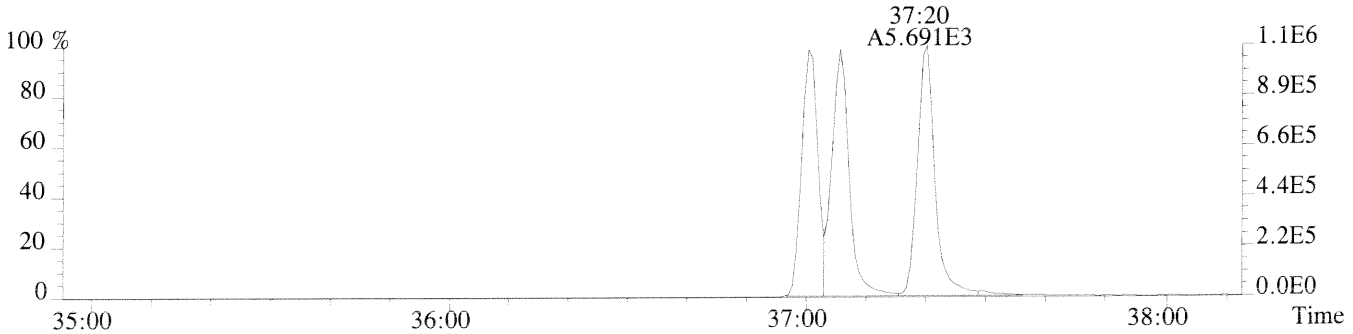
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



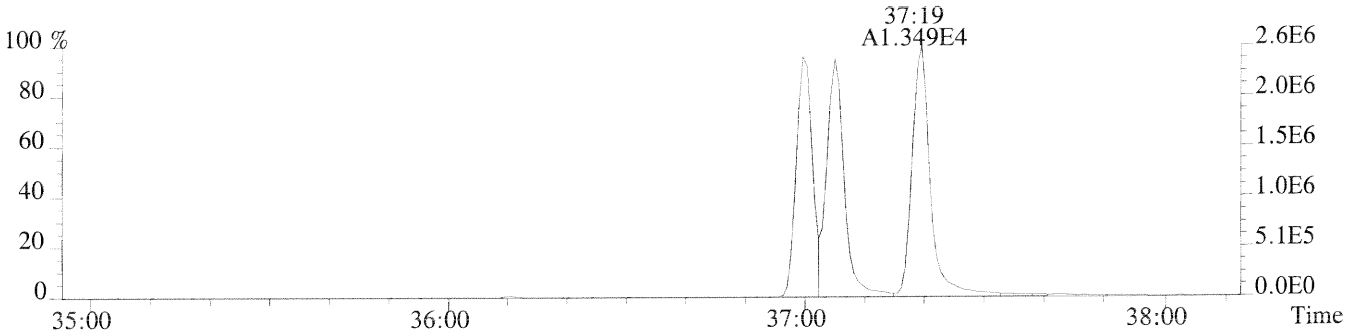
File:U149834 #1-299 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



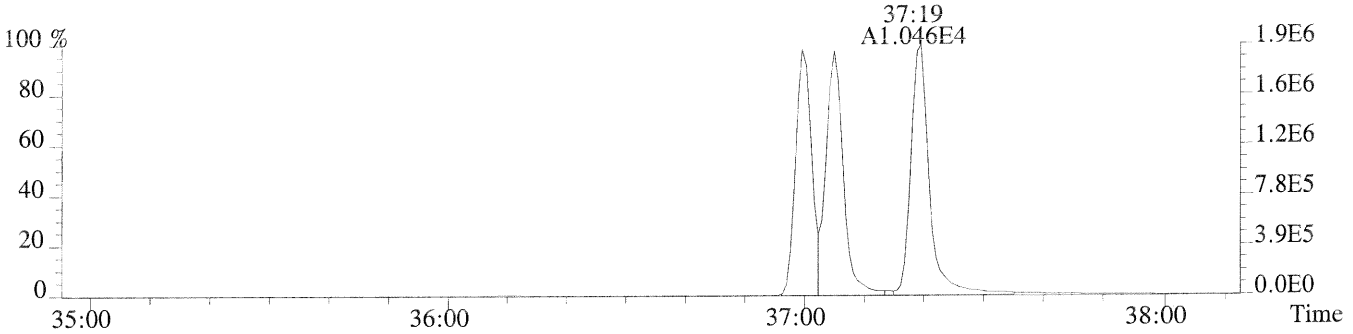
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



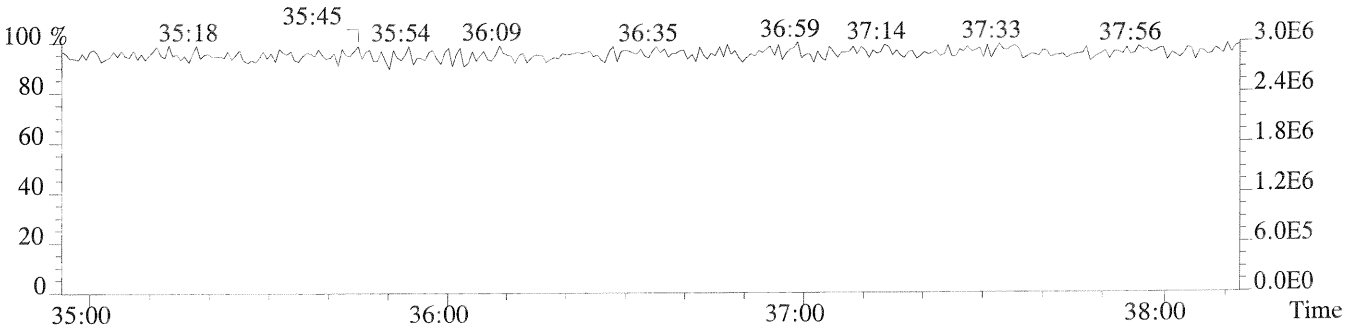
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)

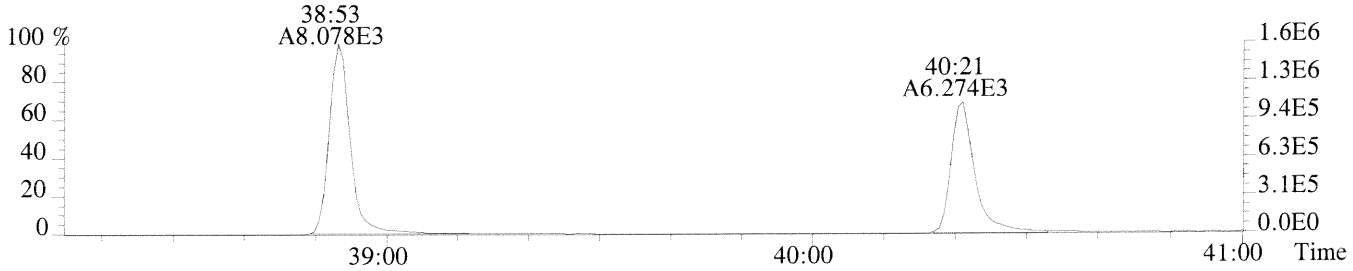


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

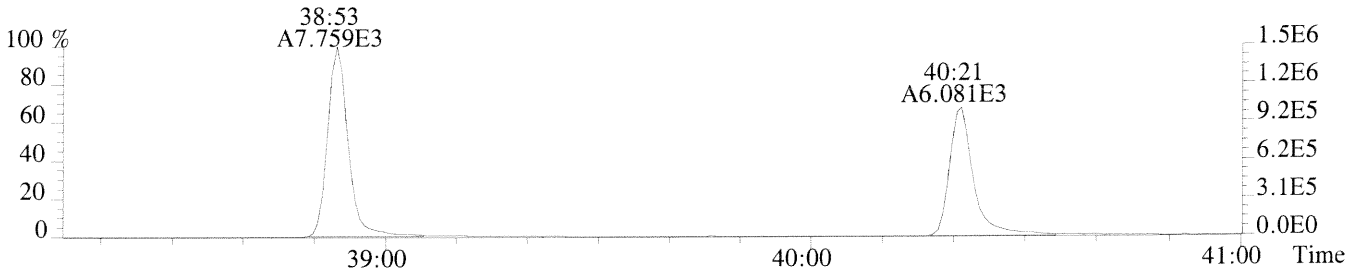


File:U149834 #1-251 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3

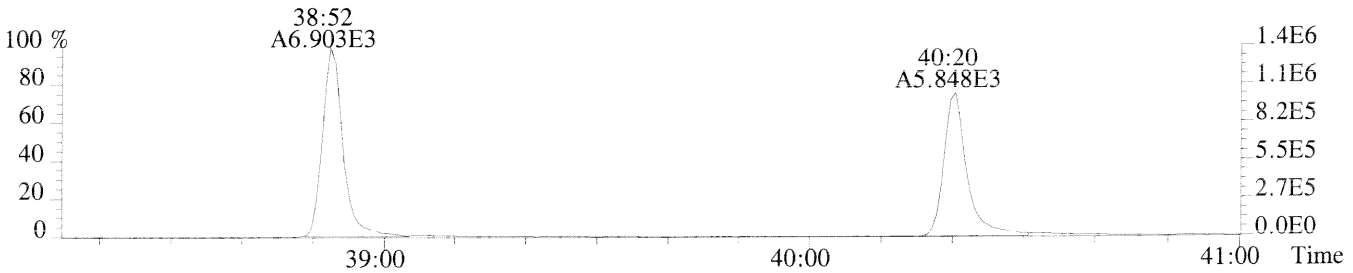
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1844.0,0.50%,F,T)



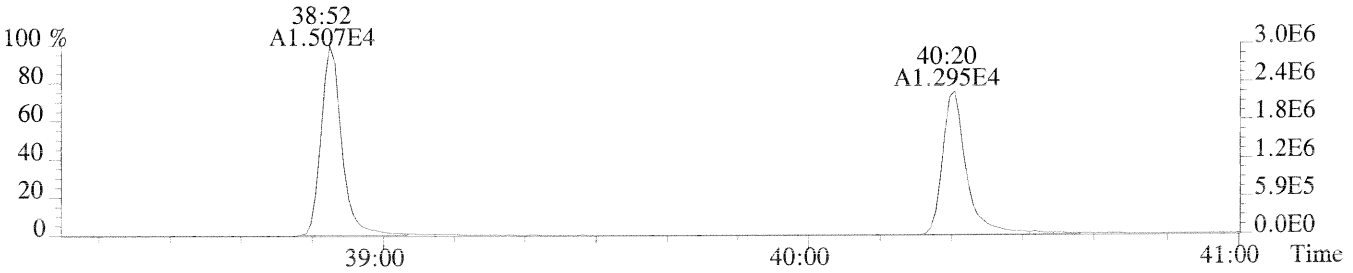
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.50%,F,T)



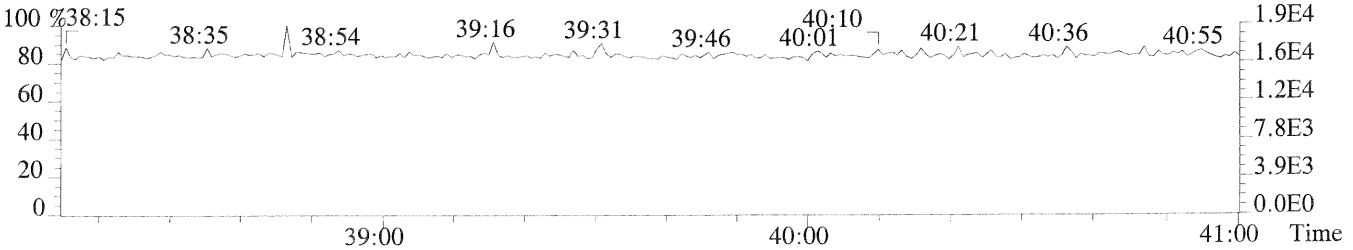
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.50%,F,T)



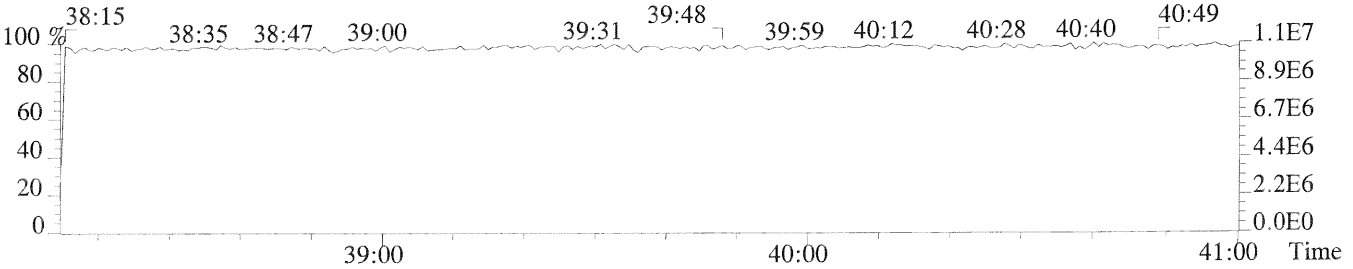
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.50%,F,T)



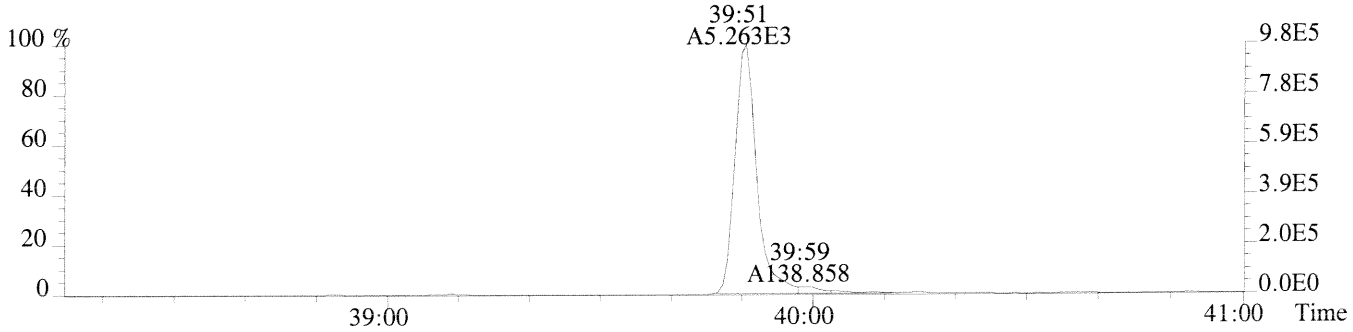
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



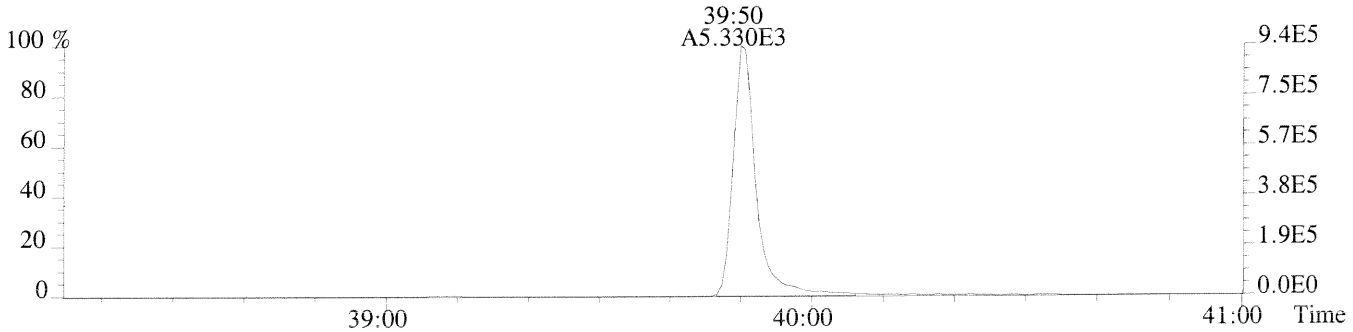
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



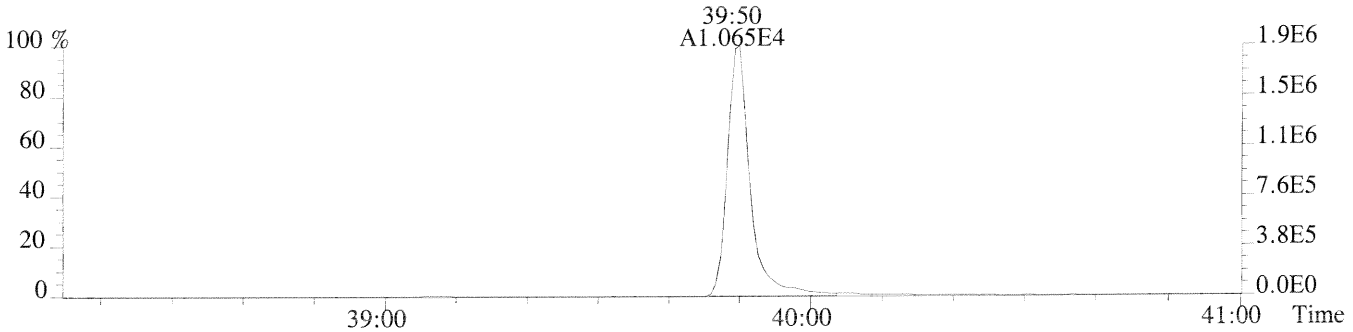
File:U149834 #1-251 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



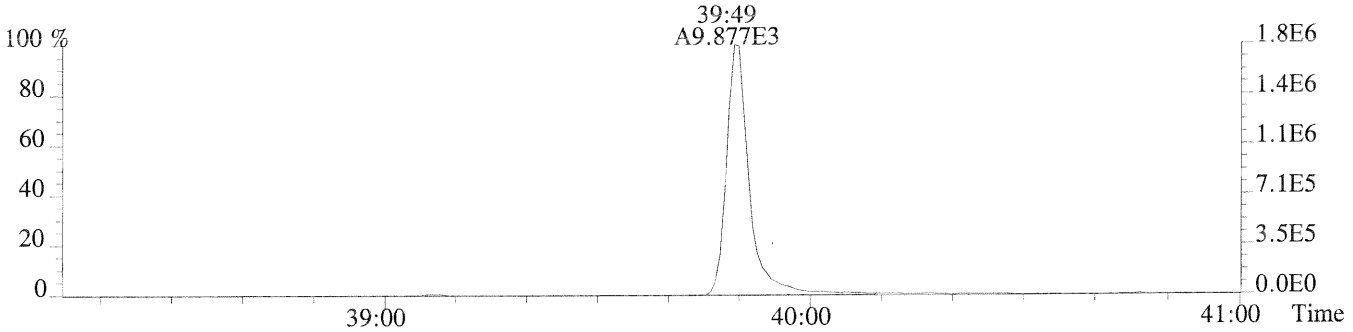
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,520.0,0.40%,F,T)



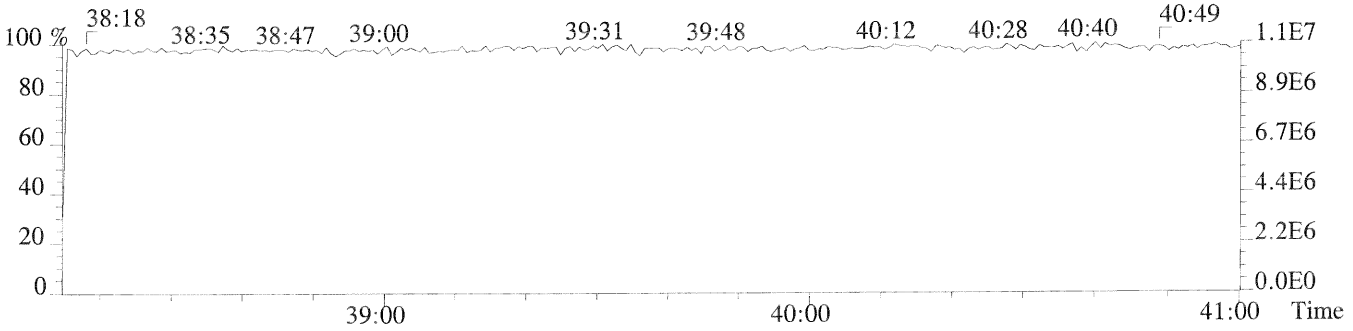
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



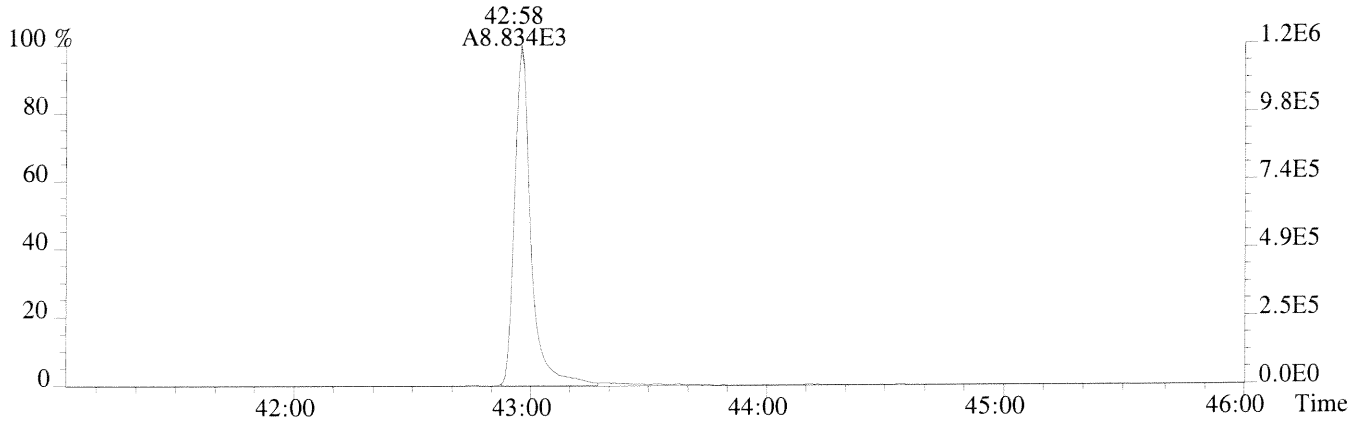
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



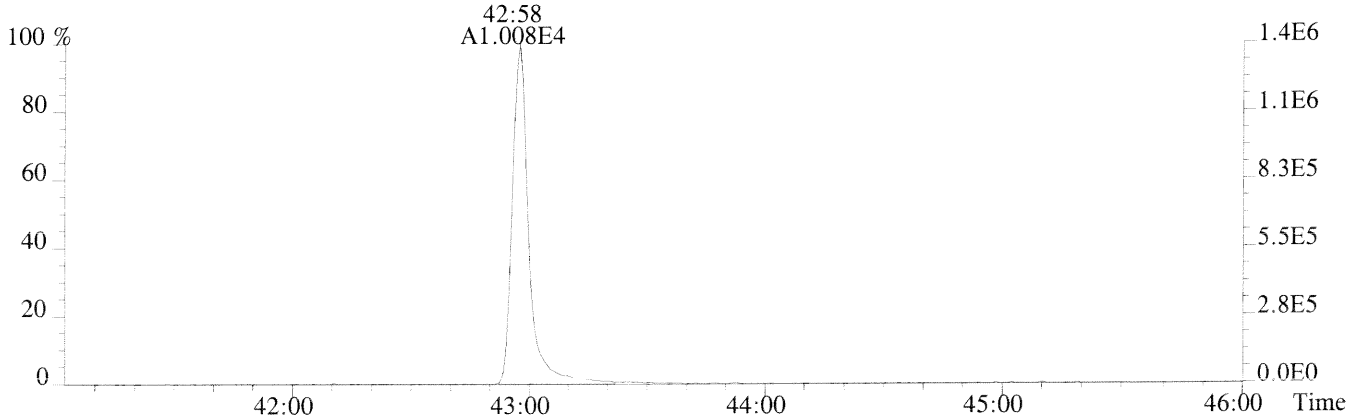
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



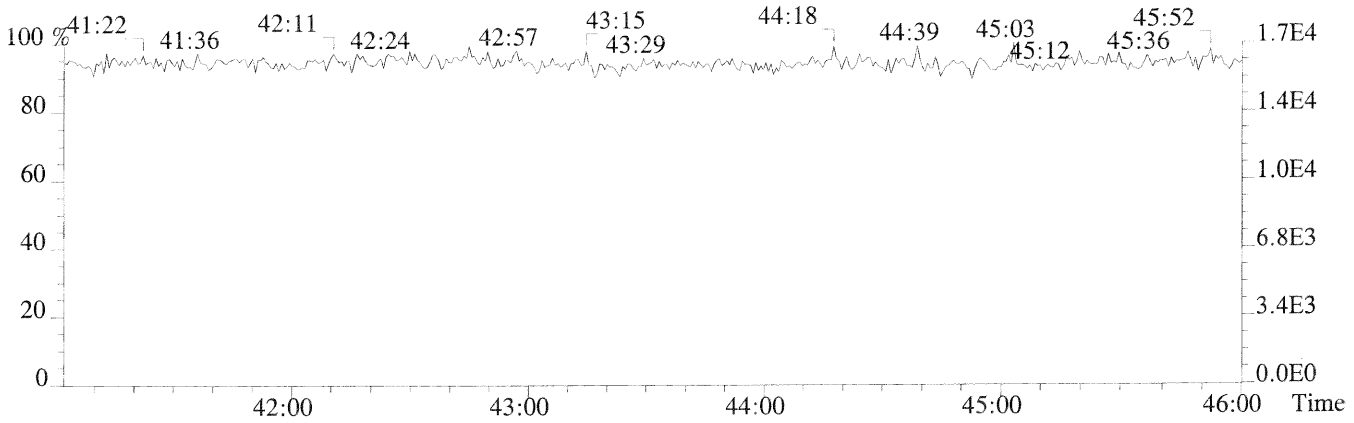
File:U149834 #1-451 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,628.0,0.40%,F,T)



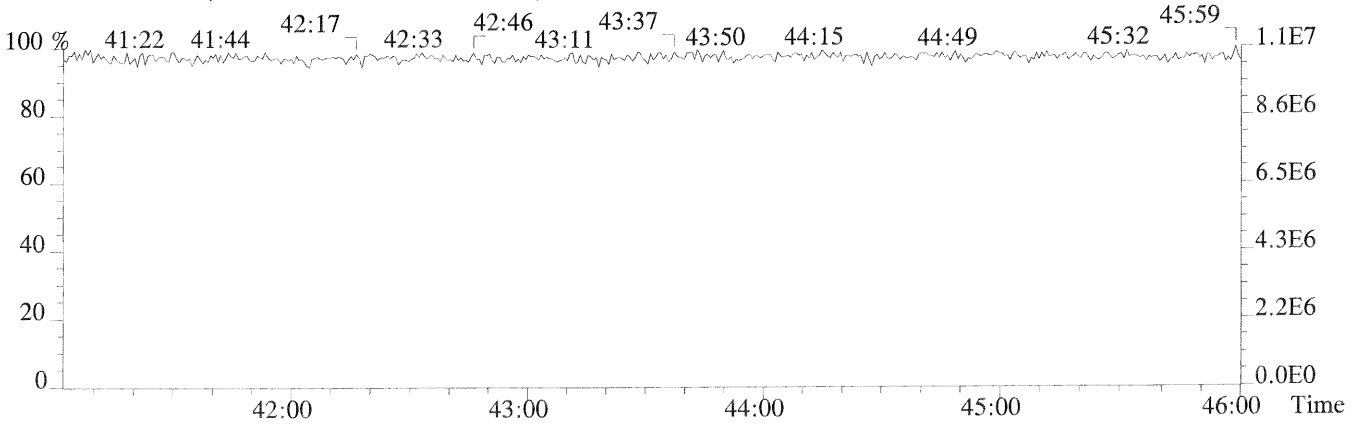
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,752.0,0.40%,F,T)



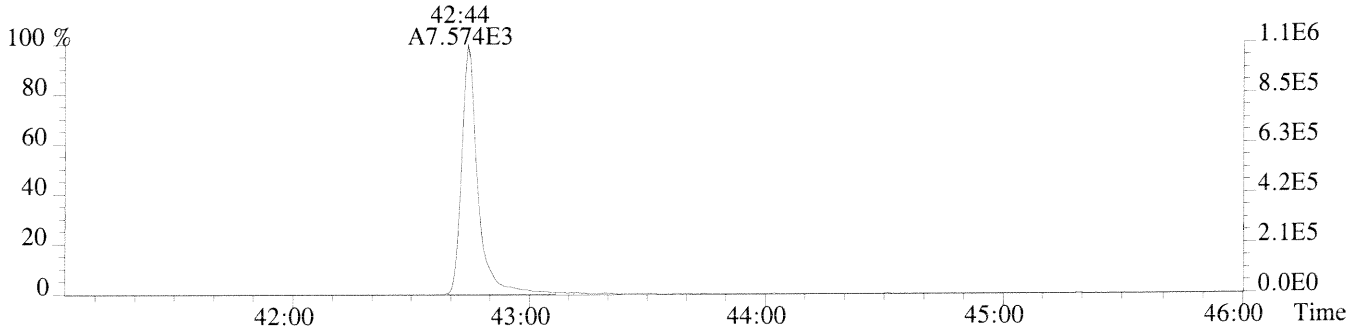
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



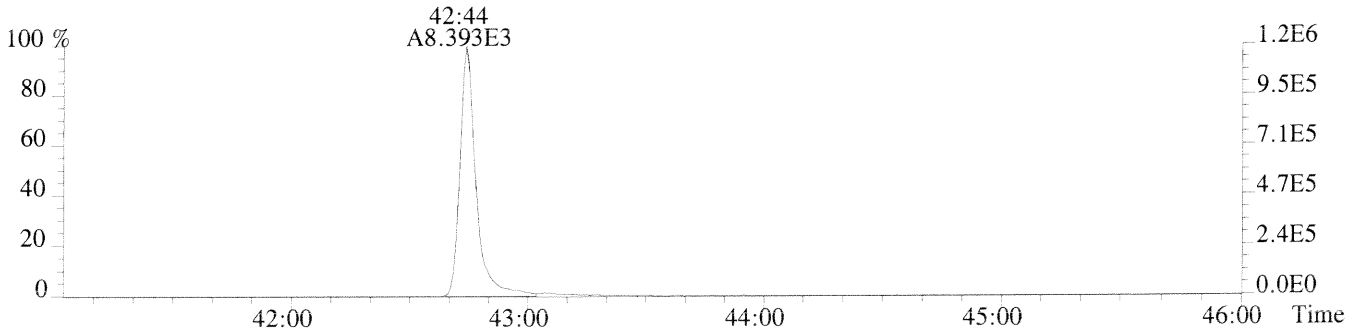
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



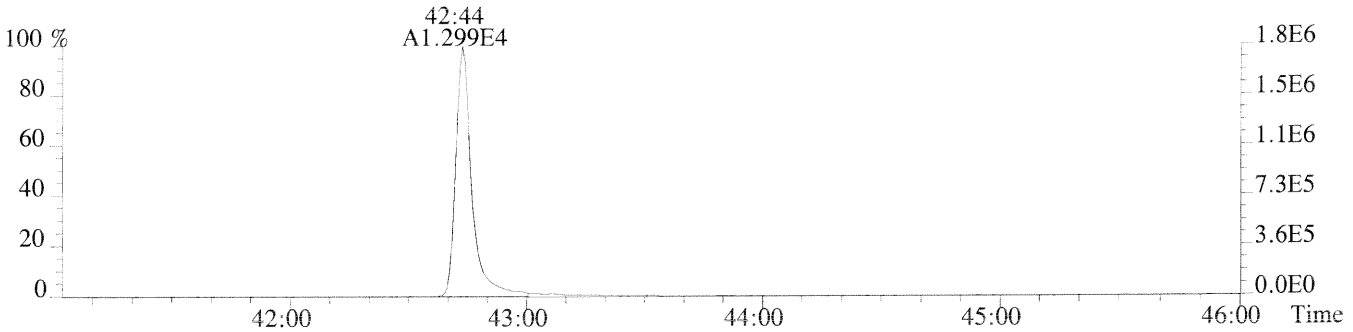
File:U149834 #1-451 Acq: 3-JUL-2014 02:39:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,620.0,0.40%,F,T)



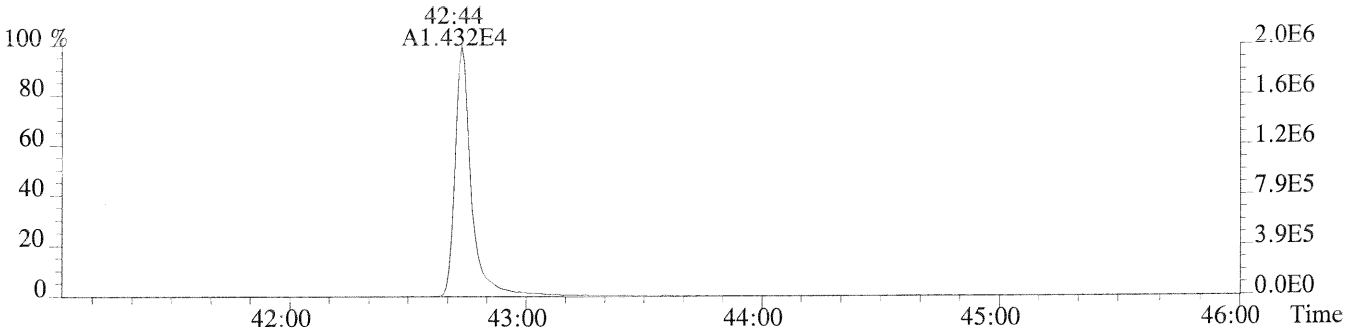
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



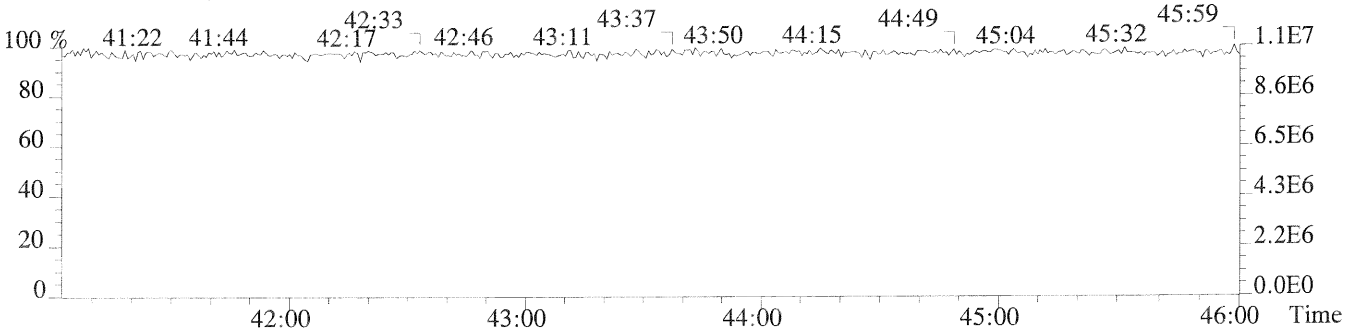
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,536.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Initial Calibration QC Checklist

ICAL Name: P140201161 3I

Date: 02/01/14

Method: 1613 / 8290 / Tetra / TCDD Only / TCDF Conf / 8280 / M23

Retention Window/Column Performance Check	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50%	✓	✓
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: [signature] Second QC: LKL

icalqc.xls 10-30-2012

Laboratory Review Checklist: HRMS Initial Calibration

Method:	1613/8290	Process Date:	02/04/14
Instrument Name:	E-HRMS-04	Calibration File Name:	P140801163I
Processor Name:	JEREMIAH BECK	Reviewer Name:	LOAN LUONG

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	✓				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	✓				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	✓				
Were all calibration standards analyzed only once?	✓				
Was the ICV analyzed after the ICAL, before analyzing samples?	✓				
	✓				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	✓				
Were all target masses >10,000 resolving power at the beginning of the sequence?	✓				
Were all target masses >10,000 resolving power at the end of the sequence?	✓				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			✓		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			✓		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	✓				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	✓				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	✓				
Were all first and last eluters adequately resolved in each function?	✓				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			✓		
Was the retention time of PCB 209 >55 min?			✓		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			✓		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			✓		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	✓				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			✓		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	✓				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?	✓				

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 02/04/14
Instrument Name: E-HRMS-04	Calibration File Name: P140201613I
Processor Name: JEREMIAH BECK	Reviewer Name: LOAN LUONG

Description	Yes	No	NA	NR	ER#
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	✓				
Were area counts for the highest calibration standard below levels of saturation?	✓				
Were manual integrations technically justified to correct for poor software integration?	✓				
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	✓				
Were all calibration standards used in determining response factors?	✓				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	✓				
Did the RSD for RRFs for each native analyte meet method criteria?	✓				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	✓				
Were RFs for each labeled compound calculated for each calibration point?	✓				
Did the RSD for RF for each labeled compound meet method criteria?	✓				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	✓				
Did all analytes meet method criteria for the ICV	✓				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 02/04/14
Instrument Name: E-HRMS-04	Calibration File Name: P140201613I
Processor Name: JEREMIAH BECK	Reviewer Name: LOAN LUONG

ER#	Description
5	

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

CAS HOUSTON INC.
5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY
HIGH RESOLUTION

Name: ALS Environmental, Houston Contract

Lab Code: TX01411 CASE No.: Client No: SDG No.:

GC Column: db5 MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-04

Init. Calib. Date: 02/01/14 02/10/14

Init. Calib.Times: 15:24:46

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, SPIKES AND DUPLICATES IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE		P227257	1-FEB-14	15:24:46
ICAL HRCC0.5/CS0.5	66807	P227259	1-FEB-14	16:59:59
ICAL HRCC1/CS1	66798	P227260	1-FEB-14	17:48:05
ICAL HRCC2/CS2	D12-90-3B	P227261	1-FEB-14	18:36:13
ICAL HRCC3/CS3	63383	P227262	1-FEB-14	19:24:19
ICAL HRCC4/CS4	D12-90-3D	P227263	1-FEB-14	20:12:26
ICAL HRCC5/CS5	66799	P227264	1-FEB-14	21:00:32

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2140201.SPL

Last Modified: Saturday, February 01, 2014 15:24:32 Central Standard Time

Printed: Monday, February 03, 2014 10:27:45 Central Standard Time

02/04/14 D: P140201613I D: P140201M23I

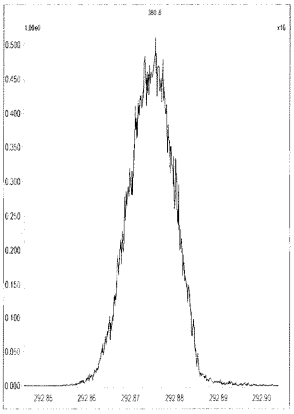
	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	02/01/14	15:24	P227257	WINDOW DEFINE	63680		HOMS CHECK 15:19	8290CAS
2		16:11	P227258	INST BLANK	INST BLANK			8290CAS
3		16:59	P227259	~~CS0.5~~ HRCC0.5/CS0.5	66807		ICAL0.5	8290CAS
4		17:48	P227260	~~CS1~~ HRCC1/CS1	66798		ICAL1	8290CAS
5		18:36	P227261	~~CS2~~ HRCC2/CS2	D12-90-3B		ICAL2	8290CAS
6		19:24	P227262	~~CS3~~ HRCC3/CS3	63383		ICAL3 02/04/14	8290CAS
7		20:12	P227263	~~CS4~~ HRCC4/CS4	D12-90-3D		ICAL4	8290CAS
8		21:00	P227264	~~CS5~~ HRCC5/CS5	66799		ICAL5	8290CAS
9		21:48	P227265	INST BLANK	INST BLANK		HOMS CHECK 10:22	8290CAS
10			---	---	---			8290CAS
11			---	---	---			8290CAS
12			---	---	---			8290CAS
13			---	---	---			8290CAS
14			---	---	---			8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
20			---	---	---			8290CAS
21			---	---	---			8290CAS
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			---
29			---	---	---			---
30			---	---	---			TCDFCAS
31			---	---	---			TCDFCAS
32			---	---	---			8290CAS
33	---	---	---	---	---	---	---	8290CAS
34	---	---	---	---	REVIEWED BY:	---	---	8290CAS
35	---	---	---	---	---	---	---	8290CAS
36	---	---	---	---	---	---	---	8290CAS
37	---	---	---	---	---	---	---	TCDFCAS
38	---	---	---	---	---	---	---	TCDFCAS
39	---	---	---	---	---	---	---	TCDFCAS

02/04/14

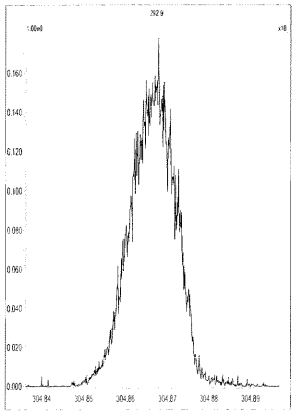
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Saturday, February 01, 2014 15:19:00 Central Standard Time

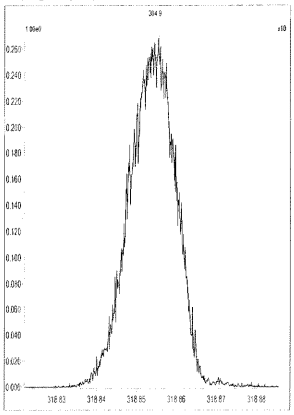
M 292.9824 R 12558



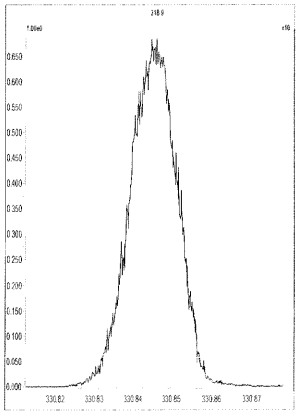
M 304.9824 R 12754



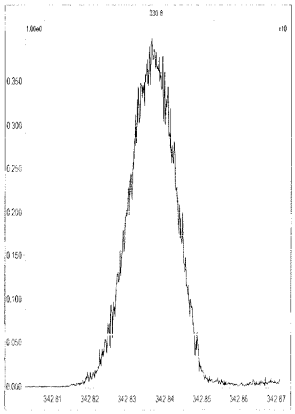
M 318.9792 R 12818



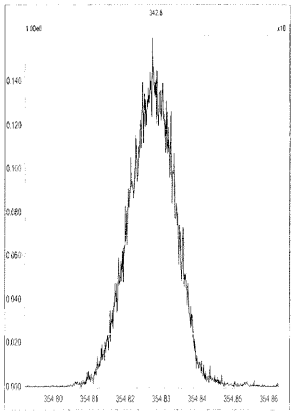
M 330.9792 R 12501



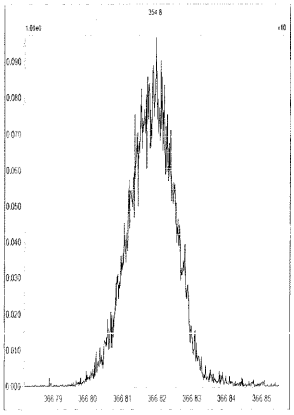
M 342.9792 R 12625



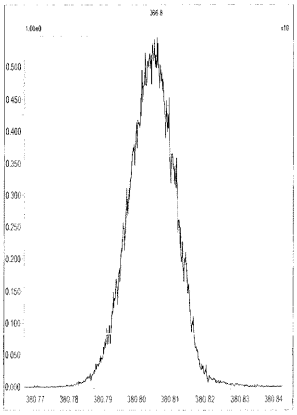
M 354.9792 R 12434



M 366.9792 R 12376



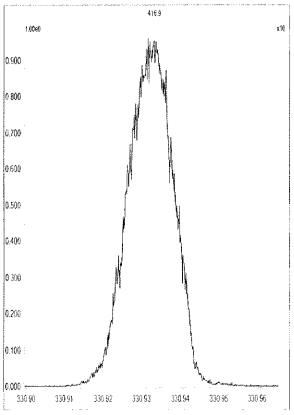
M 380.9760 R 11907



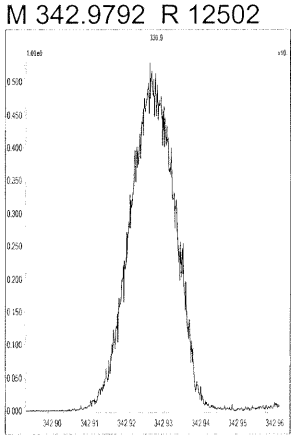
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Saturday, February 01, 2014 15:20:34 Central Standard Time

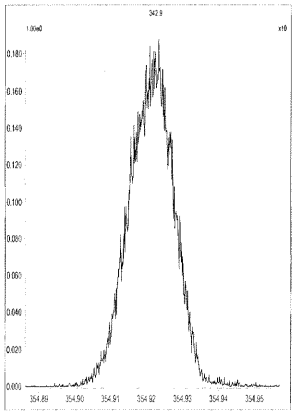
M 330.9792 R 12689



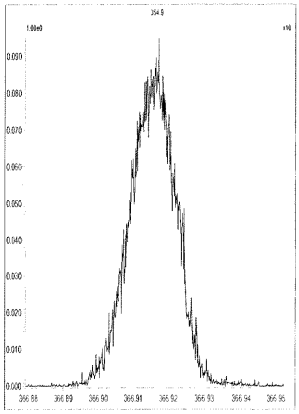
M 342.9792 R 12502



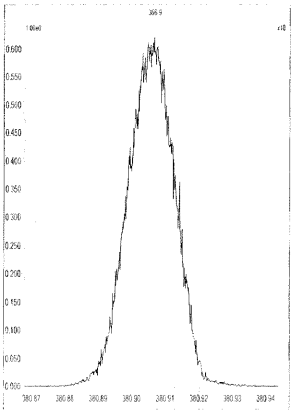
M 354.9792 R 12755



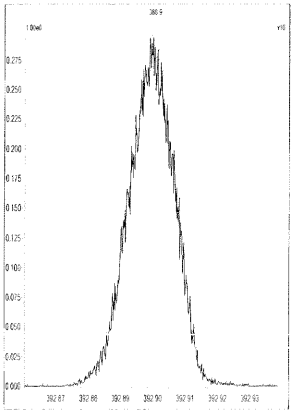
M 366.9792 R 12818



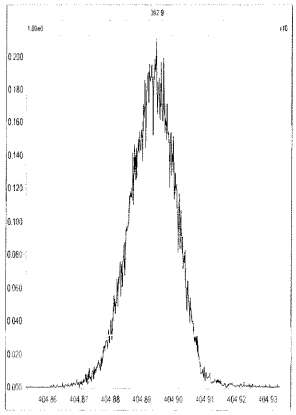
M 380.9760 R 12316



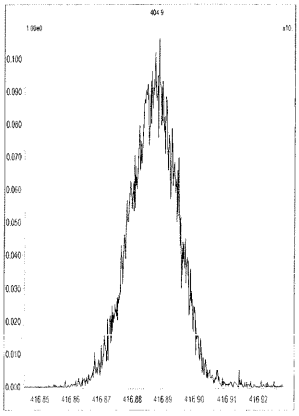
M 392.9760 R 12562



M 404.9760 R 12252



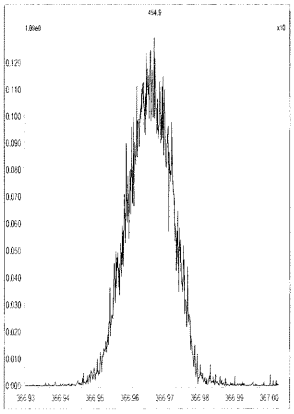
M 416.9760 R 12563



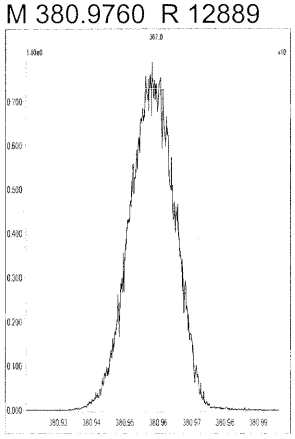
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Saturday, February 01, 2014 15:21:27 Central Standard Time

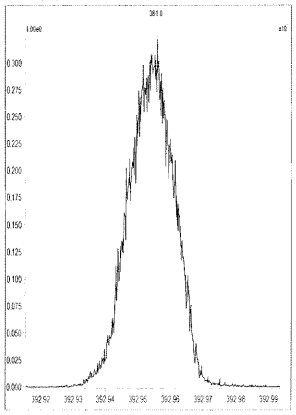
M 366.9792 R 13660



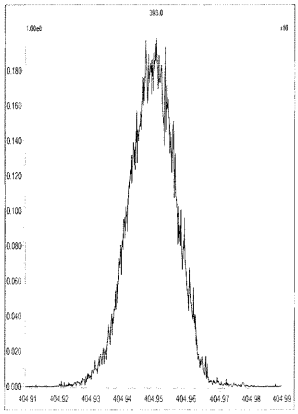
M 380.9760 R 12889



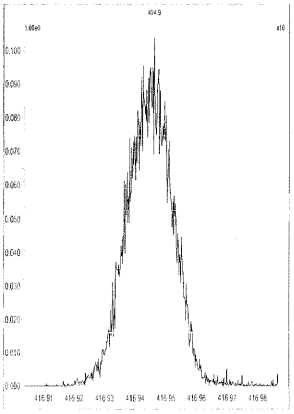
M 392.9760 R 12627



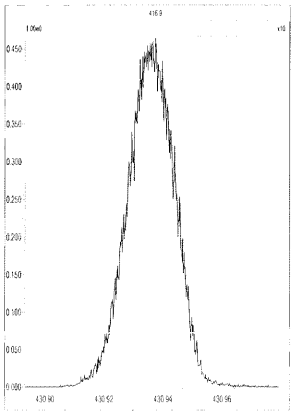
M 404.9760 R 12319



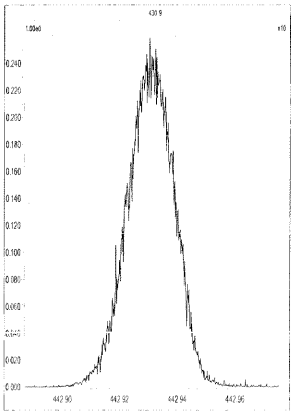
M 416.9760 R 13018



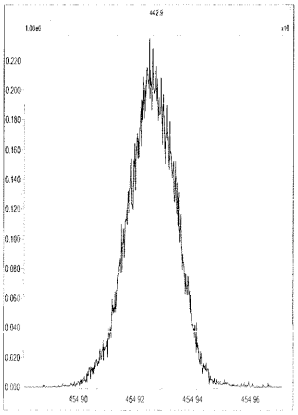
M 430.9728 R 12195



M 442.9728 R 12254



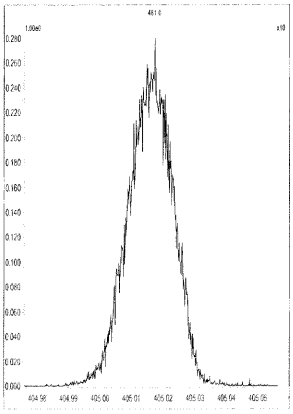
M 454.9728 R 12137



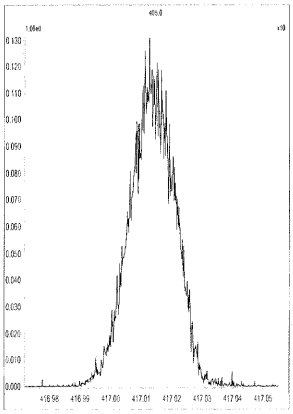
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Saturday, February 01, 2014 15:22:22 Central Standard Time

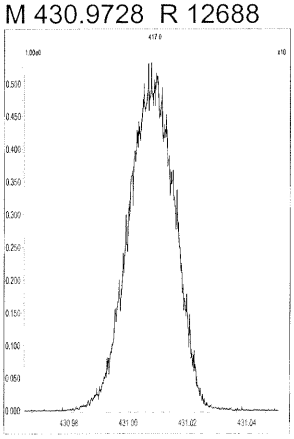
M 404.9760 R 13365



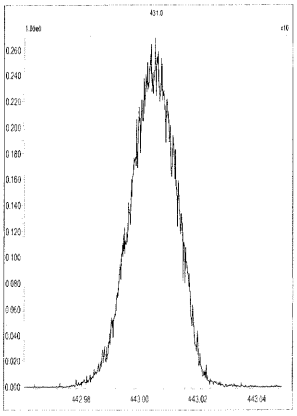
M 416.9760 R 13088



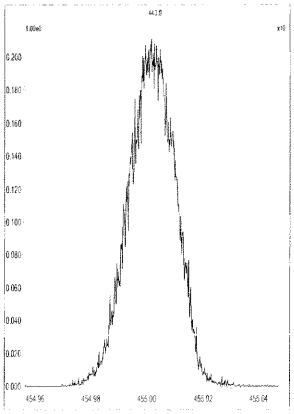
M 430.9728 R 12688



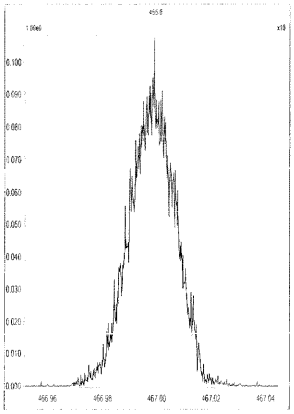
M 442.9728 R 12312



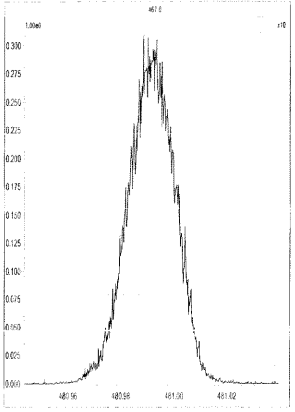
M 454.9728 R 12135



M 466.9728 R 12822



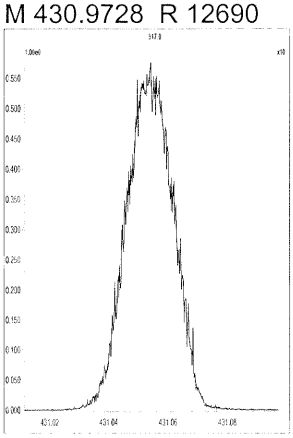
M 480.9696 R 12195



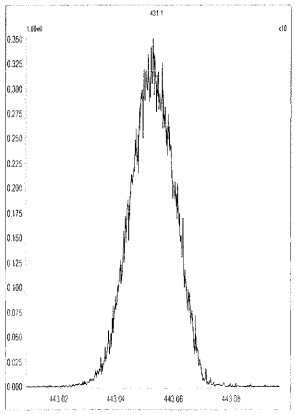
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Saturday, February 01, 2014 15:23:20 Central Standard Time

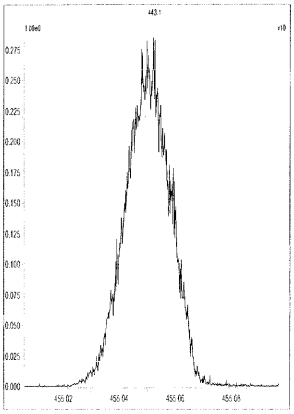
M 430.9728 R 12690



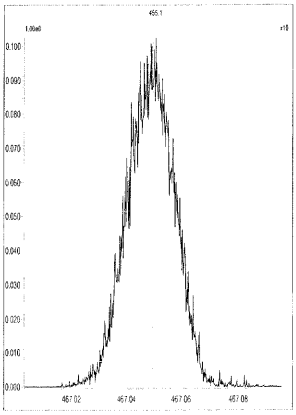
M 442.9728 R 12818



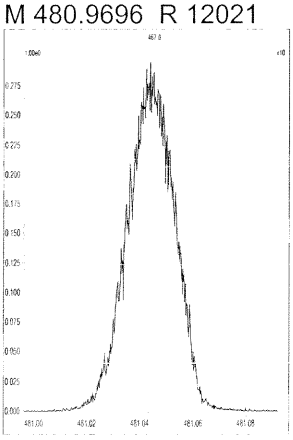
M 454.9728 R 13158



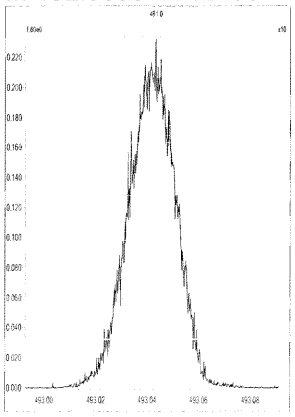
M 466.9728 R 12754



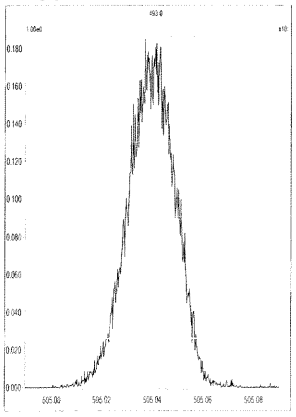
M 480.9696 R 12021



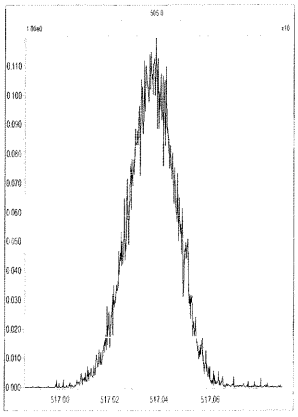
M 492.9696 R 12438



M 504.9696 R 12135



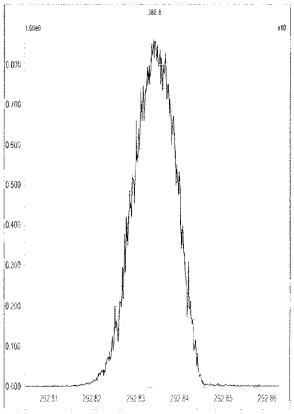
M 516.9697 R 11956



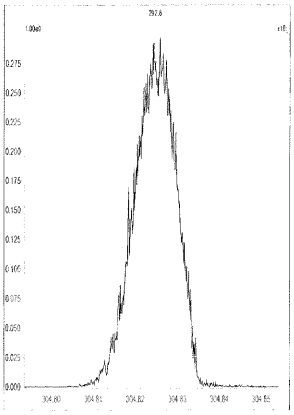
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, February 03, 2014 10:22:31 Central Standard Time

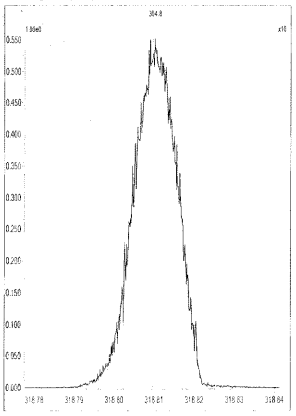
M 292.9824 R 13737



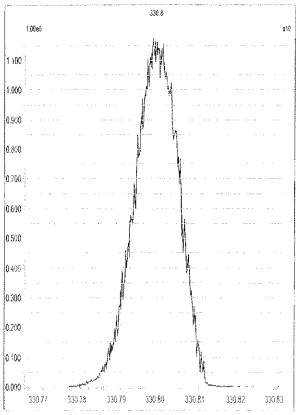
M 304.9824 R 14209



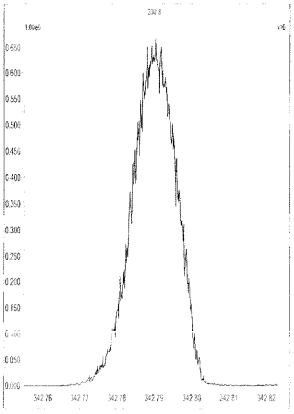
M 318.9792 R 13364



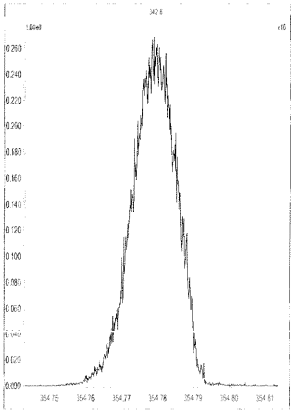
M 330.9792 R 13660



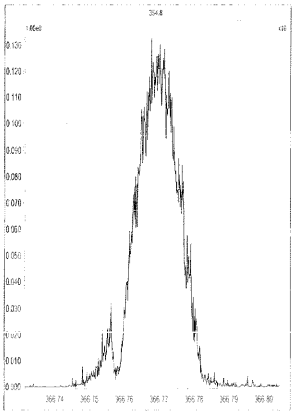
M 342.9792 R 12693



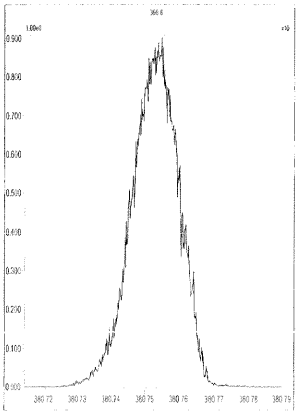
M 354.9792 R 13158



M 366.9792 R 15721



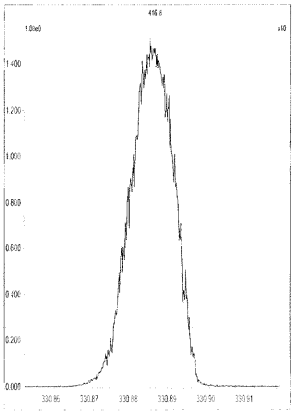
M 380.9760 R 12316



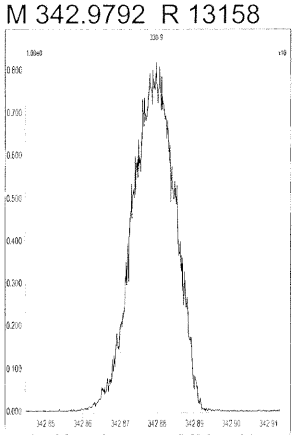
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, February 03, 2014 10:23:19 Central Standard Time

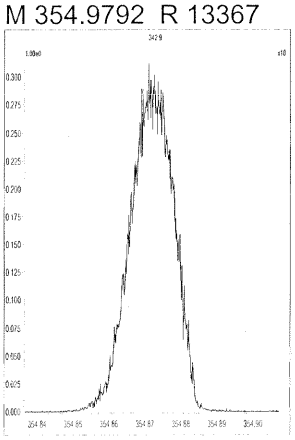
M 330.9792 R 13583



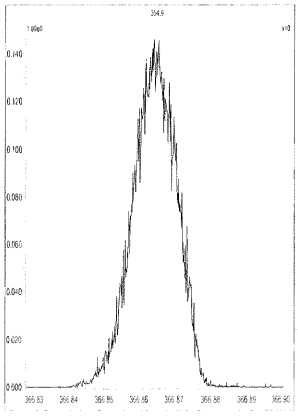
M 342.9792 R 13158



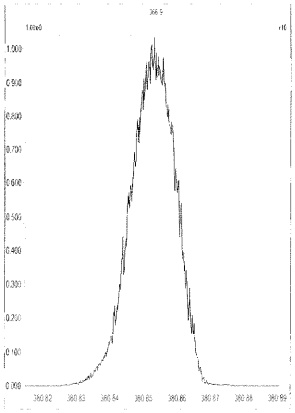
M 354.9792 R 13367



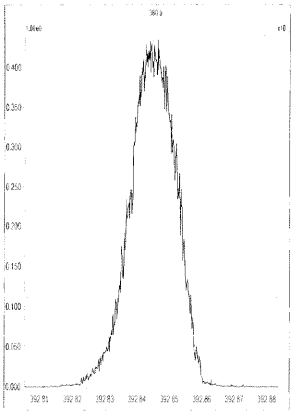
M 366.9792 R 13657



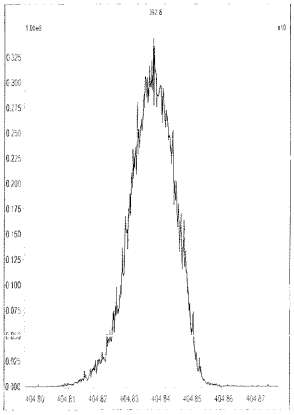
M 380.9760 R 12690



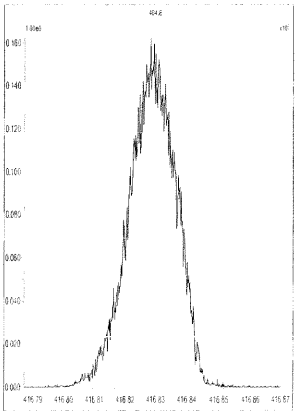
M 392.9760 R 12075



M 404.9760 R 12315



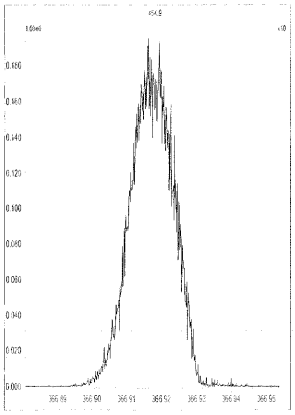
M 416.9760 R 12318



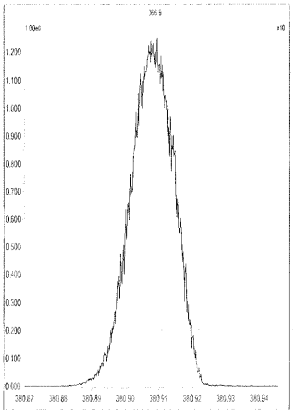
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, February 03, 2014 10:24:02 Central Standard Time

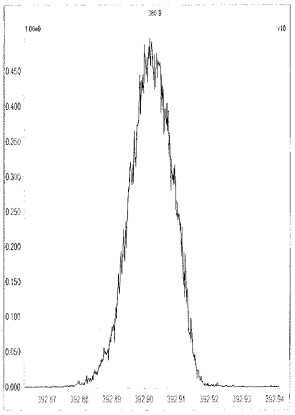
M 366.9792 R 13092



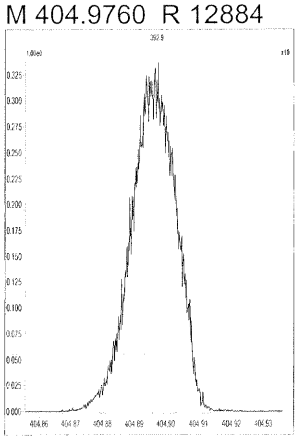
M 380.9760 R 13090



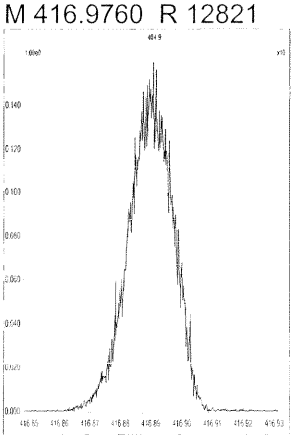
M 392.9760 R 12886



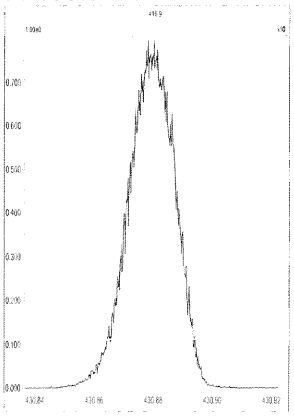
M 404.9760 R 12884



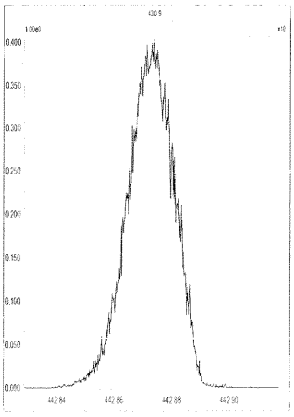
M 416.9760 R 12821



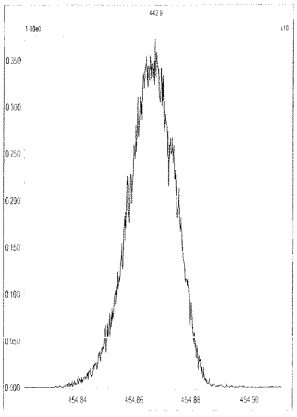
M 430.9728 R 12194



M 442.9728 R 12256



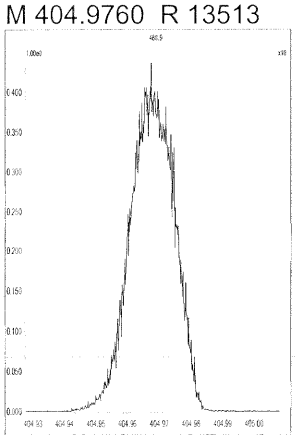
M 454.9728 R 11961



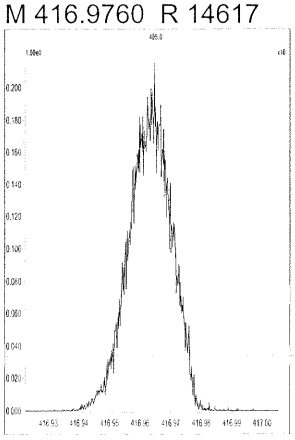
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, February 03, 2014 10:24:47 Central Standard Time

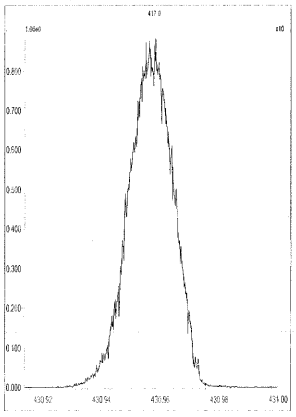
M 404.9760 R 13513



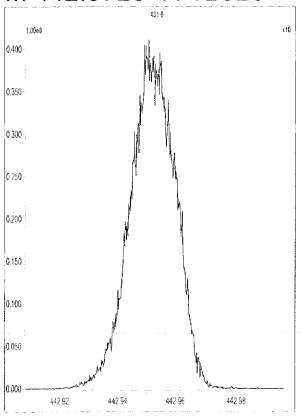
M 416.9760 R 14617



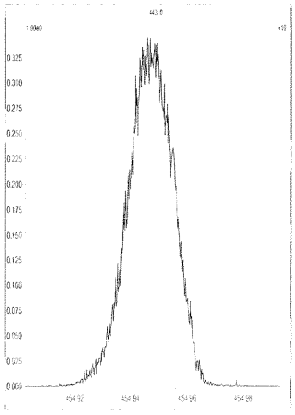
M 430.9728 R 12564



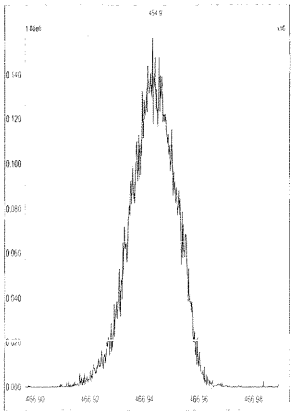
M 442.9728 R 12820



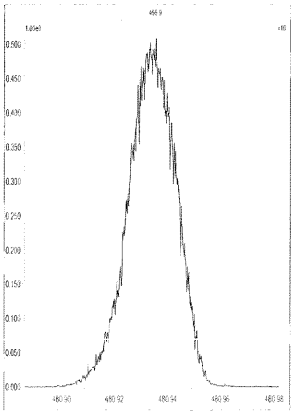
M 454.9728 R 12955



M 466.9728 R 12255



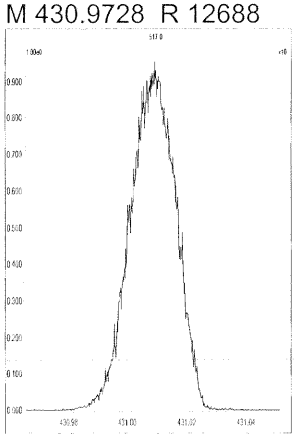
M 480.9696 R 11414



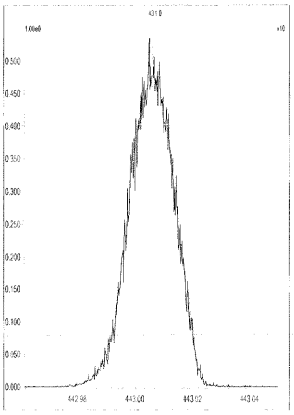
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, February 03, 2014 10:25:40 Central Standard Time

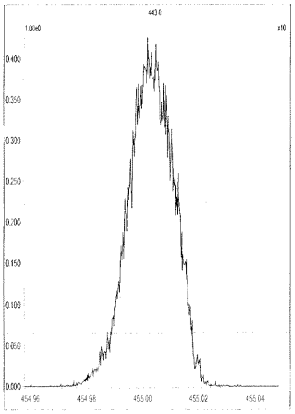
M 430.9728 R 12688



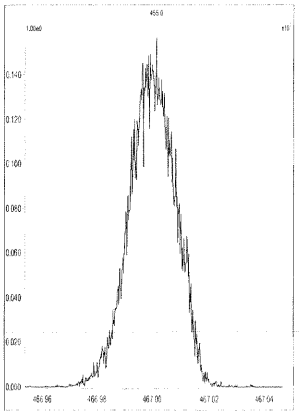
M 442.9728 R 12821



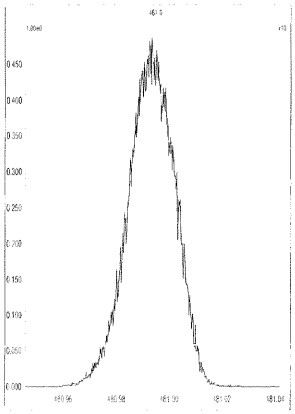
M 454.9728 R 12437



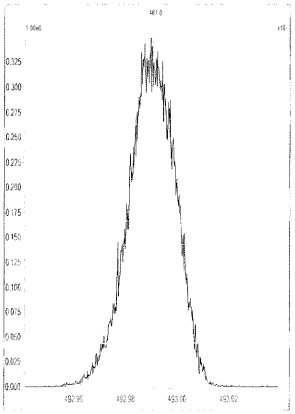
M 466.9728 R 12560



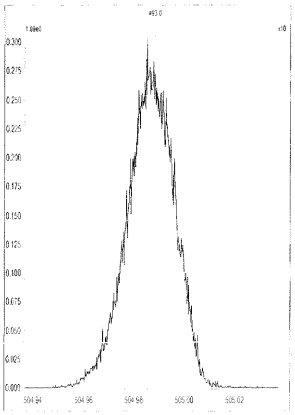
M 480.9696 R 12078



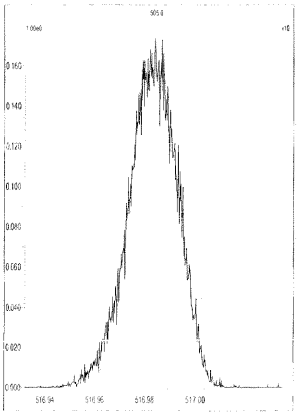
M 492.9696 R 12080



M 504.9696 R 11626



M 516.9697 R 11062



5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS ENVIRONMENTAL Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5 MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-04

Init. Calib. Date: 02/01/14 02/10/14

Init. Calib.Times: 15:24:46

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE		P227266	3-FEB-14	12:32:09
DO NOT USE	D12-4-1	P227267	3-FEB-14	13:33:28
2ND SOURCE VERIFICA	60287	P227268	3-FEB-14	15:16:53

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P2140203.SFL

Last Modified: Tuesday, February 04, 2014 07:45:58 Central Standard Time

Printed: Tuesday, February 04, 2014 07:54:42 Central Standard Time

D: P227267RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	02/03/14	12:32	P227266	WINDOW DEFINE	63680		HRMS Check 12:26	8290CAS
2		13:33	P227267	2ND SOURCE HRCC3/CS3	D12-4-1		DO NOT USE	8290CAS
3		15:16	P227268	2ND SOURCE HRCC3/CS3	60287			8290CAS
4		16:34	P227269	SYSTEM BLANK	SYSTEM BLANK		HRMS Check 07:40	8290CAS
5			---	---	---			8290CAS
6			---	---	---			8290CAS
7			---	---	---			8290CAS
8			---	---	---			8290CAS
9			---	---	---			8290CAS
10			---	---	---			8290CAS
11			---	---	---			8290CAS
12			---	---	---			8290CAS
13			---	---	---			8290CAS
14			---	---	---			8290CAS
15			---	---	---			8290CAS
16			---	---	---			8290CAS
17			---	---	---			8290CAS
18			---	---	---			8290CAS
19			---	---	---			8290CAS
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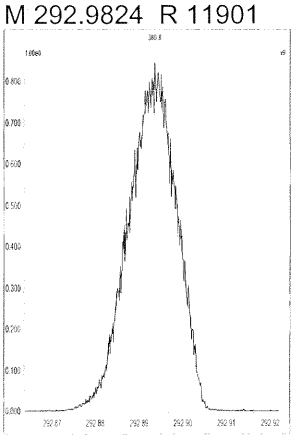
22			---	---	---			8290CAS
23			---	---	---			8290CAS
24			---	---	---			8290CAS
25			---	---	---			8290CAS
26			---	---	---			8290CAS
27			---	---	---			8290CAS
28			---	---	---			---
29			---	---	---			---
30			---	---	---			TCDFCAS
31			---	---	---			TCDFCAS
32			---	---	---			8290CAS
33	---	---	---	---	---	---	---	8290CAS
34	---	---	---	---	REVIEWED BY:	---	---	8290CAS
35	---	---	---	---	---	---	---	8290CAS
36	---	---	---	---	---	---	---	8290CAS
37	---	---	---	---	---	---	---	TCDFCAS
38	---	---	---	---	---	---	---	TCDFCAS
39	---	---	---	---	---	---	---	TCDFCAS

02/04/14

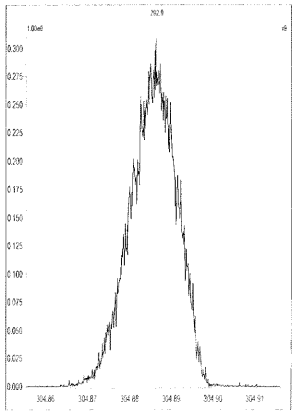
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, February 03, 2014 12:26:12 Central Standard Time

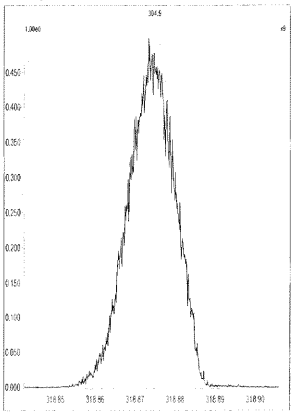
M 292.9824 R 11901



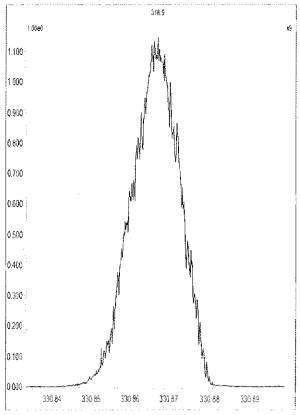
M 304.9824 R 12019



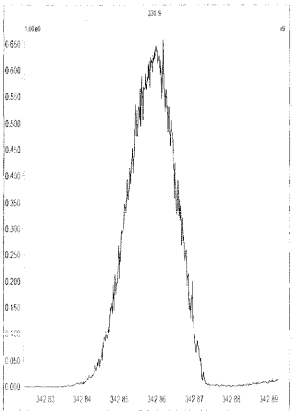
M 318.9792 R 12498



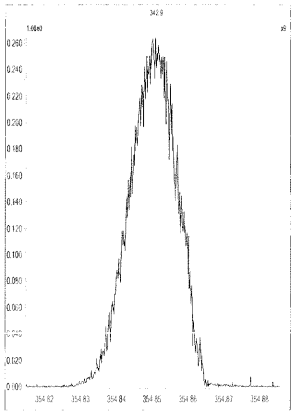
M 330.9792 R 12311



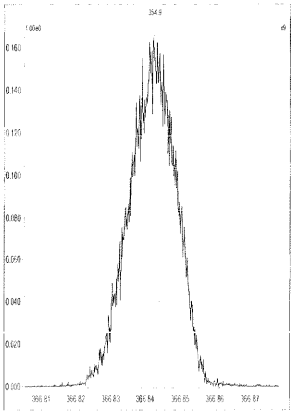
M 342.9792 R 11961



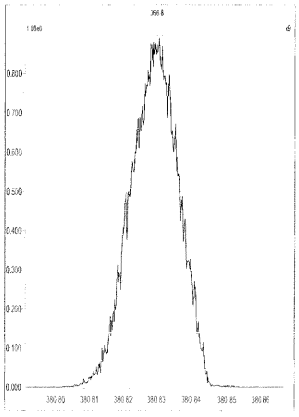
M 354.9792 R 12497



M 366.9792 R 12755



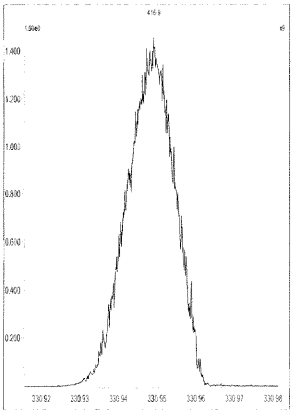
M 380.9760 R 12561



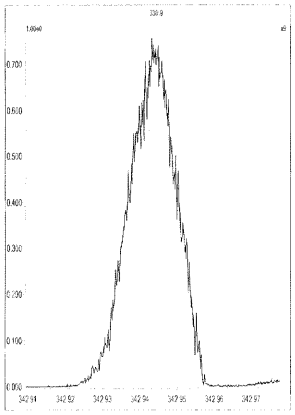
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Monday, February 03, 2014 12:27:08 Central Standard Time

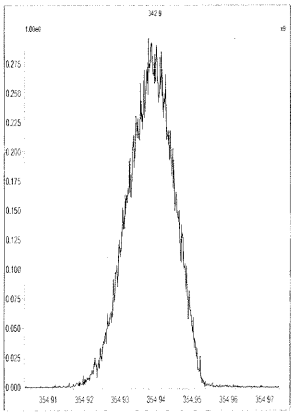
M 330.9792 R 12314



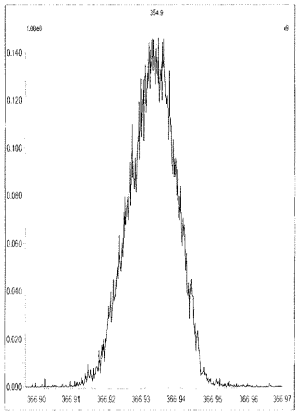
M 342.9792 R 12318



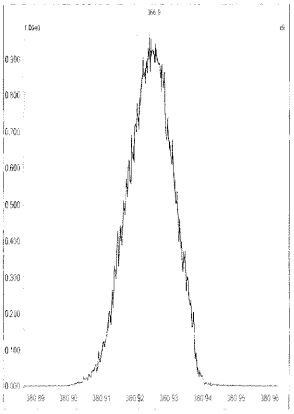
M 354.9792 R 12563



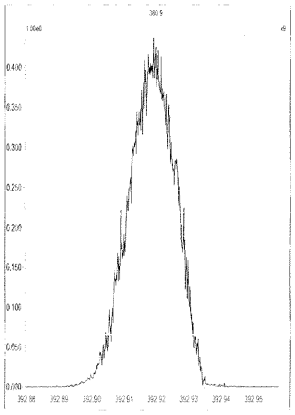
M 366.9792 R 12951



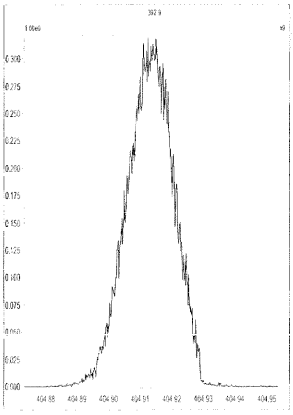
M 380.9760 R 12757



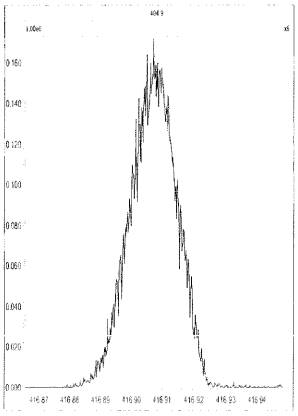
M 392.9760 R 12195



M 404.9760 R 12257



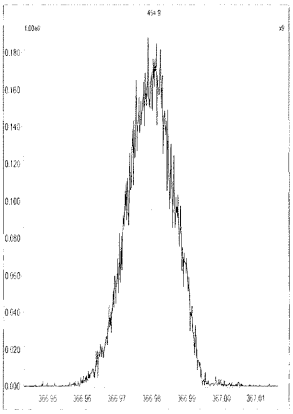
M 416.9760 R 12691



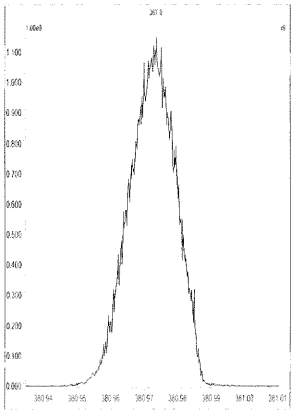
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Monday, February 03, 2014 12:28:13 Central Standard Time

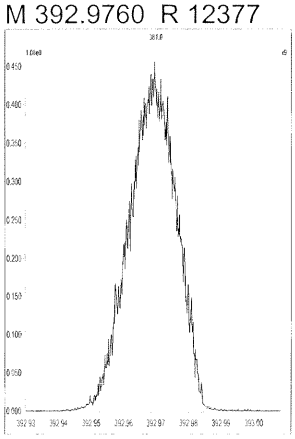
M 366.9792 R 12500



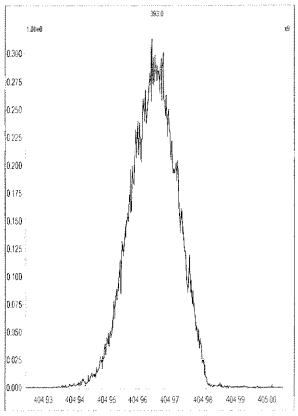
M 380.9760 R 12624



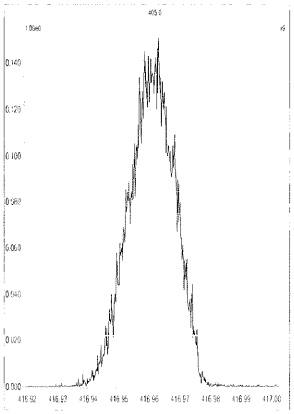
M 392.9760 R 12377



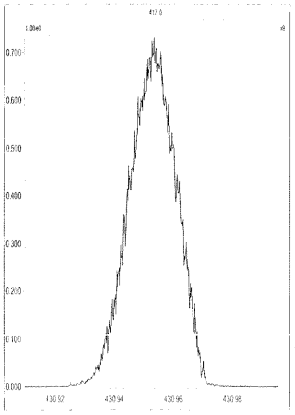
M 404.9760 R 12194



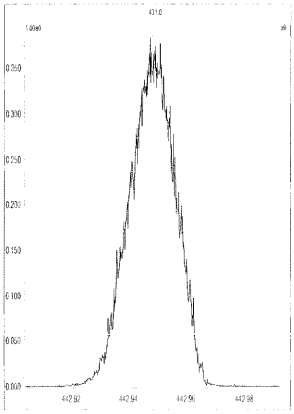
M 416.9760 R 12757



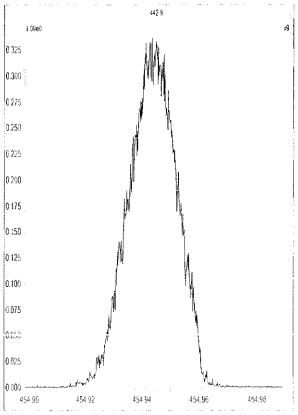
M 430.9728 R 12564



M 442.9728 R 12754



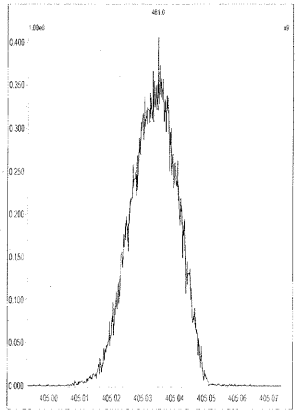
M 454.9728 R 12252



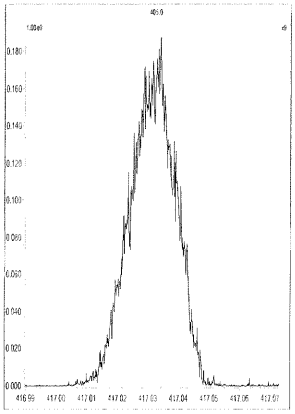
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Monday, February 03, 2014 12:29:05 Central Standard Time

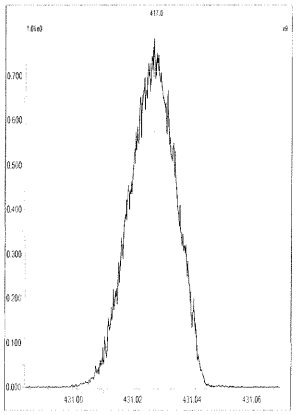
M 404.9760 R 12687



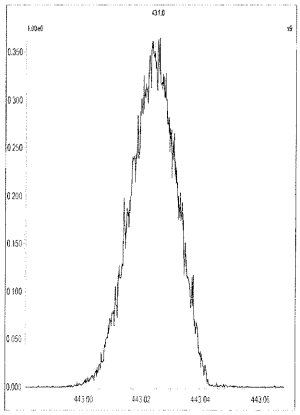
M 416.9760 R 12626



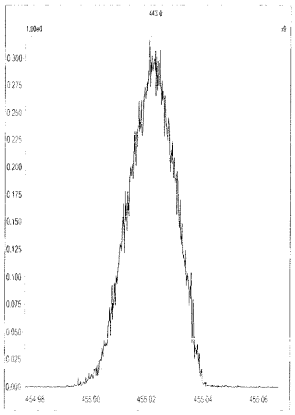
M 430.9728 R 12375



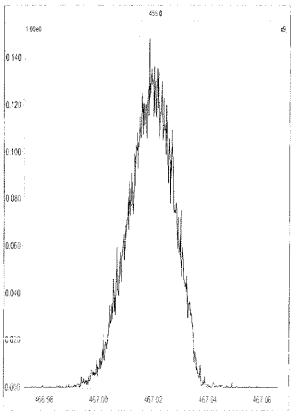
M 442.9728 R 12373



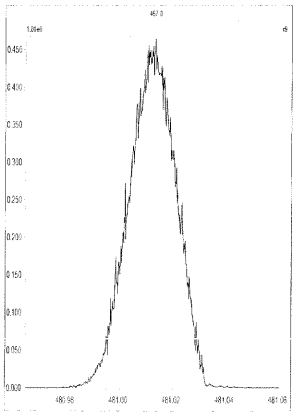
M 454.9728 R 12690



M 466.9728 R 12688



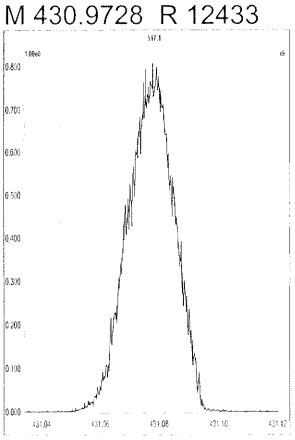
M 480.9696 R 11959



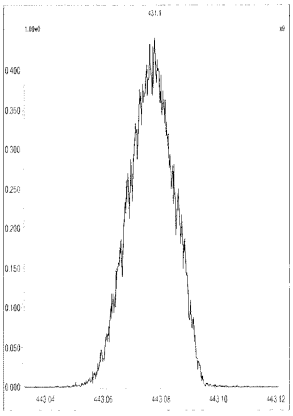
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Monday, February 03, 2014 12:30:05 Central Standard Time

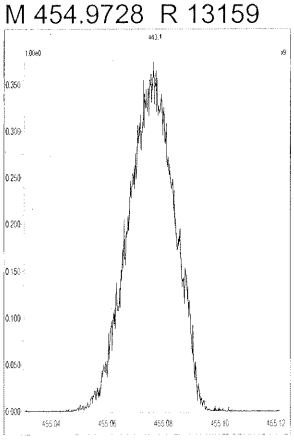
M 430.9728 R 12433



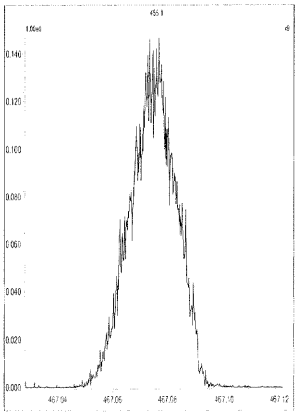
M 442.9728 R 12379



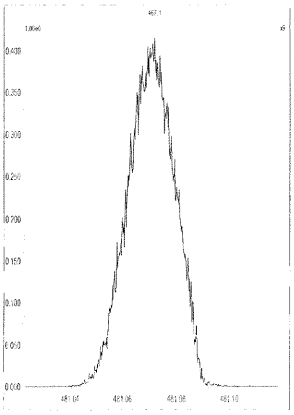
M 454.9728 R 13159



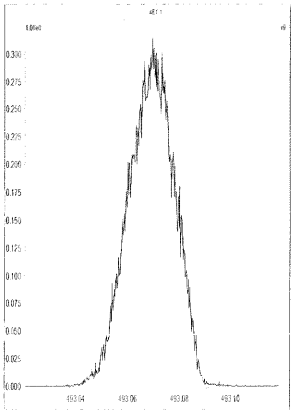
M 466.9728 R 12195



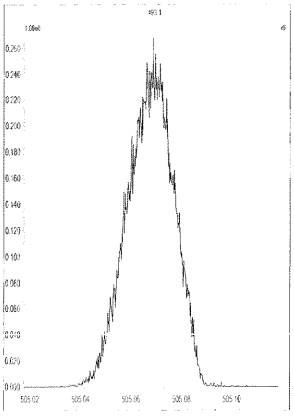
M 480.9696 R 12436



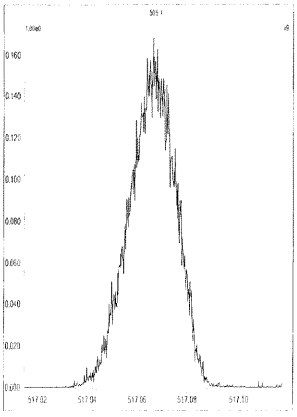
M 492.9696 R 12756



M 504.9696 R 12135



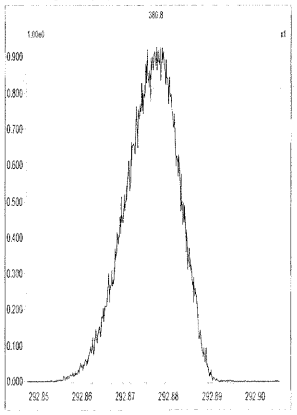
M 516.9697 R 12131



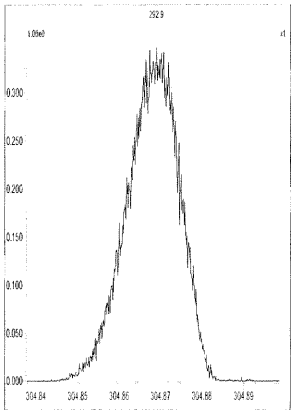
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Tuesday, February 04, 2014 07:40:29 Central Standard Time

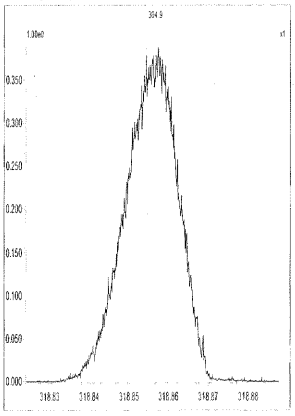
M 292.9824 R 10206



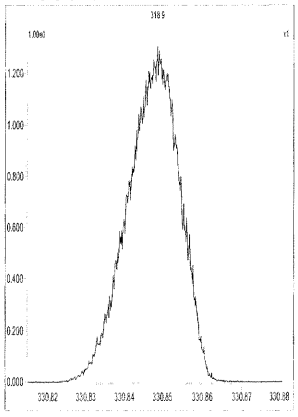
M 304.9824 R 10683



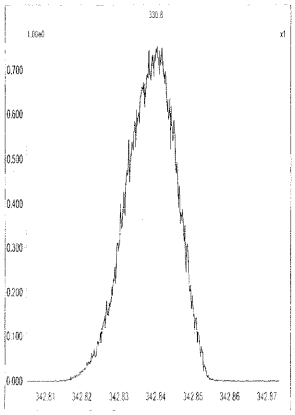
M 318.9792 R 10546



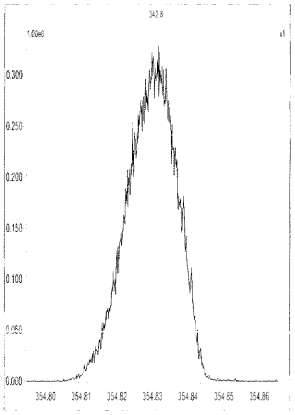
M 330.9792 R 10772



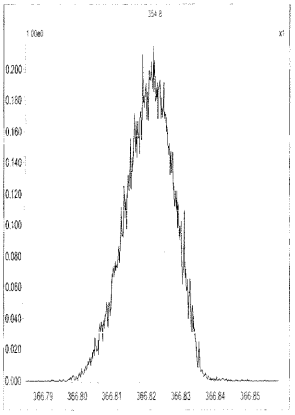
M 342.9792 R 10826



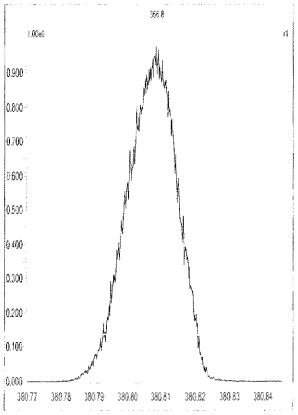
M 354.9792 R 10871



M 366.9792 R 11363



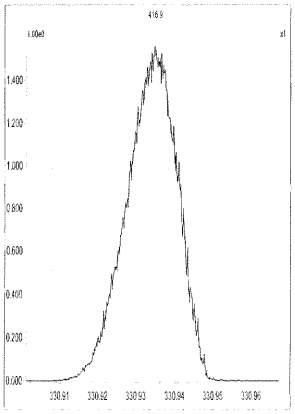
M 380.9760 R 11466



File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Tuesday, February 04, 2014 07:41:25 Central Standard Time

M 330.9792 R 10963



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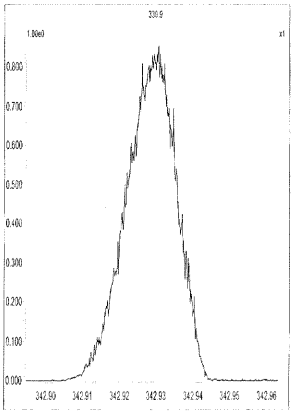
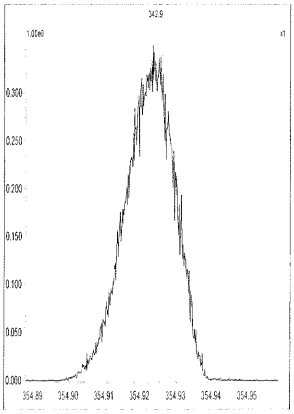
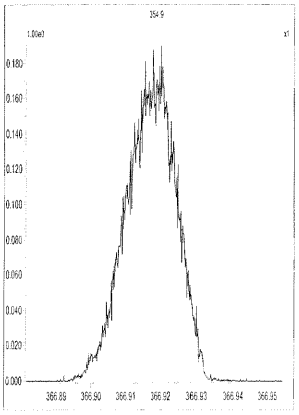


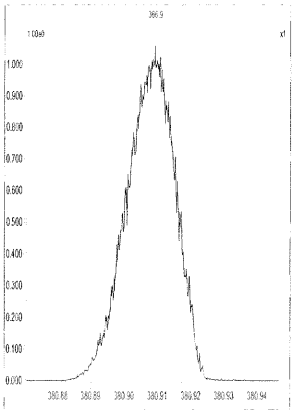
M 354.9792 R 11160



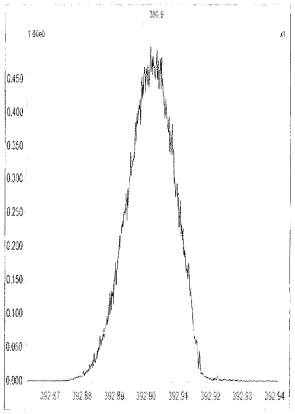
M 366.9792 R 11109



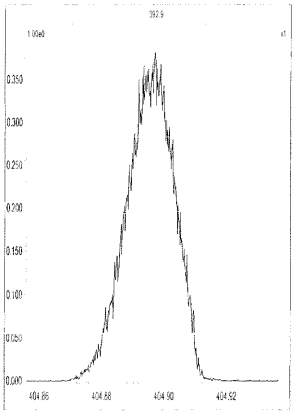
M 380.9760 R 11517



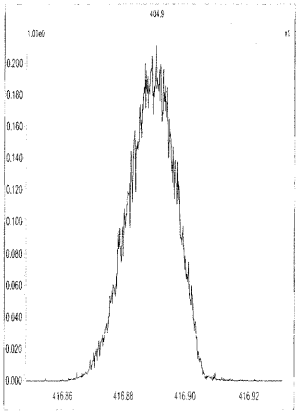
M 392.9760 R 11961



M 404.9760 R 11846



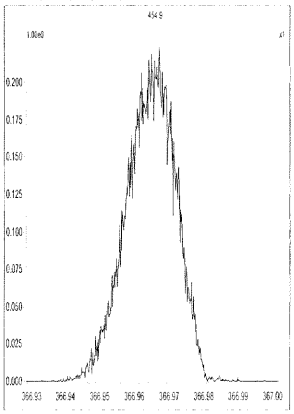
M 416.9760 R 12019



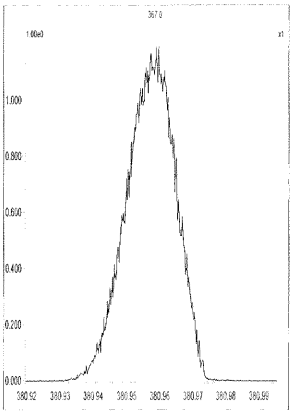
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Tuesday, February 04, 2014 07:42:38 Central Standard Time

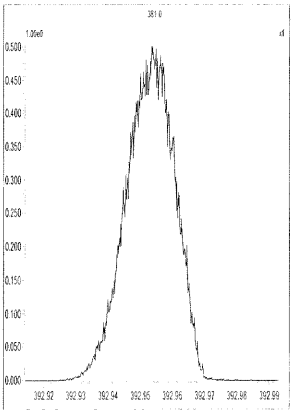
M 366.9792 R 11419



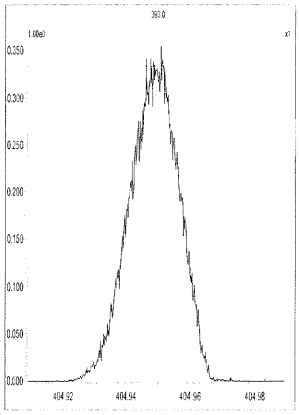
M 380.9760 R 11361



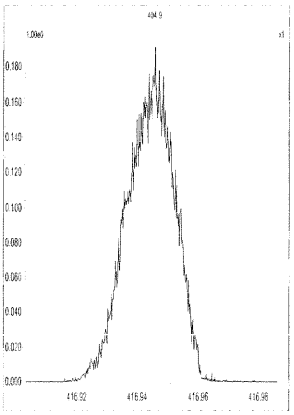
M 392.9760 R 11789



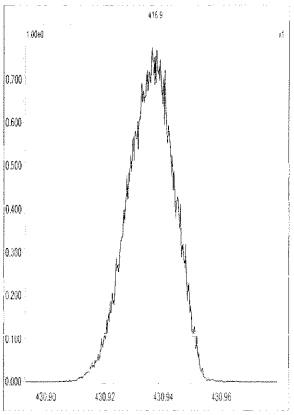
M 404.9760 R 11736



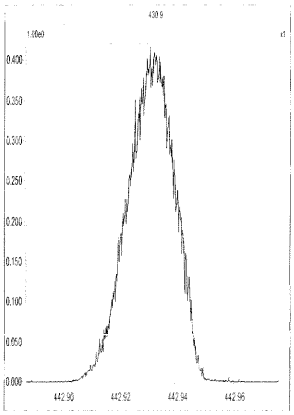
M 416.9760 R 12192



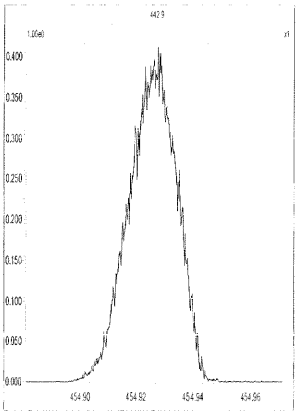
M 430.9728 R 11905



M 442.9728 R 11847



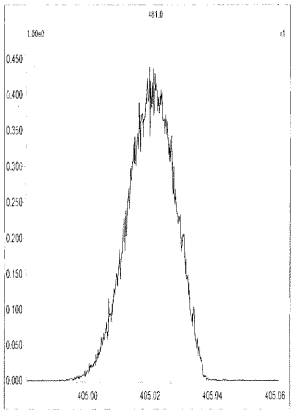
M 454.9728 R 12196



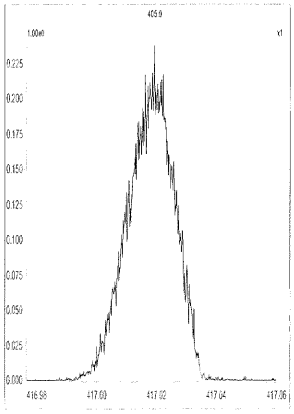
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Tuesday, February 04, 2014 07:43:27 Central Standard Time

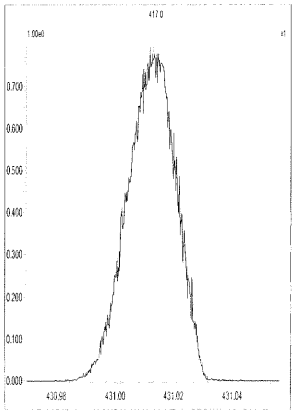
M 404.9760 R 11683



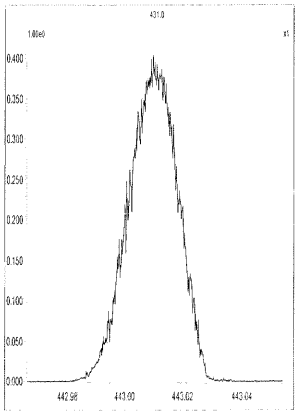
M 416.9760 R 12077



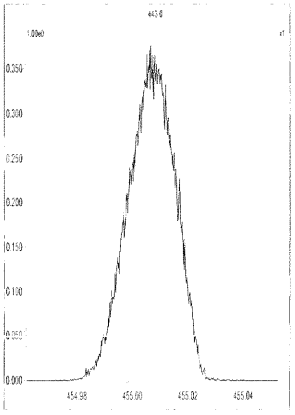
M 430.9728 R 11576



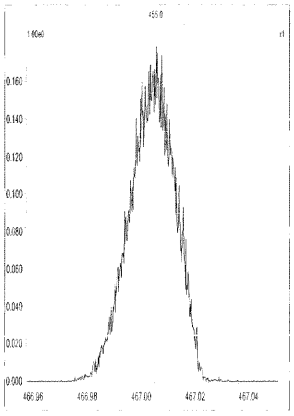
M 442.9728 R 11629



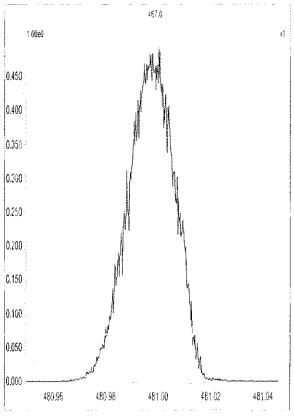
M 454.9728 R 12254



M 466.9728 R 12692



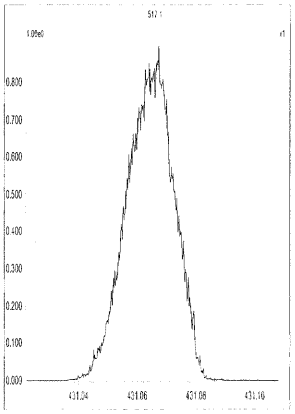
M 480.9696 R 12020



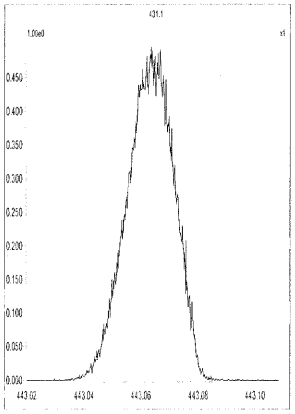
File: Experiment: 8290DB5MSUIF12.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Tuesday, February 04, 2014 07:44:12 Central Standard Time

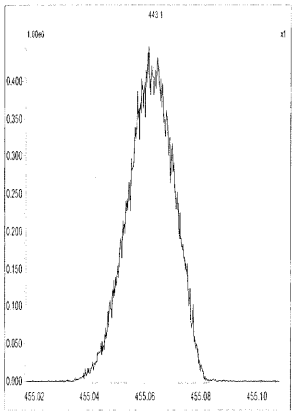
M 430.9728 R 11627



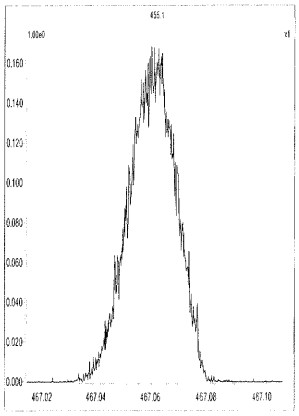
M 442.9728 R 12017



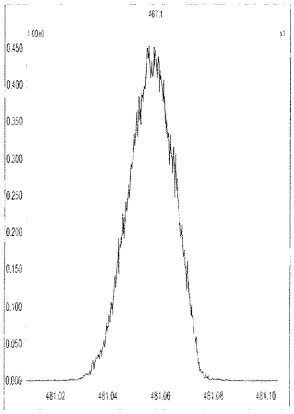
M 454.9728 R 11901



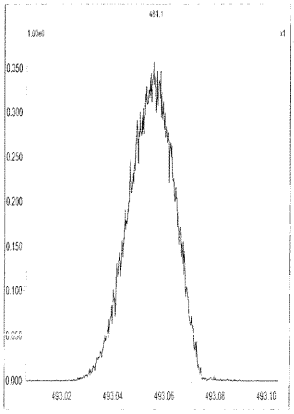
M 466.9728 R 12314



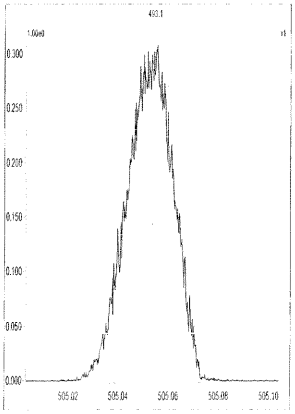
M 480.9696 R 12021



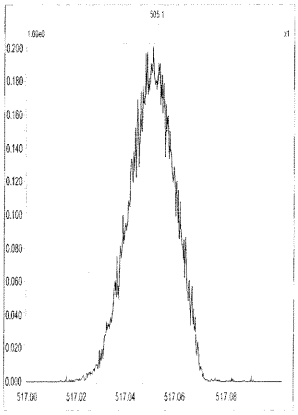
M 492.9696 R 12316



M 504.9696 R 12194



M 516.9697 R 12822



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

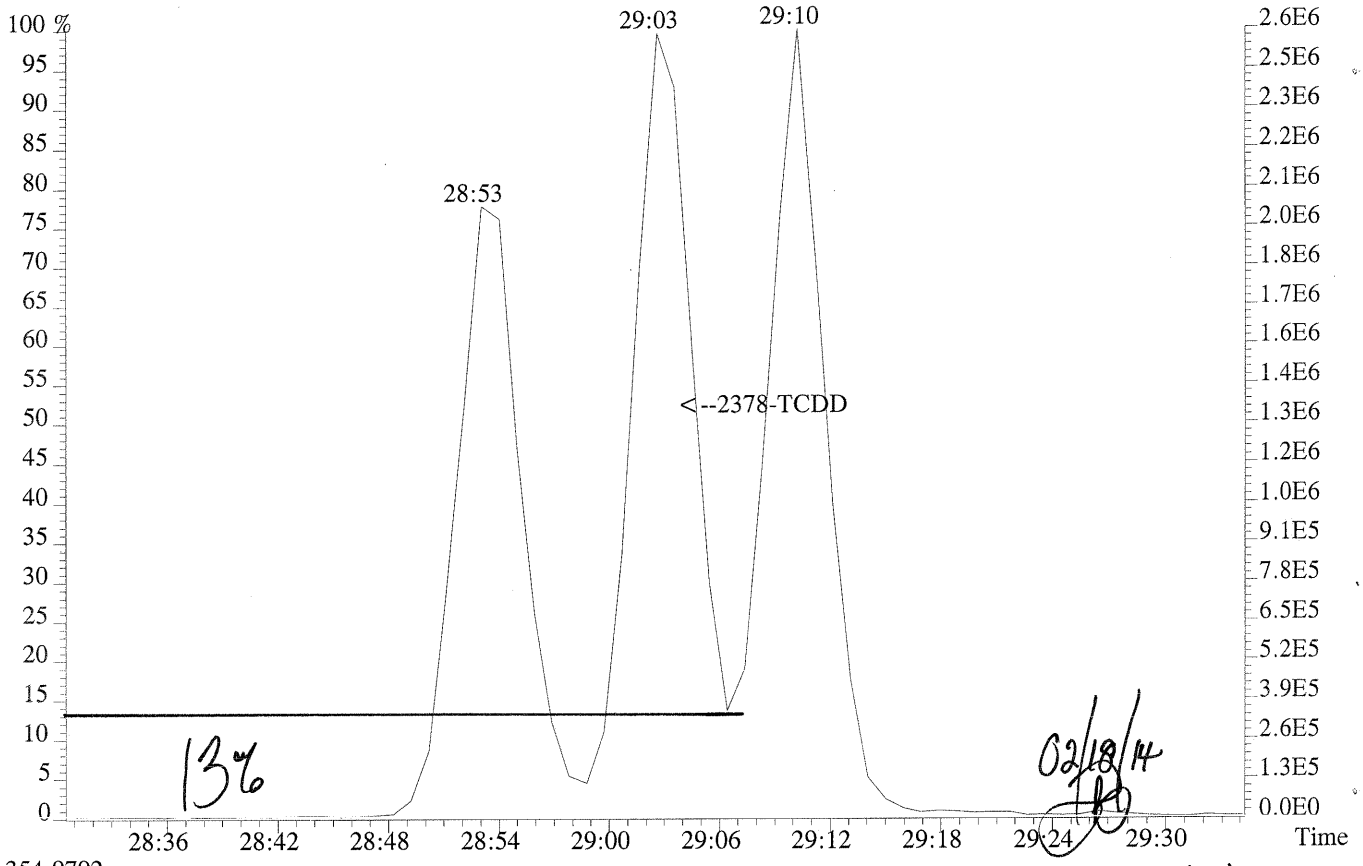
WDM

Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411 Case No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25 (mm) Lab File ID: P227257
Date Analyzed: 1-FEB-2014
Time Analyzed: 15:24:46

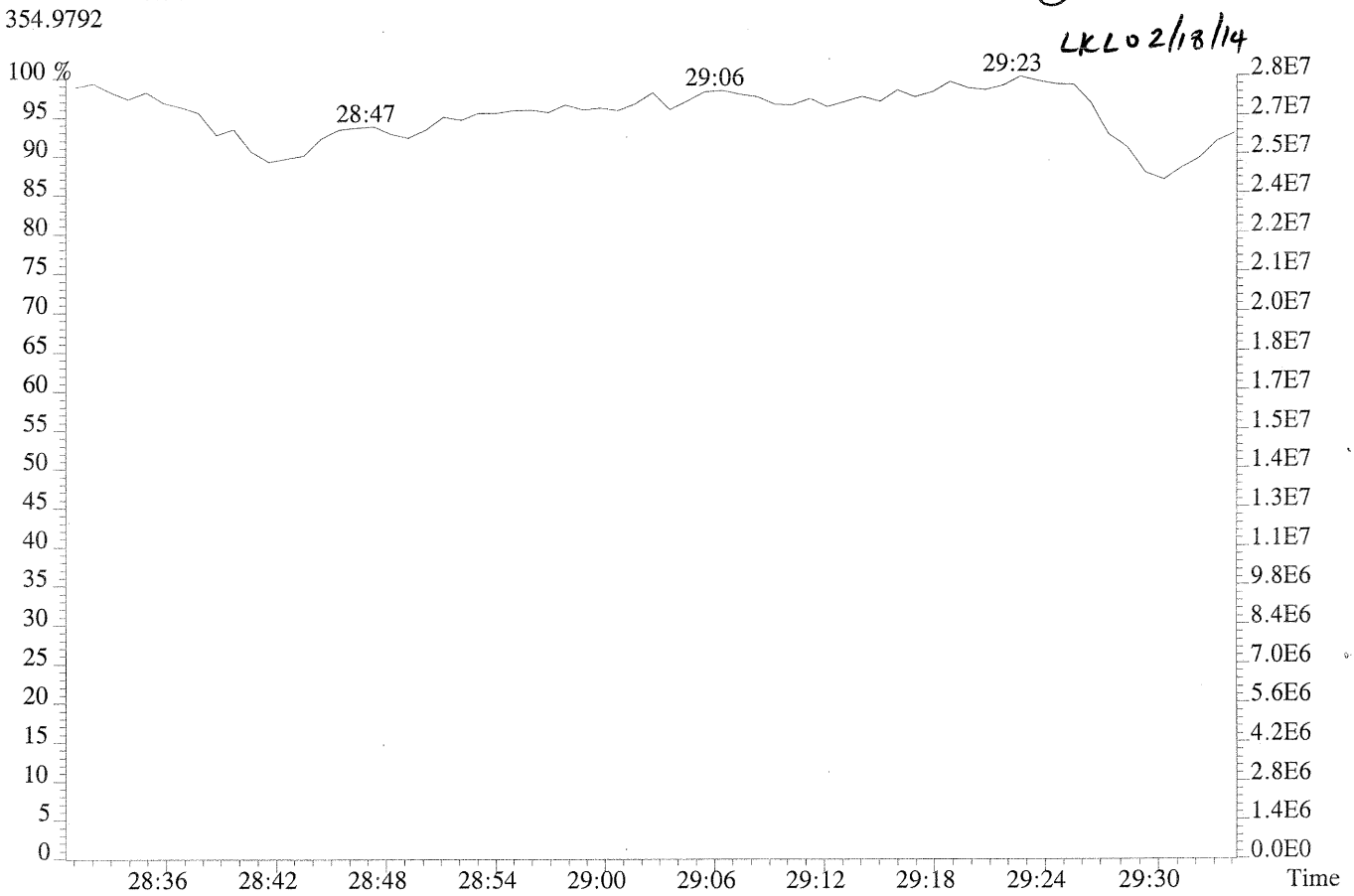
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:55	30:11
TCDD	25:48	30:02
PeCDF	30:08	34:19
PeCDD	31:38	34:04
HxCDF	34:58	37:27
HxCDD	35:29	37:04
HpCDF	38:40	40:04
HpCDD	38:55	39:35

% Valley 2378-TCDD: 13 %

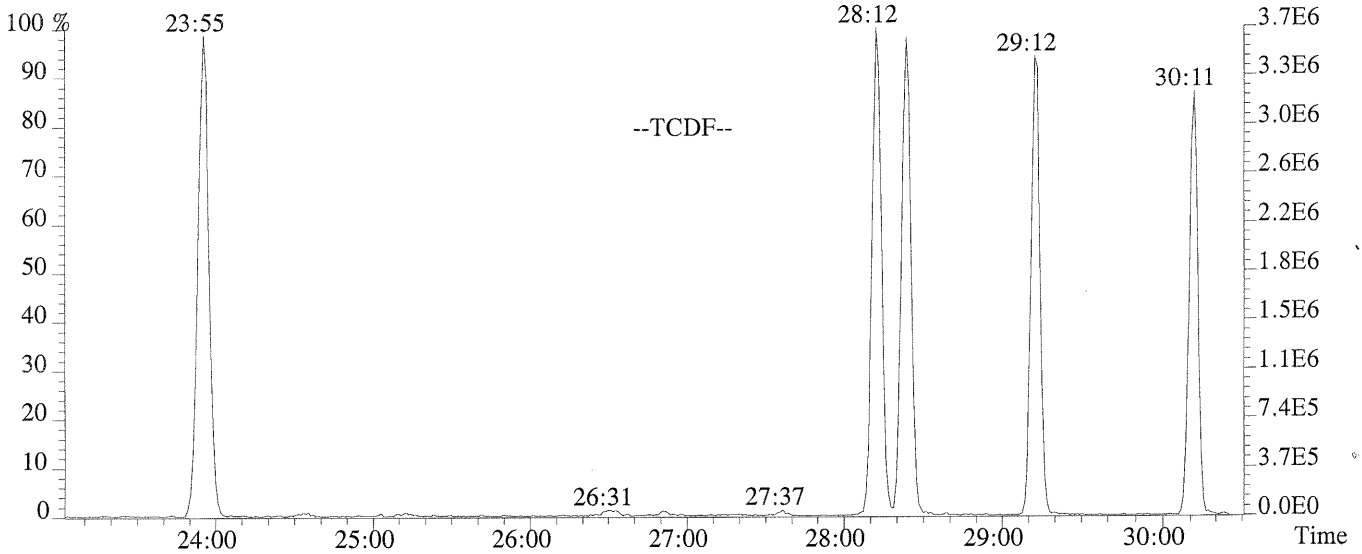
File:P227257 #1-464 Acq: 1-FEB-2014 15:24:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



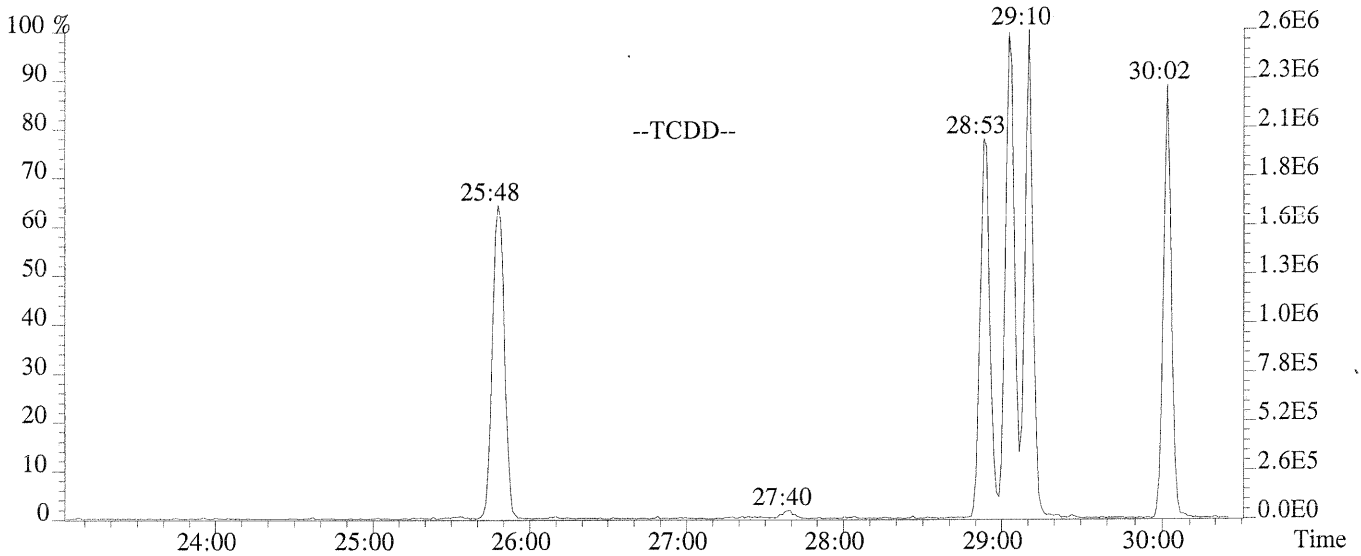
354.9792



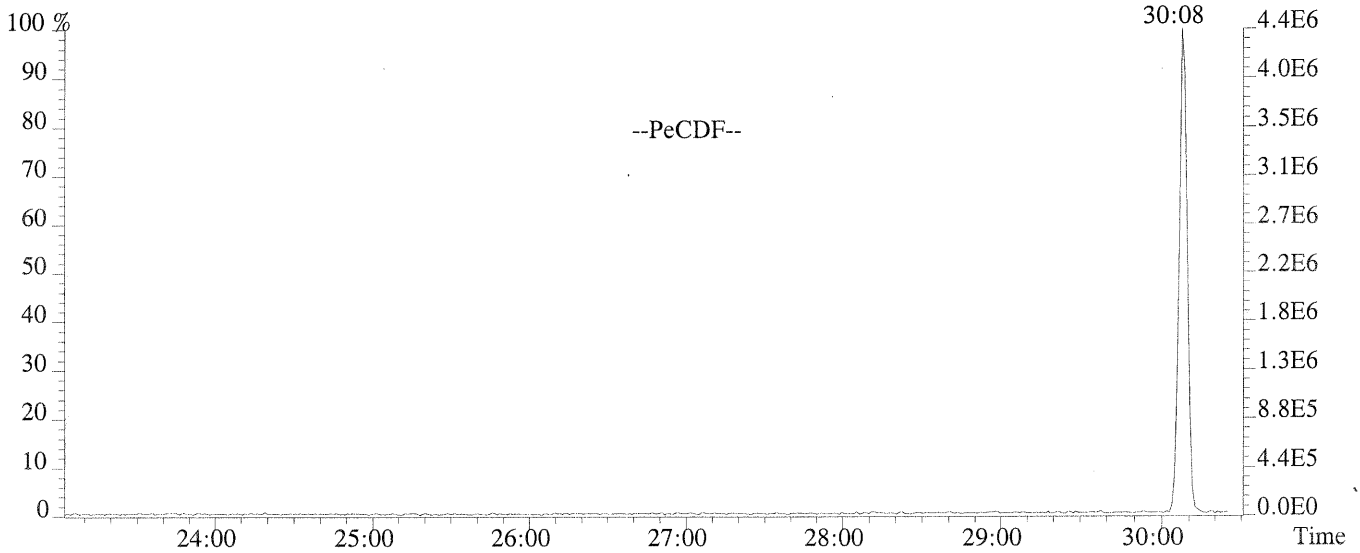
File:P227257 #1-464 Acq: 1-FEB-2014 15:24:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



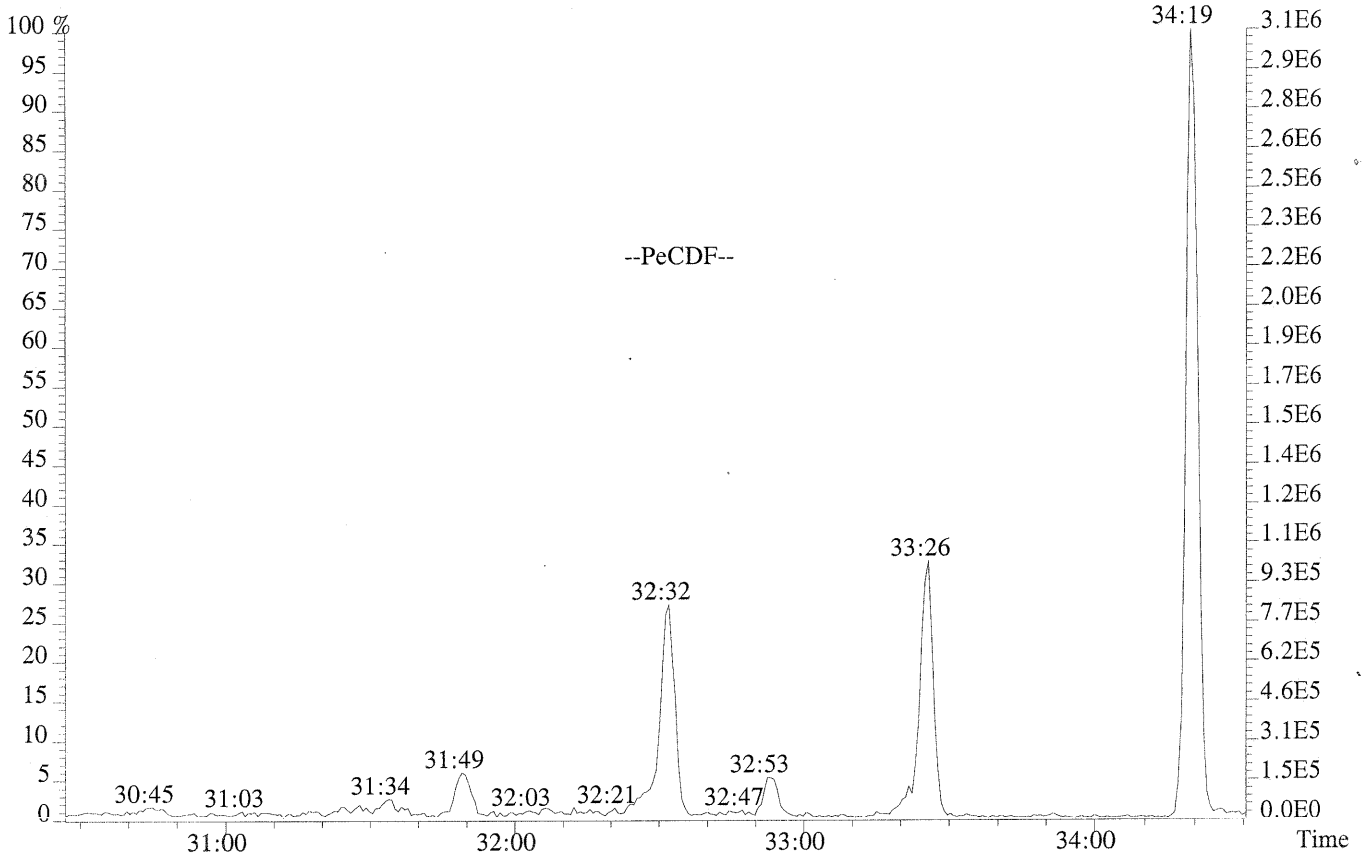
319.8965



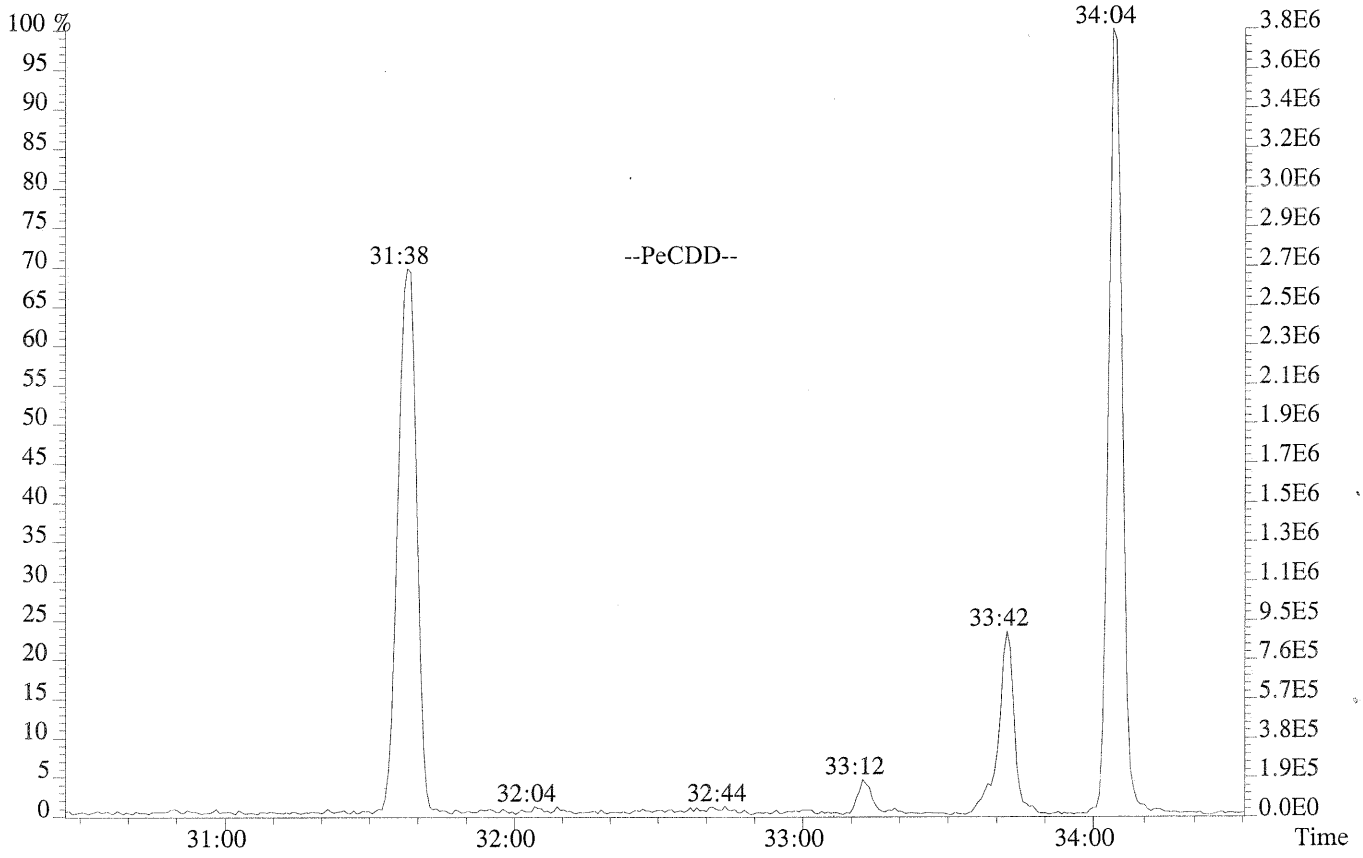
339.8597



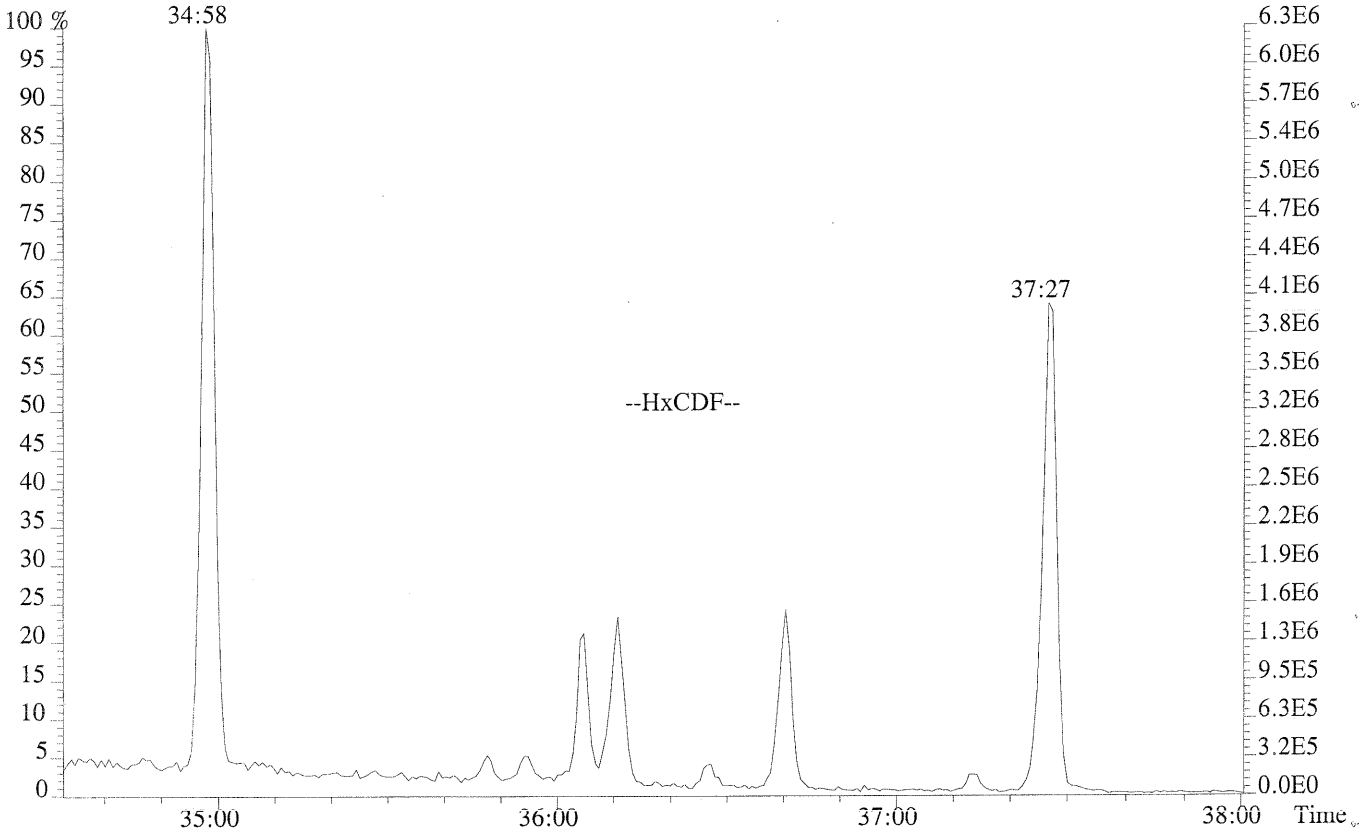
File:P227257 #1-369 Acq: 1-FEB-2014 15:24:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
341.8567 F:2



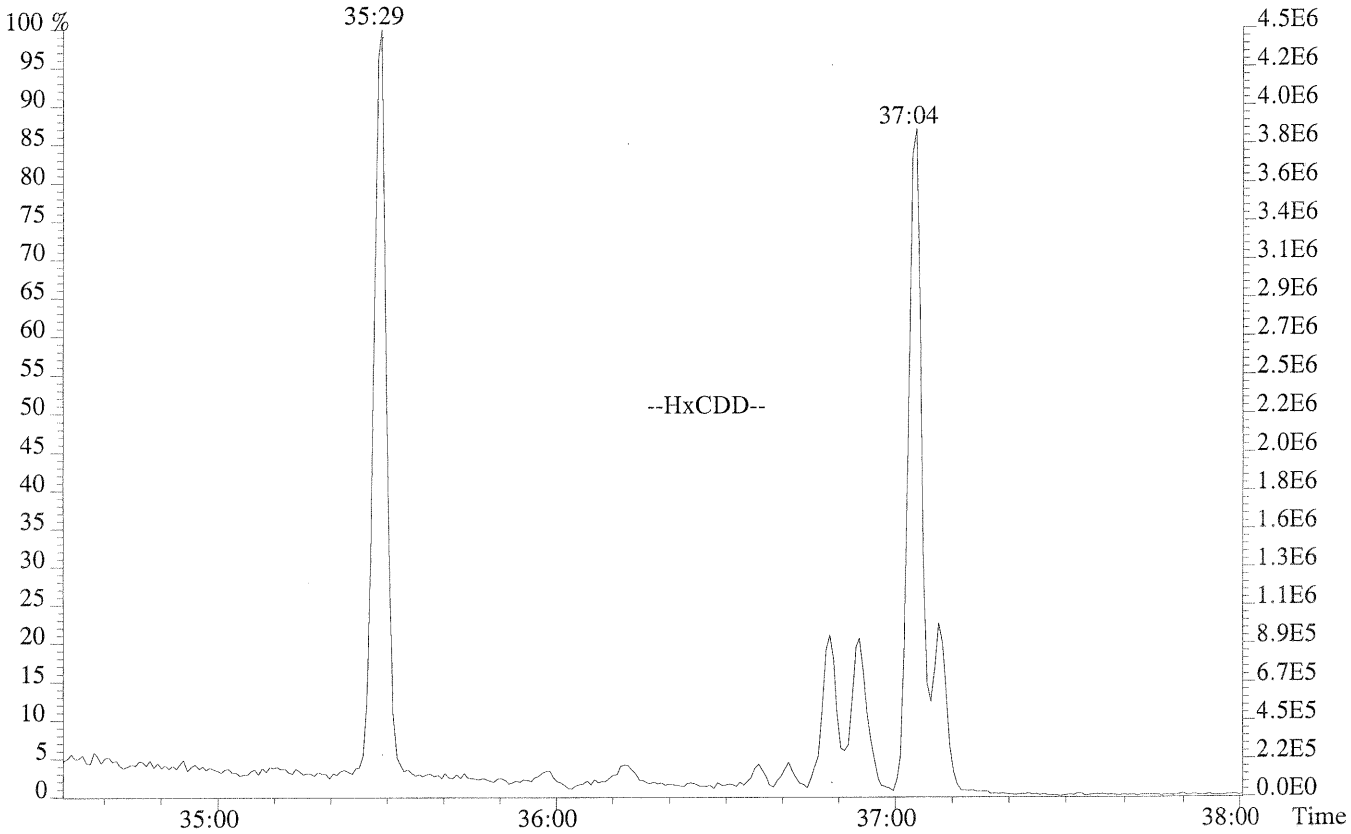
355.8546 F:2



File:P227257 #1-315 Acq: 1-FEB-2014 15:24:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3



389.8157 F:3



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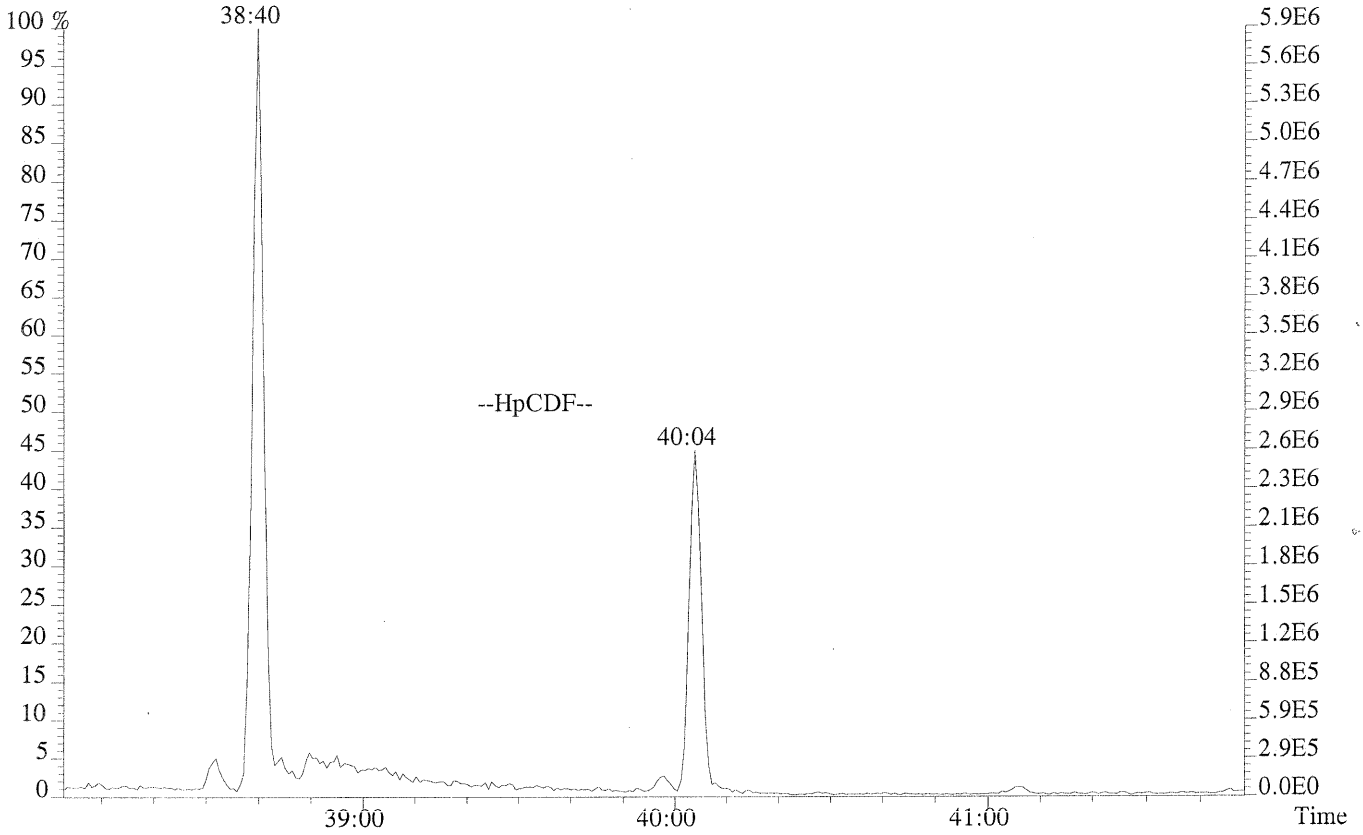
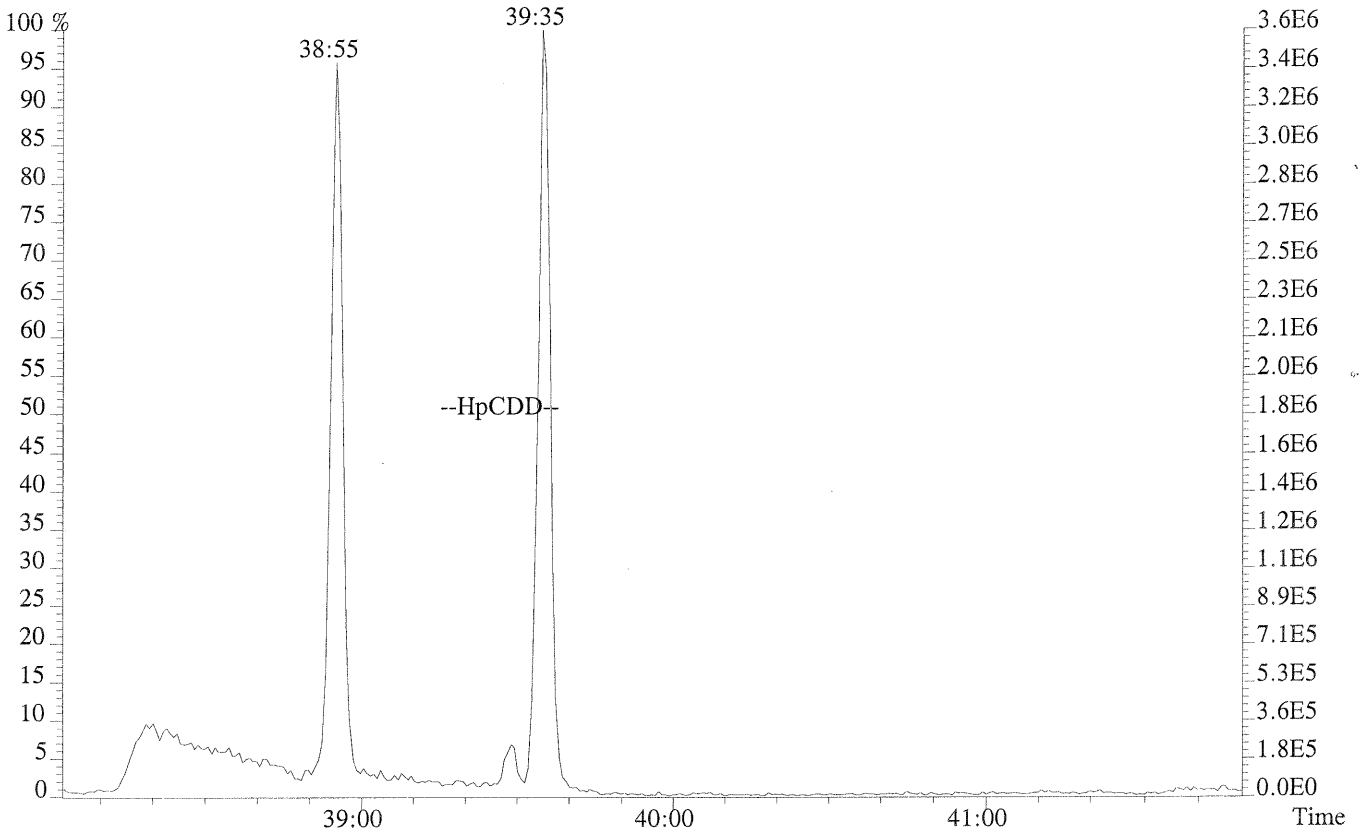
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

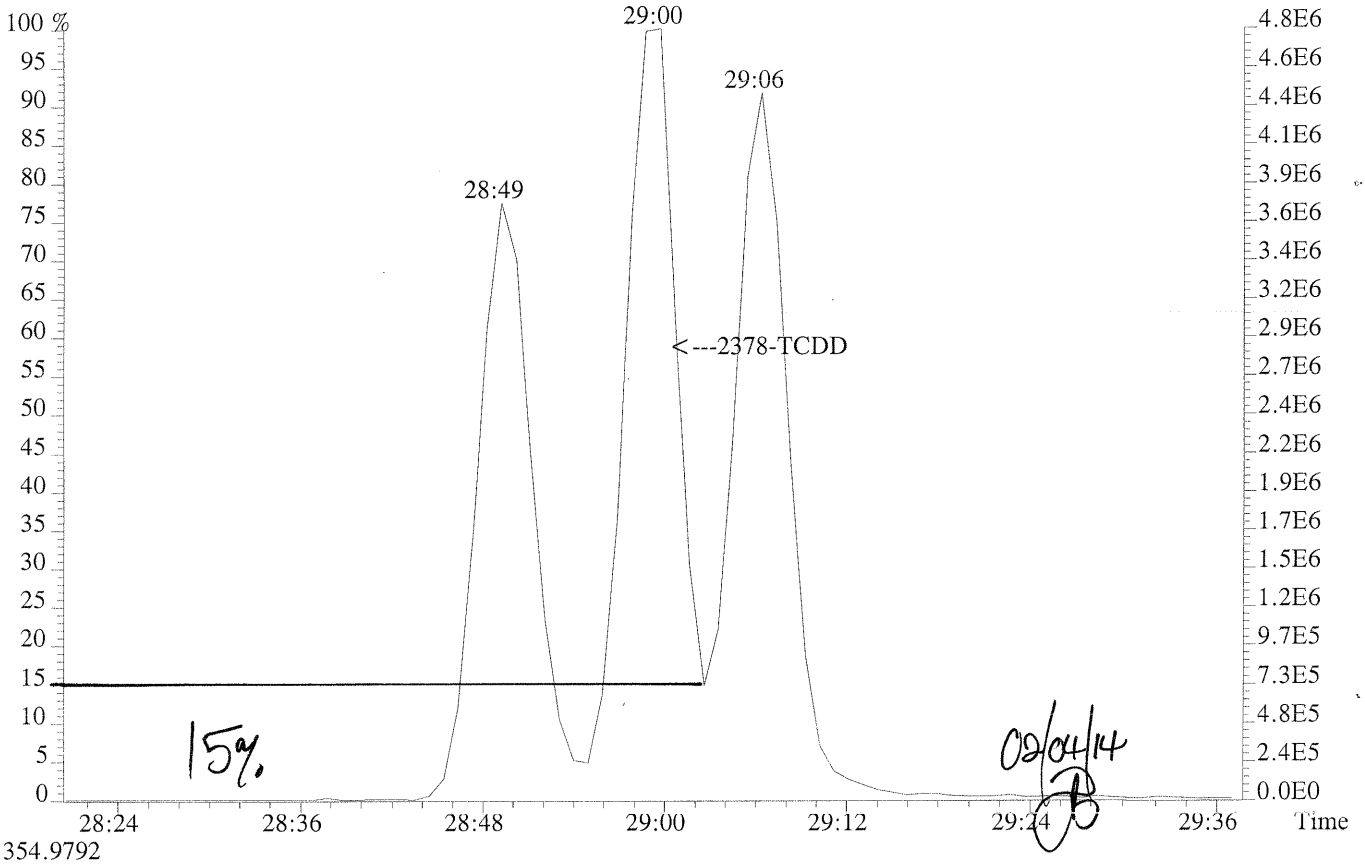
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411
GC Column: DB-5MSUI

Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: P227266
Date Analyzed: 3-FEB-2014
Time Analyzed: 12:32:09

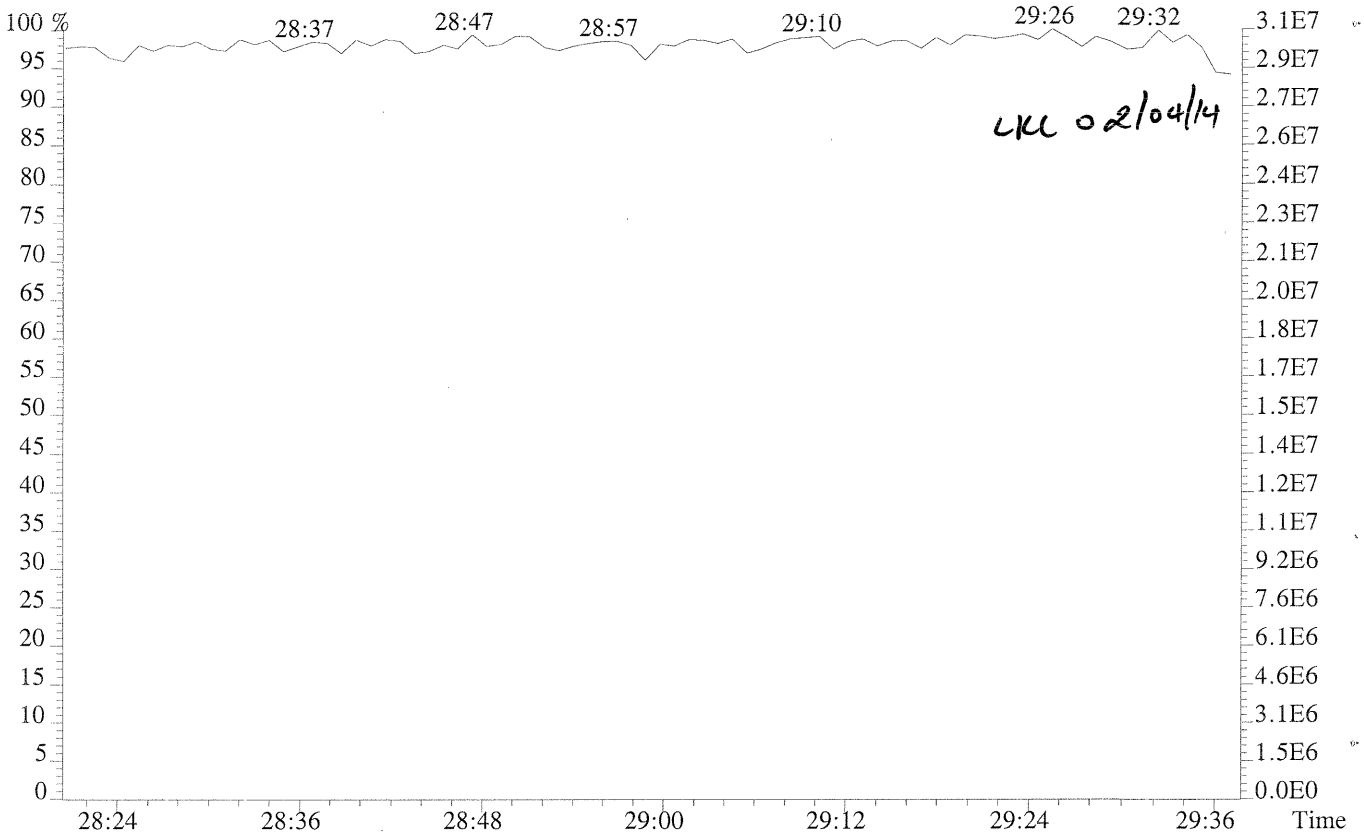
Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:50	30:08
TCDD	25:43	29:58
PeCDF	30:05	34:17
PeCDD	31:35	34:01
HxCDF	34:55	37:25
HxCDD	35:26	37:00
HpCDF	38:37	40:02
HpCDD	38:52	39:33

% Valley 2378-TCDD: 15 %

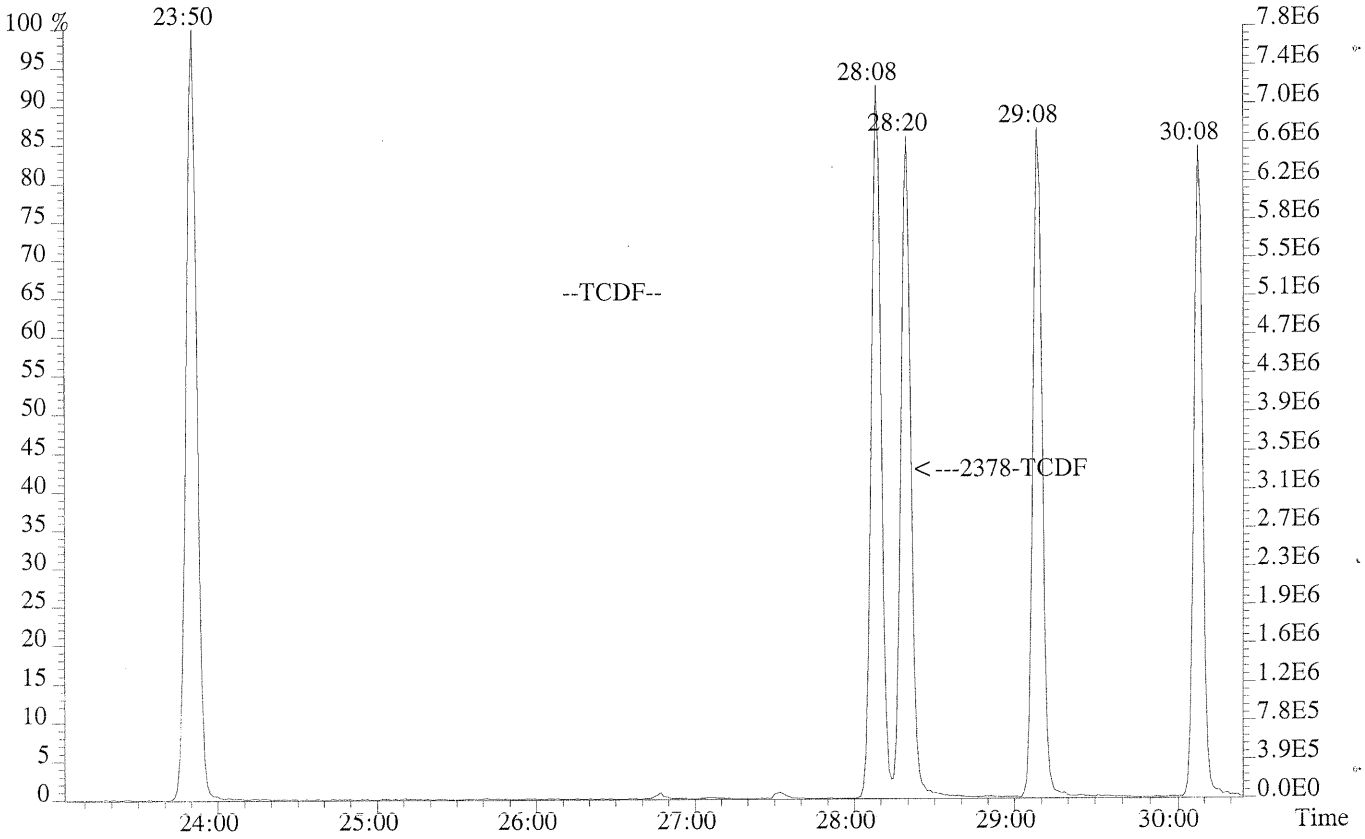
File:P227266 #1-464 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
319.8965



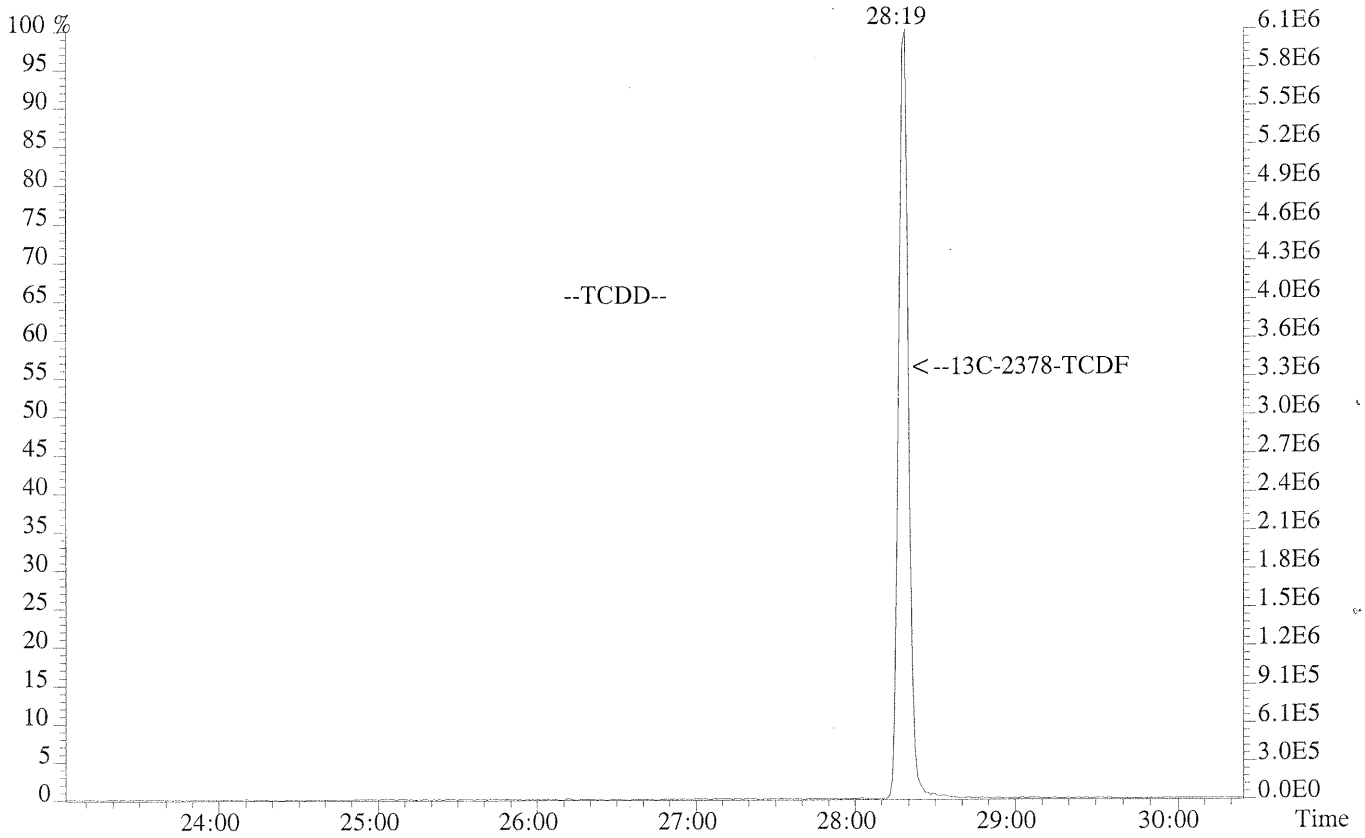
354.9792



File:P227266 #1-464 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
303.9016



315.9419



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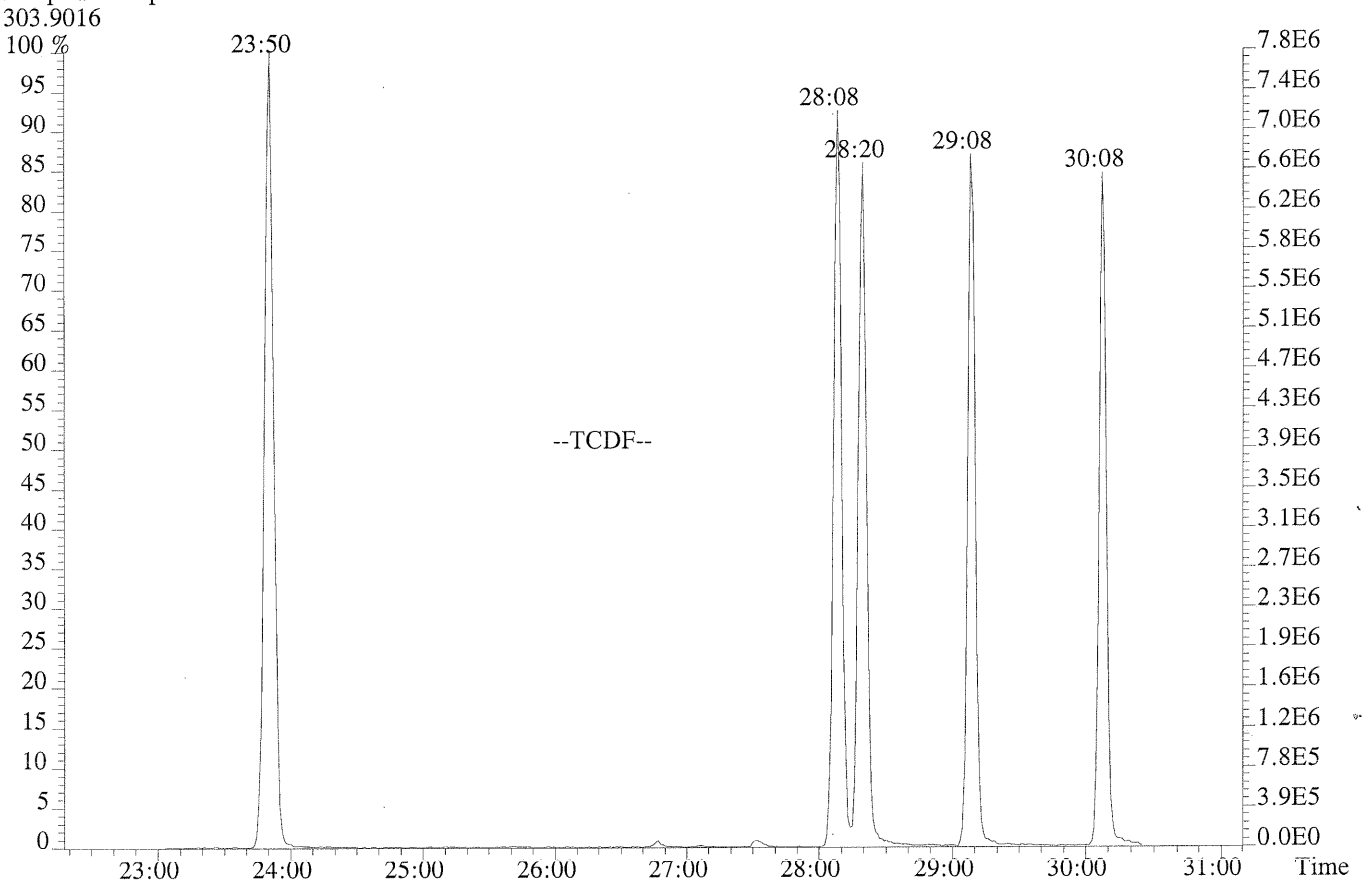
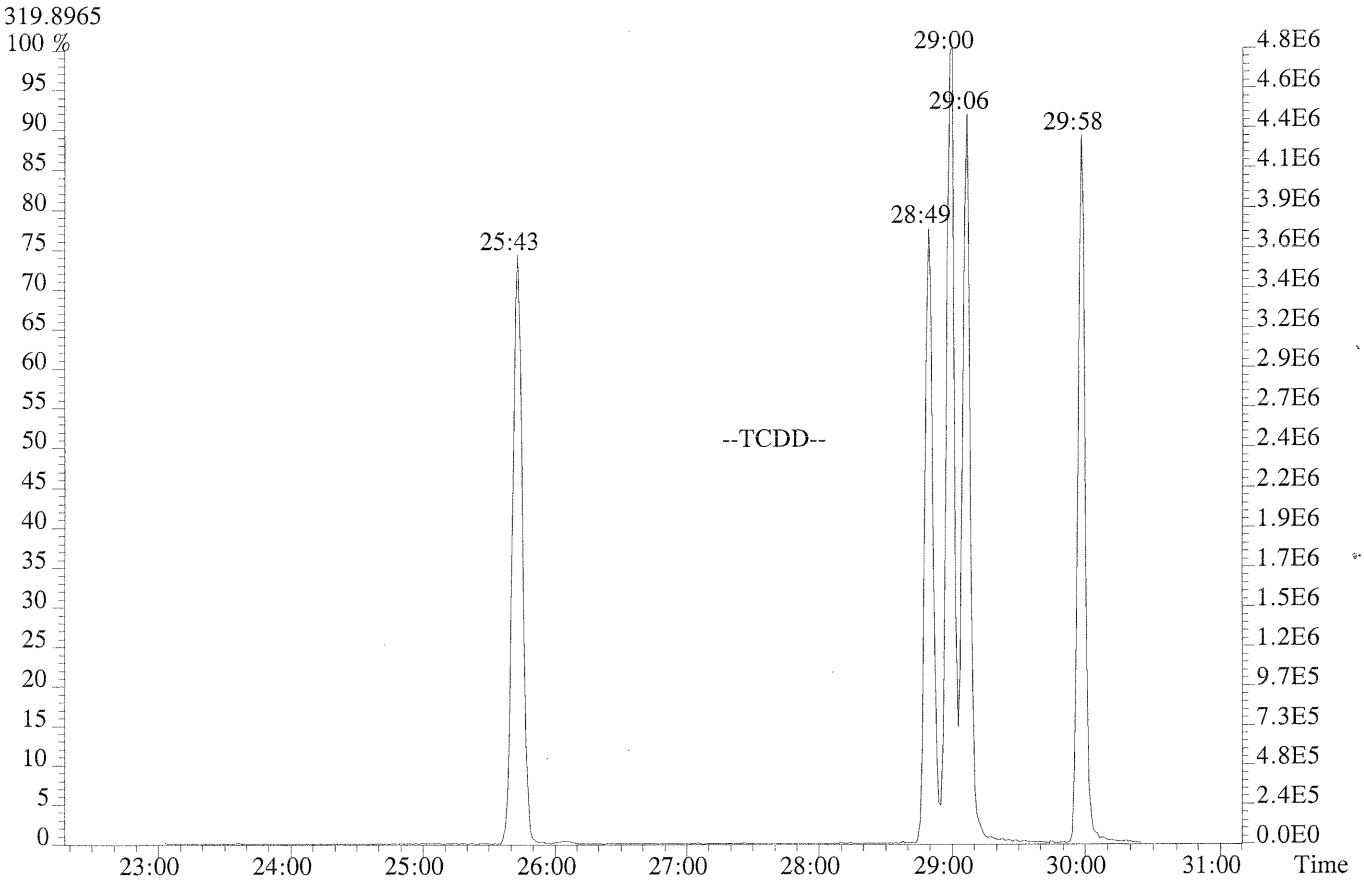
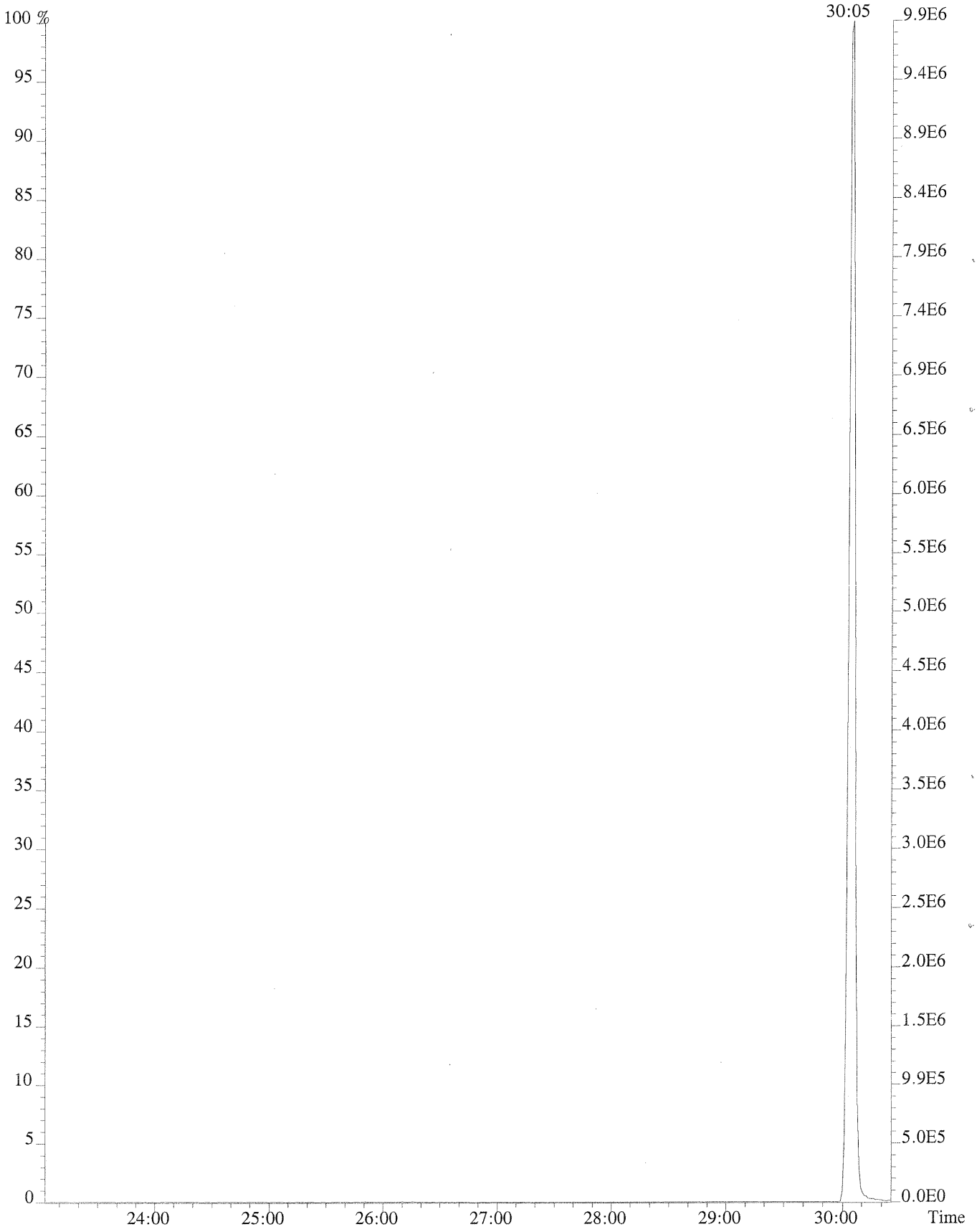
Sample#1 Exp:WINDOW DEFINE

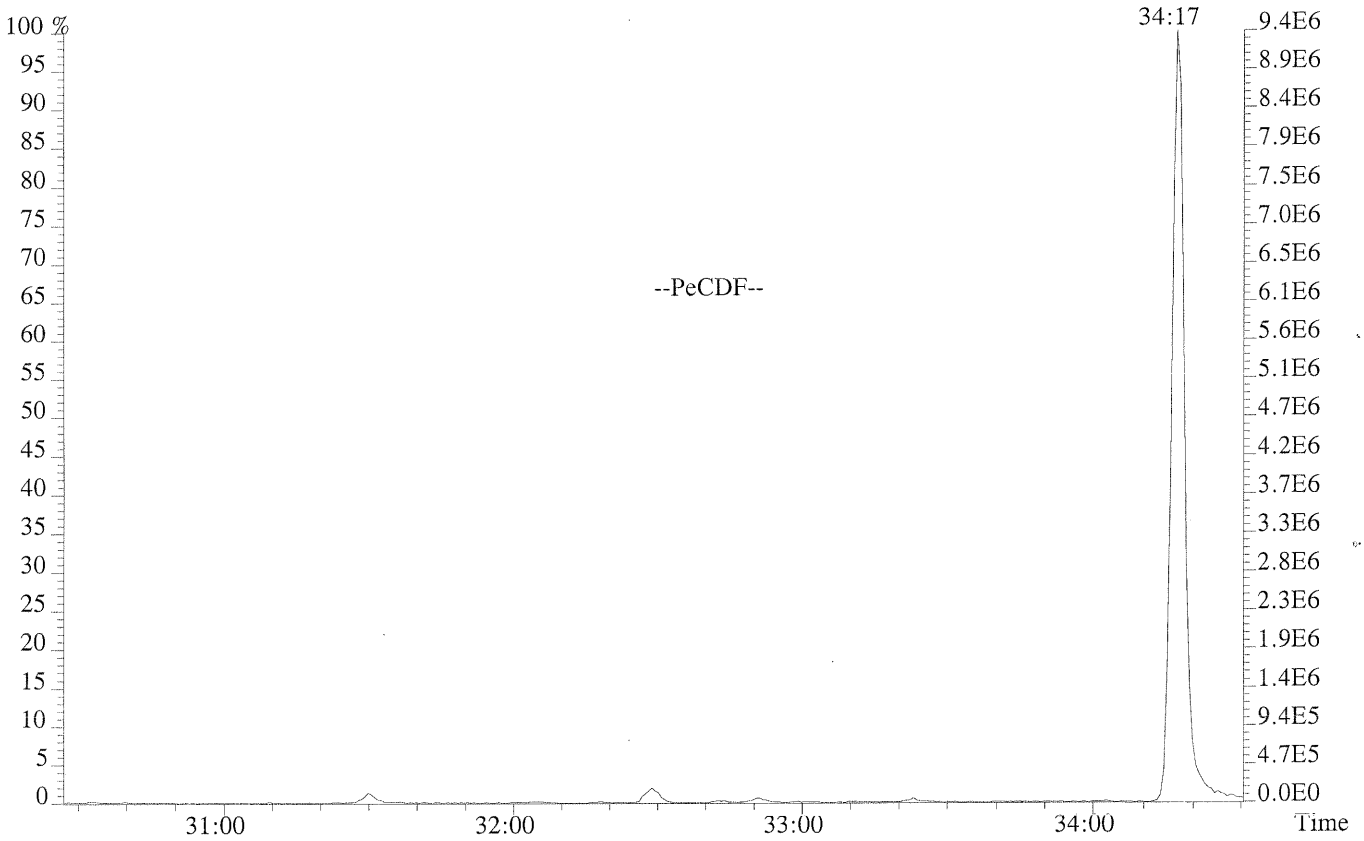




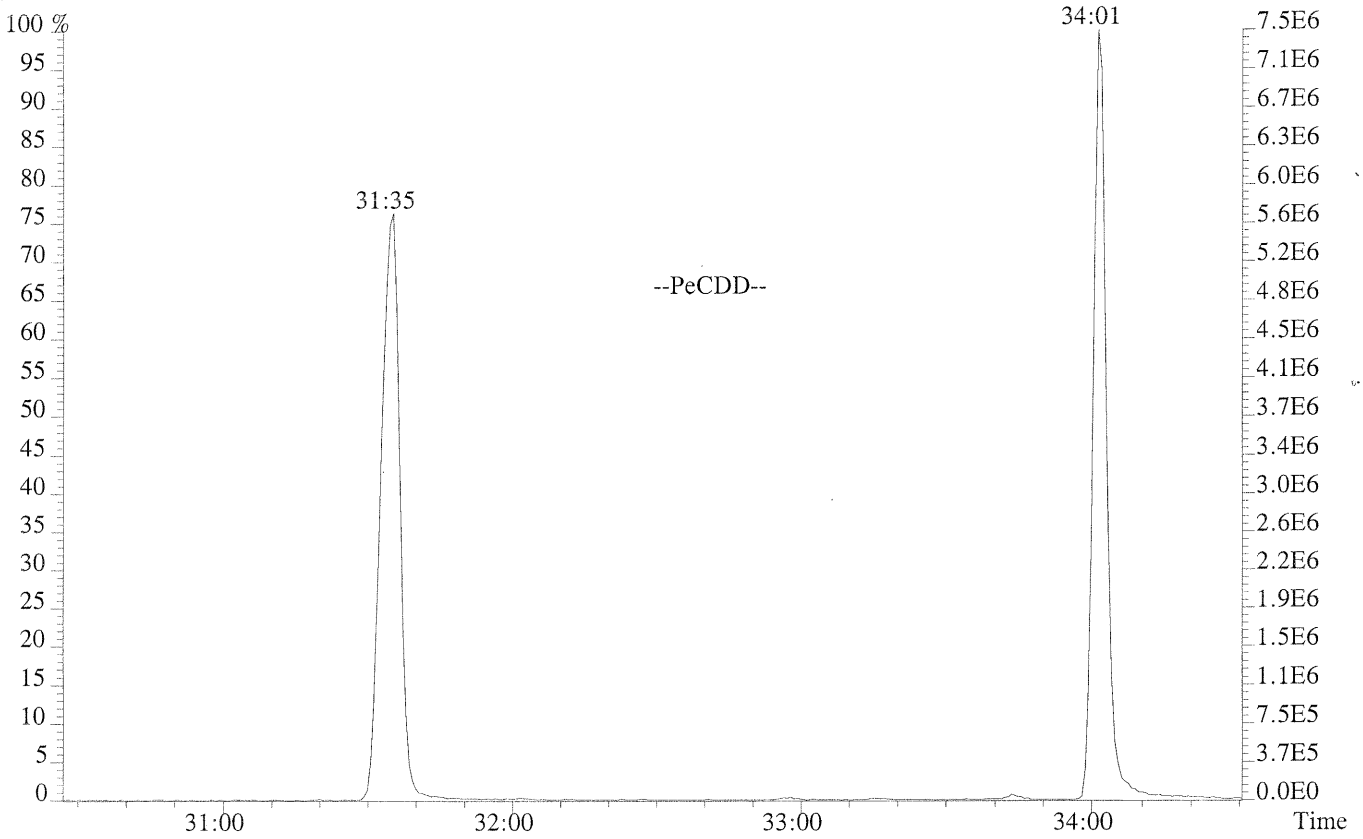
File:P227266 #1-464 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597



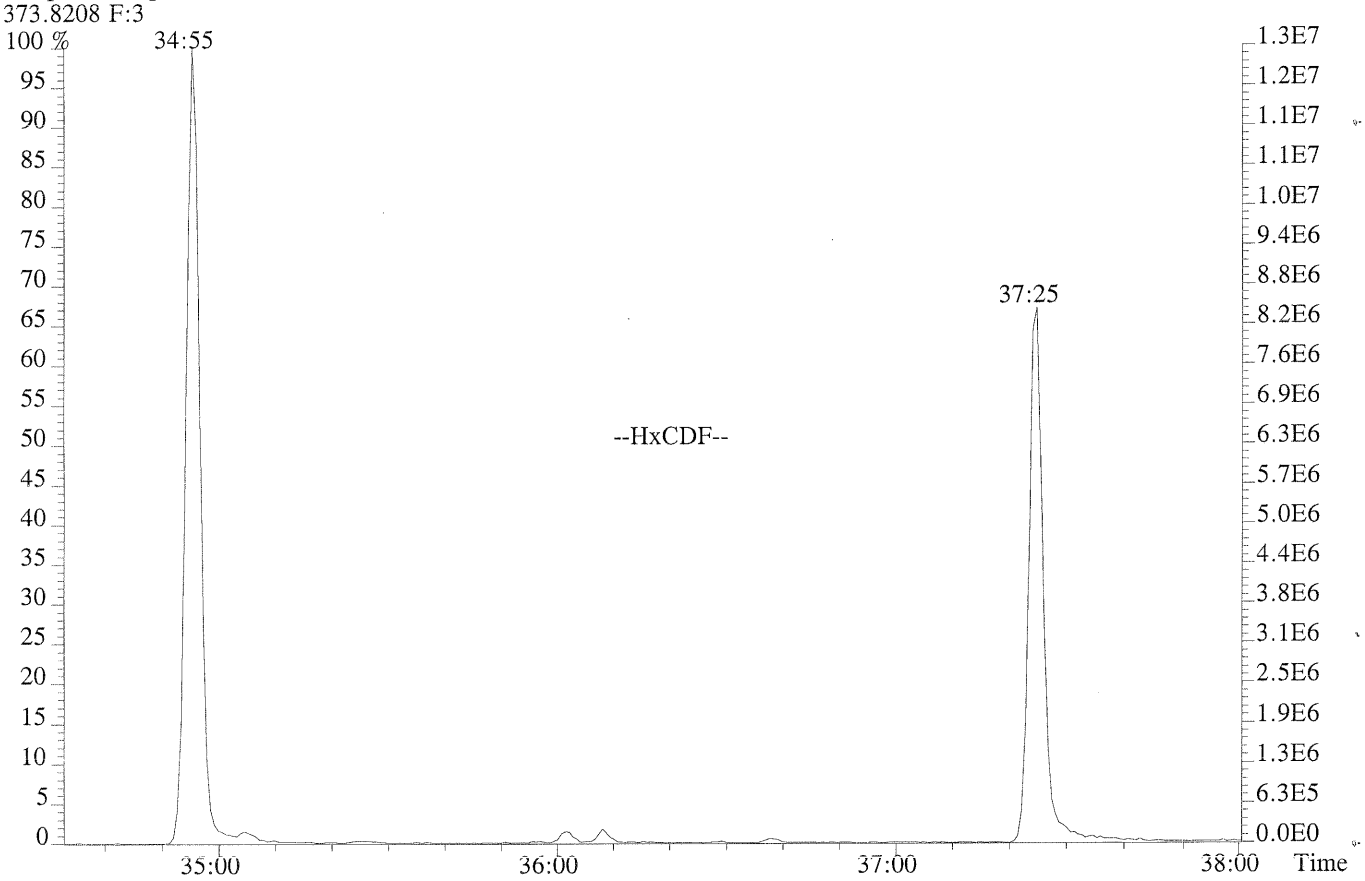
File:P227266 #1-464 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597 F:2



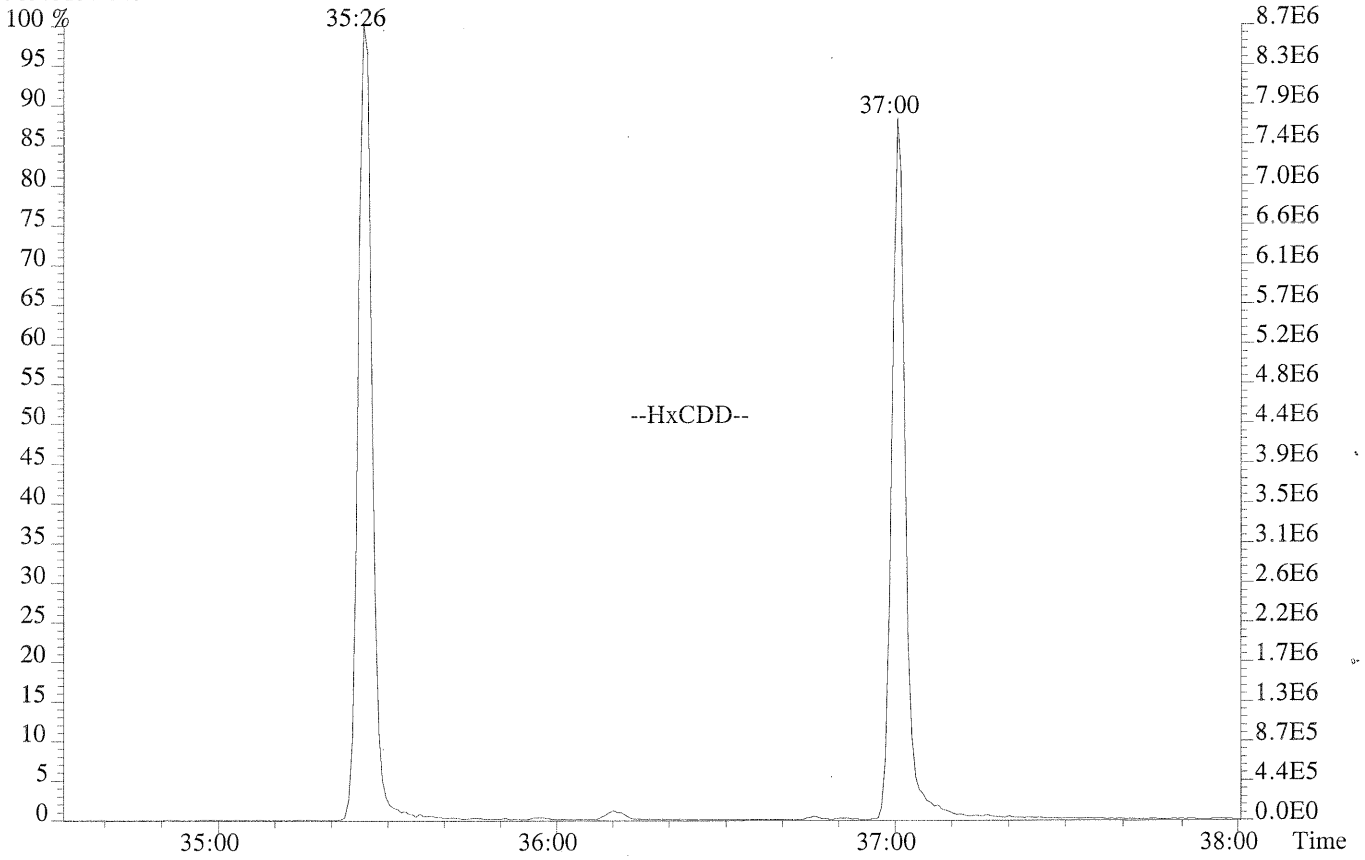
355.8546 F:2



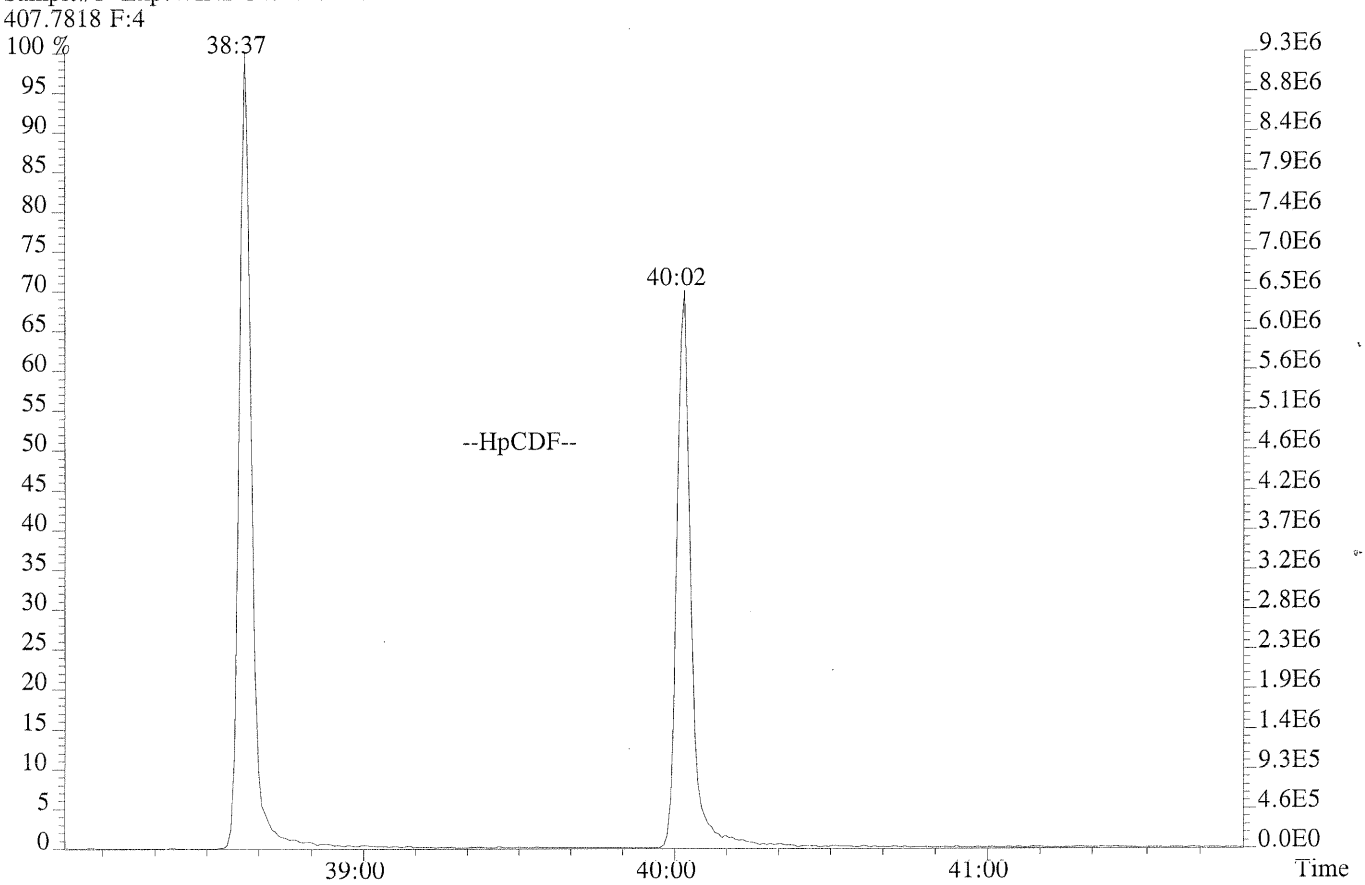
File:P227266 #1-315 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

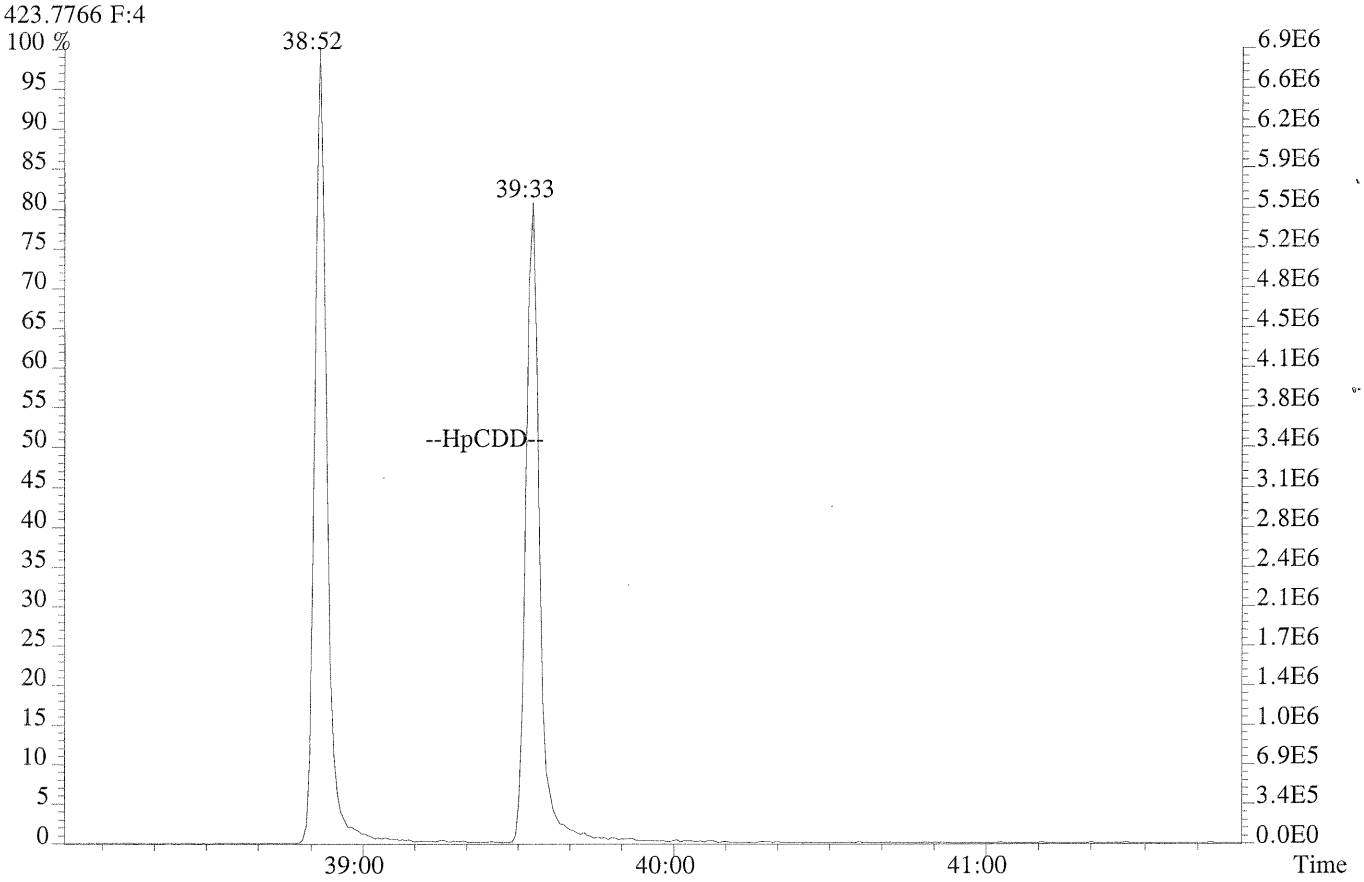


389.8157 F:3



File:P227266 #1-342 Acq: 3-FEB-2014 12:32:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS ENVIRONMENTAL Contract No.:
Lab Code: Case No.: TO No.: SDG No.:
GC Column: db5 MSUI ID: 0.25(mm) Instrument ID: E-HRMS-04
Init. Calib. Date(s).: 02/01/14
Init. Calib. Time.: 15:24 2/1/14

Target Analytes	RR/RRF CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDD	1.23	0.97	0.99	1.03	1.06	1.04	1.05	8.76	+/-20%
2,3,7,8-TCDF	1.31	1.03	1.09	1.10	1.12	1.11	1.13	8.54	+/-20%
1,2,3,7,8-PeCDF	1.18	1.15	1.10	1.12	1.14	1.05	1.12	3.82	+/-20%
1,2,3,7,8-PeCDD	1.09	1.12	1.05	1.04	1.05	1.07	1.07	2.65	+/-20%
2,3,4,7,8-PeCDF	1.16	1.13	1.06	1.05	1.07	1.13	1.10	4.00	+/-20%
1,2,3,4,7,8-HxCDF	1.38	1.41	1.29	1.32	1.34	1.29	1.34	3.63	+/-20%
1,2,3,6,7,8-HxCDF	1.24	1.24	1.22	1.21	1.24	1.25	1.23	1.28	+/-20%
1,2,3,4,7,8-HxCDD	1.24	1.23	1.17	1.19	1.21	1.30	1.22	3.79	+/-20%
1,2,3,6,7,8-HxCDD	1.20	1.19	1.15	1.19	1.21	1.07	1.17	4.55	+/-20%
1,2,3,7,8,9-HxCDD	1.28	1.23	1.24	1.22	1.23	1.21	1.24	2.09	+/-20%
2,3,4,6,7,8-HxCDF	1.25	1.24	1.25	1.21	1.24	1.20	1.23	1.79	+/-20%
1,2,3,7,8,9-HxCDF	1.39	1.28	1.23	1.21	1.26	1.23	1.27	5.05	+/-20%
1,2,3,4,6,7,8-HpCDF	1.41	1.42	1.40	1.44	1.46	1.41	1.42	1.62	+/-20%
1,2,3,4,6,7,8-HpCDD	1.22	1.15	1.16	1.16	1.18	1.16	1.17	2.03	+/-20%
1,2,3,4,7,8,9-HpCDF	1.46	1.31	1.31	1.37	1.38	1.46	1.38	4.73	+/-20%
OCDD	1.34	1.36	1.30	1.27	1.30	1.15	1.29	5.73	+/-20%
OCDF	1.74	1.73	1.79	1.69	1.70	1.57	1.70	4.35	+/-20%
Labeled Compounds									
13C-2,3,7,8-TCDD	0.89	0.90	0.91	0.92	0.96	1.01	0.93	4.66	+/-35%
13C-1,2,3,7,8-PeCDD	1.01	1.05	1.06	1.07	1.23	1.22	1.11	8.58	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.97	0.94	0.93	0.90	0.91	0.92	0.93	2.58	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.97	0.95	0.96	0.98	0.97	1.08	0.98	4.86	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.90	0.91	0.93	0.92	0.94	1.01	0.94	4.19	+/-35%
13C-OCDD	0.66	0.66	0.74	0.63	0.69	0.74	0.69	6.86	+/-35%
13C-2,3,7,8-TCDF	1.34	1.36	1.38	1.38	1.41	1.46	1.39	3.09	+/-35%
13C-1,2,3,7,8-PeCDF	1.74	1.79	1.81	1.83	1.95	2.08	1.87	6.71	+/-35%
13C-2,3,4,7,8-PeCDF	1.67	1.70	1.74	1.77	2.01	1.93	1.80	7.47	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.46	1.44	1.38	1.39	1.38	1.47	1.42	2.85	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.67	1.64	1.61	1.65	1.63	1.63	1.64	1.18	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.48	1.45	1.42	1.42	1.40	1.49	1.44	2.30	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.22	1.21	1.24	1.21	1.26	1.31	1.24	3.08	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.19	1.21	1.17	1.17	1.20	1.24	1.20	2.24	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.97	0.99	1.02	0.97	1.03	1.01	1.00	2.52	+/-35%
37Cl-2,3,7,8-TCDD	0.88	0.93	0.89	0.93	1.00	1.04	0.95	6.83	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS ENVIRONMENTAL Contract No.:
Lab Code: Case No.: TO No.: SDG No.:
GC Column: db5 MSUI ID: 0.25(mm) Instrument ID: E-HRMS-04
Init. Calib. Date(s).: 02/01/14 02/01/14
Init. Calib. Time.: 15:24

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.85	0.80	0.76	0.80	0.79	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.59	1.57	1.54	1.55	1.57	1.57		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.56	1.52	1.59	1.55	1.56	1.56		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.24	1.20	1.21	1.24	1.24	1.25		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.29	1.22	1.26	1.22	1.24	1.25		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.38	1.20	1.23	1.22	1.25	1.23		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.28	1.20	1.21	1.29	1.26	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.02	0.94	1.04	1.00	1.02	1.03		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.07	1.14	0.96	1.00	1.03	1.03		0.88-1.20
OCDF	442/444	0.88	0.87	0.79	0.89	0.91	0.91		0.76-1.02
2,3,7,8-TCDD	320/322	0.76	0.72	0.75	0.82	0.79	0.79		0.65-0.89
1,2,3,7,8-PeCDD	356/358	1.75	1.52	1.57	1.62	1.61	1.61		1.32-1.78
1,2,3,4,7,8-HxCDD	390/392	1.23	1.37	1.29	1.27	1.29	1.29		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.21	1.35	1.28	1.27	1.29	1.29		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.35	1.31	1.27	1.30	1.28	1.28		1.05-1.43
1,2,3,4,6,7,8-HpCDD	424/426	1.19	1.10	1.09	1.08	1.07	1.07		0.88-1.20
OCDD	458/460	0.93	0.89	0.93	0.89	0.91	0.92		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.82	0.83	0.82	0.83	0.82	0.82		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.63	1.65	1.65	1.63	1.64	1.63		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.63	1.62	1.63	1.65	1.65	1.64		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.54	0.54	0.52	0.53	0.54		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.54	0.53	0.53	0.53	0.52	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.53	0.53	0.53	0.53	0.54	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.53	0.54	0.52	0.53	0.53	0.54		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45		0.37-0.51
13C-2,3,7,8-TCDD	332/334	0.78	0.78	0.78	0.78	0.78	0.77		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.61	1.59	1.57	1.59	1.59	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.33	1.29	1.29	1.29	1.29	1.29		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.29	1.28	1.31	1.30	1.29	1.28		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.11	1.11	1.10	1.11	1.10	1.07		0.88-1.20
13C-OCDD	470/472	0.92	0.92	0.94	0.93	0.92	0.93		0.76-1.02
13C-1,2,3,4-TCDD	332/334	0.79	0.78	0.78	0.77	0.80	0.78		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.30	1.31	1.33	1.29	1.25	1.27		1.05-1.43
37Cl-2,3,7,8-TCDD	328								

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC0.5/CS0

Run #1 Filename p227259 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 16:59:59
Processed: 6-FEB-14 13:55:24 LAB. ID: 66807

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:22	2.345e+02	2.736e+02	0.86	yes	yes	1.001
2	Unk	1,2,3,7,8-PeCDF	32:30	1.826e+03	1.145e+03	1.59	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:24	1.718e+03	1.101e+03	1.56	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:03	1.460e+03	1.174e+03	1.24	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.525e+03	1.183e+03	1.29	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.394e+03	1.014e+03	1.38	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:24	1.237e+03	9.649e+02	1.28	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	1.110e+03	1.084e+03	1.02	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	9.583e+02	8.947e+02	1.07	yes	no	1.000
10	Unk	OCDF	42:34	1.393e+03	1.580e+03	0.88	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:08	1.366e+02	1.804e+02	0.76	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:41	1.015e+03	5.786e+02	1.75	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:47	8.647e+02	7.003e+02	1.23	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	8.346e+02	6.887e+02	1.21	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	9.331e+02	6.902e+02	1.35	yes	no	1.006
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	7.767e+02	6.533e+02	1.19	yes	no	1.000
17	Unk	OCDD	42:22	1.111e+03	1.191e+03	0.93	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:20	7.011e+04	8.546e+04	0.82	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:29	1.255e+05	7.675e+04	1.63	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:23	1.203e+05	7.392e+04	1.63	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:02	5.273e+04	9.949e+04	0.53	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:09	6.093e+04	1.134e+05	0.54	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	5.350e+04	1.009e+05	0.53	yes	no	0.987
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	4.410e+04	8.298e+04	0.53	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	3.871e+04	8.607e+04	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	3.136e+04	7.041e+04	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:06	4.535e+04	5.779e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:40	7.238e+04	4.506e+04	1.61	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	5.758e+04	4.344e+04	1.33	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	5.699e+04	4.426e+04	1.29	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	4.949e+04	4.461e+04	1.11	yes	no	1.066
32	IS	13C-OCDD	42:21	6.564e+04	7.137e+04	0.92	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:33	5.107e+04	6.497e+04	0.79	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:06	5.896e+04	4.551e+04	1.30	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:08	2.548e+02				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC0.5/CS0

Run #1 Filename p227259 Samp: 1 Inj: 1 Acquired: 1-FEB-14 16:59:59
Processed: 6-FEB-14 13:55:241 LAB. ID: 66807

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.34e+04	5.52e+02	7.9e+01	5.39e+04	2.56e+03	2.1e+01
2	1,2,3,7,8-PeCDF	3.16e+05	9.32e+02	3.4e+02	2.09e+05	3.18e+03	6.6e+01
3	2,3,4,7,8-PeCDF	3.27e+05	9.32e+02	3.5e+02	2.06e+05	3.18e+03	6.5e+01
4	1,2,3,4,7,8-HxCDF	3.06e+05	1.21e+03	2.5e+02	2.46e+05	7.44e+02	3.3e+02
5	1,2,3,6,7,8-HxCDF	2.90e+05	1.21e+03	2.4e+02	2.30e+05	7.44e+02	3.1e+02
6	2,3,4,6,7,8-HxCDF	2.91e+05	1.21e+03	2.4e+02	2.07e+05	7.44e+02	2.8e+02
7	1,2,3,7,8,9-HxCDF	2.52e+05	1.21e+03	2.1e+02	2.00e+05	7.44e+02	2.7e+02
8	1,2,3,4,6,7,8-HpCDF	2.33e+05	1.42e+03	1.6e+02	2.19e+05	1.56e+03	1.4e+02
9	1,2,3,4,7,8,9-HpCDF	1.87e+05	1.42e+03	1.3e+02	1.71e+05	1.56e+03	1.1e+02
10	OCDF	2.27e+05	8.76e+02	2.6e+02	2.57e+05	1.82e+03	1.4e+02
11	2,3,7,8-TCDD	2.90e+04	9.76e+02	3.0e+01	3.65e+04	6.92e+02	5.3e+01
12	1,2,3,7,8-PeCDD	2.05e+05	1.90e+03	1.1e+02	1.03e+05	3.00e+02	3.4e+02
13	1,2,3,4,7,8-HxCDD	1.91e+05	8.04e+02	2.4e+02	1.47e+05	9.80e+02	1.5e+02
14	1,2,3,6,7,8-HxCDD	1.80e+05	8.04e+02	2.2e+02	1.44e+05	9.80e+02	1.5e+02
15	1,2,3,7,8,9-HxCDD	1.96e+05	8.04e+02	2.4e+02	1.43e+05	9.80e+02	1.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.57e+05	3.20e+02	4.9e+02	1.28e+05	4.08e+02	3.1e+02
17	OCDD	1.83e+05	1.20e+03	1.5e+02	2.11e+05	1.10e+03	1.9e+02
18	13C-2,3,7,8-TCDF	1.36e+07	1.96e+03	6.9e+03	1.67e+07	1.57e+03	1.1e+04
19	13C-1,2,3,7,8-PeCDF	2.23e+07	4.36e+02	5.1e+04	1.36e+07	7.72e+02	1.8e+04
20	13C-2,3,4,7,8-PeCDF	2.31e+07	4.36e+02	5.3e+04	1.40e+07	7.72e+02	1.8e+04
21	13C-1,2,3,4,7,8-HxCDF	1.11e+07	1.22e+03	9.0e+03	2.11e+07	2.07e+03	1.0e+04
22	13C-1,2,3,6,7,8-HxCDF	1.24e+07	1.22e+03	1.0e+04	2.30e+07	2.07e+03	1.1e+04
23	13C-2,3,4,6,7,8-HxCDF	1.12e+07	1.22e+03	9.2e+03	2.11e+07	2.07e+03	1.0e+04
24	13C-1,2,3,7,8,9-HxCDF	9.01e+06	1.22e+03	7.4e+03	1.69e+07	2.07e+03	8.2e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.36e+06	5.16e+03	1.6e+03	1.86e+07	8.23e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.86e+06	5.16e+03	1.1e+03	1.33e+07	8.23e+03	1.6e+03
27	13C-2,3,7,8-TCDD	9.39e+06	7.01e+03	1.3e+03	1.20e+07	4.06e+03	3.0e+03
28	13C-1,2,3,7,8-PeCDD	1.35e+07	7.48e+02	1.8e+04	8.34e+06	5.84e+02	1.4e+04
29	13C-1,2,3,4,7,8-HxCDD	1.23e+07	2.17e+03	5.7e+03	9.31e+06	1.34e+03	6.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.17e+07	2.17e+03	5.4e+03	9.14e+06	1.34e+03	6.8e+03
31	13C-1,2,3,4,6,7,8-HpCDD	9.70e+06	9.76e+02	9.9e+03	8.99e+06	3.20e+02	2.8e+04
32	13C-OCDD	1.15e+07	2.06e+03	5.6e+03	1.23e+07	2.38e+03	5.2e+03
33	13C-1,2,3,4-TCDD	1.04e+07	7.01e+03	1.5e+03	1.31e+07	4.06e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	1.20e+07	2.17e+03	5.5e+03	9.35e+06	1.34e+03	7.0e+03
35	37Cl-2,3,7,8-TCDD	5.07e+04	2.04e+03	2.5e+01			

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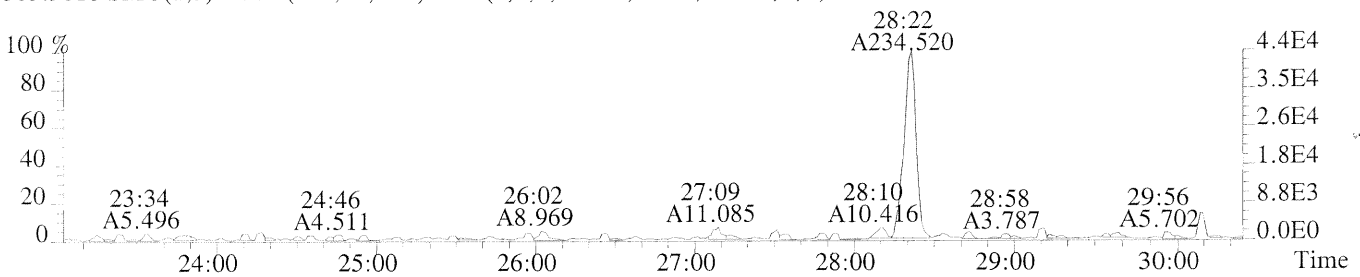
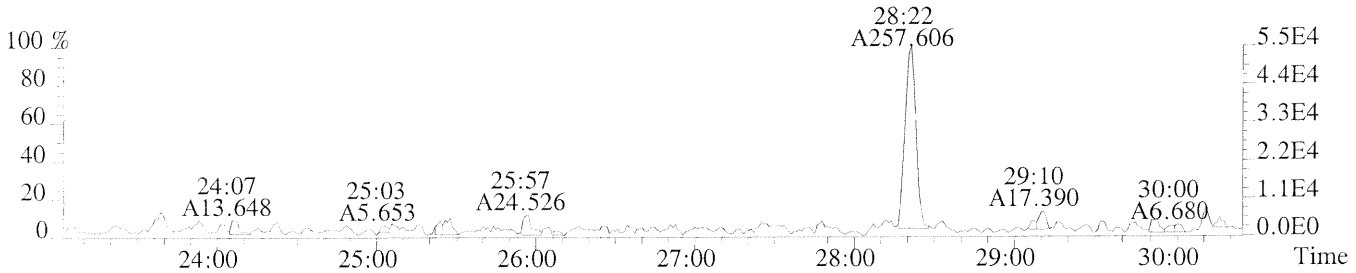
XLSN

File:P227259 #1-464 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

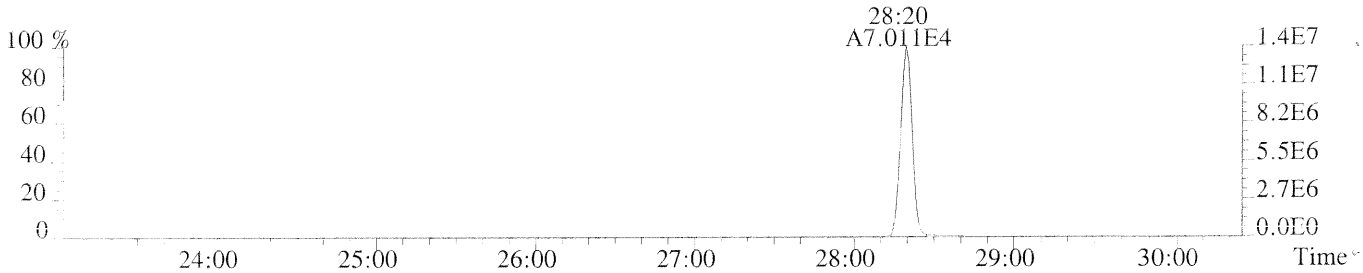
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



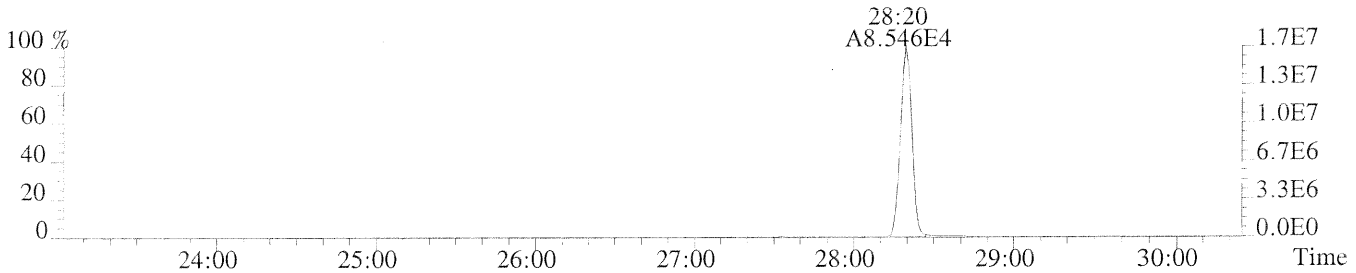
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2560.0,1.00%,F,T)



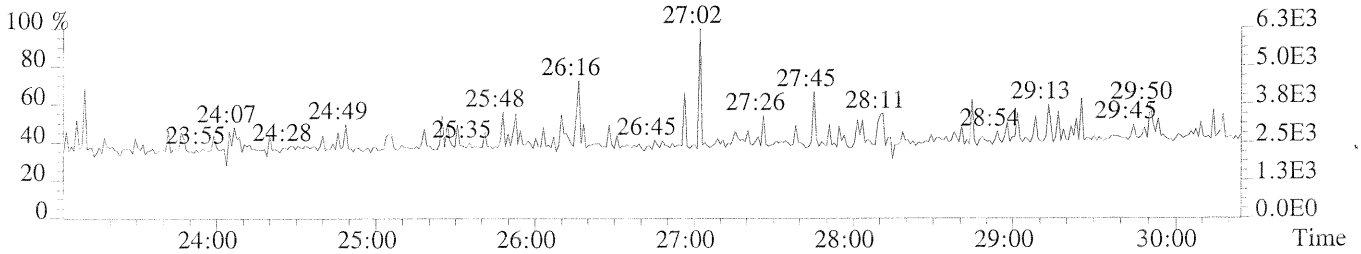
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



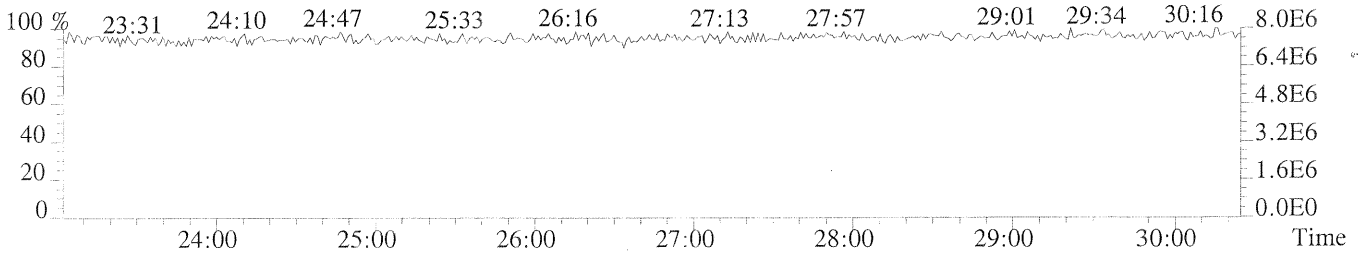
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1572.0,1.00%,F,T)



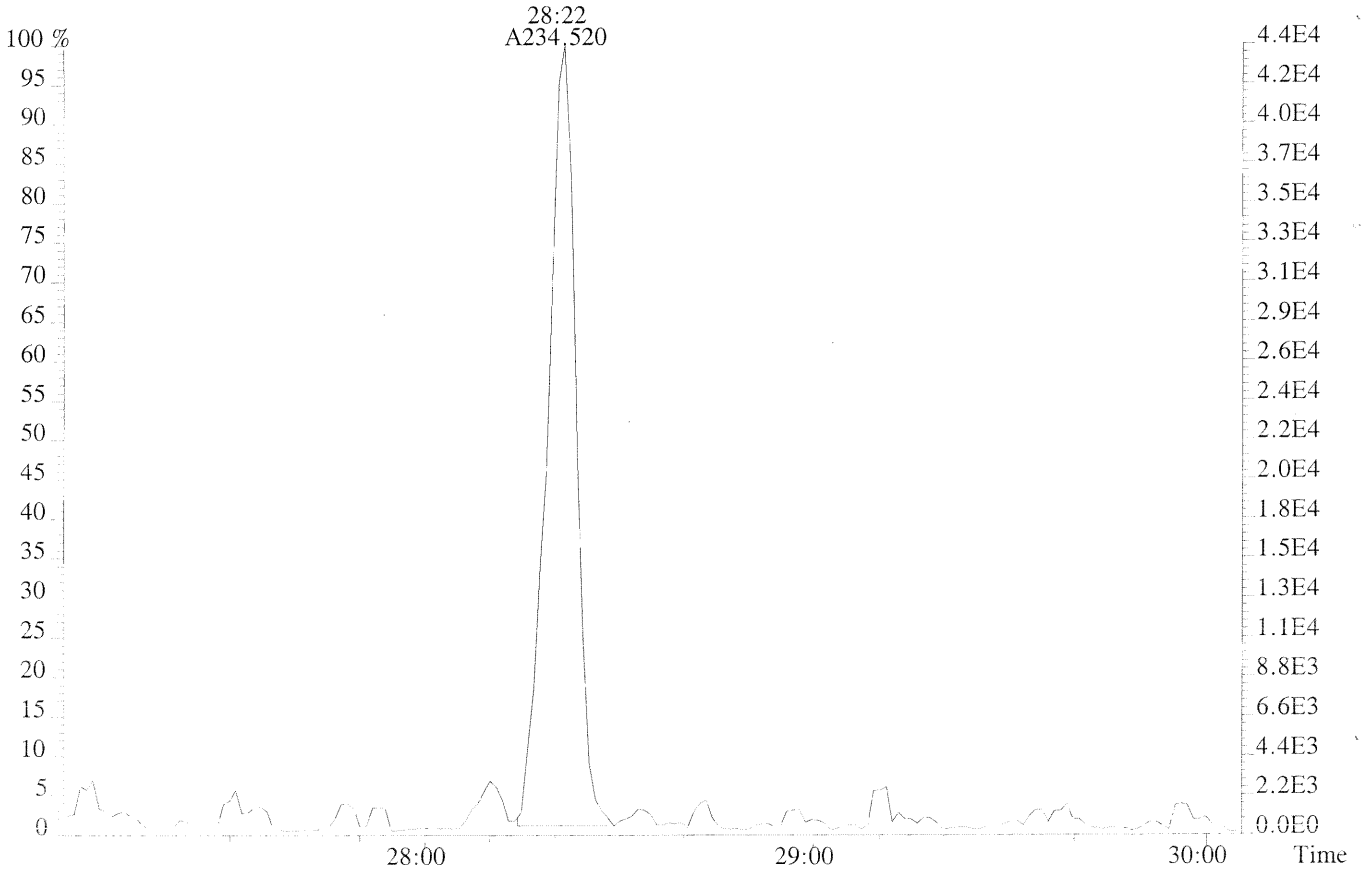
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



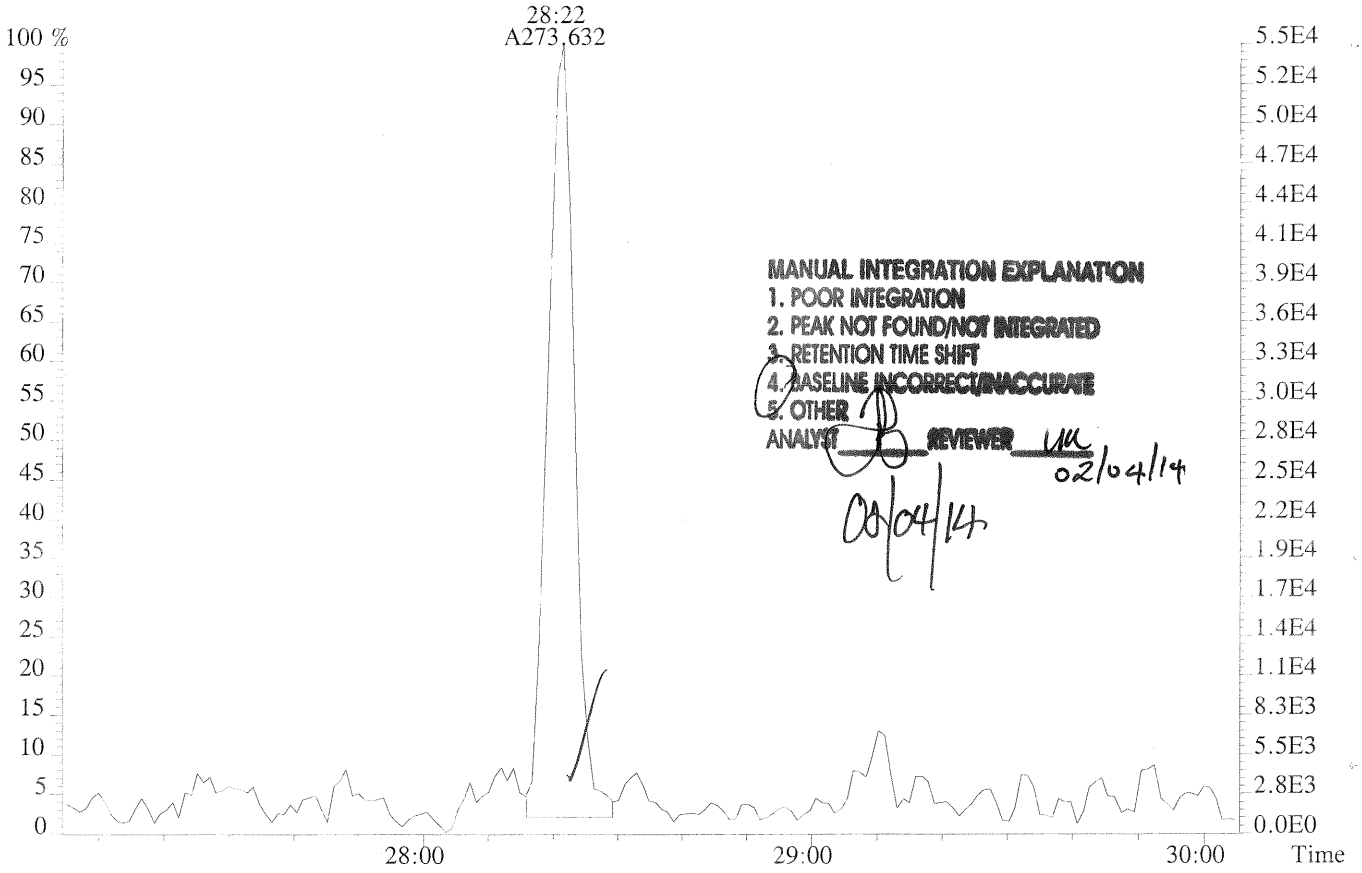
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P227259 #1-464 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0)



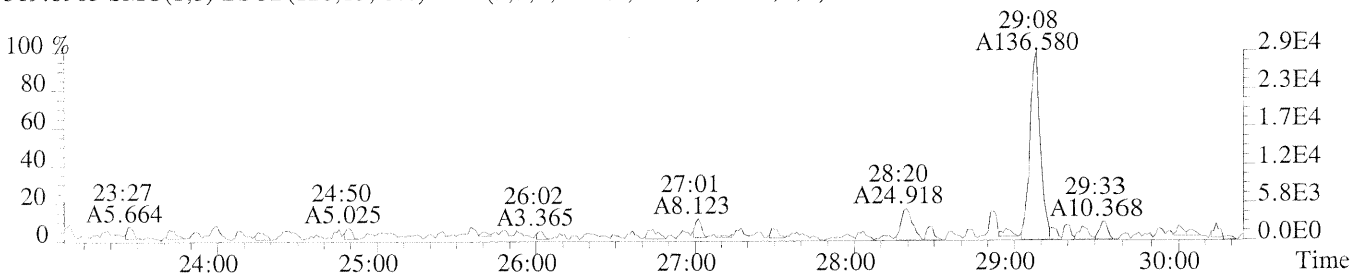
305.8987 SMO(1,3) BSUB(128,15,-3.0)



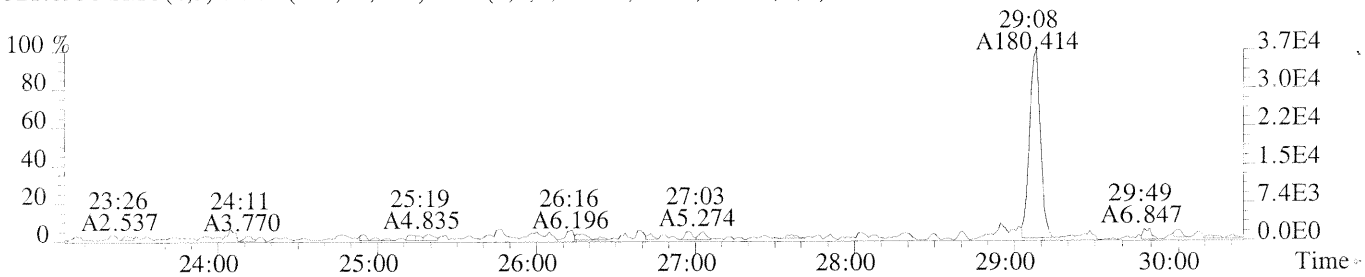
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST _____ REVIEWER _____
02/04/14
02/04/14

File:P227259 #1-464 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

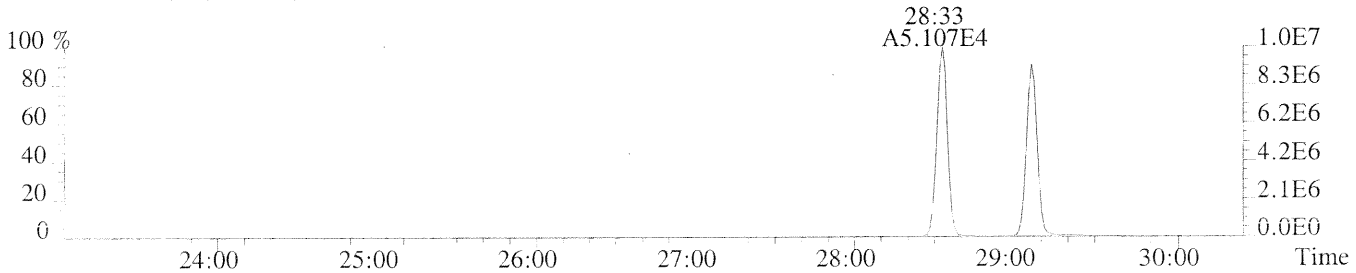
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



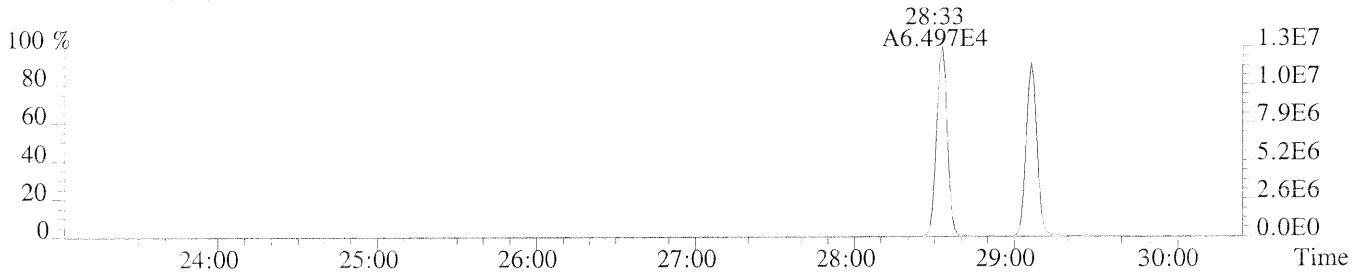
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



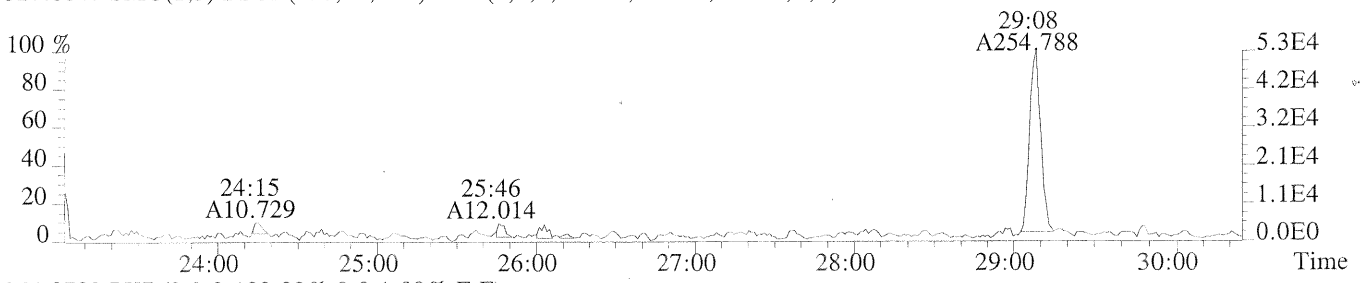
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7012.0,1.00%,F,T)



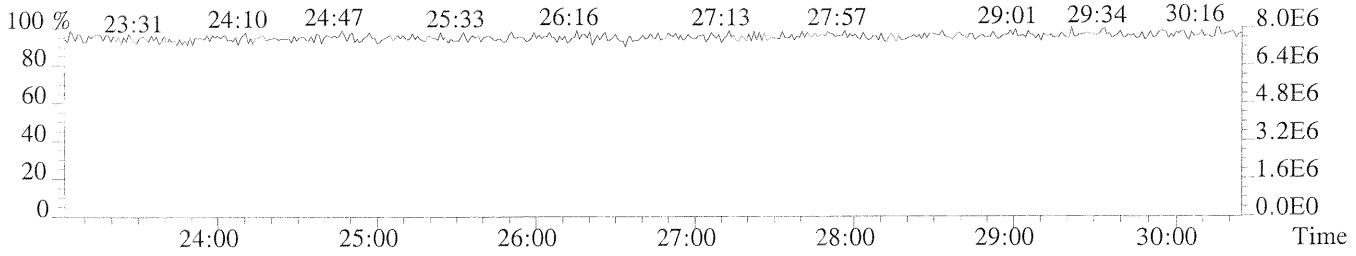
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4064.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2036.0,1.00%,F,T)

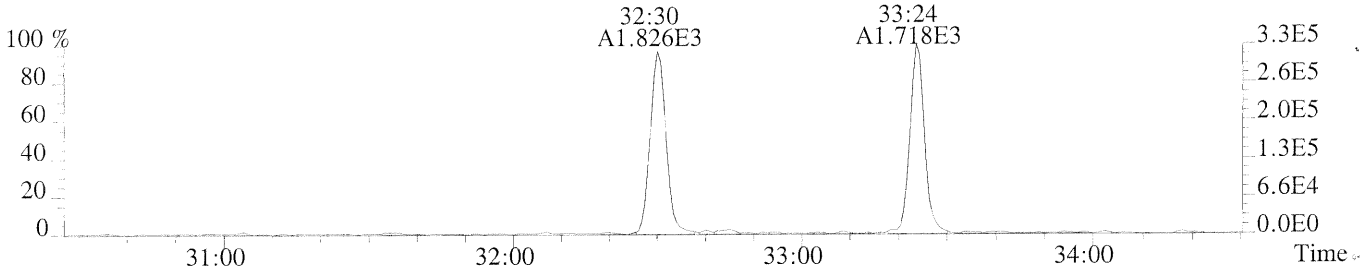


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

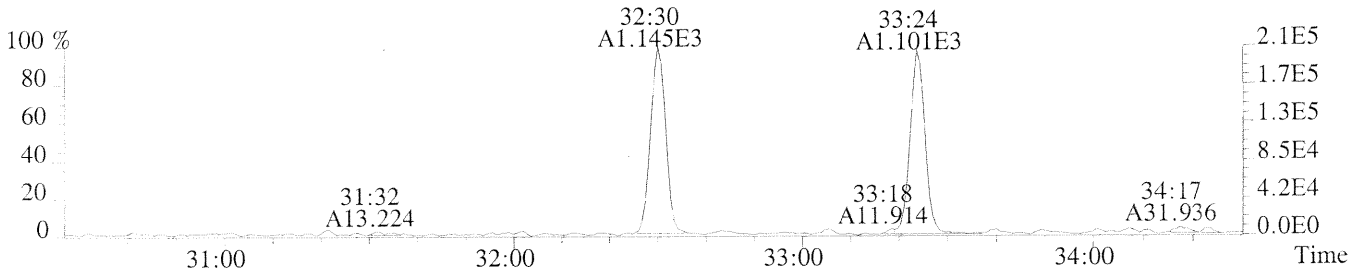


File:P227259 #1-369 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

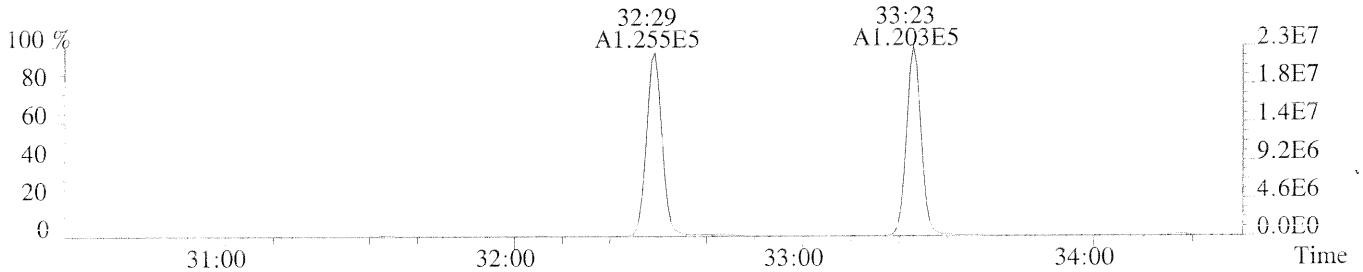
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



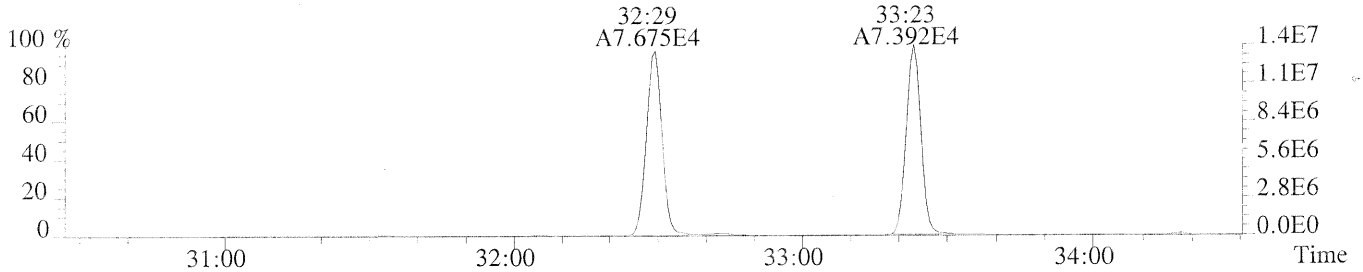
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3176.0,1.00%,F,T)



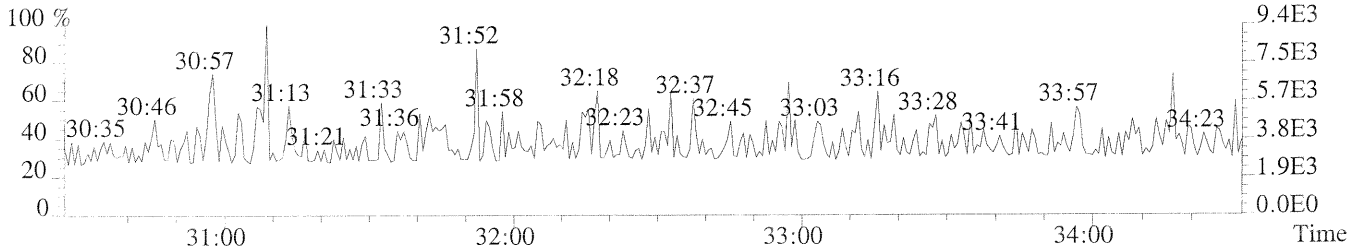
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,436.0,1.00%,F,T)



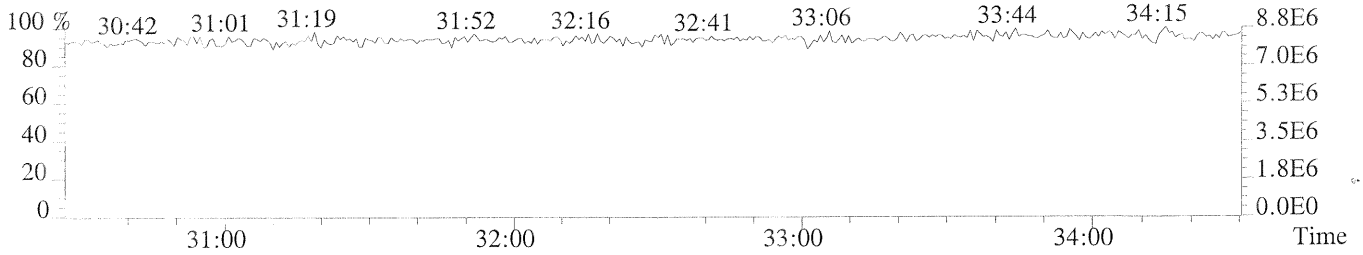
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



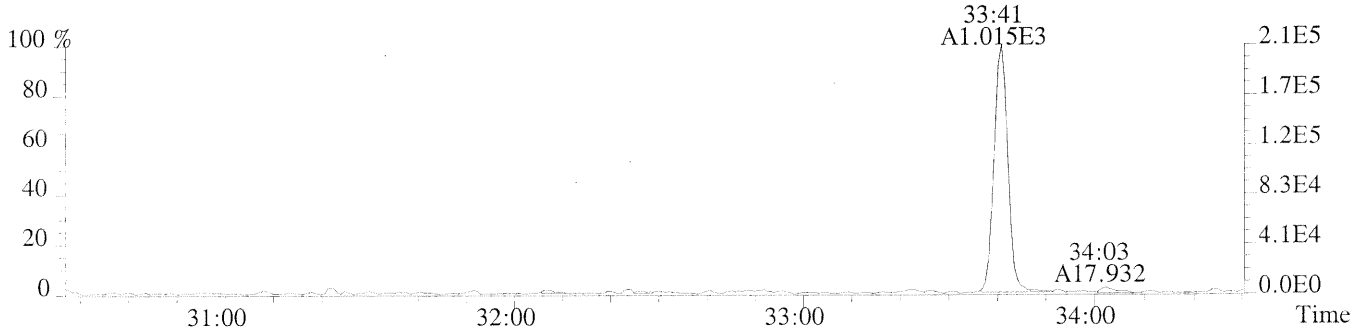
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



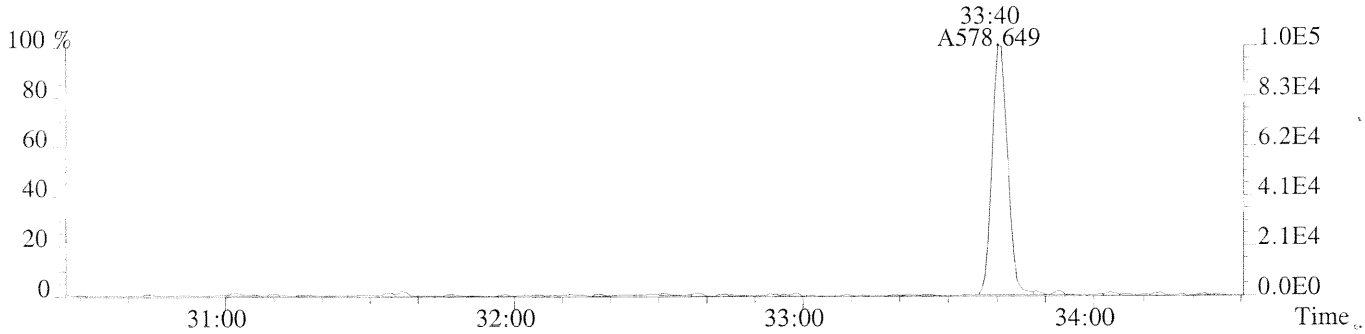
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



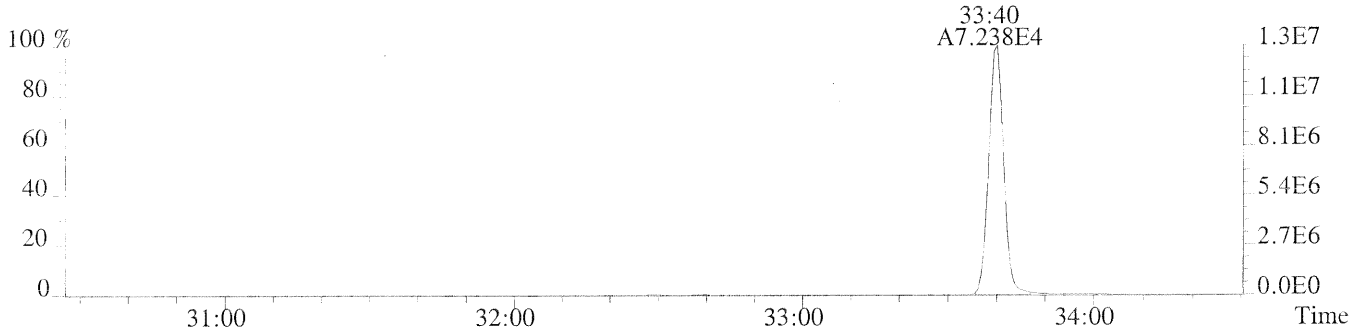
File:P227259 #1-369 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1904.0,1.00%,F,T)



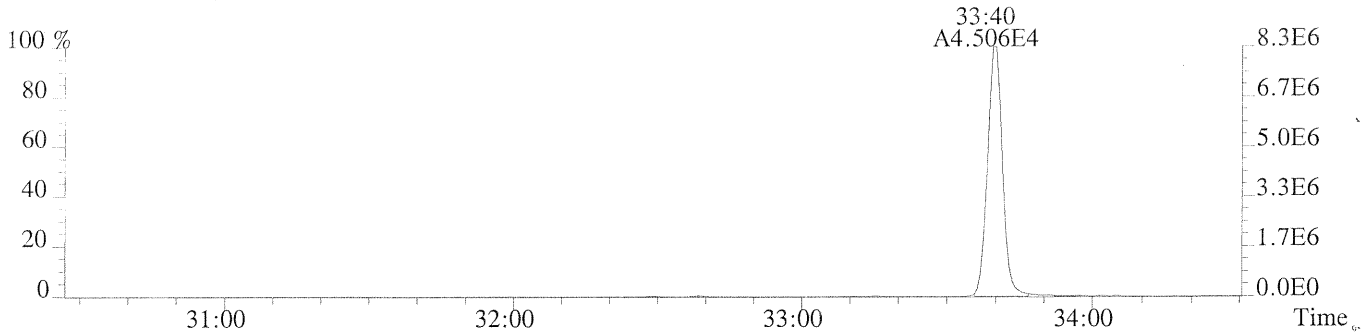
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,300.0,1.00%,F,T)



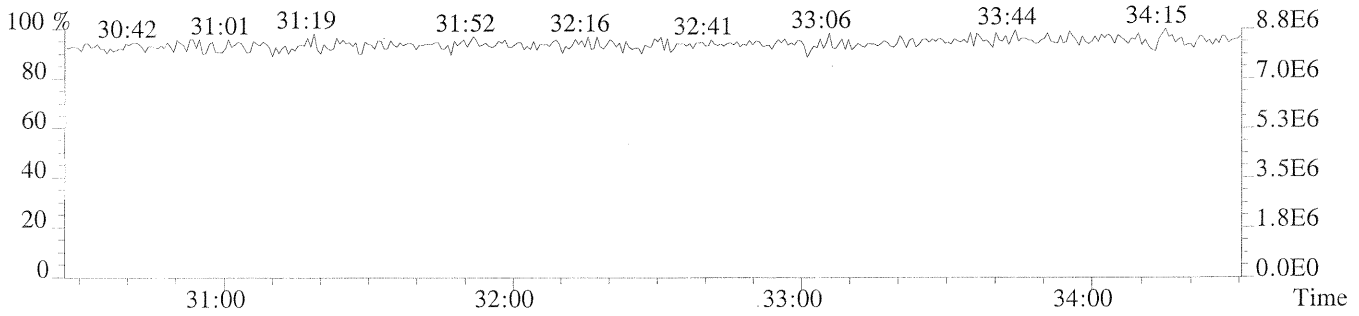
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)

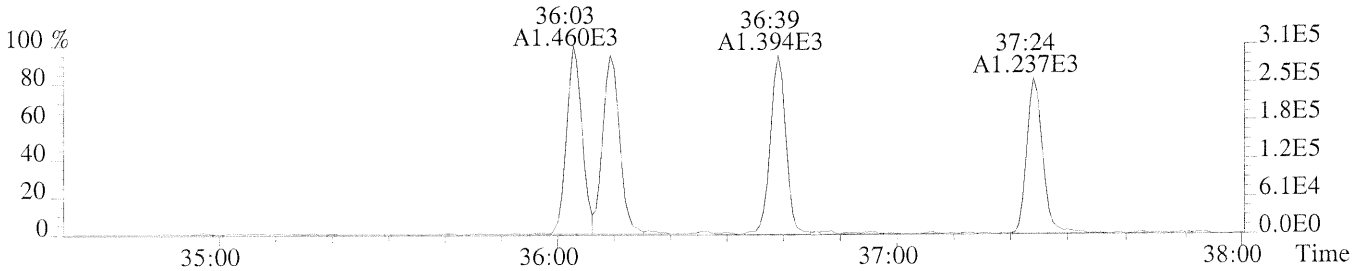


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

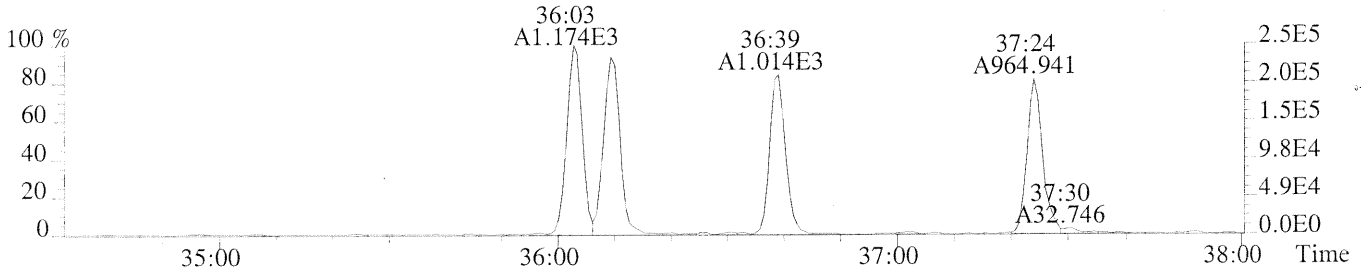


File:P227259 #1-315 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

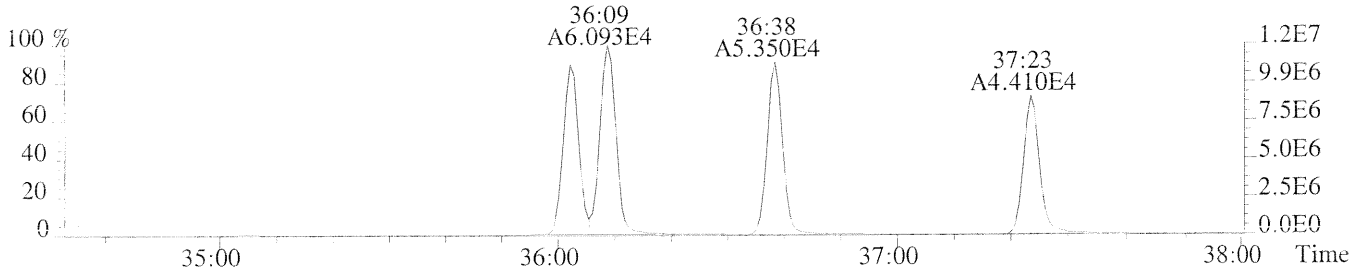
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1212.0,0.40%,F,T)



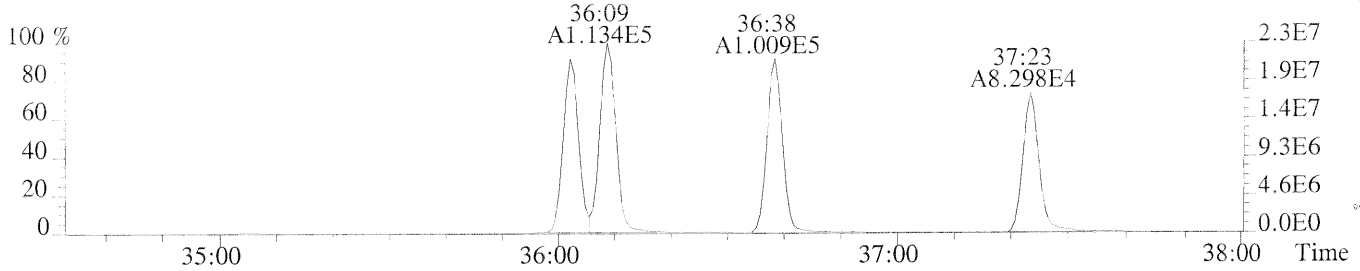
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



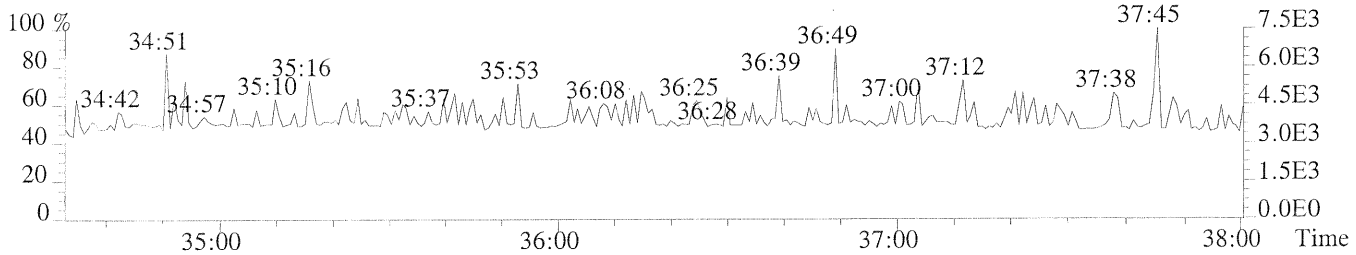
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



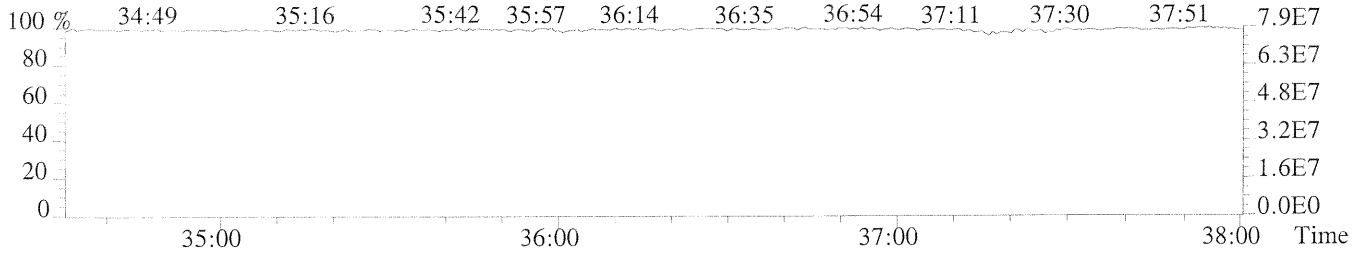
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2072.0,0.40%,F,T)



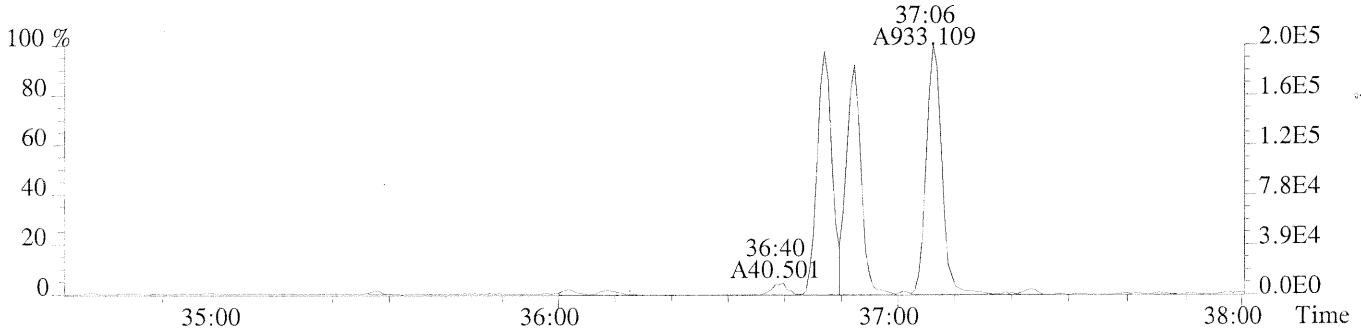
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



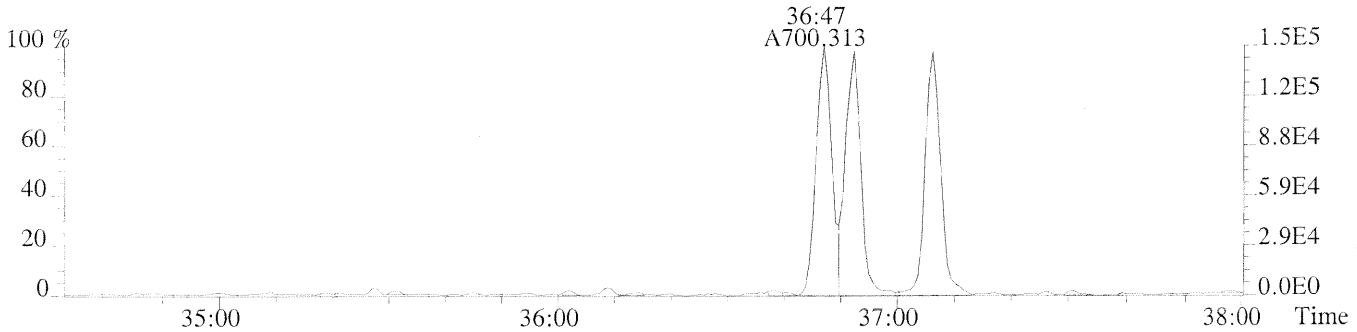
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



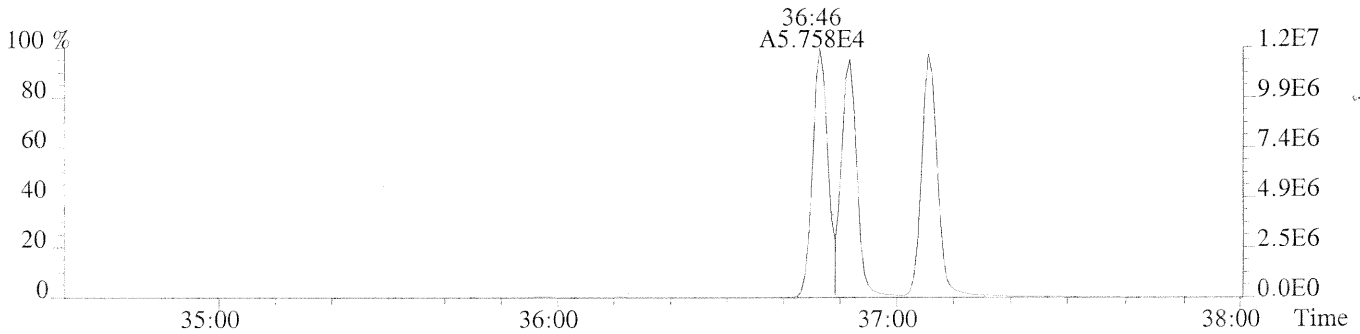
File:P227259 #1-315 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



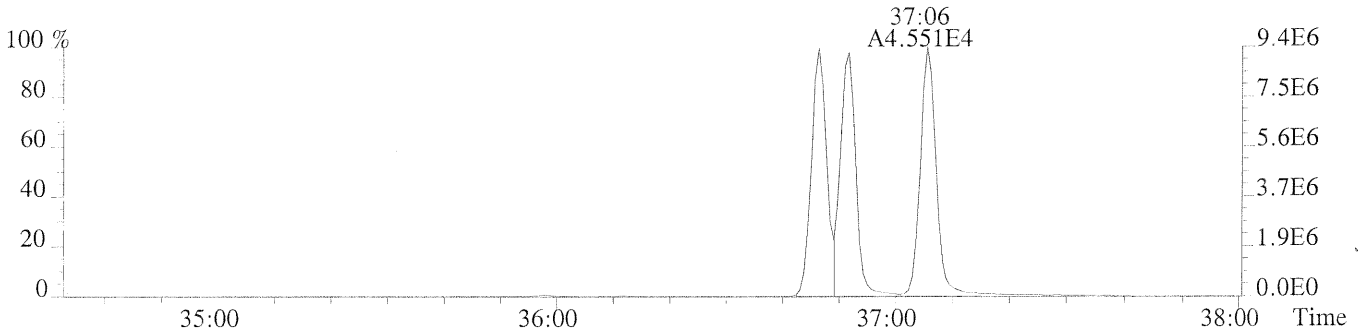
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,980.0,0.40%,F,T)



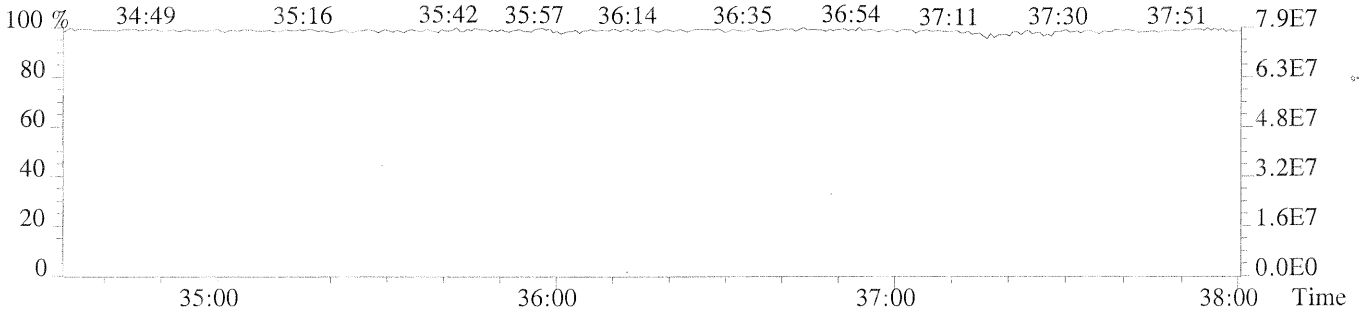
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2168.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1340.0,0.40%,F,T)

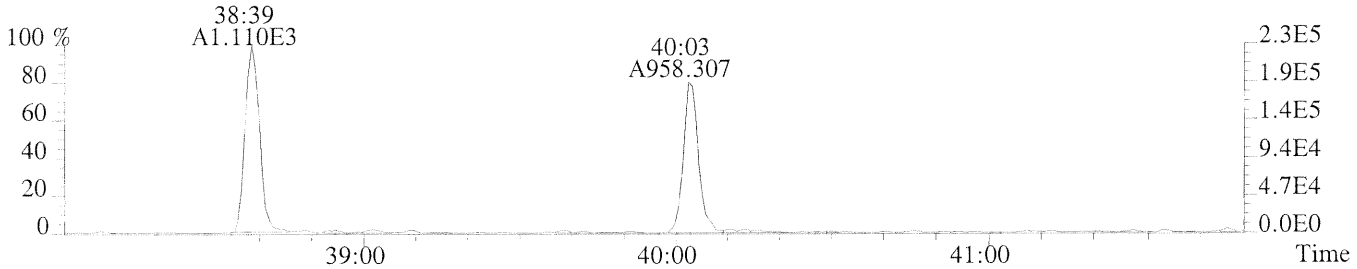


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

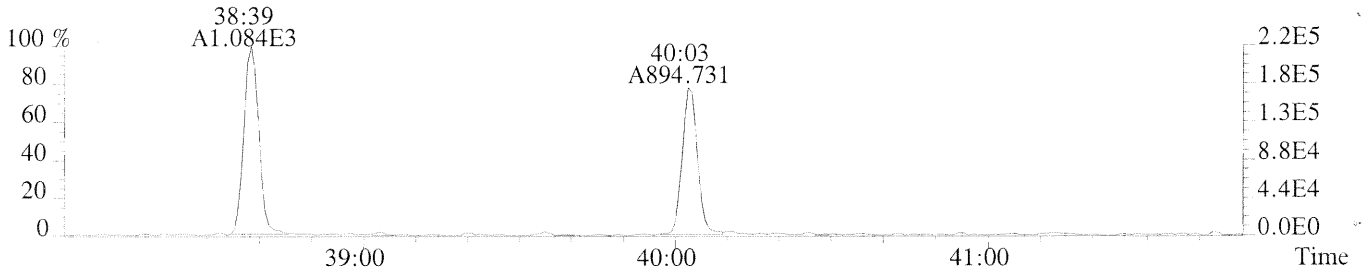


File:P227259 #1-342 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

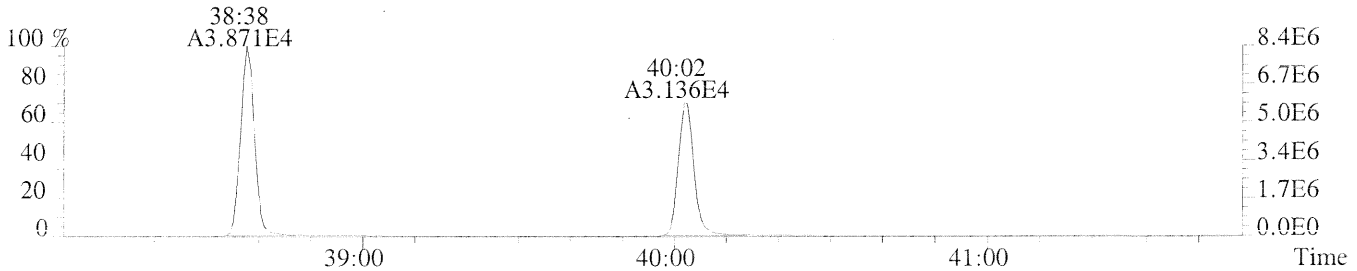
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1420.0,0.50%,F,T)



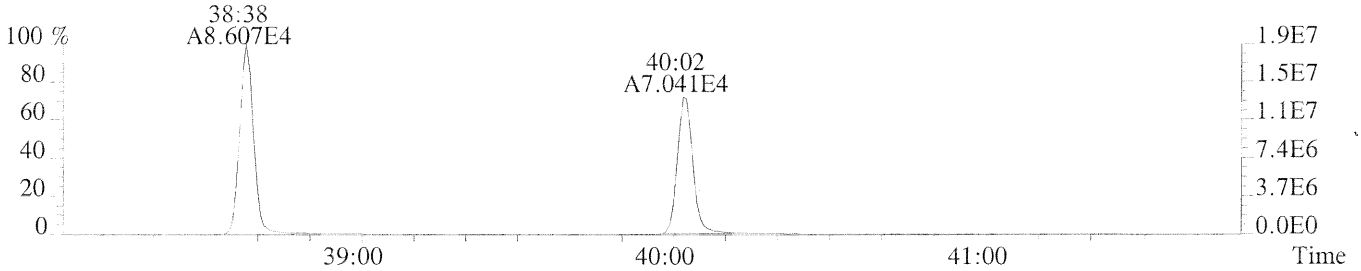
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1556.0,0.50%,F,T)



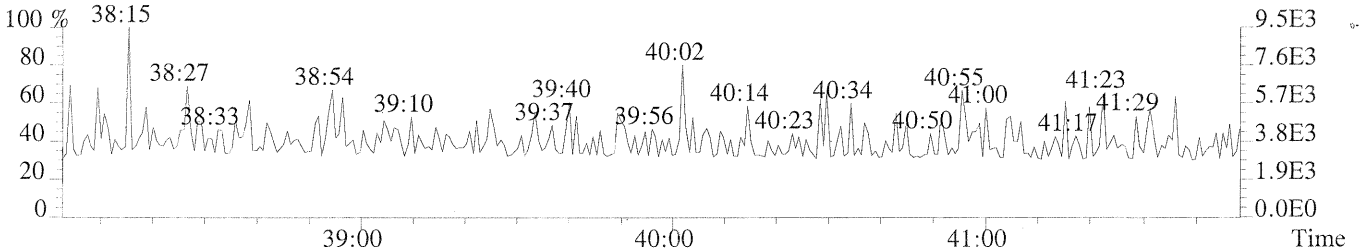
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5156.0,0.50%,F,T)



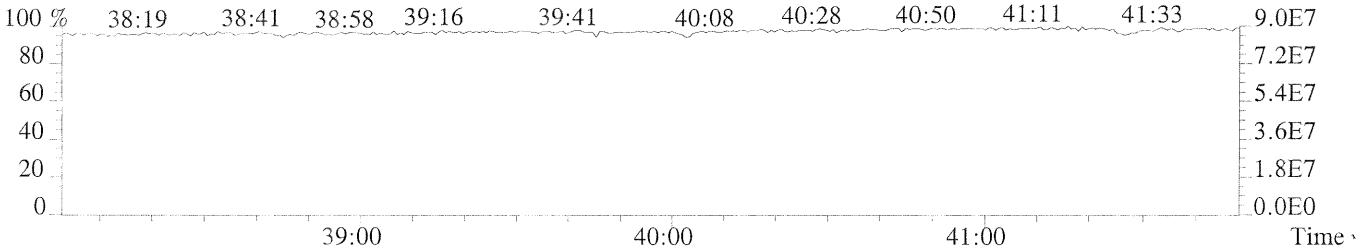
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8224.0,0.50%,F,T)



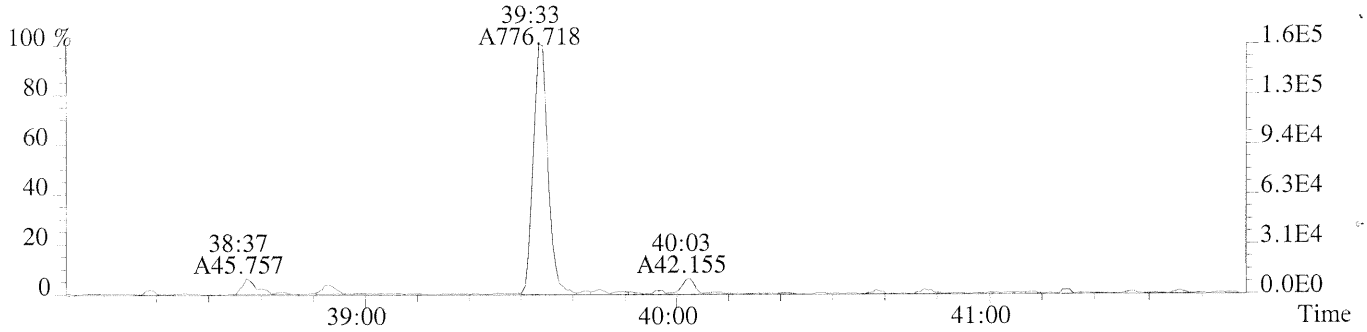
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



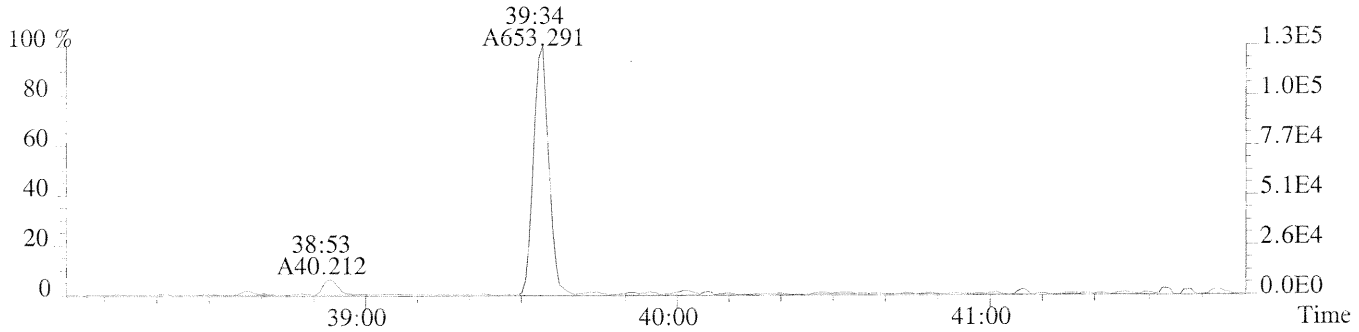
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



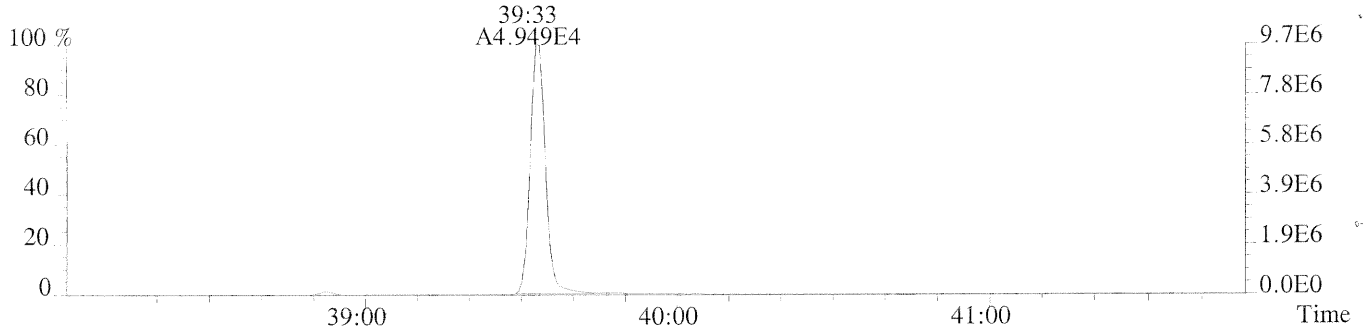
File:P227259 #1-342 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



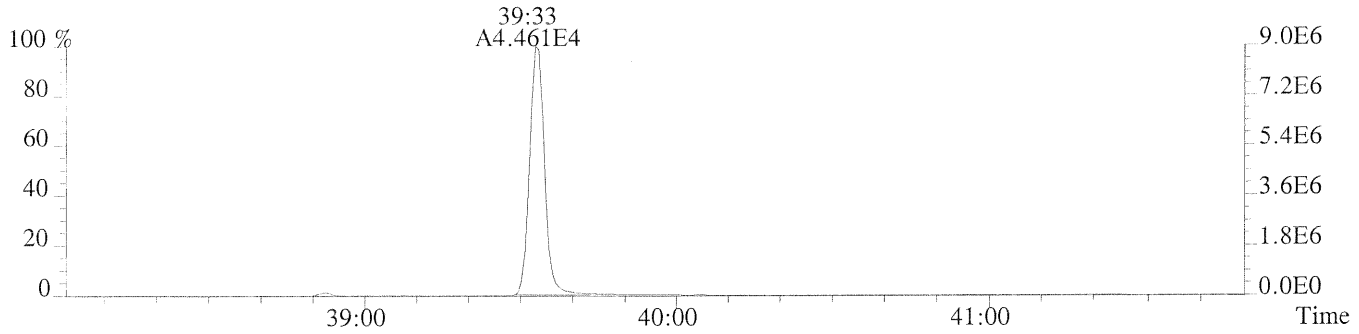
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



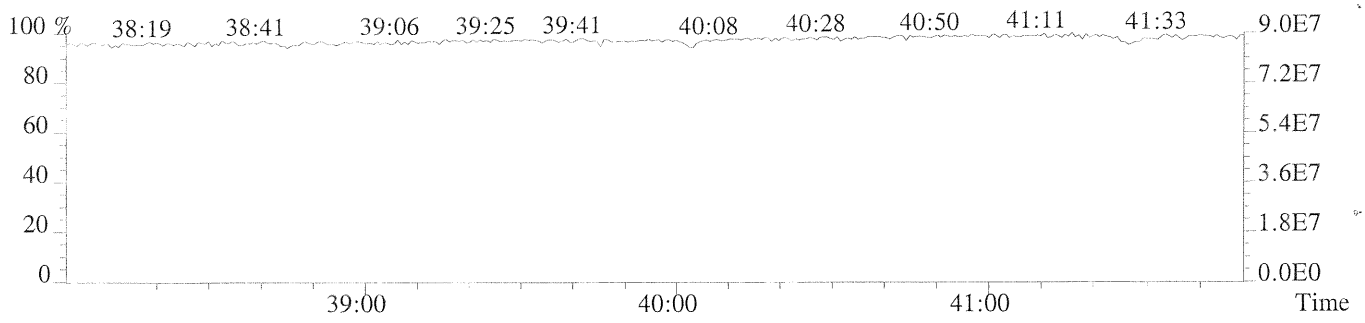
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,976.0,0.40%,F,T)



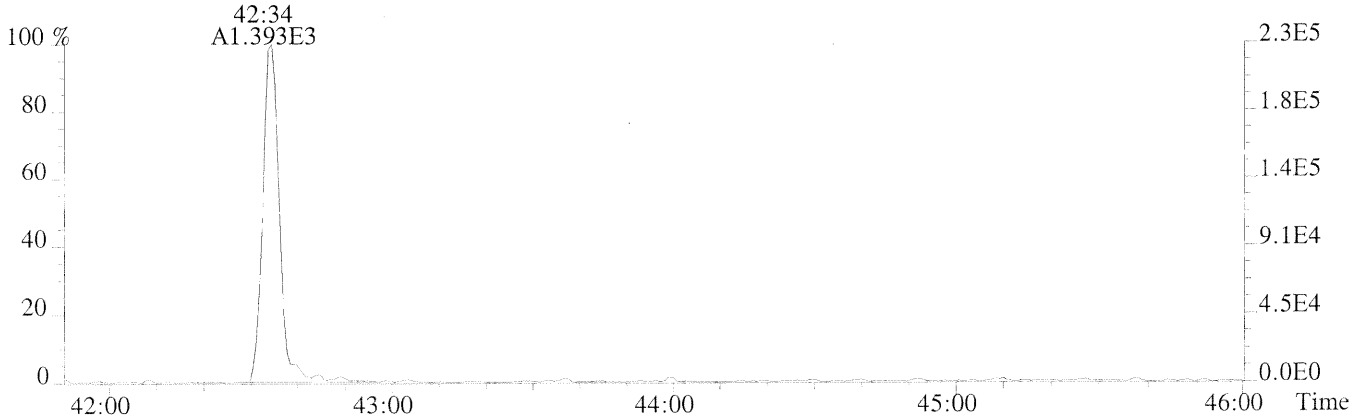
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)



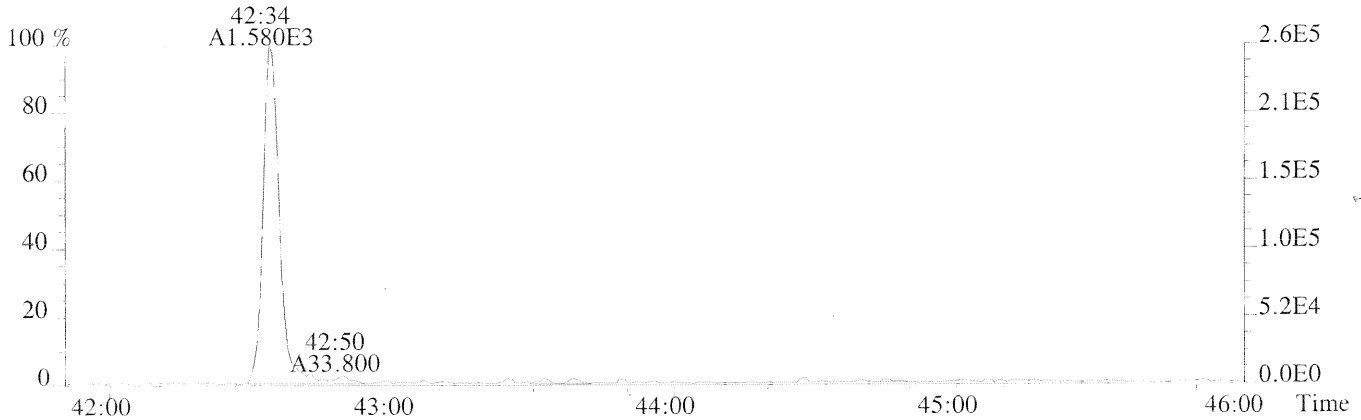
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



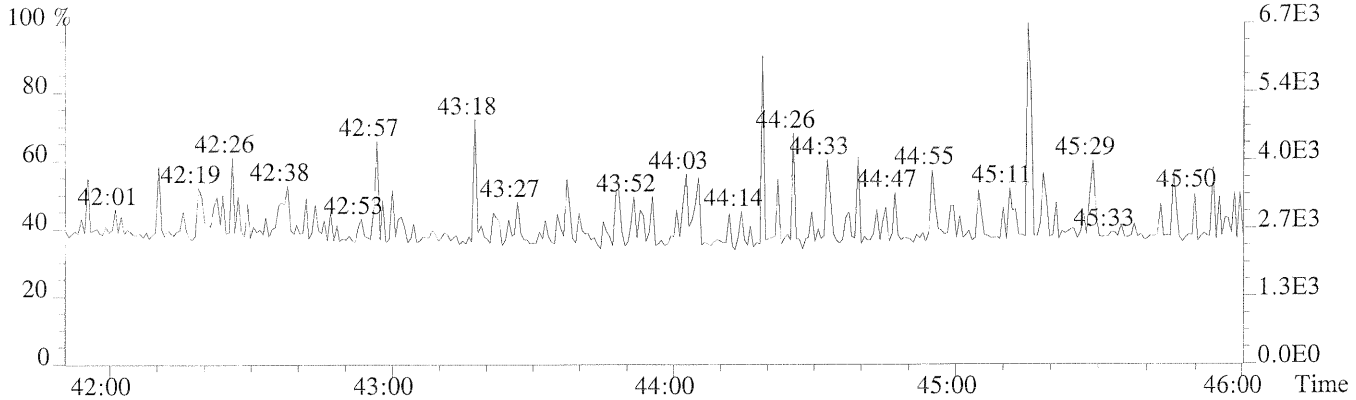
File:P227259 #1-383 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,876.0,0.40%,F,T)



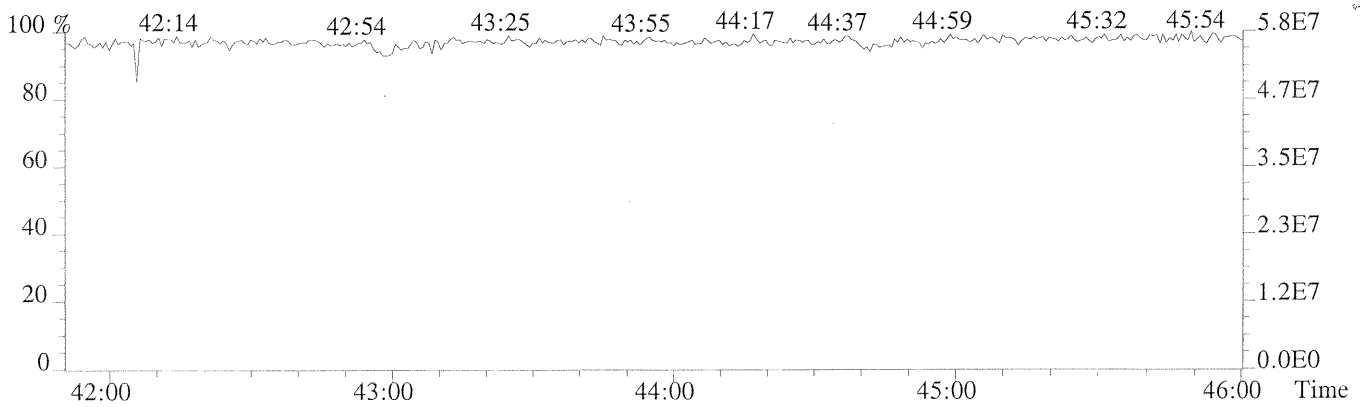
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1824.0,0.40%,F,T)



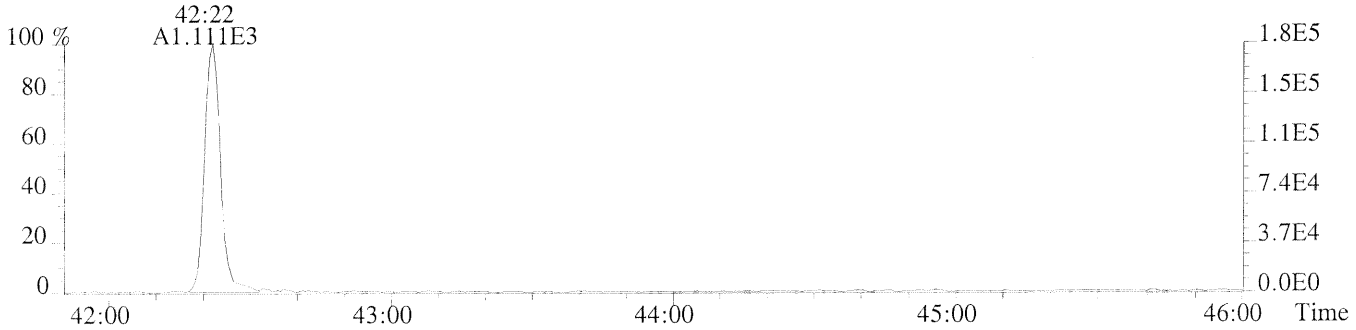
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



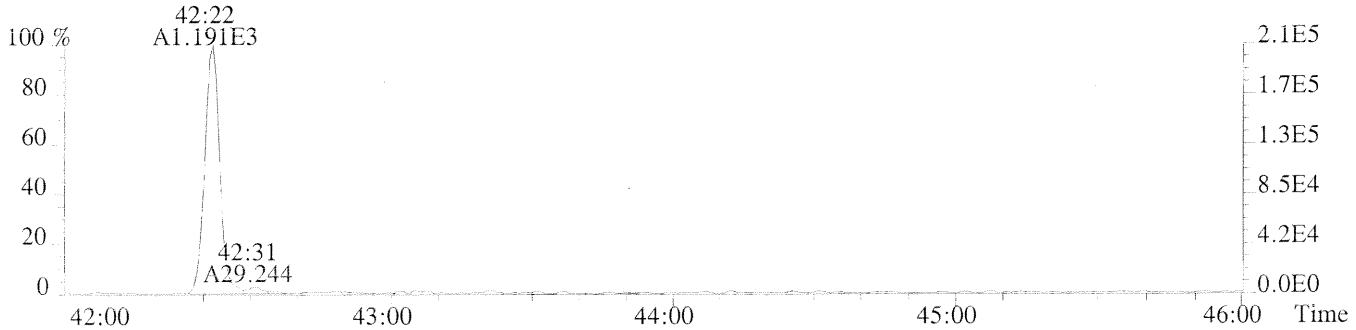
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



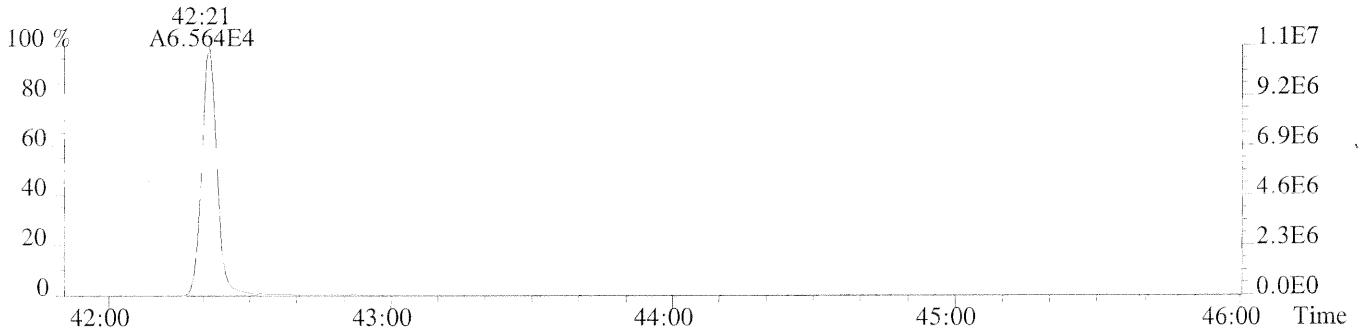
File:P227259 #1-383 Acq: 1-FEB-2014 16:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1200.0,0.40%,F,T)



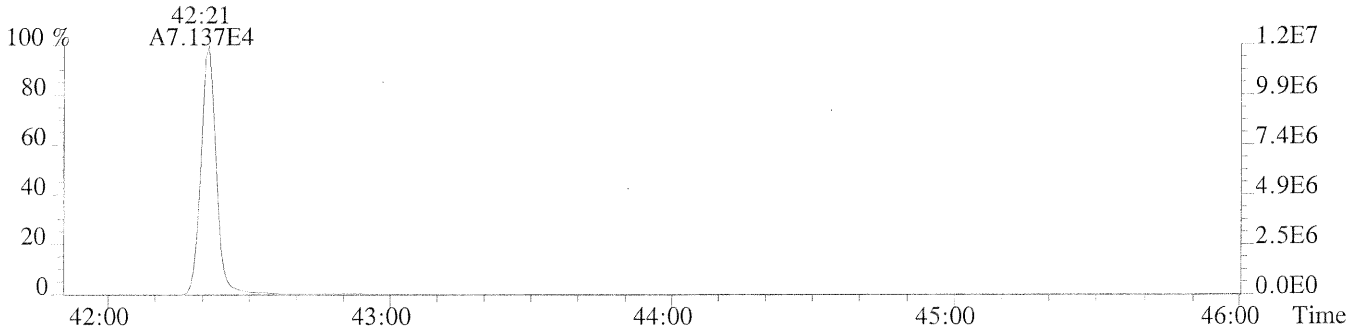
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1096.0,0.40%,F,T)



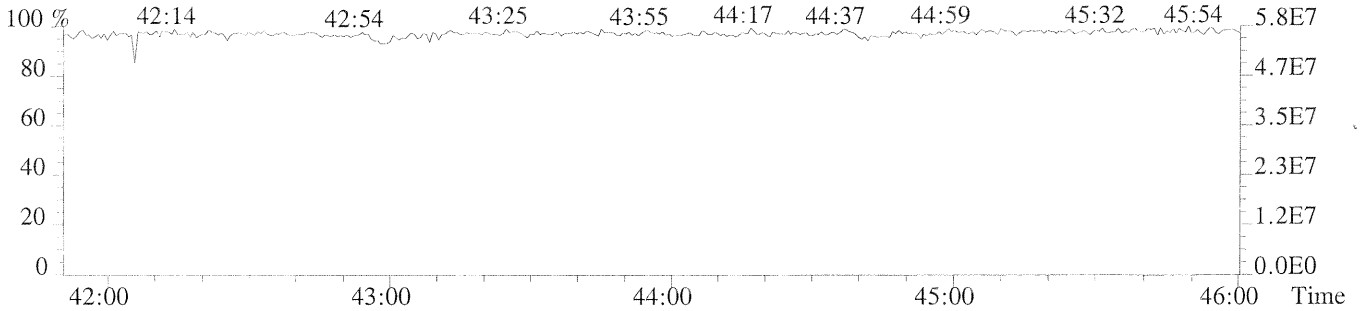
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2060.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2380.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC1/CS1

Run #2 Filename P227260 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 17:48:05
Processed: 4-FEB-14 15:25:53 LAB. ID: 66798

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:20	3.619e+02	4.542e+02	0.80	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	3.645e+03	2.327e+03	1.57	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:23	3.362e+03	2.214e+03	1.52	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:02	3.004e+03	2.493e+03	1.20	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	3.031e+03	2.480e+03	1.22	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	2.668e+03	2.222e+03	1.20	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	2.301e+03	1.921e+03	1.20	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	2.253e+03	2.392e+03	0.94	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	1.863e+03	1.637e+03	1.14	yes	no	1.000
10	Unk	OCDF	42:33	2.899e+03	3.332e+03	0.87	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:06	2.138e+02	2.961e+02	0.72	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:40	2.053e+03	1.349e+03	1.52	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	1.818e+03	1.323e+03	1.37	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.761e+03	1.307e+03	1.35	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	1.795e+03	1.369e+03	1.31	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	1.489e+03	1.354e+03	1.10	yes	no	1.000
17	Unk	OCDD	42:21	2.317e+03	2.591e+03	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:19	7.155e+04	8.629e+04	0.83	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:28	1.294e+05	7.833e+04	1.65	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.225e+05	7.560e+04	1.62	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	5.489e+04	1.015e+05	0.54	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	6.176e+04	1.161e+05	0.53	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	5.460e+04	1.029e+05	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	4.584e+04	8.558e+04	0.54	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	4.043e+04	9.056e+04	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	3.311e+04	7.398e+04	0.45	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:05	4.615e+04	5.885e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:39	7.475e+04	4.705e+04	1.59	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	5.774e+04	4.477e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	5.785e+04	4.517e+04	1.28	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	5.178e+04	4.682e+04	1.11	yes	no	1.067
32	IS	13C-OCDD	42:20	6.911e+04	7.505e+04	0.92	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:32	5.107e+04	6.514e+04	0.78	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.167e+04	4.696e+04	1.31	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	5.386e+02				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC1/CS1

Run #2 Filename P227260 Samp: 1 Inj: 1 Acquired: 1-FEB-14 17:48:05
Processed: 4-FEB-14 15:25:531 LAB. ID: 66798

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.92e+04	4.32e+02	1.6e+02	8.28e+04	2.99e+03	2.8e+01
2	1,2,3,7,8-PeCDF	6.68e+05	5.56e+02	1.2e+03	4.11e+05	2.67e+03	1.5e+02
3	2,3,4,7,8-PeCDF	6.28e+05	5.56e+02	1.1e+03	4.07e+05	2.67e+03	1.5e+02
4	1,2,3,4,7,8-HxCDF	6.15e+05	6.92e+02	8.9e+02	5.15e+05	4.56e+02	1.1e+03
5	1,2,3,6,7,8-HxCDF	5.83e+05	6.92e+02	8.4e+02	4.92e+05	4.56e+02	1.1e+03
6	2,3,4,6,7,8-HxCDF	5.54e+05	6.92e+02	8.0e+02	4.60e+05	4.56e+02	1.0e+03
7	1,2,3,7,8,9-HxCDF	4.69e+05	6.92e+02	6.8e+02	3.81e+05	4.56e+02	8.4e+02
8	1,2,3,4,6,7,8-HpCDF	4.76e+05	1.23e+03	3.9e+02	5.13e+05	1.98e+03	2.6e+02
9	1,2,3,4,7,8,9-HpCDF	3.36e+05	1.23e+03	2.7e+02	2.96e+05	1.98e+03	1.5e+02
10	OCDF	4.85e+05	2.21e+03	2.2e+02	5.56e+05	2.22e+03	2.5e+02
11	2,3,7,8-TCDD	4.46e+04	1.28e+03	3.5e+01	5.94e+04	8.60e+02	6.9e+01
12	1,2,3,7,8-PeCDD	3.60e+05	1.50e+03	2.4e+02	2.42e+05	5.32e+02	4.6e+02
13	1,2,3,4,7,8-HxCDD	3.97e+05	7.88e+02	5.0e+02	2.89e+05	8.24e+02	3.5e+02
14	1,2,3,6,7,8-HxCDD	3.60e+05	7.88e+02	4.6e+02	2.70e+05	8.24e+02	3.3e+02
15	1,2,3,7,8,9-HxCDD	3.51e+05	7.88e+02	4.5e+02	2.68e+05	8.24e+02	3.3e+02
16	1,2,3,4,6,7,8-HpCDD	2.86e+05	4.96e+02	5.8e+02	2.70e+05	2.52e+02	1.1e+03
17	OCDD	3.98e+05	8.64e+02	4.6e+02	4.46e+05	1.26e+03	3.5e+02
18	13C-2,3,7,8-TCDF	1.38e+07	1.37e+03	1.0e+04	1.67e+07	1.52e+03	1.1e+04
19	13C-1,2,3,7,8-PeCDF	2.25e+07	1.05e+03	2.2e+04	1.38e+07	1.27e+03	1.1e+04
20	13C-2,3,4,7,8-PeCDF	2.28e+07	1.05e+03	2.2e+04	1.42e+07	1.27e+03	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	1.15e+07	7.72e+02	1.5e+04	2.13e+07	1.41e+03	1.5e+04
22	13C-1,2,3,6,7,8-HxCDF	1.23e+07	7.72e+02	1.6e+04	2.31e+07	1.41e+03	1.6e+04
23	13C-2,3,4,6,7,8-HxCDF	1.12e+07	7.72e+02	1.5e+04	2.11e+07	1.41e+03	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	9.00e+06	7.72e+02	1.2e+04	1.68e+07	1.41e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	8.52e+06	2.64e+03	3.2e+03	1.90e+07	9.86e+03	1.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.12e+06	2.64e+03	2.3e+03	1.34e+07	9.86e+03	1.4e+03
27	13C-2,3,7,8-TCDD	9.45e+06	7.75e+03	1.2e+03	1.20e+07	3.64e+03	3.3e+03
28	13C-1,2,3,7,8-PeCDD	1.39e+07	8.00e+02	1.7e+04	8.72e+06	8.00e+02	1.1e+04
29	13C-1,2,3,4,7,8-HxCDD	1.23e+07	1.84e+03	6.7e+03	9.61e+06	1.05e+03	9.2e+03
30	13C-1,2,3,6,7,8-HxCDD	1.17e+07	1.84e+03	6.4e+03	9.10e+06	1.05e+03	8.7e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.01e+07	9.40e+02	1.1e+04	9.05e+06	6.40e+02	1.4e+04
32	13C-OCDD	1.15e+07	5.78e+03	2.0e+03	1.25e+07	5.86e+03	2.1e+03
33	13C-1,2,3,4-TCDD	1.03e+07	7.75e+03	1.3e+03	1.32e+07	3.64e+03	3.6e+03
34	13C-1,2,3,7,8,9-HxCDD	1.21e+07	1.84e+03	6.6e+03	9.31e+06	1.05e+03	8.9e+03
35	37Cl-2,3,7,8-TCDD	1.03e+05	1.88e+03	5.5e+01			

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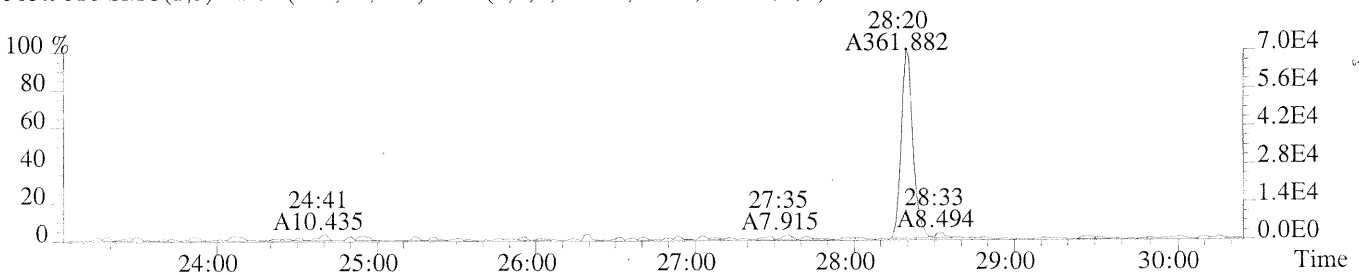
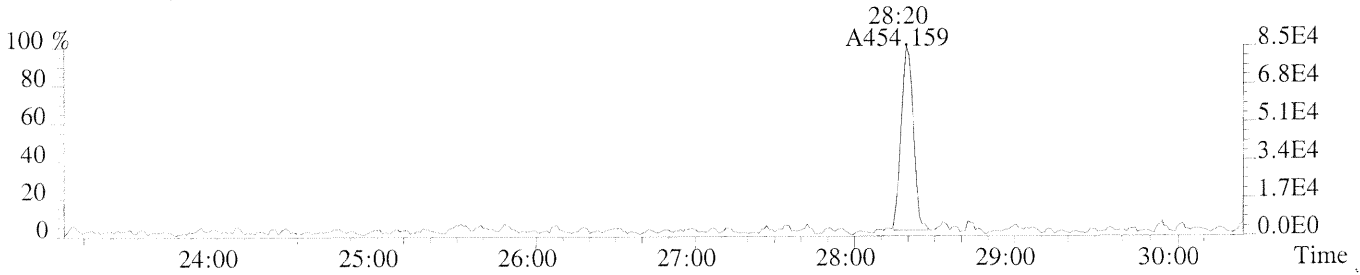
XLSN

File:P227260 #1-464 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

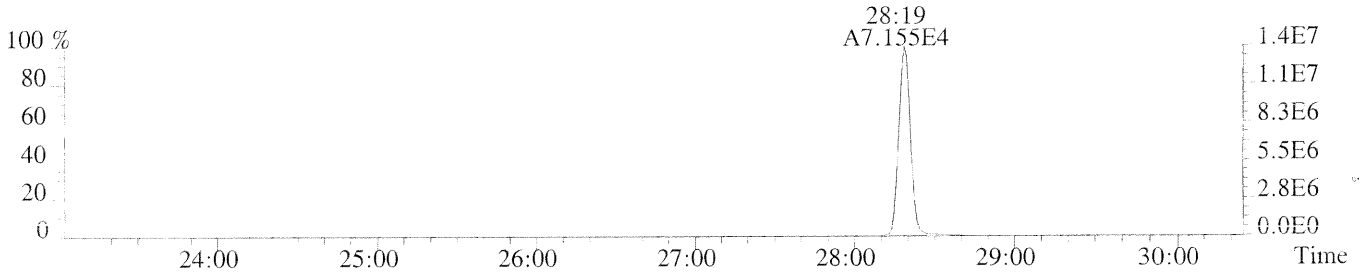
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



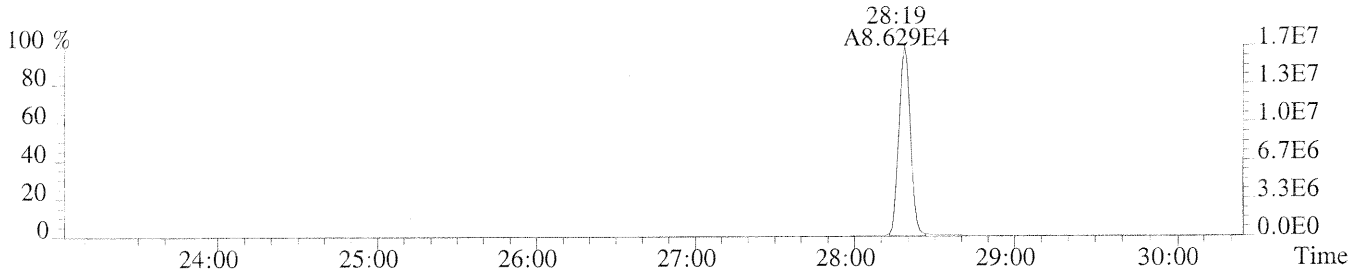
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2992.0,1.00%,F,T)



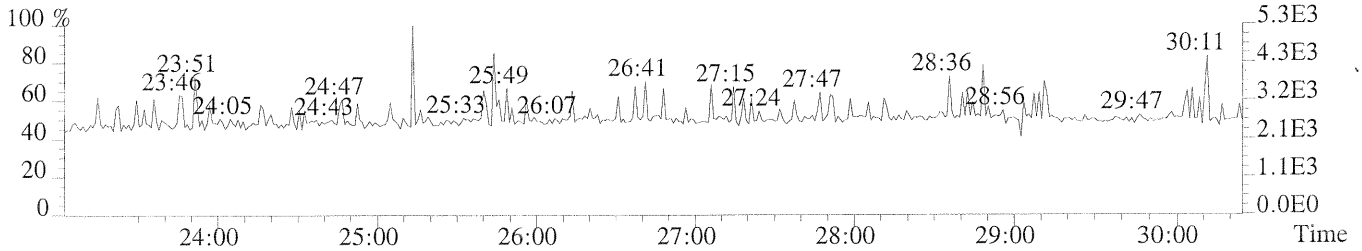
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



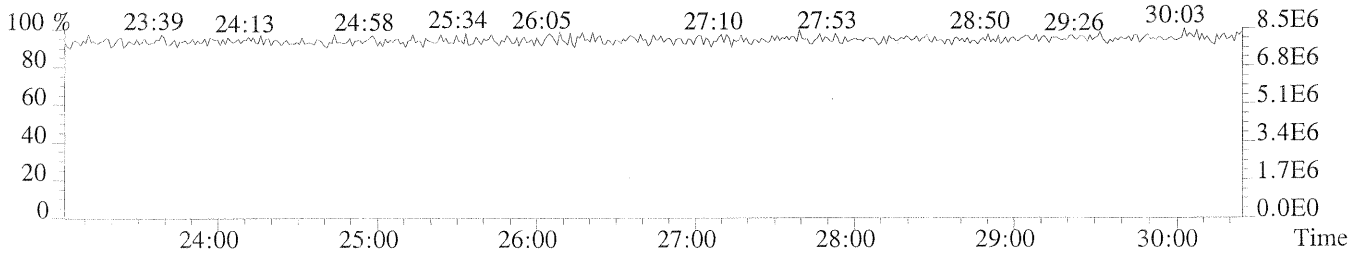
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

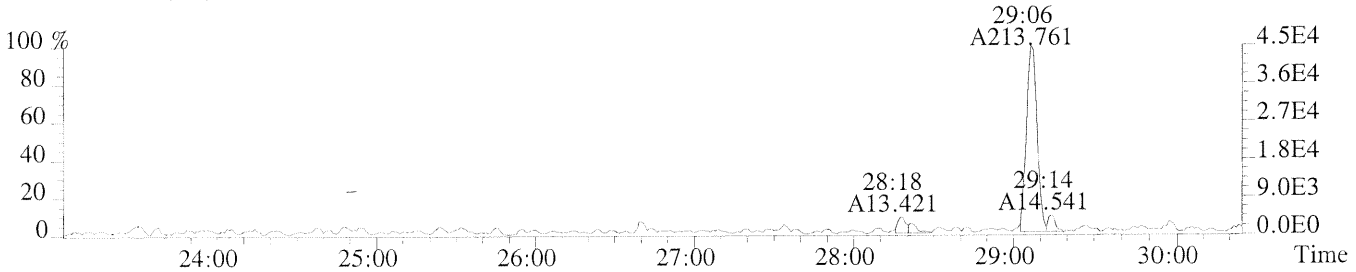


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

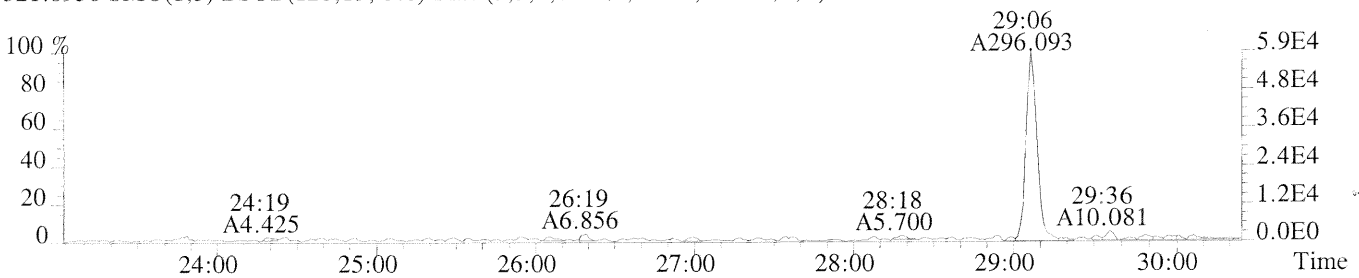


File:P227260 #1-464 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

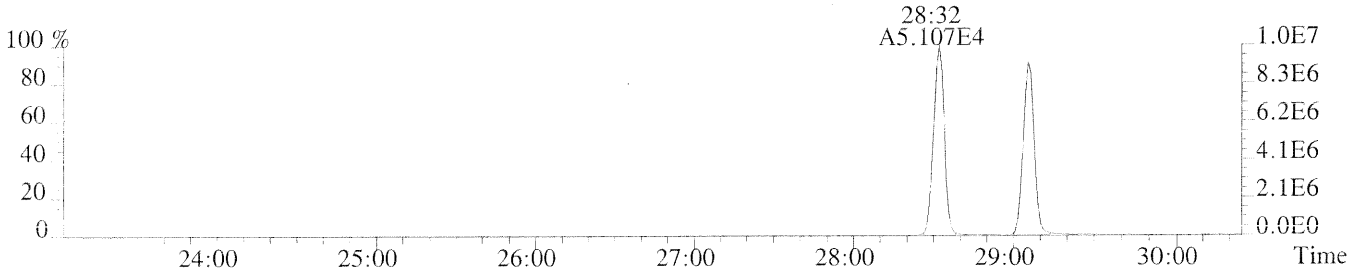
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1280.0,1.00%,F,T)



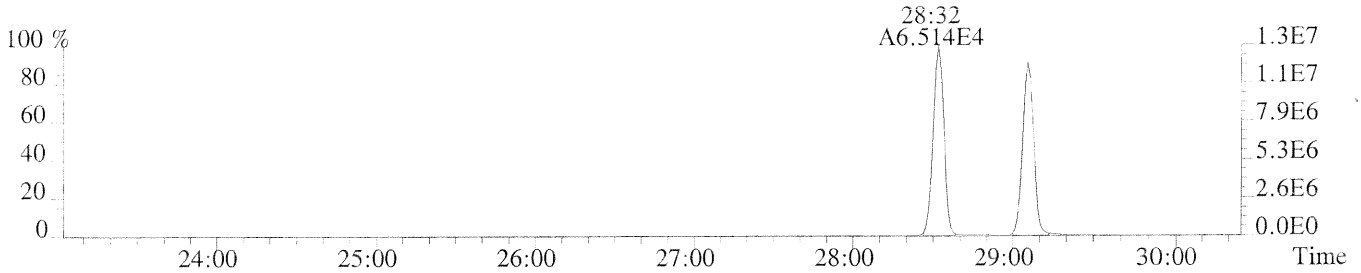
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



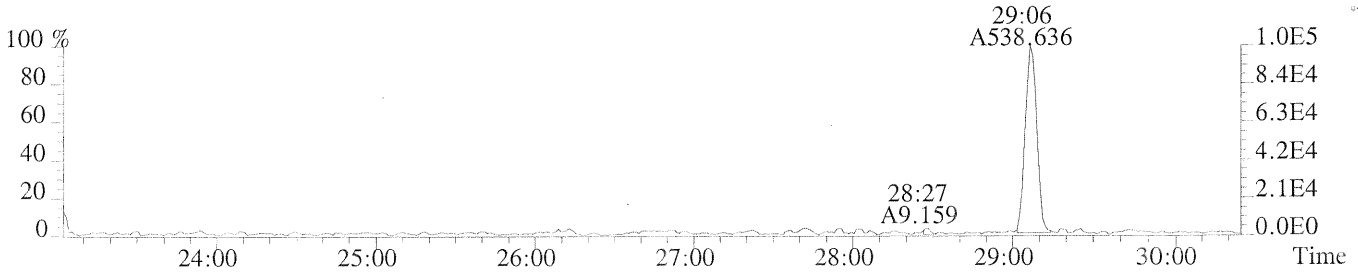
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7748.0,1.00%,F,T)



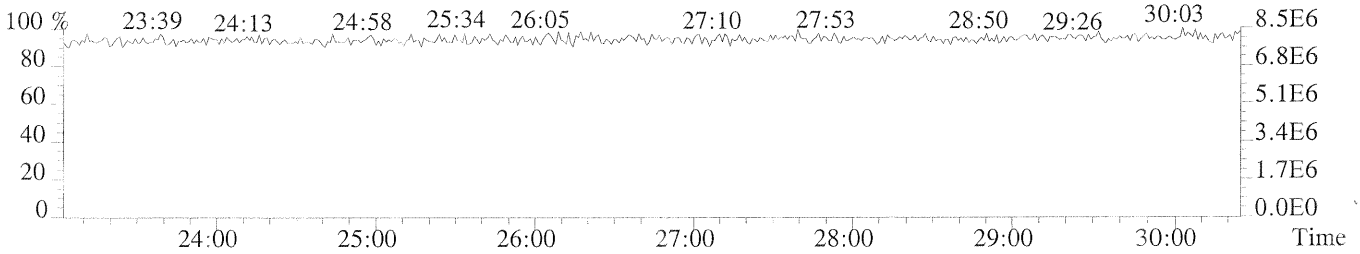
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3644.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1880.0,1.00%,F,T)

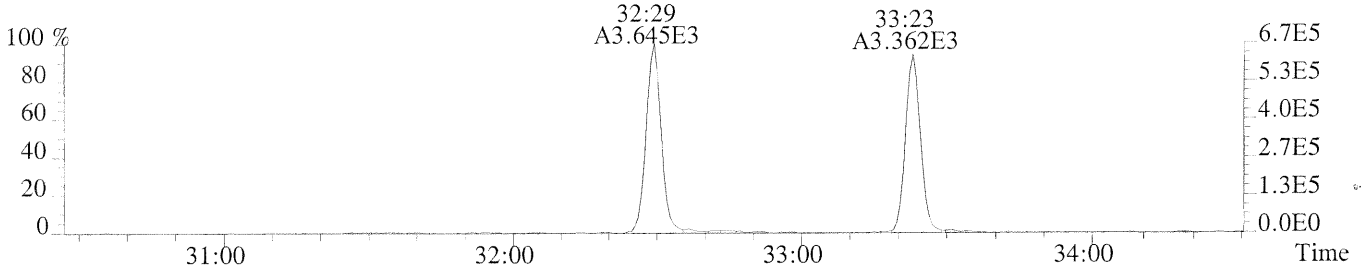


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

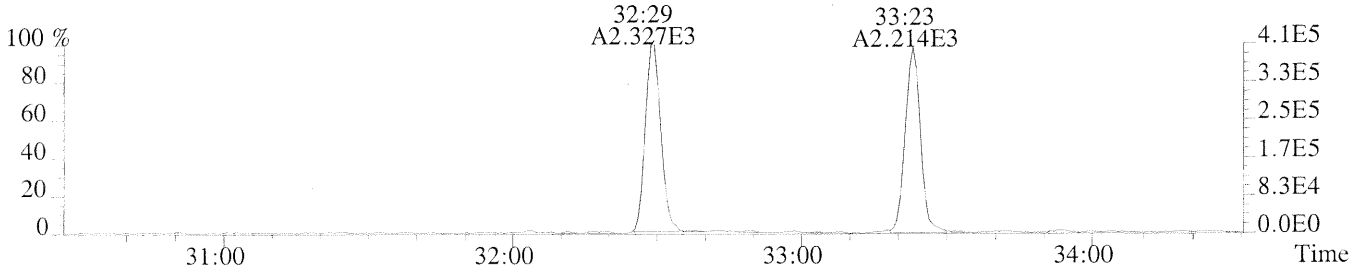


File:P227260 #1-369 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

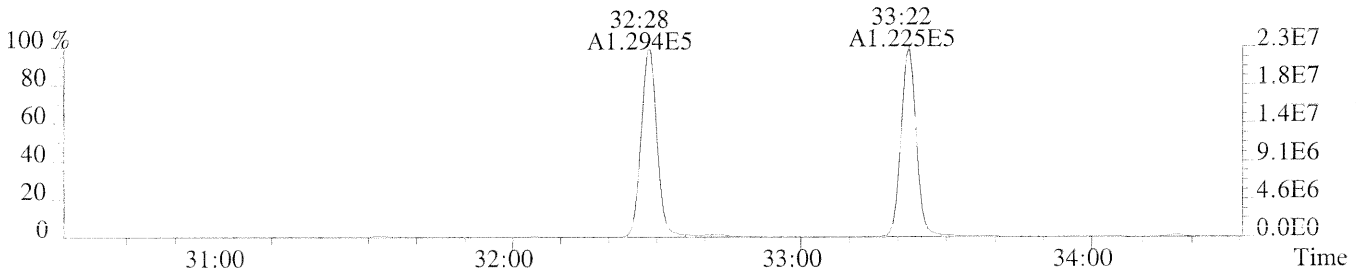
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



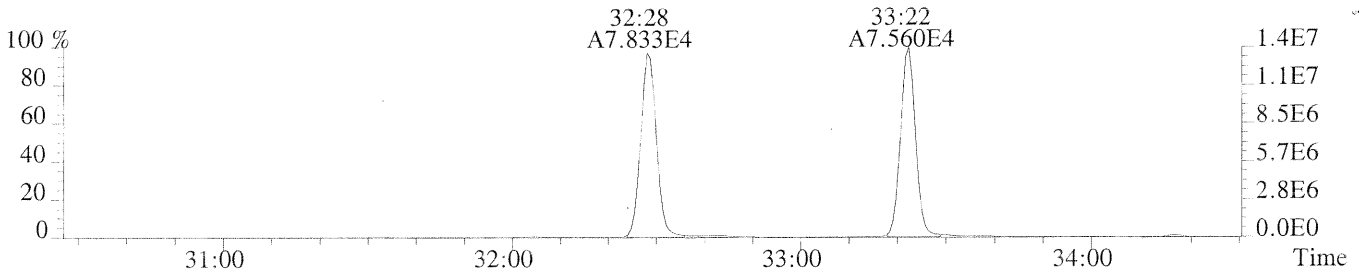
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2672.0,1.00%,F,T)



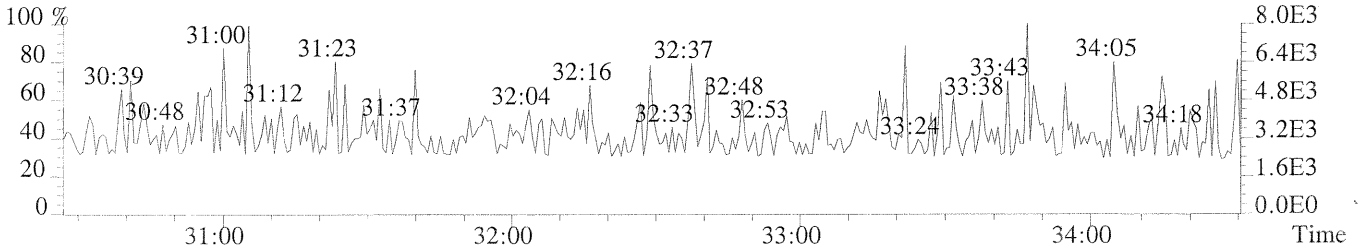
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



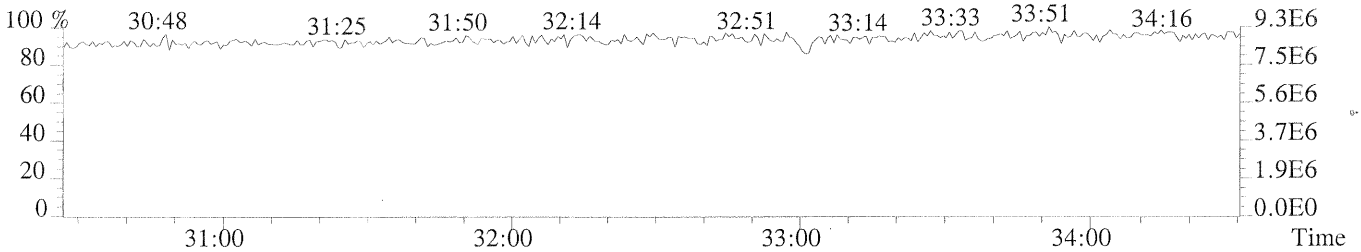
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



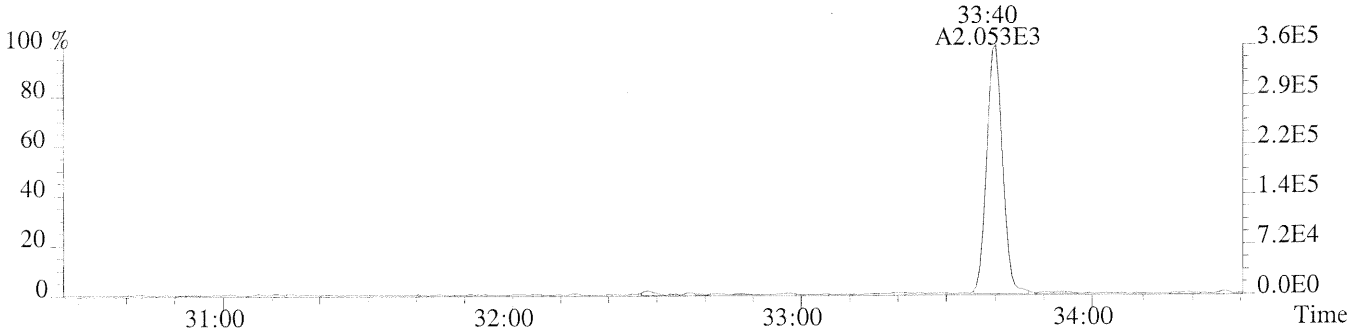
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



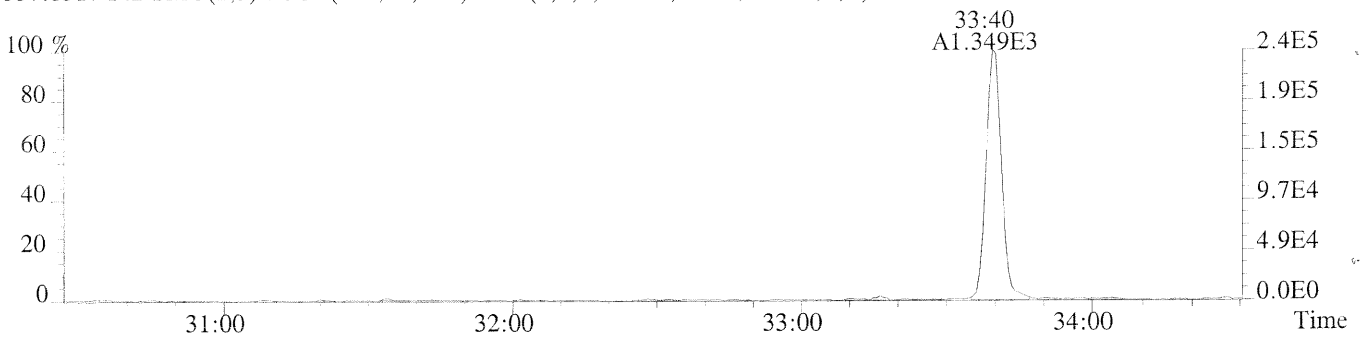
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



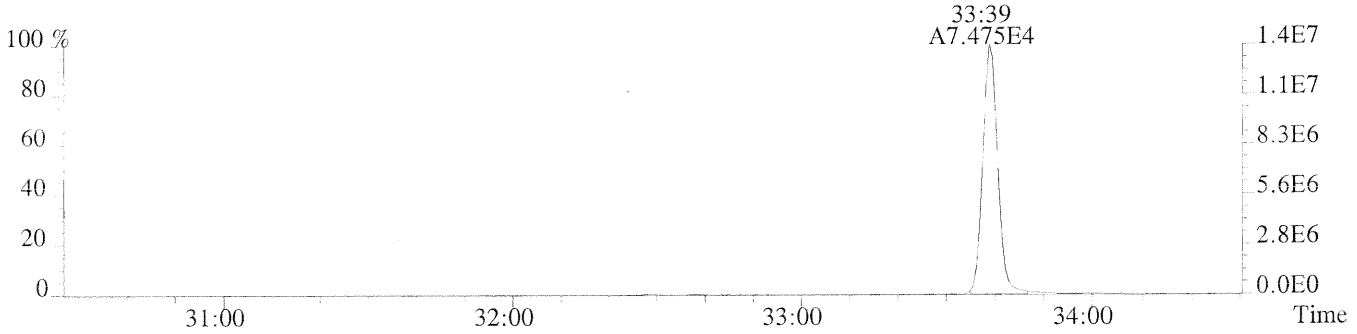
File:P227260 #1-369 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



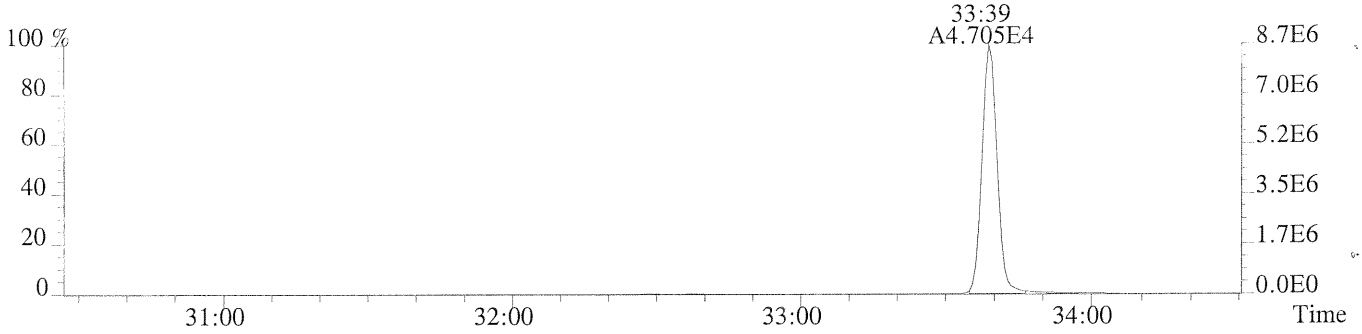
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



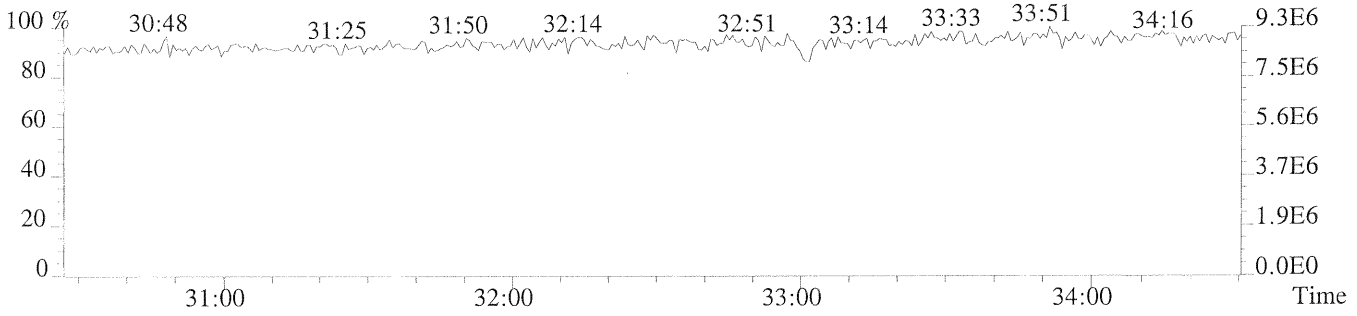
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)

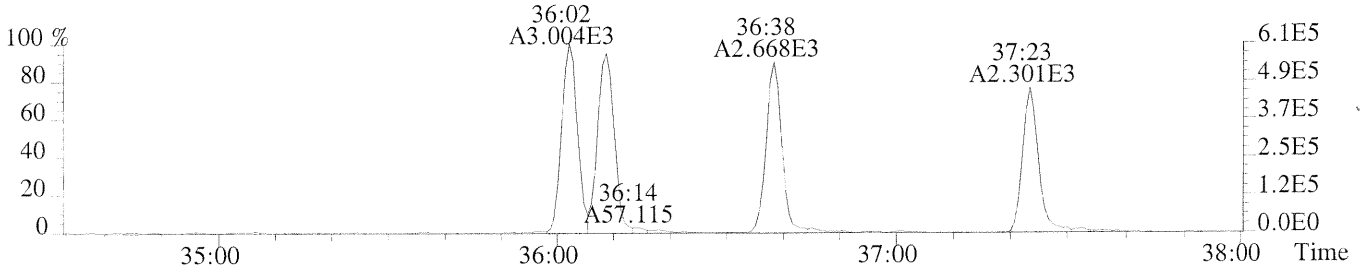


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

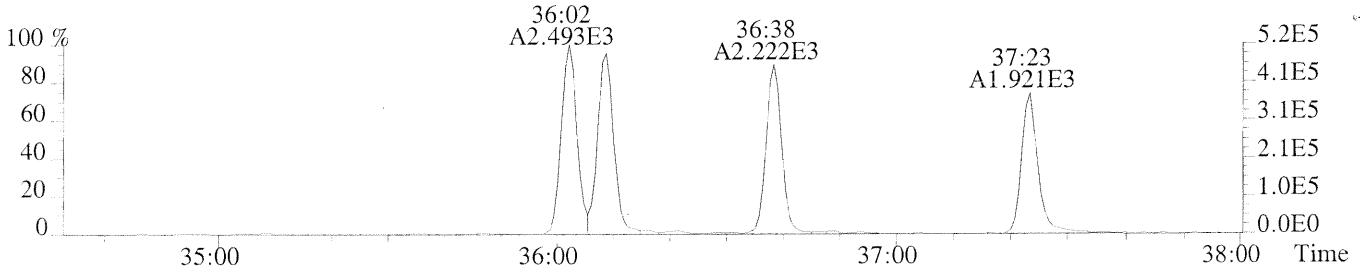


File:P227260 #1-315 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

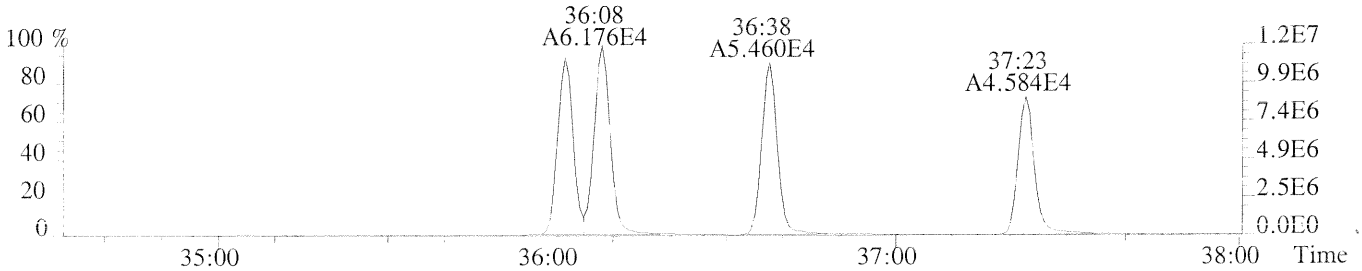
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



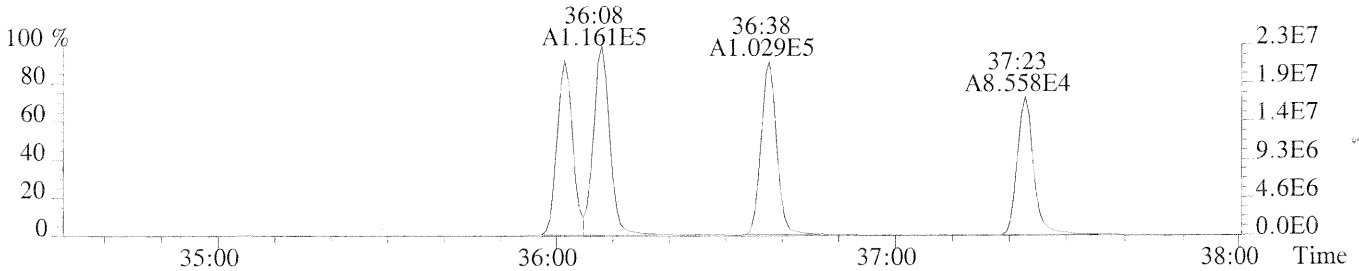
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,456.0,0.40%,F,T)



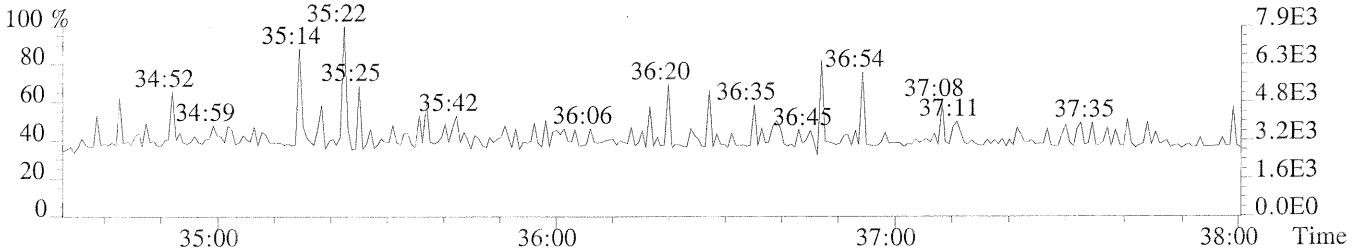
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



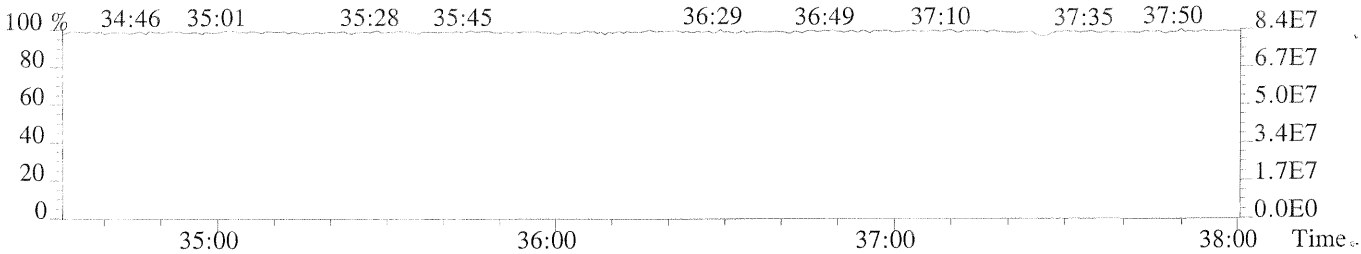
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

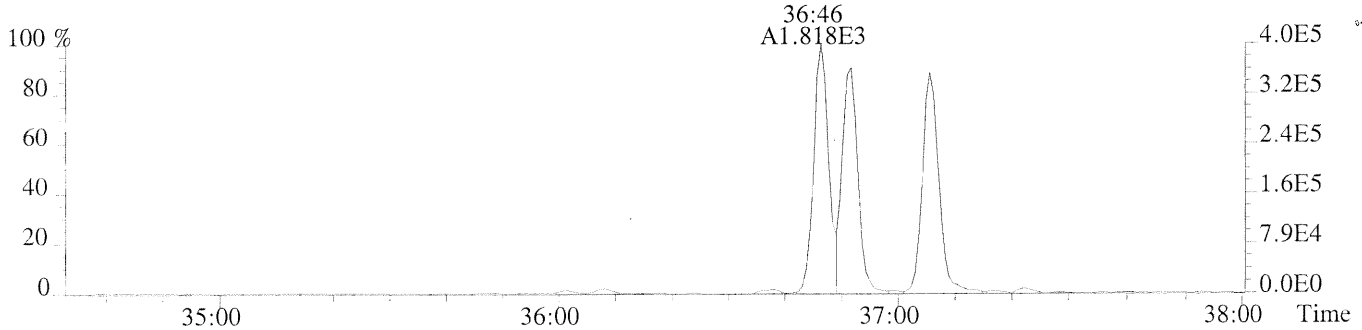


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

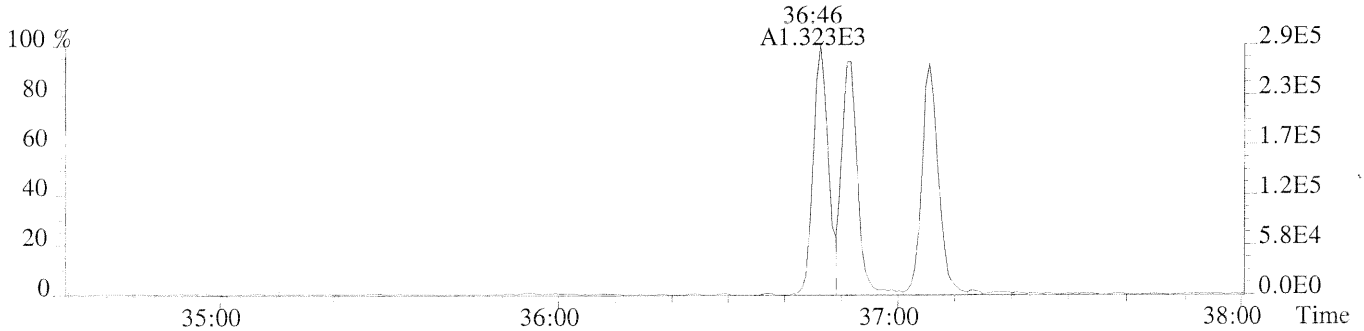


File:P227260 #1-315 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

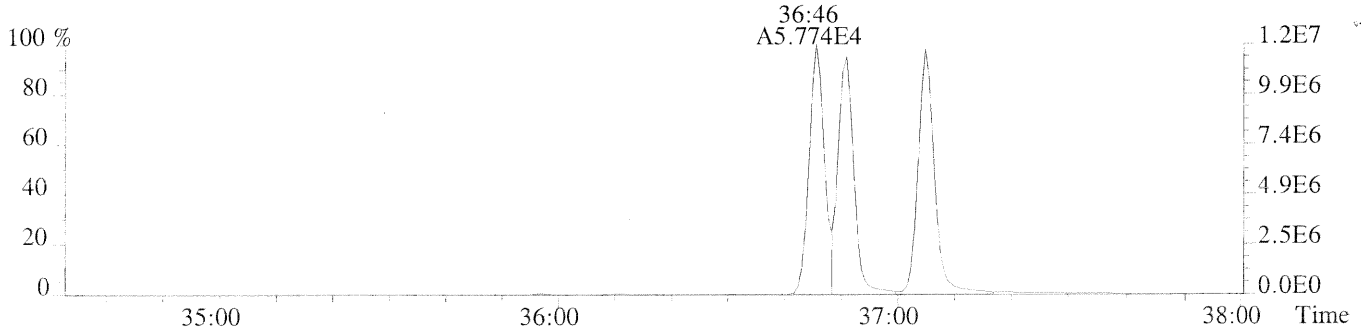
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,788.0,0.40%,F,T)



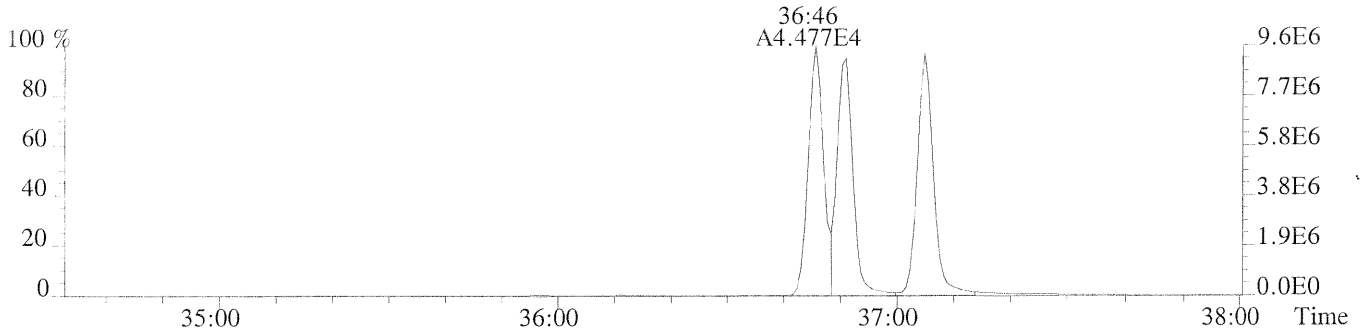
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,824.0,0.40%,F,T)



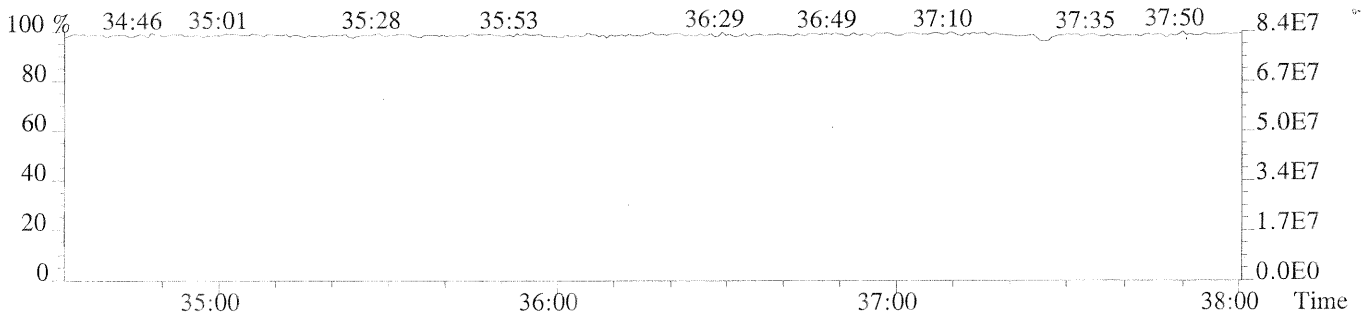
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)

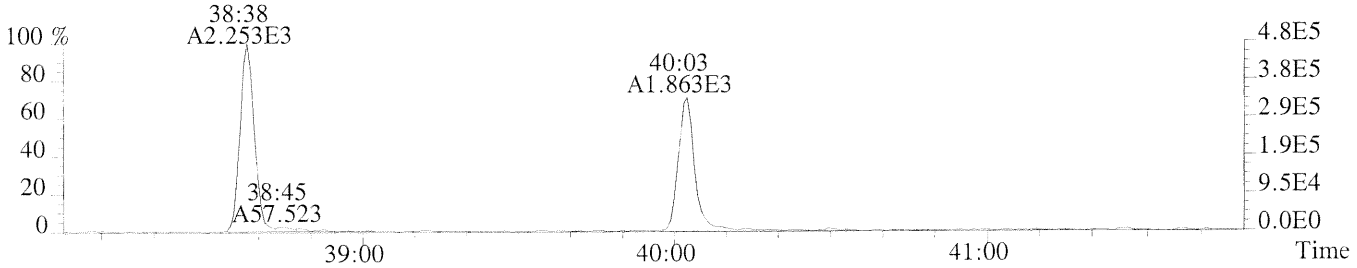


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

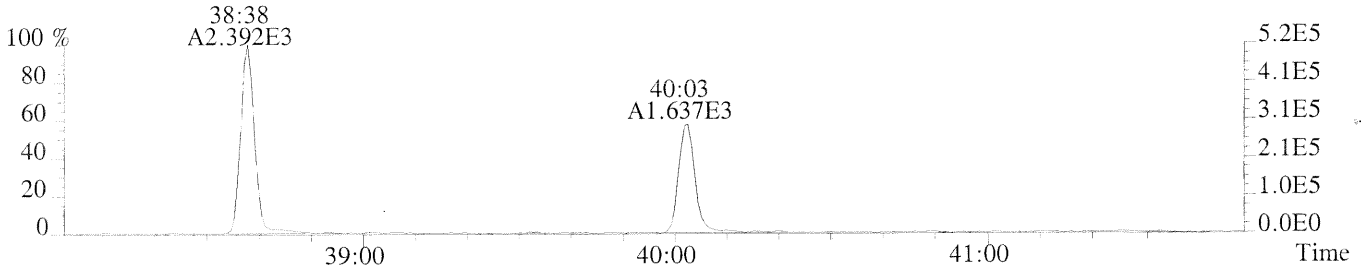


File:P227260 #1-342 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

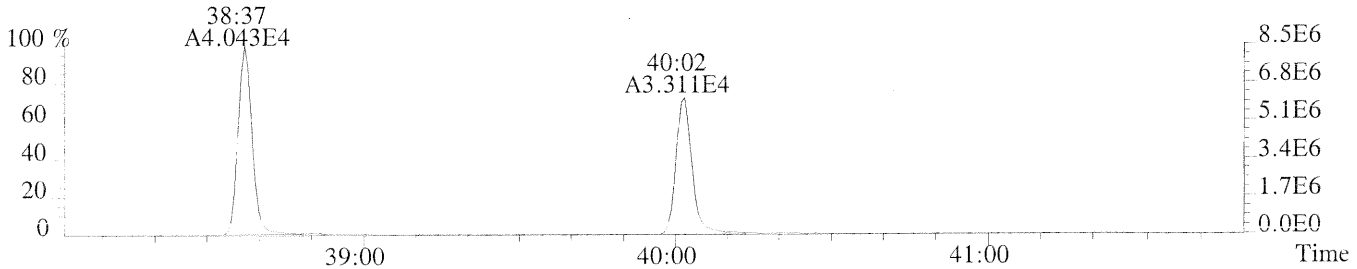
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.50%,F,T)



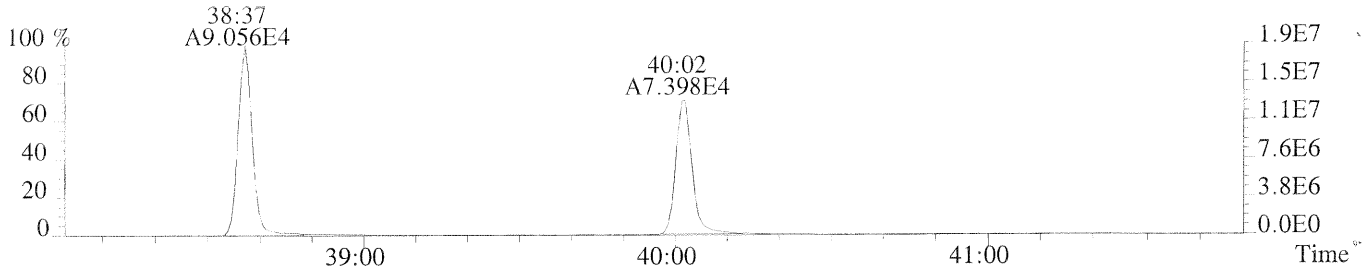
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1976.0,0.50%,F,T)



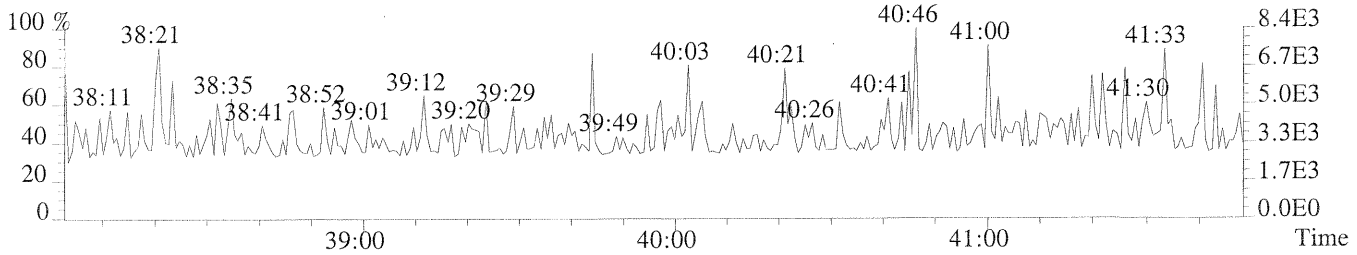
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2640.0,0.50%,F,T)



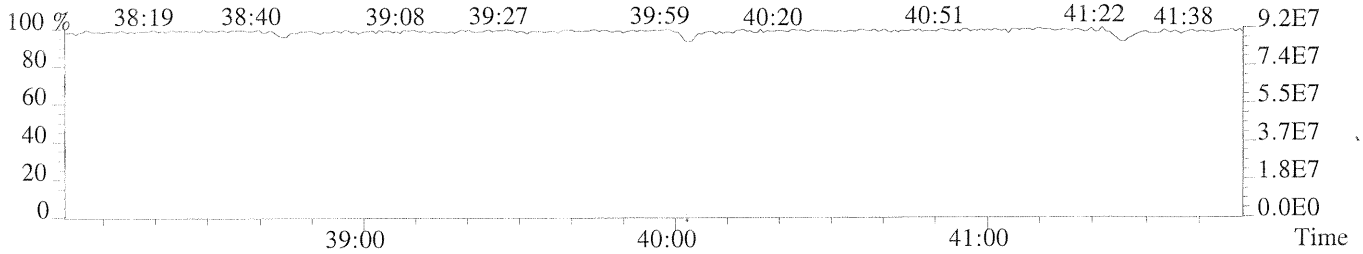
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,9860.0,0.50%,F,T)



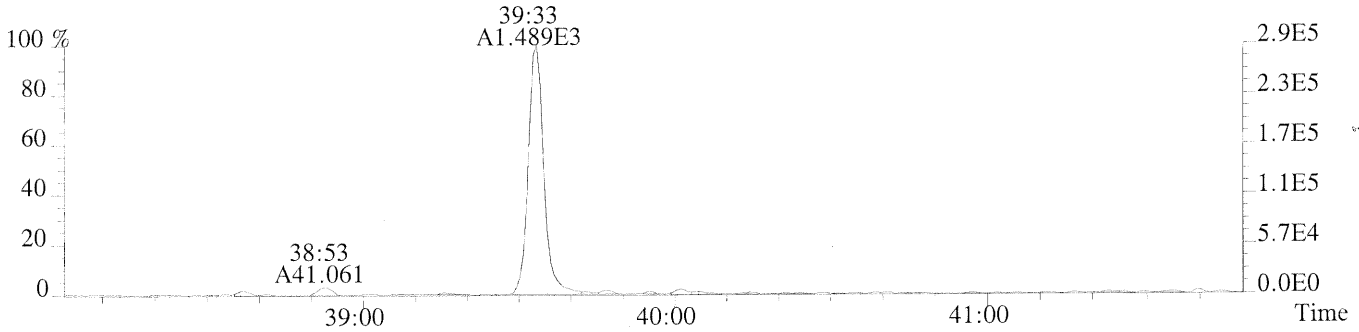
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



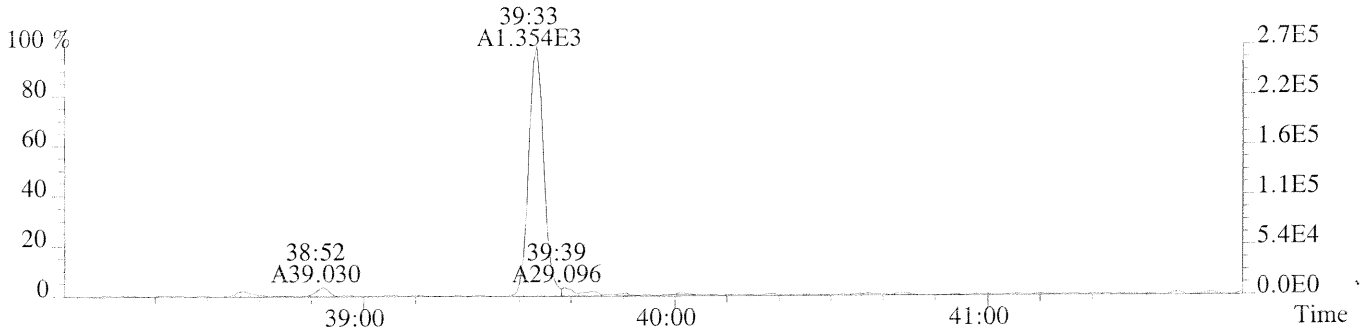
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



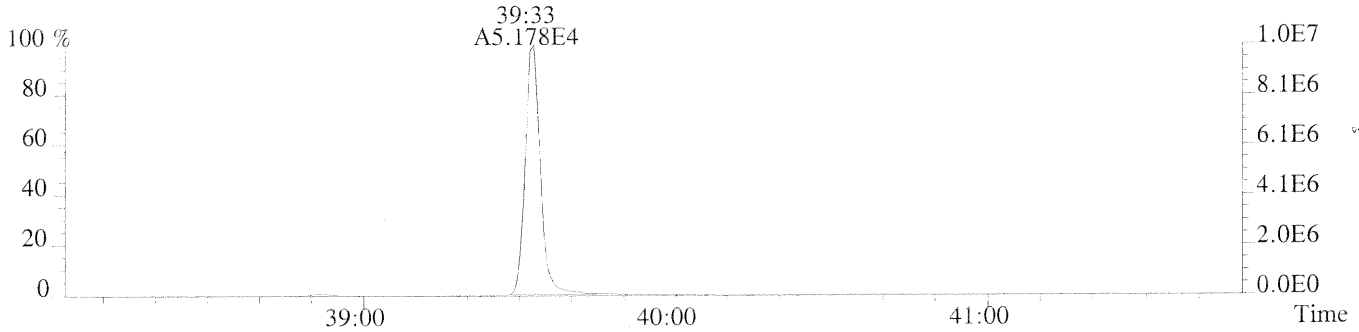
File:P227260 #1-342 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,496.0,0.40%,F,T)



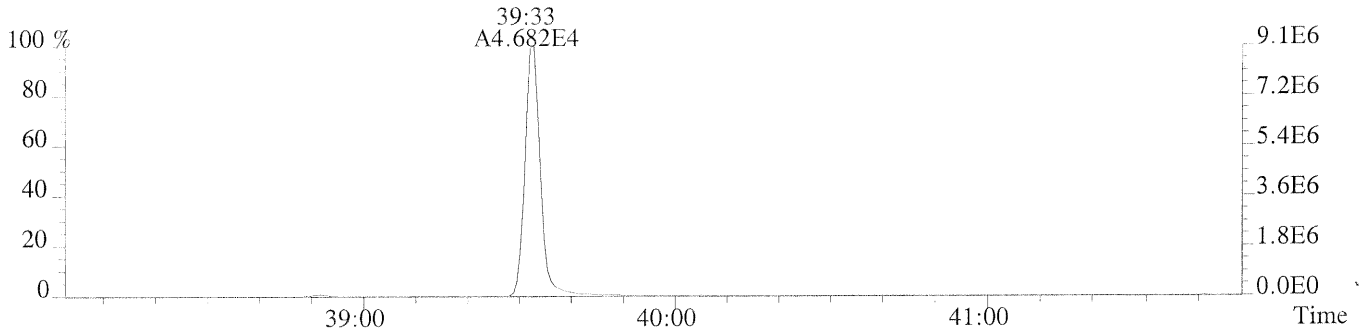
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,252.0,0.40%,F,T)



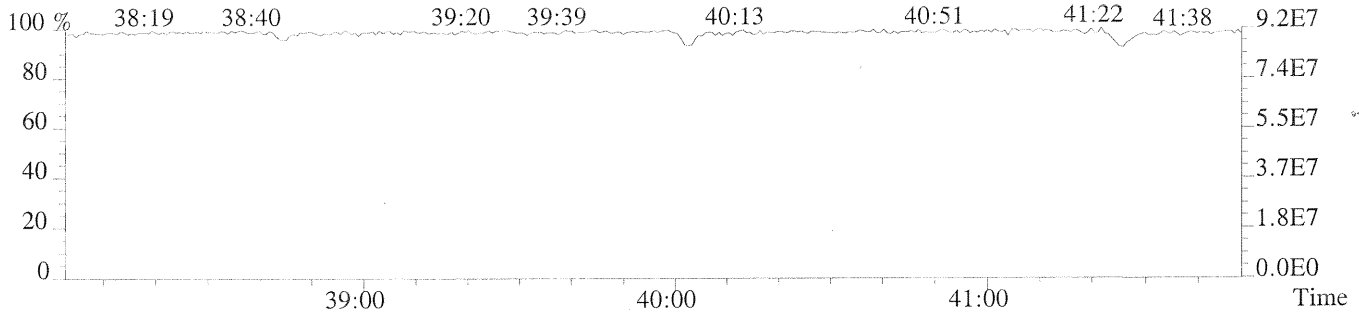
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.40%,F,T)



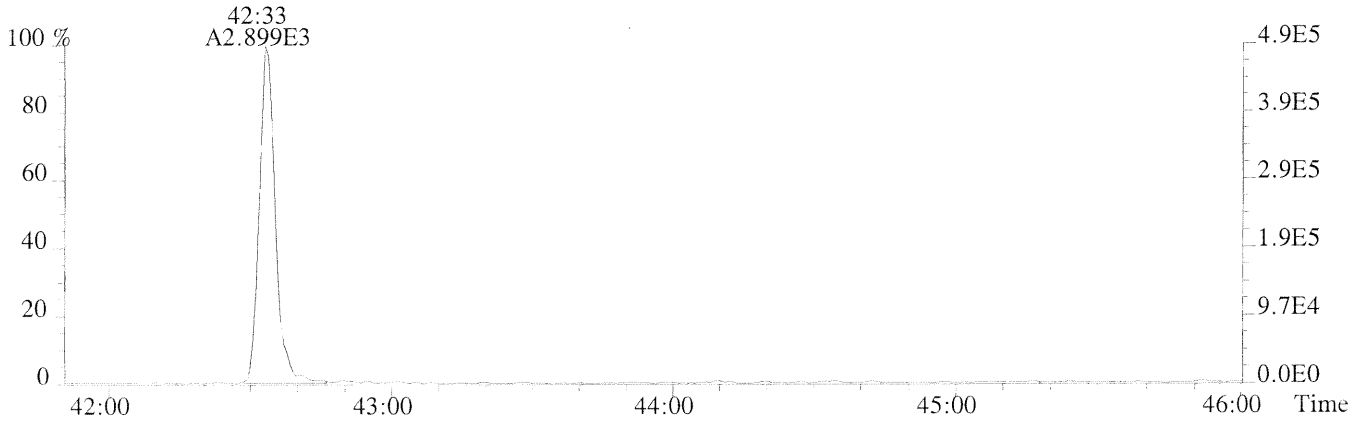
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



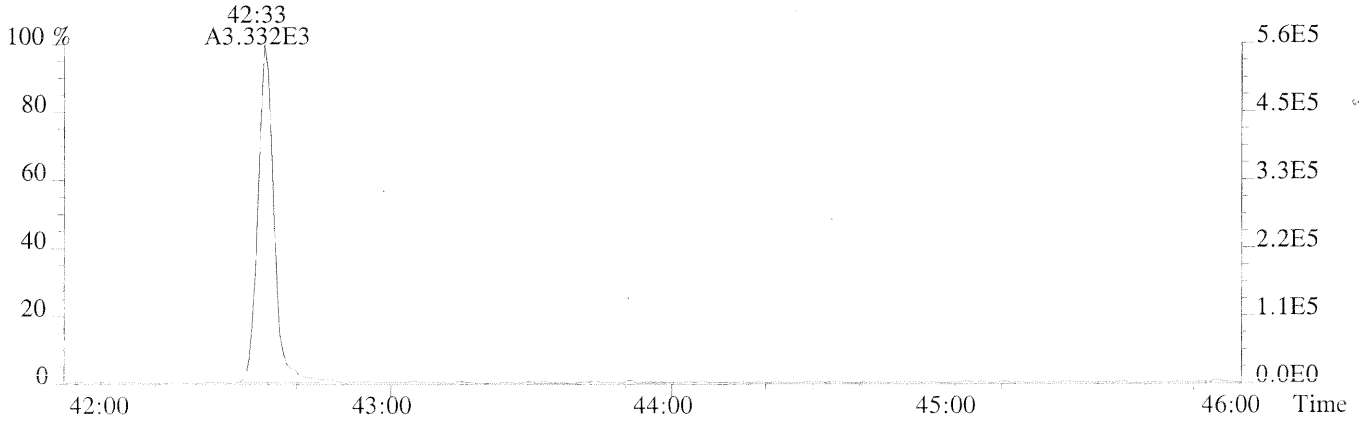
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



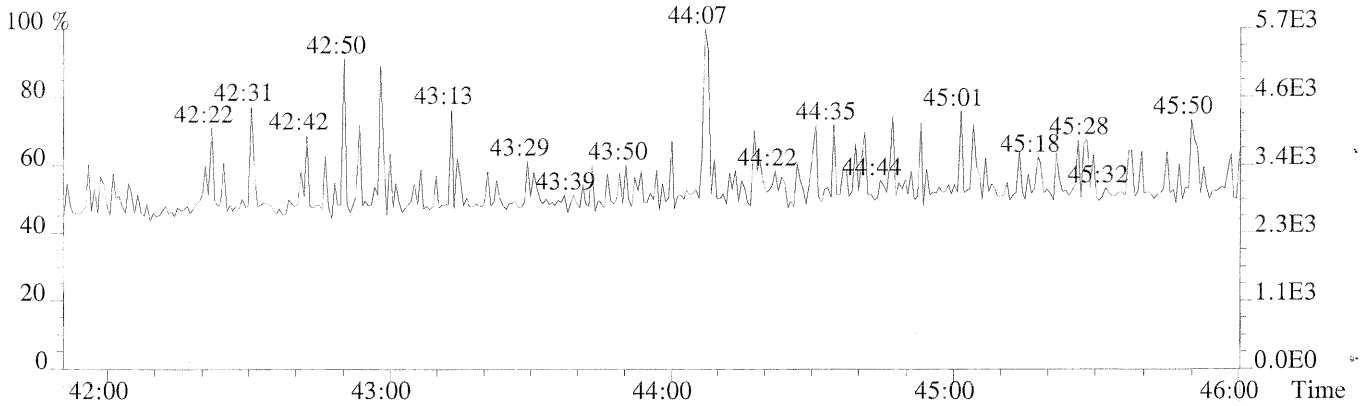
File:P227260 #1-383 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2212.0,0.40%,F,T)



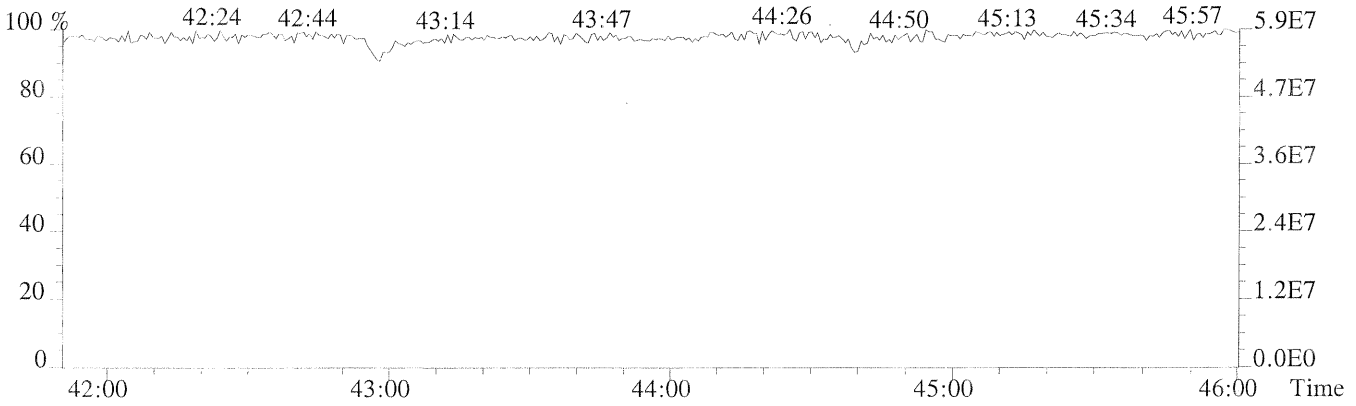
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2216.0,0.40%,F,T)



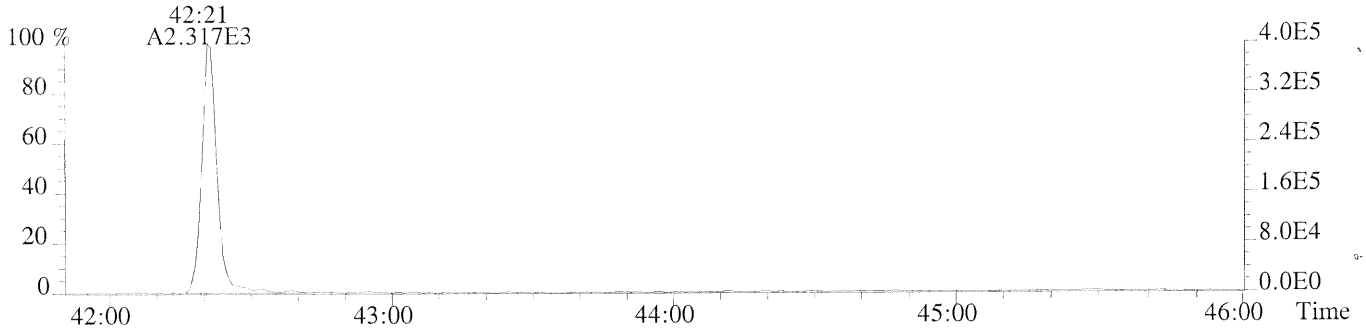
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



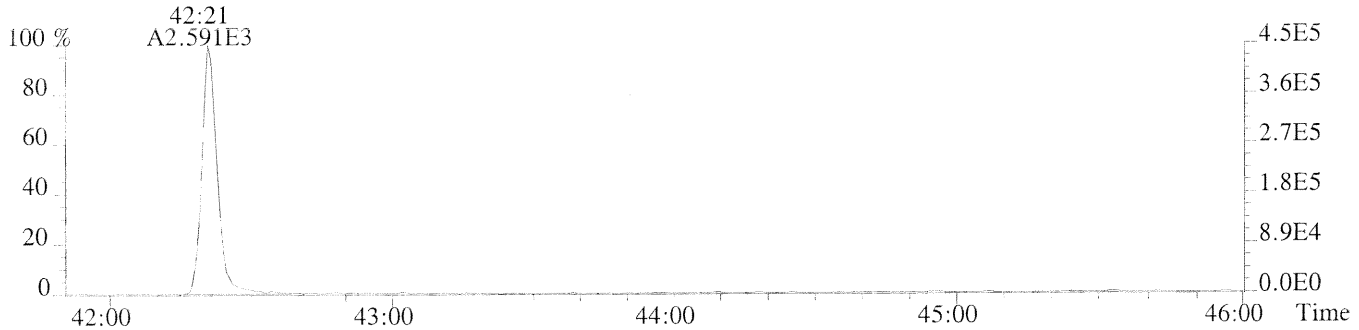
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



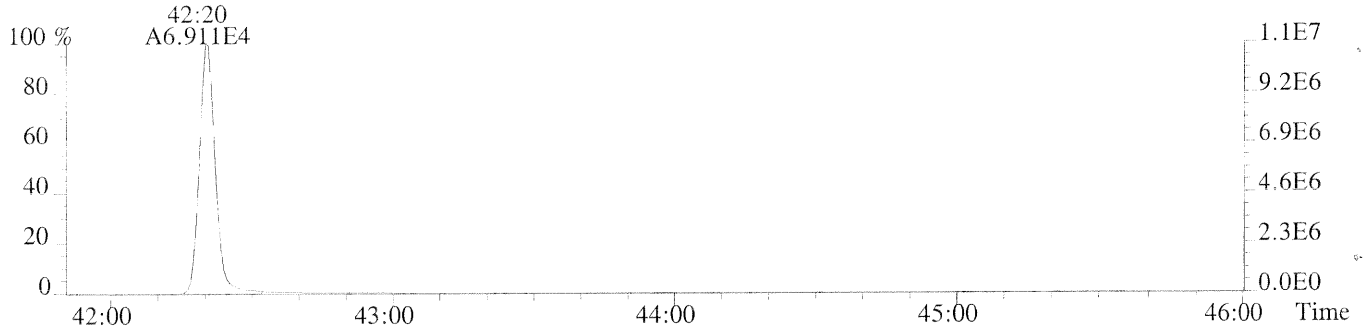
File:P227260 #1-383 Acq: 1-FEB-2014 17:48:05 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,864.0,0.40%,F,T)



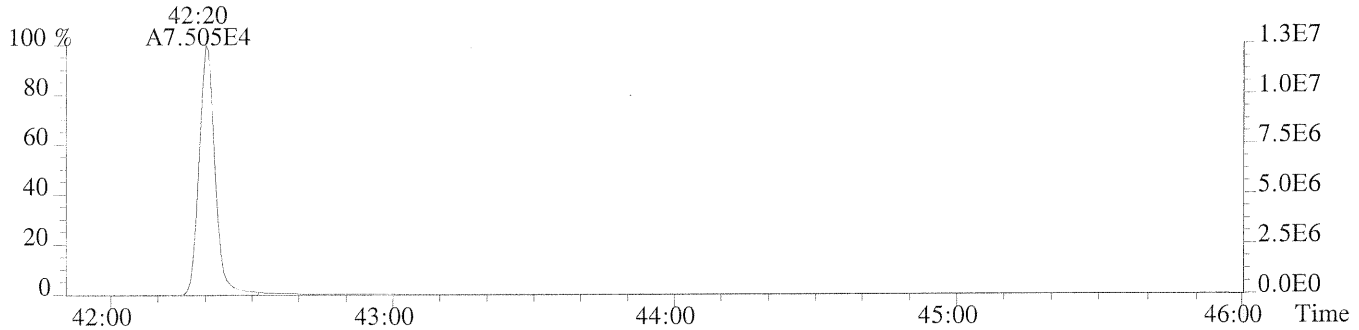
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1260.0,0.40%,F,T)



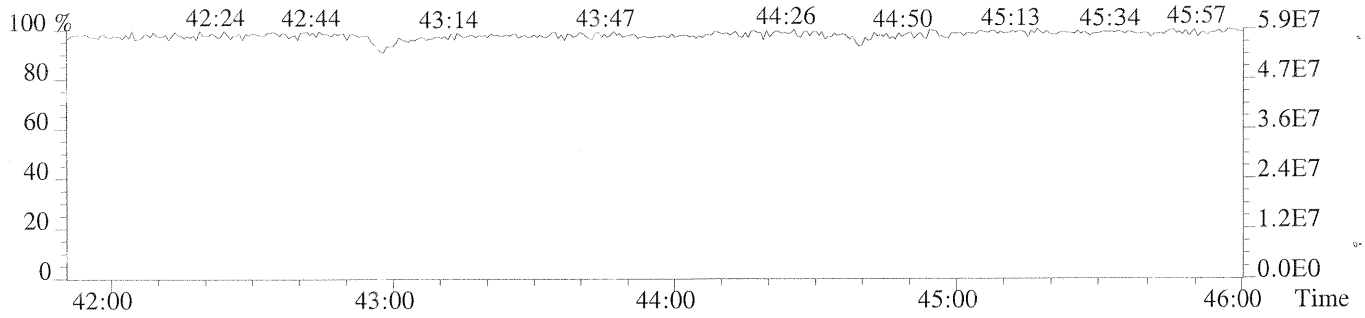
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5784.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5856.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC2/CS2

Run #3 Filename P227261 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 18:36:13
Processed: 4-FEB-14 15:25:54 LAB. ID: D12-90-3B

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:20	1.457e+03	1.924e+03	0.76	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	1.368e+04	8.856e+03	1.54	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:23	1.278e+04	8.055e+03	1.59	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.107e+04	9.150e+03	1.21	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.244e+04	9.899e+03	1.26	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	1.114e+04	9.023e+03	1.23	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	9.423e+03	7.812e+03	1.21	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	9.415e+03	9.086e+03	1.04	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:02	7.398e+03	7.724e+03	0.96	yes	no	1.000
10	Unk	OCDF	42:33	1.320e+04	1.673e+04	0.79	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:07	8.691e+02	1.159e+03	0.75	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:40	7.650e+03	4.873e+03	1.57	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	6.965e+03	5.405e+03	1.29	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	6.967e+03	5.440e+03	1.28	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	7.401e+03	5.834e+03	1.27	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	6.330e+03	5.822e+03	1.09	yes	no	1.000
17	Unk	OCDD	42:21	1.048e+04	1.133e+04	0.93	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:19	6.998e+04	8.573e+04	0.82	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:28	1.271e+05	7.723e+04	1.65	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.217e+05	7.456e+04	1.63	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	5.492e+04	1.015e+05	0.54	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	6.357e+04	1.190e+05	0.53	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	5.609e+04	1.049e+05	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	4.821e+04	9.221e+04	0.52	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	4.136e+04	9.106e+04	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:01	3.574e+04	7.947e+04	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:05	4.489e+04	5.750e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:39	7.318e+04	4.657e+04	1.57	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	5.940e+04	4.600e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	6.130e+04	4.683e+04	1.31	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:32	5.515e+04	4.999e+04	1.10	yes	no	1.066
32	IS	13C-OCDD	42:20	8.090e+04	8.637e+04	0.94	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:32	4.968e+04	6.330e+04	0.78	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	6.457e+04	4.857e+04	1.33	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:06	2.016e+03				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC2/CS2

Run #3 Filename P227261 Samp: 1 Inj: 1 Acquired: 1-FEB-14 18:36:13
Processed: 4-FEB-14 15:25:541 LAB. ID: D12-90-3B

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.84e+05	7.52e+02	3.8e+02	3.87e+05	2.98e+03	1.3e+02
2	1,2,3,7,8-PeCDF	2.45e+06	6.20e+02	4.0e+03	1.55e+06	3.08e+03	5.0e+02
3	2,3,4,7,8-PeCDF	2.41e+06	6.20e+02	3.9e+03	1.53e+06	3.08e+03	5.0e+02
4	1,2,3,4,7,8-HxCDF	2.32e+06	1.32e+03	1.8e+03	1.96e+06	5.68e+02	3.5e+03
5	1,2,3,6,7,8-HxCDF	2.52e+06	1.32e+03	1.9e+03	1.96e+06	5.68e+02	3.4e+03
6	2,3,4,6,7,8-HxCDF	2.31e+06	1.32e+03	1.7e+03	1.80e+06	5.68e+02	3.2e+03
7	1,2,3,7,8,9-HxCDF	1.86e+06	1.32e+03	1.4e+03	1.48e+06	5.68e+02	2.6e+03
8	1,2,3,4,6,7,8-HpCDF	1.97e+06	1.45e+03	1.4e+03	1.87e+06	3.36e+03	5.6e+02
9	1,2,3,4,7,8,9-HpCDF	1.40e+06	1.45e+03	9.6e+02	1.46e+06	3.36e+03	4.3e+02
10	OCDF	2.19e+06	1.75e+03	1.3e+03	3.02e+06	2.56e+03	1.2e+03
11	2,3,7,8-TCDD	1.78e+05	1.13e+03	1.6e+02	2.17e+05	6.84e+02	3.2e+02
12	1,2,3,7,8-PeCDD	1.40e+06	1.90e+03	7.4e+02	9.17e+05	4.56e+02	2.0e+03
13	1,2,3,4,7,8-HxCDD	1.51e+06	7.32e+02	2.1e+03	1.17e+06	1.00e+03	1.2e+03
14	1,2,3,6,7,8-HxCDD	1.41e+06	7.32e+02	1.9e+03	1.09e+06	1.00e+03	1.1e+03
15	1,2,3,7,8,9-HxCDD	1.47e+06	7.32e+02	2.0e+03	1.17e+06	1.00e+03	1.2e+03
16	1,2,3,4,6,7,8-HpCDD	1.24e+06	7.32e+02	1.7e+03	1.15e+06	7.56e+02	1.5e+03
17	OCDD	1.75e+06	6.08e+02	2.9e+03	1.89e+06	3.39e+03	5.6e+02
18	13C-2,3,7,8-TCDF	1.36e+07	1.64e+03	8.3e+03	1.66e+07	1.52e+03	1.1e+04
19	13C-1,2,3,7,8-PeCDF	2.21e+07	6.04e+02	3.7e+04	1.35e+07	6.80e+02	2.0e+04
20	13C-2,3,4,7,8-PeCDF	2.28e+07	6.04e+02	3.8e+04	1.40e+07	6.80e+02	2.1e+04
21	13C-1,2,3,4,7,8-HxCDF	1.16e+07	5.00e+02	2.3e+04	2.13e+07	1.73e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	1.27e+07	5.00e+02	2.5e+04	2.38e+07	1.73e+03	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	1.15e+07	5.00e+02	2.3e+04	2.16e+07	1.73e+03	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	9.53e+06	5.00e+02	1.9e+04	1.77e+07	1.73e+03	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	8.52e+06	4.71e+03	1.8e+03	1.87e+07	4.04e+03	4.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.54e+06	4.71e+03	1.4e+03	1.48e+07	4.04e+03	3.7e+03
27	13C-2,3,7,8-TCDD	9.06e+06	7.82e+03	1.2e+03	1.17e+07	3.73e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	1.35e+07	1.05e+03	1.3e+04	8.68e+06	8.28e+02	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	1.26e+07	2.56e+03	4.9e+03	9.75e+06	1.53e+03	6.4e+03
30	13C-1,2,3,6,7,8-HxCDD	1.22e+07	2.56e+03	4.8e+03	9.26e+06	1.53e+03	6.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.06e+07	1.32e+03	8.1e+03	9.63e+06	4.80e+02	2.0e+04
32	13C-OCDD	1.36e+07	3.70e+03	3.7e+03	1.45e+07	4.66e+03	3.1e+03
33	13C-1,2,3,4-TCDD	1.01e+07	7.82e+03	1.3e+03	1.28e+07	3.73e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.27e+07	2.56e+03	4.9e+03	9.89e+06	1.53e+03	6.5e+03
35	37Cl-2,3,7,8-TCDD	4.00e+05	2.34e+03	1.7e+02			

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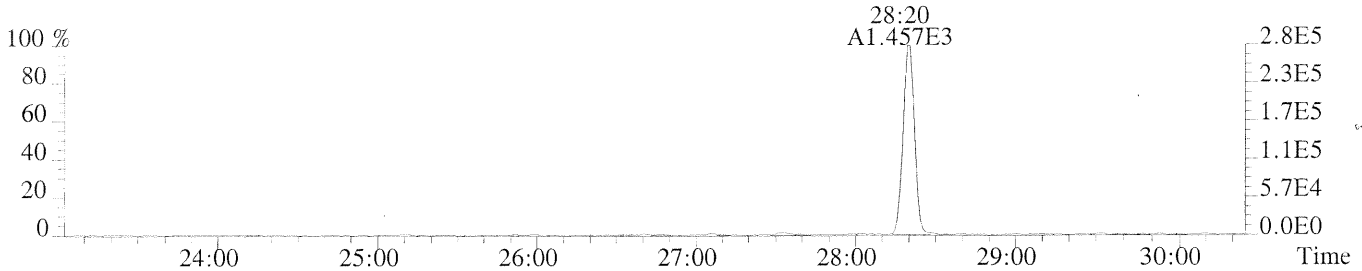
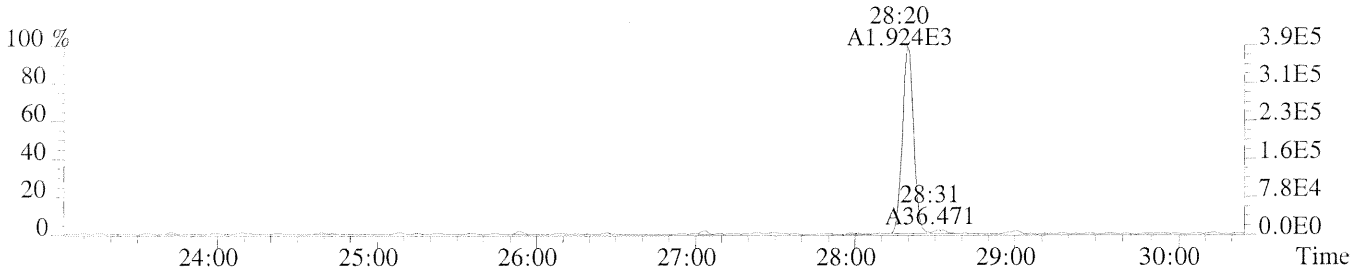
XLSN

File:P227261 #1-464 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

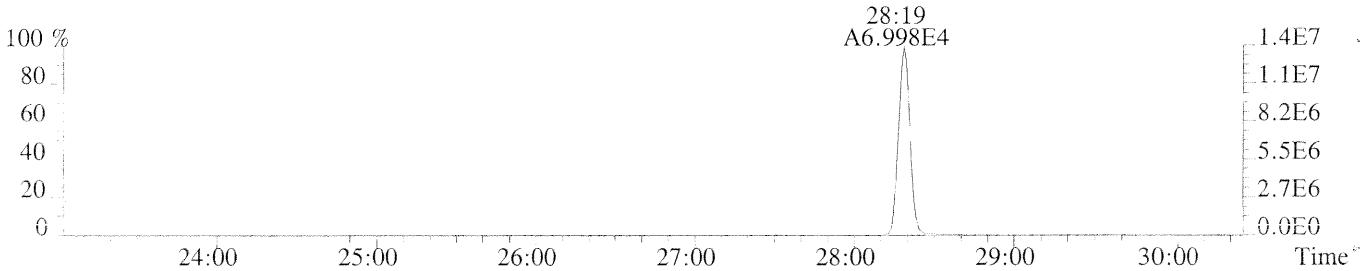
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



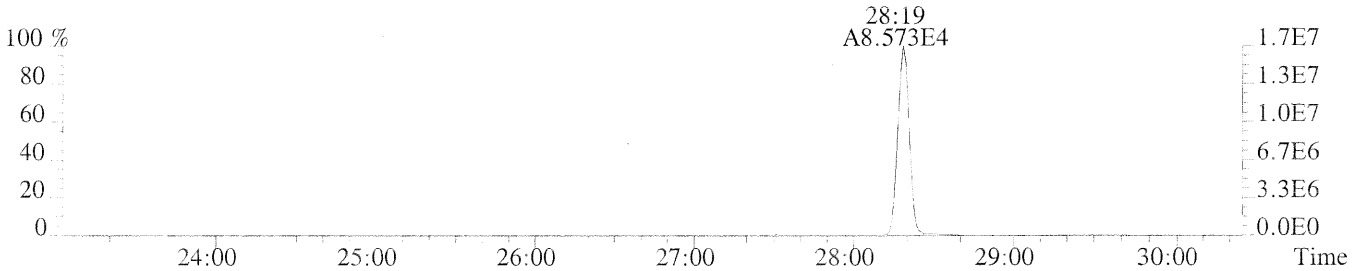
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2984.0,1.00%,F,T)



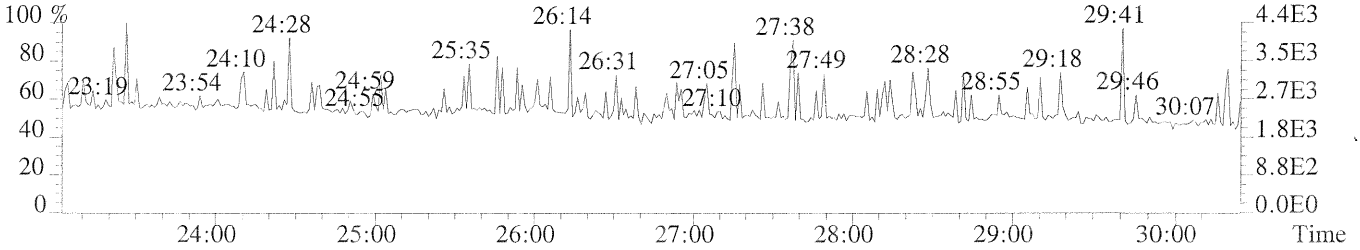
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1636.0,1.00%,F,T)



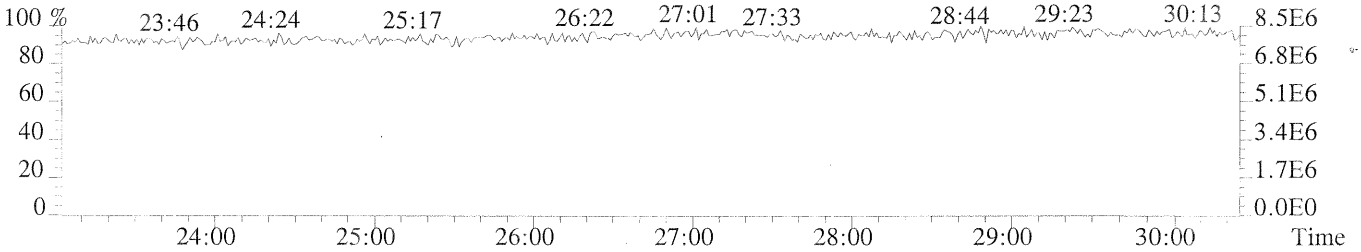
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1524.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

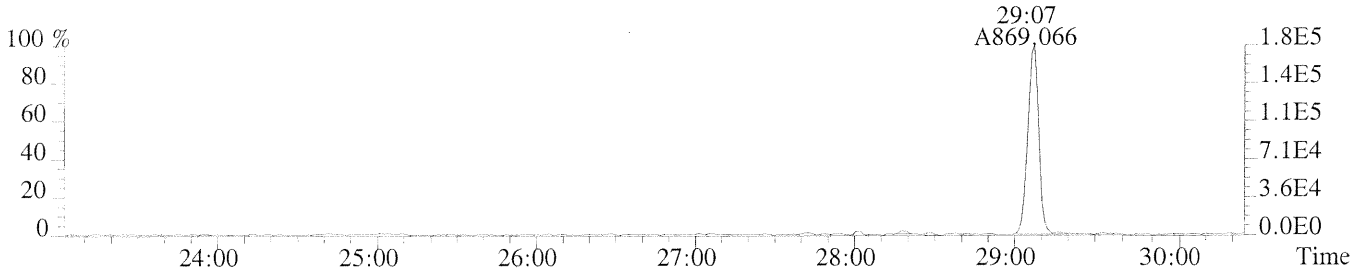


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

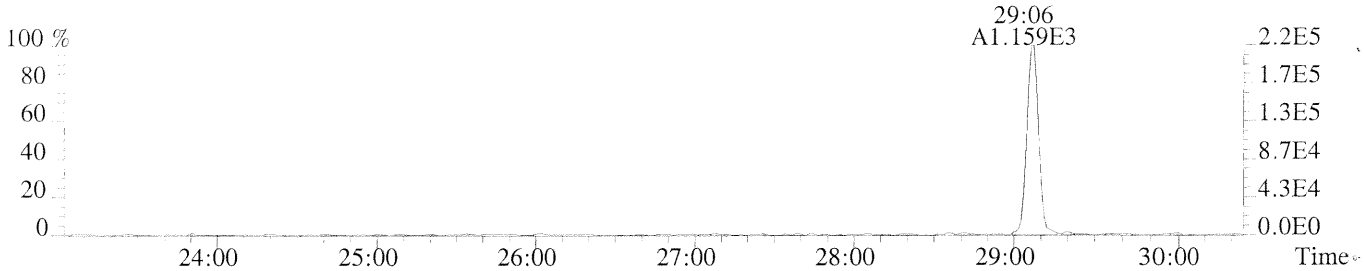


File:P227261 #1-464 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

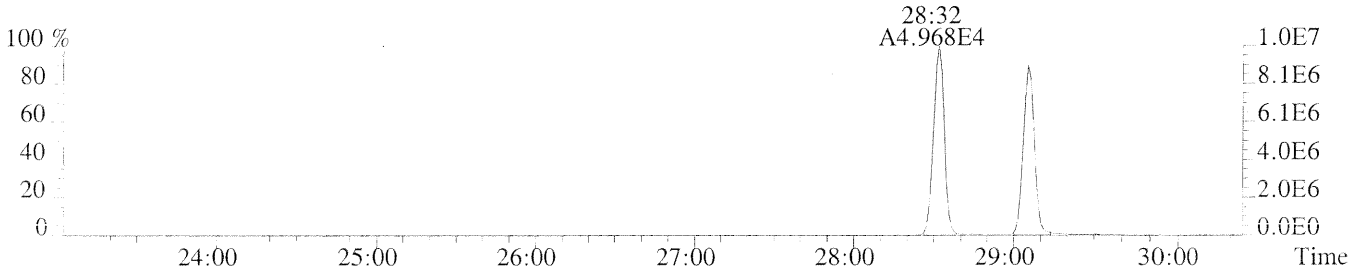
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1132.0,1.00%,F,T)



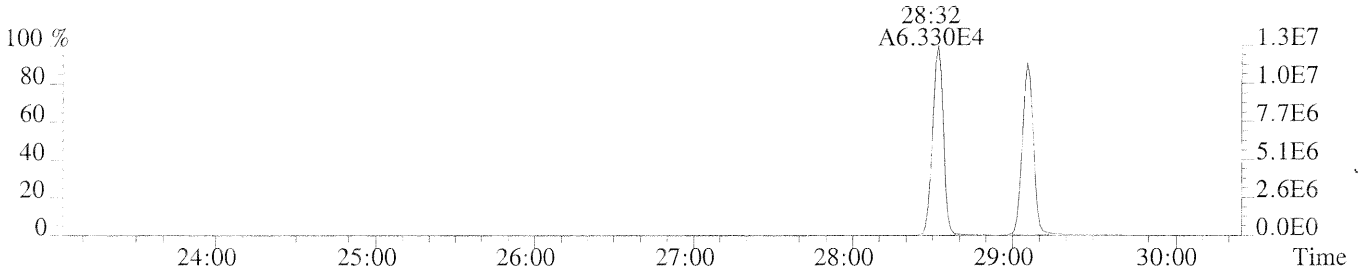
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



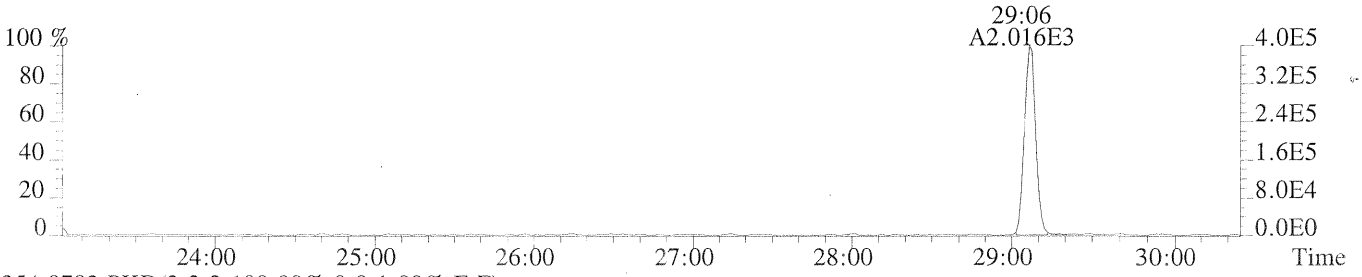
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7820.0,1.00%,F,T)



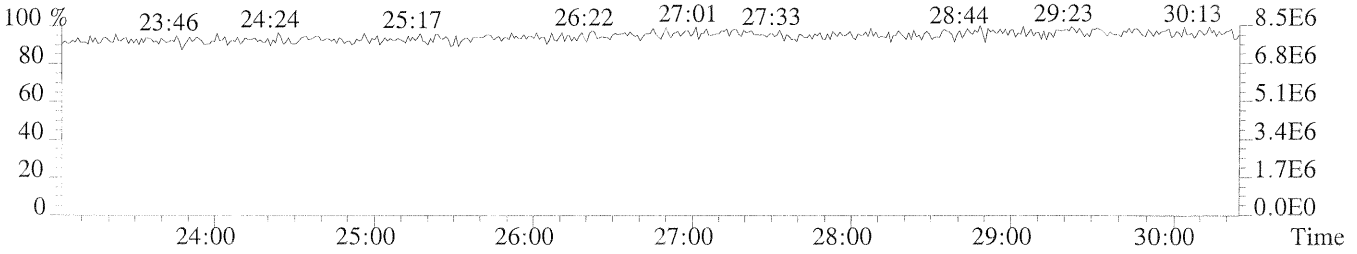
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3728.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2336.0,1.00%,F,T)

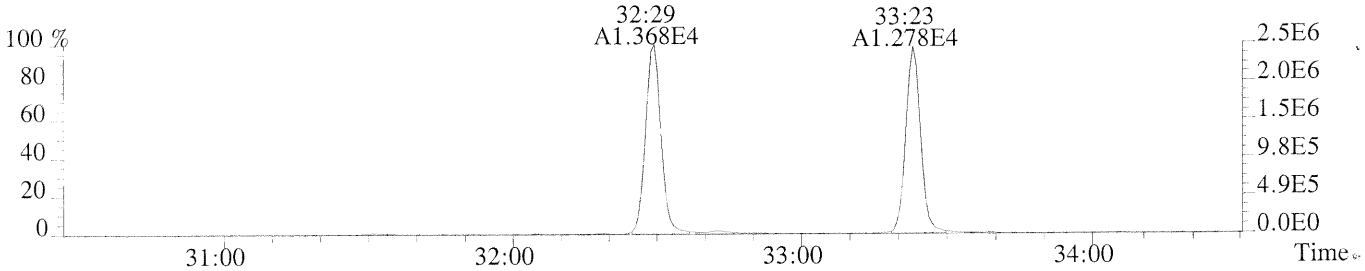


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

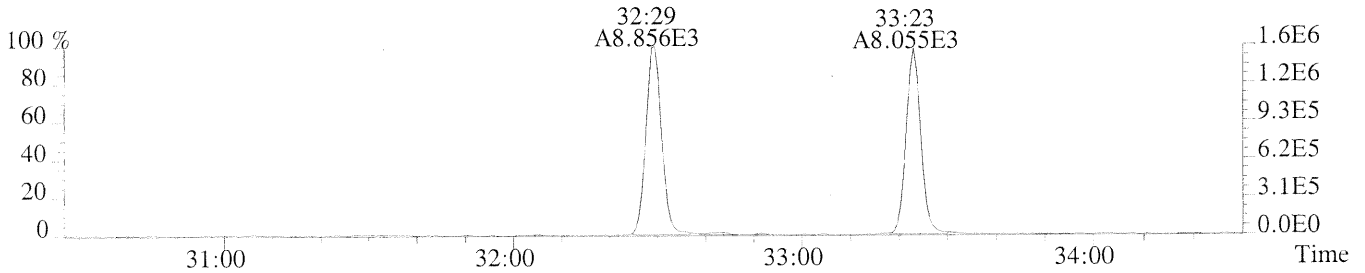


File:P227261 #1-369 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

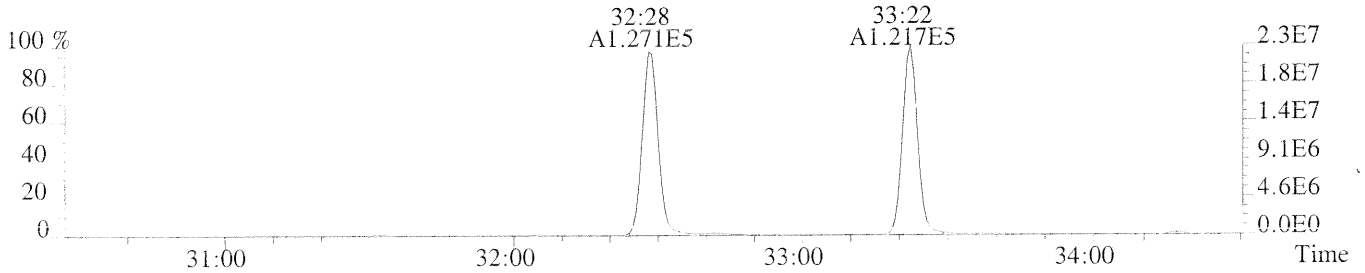
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



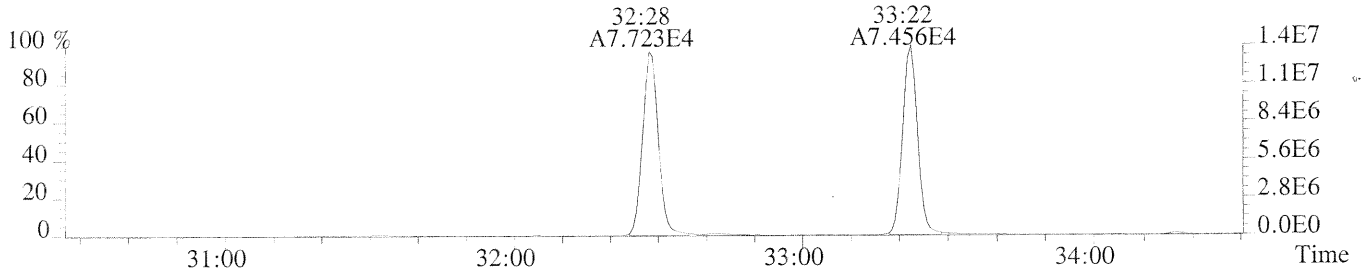
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3080.0,1.00%,F,T)



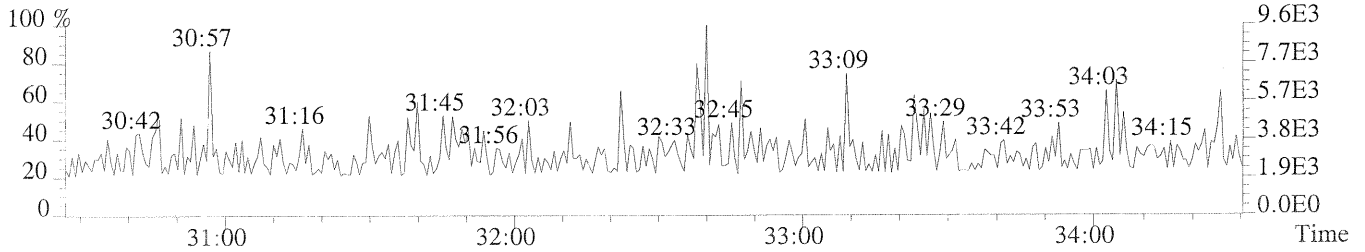
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



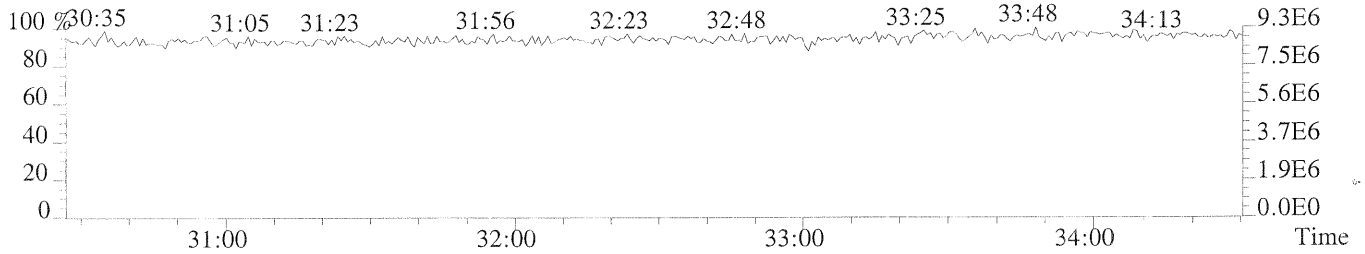
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



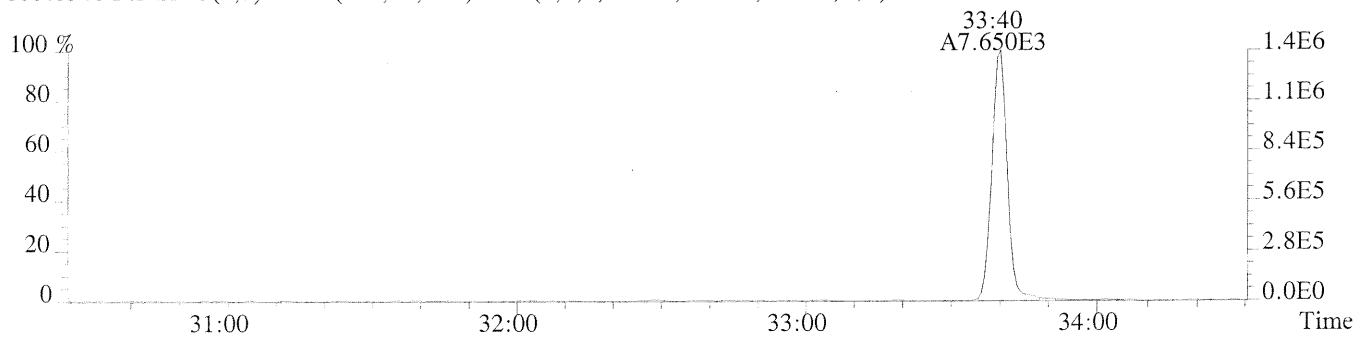
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



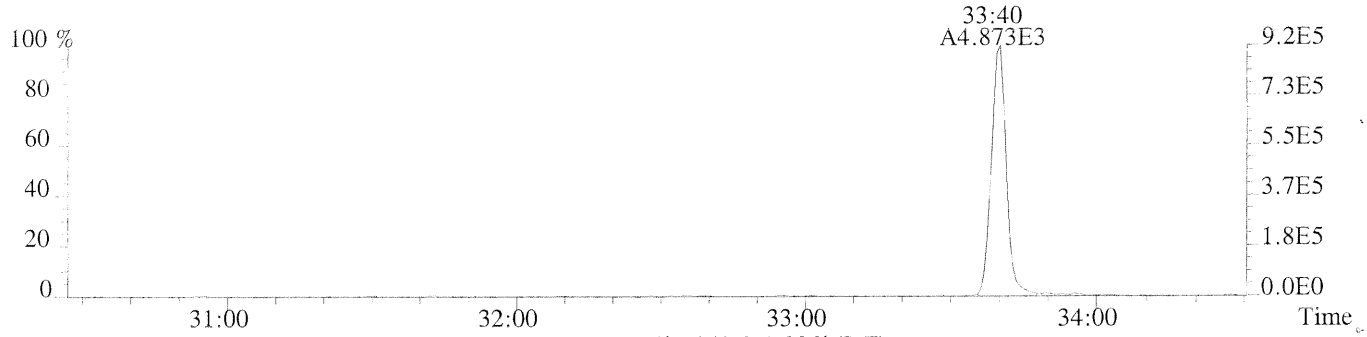
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



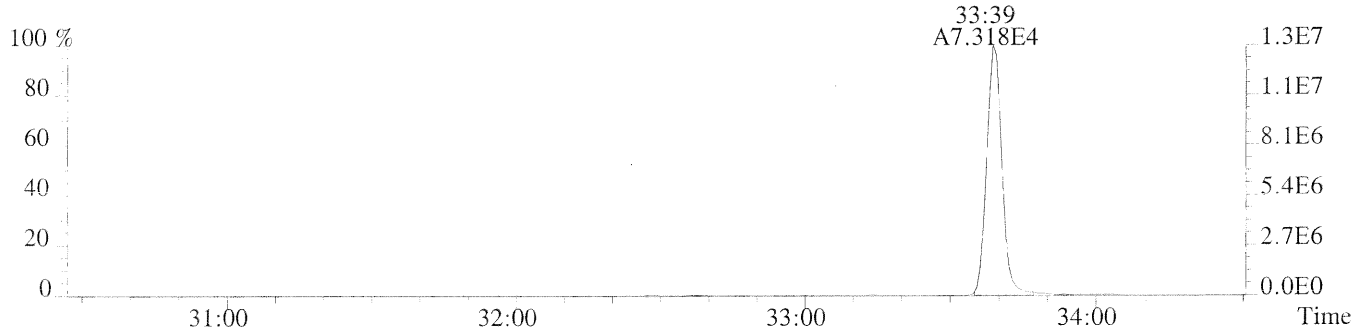
File:P227261 #1-369 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1896.0,1.00%,F,T)



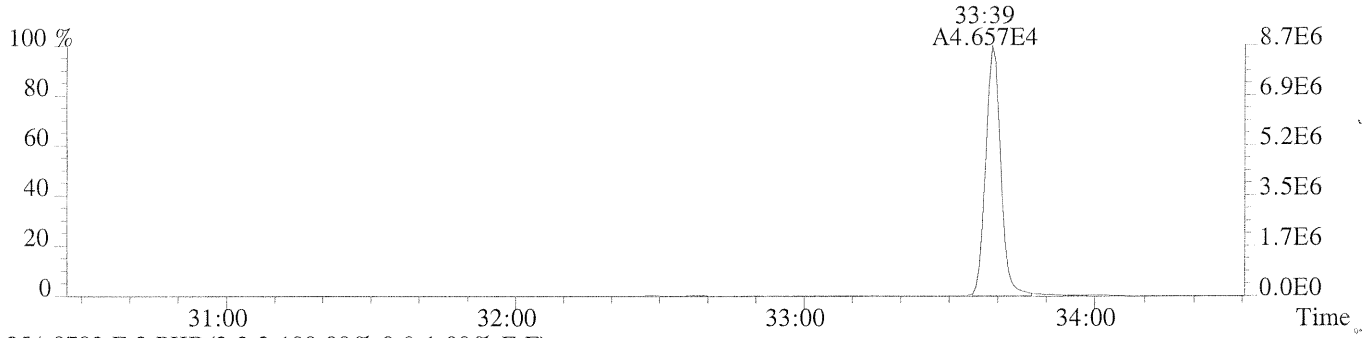
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



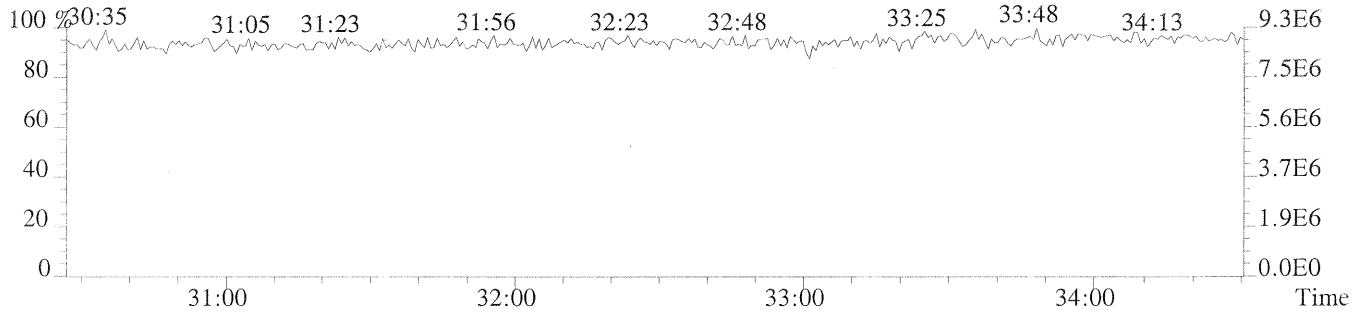
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)

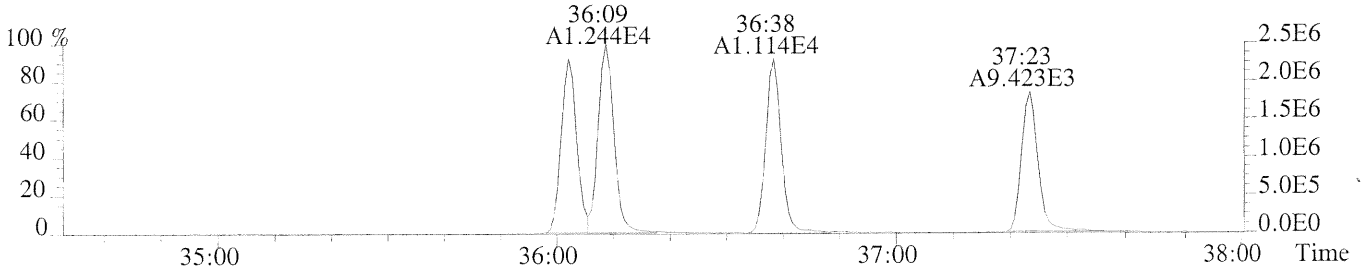


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

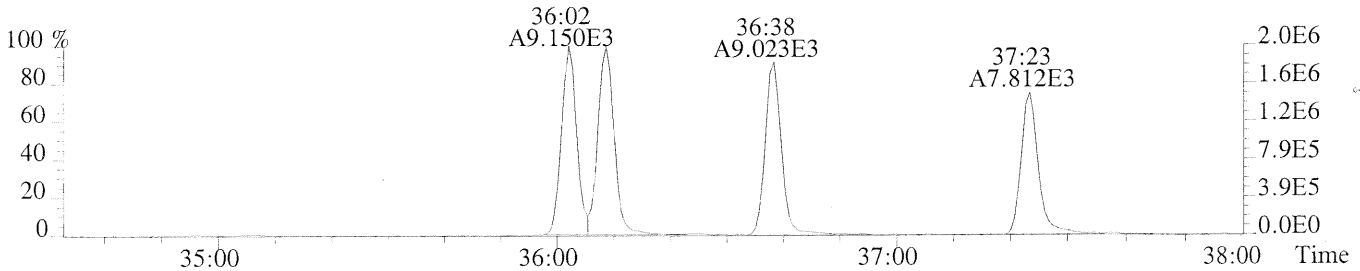


File:P227261 #1-315 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

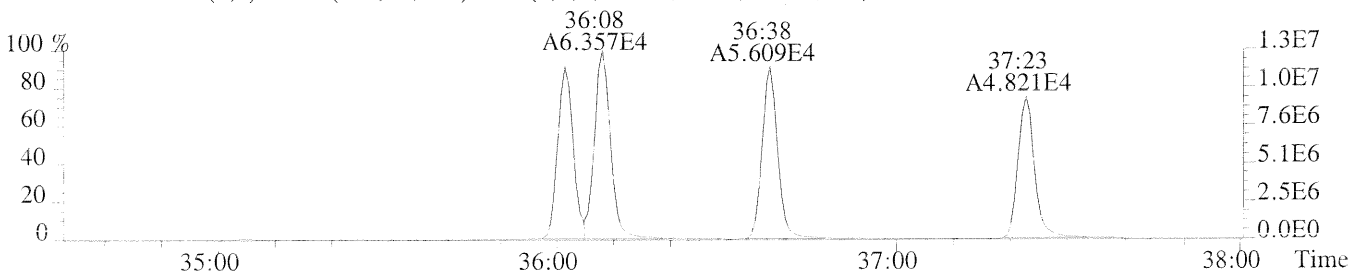
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



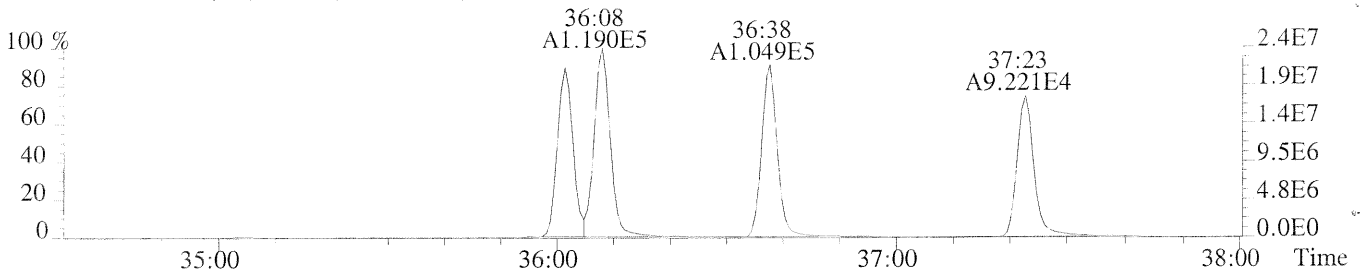
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



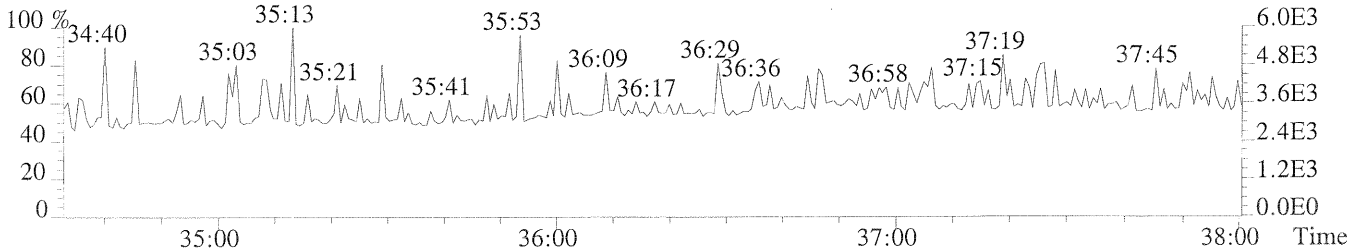
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,500.0,0.40%,F,T)



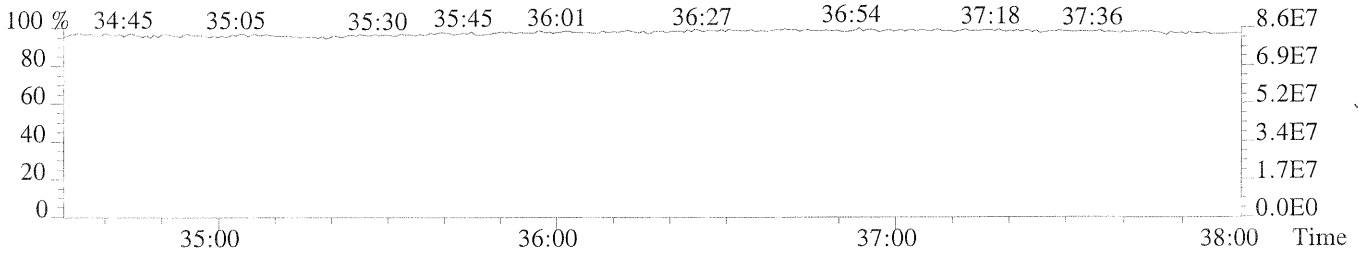
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1728.0,0.40%,F,T)



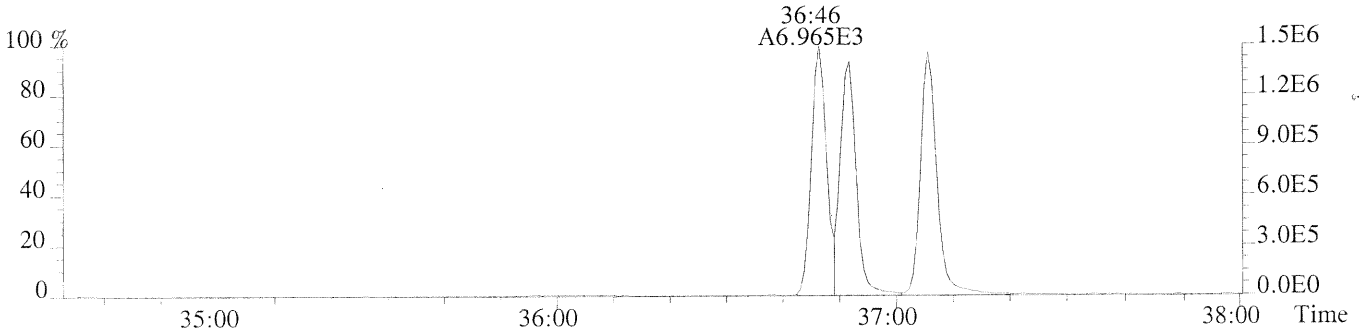
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



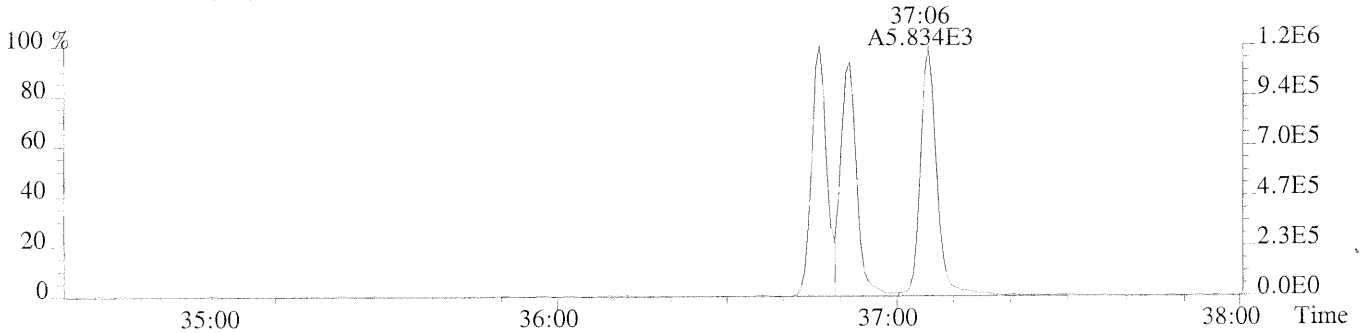
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



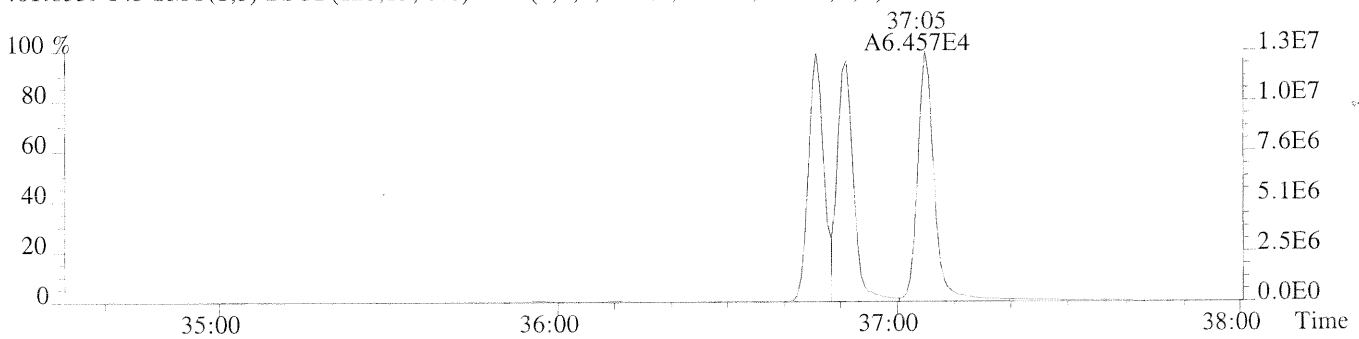
File:P227261 #1-315 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



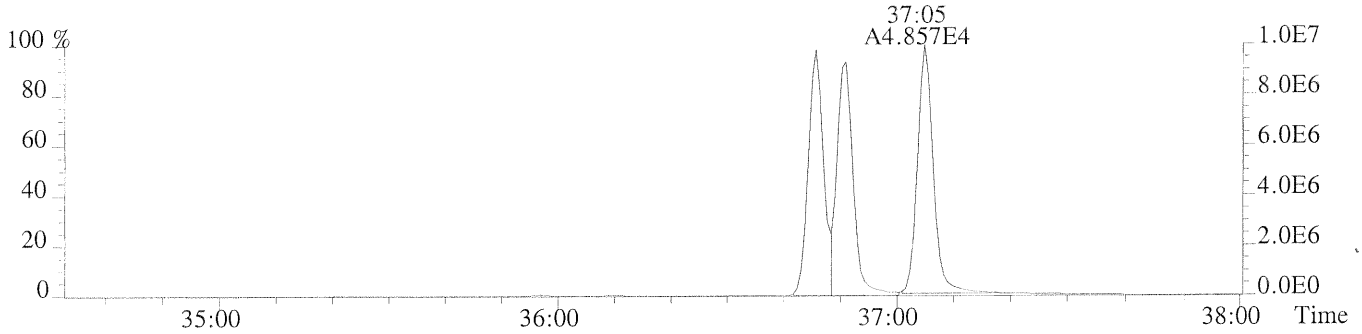
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.40%,F,T)



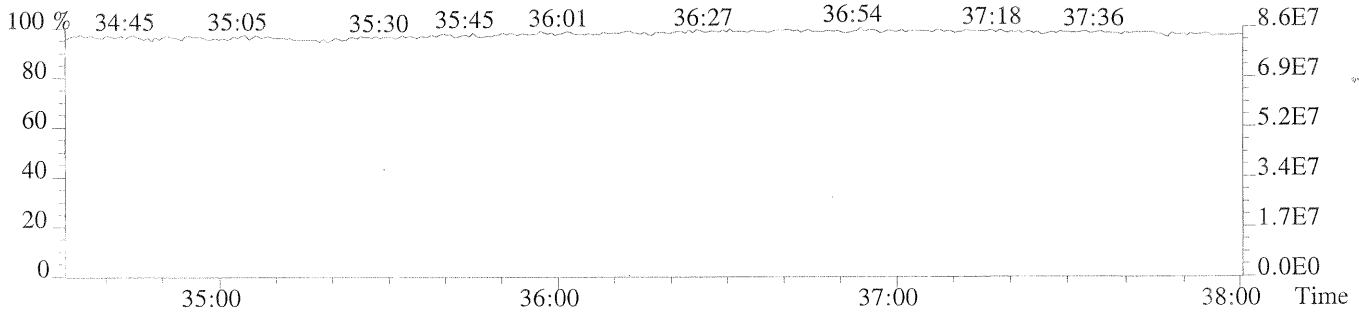
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2564.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)

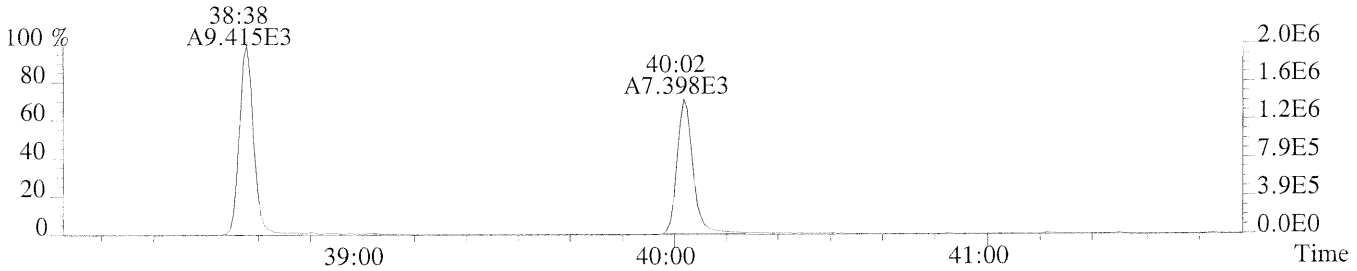


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

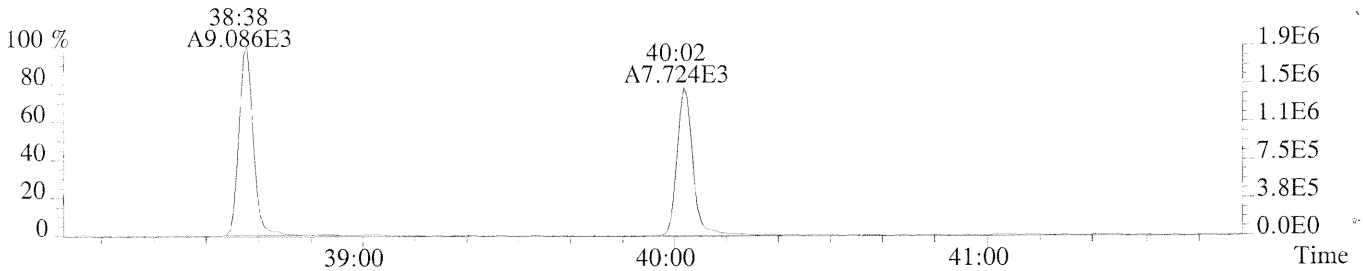


File:P227261 #1-342 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

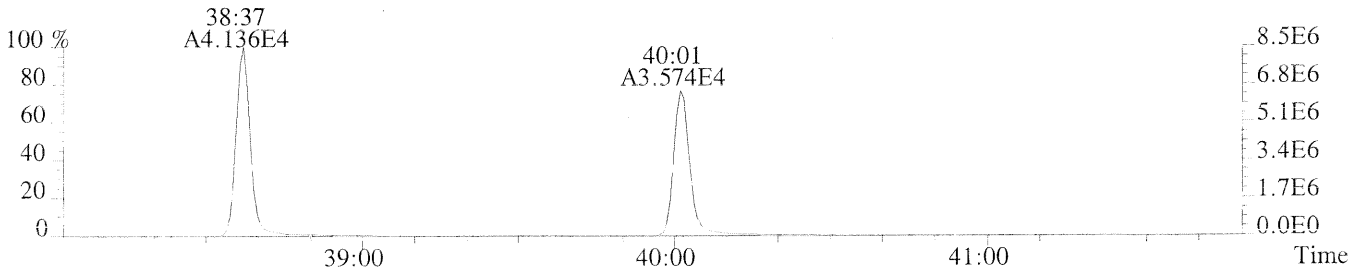
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1452.0,0.50%,F,T)



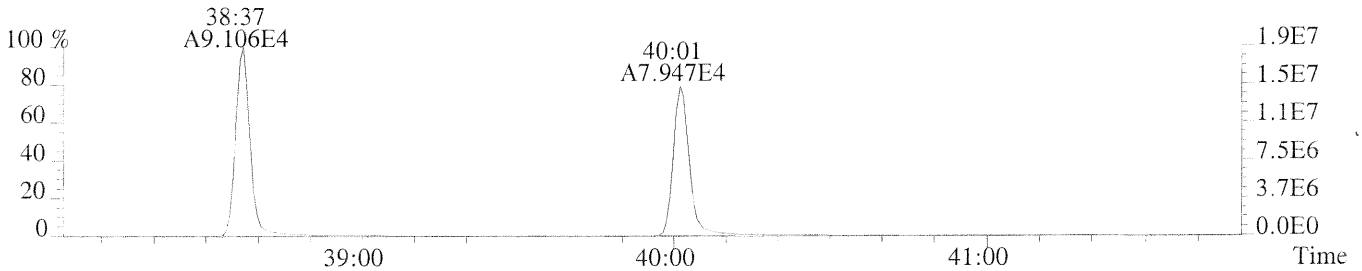
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3364.0,0.50%,F,T)



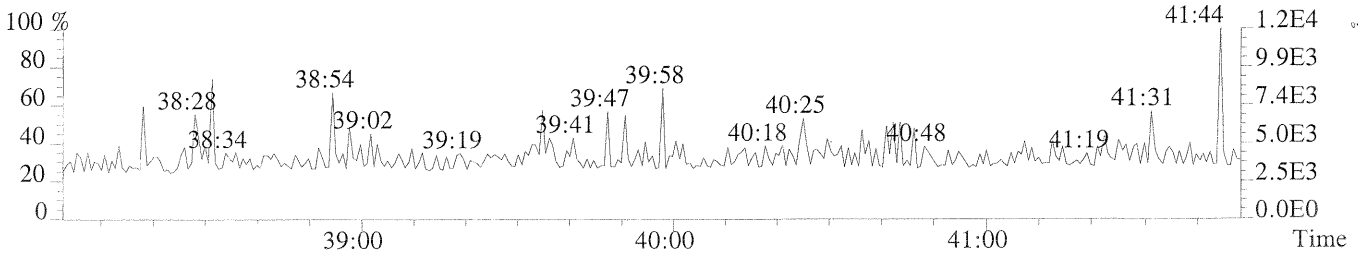
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4708.0,0.50%,F,T)



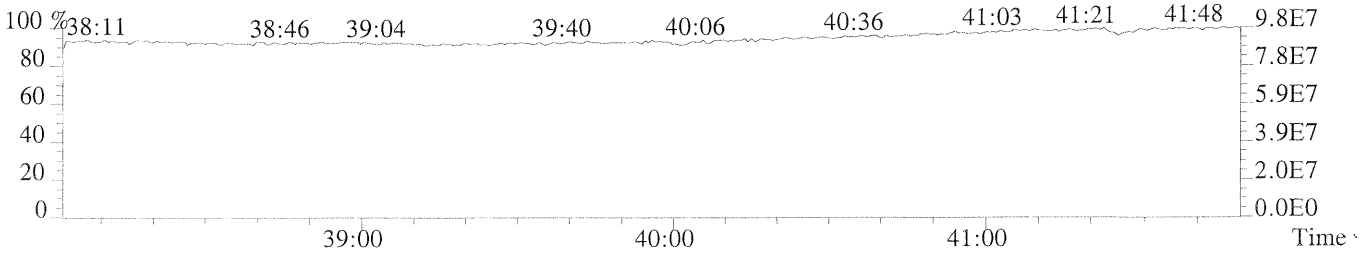
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4044.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

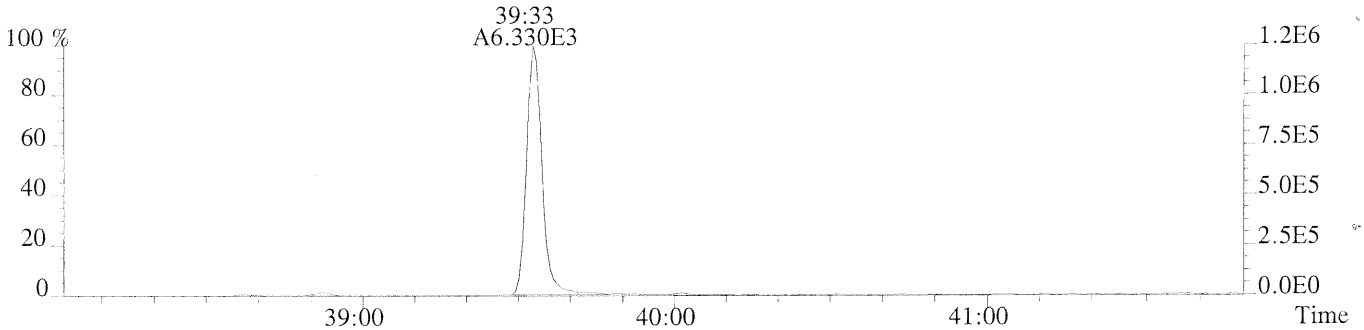


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

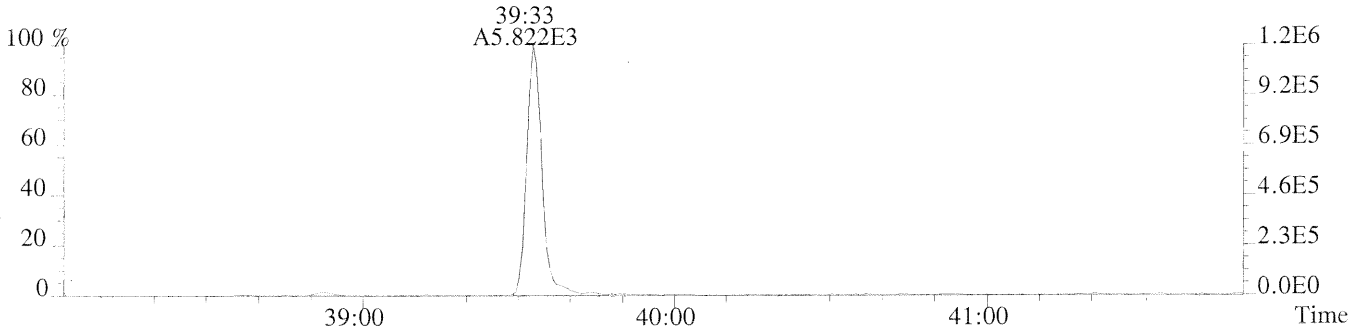


File:P227261 #1-342 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

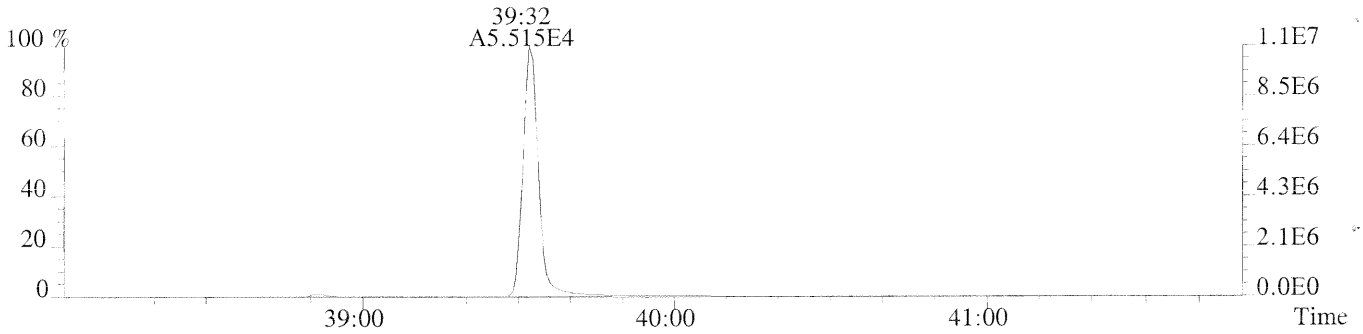
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



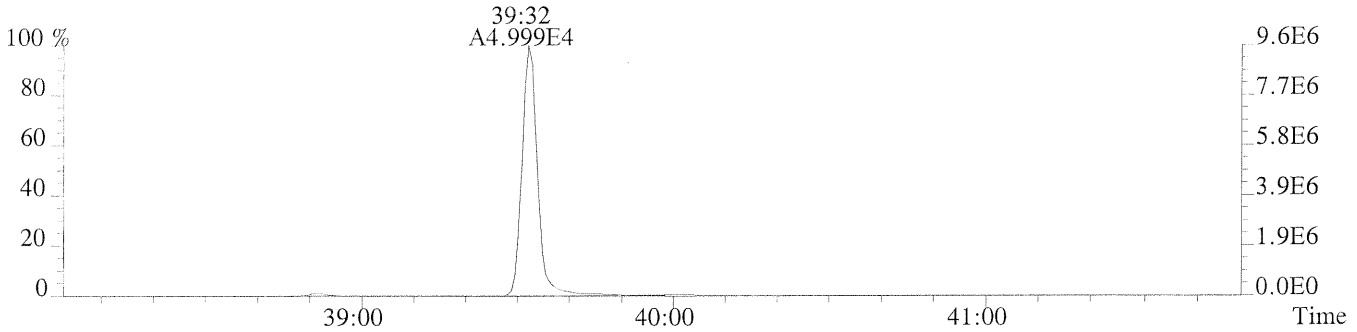
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



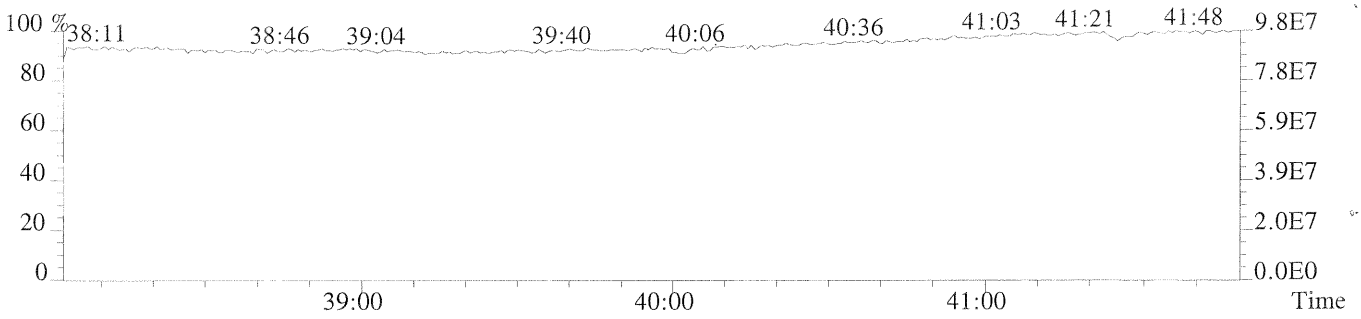
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1316.0,0.40%,F,T)



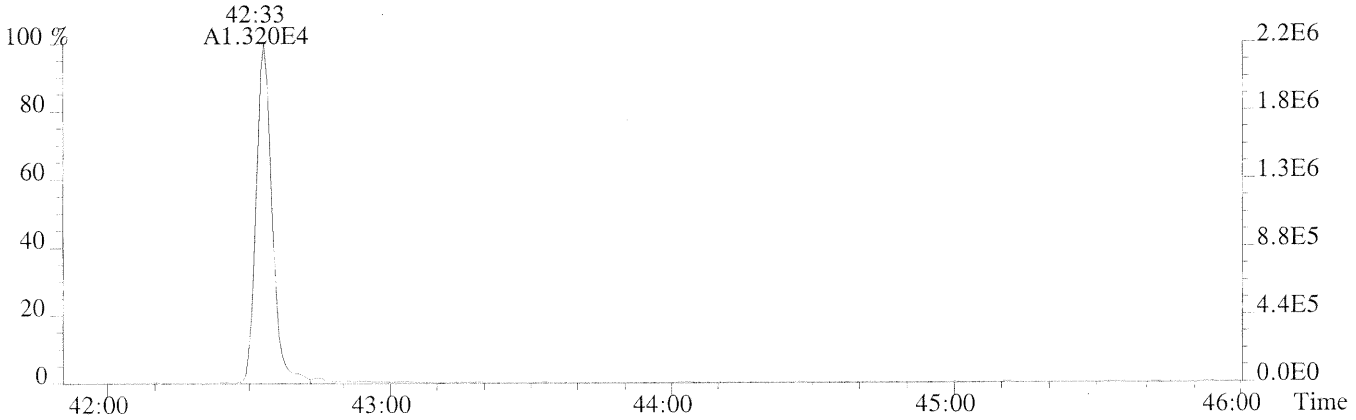
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



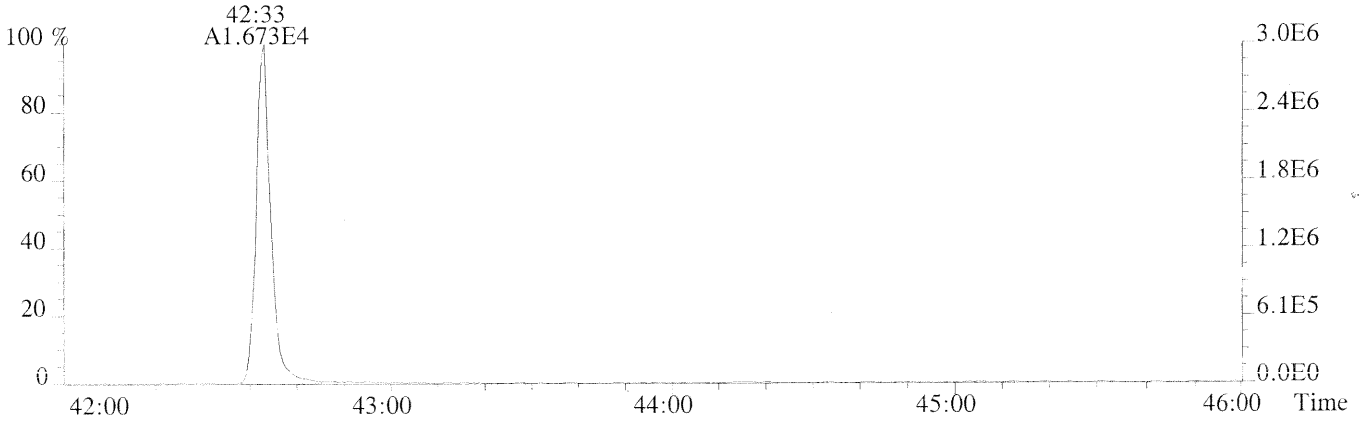
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



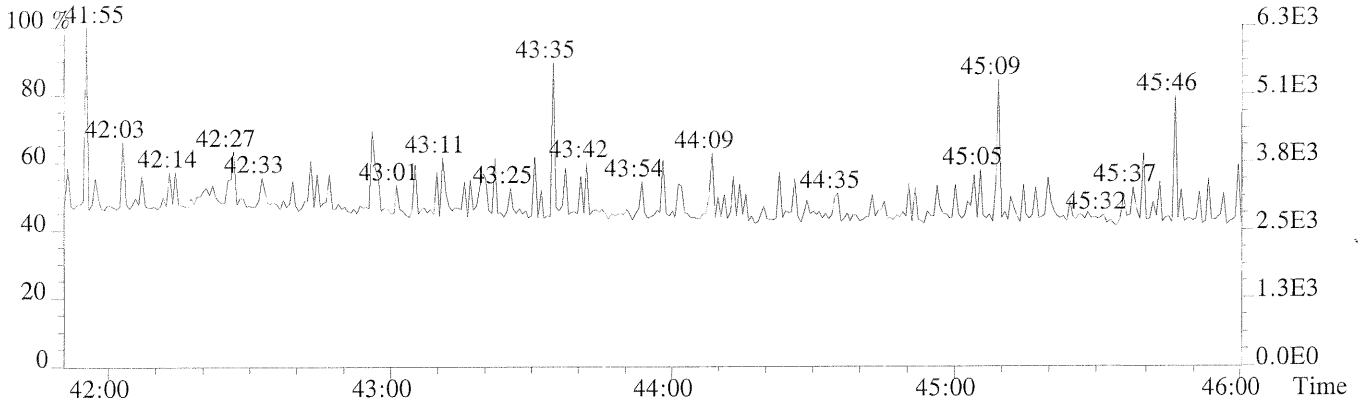
File:P227261 #1-383 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1752.0,0.40%,F,T)



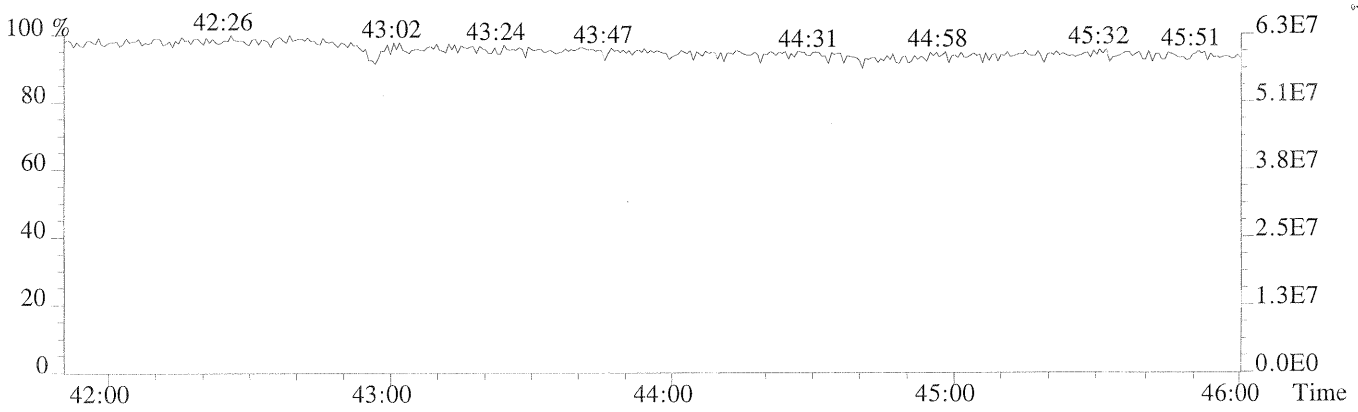
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2564.0,0.40%,F,T)



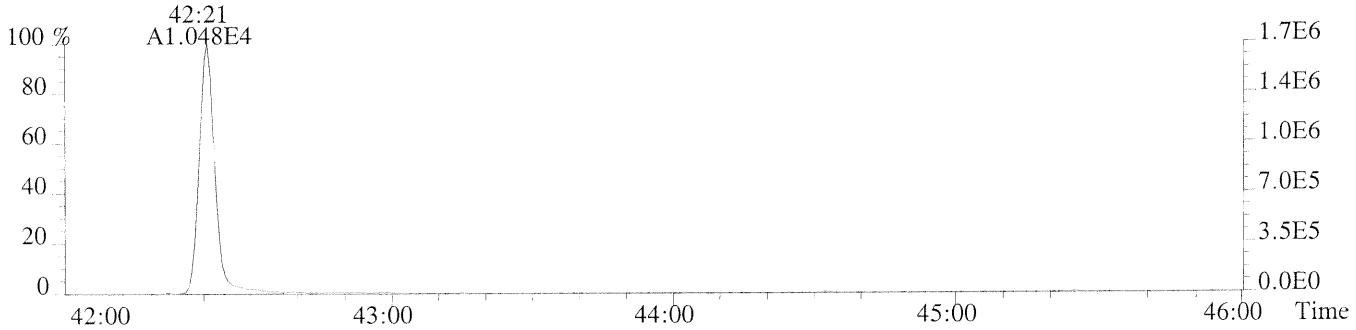
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



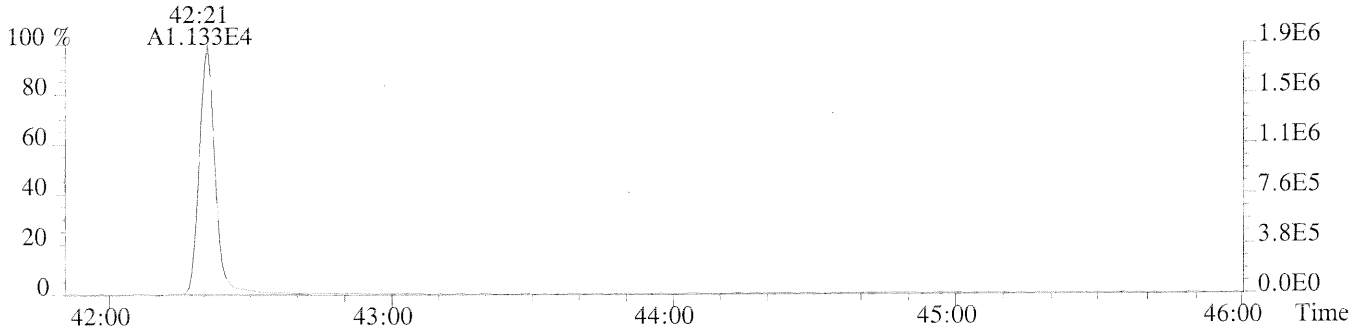
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



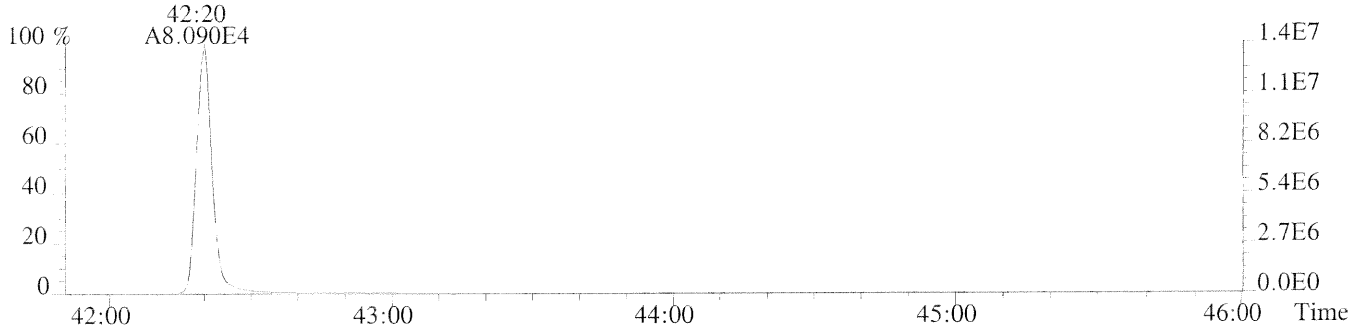
File:P227261 #1-383 Acq: 1-FEB-2014 18:36:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



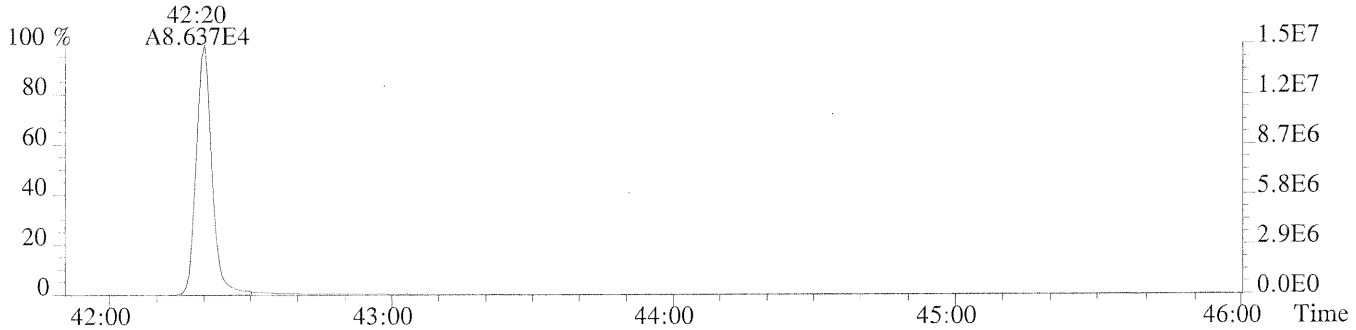
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3388.0,0.40%,F,T)



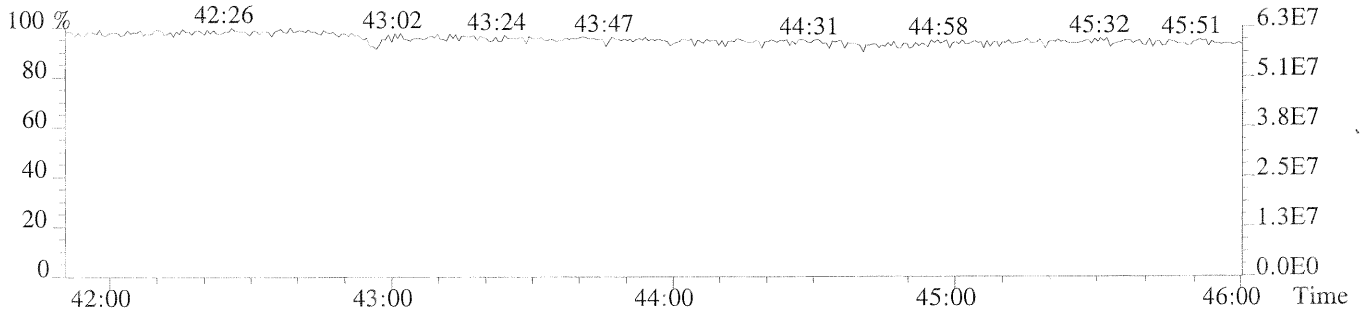
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3696.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4660.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC3/CS3

Run #4 Filename p227262 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 19:24:19
Processed: 6-FEB-14 13:56:20 LAB. ID: 63383

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:22	7.677e+03	9.588e+03	0.80	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:30	7.027e+04	4.529e+04	1.55	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:24	6.433e+04	4.145e+04	1.55	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:03	5.613e+04	4.523e+04	1.24	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	6.092e+04	4.984e+04	1.22	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:39	5.264e+04	4.323e+04	1.22	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:24	4.589e+04	3.651e+04	1.26	yes	yes	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	4.695e+04	4.678e+04	1.00	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	3.674e+04	3.689e+04	1.00	yes	no	1.000
10	Unk	OCDF	42:35	5.546e+04	6.212e+04	0.89	yes	no	1.006
11	Unk	2,3,7,8-TCDD	29:07	4.837e+03	5.877e+03	0.82	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:41	3.911e+04	2.413e+04	1.62	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:47	3.316e+04	2.601e+04	1.27	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	3.614e+04	2.842e+04	1.27	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	3.591e+04	2.760e+04	1.30	yes	no	1.006
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	3.081e+04	2.853e+04	1.08	yes	no	1.000
17	Unk	OCDD	42:22	4.150e+04	4.666e+04	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:20	7.085e+04	8.584e+04	0.83	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:29	1.285e+05	7.870e+04	1.63	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:23	1.249e+05	7.581e+04	1.65	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:02	5.294e+04	1.010e+05	0.52	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:09	6.358e+04	1.197e+05	0.53	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	5.489e+04	1.030e+05	0.53	yes	no	0.987
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	4.657e+04	8.772e+04	0.53	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.043e+04	8.951e+04	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	3.330e+04	7.386e+04	0.45	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:06	4.566e+04	5.857e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:40	7.431e+04	4.679e+04	1.59	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	5.612e+04	4.346e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	6.141e+04	4.739e+04	1.30	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	5.361e+04	4.847e+04	1.11	yes	no	1.066
32	IS	13C-OCDD	42:21	6.711e+04	7.200e+04	0.93	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:33	4.950e+04	6.402e+04	0.77	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:06	6.249e+04	4.837e+04	1.29	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	1.056e+04				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC3/CS3

Run #4 Filename p227262 Samp: 1 Inj: 1 Acquired: 1-FEB-14 19:24:19
Processed: 6-FEB-14 13:56:201 LAB. ID: 63383

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.50e+06	5.60e+02	2.7e+03	1.91e+06	3.65e+03	5.2e+02
2	1,2,3,7,8-PeCDF	1.29e+07	1.04e+03	1.2e+04	8.43e+06	3.44e+03	2.5e+03
3	2,3,4,7,8-PeCDF	1.23e+07	1.04e+03	1.2e+04	7.99e+06	3.44e+03	2.3e+03
4	1,2,3,4,7,8-HxCDF	1.16e+07	1.15e+03	1.0e+04	9.62e+06	1.74e+03	5.5e+03
5	1,2,3,6,7,8-HxCDF	1.22e+07	1.15e+03	1.1e+04	9.74e+06	1.74e+03	5.6e+03
6	2,3,4,6,7,8-HxCDF	1.10e+07	1.15e+03	9.6e+03	8.99e+06	1.74e+03	5.2e+03
7	1,2,3,7,8,9-HxCDF	8.95e+06	1.15e+03	7.8e+03	7.25e+06	1.74e+03	4.2e+03
8	1,2,3,4,6,7,8-HpCDF	9.90e+06	6.22e+03	1.6e+03	9.89e+06	7.07e+03	1.4e+03
9	1,2,3,4,7,8,9-HpCDF	6.99e+06	6.22e+03	1.1e+03	6.95e+06	7.07e+03	9.8e+02
10	OCDF	8.85e+06	4.50e+03	2.0e+03	9.97e+06	5.02e+03	2.0e+03
11	2,3,7,8-TCDD	1.02e+06	1.08e+03	9.5e+02	1.23e+06	7.32e+02	1.7e+03
12	1,2,3,7,8-PeCDD	7.65e+06	1.74e+03	4.4e+03	4.68e+06	4.84e+02	9.7e+03
13	1,2,3,4,7,8-HxCDD	7.38e+06	5.24e+02	1.4e+04	5.79e+06	6.76e+02	8.6e+03
14	1,2,3,6,7,8-HxCDD	7.45e+06	5.24e+02	1.4e+04	5.90e+06	6.76e+02	8.7e+03
15	1,2,3,7,8,9-HxCDD	7.08e+06	5.24e+02	1.4e+04	5.61e+06	6.76e+02	8.3e+03
16	1,2,3,4,6,7,8-HpCDD	6.09e+06	5.44e+02	1.1e+04	5.62e+06	1.00e+03	5.6e+03
17	OCDD	6.91e+06	4.06e+03	1.7e+03	7.68e+06	4.19e+03	1.8e+03
18	13C-2,3,7,8-TCDF	1.44e+07	1.76e+03	8.2e+03	1.74e+07	1.55e+03	1.1e+04
19	13C-1,2,3,7,8-PeCDF	2.38e+07	3.72e+02	6.4e+04	1.44e+07	9.44e+02	1.5e+04
20	13C-2,3,4,7,8-PeCDF	2.39e+07	3.72e+02	6.4e+04	1.47e+07	9.44e+02	1.6e+04
21	13C-1,2,3,4,7,8-HxCDF	1.12e+07	1.43e+03	7.8e+03	2.14e+07	1.82e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	1.27e+07	1.43e+03	8.9e+03	2.38e+07	1.82e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.13e+07	1.43e+03	7.9e+03	2.13e+07	1.82e+03	1.2e+04
24	13C-1,2,3,7,8,9-HxCDF	9.00e+06	1.43e+03	6.3e+03	1.70e+07	1.82e+03	9.4e+03
25	13C-1,2,3,4,6,7,8-HpCDF	8.38e+06	8.36e+03	1.0e+03	1.86e+07	1.26e+04	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	6.30e+06	8.36e+03	7.5e+02	1.41e+07	1.26e+04	1.1e+03
27	13C-2,3,7,8-TCDD	9.66e+06	8.00e+03	1.2e+03	1.24e+07	4.06e+03	3.1e+03
28	13C-1,2,3,7,8-PeCDD	1.43e+07	8.16e+02	1.8e+04	8.92e+06	7.56e+02	1.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.24e+07	2.16e+03	5.7e+03	9.62e+06	1.01e+03	9.5e+03
30	13C-1,2,3,6,7,8-HxCDD	1.25e+07	2.16e+03	5.8e+03	9.62e+06	1.01e+03	9.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.04e+07	1.68e+03	6.2e+03	9.49e+06	7.60e+02	1.2e+04
32	13C-OCDD	1.10e+07	2.77e+03	4.0e+03	1.15e+07	1.09e+04	1.1e+03
33	13C-1,2,3,4-TCDD	1.05e+07	8.00e+03	1.3e+03	1.35e+07	4.06e+03	3.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.21e+07	2.16e+03	5.6e+03	9.45e+06	1.01e+03	9.3e+03
35	37Cl-2,3,7,8-TCDD	2.18e+06	2.30e+03	9.4e+02			

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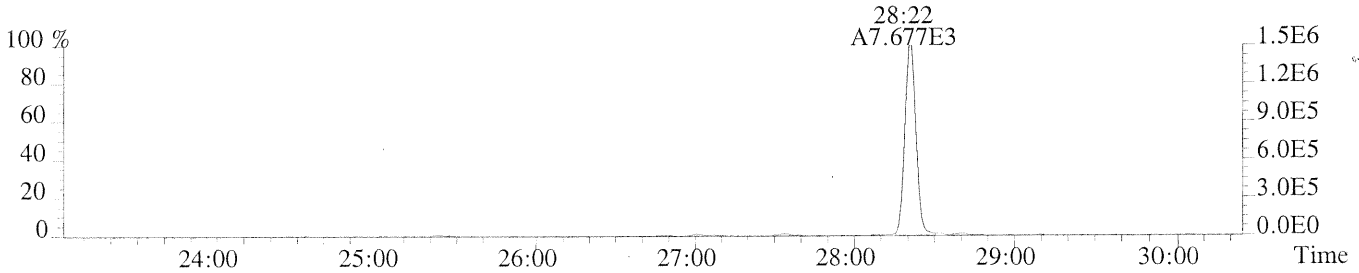
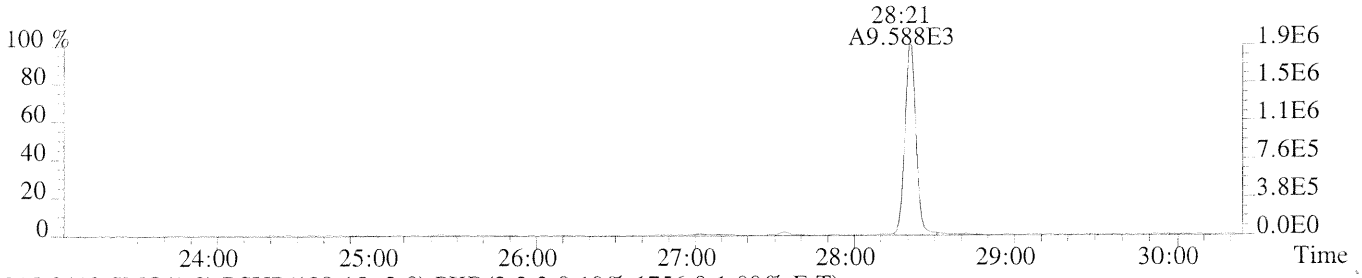
XLSN

File:P227262 #1-464 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

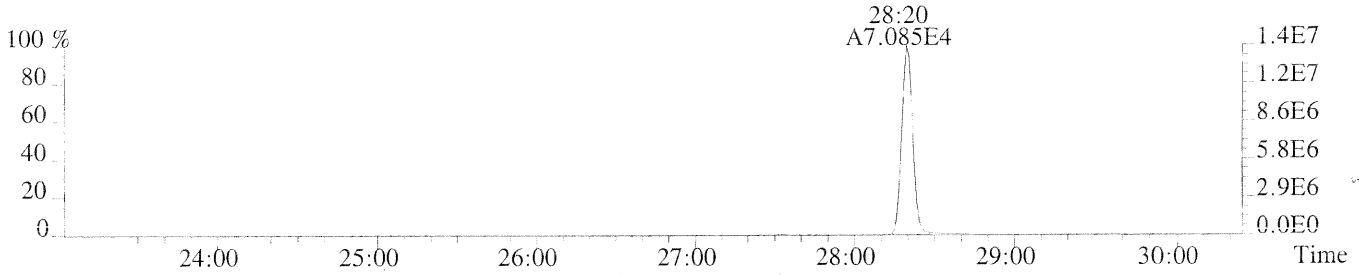
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



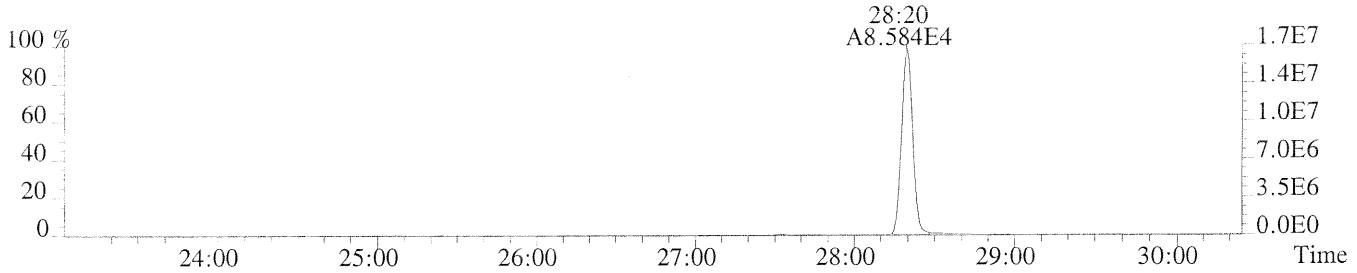
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3648.0,1.00%,F,T)



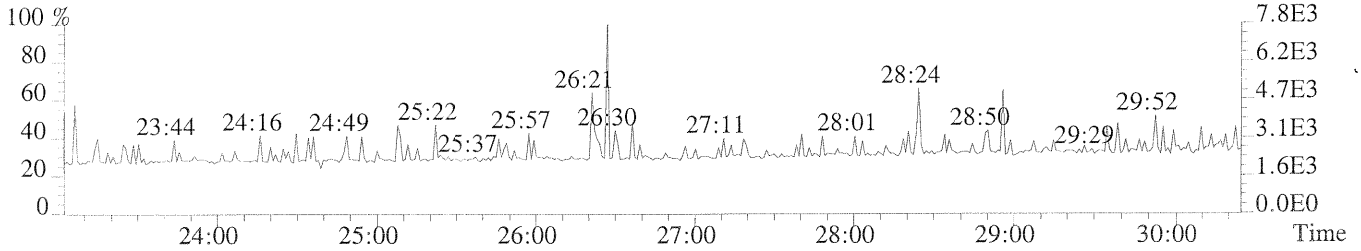
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1756.0,1.00%,F,T)



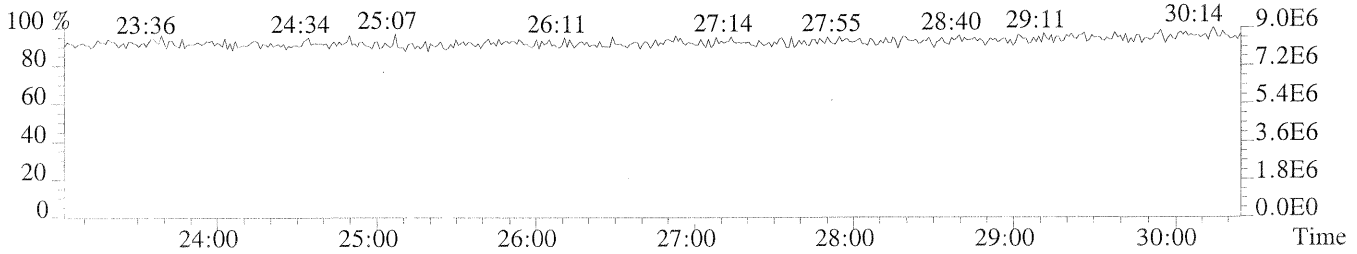
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1548.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

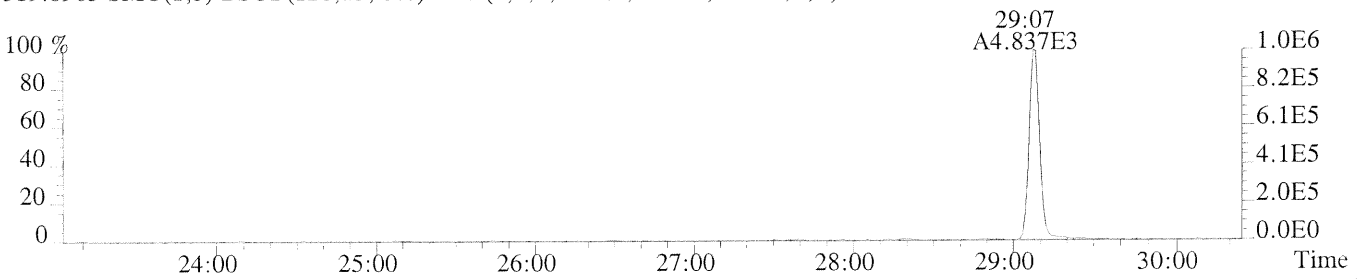


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

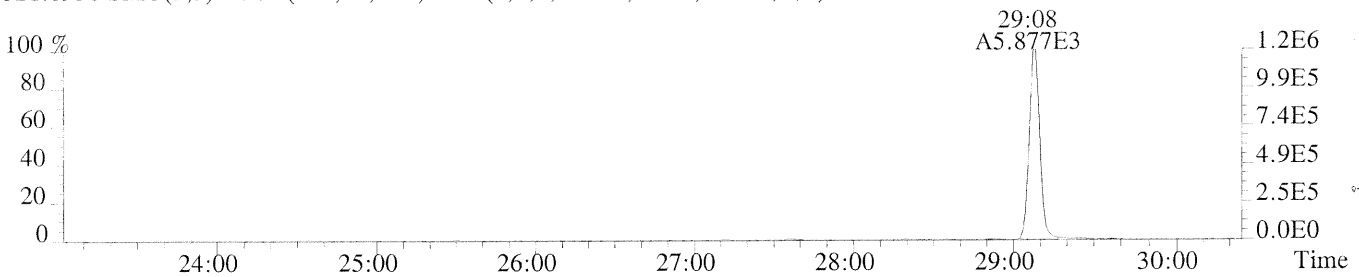


File:P227262 #1-464 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

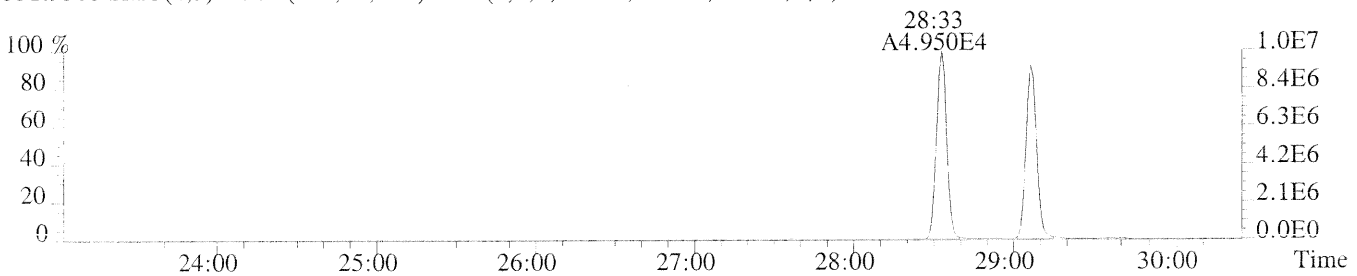
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1076.0,1.00%,F,T)



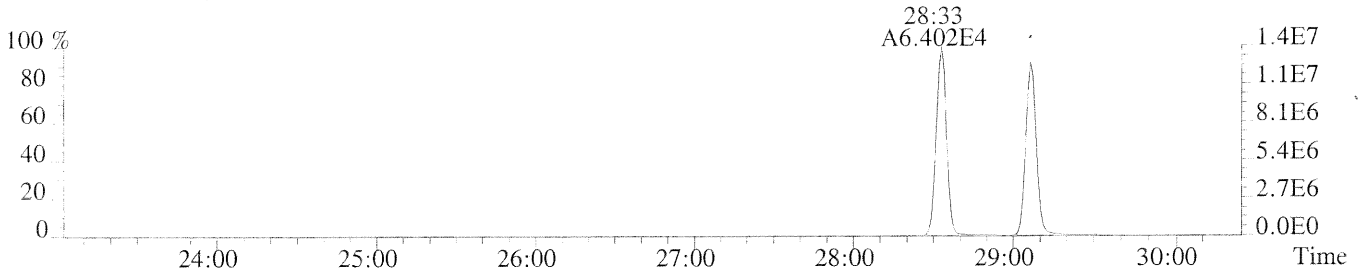
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



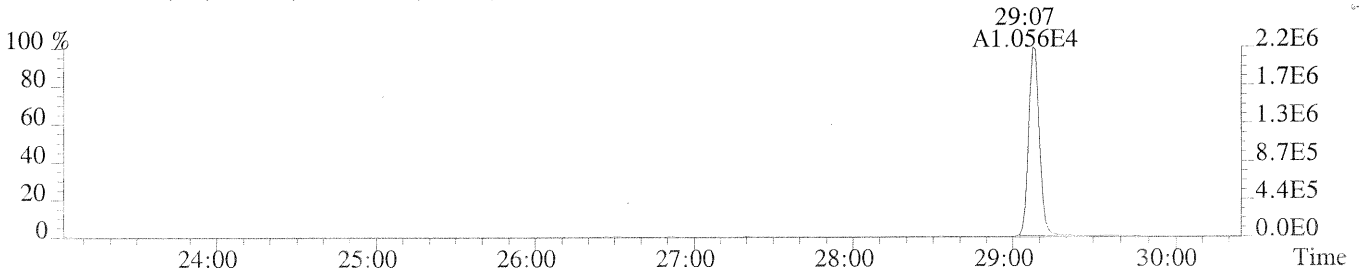
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8004.0,1.00%,F,T)



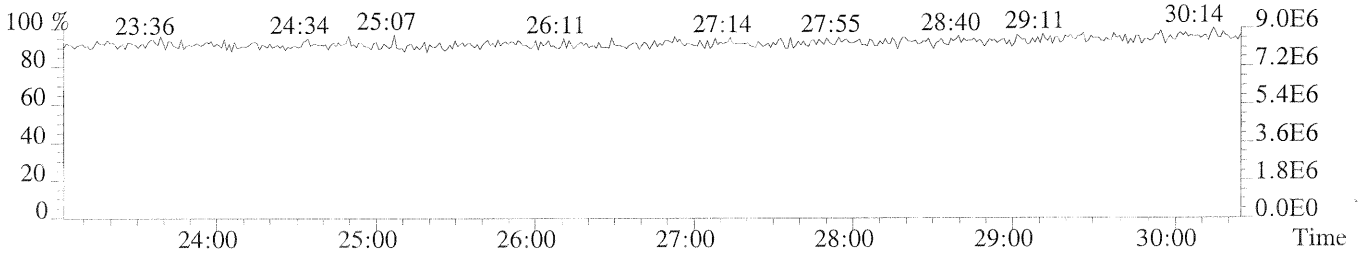
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4064.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2304.0,1.00%,F,T)

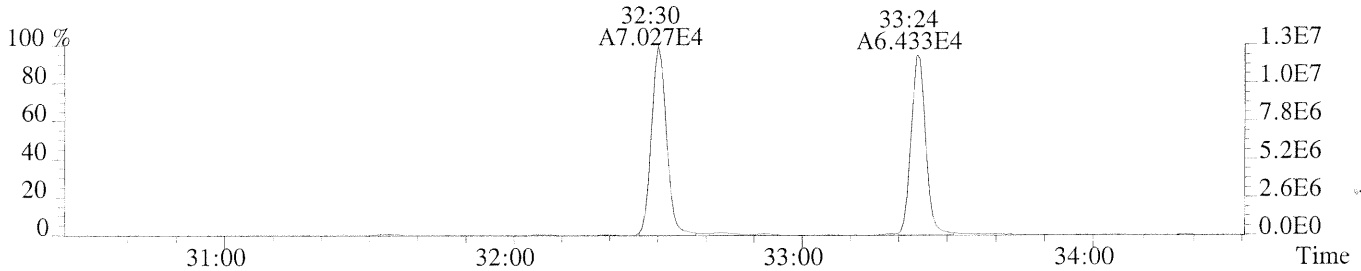


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

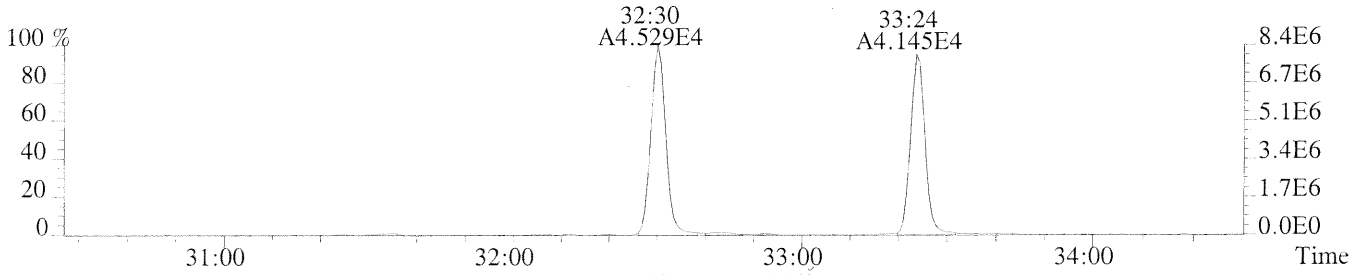


File:P227262 #1-369 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

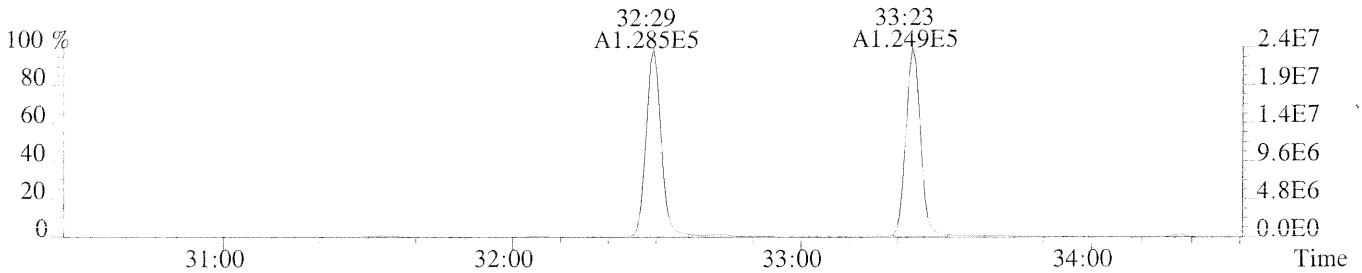
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1036.0,1.00%,F,T)



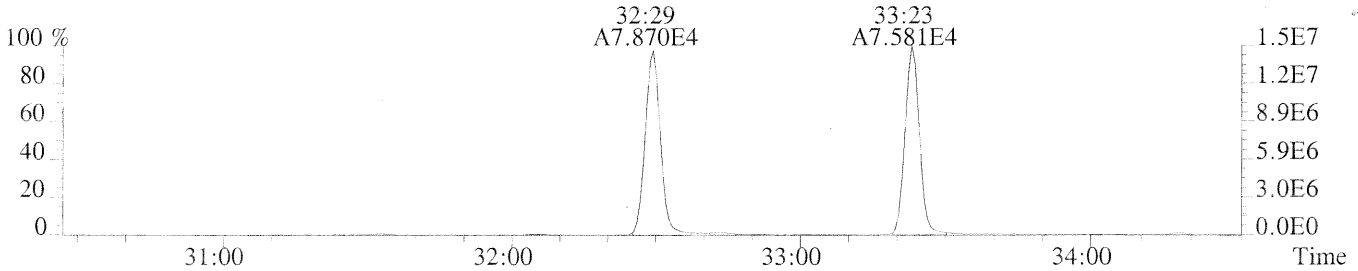
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3436.0,1.00%,F,T)



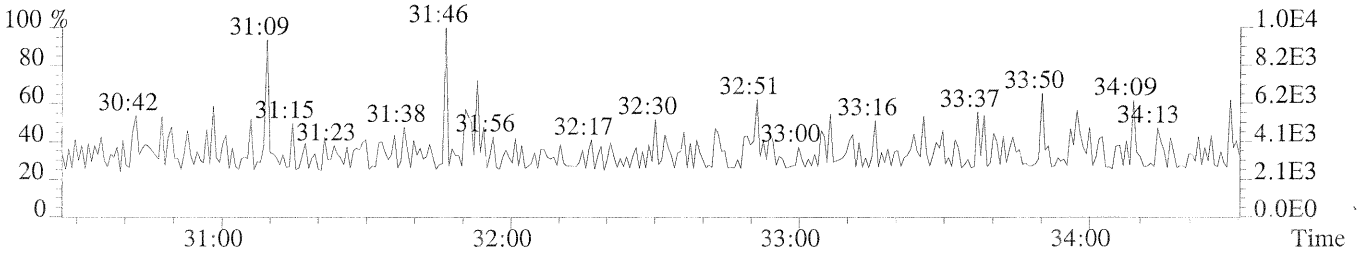
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,372.0,1.00%,F,T)



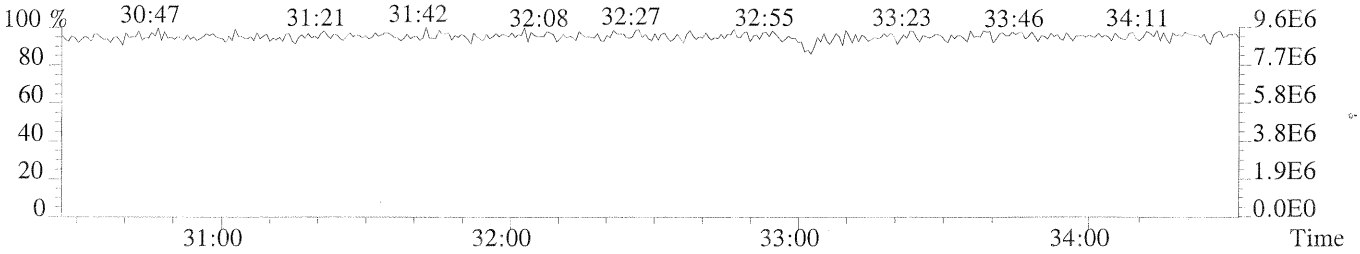
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



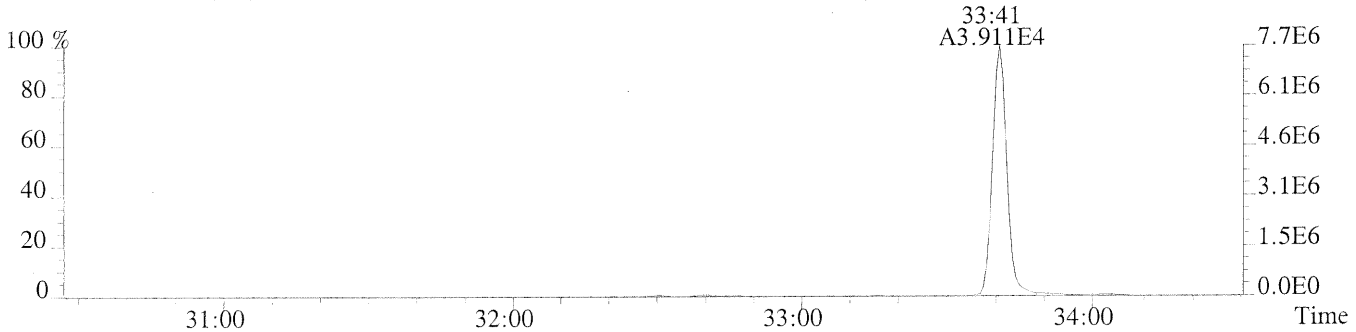
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



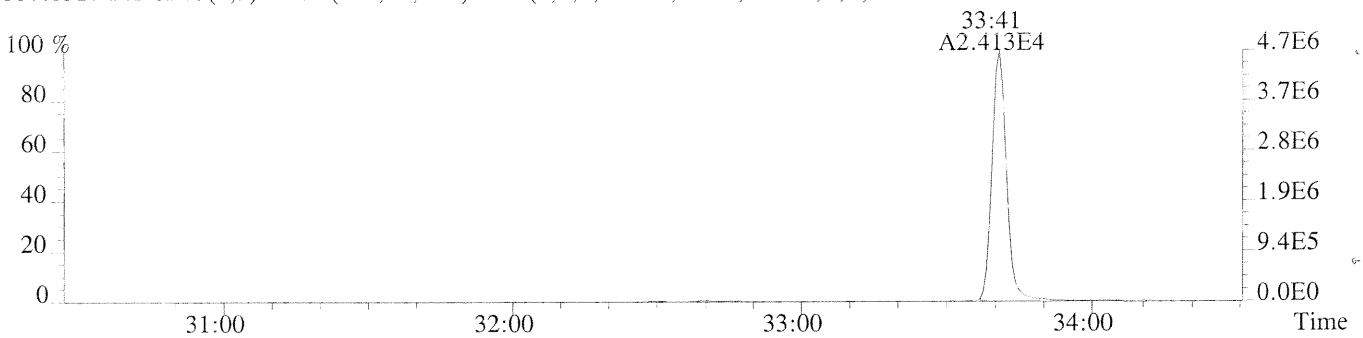
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



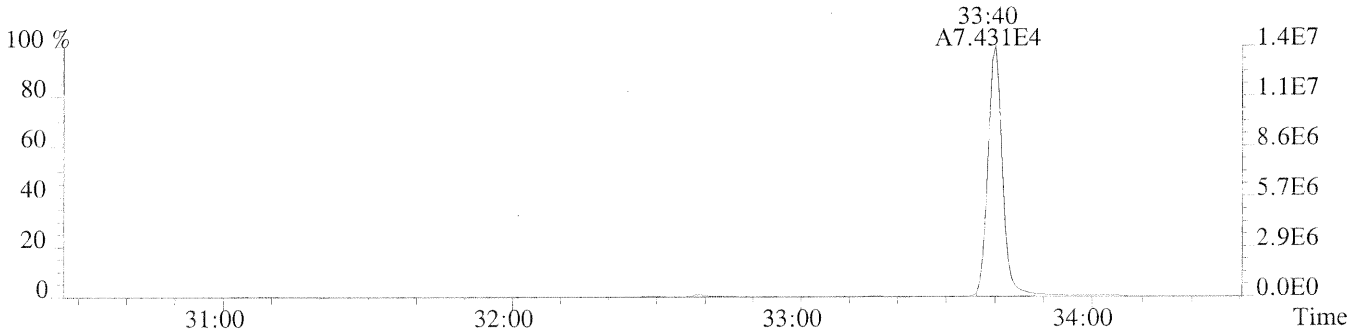
File:P227262 #1-369 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



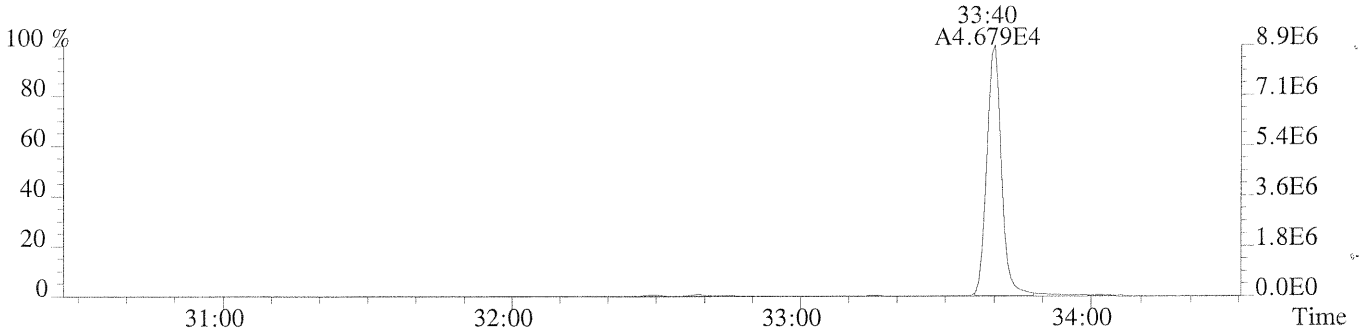
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,484.0,1.00%,F,T)



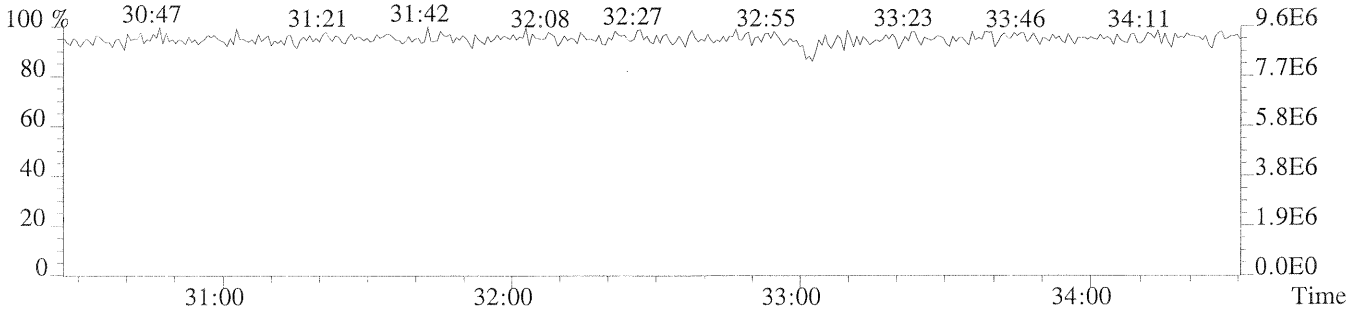
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)

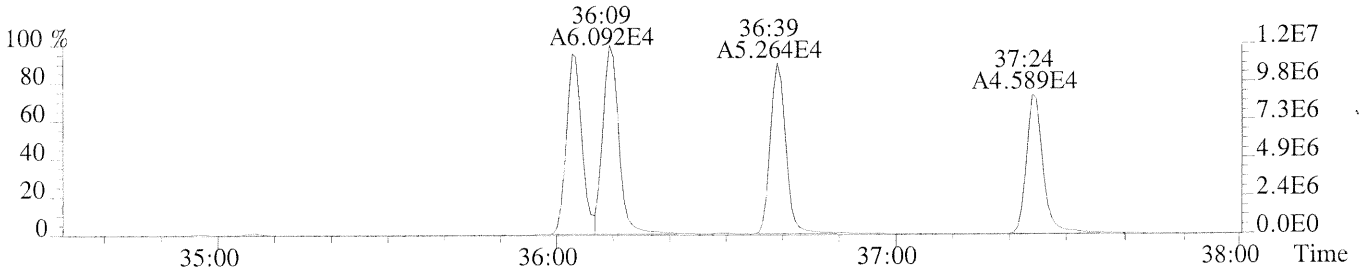


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

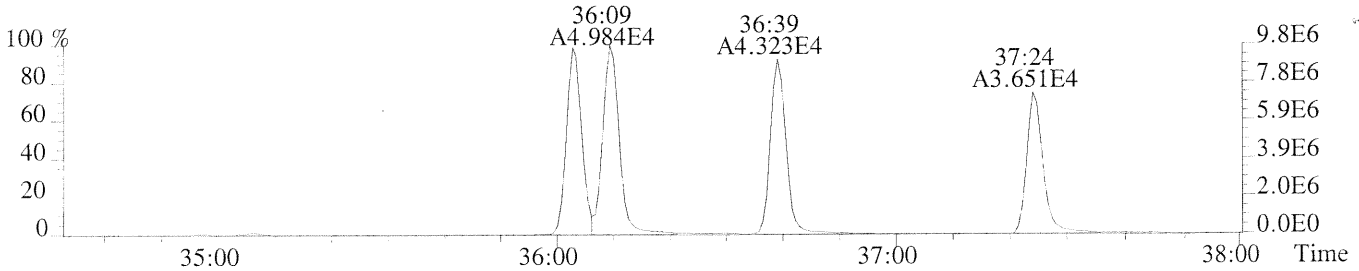


File:P227262 #1-315 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

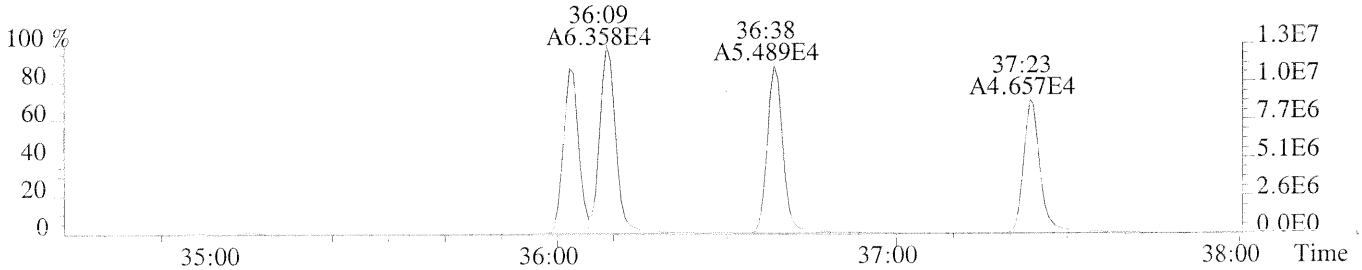
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



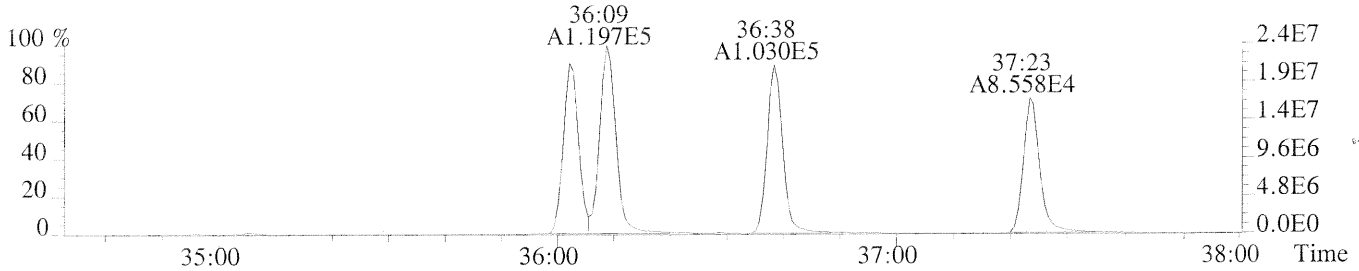
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1736.0,0.40%,F,T)



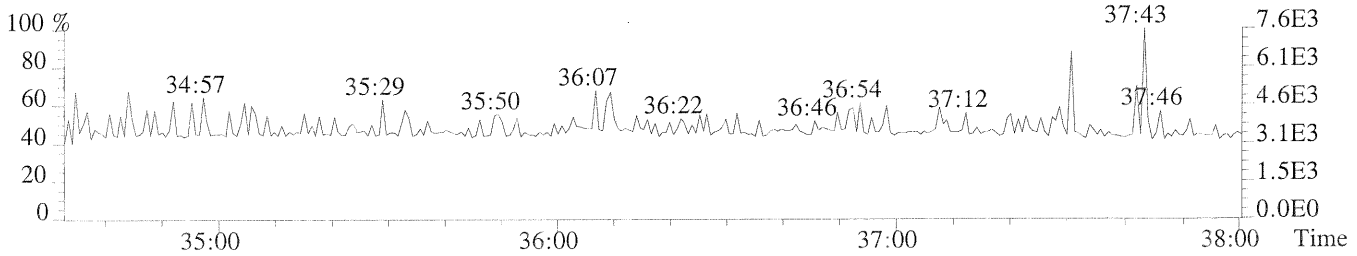
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1428.0,0.40%,F,T)



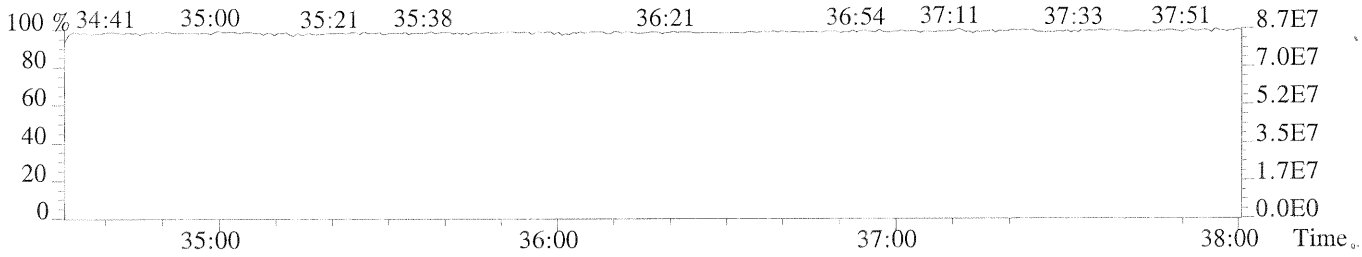
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1816.0,0.40%,F,T)



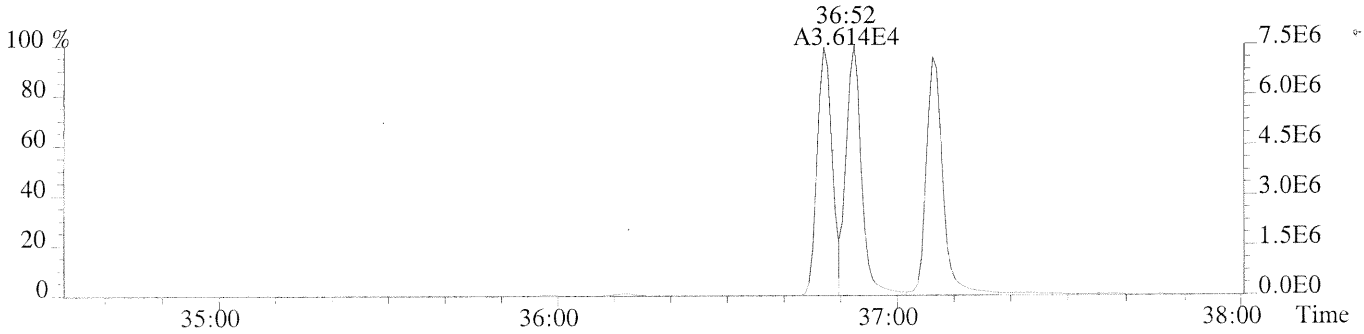
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



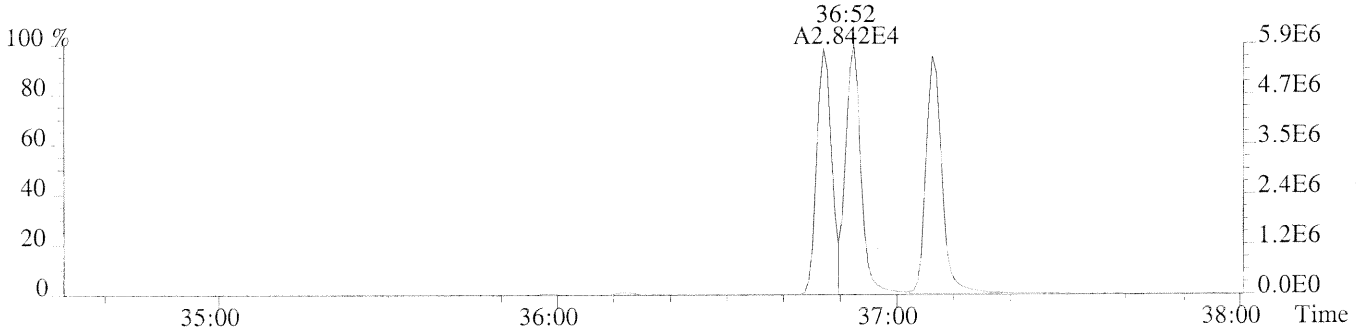
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



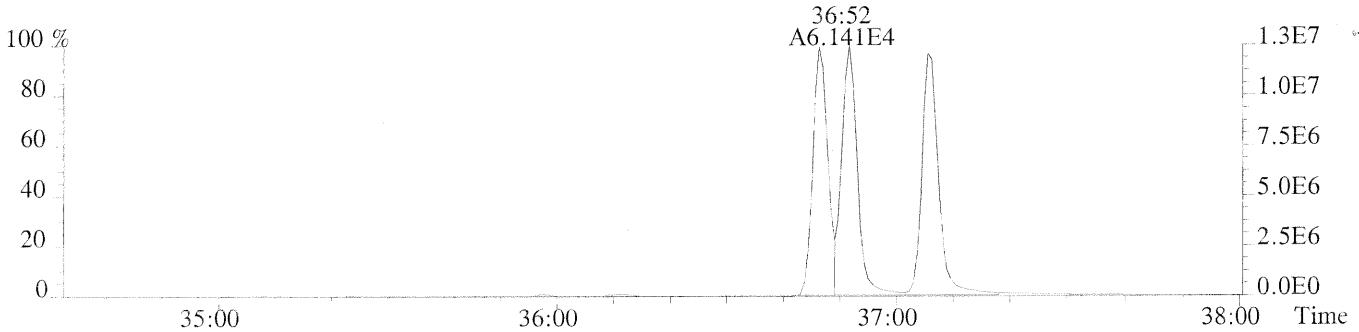
File:P227262 #1-315 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



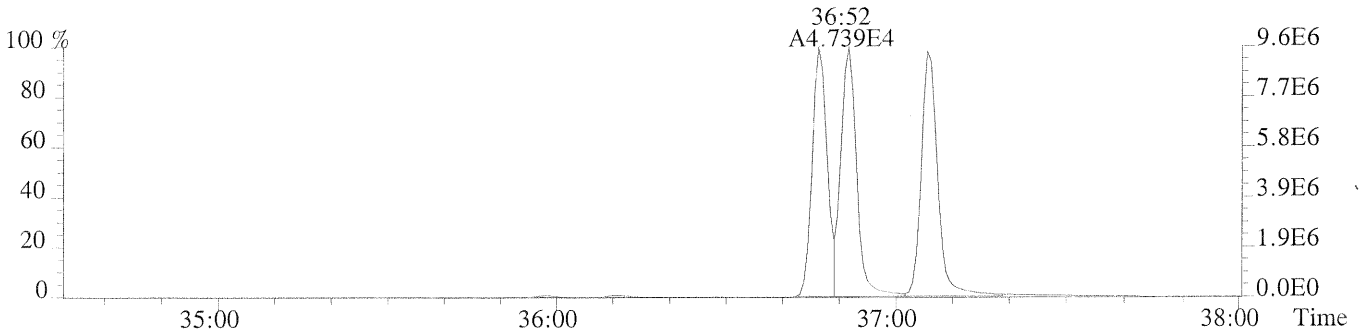
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



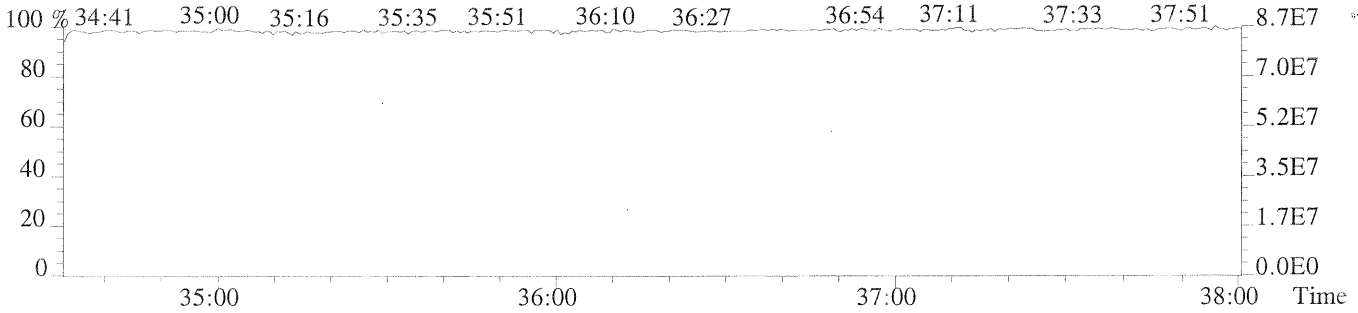
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2156.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1012.0,0.40%,F,T)

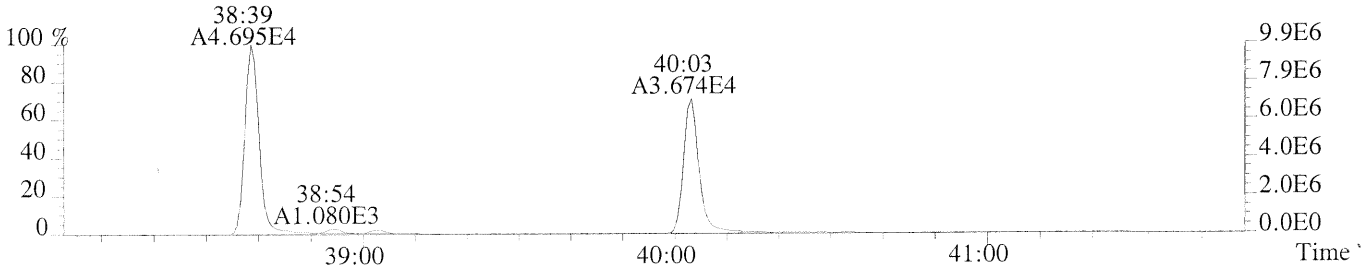


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

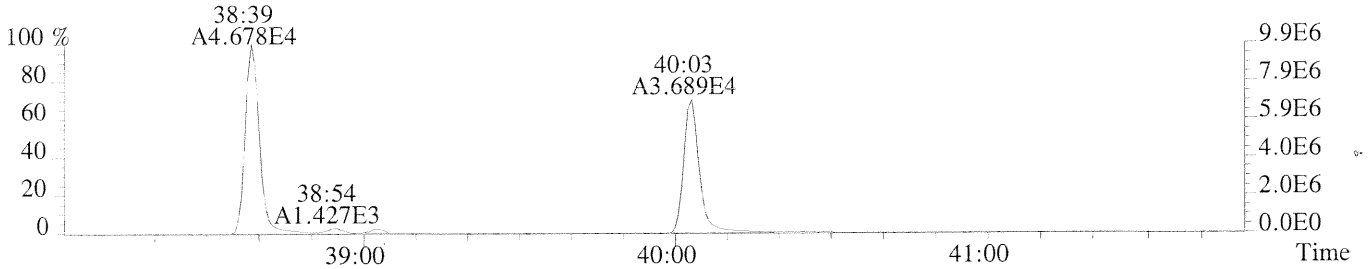


File:P227262 #1-342 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

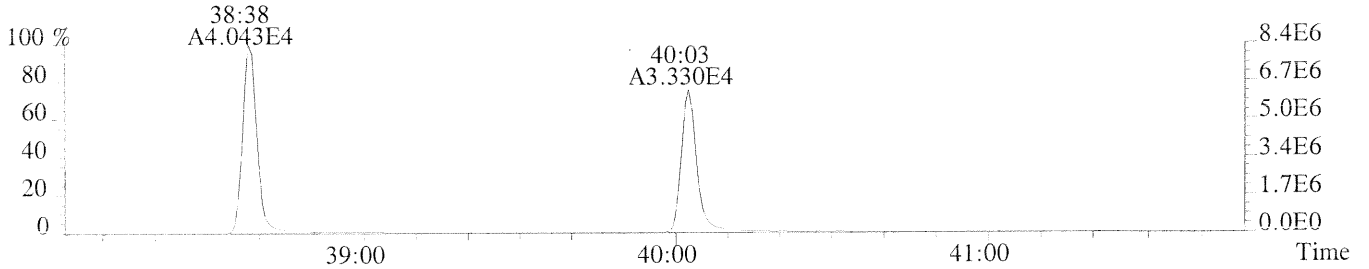
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6224.0,0.50%,F,T)



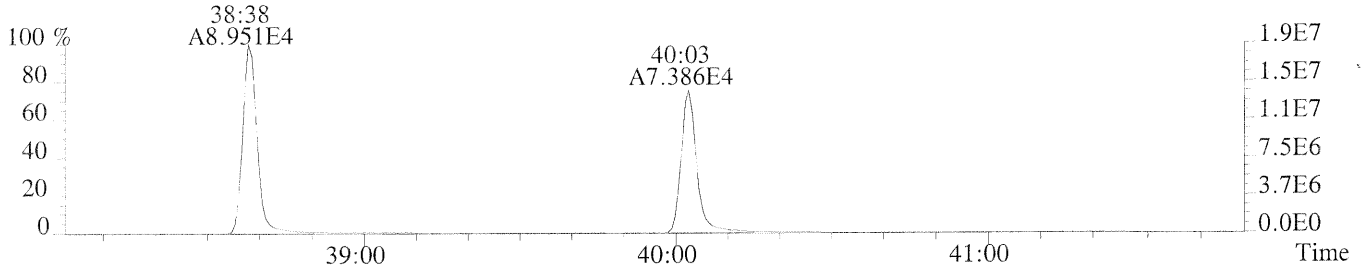
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7068.0,0.50%,F,T)



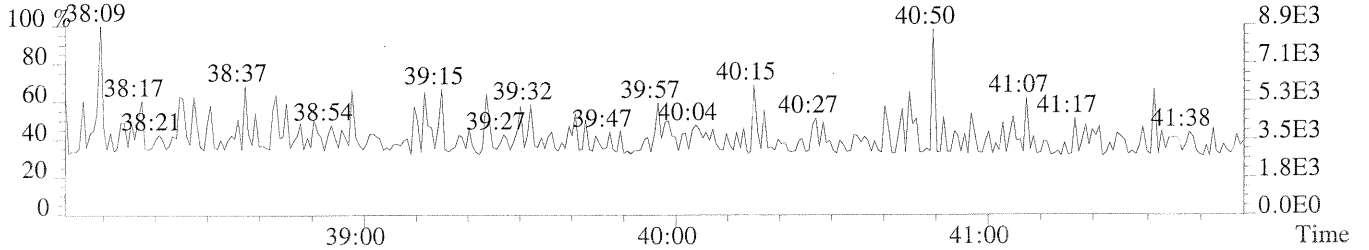
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8356.0,0.50%,F,T)



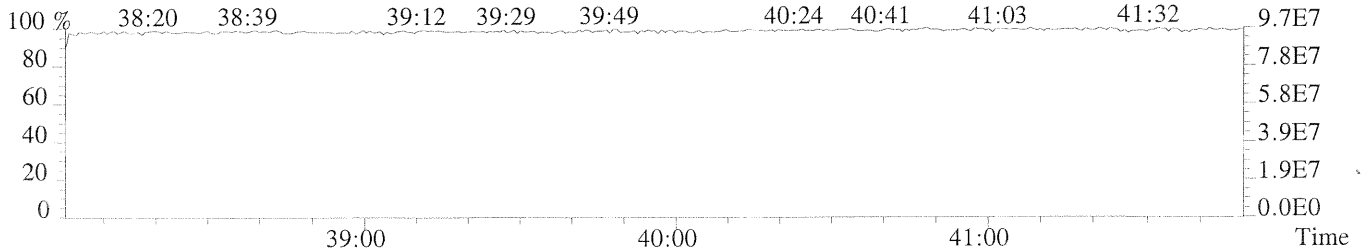
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12592.0,0.50%,F,T)



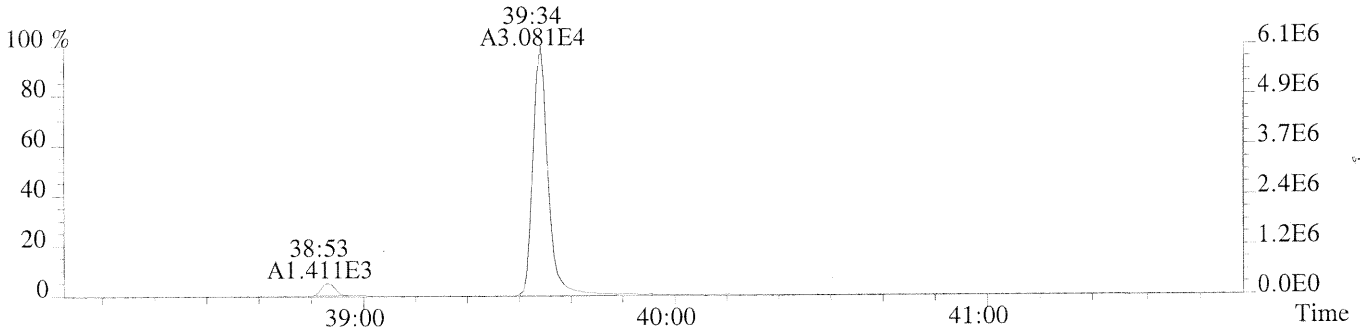
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



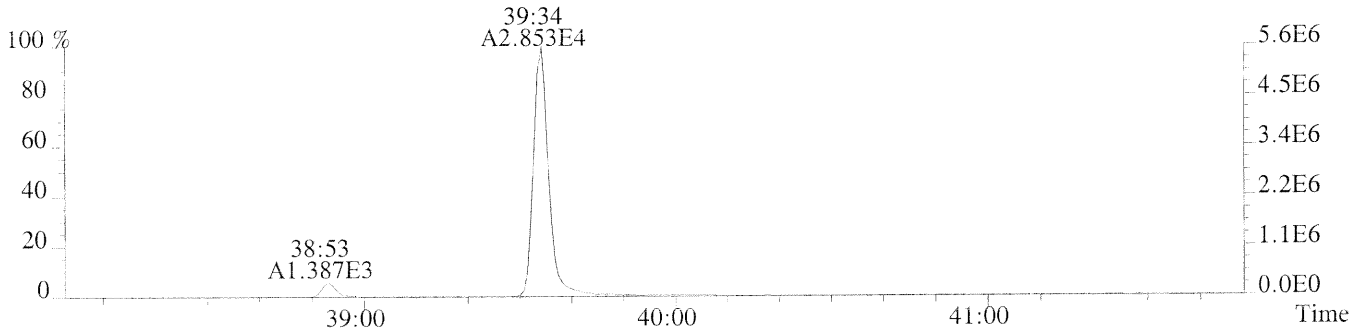
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



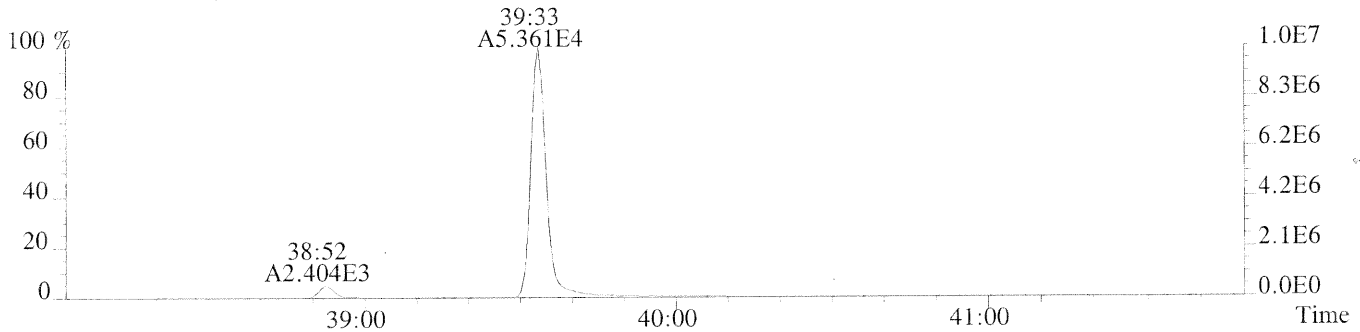
File:P227262 #1-342 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



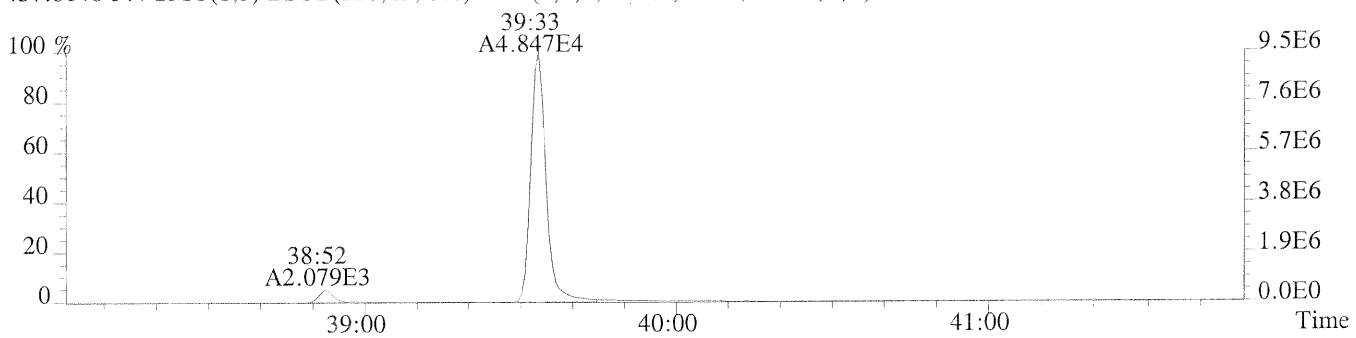
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



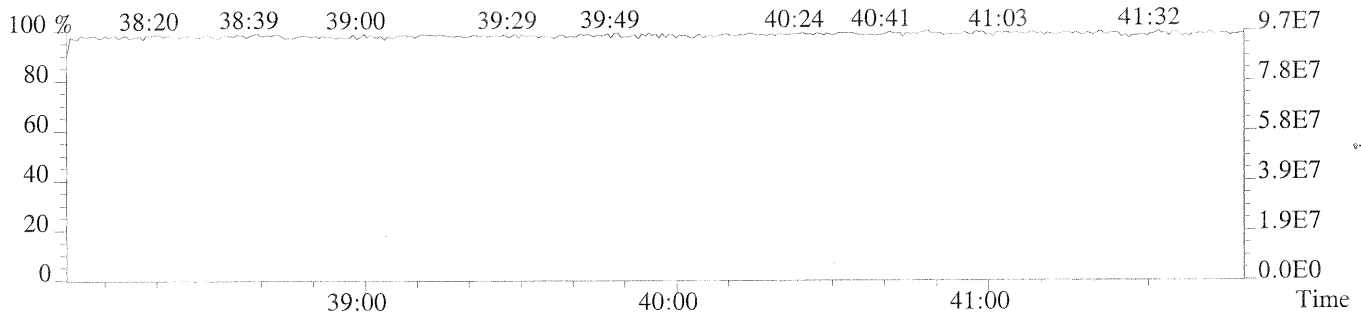
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1680.0,0.40%,F,T)



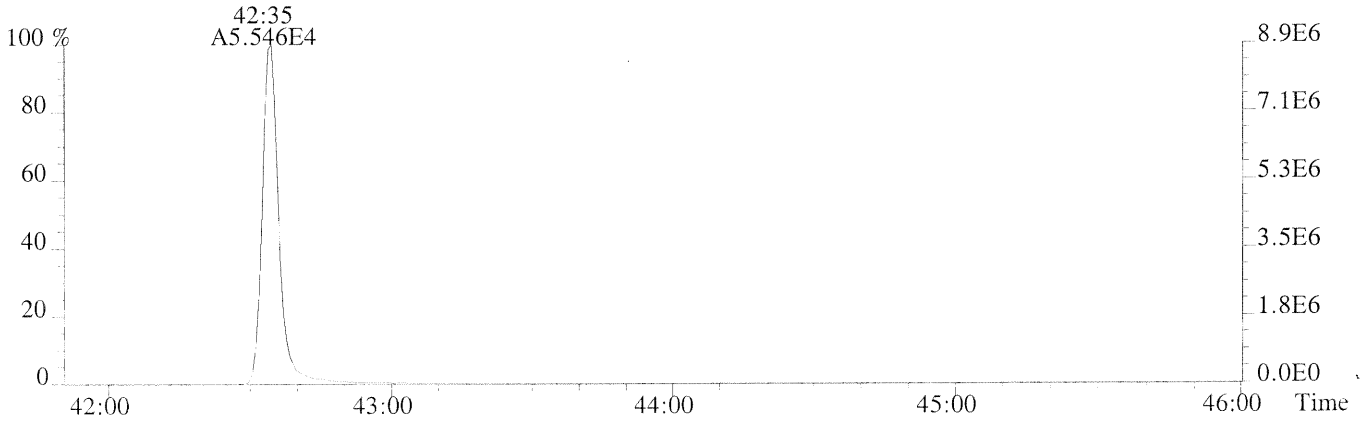
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



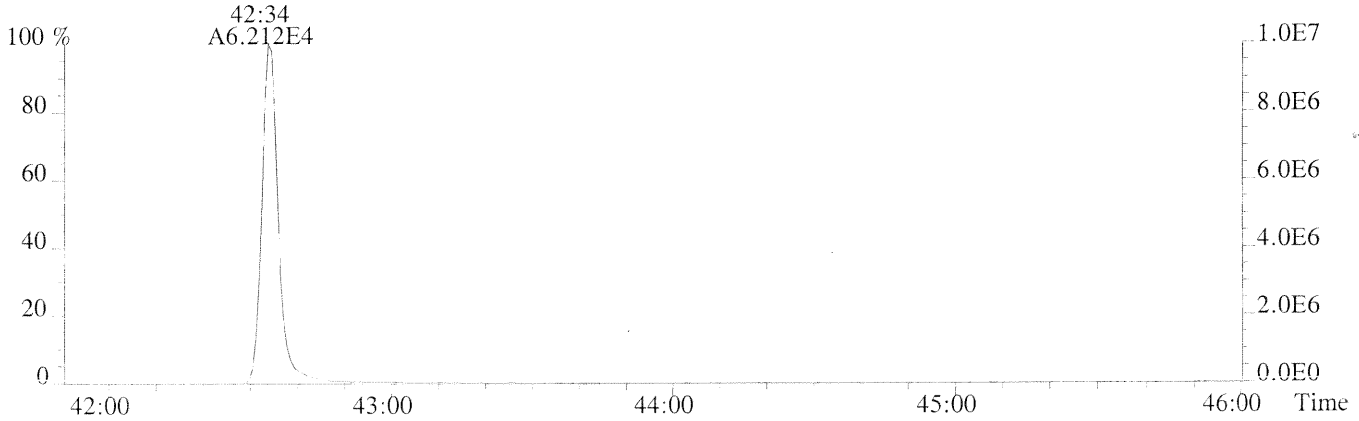
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



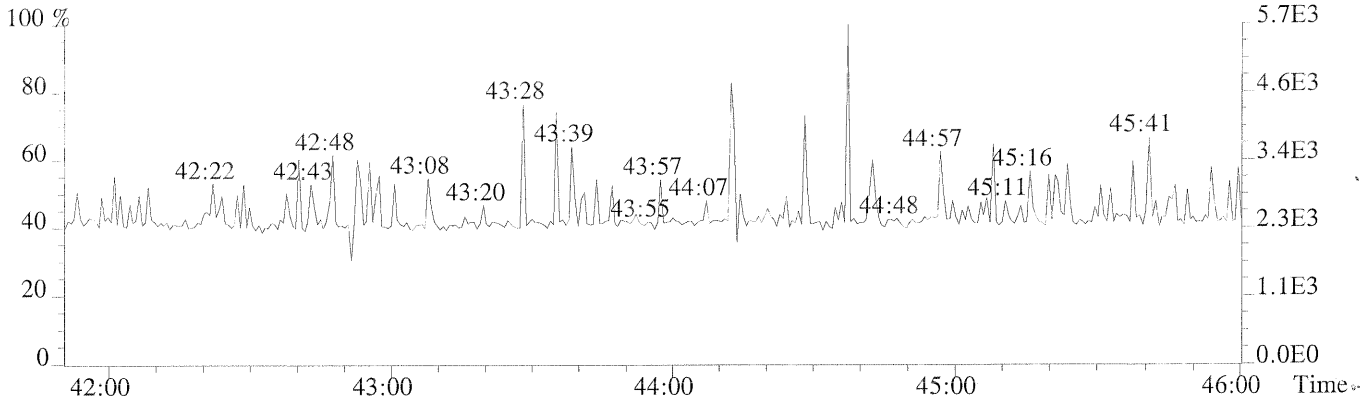
File:P227262 #1-383 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4500.0,0.40%,F,T)



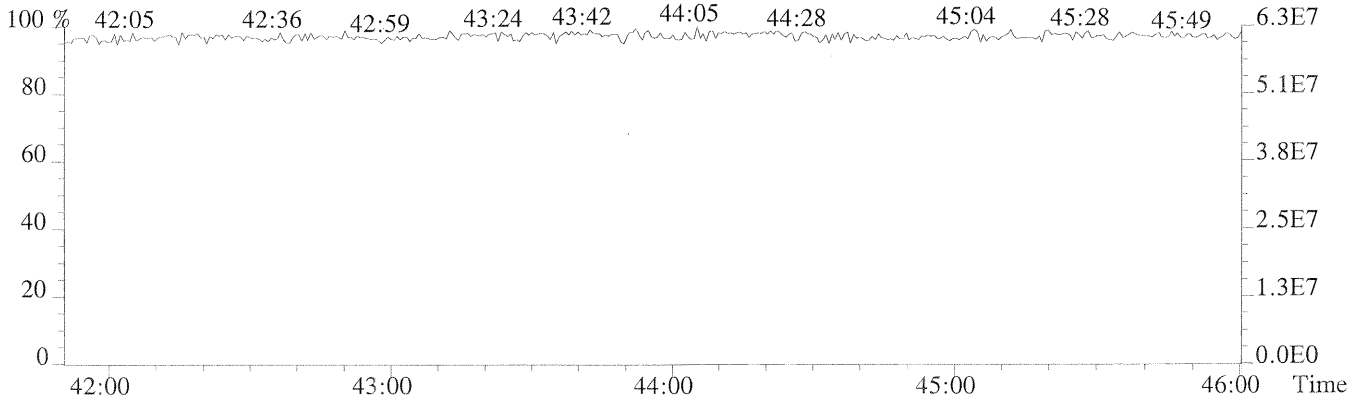
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5020.0,0.40%,F,T)



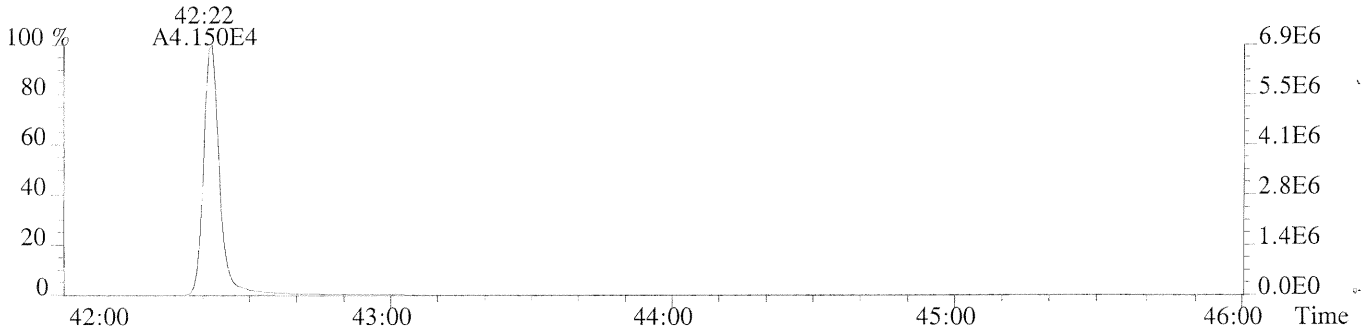
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



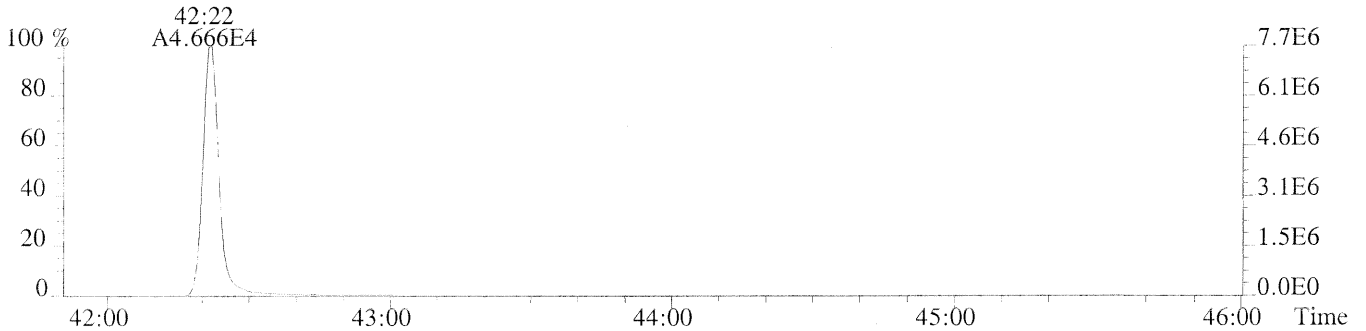
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



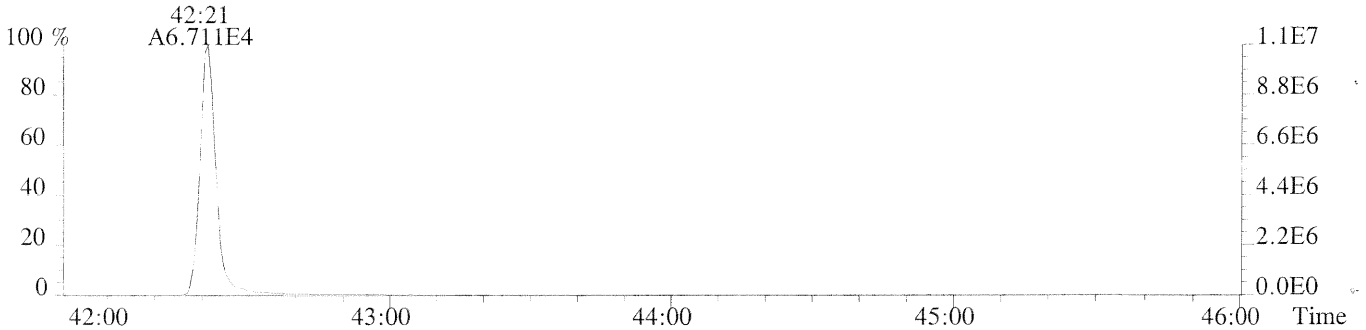
File:P227262 #1-383 Acq: 1-FEB-2014 19:24:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4056.0,0.40%,F,T)



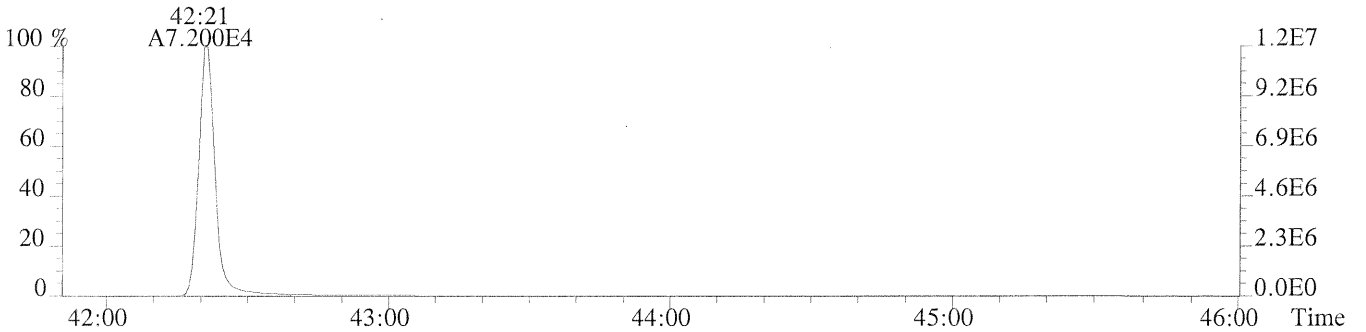
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4188.0,0.40%,F,T)



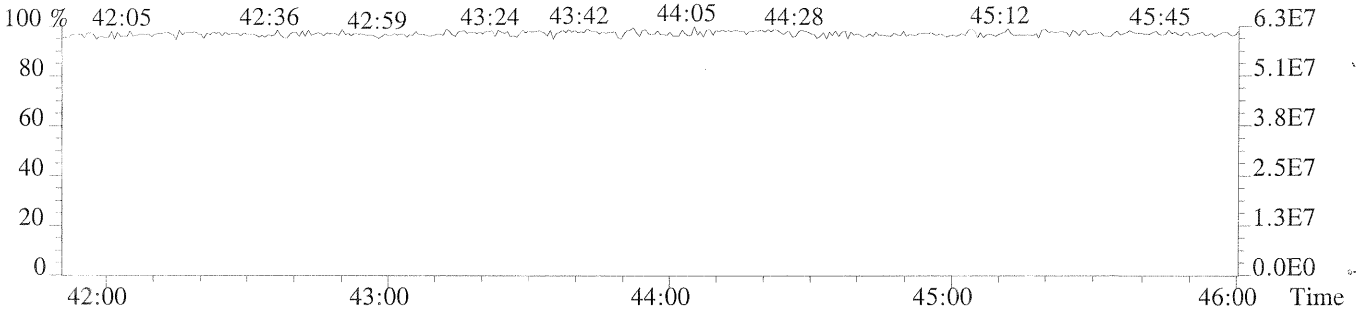
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,2772.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10868.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC4/CS4

Run #5 Filename P227263 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 20:12:26
Processed: 4-FEB-14 15:25:58 LAB. ID: D12-90-3D

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:21	3.372e+04	4.294e+04	0.79	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:30	3.282e+05	2.088e+05	1.57	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:24	3.168e+05	2.036e+05	1.56	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:03	2.620e+05	2.108e+05	1.24	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	2.852e+05	2.300e+05	1.24	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:39	2.472e+05	1.981e+05	1.25	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:24	2.266e+05	1.795e+05	1.26	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	2.252e+05	2.208e+05	1.02	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	1.841e+05	1.788e+05	1.03	yes	no	1.000
10	Unk	OCDF	42:34	2.869e+05	3.163e+05	0.91	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:07	2.148e+04	2.723e+04	0.79	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:41	1.930e+05	1.199e+05	1.61	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:47	1.586e+05	1.228e+05	1.29	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	1.687e+05	1.306e+05	1.29	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	1.663e+05	1.301e+05	1.28	yes	no	1.006
16	Unk	1,2,3,4,6,7,8-HpCDD	39:34	1.462e+05	1.372e+05	1.07	yes	no	1.000
17	Unk	OCDD	42:22	2.190e+05	2.398e+05	0.91	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:20	7.681e+04	9.358e+04	0.82	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:29	1.459e+05	8.896e+04	1.64	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:23	1.507e+05	9.161e+04	1.65	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:02	6.112e+04	1.154e+05	0.53	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:09	7.171e+04	1.367e+05	0.52	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:39	6.281e+04	1.163e+05	0.54	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:24	5.580e+04	1.048e+05	0.53	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.751e+04	1.057e+05	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:03	4.066e+04	9.073e+04	0.45	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:06	5.064e+04	6.453e+04	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:40	9.138e+04	5.730e+04	1.59	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	6.584e+04	5.089e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:52	6.948e+04	5.400e+04	1.29	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:34	6.318e+04	5.737e+04	1.10	yes	no	1.066
32	IS	13C-OCDD	42:22	8.486e+04	9.213e+04	0.92	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:33	5.348e+04	6.711e+04	0.80	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:06	7.102e+04	5.666e+04	1.25	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	4.833e+04				no	1.020

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ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC4/CS4

Run #5 Filename P227263 Samp: 1 Inj: 1 Acquired: 1-FEB-14 20:12:26
Processed: 4-FEB-14 15:25:581 LAB. ID: D12-90-3D

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.70e+06	9.16e+02	7.3e+03	8.67e+06	3.83e+03	2.3e+03
2	1,2,3,7,8-PeCDF	6.07e+07	1.14e+03	5.3e+04	3.83e+07	3.10e+03	1.2e+04
3	2,3,4,7,8-PeCDF	6.06e+07	1.14e+03	5.3e+04	3.93e+07	3.10e+03	1.3e+04
4	1,2,3,4,7,8-HxCDF	5.58e+07	3.06e+03	1.8e+04	4.47e+07	3.12e+03	1.4e+04
5	1,2,3,6,7,8-HxCDF	5.67e+07	3.06e+03	1.9e+04	4.60e+07	3.12e+03	1.5e+04
6	2,3,4,6,7,8-HxCDF	5.25e+07	3.06e+03	1.7e+04	4.21e+07	3.12e+03	1.3e+04
7	1,2,3,7,8,9-HxCDF	4.44e+07	3.06e+03	1.4e+04	3.53e+07	3.12e+03	1.1e+04
8	1,2,3,4,6,7,8-HpCDF	4.79e+07	1.68e+04	2.9e+03	4.71e+07	1.38e+04	3.4e+03
9	1,2,3,4,7,8,9-HpCDF	3.40e+07	1.68e+04	2.0e+03	3.29e+07	1.38e+04	2.4e+03
10	OCDF	4.88e+07	1.43e+04	3.4e+03	5.41e+07	1.39e+04	3.9e+03
11	2,3,7,8-TCDD	4.44e+06	1.04e+03	4.3e+03	5.73e+06	5.20e+02	1.1e+04
12	1,2,3,7,8-PeCDD	3.70e+07	1.26e+03	2.9e+04	2.30e+07	4.52e+02	5.1e+04
13	1,2,3,4,7,8-HxCDD	3.54e+07	5.16e+02	6.9e+04	2.73e+07	7.56e+02	3.6e+04
14	1,2,3,6,7,8-HxCDD	3.46e+07	5.16e+02	6.7e+04	2.69e+07	7.56e+02	3.6e+04
15	1,2,3,7,8,9-HxCDD	3.42e+07	5.16e+02	6.6e+04	2.69e+07	7.56e+02	3.6e+04
16	1,2,3,4,6,7,8-HpCDD	2.93e+07	1.41e+03	2.1e+04	2.75e+07	7.36e+02	3.7e+04
17	OCDD	3.73e+07	4.74e+03	7.9e+03	4.02e+07	2.18e+04	1.8e+03
18	13C-2,3,7,8-TCDF	1.57e+07	1.25e+03	1.3e+04	1.90e+07	1.22e+03	1.6e+04
19	13C-1,2,3,7,8-PeCDF	2.63e+07	7.92e+02	3.3e+04	1.60e+07	1.03e+03	1.5e+04
20	13C-2,3,4,7,8-PeCDF	2.91e+07	7.92e+02	3.7e+04	1.78e+07	1.03e+03	1.7e+04
21	13C-1,2,3,4,7,8-HxCDF	1.31e+07	1.59e+03	8.3e+03	2.45e+07	1.85e+03	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	1.42e+07	1.59e+03	9.0e+03	2.73e+07	1.85e+03	1.5e+04
23	13C-2,3,4,6,7,8-HxCDF	1.34e+07	1.59e+03	8.4e+03	2.47e+07	1.85e+03	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.09e+07	1.59e+03	6.9e+03	2.06e+07	1.85e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.01e+07	6.83e+03	1.5e+03	2.24e+07	7.46e+03	3.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.55e+06	6.83e+03	1.1e+03	1.68e+07	7.46e+03	2.2e+03
27	13C-2,3,7,8-TCDD	1.06e+07	8.97e+03	1.2e+03	1.36e+07	3.57e+03	3.8e+03
28	13C-1,2,3,7,8-PeCDD	1.72e+07	1.20e+03	1.4e+04	1.07e+07	4.92e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.47e+07	1.06e+03	1.4e+04	1.12e+07	9.20e+02	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.42e+07	1.06e+03	1.3e+04	1.10e+07	9.20e+02	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.25e+07	9.56e+02	1.3e+04	1.12e+07	7.12e+02	1.6e+04
32	13C-OCDD	1.43e+07	3.78e+03	3.8e+03	1.55e+07	4.92e+03	3.1e+03
33	13C-1,2,3,4-TCDD	1.13e+07	8.97e+03	1.3e+03	1.40e+07	3.57e+03	3.9e+03
34	13C-1,2,3,7,8,9-HxCDD	1.44e+07	1.06e+03	1.4e+04	1.12e+07	9.20e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.00e+07	1.49e+03	6.7e+03			

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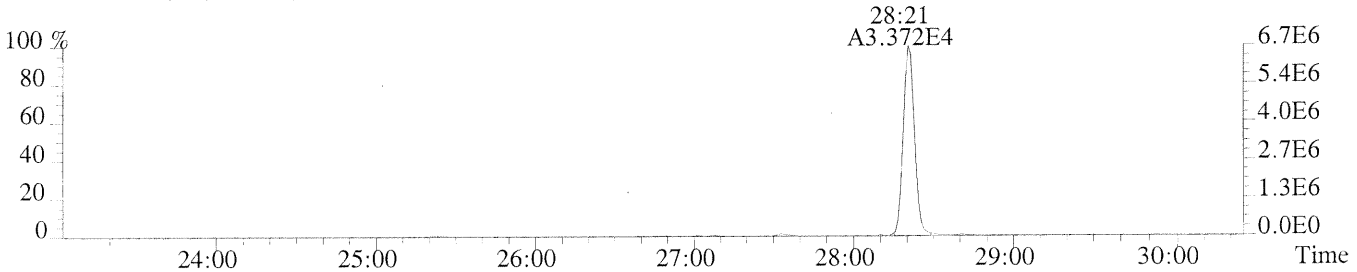
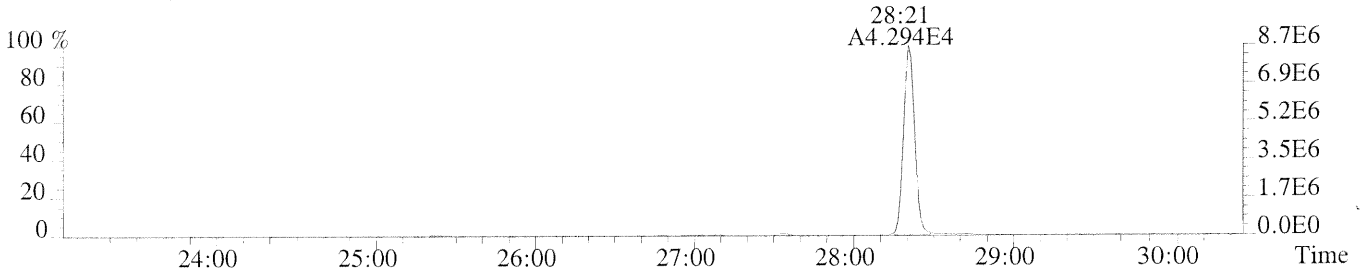
XLSN

File:P227263 #1-464 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

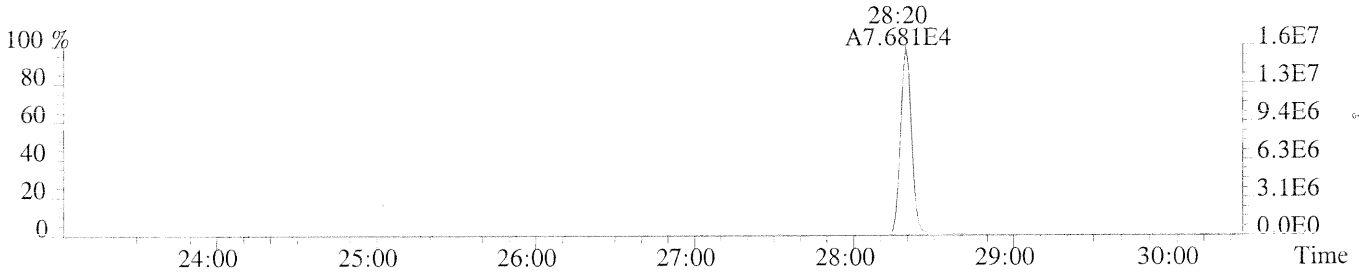
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



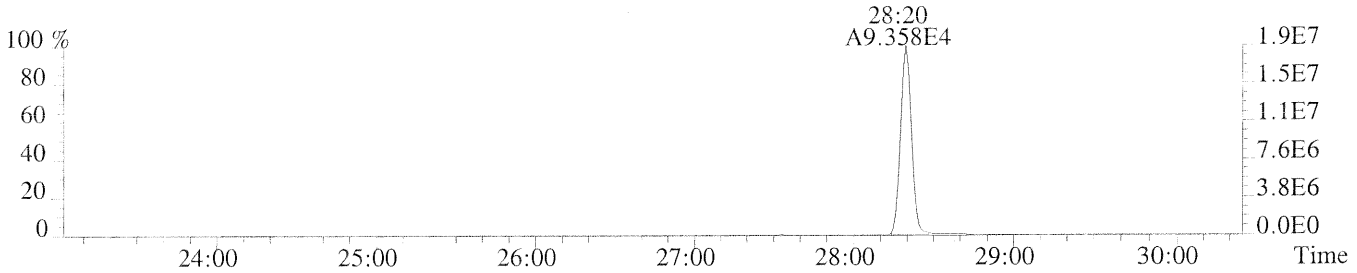
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3832.0,1.00%,F,T)



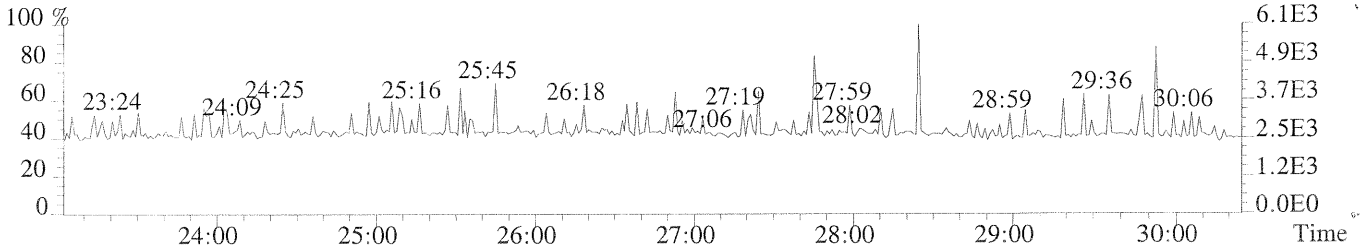
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1252.0,1.00%,F,T)



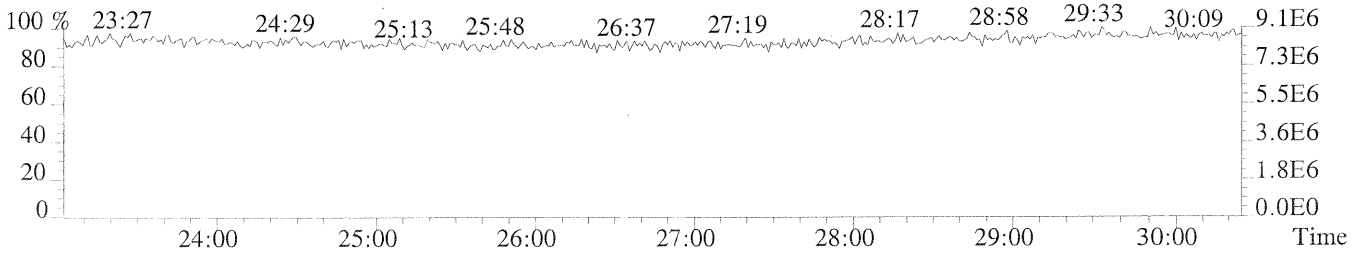
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1216.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

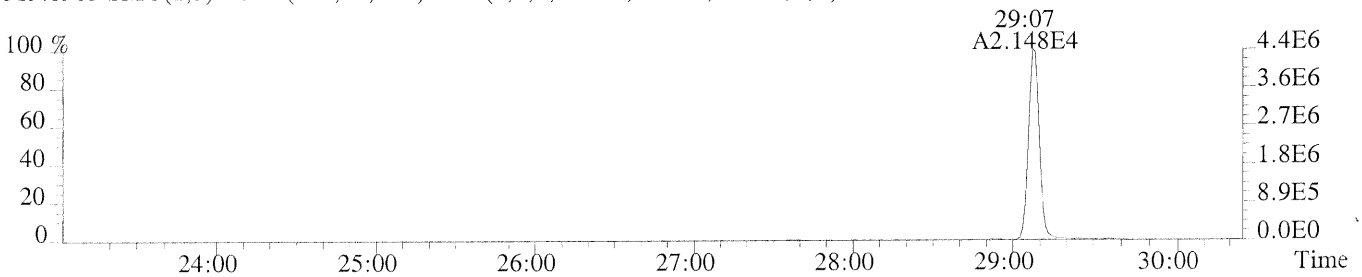


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

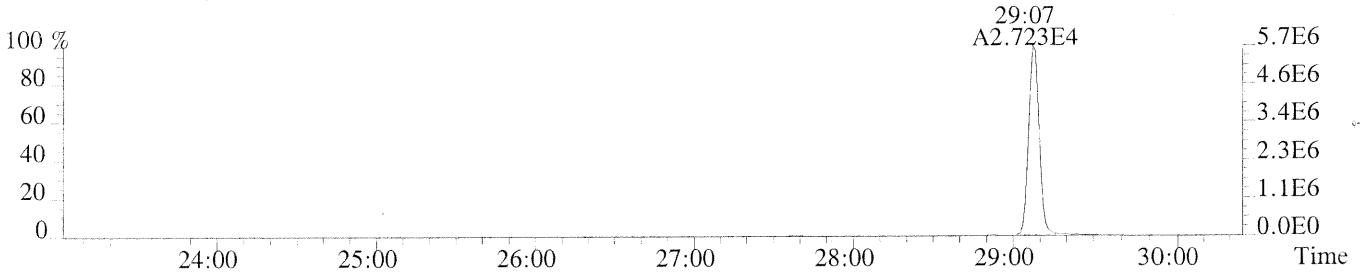


File:P227263 #1-464 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

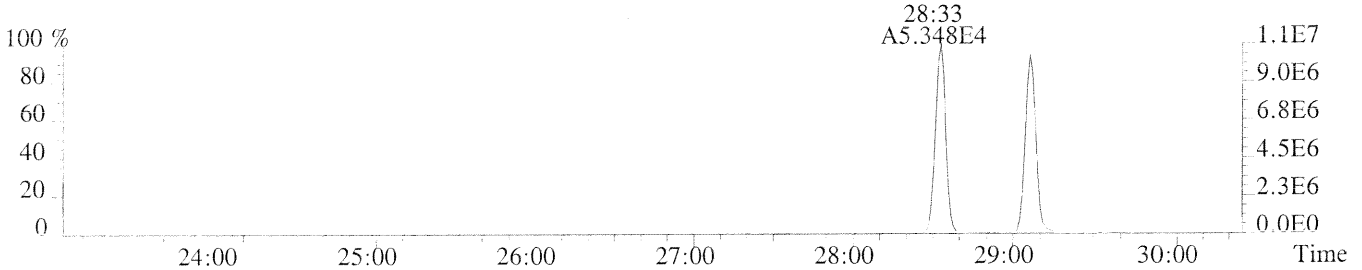
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1044.0,1.00%,F,T)



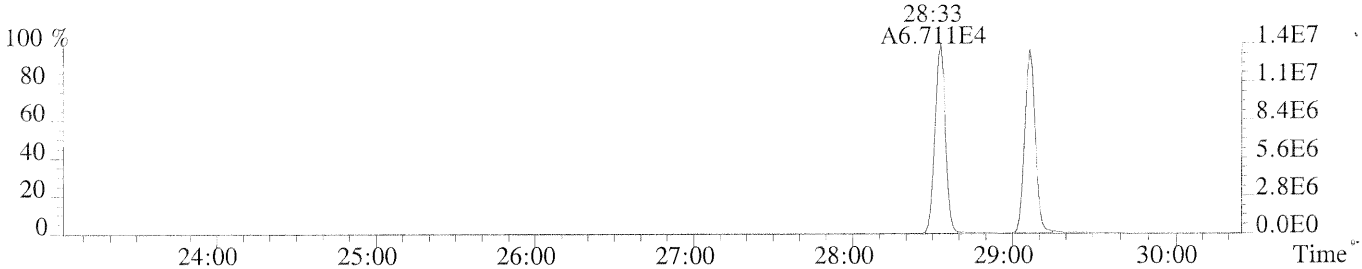
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



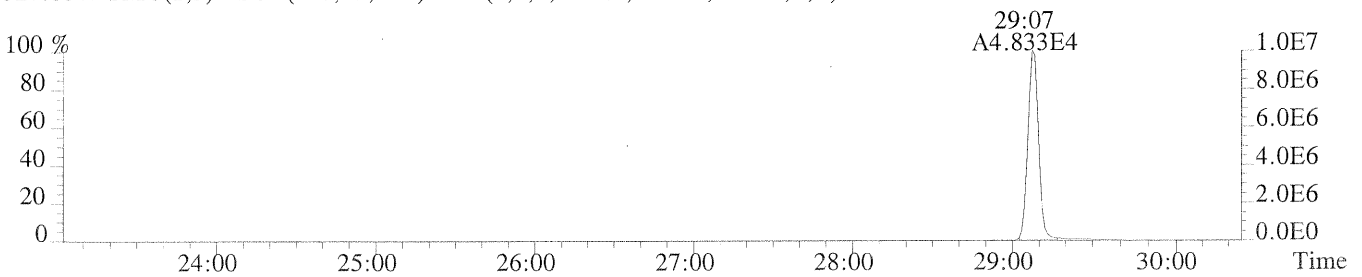
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8972.0,1.00%,F,T)



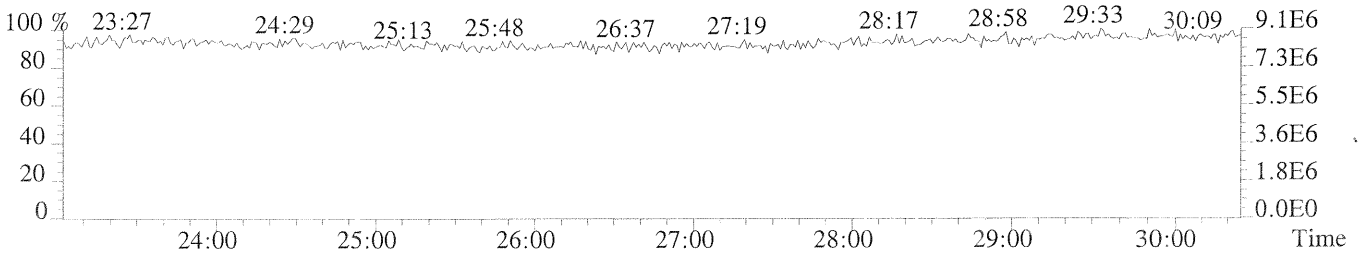
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3568.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1488.0,1.00%,F,T)

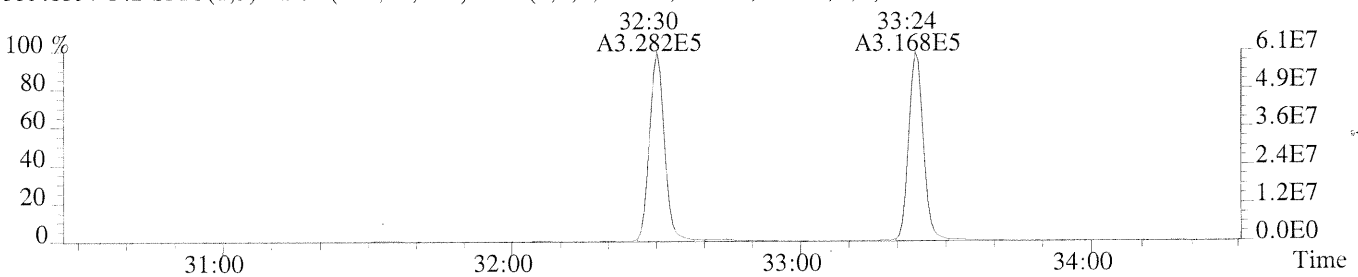


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

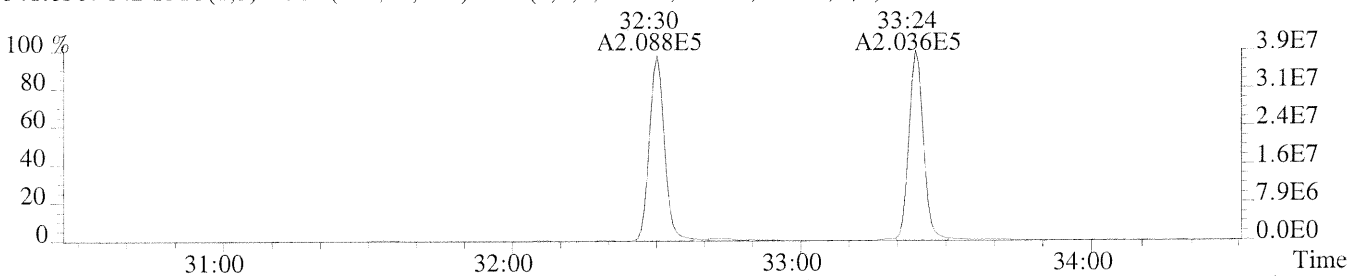


File:P227263 #1-369 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

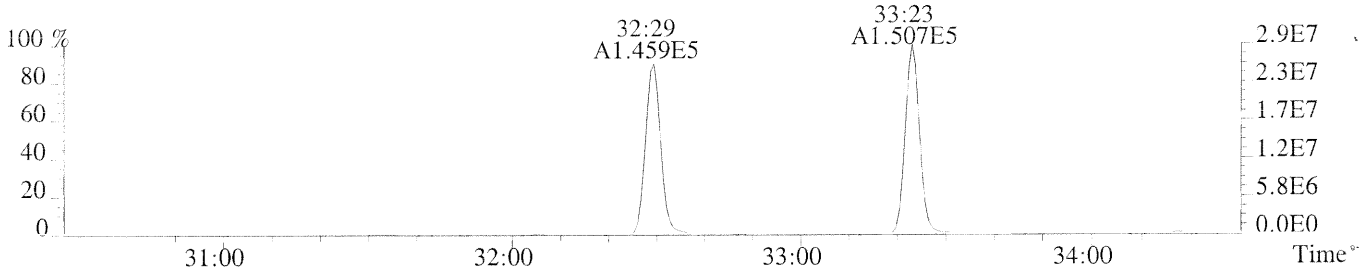
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)



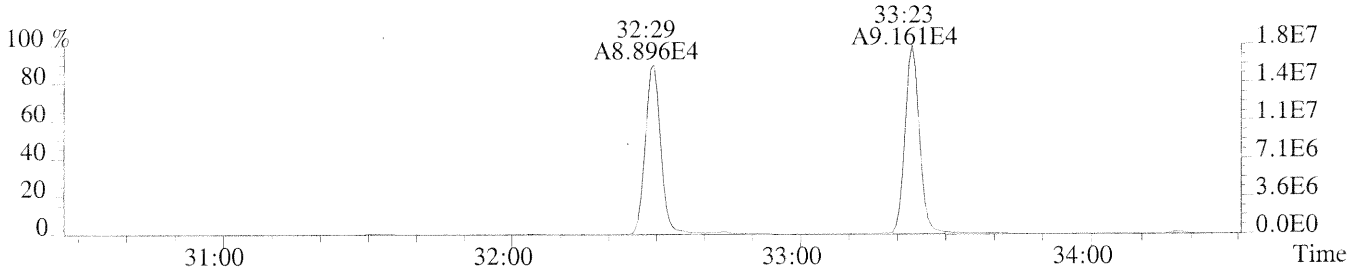
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3100.0,1.00%,F,T)



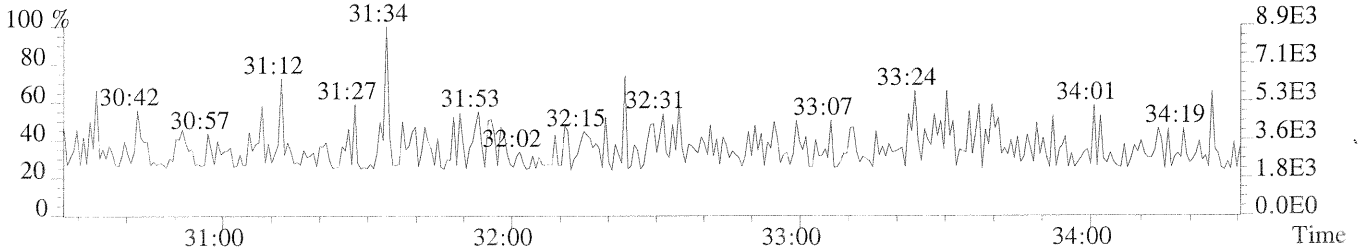
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



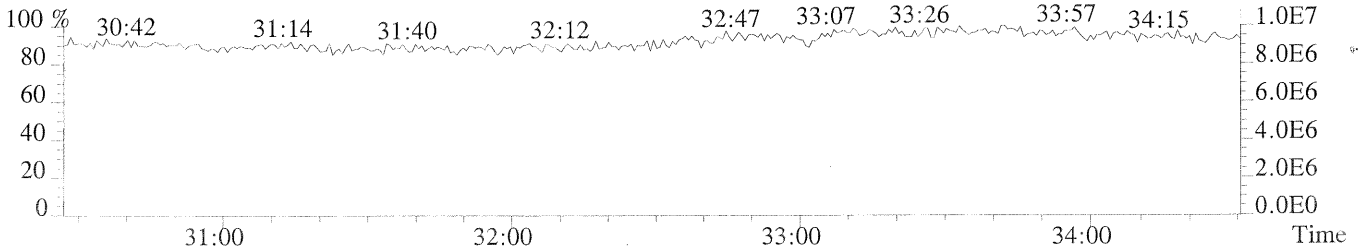
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1032.0,1.00%,F,T)



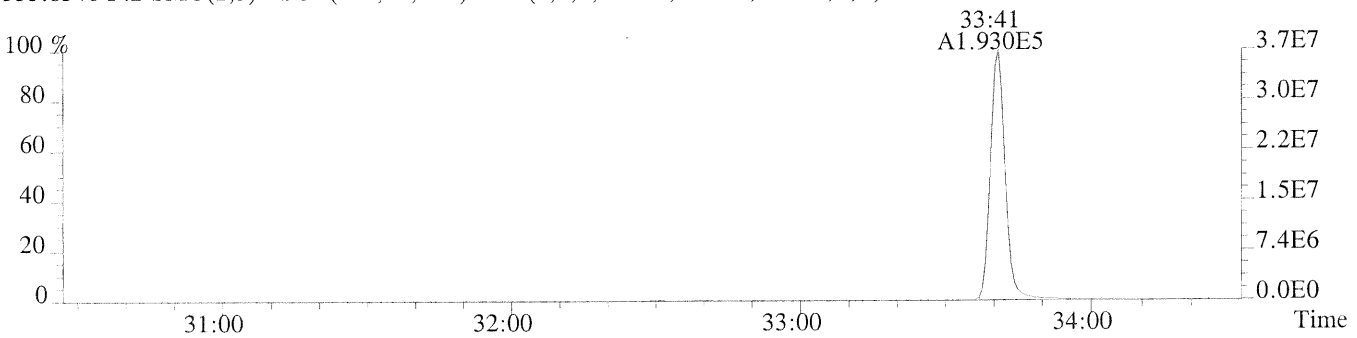
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



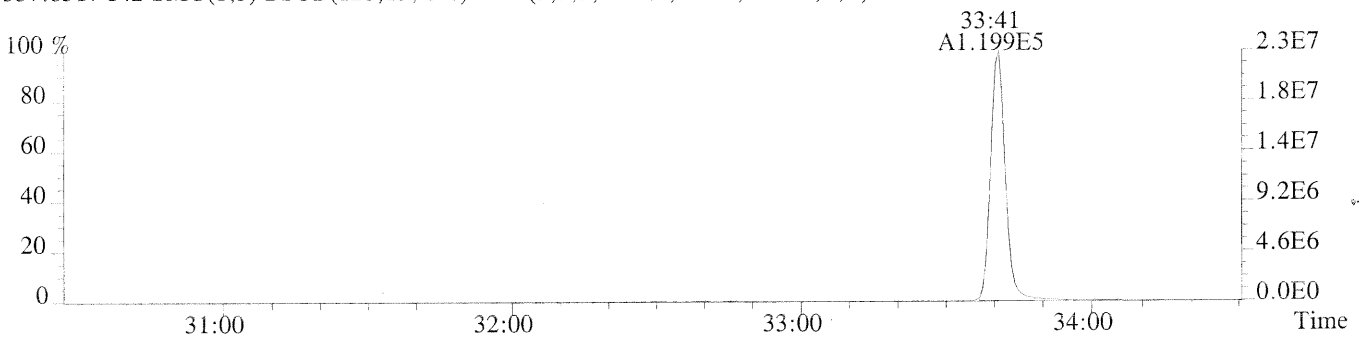
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



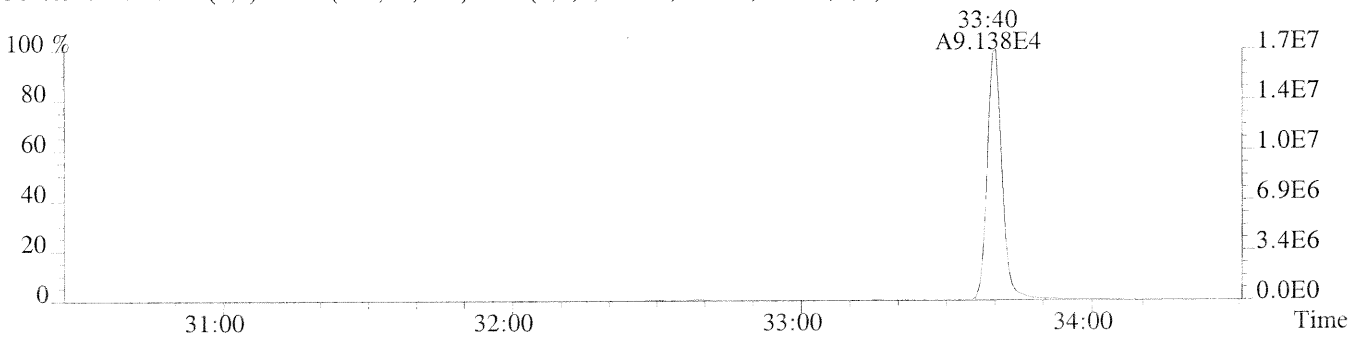
File:P227263 #1-369 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1260.0,1.00%,F,T)



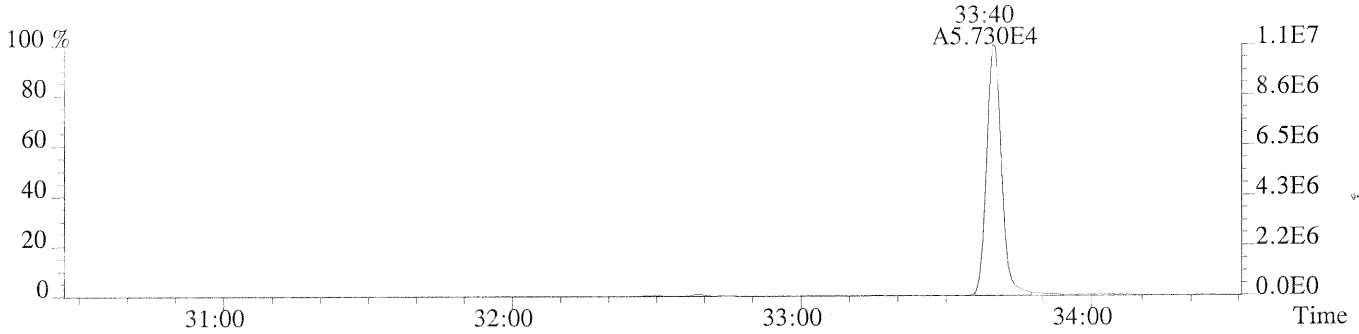
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,452.0,1.00%,F,T)



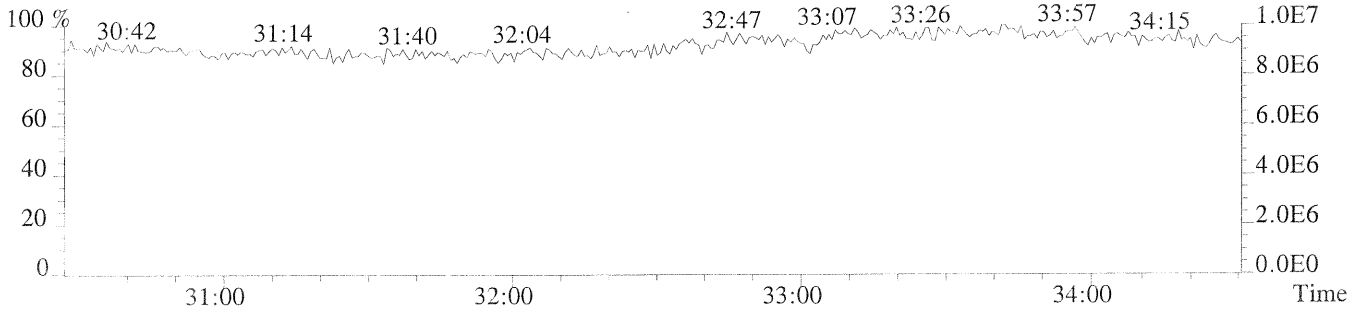
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,492.0,1.00%,F,T)

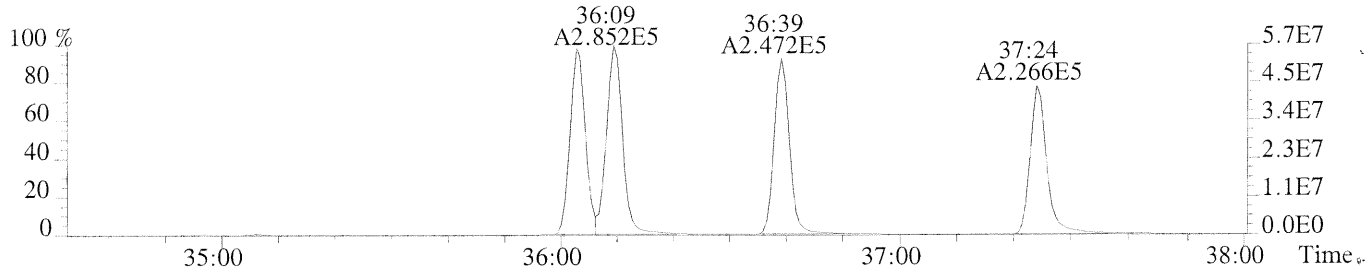


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

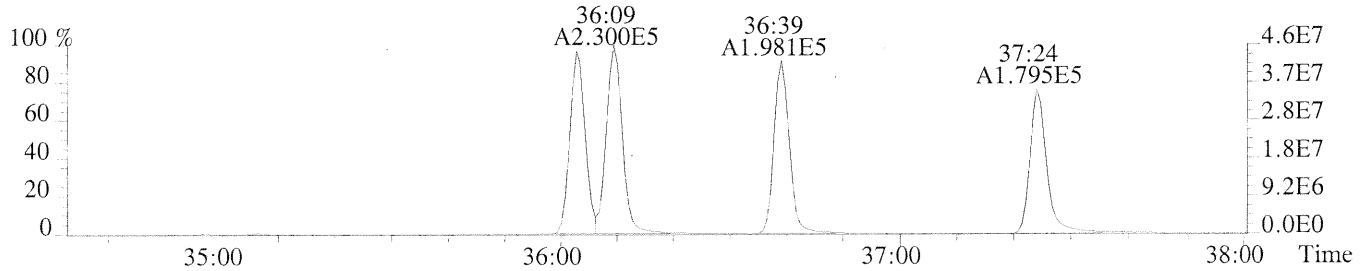


File:P227263 #1-315 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

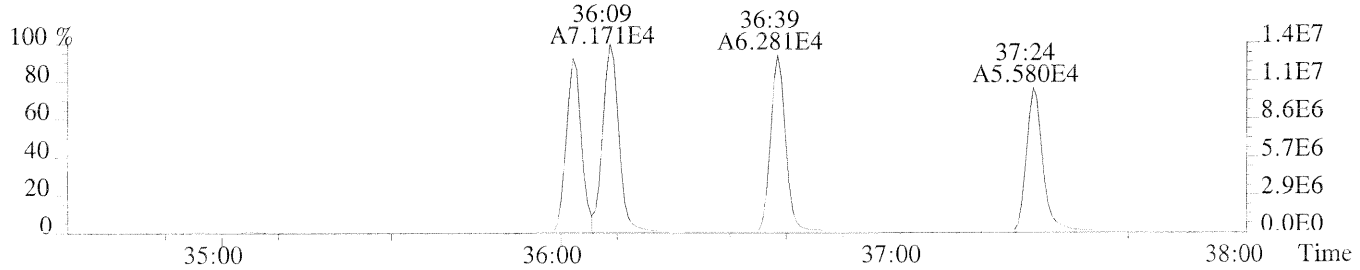
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3060.0,0.40%,F,T)



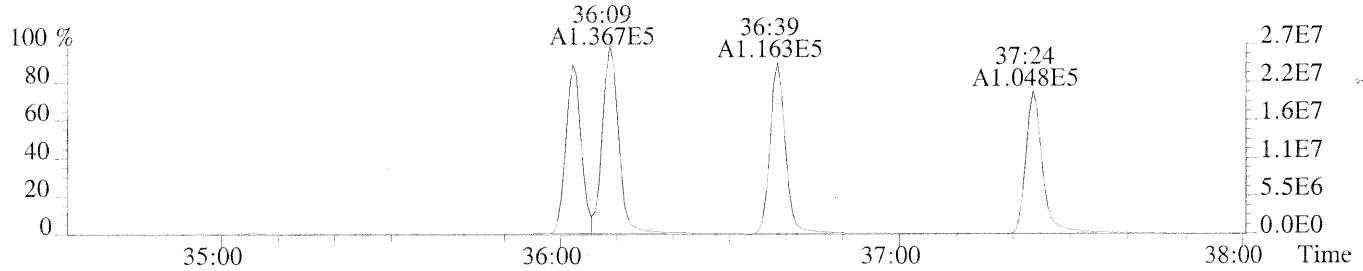
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3120.0,0.40%,F,T)



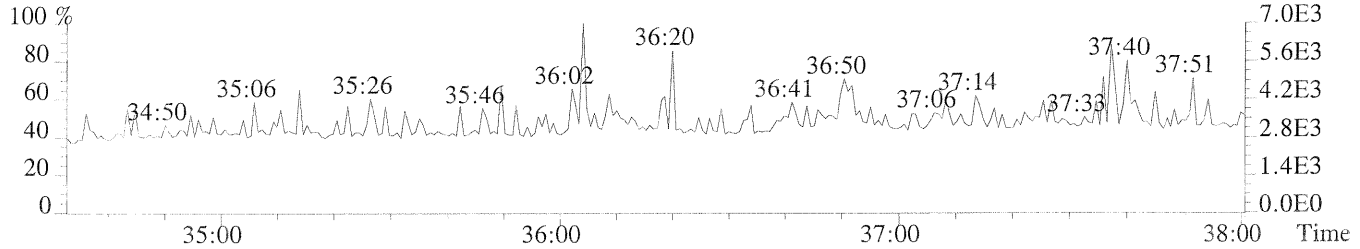
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1588.0,0.40%,F,T)



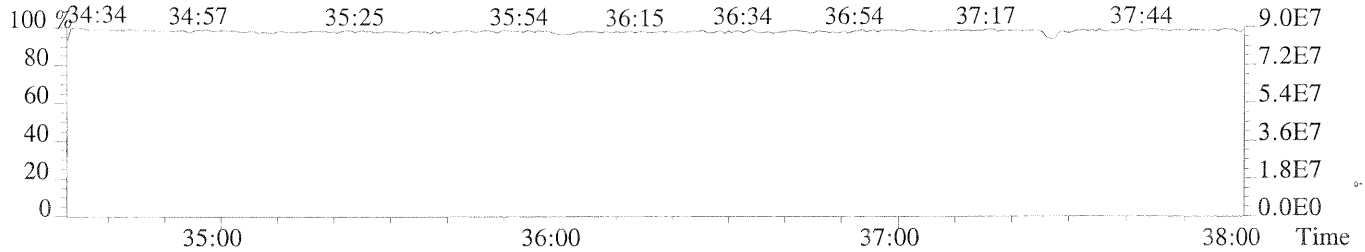
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1848.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

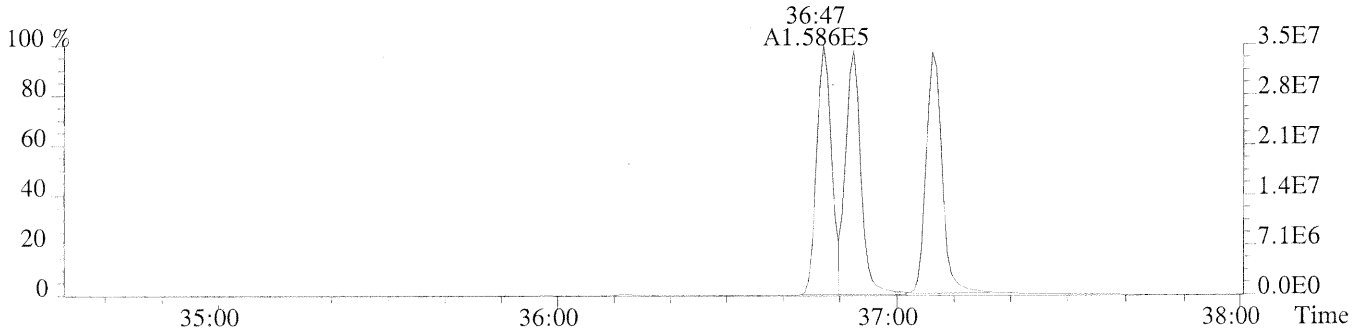


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

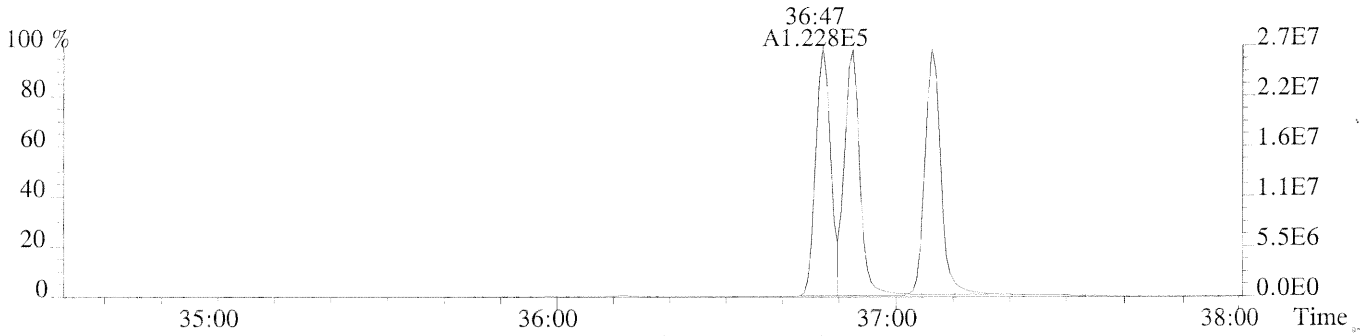


File:P227263 #1-315 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

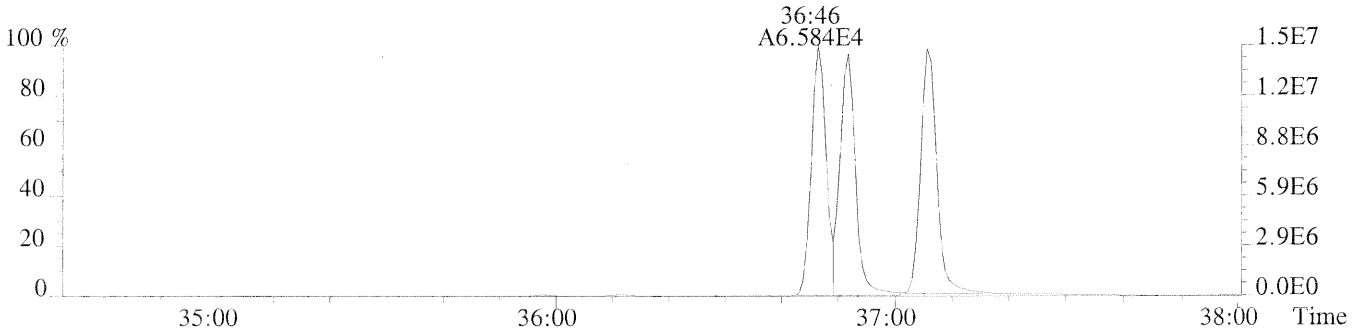
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



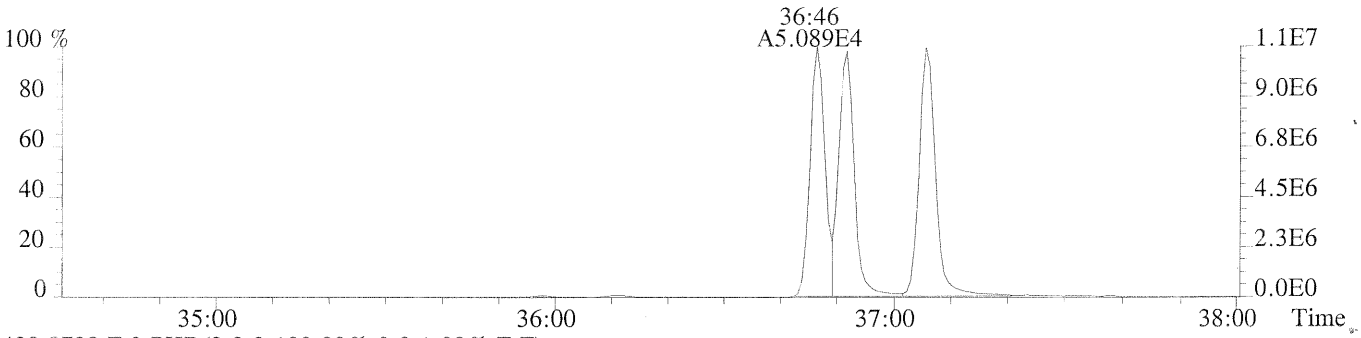
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



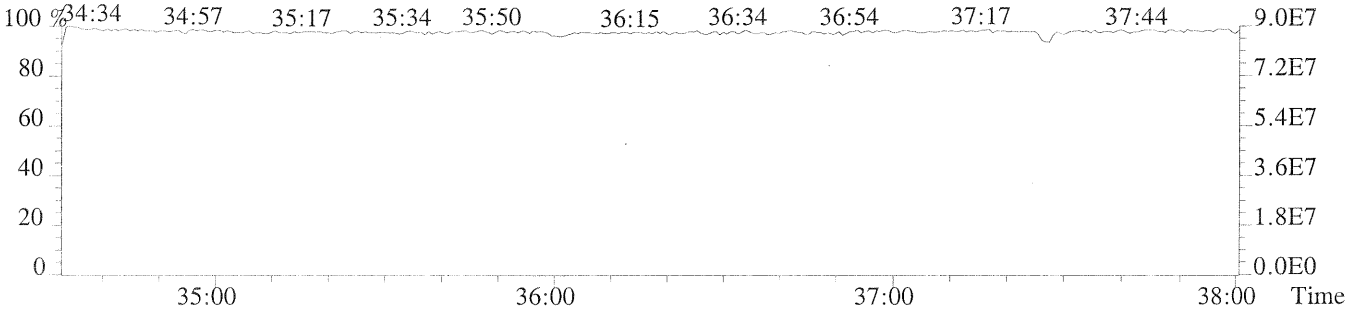
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1056.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)

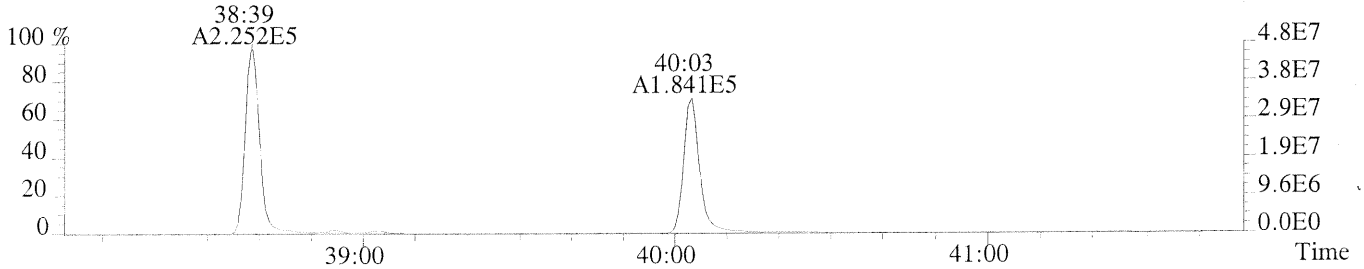


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

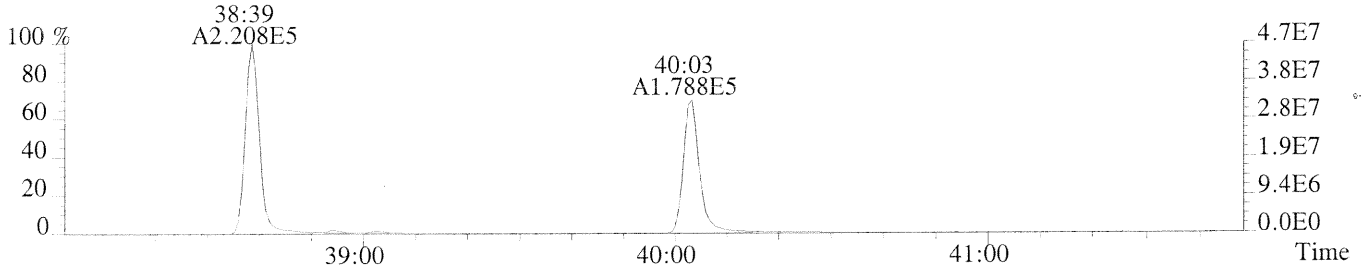


File:P227263 #1-342 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

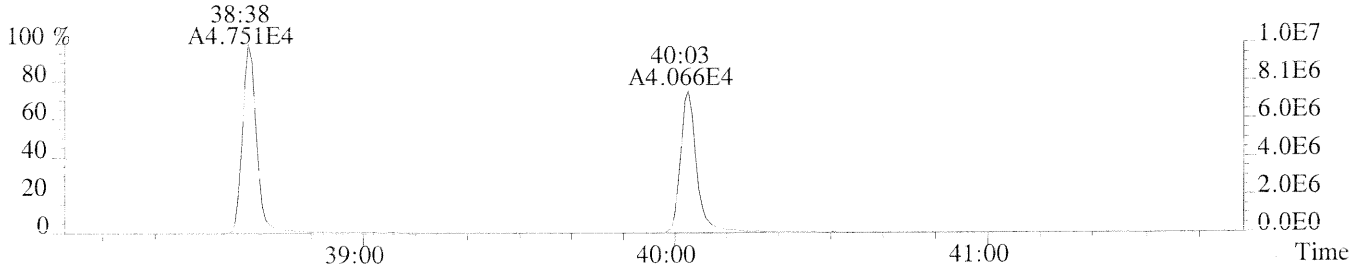
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,16764.0,0.50%,F,T)



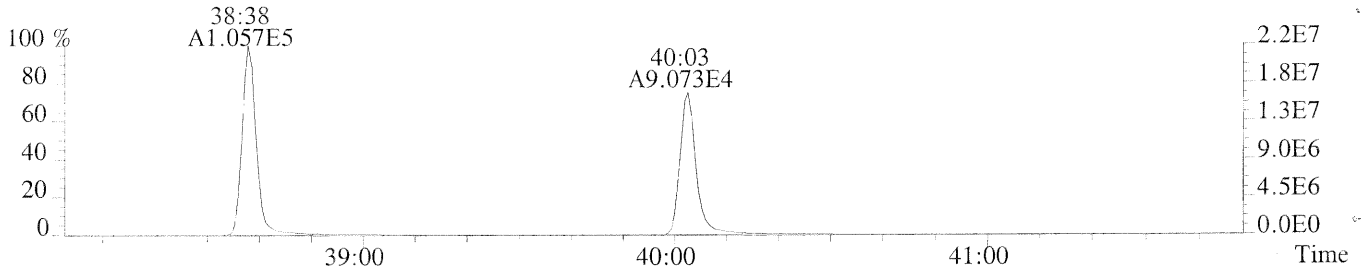
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13772.0,0.50%,F,T)



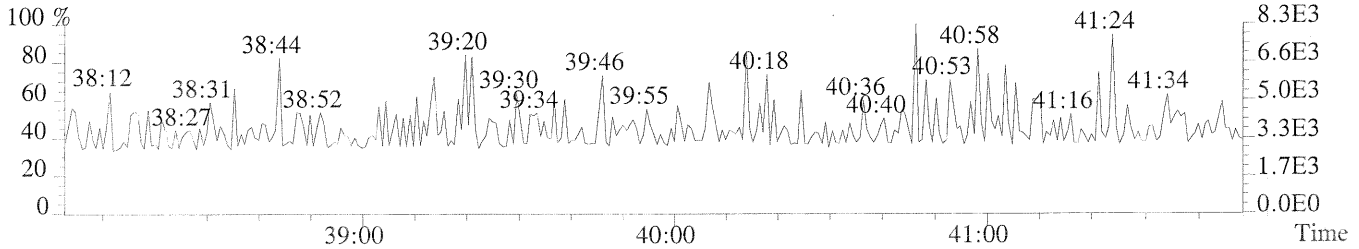
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6832.0,0.50%,F,T)



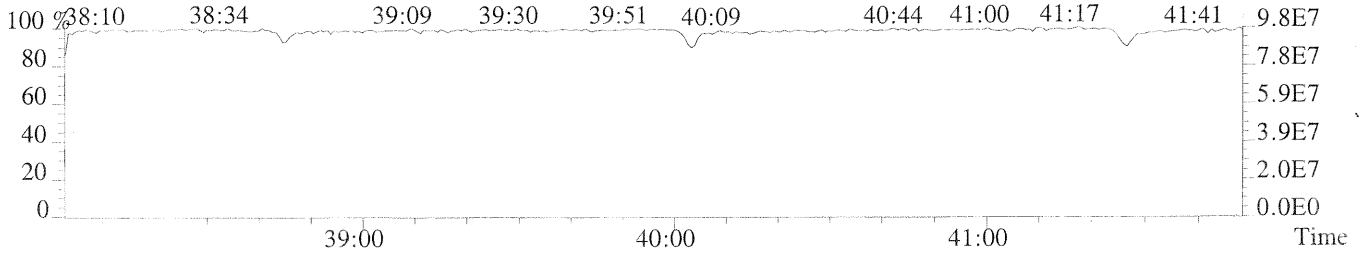
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7460.0,0.50%,F,T)



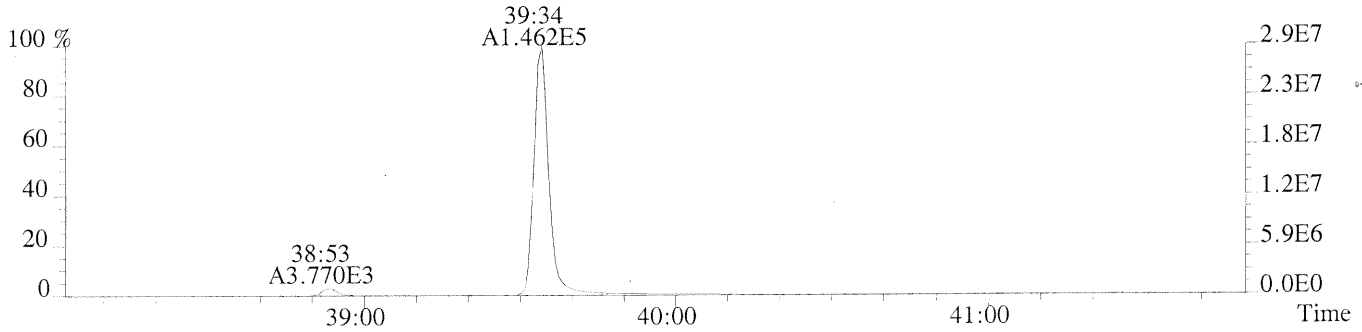
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



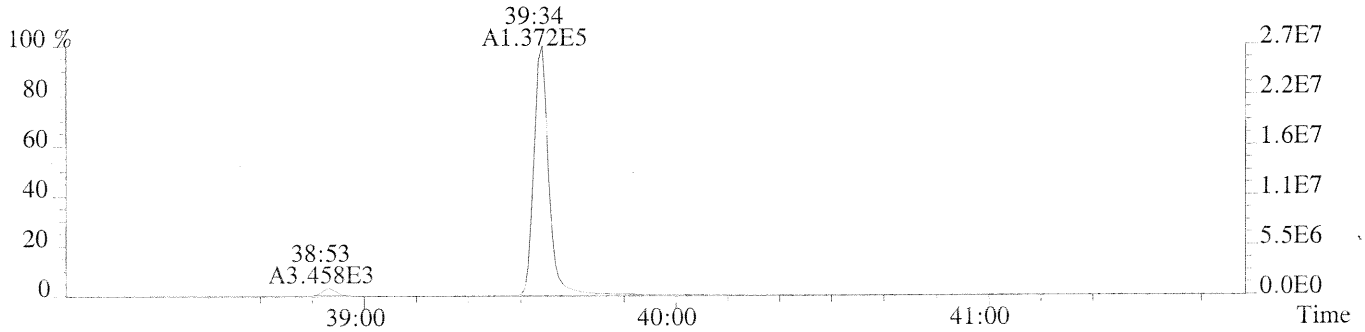
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



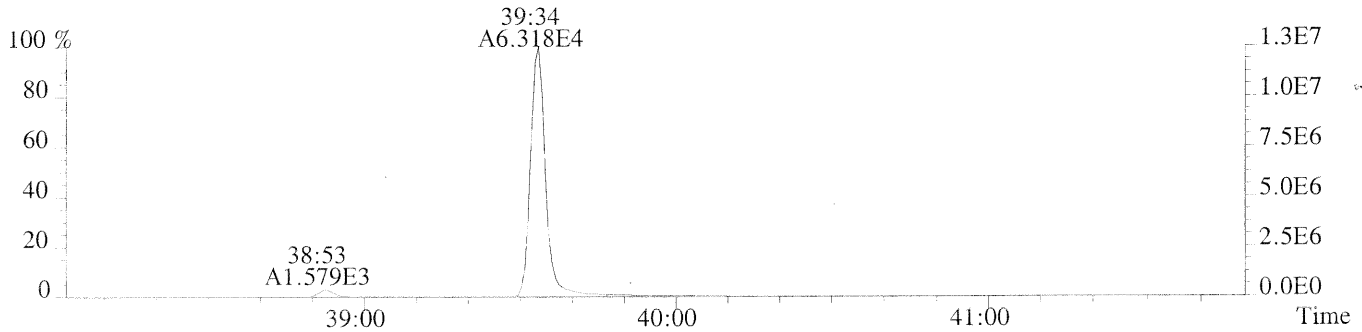
File:P227263 #1-342 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1412.0,0.40%,F,T)



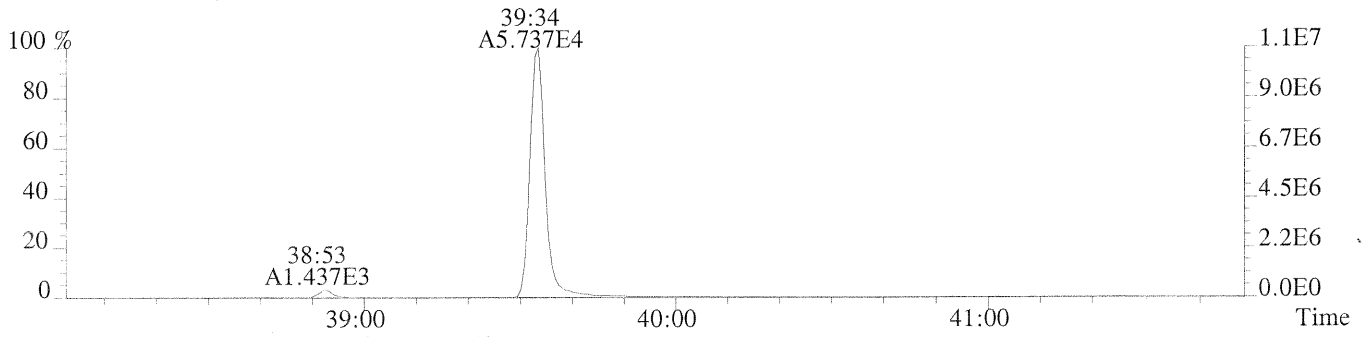
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



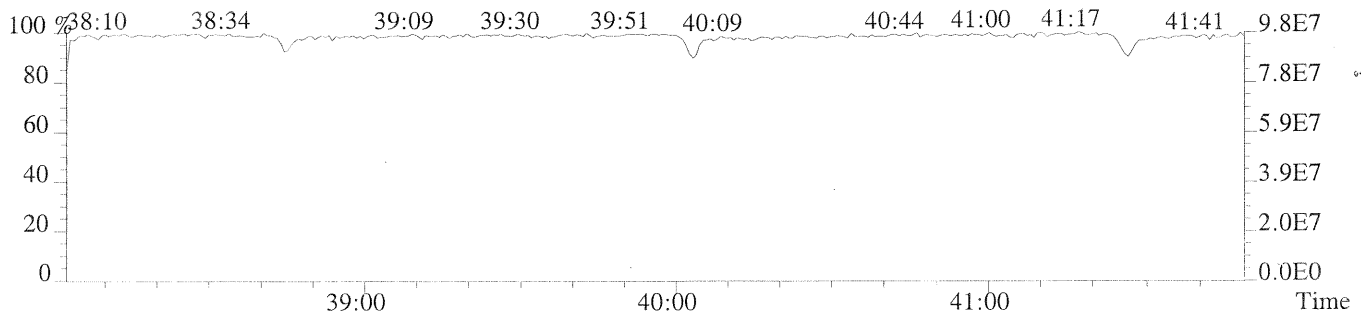
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



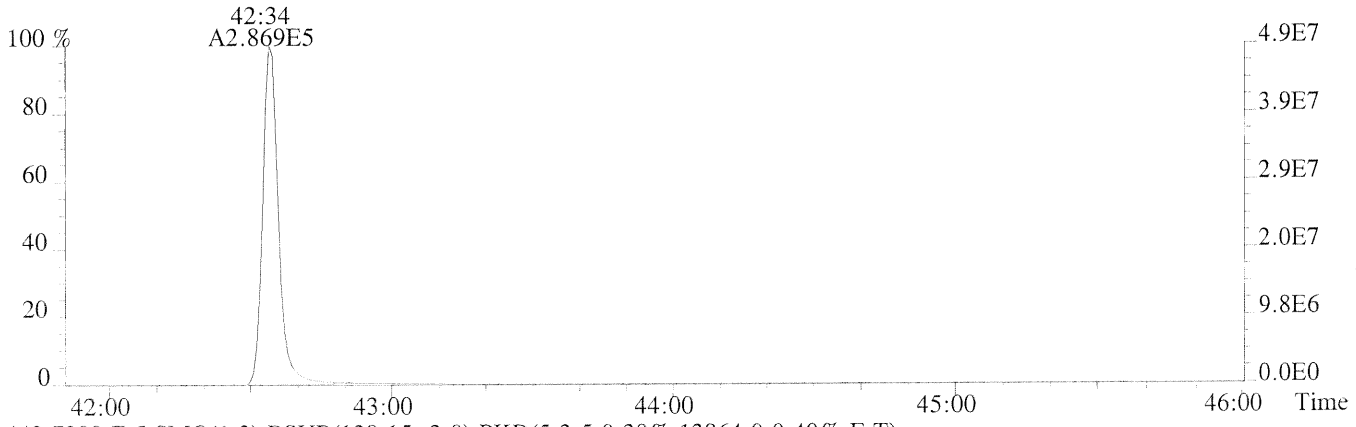
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,712.0,0.40%,F,T)



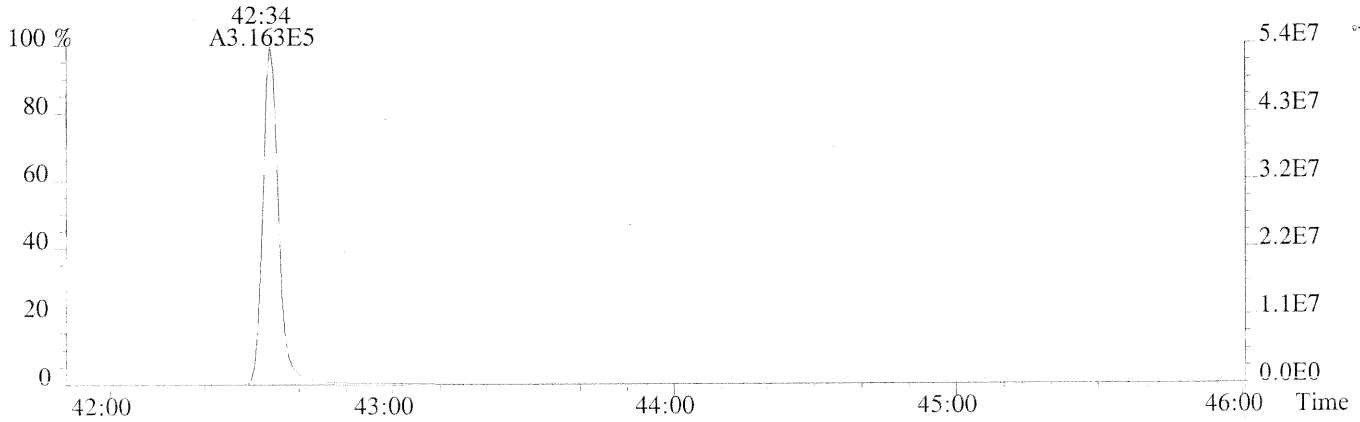
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



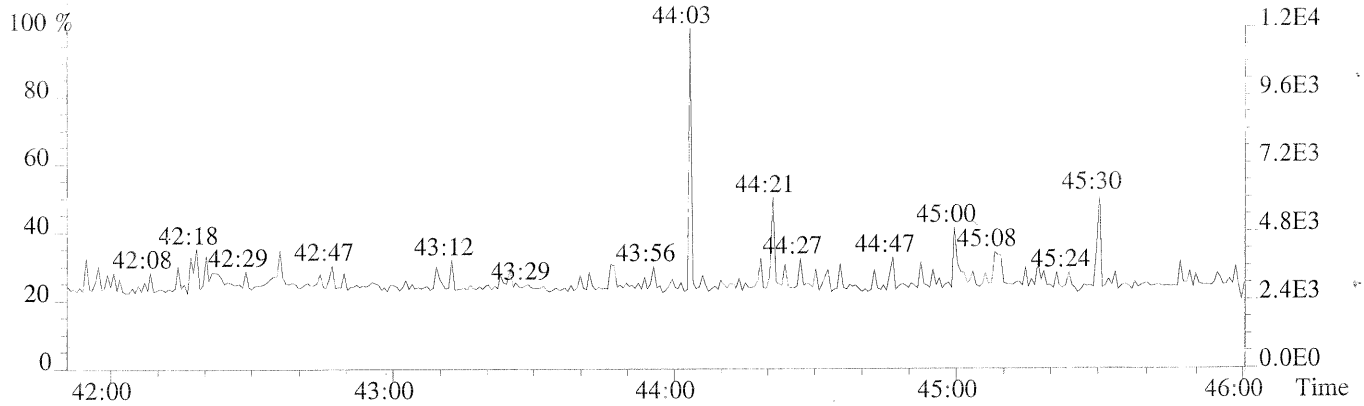
File:P227263 #1-383 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14252.0,0.40%,F,T)



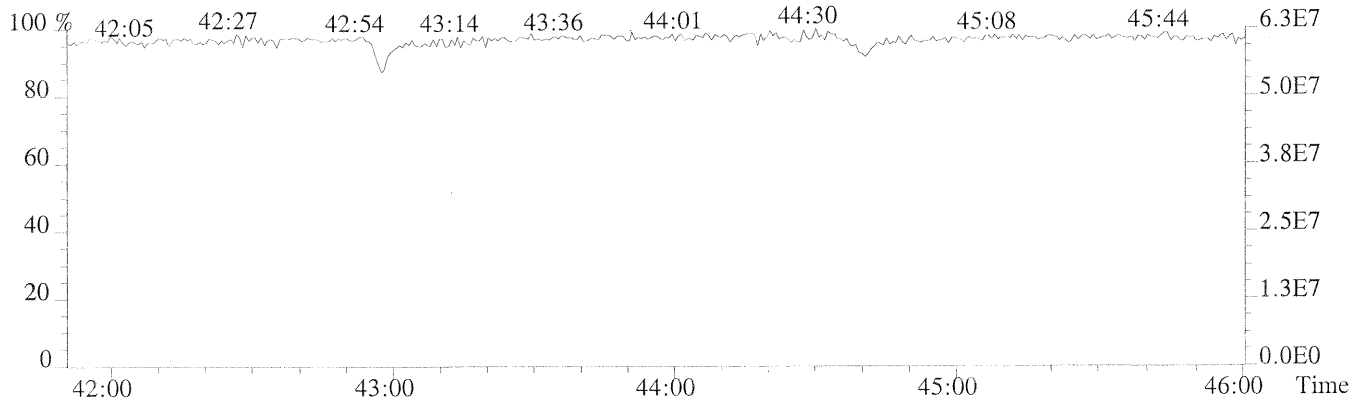
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,13864.0,0.40%,F,T)



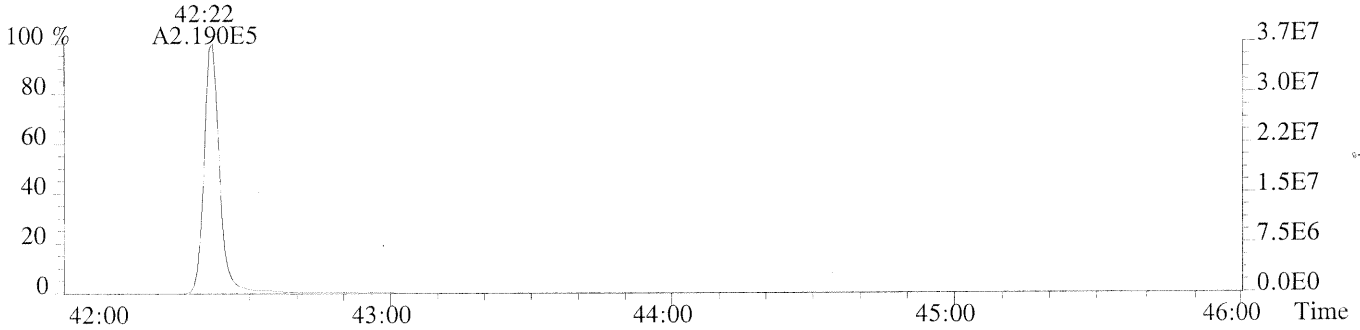
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



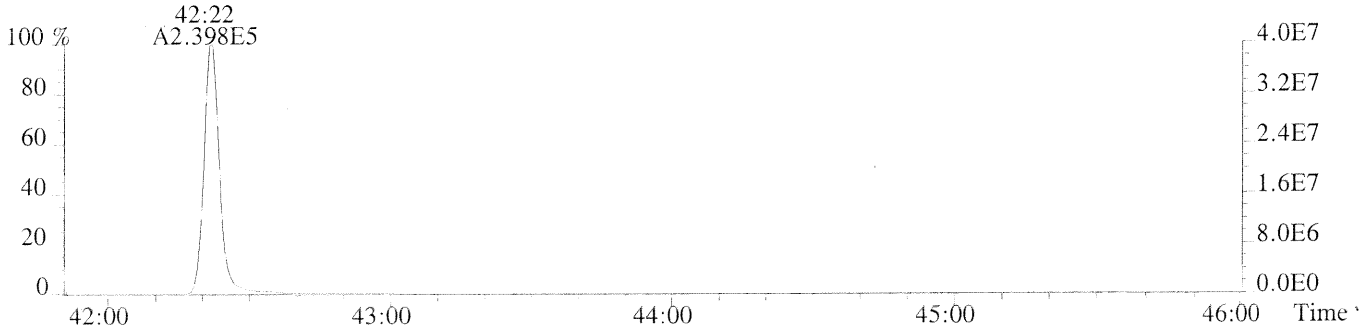
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



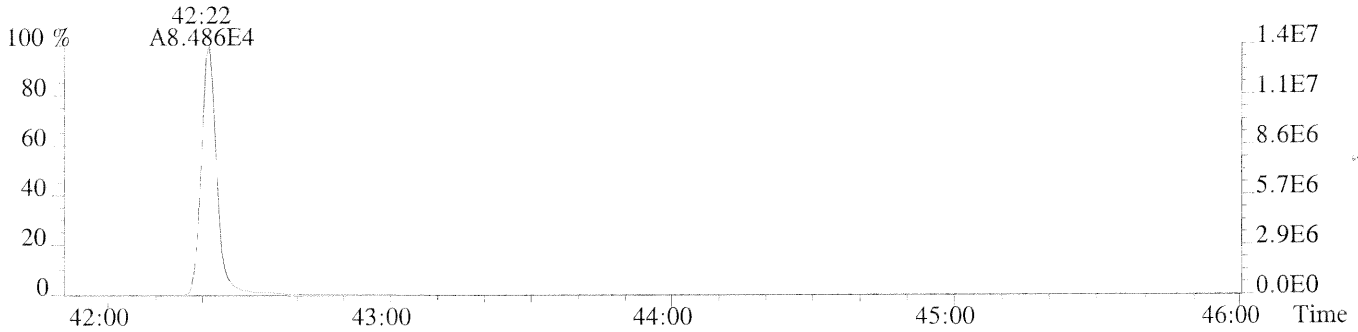
File:P227263 #1-383 Acq: 1-FEB-2014 20:12:26 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4744.0,0.40%,F,T)



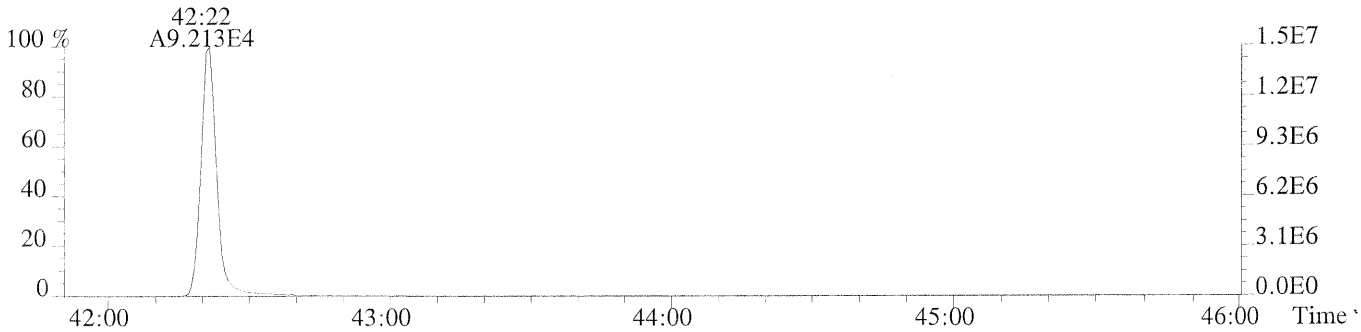
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,21844.0,0.40%,F,T)



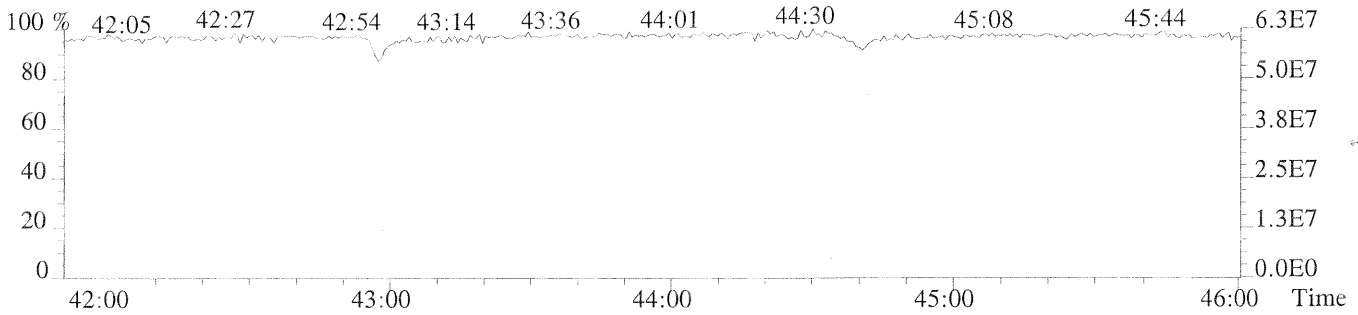
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,3776.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4920.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
ICAL HRCC5/CS5

Run #6 Filename P227264 #1 Samp: 1 Inj: 1 Acquired: 1-FEB-14 21:00:32
Processed: 4-FEB-14 15:25:59 LAB. ID: 66799

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:21	1.847e+05	2.387e+05	0.77	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	1.745e+06	1.115e+06	1.57	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	33:23	1.740e+06	1.112e+06	1.56	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.520e+06	1.221e+06	1.25	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.642e+06	1.311e+06	1.25	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:39	1.421e+06	1.151e+06	1.23	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	1.291e+06	1.032e+06	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.282e+06	1.248e+06	1.03	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	1.073e+06	1.044e+06	1.03	yes	no	1.000
10	Unk	OCDF	42:34	1.608e+06	1.766e+06	0.91	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:07	1.209e+05	1.523e+05	0.79	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:40	1.052e+06	6.549e+05	1.61	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	9.803e+05	7.589e+05	1.29	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	9.402e+05	7.274e+05	1.29	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	9.825e+05	7.666e+05	1.28	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	8.717e+05	8.165e+05	1.07	yes	no	1.000
17	Unk	OCDD	42:21	1.191e+06	1.293e+06	0.92	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:20	8.600e+04	1.048e+05	0.82	yes	no	0.993
19	IS	13C-1,2,3,7,8-PeCDF	32:29	1.685e+05	1.031e+05	1.63	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:22	1.565e+05	9.554e+04	1.64	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	7.432e+04	1.385e+05	0.54	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	8.233e+04	1.531e+05	0.54	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	7.471e+04	1.402e+05	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	6.607e+04	1.231e+05	0.54	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	5.571e+04	1.241e+05	0.45	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	4.515e+04	1.003e+05	0.45	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:06	5.722e+04	7.410e+04	0.77	yes	no	1.020
28	IS	13C-1,2,3,7,8-PeCDD	33:40	9.769e+04	6.180e+04	1.58	yes	no	1.180
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	7.516e+04	5.824e+04	1.29	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	8.758e+04	6.830e+04	1.28	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	7.548e+04	7.038e+04	1.07	yes	no	1.067
32	IS	13C-OCDD	42:21	1.035e+05	1.116e+05	0.93	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:32	5.743e+04	7.321e+04	0.78	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	8.088e+04	6.371e+04	1.27	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	2.728e+05				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL HRCC5/CS5

Run #6 Filename P227264 Samp: 1 Inj: 1 Acquired: 1-FEB-14 21:00:32
Processed: 4-FEB-14 15:25:591 LAB. ID: 66799

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.75e+07	9.04e+02	4.1e+04	4.81e+07	4.02e+03	1.2e+04
2	1,2,3,7,8-PeCDF	3.31e+08	6.64e+02	5.0e+05	2.11e+08	2.94e+03	7.2e+04
3	2,3,4,7,8-PeCDF	3.36e+08	6.64e+02	5.1e+05	2.16e+08	2.94e+03	7.4e+04
4	1,2,3,4,7,8-HxCDF	3.27e+08	3.53e+03	9.3e+04	2.64e+08	2.88e+03	9.2e+04
5	1,2,3,6,7,8-HxCDF	3.43e+08	3.53e+03	9.7e+04	2.75e+08	2.88e+03	9.5e+04
6	2,3,4,6,7,8-HxCDF	3.10e+08	3.53e+03	8.8e+04	2.51e+08	2.88e+03	8.7e+04
7	1,2,3,7,8,9-HxCDF	2.71e+08	3.53e+03	7.7e+04	2.19e+08	2.88e+03	7.6e+04
8	1,2,3,4,6,7,8-HpCDF	2.85e+08	6.12e+04	4.7e+03	2.77e+08	4.05e+04	6.8e+03
9	1,2,3,4,7,8,9-HpCDF	2.12e+08	6.12e+04	3.5e+03	2.04e+08	4.05e+04	5.0e+03
10	OCDF	2.86e+08	7.21e+04	4.0e+03	3.14e+08	5.21e+04	6.0e+03
11	2,3,7,8-TCDD	2.62e+07	1.22e+03	2.1e+04	3.26e+07	8.72e+02	3.7e+04
12	1,2,3,7,8-PeCDD	2.12e+08	1.42e+03	1.5e+05	1.32e+08	6.96e+02	1.9e+05
13	1,2,3,4,7,8-HxCDD	2.23e+08	5.12e+02	4.4e+05	1.73e+08	1.62e+03	1.1e+05
14	1,2,3,6,7,8-HxCDD	2.01e+08	5.12e+02	3.9e+05	1.56e+08	1.62e+03	9.6e+04
15	1,2,3,7,8,9-HxCDD	2.12e+08	5.12e+02	4.1e+05	1.66e+08	1.62e+03	1.0e+05
16	1,2,3,4,6,7,8-HpCDD	1.82e+08	1.18e+03	1.5e+05	1.69e+08	5.40e+02	3.1e+05
17	OCDD	2.13e+08	1.63e+04	1.3e+04	2.34e+08	2.03e+04	1.2e+04
18	13C-2,3,7,8-TCDF	1.72e+07	1.39e+03	1.2e+04	2.11e+07	1.52e+03	1.4e+04
19	13C-1,2,3,7,8-PeCDF	3.16e+07	6.28e+02	5.0e+04	1.94e+07	1.48e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	3.05e+07	6.28e+02	4.9e+04	1.87e+07	1.48e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	1.59e+07	1.57e+03	1.0e+04	2.97e+07	2.42e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	1.70e+07	1.57e+03	1.1e+04	3.18e+07	2.42e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	1.62e+07	1.57e+03	1.0e+04	3.03e+07	2.42e+03	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	1.38e+07	1.57e+03	8.8e+03	2.58e+07	2.42e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.22e+07	1.59e+04	7.7e+02	2.71e+07	5.66e+03	4.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	8.87e+06	1.59e+04	5.6e+02	1.98e+07	5.66e+03	3.5e+03
27	13C-2,3,7,8-TCDD	1.19e+07	8.06e+03	1.5e+03	1.55e+07	2.91e+03	5.3e+03
28	13C-1,2,3,7,8-PeCDD	1.90e+07	1.06e+03	1.8e+04	1.20e+07	6.76e+02	1.8e+04
29	13C-1,2,3,4,7,8-HxCDD	1.70e+07	2.00e+03	8.5e+03	1.31e+07	1.10e+03	1.2e+04
30	13C-1,2,3,6,7,8-HxCDD	1.88e+07	2.00e+03	9.4e+03	1.46e+07	1.10e+03	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.57e+07	2.94e+03	5.3e+03	1.44e+07	1.75e+03	8.2e+03
32	13C-OCDD	1.85e+07	4.32e+03	4.3e+03	2.00e+07	5.09e+03	3.9e+03
33	13C-1,2,3,4-TCDD	1.21e+07	8.06e+03	1.5e+03	1.54e+07	2.91e+03	5.3e+03
34	13C-1,2,3,7,8,9-HxCDD	1.71e+07	2.00e+03	8.5e+03	1.36e+07	1.10e+03	1.2e+04
35	37Cl-2,3,7,8-TCDD	5.86e+07	1.70e+03	3.4e+04			

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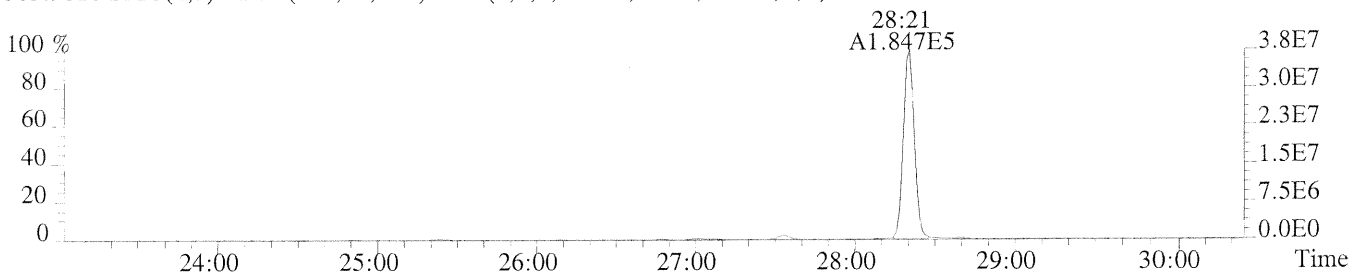
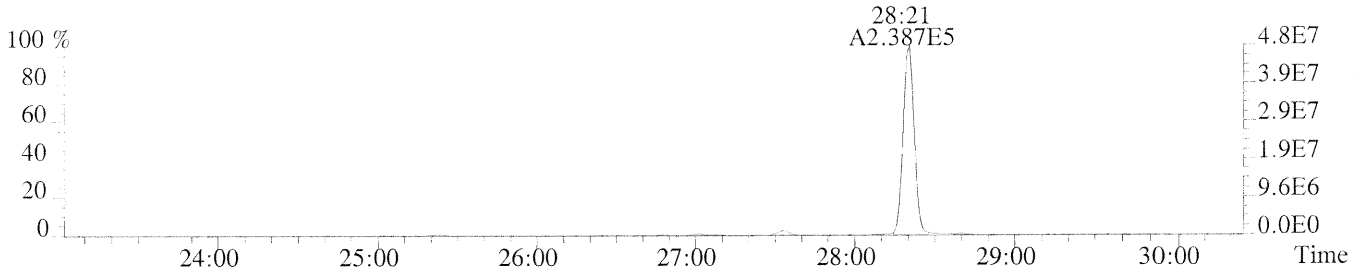
XLSN

File:P227264 #1-464 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

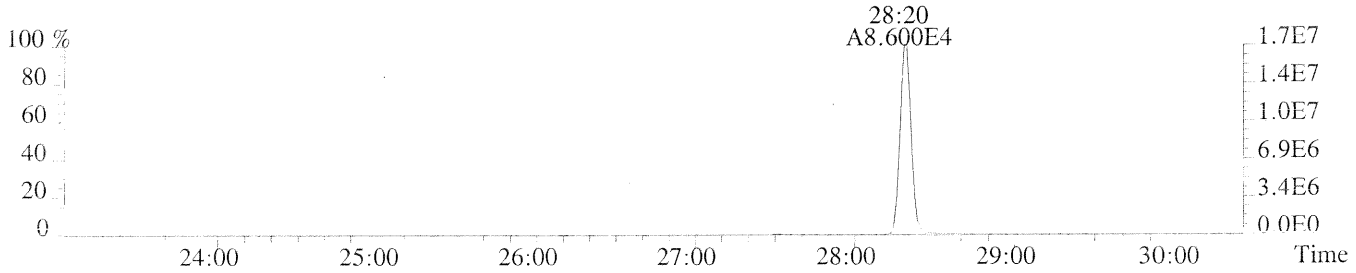
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



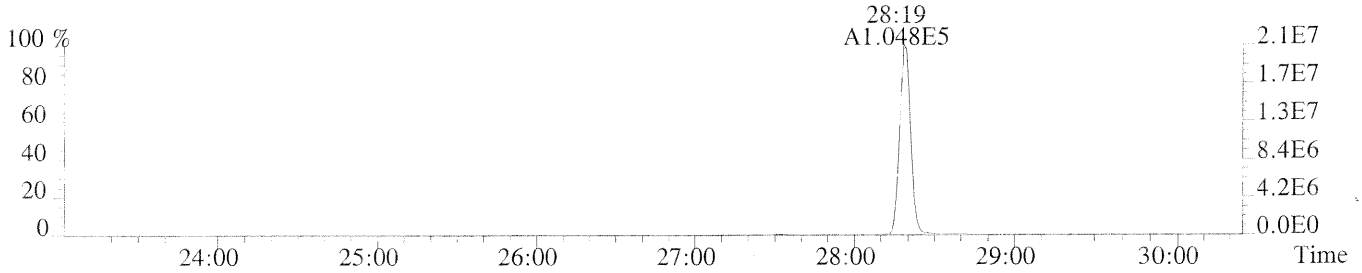
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4016.0,1.00%,F,T)



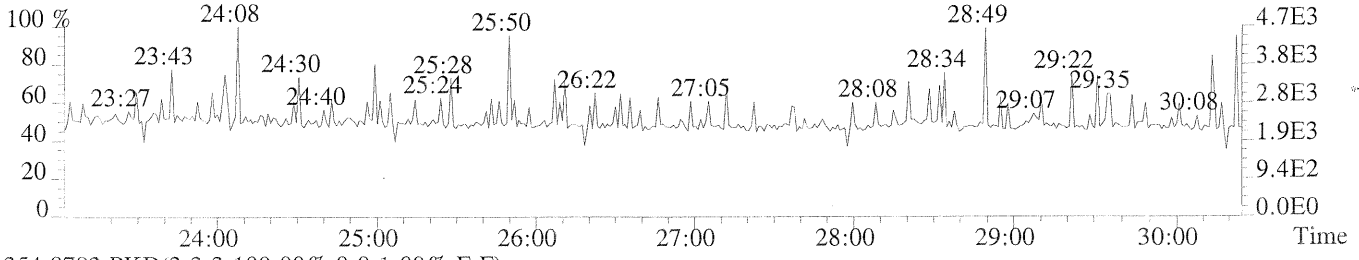
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)



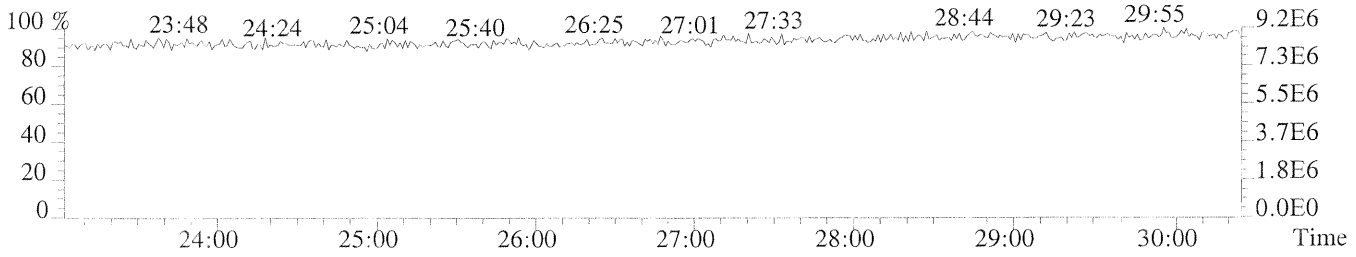
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1520.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

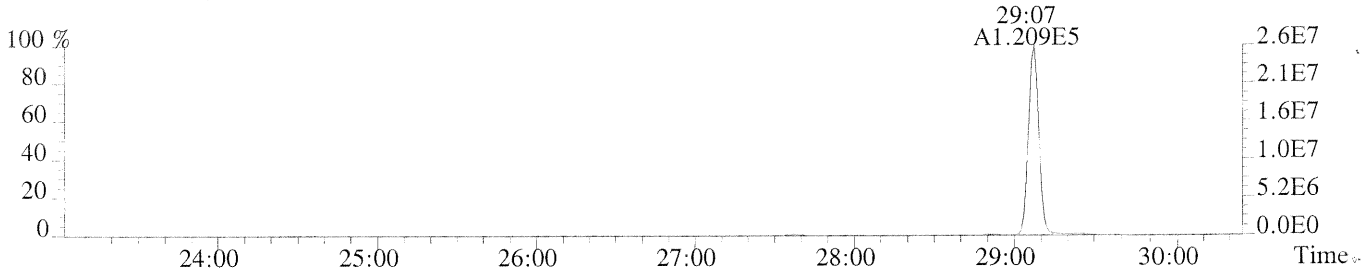


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

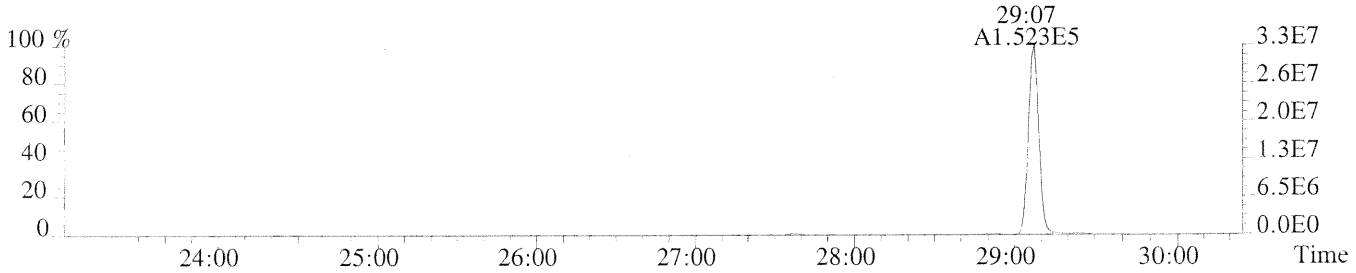


File:P227264 #1-464 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

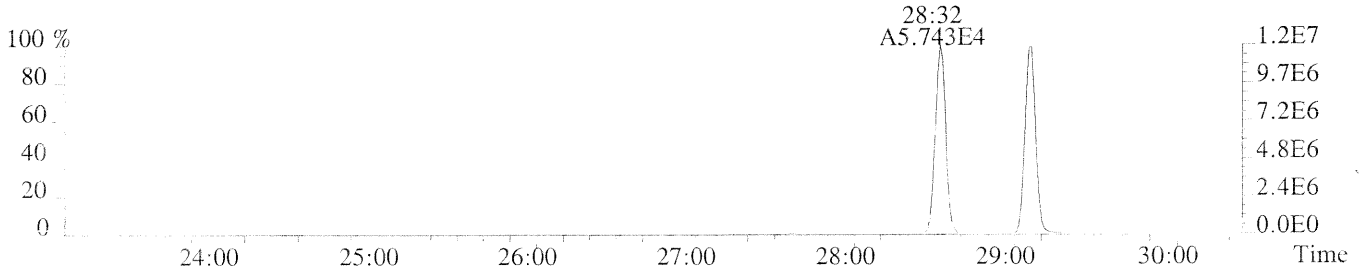
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



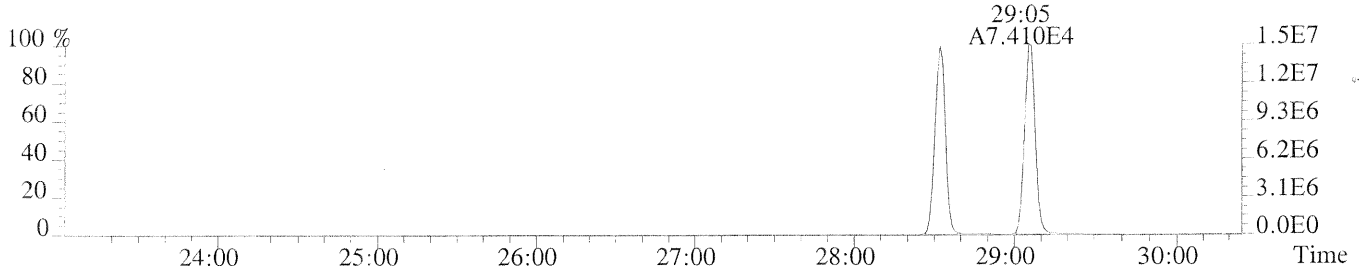
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



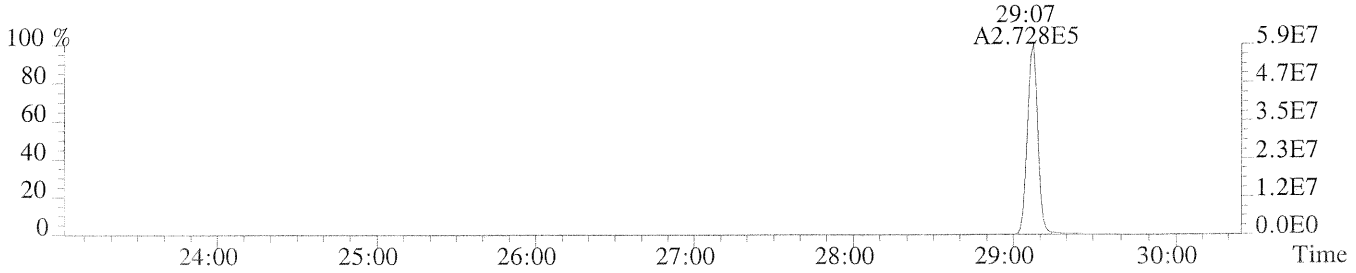
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8056.0,1.00%,F,T)



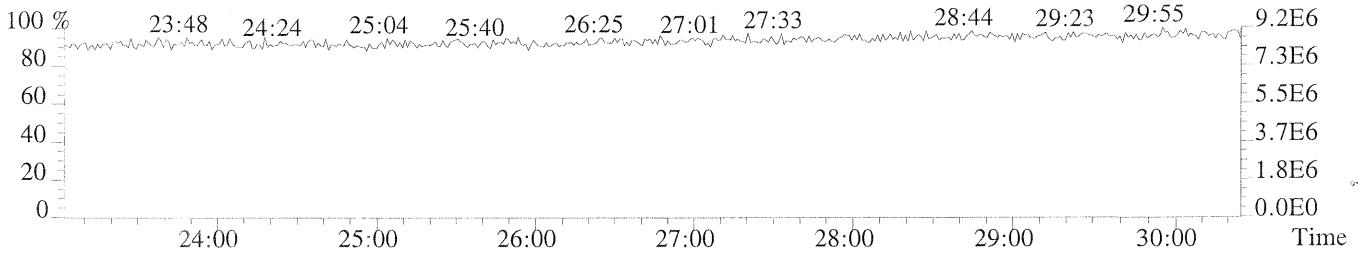
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2908.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1700.0,1.00%,F,T)

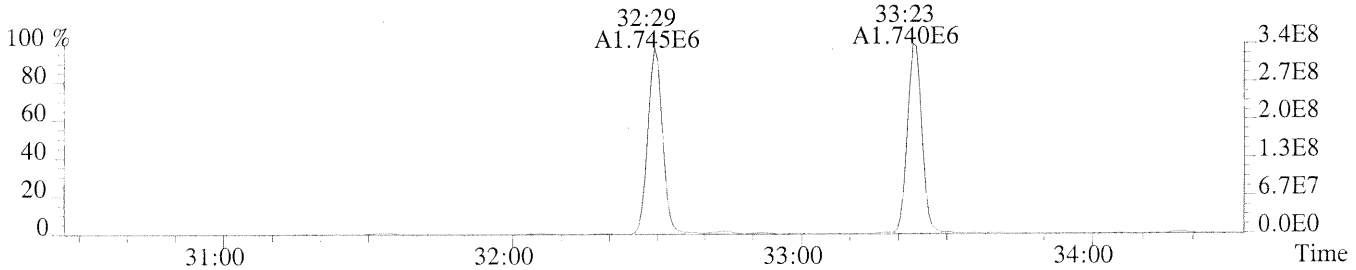


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

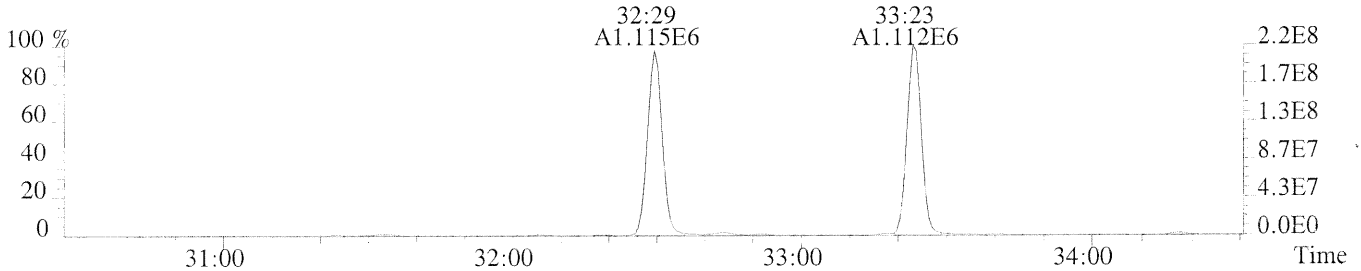


File:P227264 #1-369 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

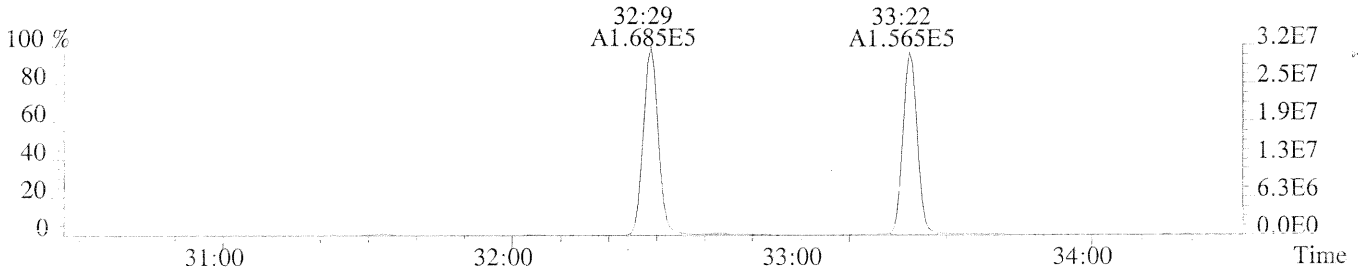
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



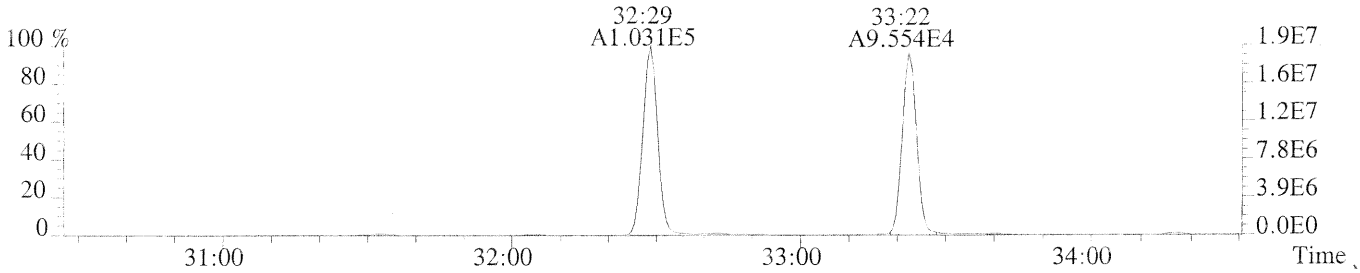
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2936.0,1.00%,F,T)



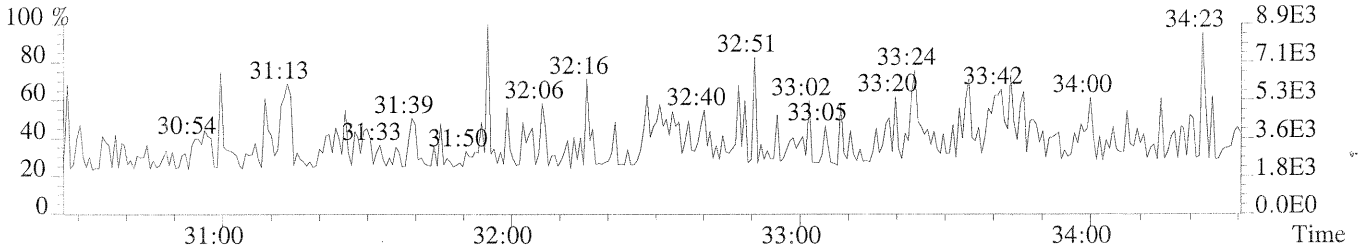
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



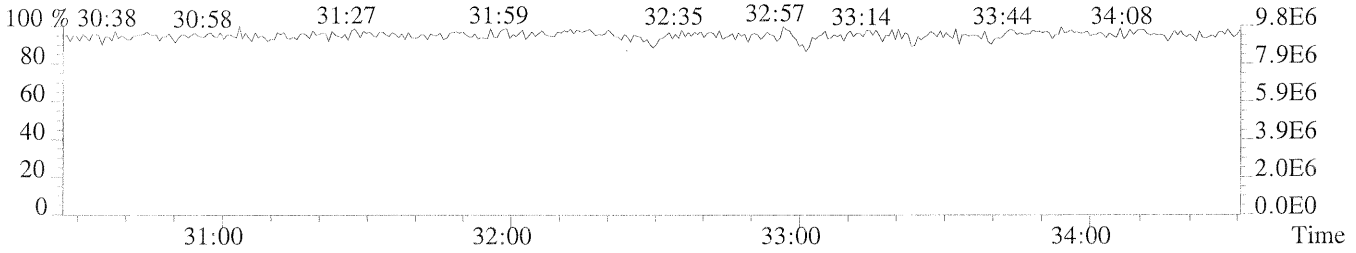
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1476.0,1.00%,F,T)



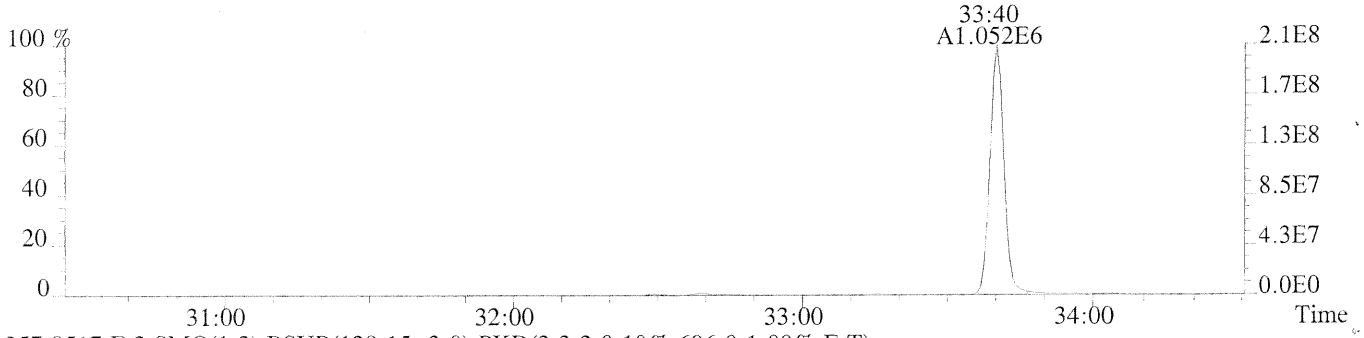
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



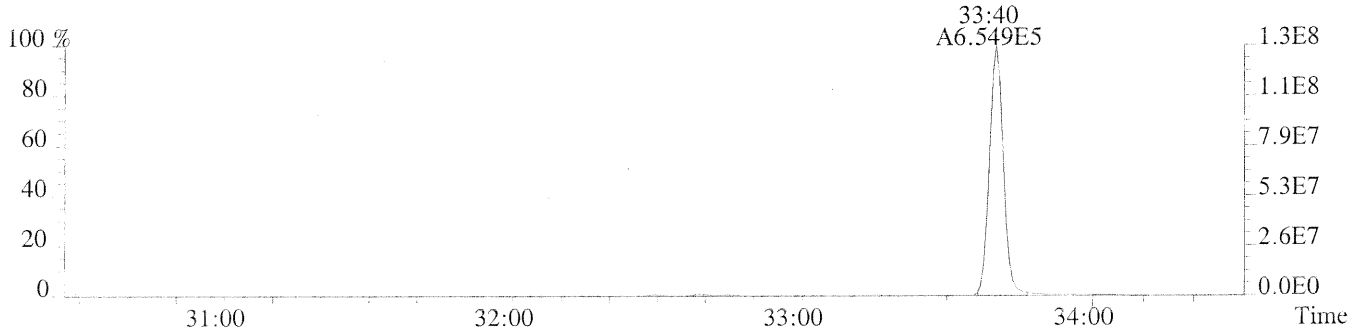
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



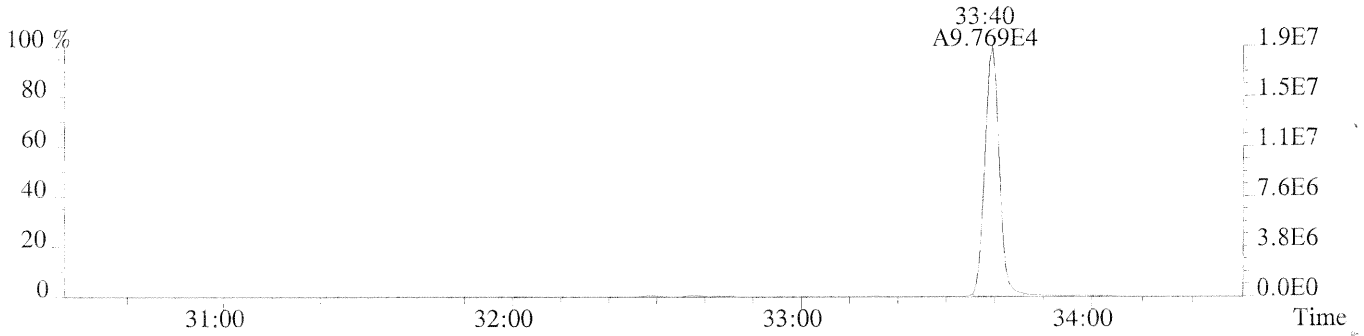
File:P227264 #1-369 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1424.0,1.00%,F,T)



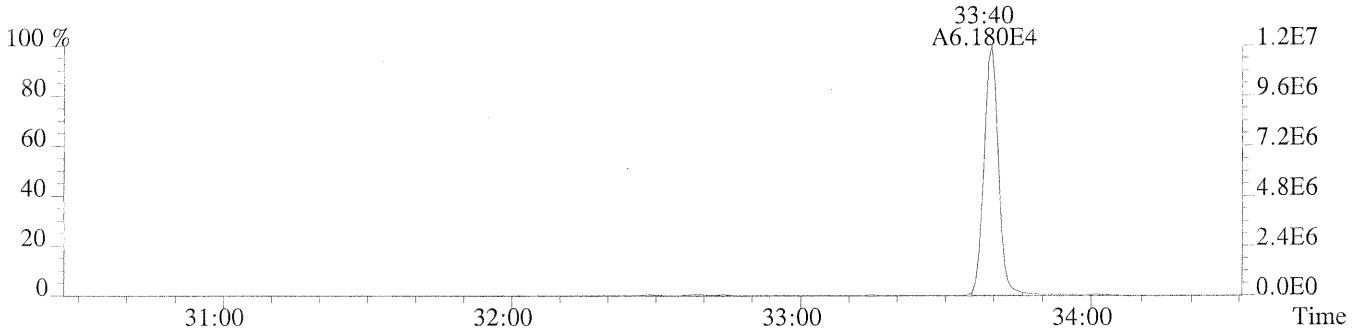
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,696.0,1.00%,F,T)



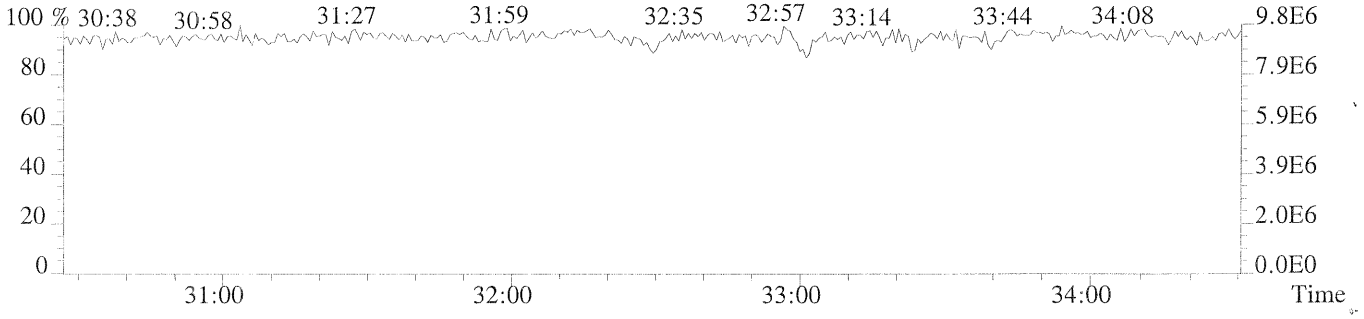
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)

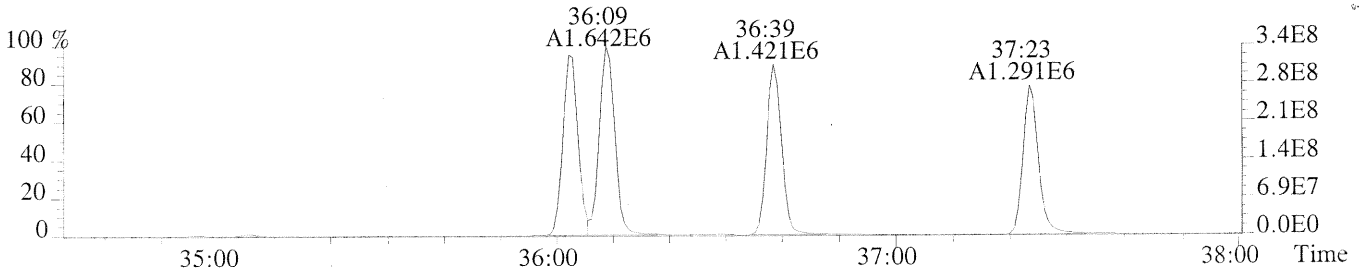


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

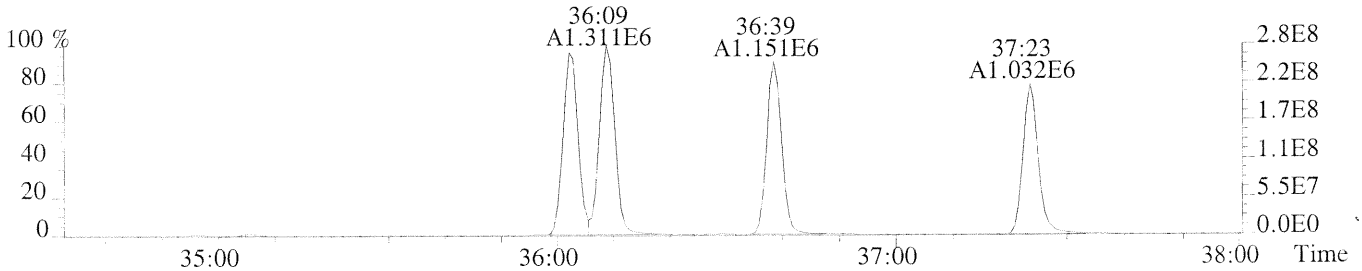


File:P227264 #1-315 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

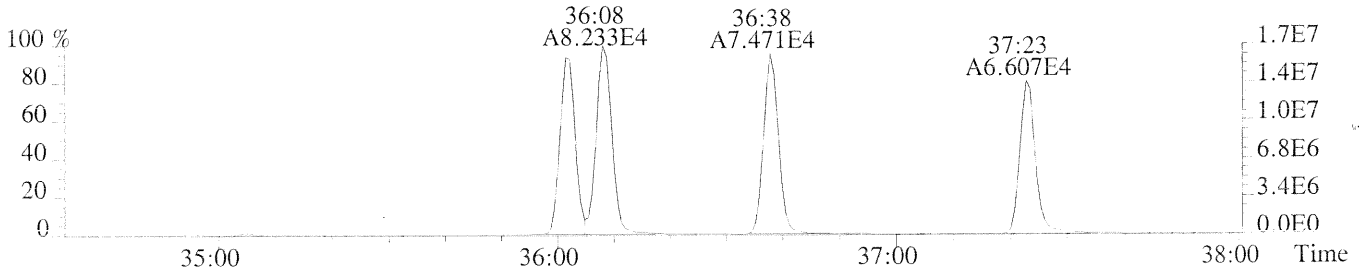
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3532.0,0.40%,F,T)



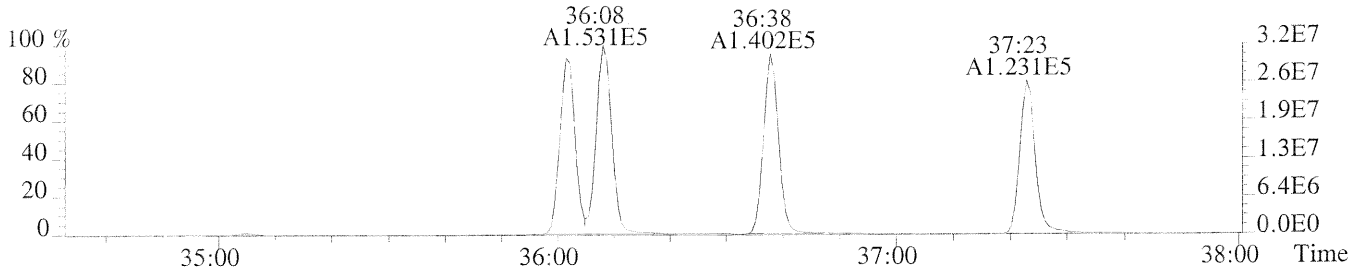
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2884.0,0.40%,F,T)



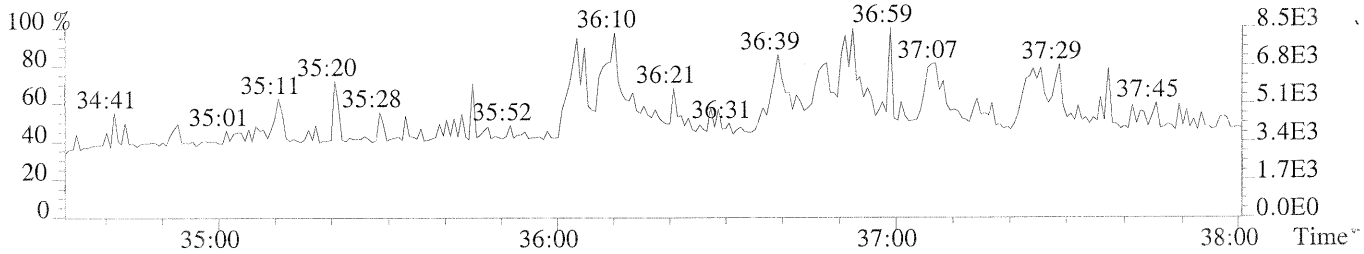
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1568.0,0.40%,F,T)



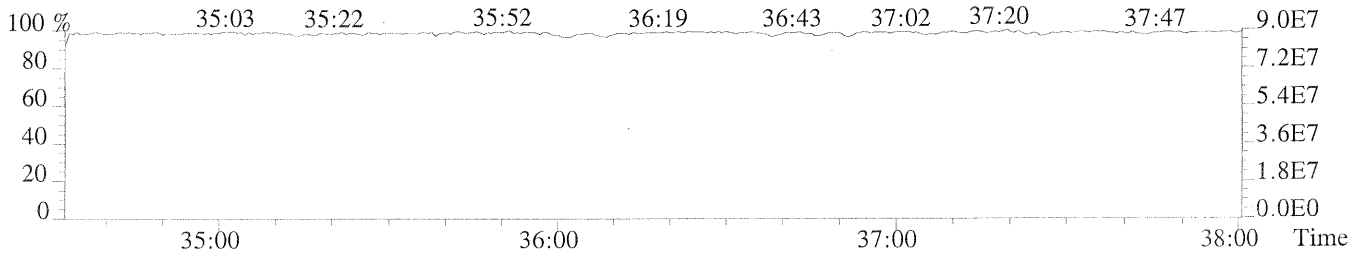
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2420.0,0.40%,F,T)



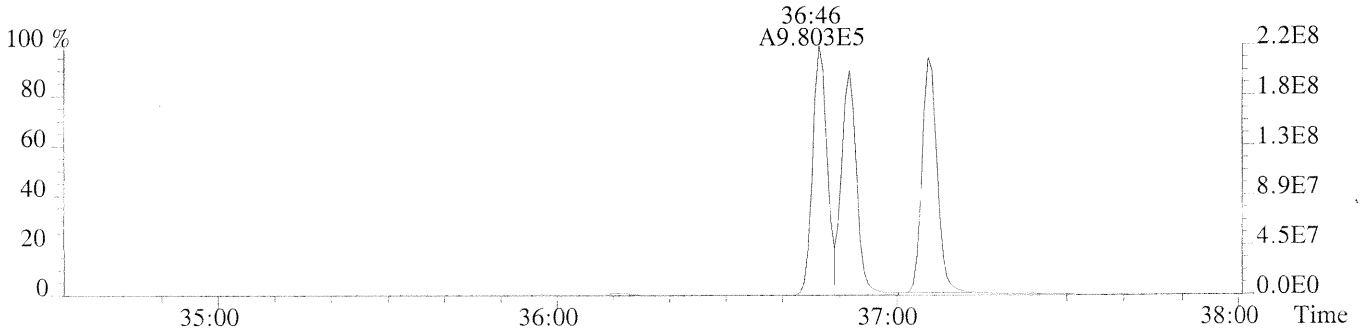
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



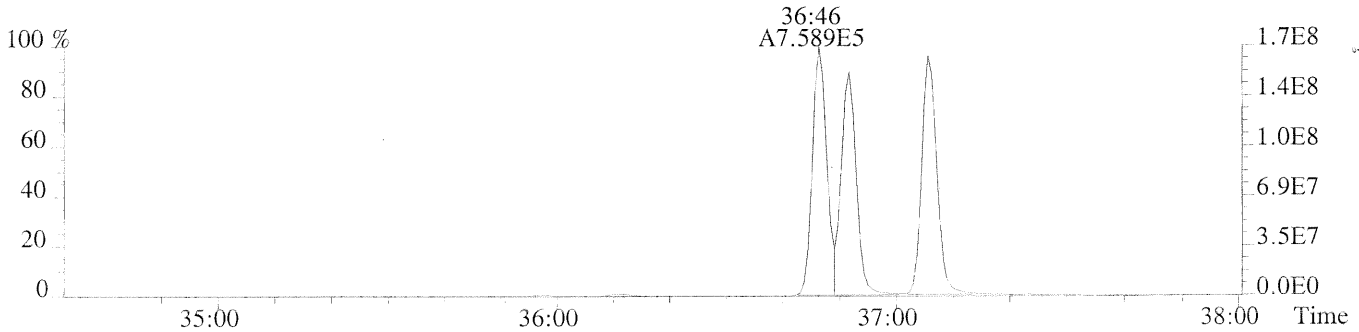
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



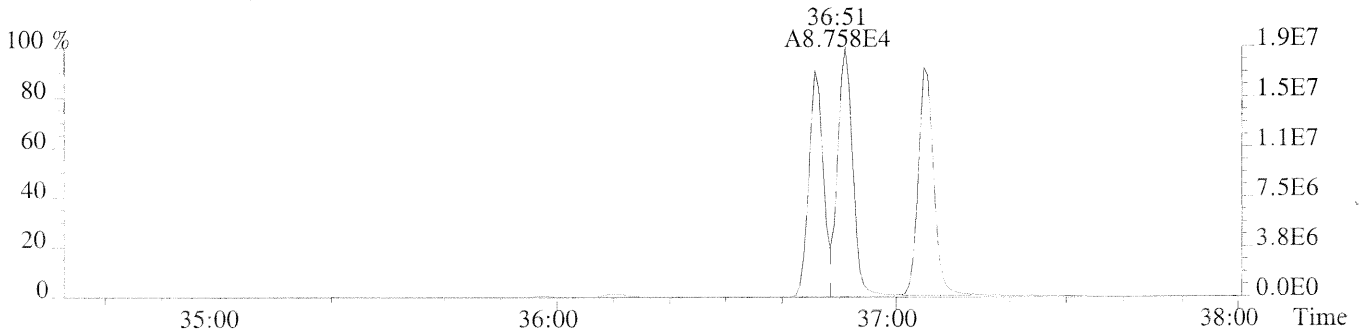
File:P227264 #1-315 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,512.0,0.40%,F,T)



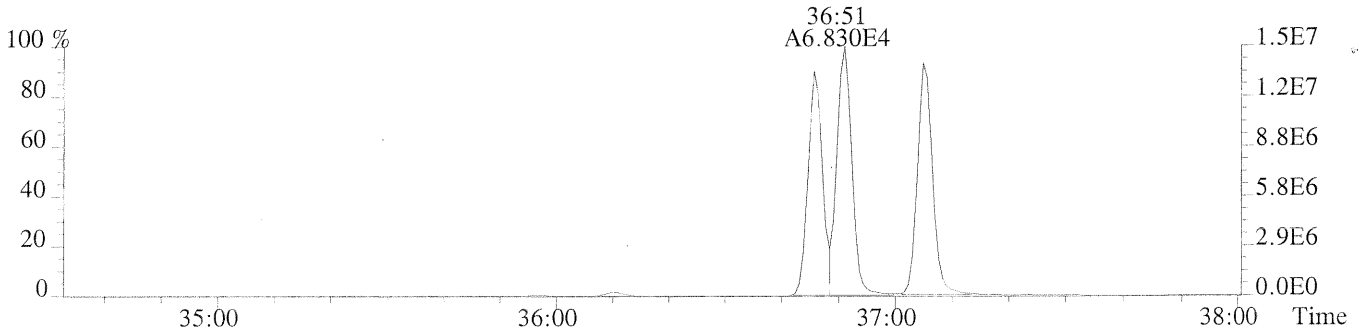
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1620.0,0.40%,F,T)



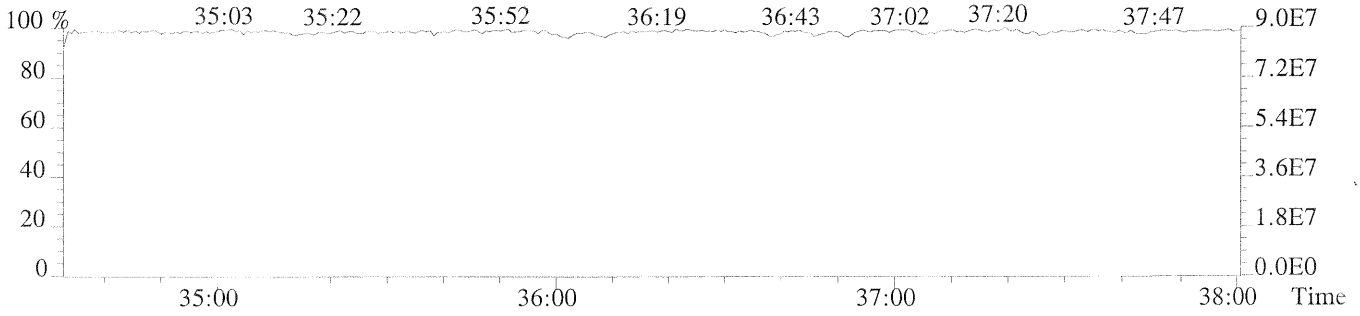
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2004.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)

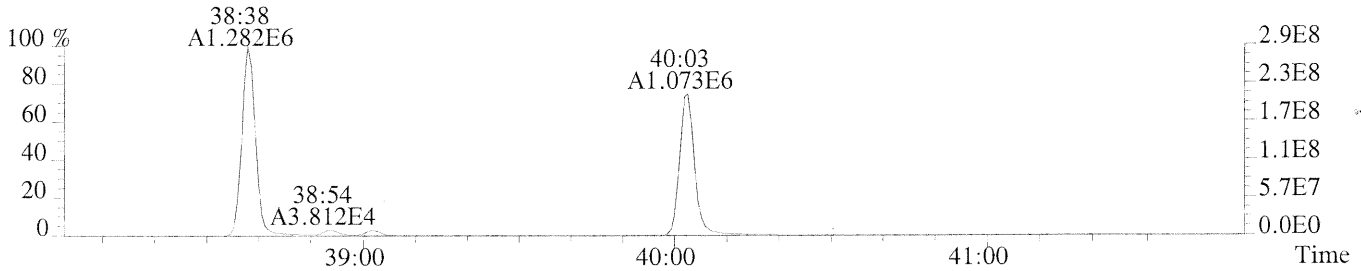


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

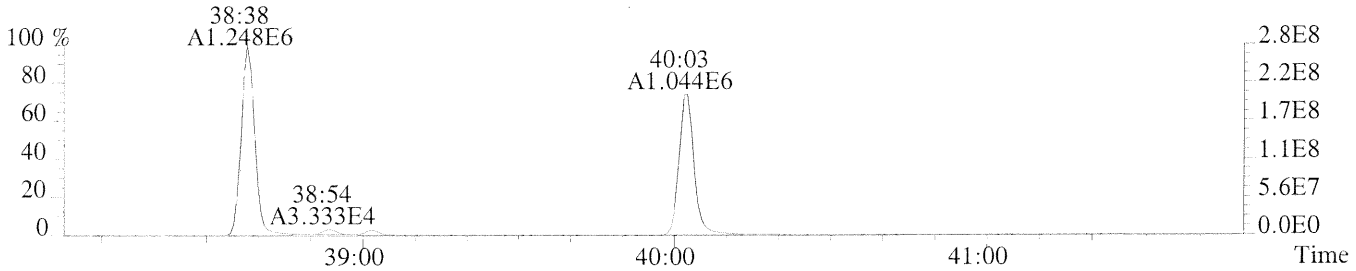


File:P227264 #1-342 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

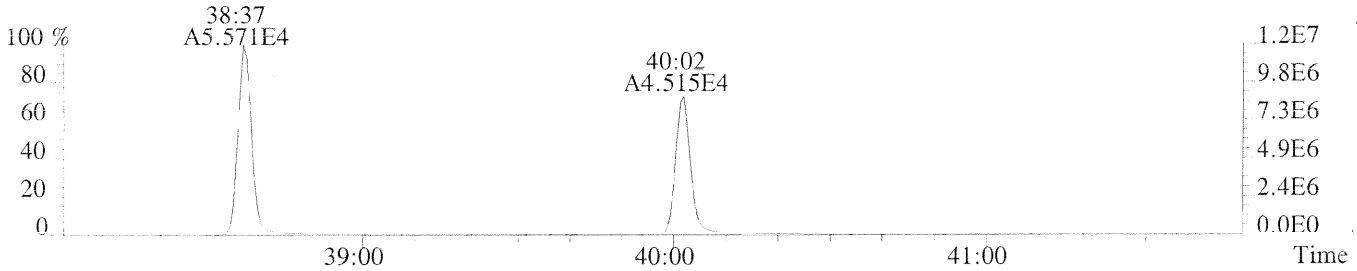
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,61184.0,0.50%,F,T)



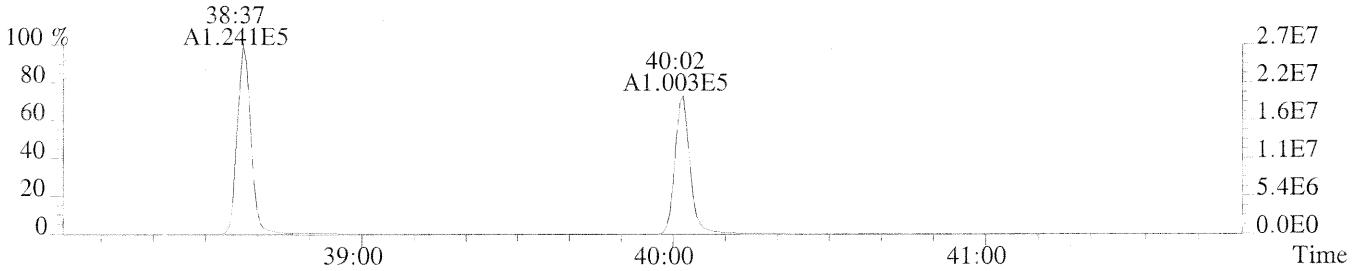
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,40532.0,0.50%,F,T)



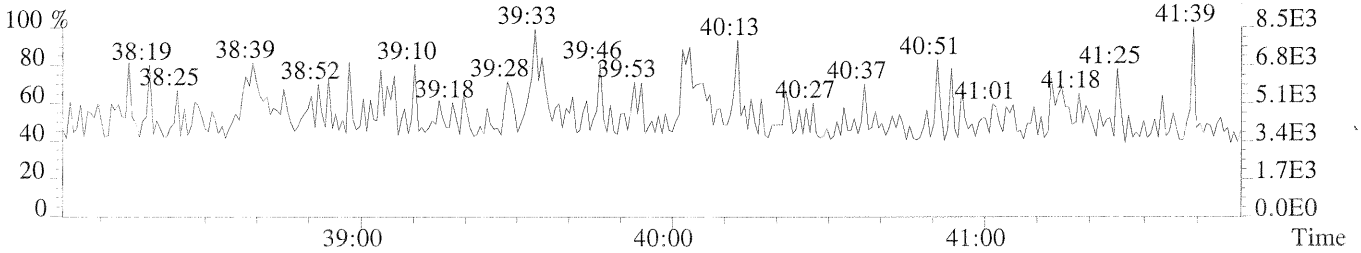
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,15884.0,0.50%,F,T)



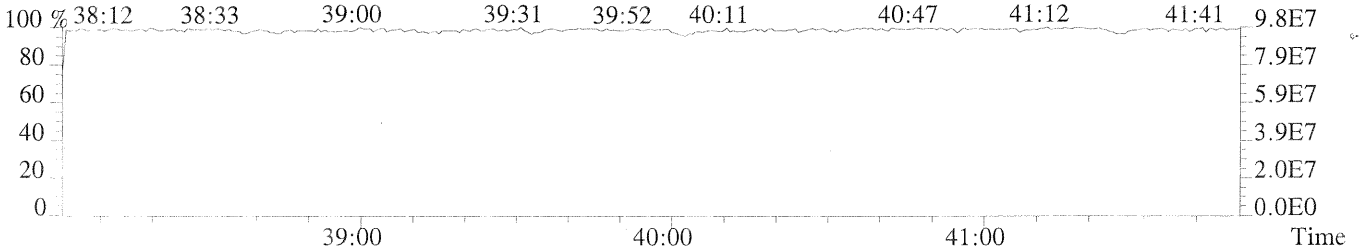
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5656.0,0.50%,F,T)



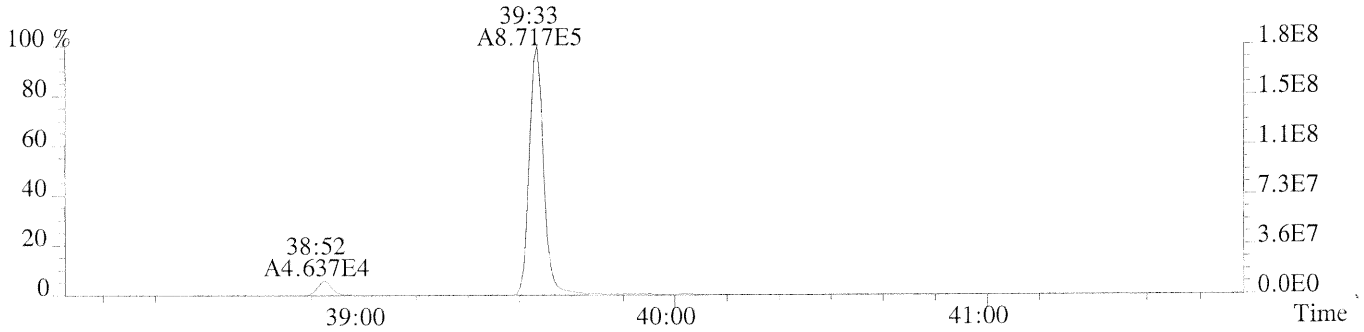
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



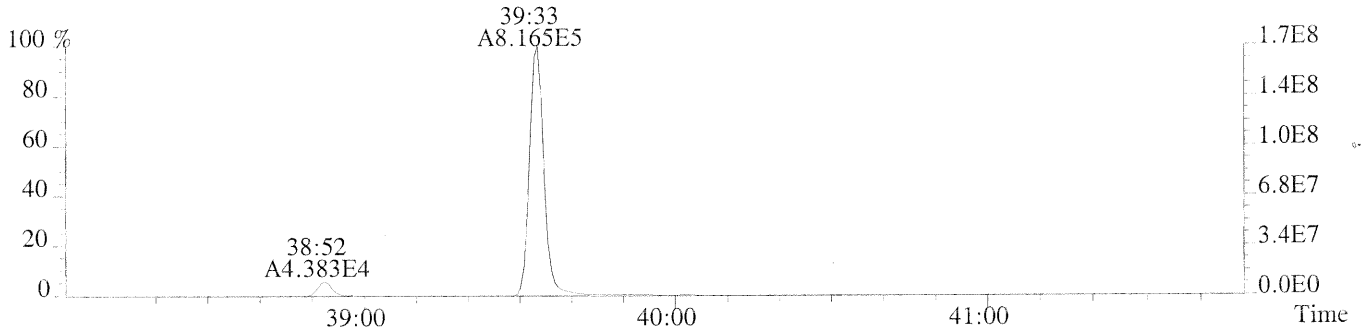
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



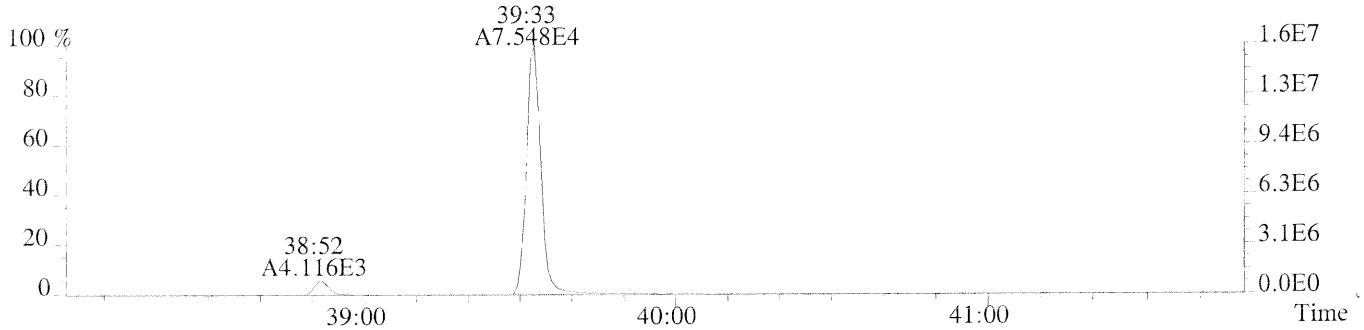
File:P227264 #1-342 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.40%,F,T)



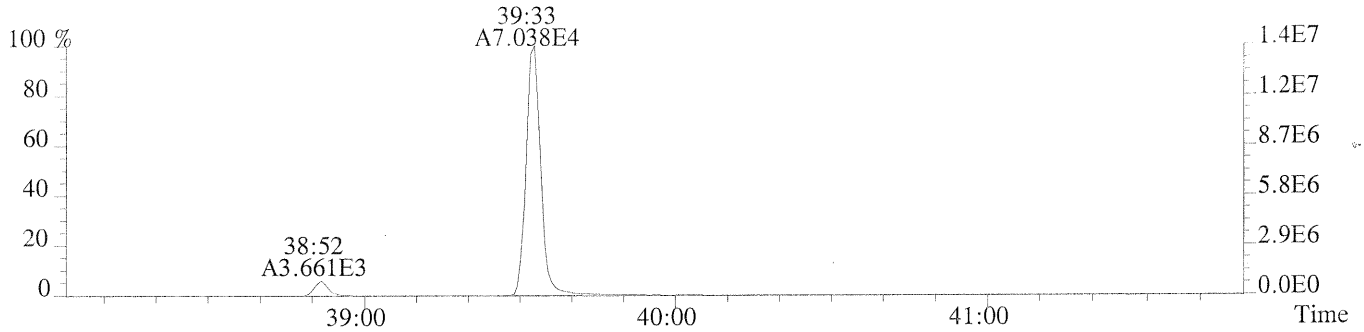
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,540.0,0.40%,F,T)



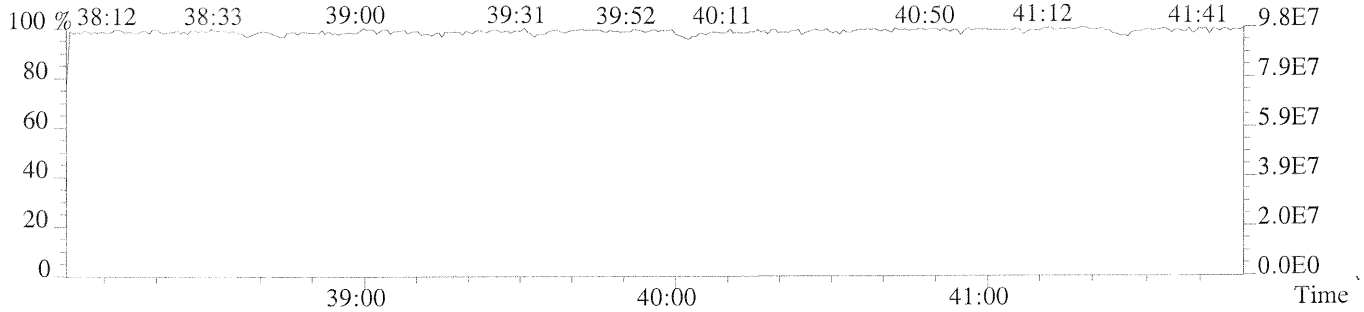
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2940.0,0.40%,F,T)



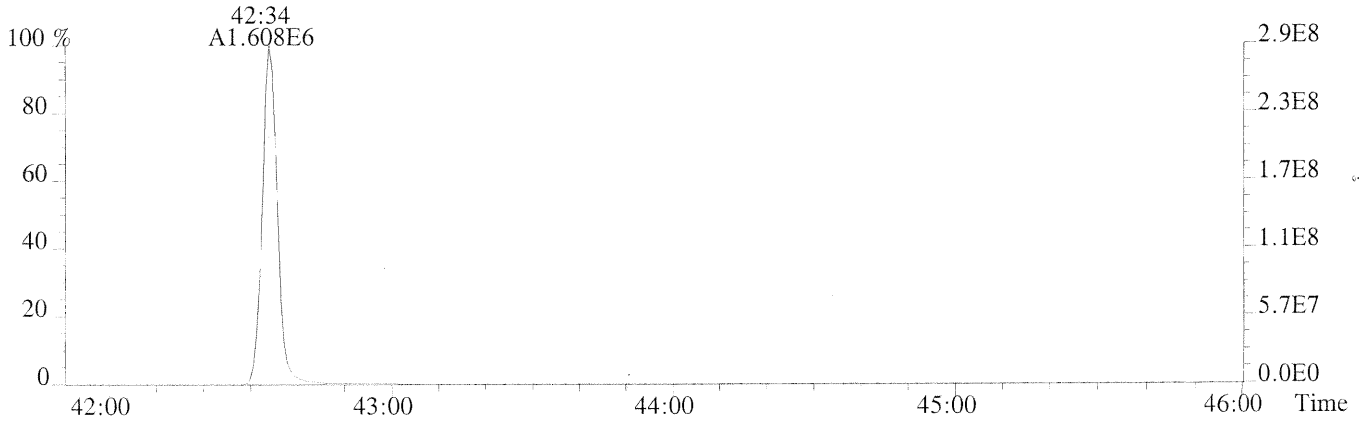
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1752.0,0.40%,F,T)



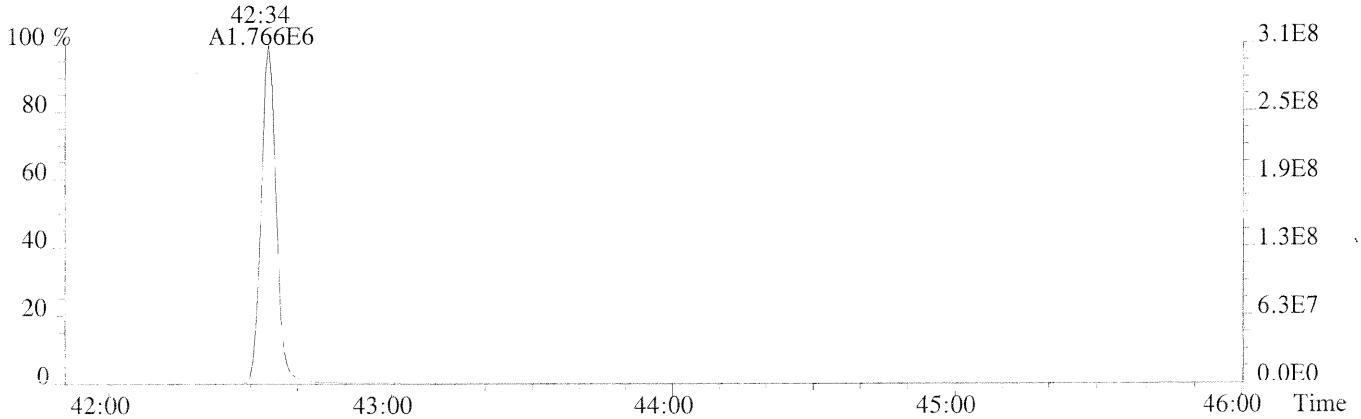
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



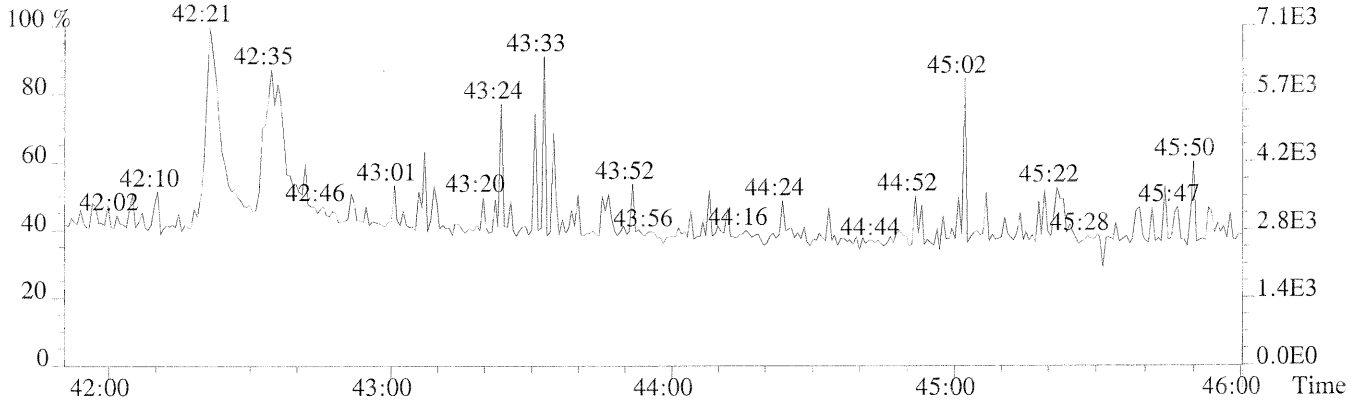
File:P227264 #1-383 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,72124.0,0.40%,F,T)



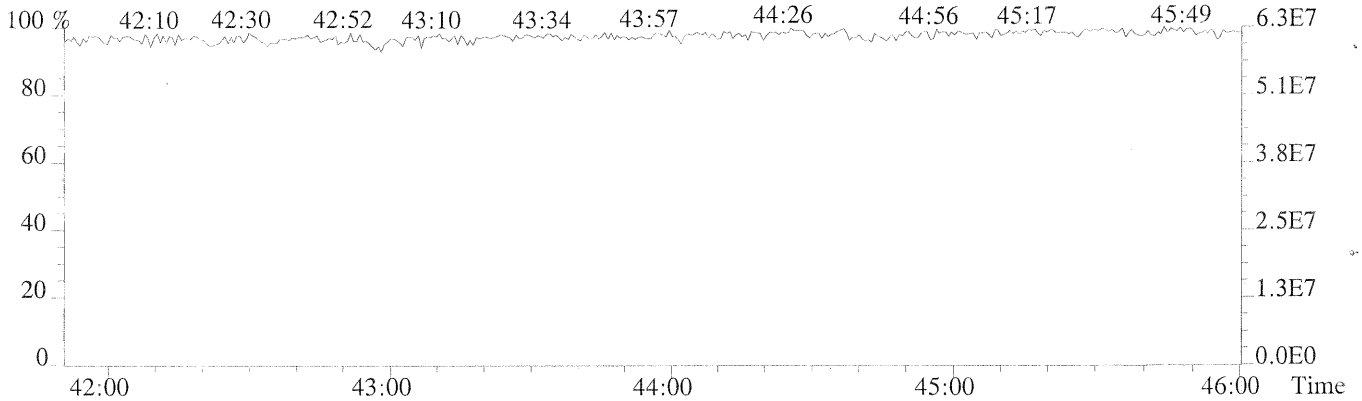
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,52060.0,0.40%,F,T)



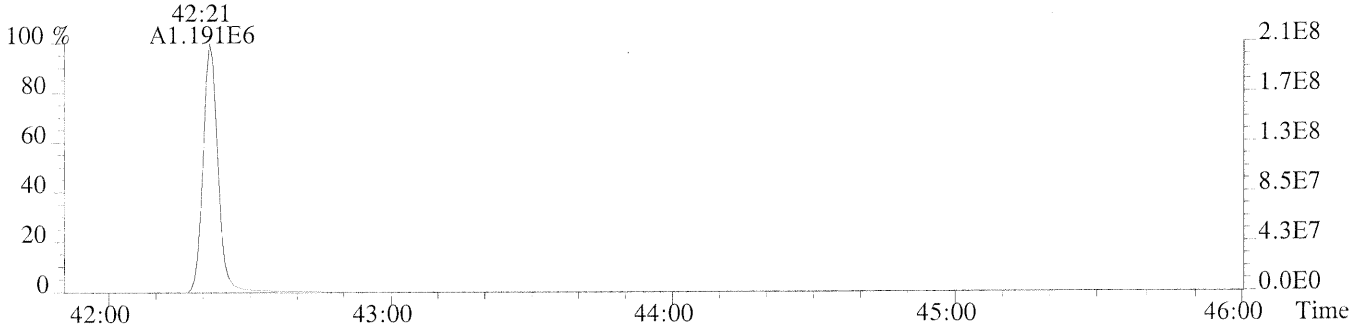
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



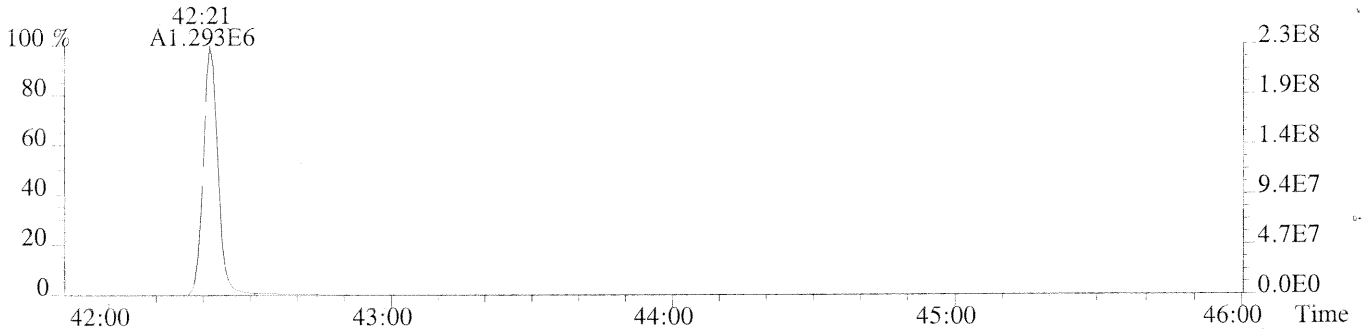
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



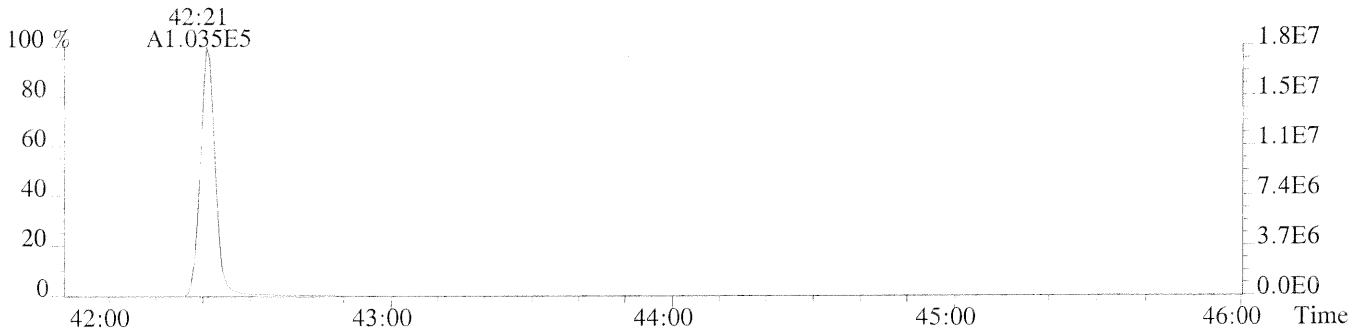
File:P227264 #1-383 Acq: 1-FEB-2014 21:00:32 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,16332.0,0.40%,F,T)



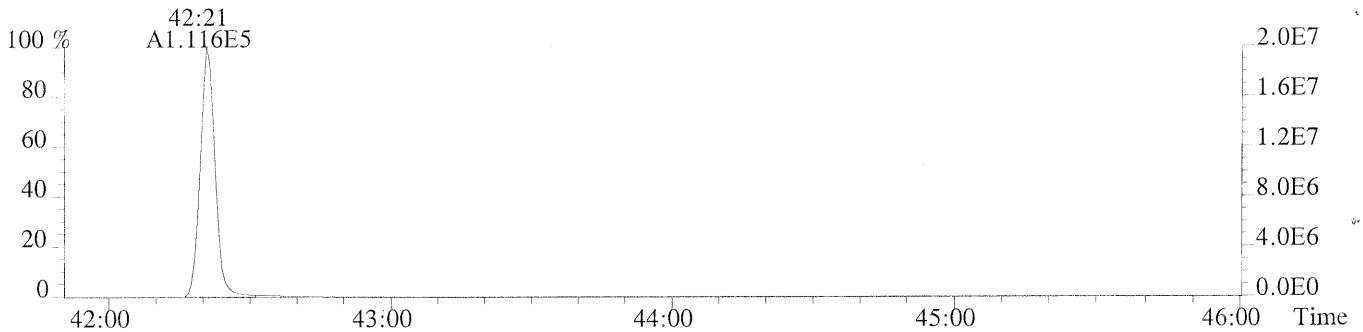
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,20312.0,0.40%,F,T)



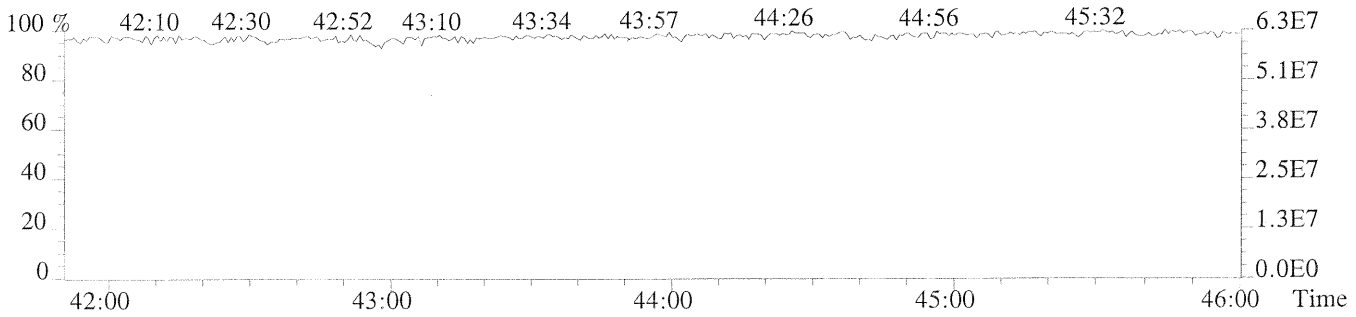
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,4316.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,5088.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 | GC Column ID: DB-5

VER Data Filename: P227268 | Analysis Date: 3-FEB-14 Time: 15:16:53

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.80	0.65-0.89	9.4	7.8 - 12.9	-5.8
1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	49	39 - 65	-2.6
1,2,3,4,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	51	39 - 64	2.9
1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	44	39 - 64	-12.0
1,2,3,7,8,9-HxCDD	M+2/M+4	1.31	1.05-1.43	48	41 - 61	-4.3
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	48	43 - 58	-4.9
OCDD	M+2/M+4	0.91	0.76-1.02	86	79 - 126	-13.9
2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	9.8	8.4 - 12.0	-1.6
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	47	41 - 60	-7.0
2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	51	41 - 61	1.7
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	47	45 - 56	-5.8
1,2,3,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	50	44 - 57	-0.7
1,2,3,7,8,9-HxCDF	M+2/M+4	1.25	1.05-1.43	47	45 - 56	-5.7
2,3,4,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	48	44 - 57	-4.4
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.04	0.88-1.20	49	45 - 55	-2.5
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.04	0.88-1.20	51	43 - 58	1.7
OCDF	M+2/M+4	0.90	0.76-1.02	84	63 - 159	-15.5

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 02/01/14

Instrument ID: E-HRMS-04 GC Column ID: DB-5 MSUI 2/10/14

VER Data Filename: P227268 Analysis Date: 3-FEB-14 Time: 15:16:53

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	102	82 - 121	2.2
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	110	62 - 160	9.8
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	99	85 - 117	-1.4
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	109	85 - 118	9.0
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	109	72 - 138	9.4
13C-OCDD	M+2/M+4	0.91	0.76-1.02	243	96 - 415	21.6
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	96	71 - 140	-3.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.59	1.32-1.78	106	76 - 130	5.9
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	102	77 - 130	2.4
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.53	0.43-0.59	99	76 - 131	-0.9
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	92	70 - 143	-7.5
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	101	74 - 135	1.3
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	99	73 - 137	-1.0
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.46	0.37-0.51	102	78 - 129	2.3
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	100	77 - 129	0.1
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				10.2	7.8 - 12.7	1.7

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Sample Response Summary

CLIENT ID.
2ND SOURCE VERIF

Run #8 Filename P227268 #1 Samp: 1 Inj: 1 Acquired: 3-FEB-14 15:16:53
Processed: 4-FEB-14 16:51:12 LAB. ID: 60287

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:21	1.335e+04	1.697e+04	0.79	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:29	1.294e+05	8.176e+04	1.58	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	33:24	1.293e+05	8.245e+04	1.57	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	36:02	1.204e+05	9.523e+04	1.26	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:09	1.251e+05	1.007e+05	1.24	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:38	1.138e+05	9.098e+04	1.25	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:23	1.016e+05	8.119e+04	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.051e+05	1.013e+05	1.04	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:03	8.704e+04	8.345e+04	1.04	yes	no	1.000
10	Unk	OCDF	42:34	1.385e+05	1.538e+05	0.90	yes	no	1.005
11	Unk	2,3,7,8-TCDD	29:07	8.552e+03	1.073e+04	0.80	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:40	8.015e+04	4.938e+04	1.62	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:46	7.901e+04	6.131e+04	1.29	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:52	7.560e+04	5.844e+04	1.29	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:06	8.098e+04	6.203e+04	1.31	yes	no	1.007
16	Unk	1,2,3,4,6,7,8-HpCDD	39:33	7.115e+04	6.731e+04	1.06	yes	no	1.000
17	Unk	OCDD	42:21	1.077e+05	1.177e+05	0.91	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:20	1.226e+05	1.506e+05	0.81	yes	no	0.992
19	IS	13C-1,2,3,7,8-PeCDF	32:29	2.485e+05	1.558e+05	1.59	yes	no	1.138
20	IS	13C-2,3,4,7,8-PeCDF	33:22	2.334e+05	1.445e+05	1.62	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	36:01	1.185e+05	2.237e+05	0.53	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:08	1.276e+05	2.409e+05	0.53	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:38	1.203e+05	2.274e+05	0.53	yes	no	0.988
24	IS	13C-1,2,3,7,8,9-HxCDF	37:23	1.064e+05	1.994e+05	0.53	yes	no	1.008
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	9.318e+04	2.047e+05	0.46	yes	no	1.041
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:02	7.527e+04	1.674e+05	0.45	yes	no	1.080
27	IS	13C-2,3,7,8-TCDD	29:06	8.517e+04	1.093e+05	0.78	yes	no	1.019
28	IS	13C-1,2,3,7,8-PeCDD	33:40	1.520e+05	9.682e+04	1.57	yes	no	1.179
29	IS	13C-1,2,3,4,7,8-HxCDD	36:46	1.242e+05	9.874e+04	1.26	yes	no	0.991
30	IS	13C-1,2,3,6,7,8-HxCDD	36:51	1.460e+05	1.147e+05	1.27	yes	no	0.994
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:33	1.287e+05	1.202e+05	1.07	yes	no	1.067
32	IS	13C-OCDD	42:21	1.937e+05	2.128e+05	0.91	yes	no	1.142
33	RS/RT	13C-1,2,3,4-TCDD	28:33	8.980e+04	1.148e+05	0.78	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:05	1.357e+05	1.075e+05	1.26	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:07	1.968e+04				no	1.020

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XLRESP

ALS ENVIRONMENTAL
METHOD 1613B/8290A
Signal/Noise Height Ratio Summary

CLIENT ID.
2ND SOURCE VERIF

Run #8 Filename P227268 Samp: 1 Inj: 1 Acquired: 3-FEB-14 15:16:53
Processed: 4-FEB-14 16:51:121 LAB. ID: 60287

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.75e+06	1.23e+03	2.2e+03	3.50e+06	2.14e+03	1.6e+03
2	1,2,3,7,8-PeCDF	2.38e+07	1.88e+03	1.3e+04	1.51e+07	3.47e+03	4.4e+03
3	2,3,4,7,8-PeCDF	2.51e+07	1.88e+03	1.3e+04	1.60e+07	3.47e+03	4.6e+03
4	1,2,3,4,7,8-HxCDF	2.50e+07	2.50e+03	1.0e+04	2.02e+07	2.38e+03	8.5e+03
5	1,2,3,6,7,8-HxCDF	2.62e+07	2.50e+03	1.0e+04	2.10e+07	2.38e+03	8.8e+03
6	2,3,4,6,7,8-HxCDF	2.49e+07	2.50e+03	9.9e+03	1.99e+07	2.38e+03	8.4e+03
7	1,2,3,7,8,9-HxCDF	2.07e+07	2.50e+03	8.3e+03	1.67e+07	2.38e+03	7.0e+03
8	1,2,3,4,6,7,8-HpCDF	2.32e+07	3.74e+03	6.2e+03	2.24e+07	1.39e+04	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	1.70e+07	3.74e+03	4.5e+03	1.60e+07	1.39e+04	1.2e+03
10	OCDF	2.31e+07	1.45e+04	1.6e+03	2.58e+07	1.50e+04	1.7e+03
11	2,3,7,8-TCDD	1.84e+06	1.20e+03	1.5e+03	2.35e+06	9.36e+02	2.5e+03
12	1,2,3,7,8-PeCDD	1.57e+07	2.02e+03	7.8e+03	9.64e+06	8.60e+02	1.1e+04
13	1,2,3,4,7,8-HxCDD	1.75e+07	9.88e+02	1.8e+04	1.37e+07	9.56e+02	1.4e+04
14	1,2,3,6,7,8-HxCDD	1.59e+07	9.88e+02	1.6e+04	1.23e+07	9.56e+02	1.3e+04
15	1,2,3,7,8,9-HxCDD	1.67e+07	9.88e+02	1.7e+04	1.31e+07	9.56e+02	1.4e+04
16	1,2,3,4,6,7,8-HpCDD	1.43e+07	1.39e+03	1.0e+04	1.37e+07	1.57e+03	8.7e+03
17	OCDD	1.86e+07	8.38e+03	2.2e+03	2.03e+07	1.05e+04	1.9e+03
18	13C-2,3,7,8-TCDF	2.49e+07	9.84e+02	2.5e+04	3.07e+07	1.80e+03	1.7e+04
19	13C-1,2,3,7,8-PeCDF	4.60e+07	8.96e+02	5.1e+04	2.87e+07	2.21e+03	1.3e+04
20	13C-2,3,4,7,8-PeCDF	4.59e+07	8.96e+02	5.1e+04	2.84e+07	2.21e+03	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	2.52e+07	2.92e+03	8.6e+03	4.81e+07	2.54e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	2.66e+07	2.92e+03	9.1e+03	5.07e+07	2.54e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	2.62e+07	2.92e+03	9.0e+03	4.97e+07	2.54e+03	2.0e+04
24	13C-1,2,3,7,8,9-HxCDF	2.14e+07	2.92e+03	7.3e+03	4.06e+07	2.54e+03	1.6e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.03e+07	5.32e+03	3.8e+03	4.49e+07	7.35e+03	6.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.46e+07	5.32e+03	2.7e+03	3.22e+07	7.35e+03	4.4e+03
27	13C-2,3,7,8-TCDD	1.83e+07	6.61e+03	2.8e+03	2.34e+07	2.42e+03	9.7e+03
28	13C-1,2,3,7,8-PeCDD	2.95e+07	1.24e+03	2.4e+04	1.87e+07	1.06e+03	1.8e+04
29	13C-1,2,3,4,7,8-HxCDD	2.74e+07	1.84e+03	1.5e+04	2.18e+07	1.94e+03	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	3.07e+07	1.84e+03	1.7e+04	2.42e+07	1.94e+03	1.2e+04
31	13C-1,2,3,4,6,7,8-HpCDD	2.58e+07	1.88e+03	1.4e+04	2.43e+07	1.05e+03	2.3e+04
32	13C-OCDD	3.30e+07	9.63e+03	3.4e+03	3.61e+07	1.96e+04	1.8e+03
33	13C-1,2,3,4-TCDD	1.85e+07	6.61e+03	2.8e+03	2.36e+07	2.42e+03	9.7e+03
34	13C-1,2,3,7,8,9-HxCDD	2.80e+07	1.84e+03	1.5e+04	2.22e+07	1.94e+03	1.1e+04
35	37Cl-2,3,7,8-TCDD	4.27e+06	3.54e+03	1.2e+03			

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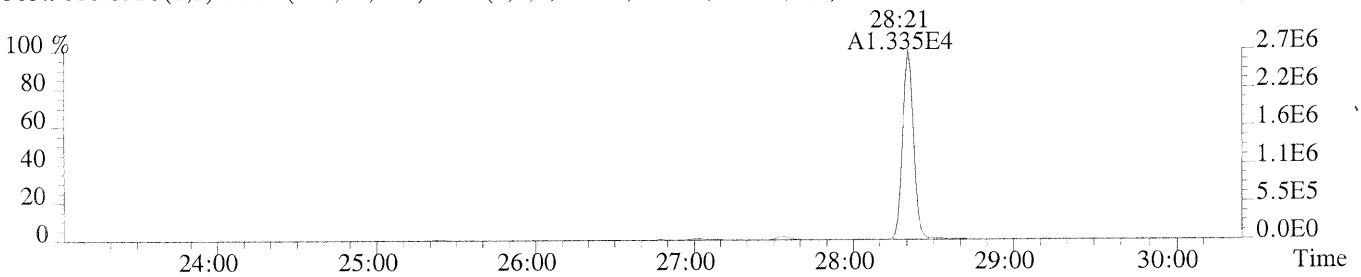
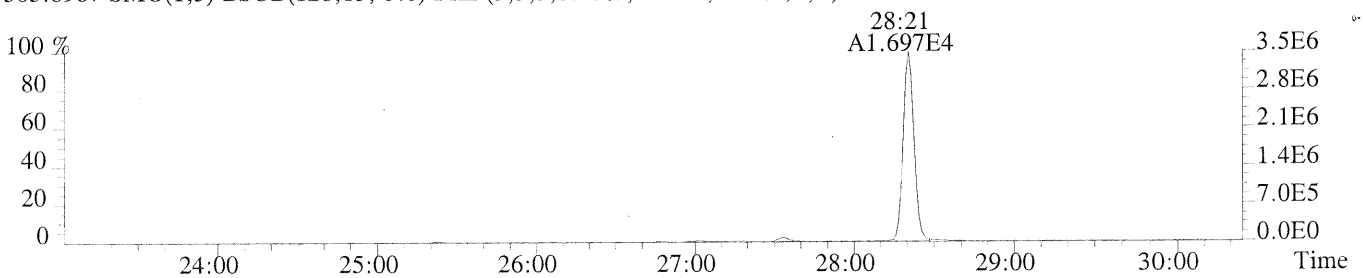
XLSN

File:P227268 #1-464 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

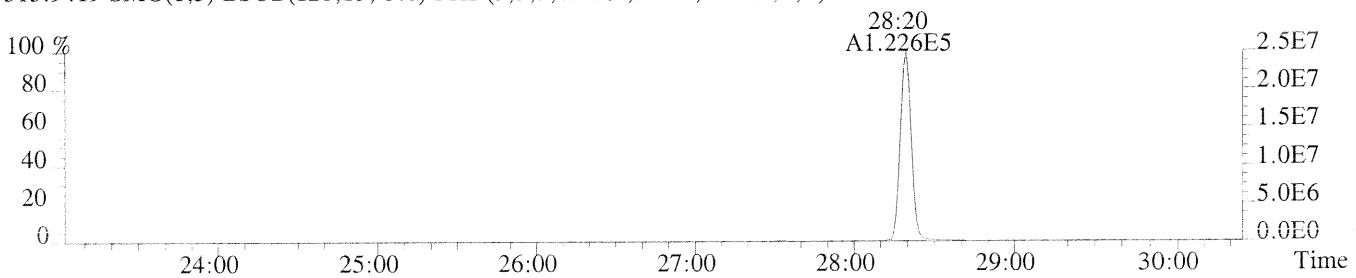
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1228.0,1.00%,F,T)



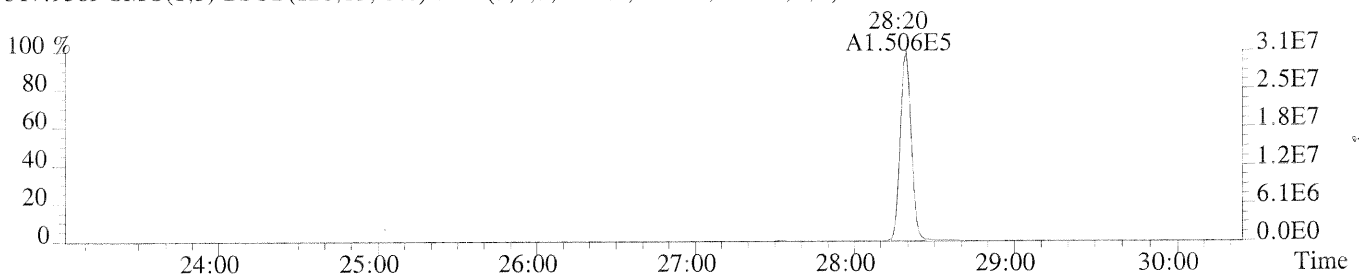
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2136.0,1.00%,F,T)



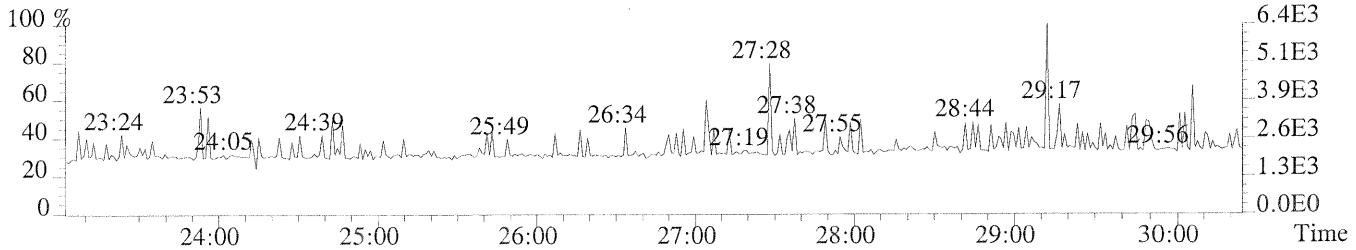
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,984.0,1.00%,F,T)



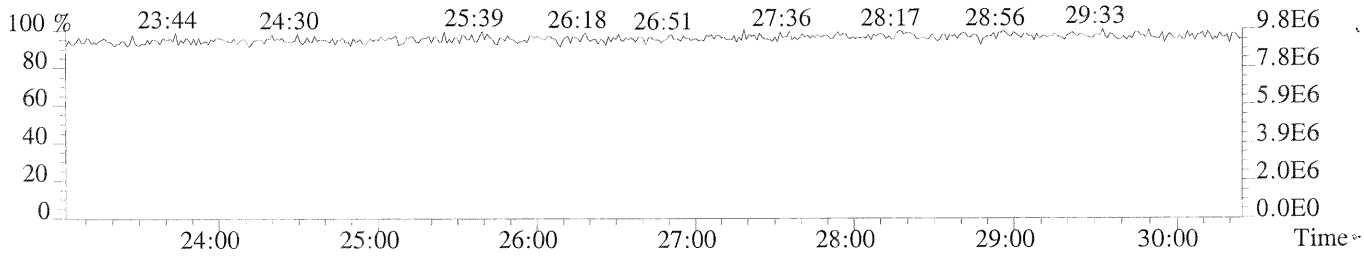
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1804.0,1.00%,F,T)



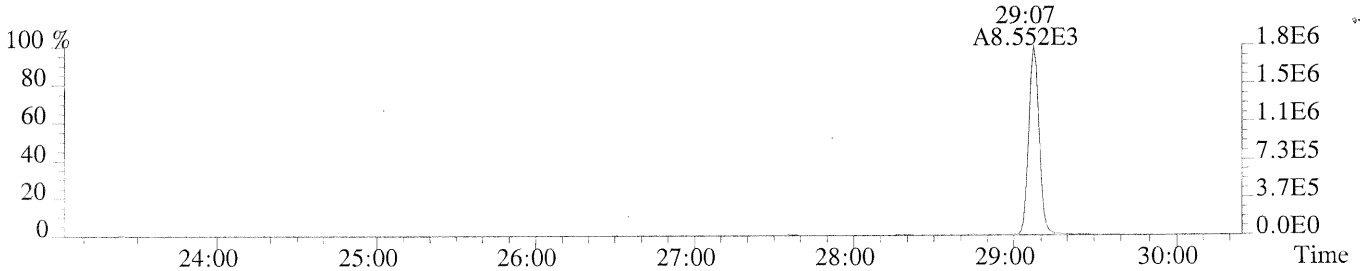
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



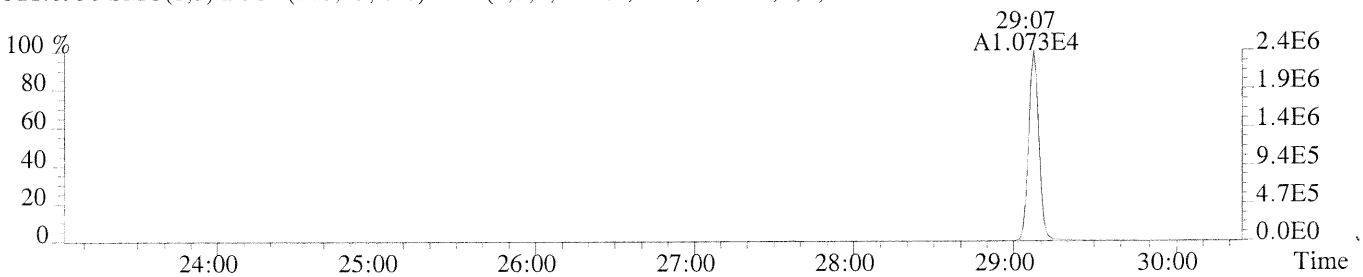
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



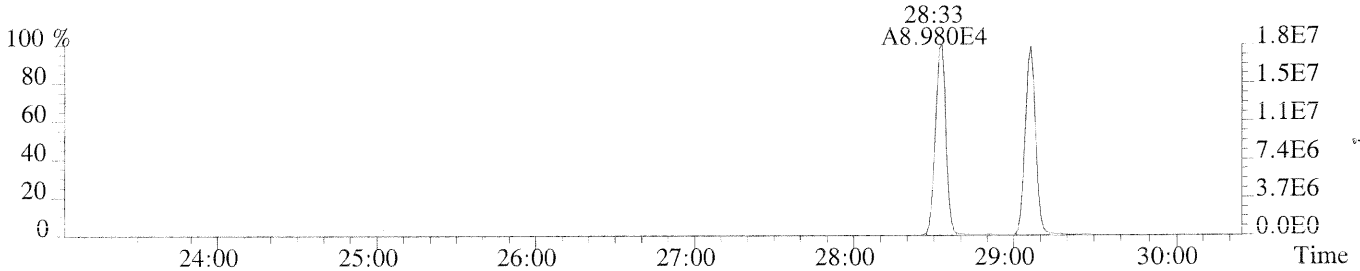
File:P227268 #1-464 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1204.0,1.00%,F,T)



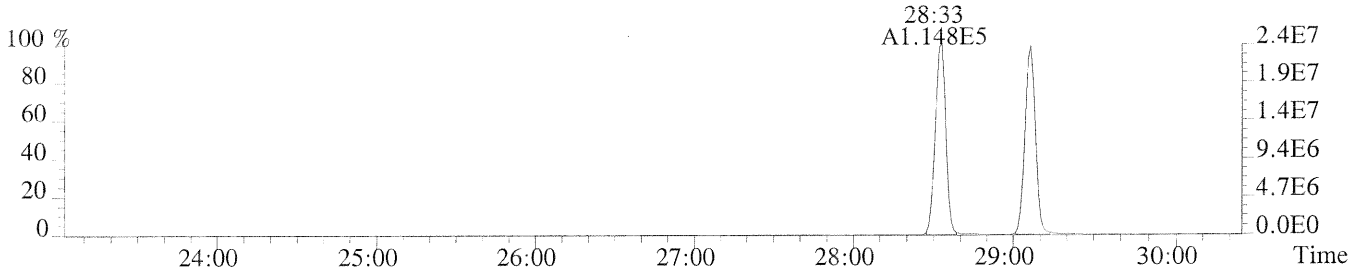
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



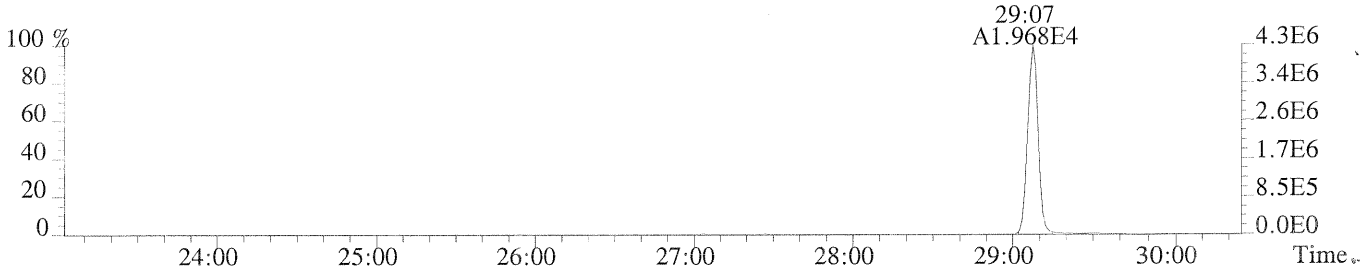
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6608.0,1.00%,F,T)



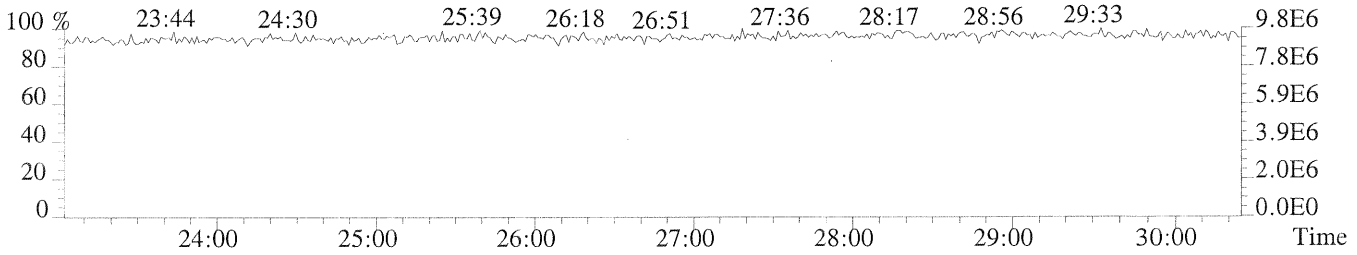
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2424.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3540.0,1.00%,F,T)

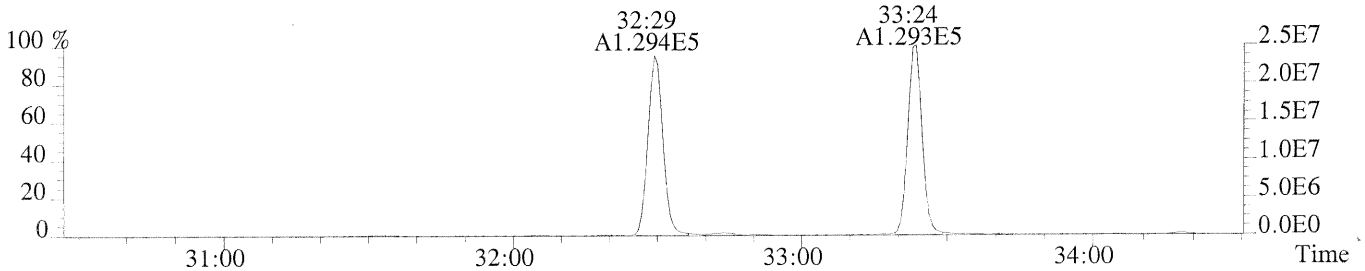


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

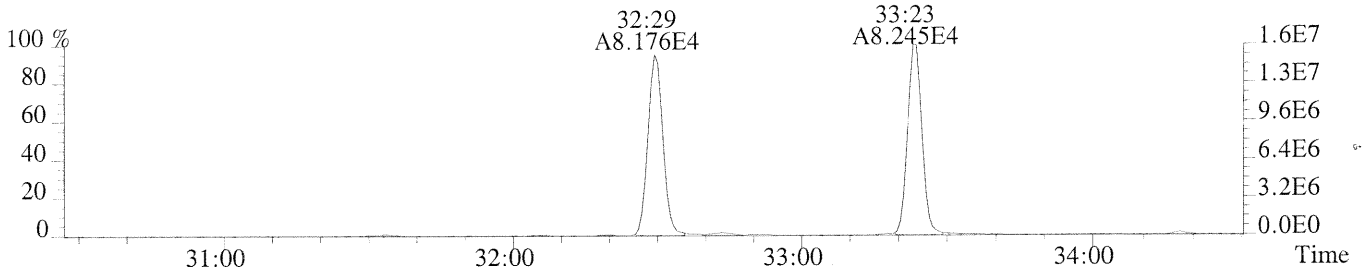


File:P227268 #1-369 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

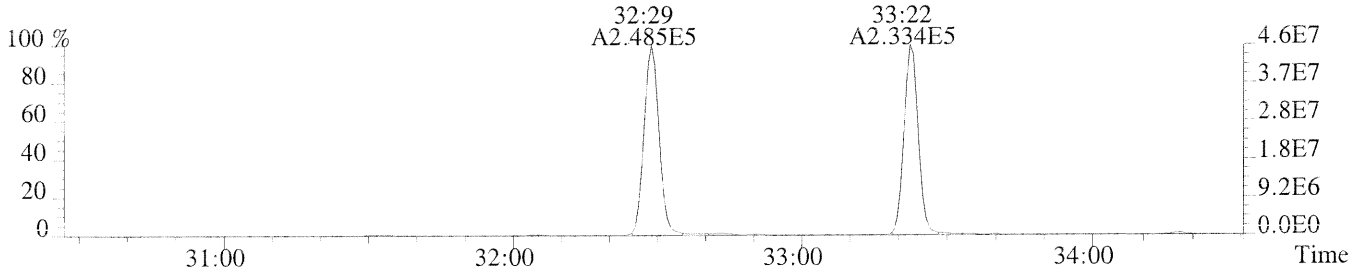
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1876.0,1.00%,F,T)



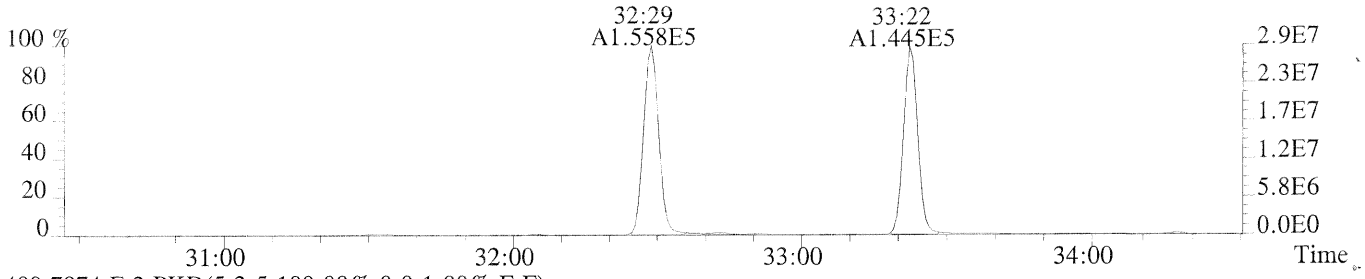
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3468.0,1.00%,F,T)



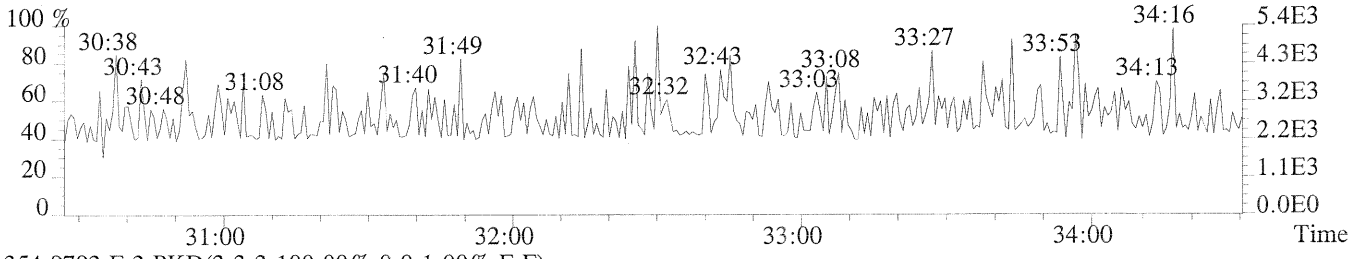
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



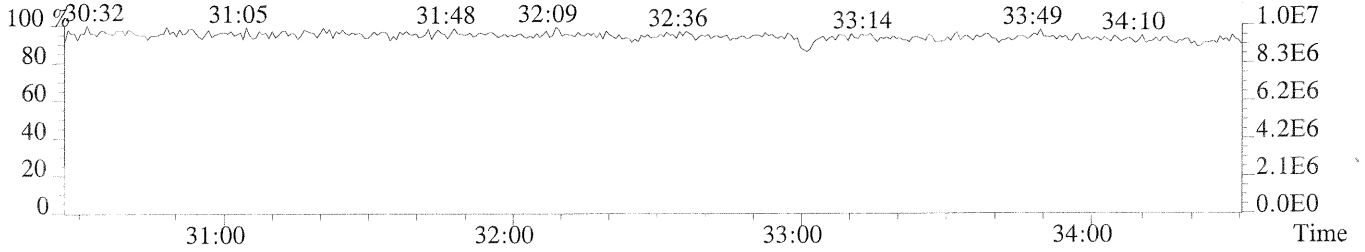
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2212.0,1.00%,F,T)



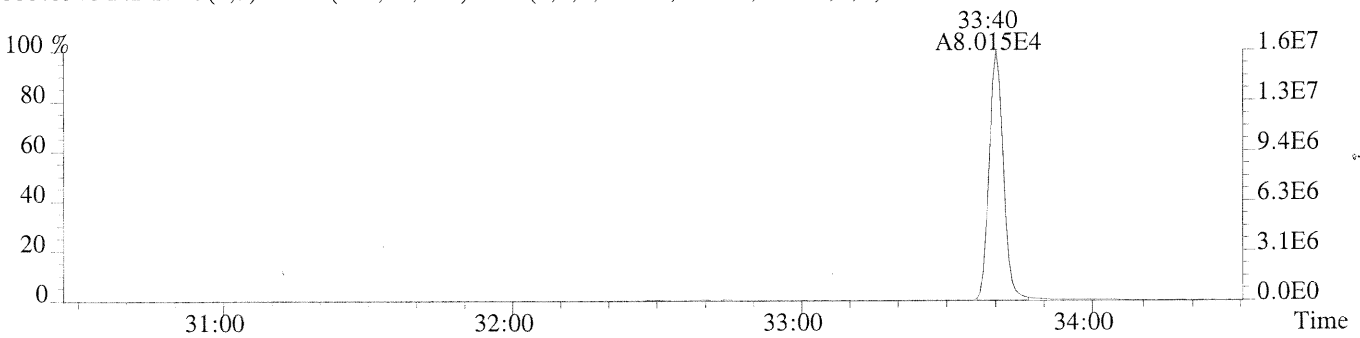
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



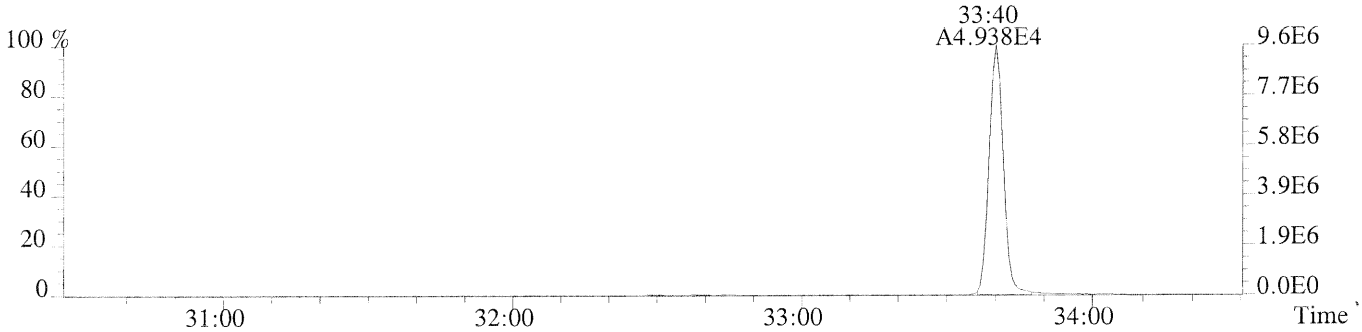
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



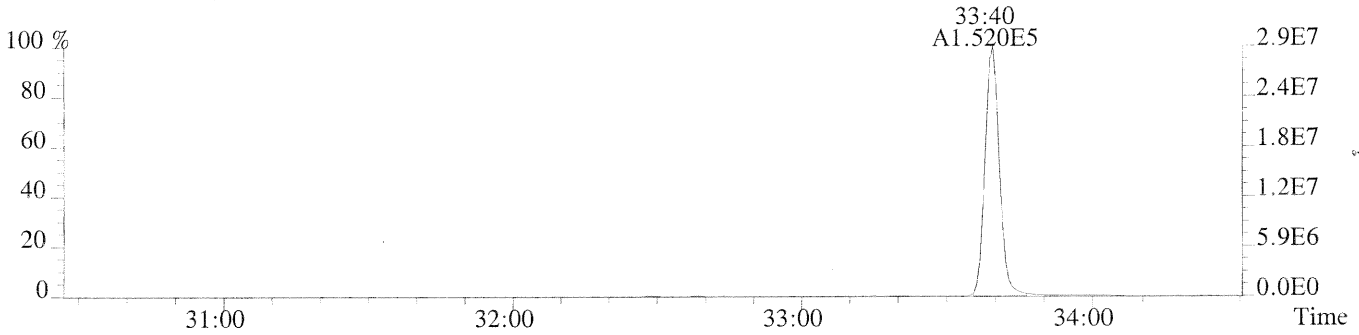
File:P227268 #1-369 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



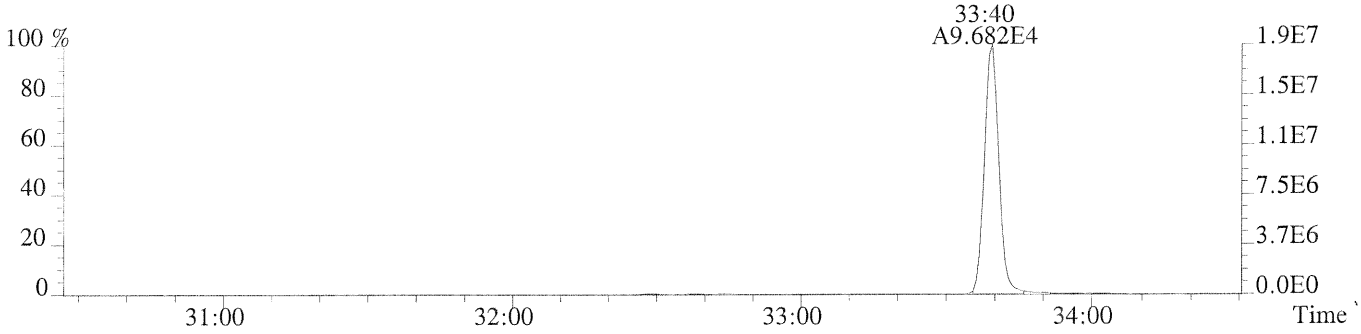
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



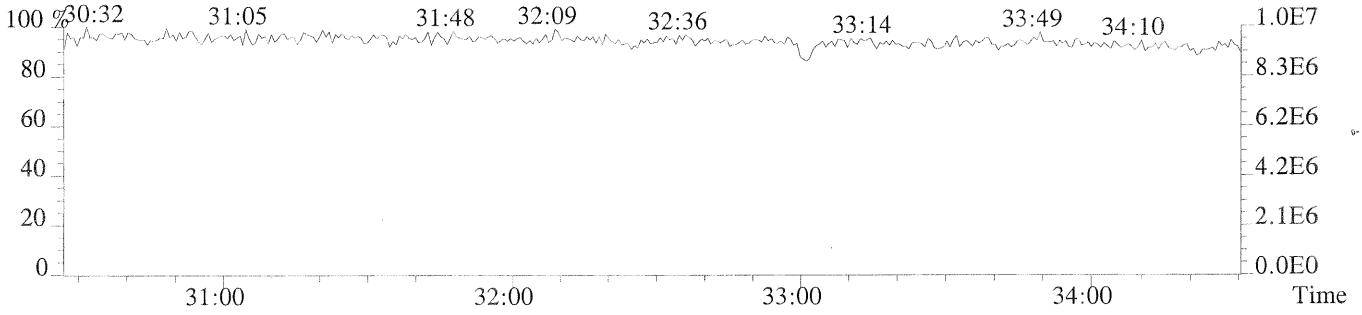
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1236.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)

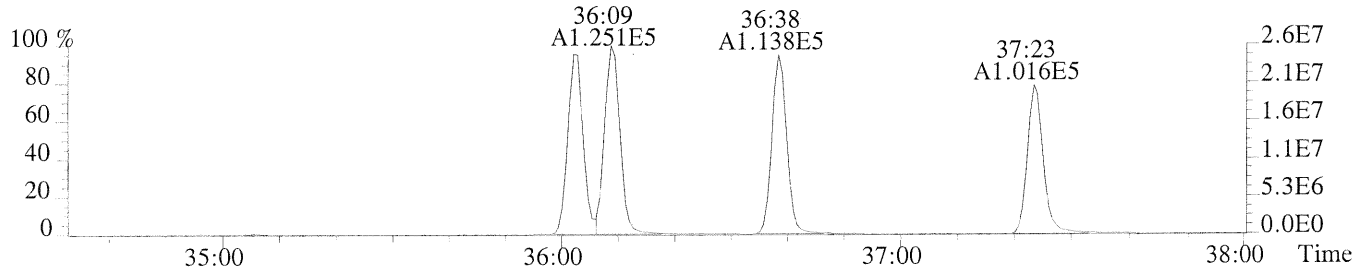


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

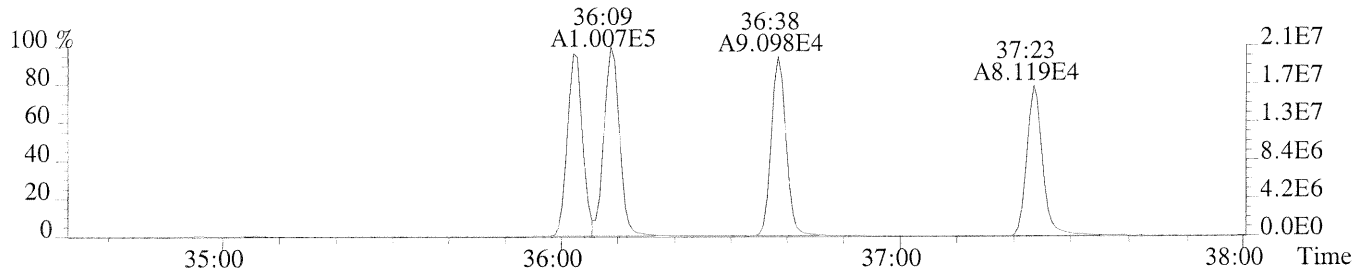


File:P227268 #1-315 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

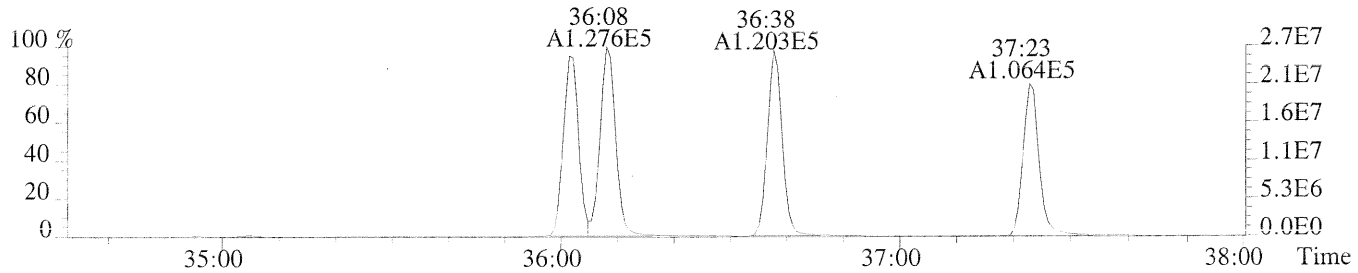
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2500.0,0.40%,F,T)



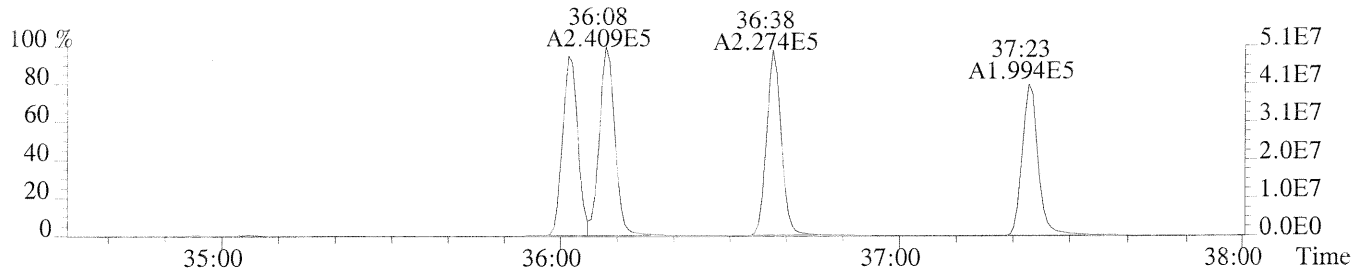
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2380.0,0.40%,F,T)



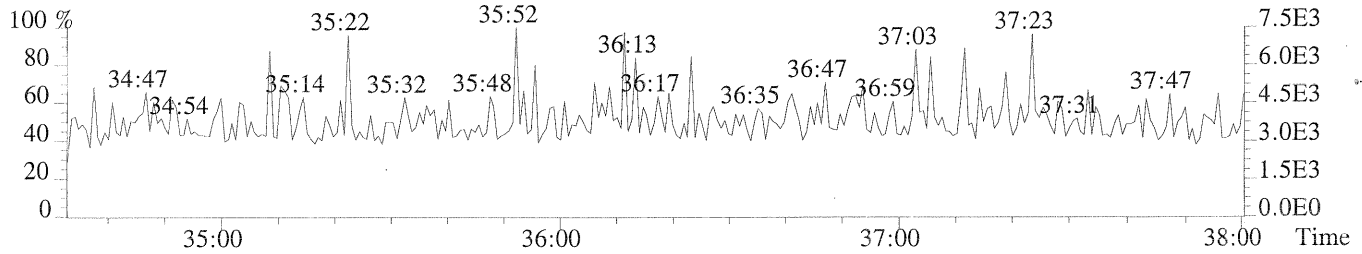
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2924.0,0.40%,F,T)



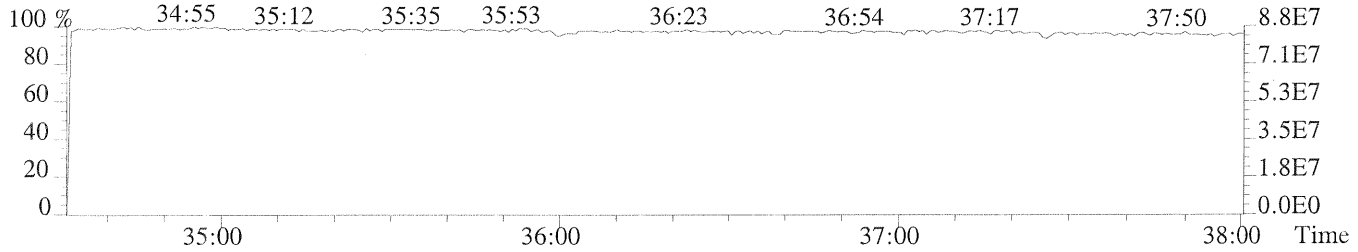
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2536.0,0.40%,F,T)



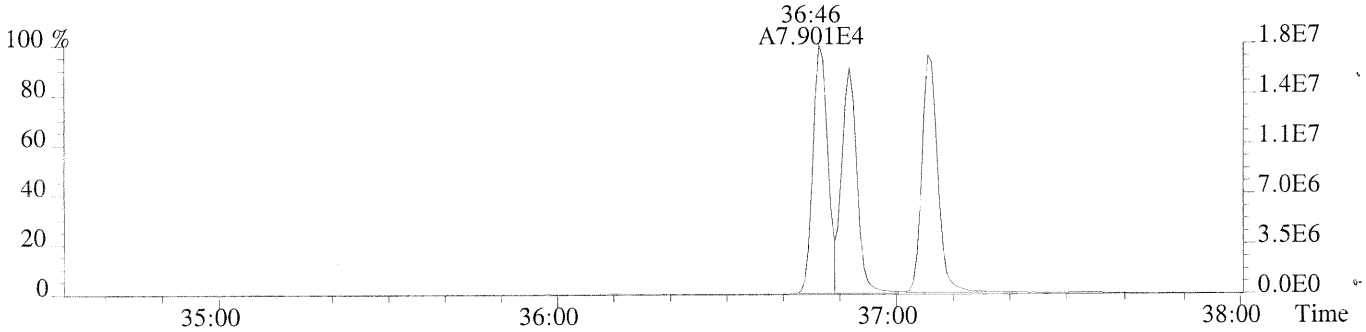
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



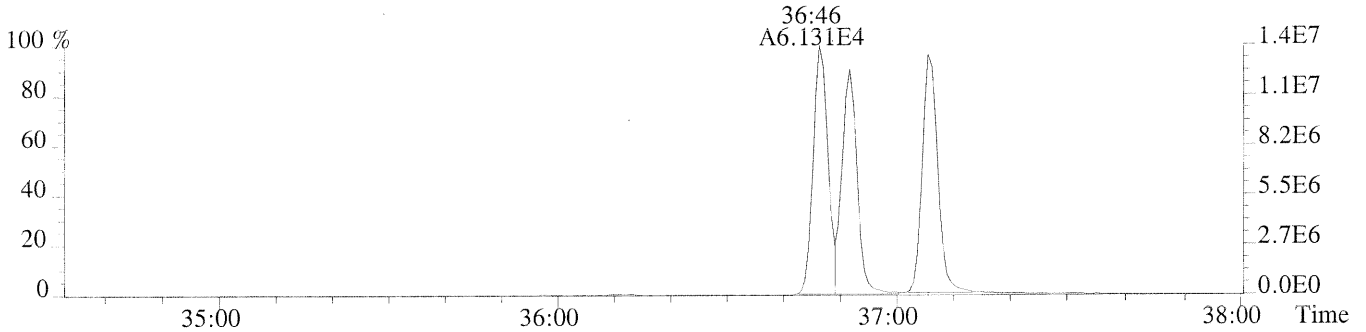
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



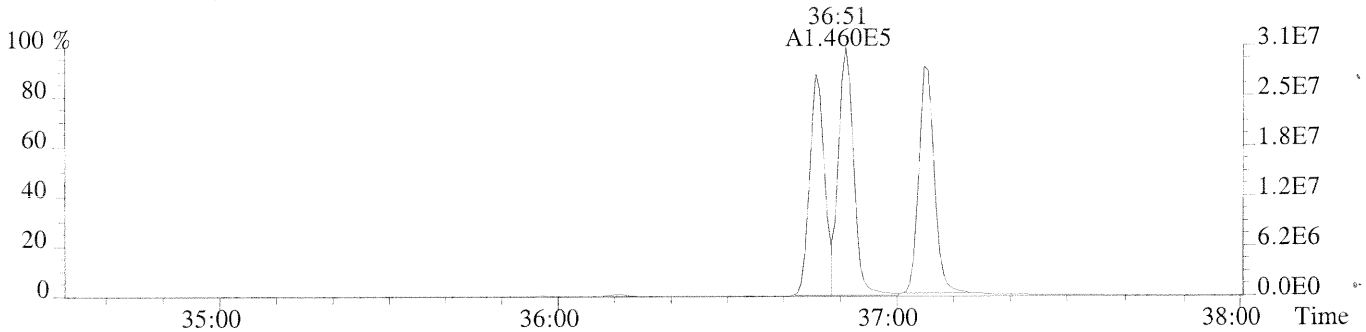
File:P227268 #1-315 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,988.0,0.40%,F,T)



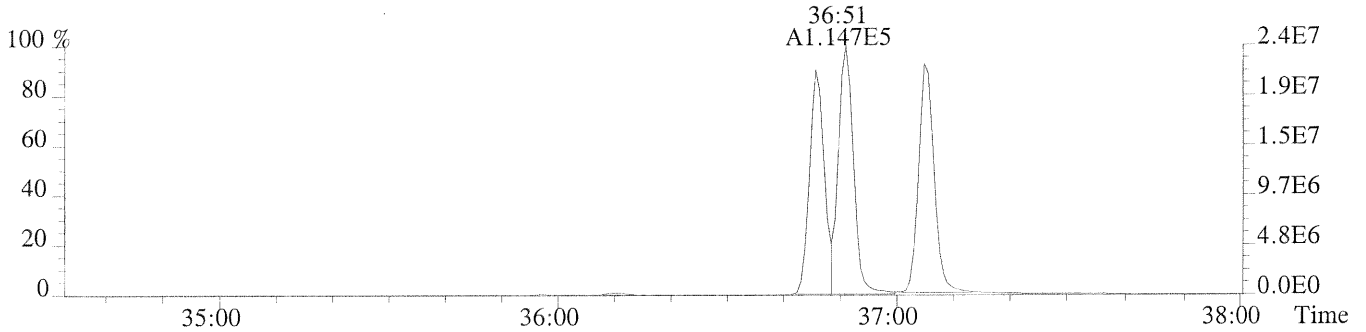
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



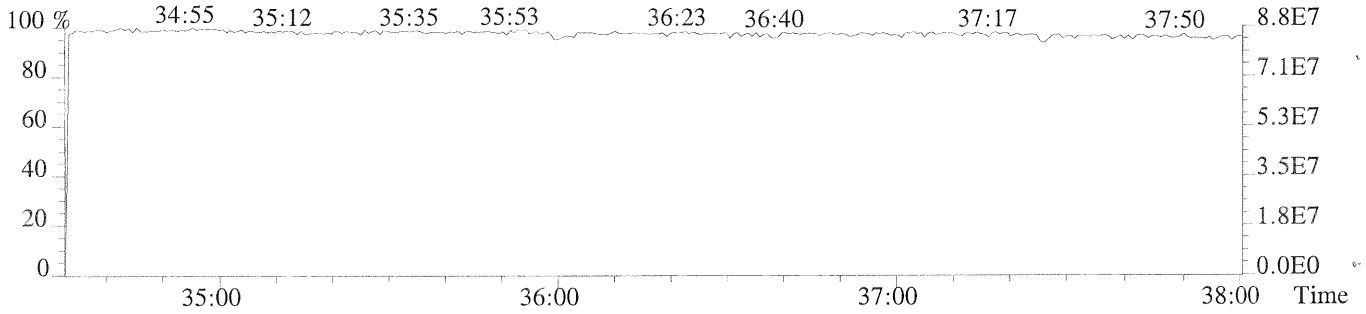
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1836.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1944.0,0.40%,F,T)

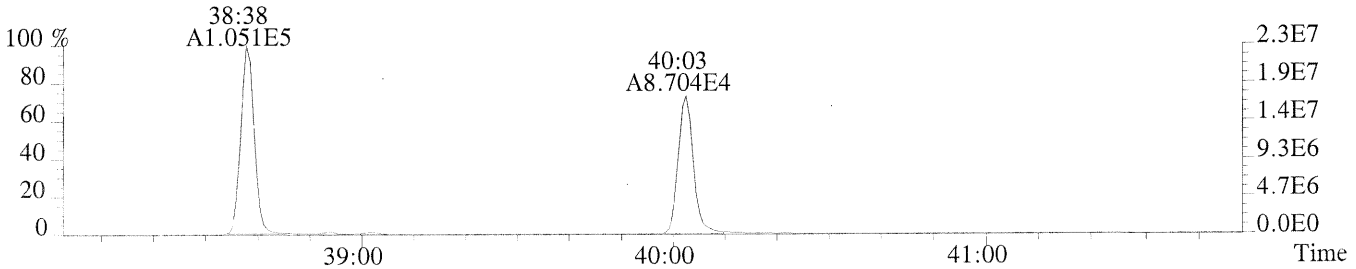


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

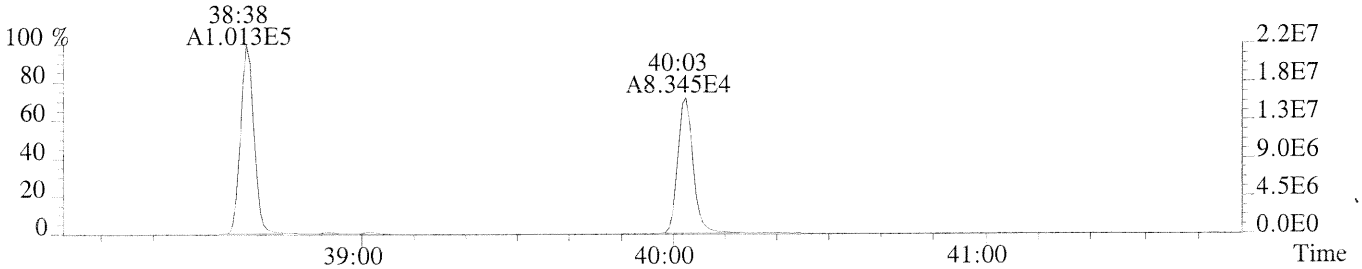


File:P227268 #1-342 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

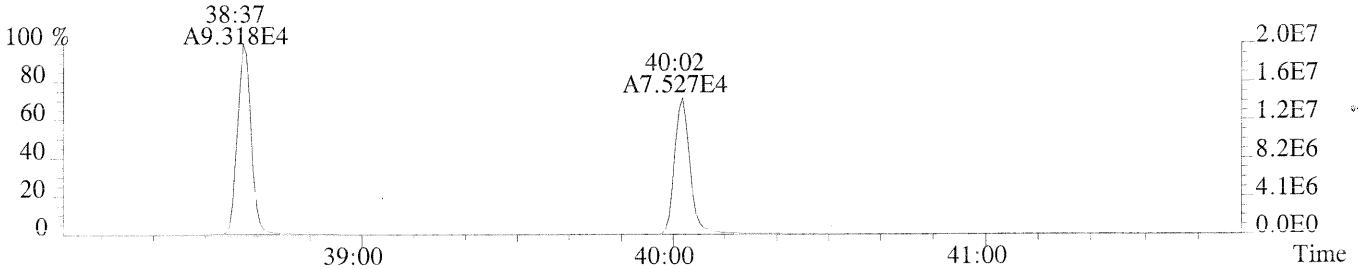
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3740.0,0.50%,F,T)



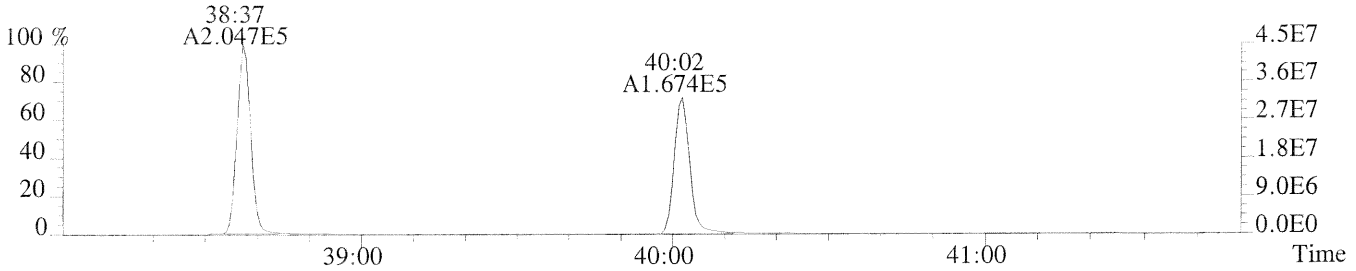
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13932.0,0.50%,F,T)



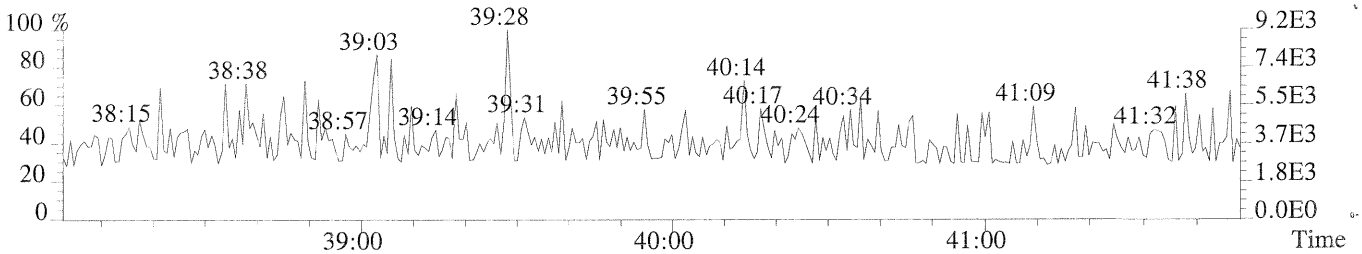
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5324.0,0.50%,F,T)



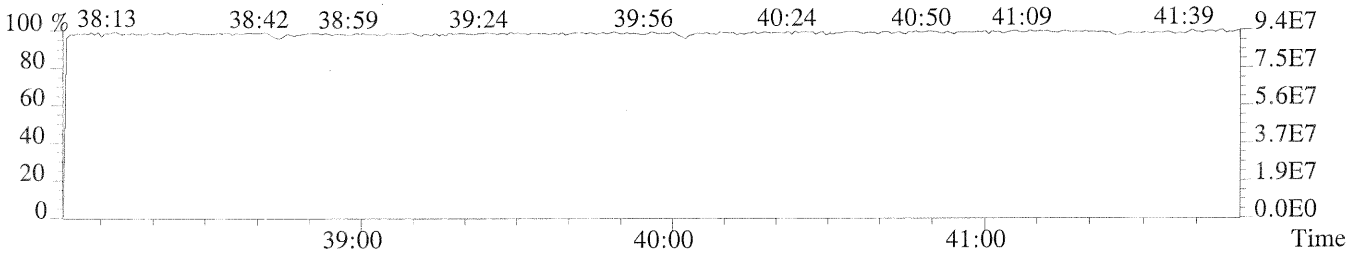
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,7348.0,0.50%,F,T)



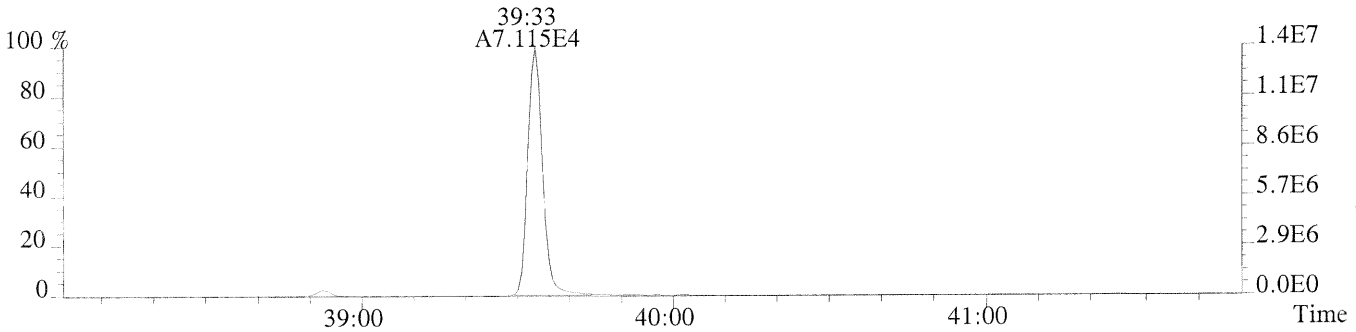
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



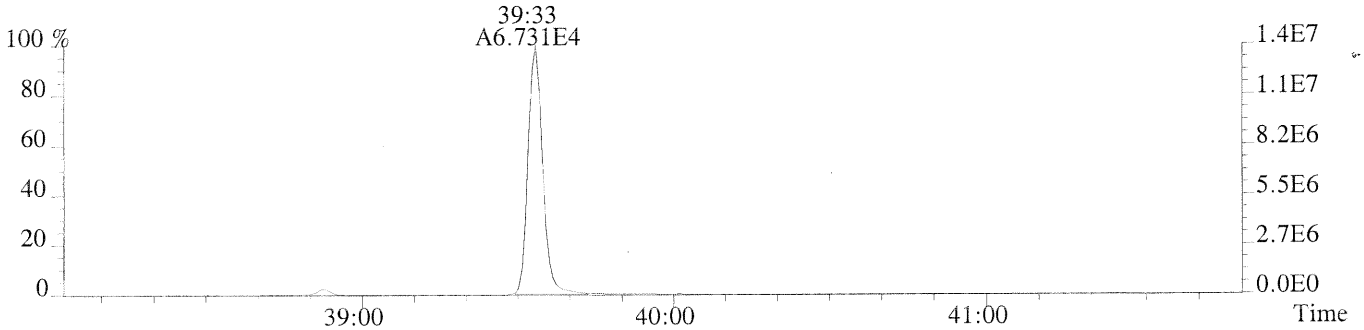
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



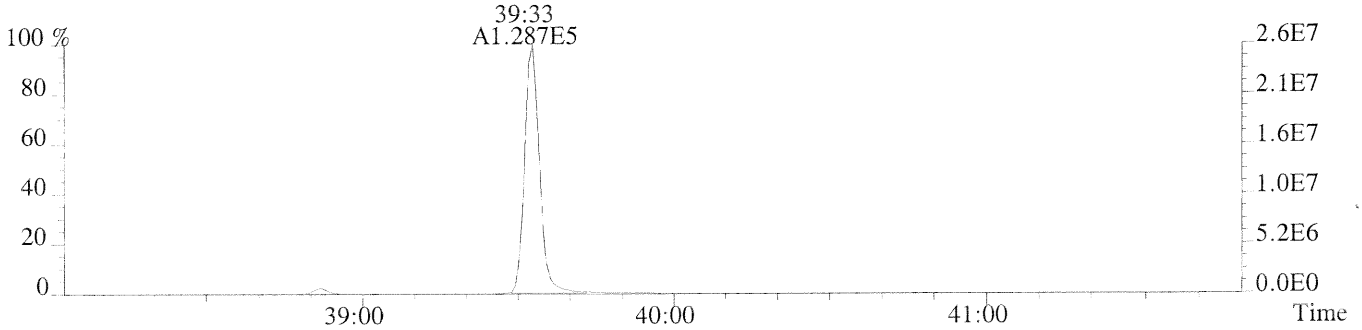
File:P227268 #1-342 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1392.0,0.40%,F,T)



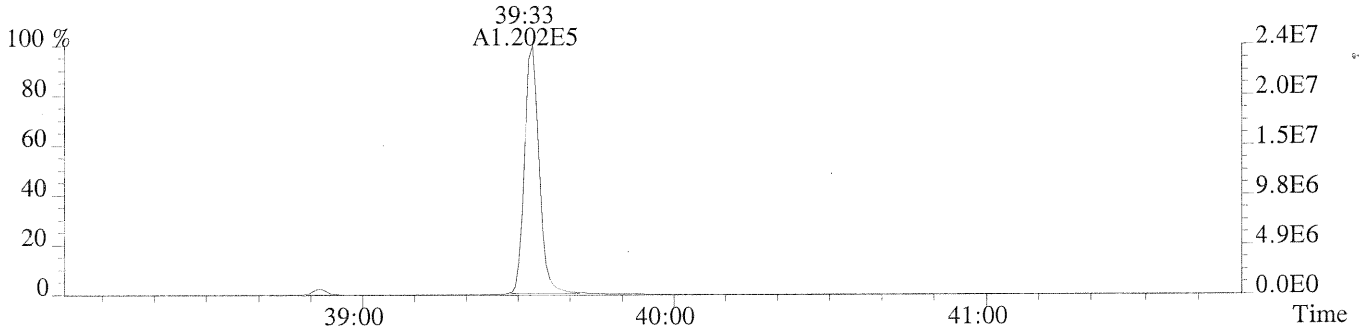
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1572.0,0.40%,F,T)



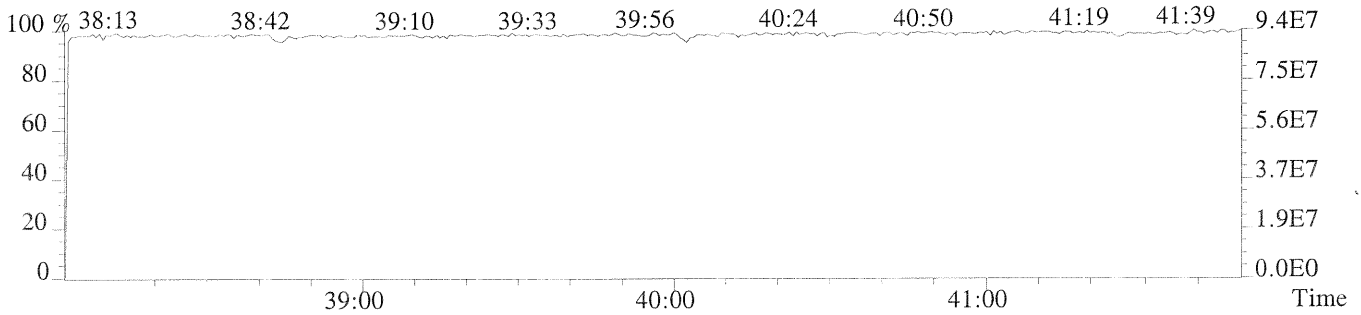
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1884.0,0.40%,F,T)



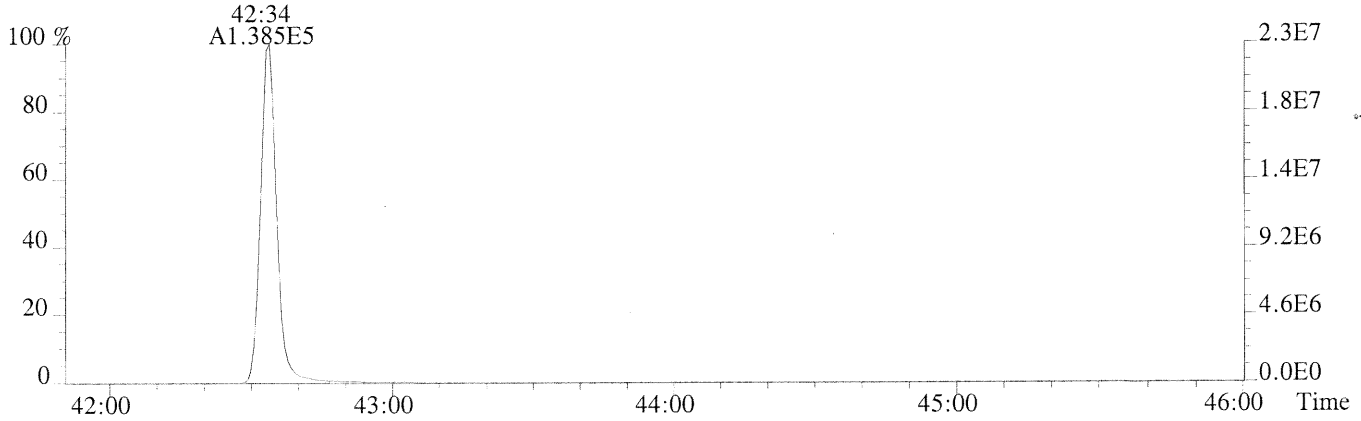
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)



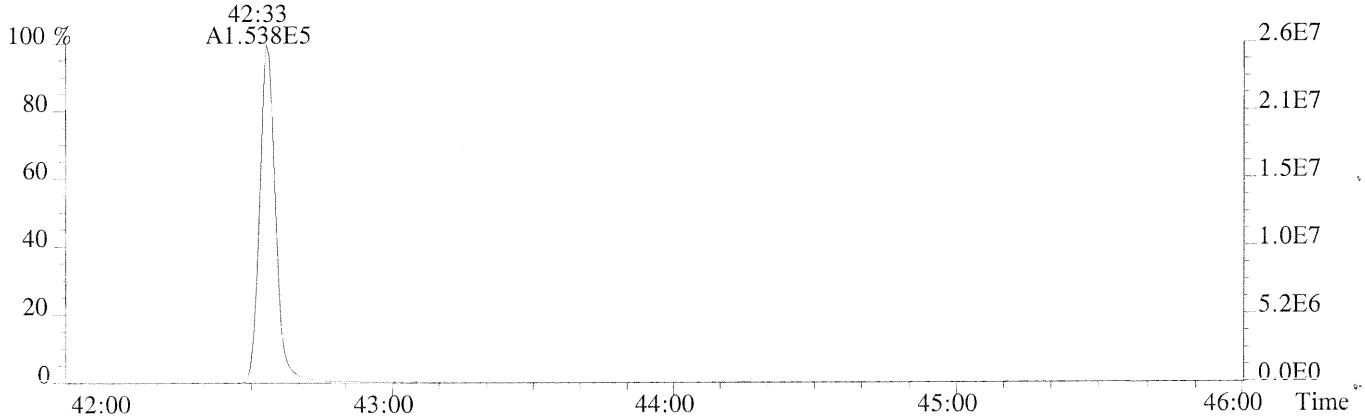
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



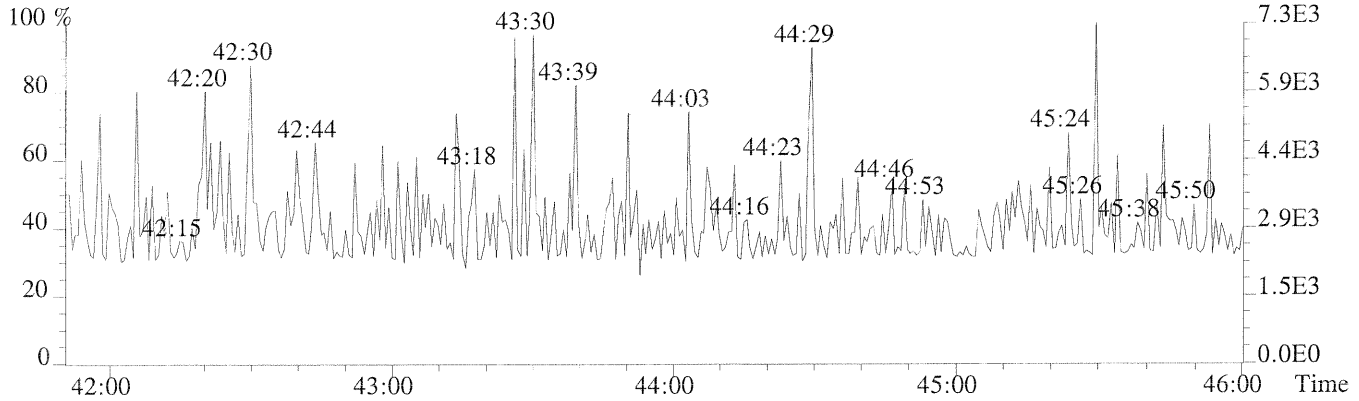
File:P227268 #1-383 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14544.0,0.40%,F,T)



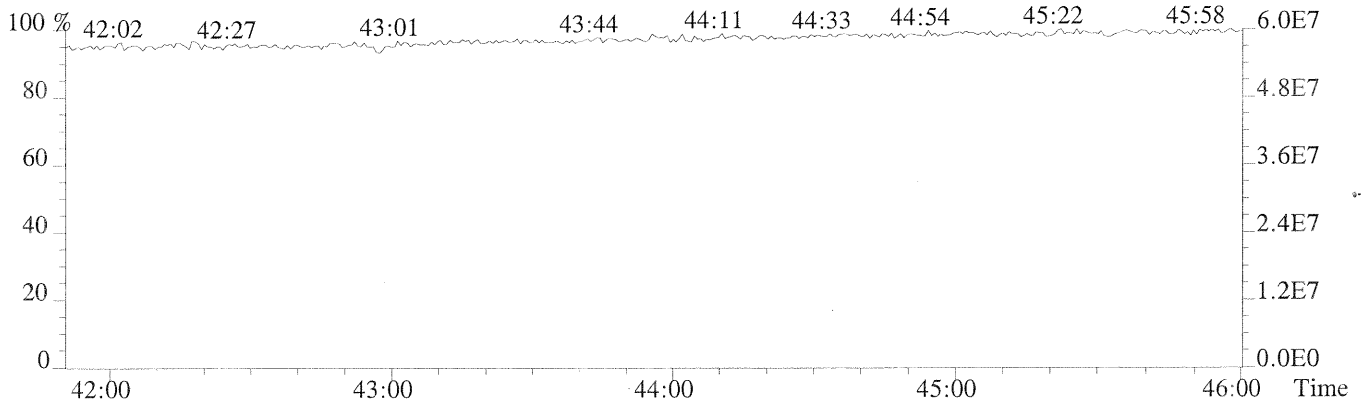
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,14972.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

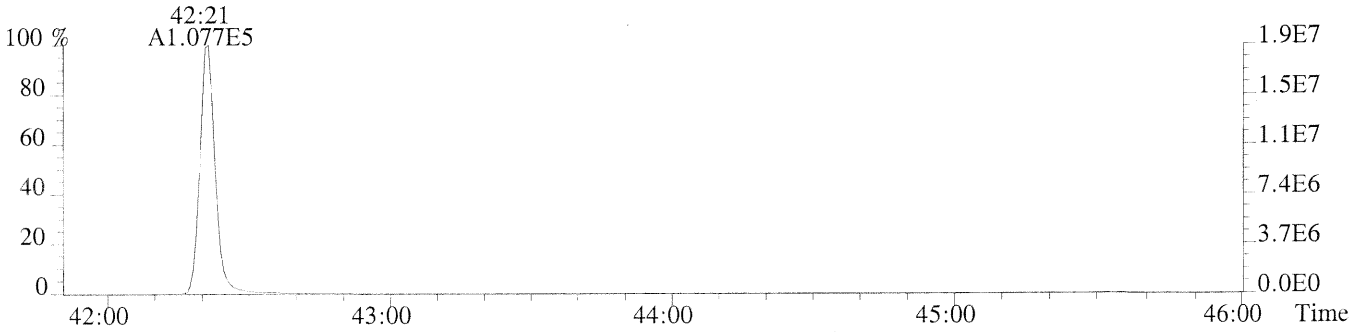


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

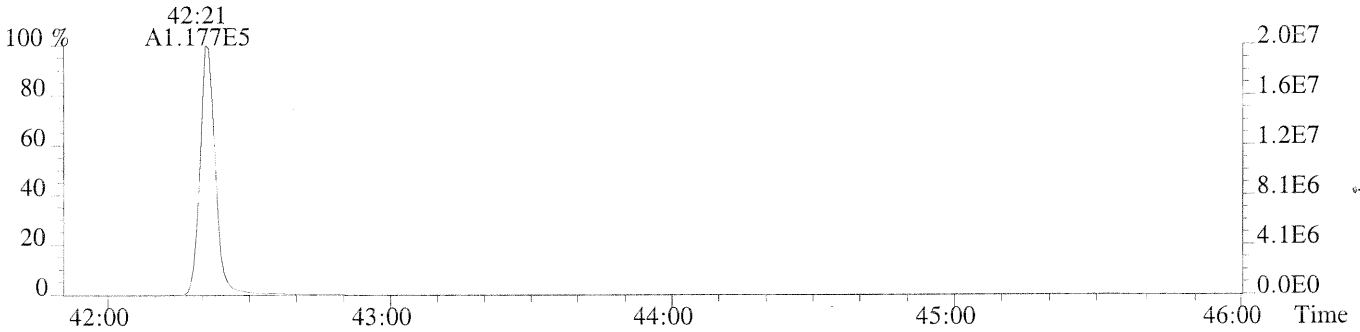


File:P227268 #1-383 Acq: 3-FEB-2014 15:16:53 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:2ND SOURCE HRCC3/CS3

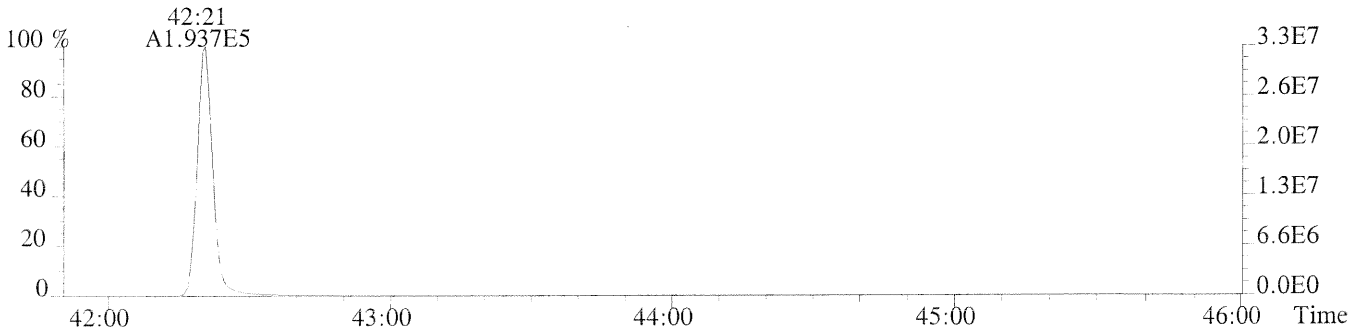
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,8384.0,0.40%,F,T)



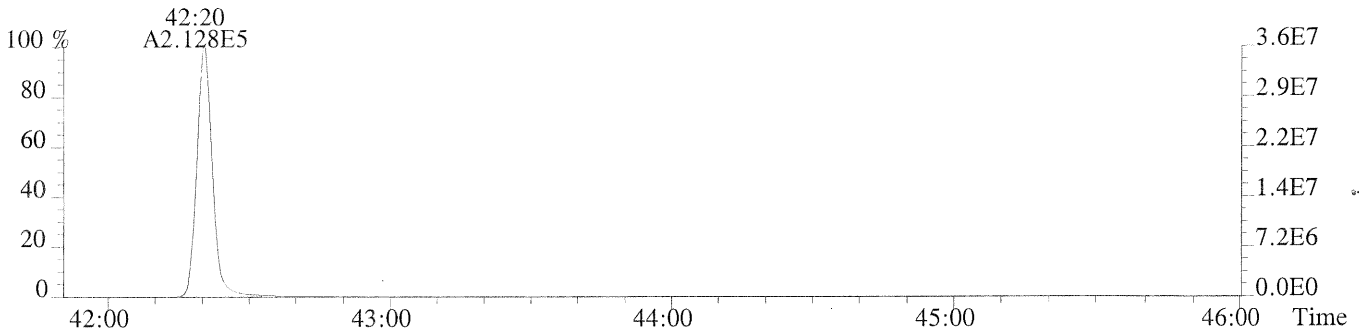
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,10456.0,0.40%,F,T)



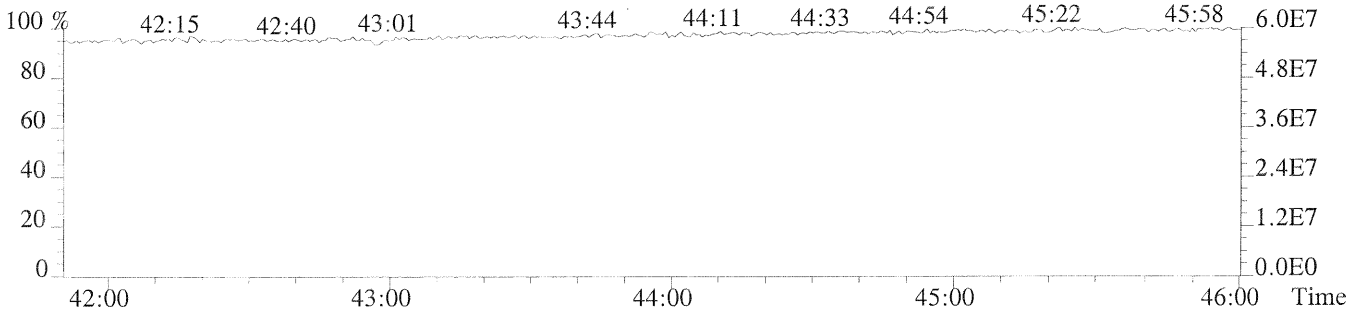
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,9628.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,19648.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 05/22/2014
Instrument Name: E-HRMS-01	Calibration File Name: U1405211613I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong

Description	Yes	No	NA	NR	ER#
Analytical Sequence					
Does the analytical sequence summary accurately reflect the instrument run log, including ICV?	x				
Was a Mass Resolution Check performed at the beginning and end of the 12-hour sequence?	x				
Were all calibration standards and the ICV analyzed within the same 12-hour sequence?	x				
Were all calibration standards analyzed only once?	x				
Was the ICV analyzed after the ICAL, before analyzing samples?	x				
Mass Resolution Check					
Are beginning and ending resolution checks provided and legible?	x				
Were all target masses >10,000 resolving power at the beginning of the sequence?	X				
Were all target masses >10,000 resolving power at the end of the sequence?	X				
For PCB analysis, were masses at the low and high end of each function mass range >8,000?			X		
Where automatic printout of the mass resolution were not >10,000, was the resolution inspected by a trained analyst, including manual calculation of the resolution, if warranted?			X		
Window Define/209					
Is the window defining mix summary present, and accompanied by SICPs/Chromatograms for the WDM?	X				
Was the WDM/Column Performance/209 solution analyzed prior to the analysis of the calibration standards?	X				
Was 2,3,7,8-TCDD peak valley <25% to any other TCDD?	X				
Were all first and last eluters adequately resolved in each function?	X				
If first and last eluters were not resolved, was corrective action performed and documented, followed by a reanalysis of the WDM?			X		
Was the retention time of PCB 209 >55 min?			X		
Were the following congeners uniquely resolved (valley height <40% of the shortest peak)? PCB-34 and PCB-23 PCB-187 and PCB-182			X		
Did PCB 156/157 co-elute within 2 seconds at peak maximum?			X		
Calibration Standards					
Were there at least 5 calibration standards analyzed?	X				
If not all calibration standards were used, were the omitted standards either the lowest or highest calibration standard?			X		
Are all sample response summaries, S/N height summaries, and SICPs included (and legible) for the entire sequence?	X				
Did each calibration point meet method criteria for Ion Abundance Ratio for all analytes and labeled standards?		X			1

Laboratory Review Checklist: HRMS Initial Calibration

Method: 1613/8290	Process Date: 05/22/2014
Instrument Name: E-HRMS-01	Calibration File Name: U1405211613I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong

Description	Yes	No	NA	NR	ER#
Did each calibration point meet method criteria for signal-to-noise ratios (S/N)?	X				
Were area counts for the highest calibration standard below levels of saturation?	X				
Were manual integrations technically justified to correct for poor software integration?			X		
Response Factors					
Is the ICAL Response Factor Summary present, including RR/RF values for each native/labeled analyte at each level of calibration?	X				
Were all calibration standards used in determining response factors?	X				
Were relative response factors (RR) for each native analyte calculated at each calibration point?	X				
Did the RSD for RRFs for each native analyte meet method criteria?	X				
Were response factors (RF) for each native analyte not having a corresponding labeled compound calculated at each calibration point?	X				
Were RFs for each labeled compound calculated for each calibration point?	X				
Did the RSD for RF for each labeled compound meet method criteria?	X				
Initial Calibration Verification					
Is the calibration verification present, including form 4A/B reflecting results for the ICV (Conc. or %D)	X				
Did all analytes meet method criteria for the ICV.	X				

Laboratory Review Checklist: Initial Calibration

Method: 1613/8290	Process Date: 05/22/2014
Instrument Name: E-HRMS-01	Calibration File Name: U1405211613I
Processor Name: Chris Elhardt	Reviewer Name: Loan Luong

ER# 5	Description
1	Ion Abundance Ratio for TCDF CS 0.5 did not meet method criteria.

NA = Not Applicable;
NR = Not Reviewed;
R# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Initial Calibration QC Checklist

ICAL Name: U140521 1613 I

Date: 21 May 14

Method: 1613 / 8290 / Tetra / TCDD Only / TCDF Conf / 8280 / M23

Retention Window/Column Performance Check	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	x TCDF CS0.5	x TCDF CS0.5
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50%	NA	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: CR Second QC: LKL

icalqc.xls 10-30-2012

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: ALS Environmental Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5MSUI ID: 0.25 (mm) Instrument ID: E-HRMS-01

Init. Calib. Date: 05/21/2014

Init. Calib.Times: 13:12:29

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE	63680	U149170	21-MAY-14	13:12:29
CS0.5	66807	U149172	21-MAY-14	14:47:46
CS1	66798	U149173	21-MAY-14	15:39:21
CS2	D12-90-3B	U149174	21-MAY-14	16:26:42
CS3	63383	U149175	21-MAY-14	17:15:15
CS4	D12-90-3D	U149176	21-MAY-14	18:03:46
CS5	66799	U149177	21-MAY-14	18:52:20
INST BLANK	INST BLANK	U149178	21-MAY-14	19:40:54
ICV 2ND SOURCE	60287	U149179	21-MAY-14	20:29:24

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U1140521.SPL

Last Modified: Wednesday, May 21, 2014 16:50:51 Central Daylight Time

Printed: Thursday, May 22, 2014 08:36:34 Central Daylight Time

c: U140521 1613I
C: U140521 M23I

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met
1	05/21/14	08:05	U149168	CS0.5 HRCC0.5/CS0.5	66807	JWP	DO NOT USE	8290cas
2		12:05	U149169	CS0.5 HRCC0.5/CS0.5	66807			8290cas
3		13:12	U149170	WINDOW DEFINE	63680		HRMS Check 13:06	8290cas
4		13:59	U149171	INST BLANK	INST BLANK			8290cas
5		14:47	U149172	CS0.5 HRCC0.5/CS0.5	66807			8290cas
6		15:39	U149173	CS1 HRCC1/CS1	66798			8290cas
7		16:26	U149174	CS2 HRCC2/CS2	D12-90-3B			8290cas
8		17:15	U149175	CS3 HRCC3/CS3	63383			8290cas
9		18:03	U149176	CS4 HRCC4/CS4	D12-90-3D			8290cas
10		18:52	U149177	CS5 HRCC5/CS5	66799			8290cas
11		19:40	U149178	INST BLANK	INST BLANK			8290cas
12		20:29	U149179	ICV 2ND SOURCE	60287		HRMS Check 08:30	8290cas
13			---	---	---			8290cas
14			---	---	---			8290cas
15			---	---	---			1668EPA
16			---	---	---			1668EPA
17			---	---	---			1668EPA
18			---	---	---			1668EPA
19			---	---	---			1668EPA
20			---	---	---			1668EPA
21			---	---	---			1668EPA
22			---	---	---			1668EPA
23			---	---	---			---
24			---	---	---			---
25			---	---	---			TCDFCAS
26			---	---	---			TCDFCAS
27			---	---	---			TCDFCAS
28			---	---	---			TCDFCAS
29			---	---	---			TCDFCAS
30			---	---	---			TCDFCAS
31			---	---	---			TCDFCAS
32			---	---	---			TCDFCAS
33			---	---	---			TCDFCAS
34			---	---	---			TCDFCAS
35			---	---	---			TCDFCAS
36			---	---	---			---
37			---	---	---			1668EPA
38			---	---	---			1668EPA
39			---	---	---			---

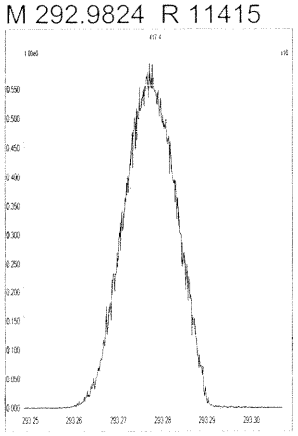
CEL
5/22/14

Experiment Calibration Report **MassLynx 4.1**

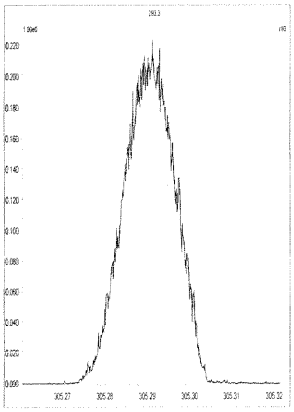
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Wednesday, May 21, 2014 13:06:44 Central Daylight Time

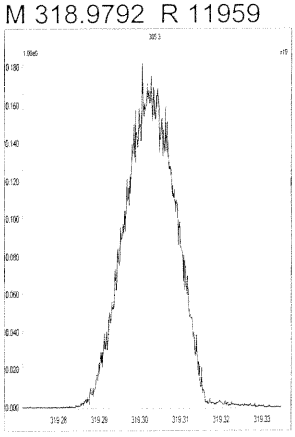
M 292.9824 R 11415



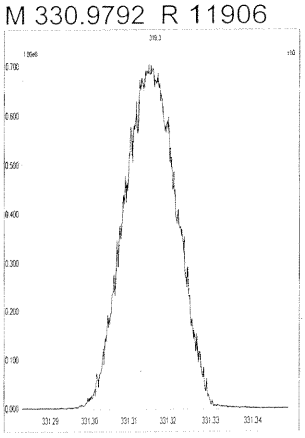
M 304.9824 R 11519



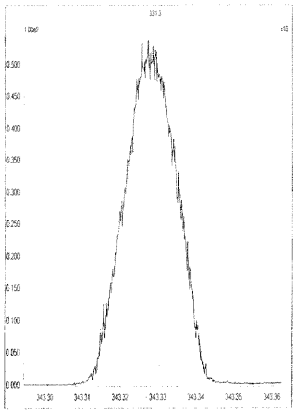
M 318.9792 R 11959



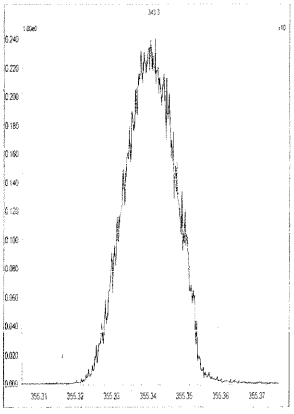
M 330.9792 R 11906



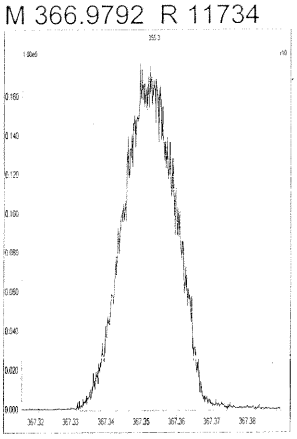
M 342.9792 R 12195



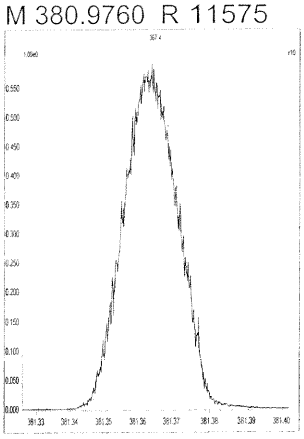
M 354.9792 R 12081



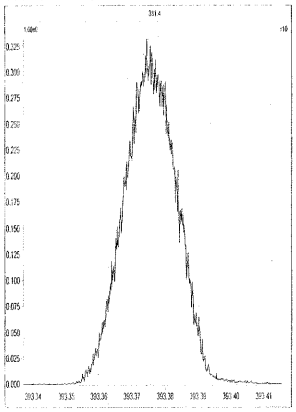
M 366.9792 R 11734



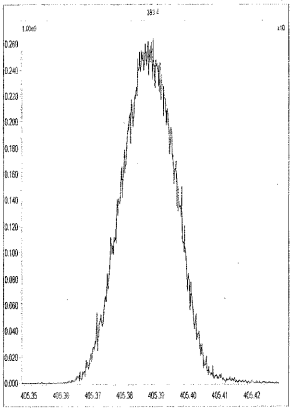
M 380.9760 R 11575



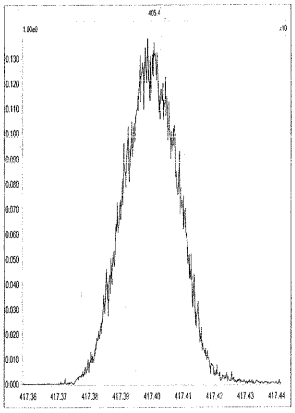
M 392.9760 R 11415



M 404.9760 R 10915



M 416.9760 R 10731

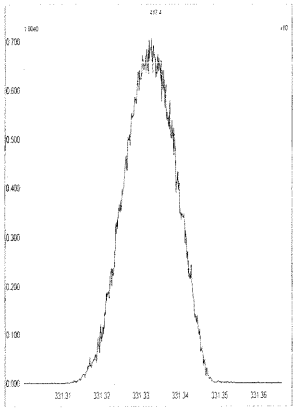


Experiment Calibration Report **MassLynx 4.1**

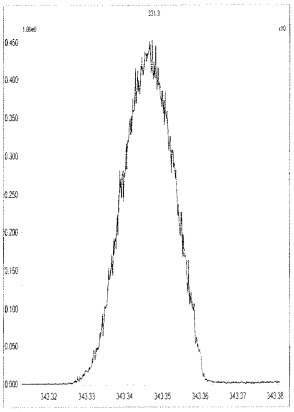
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Wednesday, May 21, 2014 13:07:33 Central Daylight Time

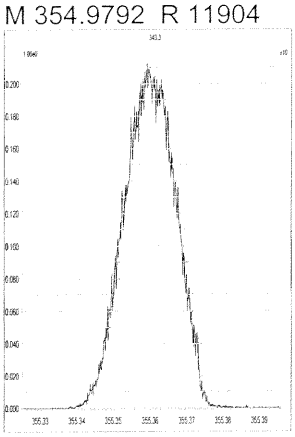
M 330.9792 R 11517



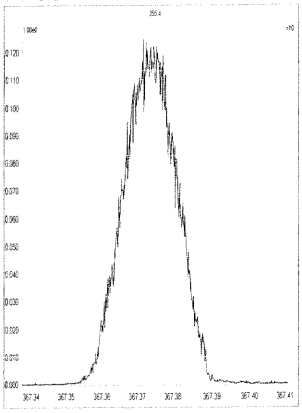
M 342.9792 R 11683



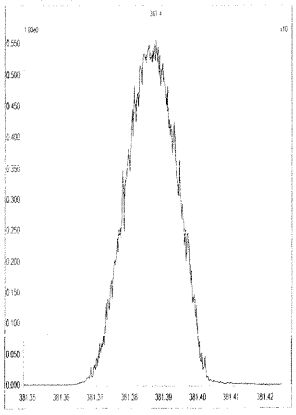
M 354.9792 R 11904



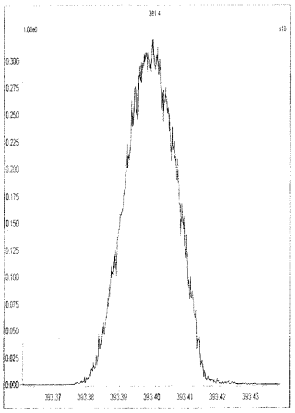
M 366.9792 R 11846



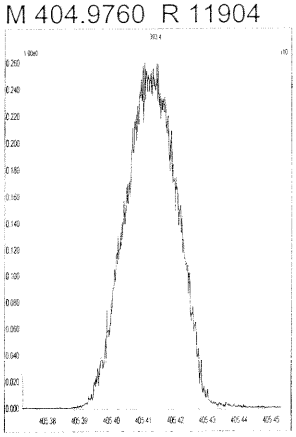
M 380.9760 R 12138



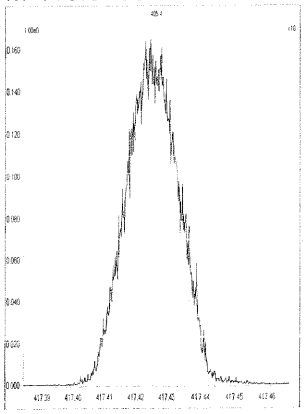
M 392.9760 R 11962



M 404.9760 R 11904



M 416.9760 R 12075

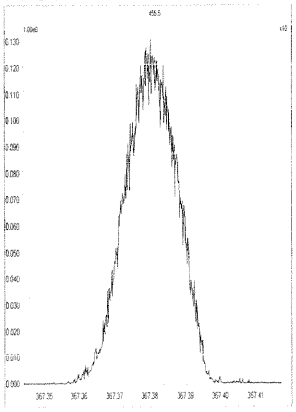


Experiment Calibration Report **MassLynx 4.1**

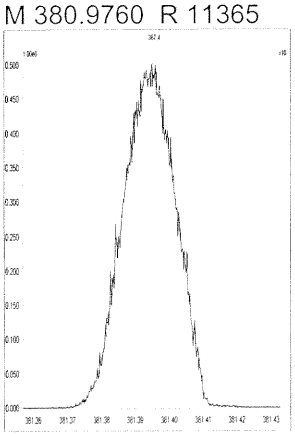
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Wednesday, May 21, 2014 13:08:08 Central Daylight Time

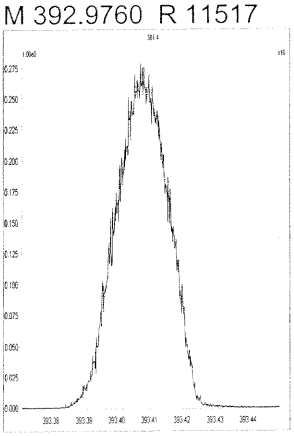
M 366.9792 R 11310



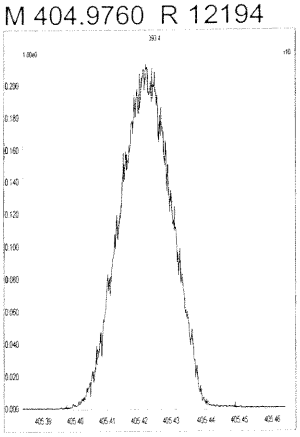
M 380.9760 R 11365



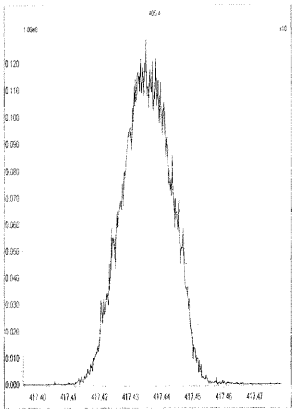
M 392.9760 R 11517



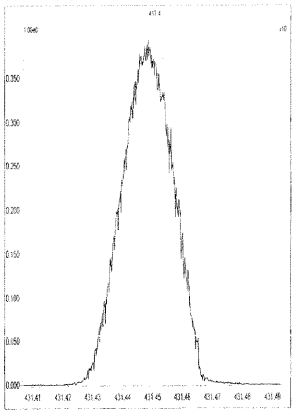
M 404.9760 R 12194



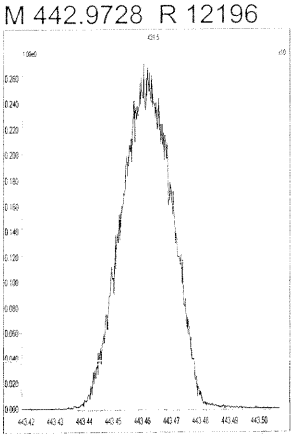
M 416.9760 R 12253



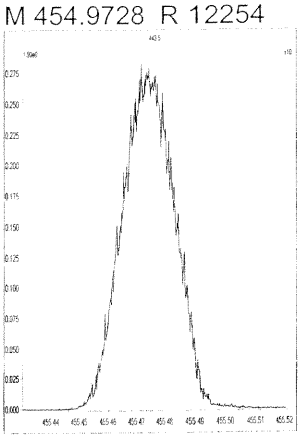
M 430.9728 R 12193



M 442.9728 R 12196



M 454.9728 R 12254

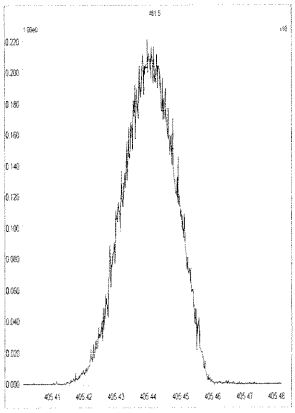


Experiment Calibration Report **MassLynx 4.1**

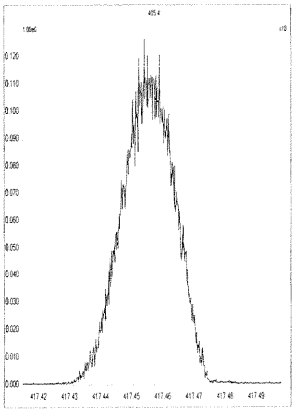
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Wednesday, May 21, 2014 13:08:42 Central Daylight Time

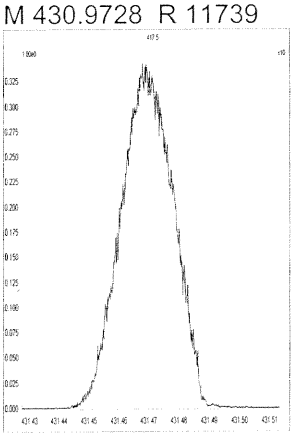
M 404.9760 R 11211



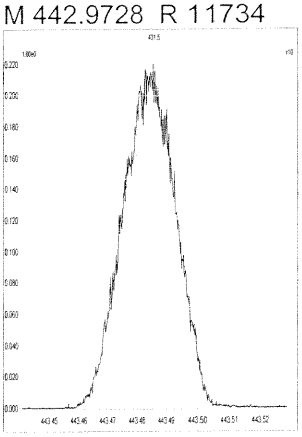
M 416.9760 R 11160



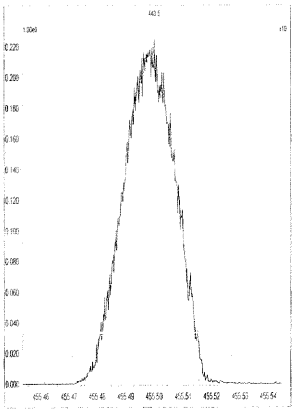
M 430.9728 R 11739



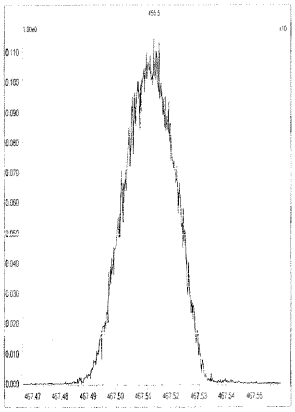
M 442.9728 R 11734



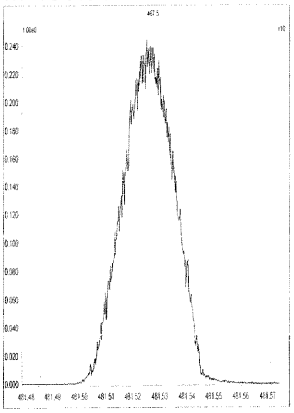
M 454.9728 R 12019



M 466.9728 R 12018



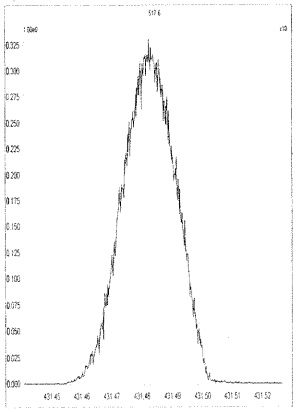
M 480.9696 R 12080



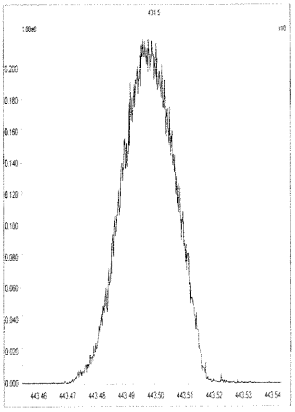
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Wednesday, May 21, 2014 13:09:07 Central Daylight Time

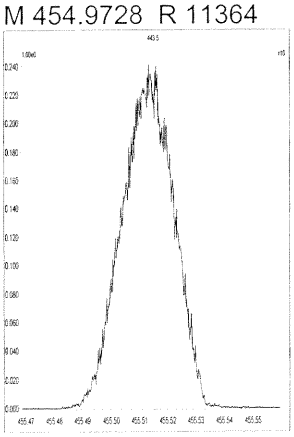
M 430.9728 R 11209



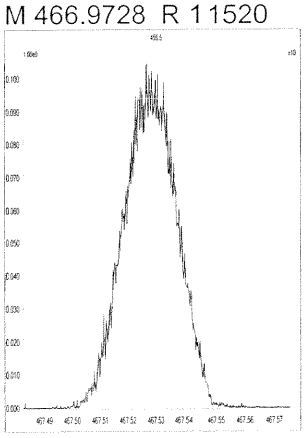
M 442.9728 R 11522



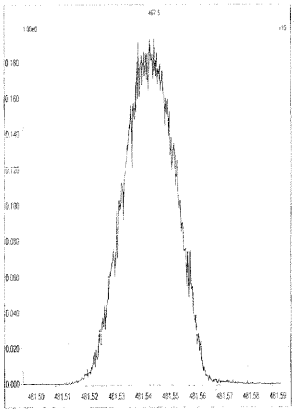
M 454.9728 R 11364



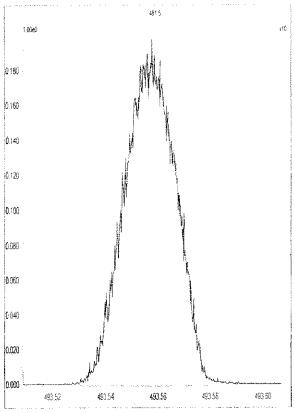
M 466.9728 R 11520



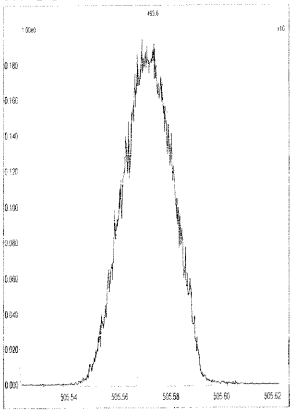
M 480.9696 R 11740



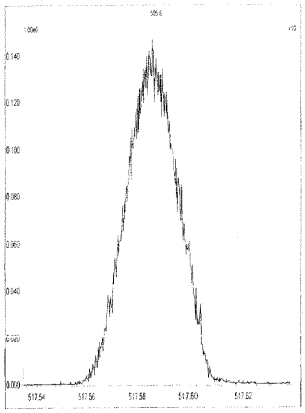
M 492.9696 R 11906



M 504.9696 R 11962



M 516.9697 R 11848

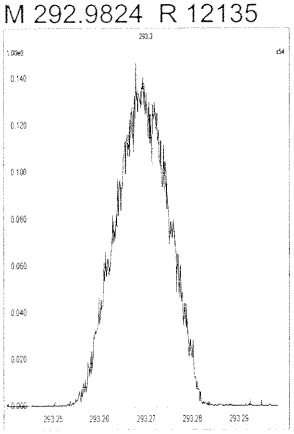


Experiment Calibration Report **MassLynx 4.1**

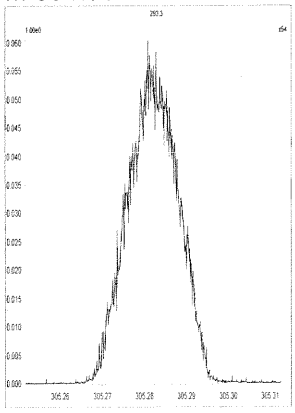
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, May 22, 2014 08:30:22 Central Daylight Time

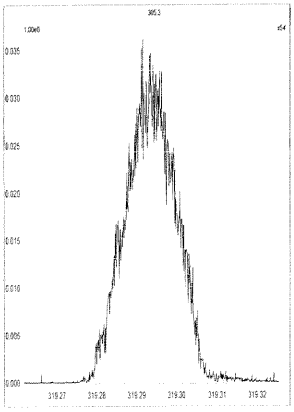
M 292.9824 R 12135



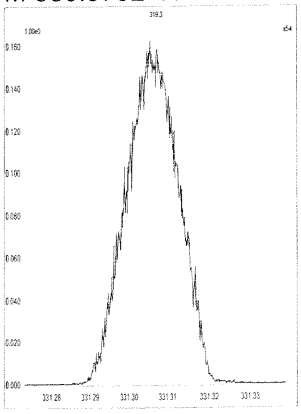
M 304.9824 R 11846



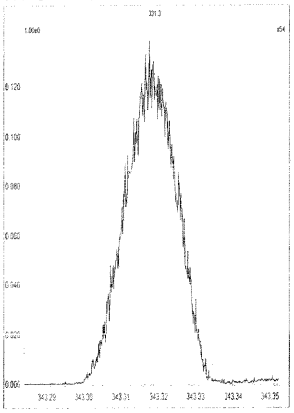
M 318.9792 R 12074



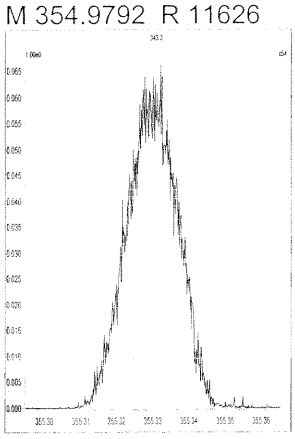
M 330.9792 R 11683



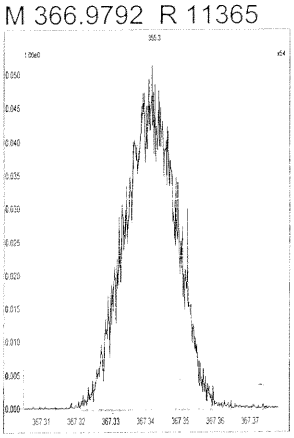
M 342.9792 R 11520



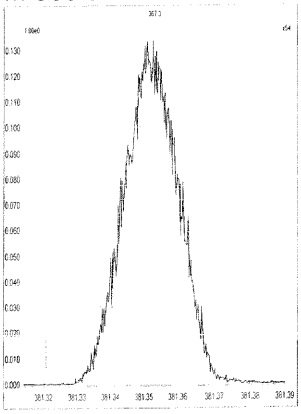
M 354.9792 R 11626



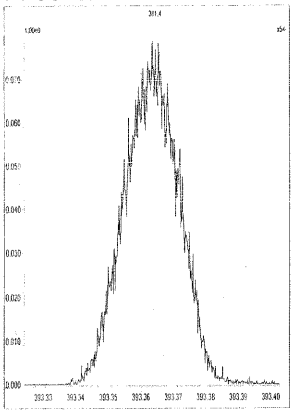
M 366.9792 R 11365



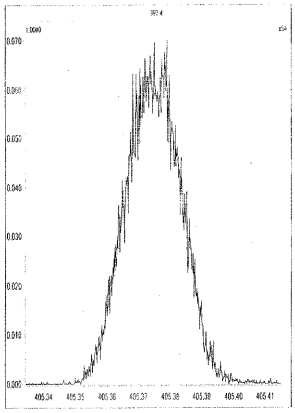
M 380.9760 R 10965



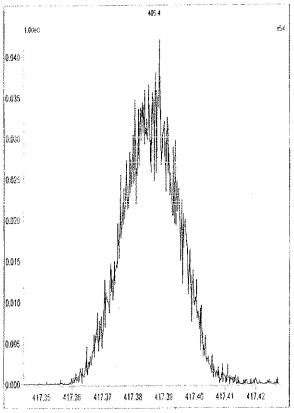
M 392.9760 R 10964



M 404.9760 R 10415



M 416.9760 R 10374

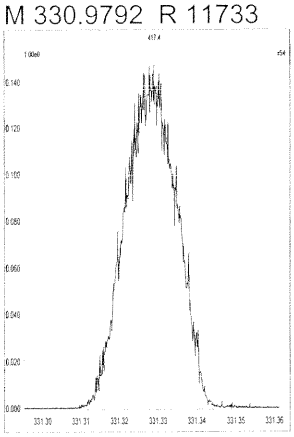


Experiment Calibration Report **MassLynx 4.1**

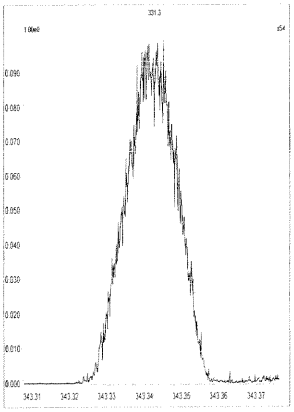
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, May 22, 2014 08:31:35 Central Daylight Time

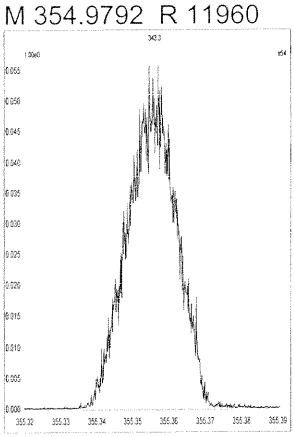
M 330.9792 R 11733



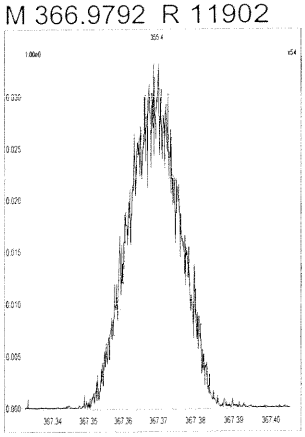
M 342.9792 R 11962



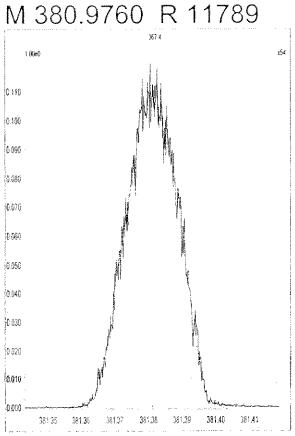
M 354.9792 R 11960



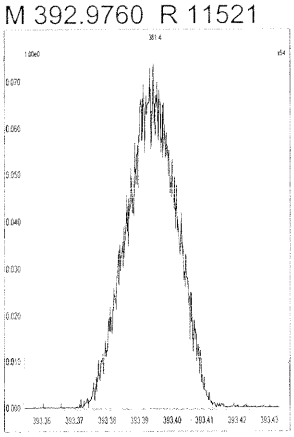
M 366.9792 R 11902



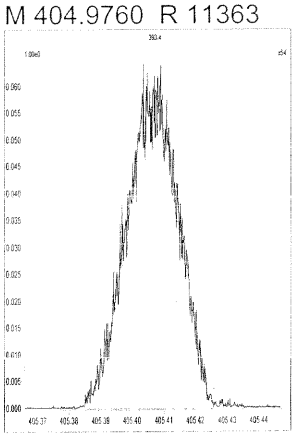
M 380.9760 R 11789



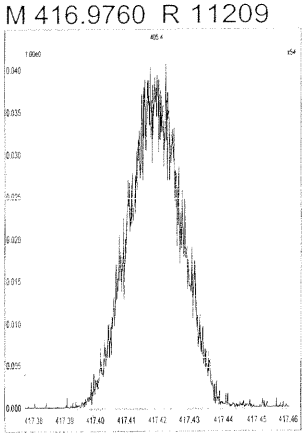
M 392.9760 R 11521



M 404.9760 R 11363



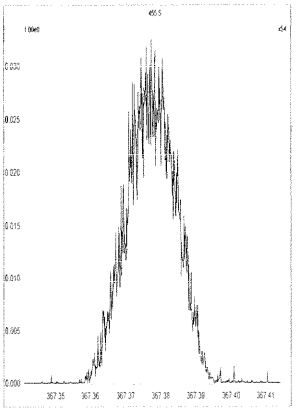
M 416.9760 R 11209



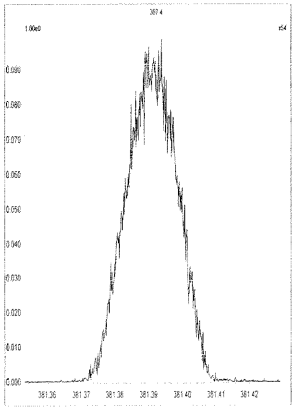
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, May 22, 2014 08:32:39 Central Daylight Time

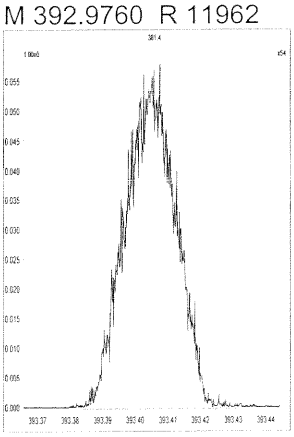
M 366.9792 R 12253



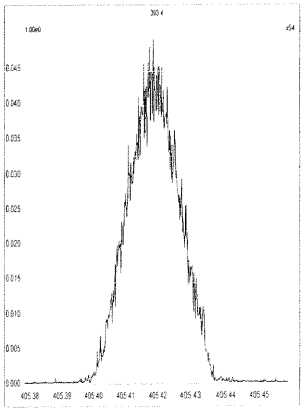
M 380.9760 R 12257



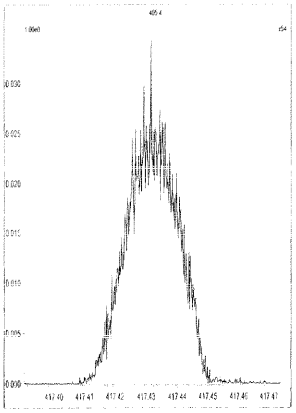
M 392.9760 R 11962



M 404.9760 R 11792

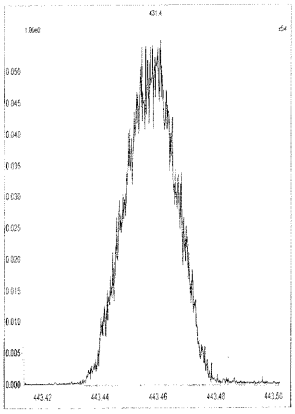


M 416.9760 R 11960

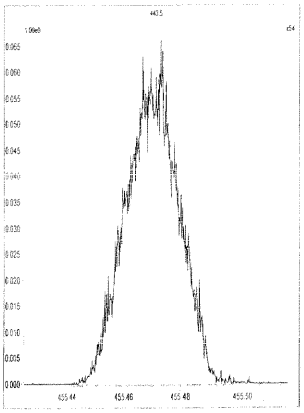


M 430.9728 R 11259

M 442.9728 R 11738



M 454.9728 R 11682

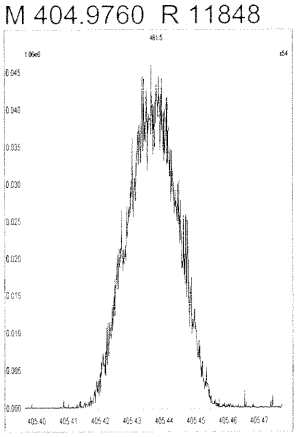


Experiment Calibration Report **MassLynx 4.1**

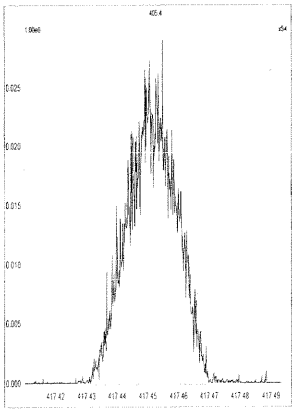
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, May 22, 2014 08:33:36 Central Daylight Time

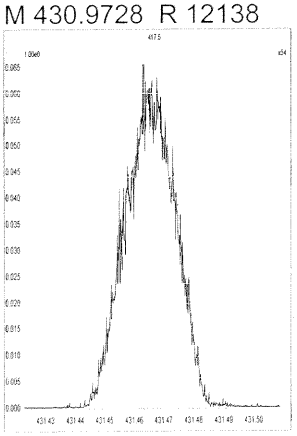
M 404.9760 R 11848



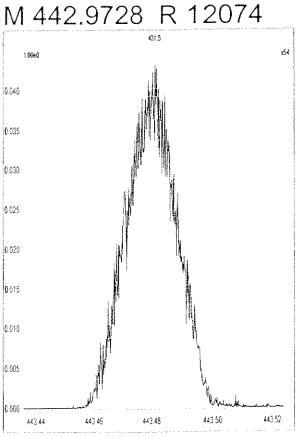
M 416.9760 R 12258



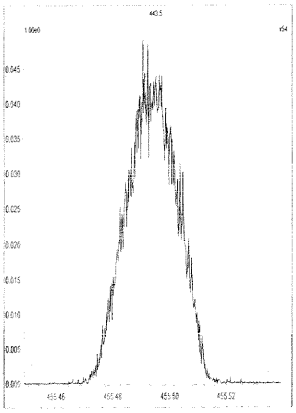
M 430.9728 R 12138



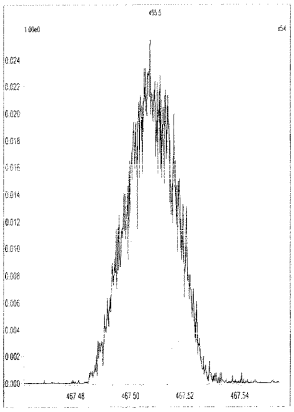
M 442.9728 R 12074



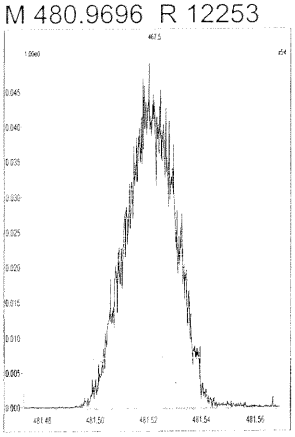
M 454.9728 R 11905



M 466.9728 R 12018



M 480.9696 R 12253

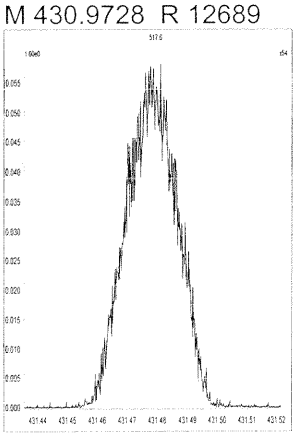


Experiment Calibration Report **MassLynx 4.1**

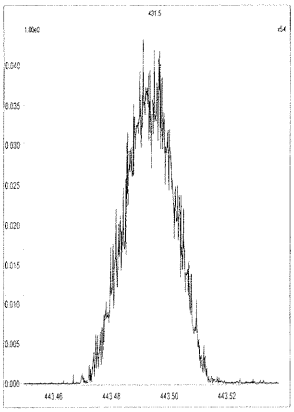
File: Experiment: 8290db5msuif1.exp Reference: pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, May 22, 2014 08:34:33 Central Daylight Time

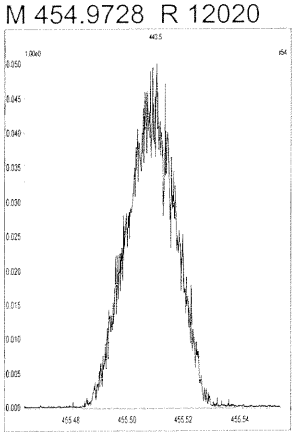
M 430.9728 R 12689



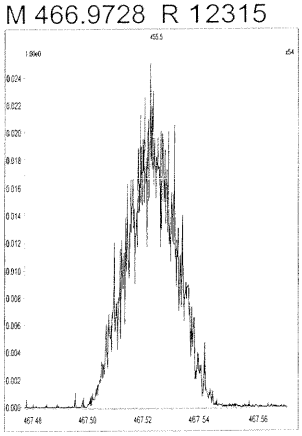
M 442.9728 R 11906



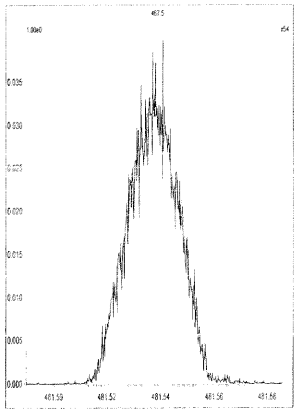
M 454.9728 R 12020



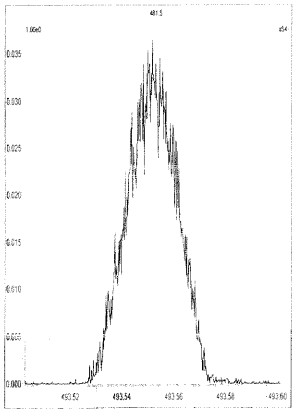
M 466.9728 R 12315



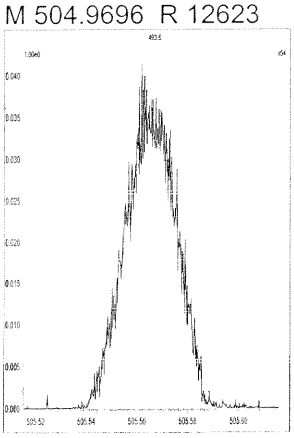
M 480.9696 R 12375



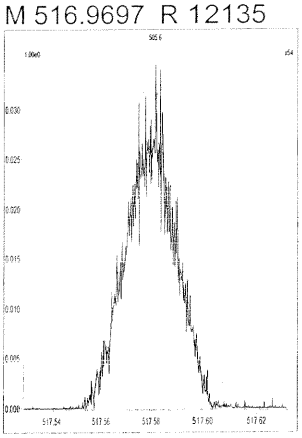
M 492.9696 R 12628



M 504.9696 R 12623



M 516.9697 R 12135



USEPA - CLP
6DFA6
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-01
Init. Calib. Date(s).: 05/21/2014 Analyte Table: 1613u
Init. Calib. Time.: 13:12:29

Target Analytes	RR/RRF CS0.5	CS1	CS2	CS3	CS4	CS5	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDF	1.02	0.94	0.90	0.92	0.94	0.94	0.94	3.98	+/-20%
1,2,3,7,8-PeCDF	0.97	1.01	0.98	0.98	0.99	0.93	0.98	2.76	+/-20%
2,3,4,7,8-PeCDF	0.92	0.93	0.93	0.93	0.94	0.99	0.94	2.83	+/-20%
1,2,3,4,7,8-HxCDF	1.20	1.29	1.21	1.22	1.24	1.20	1.23	2.81	+/-20%
1,2,3,6,7,8-HxCDF	1.13	1.16	1.14	1.14	1.16	1.17	1.15	1.47	+/-20%
2,3,4,6,7,8-HxCDF	1.11	1.17	1.12	1.14	1.16	1.12	1.14	1.92	+/-20%
1,2,3,7,8,9-HxCDF	1.08	1.16	1.18	1.16	1.18	1.14	1.15	3.27	+/-20%
1,2,3,4,6,7,8-HpCDF	1.45	1.47	1.38	1.43	1.44	1.39	1.43	2.31	+/-20%
1,2,3,4,7,8,9-HpCDF	1.38	1.32	1.34	1.32	1.37	1.42	1.36	2.72	+/-20%
OCDF	1.34	1.40	1.32	1.36	1.40	1.29	1.35	3.53	+/-20%
2,3,7,8-TCDD	1.01	1.17	0.95	0.98	0.99	0.98	1.01	7.68	+/-20%
1,2,3,7,8-PeCDD	0.98	1.04	1.01	1.03	1.03	1.05	1.03	2.27	+/-20%
1,2,3,4,7,8-HxCDD	1.08	1.11	1.11	1.12	1.15	1.24	1.13	4.92	+/-20%
1,2,3,6,7,8-HxCDD	1.07	1.17	1.11	1.12	1.16	1.00	1.11	5.44	+/-20%
1,2,3,7,8,9-HxCDD	1.19	1.25	1.21	1.23	1.25	1.18	1.22	2.53	+/-20%
1,2,3,4,6,7,8-HpCDD	1.16	1.12	1.04	1.03	1.03	1.02	1.07	5.49	+/-20%
OCDD	1.22	1.23	1.17	1.18	1.19	1.07	1.18	4.76	+/-20%
13C-2,3,7,8-TCDF	1.38	1.38	1.39	1.37	1.69	1.39	1.43	8.64	+/-35%
13C-1,2,3,7,8-PeCDF	1.74	1.74	1.73	1.78	2.63	1.90	1.92	18.44	+/-35%
13C-2,3,4,7,8-PeCDF	1.72	1.71	1.71	1.75	2.52	1.81	1.87	17.14	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.19	1.15	1.15	1.13	1.18	1.23	1.17	3.14	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.35	1.33	1.35	1.31	1.37	1.32	1.34	1.79	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.25	1.23	1.23	1.21	1.26	1.26	1.24	1.62	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.15	1.13	1.12	1.12	1.17	1.16	1.14	1.87	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.00	0.96	0.88	0.95	1.00	1.01	0.97	5.01	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.90	0.88	0.82	0.88	0.93	0.87	0.88	4.20	+/-35%
13C-2,3,7,8-TCDD	0.96	0.96	0.98	0.99	1.40	1.03	1.05	16.26	+/-35%
13C-1,2,3,7,8-PeCDD	1.11	1.11	1.11	1.13	1.73	1.22	1.24	19.79	+/-35%
13C-1,2,3,4,7,8-HxCDD	0.88	0.85	0.88	0.85	0.88	0.88	0.87	1.87	+/-35%
13C-1,2,3,6,7,8-HxCDD	0.95	0.93	0.92	0.93	0.96	1.03	0.95	4.35	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.96	0.92	0.87	0.91	0.97	0.98	0.94	4.51	+/-35%
13C-OCDD	0.72	0.71	0.68	0.72	0.76	0.84	0.74	7.74	+/-35%
13C-1,2,3,4-TCDD	-	-	-	-	-	-	-	-	
13C-1,2,3,7,8,9-HxCDD	-	-	-	-	-	-	-	-	
37Cl-2,3,7,8-TCDD	0.92	0.91	0.98	1.00	1.43	1.04	1.04	18.58	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analog of the other two HxCDDs.
2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFB6
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: ALS Environmental Contract No.:
Lab Code: ALSTX Case No.: TO No.: SDG No.:
GC Column: DB-5MSUI ID: 0.25(mm) Instrument ID: E-HRMS-01
Init. Calib. Date(s).: 05/21/2014 Analyte Table: 1613u
Init. Calib. Time.: 13:12:29

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS0.5	CS1	CS2	CS3	CS4	CS5	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDF	304/306	0.60	0.70	0.78	0.76	0.76	0.76		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.52	1.54	1.57	1.55	1.57	1.55		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.53	1.54	1.55	1.55	1.55	1.54		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.33	1.26	1.24	1.21	1.25	1.23		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.28	1.23	1.23	1.21	1.24	1.24		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.10	1.19	1.23	1.22	1.23	1.21		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.27	1.30	1.28	1.26	1.21	1.27		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	0.99	1.05	1.02	1.04	1.03	1.04		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.08	1.07	1.02	1.04	1.03	1.03		0.88-1.20
OCDF	442/444	0.89	0.95	0.89	0.90	0.90	0.91		0.76-1.02
2,3,7,8-TCDD	320/322	0.75	0.81	0.83	0.80	0.80	0.80		0.65-0.89
1,2,3,7,8-PeCDD	356/358	1.69	1.61	1.60	1.57	1.60	1.59		1.32-1.78
1,2,3,4,7,8-HxCDD	390/392	1.28	1.33	1.23	1.25	1.25	1.25		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.26	1.29	1.24	1.26	1.25	1.25		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.15	1.21	1.26	1.24	1.24	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDD	424/426	0.99	0.93	1.02	1.05	1.04	1.05		0.88-1.20
OCDD	458/460	0.81	0.91	0.87	0.89	0.89	0.88		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.81	0.82	0.81	0.82	0.80	0.81		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.58	1.58	1.58	1.59	1.58	1.56		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.59	1.60	1.58	1.57	1.58	1.57		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.51	0.51	0.52	0.53	0.52	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.52	0.51	0.52	0.53	0.52	0.52		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.52	0.51	0.51	0.52	0.52	0.51		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.53	0.52	0.52	0.51	0.51	0.52		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.46	0.46	0.46	0.46	0.46		0.37-0.51
13C-2,3,7,8-TCDD	332/334	0.77	0.79	0.78	0.78	0.77	0.78		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.58	1.56	1.58	1.58	1.57	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.33	1.32	1.32	1.30	1.31	1.29		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.30	1.30	1.31	1.30	1.31	1.29		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	436/438	1.07	1.09	1.07	1.07	1.08	1.07		0.88-1.20
13C-OCDD	470/472	0.90	0.92	0.92	0.92	0.92	0.92		0.76-1.02
13C-1,2,3,4-TCDD	332/334	0.78	0.78	0.78	0.79	0.78	0.78		0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.24	1.29	1.29	1.29	1.26	1.26		1.05-1.43
37Cl-2,3,7,8-TCDD	328								

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

WDM

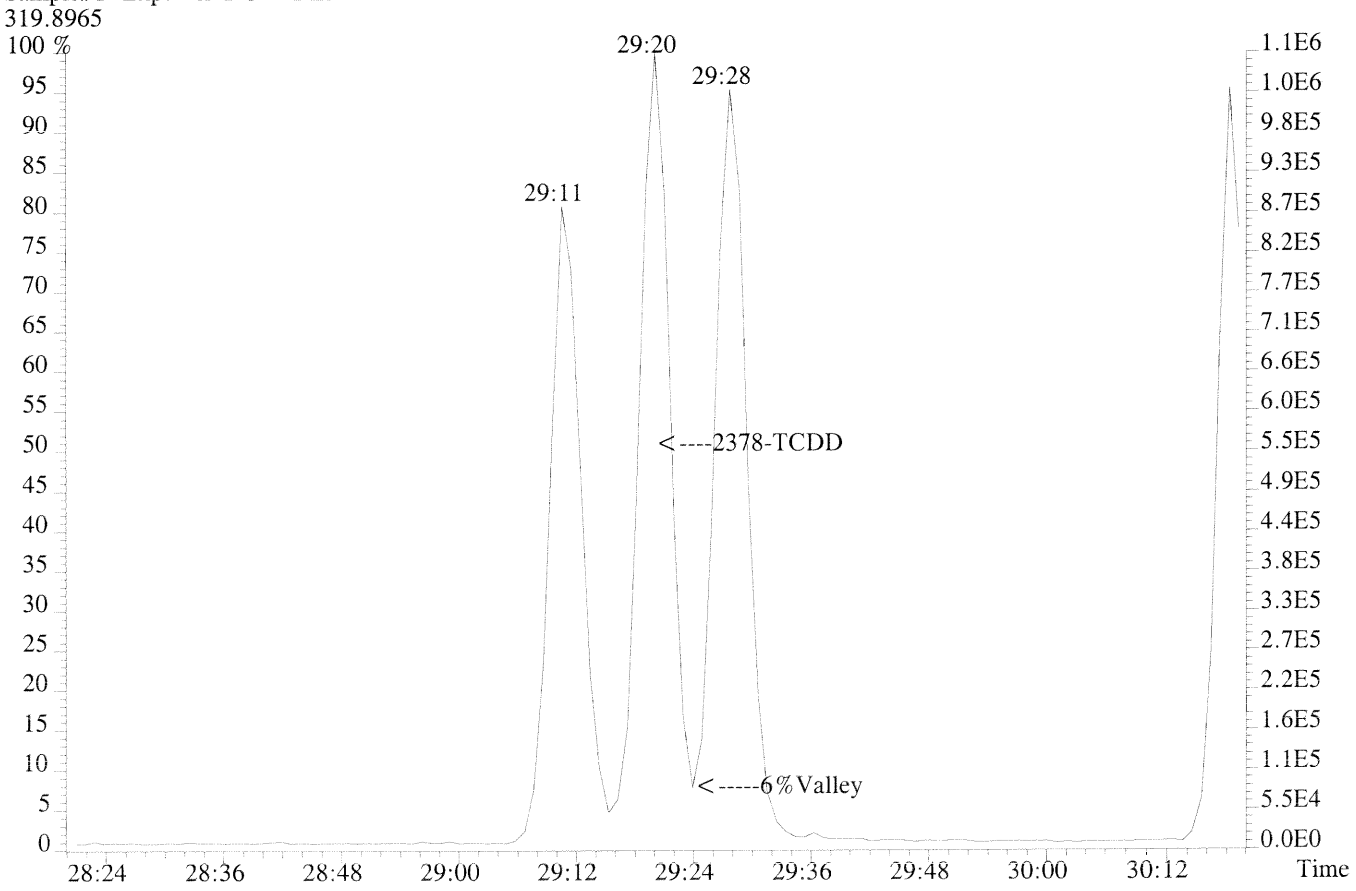
Lab Name: ALS ENVIRONMENTAL
Lab Code: TX01411
GC Column: DB-5msUI

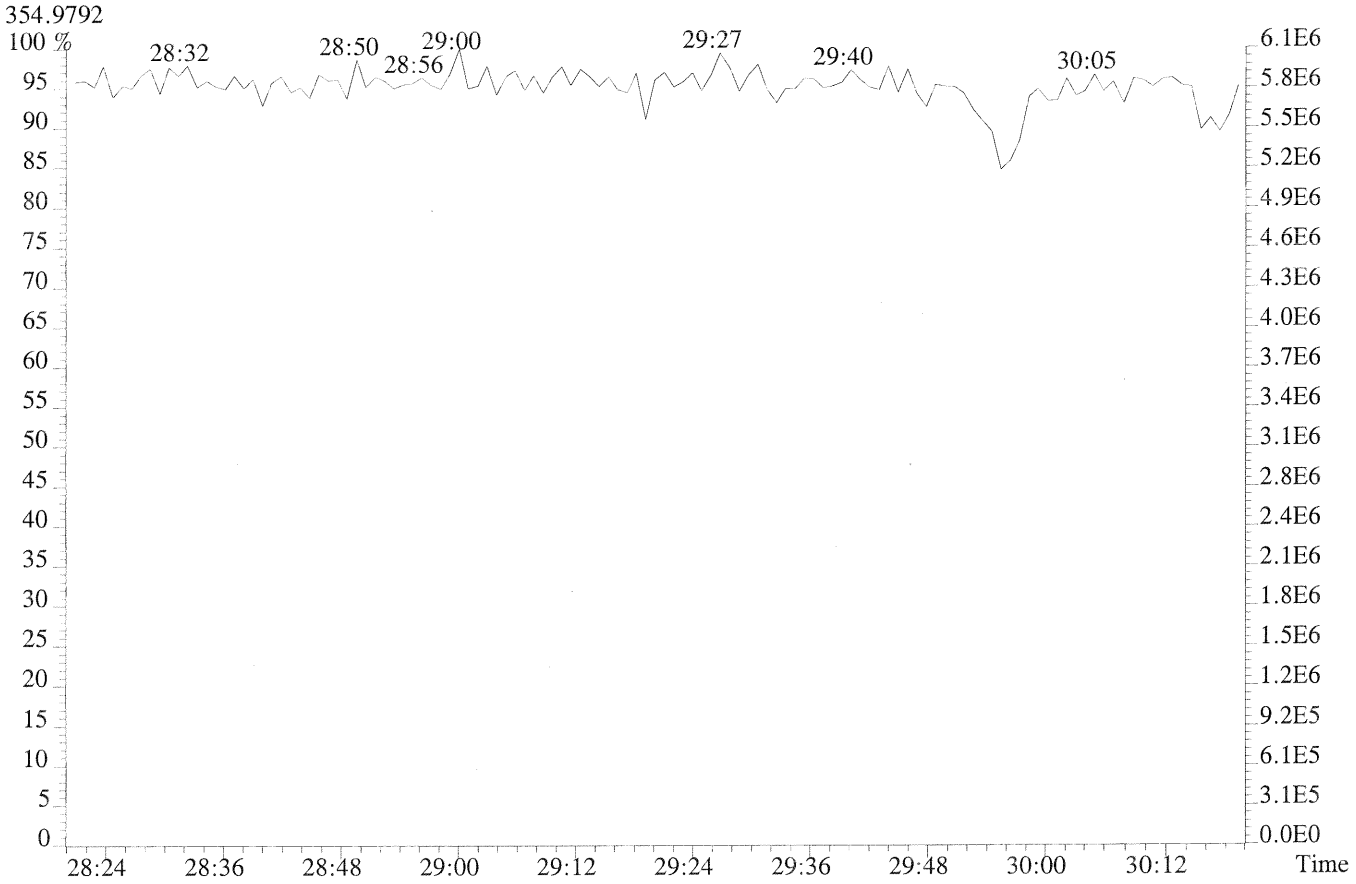
Case No.: _____ SDG No.:
ID: 0.25 (mm)
Lab File ID: U149170
Date Analyzed: 21-MAY-2014
Time Analyzed: 13:12:29

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:15	30:29
TCDD	26:08	30:18
PeCDF	30:23	34:34
PeCDD	31:53	34:18
HxCDF	35:11	37:41
HxCDD	35:42	37:16
HpCDF	38:52	40:19
HpCDD	39:07	39:49

% Valley 2378-TCDD: 6 %

File:U149170 #1-627 Acq:21-MAY-2014 13:12:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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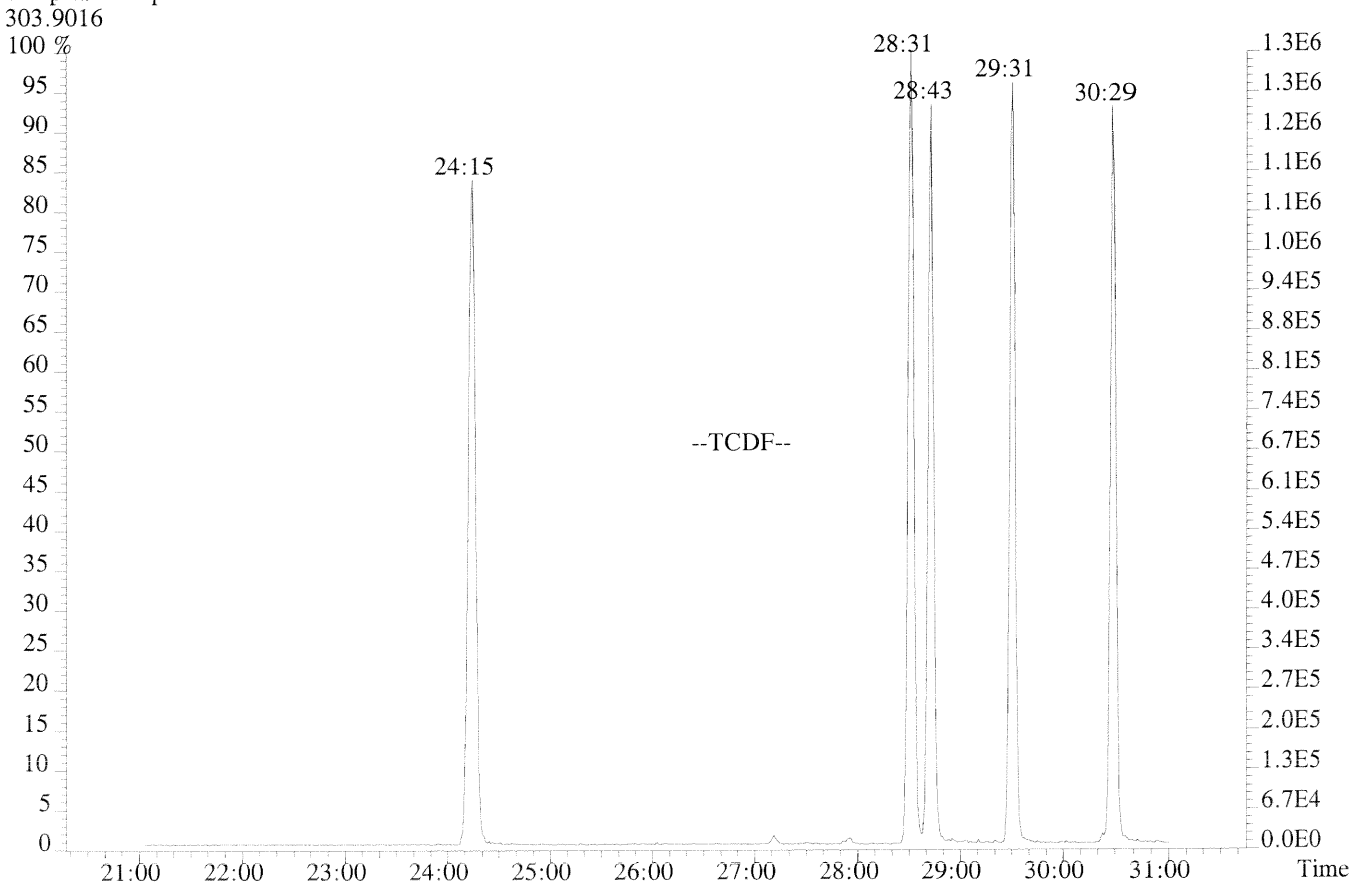
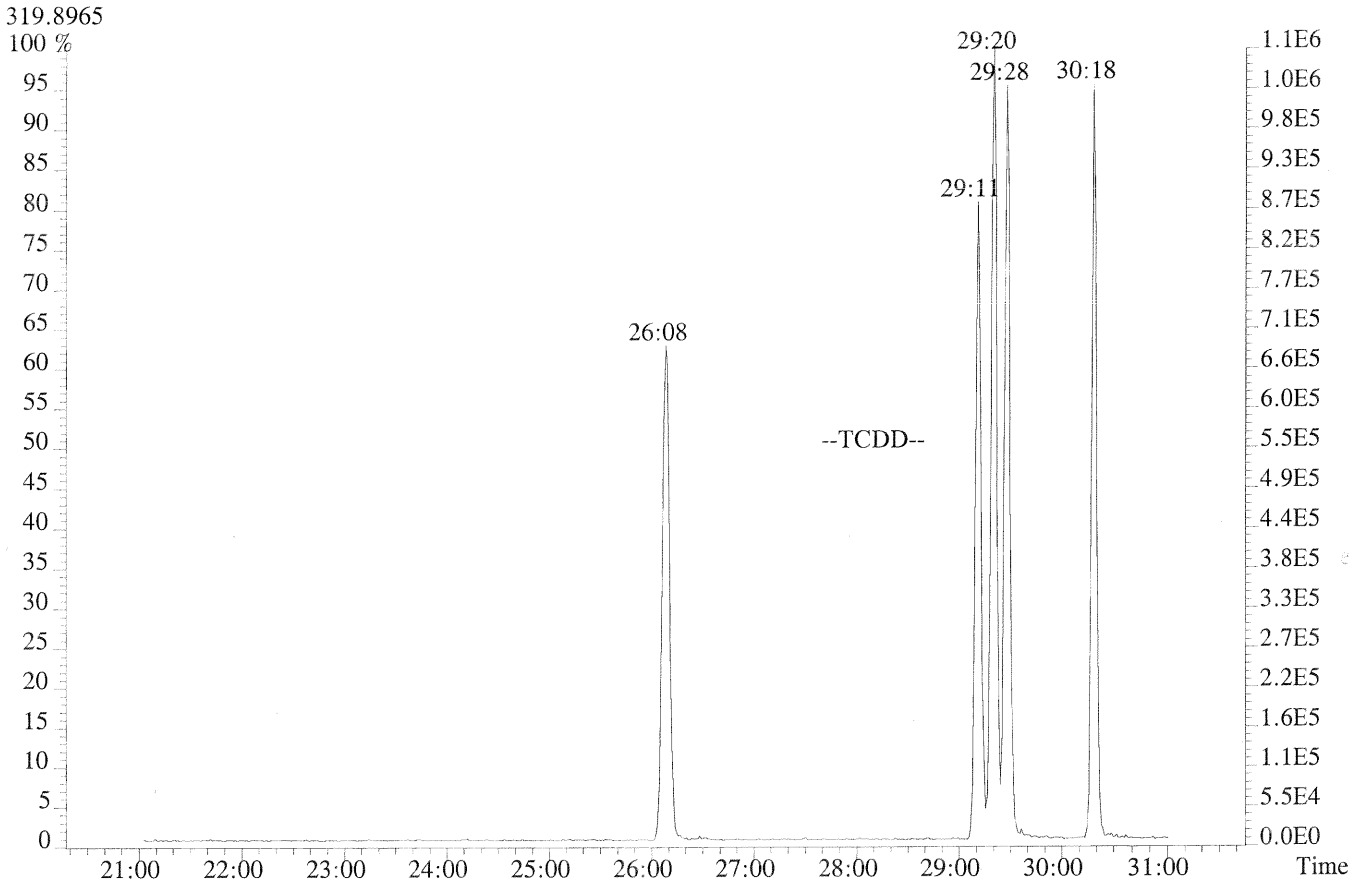
Sample#1 Exp:WINDOW DEFINE





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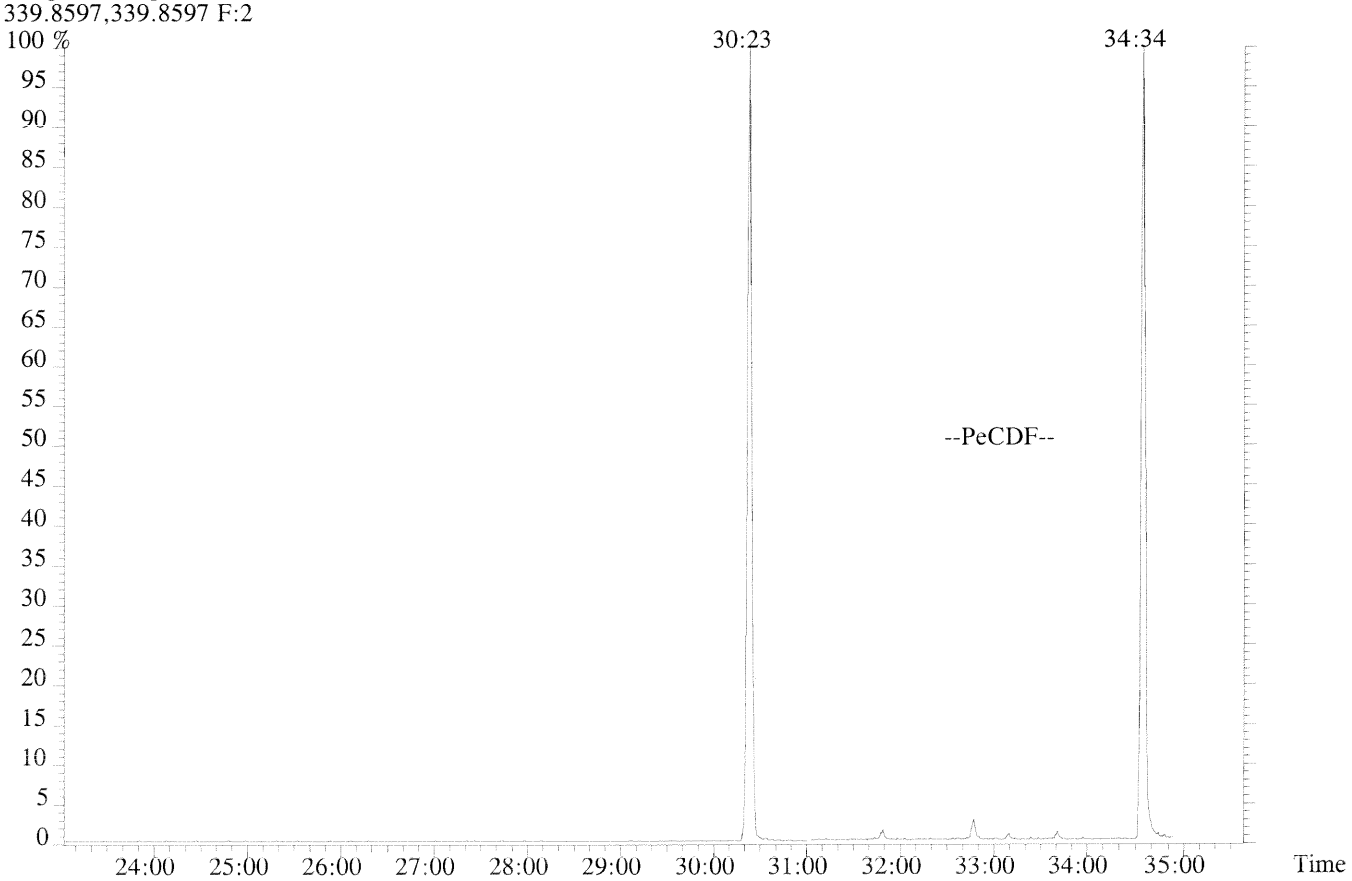
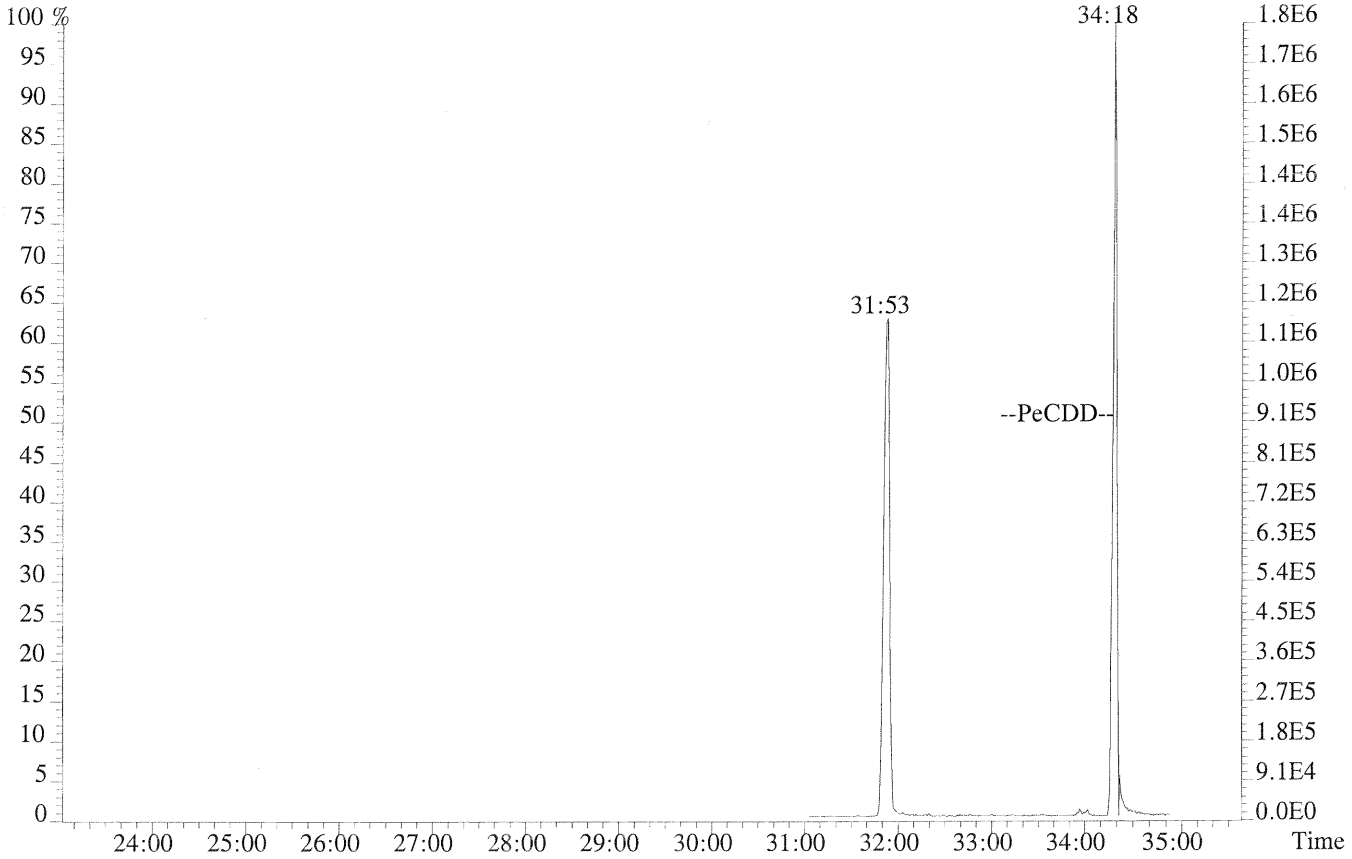
Sample#1 Exp:WINDOW DEFINE
339.8597,339.8597 F:2



355.8546 F:2



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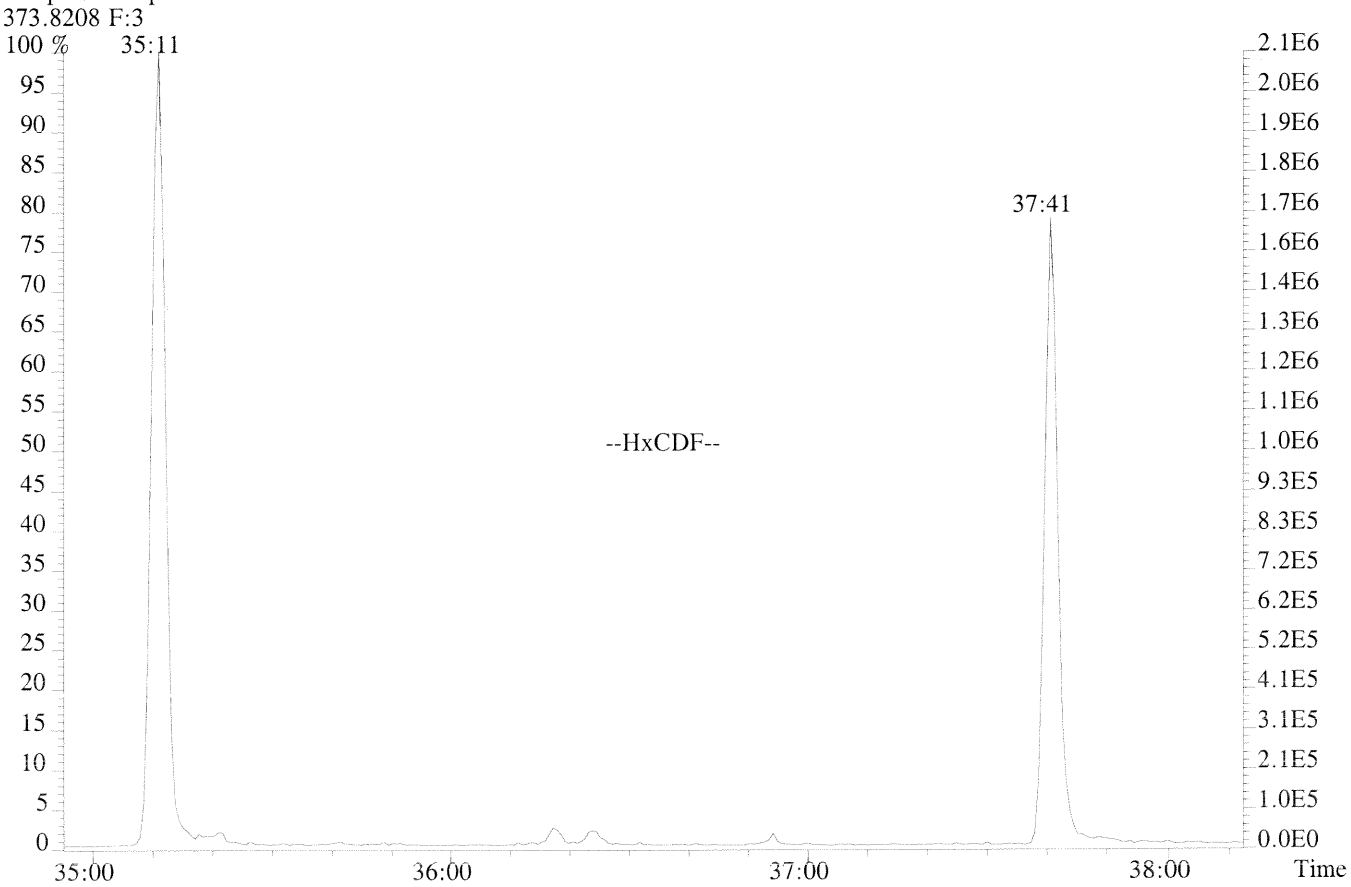
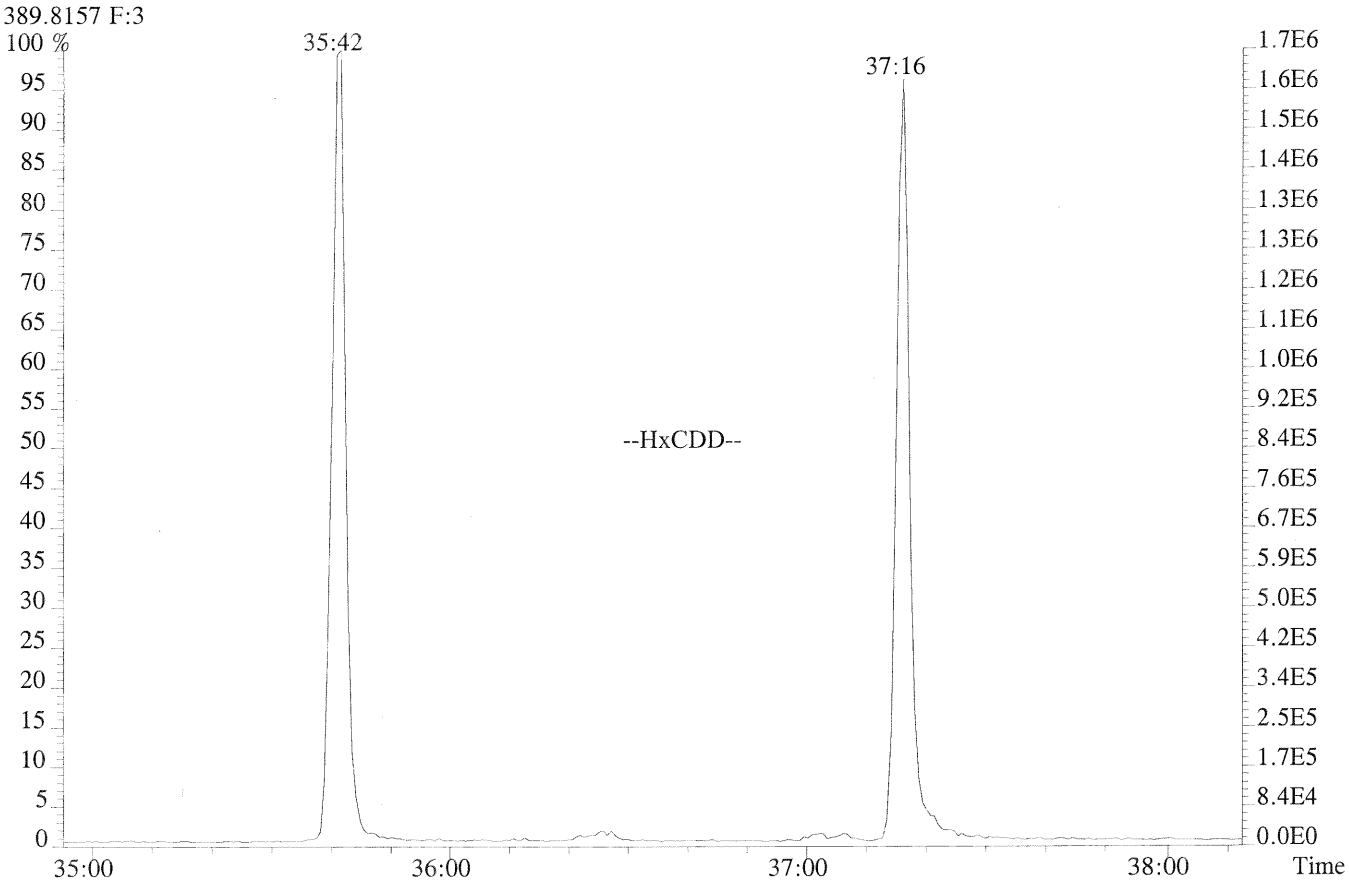
Sample#1 Exp:WINDOW DEFINE





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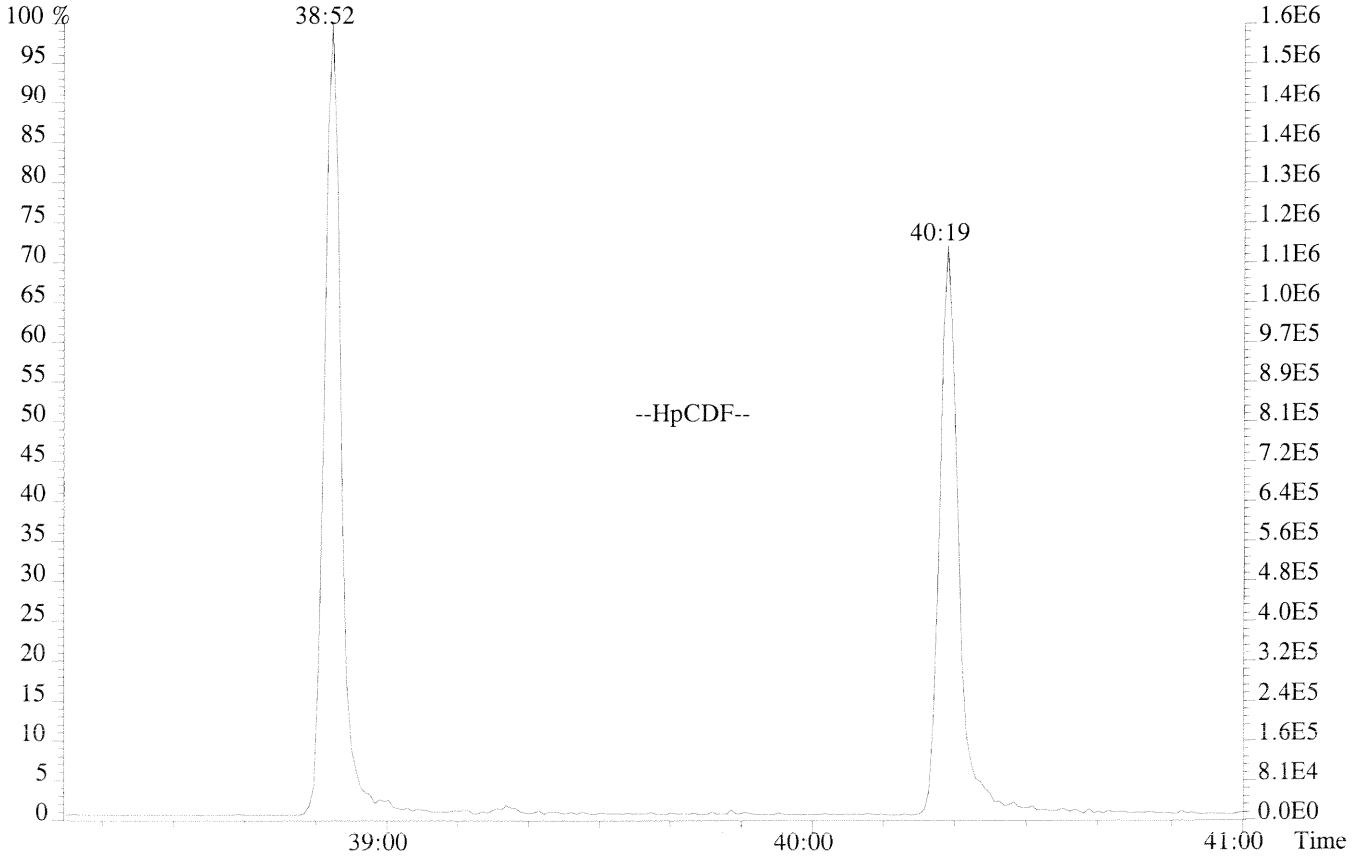
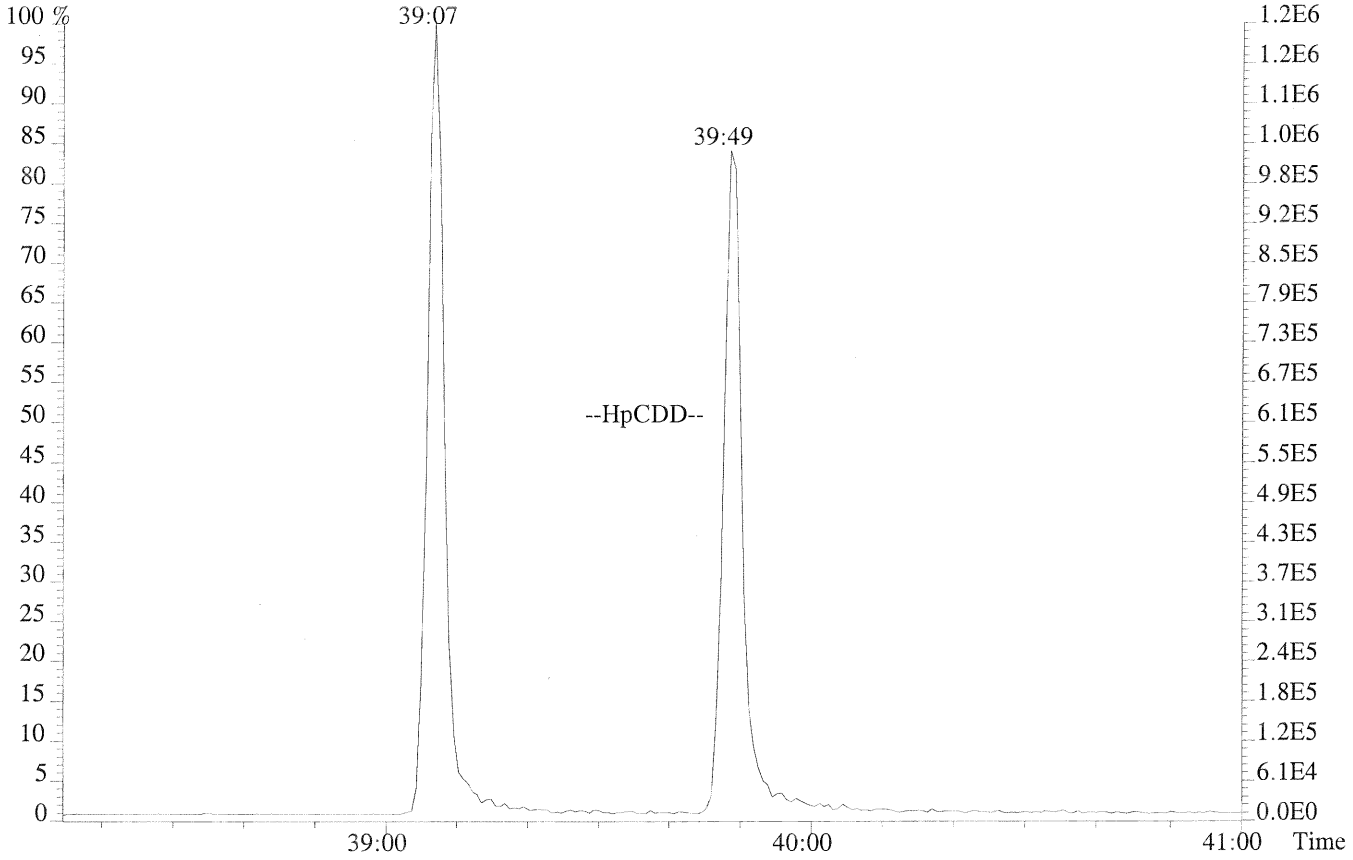
Sample#1 Exp:WINDOW DEFINE

407.7818 F:4



423.7766 F:4



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS0.5

Run #1 Filename U149172 Samp: 1 Inj: 1 Acquired: 21-MAY-14 14:47:46
Processed: 23-MAY-14 08:49:33 Sample ID: 66807

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	5.557e+01	9.248e+01	0.60	no	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	5.363e+02	3.535e+02	1.52	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	5.041e+02	3.294e+02	1.53	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	4.616e+02	3.470e+02	1.33	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:24	4.816e+02	3.775e+02	1.28	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	4.119e+02	3.741e+02	1.10	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	3.911e+02	3.086e+02	1.27	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	4.070e+02	4.094e+02	0.99	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	3.646e+02	3.384e+02	1.08	yes	no	1.359
10	Unk	OCDF	42:53	5.092e+02	5.736e+02	0.89	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:28	4.397e+01	5.843e+01	0.75	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:57	3.638e+02	2.152e+02	1.69	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	3.015e+02	2.353e+02	1.28	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	3.210e+02	2.554e+02	1.26	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	3.285e+02	2.863e+02	1.15	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	3.125e+02	3.172e+02	0.99	yes	no	1.065
17	Unk	OCDD	42:40	4.443e+02	5.457e+02	0.81	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	2.605e+04	3.228e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	4.494e+04	2.836e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	4.447e+04	2.806e+04	1.59	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	1.819e+04	3.557e+04	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.074e+04	4.017e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	1.933e+04	3.716e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	1.796e+04	3.394e+04	0.53	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	1.408e+04	3.112e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.269e+04	2.801e+04	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	1.771e+04	2.294e+04	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.878e+04	1.824e+04	1.58	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	2.272e+04	1.714e+04	1.33	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	2.428e+04	1.869e+04	1.30	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	2.247e+04	2.096e+04	1.07	yes	no	0.936
32	IS	13C-OCDD	42:38	3.077e+04	3.409e+04	0.90	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	1.846e+04	2.375e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.499e+04	2.020e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	9.659e+01				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS0.5

Run #1 Filename U149172 Samp: 1 Inj: 1 Acquired: 21-MAY-14 14:47:46
Processed: 22-MAY-14 12:57:491 LAB. ID: 66807

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	1.26e+04	5.92e+02	2.1e+01	2.02e+04	8.76e+02	2.3e+01
	1,2,3,7,8-PeCDF	1.03e+05	7.84e+02	1.3e+02	6.62e+04	1.22e+03	5.4e+01
3	2,3,4,7,8-PeCDF	1.04e+05	7.84e+02	1.3e+02	6.34e+04	1.22e+03	5.2e+01
	1,2,3,4,7,8-HxCDF	1.03e+05	1.12e+03	9.2e+01	7.37e+04	1.03e+03	7.1e+01
5	1,2,3,6,7,8-HxCDF	9.85e+04	1.12e+03	8.8e+01	8.12e+04	1.03e+03	7.9e+01
6	2,3,4,6,7,8-HxCDF	8.70e+04	1.12e+03	7.8e+01	7.98e+04	1.03e+03	7.7e+01
7	1,2,3,7,8,9-HxCDF	7.90e+04	1.12e+03	7.1e+01	6.50e+04	1.03e+03	6.3e+01
8	1,2,3,4,6,7,8-HpCDF	8.08e+04	1.71e+03	4.7e+01	8.82e+04	8.56e+02	1.0e+02
	1,2,3,4,7,8,9-HpCDF	6.85e+04	1.71e+03	4.0e+01	6.29e+04	8.56e+02	7.3e+01
10	OCDF	8.40e+04	8.20e+02	1.0e+02	9.04e+04	8.60e+02	1.1e+02
11	2,3,7,8-TCDD	1.02e+04	8.48e+02	1.2e+01	1.22e+04	7.12e+02	1.7e+01
12	1,2,3,7,8-PeCDD	7.43e+04	1.07e+03	6.9e+01	4.58e+04	8.60e+02	5.3e+01
13	1,2,3,4,7,8-HxCDD	6.75e+04	6.80e+02	9.9e+01	5.33e+04	6.84e+02	7.8e+01
	1,2,3,6,7,8-HxCDD	6.54e+04	6.80e+02	9.6e+01	5.48e+04	6.84e+02	8.0e+01
	1,2,3,7,8,9-HxCDD	6.66e+04	6.80e+02	9.8e+01	5.83e+04	6.84e+02	8.5e+01
	1,2,3,4,6,7,8-HpCDD	6.21e+04	1.22e+03	5.1e+01	6.08e+04	1.15e+03	5.3e+01
	OCDD	7.04e+04	7.12e+02	9.9e+01	9.07e+04	7.24e+02	1.3e+02
	13C-2,3,7,8-TCDF	5.72e+06	1.02e+03	5.6e+03	7.12e+06	9.44e+02	7.5e+03
	13C-1,2,3,7,8-PeCDF	8.73e+06	5.76e+02	1.5e+04	5.60e+06	1.02e+03	5.5e+03
	13C-2,3,4,7,8-PeCDF	9.27e+06	5.76e+02	1.6e+04	5.79e+06	1.02e+03	5.7e+03
21	13C-1,2,3,4,7,8-HxCDF	3.95e+06	5.76e+02	6.9e+03	7.62e+06	1.25e+03	6.1e+03
22	13C-1,2,3,6,7,8-HxCDF	4.33e+06	5.76e+02	7.5e+03	8.36e+06	1.25e+03	6.7e+03
23	13C-2,3,4,6,7,8-HxCDF	4.16e+06	5.76e+02	7.2e+03	7.89e+06	1.25e+03	6.3e+03
24	13C-1,2,3,7,8,9-HxCDF	3.62e+06	5.76e+02	6.3e+03	6.96e+06	1.25e+03	5.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.89e+06	1.77e+03	1.6e+03	6.51e+06	4.66e+03	1.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.33e+06	1.77e+03	1.3e+03	5.16e+06	4.66e+03	1.1e+03
	13C-2,3,7,8-TCDD	4.02e+06	2.86e+03	1.4e+03	5.20e+06	1.56e+03	3.3e+03
	13C-1,2,3,7,8-PeCDD	5.89e+06	7.80e+02	7.6e+03	3.75e+06	6.16e+02	6.1e+03
	13C-1,2,3,4,7,8-HxCDD	5.13e+06	7.84e+02	6.5e+03	3.91e+06	8.56e+02	4.6e+03
	13C-1,2,3,6,7,8-HxCDD	5.09e+06	7.84e+02	6.5e+03	3.96e+06	8.56e+02	4.6e+03
	13C-1,2,3,4,6,7,8-HpCDD	4.33e+06	1.01e+03	4.3e+03	3.96e+06	7.36e+02	5.4e+03
	13C-OCDD	5.12e+06	5.04e+02	1.0e+04	5.59e+06	6.36e+02	8.8e+03
	13C-1,2,3,4-TCDD	4.11e+06	2.86e+03	1.4e+03	5.30e+06	1.56e+03	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	5.20e+06	7.84e+02	6.6e+03	4.03e+06	8.56e+02	4.7e+03
	37Cl-2,3,7,8-TCDD	2.11e+04	9.04e+02	2.3e+01			

ALS ENVIRONMENTAL
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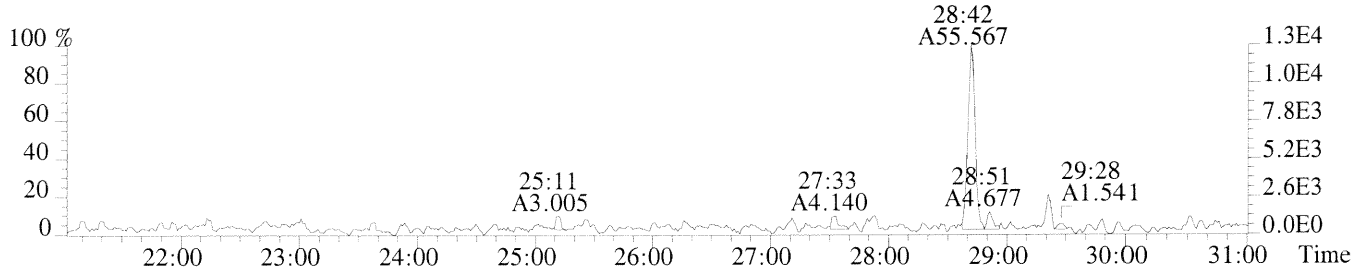
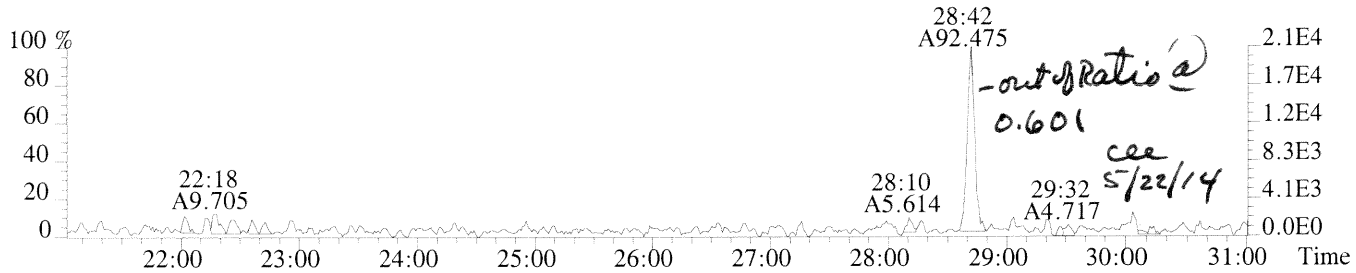
File:U149172 #1-627 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)

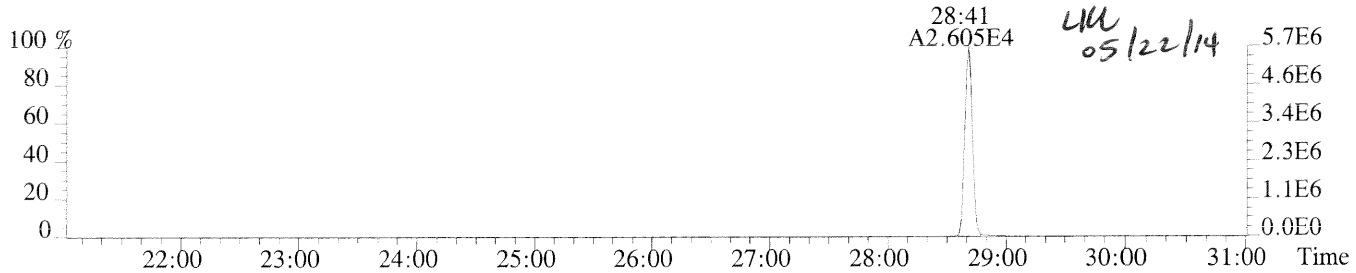


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)



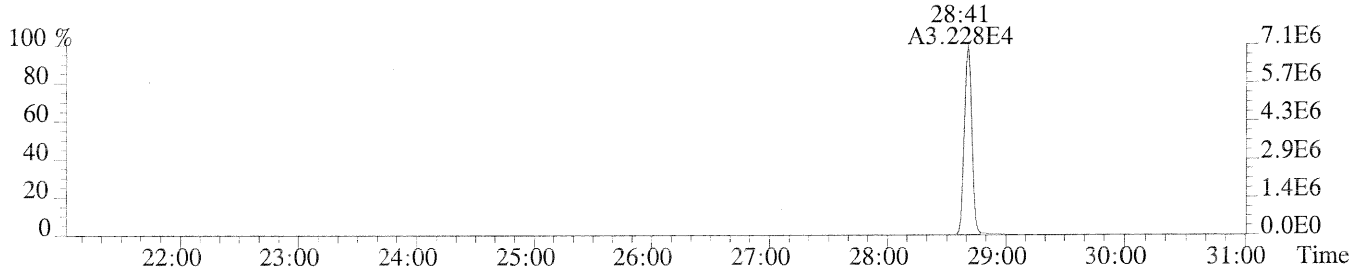
-out of Ratio @ 0.601
cee 5/22/14

315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)

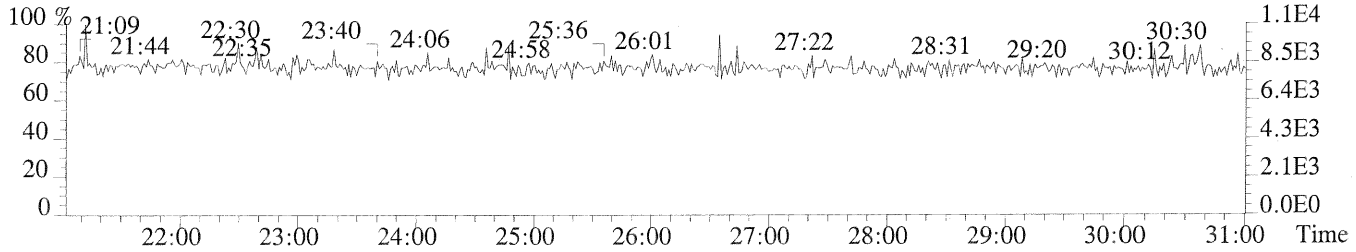


LM 05/22/14

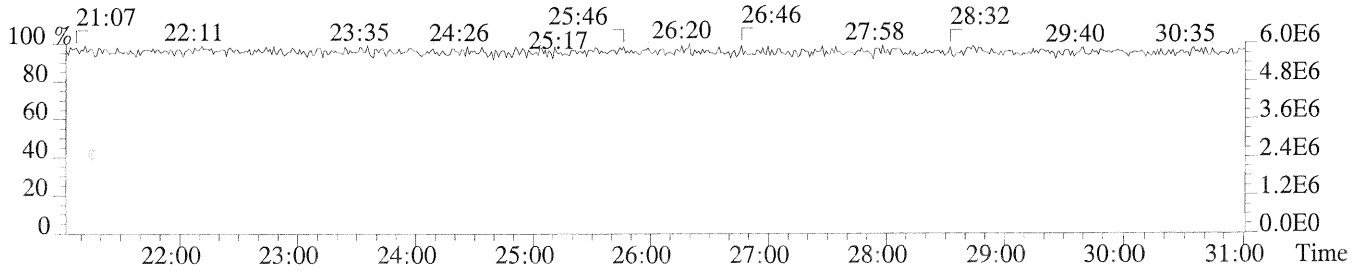
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,944.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

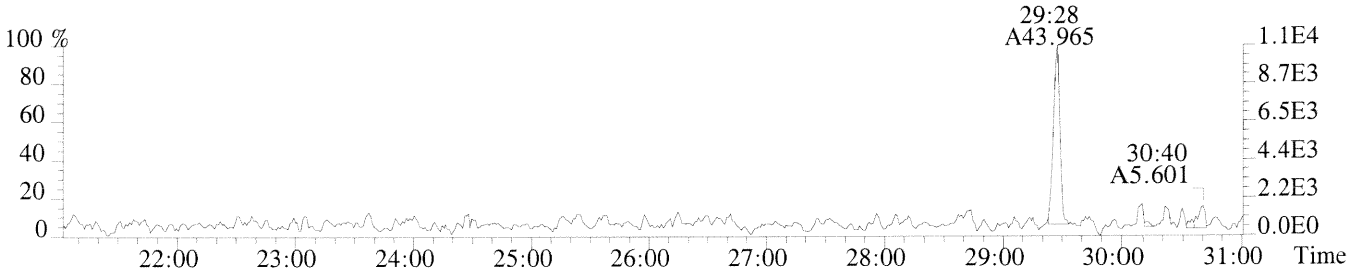


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

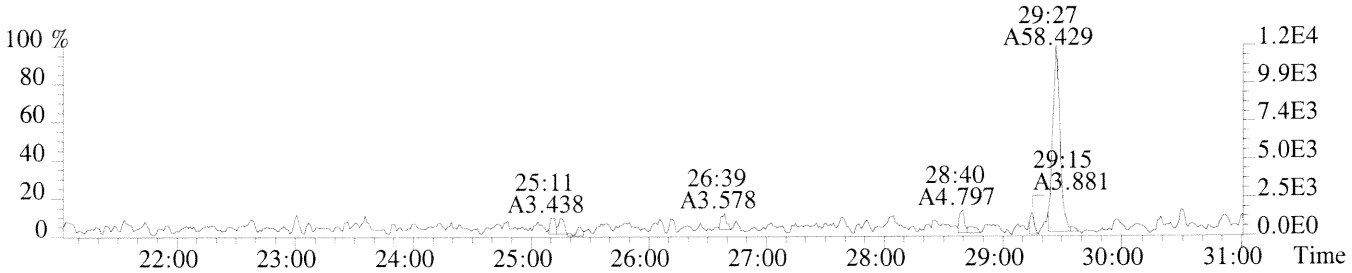


File:U149172 #1-627 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

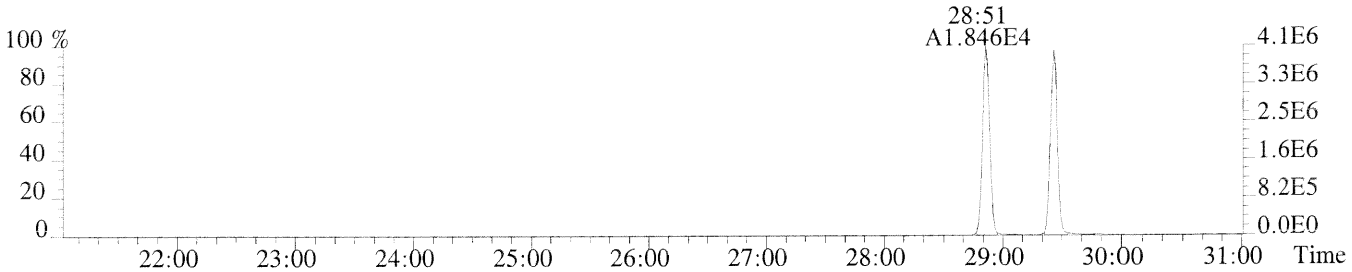
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



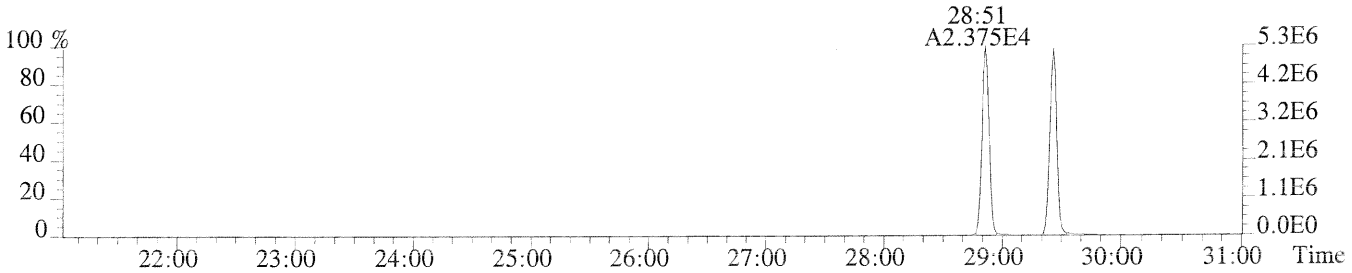
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



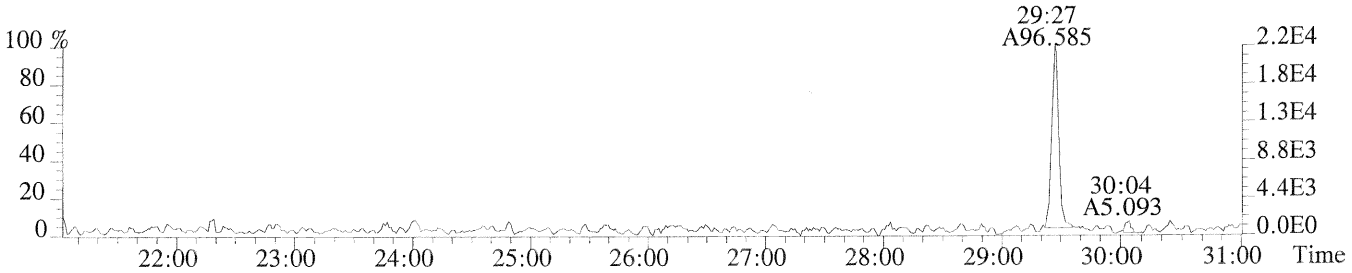
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2856.0,1.00%,F,T)



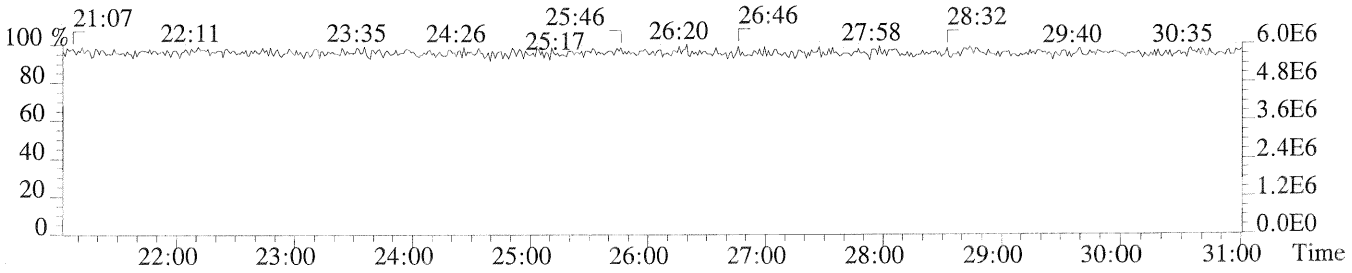
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1560.0,1.00%,F,T)



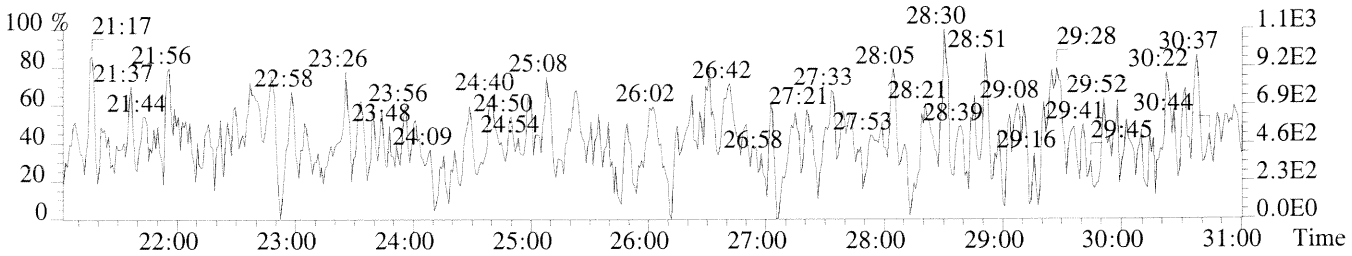
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,904.0,1.00%,F,T)



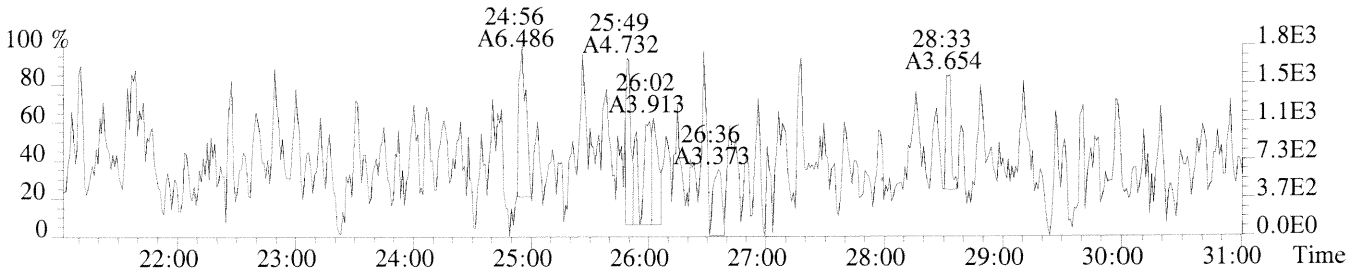
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



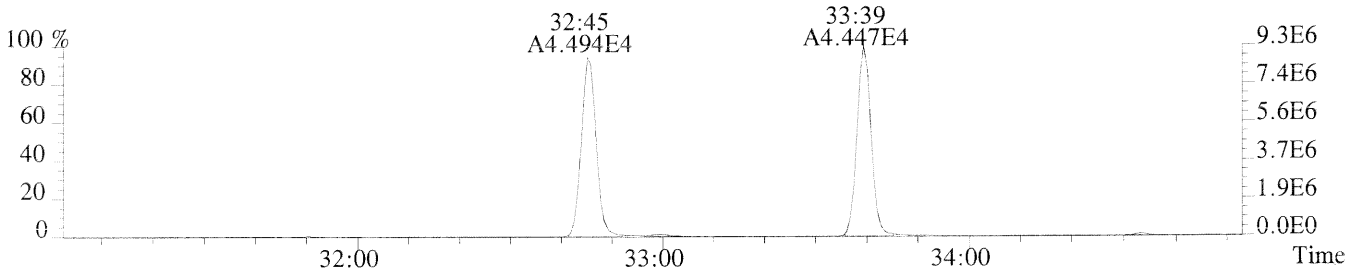
File:U149172 #1-627 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



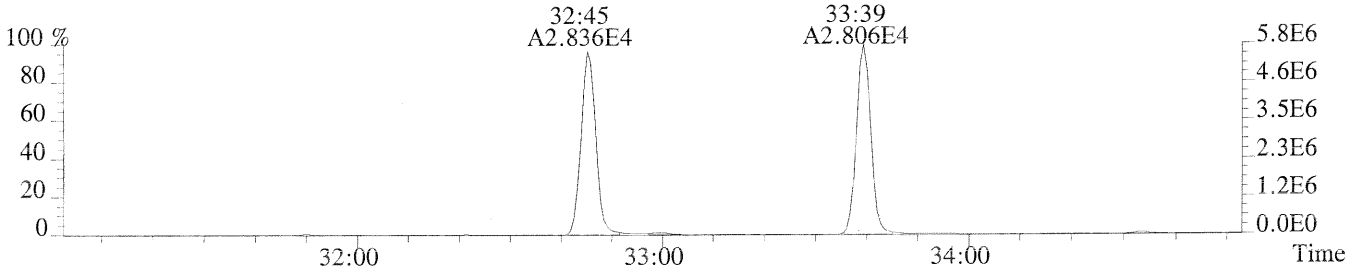
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



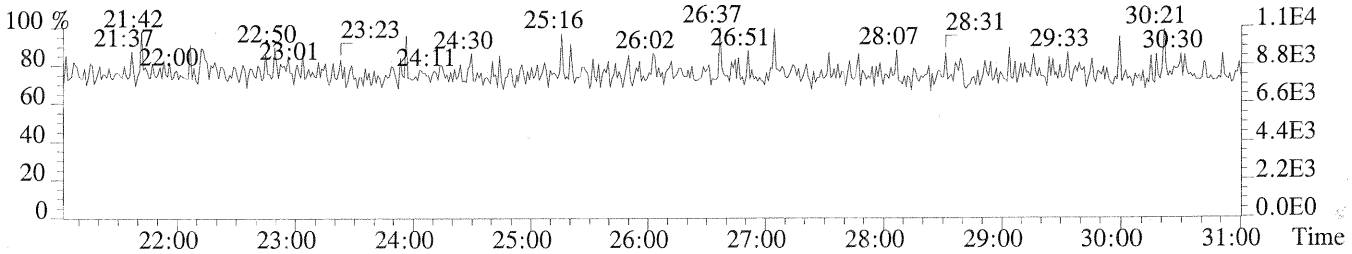
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



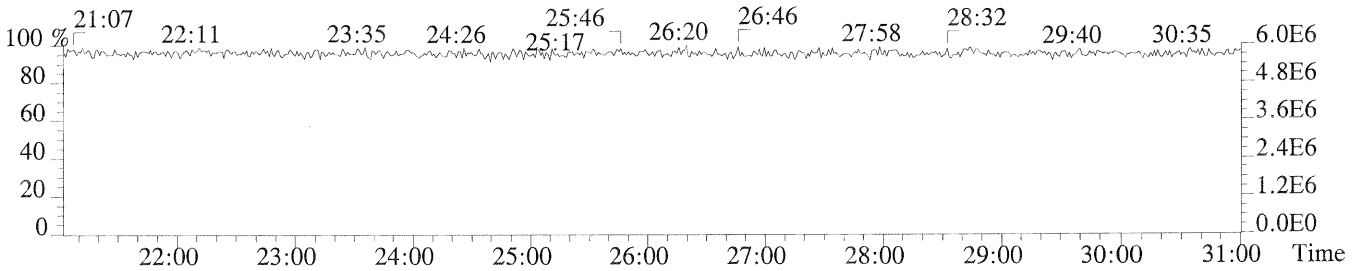
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

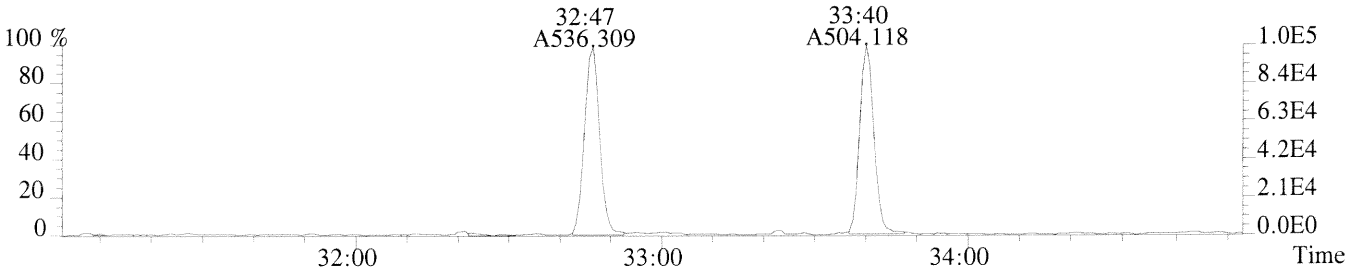


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

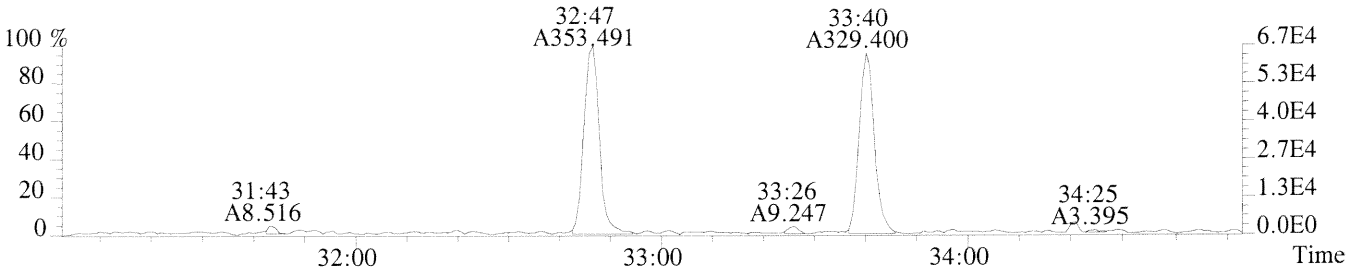


File:U149172 #1-349 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

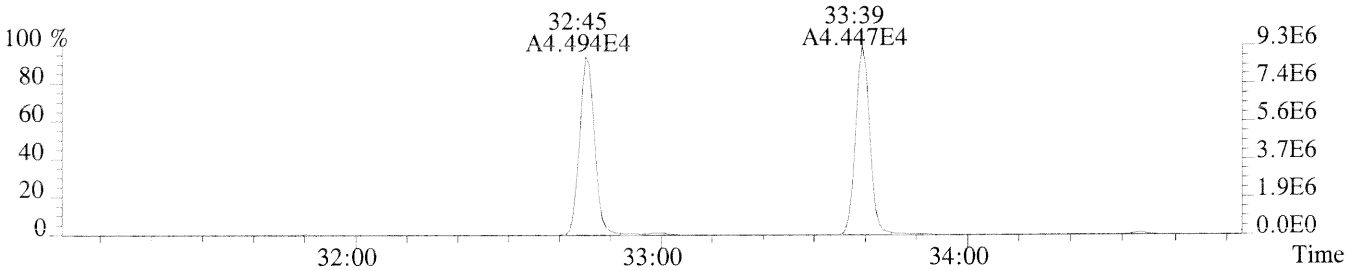
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



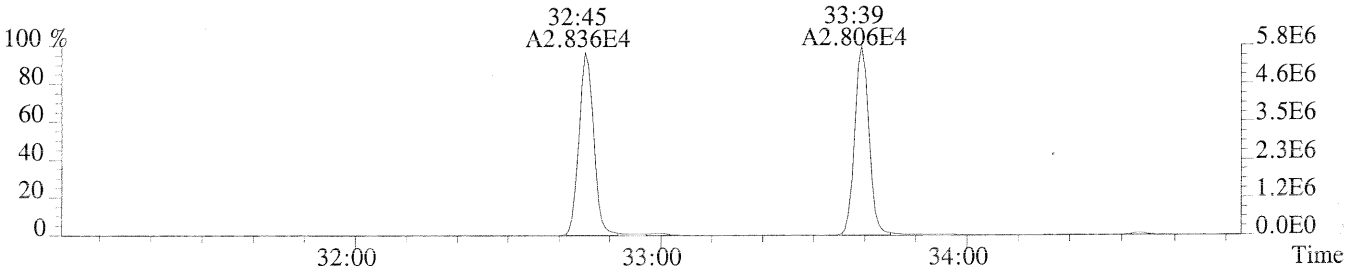
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



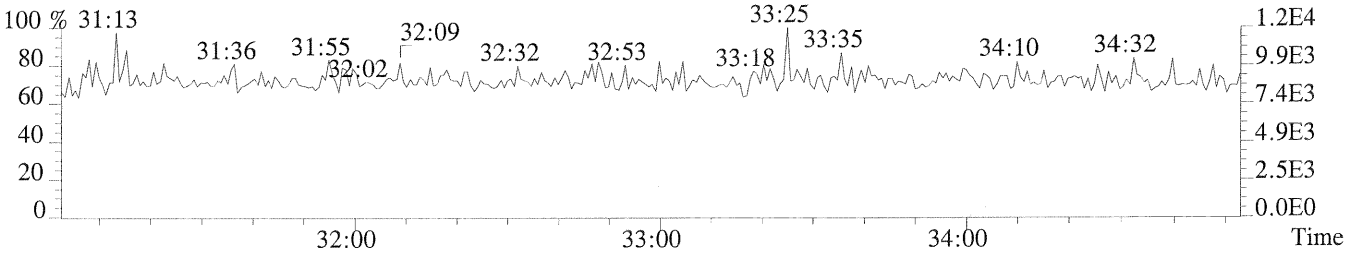
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



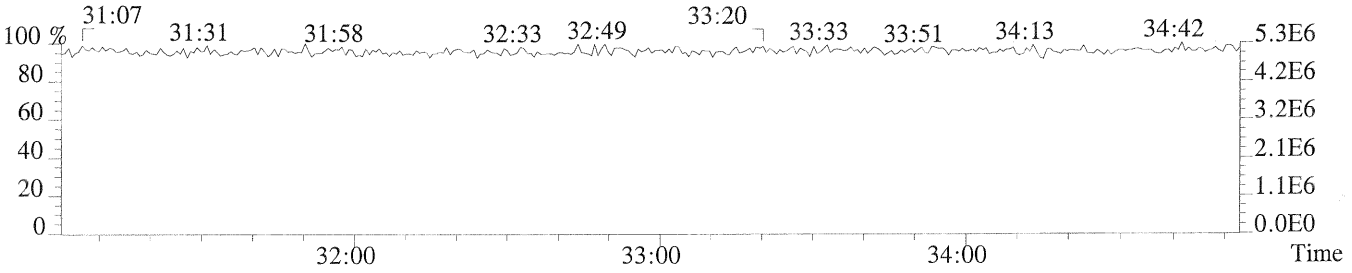
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

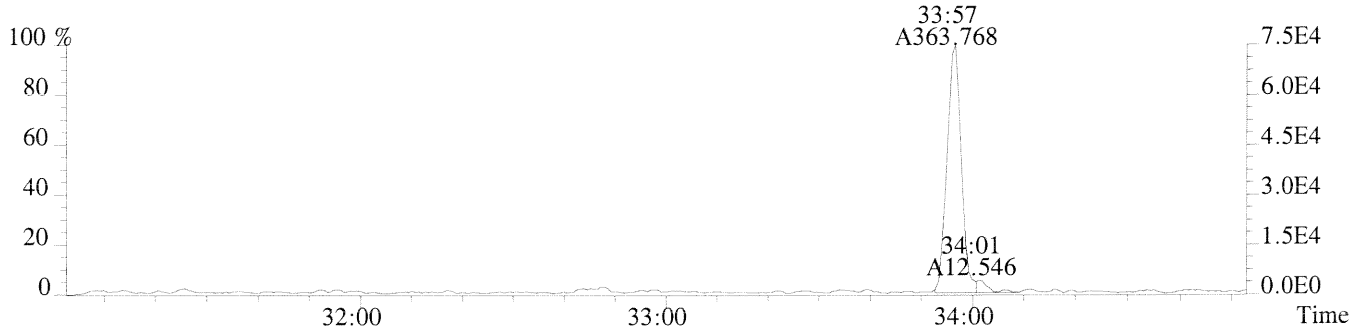


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

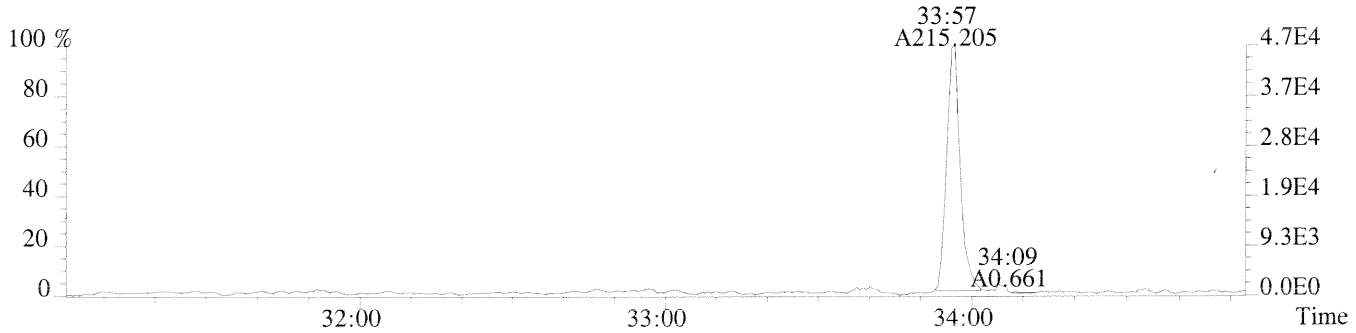


File:U149172 #1-349 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

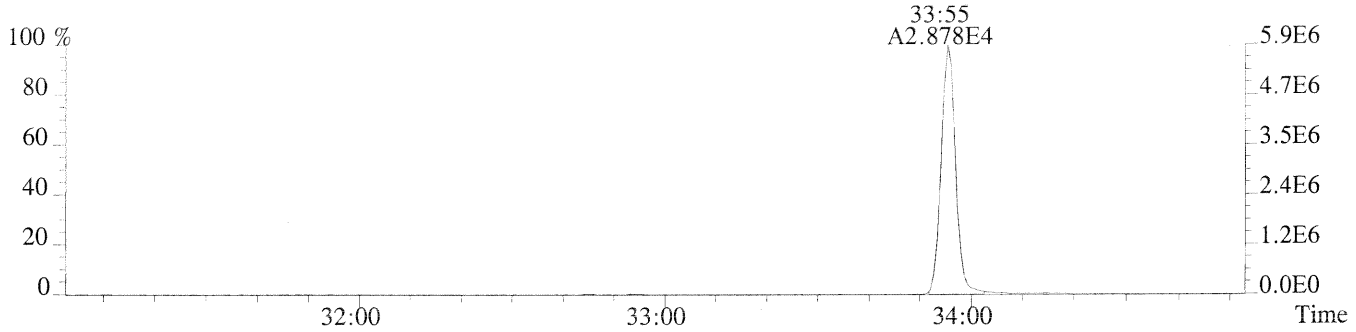
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



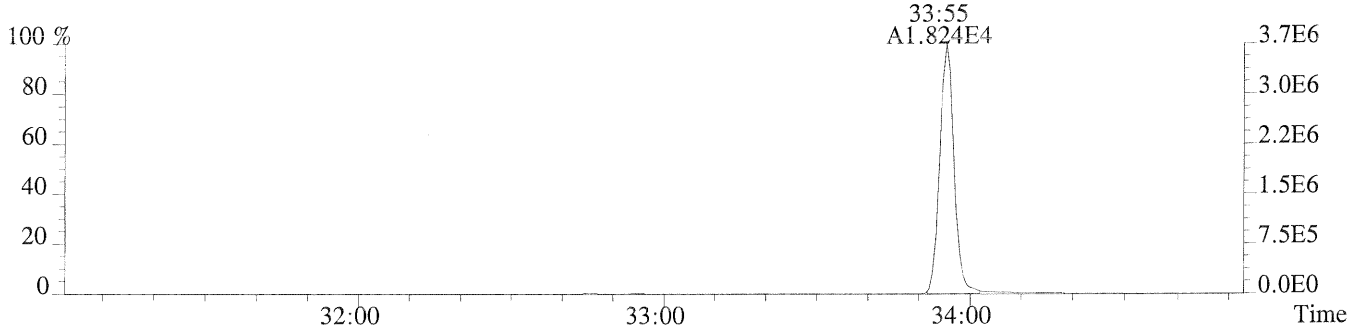
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



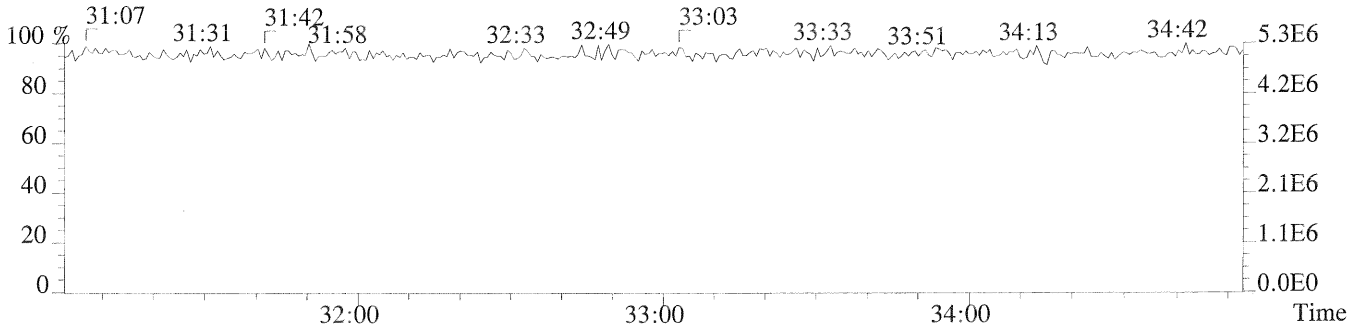
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)

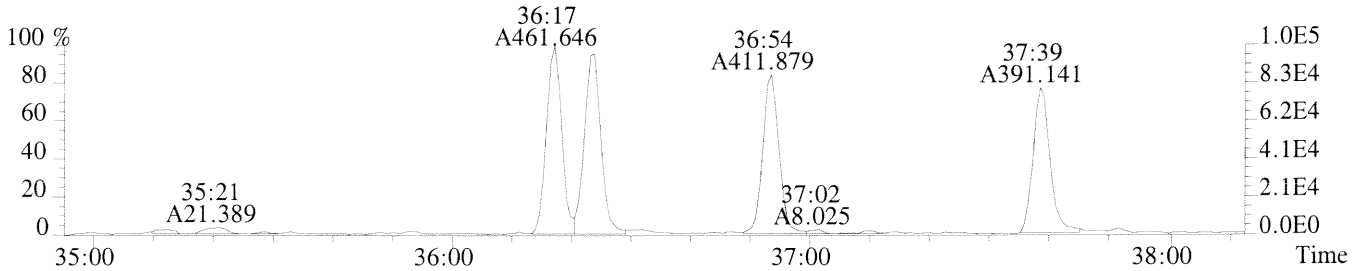


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

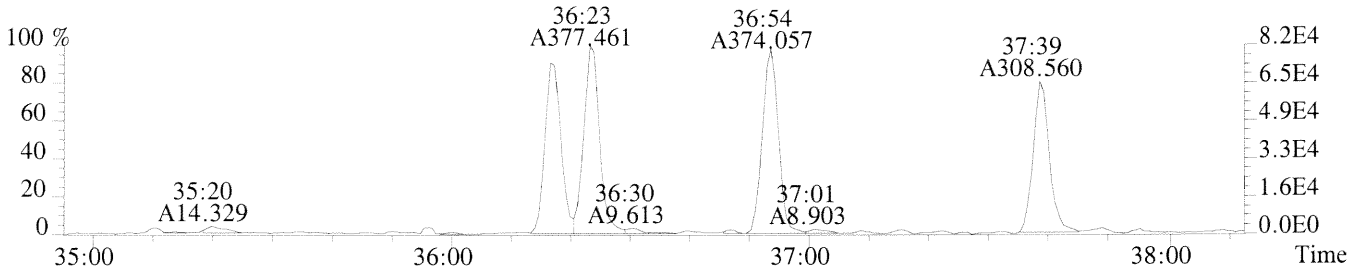


File:U149172 #1-299 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

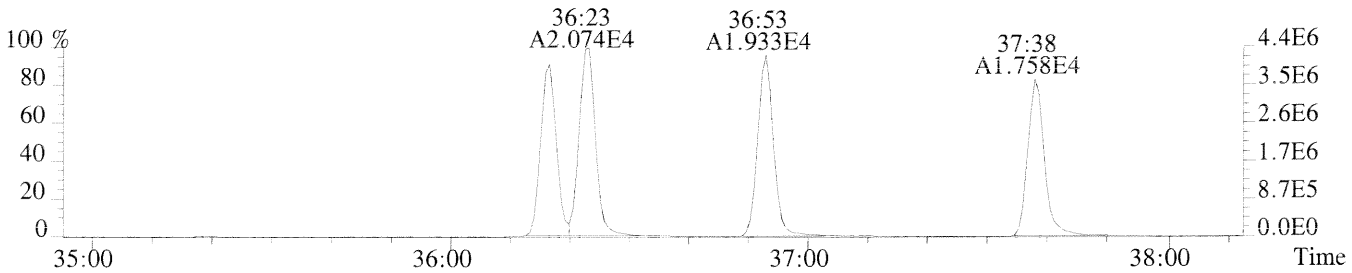
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1120.0,0.40%,F,T)



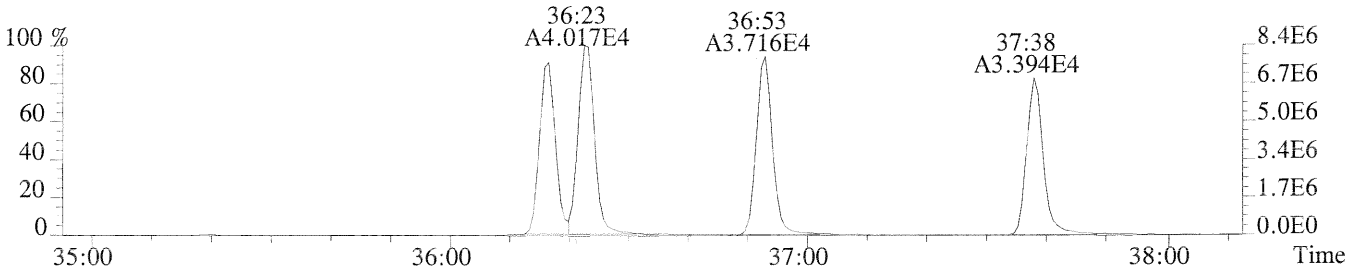
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1032.0,0.40%,F,T)



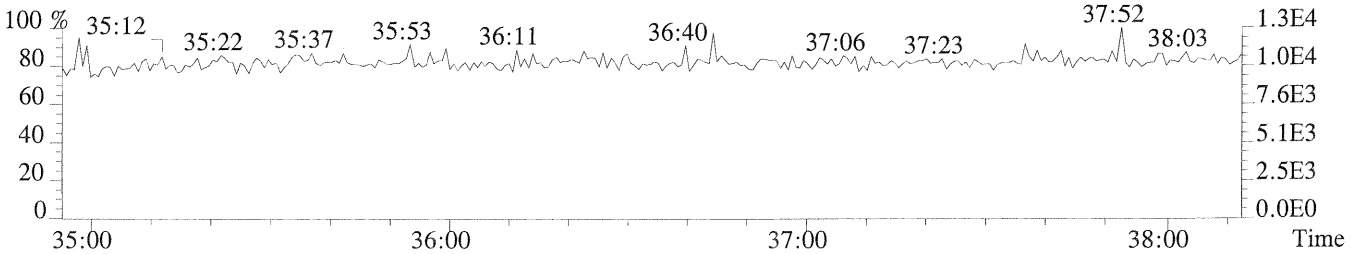
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



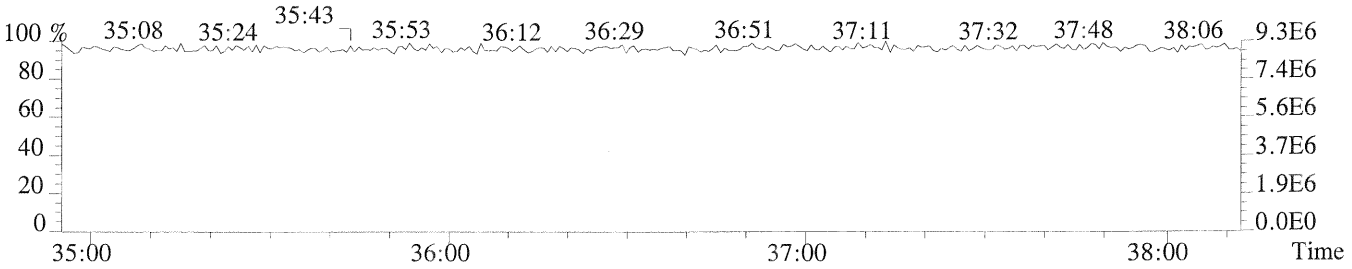
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



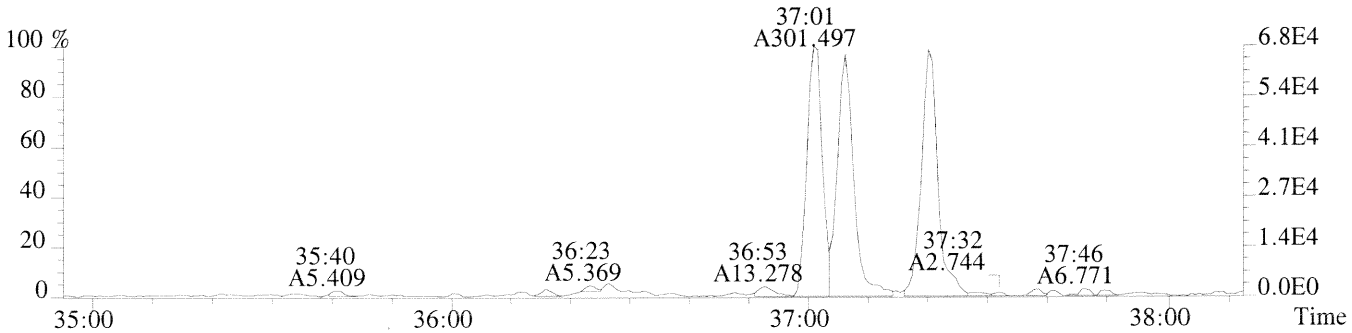
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



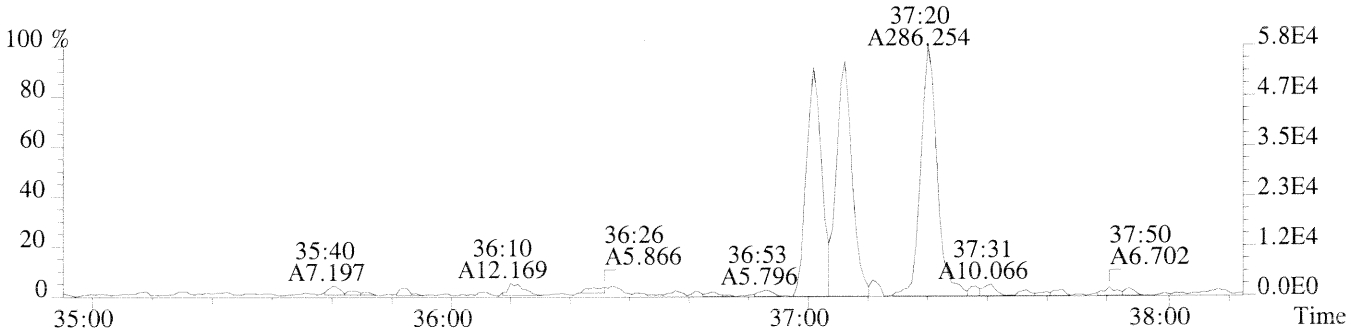
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



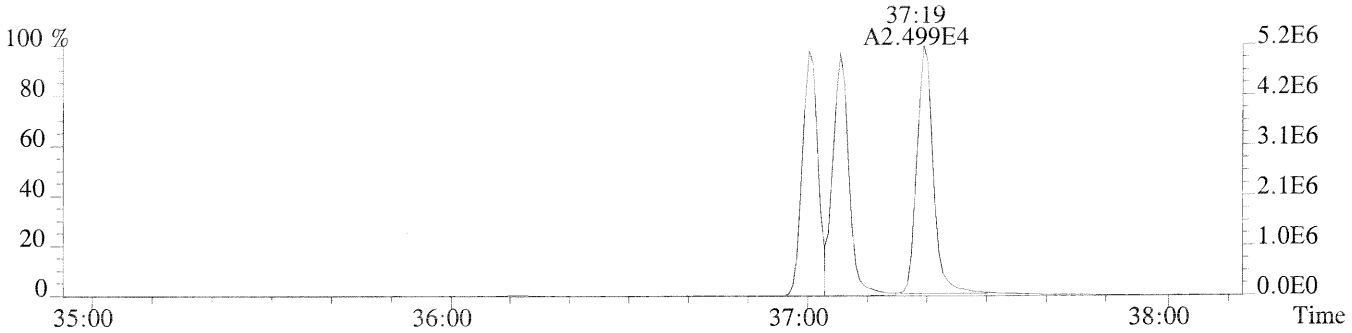
File:U149172 #1-299 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.40%,F,T)



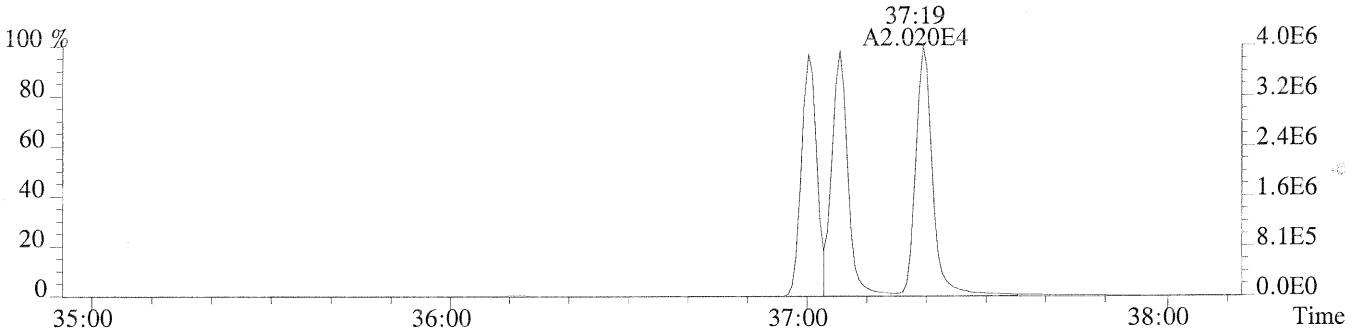
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,684.0,0.40%,F,T)



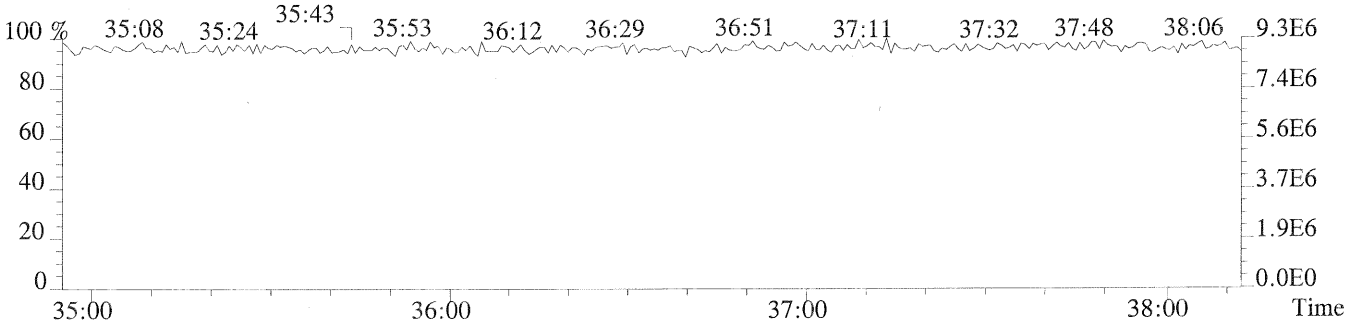
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)

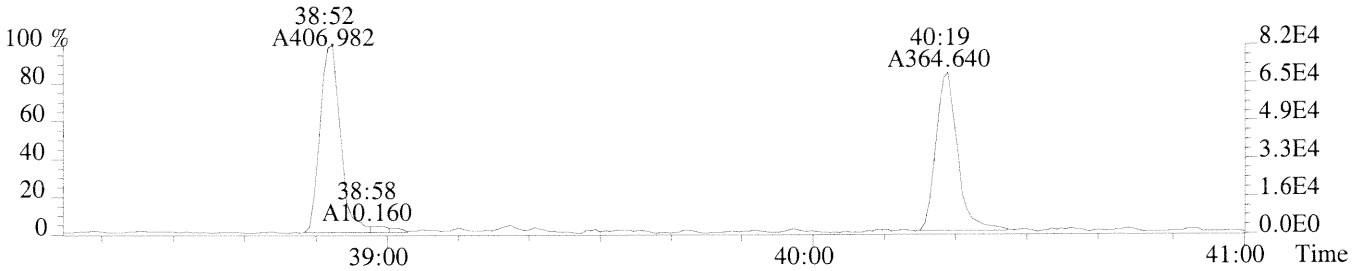


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

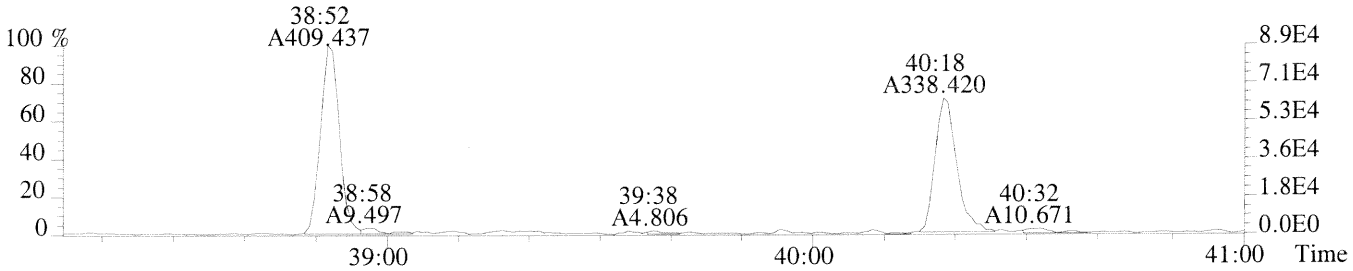


File:U149172 #1-251 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5

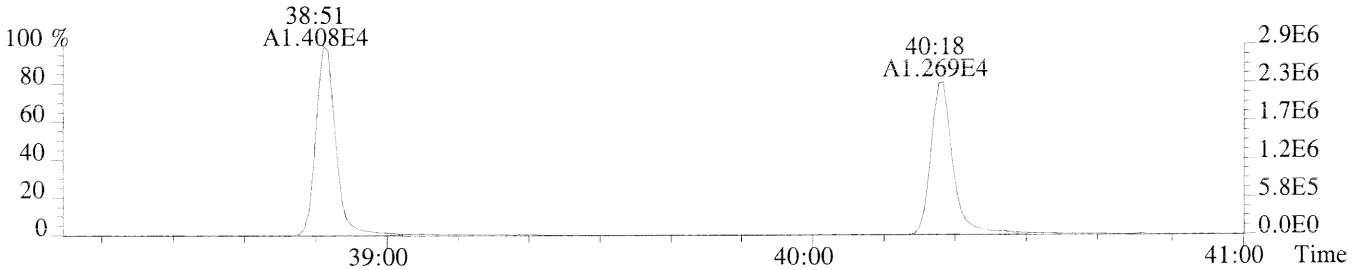
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1712.0,0.50%,F,T)



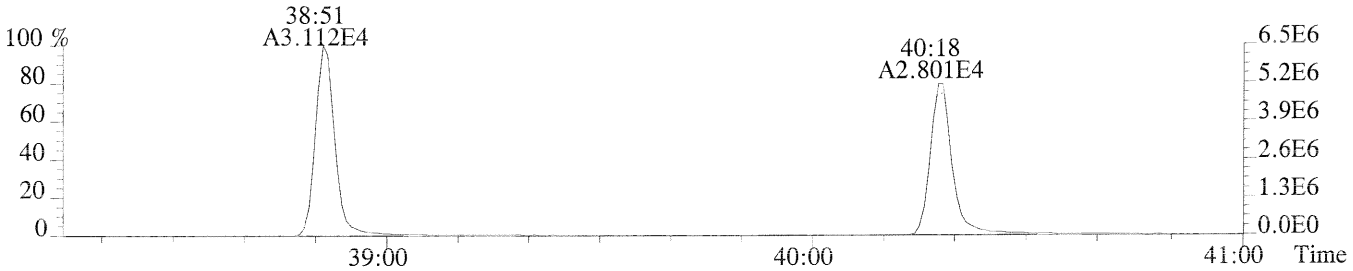
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.50%,F,T)



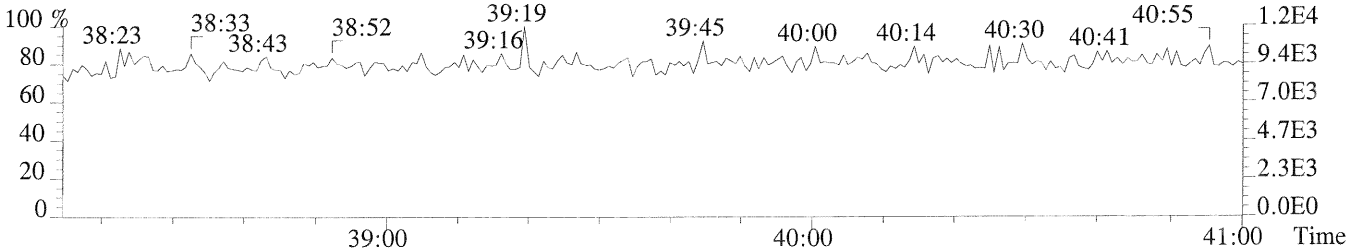
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1772.0,0.50%,F,T)



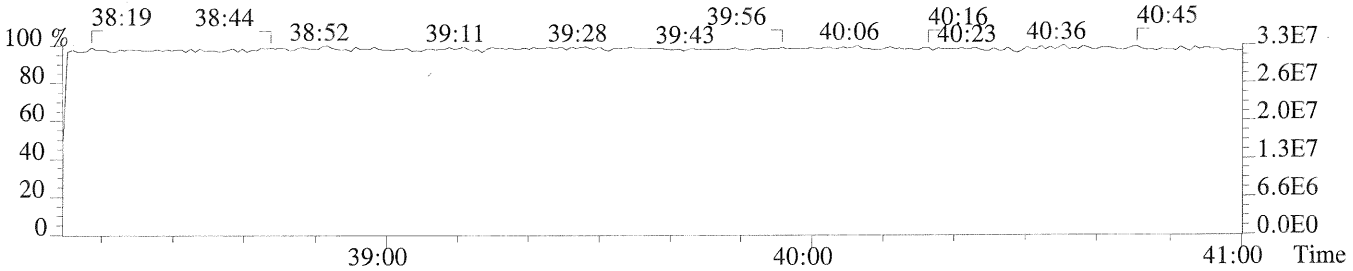
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4656.0,0.50%,F,T)



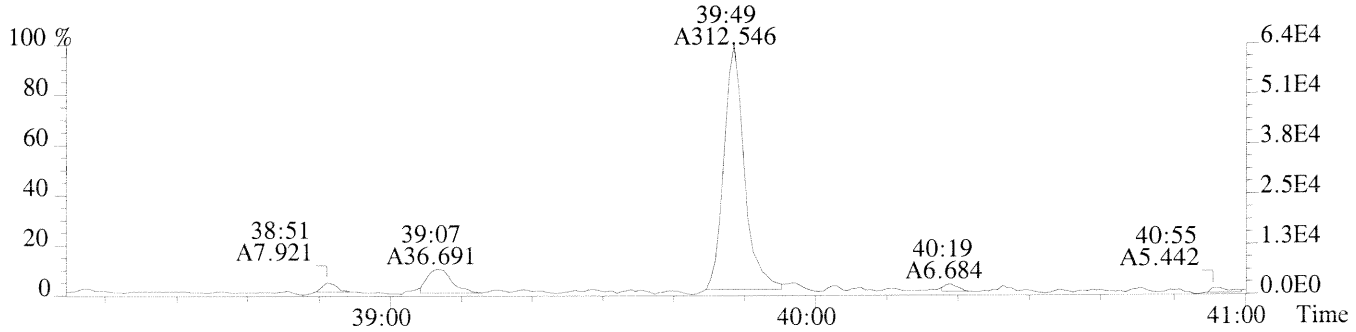
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



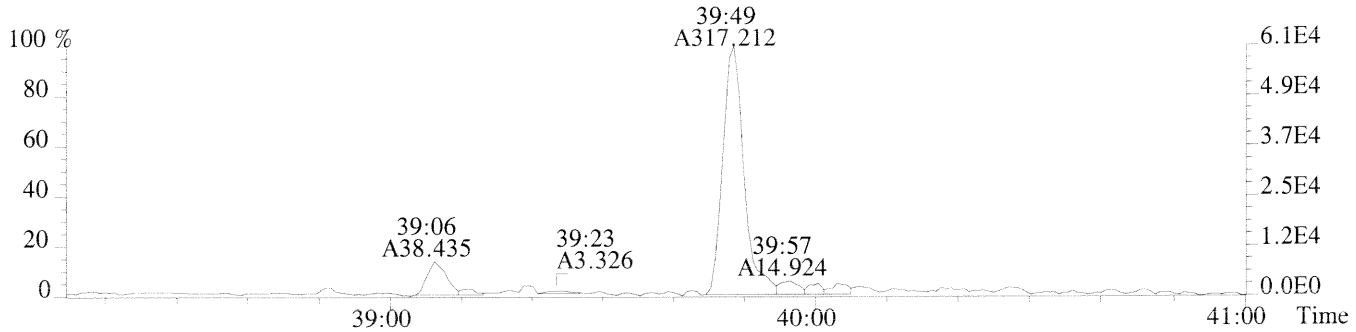
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



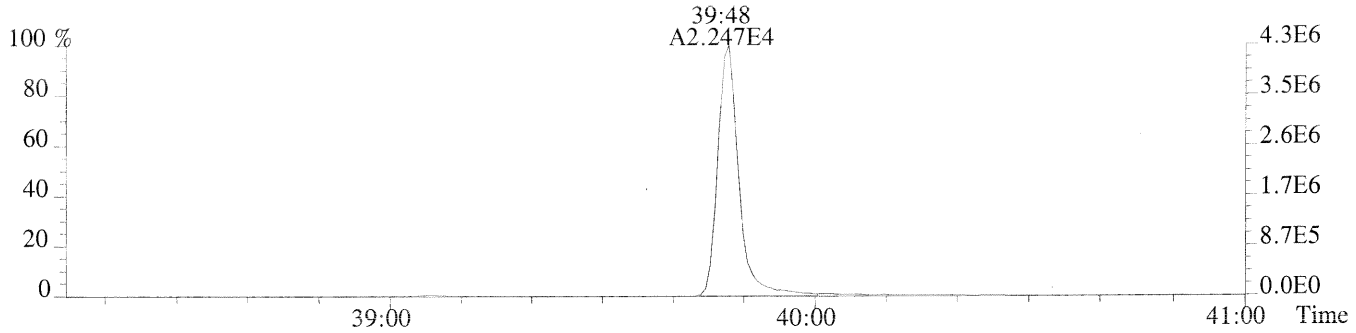
File:U149172 #1-251 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1220.0,0.40%,F,T)



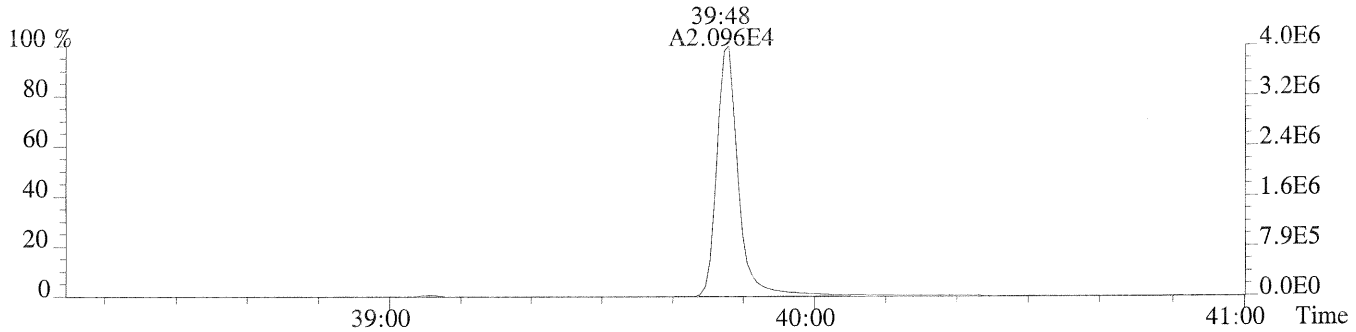
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



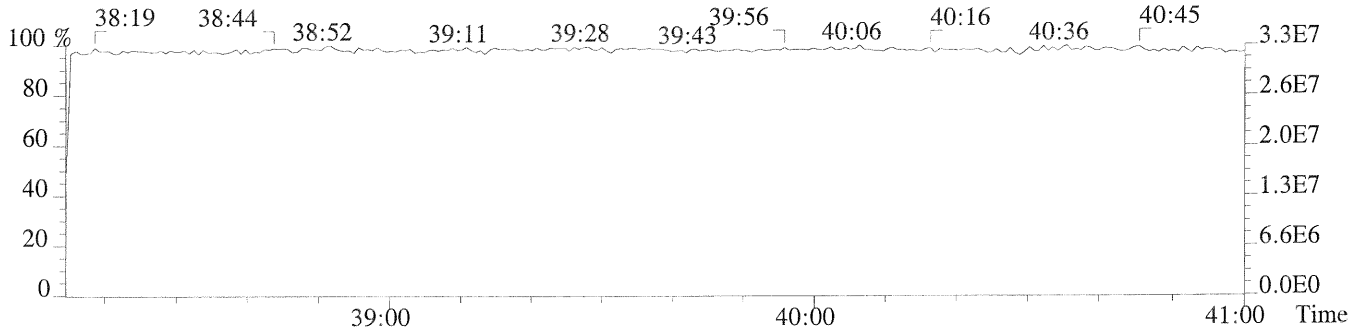
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



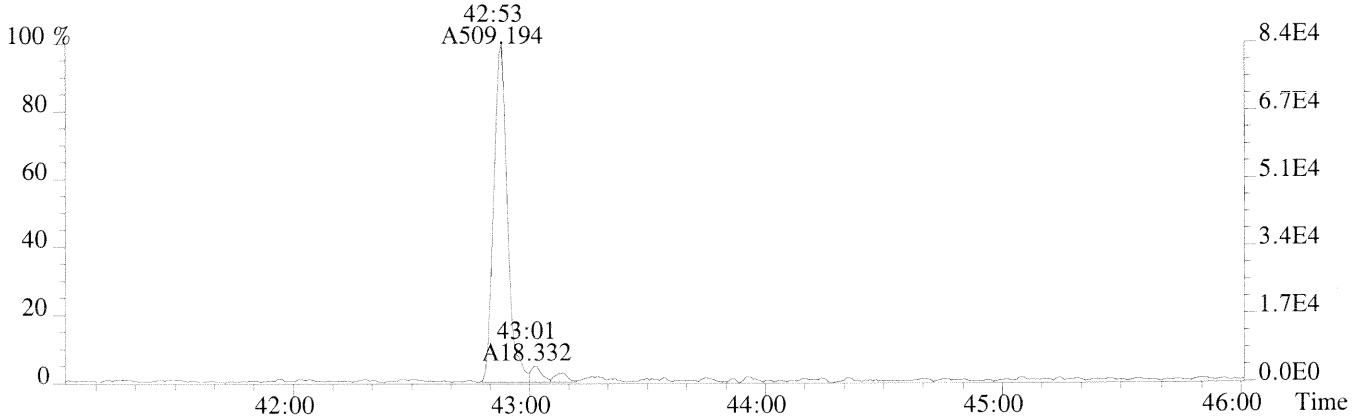
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)



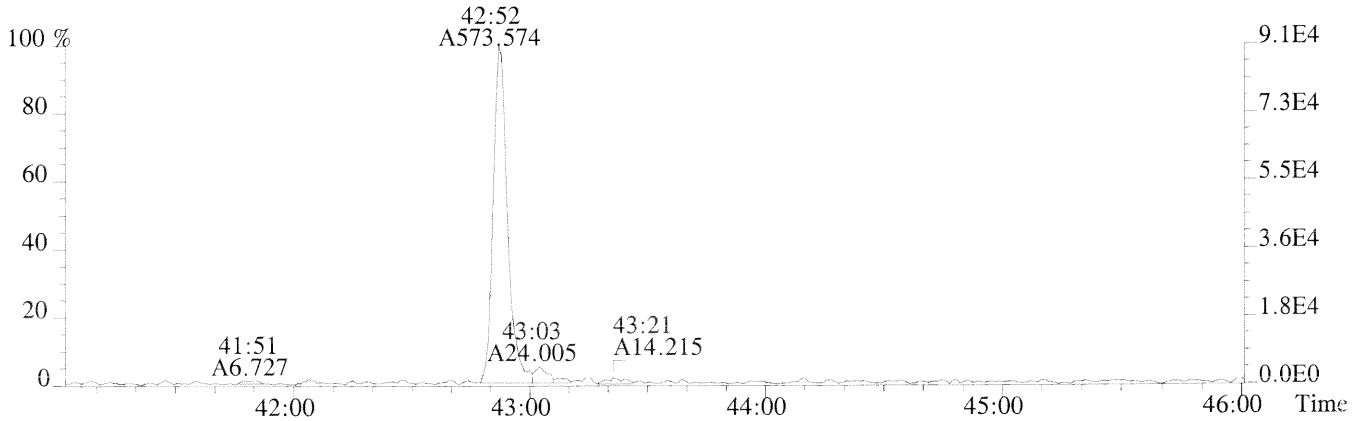
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



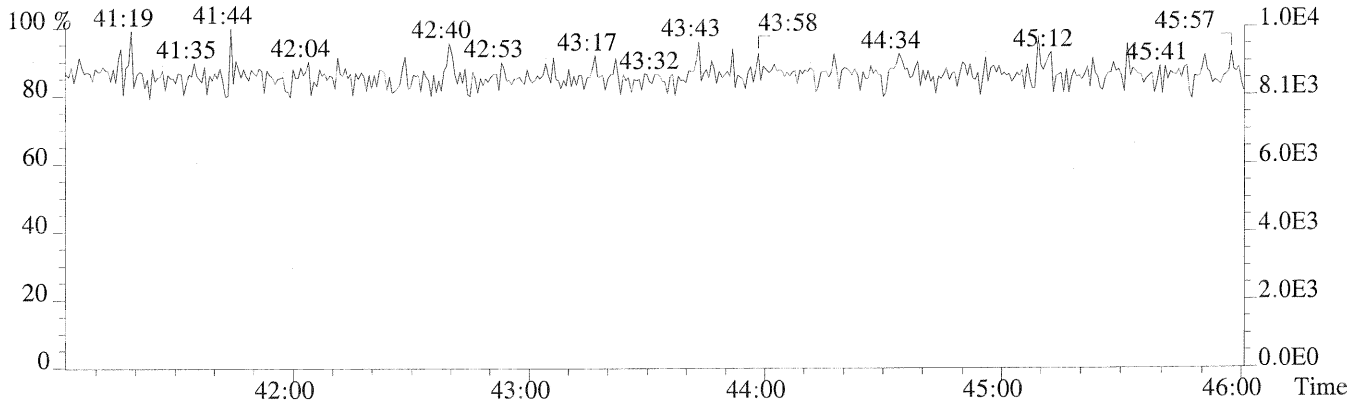
File:U149172 #1-452 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,820.0,0.40%,F,T)



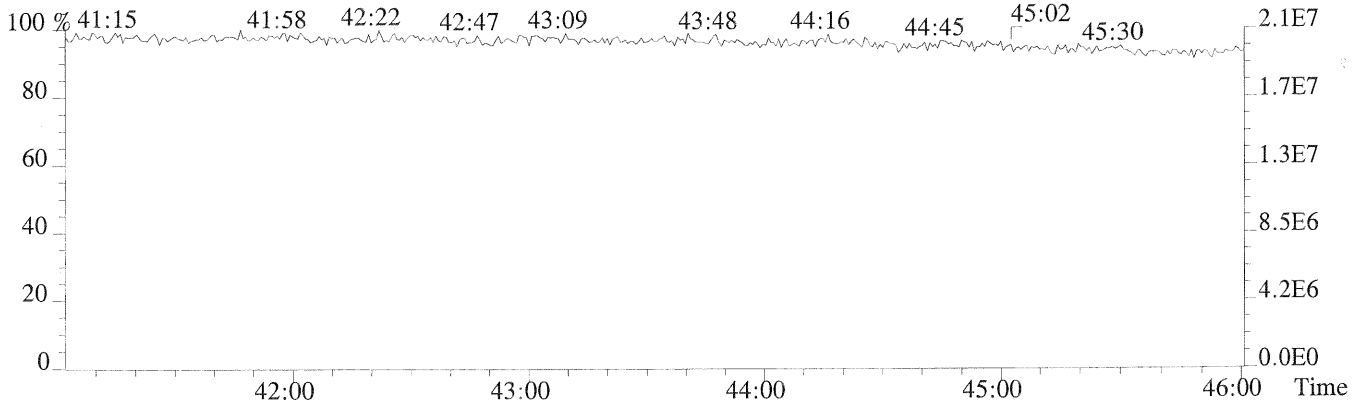
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,860.0,0.40%,F,T)



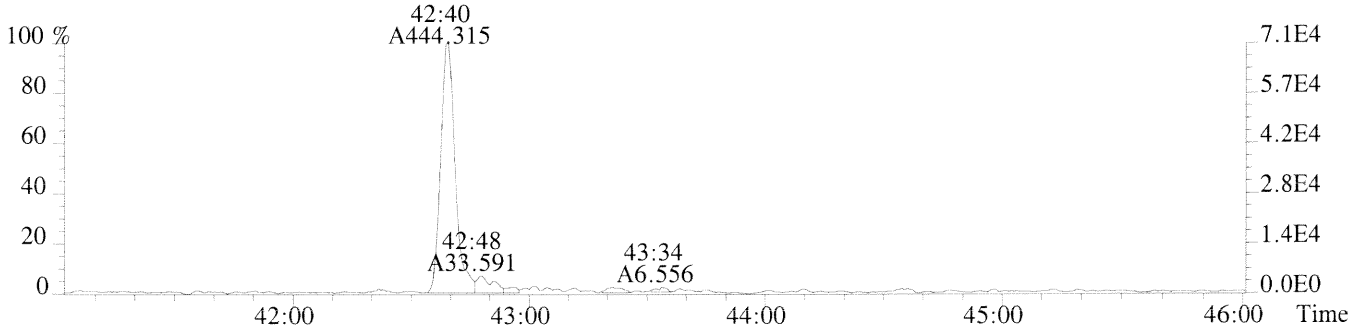
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



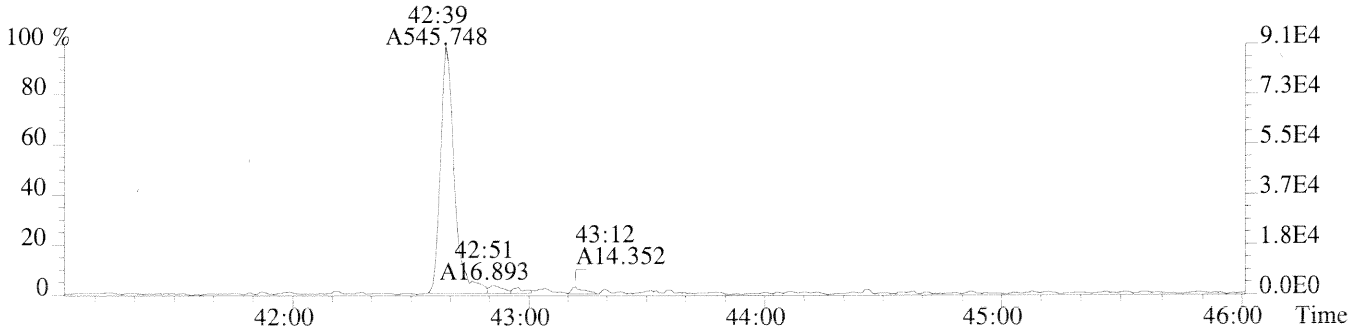
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



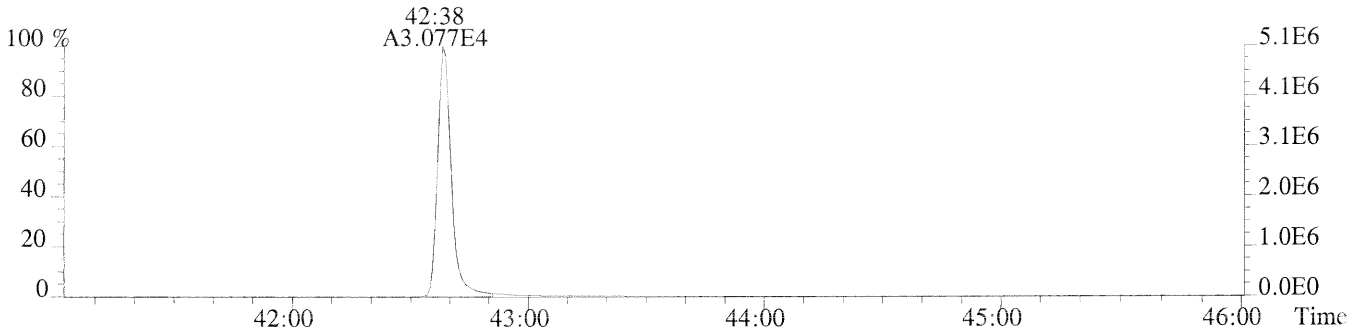
File:U149172 #1-452 Acq:21-MAY-2014 14:47:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS0.5 HRCC0.5/CS0.5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



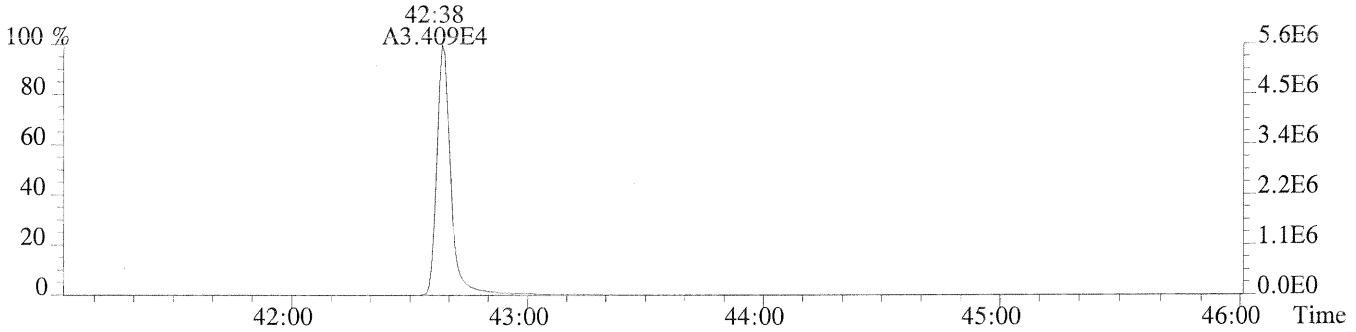
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



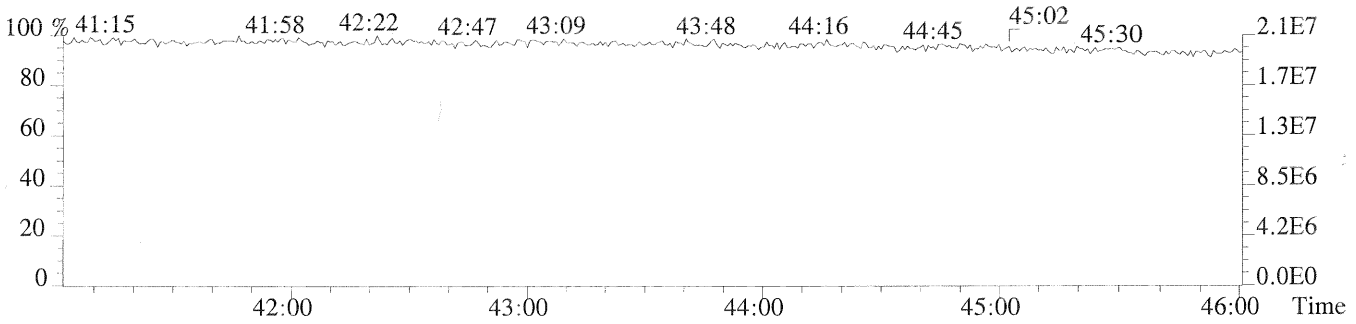
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,504.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS1

Run #2 Filename U149173 Samp: 1 Inj: 1 Acquired: 21-MAY-14 15:39:21
Processed: 23-MAY-14 08:49:33 Sample ID: 66798

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	1.179e+02	1.687e+02	0.70	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	1.169e+03	7.600e+02	1.54	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	1.062e+03	6.910e+02	1.54	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	9.883e+02	7.868e+02	1.26	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:24	1.026e+03	8.352e+02	1.23	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	9.387e+02	7.880e+02	1.19	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	8.906e+02	6.832e+02	1.30	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	8.672e+02	8.273e+02	1.05	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	7.275e+02	6.813e+02	1.07	yes	no	1.359
10	Unk	OCDF	42:53	1.164e+03	1.227e+03	0.95	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:27	1.098e+02	1.361e+02	0.81	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:56	7.820e+02	4.871e+02	1.61	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	6.500e+02	4.886e+02	1.33	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	7.367e+02	5.730e+02	1.29	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	7.324e+02	6.057e+02	1.21	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	5.920e+02	6.400e+02	0.93	yes	no	1.065
17	Unk	OCDD	42:39	9.958e+02	1.092e+03	0.91	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	2.728e+04	3.345e+04	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	4.674e+04	2.954e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	4.622e+04	2.881e+04	1.60	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	1.865e+04	3.642e+04	0.51	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.168e+04	4.244e+04	0.51	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	1.992e+04	3.926e+04	0.51	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	1.854e+04	3.569e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	1.438e+04	3.176e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.345e+04	2.910e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	1.855e+04	2.355e+04	0.79	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.963e+04	1.903e+04	1.56	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	2.338e+04	1.772e+04	1.32	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	2.540e+04	1.947e+04	1.30	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	2.299e+04	2.118e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:38	3.268e+04	3.542e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	1.925e+04	2.464e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	2.713e+04	2.096e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	1.988e+02				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS1

Run #2 Filename U149173 Samp: 1 Inj: 1 Acquired: 21-MAY-14 15:39:21
Processed: 22-MAY-14 12:57:501 LAB. ID: 66798

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.34e+04	7.16e+02	3.3e+01	3.42e+04	1.43e+03	2.4e+01
2	1,2,3,7,8-PeCDF	2.23e+05	6.84e+02	3.3e+02	1.41e+05	1.22e+03	1.2e+02
3	2,3,4,7,8-PeCDF	2.09e+05	6.84e+02	3.1e+02	1.42e+05	1.22e+03	1.2e+02
4	1,2,3,4,7,8-HxCDF	2.08e+05	1.06e+03	2.0e+02	1.66e+05	8.60e+02	1.9e+02
5	1,2,3,6,7,8-HxCDF	2.10e+05	1.06e+03	2.0e+02	1.65e+05	8.60e+02	1.9e+02
6	2,3,4,6,7,8-HxCDF	1.91e+05	1.06e+03	1.8e+02	1.62e+05	8.60e+02	1.9e+02
7	1,2,3,7,8,9-HxCDF	1.85e+05	1.06e+03	1.7e+02	1.33e+05	8.60e+02	1.5e+02
8	1,2,3,4,6,7,8-HpCDF	1.73e+05	1.26e+03	1.4e+02	1.73e+05	1.41e+03	1.2e+02
9	1,2,3,4,7,8,9-HpCDF	1.40e+05	1.26e+03	1.1e+02	1.24e+05	1.41e+03	8.8e+01
10	OCDF	1.75e+05	7.28e+02	2.4e+02	1.87e+05	6.88e+02	2.7e+02
11	2,3,7,8-TCDD	2.37e+04	7.12e+02	3.3e+01	3.04e+04	7.36e+02	4.1e+01
12	1,2,3,7,8-PeCDD	1.60e+05	9.40e+02	1.7e+02	9.26e+04	7.28e+02	1.3e+02
13	1,2,3,4,7,8-HxCDD	1.36e+05	7.56e+02	1.8e+02	1.06e+05	8.40e+02	1.3e+02
14	1,2,3,6,7,8-HxCDD	1.44e+05	7.56e+02	1.9e+02	1.17e+05	8.40e+02	1.4e+02
15	1,2,3,7,8,9-HxCDD	1.44e+05	7.56e+02	1.9e+02	1.26e+05	8.40e+02	1.5e+02
16	1,2,3,4,6,7,8-HpCDD	1.17e+05	9.92e+02	1.2e+02	1.12e+05	6.72e+02	1.7e+02
17	OCDD	1.56e+05	5.52e+02	2.8e+02	1.69e+05	7.40e+02	2.3e+02
18	13C-2,3,7,8-TCDF	5.98e+06	6.88e+02	8.7e+03	7.27e+06	9.56e+02	7.6e+03
19	13C-1,2,3,7,8-PeCDF	8.87e+06	5.88e+02	1.5e+04	5.66e+06	8.20e+02	6.9e+03
20	13C-2,3,4,7,8-PeCDF	9.39e+06	5.88e+02	1.6e+04	5.93e+06	8.20e+02	7.2e+03
21	13C-1,2,3,4,7,8-HxCDF	4.00e+06	8.76e+02	4.6e+03	7.63e+06	1.10e+03	7.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.42e+06	8.76e+02	5.0e+03	8.53e+06	1.10e+03	7.8e+03
23	13C-2,3,4,6,7,8-HxCDF	4.18e+06	8.76e+02	4.8e+03	8.17e+06	1.10e+03	7.5e+03
24	13C-1,2,3,7,8,9-HxCDF	3.60e+06	8.76e+02	4.1e+03	7.21e+06	1.10e+03	6.6e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.86e+06	3.00e+03	9.5e+02	6.40e+06	4.20e+03	1.5e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.39e+06	3.00e+03	8.0e+02	5.23e+06	4.20e+03	1.2e+03
27	13C-2,3,7,8-TCDD	4.18e+06	2.69e+03	1.6e+03	5.24e+06	1.72e+03	3.0e+03
28	13C-1,2,3,7,8-PeCDD	5.90e+06	7.20e+02	8.2e+03	3.79e+06	7.04e+02	5.4e+03
29	13C-1,2,3,4,7,8-HxCDD	5.26e+06	1.18e+03	4.4e+03	4.03e+06	7.80e+02	5.2e+03
30	13C-1,2,3,6,7,8-HxCDD	5.12e+06	1.18e+03	4.3e+03	3.96e+06	7.80e+02	5.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.22e+06	7.96e+02	5.3e+03	3.94e+06	8.48e+02	4.6e+03
32	13C-OCDD	5.18e+06	8.40e+02	6.2e+03	5.67e+06	6.00e+02	9.4e+03
33	13C-1,2,3,4-TCDD	4.21e+06	2.69e+03	1.6e+03	5.42e+06	1.72e+03	3.1e+03
34	13C-1,2,3,7,8,9-HxCDD	5.28e+06	1.18e+03	4.5e+03	4.11e+06	7.80e+02	5.3e+03
35	37Cl-2,3,7,8-TCDD	4.49e+04	1.12e+03	4.0e+01			

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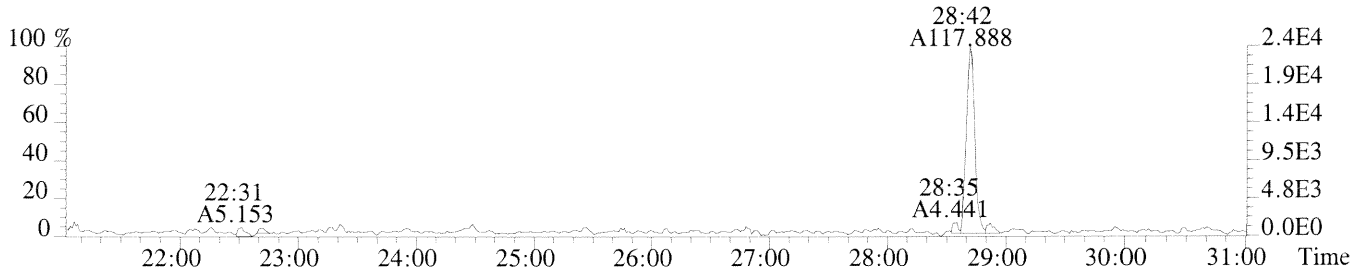
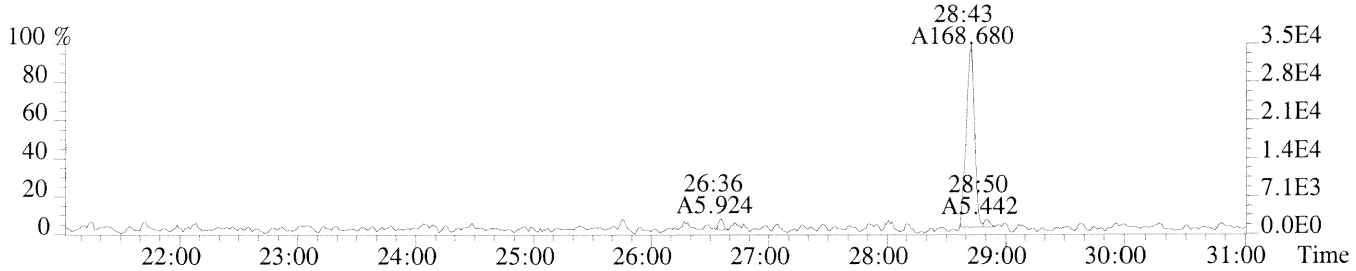
File:U149173 #1-627 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

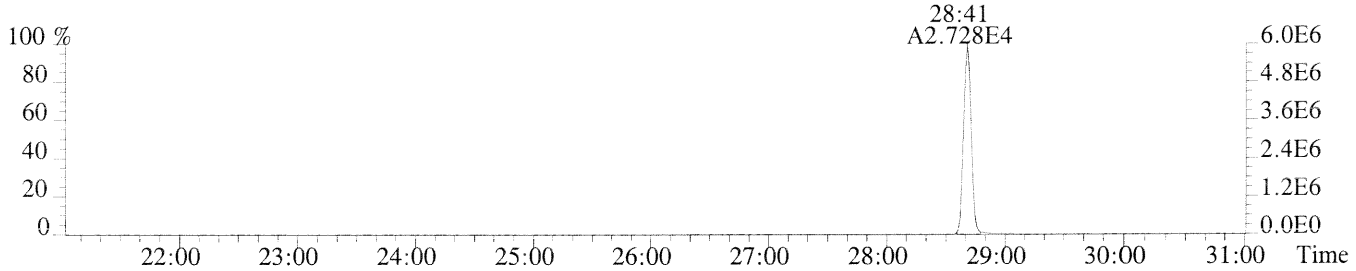
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



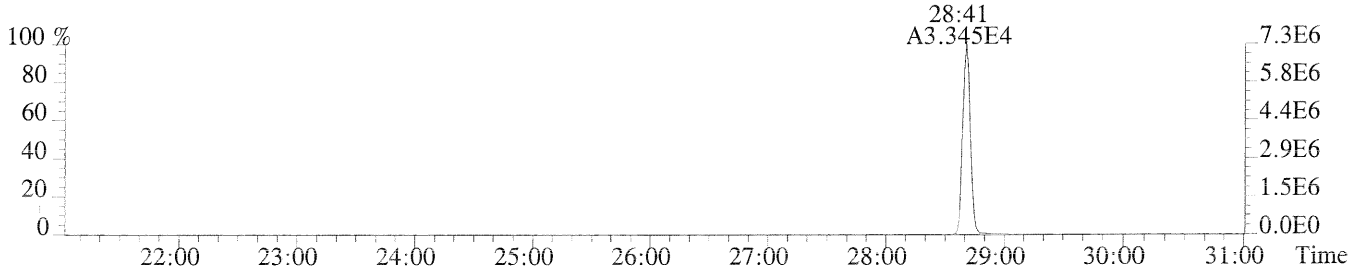
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1432.0,1.00%,F,T)



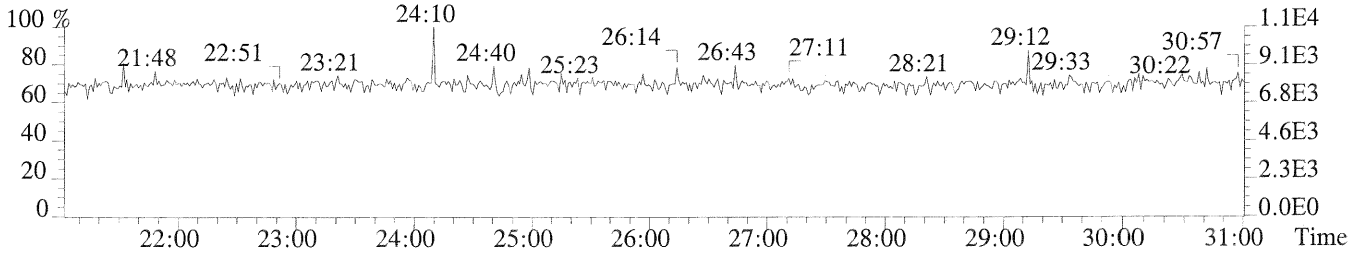
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



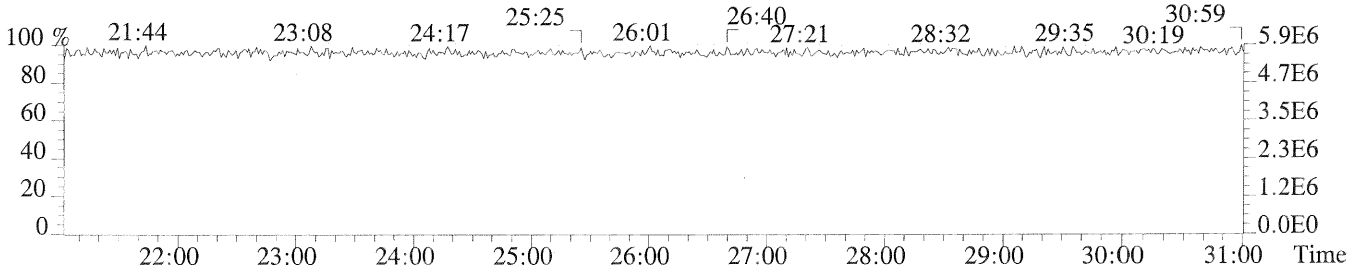
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

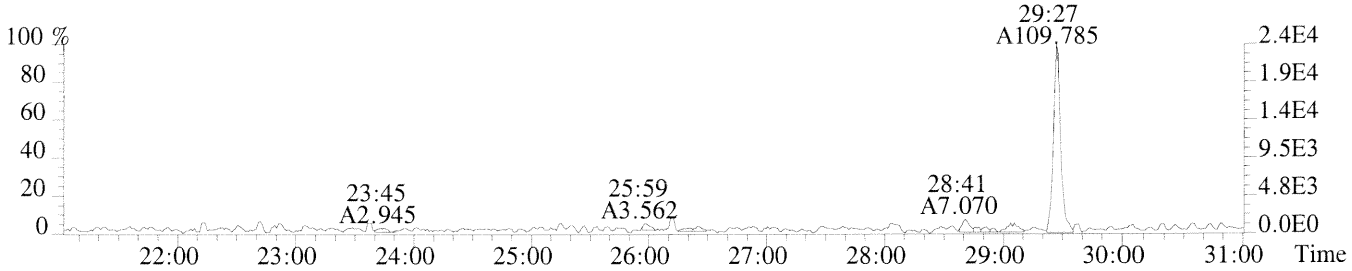


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

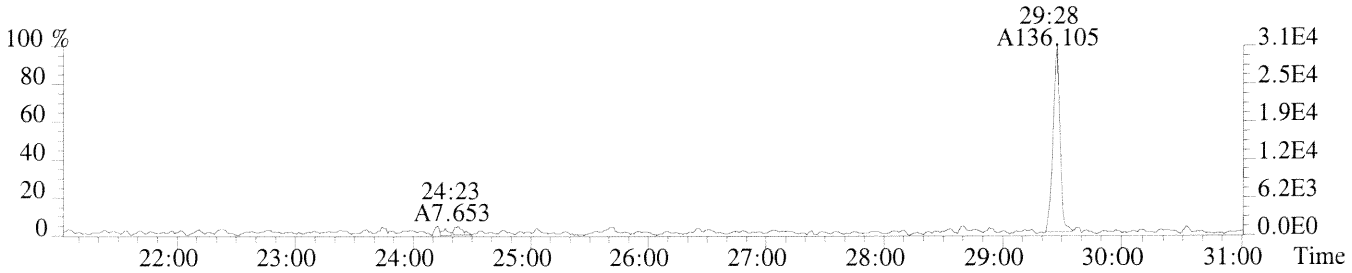


File:U149173 #1-627 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

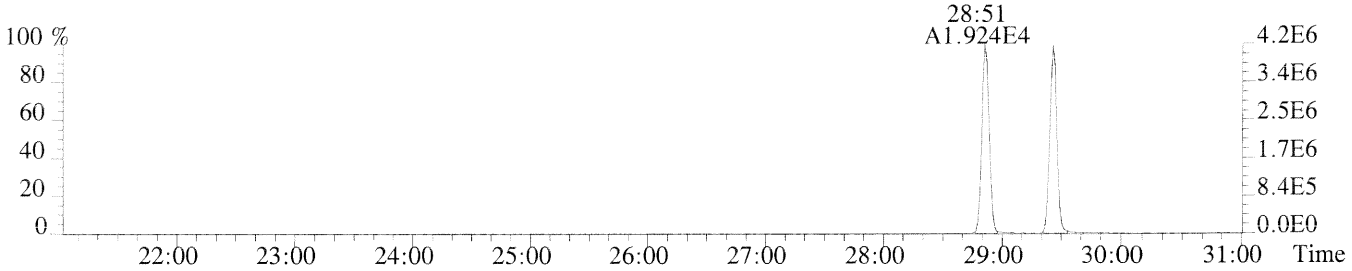
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



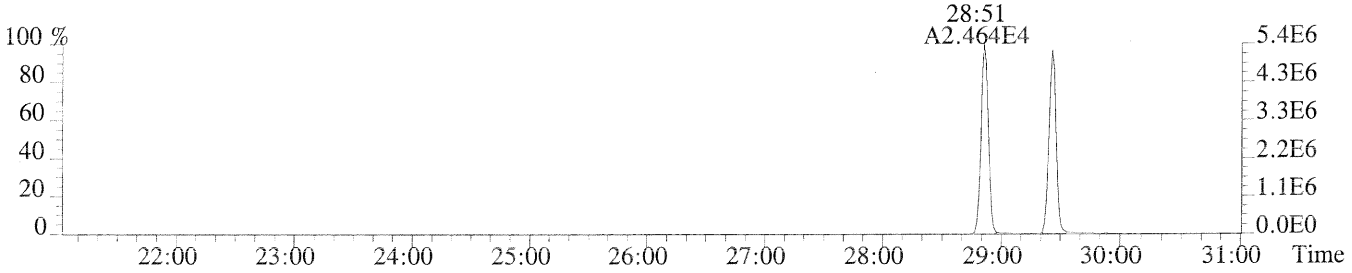
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



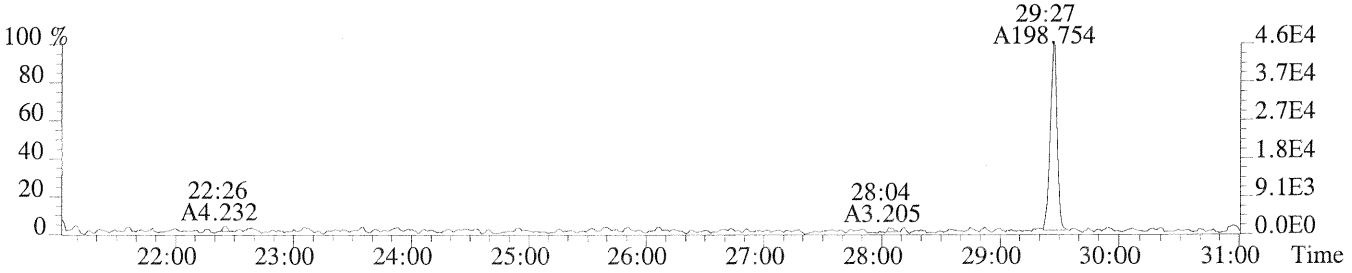
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2692.0,1.00%,F,T)



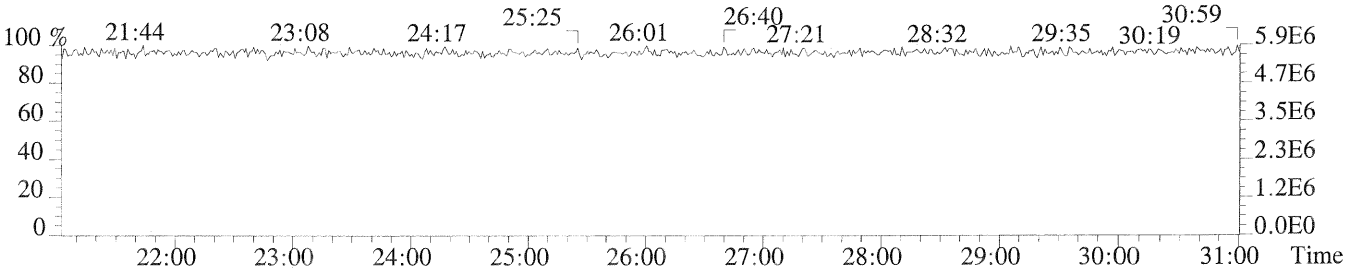
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1724.0,1.00%,F,T)



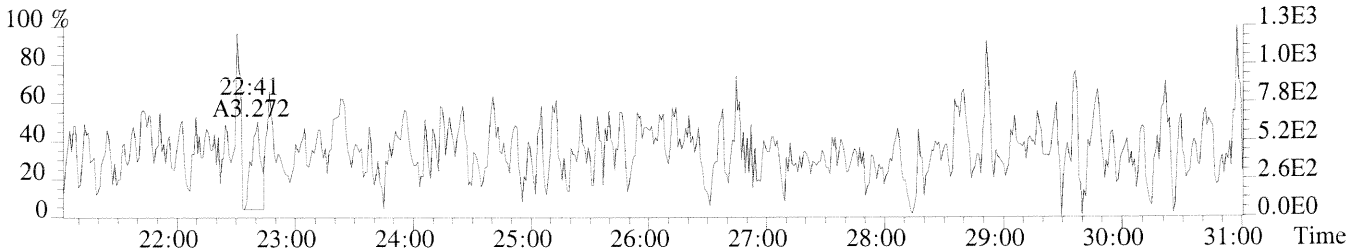
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1120.0,1.00%,F,T)



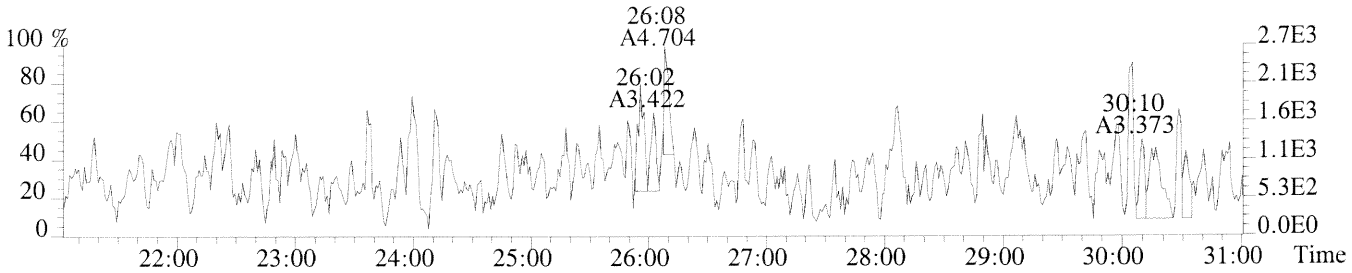
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



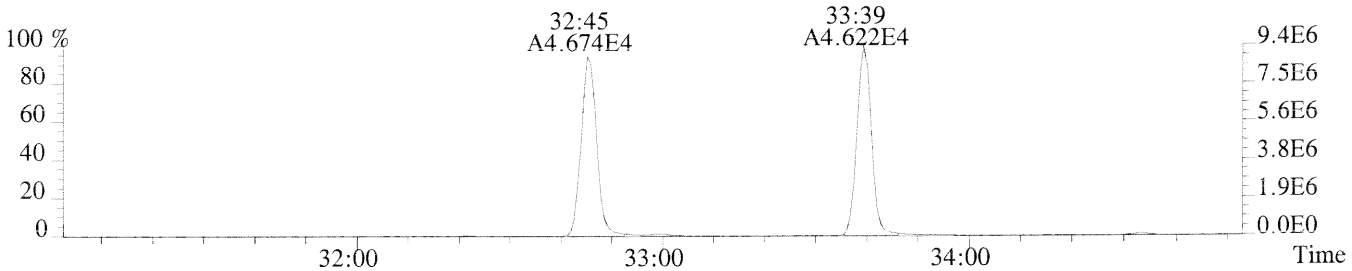
File:U149173 #1-627 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



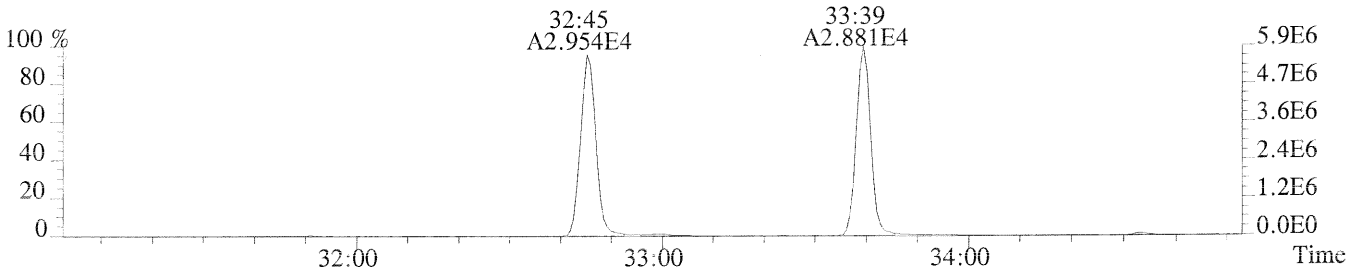
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1024.0,1.00%,F,T)



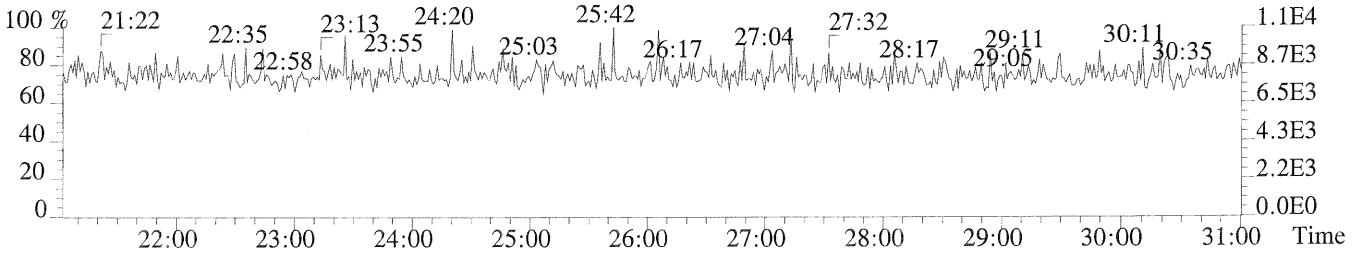
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



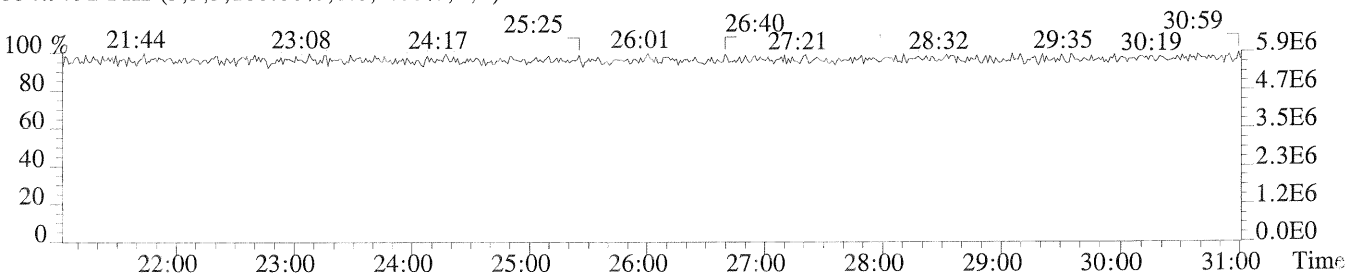
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

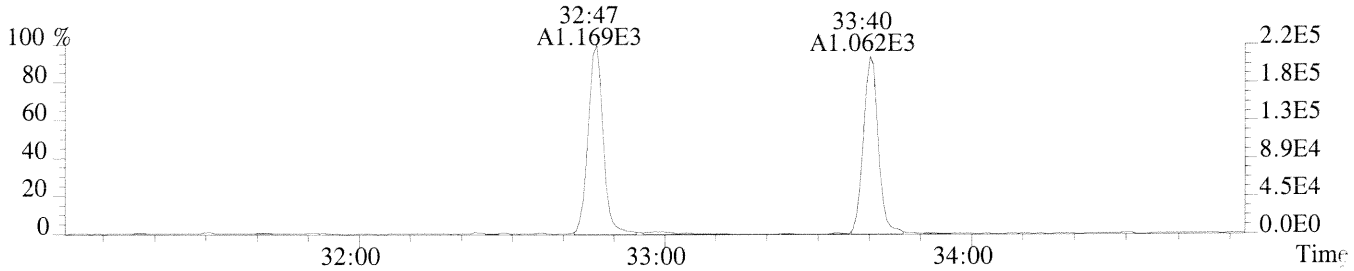


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

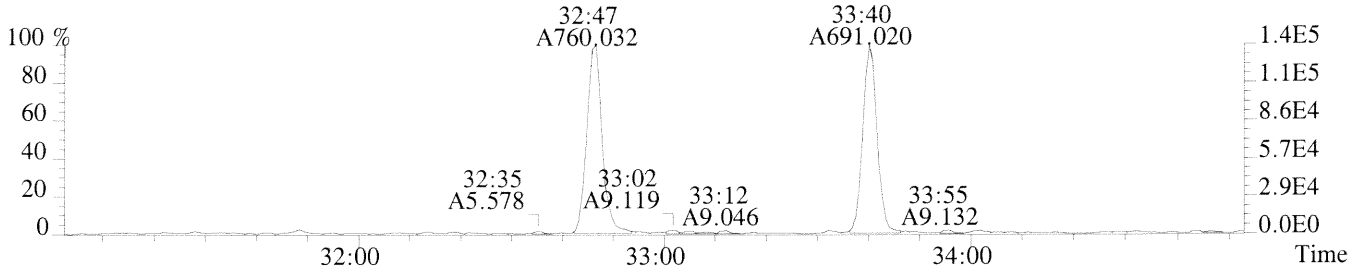


File:U149173 #1-349 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

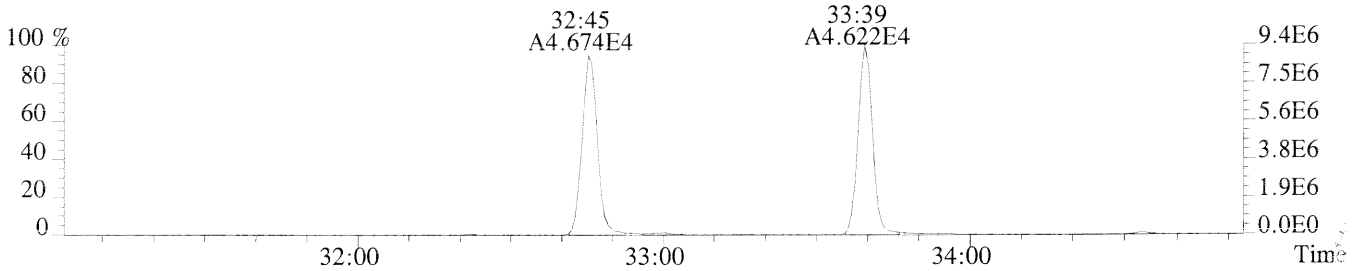
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



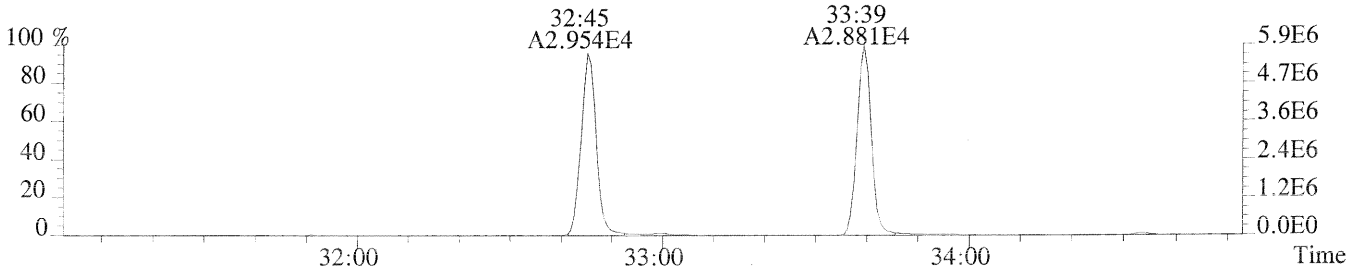
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1224.0,1.00%,F,T)



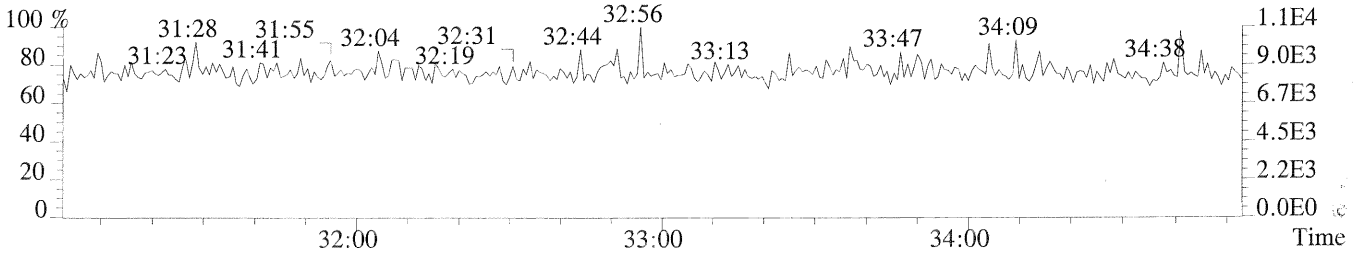
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



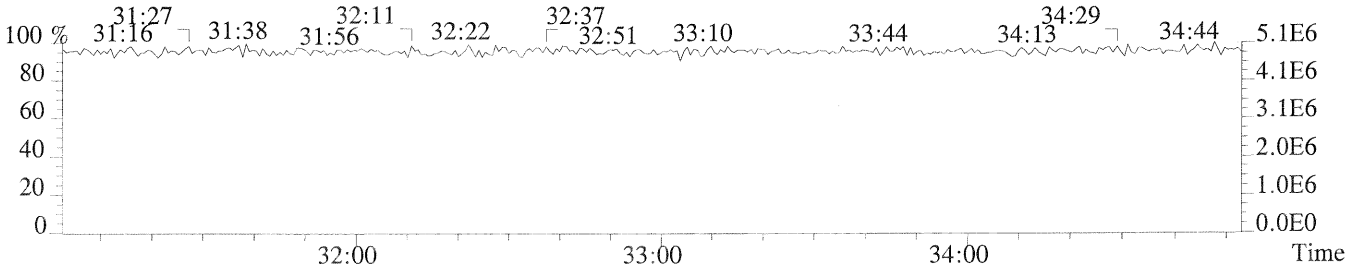
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

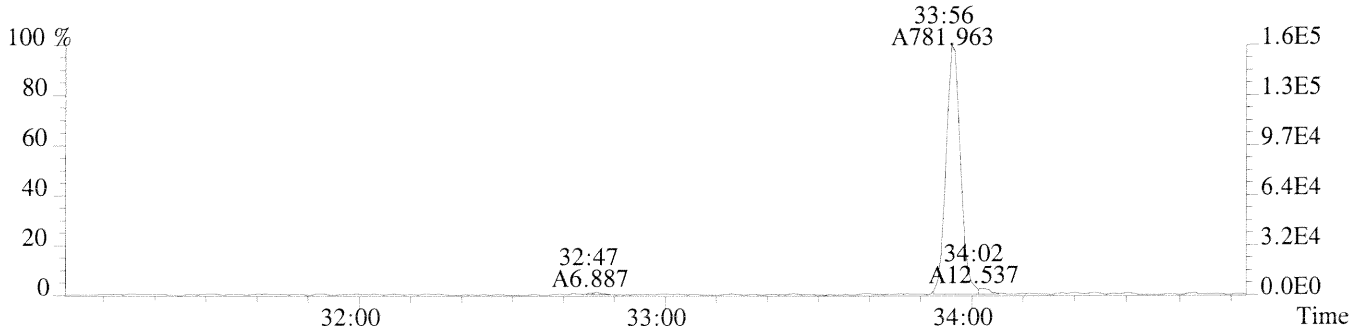


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

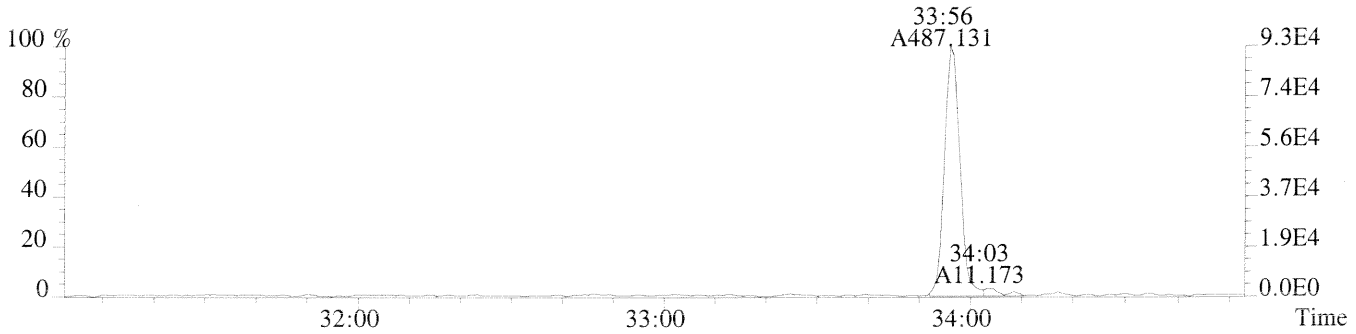


File:U149173 #1-349 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

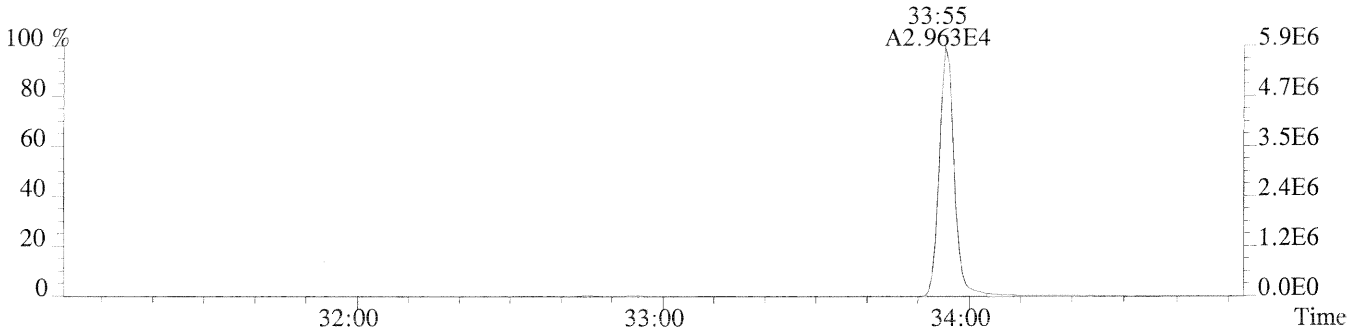
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



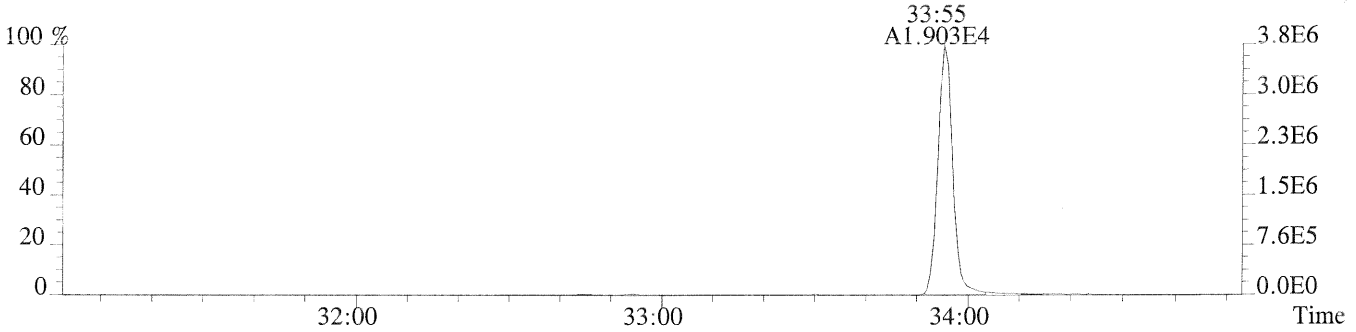
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



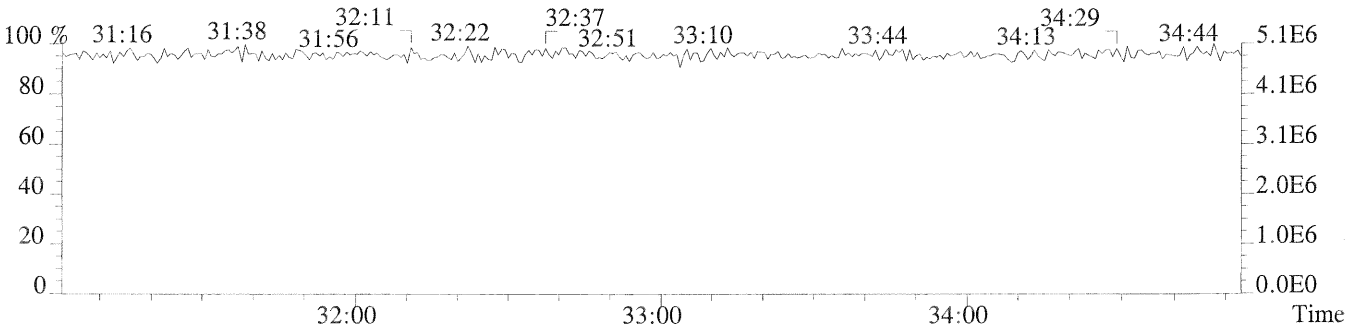
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)

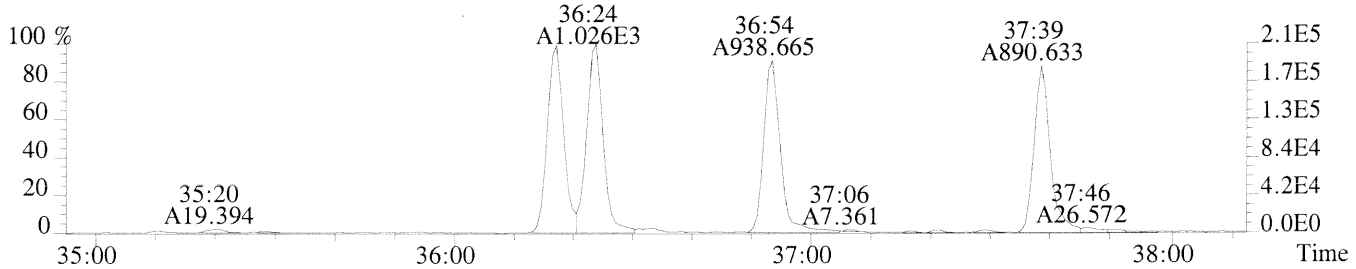


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

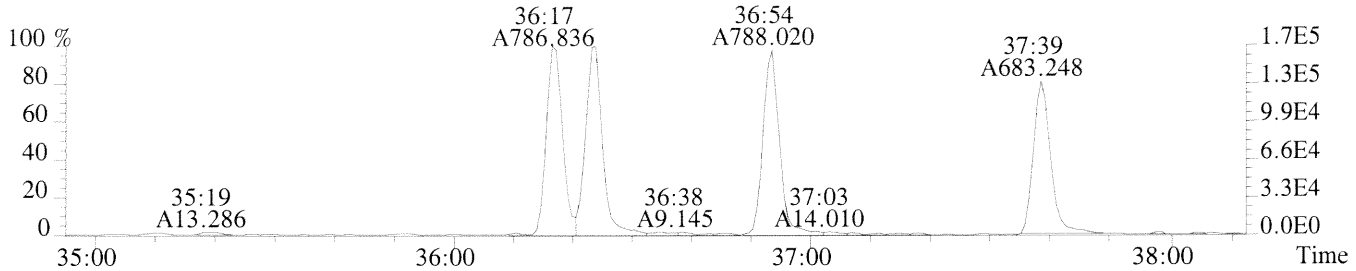


File:U149173 #1-299 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

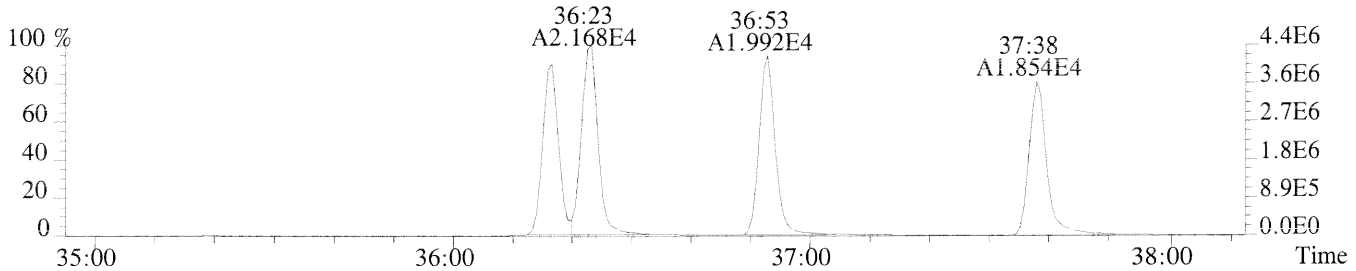
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1064.0,0.40%,F,T)



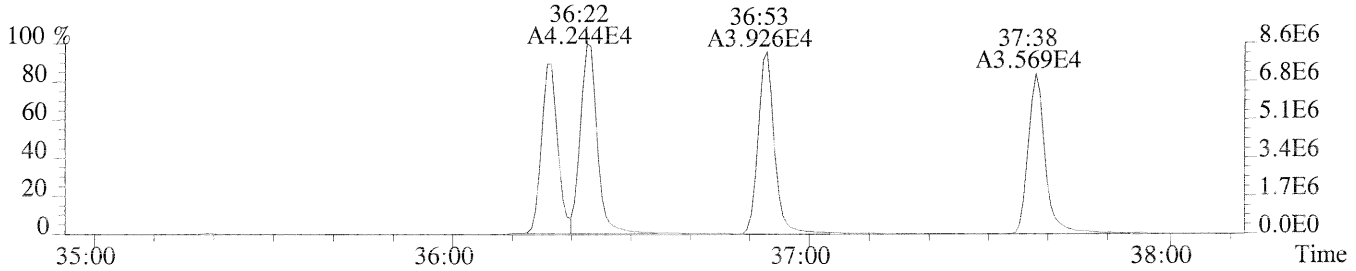
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



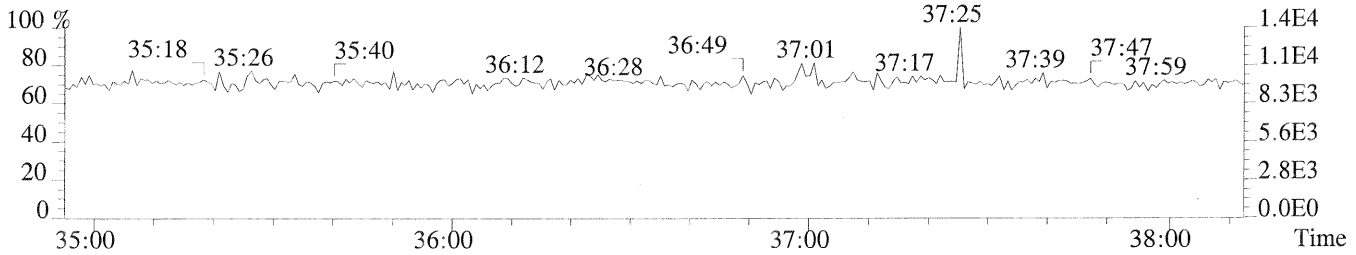
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



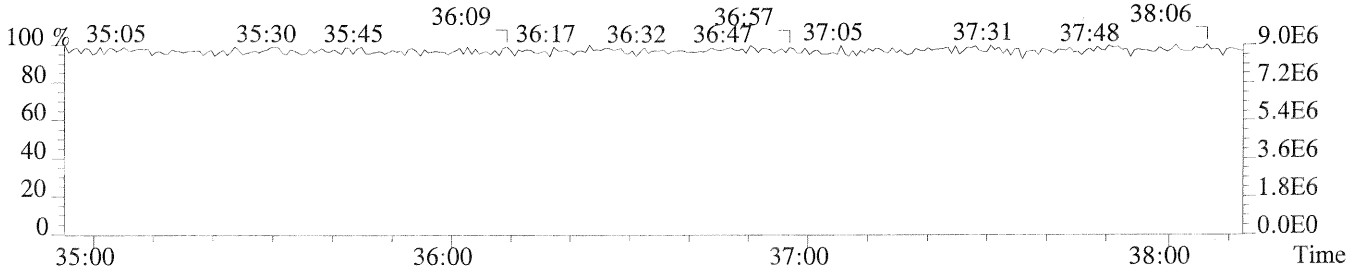
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



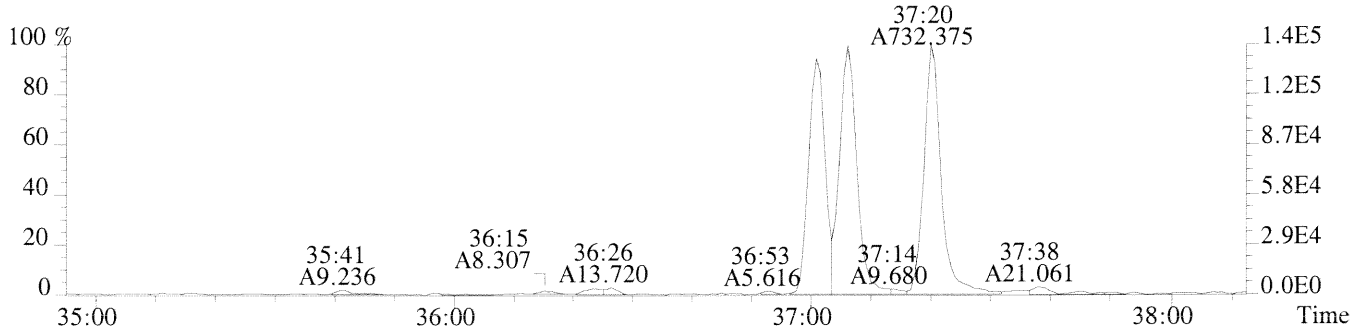
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



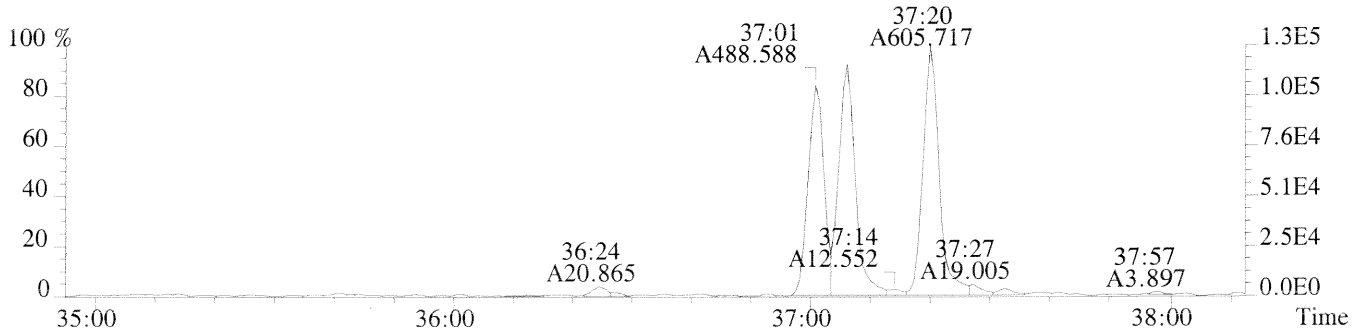
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



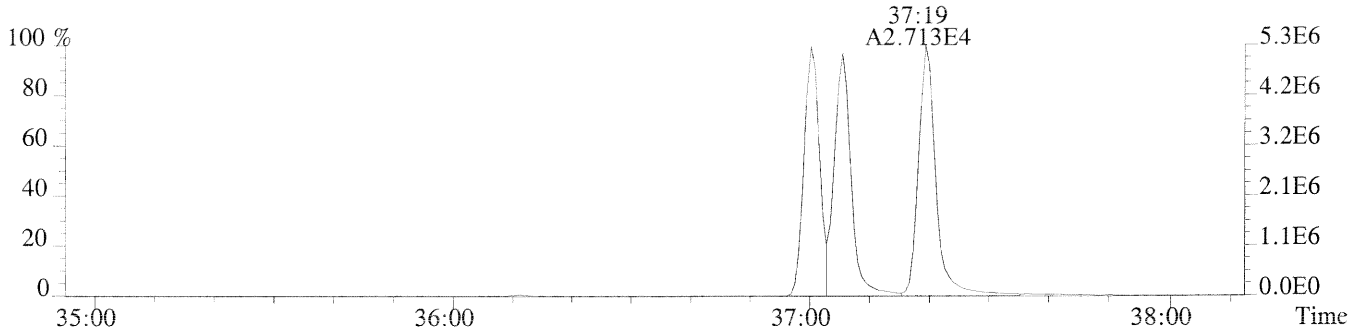
File:U149173 #1-299 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



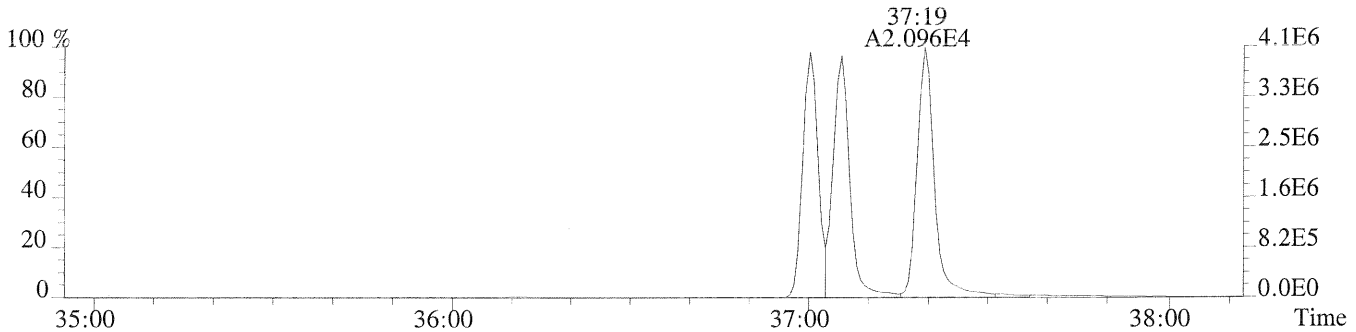
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,840.0,0.40%,F,T)



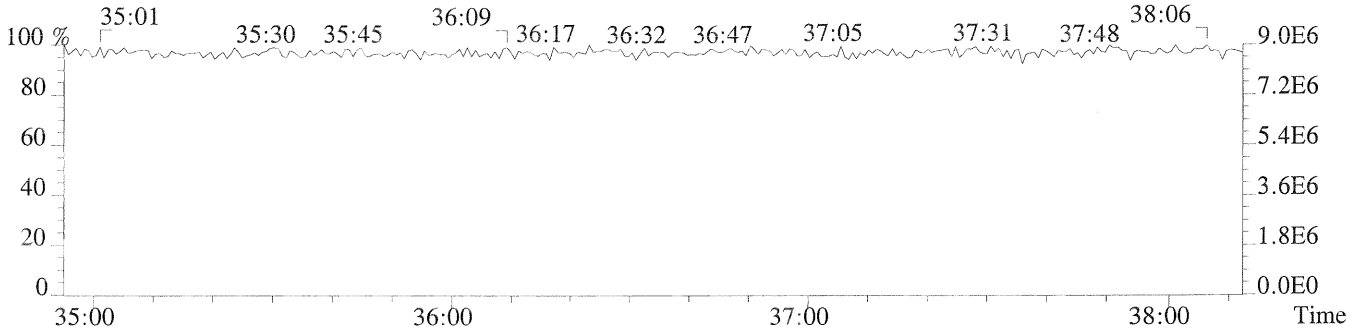
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1184.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)

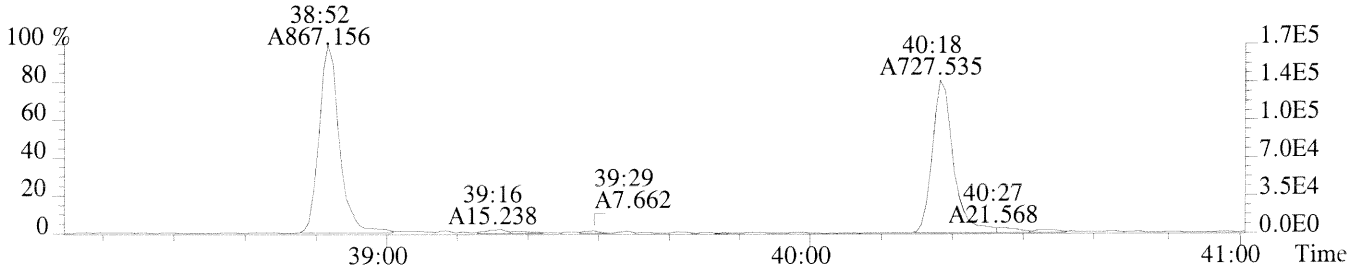


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

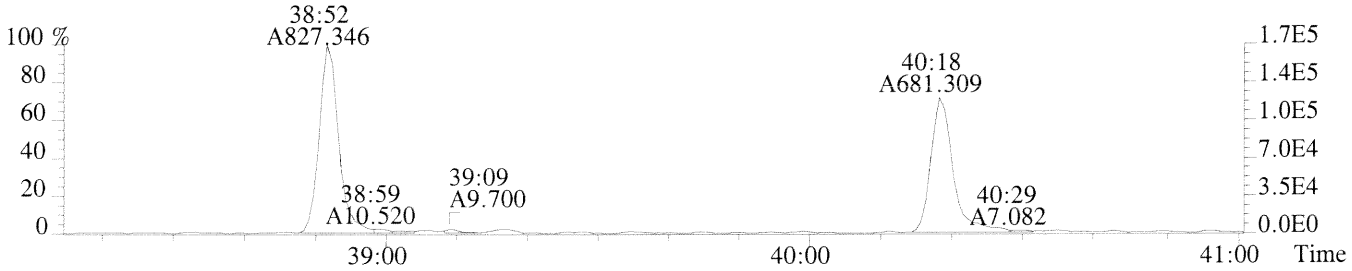


File:U149173 #1-252 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1

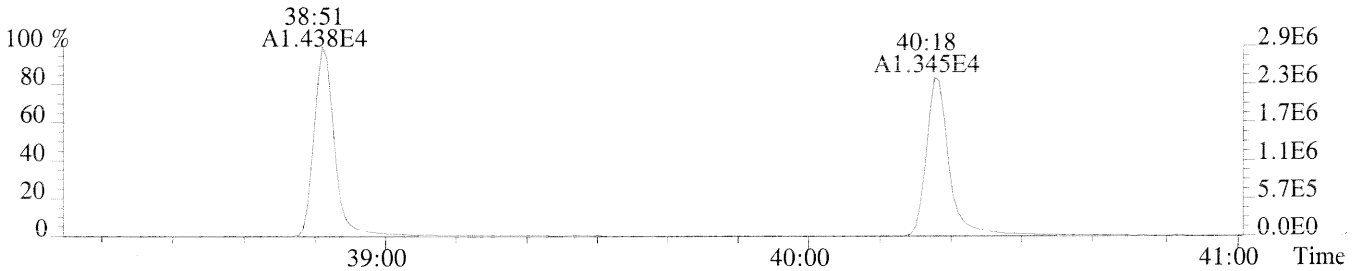
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1264.0,0.50%,F,T)



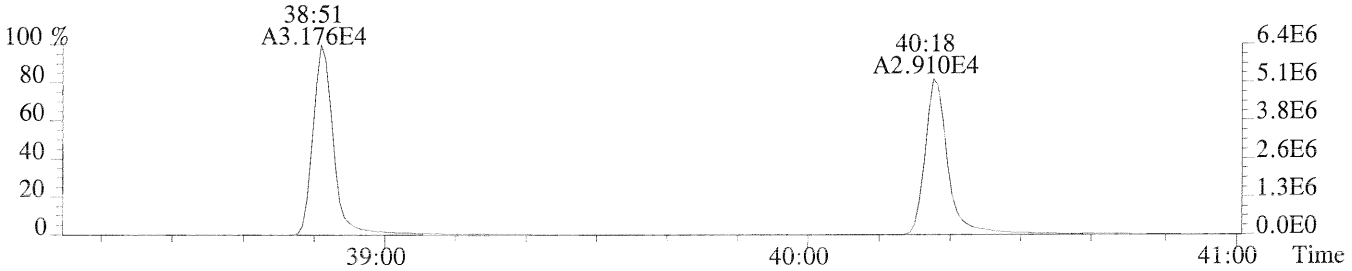
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1408.0,0.50%,F,T)



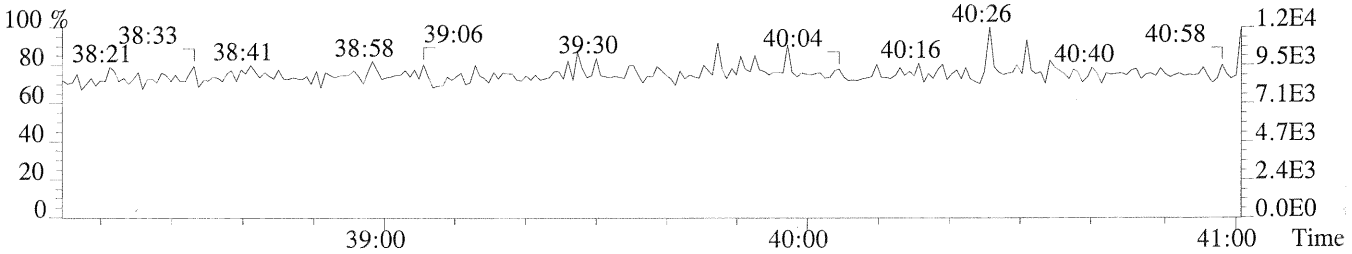
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3000.0,0.50%,F,T)



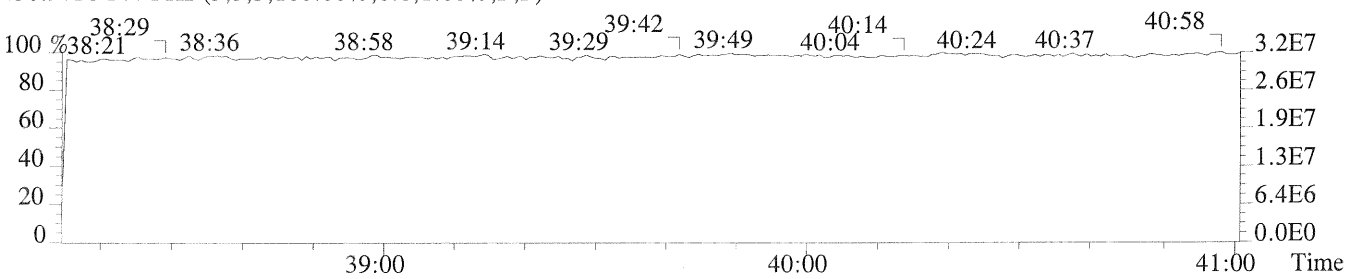
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4196.0,0.50%,F,T)



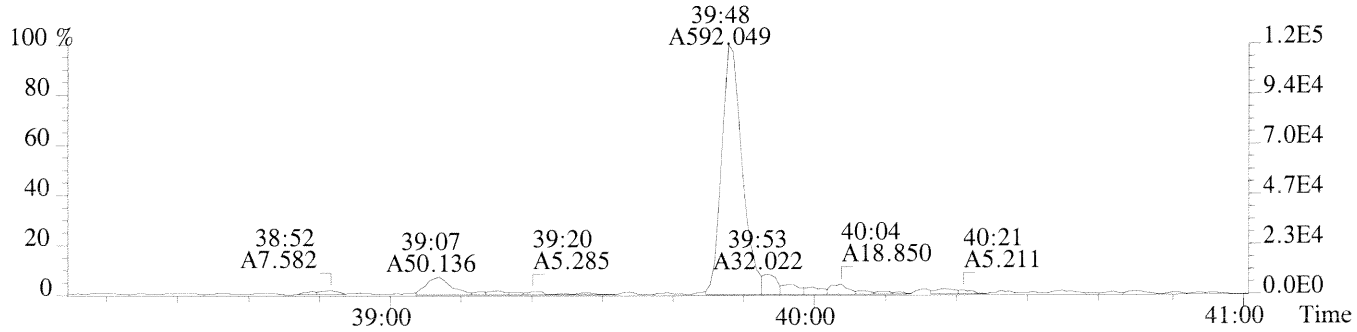
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



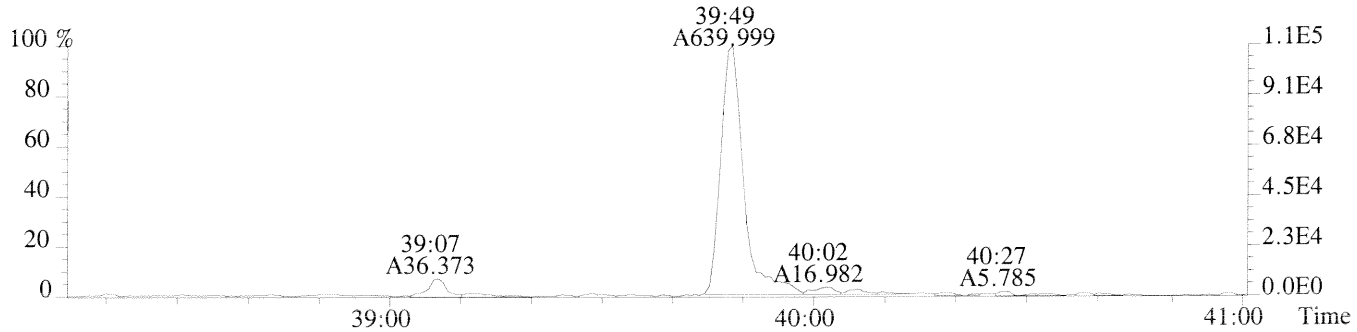
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



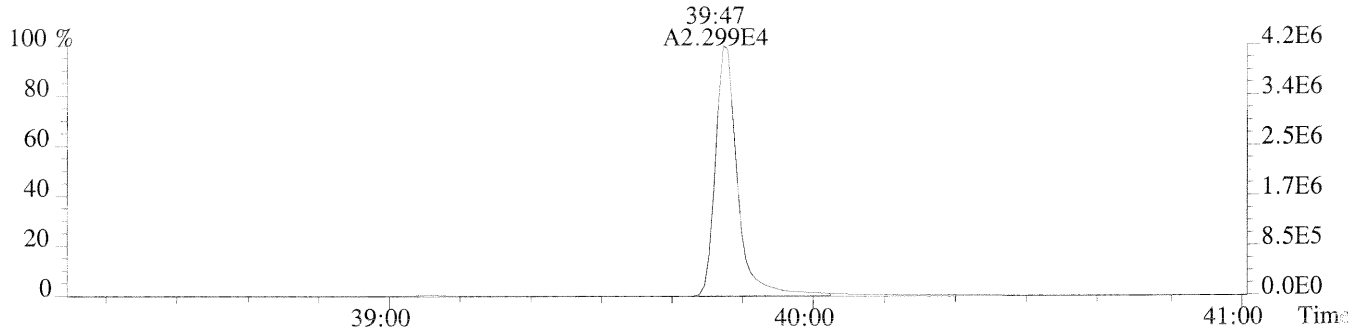
File:U149173 #1-252 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,992.0,0.40%,F,T)



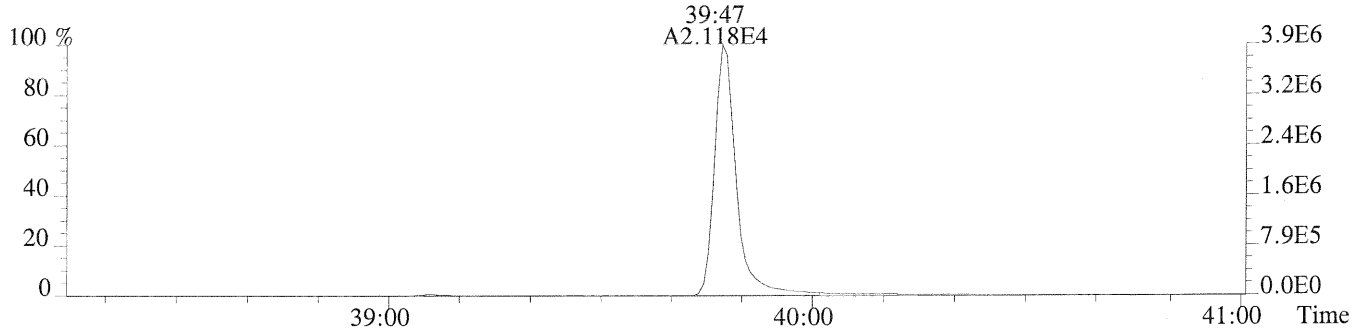
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,672.0,0.40%,F,T)



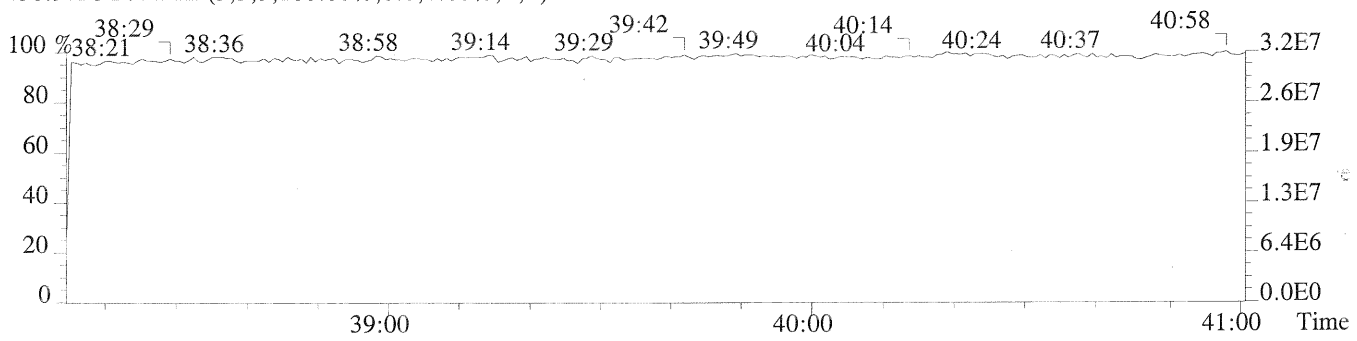
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



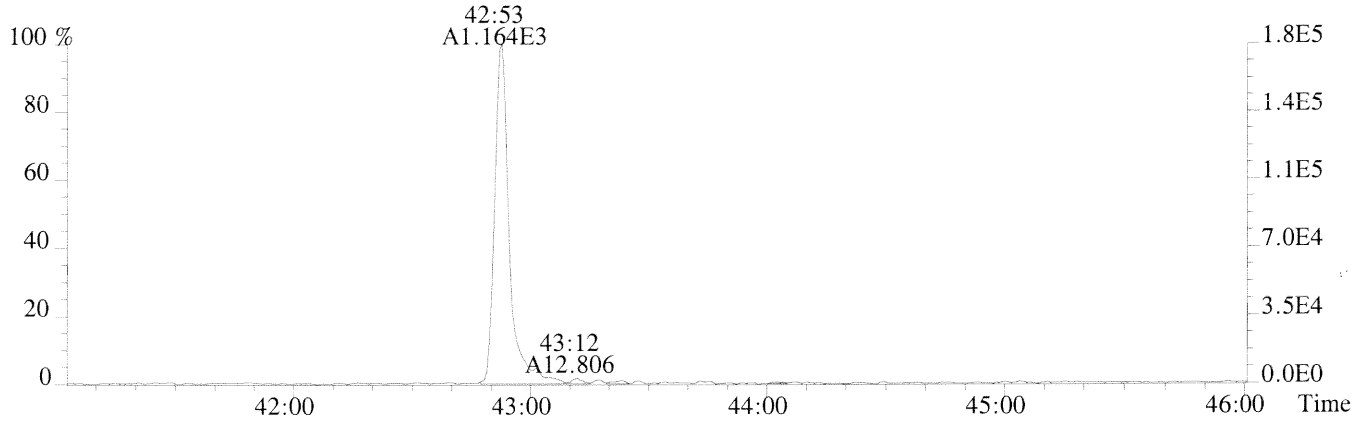
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



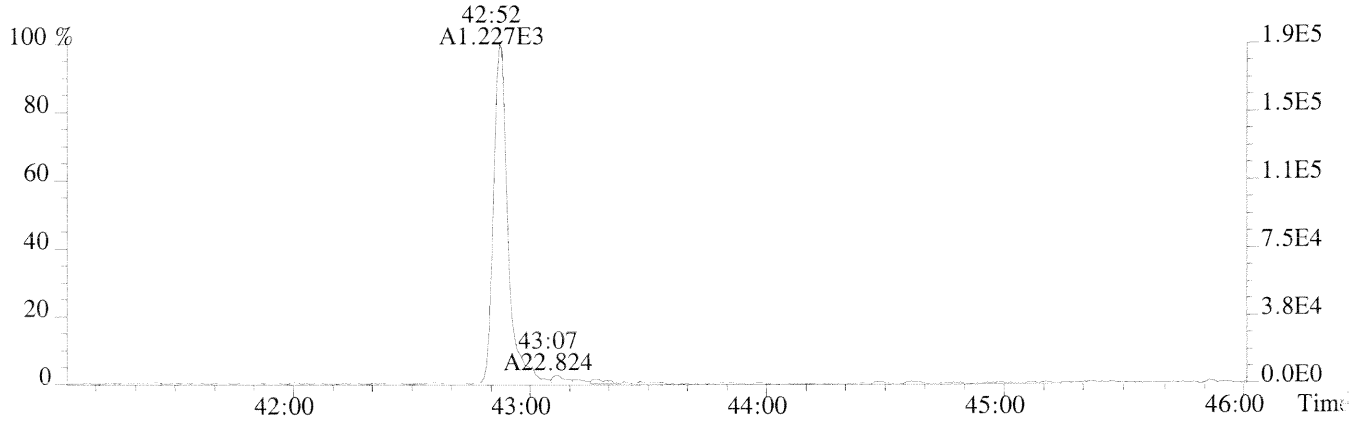
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



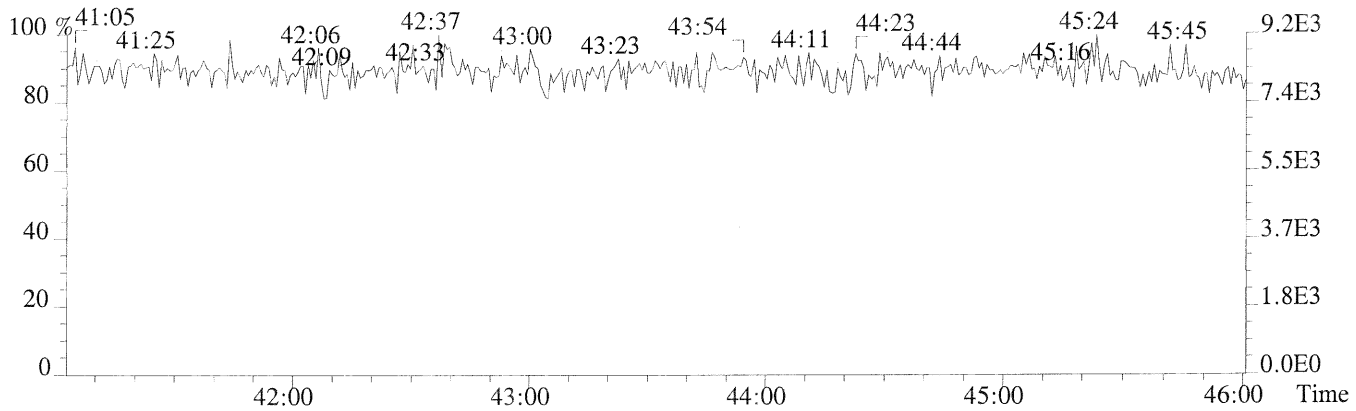
File:U149173 #1-451 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,728.0,0.40%,F,T)



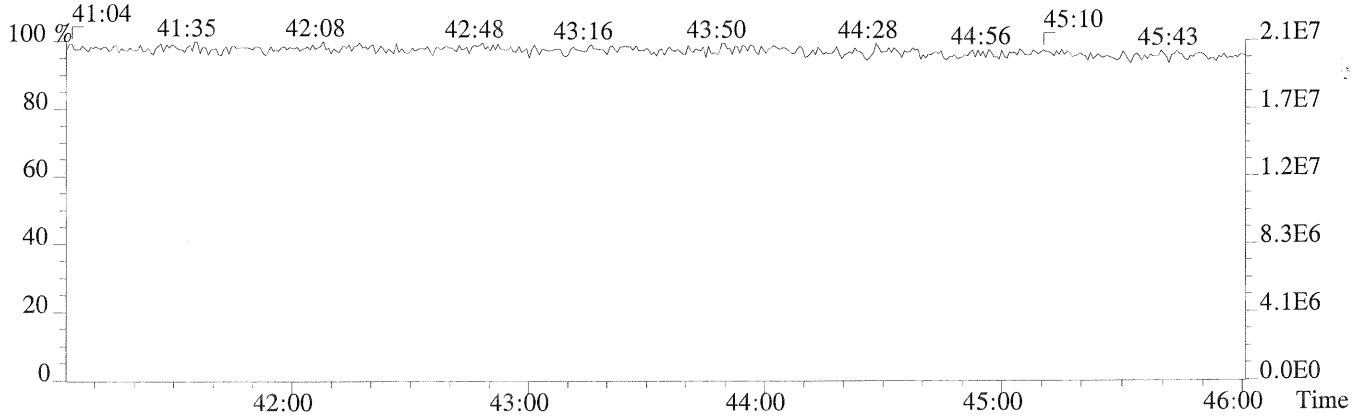
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



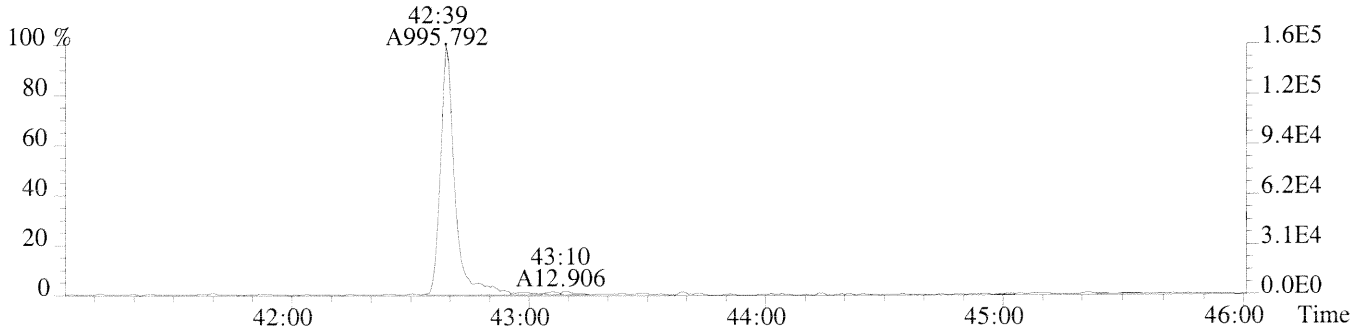
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



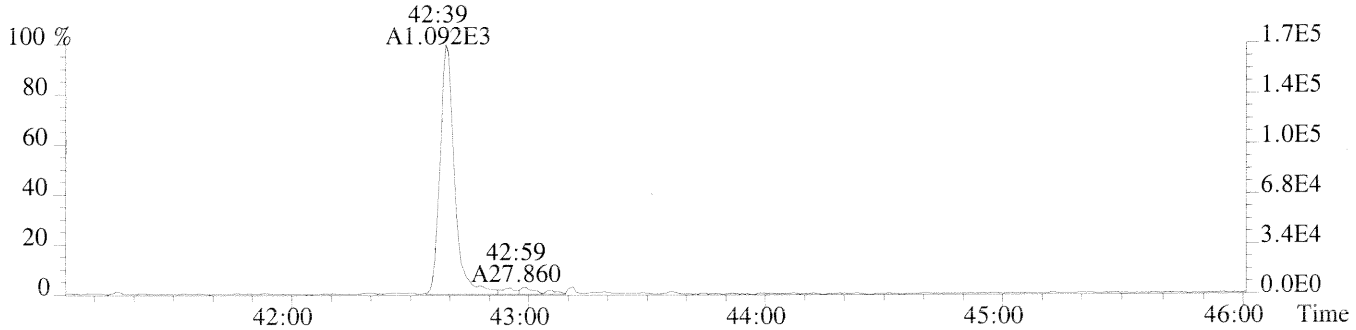
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



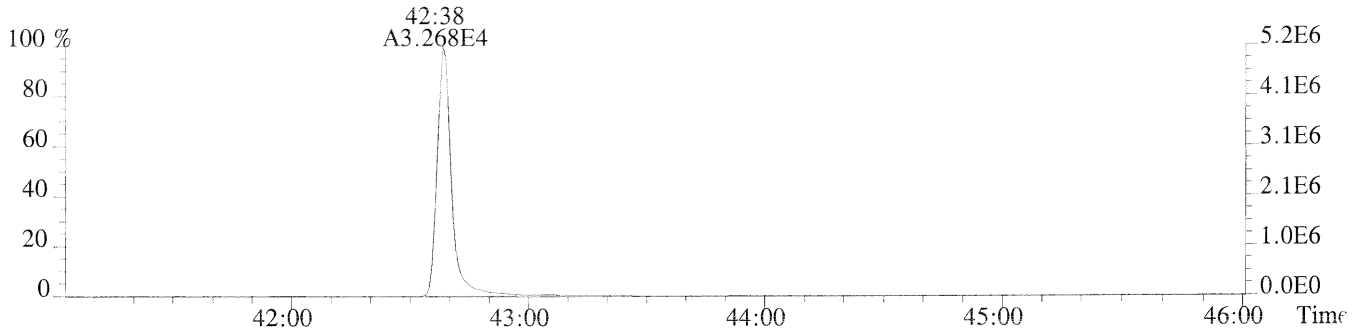
File:U149173 #1-451 Acq:21-MAY-2014 15:39:21 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS1 HRCC1/CS1
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



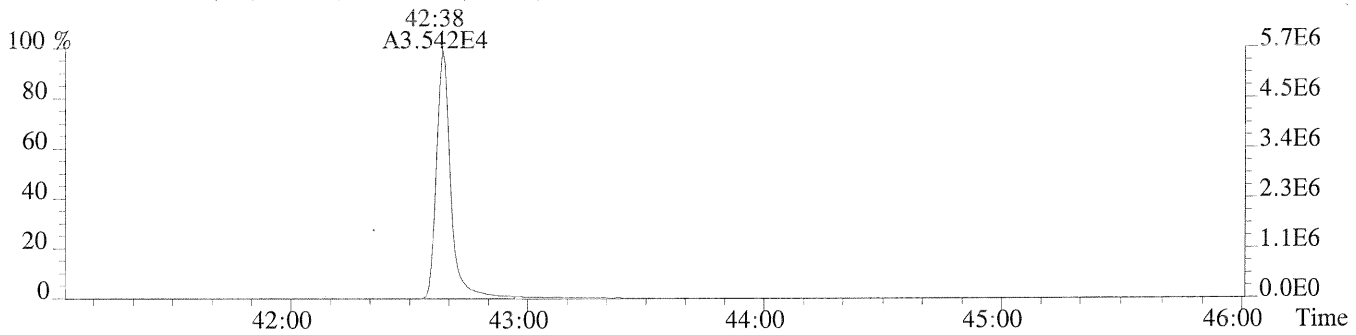
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



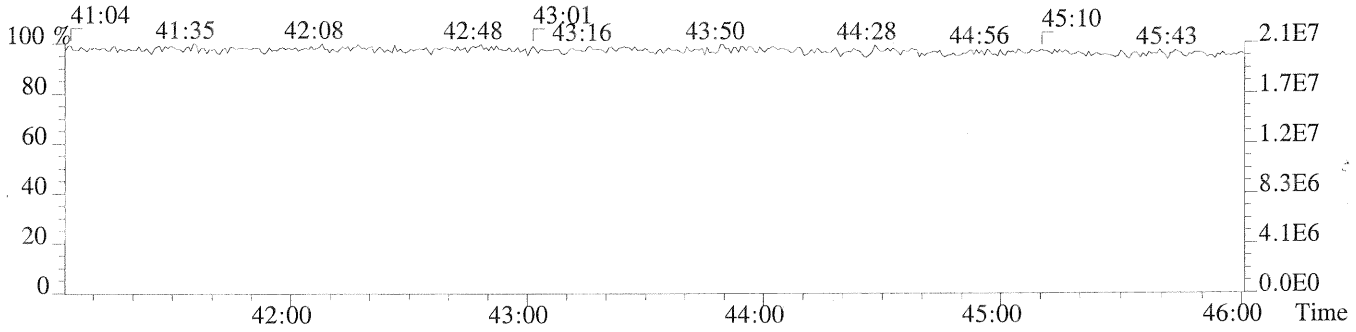
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,840.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,600.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS2

Run #3 Filename U149174 Samp: 1 Inj: 1 Acquired: 21-MAY-14 16:26:42
Processed: 23-MAY-14 08:49:33 Sample ID: D12-90-3B

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	7.173e+02	9.138e+02	0.78	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:46	6.731e+03	4.287e+03	1.57	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	6.261e+03	4.040e+03	1.55	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	5.431e+03	4.389e+03	1.24	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	6.018e+03	4.904e+03	1.23	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:53	5.417e+03	4.397e+03	1.23	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	5.268e+03	4.113e+03	1.28	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	4.368e+03	4.263e+03	1.02	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	3.945e+03	3.863e+03	1.02	yes	no	1.359
10	Unk	OCDF	42:52	5.979e+03	6.721e+03	0.89	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:27	5.507e+02	6.624e+02	0.83	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:56	4.497e+03	2.804e+03	1.60	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	3.801e+03	3.101e+03	1.23	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	3.984e+03	3.207e+03	1.24	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	4.289e+03	3.414e+03	1.26	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	3.234e+03	3.185e+03	1.02	yes	no	1.065
17	Unk	OCDD	42:39	5.245e+03	6.029e+03	0.87	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	4.031e+04	4.984e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	6.882e+04	4.355e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	6.783e+04	4.301e+04	1.58	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	2.780e+04	5.354e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.286e+04	6.308e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	2.954e+04	5.780e+04	0.51	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	2.714e+04	5.261e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	1.941e+04	4.308e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.824e+04	3.992e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	2.783e+04	3.573e+04	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	4.407e+04	2.796e+04	1.58	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.544e+04	2.678e+04	1.32	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	3.681e+04	2.812e+04	1.31	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	3.203e+04	2.985e+04	1.07	yes	no	0.936
32	IS	13C-OCDD	42:38	4.619e+04	5.030e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	2.848e+04	3.637e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	3.996e+04	3.100e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	1.272e+03				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS2

Run #3 Filename U149174 Samp: 1 Inj: 1 Acquired: 21-MAY-14 16:26:42
Processed: 22-MAY-14 12:57:501 LAB. ID: D12-90-3B

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.57e+05	6.52e+02	2.4e+02	1.92e+05	1.14e+03	1.7e+02
2	1,2,3,7,8-PeCDF	1.31e+06	8.68e+02	1.5e+03	8.58e+05	1.04e+03	8.2e+02
3	2,3,4,7,8-PeCDF	1.27e+06	8.68e+02	1.5e+03	8.17e+05	1.04e+03	7.9e+02
4	1,2,3,4,7,8-HxCDF	1.18e+06	8.80e+02	1.3e+03	9.47e+05	8.52e+02	1.1e+03
5	1,2,3,6,7,8-HxCDF	1.25e+06	8.80e+02	1.4e+03	1.03e+06	8.52e+02	1.2e+03
6	2,3,4,6,7,8-HxCDF	1.13e+06	8.80e+02	1.3e+03	9.32e+05	8.52e+02	1.1e+03
7	1,2,3,7,8,9-HxCDF	1.06e+06	8.80e+02	1.2e+03	8.19e+05	8.52e+02	9.6e+02
8	1,2,3,4,6,7,8-HpCDF	8.92e+05	1.52e+03	5.9e+02	8.68e+05	1.02e+03	8.5e+02
9	1,2,3,4,7,8,9-HpCDF	7.27e+05	1.52e+03	4.8e+02	7.32e+05	1.02e+03	7.2e+02
10	OCDF	9.02e+05	5.12e+02	1.8e+03	1.03e+06	7.16e+02	1.4e+03
11	2,3,7,8-TCDD	1.21e+05	4.56e+02	2.7e+02	1.52e+05	8.08e+02	1.9e+02
12	1,2,3,7,8-PeCDD	9.12e+05	9.12e+02	1.0e+03	5.86e+05	6.92e+02	8.5e+02
13	1,2,3,4,7,8-HxCDD	8.45e+05	7.20e+02	1.2e+03	6.82e+05	1.06e+03	6.4e+02
14	1,2,3,6,7,8-HxCDD	8.18e+05	7.20e+02	1.1e+03	6.59e+05	1.06e+03	6.2e+02
15	1,2,3,7,8,9-HxCDD	8.47e+05	7.20e+02	1.2e+03	6.69e+05	1.06e+03	6.3e+02
16	1,2,3,4,6,7,8-HpCDD	6.21e+05	8.52e+02	7.3e+02	6.02e+05	5.44e+02	1.1e+03
17	OCDD	8.52e+05	6.56e+02	1.3e+03	9.85e+05	6.04e+02	1.6e+03
18	13C-2,3,7,8-TCDF	8.51e+06	1.32e+03	6.4e+03	1.05e+07	7.32e+02	1.4e+04
19	13C-1,2,3,7,8-PeCDF	1.33e+07	6.48e+02	2.1e+04	8.51e+06	7.24e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	1.37e+07	6.48e+02	2.1e+04	8.54e+06	7.24e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	6.07e+06	9.28e+02	6.5e+03	1.17e+07	9.32e+02	1.3e+04
22	13C-1,2,3,6,7,8-HxCDF	6.79e+06	9.28e+02	7.3e+03	1.31e+07	9.32e+02	1.4e+04
23	13C-2,3,4,6,7,8-HxCDF	6.19e+06	9.28e+02	6.7e+03	1.21e+07	9.32e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	5.49e+06	9.28e+02	5.9e+03	1.05e+07	9.32e+02	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.97e+06	2.66e+03	1.5e+03	8.82e+06	2.68e+03	3.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.37e+06	2.66e+03	1.3e+03	7.46e+06	2.68e+03	2.8e+03
27	13C-2,3,7,8-TCDD	6.31e+06	2.53e+03	2.5e+03	8.08e+06	1.46e+03	5.5e+03
28	13C-1,2,3,7,8-PeCDD	8.97e+06	6.88e+02	1.3e+04	5.66e+06	7.00e+02	8.1e+03
29	13C-1,2,3,4,7,8-HxCDD	7.90e+06	9.72e+02	8.1e+03	5.86e+06	1.07e+03	5.5e+03
30	13C-1,2,3,6,7,8-HxCDD	7.46e+06	9.72e+02	7.7e+03	5.64e+06	1.07e+03	5.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	6.11e+06	7.72e+02	7.9e+03	5.68e+06	8.00e+02	7.1e+03
32	13C-OCDD	7.33e+06	6.72e+02	1.1e+04	7.97e+06	5.92e+02	1.3e+04
33	13C-1,2,3,4-TCDD	6.32e+06	2.53e+03	2.5e+03	8.05e+06	1.46e+03	5.5e+03
34	13C-1,2,3,7,8,9-HxCDD	8.10e+06	9.72e+02	8.3e+03	6.21e+06	1.07e+03	5.8e+03
35	37Cl-2,3,7,8-TCDD	2.84e+05	1.29e+03	2.2e+02			

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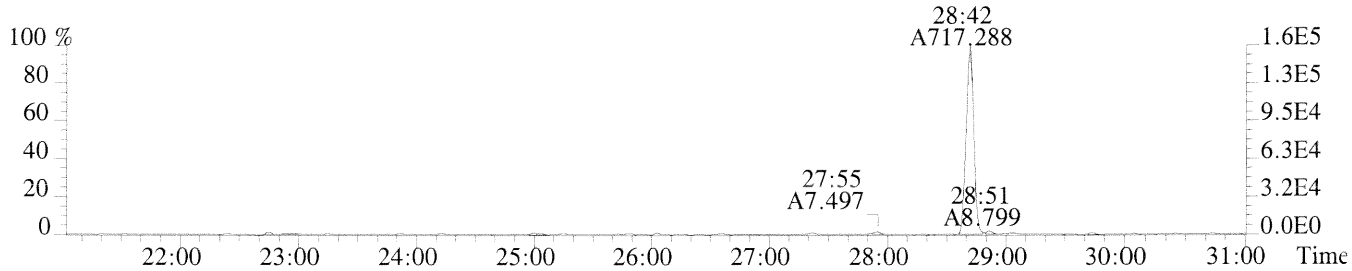
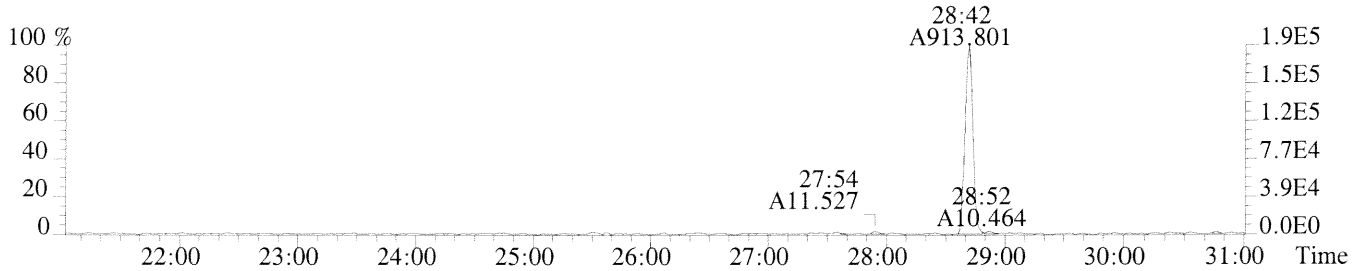
File:U149174 #1-627 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

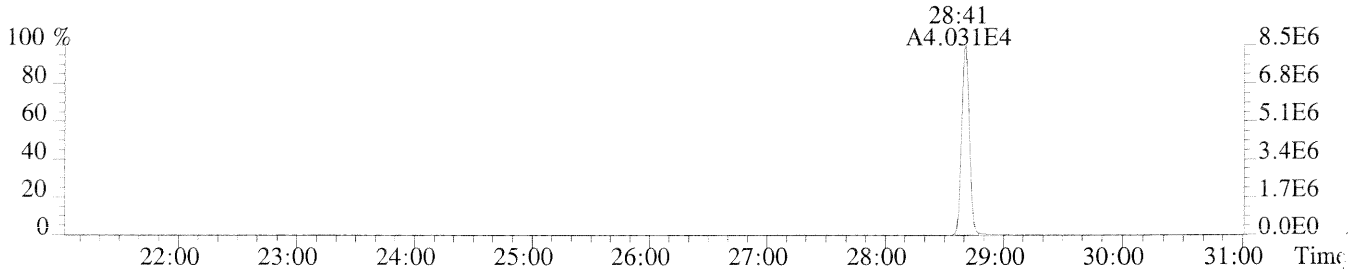
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



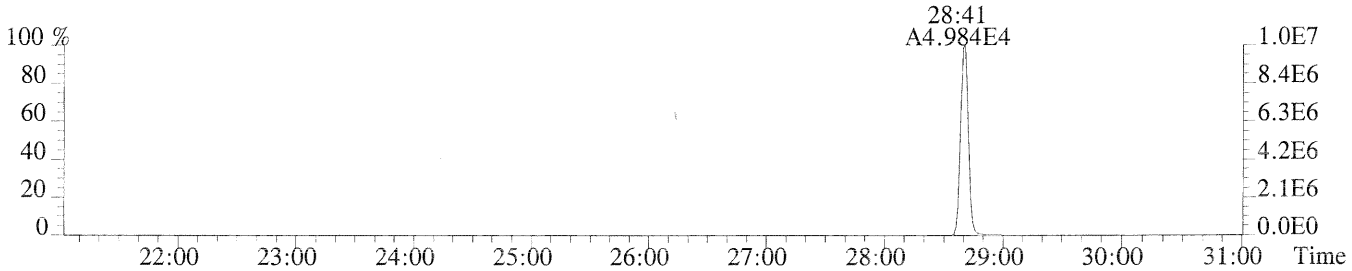
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



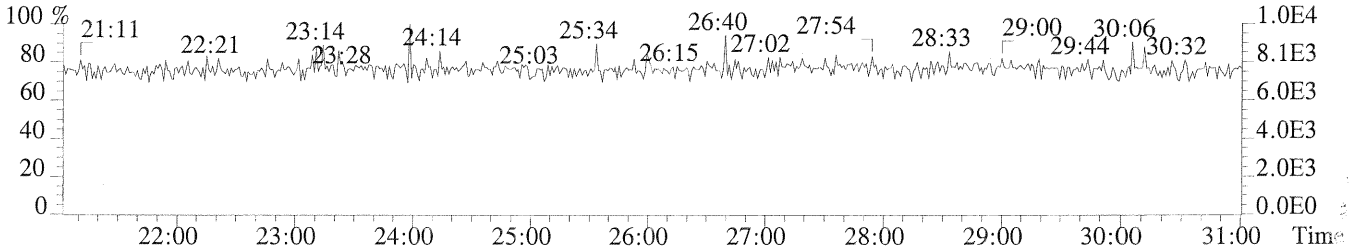
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1320.0,1.00%,F,T)



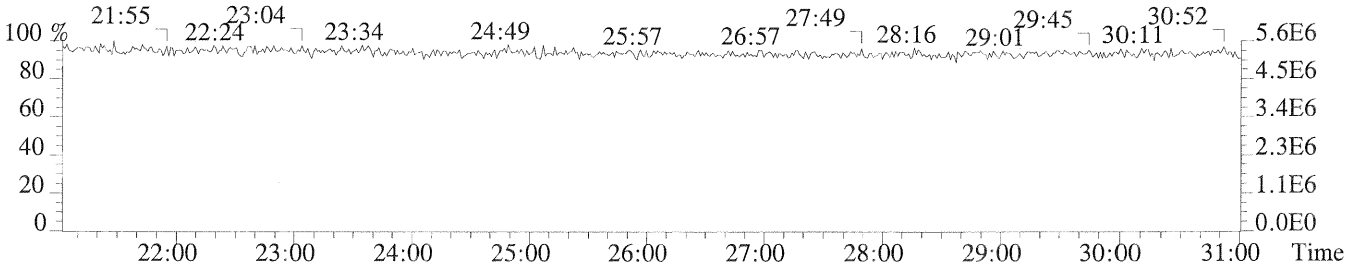
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

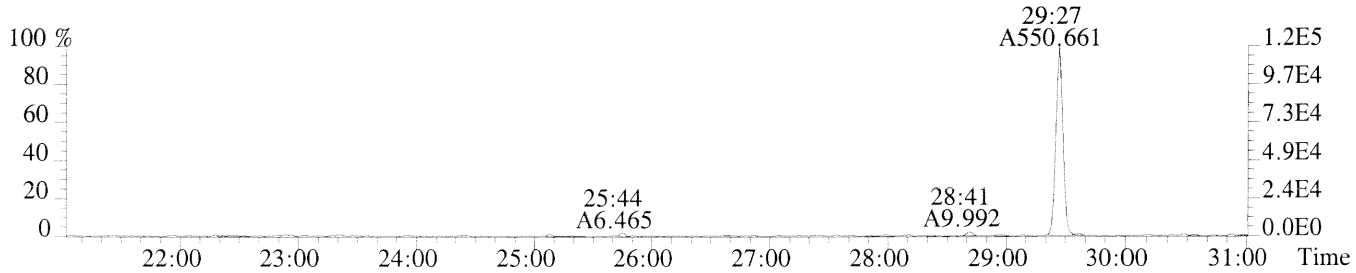


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

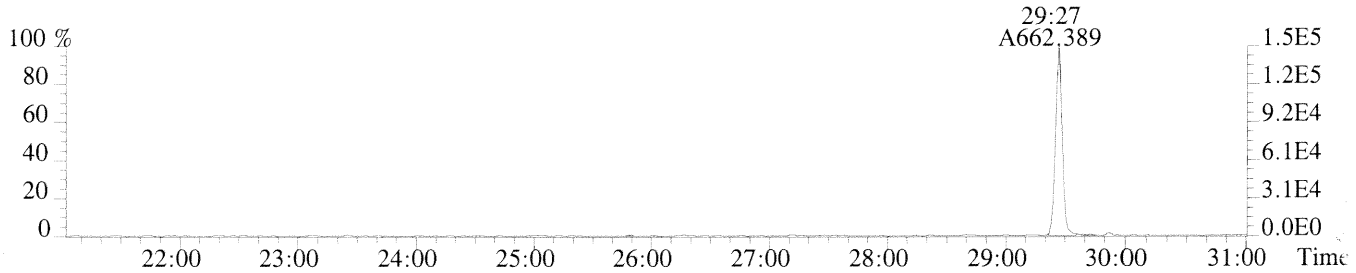


File:U149174 #1-627 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

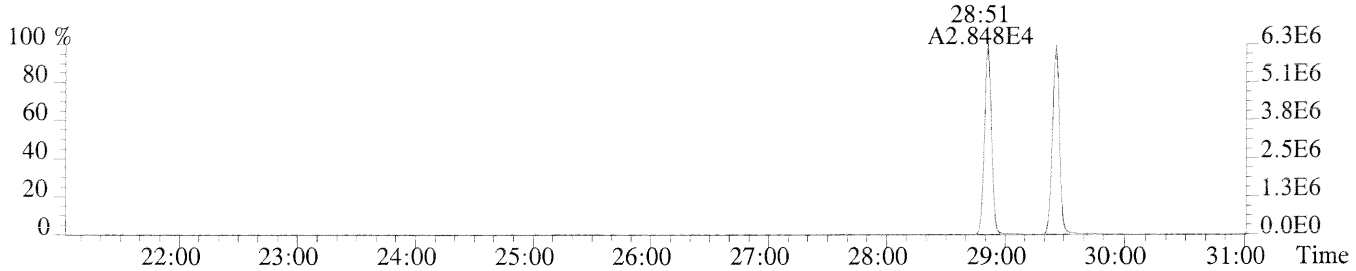
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



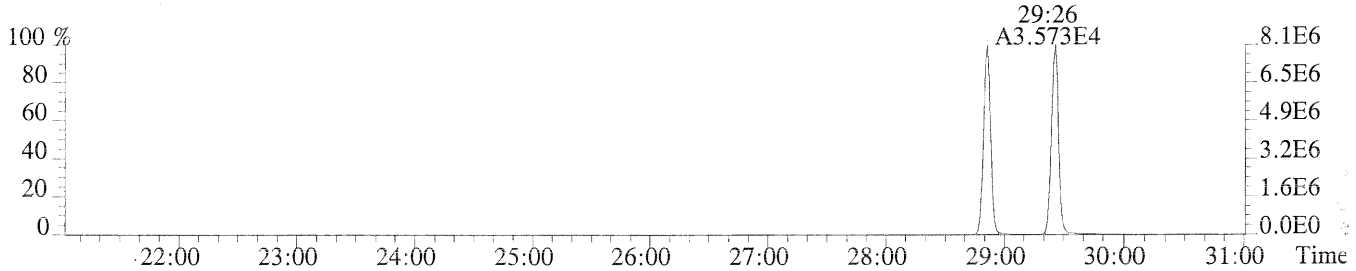
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



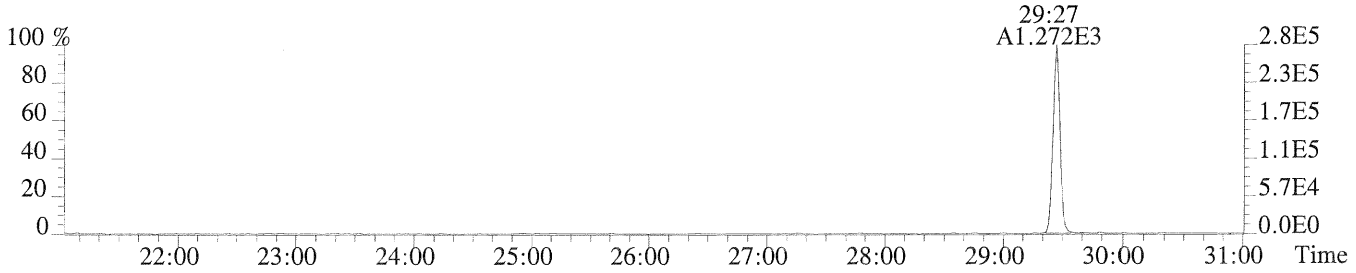
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2528.0,1.00%,F,T)



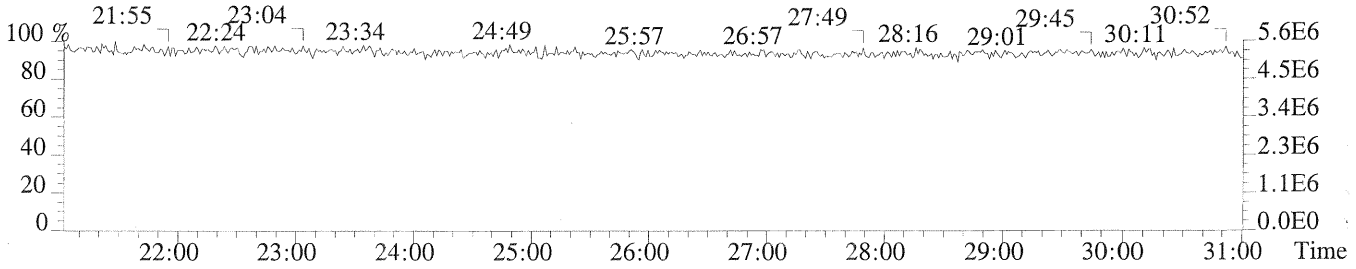
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1292.0,1.00%,F,T)

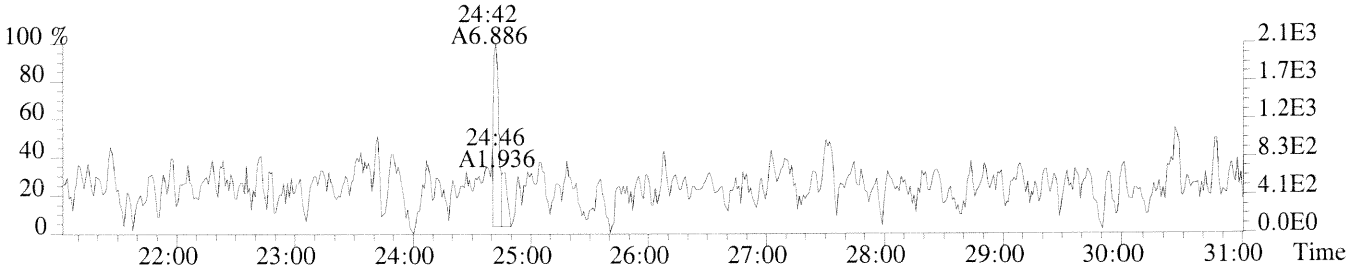


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

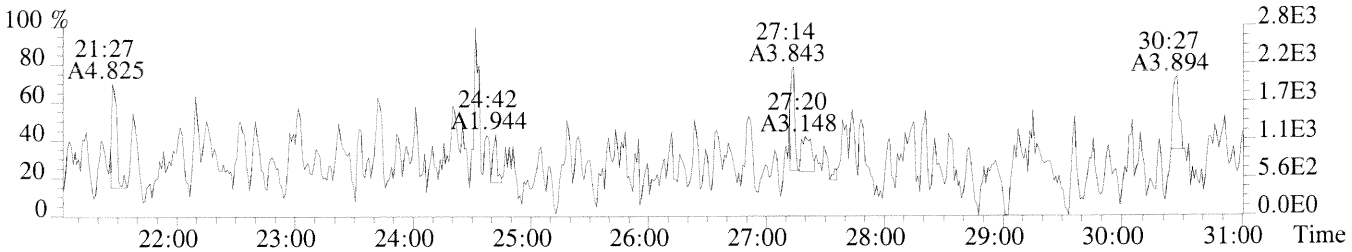


File:U149174 #1-627 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

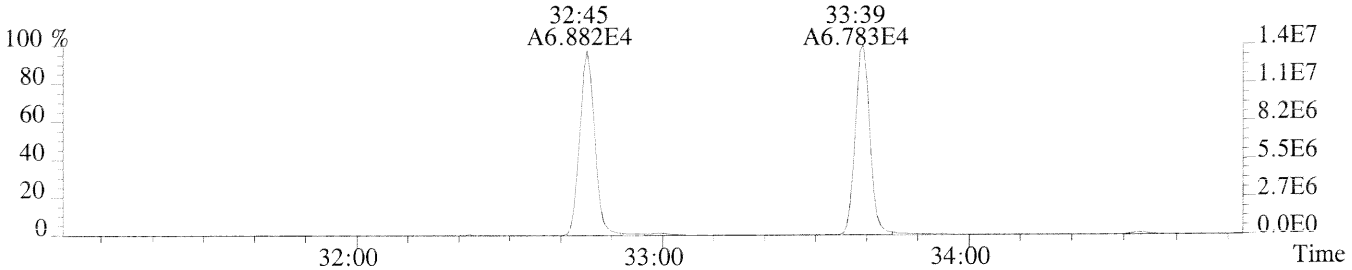
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



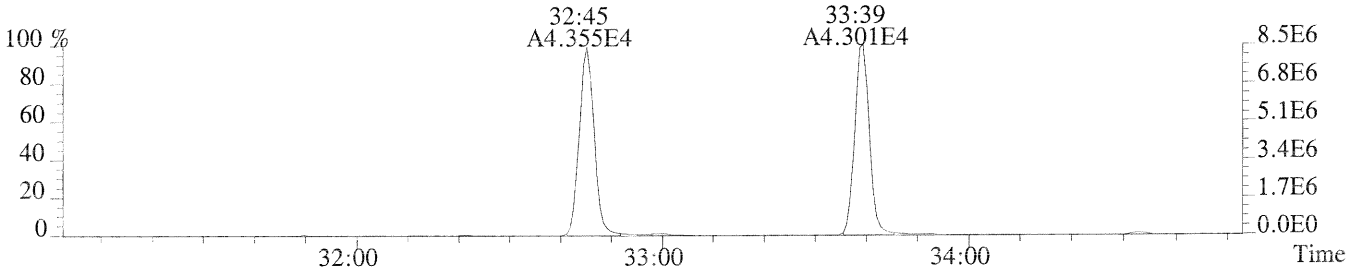
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



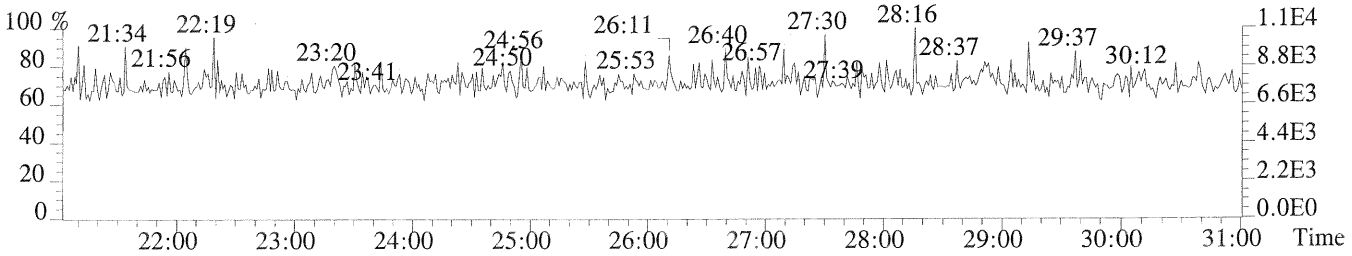
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



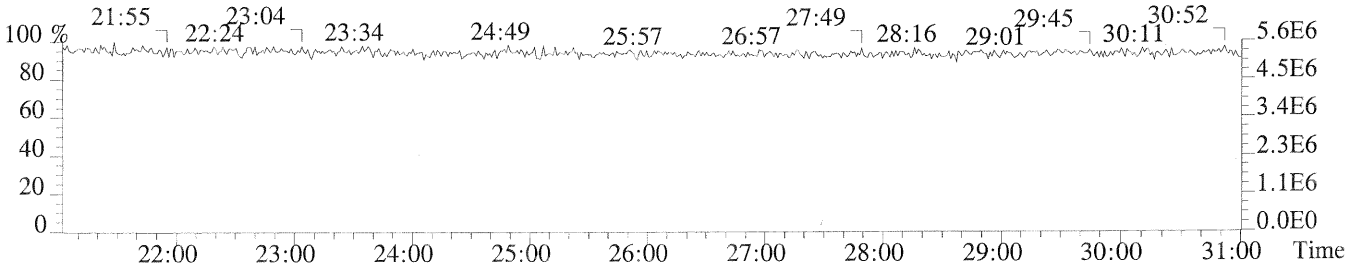
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

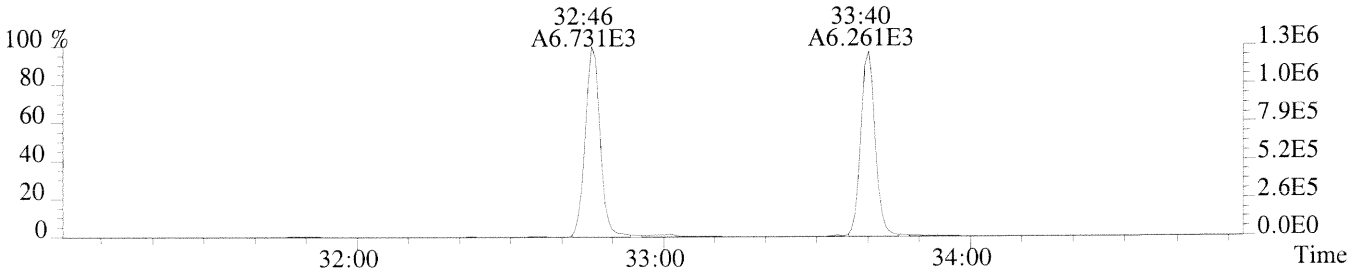


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

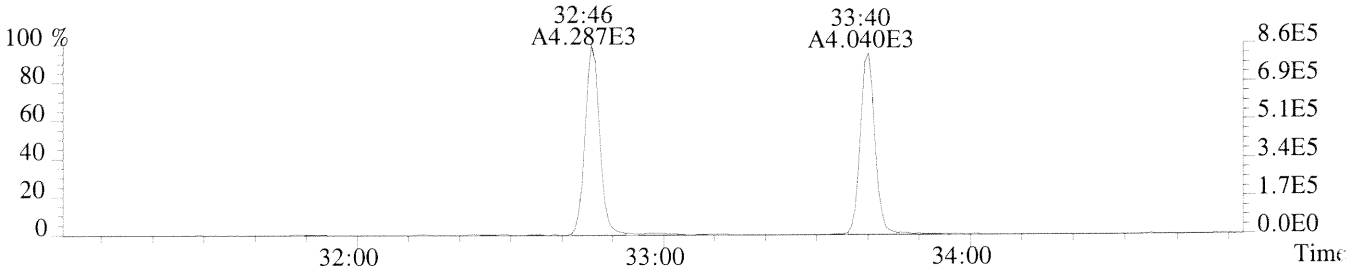


File:U149174 #1-349 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

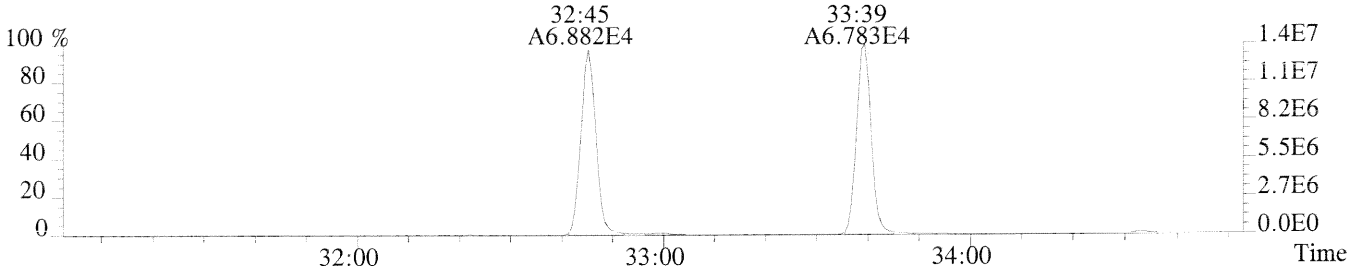
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



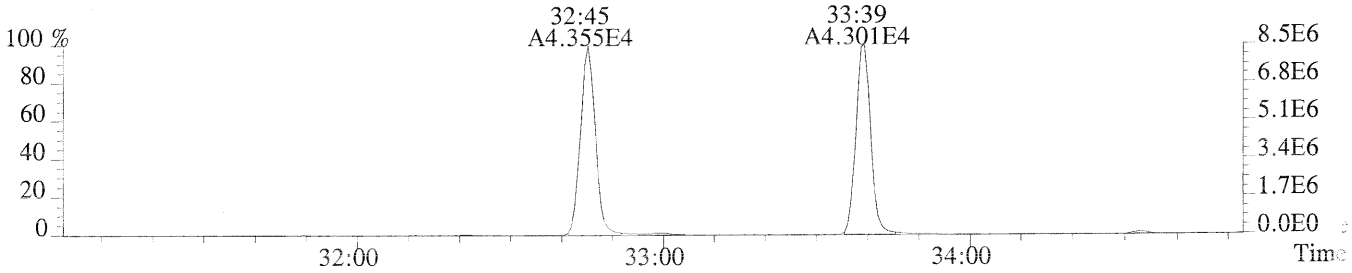
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1040.0,1.00%,F,T)



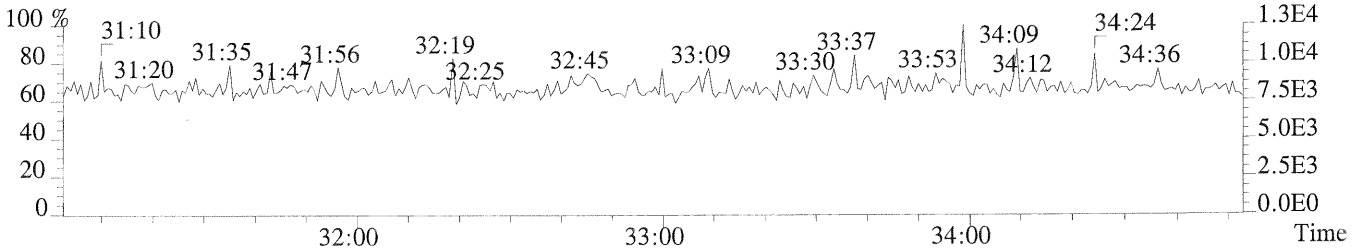
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



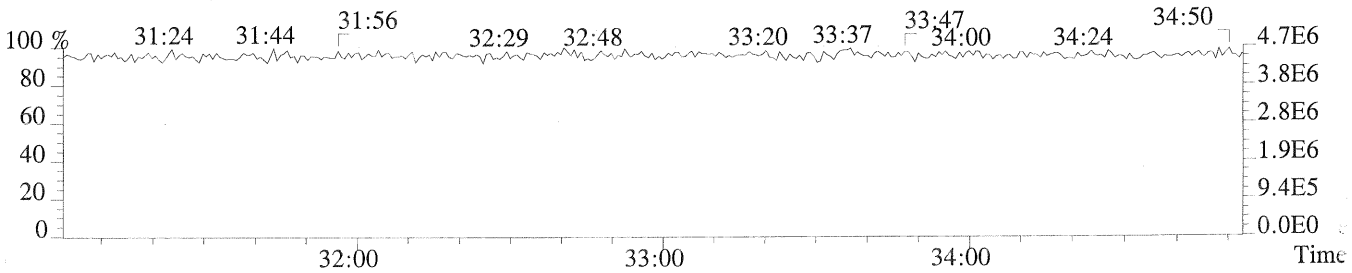
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

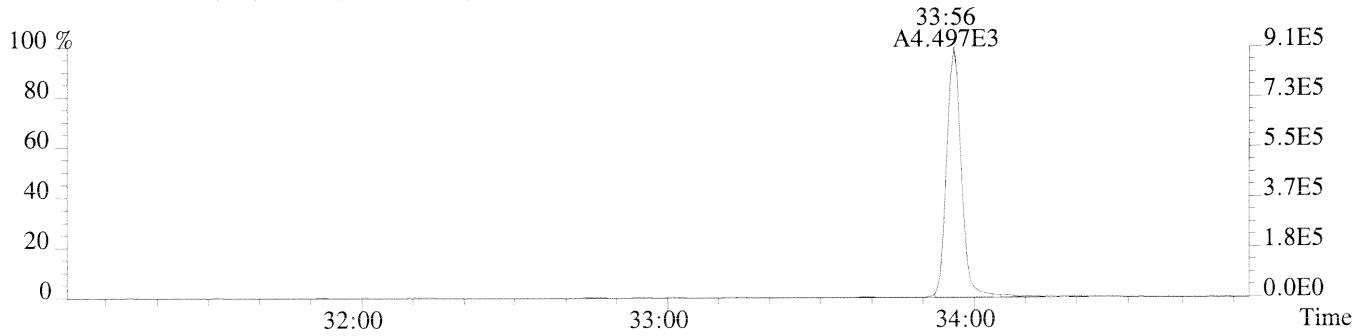


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

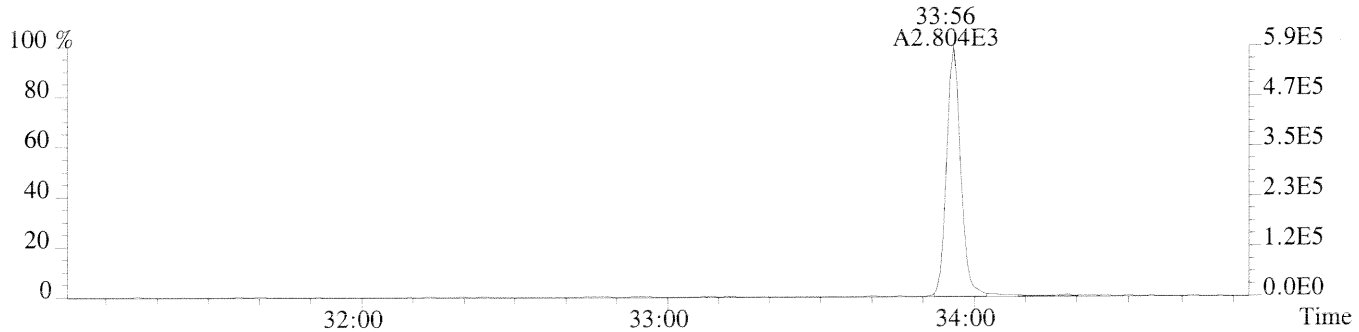


File:U149174 #1-349 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

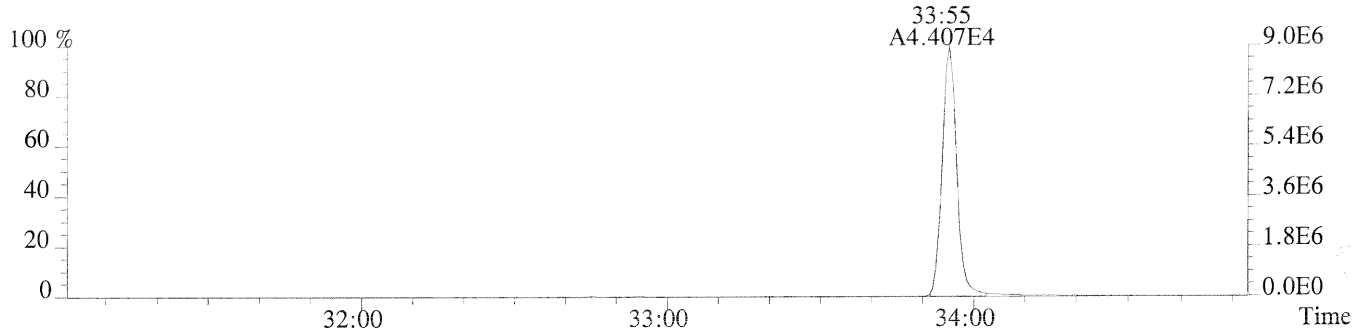
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



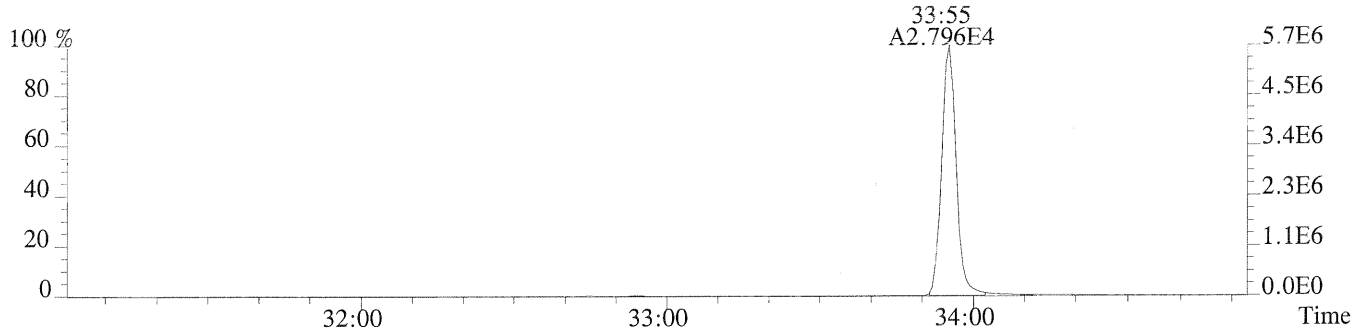
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



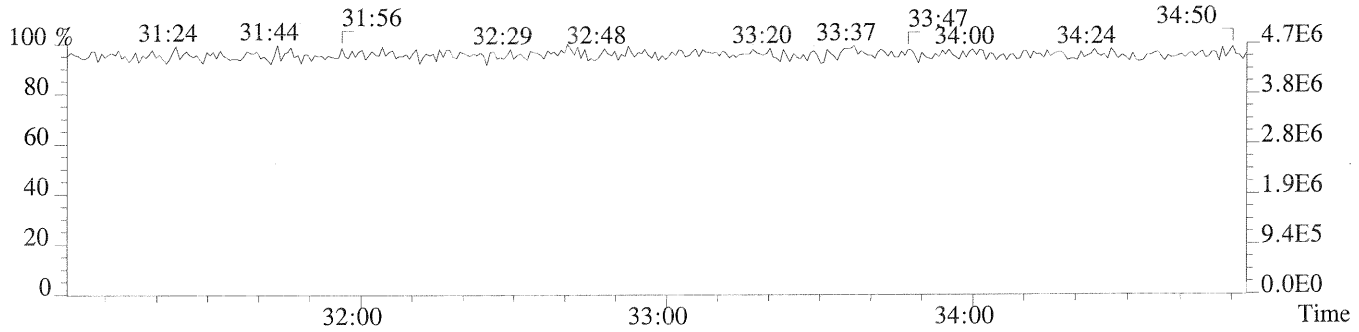
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)

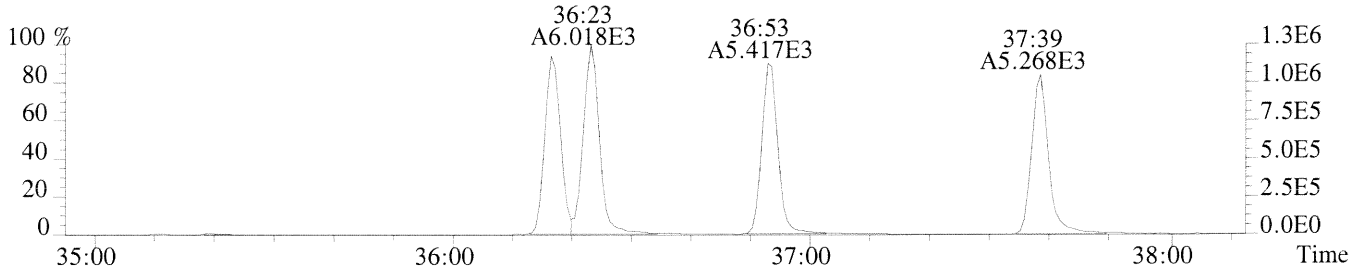


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

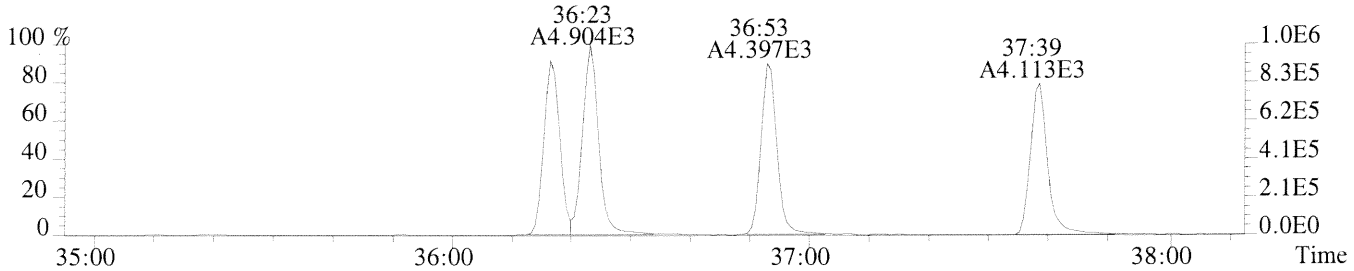


File:U149174 #1-299 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

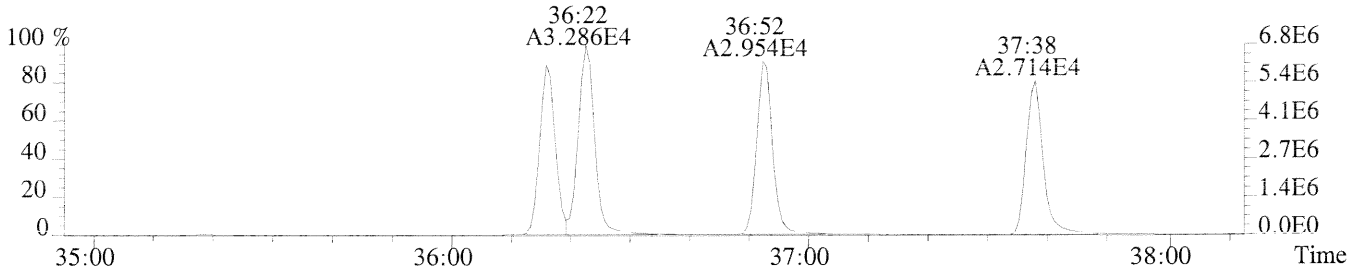
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



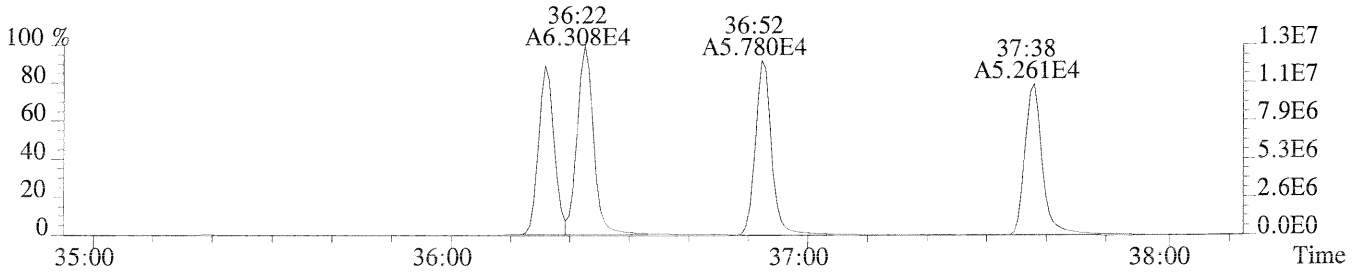
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



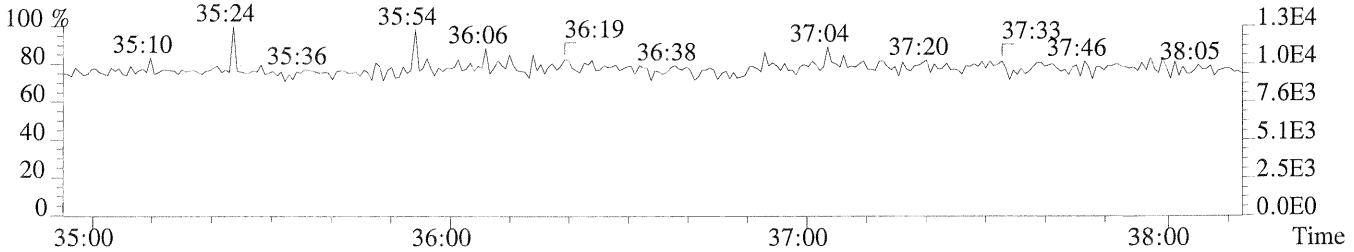
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,928.0,0.40%,F,T)



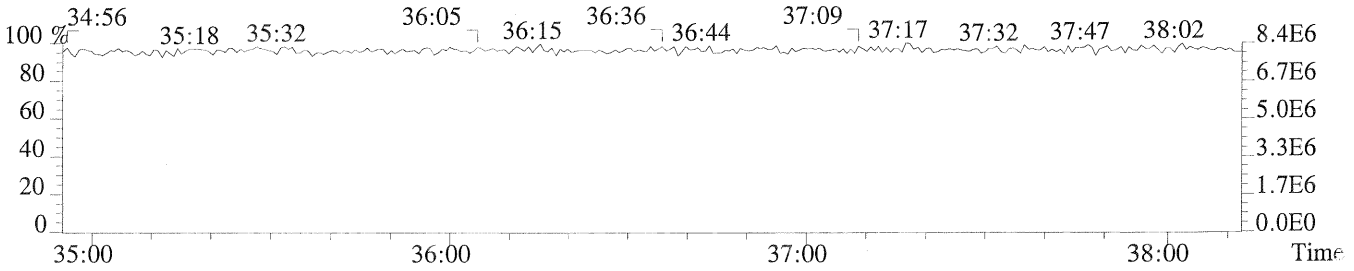
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,932.0,0.40%,F,T)



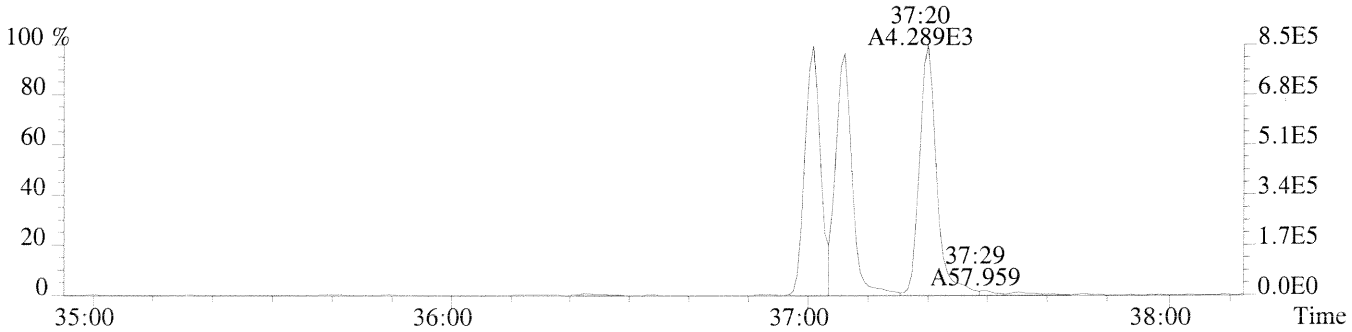
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



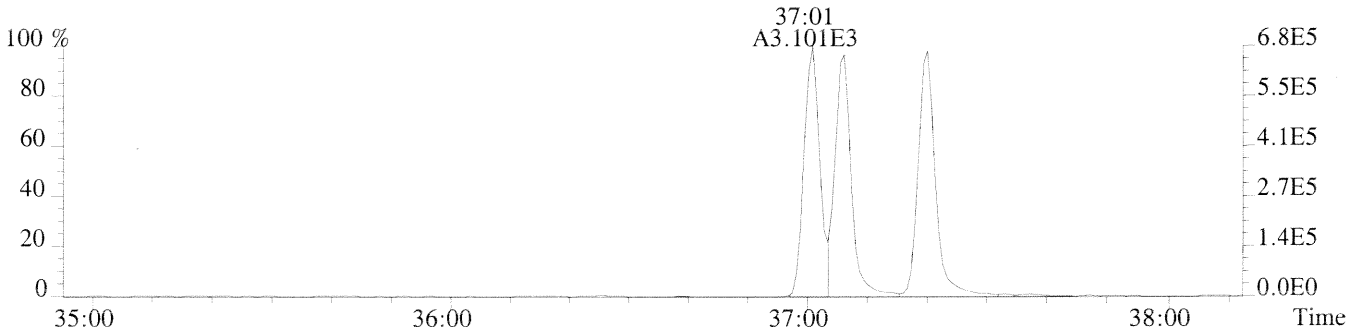
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



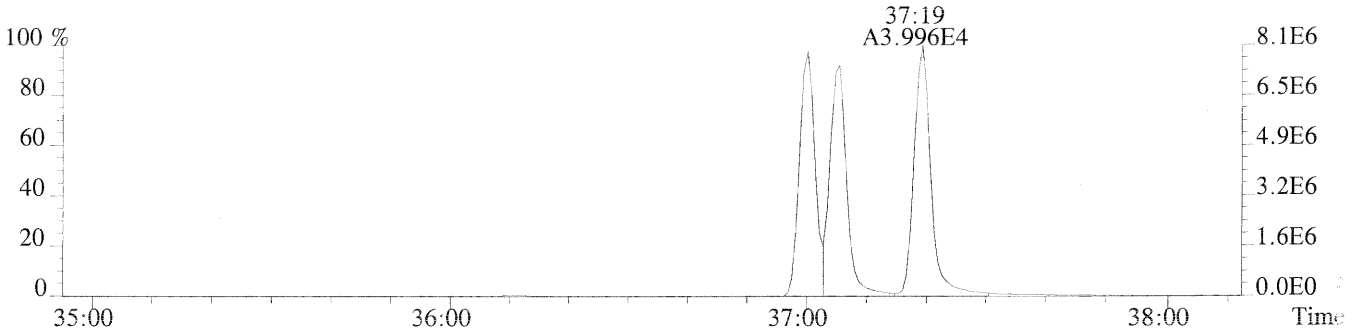
File:U149174 #1-299 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



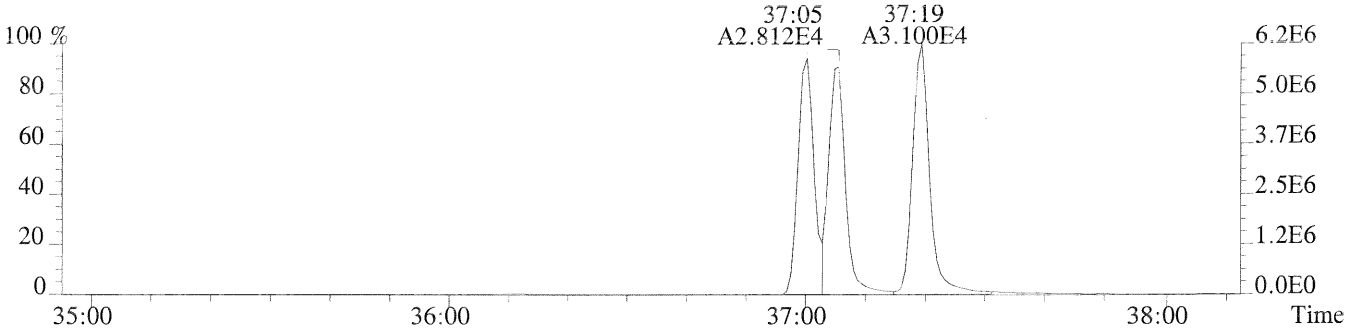
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1060.0,0.40%,F,T)



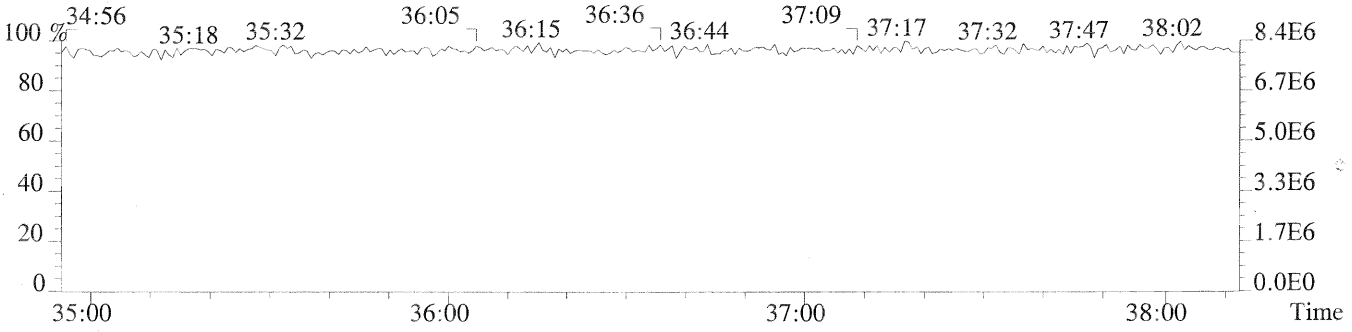
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,972.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1068.0,0.40%,F,T)

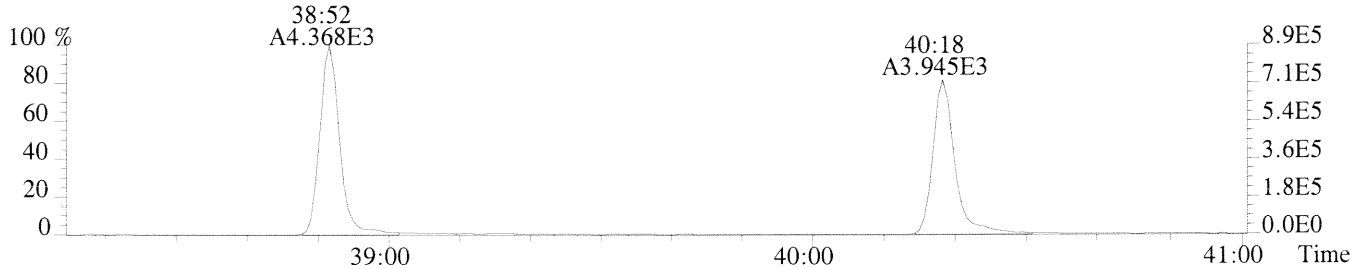


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

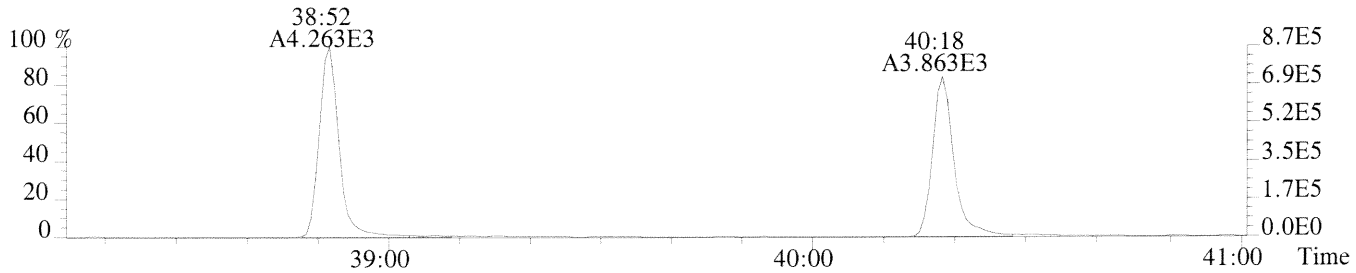


File:U149174 #1-252 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

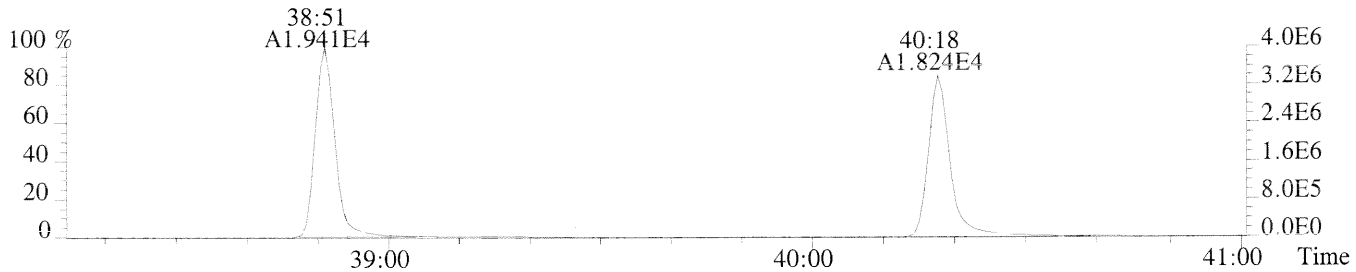
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1524.0,0.50%,F,T)



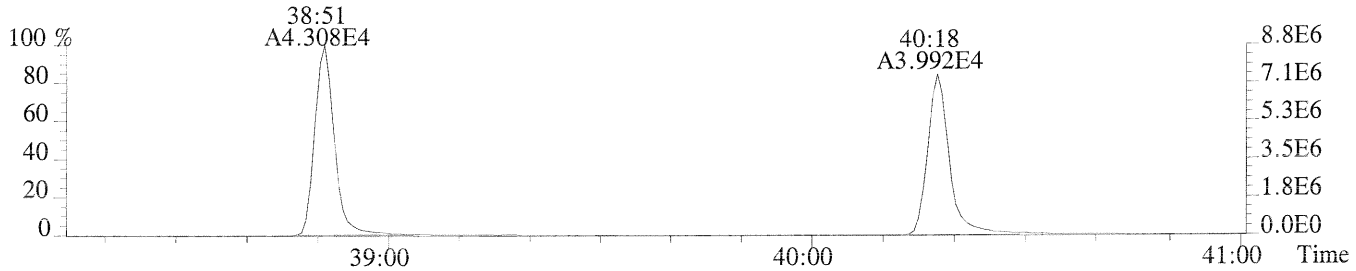
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1016.0,0.50%,F,T)



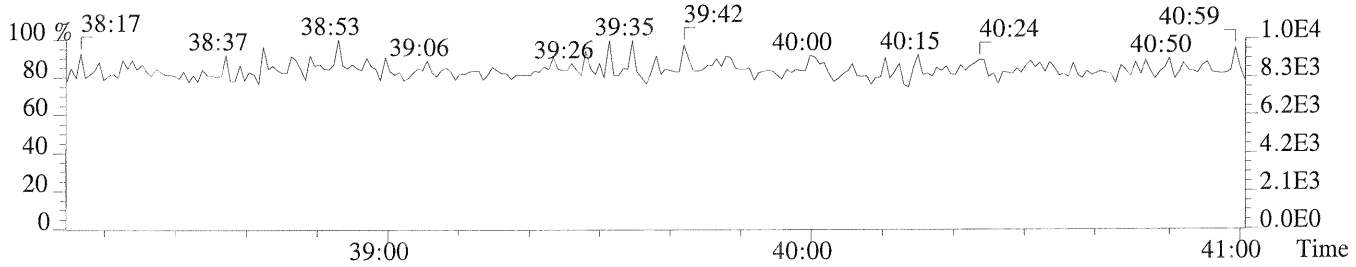
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2664.0,0.50%,F,T)



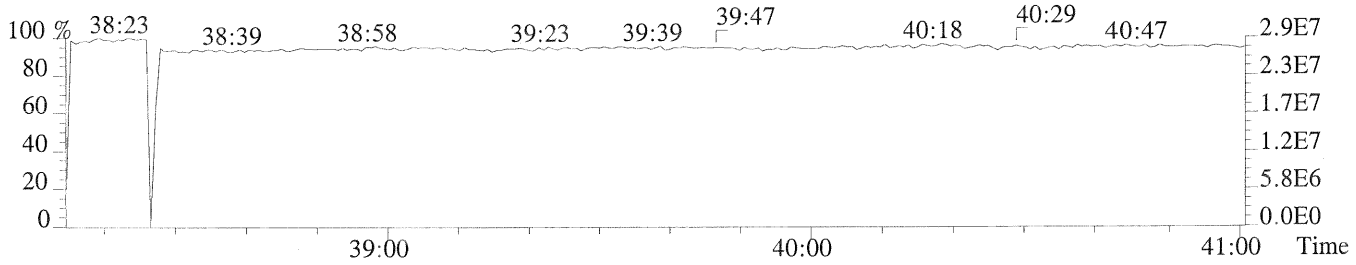
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2676.0,0.50%,F,T)



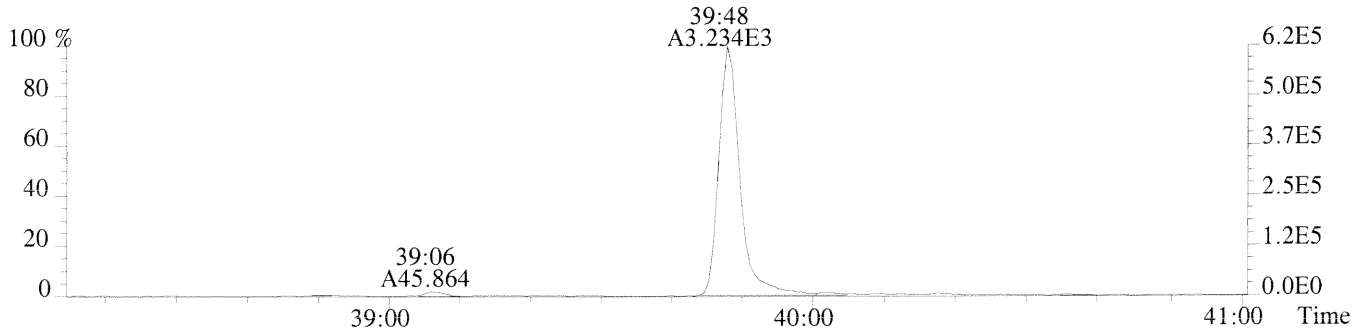
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



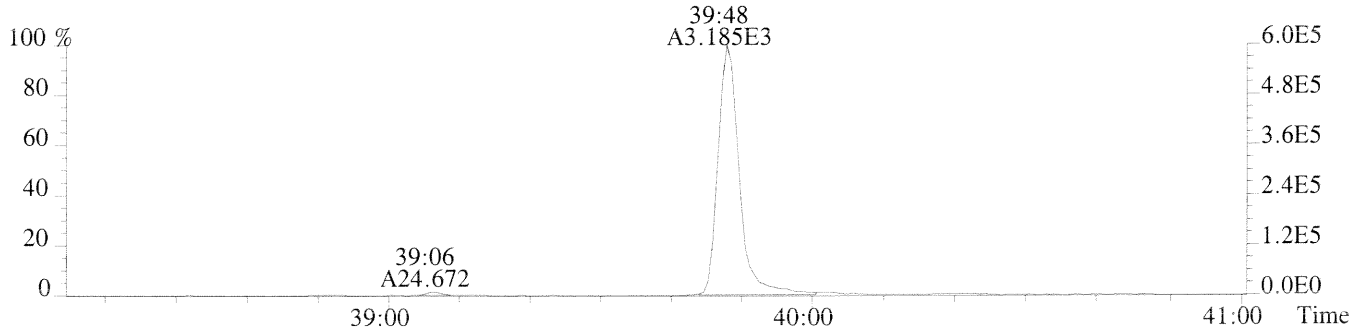
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



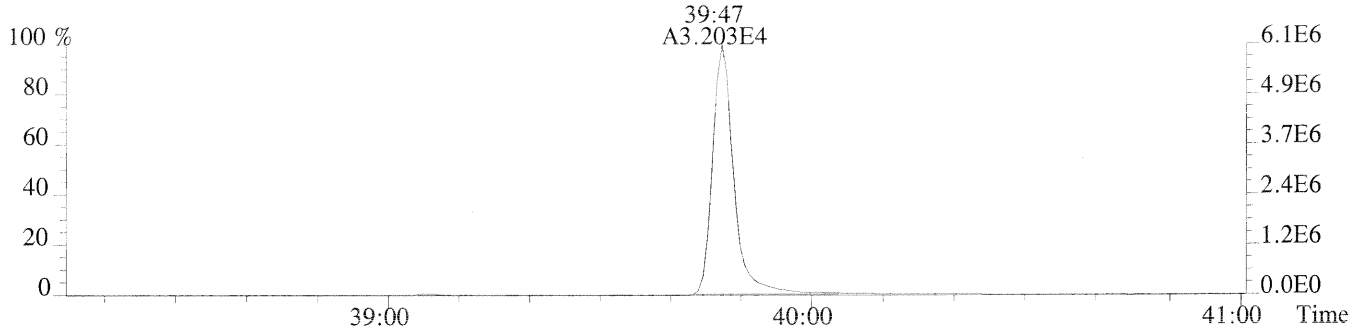
File:U149174 #1-252 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



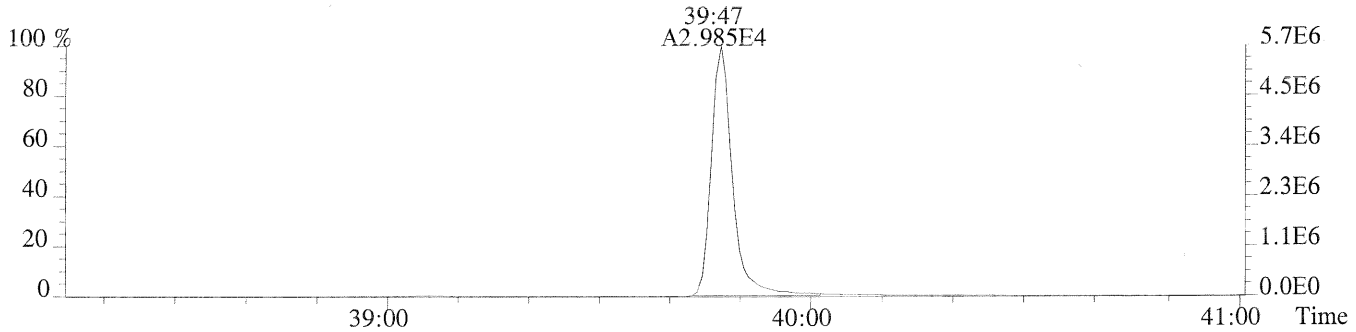
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



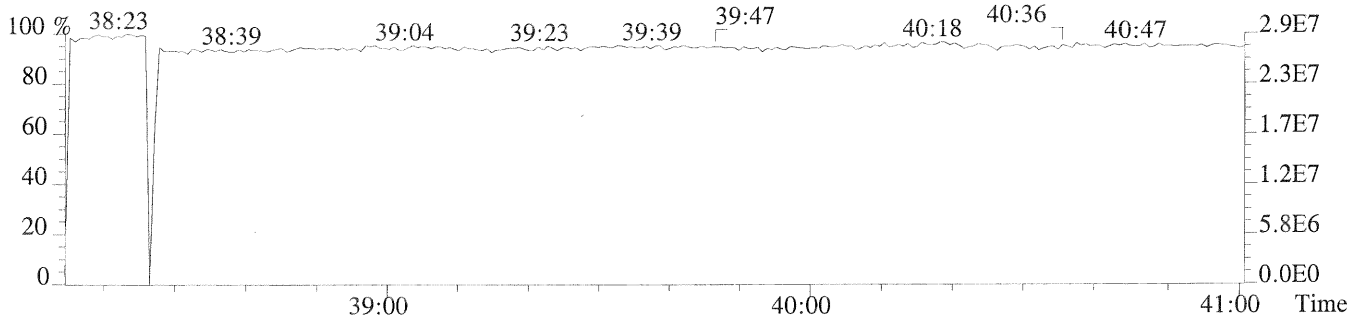
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,772.0,0.40%,F,T)



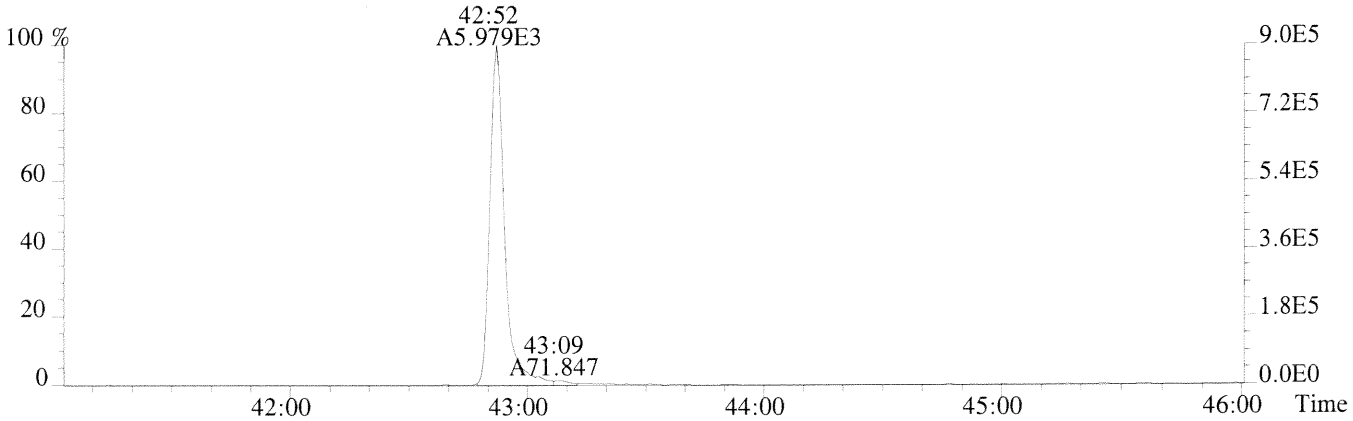
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



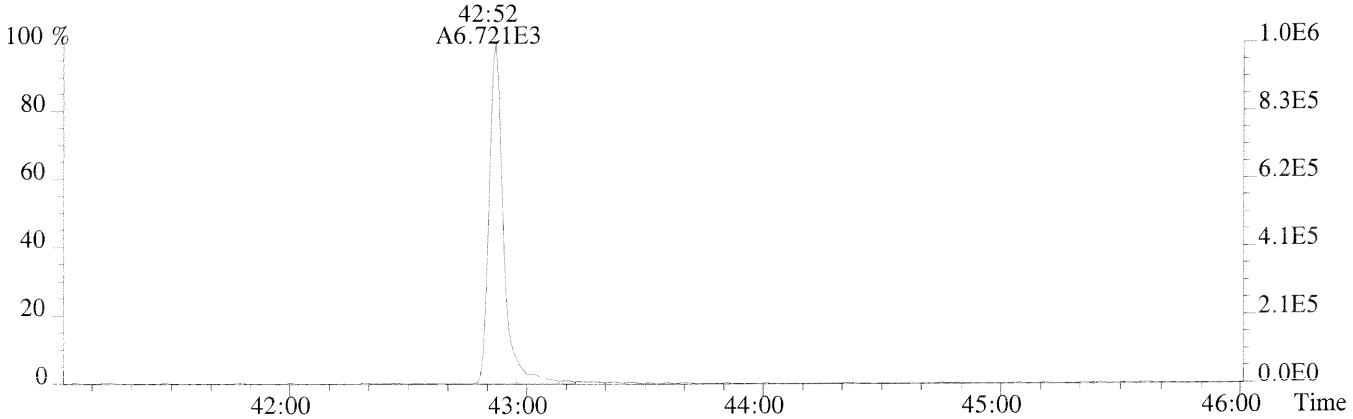
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



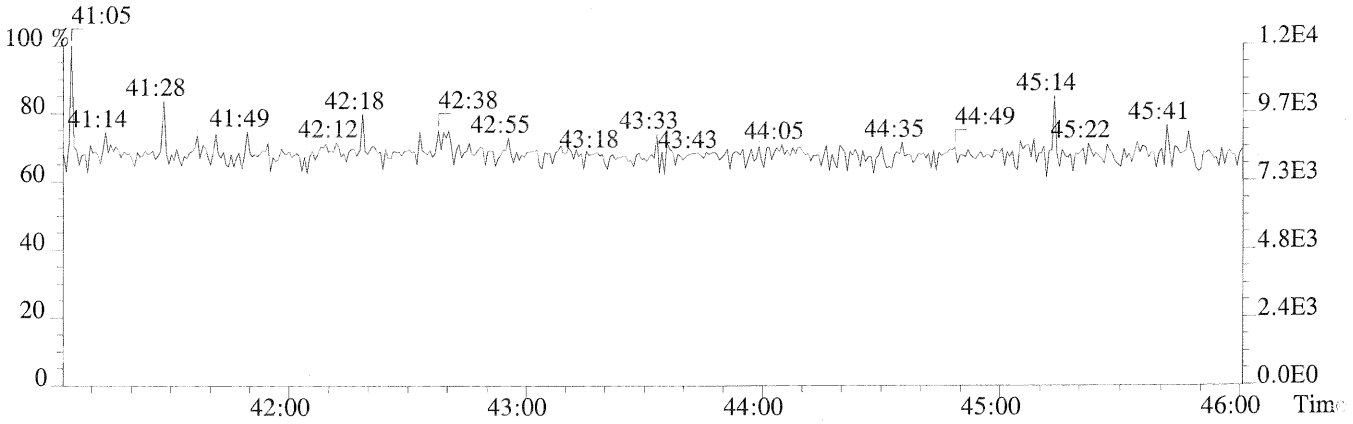
File:U149174 #1-451 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,512.0,0.40%,F,T)



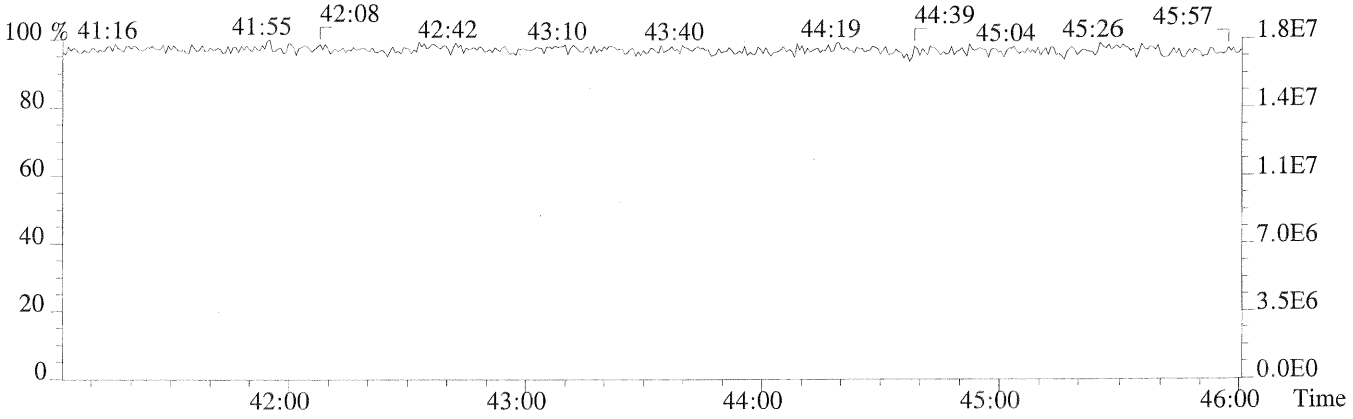
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,716.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

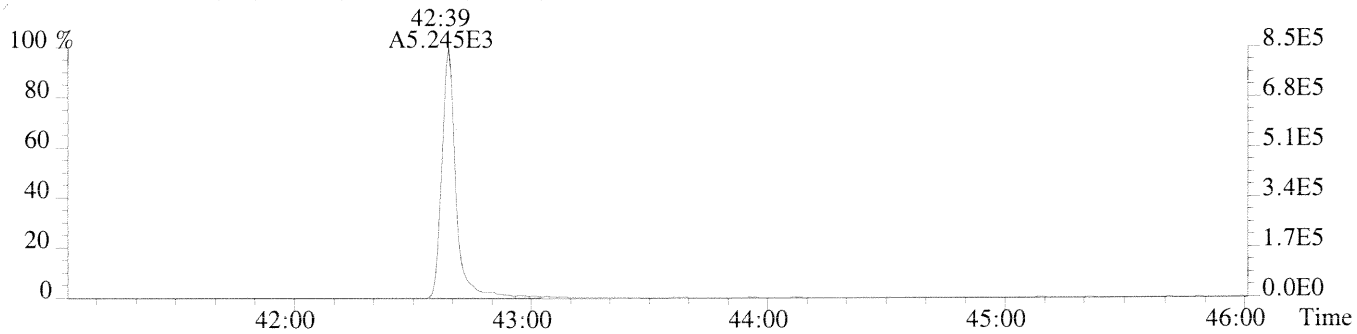


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

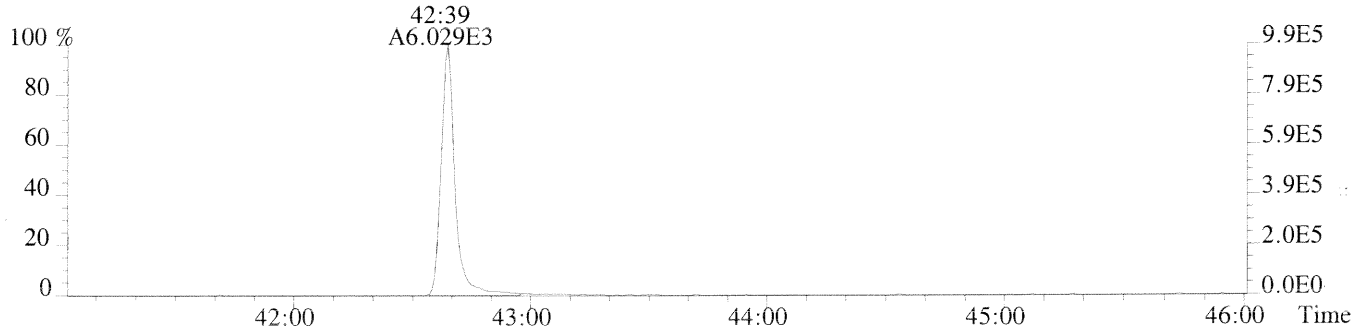


File:U149174 #1-451 Acq:21-MAY-2014 16:26:42 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS2 HRCC2/CS2

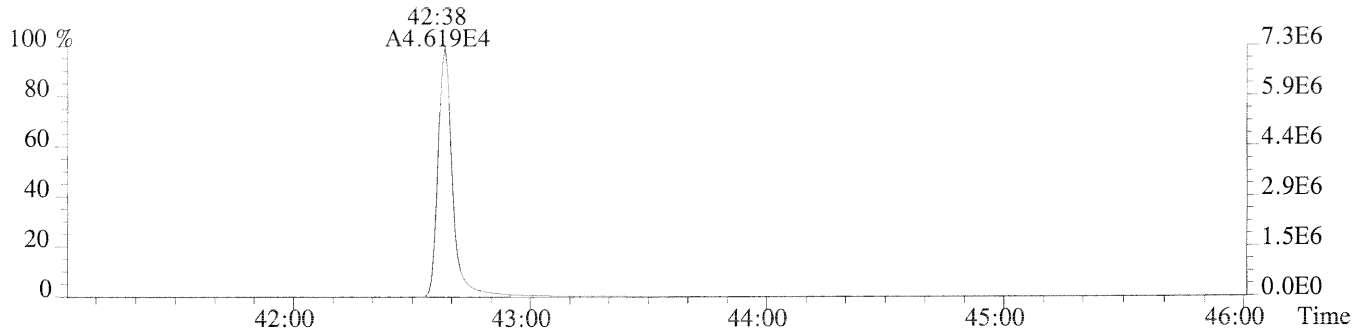
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



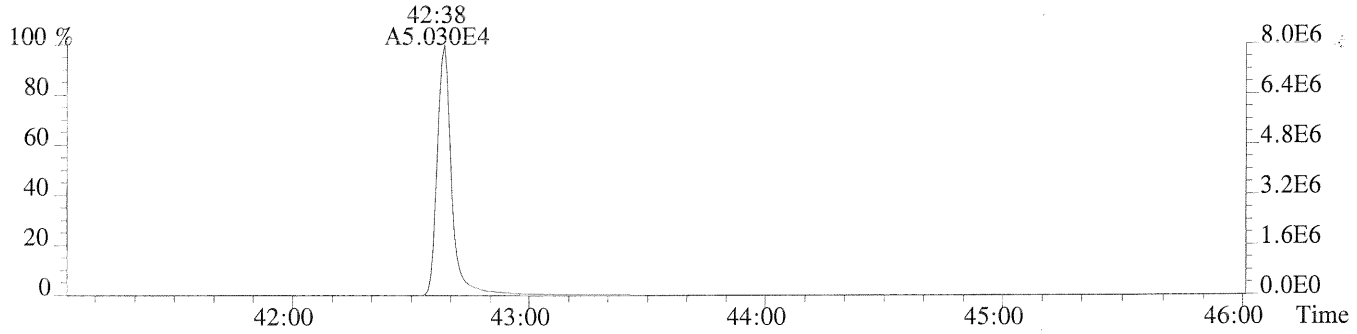
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



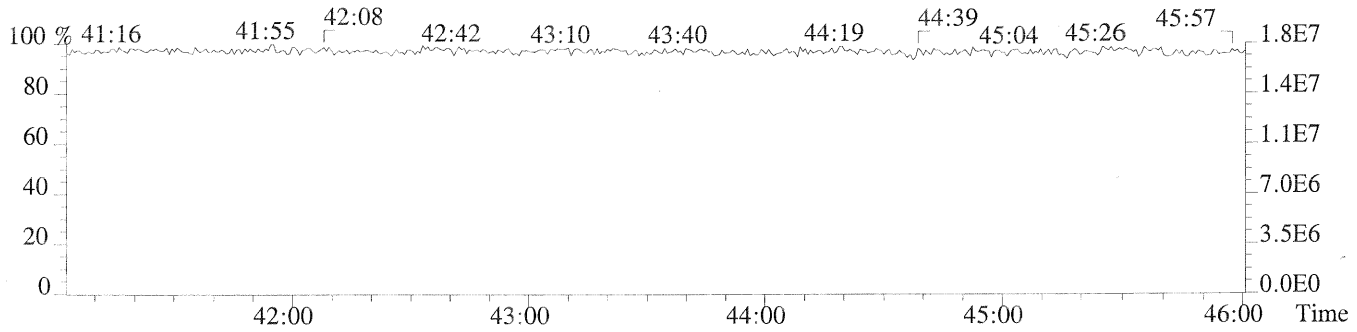
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS3

Run #4 Filename U149175 Samp: 1 Inj: 1 Acquired: 21-MAY-14 17:15:15
Processed: 23-MAY-14 08:49:34 Sample ID: 63383

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	3.971e+03	5.230e+03	0.76	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	3.840e+04	2.475e+04	1.55	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	3.562e+04	2.299e+04	1.55	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	3.153e+04	2.597e+04	1.21	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:24	3.393e+04	2.809e+04	1.21	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	3.144e+04	2.571e+04	1.22	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	3.024e+04	2.392e+04	1.26	yes	yes	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	2.875e+04	2.777e+04	1.04	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	2.464e+04	2.360e+04	1.04	yes	no	1.359
10	Unk	OCDF	42:53	3.841e+04	4.248e+04	0.90	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:27	3.140e+03	3.908e+03	0.80	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:57	2.584e+04	1.642e+04	1.57	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	2.186e+04	1.747e+04	1.25	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	2.412e+04	1.910e+04	1.26	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	2.508e+04	2.018e+04	1.24	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	2.005e+04	1.902e+04	1.05	yes	no	1.065
17	Unk	OCDD	42:39	3.313e+04	3.722e+04	0.89	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	4.479e+04	5.480e+04	0.82	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	7.925e+04	4.989e+04	1.59	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	7.732e+04	4.928e+04	1.57	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	3.244e+04	6.145e+04	0.53	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	3.750e+04	7.115e+04	0.53	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	3.446e+04	6.596e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	3.163e+04	6.162e+04	0.51	yes	no	1.147
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	2.454e+04	5.436e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	2.289e+04	5.021e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	3.148e+04	4.044e+04	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	5.038e+04	3.187e+04	1.58	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.969e+04	3.060e+04	1.30	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	4.358e+04	3.347e+04	1.30	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	3.934e+04	3.661e+04	1.07	yes	no	0.936
32	IS	13C-OCDD	42:38	5.722e+04	6.193e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	3.188e+04	4.060e+04	0.79	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	4.682e+04	3.637e+04	1.29	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	7.264e+03				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS3

Run #4 Filename U149175 Samp: 1 Inj: 1 Acquired: 21-MAY-14 17:15:15
Processed: 22-MAY-14 12:57:511 LAB. ID: 63383

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
	2,3,7,8-TCDF	8.79e+05	7.76e+02	1.1e+03	1.14e+06	1.31e+03	8.7e+02
	1,2,3,7,8-PeCDF	7.43e+06	5.40e+02	1.4e+04	4.75e+06	1.38e+03	3.4e+03
	2,3,4,7,8-PeCDF	7.18e+06	5.40e+02	1.3e+04	4.64e+06	1.38e+03	3.4e+03
4	1,2,3,4,7,8-HxCDF	6.88e+06	9.20e+02	7.5e+03	5.61e+06	8.48e+02	6.6e+03
5	1,2,3,6,7,8-HxCDF	6.93e+06	9.20e+02	7.5e+03	5.69e+06	8.48e+02	6.7e+03
6	2,3,4,6,7,8-HxCDF	6.89e+06	9.20e+02	7.5e+03	5.58e+06	8.48e+02	6.6e+03
7	1,2,3,7,8,9-HxCDF	6.10e+06	9.20e+02	6.6e+03	4.91e+06	8.48e+02	5.8e+03
8	1,2,3,4,6,7,8-HpCDF	5.94e+06	3.42e+03	1.7e+03	5.81e+06	2.42e+03	2.4e+03
9	1,2,3,4,7,8,9-HpCDF	4.55e+06	3.42e+03	1.3e+03	4.40e+06	2.42e+03	1.8e+03
10	OCDF	6.12e+06	6.12e+02	1.0e+04	6.69e+06	6.24e+02	1.1e+04
11	2,3,7,8-TCDD	7.00e+05	7.44e+02	9.4e+02	8.73e+05	8.40e+02	1.0e+03
12	1,2,3,7,8-PeCDD	5.13e+06	6.52e+02	7.9e+03	3.27e+06	6.64e+02	4.9e+03
13	1,2,3,4,7,8-HxCDD	4.97e+06	8.56e+02	5.8e+03	3.97e+06	1.32e+03	3.0e+03
14	1,2,3,6,7,8-HxCDD	4.99e+06	8.56e+02	5.8e+03	3.98e+06	1.32e+03	3.0e+03
15	1,2,3,7,8,9-HxCDD	5.02e+06	8.56e+02	5.9e+03	4.05e+06	1.32e+03	3.1e+03
16	1,2,3,4,6,7,8-HpCDD	3.88e+06	7.40e+02	5.2e+03	3.66e+06	1.05e+03	3.5e+03
17	OCDD	5.38e+06	7.80e+02	6.9e+03	6.18e+06	6.04e+02	1.0e+04
18	13C-2,3,7,8-TCDF	9.70e+06	1.06e+03	9.1e+03	1.19e+07	9.32e+02	1.3e+04
19	13C-1,2,3,7,8-PeCDF	1.50e+07	7.76e+02	1.9e+04	9.54e+06	7.48e+02	1.3e+04
20	13C-2,3,4,7,8-PeCDF	1.56e+07	7.76e+02	2.0e+04	1.00e+07	7.48e+02	1.3e+04
21	13C-1,2,3,4,7,8-HxCDF	7.06e+06	8.36e+02	8.4e+03	1.32e+07	1.12e+03	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	7.57e+06	8.36e+02	9.1e+03	1.44e+07	1.12e+03	1.3e+04
23	13C-2,3,4,6,7,8-HxCDF	7.50e+06	8.36e+02	9.0e+03	1.43e+07	1.12e+03	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	6.33e+06	8.36e+02	7.6e+03	1.23e+07	1.12e+03	1.1e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.05e+06	3.49e+03	1.4e+03	1.11e+07	3.25e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.19e+06	3.49e+03	1.2e+03	9.20e+06	3.25e+03	2.8e+03
27	13C-2,3,7,8-TCDD	7.05e+06	2.57e+03	2.7e+03	9.12e+06	1.34e+03	6.8e+03
28	13C-1,2,3,7,8-PeCDD	1.01e+07	7.32e+02	1.4e+04	6.43e+06	4.80e+02	1.3e+04
29	13C-1,2,3,4,7,8-HxCDD	8.91e+06	8.88e+02	1.0e+04	6.95e+06	7.36e+02	9.4e+03
30	13C-1,2,3,6,7,8-HxCDD	8.89e+06	8.88e+02	1.0e+04	6.85e+06	7.36e+02	9.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.46e+06	8.60e+02	8.7e+03	6.90e+06	7.96e+02	8.7e+03
32	13C-OCDD	9.15e+06	5.68e+02	1.6e+04	1.02e+07	6.72e+02	1.5e+04
33	13C-1,2,3,4-TCDD	7.06e+06	2.57e+03	2.7e+03	9.04e+06	1.34e+03	6.8e+03
34	13C-1,2,3,7,8,9-HxCDD	9.14e+06	8.88e+02	1.0e+04	7.20e+06	7.36e+02	9.8e+03
35	37Cl-2,3,7,8-TCDD	1.63e+06	1.16e+03	1.4e+03			

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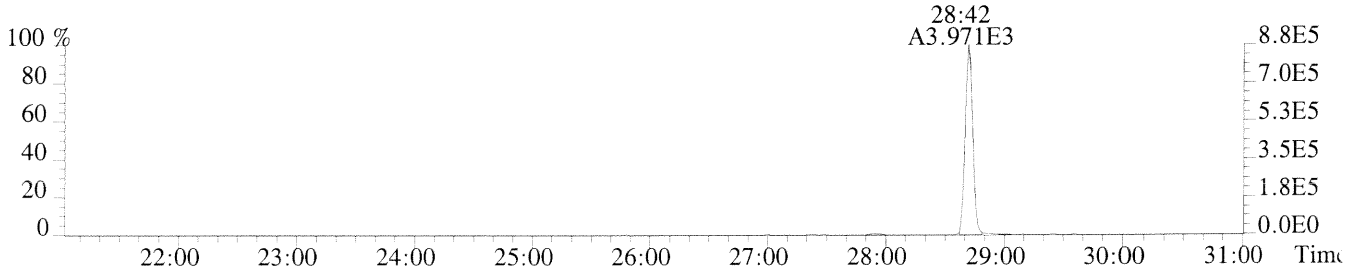
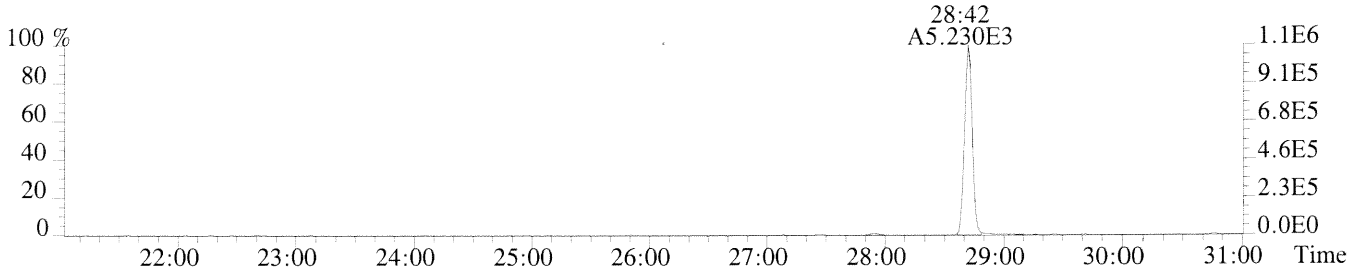
File:U149175 #1-627 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

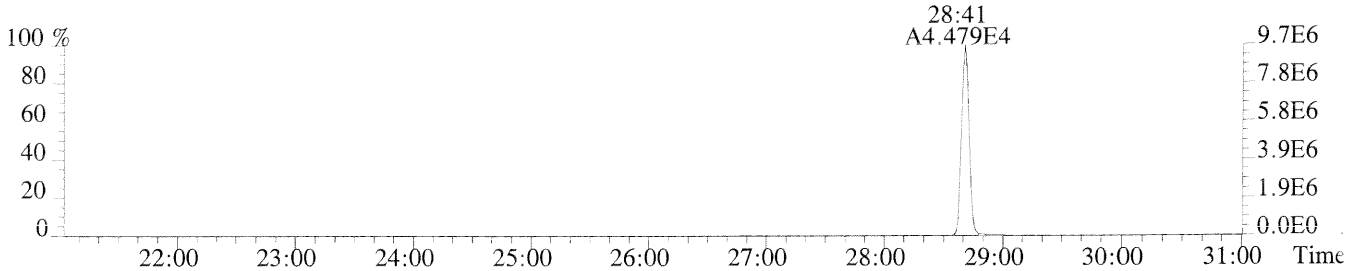
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



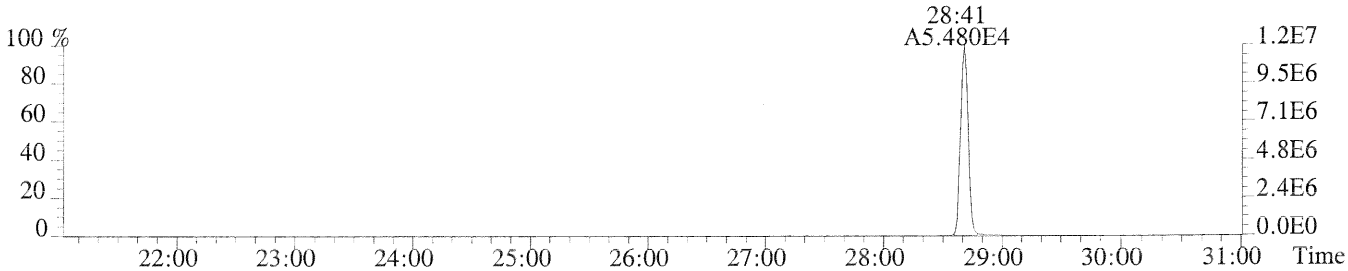
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1312.0,1.00%,F,T)



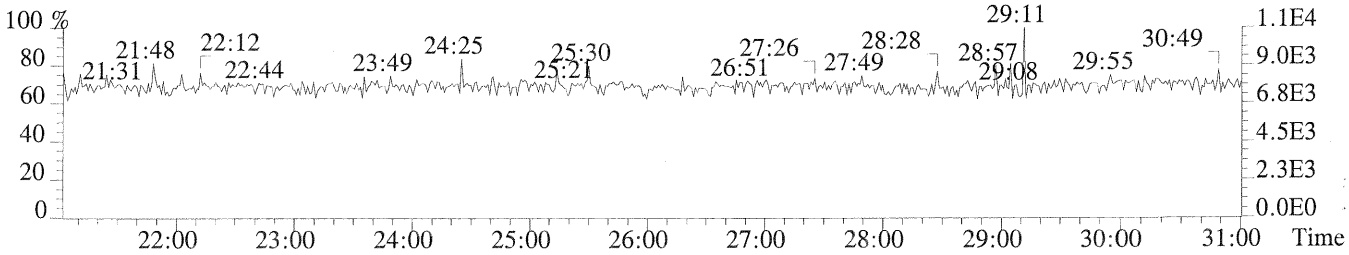
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



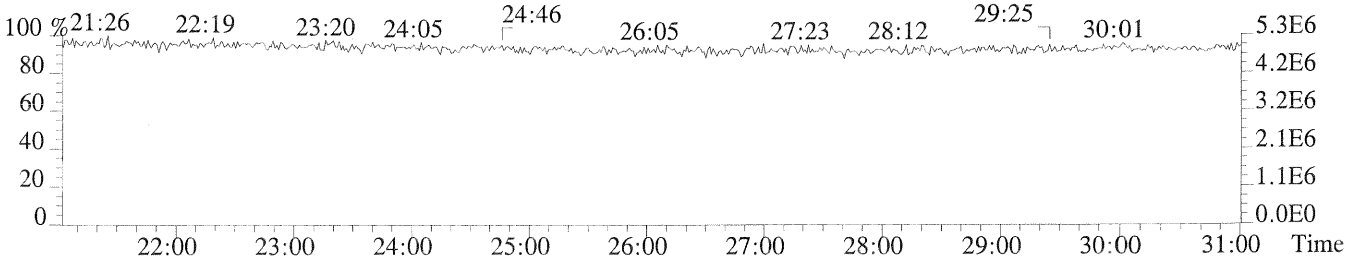
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,932.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

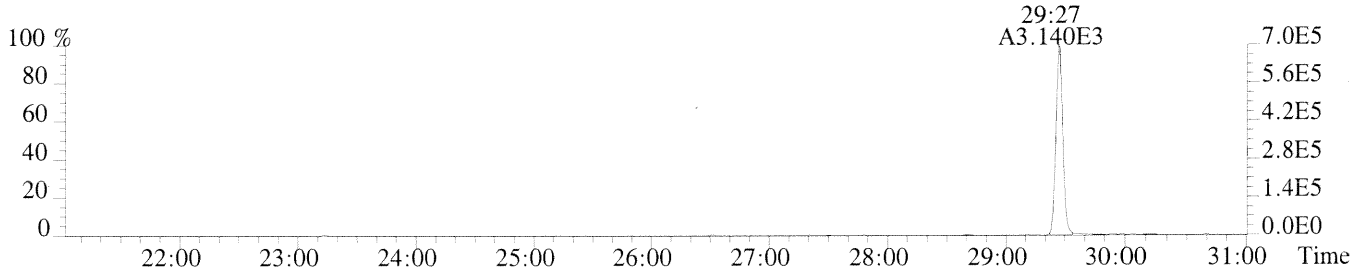


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

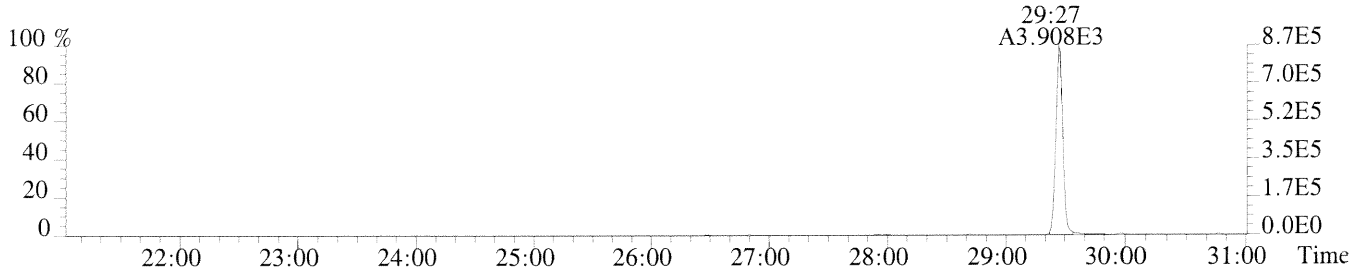


File:U149175 #1-627 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

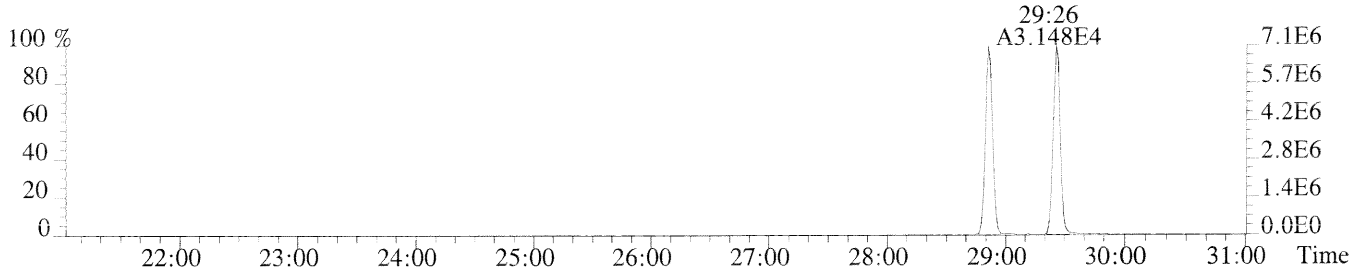
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



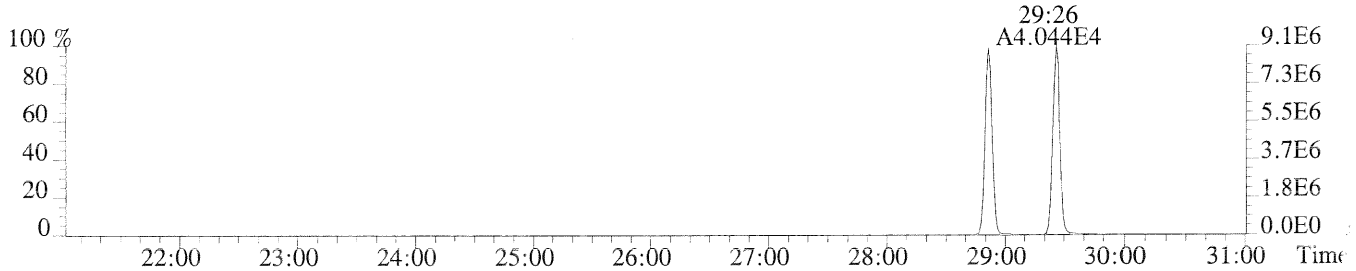
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



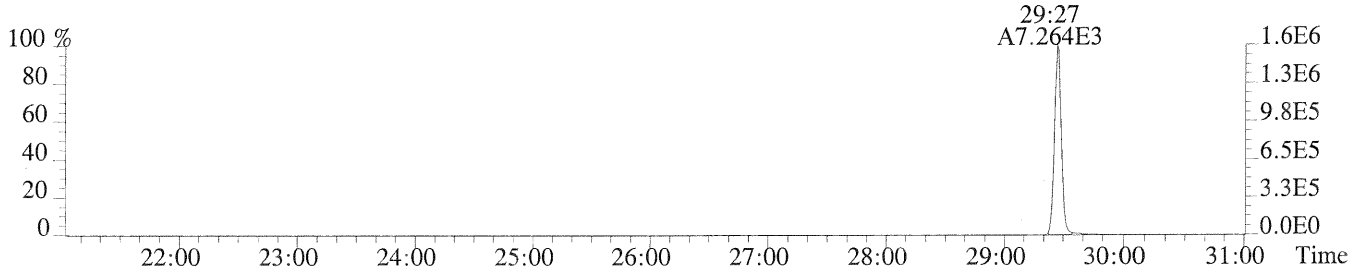
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



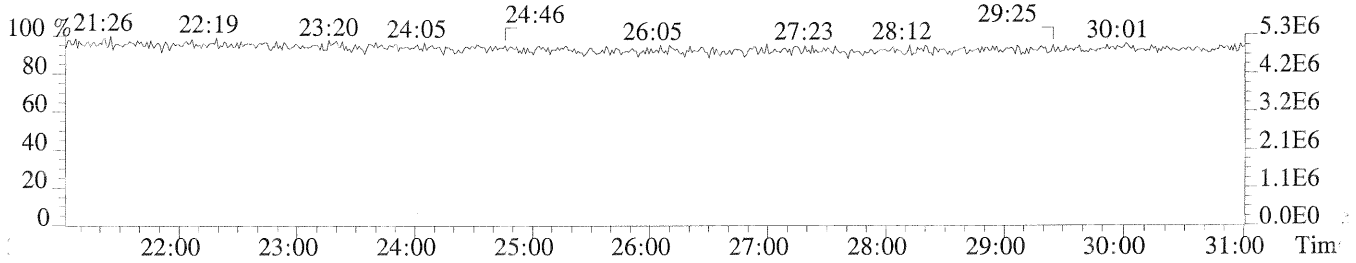
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



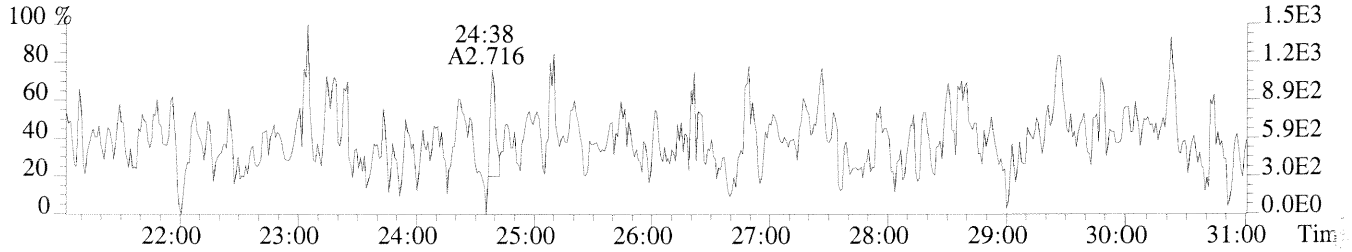
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1156.0,1.00%,F,T)



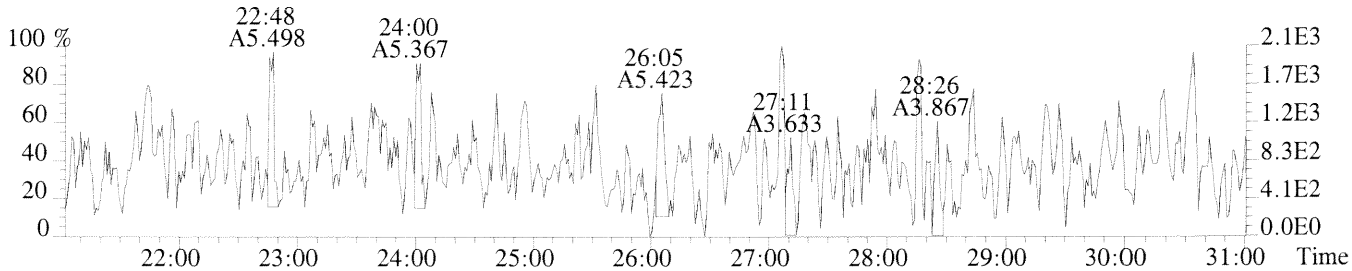
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



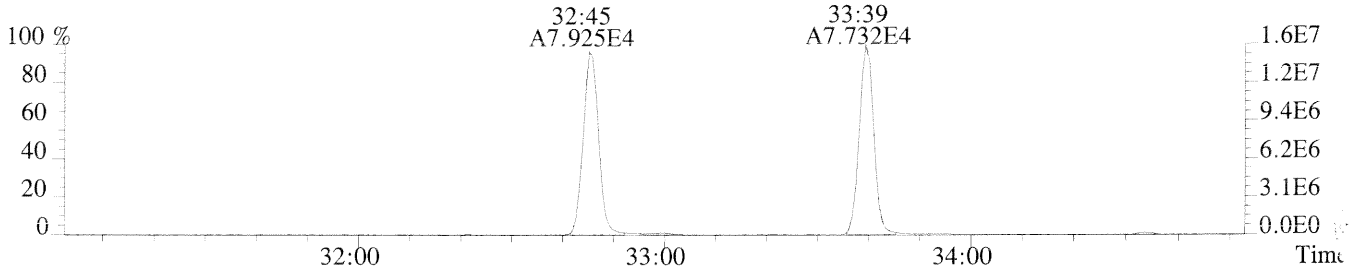
File:U149175 #1-627 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



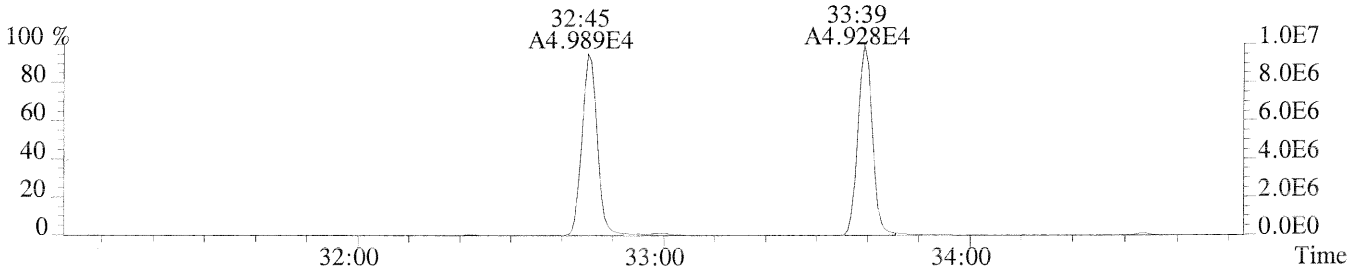
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



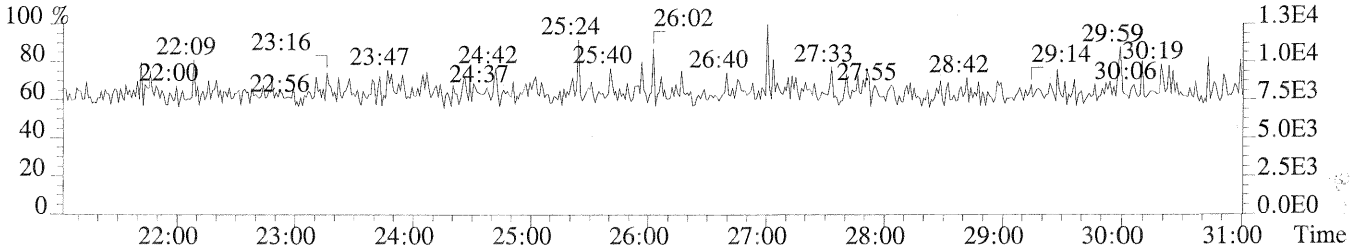
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



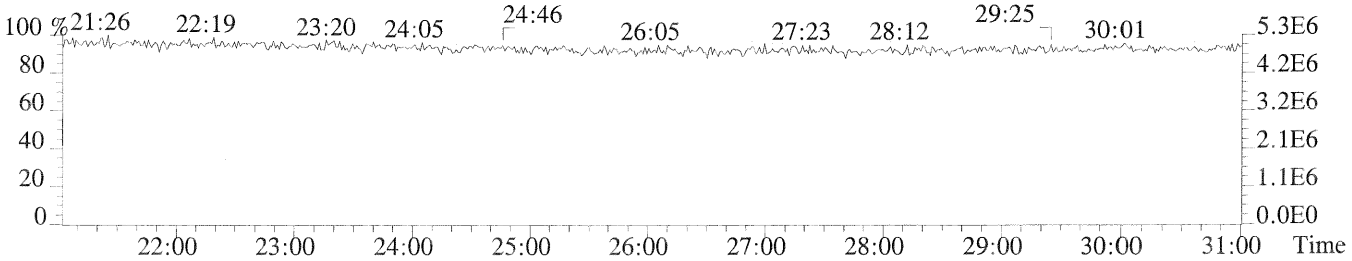
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

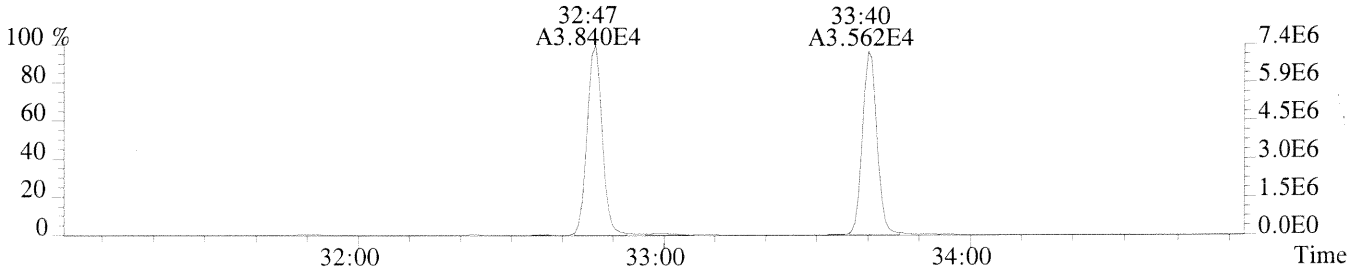


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

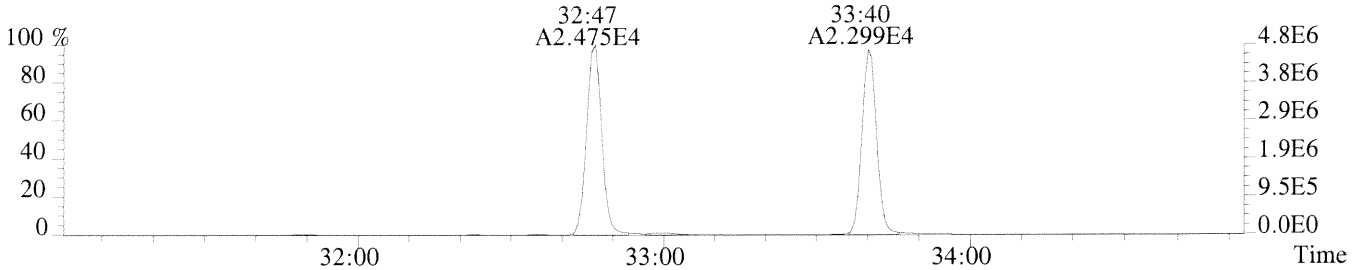


File:U149175 #1-349 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

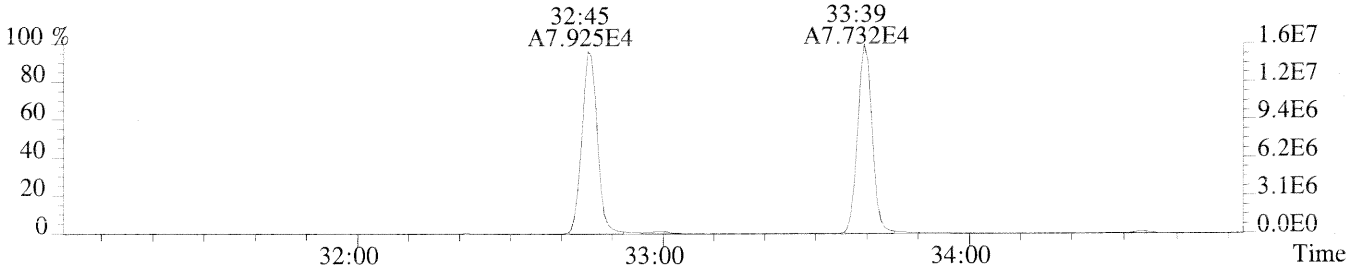
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



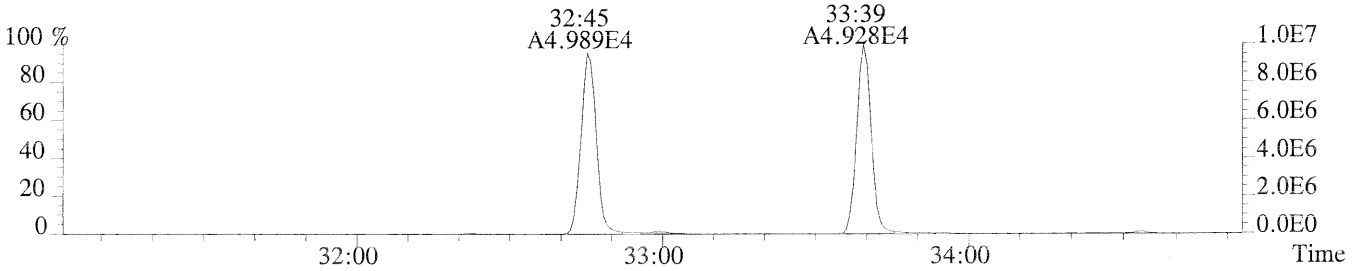
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



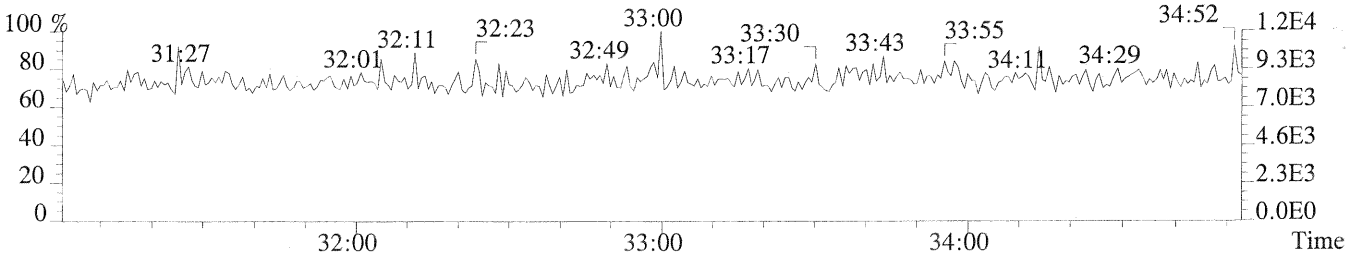
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



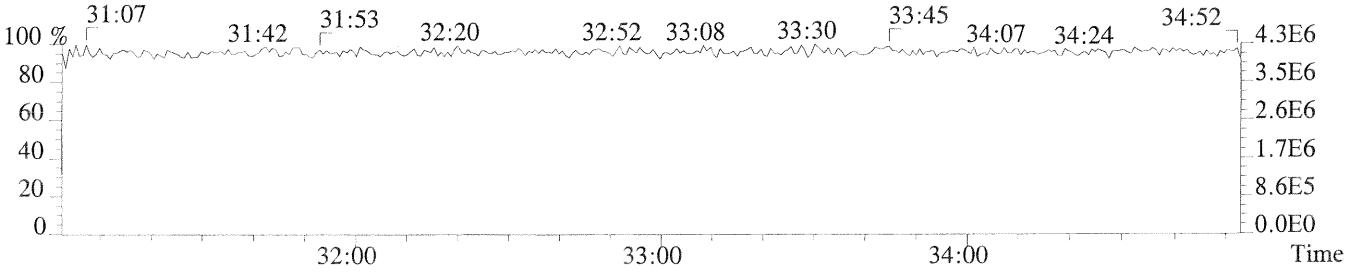
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

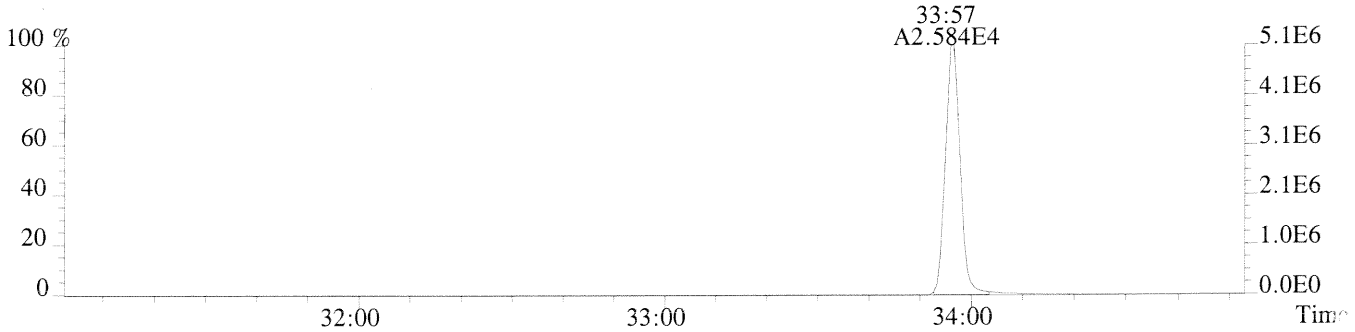


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

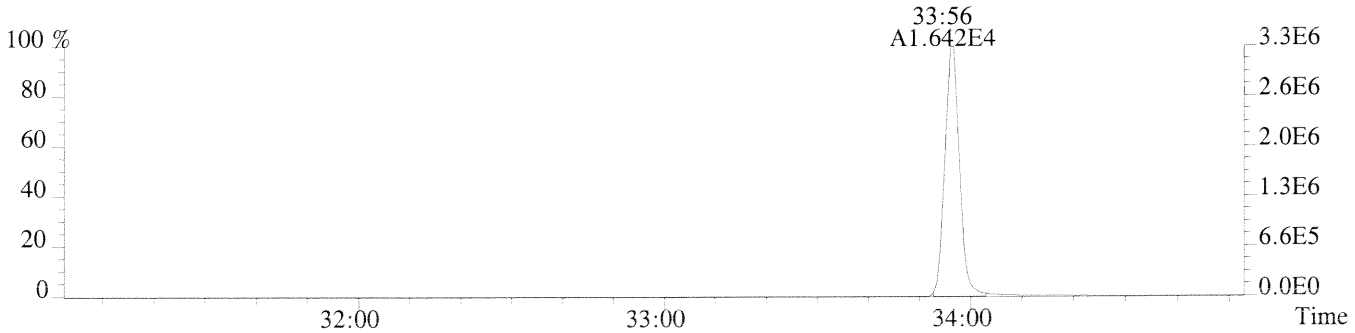


File:U149175 #1-349 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

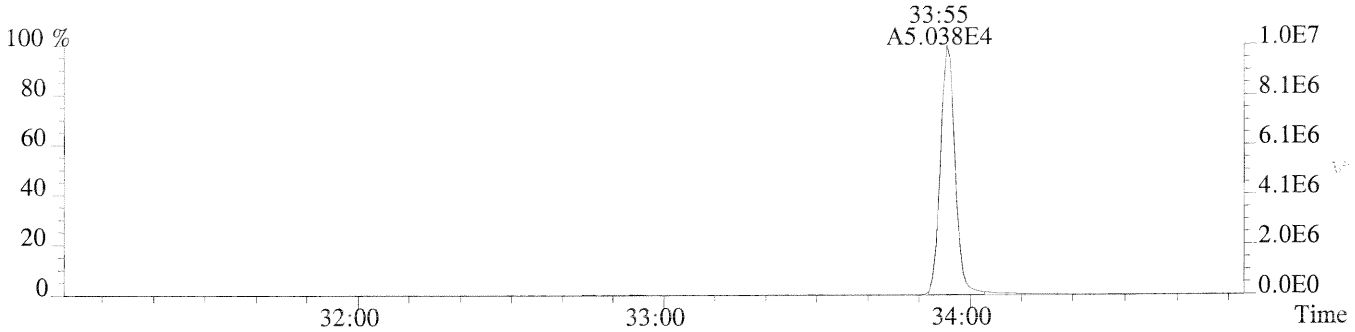
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



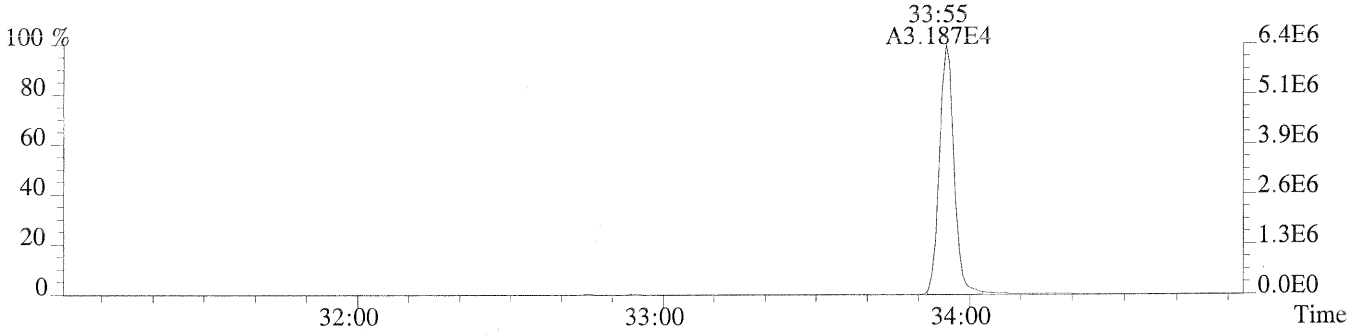
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



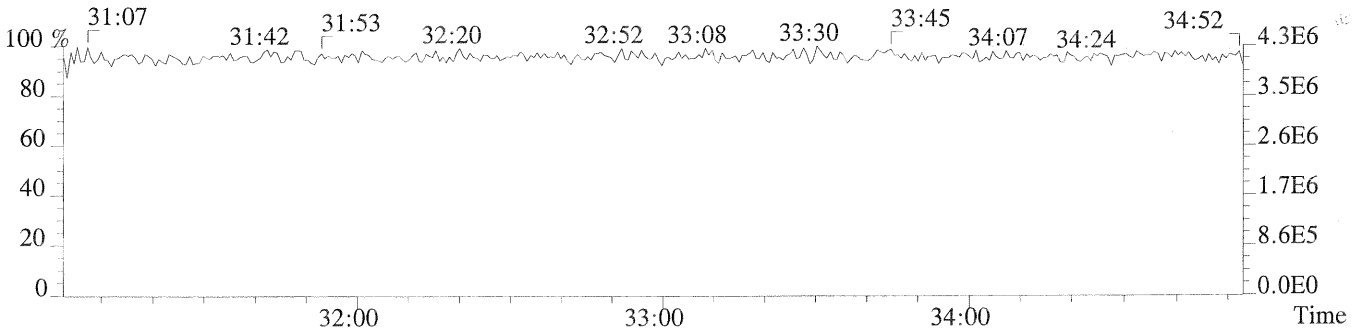
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)

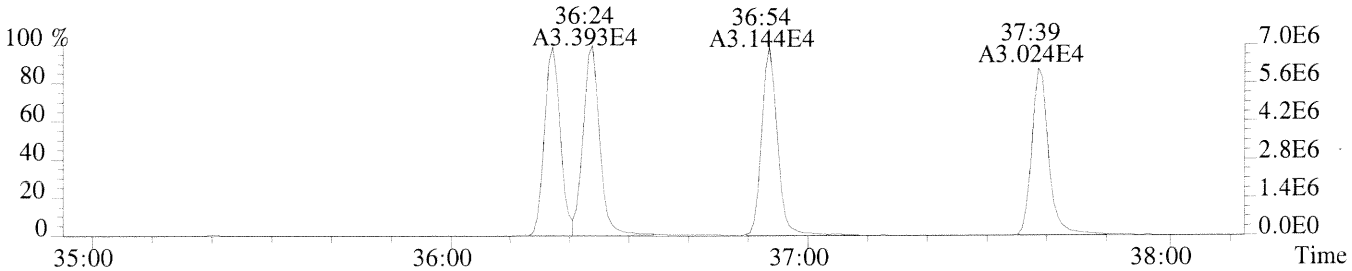


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

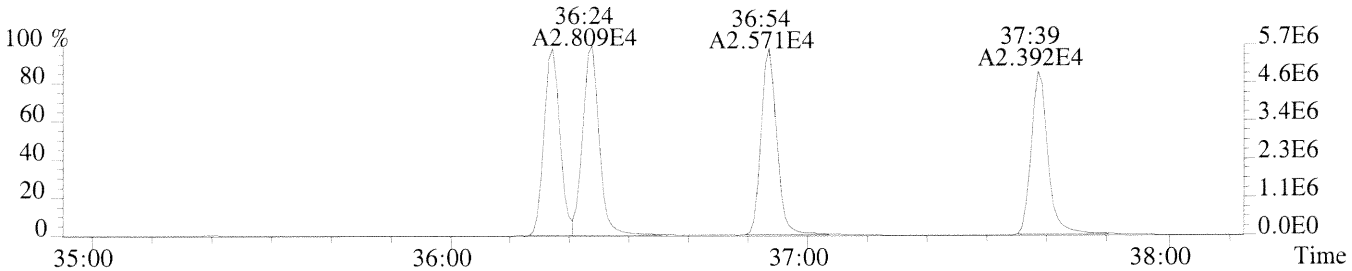


File:U149175 #1-299 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

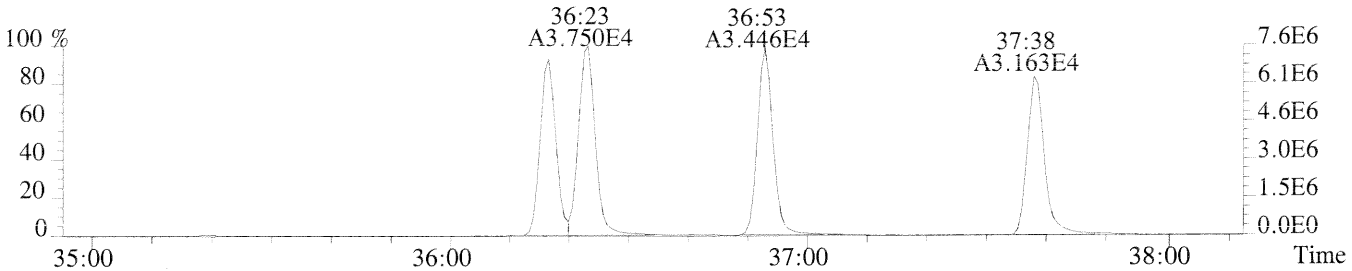
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



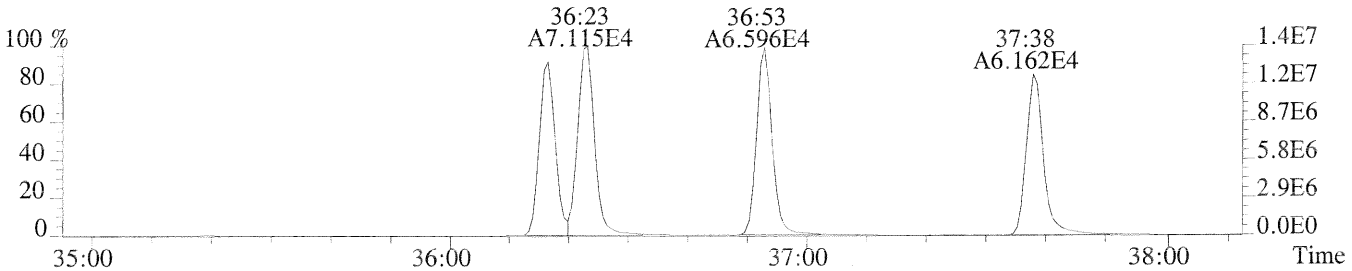
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,848.0,0.40%,F,T)



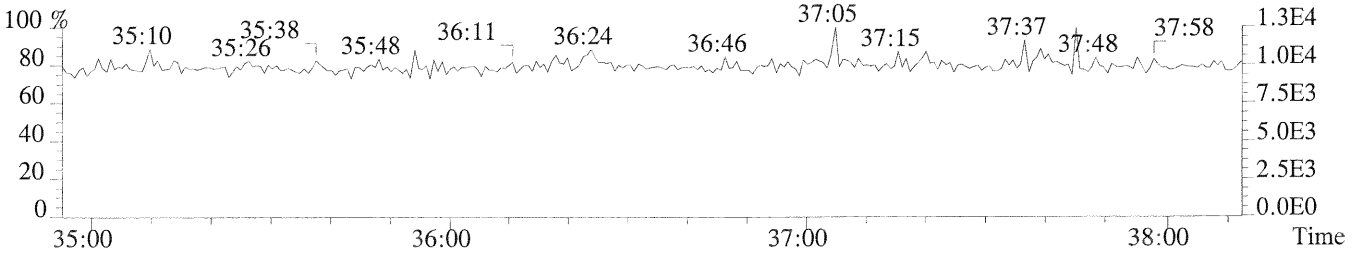
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



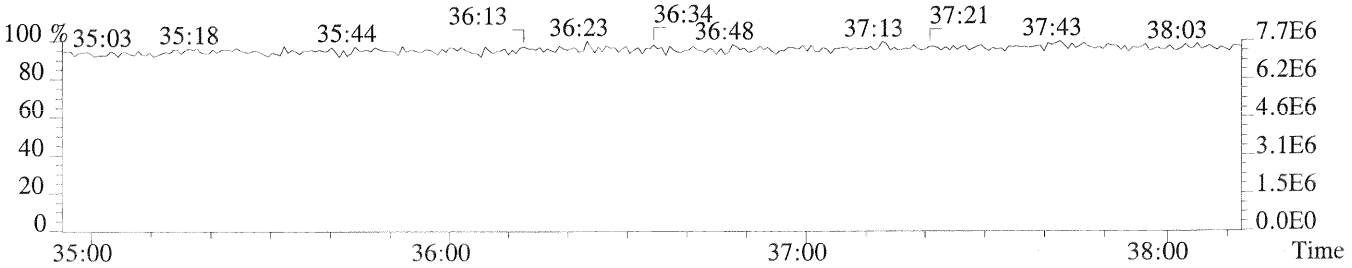
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1116.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

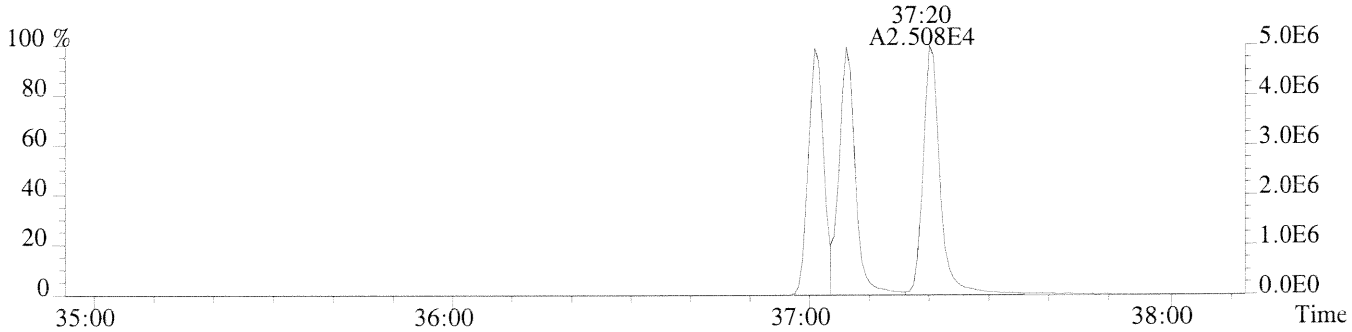


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

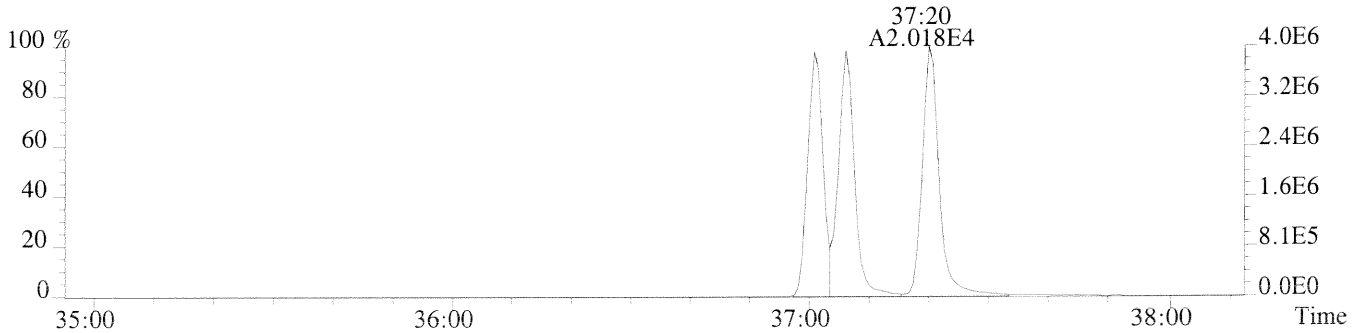


File:U149175 #1-299 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

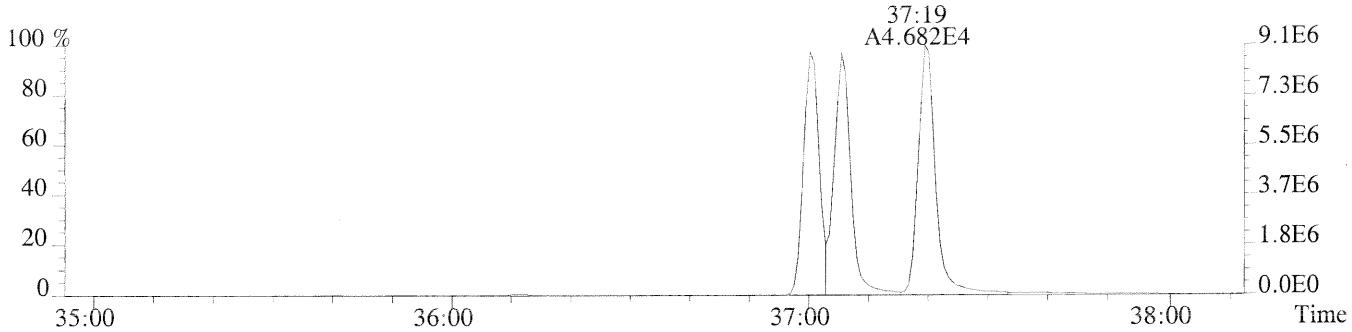
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



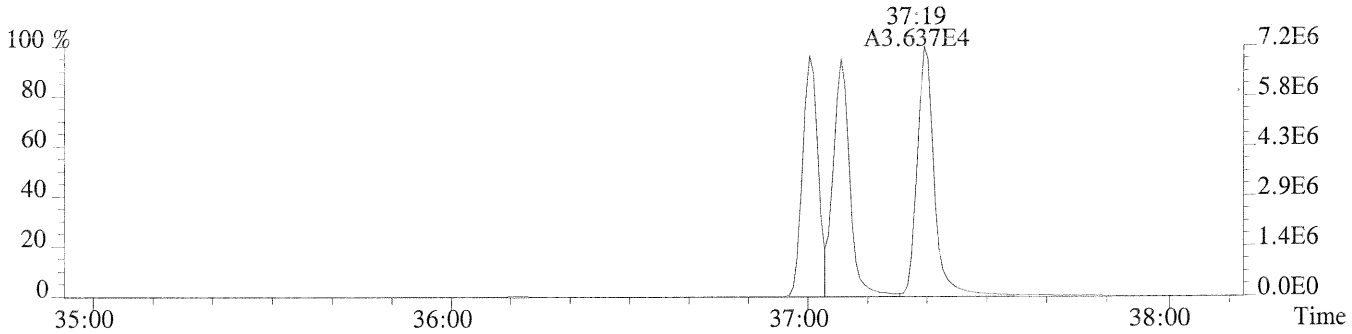
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1324.0,0.40%,F,T)



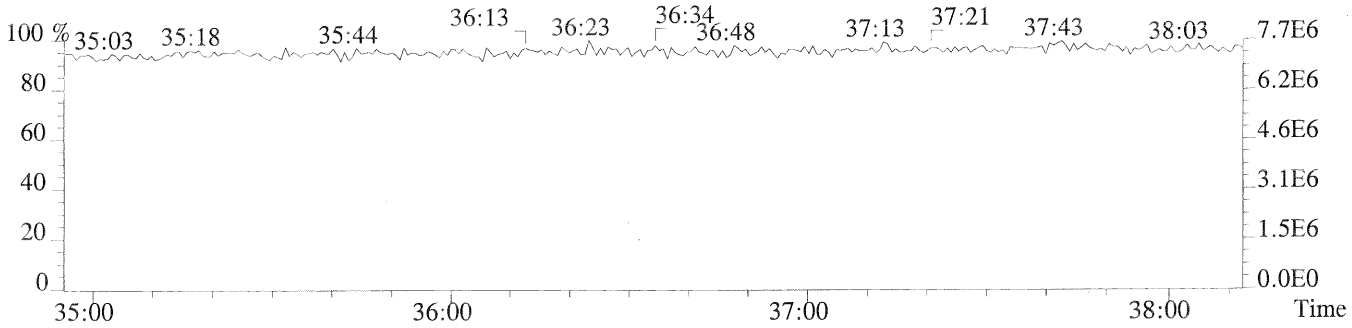
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,736.0,0.40%,F,T)

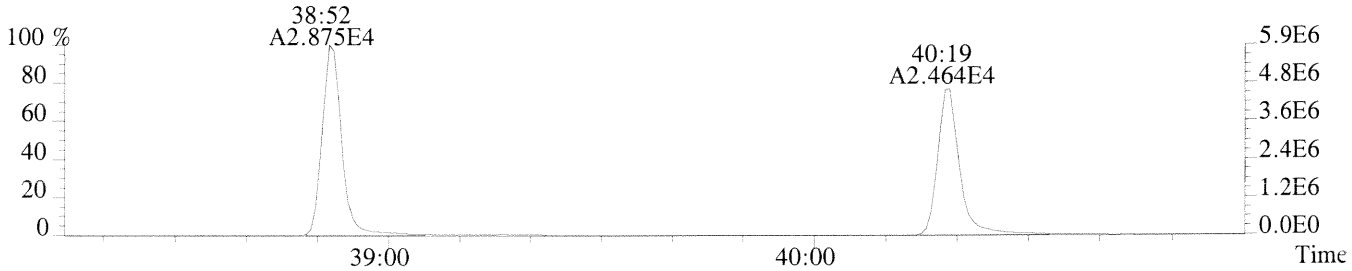


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

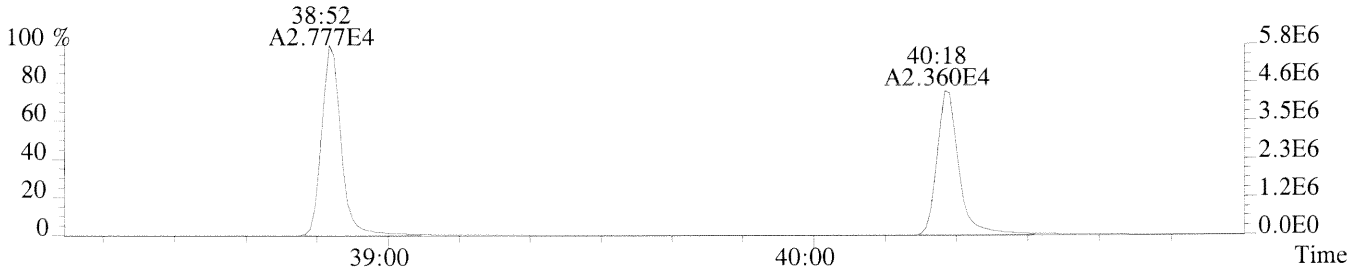


File:U149175 #1-251 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

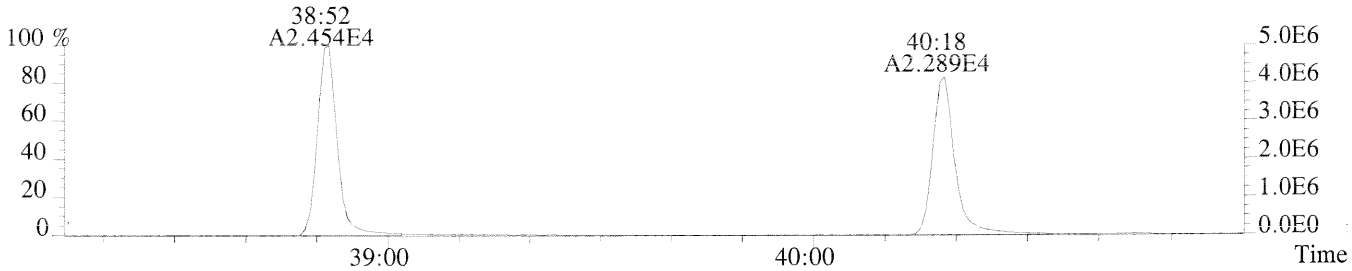
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3420.0,0.50%,F,T)



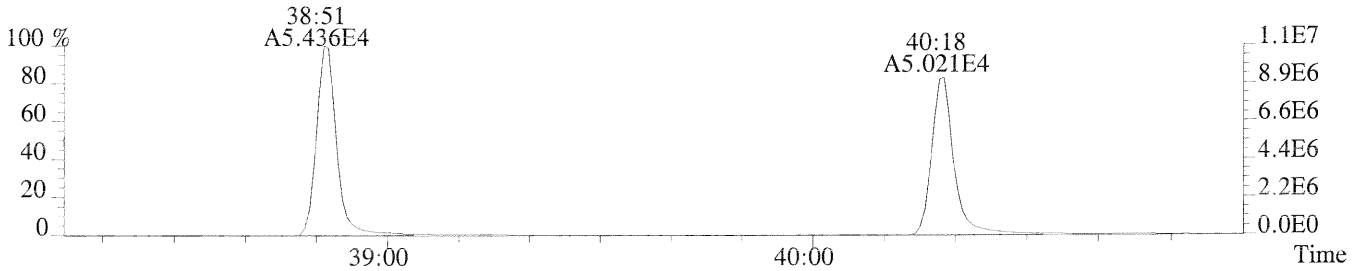
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2416.0,0.50%,F,T)



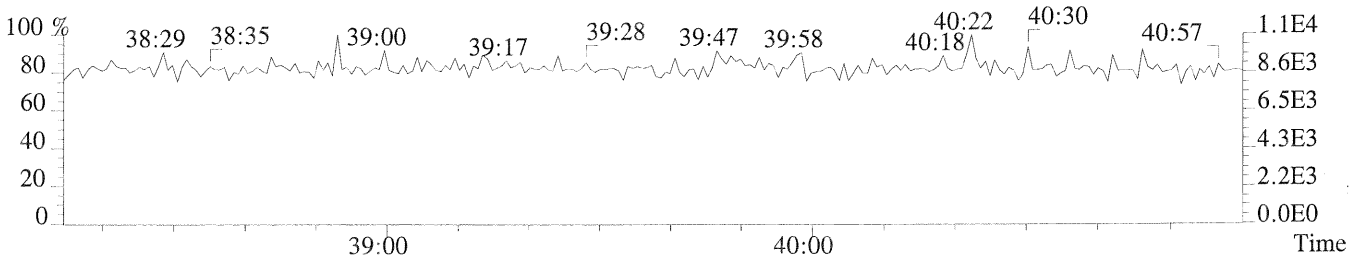
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3492.0,0.50%,F,T)



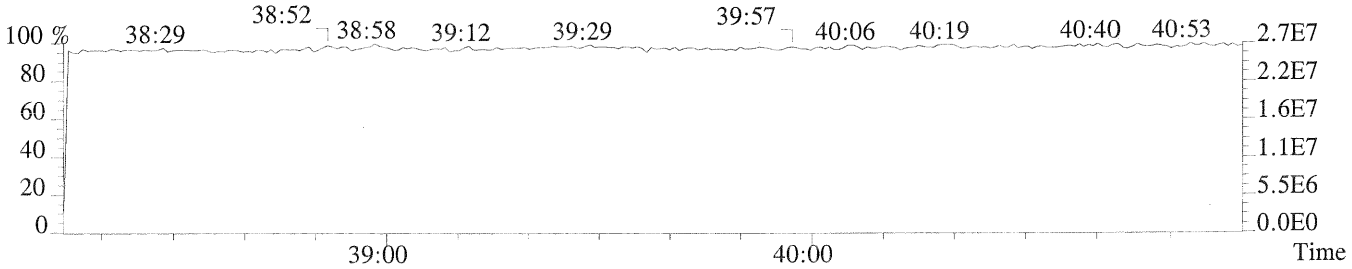
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3248.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

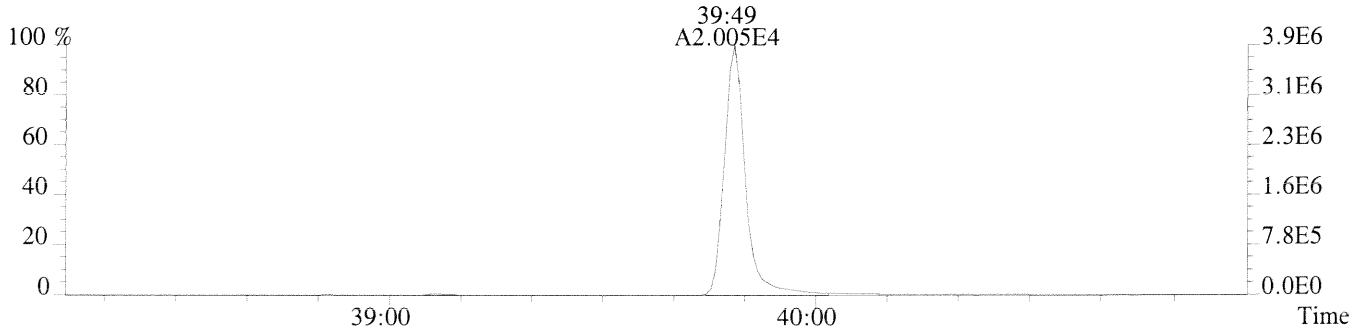


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

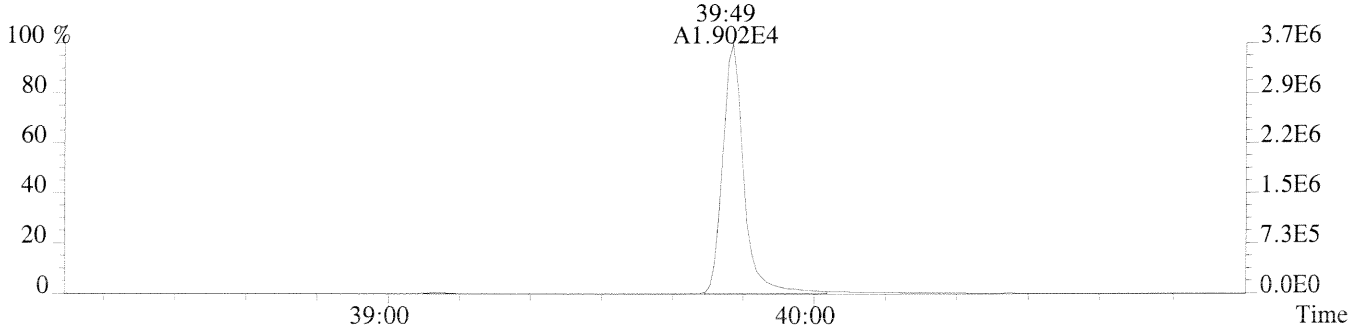


File:U149175 #1-251 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

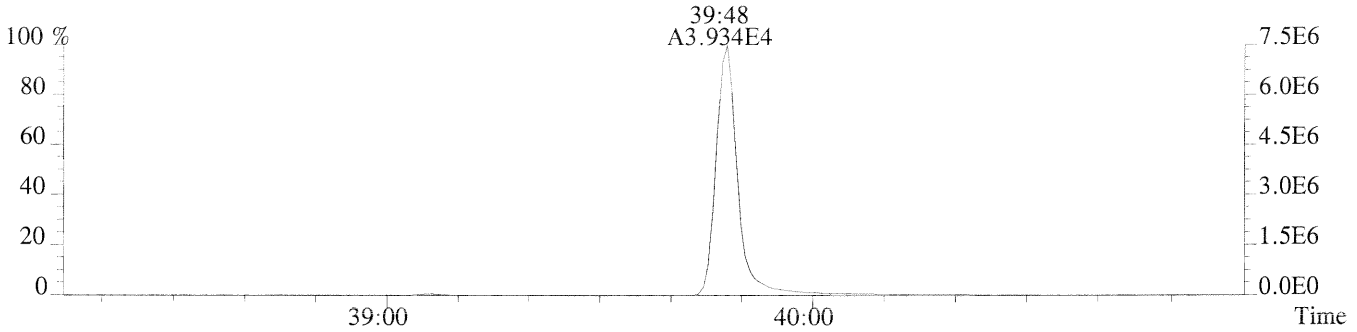
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



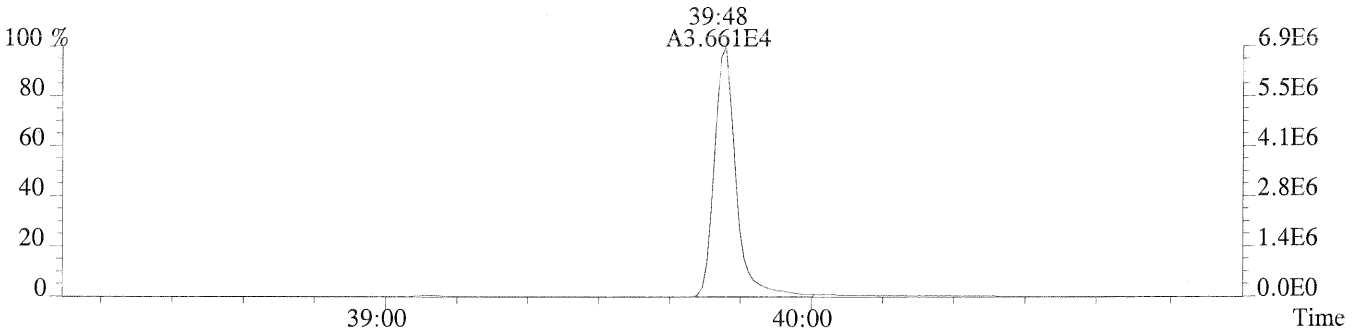
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1052.0,0.40%,F,T)



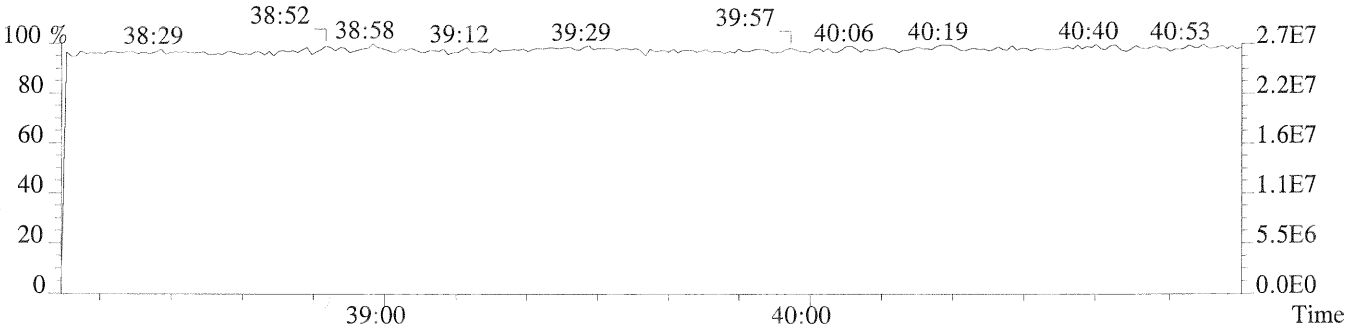
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,860.0,0.40%,F,T)



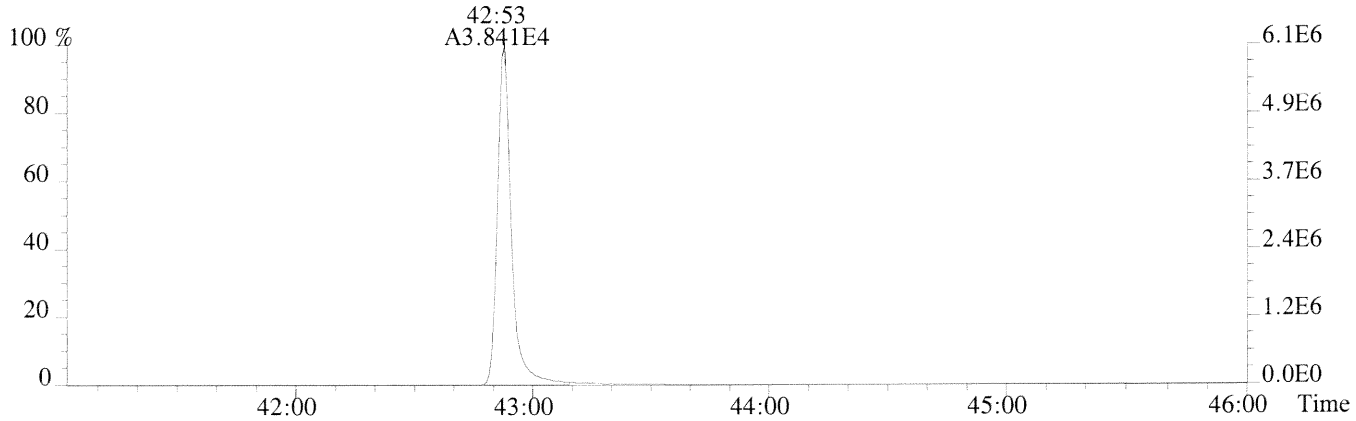
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,796.0,0.40%,F,T)



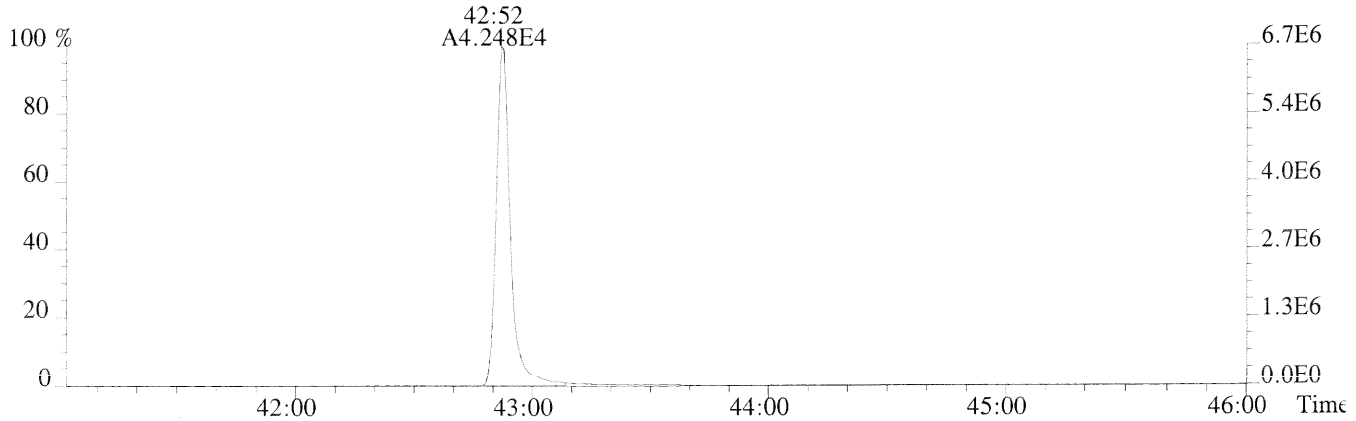
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



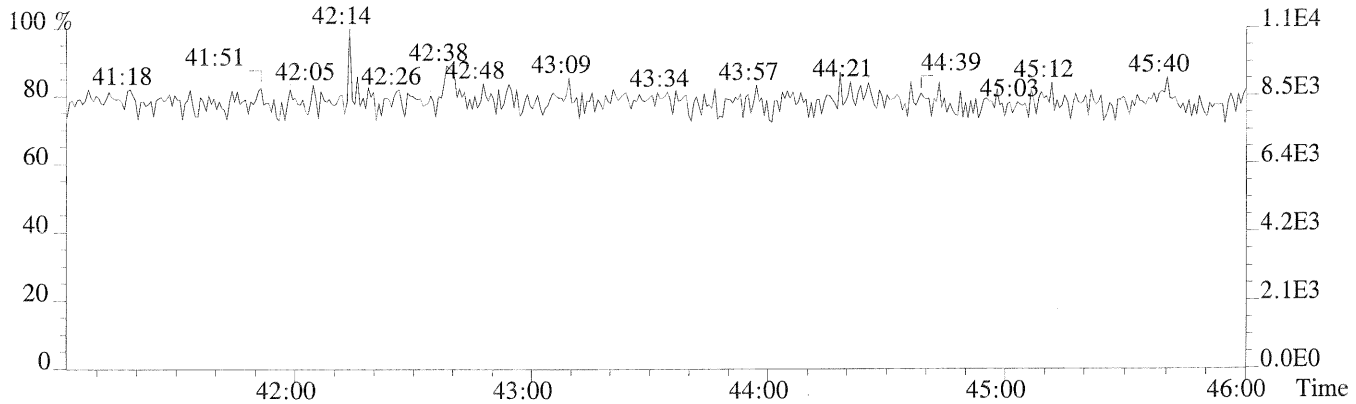
File:U149175 #1-451 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



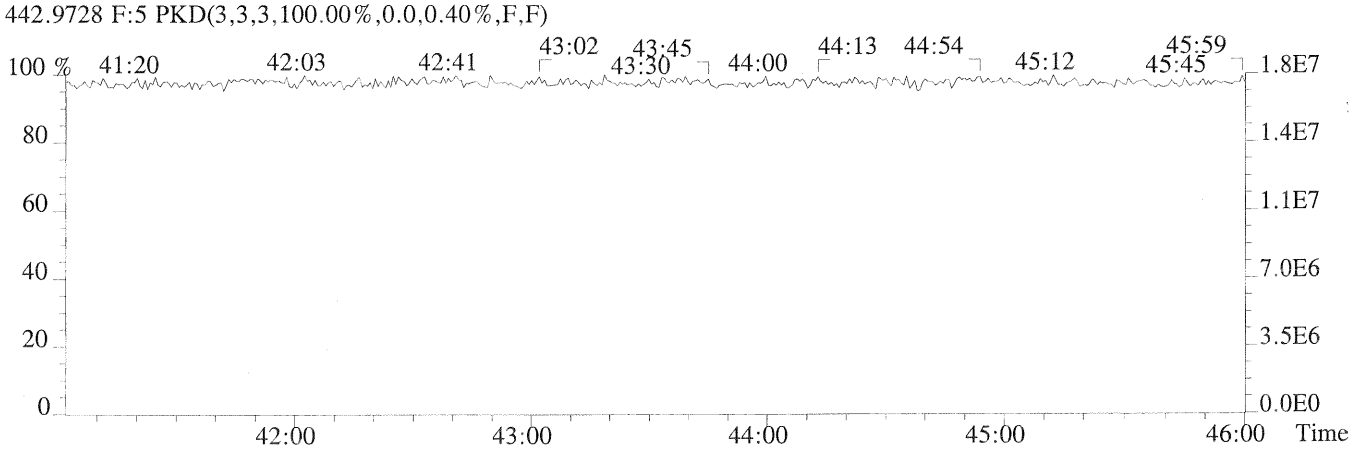
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

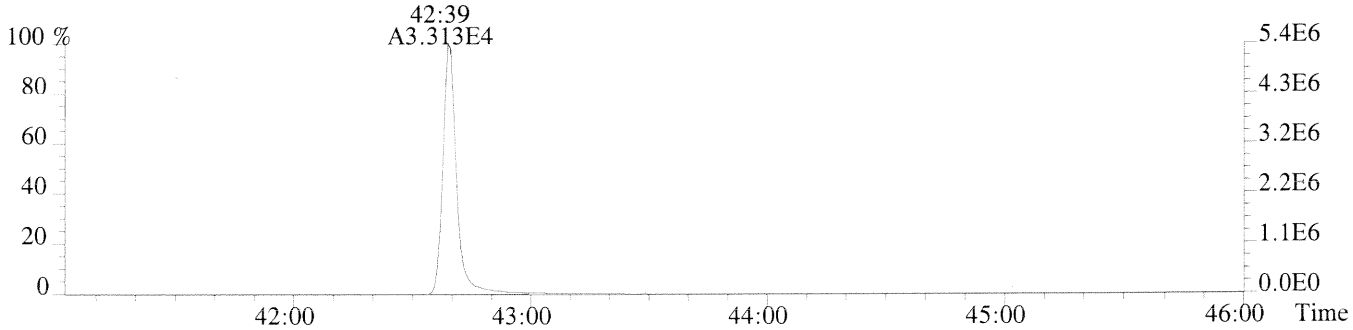


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

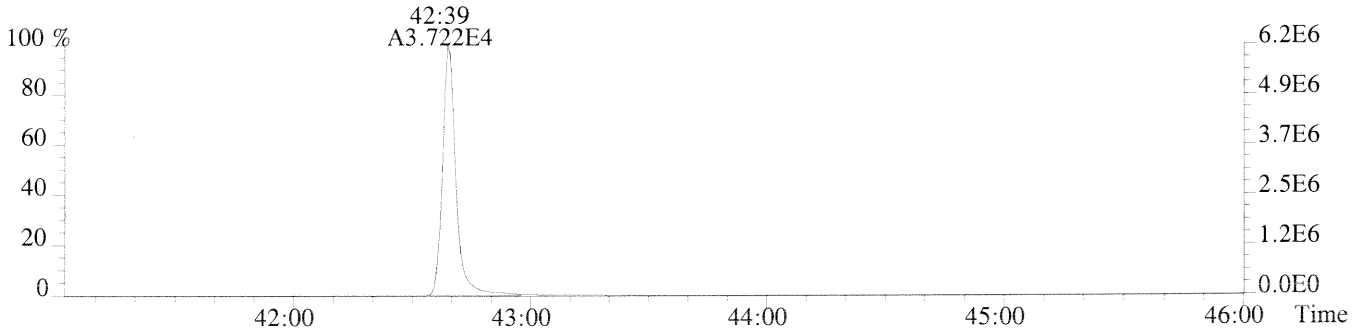


File:U149175 #1-451 Acq:21-MAY-2014 17:15:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS3 HRCC3/CS3

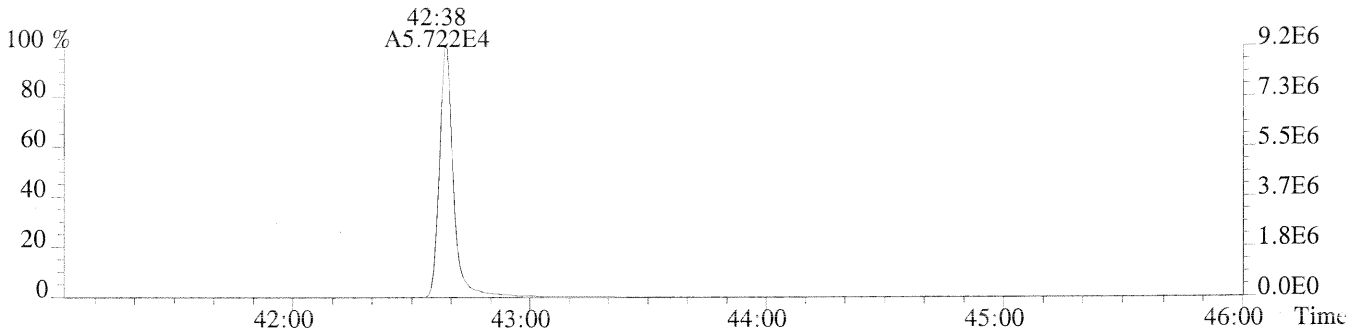
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,780.0,0.40%,F,T)



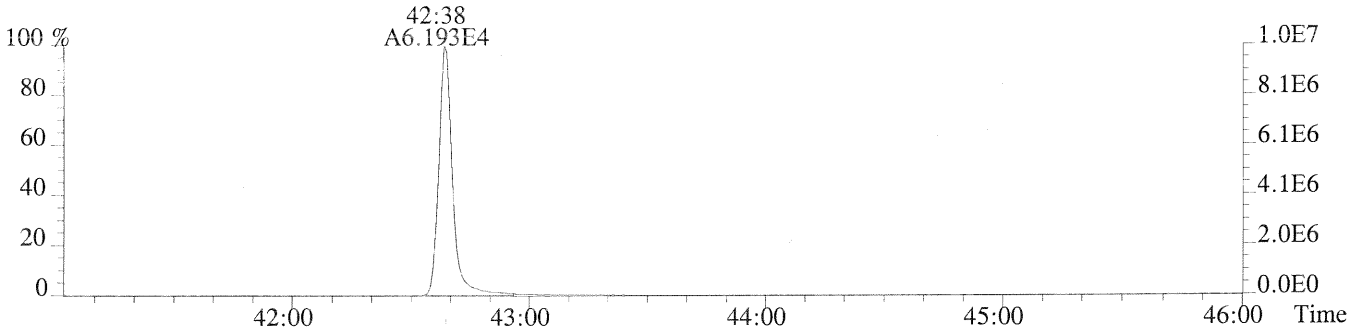
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



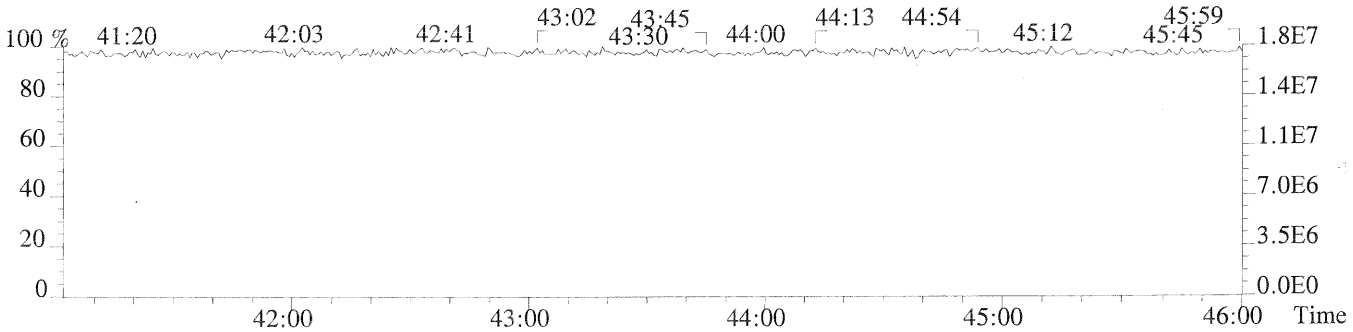
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,672.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS4

Run #5 Filename U149176 Samp: 1 Inj: 1 Acquired: 21-MAY-14 18:03:46
Processed: 23-MAY-14 08:49:34 Sample ID: D12-90-3D

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	1.281e+04	1.683e+04	0.76	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:46	1.486e+05	9.488e+04	1.57	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	1.343e+05	8.695e+04	1.55	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.275e+05	1.018e+05	1.25	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	1.386e+05	1.120e+05	1.24	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:53	1.262e+05	1.025e+05	1.23	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	1.191e+05	9.858e+04	1.21	yes	yes	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	1.152e+05	1.116e+05	1.03	yes	yes	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	1.018e+05	9.893e+04	1.03	yes	yes	1.359
10	Unk	OCDF	42:52	1.600e+05	1.777e+05	0.90	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:27	1.155e+04	1.438e+04	0.80	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:56	1.029e+05	6.424e+04	1.60	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:00	8.824e+04	7.079e+04	1.25	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:05	9.700e+04	7.789e+04	1.25	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	1.003e+05	8.079e+04	1.24	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:48	8.069e+04	7.758e+04	1.04	yes	no	1.065
17	Unk	OCDD	42:39	1.347e+05	1.520e+05	0.89	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:40	3.514e+04	4.374e+04	0.80	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	7.529e+04	4.771e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	7.208e+04	4.560e+04	1.58	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:16	3.172e+04	6.087e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:22	3.706e+04	7.109e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:52	3.377e+04	6.515e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	3.111e+04	6.109e+04	0.51	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	2.455e+04	5.440e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	2.310e+04	5.027e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	2.837e+04	3.705e+04	0.77	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	4.941e+04	3.137e+04	1.57	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.923e+04	2.993e+04	1.31	yes	yes	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:05	4.286e+04	3.276e+04	1.31	yes	yes	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:47	3.985e+04	3.688e+04	1.08	yes	no	0.936
32	IS	13C-OCDD	42:38	5.752e+04	6.284e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	2.043e+04	2.631e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	4.399e+04	3.478e+04	1.26	yes	yes	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	2.668e+04				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS4

#5 Filename U149176 Samp: 1 Inj: 1 Acquired: 21-MAY-14 18:03:46
Processed: 22-MAY-14 12:57:511 LAB. ID: D12-90-3D

Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
2,3,7,8-TCDF	2.72e+06	7.76e+02	3.5e+03	3.55e+06	1.07e+03	3.3e+03
1,2,3,7,8-PeCDF	2.96e+07	6.16e+02	4.8e+04	1.89e+07	1.46e+03	1.3e+04
2,3,4,7,8-PeCDF	2.67e+07	6.16e+02	4.3e+04	1.74e+07	1.46e+03	1.2e+04
1,2,3,4,7,8-HxCDF	2.81e+07	1.45e+03	1.9e+04	2.23e+07	1.00e+03	2.2e+04
1,2,3,6,7,8-HxCDF	2.93e+07	1.45e+03	2.0e+04	2.37e+07	1.00e+03	2.4e+04
2,3,4,6,7,8-HxCDF	2.80e+07	1.45e+03	1.9e+04	2.28e+07	1.00e+03	2.3e+04
1,2,3,7,8,9-HxCDF	2.45e+07	1.45e+03	1.7e+04	2.01e+07	1.00e+03	2.0e+04
1,2,3,4,6,7,8-HpCDF	2.41e+07	5.82e+03	4.1e+03	2.31e+07	1.34e+04	1.7e+03
1,2,3,4,7,8,9-HpCDF	1.96e+07	5.82e+03	3.4e+03	1.89e+07	1.34e+04	1.4e+03
OCDF	2.73e+07	5.88e+02	4.6e+04	3.00e+07	9.52e+02	3.1e+04
2,3,7,8-TCDD	2.60e+06	8.56e+02	3.0e+03	3.24e+06	6.52e+02	5.0e+03
1,2,3,7,8-PeCDD	2.11e+07	5.16e+02	4.1e+04	1.30e+07	7.04e+02	1.9e+04
1,2,3,4,7,8-HxCDD	2.00e+07	8.08e+02	2.5e+04	1.63e+07	7.00e+02	2.3e+04
1,2,3,6,7,8-HxCDD	2.00e+07	8.08e+02	2.5e+04	1.63e+07	7.00e+02	2.3e+04
1,2,3,7,8,9-HxCDD	2.02e+07	8.08e+02	2.5e+04	1.62e+07	7.00e+02	2.3e+04
1,2,3,4,6,7,8-HpCDD	1.62e+07	8.44e+02	1.9e+04	1.56e+07	1.16e+03	1.4e+04
OCDD	2.26e+07	7.00e+02	3.2e+04	2.53e+07	6.48e+02	3.9e+04
13C-2,3,7,8-TCDF	7.46e+06	1.03e+03	7.3e+03	9.29e+06	7.28e+02	1.3e+04
13C-1,2,3,7,8-PeCDF	1.45e+07	1.14e+03	1.3e+04	9.16e+06	9.92e+02	9.2e+03
13C-2,3,4,7,8-PeCDF	1.46e+07	1.14e+03	1.3e+04	9.28e+06	9.92e+02	9.4e+03
13C-1,2,3,4,7,8-HxCDF	6.96e+06	8.00e+02	8.7e+03	1.33e+07	4.80e+02	2.8e+04
13C-1,2,3,6,7,8-HxCDF	7.93e+06	8.00e+02	9.9e+03	1.51e+07	4.80e+02	3.2e+04
13C-2,3,4,6,7,8-HxCDF	7.38e+06	8.00e+02	9.2e+03	1.43e+07	4.80e+02	3.0e+04
13C-1,2,3,7,8,9-HxCDF	6.36e+06	8.00e+02	8.0e+03	1.21e+07	4.80e+02	2.5e+04
13C-1,2,3,4,6,7,8-HpCDF	5.23e+06	2.16e+03	2.4e+03	1.14e+07	3.80e+03	3.0e+03
13C-1,2,3,4,7,8,9-HpCDF	4.42e+06	2.16e+03	2.0e+03	9.58e+06	3.80e+03	2.5e+03
13C-2,3,7,8-TCDD	6.25e+06	2.46e+03	2.5e+03	8.07e+06	1.19e+03	6.8e+03
13C-1,2,3,7,8-PeCDD	9.86e+06	8.40e+02	1.2e+04	6.33e+06	8.04e+02	7.9e+03
13C-1,2,3,4,7,8-HxCDD	8.86e+06	1.16e+03	7.6e+03	6.89e+06	6.20e+02	1.1e+04
13C-1,2,3,6,7,8-HxCDD	8.86e+06	1.16e+03	7.6e+03	6.89e+06	6.20e+02	1.1e+04
13C-1,2,3,4,6,7,8-HpCDD	7.80e+06	8.20e+02	9.5e+03	7.25e+06	5.76e+02	1.3e+04
13C-OCDD	9.51e+06	6.88e+02	1.4e+04	1.04e+07	5.40e+02	1.9e+04
13C-1,2,3,4-TCDD	4.49e+06	2.46e+03	1.8e+03	5.73e+06	1.19e+03	4.8e+03
13C-1,2,3,7,8,9-HxCDD	9.11e+06	1.16e+03	7.9e+03	7.06e+06	6.20e+02	1.1e+04
37Cl-2,3,7,8-TCDD	5.98e+06	9.12e+02	6.6e+03			

ENVIRONMENTAL
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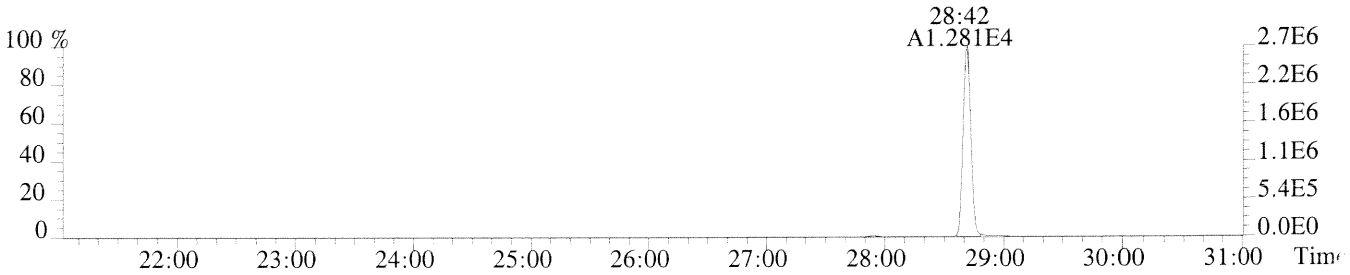
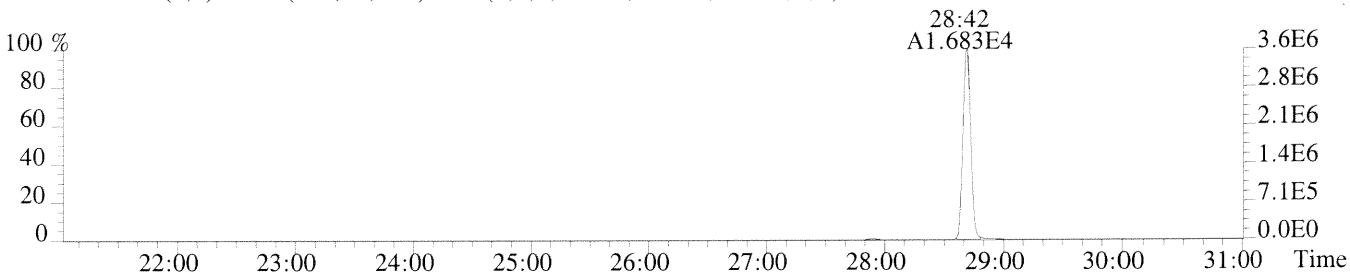
File:U149176 #1-627 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

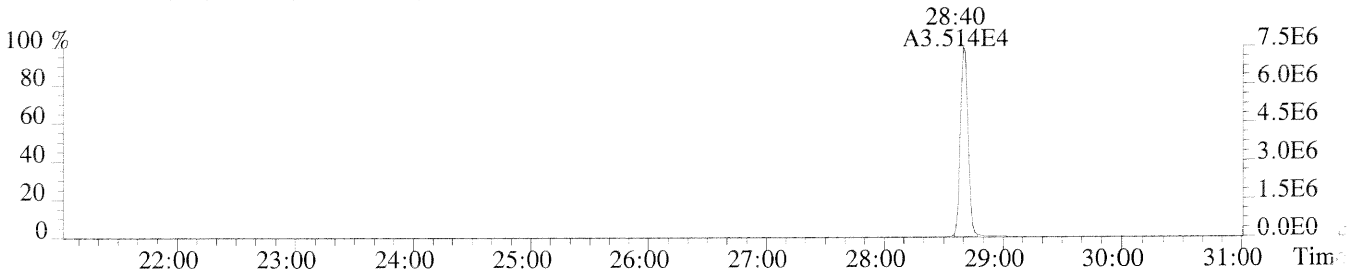
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



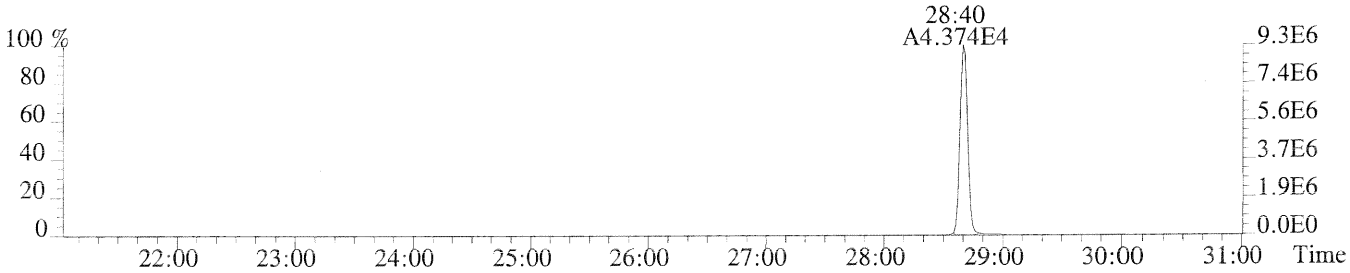
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1072.0,1.00%,F,T)



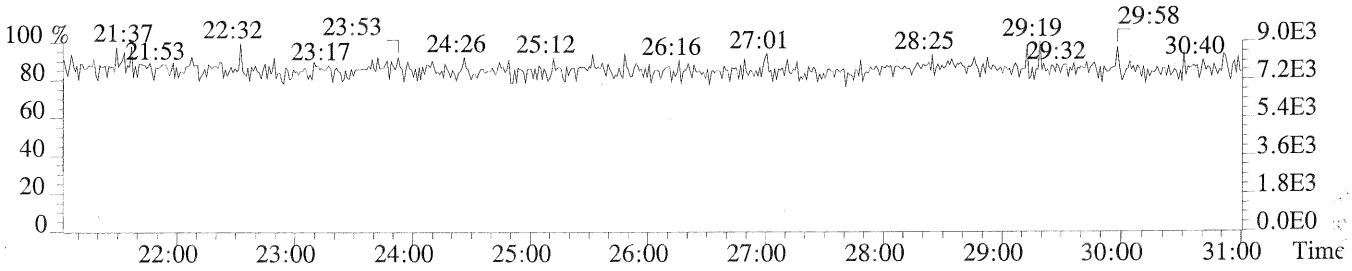
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1028.0,1.00%,F,T)



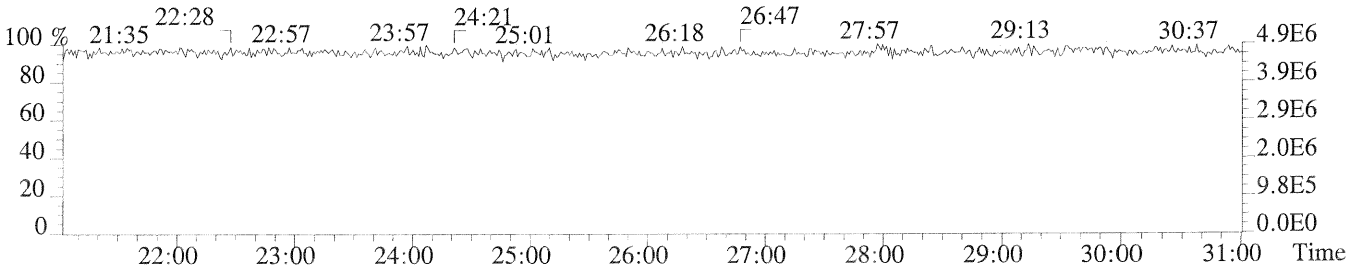
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

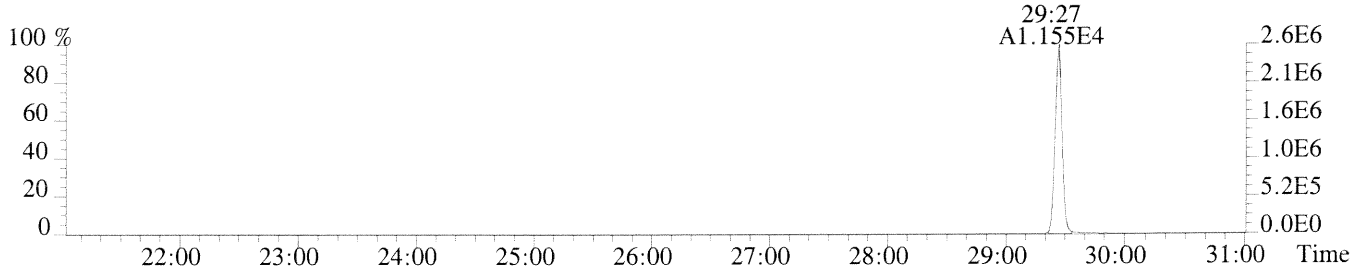


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

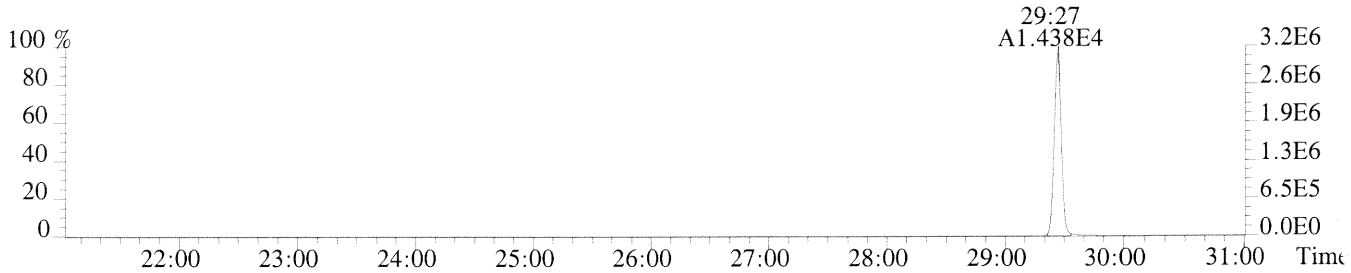


File:U149176 #1-627 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

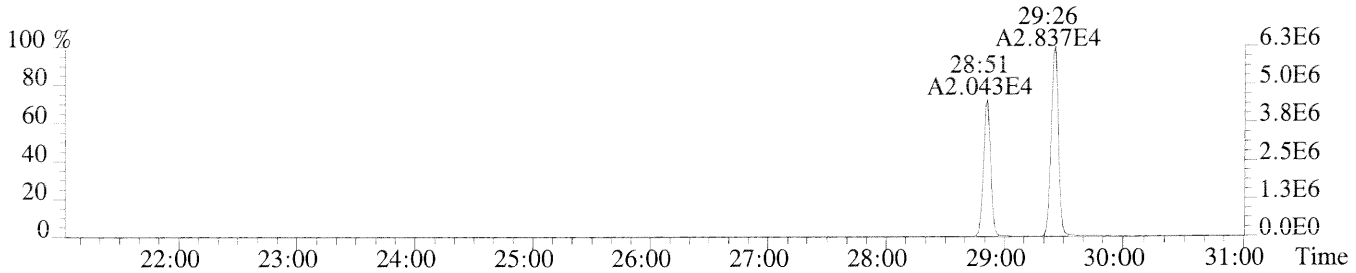
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,856.0,1.00%,F,T)



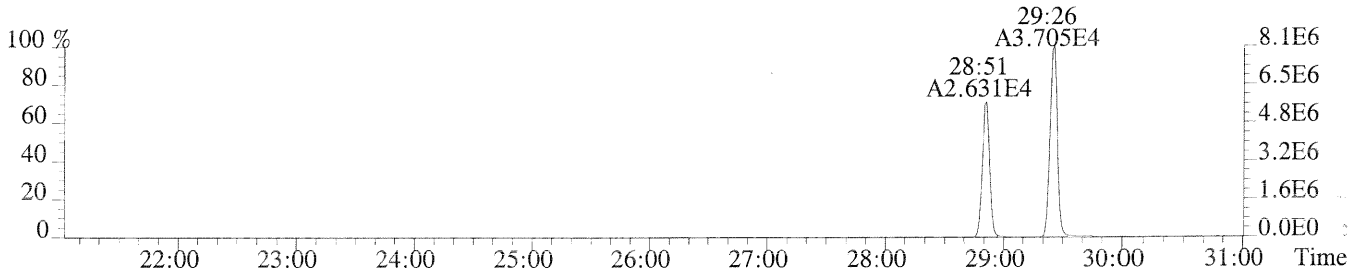
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



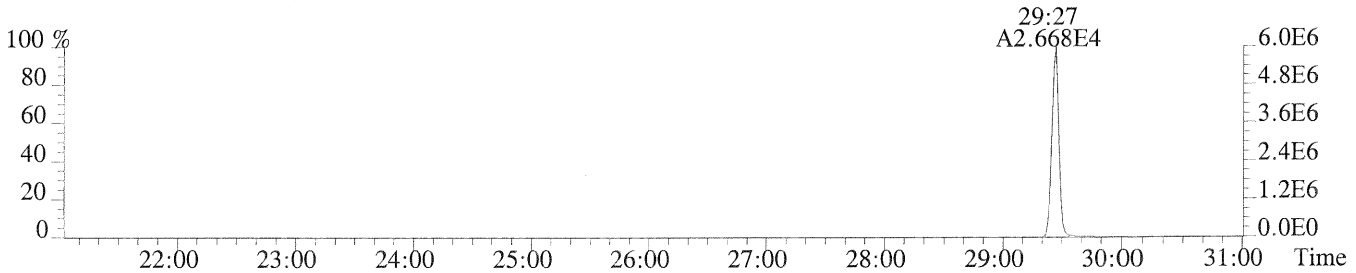
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2456.0,1.00%,F,T)



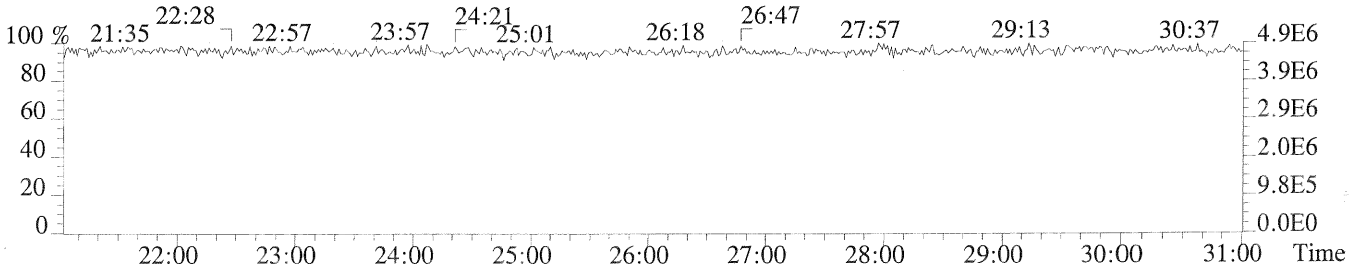
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1192.0,1.00%,F,T)



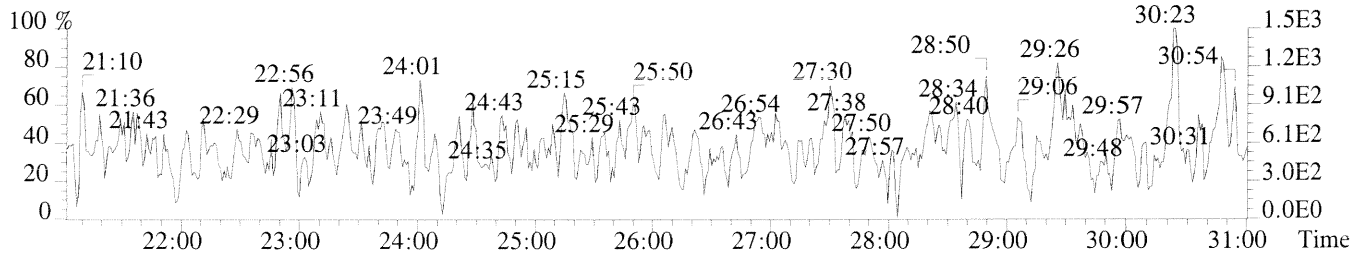
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



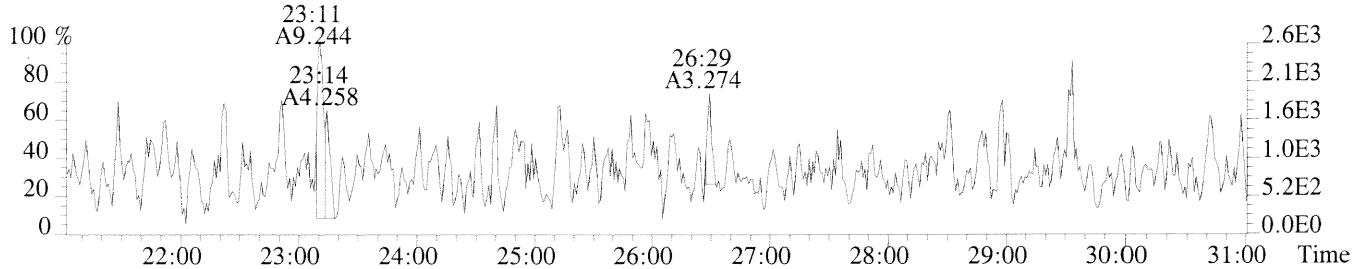
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



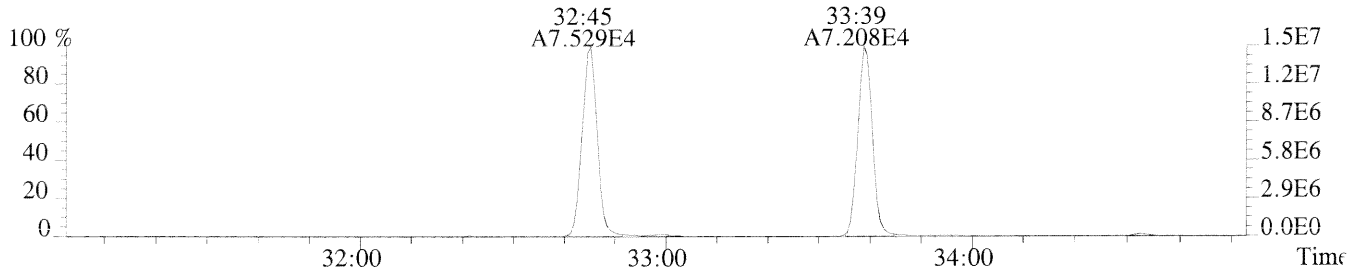
File:U149176 #1-627 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



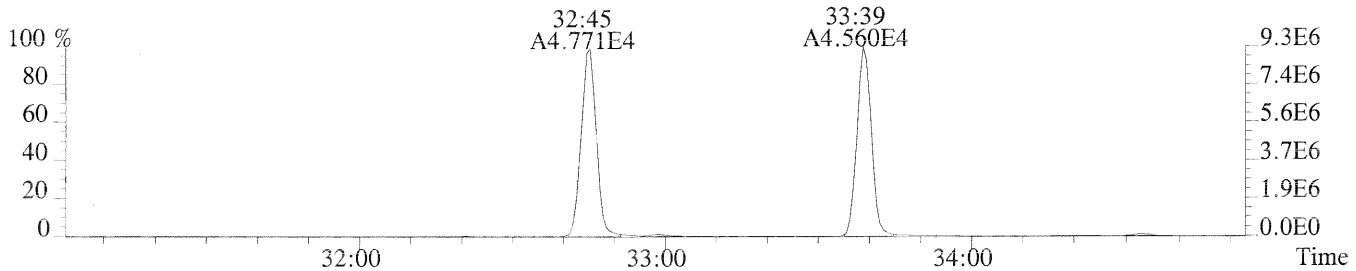
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1052.0,1.00%,F,T)



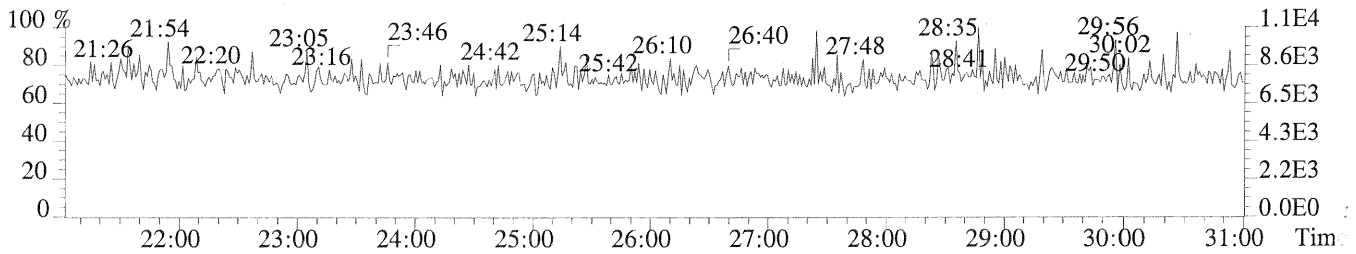
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



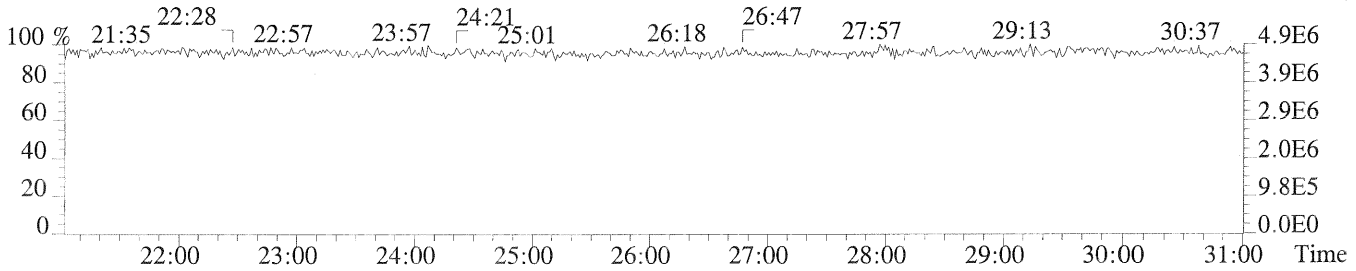
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

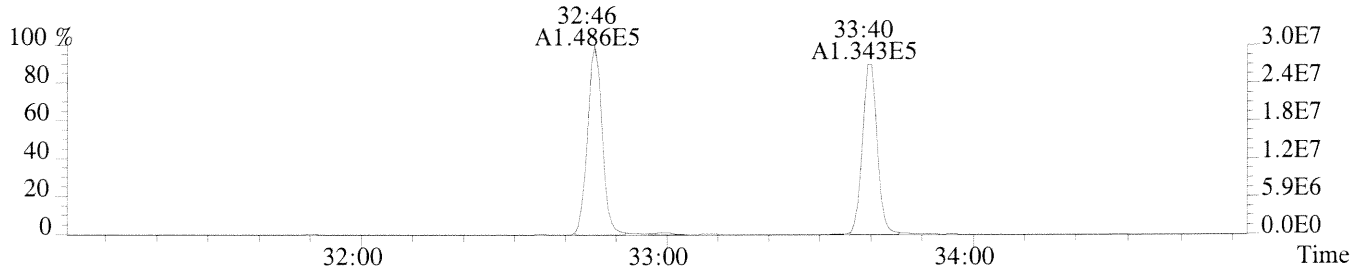


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

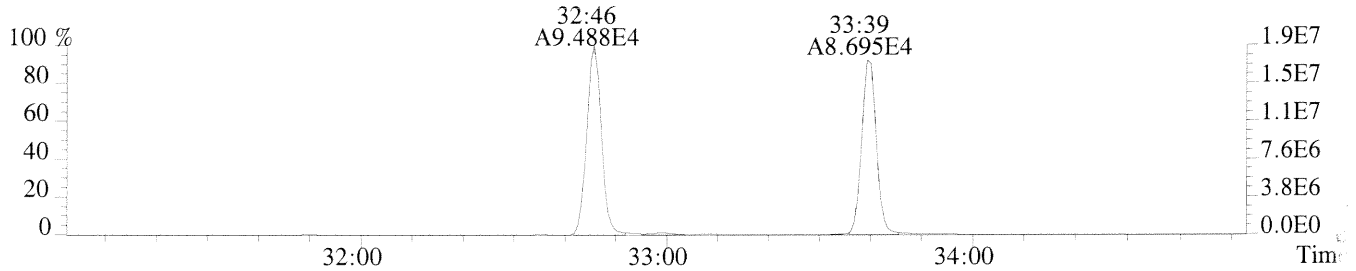


File:U149176 #1-349 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

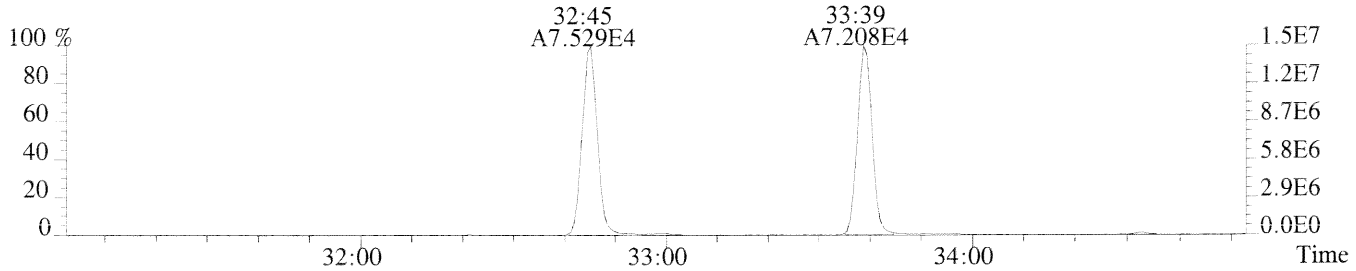
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



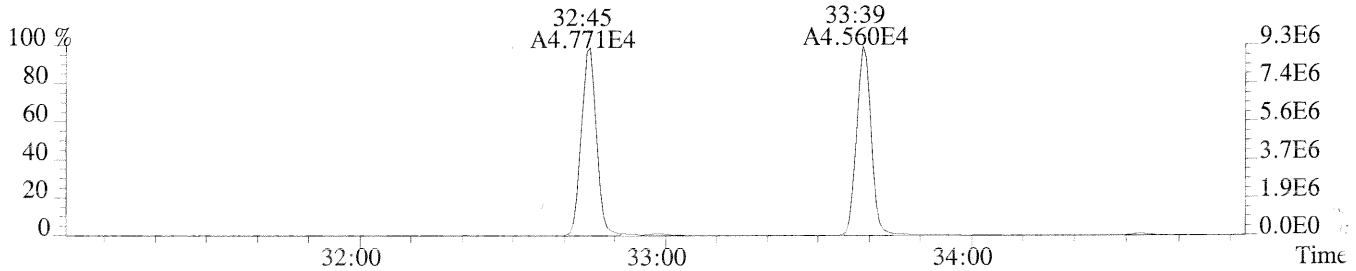
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1460.0,1.00%,F,T)



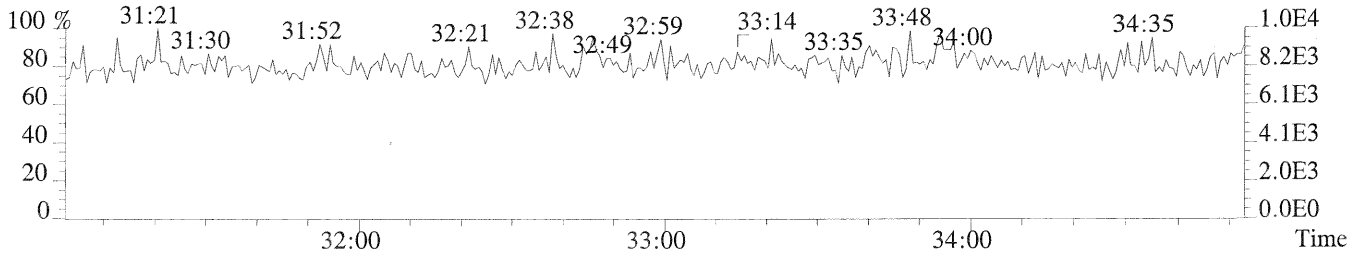
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1136.0,1.00%,F,T)



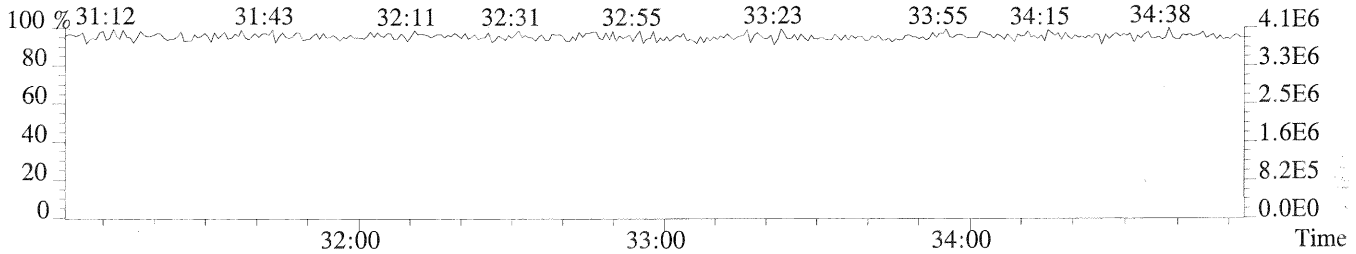
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,992.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

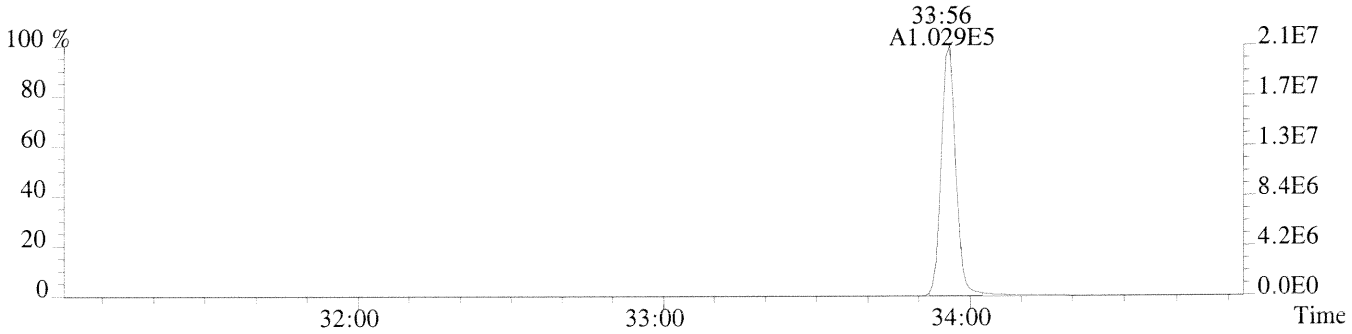


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

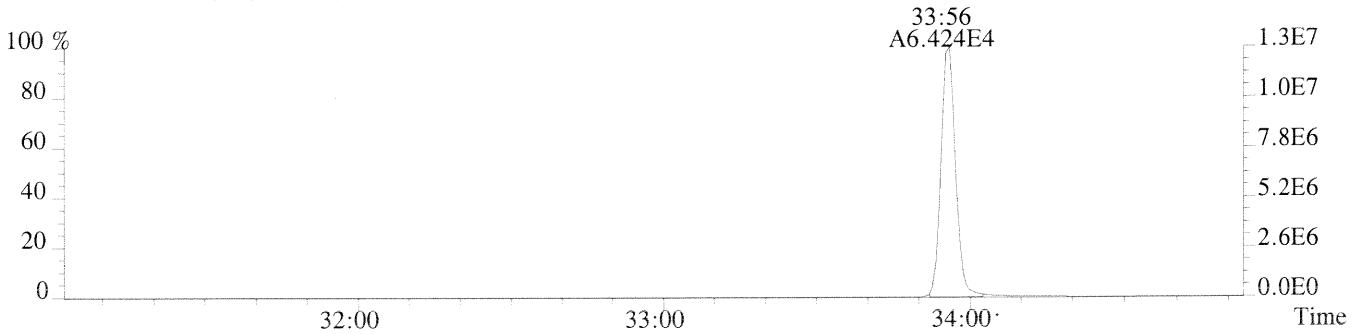


File:U149176 #1-349 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

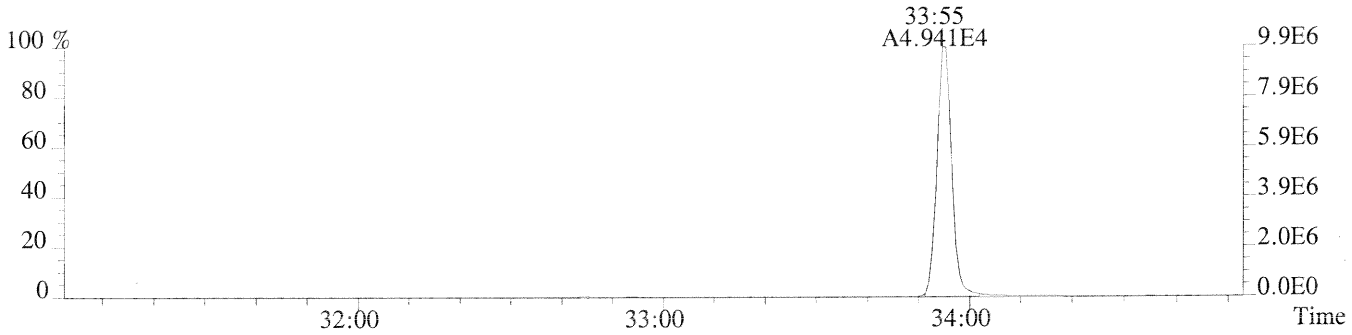
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



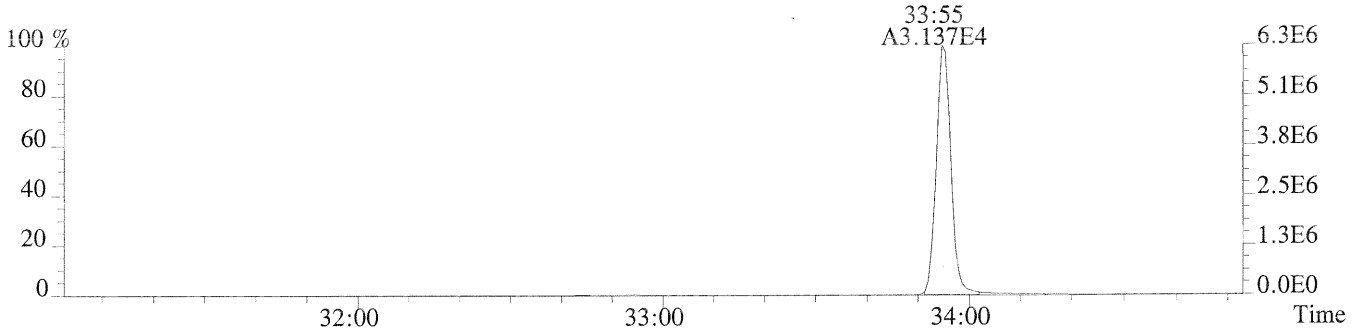
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)



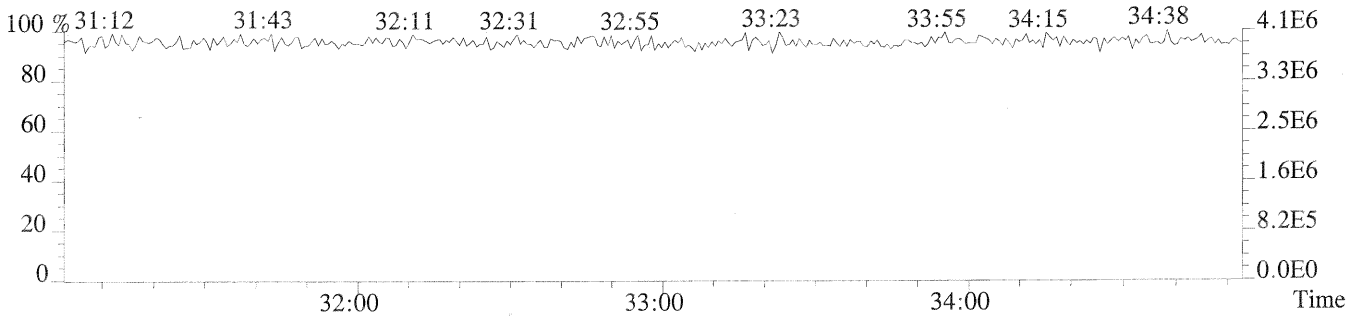
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,840.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)

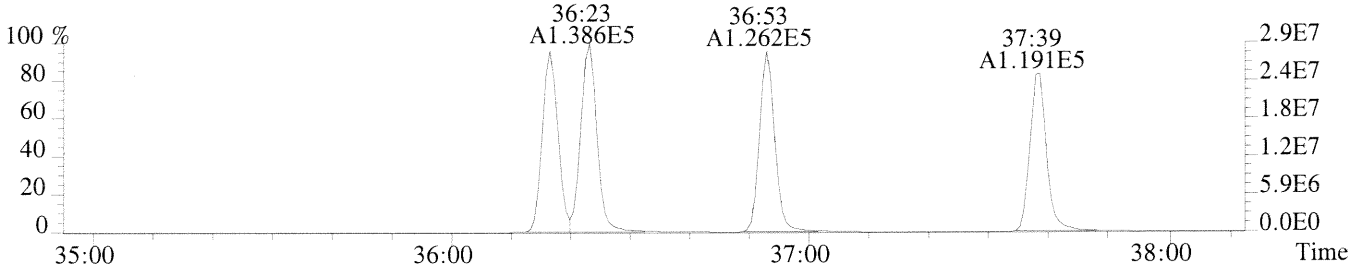


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

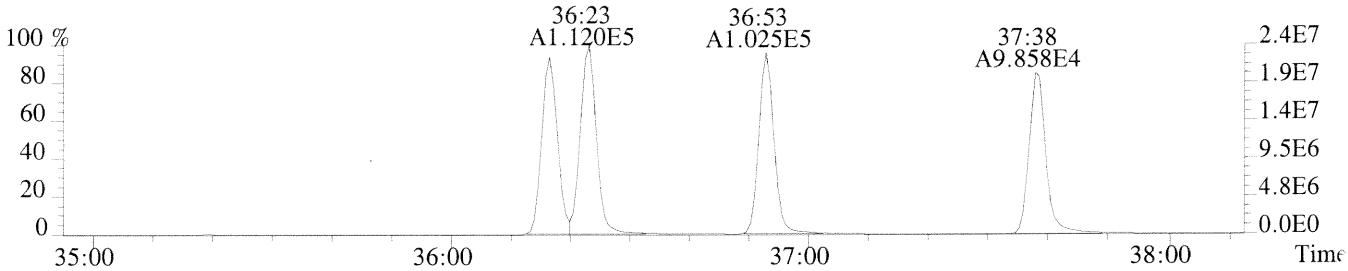


File:U149176 #1-299 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

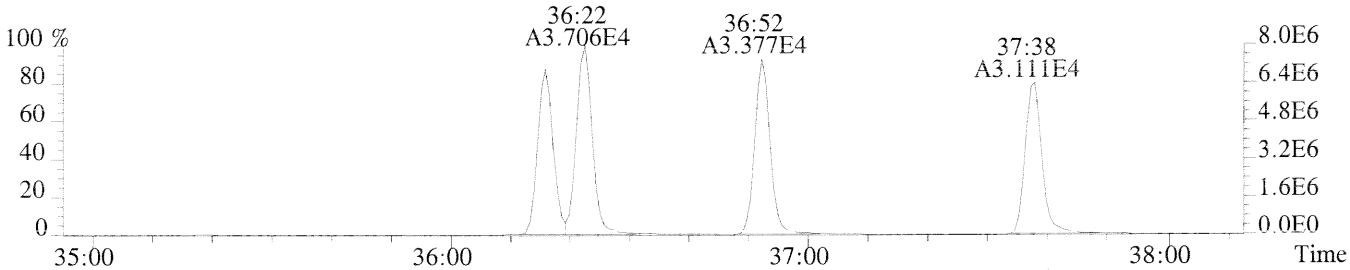
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1448.0,0.40%,F,T)



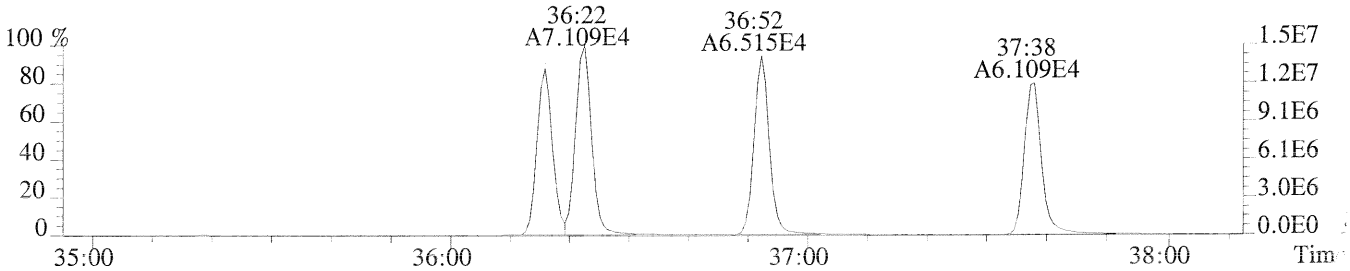
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1000.0,0.40%,F,T)



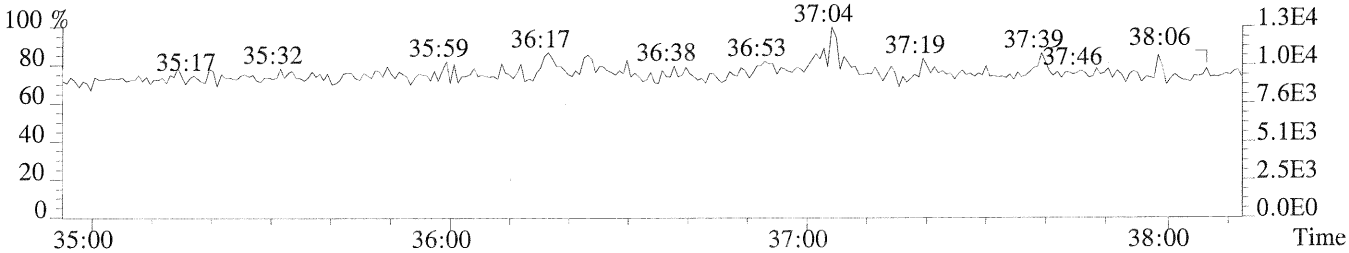
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,800.0,0.40%,F,T)



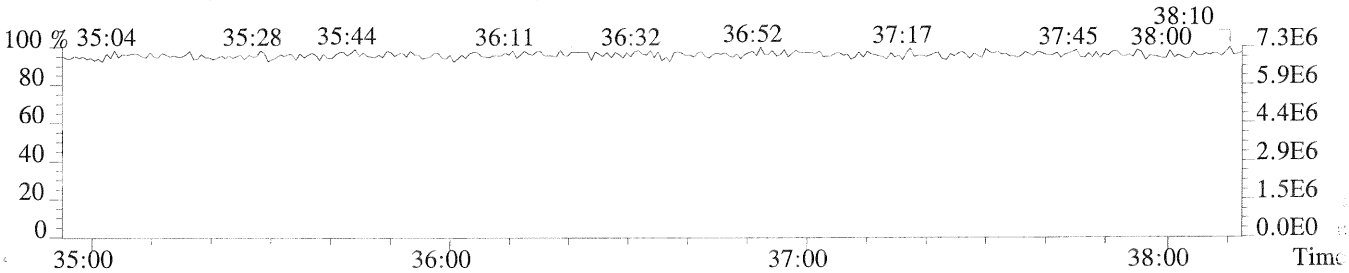
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

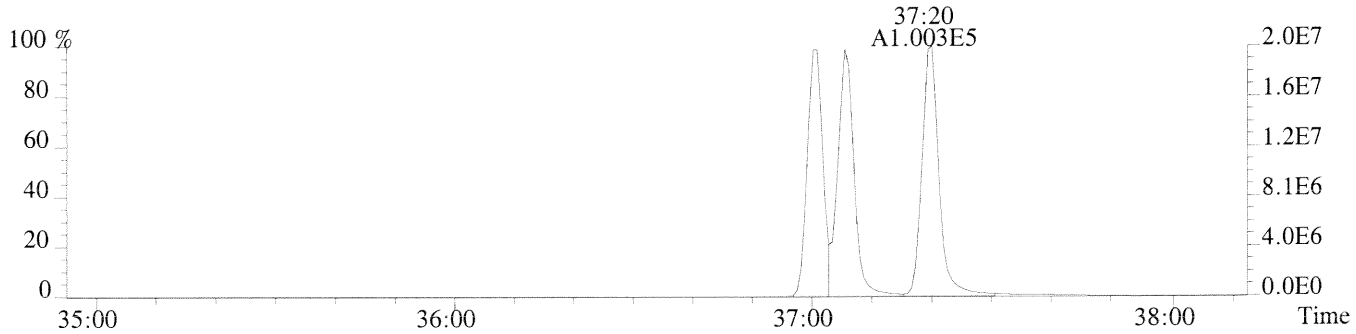


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

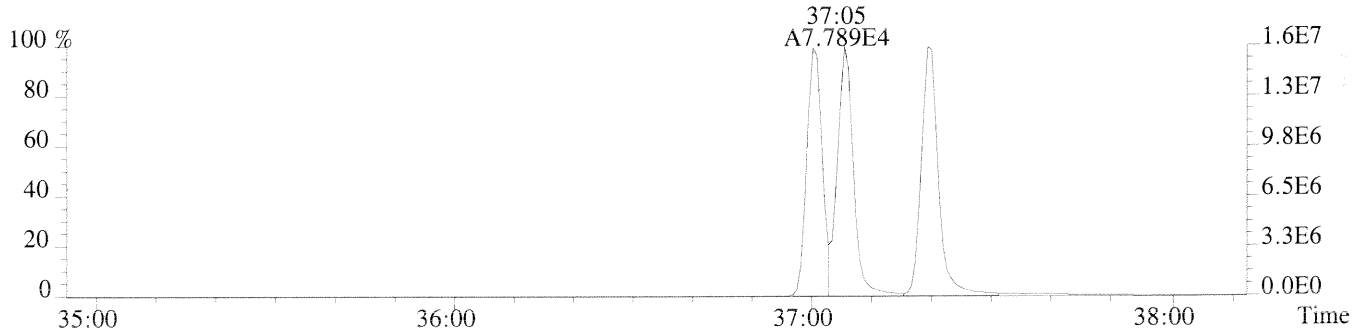


File:U149176 #1-299 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

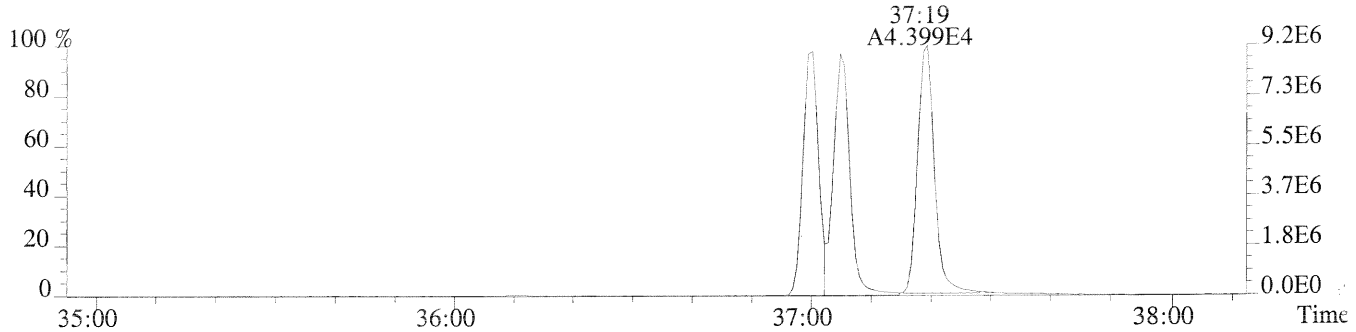
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



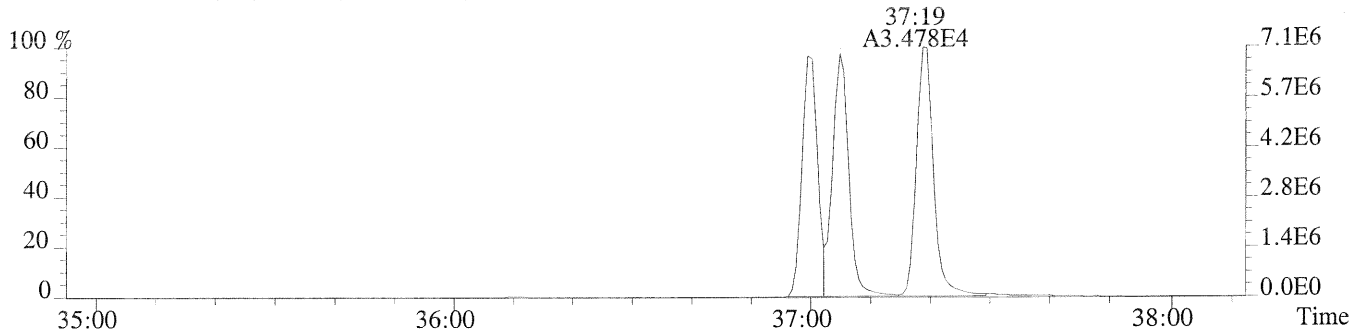
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



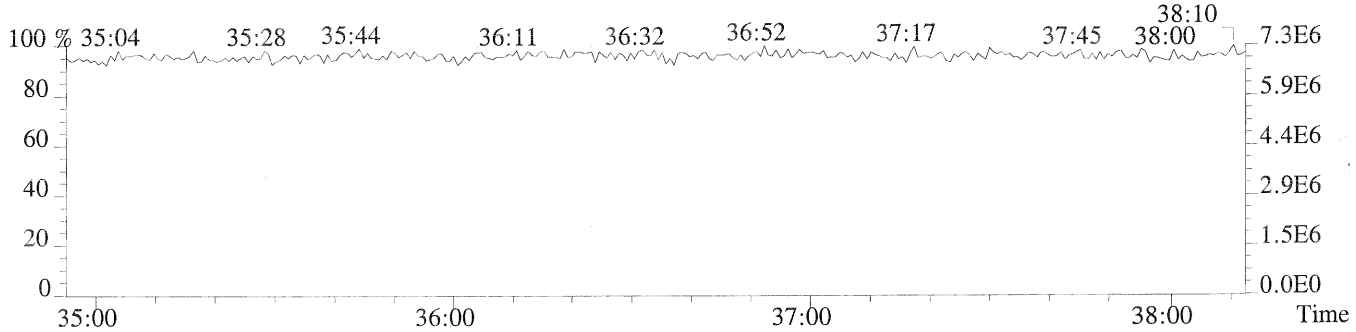
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)

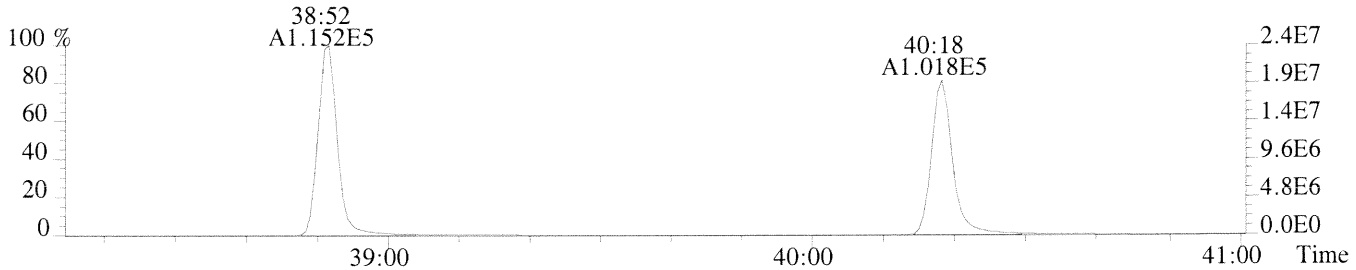


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

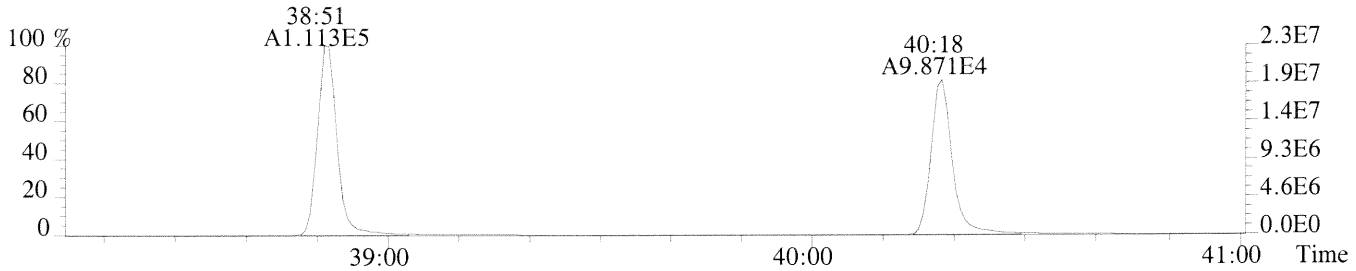


File:U149176 #1-252 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

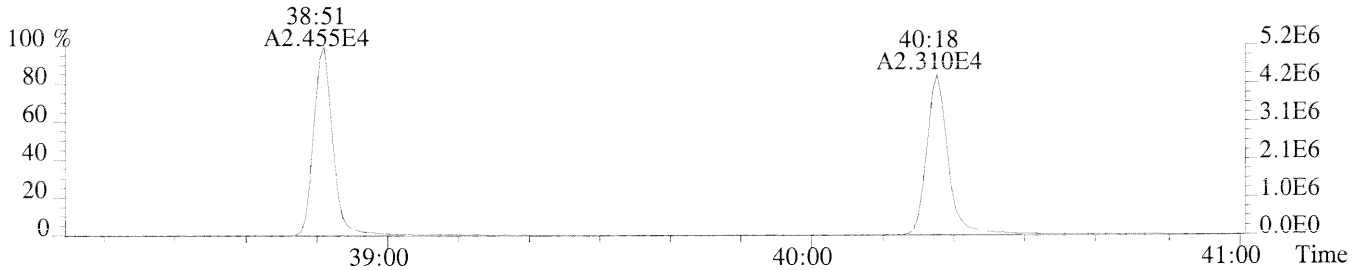
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,5824.0,0.50%,F,T)



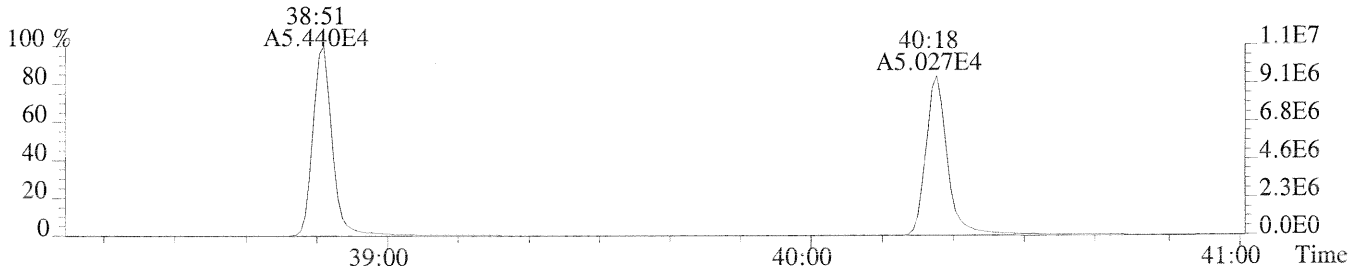
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13432.0,0.50%,F,T)



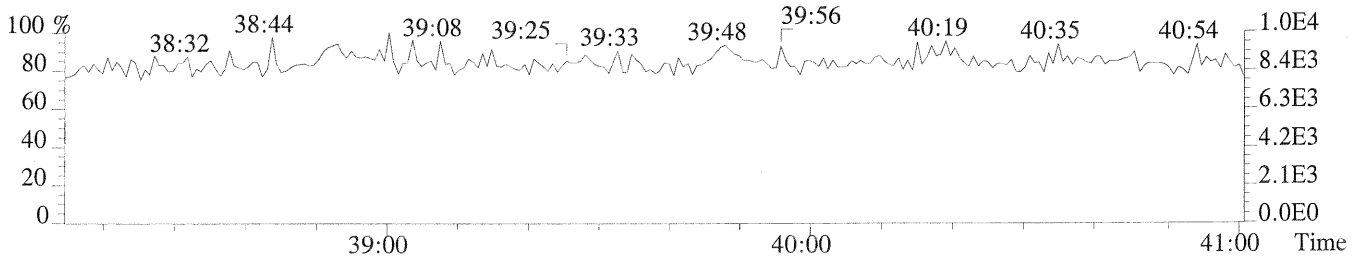
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2160.0,0.50%,F,T)



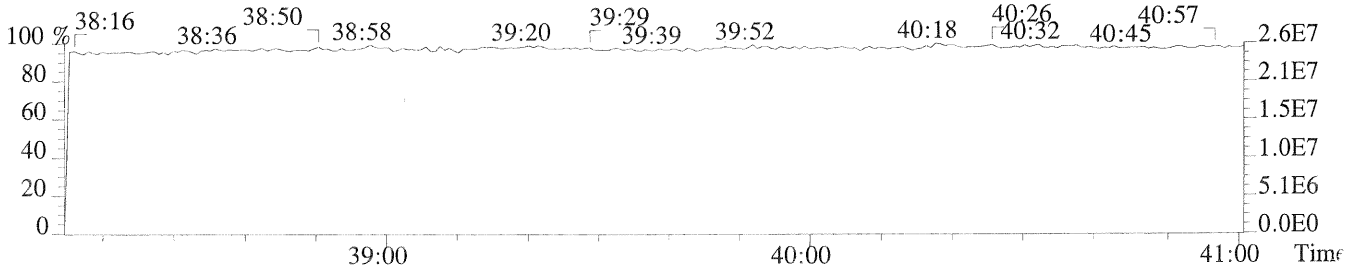
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3800.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

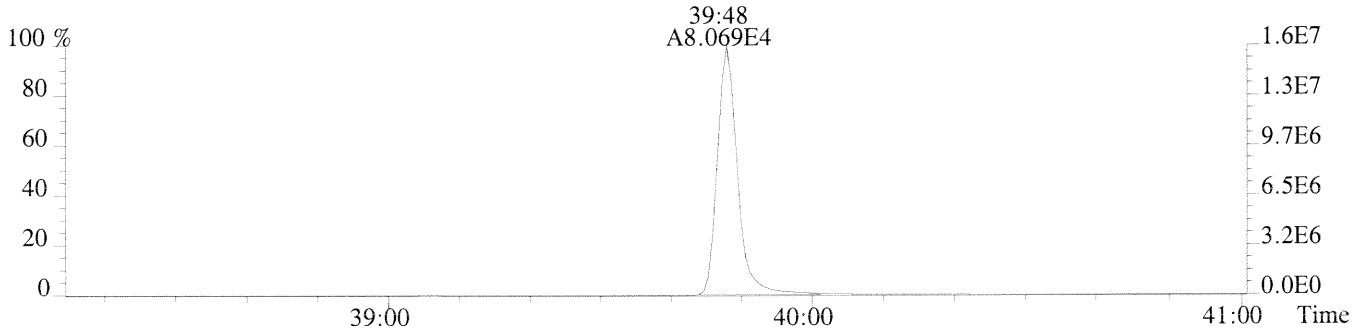


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

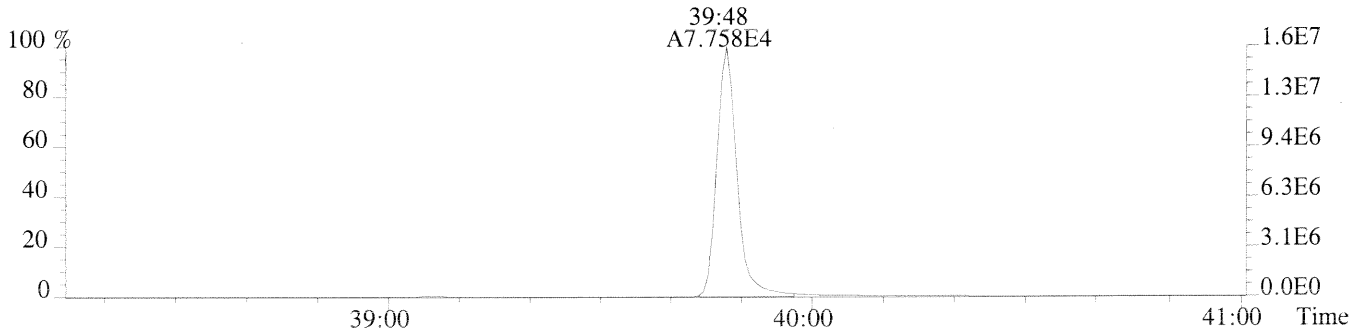


File:U149176 #1-252 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

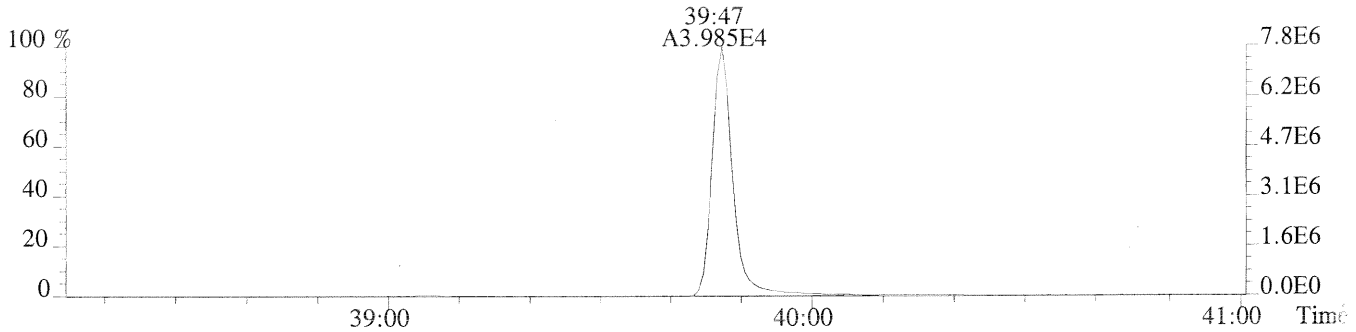
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



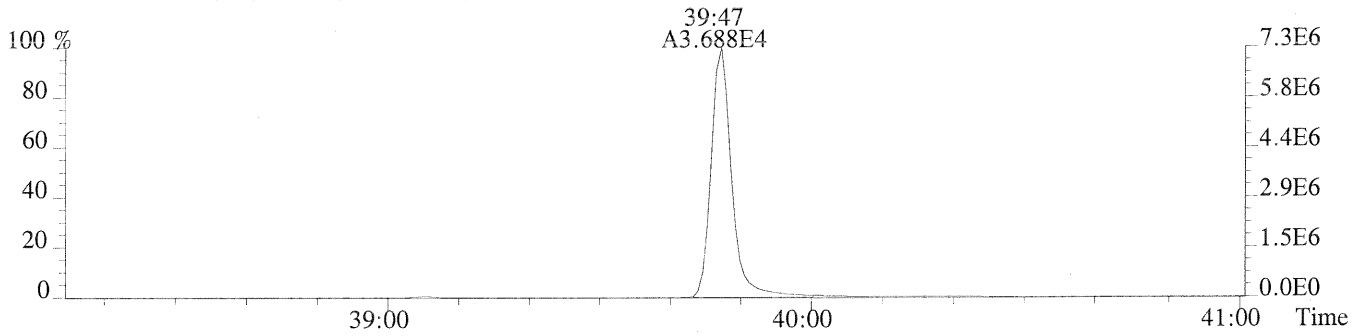
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.40%,F,T)



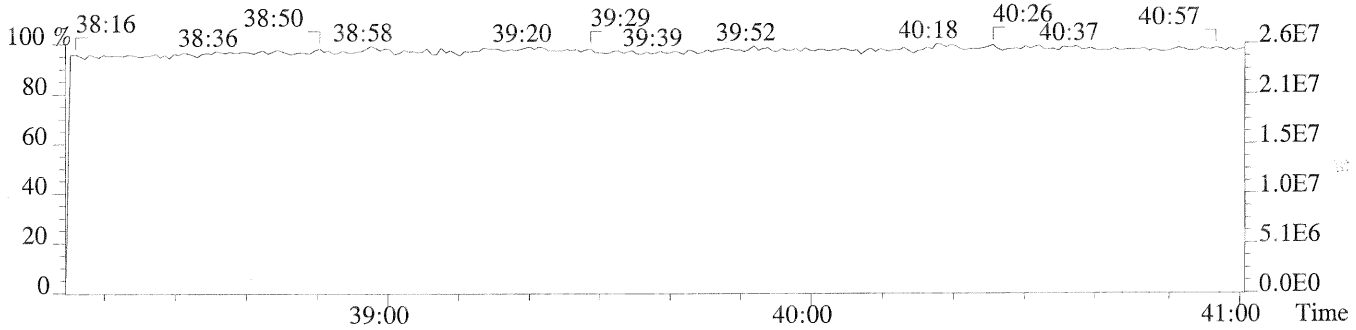
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



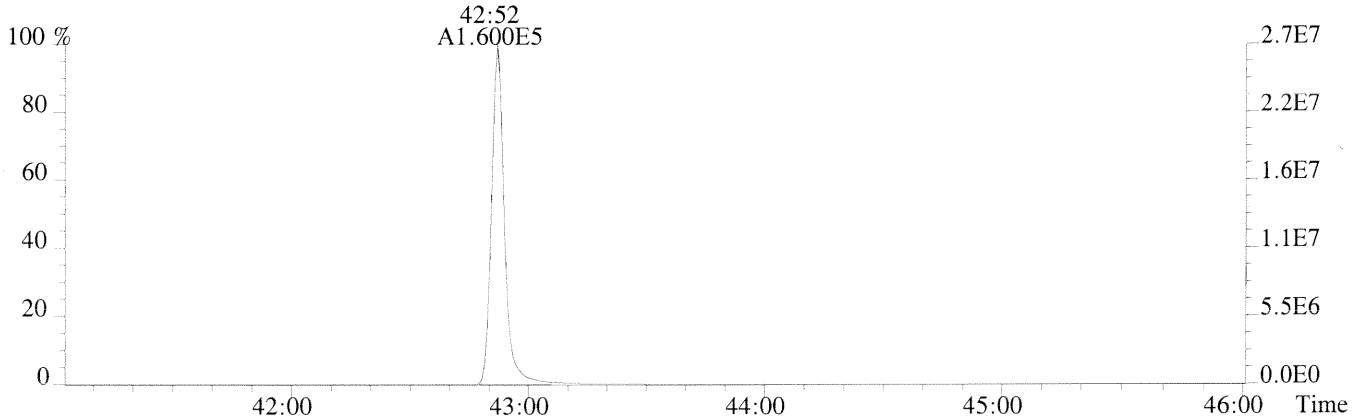
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,576.0,0.40%,F,T)



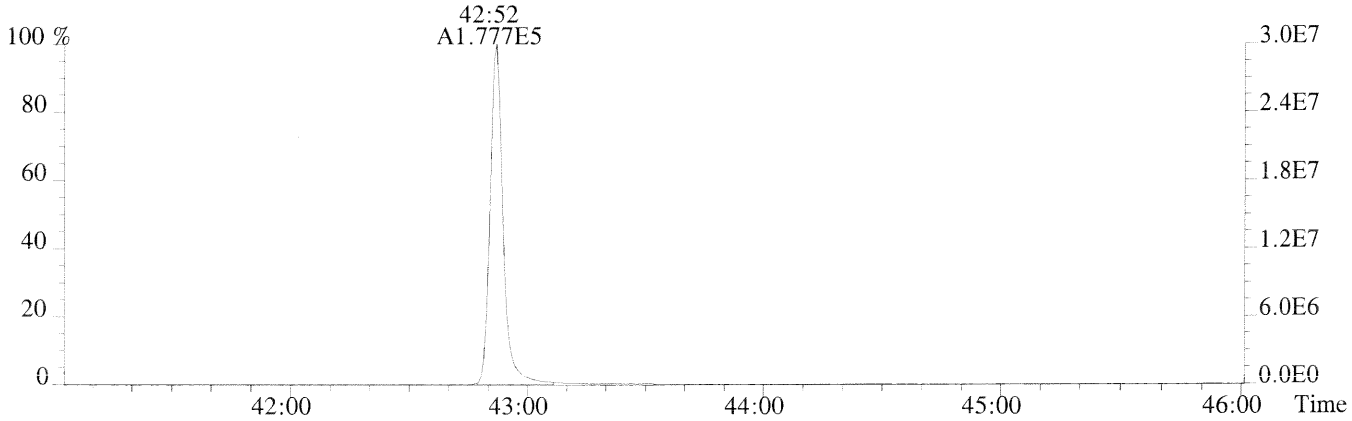
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



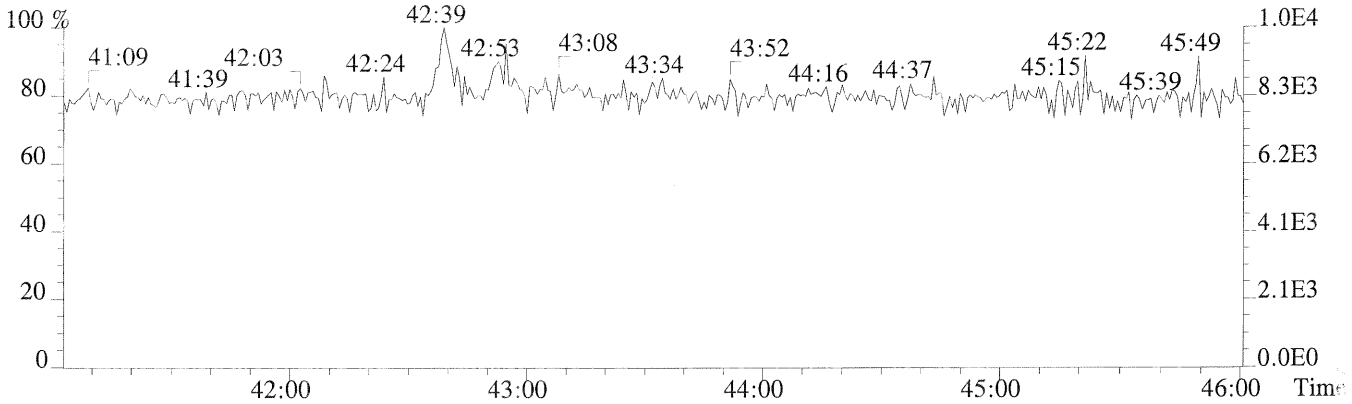
File:U149176 #1-451 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



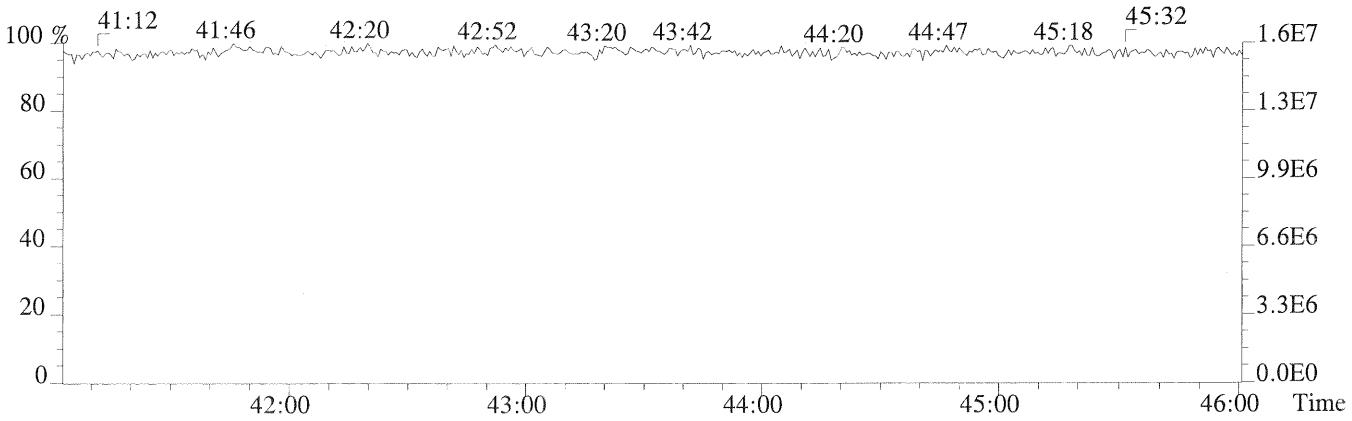
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,952.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

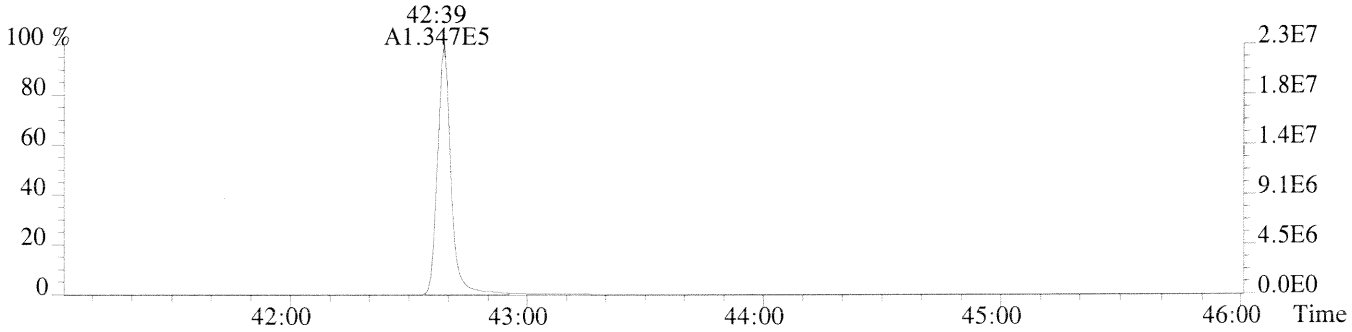


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

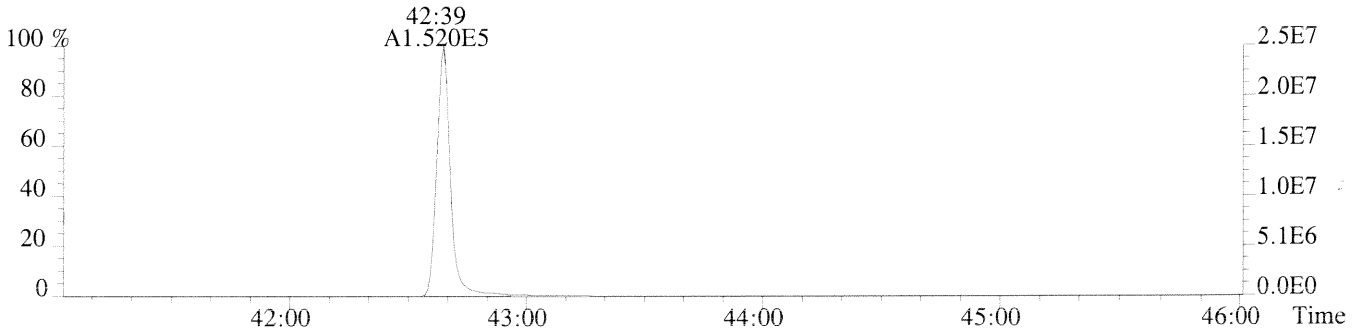


File:U149176 #1-451 Acq:21-MAY-2014 18:03:46 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS4 HRCC4/CS4

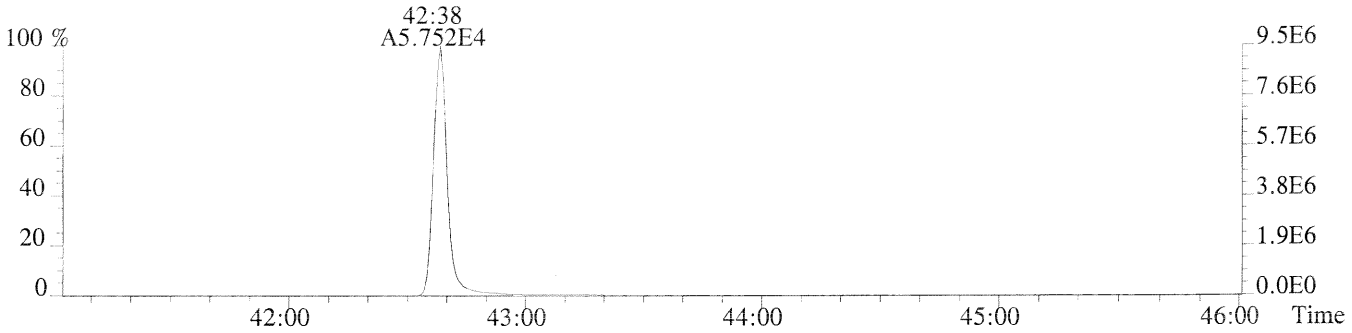
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,700.0,0.40%,F,T)



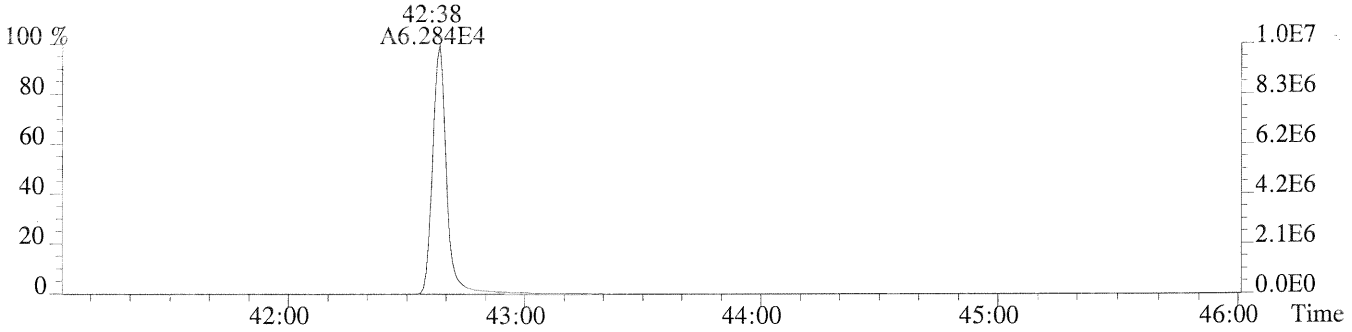
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



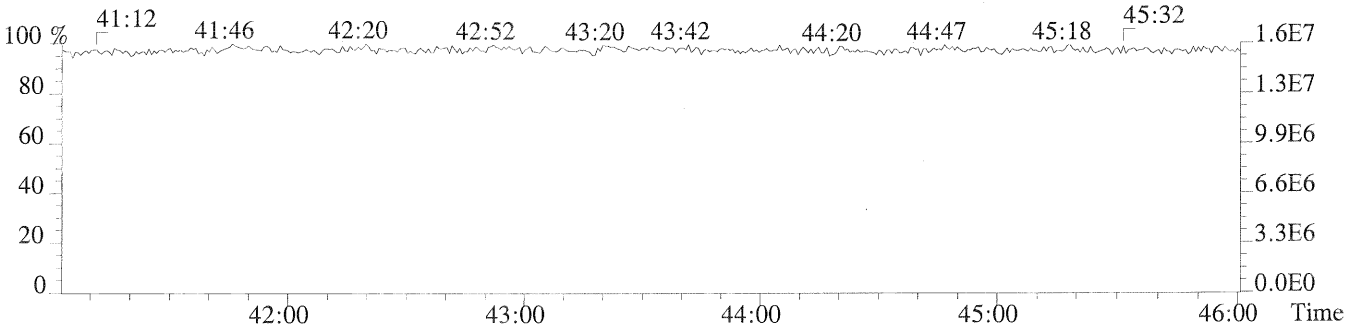
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,688.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
CS5

Run #6 Filename U149177 Samp: 1 Inj: 1 Acquired: 21-MAY-14 18:52:20
Processed: 23-MAY-14 08:49:35 Sample ID: 66799

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	6.477e+04	8.559e+04	0.76	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	6.184e+05	3.977e+05	1.55	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	6.261e+05	4.054e+05	1.54	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	5.594e+05	4.532e+05	1.23	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:23	5.909e+05	4.768e+05	1.24	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	5.328e+05	4.390e+05	1.21	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	5.117e+05	4.037e+05	1.27	yes	yes	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	4.911e+05	4.744e+05	1.04	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:18	4.314e+05	4.178e+05	1.03	yes	no	1.359
10	Unk	OCDF	42:53	7.080e+05	7.806e+05	0.91	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:27	5.122e+04	6.435e+04	0.80	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:56	4.515e+05	2.846e+05	1.59	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:01	4.188e+05	3.355e+05	1.25	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	3.956e+05	3.174e+05	1.25	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:20	4.304e+05	3.452e+05	1.25	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	3.517e+05	3.351e+05	1.05	yes	no	1.065
17	Unk	OCDD	42:40	5.810e+05	6.606e+05	0.88	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	3.569e+04	4.429e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	6.665e+04	4.263e+04	1.56	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	6.356e+04	4.036e+04	1.57	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	2.895e+04	5.572e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	3.123e+04	5.975e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	2.948e+04	5.742e+04	0.51	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:38	2.751e+04	5.265e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:51	2.168e+04	4.763e+04	0.46	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.879e+04	4.117e+04	0.46	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	2.591e+04	3.312e+04	0.78	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	4.302e+04	2.721e+04	1.58	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:00	3.438e+04	2.660e+04	1.29	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	3.994e+04	3.108e+04	1.29	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	3.490e+04	3.262e+04	1.07	yes	no	0.936
32	IS	13C-OCDD	42:39	5.549e+04	6.033e+04	0.92	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	2.515e+04	3.233e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:19	3.836e+04	3.056e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	1.191e+05				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
CS5

#6 Filename U149177 Samp: 1 Inj: 1 Acquired: 21-MAY-14 18:52:20
Processed: 22-MAY-14 12:57:511 LAB. ID: 66799

Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
2,3,7,8-TCDF	1.42e+07	6.76e+02	2.1e+04	1.87e+07	9.88e+02	1.9e+04
1,2,3,7,8-PeCDF	1.24e+08	5.76e+02	2.1e+05	7.92e+07	1.09e+03	7.3e+04
2,3,4,7,8-PeCDF	1.32e+08	5.76e+02	2.3e+05	8.60e+07	1.09e+03	7.9e+04
1,2,3,4,7,8-HxCDF	1.23e+08	3.77e+03	3.3e+04	9.91e+07	1.85e+03	5.4e+04
1,2,3,6,7,8-HxCDF	1.27e+08	3.77e+03	3.4e+04	1.04e+08	1.85e+03	5.6e+04
2,3,4,6,7,8-HxCDF	1.21e+08	3.77e+03	3.2e+04	9.81e+07	1.85e+03	5.3e+04
1,2,3,7,8,9-HxCDF	1.14e+08	3.77e+03	3.0e+04	9.22e+07	1.85e+03	5.0e+04
1,2,3,4,6,7,8-HpCDF	1.10e+08	2.34e+04	4.7e+03	1.07e+08	2.15e+04	5.0e+03
1,2,3,4,7,8,9-HpCDF	8.73e+07	2.34e+04	3.7e+03	8.51e+07	2.15e+04	4.0e+03
OCDF	1.29e+08	6.48e+02	2.0e+05	1.43e+08	8.08e+02	1.8e+05
2,3,7,8-TCDD	1.17e+07	7.08e+02	1.6e+04	1.48e+07	7.56e+02	2.0e+04
1,2,3,7,8-PeCDD	9.48e+07	7.92e+02	1.2e+05	6.00e+07	7.32e+02	8.2e+04
1,2,3,4,7,8-HxCDD	9.93e+07	7.00e+02	1.4e+05	7.93e+07	6.88e+02	1.2e+05
1,2,3,6,7,8-HxCDD	8.75e+07	7.00e+02	1.2e+05	7.03e+07	6.88e+02	1.0e+05
1,2,3,7,8,9-HxCDD	9.60e+07	7.00e+02	1.4e+05	7.74e+07	6.88e+02	1.1e+05
1,2,3,4,6,7,8-HpCDD	7.26e+07	4.12e+03	1.8e+04	6.82e+07	2.00e+03	3.4e+04
OCDD	1.06e+08	7.60e+02	1.4e+05	1.20e+08	4.76e+02	2.5e+05
13C-2,3,7,8-TCDF	7.76e+06	6.64e+02	1.2e+04	9.62e+06	9.56e+02	1.0e+04
13C-1,2,3,7,8-PeCDF	1.32e+07	6.44e+02	2.0e+04	8.50e+06	8.96e+02	9.5e+03
13C-2,3,4,7,8-PeCDF	1.33e+07	6.44e+02	2.1e+04	8.48e+06	8.96e+02	9.5e+03
13C-1,2,3,4,7,8-HxCDF	6.34e+06	9.56e+02	6.6e+03	1.21e+07	1.38e+03	8.8e+03
13C-1,2,3,6,7,8-HxCDF	6.72e+06	9.56e+02	7.0e+03	1.28e+07	1.38e+03	9.3e+03
13C-2,3,4,6,7,8-HxCDF	6.63e+06	9.56e+02	6.9e+03	1.28e+07	1.38e+03	9.3e+03
13C-1,2,3,7,8,9-HxCDF	5.98e+06	9.56e+02	6.3e+03	1.15e+07	1.38e+03	8.4e+03
13C-1,2,3,4,6,7,8-HpCDF	4.70e+06	1.58e+03	3.0e+03	1.04e+07	2.46e+03	4.2e+03
13C-1,2,3,4,7,8,9-HpCDF	3.72e+06	1.58e+03	2.4e+03	8.08e+06	2.46e+03	3.3e+03
13C-2,3,7,8-TCDD	5.86e+06	1.95e+03	3.0e+03	7.48e+06	1.45e+03	5.2e+03
13C-1,2,3,7,8-PeCDD	9.00e+06	9.24e+02	9.7e+03	5.71e+06	6.76e+02	8.5e+03
13C-1,2,3,4,7,8-HxCDD	7.98e+06	1.38e+03	5.8e+03	6.23e+06	1.05e+03	5.9e+03
13C-1,2,3,6,7,8-HxCDD	8.82e+06	1.38e+03	6.4e+03	6.89e+06	1.05e+03	6.6e+03
13C-1,2,3,4,6,7,8-HpCDD	7.14e+06	1.31e+03	5.5e+03	6.58e+06	9.60e+02	6.8e+03
13C-OCDD	9.90e+06	6.80e+02	1.5e+04	1.08e+07	6.36e+02	1.7e+04
13C-1,2,3,4-TCDD	5.58e+06	1.95e+03	2.9e+03	7.16e+06	1.45e+03	4.9e+03
13C-1,2,3,7,8,9-HxCDD	8.34e+06	1.38e+03	6.0e+03	6.53e+06	1.05e+03	6.2e+03
37Cl-2,3,7,8-TCDD	2.73e+07	1.06e+03	2.6e+04			

ENVIRONMENTAL
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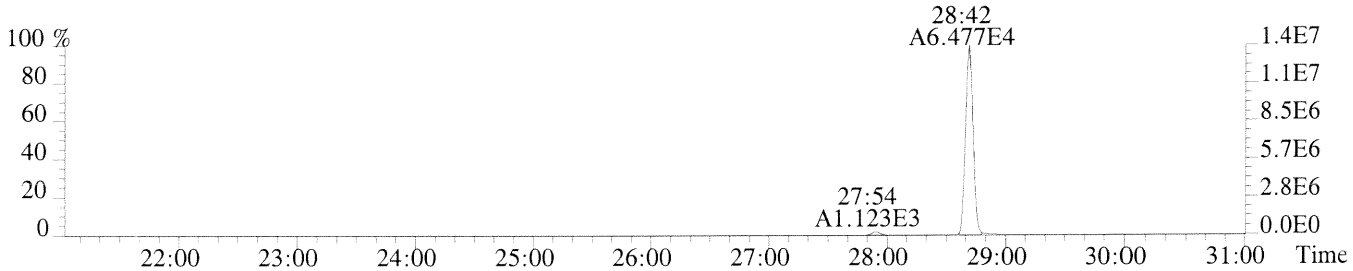
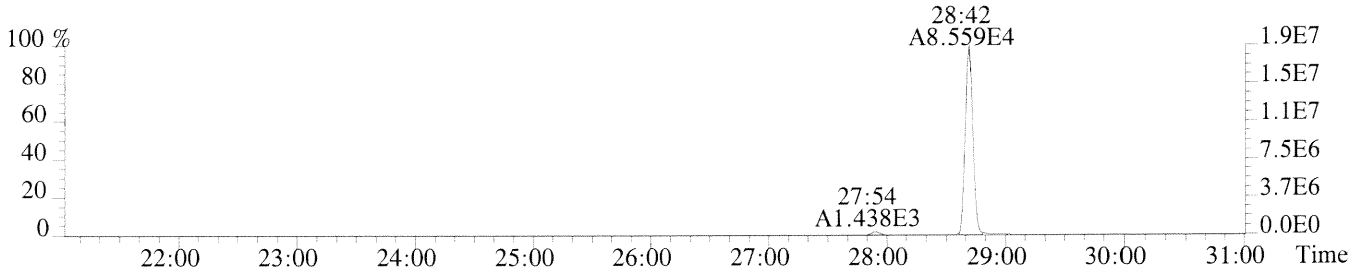
File:U149177 #1-627 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

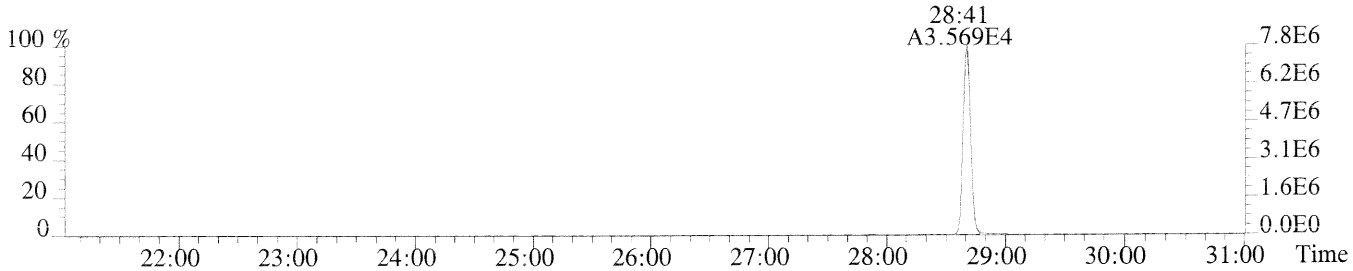
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



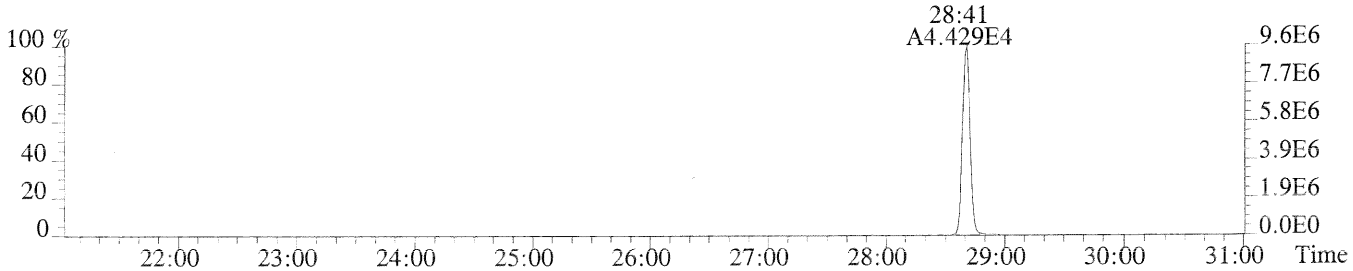
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,988.0,1.00%,F,T)



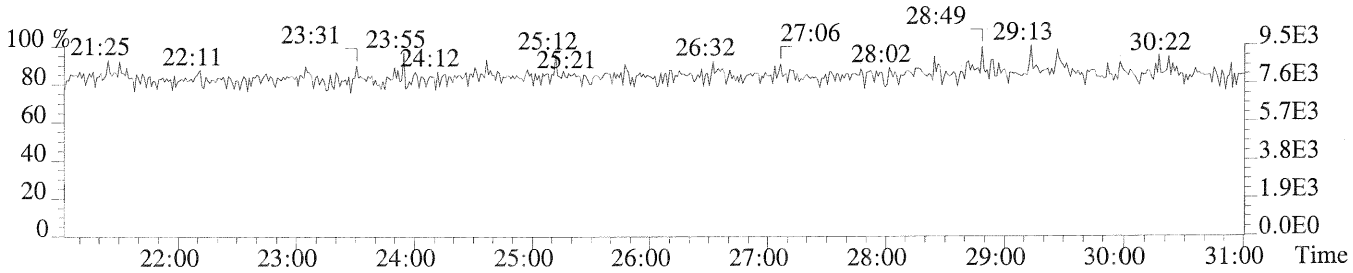
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



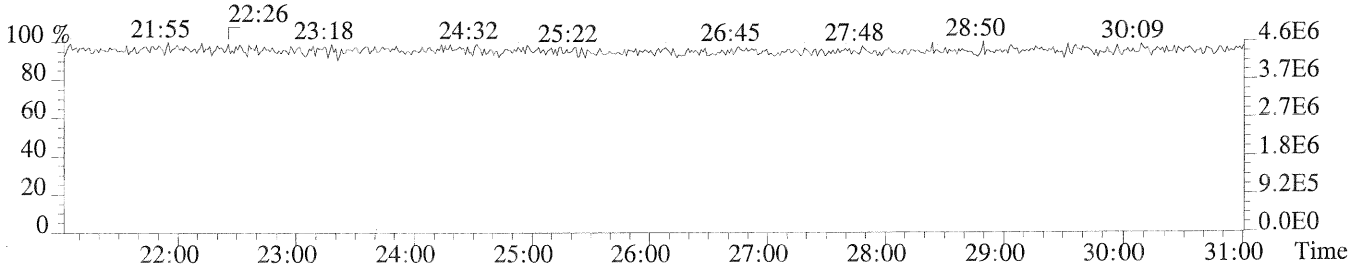
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,956.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

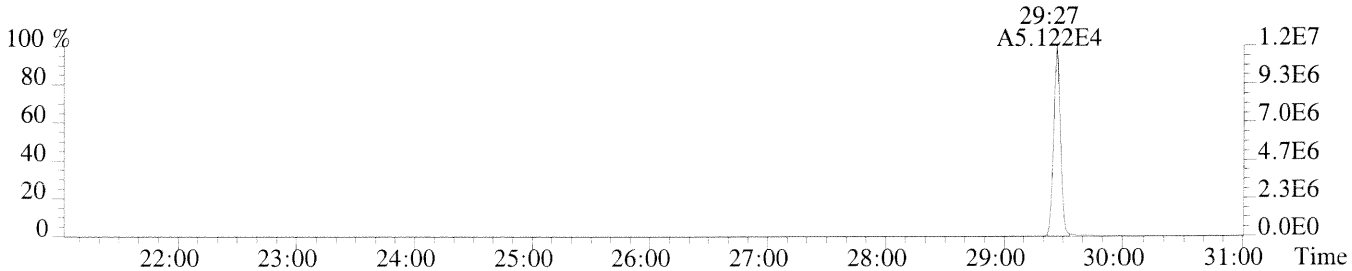


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

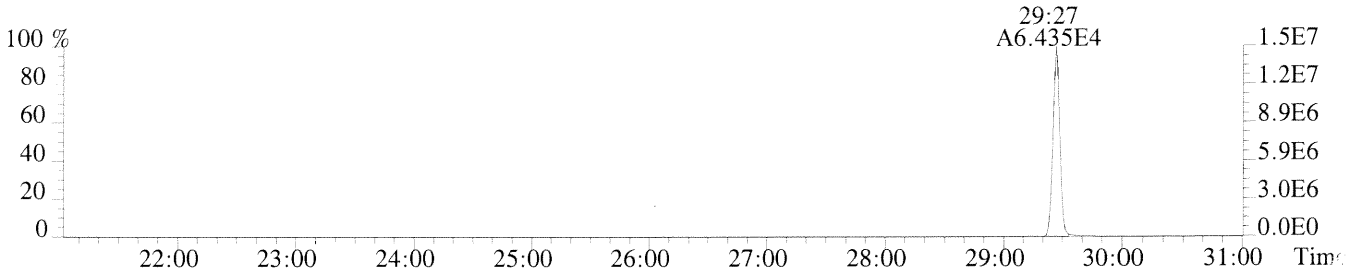


File:U149177 #1-627 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

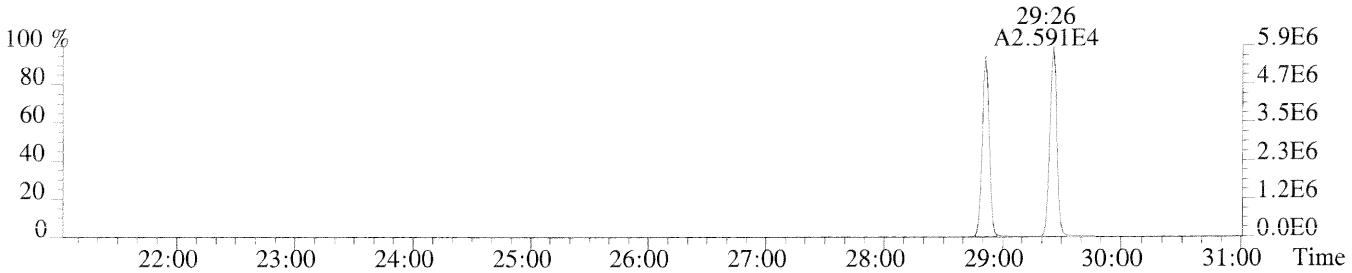
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



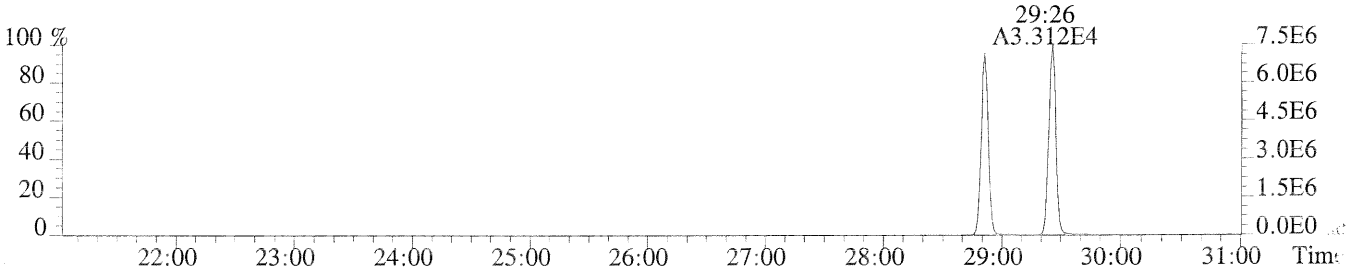
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



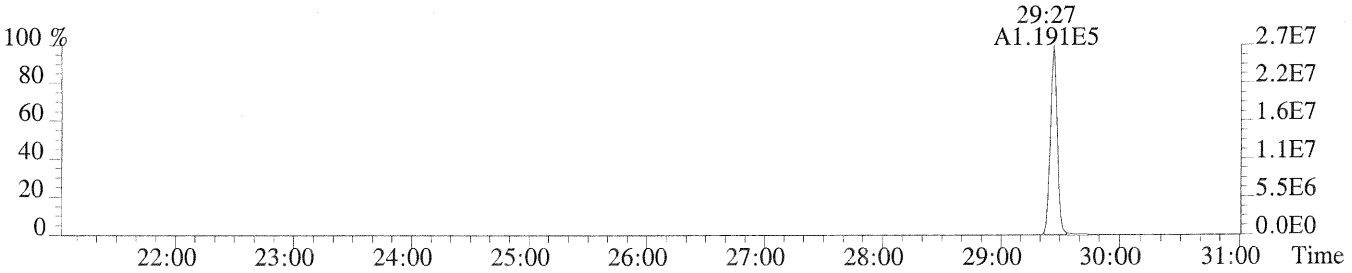
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1952.0,1.00%,F,T)



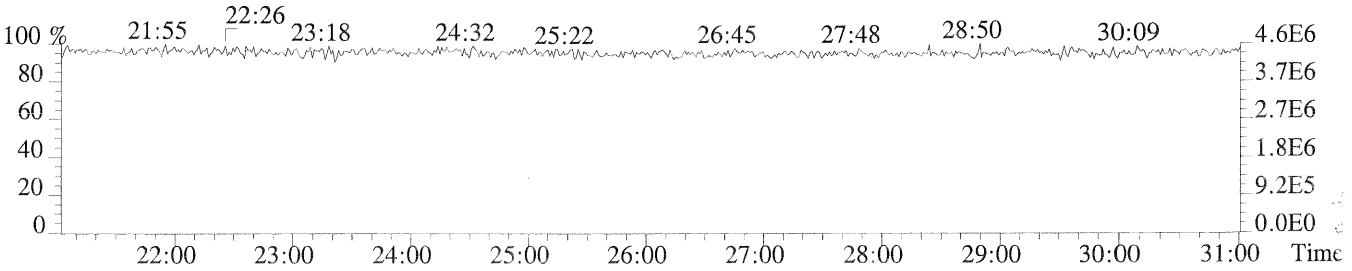
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1452.0,1.00%,F,T)



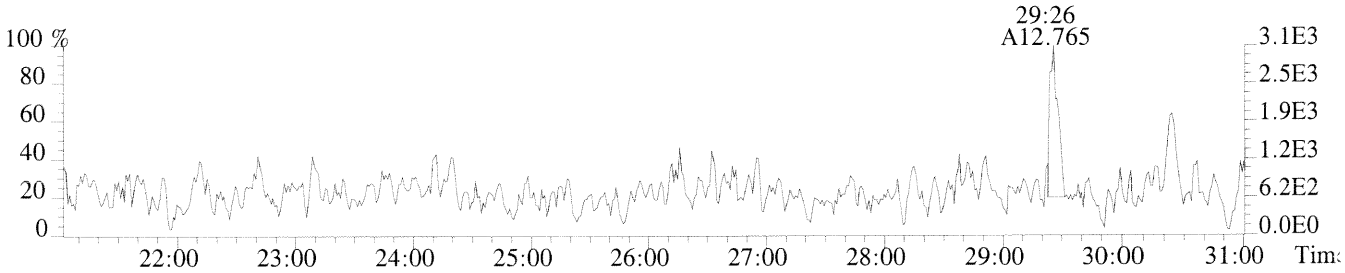
327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1064.0,1.00%,F,T)



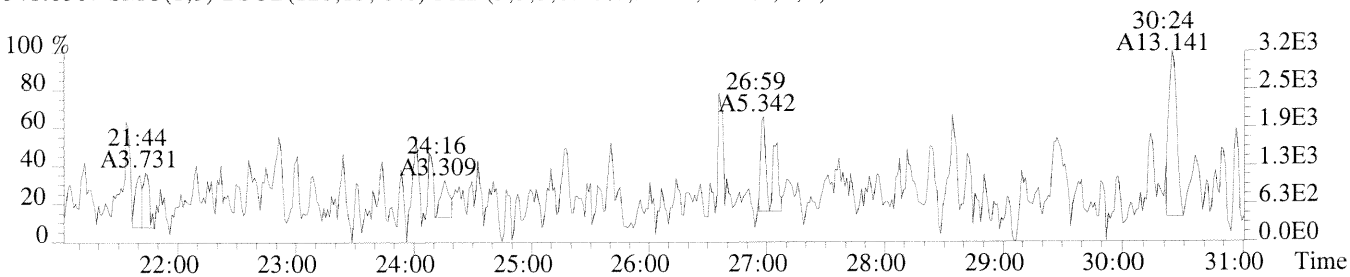
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



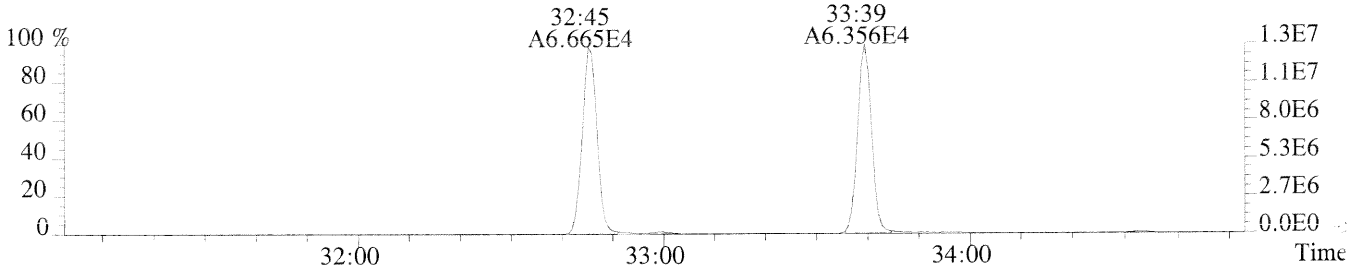
File:U149177 #1-627 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



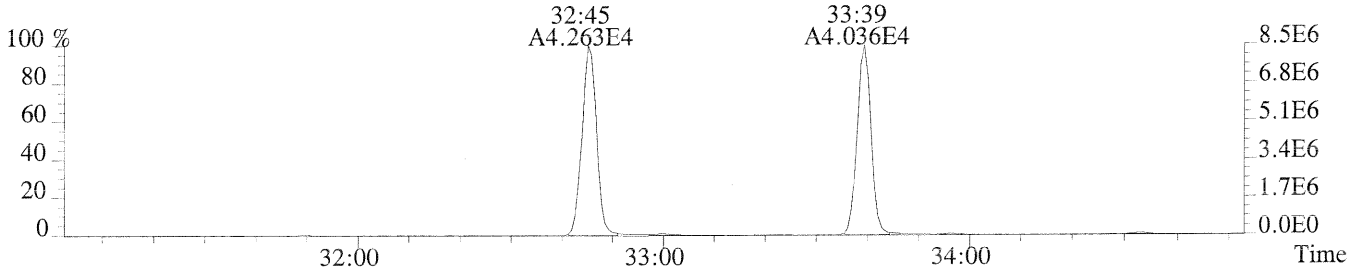
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



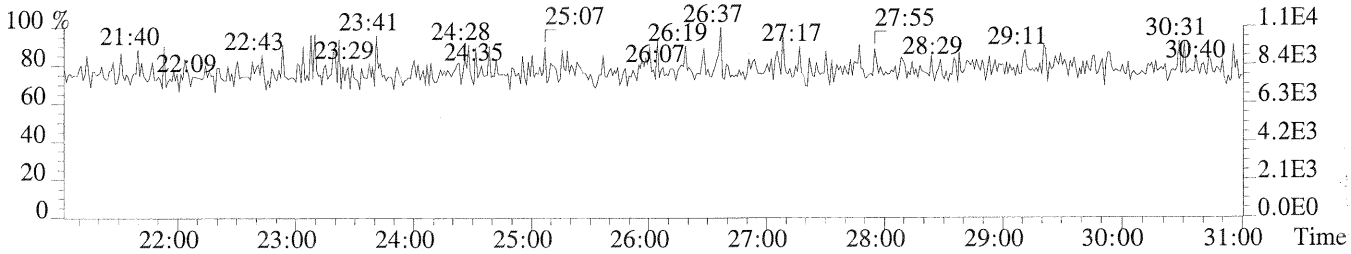
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



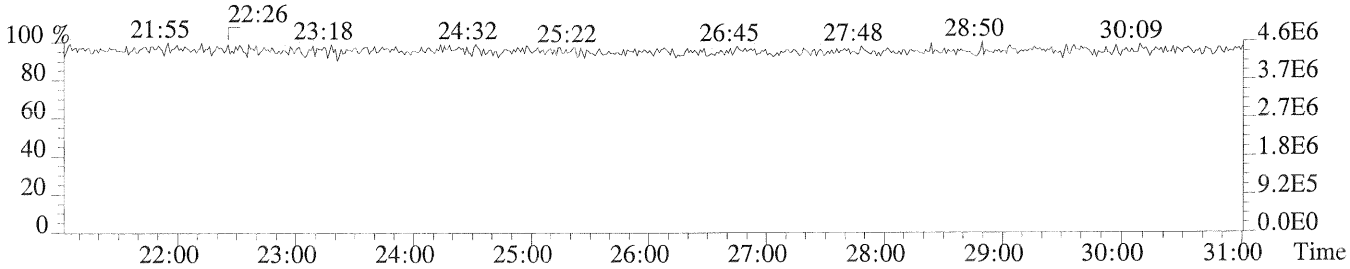
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

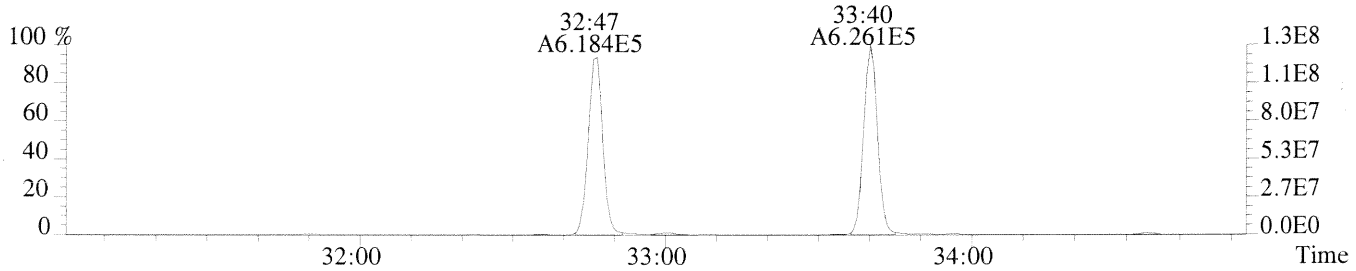


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

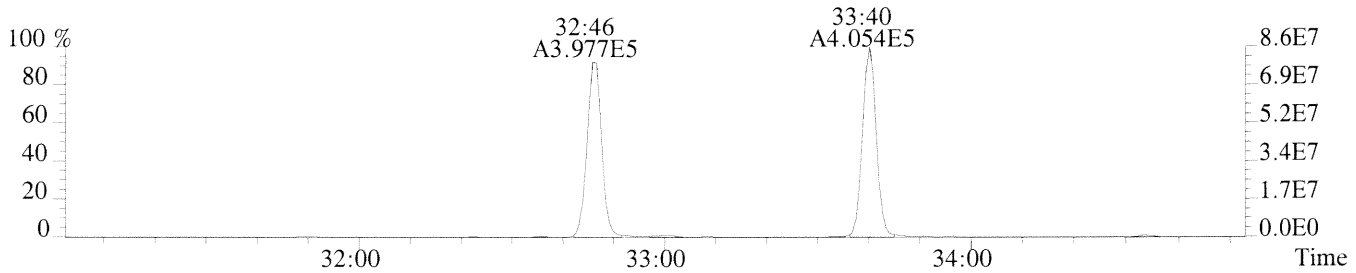


File:U149177 #1-349 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

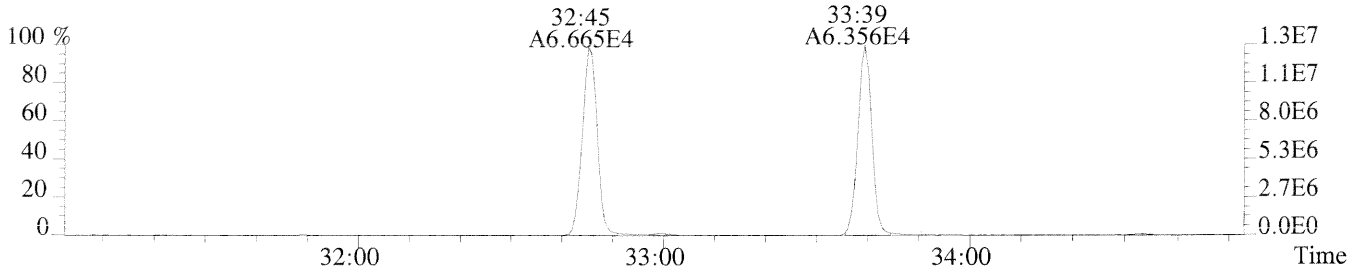
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



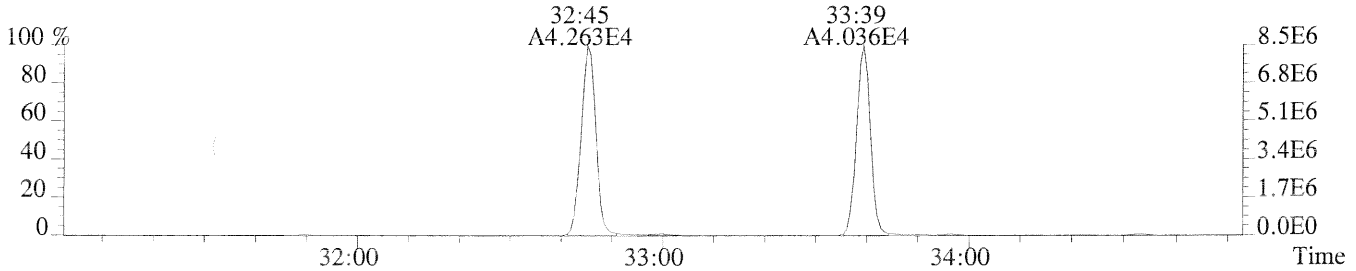
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1092.0,1.00%,F,T)



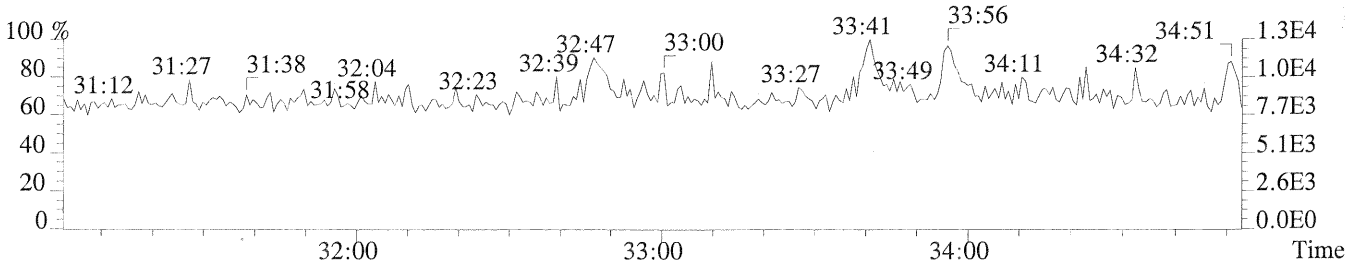
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



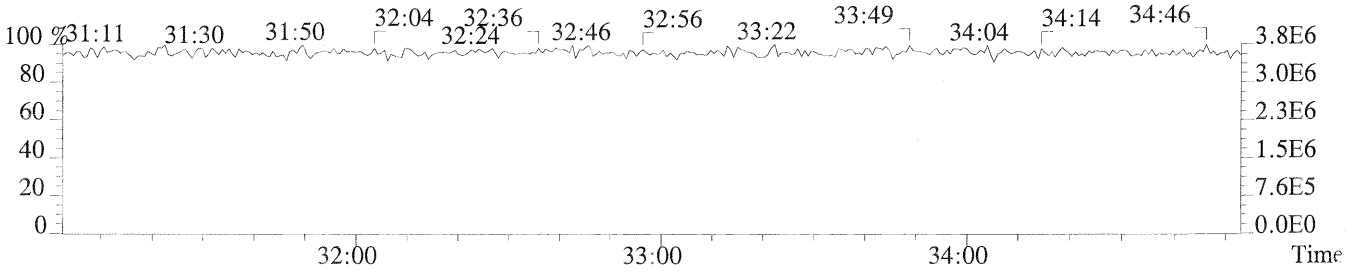
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,896.0,1.00%,F,T)



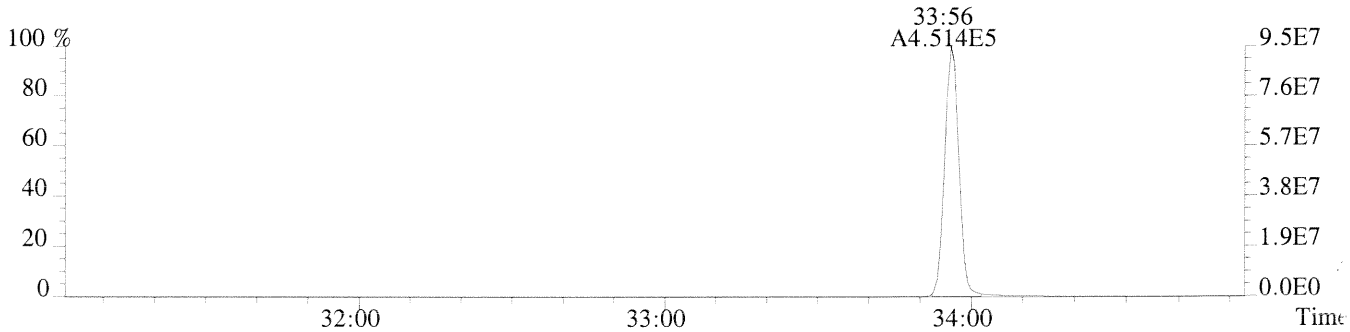
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



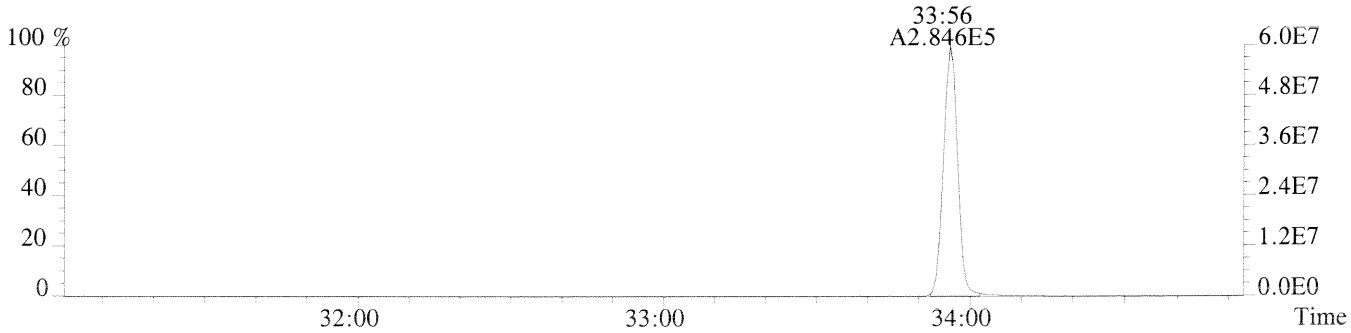
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



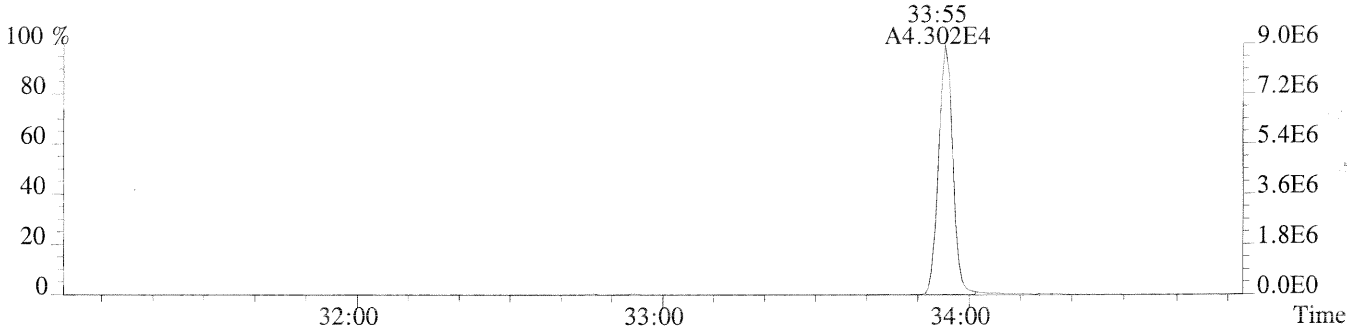
File:U149177 #1-349 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



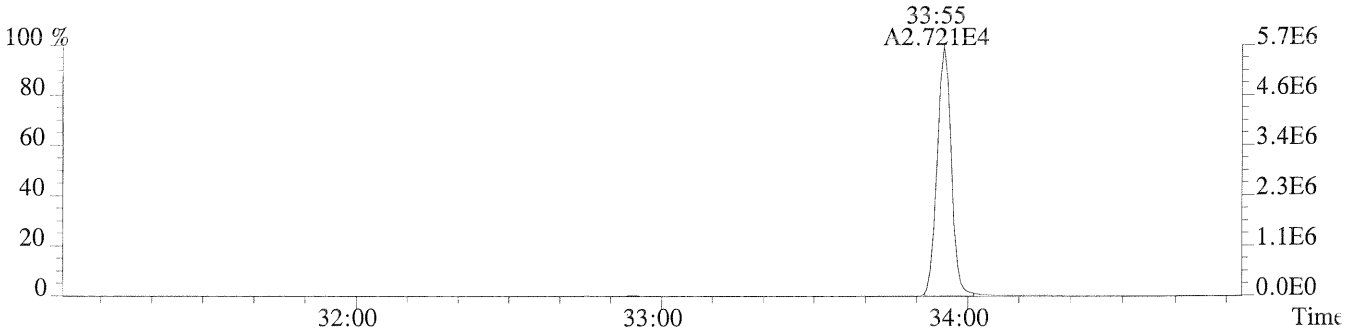
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)



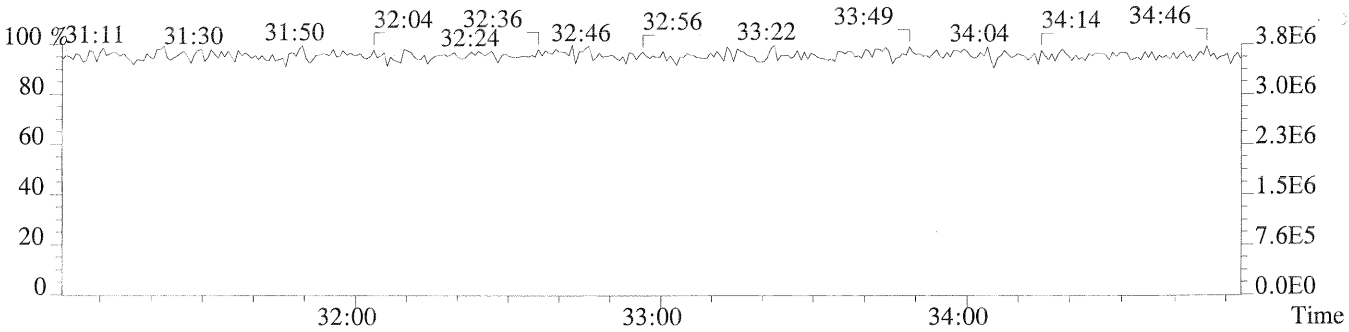
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)

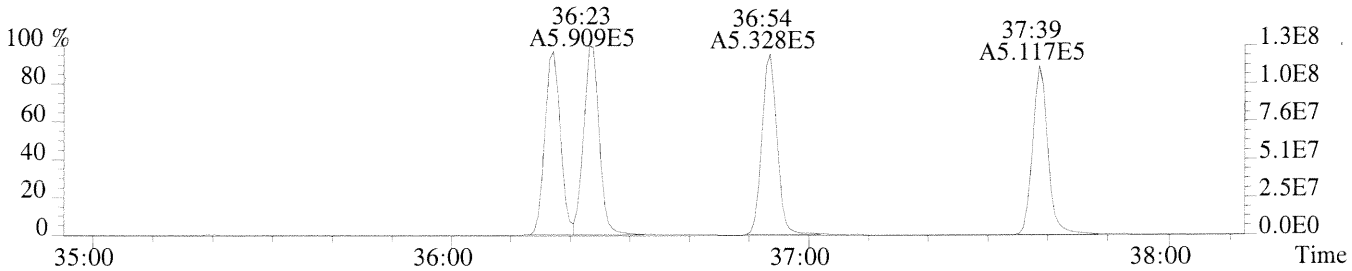


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

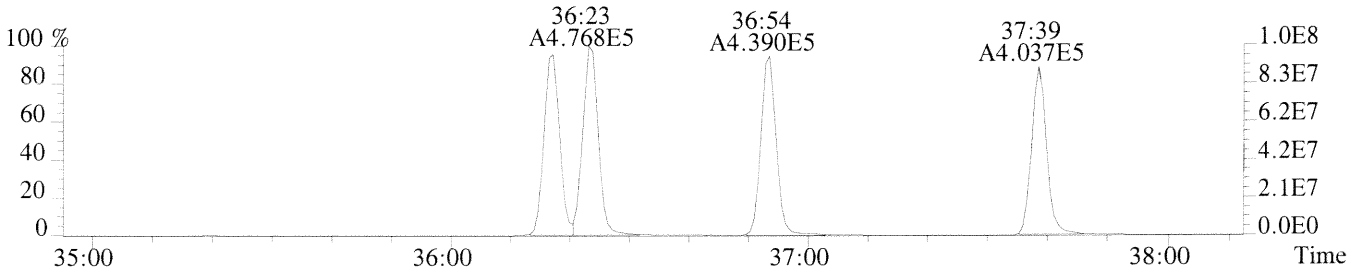


File:U149177 #1-299 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

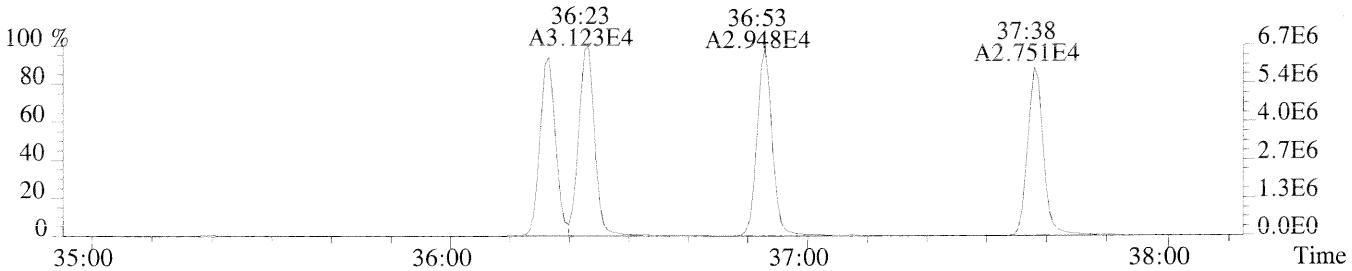
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3772.0,0.40%,F,T)



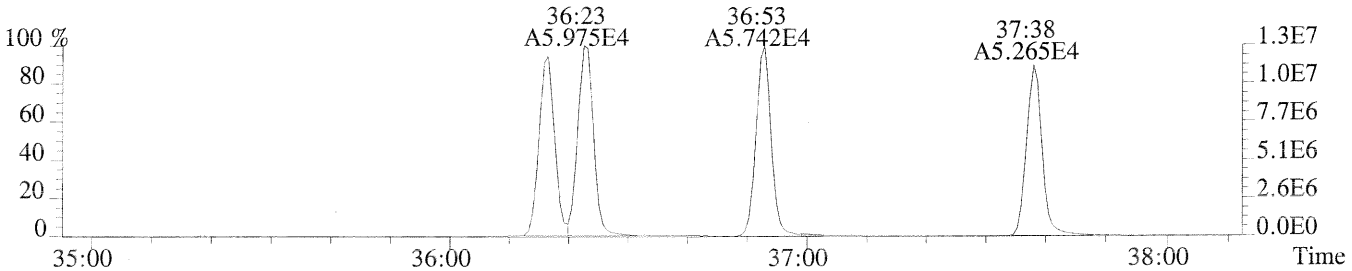
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1852.0,0.40%,F,T)



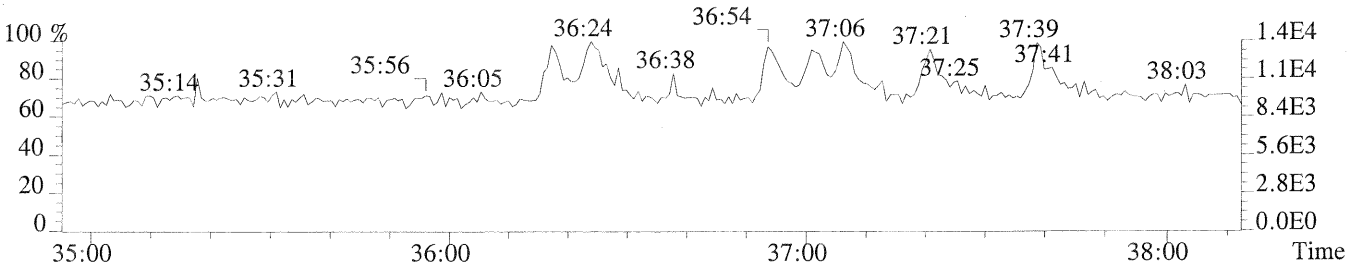
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,956.0,0.40%,F,T)



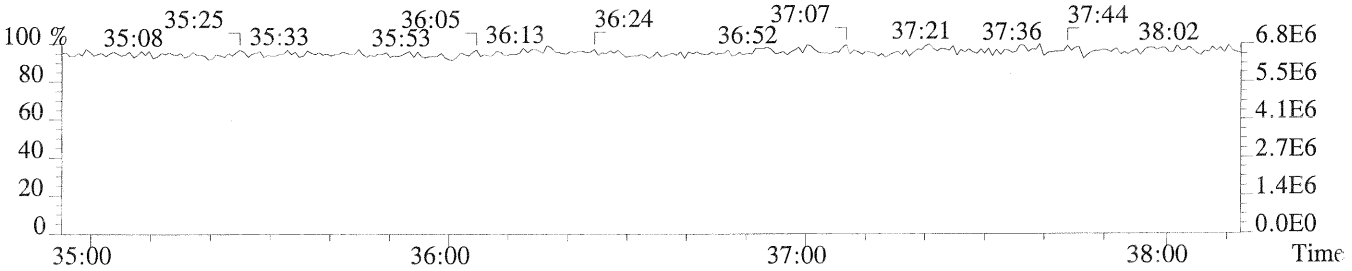
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

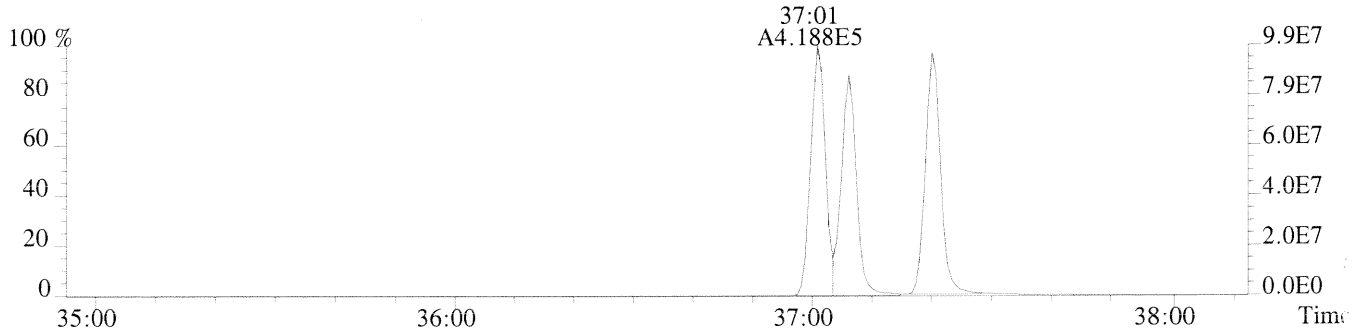


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

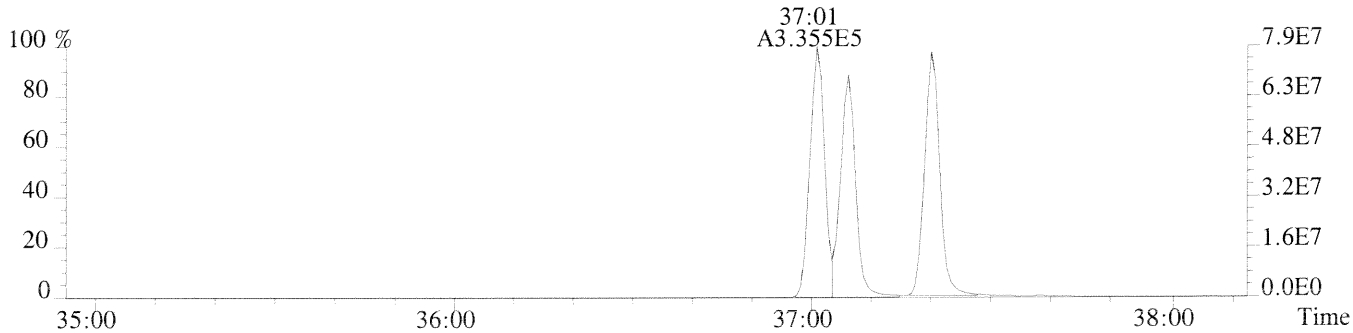


File:U149177 #1-299 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

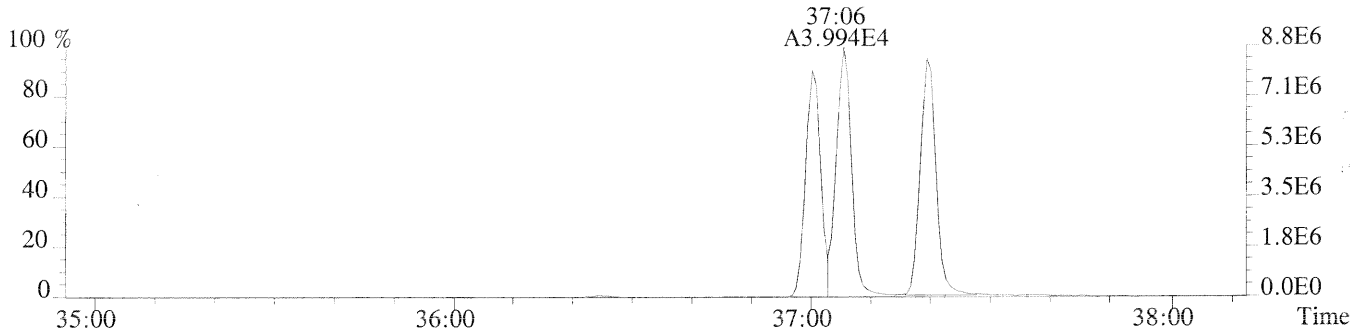
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



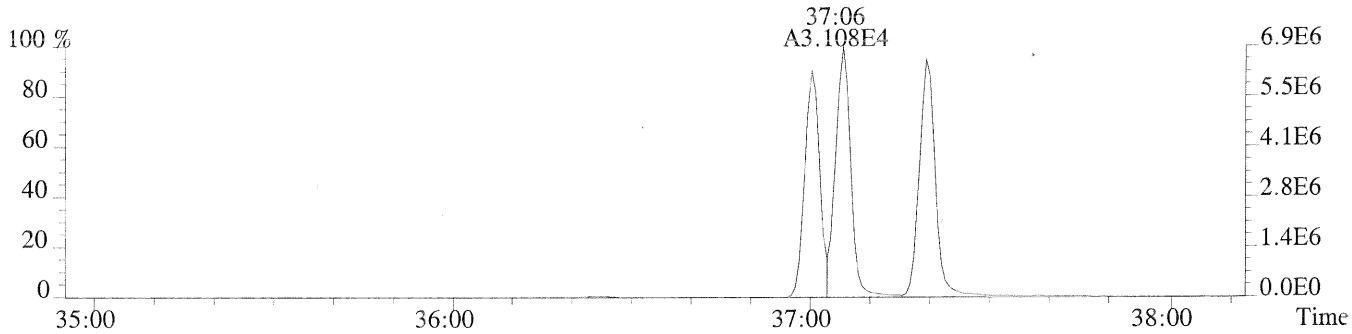
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



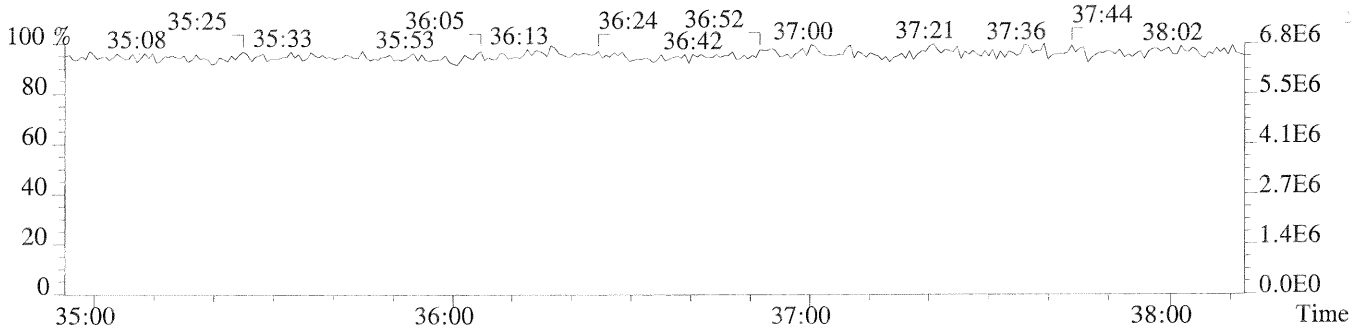
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1380.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.40%,F,T)

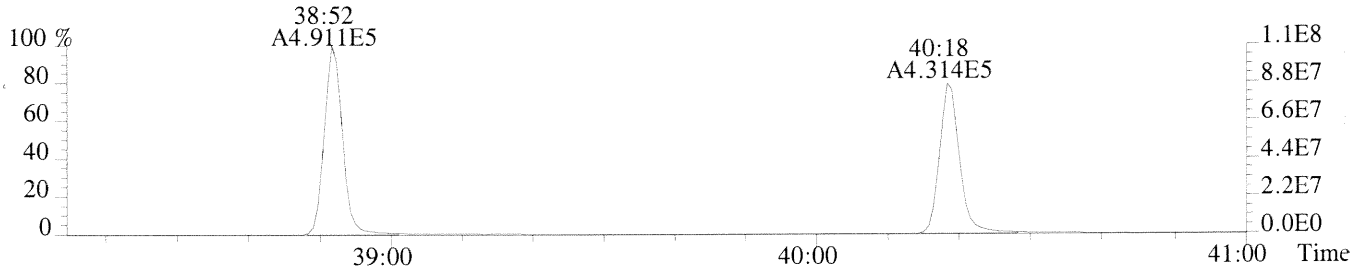


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

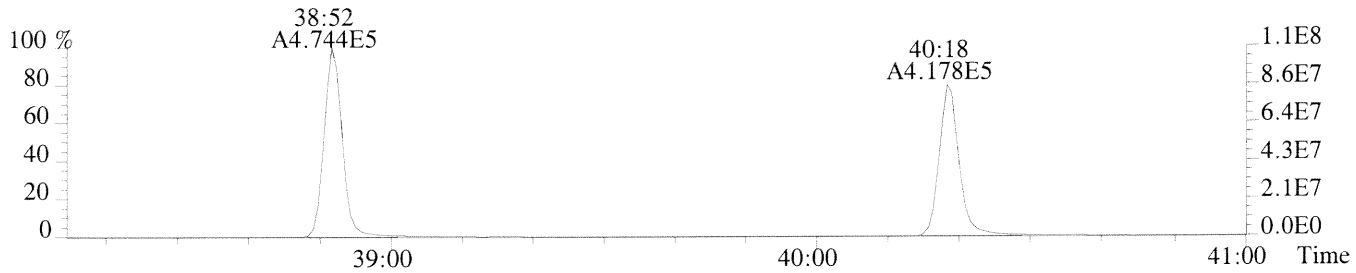


File:U149177 #1-251 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

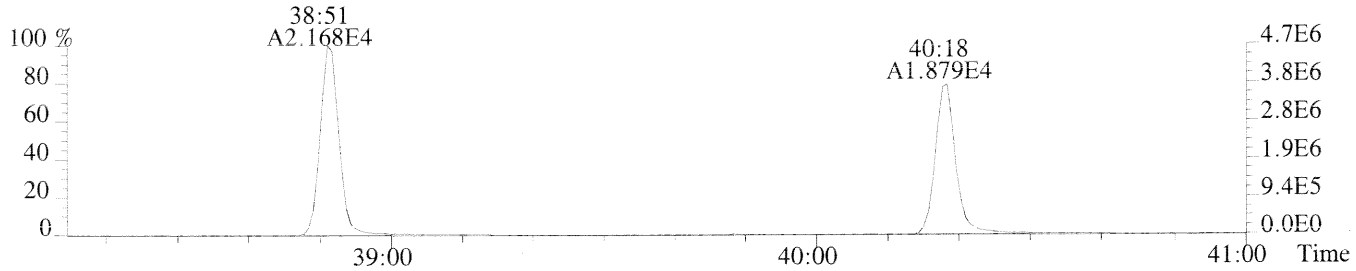
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,23428.0,0.50%,F,T)



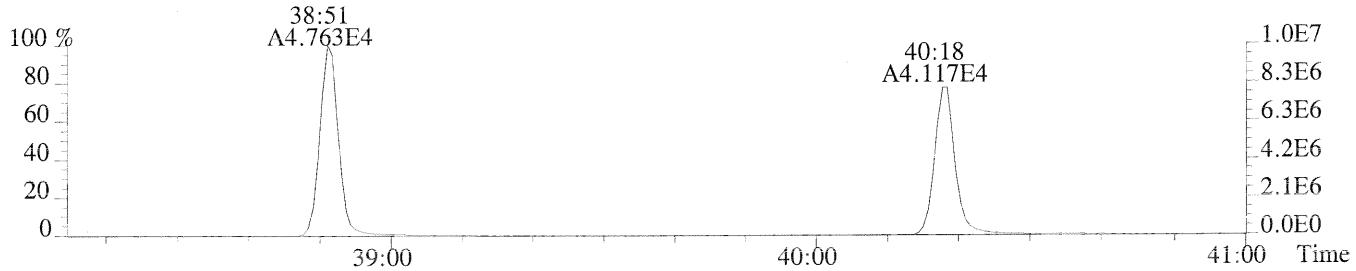
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,21516.0,0.50%,F,T)



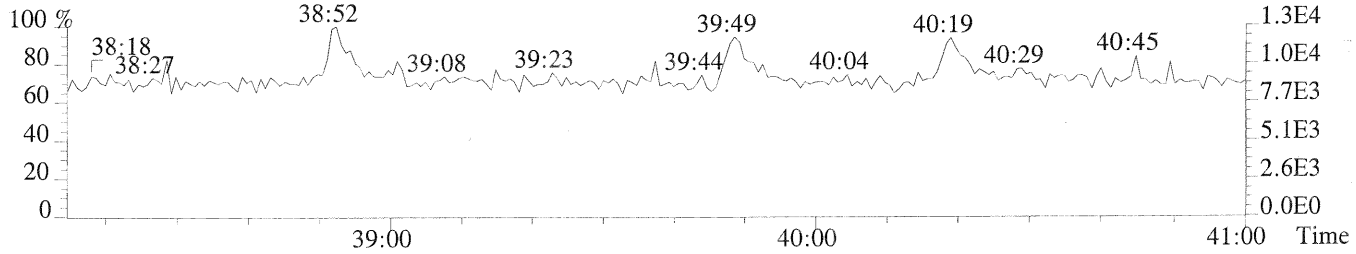
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1576.0,0.50%,F,T)



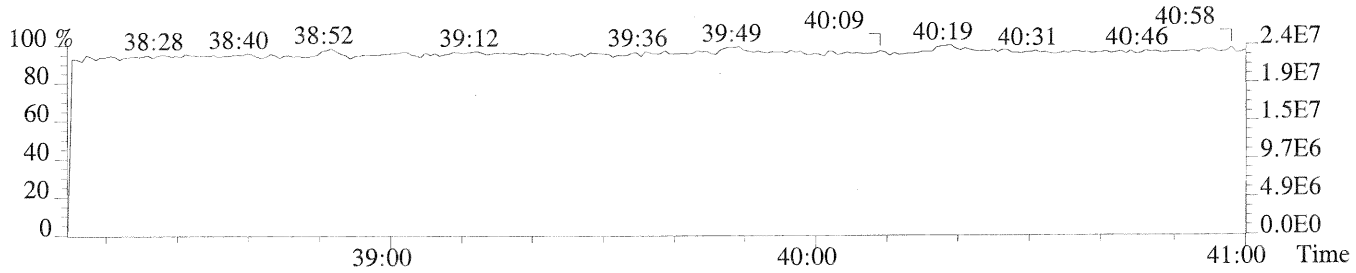
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2460.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

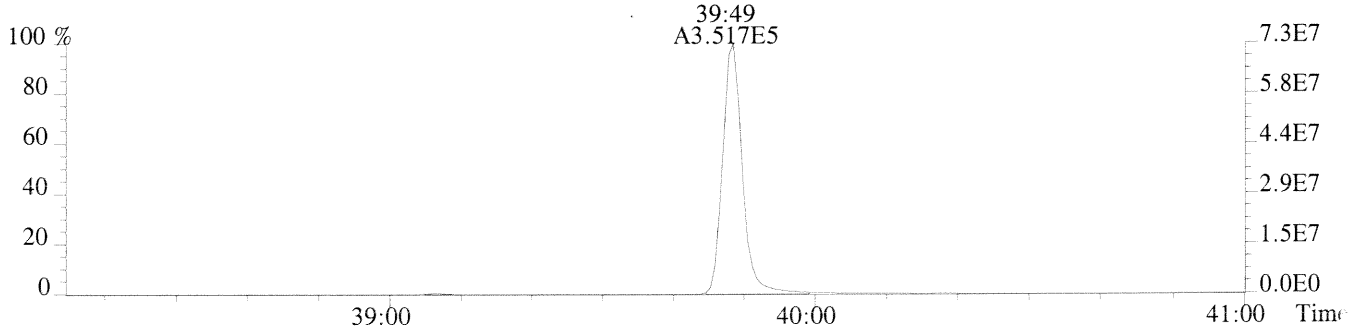


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

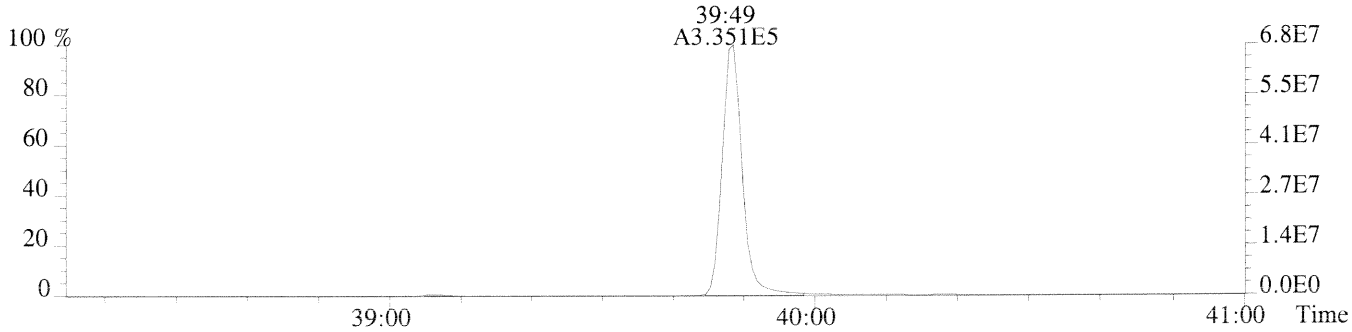


File:U149177 #1-251 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5

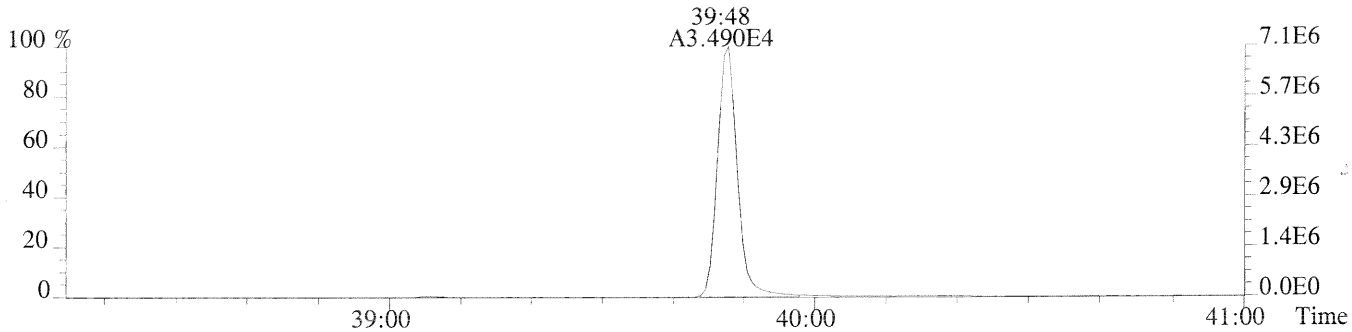
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4124.0,0.40%,F,T)



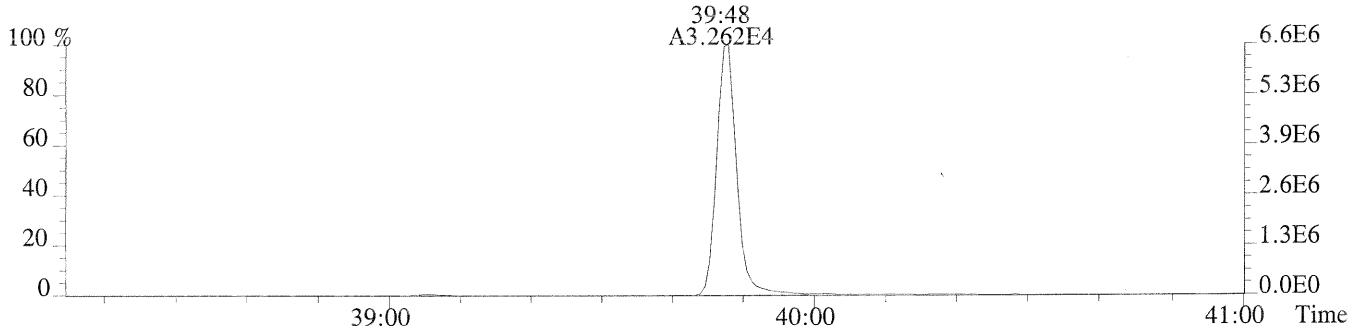
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.40%,F,T)



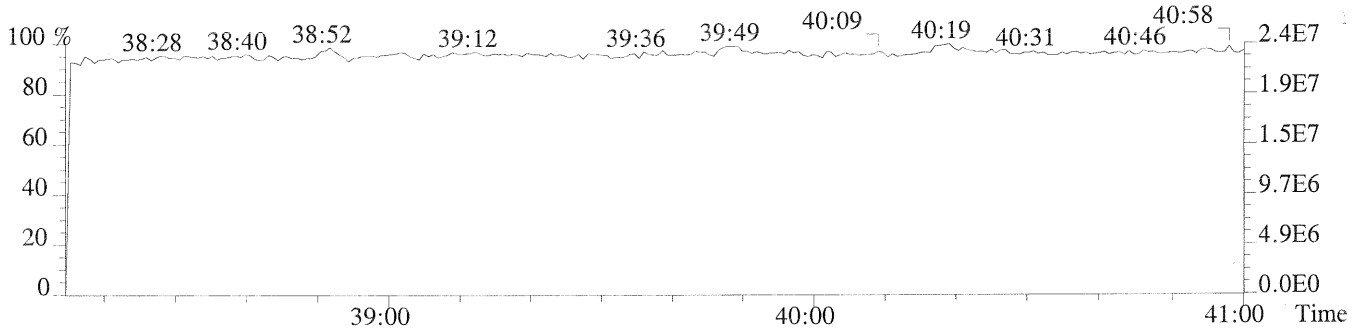
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1308.0,0.40%,F,T)



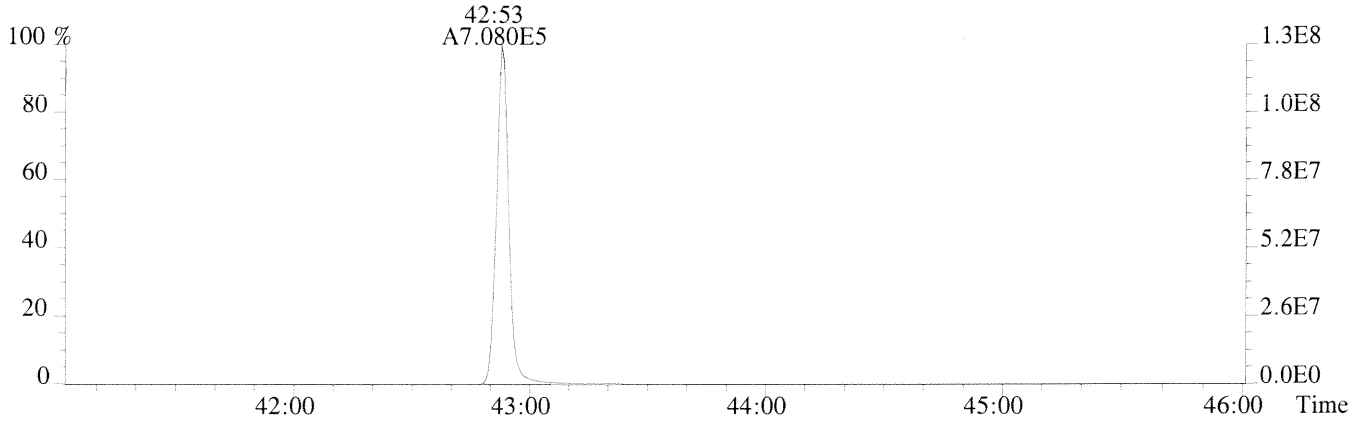
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



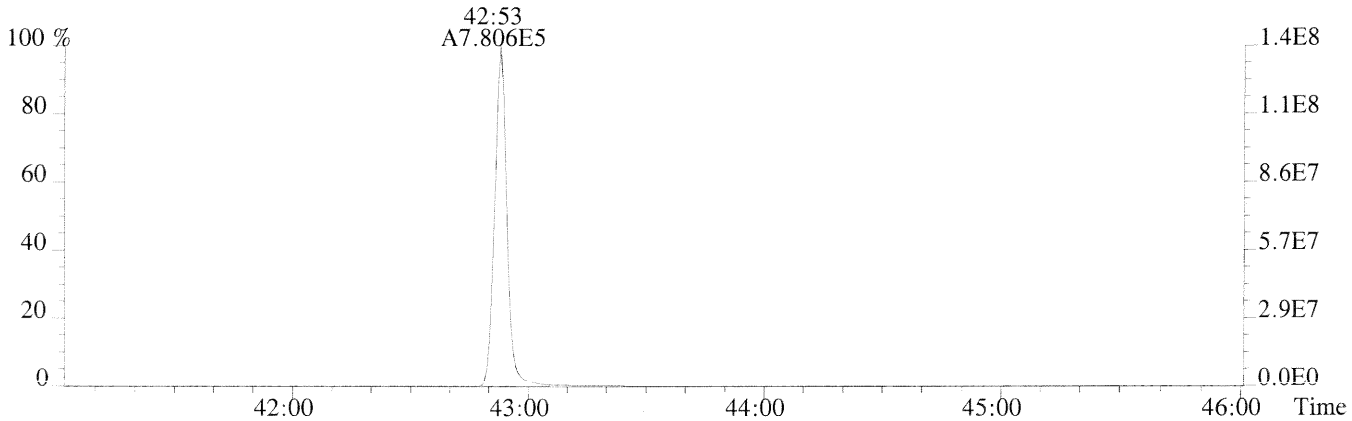
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



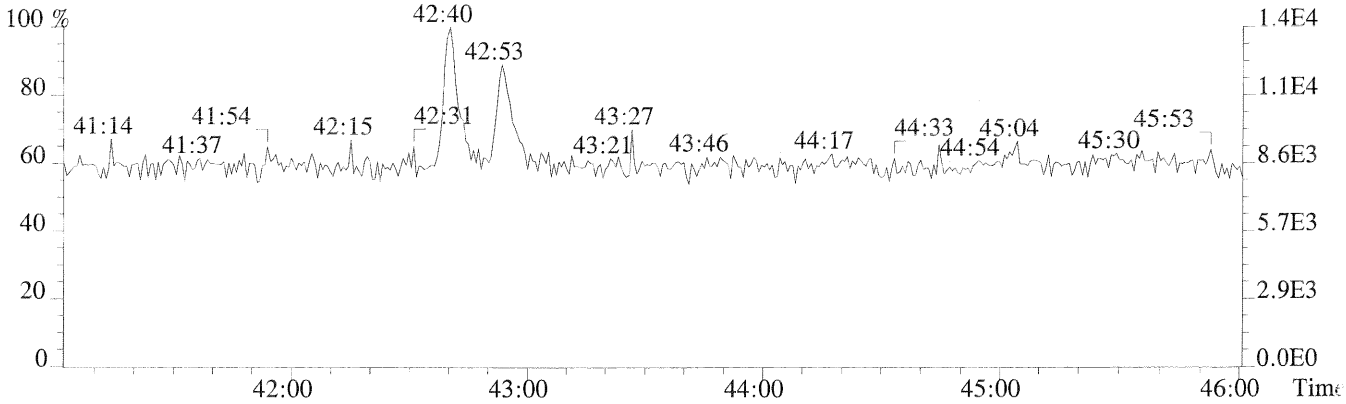
File:U149177 #1-452 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



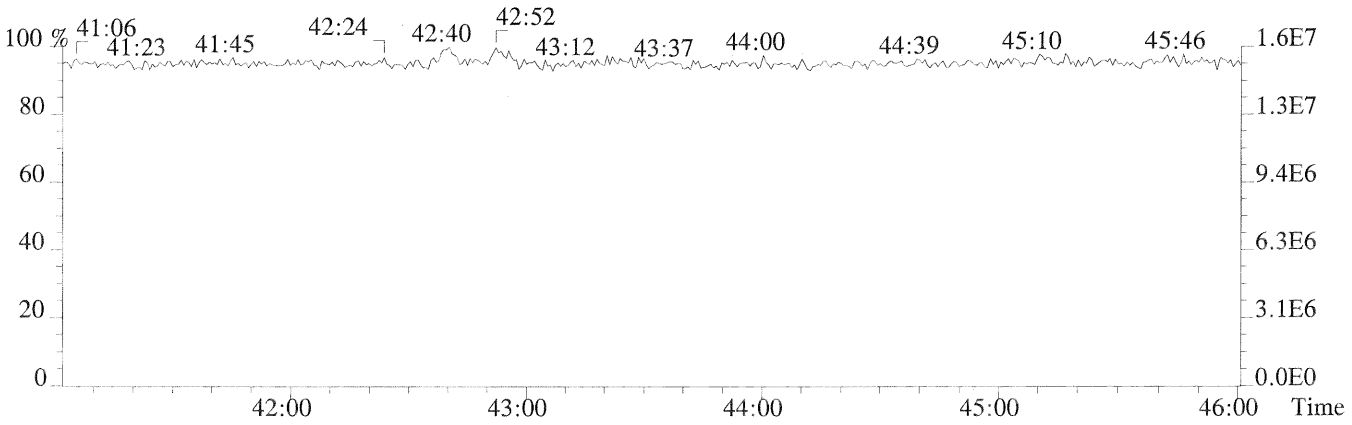
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,808.0,0.40%,F,T)



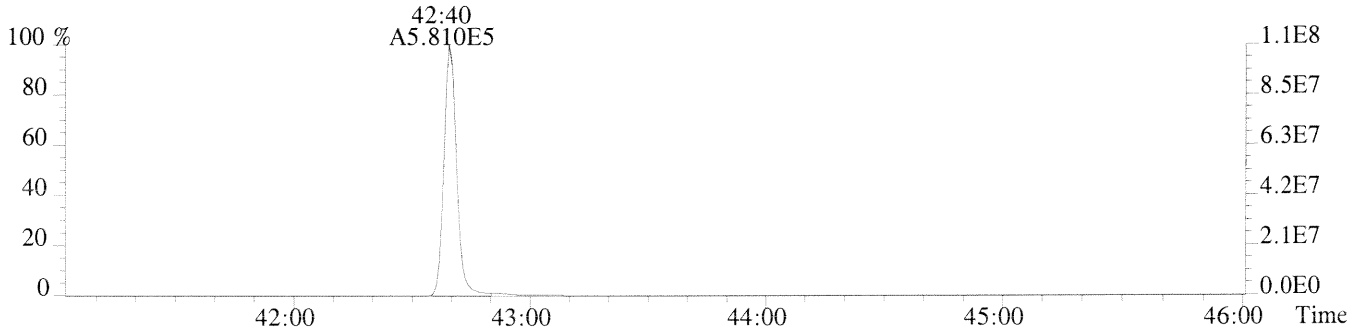
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



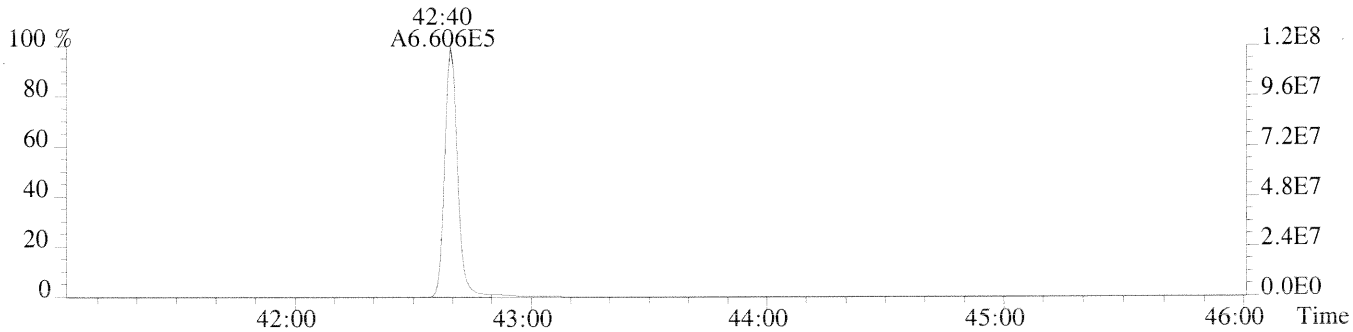
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



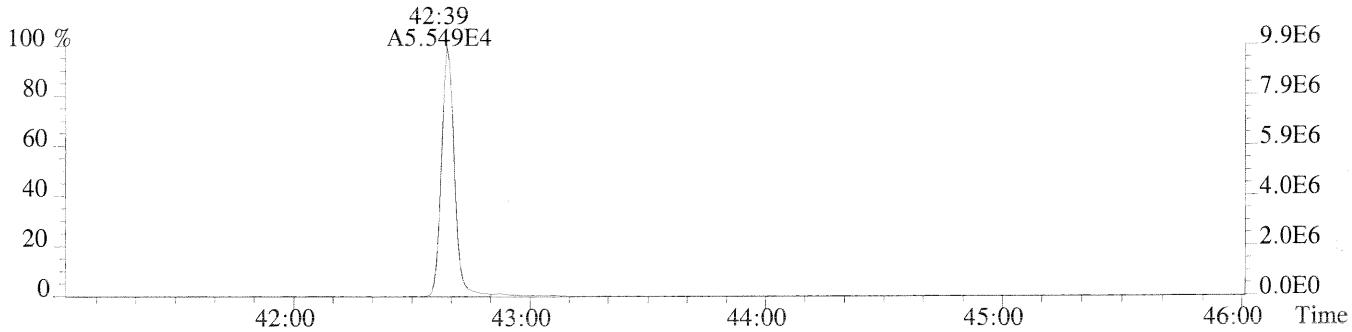
File:U149177 #1-452 Acq:21-MAY-2014 18:52:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CS5 HRCC5/CS5
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,760.0,0.40%,F,T)



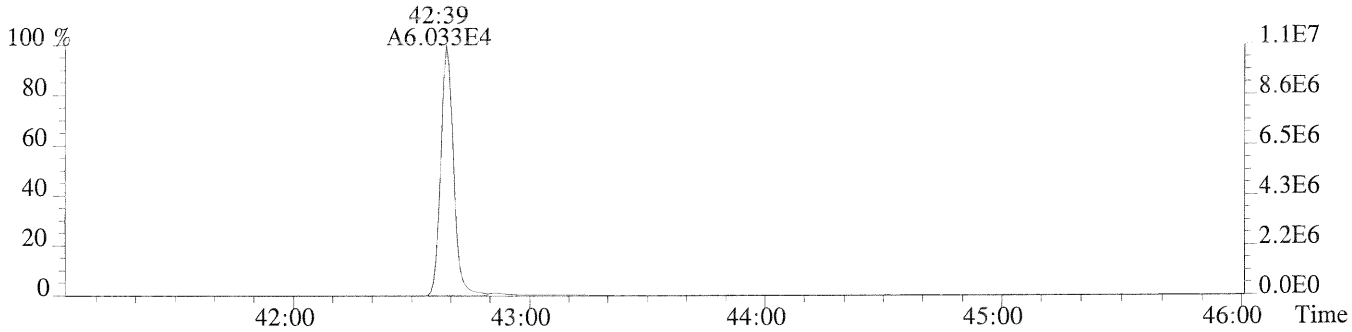
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,476.0,0.40%,F,T)



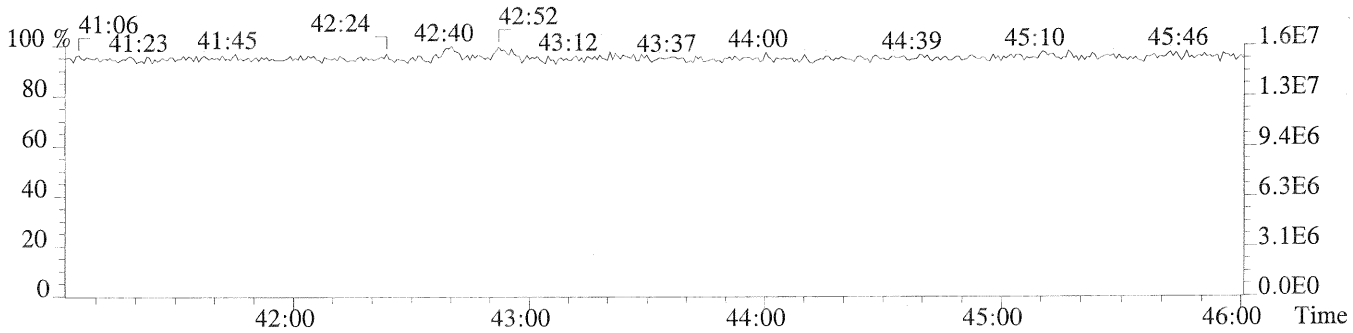
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,636.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



USEPA - ITD

FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL | Episode No.:

Contract No.: | SAS No.:

Initial Calibration Date: 05/21/2014

Instrument ID: E-HRMS-01 | GC Column ID: DB-5MSUI

VER Data Filename: U149179 | Analysis Date: 21-MAY-14 Time: 20:29:24

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (4)
NATIVE ANALYTES						
2,3,7,8-TCDD	M/M+2	0.84	0.65-0.89	9.5	7.8 - 12.9	-4.7
1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	53	39 - 65	5.5
1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	48	39 - 64	-4.8
1,2,3,6,7,8-HxCDD	M+2/M+4	1.25	1.05-1.43	46	39 - 64	-7.3
1,2,3,7,8,9-HxCDD	M+2/M+4	1.24	1.05-1.43	44	41 - 61	-11.4
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.05	0.88-1.20	48	43 - 58	-4.4
OCDD	M+2/M+4	0.89	0.76-1.02	92	79 - 126	-8.4
2,3,7,8-TCDF	M/M+2	0.75	0.65-0.89	9.2	8.4 - 12.0	-8.1
1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	46	41 - 60	-8.9
2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	49	41 - 61	-2.0
1,2,3,4,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	45	45 - 56	-10.2
1,2,3,6,7,8-HxCDF	M+2/M+4	1.23	1.05-1.43	46	44 - 57	-7.9
1,2,3,7,8,9-HxCDF	M+2/M+4	1.26	1.05-1.43	46	45 - 56	-8.2
2,3,4,6,7,8-HxCDF	M+2/M+4	1.20	1.05-1.43	48	44 - 57	-4.1
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.03	0.88-1.20	46	45 - 55	-7.2
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	50	43 - 58	-0.7
OCDF	M+2/M+4	0.92	0.76-1.02	92	63 - 159	-7.8

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

(4) The beginning CCAL %D for the 17 unlabeled standard must not exceed +/- 20%, Section 7.7.4.1. The ending CCAL must not exceed +/-25%, Section 8.3.2.4, Method 8290

1613F4A.FRM

USEPA - ITD
FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION
METHOD 1613B/8290A

Lab Name: ALS ENVIRONMENTAL Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 05/21/2014

IInstrument ID: E-HRMS-01 GC Column ID: DB-5MSUI

VER Data Filename: U149179 Analysis Date: 21-MAY-14 Time: 20:29:24

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)	%D (5)
LABELED COMPOUNDS						
13C-2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	93	82 - 121	-6.9
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.59	1.32-1.78	93	62 - 160	-7.1
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	103	85 - 117	2.8
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.28	1.05-1.43	112	85 - 118	11.9
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.09	0.88-1.20	99	72 - 138	-1.2
13C-OCDD	M+2/M+4	0.90	0.76-1.02	211	96 - 415	5.4
13C-2,3,7,8-TCDF	M/M+2	0.81	0.65-0.89	110	71 - 140	9.9
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	104	76 - 130	4.2
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	104	77 - 130	4.3
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	106	76 - 131	5.6
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	70 - 143	2.1
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	107	74 - 135	7.1
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	104	73 - 137	4.4
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	111	78 - 129	10.5
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	101	77 - 129	0.7
CLEANUP STANDARD						
37Cl-2,3,7,8-TCDD				9.8	7.8 - 12.7	-2.2

(1) See Table 8, Method 1613B, for m/z specifications.
(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.
(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.
(5) The beginnning CCAL %D for the labeled standard must not exceed +/- 30% Section 7.7.4.2. The ending CCAL must not exceed +/- 35%, Sec 8.3.2.4 (8290)

1613F4B.FRM

ALS ENVIRONMENTAL
Sample Response Summary
Method 1613B/8290A

CLIENT ID.
ICV 2ND SOURCE

Run #7 Filename U149179 Samp: 1 Inj: 1 Acquired: 21-MAY-14 20:29:24
Processed: 23-MAY-14 09:02:35 Sample ID: 60287

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:42	2.175e+03	2.910e+03	0.75	yes	no	0.944
2	Unk	1,2,3,7,8-PeCDF	32:47	2.020e+04	1.286e+04	1.57	yes	no	0.977
3	Unk	2,3,4,7,8-PeCDF	33:40	2.030e+04	1.303e+04	1.56	yes	no	0.940
4	Unk	1,2,3,4,7,8-HxCDF	36:17	1.738e+04	1.402e+04	1.24	yes	no	1.226
5	Unk	1,2,3,6,7,8-HxCDF	36:24	1.842e+04	1.501e+04	1.23	yes	no	1.150
6	Unk	2,3,4,6,7,8-HxCDF	36:54	1.777e+04	1.478e+04	1.20	yes	no	1.136
7	Unk	1,2,3,7,8,9-HxCDF	37:39	1.660e+04	1.323e+04	1.26	yes	no	1.150
8	Unk	1,2,3,4,6,7,8-HpCDF	38:52	1.653e+04	1.611e+04	1.03	yes	no	1.426
9	Unk	1,2,3,4,7,8,9-HpCDF	40:19	1.413e+04	1.349e+04	1.05	yes	no	1.359
10	Unk	OCDF	42:53	2.136e+04	2.333e+04	0.92	yes	no	1.350
11	Unk	2,3,7,8-TCDD	29:28	1.608e+03	1.909e+03	0.84	yes	no	1.013
12	Unk	1,2,3,7,8-PeCDD	33:57	1.419e+04	8.895e+03	1.59	yes	no	1.025
13	Unk	1,2,3,4,7,8-HxCDD	37:02	1.236e+04	9.928e+03	1.24	yes	no	1.133
14	Unk	1,2,3,6,7,8-HxCDD	37:06	1.399e+04	1.121e+04	1.25	yes	no	1.105
15	Unk	1,2,3,7,8,9-HxCDD	37:21	1.351e+04	1.088e+04	1.24	yes	no	1.217
16	Unk	1,2,3,4,6,7,8-HpCDD	39:49	1.111e+04	1.062e+04	1.05	yes	no	1.065
17	Unk	OCDD	42:40	1.819e+04	2.051e+04	0.89	yes	no	1.177
18	IS	13C-2,3,7,8-TCDF	28:41	2.617e+04	3.242e+04	0.81	yes	no	1.435
19	IS	13C-1,2,3,7,8-PeCDF	32:45	4.557e+04	2.877e+04	1.58	yes	no	1.920
20	IS	13C-2,3,4,7,8-PeCDF	33:39	4.424e+04	2.815e+04	1.57	yes	no	1.868
21	IS	13C-1,2,3,4,7,8-HxCDF	36:17	1.947e+04	3.753e+04	0.52	yes	no	1.169
22	IS	13C-1,2,3,6,7,8-HxCDF	36:23	2.160e+04	4.149e+04	0.52	yes	no	1.339
23	IS	13C-2,3,4,6,7,8-HxCDF	36:53	2.049e+04	3.924e+04	0.52	yes	no	1.239
24	IS	13C-1,2,3,7,8,9-HxCDF	37:39	1.937e+04	3.711e+04	0.52	yes	no	1.142
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:52	1.527e+04	3.402e+04	0.45	yes	no	0.966
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:18	1.278e+04	2.817e+04	0.45	yes	no	0.881
27	IS	13C-2,3,7,8-TCDD	29:26	1.576e+04	2.066e+04	0.76	yes	no	1.053
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.618e+04	1.649e+04	1.59	yes	no	1.236
29	IS	13C-1,2,3,4,7,8-HxCDD	37:01	2.319e+04	1.812e+04	1.28	yes	no	0.870
30	IS	13C-1,2,3,6,7,8-HxCDD	37:06	2.761e+04	2.161e+04	1.28	yes	no	0.953
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:48	2.225e+04	2.044e+04	1.09	yes	no	0.936
32	IS	13C-OCDD	42:39	3.403e+04	3.773e+04	0.90	yes	no	0.738
33	RS/RT	13C-1,2,3,4-TCDD	28:51	1.629e+04	2.085e+04	0.78	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:20	2.634e+04	1.982e+04	1.33	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:27	3.793e+03				no	1.044

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1613RESP

ALS ENVIRONMENTAL
Signal/Noise Height Ratio Summary
Method 1613b/8290A

CLIENT ID.
ICV 2ND SOURCE

Run #7 Filename U149179 Samp: 1 Inj: 1 Acquired: 21-MAY-14 20:29:24
Processed: 23-MAY-14 09:02:351 LAB. ID: 60287

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.62e+05	7.40e+02	6.2e+02	6.24e+05	1.23e+03	5.1e+02
2	1,2,3,7,8-PeCDF	3.94e+06	7.36e+02	5.3e+03	2.48e+06	8.36e+02	3.0e+03
3	2,3,4,7,8-PeCDF	4.12e+06	7.36e+02	5.6e+03	2.64e+06	8.36e+02	3.2e+03
4	1,2,3,4,7,8-HxCDF	3.76e+06	1.53e+03	2.5e+03	3.08e+06	1.28e+03	2.4e+03
5	1,2,3,6,7,8-HxCDF	3.86e+06	1.53e+03	2.5e+03	3.10e+06	1.28e+03	2.4e+03
6	2,3,4,6,7,8-HxCDF	3.84e+06	1.53e+03	2.5e+03	3.18e+06	1.28e+03	2.5e+03
7	1,2,3,7,8,9-HxCDF	3.33e+06	1.53e+03	2.2e+03	2.60e+06	1.28e+03	2.0e+03
8	1,2,3,4,6,7,8-HpCDF	3.49e+06	2.08e+03	1.7e+03	3.31e+06	1.44e+03	2.3e+03
9	1,2,3,4,7,8,9-HpCDF	2.68e+06	2.08e+03	1.3e+03	2.52e+06	1.44e+03	1.7e+03
10	OCDF	3.43e+06	6.24e+02	5.5e+03	3.76e+06	8.48e+02	4.4e+03
11	2,3,7,8-TCDD	3.47e+05	6.32e+02	5.5e+02	4.10e+05	5.88e+02	7.0e+02
12	1,2,3,7,8-PeCDD	2.86e+06	7.08e+02	4.0e+03	1.79e+06	5.56e+02	3.2e+03
13	1,2,3,4,7,8-HxCDD	2.86e+06	7.40e+02	3.9e+03	2.24e+06	1.23e+03	1.8e+03
14	1,2,3,6,7,8-HxCDD	2.75e+06	7.40e+02	3.7e+03	2.25e+06	1.23e+03	1.8e+03
15	1,2,3,7,8,9-HxCDD	2.65e+06	7.40e+02	3.6e+03	2.13e+06	1.23e+03	1.7e+03
16	1,2,3,4,6,7,8-HpCDD	2.16e+06	1.08e+03	2.0e+03	2.04e+06	1.25e+03	1.6e+03
17	OCDD	2.97e+06	5.52e+02	5.4e+03	3.34e+06	7.92e+02	4.2e+03
18	13C-2,3,7,8-TCDF	5.77e+06	7.48e+02	7.7e+03	7.09e+06	8.00e+02	8.9e+03
19	13C-1,2,3,7,8-PeCDF	8.63e+06	7.96e+02	1.1e+04	5.51e+06	8.28e+02	6.7e+03
20	13C-2,3,4,7,8-PeCDF	9.07e+06	7.96e+02	1.1e+04	5.80e+06	8.28e+02	7.0e+03
21	13C-1,2,3,4,7,8-HxCDF	4.24e+06	7.24e+02	5.9e+03	8.14e+06	9.04e+02	9.0e+03
22	13C-1,2,3,6,7,8-HxCDF	4.43e+06	7.24e+02	6.1e+03	8.46e+06	9.04e+02	9.4e+03
23	13C-2,3,4,6,7,8-HxCDF	4.38e+06	7.24e+02	6.0e+03	8.41e+06	9.04e+02	9.3e+03
24	13C-1,2,3,7,8,9-HxCDF	3.85e+06	7.24e+02	5.3e+03	7.31e+06	9.04e+02	8.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.21e+06	3.34e+03	9.6e+02	7.04e+06	2.44e+03	2.9e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.37e+06	3.34e+03	7.1e+02	5.32e+06	2.44e+03	2.2e+03
27	13C-2,3,7,8-TCDD	3.50e+06	2.24e+03	1.6e+03	4.61e+06	1.42e+03	3.3e+03
28	13C-1,2,3,7,8-PeCDD	5.21e+06	6.64e+02	7.8e+03	3.34e+06	7.32e+02	4.6e+03
29	13C-1,2,3,4,7,8-HxCDD	5.30e+06	7.64e+02	6.9e+03	4.08e+06	8.20e+02	5.0e+03
30	13C-1,2,3,6,7,8-HxCDD	5.42e+06	7.64e+02	7.1e+03	4.27e+06	8.20e+02	5.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.34e+06	7.44e+02	5.8e+03	3.98e+06	7.48e+02	5.3e+03
32	13C-OCDD	5.56e+06	5.68e+02	9.8e+03	6.16e+06	6.76e+02	9.1e+03
33	13C-1,2,3,4-TCDD	3.54e+06	2.24e+03	1.6e+03	4.52e+06	1.42e+03	3.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.21e+06	7.64e+02	6.8e+03	4.02e+06	8.20e+02	4.9e+03
35	37Cl-2,3,7,8-TCDD	8.24e+05	9.76e+02	8.4e+02			

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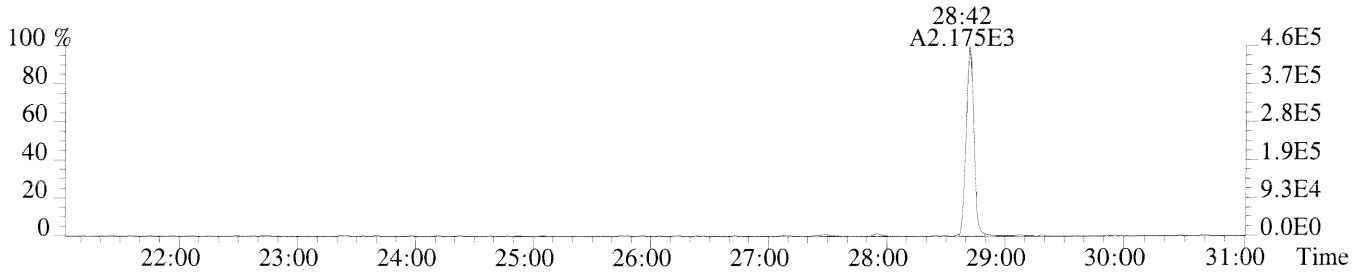
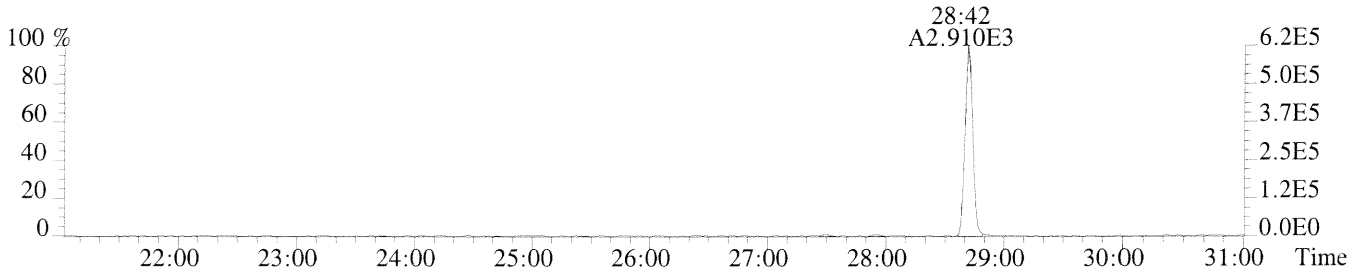
File:U149179 #1-627 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

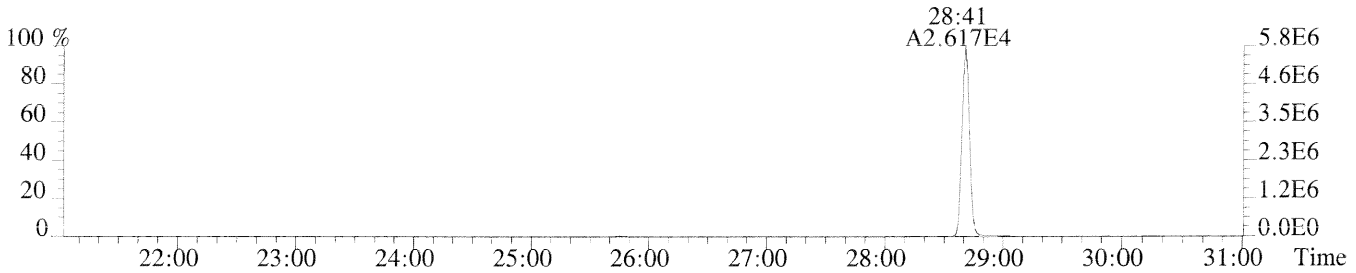
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



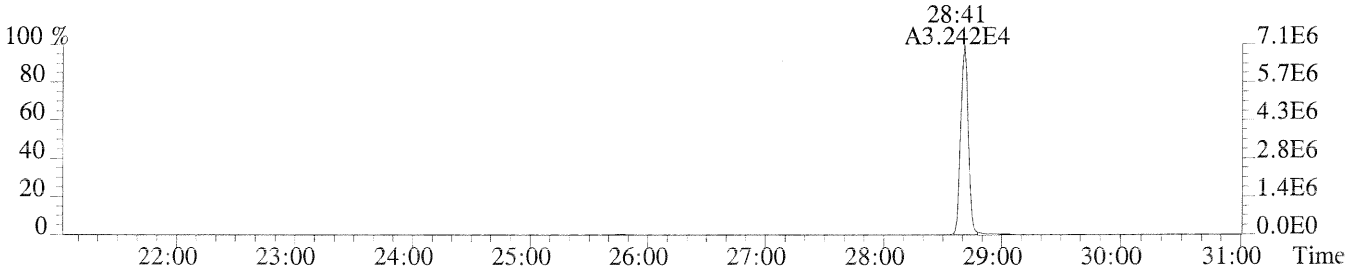
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1232.0,1.00%,F,T)



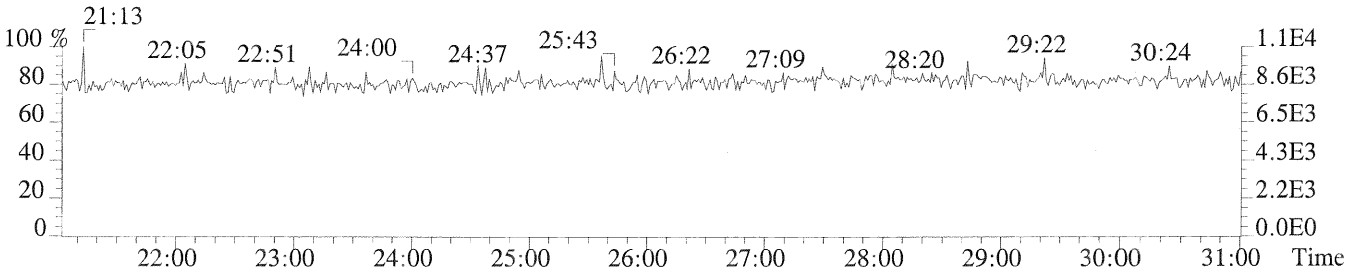
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



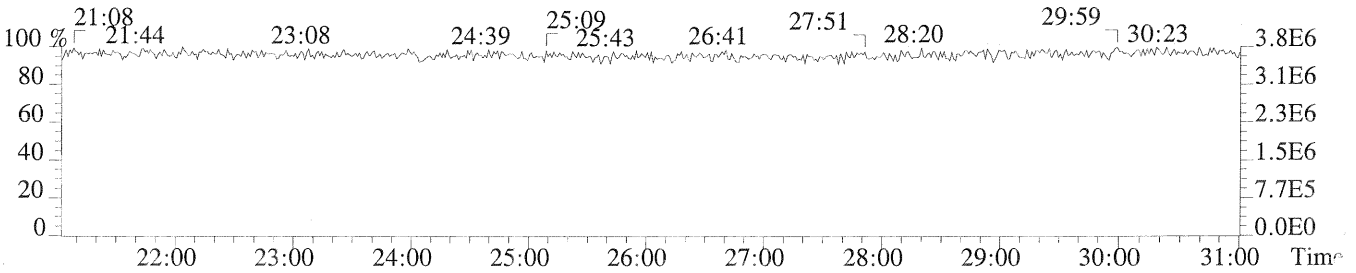
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,800.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

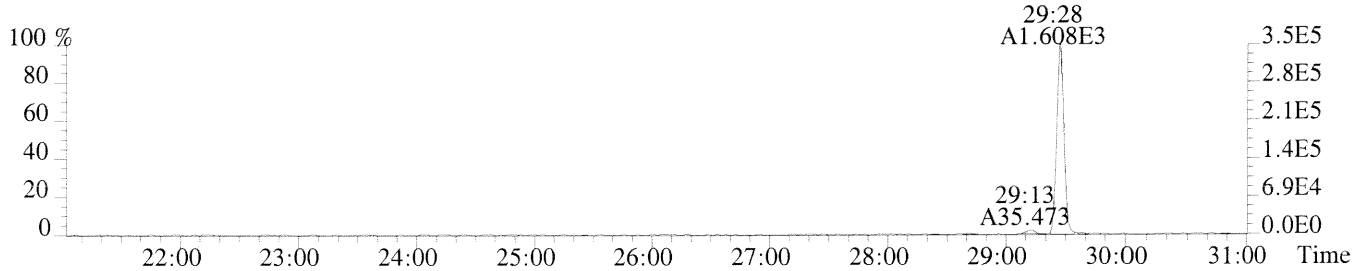


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

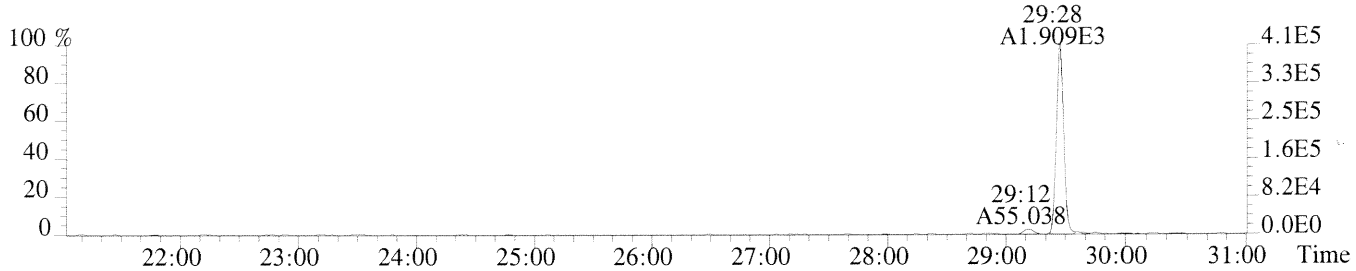


File:U149179 #1-627 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

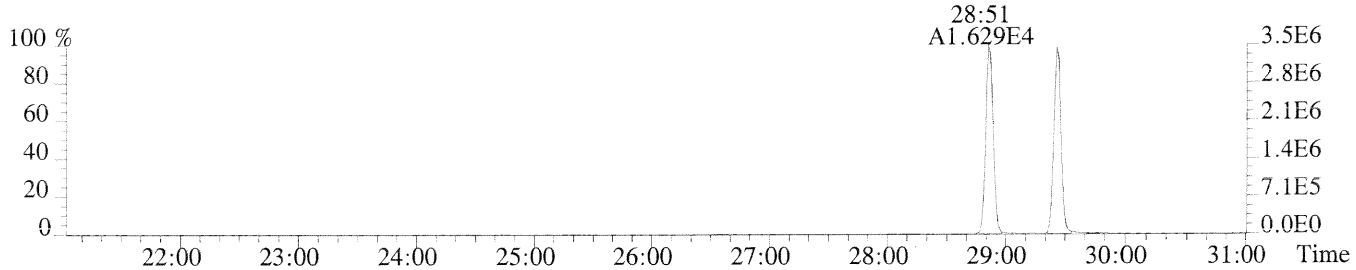
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



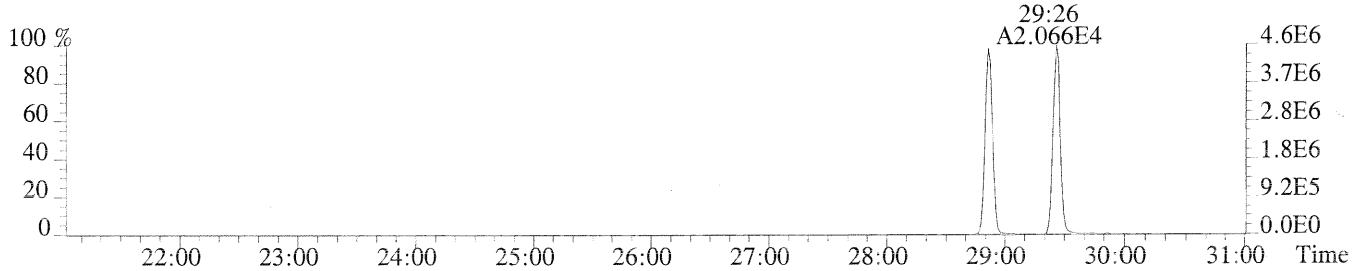
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



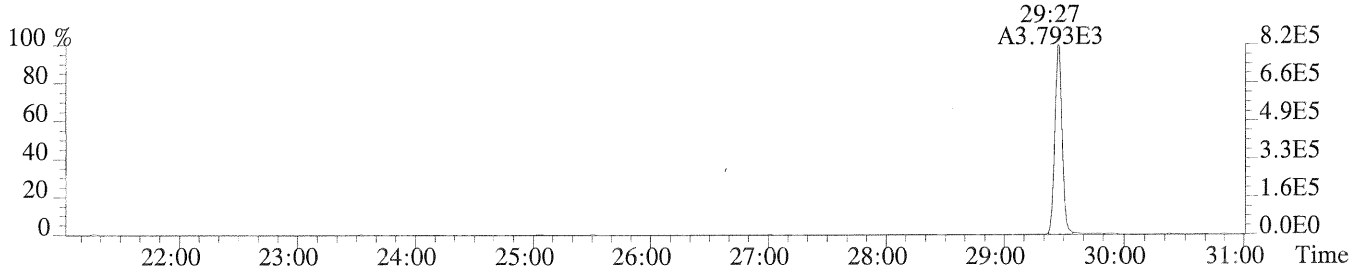
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2236.0,1.00%,F,T)



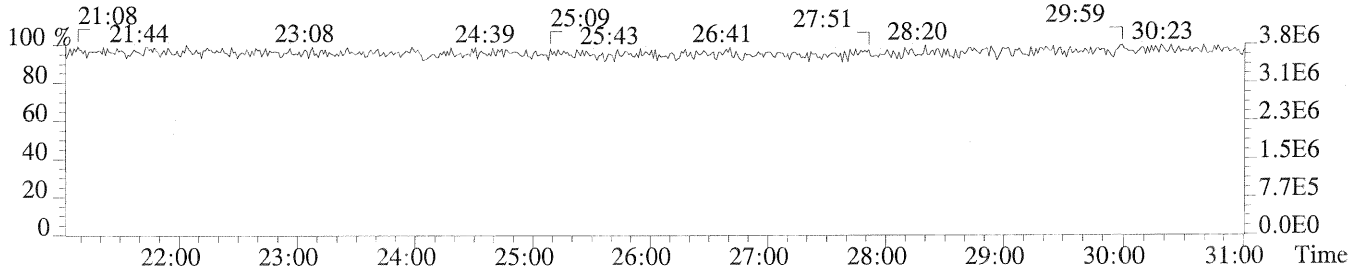
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1416.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)

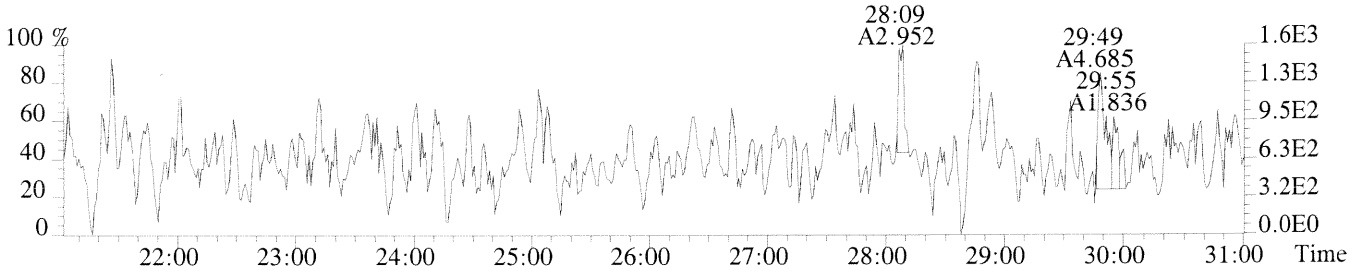


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

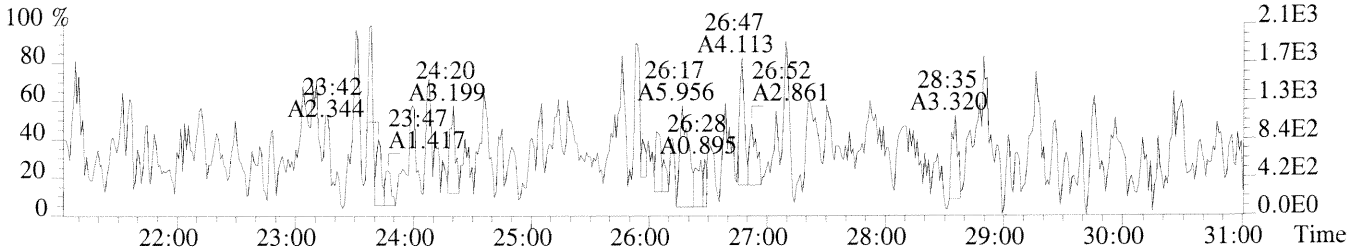


File:U149179 #1-627 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

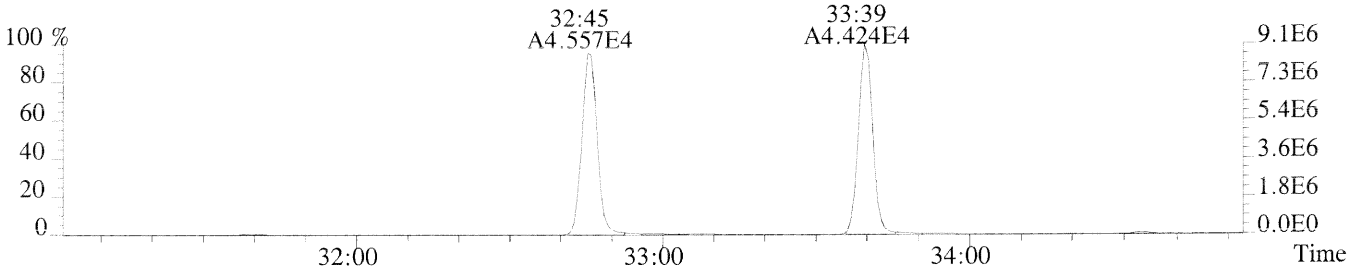
339.8597 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



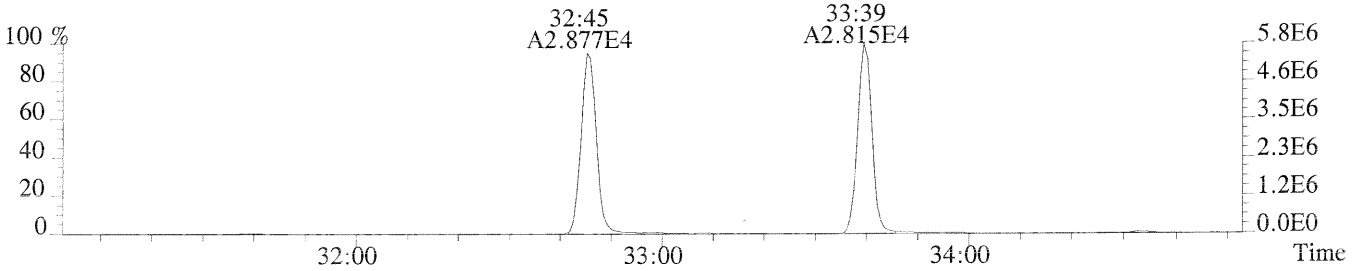
341.8567 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



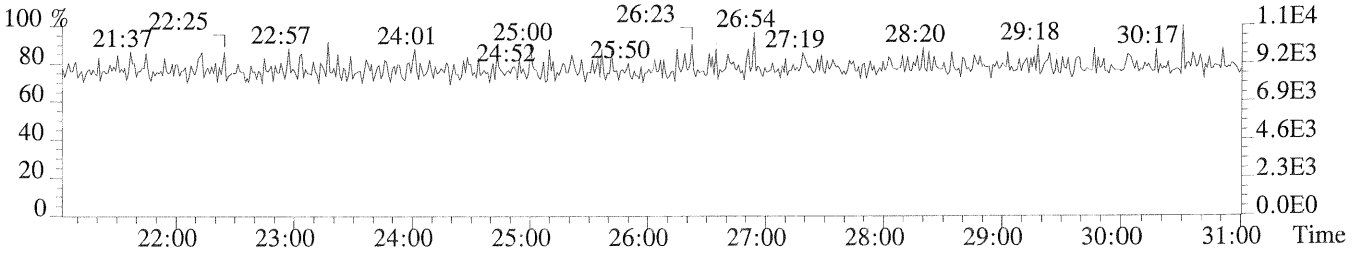
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



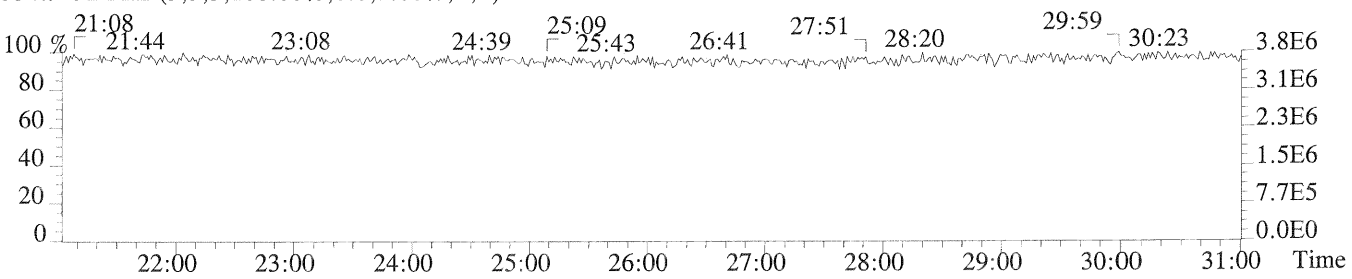
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



409.7974 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

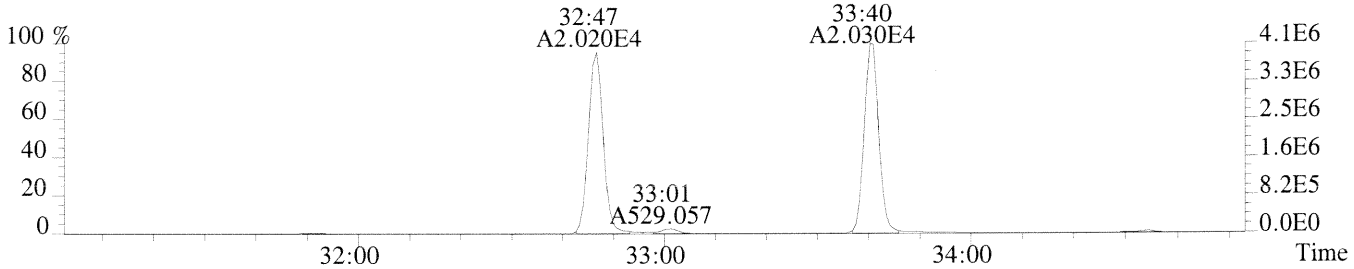


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

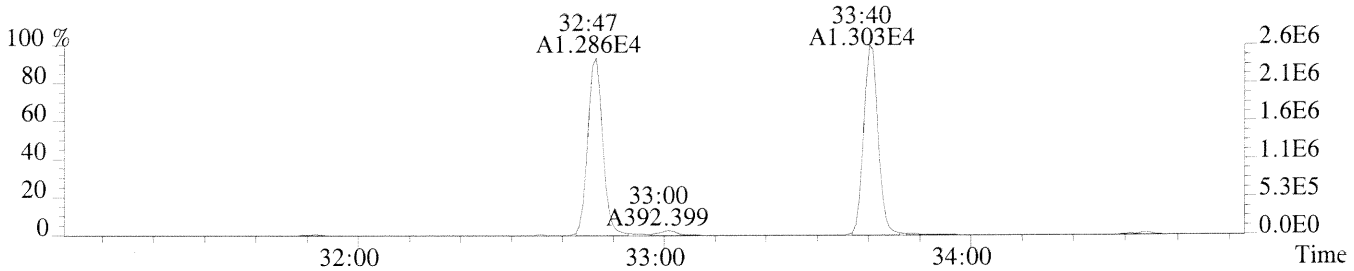


File:U149179 #1-349 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

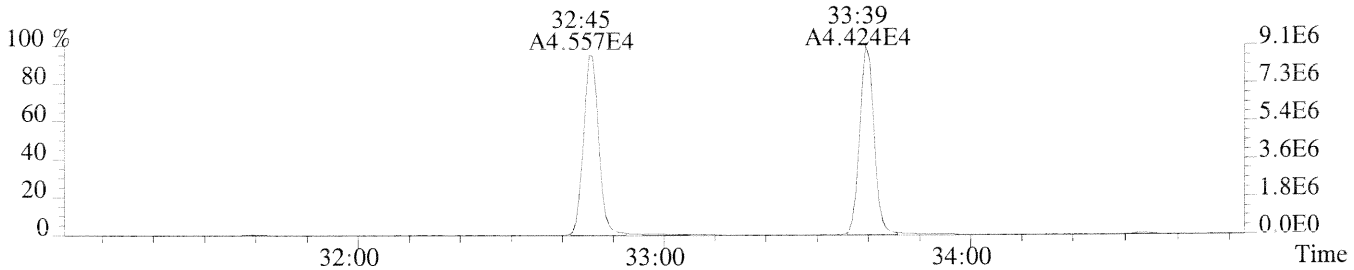
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



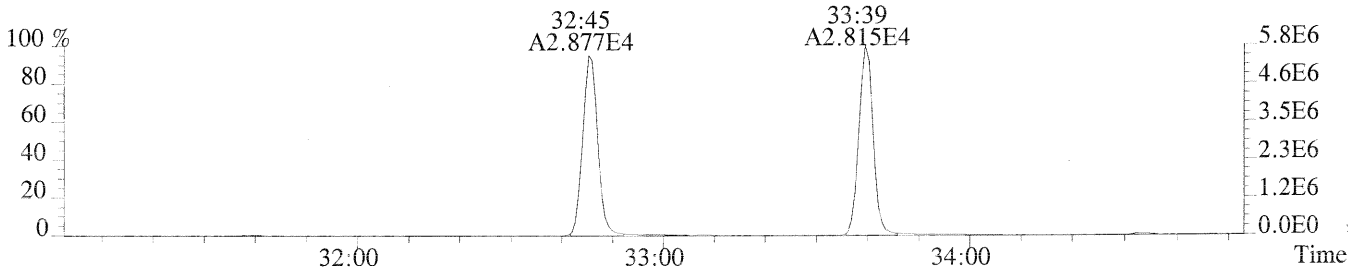
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



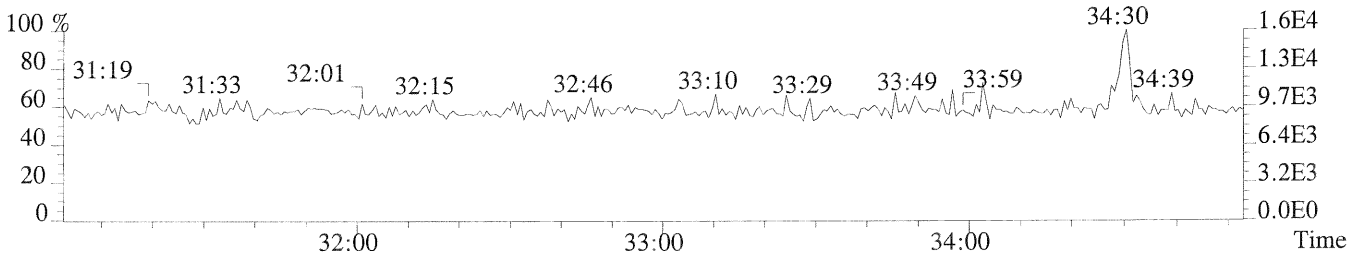
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



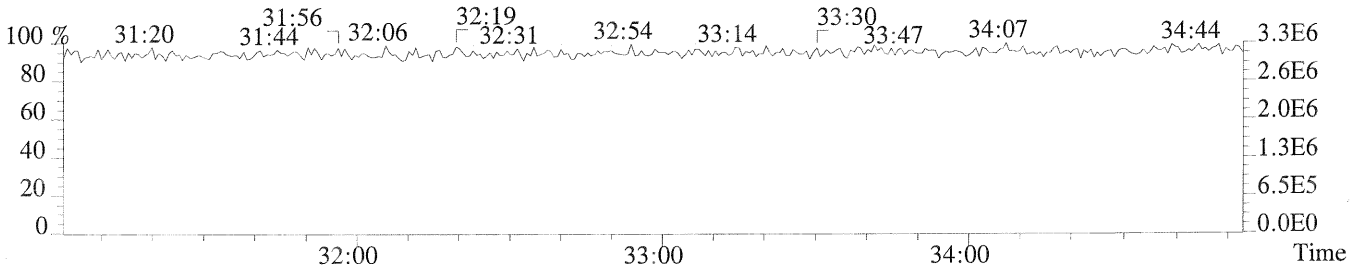
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

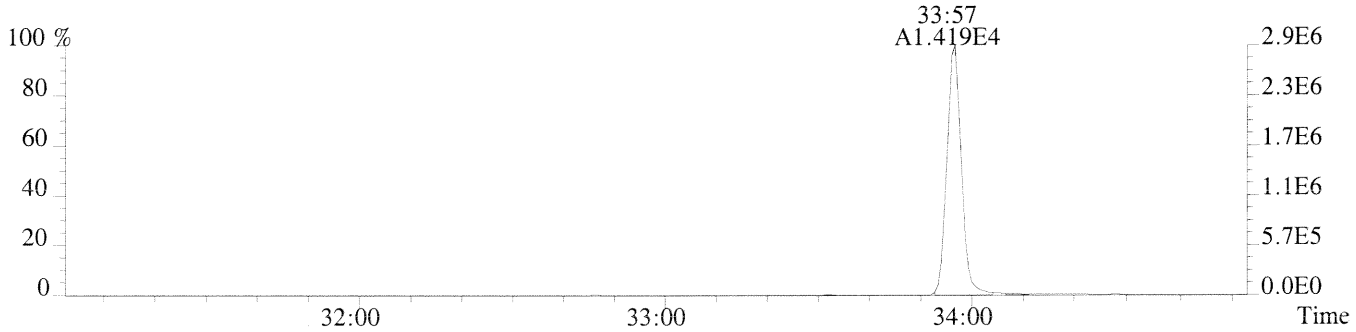


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

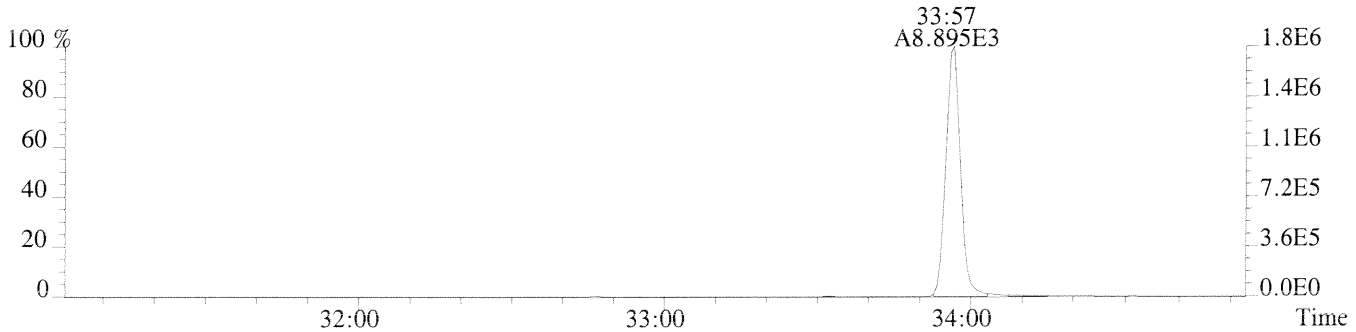


File:U149179 #1-349 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

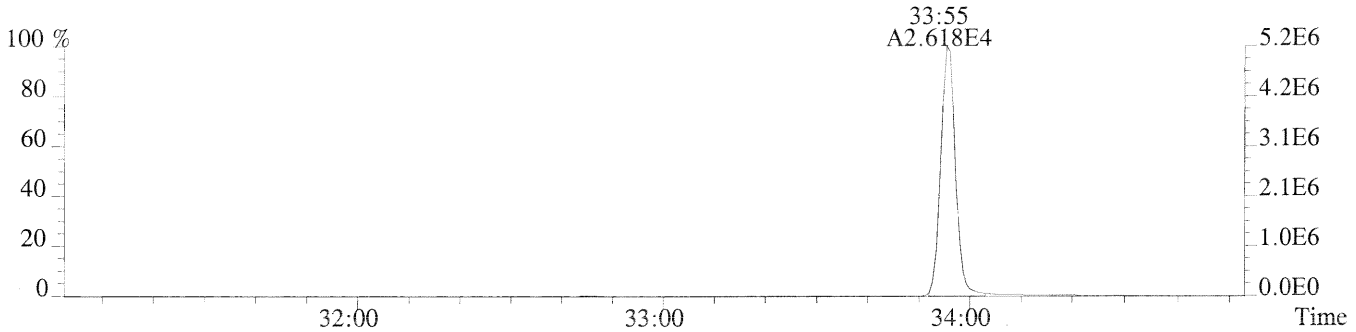
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



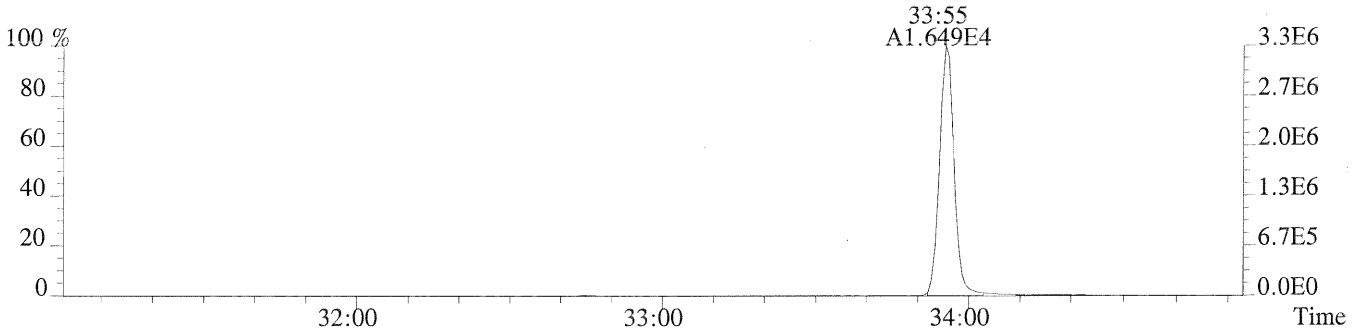
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



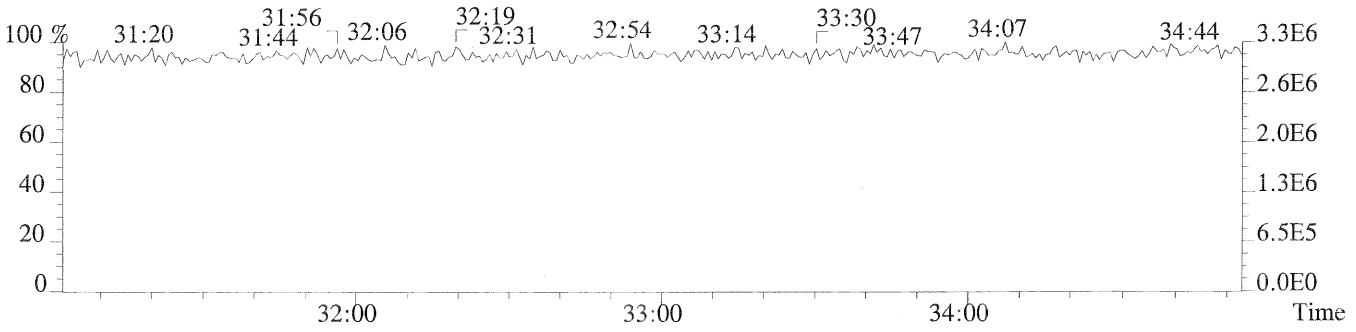
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,732.0,1.00%,F,T)

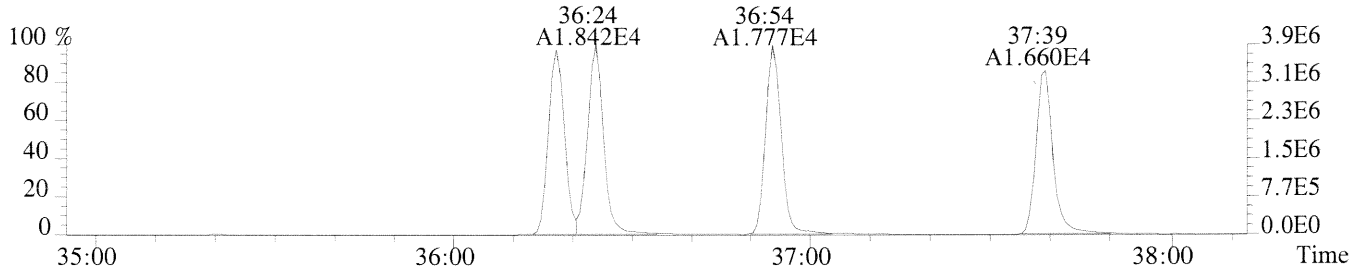


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

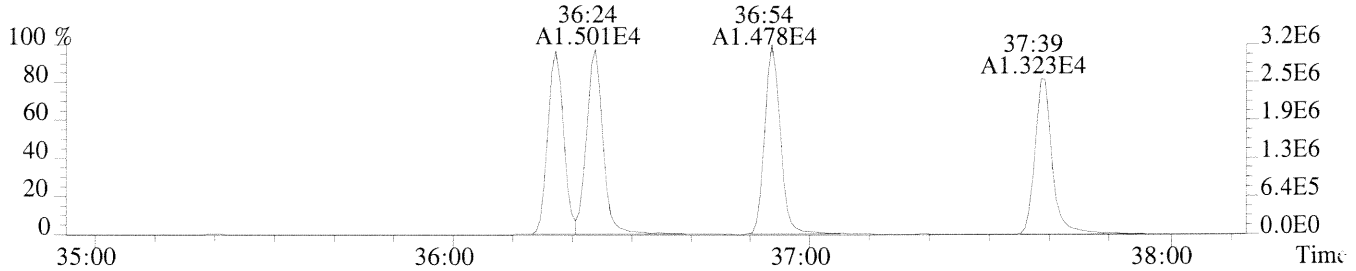


File:U149179 #1-299 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

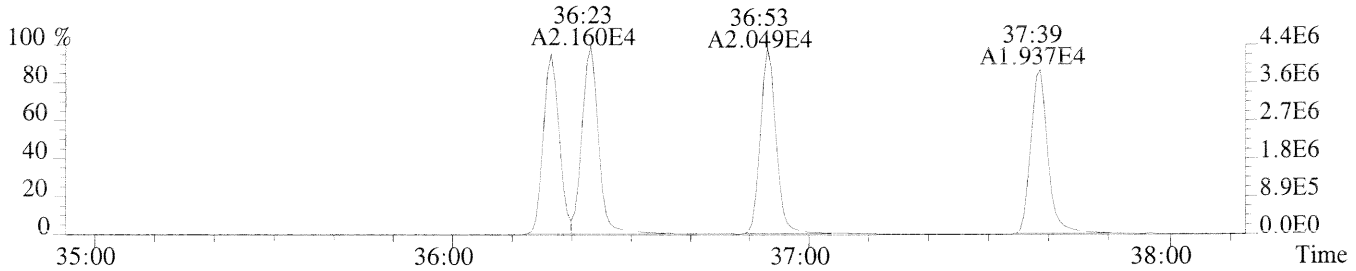
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1528.0,0.40%,F,T)



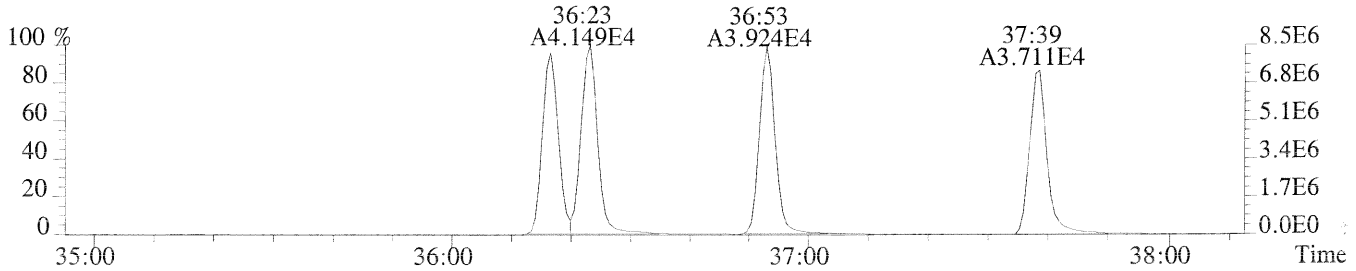
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1280.0,0.40%,F,T)



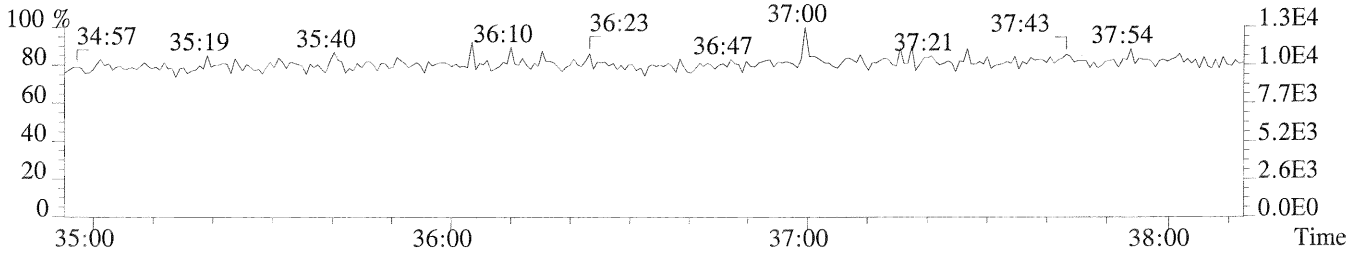
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



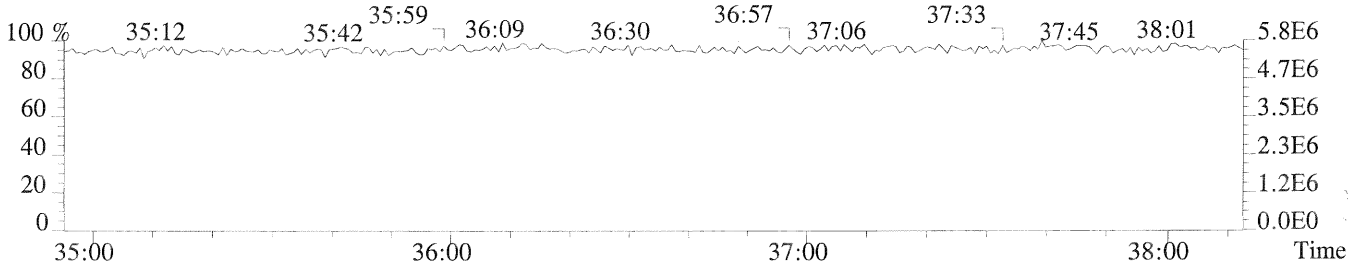
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,904.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

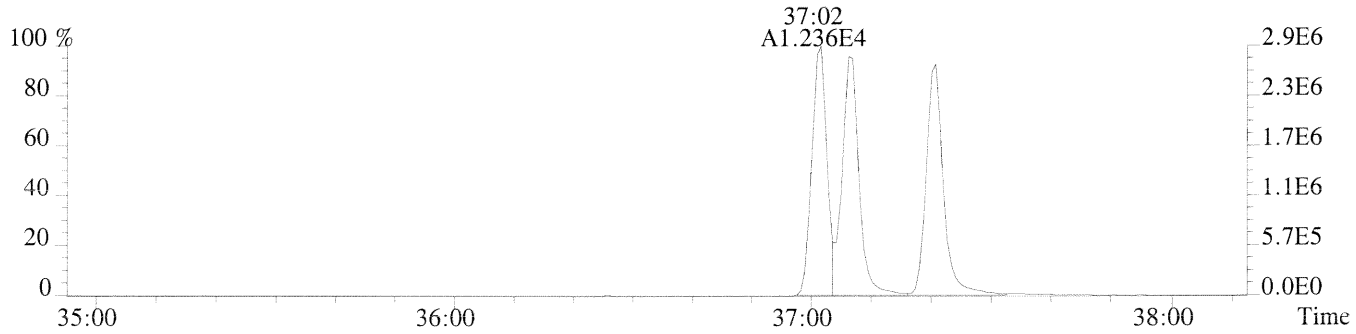


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

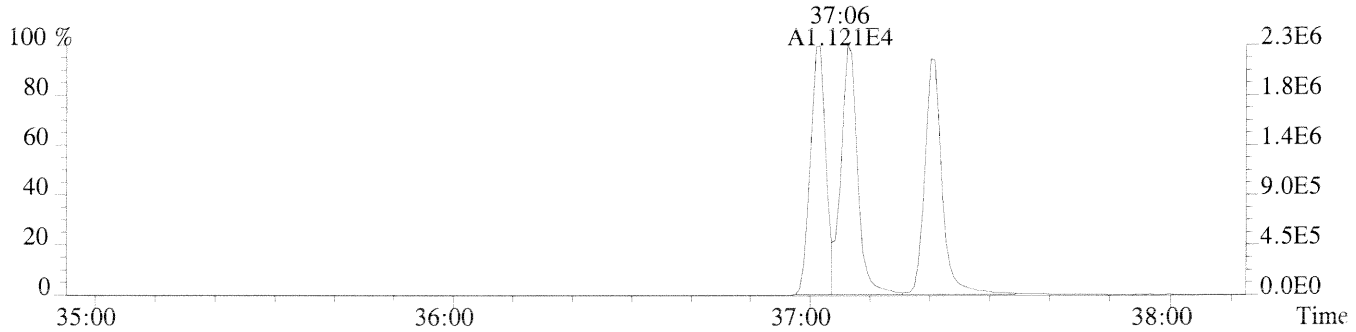


File:U149179 #1-299 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

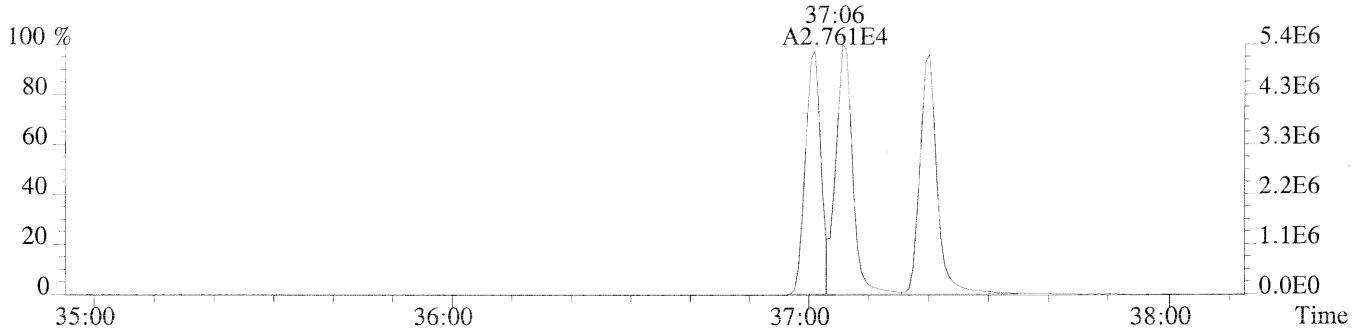
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



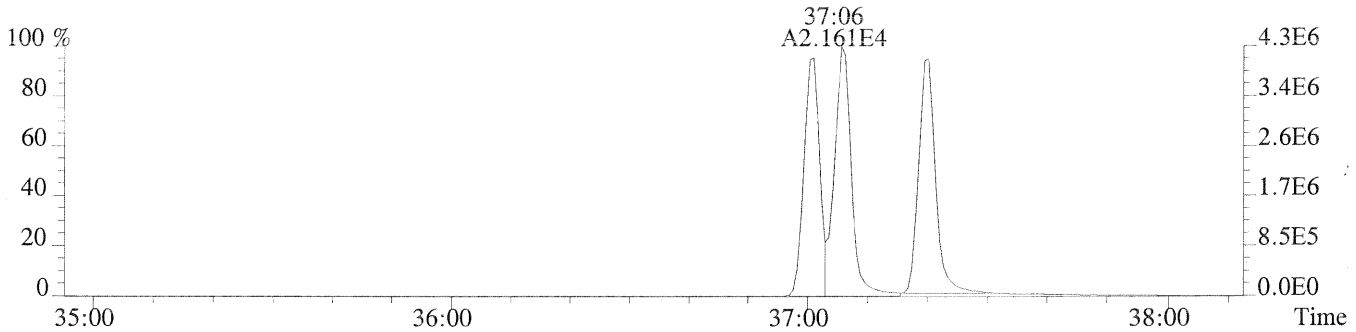
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



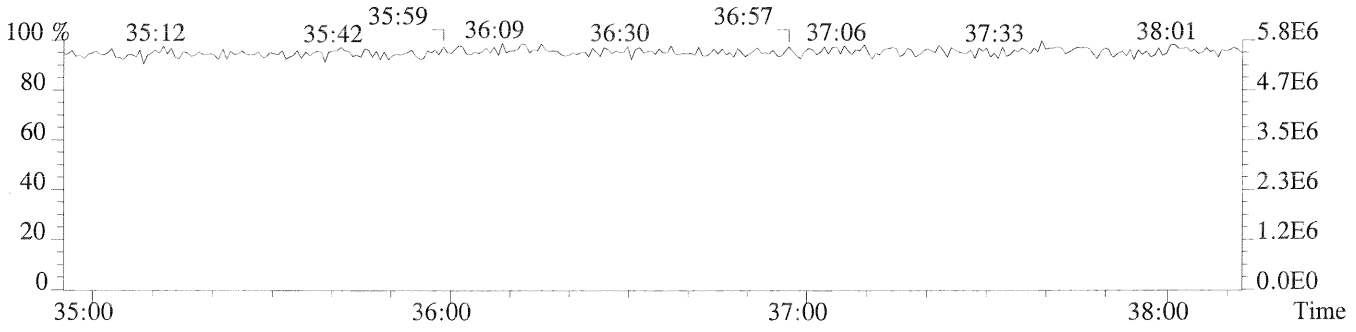
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)

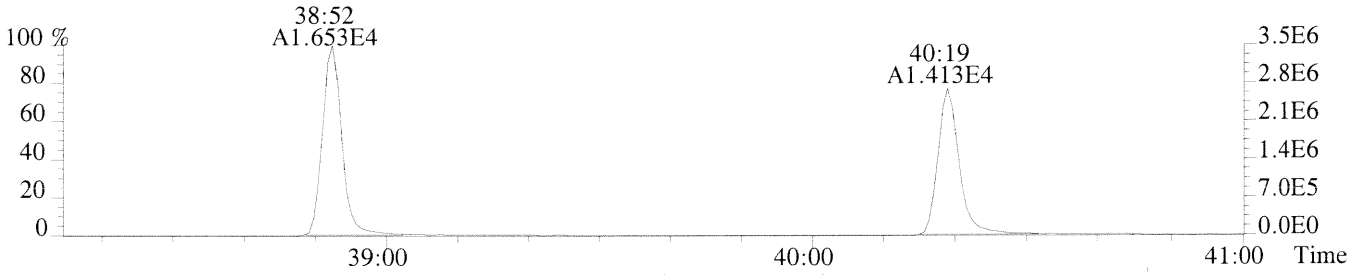


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

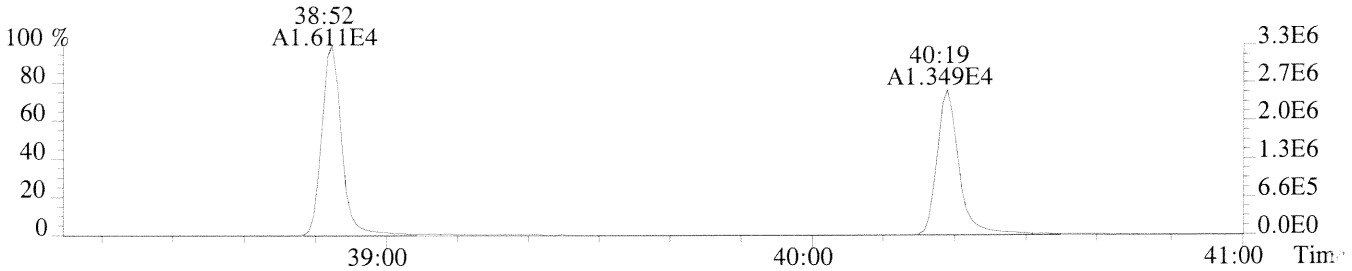


File:U149179 #1-251 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

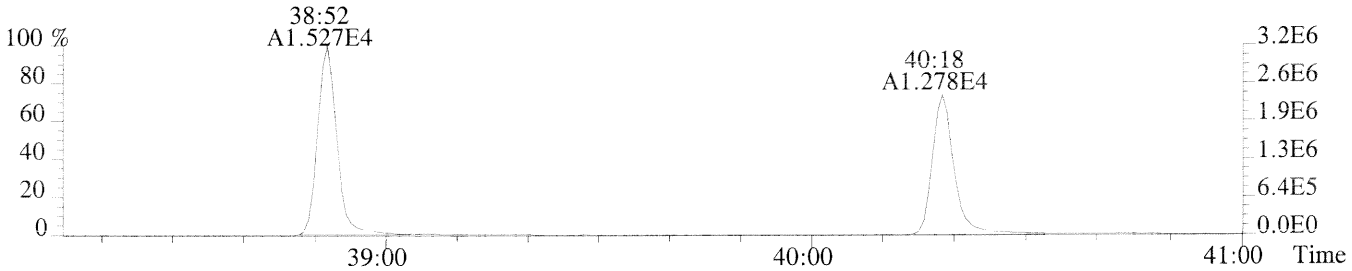
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2076.0,0.50%,F,T)



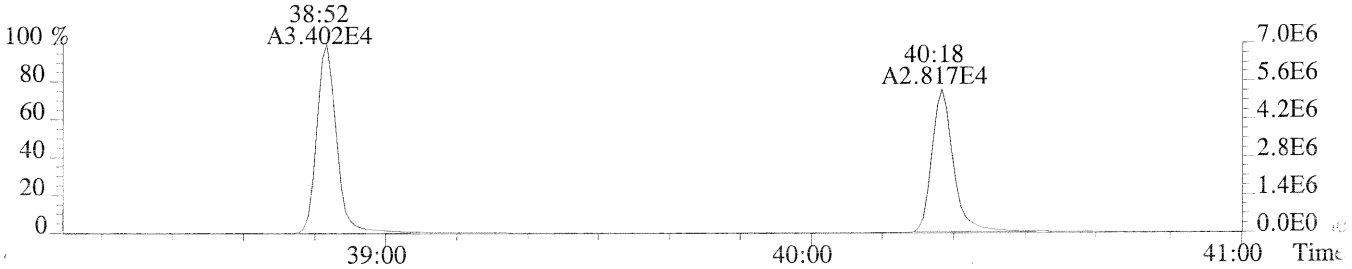
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.50%,F,T)



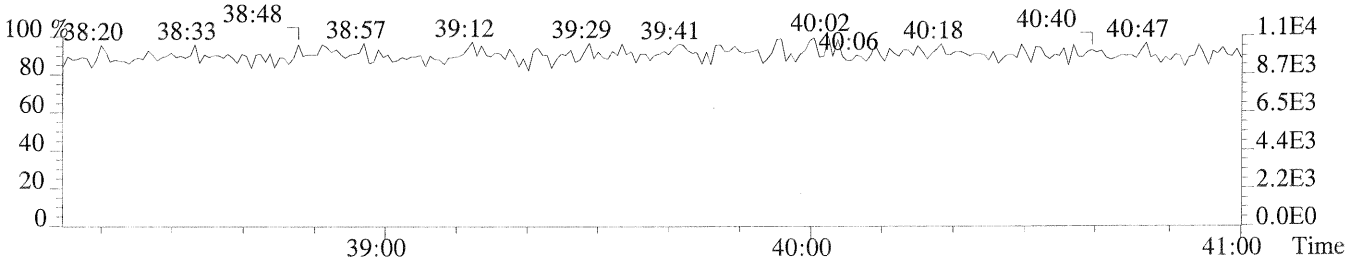
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3340.0,0.50%,F,T)



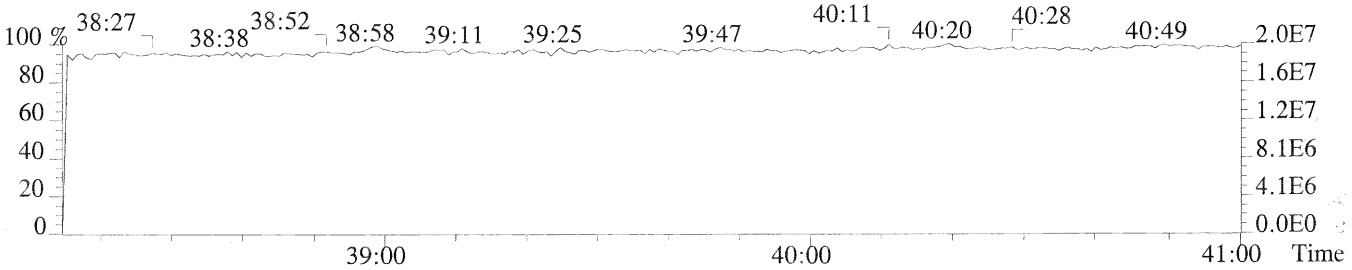
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2444.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

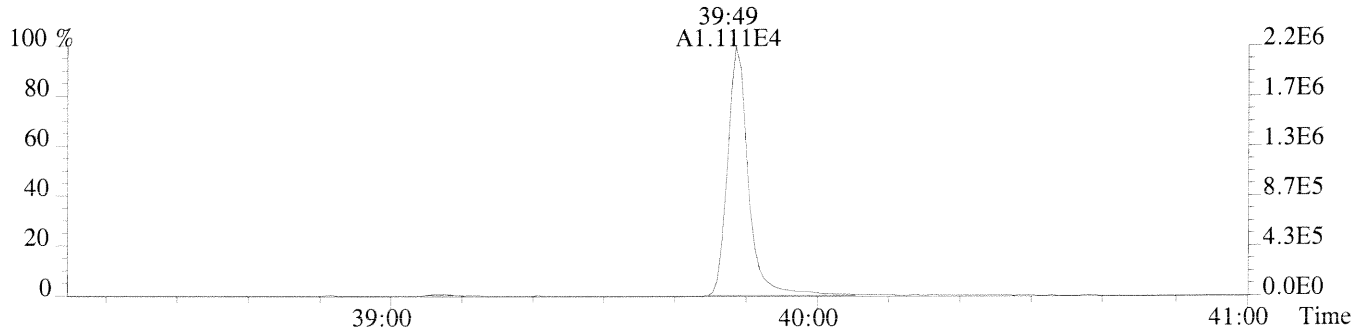


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

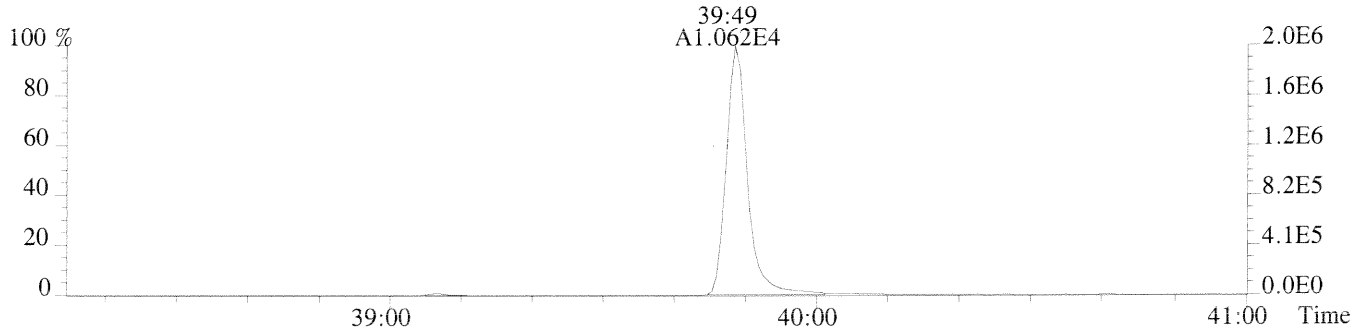


File:U149179 #1-251 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

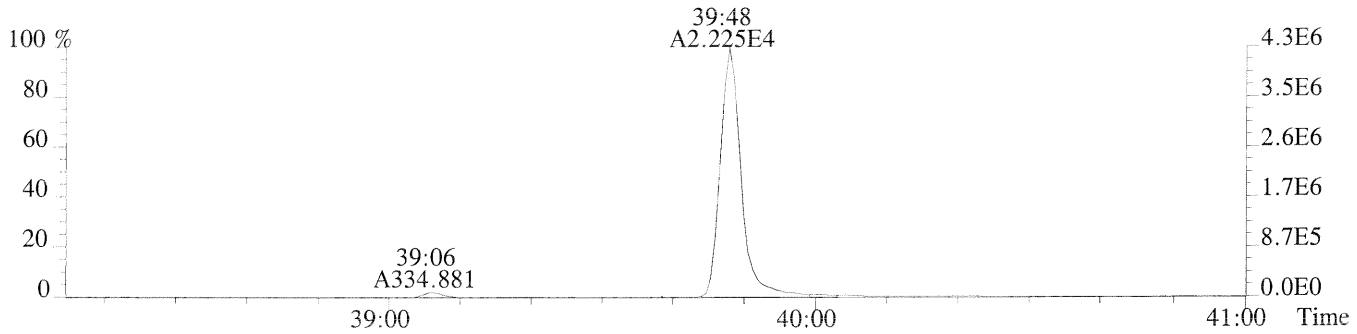
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1080.0,0.40%,F,T)



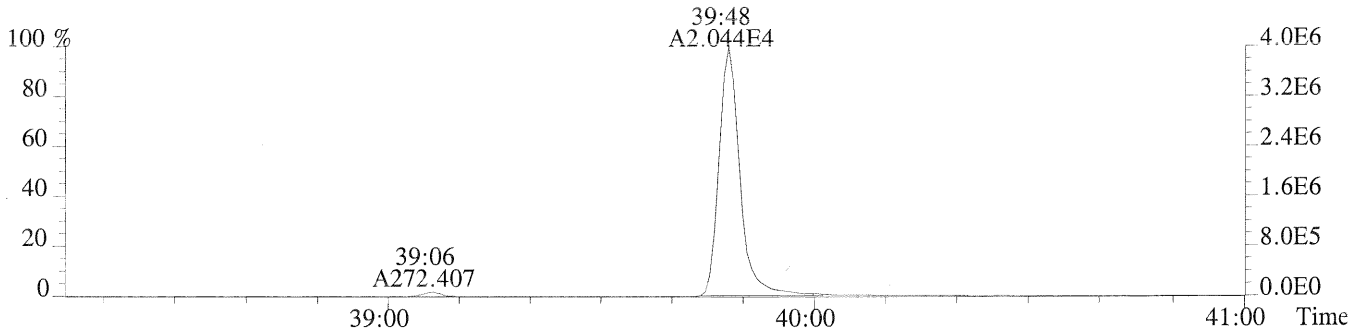
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1252.0,0.40%,F,T)



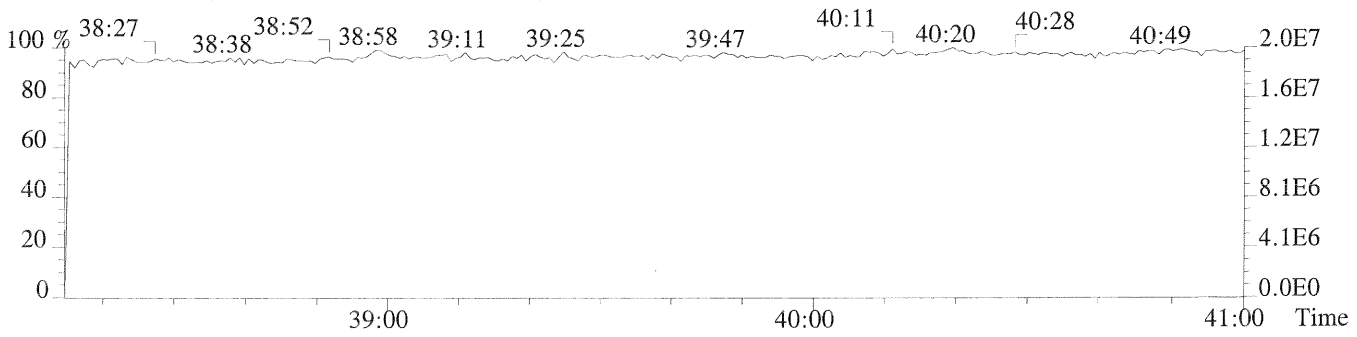
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



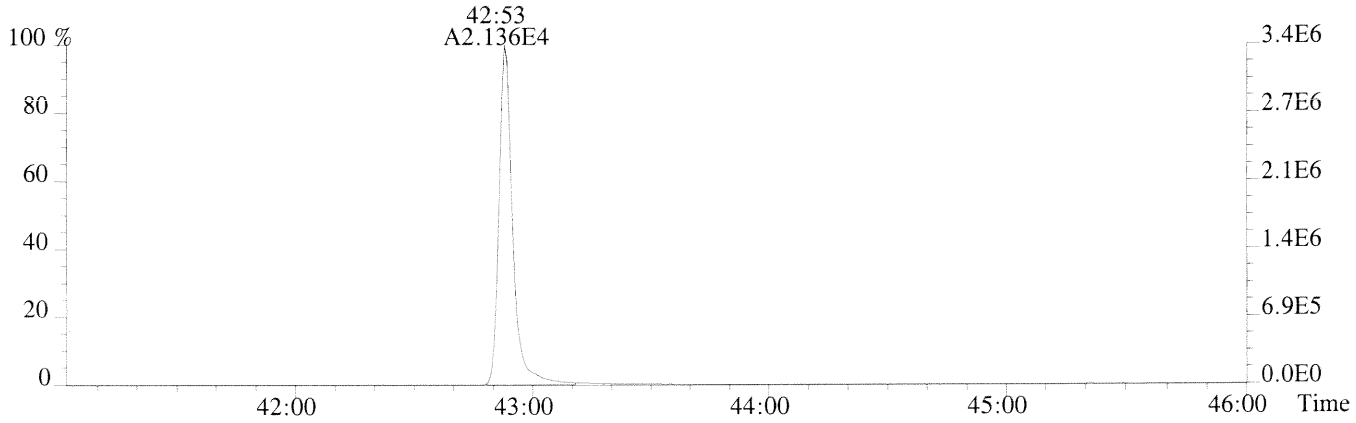
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,748.0,0.40%,F,T)



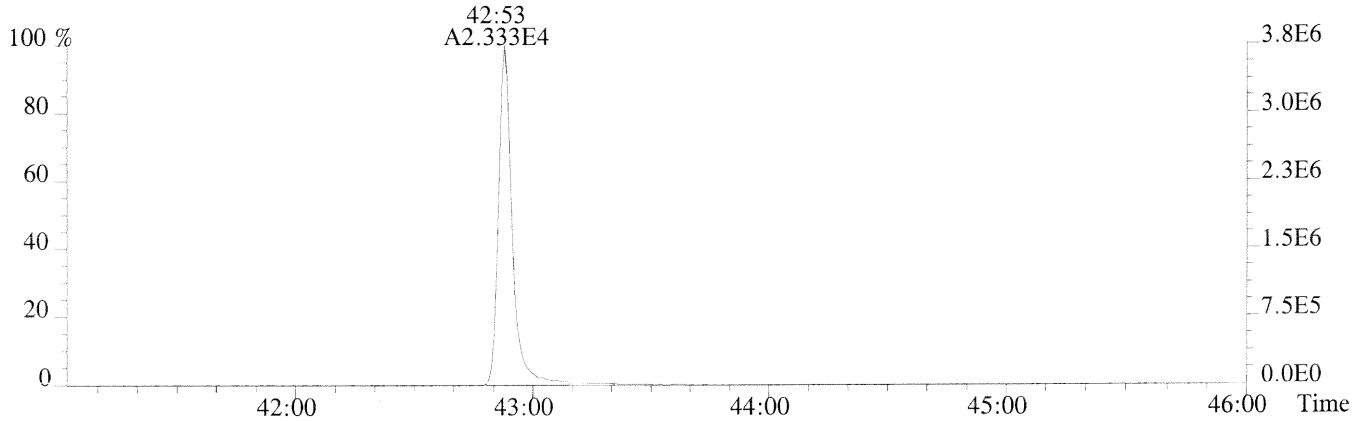
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



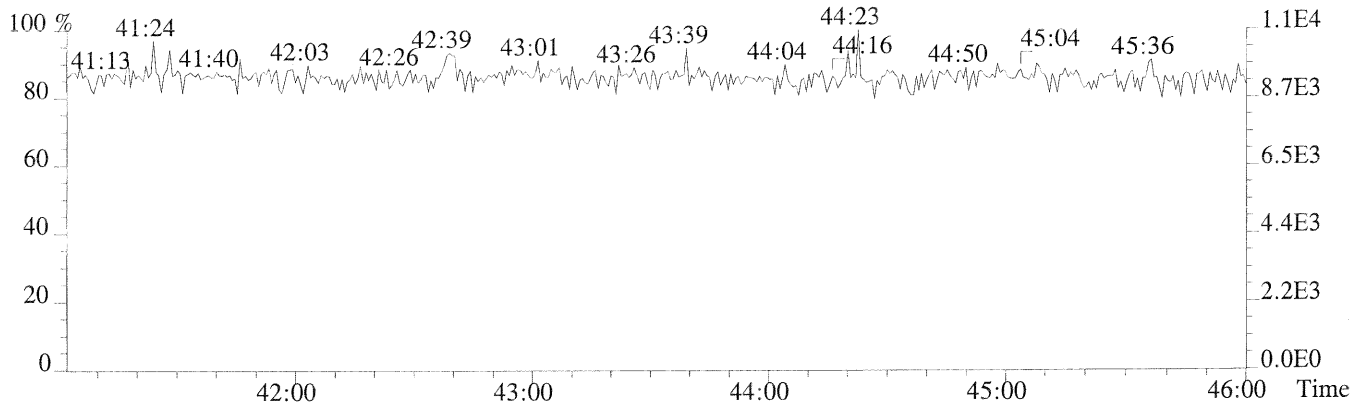
File:U149179 #1-451 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



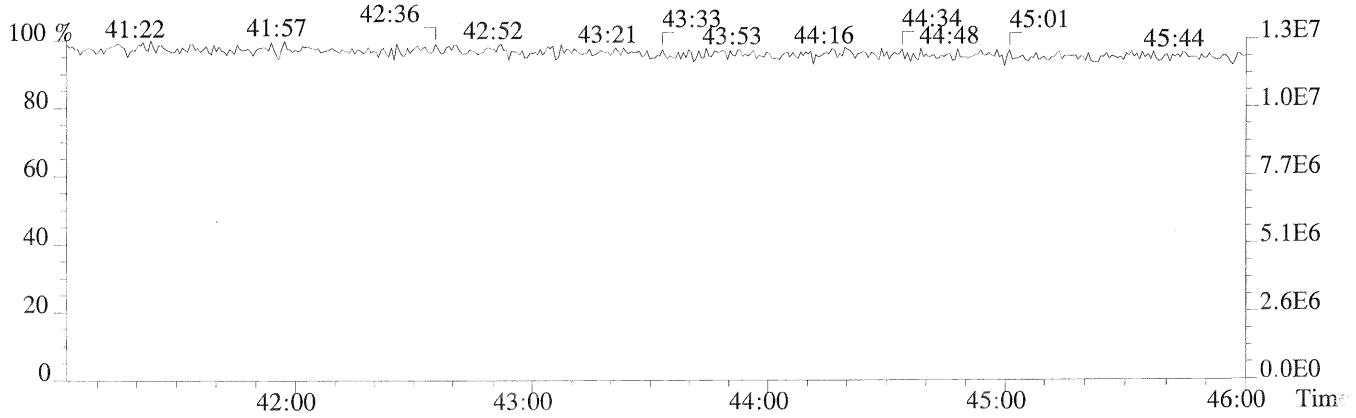
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,848.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

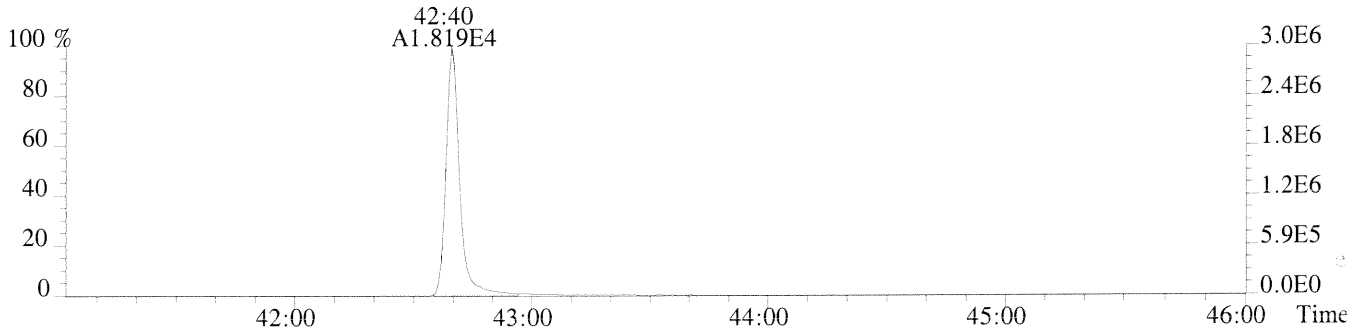


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

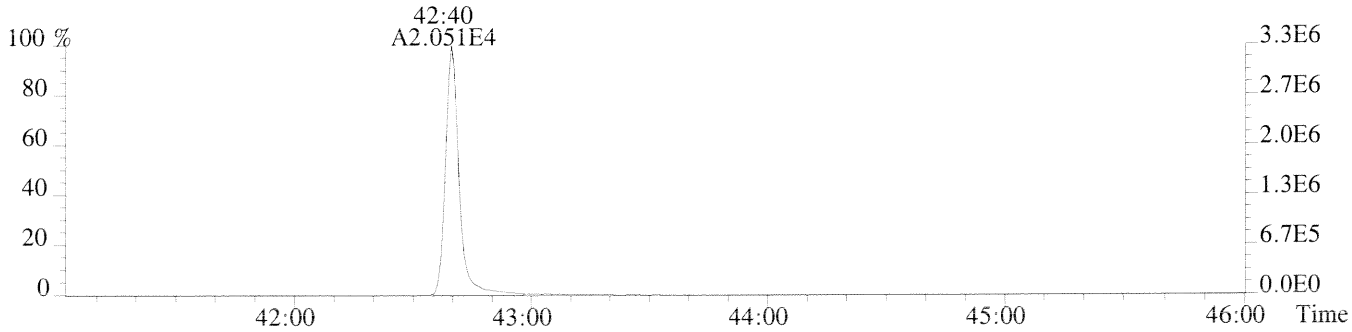


File:U149179 #1-451 Acq:21-MAY-2014 20:29:24 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICV 2ND SOURCE

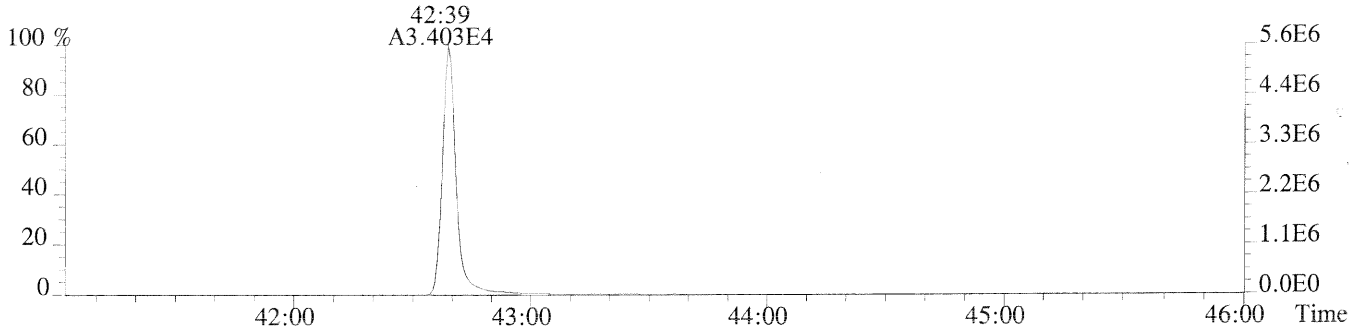
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



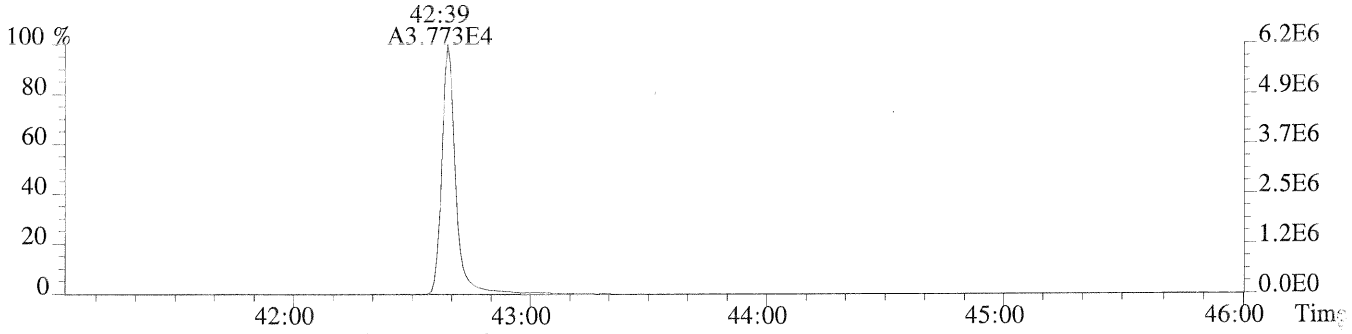
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,792.0,0.40%,F,T)



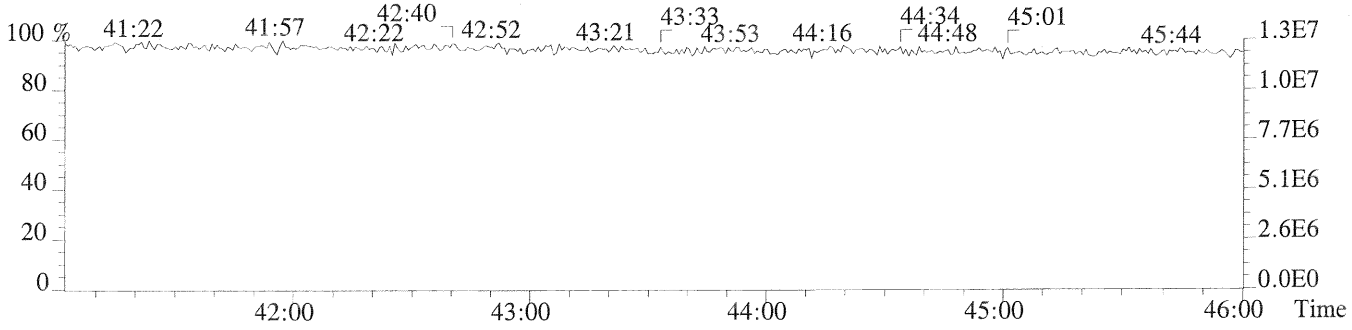
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



SOUTHWEST RESEARCH INSTITUTE®

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Chemistry and Chemical Engineering Division
Department of Analytical & Environmental Chemistry

July 8, 2014

Navarro Research and Engineering Inc.
NASA - JSC - White Sands Test Facility
Transportation Officer, Building 120
12600 NASA Road
Las Cruces, NM 88012
Tel. 575-524-5452

Attention:	Carlyn Tufts
Subject:	Reports for Batch-607-#663 for NDMA/Bromacil Analysis of Water & Soil Samples
SwRI Project #:	01.16988
SwRI Task Orders:	140618-3, 140619-8, 140624-4, 140618-4, 140619-9
Navarro P.O. #:	13EC005B, 14EC012B, 14EC002

Dear Carlyn,

Enclosed please find the analytical reports for Batch-607-#663-Navarro of water and soil samples.

Southwest Research Institute appreciates the opportunity to provide the service to Navarro Research and Engineering Inc.. If you have any questions, please do not hesitate to call me at 210-522-3954.

Sincerely,

Gang Sun, Ph.D.
Program Manager

APPROVAL:

Michael Dammann
Director

CLIENT: **Navarro Research and Engineering Inc.**
SwRI PROJECT: **01.16988.01.103**
TASK ORDER: **140618-3, 140619-8, 140624-4, 140618-4, 140619-9**
NAVARRO PO #: **13EC005B, 14EC012B, 14EC002**

NARRATIVE

(M-607 - Water-Soil- #663 -Navarro)

CLIENT:	**Navarro Research and Engineering Inc.**
SwRI PROJECT:	**01.16988.01.103**
BATCH #:	**Batch-607-#663**
TASK ORDER:	**140618-3, 140619-8, 140624-4, 140618-4, 140619-9**
REPORT DATA:	**07/08/2014**

010002

NARRATIVE FOR NDMA/ DMN/BROMACIL ANALYSIS

1. Samples were extracted with dichloromethane (DCM) and analyzed by GC/MS in selective ion monitoring mode for N-Nitrosodimethylamine (NDMA), N-Nitrodimethylamine (DMN) and Bromacil according to the modified Method 607.

2. All water samples were extracted within 7 days and soil samples within 14 days of sample collection and were analyzed within 40 days of the extraction.

3. The response factor (RF) values for Calibration curve and/or for continuing calibration standard were less than 25 % for all target compounds. The water sample reporting limit is 0.01 ppb for 1-L extraction samples. The sample reporting limit is 0.33 ng/g for 30g extraction soil samples.

4. Matrix spike for water samples at 0.50 ppb then extracted and analyzed. Matrix spike for soil samples with spike level at 16.67 µg/kg were extracted and analyzed. The recoveries for all target compounds were within method recovery criteria of 13-110% for NDMA, 30-150% for DMN, and 40-190% for Bromacil.

4. Surrogate compound was spiked into every sample before sample extraction at 0.50 ppb level. The surrogate recoveries for all samples were within method recovery criteria of 40-160%.

5. Laboratory solvent blanks were extracted and analyzed for every sample batch. No analytes were detected above report limits from the blanks.

6. A "J" value was reported if the associated value was below reporting limits but above the MDL value.

7. All analyte concentrations are expressed in µg/L (*ppb*). Sample calculation:

$$\text{Concentration } (\mu g/L) = \frac{C\ (ng/\mu L) \times V_{extr}\ (\mu L) \times DF}{V_{samp}(mL)} \times \frac{1000\ mL}{1\ L} \times \frac{1\ \mu g}{1000\ ng}$$

where:
- C = result of GC/MS analysis, in ng/µL
- V_{extr} = final volume of sample extract, in µL
- V_{samp} = sample volume taken for extraction, in mL
- DF = dilution factor, if any

8. **One water sample #1406161342 (200-SB-13) was accidently lost during the extraction process. The accident has been reported to the client immediately.**

CLIENT: Navarro Research and Engineering Inc.
SwRI PROJECT: 01.16988.01.103
TASK ORDER: 140618-3, 140619-8, 140624-4, 140618-4, 140619-9
NAVARRO PO #: 13EC005B, 14EC012B, 14EC002

TASK ORDER AND CHAIN OF CUSTODY

Southwest Research Institute

Laboratory Task Order

010004

TO #: 140618-3 Revision: 1

SDG: 555187

SRR #'s: 53354
Client(s): Navarro

Project(s): 16988.01.10X
Manager(s): SUN, GANG
To PM:
To QA:
To Client: 07/09/14

Instructions

Documents Related to this task order: 159990[COC for SRR 53354], 159991[SRR Paperwork for SRR 53354], 108294[PO #179 + #180], 113038[PO #179 + #180 Change Order #1], 113134[PO #NAV0000060], 115908[PO #NAV0000060 CO #1], 117303[PO #NAV0000060 CO #2], 118820[PO #179 + #180 Change Order #2], 120319[PO #104], 122923[PO #179 Change Order #3], 124787[PO #132], 124995[PO #179 Change Order #5]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: E607W
Section: EXTLAB

Holding: 7 days from CED

EXTRACTION BY METHOD 607

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
555187		1	Aqueous	1406130722 (200-SB-8)	13 Jun 14	20 Jun 14
555188		1	Aqueous	1406130853A (100-E-261)	13 Jun 14	20 Jun 14
555189		1	Aqueous	1406141652 (200-SB-6)	14 Jun 14	21 Jun 14
555190		1	Aqueous	1406151112 (200-SB-5)	15 Jun 14	22 Jun 14

Test: T607W
Section: TDG

Holding: 40 days from VTSR

NDMA/DMN ANALYSIS BY GC/MS/SIM

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
555187		1	Aqueous	1406130722 (200-SB-8)	17 Jun 14	27 Jul 14
555188		1	Aqueous	1406130853A (100-E-261)	17 Jun 14	27 Jul 14
555189		1	Aqueous	1406141652 (200-SB-6)	17 Jun 14	27 Jul 14
555190		1	Aqueous	1406151112 (200-SB-5)	17 Jun 14	27 Jul 14

WSTF CHAIN OF CUSTODY RECORD

Date 6-16-14

010005 Page 1 of 1

Laboratory / PO # 13EC005B

Address shipping questions to:

Attn: ☑ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☑ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (A)	Analytes / Method: NDMA/DMN/BROMACIL 607								Comments
1406130853A	100-E-261	1	X	X								
1406130722	200-SB-8	1	X	X								
1406141652	200-SB-6	1	X	X								
1406151112	200-SB-5	1	X	X								

Client: Navarro
SRR #53354
Project # 19641.01.00X
Case: 13EC005B
VTSR: 06/17/14
Sample(s) Received: Intac
Temperature: 4.2 °C/ SN#: 18440

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-16-14 / 1100 hrs.	[signature]	6/17/14 1730

WSTF 381B (03/13)

NASA-WSTF SHIPPING DOCUMENT

010006

(1) Rec'd # AR12

SHIPPED FROM: NASA JSC WHITE SANDS TEST FACILITY 12600 NASA ROAD; BLDG. 120 LAS CRUCES, NEW MEXICO 88012	WSTF ORIGINATOR/MAIL CODE/TELEPHONE NO. Patricia Melendrez/Purchasing Dept/ 524-5334 Carlyn Tufts 524-5452
	ORDER OR CONTRACT NUMBER: PO 13EC005B SHIPMENT CONTROL NO: WS14-167G
SHIP TO: (ADDRESS, PHONE#, POINT OF CONTACT) Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238 Gang Sun 210-522-3954	PROJECT or TASK NUMBER: 8751-003 47 SHIP VIA: FX - P1 Contain Batteries: NO NO. PKG. DATE SHIPPED: 10-16-14 AirBill/ PRO #/Bol # Battery Type-Part # AUTHORIZED BY: DEPT.

ITEM NO.	EQUIPMENT CONTROL NO.	MODEL NO./ STOCK NO./ PART NO.	ITEM NAME - MANUFACTURER'S NAME AND SERIAL NO.	UNIT OF ISSUE	QTY.
1			Aqueous Sample for Analysis for NDMA, DMN & Bromacil by EPA Method 607 per SOW	EA	4
2			Aqueous Sample for Analysis for NDMA, DMN & Bromacil by EPA Method 607 per SOW 7-day turn around time	EA	

JUSTIFICATION FOR SHIPMENT: (MDR #, Return Authorization #'s, Warranty Replacement, Repair, Overage/Shortage, Damage, Recycling)
Shipment of Aqueous samples for Analysis as per SOW

DOT HAZARDOUS MATERIALS INFO; EMERGENCY PHONE NUMBER AND GUIDE NUMBER:

PROPERTY REVIEW: ☐ REMOVE EQUIPMENT TAG ☐ DO NOT REMOVE EQUIPMENT TAG

PACKED BY:	# CONTAINERS	TYPE CONTAINERS	DIMENSIONS	WEIGHT
Please check off the applicable labels! ☐ FRAGILE ☐ GLASS ☐ DELICATE ☐ DO NOT XRAY ☐ REFRIGERATE ☐ OTHER ☐ BUBBLEWRAP ☐ FOAM	1	Cooler	25 x 14 x 14	
	TOTAL CONTAINERS			TOTAL WEIGHT

RECEIVED BY:

REPRESENTING: SwRI

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked, labeled, and are in proper condition for transportation according to the regulations of the D.O.T. _____ Date _____

Client: Navarro
SRR #53354
Project # 19641.01.00X
Case: 13EC005B
VTSR: 06/17/14
Sample(s) Received; Intact
Temperature: 4.2 °C/ SN#: 18440

WSTF 198 (1/08)

Southwest Research Institute

Laboratory Task Order

TO #: 140618-4 Revision: 0

Project(s): 16988.01.10X
Manager(s): SUN, GANG
To Client: 07/09/14

010007

SDG: 555191

SRR #'s: 53355
Client(s): Navarro

Instructions

Documents Related to this task order: 108294[PO #179 + #180], 113038[PO #179 + #180 Change Order #1], 113134[PO #NAV0000060], 115908[PO #NAV0000060 CO #1], 117303[PO #NAV0000060 CO #2], 118820[PO #179 + #180 Change Order #2], 120319[PO #104], 122923[PO #179 Change Order #3], 124787[PO #132], 124995[PO #179 Change Order #5]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: E607S
Section: EXTLAB

Holding: 14 days from CED

EXTRACTION BY METHOD 607.

Cnt: 7

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
555191		1	Soil	1406130802 (200-SB-8 8/10')	13 Jun 14	27 Jun 14
555192		1	Soil	1406130812 (200-SB-8 8/10')	13 Jun 14	27 Jun 14
555193		1	Soil	1406130942 (200-SB-8 28/30')	13 Jun 14	27 Jun 14
555194		1	Soil	1406131302 (200-SB-8 43/45')	13 Jun 14	27 Jun 14
555195		1	Soil	1406141702 (200-SB-6 8/10')	14 Jun 14	28 Jun 14
555196		1	Soil	1406151127 (200-SB-5 8/10')	15 Jun 14	29 Jun 14
555197		1	Soil	1406151143 (200-SB-5 8/10')	15 Jun 14	29 Jun 14

Test: T607W
Section: TDG

Holding: 40 days from VTSR

NDMA/DMN ANALYSIS BY GC/MS/SIM

Cnt: 7

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
555191		1	Soil	1406130802 (200-SB-8 8/10')	17 Jun 14	27 Jul 14
555192		1	Soil	1406130812 (200-SB-8 8/10')	17 Jun 14	27 Jul 14
555193		1	Soil	1406130942 (200-SB-8 28/30')	17 Jun 14	27 Jul 14
555194		1	Soil	1406131302 (200-SB-8 43/45')	17 Jun 14	27 Jul 14
555195		1	Soil	1406141702 (200-SB-6 8/10')	17 Jun 14	27 Jul 14
555196		1	Soil	1406151127 (200-SB-5 8/10')	17 Jun 14	27 Jul 14
555197		1	Soil	1406151143 (200-SB-5 8/10')	17 Jun 14	27 Jul 14

ver 10/16/2013

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

CT 6/19/2014

010008 Page 1 of 1

Laboratory / PO # ~~PO 14EC002~~ PO 14EC012B

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓ (575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Analyte / Method: NDMA and Bromacil 607								Comments
1406130802	200-SB-8 8/10'	1	X	X								
1406130812	" "	1	X	X								
1406130942	200-SB-8 28/30'	1	X	X								
1406131302	" 43/45'	1	X	X								
1406141702	200-SB-6 8/10'	1	X	X								
1406151127	200-SB-5 8/10'	1	X	X								
1406151143	" "	1	X	X								

Client: Navarro
SRR #53355
Project # 16988.01.f0X
Case: 14EC002
VTSR: 06/17/14
Sample(s) Received: Intact
Temperature: 4.4 °C/ SN#: 18439

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John V Minnick	6-16-14 / 1100 HRS	[signature]	6/17/14 1730

ST-381B (03/13)

NASA-WSTF SHIPPING DOCUMENT

010009

(1) Rec'd # RD22

SHIPPED FROM: NASA JSC WHITE SANDS TEST FACILITY 12600 NASA ROAD; BLDG. 120 LAS CRUCES, NEW MEXICO 88012	WSTF ORIGINATOR/MAIL CODE/TELEPHONE NO. Patricia Melendrez/Purchasing Dept/ 524-5334 Carlyn Tufts 524-5452
	ORDER OR CONTRACT NUMBER: PO 14EC002 / SHIPMENT CONTROL NO: WS14-167 F
SHIP TO: (ADDRESS, PHONE#, POINT OF CONTACT) Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238 Gang Sun 210-522-3954	PROJECT or TASK NUMBER: 8752-028 47 / SHIP VIA: FX-P1
	Contain Batteries: NO / NO. PKG. / DATE SHIPPED: 6-16-14 / AirBill/ PRO #/Bol #
	Battery Type-Part # / AUTHORIZED BY: / DEPT.

ITEM NO.	EQUIPMENT CONTROL NO.	MODEL NO./ STOCK NO./ PART NO.	ITEM NAME - MANUFACTURER'S NAME AND SERIAL NO.	UNIT OF ISSUE	QTY.
1			Soil Sample for NDMA and Bromacil	EA	7

JUSTIFICATION FOR SHIPMENT: (MDR #, Return Authorization #'s, Warranty Replacement, Repair, Overage/Shortage, Damage, Recycling)
Soil Sample for analysis

DOT HAZARDOUS MATERIALS INFO: EMERGENCY PHONE NUMBER AND GUIDE NUMBER:

PROPERTY REVIEW: ☐ REMOVE EQUIPMENT TAG ☐ DO NOT REMOVE EQUIPMENT TAG

PACKED BY.	# CONTAINERS	TYPE CONTAINERS	DIMENSIONS	WEIGHT
Please check off the applicable labels! ☐ FRAGILE ☐ GLASS ☐ DELICATE ☐ DO NOT XRAY ☐ REFRIGERATE ☐ OTHER	1	Cooler	25 x 14 x 14	
☐ BUBBLEWRAP	TOTAL CONTAINERS			TOTAL WEIGHT
☐ FOAM				

RECEIVED BY: [signature]

REPRESENTING: Sw RT

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked, labeled, and are in proper condition for transportation according to the regulations of the D.O.T. _____ Date _____

Client: Navarro
SRR #53355
Project # 19641.01.00X
Case: 14EC002
VTSR: 06/17/14
Sample(s) Received: Intact
Temperature: 4.4 °C/ SN#: 18440

WSTF 198 (1/05)

Southwest Research Institute

Laboratory Task Order

TO #: 140619-8 Revision: 0

SDG: 555515

SRR #'s: 53368
Client(s): Navarro

Project(s): 16988.01.10X
Manager(s): SUN, GANG
To Client: 07/10/14

010010

Instructions

Documents Related to this task order: 108294[PO #179 + #180], 113038[PO #179 + #180 Change Order #1], 113134[PO #NAV0000060], 115908[PO #NAV0000060 CO #1], 117303[PO #NAV0000060 CO #2], 118820[PO #179 + #180 Change Order #2], 120319[PO #104], 122923[PO #179 Change Order #3], 124787[PO #132], 124995[PO #179 Change Order #5]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: E607W
Section: EXTLAB

Holding: 7 days from CED

EXTRACTION BY METHOD 607

Cnt: 5

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
555515		1	Aqueous	1406160847A (BLM-15-305)	16 Jun 14	23 Jun 14
555516		1	Aqueous	1406160907 (B655-EFF-2)	16 Jun 14	23 Jun 14
555517		1	Aqueous	1406160927 (B655-INF-2)	16 Jun 14	23 Jun 14
555518		1	Aqueous	1406161051A (BLM-15-305)	16 Jun 14	23 Jun 14
~~555519~~		~~1~~	~~Aqueous~~	~~1406161342 (200-SB-13)~~ Broken.	~~16 Jun 14~~	~~23 Jun 14~~

CSC 7/7/14

Test: T607W
Section: TDG

Holding: 40 days from VTSR

NDMA/DMN ANALYSIS BY GC/MS/SIM

Cnt: 5

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
555515		1	Aqueous	1406160847A (BLM-15-305)	19 Jun 14	29 Jul 14
555516		1	Aqueous	1406160907 (B655-EFF-2)	19 Jun 14	29 Jul 14
555517		1	Aqueous	1406160927 (B655-INF-2)	19 Jun 14	29 Jul 14
555518		1	Aqueous	1406161051A (BLM-15-305)	19 Jun 14	29 Jul 14
555519		1	Aqueous	1406161342 (200-SB-13)	19 Jun 14	29 Jul 14

WSTF CHAIN OF CUSTODY RECORD

Date 6-17-14

010011 Page 1 of 1

Laboratory / PO # 13EC005B

Address shipping questions to:

Attn: ☑ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☑ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Mirnick

Sample No.	Sample Location	# of Containers	Sample Type	Analytes / Method: NDMA/DMN/BBOMACL 607								Comments
1406160847A	Blm-15-306	1	X	X								
1406161061A	"	1	X	X								
1406160907	B655-EFF-2	1	X	X								
1406160927	B655-INF-2	1	X	X								
1406161342	200-SB-13	1	X	X								

Client: Navarro
SRR #53368
Project #16988.01.10X
Case: 13EC005B
VTSR: 06/19/14
Sample(s) Received: Intact
Temperature: 8.1 °C/ SN#: 18439

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-17-14 / 1100 Hrs.		6/19/14 0830

WSTF 381B (03/13)

NASA-WSTF SHIPPING DOCUMENT

010012

(1) Blue #XB22

SHIPPED FROM: NASA JSC WHITE SANDS TEST FACILITY 12600 NASA ROAD; BLDG. 120 LAS CRUCES, NEW MEXICO 88012	WSTF ORIGINATOR/MAIL CODE/TELEPHONE NO. Patricia Melendrez/Purchasing Dept/ 524-5334 Carlyn Tufts 524-5452
	ORDER OR CONTRACT NUMBER: PO 13EC005B SHIPMENT CONTROL NO
SHIP TO: (ADDRESS, PHONE#, POINT OF CONTACT) Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238 Gang Sun 210-522-3954	PROJECT or TASK NUMBER: 8751-003 47 SHIP VIA
	Contain Batteries: NO NO. PKG. DATE SHIPPED: 6-17-14 AirBill/ PRO #/Bol #
	Battery Type-Part # AUTHORIZED BY: DEPT.

ITEM NO.	EQUIPMENT CONTROL NO.	MODEL NO./ STOCK NO./ PART NO.	ITEM NAME - MANUFACTURER'S NAME AND SERIAL NO.	UNIT OF ISSUE	QTY.
1			Aqueous Sample for Analysis for NDMA, DMN & Bromacil by EPA Method 607 per SOW	EA	5
2			Aqueous Sample for Analysis for NDMA, DMN & Bromacil by EPA Method 607 per SOW 7-day turn around time	EA	

JUSTIFICATION FOR SHIPMENT: (MDR #, Return Authorization #'s, Warranty Replacement, Repair, Overage/Shortage, Damage, Recycling)
Shipment of Aqueous samples for Analysis as per SOW

DOT HAZARDOUS MATERIALS INFO; EMERGENCY PHONE NUMBER AND GUIDE NUMBER:

PROPERTY REVIEW: ☐ REMOVE EQUIPMENT TAG ☐ DO NOT REMOVE EQUIPMENT TAG

PACKED BY:	# CONTAINERS	TYPE CONTAINERS	DIMENSIONS	WEIGHT
Please check off the applicable labels! ☐ FRAGILE ☐ GLASS ☐ DELICATE ☐ DO NOT XRAY ☐ REFRIGERATE ☐ OTHER				
☐ BUBBLEWRAP ☐ FOAM	TOTAL CONTAINERS			TOTAL WEIGHT

RECEIVED BY: [signature]

REPRESENTING: SwRI

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked, labeled, and are in proper condition for transportation according to the regulations of the D.O.T. _____ Date_____

Client: Navarro
SRR #53368
Project # 16988.01.10X
Case: 13EC005B
VTGR: 06/19/14
Sample(s) Received: Intact
Temperature. 8.1 °C/ SN#: 18439

WSTF 196 (1/06)

Sun, Gang

From: Tufts, Carlyn A (WSTF-RA)[NAVARRO RESEARCH AND ENGINEERING, INC.] [carlyn.a.tufts@nasa.gov]
Sent: Thursday, June 19, 2014 1:02 PM
To: Sun, Gang
Cc: Minnick, Lori M. (WSTF-4420)[NAVARRO RESEARCH AND ENGINEERING, INC.]
Subject: RE: Sample Discrepancy 2274

Gang,
Please proceed with analysis and include a narrative concerning the elevated temperature in the report.
Thank you,
Carlyn

From: Sun, Gang [mailto:gang.sun@swri.org]
Sent: Thursday, June 19, 2014 11:54 AM
To: Tufts, Carlyn A (WSTF-RA)[NAVARRO RESEARCH AND ENGINEERING, INC.]
Cc: Minnick, Lori M. (WSTF-4420)[NAVARRO RESEARCH AND ENGINEERING, INC.]
Subject: FW: Sample Discrepancy 2274

Carlyn,

All Samples arrived this morning, which are suppose to be delivered yesterday for M607-water, M607-Soil, Low-level-NDMA, are all received at an elevated temperature of 8.1°C.

Please let me know your decision for this samples ASAP.

Thanks,

Gang

From: foxlab
Sent: Thursday, June 19, 2014 12:46 PM
To: Sun, Gang
Subject: Sample Discrepancy 2274

SUN, GANG
A sample discrepancy has been generated. You are listed as the manager responsible for resolution of any problems. You can review this online here

From: Zuniga, Michelle M.
Sent: Monday, June 23, 2014 1:01 PM
To: Tufts, Carlyn A (WSTF-RA)[NAVARRO RESEARCH AND ENGINEERING, INC.]
Cc: Edrisi, Hamed M.; Sun, Gang
Subject: RE: Broken sample

Carlyn,

Re-sampling the well would probably be the only corrective action that could be performed. This sample wasn't selected for MS/MSD so there was only one container for it. Please let us know if you will be sending a replacement sample so that we can plan accordingly.

Regards,

Michelle Zuniga

From: Tufts, Carlyn A (WSTF-RA)[NAVARRO RESEARCH AND ENGINEERING, INC.] [mailto:carlyn.a.tufts@nasa.gov]
Sent: Monday, June 23, 2014 11:16 AM
To: Zuniga, Michelle M.
Subject: RE: Broken sample

Michelle,
What corrective actions are available for this broken sample?
Let me know,
Carlyn

From: Zuniga, Michelle M. [mailto:michelle.zuniga@swri.org]
Sent: Friday, June 20, 2014 10:02 AM
To: Tufts, Carlyn A (WSTF-RA)[NAVARRO RESEARCH AND ENGINEERING, INC.]
Cc: Edrisi, Hamed M.; Sun, Gang
Subject: Broken sample

Dear Carlyn,

Sample 1406161342 (200-SB-13) was inadvertently broken during extraction. Please let us know what corrective action you would like us to perform.

Regards,

Michelle M. Zuniga
Southwest Research Institute
6220 Culebra Rd
San Antonio, TX 78238
Senior Research Scientist
E-mail: michelle.zuniga@swri.org
Phone: (210) 522-6891

Southwest Research Institute

Laboratory Task Order

TO #: 140619-9 Revision: 0

010015

SDG: 555520

SRR #'s: 53369
Client(s): Navarro

Project(s): 16988.01.10X
Manager(s): SUN, GANG
To Client: 07/10/14

Instructions

Documents Related to this task order: 108294[PO #179 + #180], 113038[PO #179 + #180 Change Order #1], 113134[PO #NAV0000060], 115908[PO #NAV0000060 CO #1], 117303[PO #NAV0000060 CO #2], 118820[PO #179 + #180 Change Order #2], 120319[PO #104], 122923[PO #179 Change Order #3], 124787[PO #132], 124995[PO #179 Change Order #5]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: E607S
Section: EXTLAB

Holding: 14 days from CED

EXTRACTION BY METHOD 607.

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
555520		1	Soil	1406161402 (200-SB-13 8-10')	16 Jun 14	30 Jun 14
555521		1	Soil	1406161544 (200-SB-13 28-30/32')	16 Jun 14	30 Jun 14
555522	MS	1-MS	Soil	1406161545 (200-SB-13 28-30/32')	16 Jun 14	30 Jun 14

Test: T607W
Section: TDG

Holding: 40 days from VTSR

NDMA/DMN ANALYSIS BY GC/MS/SIM

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
555520		1	Soil	1406161402 (200-SB-13 8-10')	19 Jun 14	29 Jul 14
555521		1	Soil	1406161544 (200-SB-13 28-30/32')	19 Jun 14	29 Jul 14
555522	MS	1-MS	Soil	1406161545 (200-SB-13 28-30/32')	19 Jun 14	29 Jul 14

Date 6-17-14

WSTF CHAIN OF CUSTODY RECORD

010016 Page 1 of 1

Laboratory / PO # **PO 14EC002**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓ (575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@rasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Analytes / Method: NDMA and Bromacil (607)							Comments
1406161402	200-SB-13 8-10'	1	X		X						
1406161544	200-SB-13 28-30/32'	1	X		X						
1406161545	"	1	X		X						*Matrix Spike for #1406161544

Client: Navarro
SRR #53369
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/19/14
Sample(s) Received Intact
Temperature: 8.1 °C, SN#: 18439

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-17-14 / 1100 hrs.	[signature]	6/19/14 0830

WSTF 381B (03/13)

NASA-WSTF SHIPPING DOCUMENT

010017

(1) Blue XB22

SHIPPED FROM: NASA JSC WHITE SANDS TEST FACILITY 12600 NASA ROAD; BLDG. 120 LAS CRUCES, NEW MEXICO 88012	NASA ORIGINATOR/MAIL CODE/TELEPHONE NO. Patricia Melendrez/Purchasing Dept/ 524-5334 Carlyn Tufts 524-5452
	ORDER OR CONTRACT NUMBER: PO 14EC002 — SHIPMENT CONTROL NO
SHIP TO: (ADDRESS, PHONE#, POINT OF CONTACT) Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238 Gang Sun 210-522-3954	PROJECT or TASK NUMBER: 8752-028 47 — SHIP VIA
	Contain Batteries: NO — NO. PKG. — DATE SHIPPED: 6-17-14 — AirBill/ PRO #/Bol #
	Battery Type-Part # — AUTHORIZED BY: — DEPT.

ITEM NO.	EQUIPMENT CONTROL NO.	MODEL NO./ STOCK NO./ PART NO.	ITEM NAME - MANUFACTURER'S NAME AND SERIAL NO.	UNIT OF ISSUE	QTY.
1			Soil Sample for NDMA and Bromacil	EA	3

JUSTIFICATION FOR SHIPMENT: (MDR #, Return Authorization #'s, Warranty Replacement, Repair, Overage/Shortage, Damage, Recycling)
Soil Sample for analysis

DOT HAZARDOUS MATERIALS INFO; EMERGENCY PHONE NUMBER AND GUIDE NUMBER:

PROPERTY REVIEW: ☐ REMOVE EQUIPMENT TAG ☐ DO NOT REMOVE EQUIPMENT TAG

PACKED BY:	# CONTAINERS	TYPE CONTAINERS	DIMENSIONS	WEIGHT
Please check off the applicable label(s) ☐ FRAGILE ☐ GLASS ☐ DELICATE ☐ DO NOT XRAY ☐ REFRIGERATE ☐ OTHER				
☐ BUBBLEWRAP	TOTAL CONTAINERS			TOTAL WEIGHT
☐ FOAM				

RECEIVED BY:

REPRESENTING:

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked, labeled, and are in proper condition for transportation according to the regulations of the D.O.T. _____ Date _____

Client: Navarro
SRR #53369
Project # 16988 01.10X
Case: 14EC002
VTSR: 06/10/14
Sample(s) Received: Intact
Temperature: 8.1 °C/ SN#: 18439

WSTF 196 (1/05)

Sun, Gang

From: Tufts, Carlyn A (WSTF-RA)[NAVARRO RESEARCH AND ENGINEERING, INC.] [carlyn.a.tufts@nasa.gov]
Sent: Thursday, June 19, 2014 1:02 PM
To: Sun, Gang
Cc: Minnick, Lori M. (WSTF-4420)[NAVARRO RESEARCH AND ENGINEERING, INC.]
Subject: RE: Sample Discrepancy 2274

Gang,
Please proceed with analysis and include a narrative concerning the elevated temperature in the report.
Thank you,
Carlyn

From: Sun, Gang [mailto:gang.sun@swri.org]
Sent: Thursday, June 19, 2014 11:54 AM
To: Tufts, Carlyn A (WSTF-RA)[NAVARRO RESEARCH AND ENGINEERING, INC.]
Cc: Minnick, Lori M. (WSTF-4420)[NAVARRO RESEARCH AND ENGINEERING, INC.]
Subject: FW: Sample Discrepancy 2274

Carlyn,

All Samples arrived this morning, which are suppose to be delivered yesterday for M607-water, M607-Soil, Low-level-NDMA, are all received at an elevated temperature of 8.1°C.

Please let me know your decision for this samples ASAP.

Thanks,

Gang

From: foxlab
Sent: Thursday, June 19, 2014 12:46 PM
To: Sun, Gang
Subject: Sample Discrepancy 2274

SUN, GANG
A sample discrepancy has been generated. You are listed as the manager responsible for resolution of any problems. You can review this online here

Southwest Research Institute

Laboratory Task Order

TO #: 140624-4 Revision: 0

010019

SDG: 555862

SRR #'s: 53386
Client(s): Navarro

Project(s): 16988.01.10X
Manager(s): SUN, GANG
To PM:
To QA:
To Client: 07/15/14

Instructions

Documents Related to this task order: 108294[PO #179 + #180], 113038[PO #179 + #180 Change Order #1], 113134[PO #NAV0000060], 115908[PO #NAV0000060 CO #1], 117303[PO #NAV0000060 CO #2], 118820[PO #179 + #180 Change Order #2], 120319[PO #104], 122923[PO #179 Change Order #3], 124787[PO #132], 124995[PO #179 Change Order #5]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: E607W
Section: EXTLAB

Holding: 7 days from CED

EXTRACTION BY METHOD 607

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
555862		1	Aqueous	1406191014C (BLM-40-517)	19 Jun 14	26 Jun 14
555863		1	Aqueous	1406191015C (BLM-40-517)	19 Jun 14	26 Jun 14

Test: T607W
Section: TDG

Holding: 40 days from VTSR

NDMA/DMN ANALYSIS BY GC/MS/SIM

Cnt: 2

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
555862		1	Aqueous	1406191014C (BLM-40-517)	24 Jun 14	03 Aug 14
555863		1	Aqueous	1406191015C (BLM-40-517)	24 Jun 14	03 Aug 14

WSTF CHAIN OF CUSTODY RECORD

Date 6-23-14

010020 Page 1 of 1

Laboratory / PO # 13EC005B

Address shipping questions to:

Attn: ☑ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☑ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (A)	Analytes / Method: NDMA/DMN/BROMACIL 607								Comments
1406191014C	Bim-40-517	1	X	X								
1406191015C	"	1	X	X								

Client: Navarro
SRR #53386
Project # 16988.01.10X
Case: 13EC005B
VTSR: 06/24/14
Sample(s) Received: Intact
Temperature: 2.1 °C/ SN#: W01003226

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	6-23-14 / 1100HRS	[signature]	6/24/14 0830

WSTF 581B (03/15)

NASA-WSTF SHIPPING DOCUMENT

010021

(1) Blue # XBS

SHIPPED FROM: NASA JSC WHITE SANDS TEST FACILITY, 12600 NASA ROAD; BLDG. 120, LAS CRUCES, NEW MEXICO 88012	ORIGINATOR/MAIL CODE/TELEPHONE NO. ...cia Melendrez/Purchasing Dept/ 524-5334 Carlyn Tufts 524-5452
	...DER OR CONTRACT NUMBER ...O 13EC005B
	SHIPMENT CONTROL NO WS14-174 D
SHIP TO: (ADDRESS, PHONE#, POINT OF CONTAC Southwest Research Institute, 6220 Culebra Road, San Antonio, TX 78238, Gang Sun, 210-522-3954	PROJECT or TASK NUMBER 8751-003 47
	SHIP VIA W FX - P1
	Contain Batteries NO; NO. PKG.; DATE SHIPPED 6-23-14; AirBill/ PRO #/Bol #
	Battery Type-Part #; AUTHORIZED BY:; DEPT.

ITEM NO.	EQUIPMENT CONTROL NO.	MODEL NO / STOCK NO. PART NO.	ITEM NAME - MANUFACTURER'S NAME AND SERIAL NO.	UNIT OF ISSUE	QTY.
1			Aqueous Sample for Analysis for NDMA, DMN & Bromacil by EPA Method 607 per SOW	EA	2
2			Aqueous Sample for Analysis for NDMA, DMN & Bromacil by EPA Method 607 per SOW 7-day turn around time	EA	

JUSTIFICATION FOR SHIPMENT: (MDR #, Return Authorization #'s, Warranty Replacement, Repair, Overage/Shortage, Damage, Recycling)
Shipment of Aqueous samples for Analysis as per SOW

DOT HAZARDOUS MATERIALS INFO; EMERGENCY PHONE NUMBER AND GUIDE NUMBER:

PROPERTY REVIEW: ☐ REMOVE EQUIPMENT TAG ☐ DO NOT REMOVE EQUIPMENT TAG

PACKED BY:	# CONTAINERS	TYPE CONTAINERS	DIMENSIONS	WEIGHT
Please check off the applicable labels!	1	Cooler	25 X 14 X 14	
☐ FRAGILE				
☐ GLASS				
☐ DELICATE				
☐ DO NOT XRAY				
☐ REFRIGERATE				
☐ OTHER				
☐ BUBBLEWRAP	TOTAL CONTAINERS			TOTAL WEIGHT
☐ FOAM				

RECEIVED BY:

REPRESENTING:

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked, labeled, and are in proper condition for transportation according to the regulations of the D.O.T. _____ Date _____

Client: Navarro
SRR #53386
Project # 16988.01.10X
Case: 13EC005B
VTSR: 06/24/14
Sample(s) Received: Intact
Temperature. 2.1 °C/ SN#: W01003226

WSTF 108 (1/06)

CLIENT: Navarro Research and Engineering Inc.
SwRI PROJECT: 01.16988.01.103
TASK ORDER: 140618-3, 140619-8, 140624-4, 140618-4, 140619-9
NAVARRO PO #: 13EC005B, 14EC012B, 14EC002

ANALYTICAL DATA REPORT SHEETS

Southwest Research Institute

Method 607 Analysis Data Sheet

010023

Sample ID

1406130722 (200-SB-8)

Client: Navarro
Batch: M607-#663
Task Order: 140618-3
Matrix: Aqueous
Sample Wt/Vol: 1060 mL

Project: 16988.01.103
Date Received: 06/17/14
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555187
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.01	U
4164-28-7	N-Nitrodimethylamine	<0.01	U
314-40-9	Bromacil	<0.01	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

010024

Sample ID

1406130853A (100-E-261)

Client: Navarro
Batch: M607-#663
Task Order: 140618-3
Matrix: Aqueous
Sample Wt/Vol: 1060 mL

Project: 16988.01.103
Date Received: 06/17/14
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555188
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.01	U
4164-28-7	N-Nitrodimethylamine	<0.01	U
314-40-9	Bromacil	<0.01	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010025

Method 607 Analysis Data Sheet

Sample ID

1406141652 (200-SB-6)

Client: Navarro
Batch: M607-#663
Task Order: 140618-3
Matrix: Aqueous
Sample Wt/Vol: 1060 mL

Project: 16988.01.103
Date Received: 06/17/14
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555189
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.01	U
4164-28-7	N-Nitrodimethylamine	<0.01	U
314-40-9	Bromacil	<0.01	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010026

Method 607 Analysis Data Sheet

Sample ID

1406151112 (200-SB-5)

Client: Navarro
Batch: M607-#663
Task Order: 140618-3
Matrix: Aqueous
Sample Wt/Vol: 1020 mL

Project: 16988.01.103
Date Received: 06/17/14
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555190
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.01	U
4164-28-7	N-Nitrodimethylamine	<0.01	U
314-40-9	Bromacil	<0.01	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

010027

Sample ID

1406160847A (BLM-15-305)

Client: Navarro
Batch: M607-#663
Task Order: 140619-8
Matrix: Aqueous
Sample Wt/Vol: 1060 mL

Project: 16988.01.103
Date Received: 06/19/14
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555515
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	11.30	
4164-28-7	N-Nitrodimethylamine	5.99	
314-40-9	Bromacil	0.67	

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

010028

Sample ID

1406160907 (B655-EFF-2)

Client: Navarro
Batch: M607-#663
Task Order: 140619-8
Matrix: Aqueous
Sample Wt/Vol: 1040 mL

Project: 16988.01.103
Date Received: 06/19/14
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555516
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.01	U
4164-28-7	N-Nitrodimethylamine	<0.01	U
314-40-9	Bromacil	0.005	J

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

010029

Sample ID

1406160927 (B655-INF-2)

Client: Navarro
Batch: M607-#663
Task Order: 140619-8
Matrix: Aqueous
Sample Wt/Vol: 1060 mL

Project: 16988.01.103
Date Received: 06/19/14
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555517
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	3.15	
4164-28-7	N-Nitrodimethylamine	1.73	
314-40-9	Bromacil	0.20	

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

010030

Sample ID

1406161051A (BLM-15-305)

Client: Navarro
Batch: M607-#663
Task Order: 140619-8
Matrix: Aqueous
Sample Wt/Vol: 1010 mL

Project: 16988.01.103
Date Received: 06/19/14
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555518
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	4.45	
4164-28-7	N-Nitrodimethylamine	<0.01	U
314-40-9	Bromacil	0.91	

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

010031

Sample ID

1406191014C (BLM-40-517)

Client: Navarro
Batch: M607-#663
Task Order: 140624-4
Matrix: Aqueous
Sample Wt/Vol: 1050 mL

Project: 16988.01.103
Date Received: 06/24/14
Date Extracted: 06/26/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555862
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.01	U
4164-28-7	N-Nitrodimethylamine	<0.01	U
314-40-9	Bromacil	<0.01	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

010032

Sample ID

1406191015C (BLM-40-517)

Client: Navarro
Batch: M607-#663
Task Order: 140624-4
Matrix: Aqueous
Sample Wt/Vol: 1060 mL

Project: 16988.01.103
Date Received: 06/24/14
Date Extracted: 06/26/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555863
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.01	U
4164-28-7	N-Nitrodimethylamine	<0.01	U
314-40-9	Bromacil	<0.01	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

010033

Sample ID

1406130802 (200-SB-8 8/10')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.29 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555191
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010034

Method 607 Analysis Data Sheet

Sample ID

1406130812 (200-SB-8 8/10')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.26 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555192
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010035

Method 607 Analysis Data Sheet

Sample ID

1406130942 (200-SB-8 28/30')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.77 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555193
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010036

Method 607 Analysis Data Sheet

Sample ID

1406131302 (200-SB-8 43/45')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.78 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555194
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010037

Method 607 Analysis Data Sheet

Sample ID

1406141702 (200-SB-6 8/10')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.34 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555195
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010038

Method 607 Analysis Data Sheet

Sample ID

1406151127 (200-SB-5 8/10')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.74 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555196
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010039

Method 607 Analysis Data Sheet

Sample ID

1406151143 (200-SB-5 8/10')

Client: Navarro
Batch: M607-#663
Task Order: 140618-4
Matrix: Soil
Sample Wt/Vol: 30.31 g

Project: 16988.01.10X
Date Received: 06/17/14
Date Extracted: 06/25/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555197
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010040

Method 607 Analysis Data Sheet

Sample ID

1406161402 (200-SB-13 8-10')

Client: Navarro
Batch: M607-#663
Task Order: 140619-9
Matrix: Soil
Sample Wt/Vol: 30.25 g

Project: 16988.01.10X
Date Received: 06/19/14
Date Extracted: 06/25/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555520
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010041

Method 607 Analysis Data Sheet

Sample ID

1406161544 (200-SB-13 28-30/32')

Client: Navarro
Batch: M607-#663
Task Order: 140619-9
Matrix: Soil
Sample Wt/Vol: 30.30 g

Project: 16988.01.10X
Date Received: 06/19/14
Date Extracted: 06/25/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555521
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

CLIENT: Navarro Research and Engineering Inc.
SwRI PROJECT: 01.16988.01.103
TASK ORDER: 140618-3, 140619-8, 140624-4, 140618-4, 140619-9
NAVARRO PO #: 13EC005B, 14EC012B, 14EC002

QA DATA SHEETS

(BLANK, MATRIX SPIKE, SURROGATE, CALIBRATION)

Southwest Research Institute

010043

Method 607 Blank Summary

Blank ID: BLANK_26JUN14
Client: Navarro
Matrix: Aqueous

Project: 16988.01.103
SDG: 555862

This method blank applies to the following samples, MS, and MSD's

Client Sample ID	Lab Sample ID	Date Acquired	Time Acquired
LCS_26JUN14	556408 LCS	07/07/14	18:38:00
1406191014C (BLM-40-517)	555862	07/07/14	19:13:00
1406191015C (BLM-40-517)	555863	07/07/14	19:48:00

Southwest Research Institute

Method 607 Blank Summary

010044

Blank ID: BLANK_20JUN14
Client: Navarro
Matrix: Aqueous

Project: 16988.01.103
SDG: 555187, 555515

This method blank applies to the following samples, MS, and MSD's

Client Sample ID	Lab Sample ID	Date Acquired	Time Acquired
LCS_20JUN14	555769 LCS	07/07/14	12:49:00
1406130722 (200-SB-8)	555187	07/07/14	13:24:00
1406130853A (100-E-261)	555188	07/07/14	13:58:00
1406141652 (200-SB-6)	555189	07/07/14	14:33:00
1406151112 (200-SB-5)	555190	07/07/14	15:08:00
1406160847A (BLM-15-305)	555515	07/07/14	15:43:00
1406160907 (B655-EFF-2)	555516	07/07/14	16:18:00
1406160927 (B655-INF-2)	555517	07/07/14	16:53:00
1406161051A (BLM-15-305)	555518	07/07/14	17:28:00

Southwest Research Institute

010045

Method 607 Surrogate Recovery Summary

Client: Navarro
Matrix: Soil /Aqueous
Project: 16988.01.10X

SDG: 555187, 555515, 555862, 555191, 555520

	Client Sample ID	Lab Sample ID	N-Nitroso-di-n-propylamine	
			% Recovery	Recovery Limits
3	BLANK_20JUN14	555768	94	40-160
4	LCS_20JUN14	555769 LCS	100	40-160
5	1406130722 (200-SB-8)	555187	81	40-160
6	1406130853A (100-E-261)	555188	94	40-160
7	1406141652 (200-SB-6)	555189	89	40-160
8	1406151112 (200-SB-5)	555190	82	40-160
9	1406160847A (BLM-15-305)	555515	95	40-160
10	1406160907 (B655-EFF-2)	555516	98	40-160
11	1406160927 (B655-INF-2)	555517	93	40-160
12	1406161051A (BLM-15-305)	555518	100	40-160
13	BLANK_26JUN14	556407	96	40-160
14	LCS_26JUN14	556408 LCS	100	40-160
15	1406191014C (BLM-40-517)	555862	98	40-160
16	1406191015C (BLM-40-517)	555863	99	40-160
17	SMB_25JUN14	556397	100	40-160
18	LCS_25JUN14	556398 LCS	104	40-160
19	1406130802 (200-SB-8 8/10')	555191	100	40-160
20	1406130812 (200-SB-8 8/10')	555192	100	40-160
21	1406130942 (200-SB-8 28/30')	555193	101	40-160
22	1406131302 (200-SB-8 43/45')	555194	102	40-160
23	1406141702 (200-SB-6 8/10')	555195	106	40-160
24	1406151127 (200-SB-5 8/10')	555196	105	40-160
25	1406151143 (200-SB-5 8/10')	555197	96	40-160
26	1406161402 (200-SB-13 8-10')	555520	106	40-160
27	1406161544 (200-SB-13 28-30/32')	555521	98	40-160
28	1406161545 (200-SB-13 28-30/32')	555522 MS	105	40-160

Southwest Research Institute

010046

Method 607 Analysis Data Sheet

Sample ID

BLANK_20JUN14

Client: Navarro
Batch: M607-#663
Task Order: NA
Matrix: Aqueous
Sample Wt/Vol: 1000 mL

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555768
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.01	U
4164-28-7	N-Nitrodimethylamine	<0.01	U
314-40-9	Bromacil	<0.01	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010047

Method 607 Analysis Data Sheet

Sample ID

LCS_20JUN14

Client: Navarro
Batch: M607-#663
Task Order: NA
Matrix: Aqueous
Sample Wt/Vol: 1000 mL

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555769 LCS
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	0.43	
4164-28-7	N-Nitrodimethylamine	0.47	
314-40-9	Bromacil	0.48	

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010048

Method 607 Blank Spike Recovery Report

Sample ID
LCS_20JUN14

Client: Navarro
Batch: M607-#663
Task Order: NA
Matrix: Aqueous
Sample Wt/Vol: 1000 mL

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/20/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 555769 LCS
Blank ID: BLANK_20JUN14

ANALYTE	Spike Added µg/L	Blank Conc µg/L	LCS Conc µg/L	% Recovery	QC % Recovery Limits
N-Nitrosodimethylamine	0.50	0	0.43	87	13 - 110
N-Nitrodimethylamine	0.50	0	0.47	94	30 - 150
Bromacil	0.50	0	0.48	97	40 - 190

Southwest Research Institute

010049

Method 607 Analysis Data Sheet

Sample ID

BLANK_26JUN14

Client: Navarro
Batch: M607-#663
Task Order: NA
Matrix: Aqueous
Sample Wt/Vol: 1000 mL

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/26/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 556407
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.01	U
4164-28-7	N-Nitrodimethylamine	<0.01	U
314-40-9	Bromacil	<0.01	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010050

Method 607 Analysis Data Sheet

Sample ID

LCS_26JUN14

Client: Navarro
Batch: M607-#663
Task Order: NA
Matrix: Aqueous
Sample Wt/Vol: 1000 mL

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/26/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 556408 LCS
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/L
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	0.45	
4164-28-7	N-Nitrodimethylamine	0.51	
314-40-9	Bromacil	0.50	

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Blank Spike Recovery Report

010051

Sample ID
LCS_26JUN14

Client: Navarro
Batch: M607-#663
Task Order: NA
Matrix: Aqueous
Sample Wt/Vol: 1000 mL

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/26/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 556408 LCS
Blank ID: BLANK_26JUN14

ANALYTE	Spike Added µg/L	Blank Conc µg/L	LCS Conc µg/L	% Recovery	QC % Recovery Limits
N-Nitrosodimethylamine	0.50	0	0.45	90	13 - 110
N-Nitrodimethylamine	0.50	0	0.51	102	30 - 150
Bromacil	0.50	0	0.50	100	40 - 190

Southwest Research Institute

010052

Method 607 Analysis Data Sheet

Sample ID

SMB_25JUN14

Client: Navarro
Batch: M607-#663
Task Order: NA
Matrix: Soil
Sample Wt/Vol: 30.00 g

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 556397
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010053

Method 607 Analysis Data Sheet

Sample ID

LCS_25JUN14

Client: Navarro
Batch: M607-#663
Task Order: NA
Matrix: Soil
Sample Wt/Vol: 30.00 g

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 556398 LCS
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	15.80	
4164-28-7	N-Nitrodimethylamine	17.13	
314-40-9	Bromacil	16.63	

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010054

Method 607 Blank Spike Recovery Report

Sample ID
LCS_25JUN14

Client: Navarro
Batch: M607-#663
Task Order: NA
Matrix: Soil
Sample Wt/Vol: 30.00 g

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/25/14
Date Analyzed: 07/07/14
Date Reported: 07/08/14

Lab Sample ID: 556398 LCS
Blank ID: BLANK_26JUN14

ANALYTE	Spike Added µg/kg	Blank Conc µg/kg	LCS Conc µg/kg	% Recovery	QC % Recovery Limits
N-Nitrosodimethylamine	17	0	16	93	13 - 110
N-Nitrodimethylamine	17	0	17	101	30 - 150
Bromacil	17	0	17	98	40 - 190

Southwest Research Institute

010055

Method 607 Analysis Data Sheet

Sample ID

1406161545 (200-SB-13 28-30/32') MS

Client: Navarro
Batch: M607-#663
Task Order: 140619-9
Matrix: Soil
Sample Wt/Vol: 30.50 g

Project: 16988.01.10X
Date Received: 06/19/14
Date Extracted: 06/25/14 QH 7/9/14
Date Analyzed: 07/08/14
Date Reported: 07/08/14

Lab Sample ID: 555522 MS
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

Compared Sample: 1406161544 (200-SB-13 28-30/32')

CAS No.	ANALYTE	RESULT	Spike	Recovery	Recovery Limit
62-75-9	N-Nitrosodimethylamine	15.48	17.00	91%	13-110%
4164-28-7	N-Nitrodimethylamine	17.15	17.00	101%	30-150%
314-40-9	Bromacil	15.57	17.00	92%	40-190%

U - Undetected, indicates not found above the detection limit

J - Estimated value, greater than the MDL but less than the PQL

010056

Southwest Research Institute

Continuing Calibration Check Sheet

SwRI Project #:	01.16988.01.103	Calibration Date:	07/07/14
Sponsor:	Navarro	Analytical Method:	TAP-01-0408-031
SwRI Standard ID:	100-04-120408017	Std Concentration:	1 µg/mL
File ID #:	A07074S1	Initial Calibration Date:	03/17/14

ANALYTE	Mean RRF	RRF	% Dif.
N-Nitrosodimethylamine	0.358	0.367	-2.4
N-Nitrodimethylamine	0.139	0.154	-10.7
N-Nitroso-di-n-propylamine-d14	0.131	0.131	0.6
Bromacil	1.089	1.023	6

010057

Southwest Research Institute

Continuing Calibration Check Sheet

SwRI Project #:	01.16988.01.103	Calibration Date:	07/07/14
Sponsor:	Navarro	Analytical Method:	TAP-01-0408-031
SwRI Standard ID:	100-04-120408017	Std Concentration:	1 µg/mL
File ID #:	A07074S2	Initial Calibration Date:	03/17/14

ANALYTE	Mean RRF	RRF	% Dif.
N-Nitrosodimethylamine	0.358	0.362	-1.1
N-Nitrodimethylamine	0.139	0.153	-9.4
N-Nitroso-di-n-propylamine-d14	0.131	0.128	2.9
Bromacil	1.089	1.05	3.6

010058

Southwest Research Institute

Initial Calibration Data Sheet

SwRI Project #:	01.16988.01.103	Calibration Data:	03/17/14
Sponsor:	Navarro	Analytical Method:	TAP-01-0408-031
SwRI Standard ID:	100-04-120408017	Std Concentration:	0.01-10 µg/mL

ANALYTE	RRF 0.01	RRF 0.10	RRF 0.2	RRF1	RRF5	RRF10	Ave. RRF	RSD%
N-Nitrosodimethylamine	0.339	0.362	0.34	0.358	0.370	0.381	0.358	4.62
N-Nitrodimethylamine	0.127	0.13	0.136	0.144	0.148	0.152	0.139	7.23
N-Nitroso-di-n-propylamine-d14	0.128	0.128	0.124	0.131	0.137	0.141	0.131	4.71
Bromacil	0.973	1.068	1.018	1.114	1.150	1.210	1.089	7.99

010059

CLIENT: Navarro Research and Engineering Inc.
SwRI PROJECT: 01.16988.01.103
TASK ORDER: 140618-3, 140619-8, 140624-4, 140618-4, 140619-9
NAVARRO PO #: 13EC005B, 14EC012B, 14EC002

EXTRACTION AND INJECTION LOG

SwRI Labs
Client: Navarro
Project: 16988.01.10X
Case: 13EC005B

(E607W TAP01-0402-074) Water Ext By Sep-Funnel 3510C (NRE)

X31413

Sample Receipt: 53354, 53368
TO#'s: 140618-3, 140619-8

010060

DATE EXTRACTED	06/20/14
ANALYSTS INVOLVED	Aaron Lopez (SU,SW,EXT,KD) Marina Lbron (SU,EXT,KD) Hamed Edrisi(SU,SP,EXT) Christina Menn (BD,QT,FV)
SURROGATE SOL. ID	81-01-120408017
MTX SPK SOL. ID	99-01-120408017
EXTRACTS LOCATION	Tracked by LIMS(06/24/14 CM)
CHEMICAL,BRAND &LOT#	Distilled DCM Optima Lot#DO031014 Ozarka water ID:04-0402-003p17G2 Sodium Sulfate ID:04-0402-004
NOTES	Hamilton Co. Syringes: 100uL ID:462905(SURR) 50uL ID:462898(MS) pH Paper ID:511507 Thermometer ID: G-075

ADDITIONAL NOTES	Sample system ID 555519 customer ID 1406161342 (200-SB-13) was inadvertently broken during extraction the client was informed.
EMULSION	C= Centrifuged,W= Wired,T= Tilted
EXTRACTION FLOWCHART	XmL H2O-->>FV 1000uL DCM
REFRENCE BOOK &PAGE	14-0402-015 p69

	System ID	Type	Customer ID	PH	SAMPLE VOL	SURROGATE SOL VOL
1	555187		1406130722 (200-SB-8)	6.0	1060 mL	100 uL
2	555188		1406130853A (100-E-261)	6.4	1060 mL	100 uL
3	555189		1406141652 (200-SB-6)	6.0	1060 mL	100 uL
4	555190		1406151112 (200-SB-5)	6.0	1020 mL	100 uL
5	555515		1406160847A (BLM-15-305)	6.4	1060 mL	100 uL
6	555516		1406160907 (B655-EFF-2)	6.8	1040 mL	100 uL
7	555517		1406160927 (B655-INF-2)	6.4	1060 mL	100 uL
8	555518		1406161051A (BLM-15-305)	6.0	1010 mL	100 uL
9	555519		1406161342 (200-SB-13)		mL	0 uL
10	555768		BLANK_20JUN14	6.4	1000 mL	100 uL
11	555769		LCS_20JUN14	6.4	1000 mL	100 uL

	System ID	Type	Customer ID	MTX SPK SOL VOL	FV DCM	EMULSION
1	555187		1406130722 (200-SB-8)	0 uL	1000 uL	yes
2	555188		1406130853A (100-E-261)	0 uL	1000 uL	no
3	555189		1406141652 (200-SB-6)	0 uL	1000 uL	yes
4	555190		1406151112 (200-SB-5)	0 uL	1000 uL	yes
5	555515		1406160847A (BLM-15-305)	0 uL	1000 uL	no
6	555516		1406160907 (B655-EFF-2)	0 uL	1000 uL	no
7	555517		1406160927 (B655-INF-2)	0 uL	1000 uL	no
8	555518		1406161051A (BLM-15-305)	0 uL	1000 uL	no
9	555519		1406161342 (200-SB-13)	0 uL	0 uL	Broken
10	555768		BLANK_20JUN14	0 uL	1000 uL	no
11	555769		LCS_20JUN14	50 uL	1000 uL	no

SwRI Labs
Client: Navarro
Project: 16988.01.10X
Case: 14EC002

(E607S) SOIL Extraction By Soxhlet 3540C (NRE)

X31441

Sample Receipt: 53355, 53369
TO#'s: 140618-4, 140619-9

010061

DATE EXTRACTED	06/25/14
ANALYSTS INVOLVED	Aaron Lopez (SU,SW) Marina Lebron (SU,KD) Hamed Edrisi (SP) Christina Menn (BD,QT,FV)
SURROGATE SOL ID	81-01-120408017
MTX SPK SOL ID	99-01-120408017
EXTRACTS LOCATION	Tracked by LIMS(07/01/14 CM)
CHEMICAL,BRAND &LOT#	Distilled DCM Optima Lot#DO031014 Sodium Sulfate ID:04-0402-004

NOTES	Wiretol II Micropipette ID: 50&100uL ID:465673(SURR,MS) Thermometer ID: G-075
ADDITIONAL NOTES	Soxhlets started at 4:00pm and ended the following day at 9:00am.
EXTRACTION FLOWCHART	Xg -->>FV 1000uL DCM
REFRENCE BOOK &PAGE	13-0402-012 p139
TAP(S) USED	01-0402-152

	System ID	Type	Customer ID	SOLVENT VOL DCM (ML)	SAMPLE WT	SURROGATE SOL VOL
1	555191		1406130802 (200-SB-8 8/10')	250	30.29 g	100 uL
2	555192		1406130812 (200-SB-8 8/10')	250	30.26 g	100 uL
3	555193		1406130942 (200-SB-8 28/30')	250	30.77 g	100 uL
4	555194		1406131302 (200-SB-8 43/45')	250	30.78 g	100 uL
5	555195		1406141702 (200-SB-6 8/10')	250	30.34 g	100 uL
6	555196		1406151127 (200-SB-5 8/10')	250	30.74 g	100 uL
7	555197		1406151143 (200-SB-5 8/10')	250	30.31 g	100 uL
8	555520		1406161402 (200-SB-13 8-10')	250	30.25 g	100 uL
9	555521		1406161544 (200-SB-13 28-30/32'	250	30.30 g	100 uL
10	555522	MS	1406161545 (200-SB-13 28-30/32'	250	30.50 g	100 uL
11	556397		SMB_25JUN14	250	30.00 g	100 uL
12	556398		LCS_25JUN14	250	30.00 g	100 uL

	System ID	Type	Customer ID	MTX SPK SOL VOL	FV DCM
1	555191		1406130802 (200-SB-8 8/10')	0 uL	1000 uL
2	555192		1406130812 (200-SB-8 8/10')	0 uL	1000 uL
3	555193		1406130942 (200-SB-8 28/30')	0 uL	1000 uL
4	555194		1406131302 (200-SB-8 43/45')	0 uL	1000 uL
5	555195		1406141702 (200-SB-6 8/10')	0 uL	1000 uL
6	555196		1406151127 (200-SB-5 8/10')	0 uL	1000 uL
7	555197		1406151143 (200-SB-5 8/10')	0 uL	1000 uL
8	555520		1406161402 (200-SB-13 8-10')	0 uL	1000 uL
9	555521		1406161544 (200-SB-13 28-30/32'	0 uL	1000 uL
10	555522	MS	1406161545 (200-SB-13 28-30/32'	50 uL	1000 uL

SwRI Labs
Client: Navarro
Project: 16988.01.10X
Case: 14EC002

(E607S) SOIL Extraction By Soxhlet 3540C (NRE)

X31441

Sample Receipt: 53355, 53369
TO#'s: 140618-4, 140619-9

010062

	System ID	Type	Customer ID	MTX SPK SOL VOL	FV DCM
11	556397		SMB_25JUN14	0 uL	1000 uL
12	556398		LCS_25JUN14	50 uL	1000 uL

	System ID	Type	Customer ID	% DRY WT
1	555191		1406130802 (200-SB-8 8/10')	95.1
2	555192		1406130812 (200-SB-8 8/10')	94.7
3	555193		1406130942 (200-SB-8 28/30')	96.8
4	555194		1406131302 (200-SB-8 43/45')	100.0
5	555195		1406141702 (200-SB-6 8/10')	96.9
6	555196		1406151127 (200-SB-5 8/10')	96.5
7	555197		1406151143 (200-SB-5 8/10')	96.6
8	555520		1406161402 (200-SB-13 8-10')	96.3
9	555521		1406161544 (200-SB-13 28-30/32'	92.9
10	555522	MS	1406161545 (200-SB-13 28-30/32'	98.7
11	556397		SMB_25JUN14	100.0
12	556398		LCS_25JUN14	100.0

Page created Jun 25 2014 9:28AM by MLebron
Book: EXTRACTION LAB, Volume: EXT-2014, Page: 427 (Section 2 of 2)
Approved by HAMED EDRISI on Jul 8 2014 1:23PM

Date Printed: 7/08/2014

SwRI Labs
Client: Navarro
Project: 16988.01.10X
Case: 14EC002

% DRY WT DETERMINATION (NRE)

X31449

Sample Receipt: 53355, 53369
TO#'s: 140618-4, 140619-9

010063

DATE EXTRACTED	06/25/14
ANALYSTS INVOLVED	Aaron ALopez (WW,DW) Hamed Edrisi (EC)

NOTES	Balance #06 was used
REFERENCE BOOK PAGE	13-0402-012 p139

	System ID	Type	Customer ID	TARE WT (G)	TARE + WET WT (G)	TARE + DRY WT (G)
1	555191		1406130802 (200-SB-8 8/10')	1.00	7.30	6.99
2	555192		1406130812 (200-SB-8 8/10')	1.00	7.57	7.22
3	555193		1406130942 (200-SB-8 28/30')	0.97	7.21	7.01
4	555194		1406131302 (200-SB-8 43/45')	0.97	7.25	7.25
5	555195		1406141702 (200-SB-6 8/10')	1.02	7.39	7.19
6	555196		1406151127 (200-SB-5 8/10')	0.98	7.18	6.96
7	555197		1406151143 (200-SB-5 8/10')	0.98	7.09	6.88
8	555520		1406161402 (200-SB-13 8-10')	0.99	7.48	7.24
9	555521		1406161544 (200-SB-13 28-30/32'	0.97	7.29	6.84
10	555522		1406161545 (200-SB-13 28-30/32'	1.00	7.82	7.73

	System ID	Type	Customer ID	% DRY WT.
1	555191		1406130802 (200-SB-8 8/10')	95.1
2	555192		1406130812 (200-SB-8 8/10')	94.7
3	555193		1406130942 (200-SB-8 28/30')	96.8
4	555194		1406131302 (200-SB-8 43/45')	100.0
5	555195		1406141702 (200-SB-6 8/10')	96.9
6	555196		1406151127 (200-SB-5 8/10')	96.5
7	555197		1406151143 (200-SB-5 8/10')	96.6
8	555520		1406161402 (200-SB-13 8-10')	96.3
9	555521		1406161544 (200-SB-13 28-30/32'	92.9
10	555522		1406161545 (200-SB-13 28-30/32'	98.7

Page created Jun 26 2014 8:33AM by MLebron
Book: EXTRACTION LAB, Volume: EXT-2014, Page: 429 (Section 1 of 1)
Approved by HAMED EDRISI on Jul 8 2014 1:20PM

Date Printed: 7/08/2014

SwRI Labs
Client: Navarro
Project: 16988.01.10X
Case: 13EC005B

(E607W TAP01-0402-074) Water Ext By Sep-Funnel 3510C (NRE)

X31452

010064

Sample Receipt: 53386
TO#: 140624-4

DATE EXTRACTED	06/26/14
ANALYSTS INVOLVED	Aaron Lopez (SU,SW,EXT,KD) Marina Lbron (SU,EXT,KD) Hamed Edrisi(SU,SP,EXT) Christina Menn (BD,QT,FV)
SURROGATE SOL. ID	81-01-120408017
MTX SPK SOL. ID	99-01-120408017
EXTRACTS LOCATION	Tracked by LIMS(06/27/14 CM)
CHEMICAL,BRAND &LOT#	Distilled DCM Optima Lot#DO031014 Ozarka water ID:04-0402-003p17G2,3 Sodium Sulfate ID:04-0402-004

NOTES	Hamilton Co. Syringes: 100uL ID:462905(SURR) 50uL ID:462898(MS) pH Paper ID:511507
ADDITIONAL NOTES	Thermometer ID: G-075
EMULSION	C= Centrifuged,W= Wired,T= Tilted
EXTRACTION FLOWCHART	XmL H2O-->>FV 1000uL DCM
REFRENCE BOOK &PAGE	14-0402-015 p71

	System ID	Type	Customer ID	PH	SAMPLE VOL	SURROGATE SOL VOL
1	555862		1406191014C (BLM-40-517)	6.4	1050 mL	100 uL
2	555863		1406191015C (BLM-40-517)	6.4	1060 mL	100 uL
3	556407		BLANK_26JUN14	6.4	1000 mL	100 uL
4	556408		LCS_26JUN14	6.4	1000 mL	100 uL

	System ID	Type	Customer ID	MTX SPK SOL VOL	FV DCM	EMULSION
1	555862		1406191014C (BLM-40-517)	0 uL	1000 uL	no
2	555863		1406191015C (BLM-40-517)	0 uL	1000 uL	no
3	556407		BLANK_26JUN14	0 uL	1000 uL	no
4	556408		LCS_26JUN14	50 uL	1000 uL	no

Page created Jun 26 2014 11:33AM by Alopez
Book: EXTRACTION LAB, Volume: EXT-2014, Page: 431 (Section 1 of 1)
Approved by HAMED EDRISI on Jul 8 2014 12:49PM

Date Printed: 7/08/2014

120 TITLE M-607

PROJECT NO. 16988.01.103

BOOK NO. 10-0408-024

Work continued from Page

010065

injlog

Southwest Research Institute GC/MS Injection Log

OPERATOR: GS SEQUENCE DATE: 07/07/14, 07/08/14INSTRUMENT: Amidala
COLUMN: Agilent 122-0732 DB-1701, 0.25mm * 30m * 0.25um
CARRIER GAS: Helium SOLVENT: DCM
METHOD FILE: MET_607C, MET_607C.M
CLIENT NAME: NAVARRO PROJECT NUMBER: 16988.01.103
SRR: 53354, 53368, 53386, 53355, 53369 METHOD: M-607 MATRIX: water, soil
DATA PATH: C:\MSDChem\1\DATA\2014\A070714

OVEN PROGRAM
Initial temp: 40 'C (On) Maximum temp: 350 'C
Initial time: 4.00 min Equilibration time: 0.50 min
Ramps:

#	Rate	Final temp	Final time
1	10.00	150	0.00
2	25.00	270	10.00
3	0.0(off)		

Post temp: 270 'C
Post time: 5.00 min
Run time: 29.80 min

GS 7-8-2014

FILENAME	VIAL	DATE/TIME	METHOD	SAMPLE DESCRIPTION
A07074C1	100	07/07/14 10:57	MET_607C	SLUG
A07074C2	1	07/07/14 11:31	MET_607C	ISB
A07074S1	2	07/07/14 11:40	MET_607C	NDMA/DMN/BROMACIL STD 1NG/UL IS=0.2NG/UL
A0707401	3	07/07/14 12:14	MET_607C	BLANK_20JUN14 IS=0.2NG/UL 555768
A0707402	4	07/07/14 12:49	MET_607C	LCS_20JUN14 IS=0.2NG/UL 555769
A0707403	5	07/07/14 13:24	MET_607C	1406130722 (200-SB-8) IS=0.2NG/UL 555187
A0707404	6	07/07/14 13:58	MET_607C	1406130853A (100-E-261) IS=0.2NG/UL 555188
A0707405	7	07/07/14 14:33	MET_607C	1406141652 (200-SB-6) IS=0.2NG/UL 555189
A0707406	8	07/07/14 15:08	MET_607C	1406151112 (200-SB-5) IS=0.2NG/UL 555190
A0707407	9	07/07/14 15:43	MET_607C	1406160847A (BLM-15-305) IS=0.2NG/UL 555515
A0707408	10	07/07/14 16:18	MET_607C	1406160907 (B655-EFF-2) IS=0.2NG/UL 555516
A0707409	11	07/07/14 16:53	MET_607C	1406160927 (B655-INF-2) IS=0.2NG/UL 555517
A0707410	12	07/07/14 17:28	MET_607C	1406161051A (BLM-15-305) IS=0.2NG/UL 555518
A0707411	13	07/07/14 18:03	MET_607C	BLANK_26JUN14 IS=0.2NG/UL 556407
A0707412	14	07/07/14 18:38	MET_607C	LCS_26JUN14 IS=0.2NG/UL 556408
A0707413	15	07/07/14 19:13	MET_607C	1406191014C (BLM-40-517) IS=0.2NG/UL 555862
A0707414	16	07/07/14 19:48	MET_607C	1406191015C (BLM-40-517) IS=0.2NG/UL 555863
A0707415	17	07/07/14 20:23	MET_607C	SMB_25JUN14 IS=0.2NG/UL 556397
A07074S2	2	07/07/14 20:58	MET_607C	NDMA/DMN/BROMACIL STD 1NG/UL IS=0.2NG/UL
A0707416	18	07/07/14 21:33	MET_607C	LCS_25JUN14 IS=0.2NG/UL 556398
A0707417	19	07/07/14 22:08	MET_607C	1406130802 (200-SB-8 8/10') IS=0.2NG/UL 555191
A0707418	20	07/07/14 22:43	MET_607C	1406130812 (200-SB-8 8/10') IS=0.2NG/UL 555192
A0707419	21	07/07/14 23:17	MET_607C	1406130942 (200-SB-8 28/30') IS=0.2NG/UL 555193
A0707420	22	07/07/14 23:52	MET_607C	1406131302 (200-SB-8 43/45') IS=0.2NG/UL 555194
A0707421	23	07/08/14 00:27	MET_607C	1406141702 (200-SB-6 8/10') IS=0.2NG/UL 555195
A0707422	24	07/08/14 01:02	MET_607C	1406151127 (200-SB-5 8/10') IS=0.2NG/UL 555196
A0707423	25	07/08/14 01:37	MET_607C	1406151143 (200-SB-5 8/10') IS=0.2NG/UL 555197
A0707424	26	07/08/14 02:12	MET_607C	1406161402 (200-SB-13 8/10') IS=0.2NG/UL 555520
A0707425	27	07/08/14 02:46	MET_607C	1406161544 (200-SB-13 28-30/32') IS=0.2NG/UL 555521
A0707426	28	07/08/14 03:21	MET_607C	1406161545 (200-SB-13 28-30/32') IS=0.2NG/UL 555522MS

GS 7/9/14

REVIEWED BY: [signature]

DATE: 07/08/14

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Work continued to Page

SIGNATURE [signature] **DATE** 7/8/14

DISCLOSED TO AND UNDERSTOOD BY **DATE** **WITNESS** **DATE**

SOUTHWEST RESEARCH INSTITUTE®

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Chemistry and Chemical Engineering Division
Department of Analytical & Environmental Chemistry

June 19, 2014

Navarro Research and Engineering Inc.
NASA - JSC - White Sands Test Facility
Transportation Officer, Building 120
12600 NASA Road
Las Cruces, NM 88012
Tel. 575-524-5452

Attention:	Carlyn Tufts
Subject:	Reports for Batch-607-Soil-#662 for NDMA/Bromacil Analysis of Soil Samples
SwRI Project #:	01.16988
SwRI Task Orders:	140606-9, 140611-4, 140613-8
Navarro P.O. #:	14EC002

Dear Carlyn,

Enclosed please find the analytical reports for Batch-607- Soil-#662-Navarro of soil samples.

Southwest Research Institute appreciates the opportunity to provide the service to Navarro Research and Engineering Inc.. If you have any questions, please do not hesitate to call me at 210-522-3954.

Sincerely,

Gang Sun, Ph.D.
Program Manager

APPROVAL:

Michael Dammann
Director

CLIENT: **Navarro Research and Engineering Inc.**
SwRI PROJECT: **01.16988.01.103**
TASK ORDER: **140606-9, 140611-4, 140613-8**
NAVARRO PO #: **14EC002**

NARRATIVE

(M-607 - Soil- #662 -Navarro)

CLIENT: NAVARRO
SwRI PROJECT: 01.16988.01.103
BATCH #: Batch-607-Soil-#662
TASK ORDER: 140606-9, 140611-4, 140613-8
CLIENT PO#: 14EC002
REPORT DATA: 06/19/2014

010002

NARRATIVE FOR NDMA/ DMN/BROMACIL ANALYSIS

1. Samples were extracted with dichloromethane (DCM) and analyzed by GC/MS in selective ion monitoring mode for N-Nitrosodimethylamine (NDMA) and N-Nitrodimethylamine (DMN) according to the modified Method 607.

2. All samples were extracted within 7 days for aqueous sample and within 14 days for soil sample of sample collection and were analyzed within 40 days after the extraction.

3. The response factor (RF) values for Calibration curve and/or for continuing calibration standard were less than 25 % for all target compounds. The sample reporting limit is 0.01 ppb for 1-L extracted aqueous samples and 0.33 ppb for 30 g extracted soil samples.

4. Both blank spike and matrix spike samples were spiked at 0.50 ppb for aqueous sample or 17 ppb for soil sample, then extracted and analyzed. The recoveries for all target compounds were within method recovery criteria of 13-110% for NDMA, 30-150% for DMN, and 40-190% for Bromacil, respectively. The soil sample result is reported as received basis and not by dry weight.

5. Surrogate compound was spiked into every sample before sample extraction at 0.50 ppb level for aqueous sample or 17 ppb for soil sample. The surrogate recoveries for all samples were within method recovery criteria of 40-160%.

6. Laboratory solvent blanks were extracted and analyzed for every sample batch. No analytes were detected above report limits from the blanks.

7. A "J" value was reported if the associated value was below reporting limits but above the MDL value.

8. All analyte concentrations are expressed in µg/L or µg/kg (*ppb*). Sample calculation:

$$\text{for aqueous: Concentration } (\mu g/L) = \frac{C\ (ng/\mu L) \times V_{extr}\ (\mu L) \times DF}{V_{samp}(mL)} \times \frac{1000\ mL}{1\ L} \times \frac{1\ \mu g}{1000\ ng}$$

$$\text{for soil: Concentration } (\mu g/kg) = \frac{C\ (ng/\mu L) \times V_{extr}\ (\mu L) \times DF}{W_{samp}(g)} \times \frac{1000\ g}{1\ kg} \times \frac{1\ \mu g}{1000\ ng}$$

where:
- C = result of GC/MS analysis, in ng/µL
- V_{extr} = final volume of sample extract, in µL
- V_{samp} = aqueous sample volume taken for extraction, in mL
- W_{samp} = soil sample weight taken for extraction, in gram
- DF = dilution factor, if any

CLIENT: **Navarro Research and Engineering Inc.**
SwRI PROJECT: **01.16988.01.103**
TASK ORDER: **140606-9, 140611-4, 140613-8**
NAVARRO PO #: **14EC002**

TASK ORDER AND CHAIN OF CUSTODY

Southwest Research Institute

Laboratory Task Order

010004

TO #: 140606-9 Revision: 1

SDG: 553448

SRR #'s: 53283
Client(s): Navarro

Project(s): 16988.01.10X
Manager(s): SUN, GANG
To Client: 06/27/14

Instructions

Documents Related to this task order: 108294[PO #179 + #180], 113038[PO #179 + #180 Change Order #1], 113134[PO #NAV0000060], 115908[PO #NAV0000060 CO #1], 117303[PO #NAV0000060 CO #2], 118820[PO #179 + #180 Change Order #2], 120319[PO #104], 122923[PO #179 Change Order #3], 124787[PO #132], 124995[PO #179 Change Order #5]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: E607S
Section: EXTLAB

Holding: 14 days from CED

EXTRACTION BY METHOD 607.

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
553448		1	Soil	1406040942 (200-SB-20 9'/10')	04 Jun 14	18 Jun 14
553449		1	Soil	1406041203 (200-SB-20 30')	04 Jun 14	18 Jun 14
553450		1	Soil	1406041722 (200-SB-20 50')	04 Jun 14	18 Jun 14

Test: T607W
Section: TDG

Holding: 40 days from VTSR

NDMA/DMN ANALYSIS BY GC/MS/SIM

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
553448		1	Soil	1406040942 (200-SB-20 9'/10')	06 Jun 14	16 Jul 14
553449		1	Soil	1406041203 (200-SB-20 30')	06 Jun 14	16 Jul 14
553450		1	Soil	1406041722 (200-SB-20 50')	06 Jun 14	16 Jul 14

ver 10/16/2013

WSTF CHAIN OF CUSTODY RECORD

Date 6-5-14

010005 Page 1 of 1

Laboratory / PO # **PO 14EC002**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓ (575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: NDMA and Bromacil							Comments
1406040942	200-SB-20 9'/10'	1	X	X							
1406041203	" 30'	1	X	X							
1406041722	" 50'	1	X	X							

Client: Navarro
SRR #53283
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/06/14
Sample(s) Received: Intact
Temperature: 0.2 °C/ SN#: 18440

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-5-14 / 1100 Hrs.	[signature]	6/6/14 0900

WSTF 381B (03/13)

NASA-WSTF SHIP DOCUMENT

010006

(1) Blue # XB13

SHIPPED FROM: **NASA JSC WHITE SANDS TEST FACILITY** **12600 NASA ROAD; BLDG. 120** **LAS CRUCES, NEW MEXICO 88012**	WSTF ORIGINATOR/MAIL CODE/TELEPHONE NO. Patricia Melendrez/Purchasing Dept/ 524-5334 Carlyn Tufts 524-5452
	ORDER OR CONTRACT NUMBER: PO 14EC002 / SHIPMENT CONTROL NO: WS 14-156 G
SHIP TO: (ADDRESS, PHONE#, POINT OF CONTACT) Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238 Gang Sun 210-522-3954	PROJECT or TASK NUMBER: 8752-028 47 / SHIP VIA: FX - P1
	Contain Batteries: NO / NO. PKG. / DATE SHIPPED: 6-6-14 / AirBill/ PRO #/Bol #
	Battery Type-Part # / AUTHORIZED BY: / DEPT.

ITEM NO.	EQUIPMENT CONTROL NO.	MODEL NO./ STOCK NO./ PART NO.	ITEM NAME - MANUFACTURER'S NAME AND SERIAL NO.	UNIT OF ISSUE	QTY.
1			Soil Sample for NDMA and Bromacil	EA	3

JUSTIFICATION FOR SHIPMENT: (MDR #, Return Authorization #'s, Warranty Replacement, Repair, Overage/Shortage, Damage, Recycling)
Soil Sample for analysis

DOT HAZARDOUS MATERIALS INFO; EMERGENCY PHONE NUMBER AND GUIDE NUMBER:

PROPERTY REVIEW: ☐ REMOVE EQUIPMENT TAG ☐ DO NOT REMOVE EQUIPMENT TAG

PACKED BY:

# CONTAINERS	TYPE CONTAINERS	DIMENSIONS	WEIGHT
1	Cooler	24 X 12 X 14	
TOTAL CONTAINERS			TOTAL WEIGHT

Please check off the applicable labels!
- ☐ FRAGILE
- ☐ GLASS
- ☐ DELICATE
- ☐ DO NOT XRAY
- ☐ REFRIGERATE
- ☐ OTHER
- ☐ BUBBLEWRAP
- ☐ FOAM

RECEIVED BY: SD

REPRESENTING: SwRI

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked, labeled, and are in proper condition for transportation according to the regulations of the D.O.T. _____ Date_____

Client: Navarro
SRR #53283
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/06/14
Sample(s) Received: Intact
Temperature: 0.2 °C/ SN#: 18440

WSTF 196 (1/06)

G

Southwest Research Institute

Laboratory Task Order

010007

TO #: 140611-4 Revision: 0

SDG: 554117

SRR #'s: 53306
Client(s): Navarro

Project(s): 16988.01.10X
Manager(s): SUN, GANG
To Client: 07/02/14

Instructions

Documents Related to this task order: 108294[PO #179 + #180], 113038[PO #179 + #180 Change Order #1], 113134[PO #NAV0000060], 115908[PO #NAV0000060 CO #1], 117303[PO #NAV0000060 CO #2], 118820[PO #179 + #180 Change Order #2], 120319[PO #104], 122923[PO #179 Change Order #3], 124787[PO #132], 124995[PO #179 Change Order #5]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: E607S
Section: EXTLAB

Holding: 14 days from CED

EXTRACTION BY METHOD 607.

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
554117		1	Soil	1406091137 (200-SB-21 7.5-10')	09 Jun 14	23 Jun 14
554118		1	Soil	1406091612 (200-SB-21)	09 Jun 14	23 Jun 14
554119		1	Soil	1406091747 (200-SB-21)	09 Jun 14	23 Jun 14

Test: T607W
Section: TDG

Holding: 40 days from VTSR

NDMA/DMN ANALYSIS BY GC/MS/SIM

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
554117		1	Soil	1406091137 (200-SB-21 7.5-10')	11 Jun 14	21 Jul 14
554118		1	Soil	1406091612 (200-SB-21)	11 Jun 14	21 Jul 14
554119		1	Soil	1406091747 (200-SB-21)	11 Jun 14	21 Jul 14

ver 10/16/2013

WSTF CHAIN OF CUSTODY RECORD

Date 6-10-14

010008 Page 1 of 1

Laboratory / PO # **PO 14EC002**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓ (575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: 607 NDMA and Bromacil								Comments
1406091137	7.5-10' 200-SB-21	1	X		X							
1406091612	200-SB-21	1	X		X							
1406091747	200-SB-21	1	X		X							

Client: Navarro
SRR #53306
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/11/14
Sample(s) Received: Intact
Temperature: 2.1 °C/ SN#: 18440

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-10-14 / 1100 HRS	[signature]	6/11/14 0830

WSTF 381B (03/13)

NASA-WSTF SHIPPING DOCUMENT

010009

(1) Blue #XB7

SHIPPED FROM: **NASA JSC WHITE SANDS TEST FACILITY** **12600 NASA ROAD; BLDG. 120** **LAS CRUCES, NEW MEXICO 88012**	WSTF ORIGINATOR/MAIL CODE/TELEPHONE NO. Patricia Melendrez/Purchasing Dept/ 524-5334 Carlyn Tufts 524-5452		
	ORDER OR CONTRACT NUMBER PO 14EC002	SHIPMENT CONTROL NO WS14 161 E	
SHIP TO: (ADDRESS, PHONE#, POINT OF CONTACT) Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238 Gang Sun 210-522-3954	PROJECT or TASK NUMBER 8752-028 47	SHIP VIA Fed.ex P11	
	Contain Batteries NO	NO. PKG.	DATE SHIPPED 6-10-14	AirBill/ PRO #/Bol #
	Battery Type-Part #	AUTHORIZED BY:	DEPT.	

ITEM NO.	EQUIPMENT CONTROL NO.	MODEL NO./ STOCK NO./ PART NO.	ITEM NAME - MANUFACTURER'S NAME AND SERIAL NO.	UNIT OF ISSUE	QTY.
1			Soil Sample for NDMA and Bromacil	EA	3

JUSTIFICATION FOR SHIPMENT: (MDR #, Return Authorization #'s, Warranty Replacement, Repair, Overage/Shortage, Damage, Recycling)
Soil Sample for analysis

DOT HAZARDOUS MATERIALS INFO; EMERGENCY PHONE NUMBER AND GUIDE NUMBER:

PROPERTY REVIEW: ☐ REMOVE EQUIPMENT TAG ☐ DO NOT REMOVE EQUIPMENT TAG

PACKED BY:	# CONTAINERS	TYPE CONTAINERS	DIMENSIONS	WEIGHT
Please check off the applicable labels! ☐ FRAGILE ☐ GLASS ☐ DELICATE ☐ DO NOT XRAY ☐ REFRIGERATE ☐ OTHER	1	cooler	25 x 14 x 14	
☐ BUBBLEWRAP ☐ FOAM	TOTAL CONTAINERS			TOTAL WEIGHT

RECEIVED BY: [signature]

REPRESENTING: SwRI

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked, labeled, and are in proper condition for transportation according to the regulations of the D.O.T. _____ Date_____

Client: Navarro
SRR #53306
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/11/14
Sample(s) Received: Intact
Temperature: 2.1 °C/ SN#: 18440

WSTF 196 (1/06)

G

Southwest Research Institute

Laboratory Task Order

TO #: 140613-8 Revision: 0

SDG: 544786

SRR #'s: 53327
Client(s): Navarro

Project(s): 16988.01.10X
Manager(s): SUN, GANG
To Client: 07/03/14

010010

Instructions

Documents Related to this task order: 108294[PO #179 + #180], 113038[PO #179 + #180 Change Order #1], 113134[PO #NAV0000060], 115908[PO #NAV0000060 CO #1], 117303[PO #NAV0000060 CO #2], 118820[PO #179 + #180 Change Order #2], 120319[PO #104], 122923[PO #179 Change Order #3], 124787[PO #132], 124995[PO #179 Change Order #5]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: E607S
Section: EXTLAB

Holding: 14 days from CED

EXTRACTION BY METHOD 607.

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
554786		1	Soil	1406111459 (200-SB-7 8-10')	11 Jun 14	25 Jun 14
554787	MS	1-MS	Soil	1406111500 (200-SB-7 8-10')	11 Jun 14	25 Jun 14
554788		1	Soil	1406111632 (200-SB-7 18-21')	11 Jun 14	25 Jun 14
554789		1	Soil	1406120932 (200-SB-7 38-40')	12 Jun 14	26 Jun 14

Test: T607W
Section: TDG

Holding: 40 days from VTSR

NDMA/DMN ANALYSIS BY GC/MS/SIM

Cnt: 4

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
554786		1	Soil	1406111459 (200-SB-7 8-10')	13 Jun 14	23 Jul 14
554787	MS	1-MS	Soil	1406111500 (200-SB-7 8-10')	13 Jun 14	23 Jul 14
554788		1	Soil	1406111632 (200-SB-7 18-21')	13 Jun 14	23 Jul 14
554789		1	Soil	1406120932 (200-SB-7 38-40')	13 Jun 14	23 Jul 14

WSTF CHAIN OF CUSTODY RECORD

Date 6-12-14

010011 Page 1 of 1

Laboratory / PO # **PO 14EC002**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓ (575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: 607 NDMA and Bromacil							Comments
1406111459	200-SB-7 8-10'	1	X	X							
1406111500	" "	1	X	X							*Matrix Spike for #1406111459
1406111632	" 18-21'	1	X	X							
1406120932	" 38-40'	1	X	X							

Client: Navarro
SRR #53327
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/13/14
Sample(s) Received: Intact
Temperature: 1.0 °C/ SN#: 18440

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-12-14 / 1100 HRS.	[signature]	6/13/14 0850

WSTF 381B (03/13)

NASA-WSTF SHIPP G DOCUMENT

010012

(1) Blue # HA3

SHIPPED FROM: **NASA JSC WHITE SANDS TEST FACILITY** **12600 NASA ROAD; BLDG. 120** **LAS CRUCES, NEW MEXICO 88012**	WSTF ORIGINATOR/MAIL CODE/TELEPHONE NO. Patricia Melendrez/Purchasing Dept/ 524-5334 Carlyn Tufts 524-5452
	ORDER OR CONTRACT NUMBER: PO 14EC002 / SHIPMENT CONTROL NO
SHIP TO: (ADDRESS, PHONE#, POINT OF CONTACT) Southwest Research Institute 6220 Culebra Road San Antonio, TX 78238 Gang Sun 210-522-3954	PROJECT or TASK NUMBER: 8752-028 47 / SHIP VIA
	Contain Batteries: NO / NO. PKG. / DATE SHIPPED: 6-12-14 / AirBill/ PRO #/Bol #
	Battery Type-Part # / AUTHORIZED BY: / DEPT.

ITEM NO.	EQUIPMENT CONTROL NO.	MODEL NO./ STOCK NO./ PART NO.	ITEM NAME - MANUFACTURER'S NAME AND SERIAL NO.	UNIT OF ISSUE	QTY.
1			Soil Sample for NDMA and Bromacil	EA	4

JUSTIFICATION FOR SHIPMENT: (MDR #, Return Authorization #'s, Warranty Replacement, Repair, Overage/Shortage, Damage, Recycling)
Soil Sample for analysis

DOT HAZARDOUS MATERIALS INFO; EMERGENCY PHONE NUMBER AND GUIDE NUMBER:

PROPERTY REVIEW: ☐ REMOVE EQUIPMENT TAG ☐ DO NOT REMOVE EQUIPMENT TAG

PACKED BY:	# CONTAINERS	TYPE CONTAINERS	DIMENSIONS	WEIGHT
Please check off the applicable labels! ☐ FRAGILE ☐ GLASS ☐ DELICATE ☐ DO NOT XRAY ☐ REFRIGERATE ☐ OTHER				
☐ BUBBLEWRAP ☐ FOAM	TOTAL CONTAINERS			TOTAL WEIGHT

RECEIVED BY: [signature]

REPRESENTING: SwRI

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked, labeled, and are in proper condition for transportation according to the regulations of the D.O.T. _____ Date_____

Client: Navarro
SRR #53327
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/13/14
Sample(s) Received: Intact
Temperature: 1.0 °C/ SN#: 18440

WSTF 196 (1/06)

G

010013

CLIENT: Navarro Research and Engineering Inc.
SwRI PROJECT: 01.16988.01.103
TASK ORDER: 140606-9, 140611-4, 140613-8
NAVARRO PO #: 14EC002

ANALYTICAL DATA REPORT SHEETS

Southwest Research Institute

010014

Method 607 Analysis Data Sheet

Sample ID

1406040942 (200-SB-20 9'/10')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140606-9
Matrix: Soil
Sample Wt/Vol: 31.13 g

Project: 16988.01.103
Date Received: 06/06/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 553448
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010015

Method 607 Analysis Data Sheet

Sample ID

1406041203 (200-SB-20 30')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140606-9
Matrix: Soil
Sample Wt/Vol: 31.22 g

Project: 16988.01.103
Date Received: 06/06/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 553449
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

Sample ID

1406041722 (200-SB-20 50')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140606-9
Matrix: Soil
Sample Wt/Vol: 30.34 g

Project: 16988.01.103
Date Received: 06/06/14
Date Extracted: 06/17/14
Date Analyzed: 06/19/14
Date Reported: 06/19/14

Lab Sample ID: 553450
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010017

Method 607 Analysis Data Sheet

Sample ID

1406091137 (200-SB-21 7.5-10')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140611-4
Matrix: Soil
Sample Wt/Vol: 31.46 g

Project: 16988.01.103
Date Received: 06/11/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554117
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010018

Method 607 Analysis Data Sheet

Sample ID

1406091612 (200-SB-21)

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140611-4
Matrix: Soil
Sample Wt/Vol: 30.52 g

Project: 16988.01.103
Date Received: 06/11/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554118
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute 010019

Method 607 Analysis Data Sheet

Sample ID

1406091747 (200-SB-21)

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140611-4
Matrix: Soil
Sample Wt/Vol: 31.27 g

Project: 16988.01.103
Date Received: 06/11/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554119
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	<0.32	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010020

Method 607 Analysis Data Sheet

Sample ID

1406111459 (200-SB-7 8-10')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140613-8
Matrix: Soil
Sample Wt/Vol: 30.48 g

Project: 16988.01.103
Date Received: 06/13/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554786
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

010021

Method 607 Analysis Data Sheet

Sample ID

1406111632 (200-SB-7 18-21')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140613-8
Matrix: Soil
Sample Wt/Vol: 30.56 g

Project: 16988.01.103
Date Received: 06/13/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554788
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

010022

Sample ID

1406120932 (200-SB-7 38-40')

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140613-8
Matrix: Soil
Sample Wt/Vol: 31.02 g

Project: 16988.01.103
Date Received: 06/13/14
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554789
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.32	U
4164-28-7	N-Nitrodimethylamine	<0.32	U
314-40-9	Bromacil	0.16	J

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

010023

CLIENT: Navarro Research and Engineering Inc.
SwRI PROJECT: 01.16988.01.103
TASK ORDER: 140606-9, 140611-4, 140613-8
NAVARRO PO #: 14EC002

QA DATA SHEETS

(BLANK, MATRIX SPIKE, SURROGATE, CALIBRATION)

Southwest Research Institute

010024

Method 607 Surrogate Recovery Summary

Client: Navarro
Matrix: Soil
Project: 16988.01.103

SDG: 553448, 554117, NIST, 544786

	Client Sample ID	Lab Sample ID	N-Nitroso-di-n-propylamine	
			% Recovery	Recovery Limits
2	SMB_17JUN14	555238	101	40-160
3	LCS_17JUN14	555239 LCS	102	40-160
4	1406040942 (200-SB-20 9'/10')	553448	81	40-160
5	1406041203 (200-SB-20 30')	553449	88	40-160
6	1406041722 (200-SB-20 50')	553450	96	40-160
7	1406091137 (200-SB-21 7.5-10')	554117	91	40-160
8	1406091612 (200-SB-21)	554118	106	40-160
9	1406091747 (200-SB-21)	554119	105	40-160
10	1406111459 (200-SB-7 8-10')	554786	103	40-160
11	1406111500 (200-SB-7 8-10')	554787 MS	97	40-160
12	1406111632 (200-SB-7 18-21')	554788	109	40-160
13	1406120932 (200-SB-7 38-40')	554789	100	40-160

Southwest Research Institute

010025

Method 607 Analysis Data Sheet

Sample ID

SMB_17JUN14

Client: Navarro
Batch: M-607-#662-Soil
Task Order: NA
Matrix: Solid
Sample Wt/Vol: 30.00 g

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 555238
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	<0.33	U
4164-28-7	N-Nitrodimethylamine	<0.33	U
314-40-9	Bromacil	<0.33	U

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Analysis Data Sheet

Sample ID

LCS_17JUN14

Client: Navarro
Batch: M-607-#662-Soil
Task Order: NA
Matrix: Solid
Sample Wt/Vol: 30.00 g

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 555239 LCS
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

CAS No.	ANALYTE	RESULT	Q
62-75-9	N-Nitrosodimethylamine	16.37	
4164-28-7	N-Nitrodimethylamine	16.83	
314-40-9	Bromacil	17.07	

U - Undetected, indicates not found above the detection limit
J - Estimated value, greater than the MDL but less than the PQL

Southwest Research Institute

Method 607 Blank Spike Recovery Report

Sample ID
LCS_17JUN14

Client: Navarro
Batch: M-607-#662-Soil
Task Order: NA
Matrix: Solid
Sample Wt/Vol: 30.00 g

Project: 16988.01.103
Date Received: NA
Date Extracted: 06/17/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 555239 LCS
Final Extraction Vol: 1000 uL

ANALYTE	Spike Added µg/kg	Blank Conc µg/kg	LCS Conc µg/kg	% Recovery	QC % Recovery Limits
N-Nitrosodimethylamine	17	0	16	94	13 - 110
N-Nitrodimethylamine	17	0	17	100	30 - 150
Bromacil	17	0	17	100	40 - 190

Southwest Research Institute

010028

Method 607 Analysis Data Sheet

Sample ID

1406111500 (200-SB-7 8-10') MS

Client: Navarro
Batch: M-607-#662-Soil
Task Order: 140613-8
Matrix: Soil
Sample Wt/Vol: 30.52 g

Project: 16988.01.103
Date Received: 06/13/14
Date Extracted: 06/17/14 OK 6/19/14
Date Analyzed: 06/18/14
Date Reported: 06/19/14

Lab Sample ID: 554787 MS
Final Extraction Vol: 1000 uL
Dilution Factor: 1
Reporting Unit: µg/kg
Method: TAP 01-0408-031

Compared Sample: 1406111459 (200-SB-7 8-10')

CAS No.	ANALYTE	RESULT	Spike	Revovery	Recovery Limit
62-75-9	N-Nitrosodimethylamine	14.71	17.00	87%	13-110%
4164-28-7	N-Nitrodimethylamine	15.33	17.00	92%	30-150%
314-40-9	Bromacil	16.58	17.00	99%	40-190%

U - Undetected, indicates not found above the detection limit

J - Estimated value, greater than the MDL but less than the PQL

010029

Southwest Research Institute

Continuing Calibration Check Sheet

SwRI Project #:	01.16988.01.103	Calibration Date:	06/18/14
Sponsor:	Navarro	Analytical Method:	TAP-01-0408-031
SwRI Standard ID:	100-04-120408017	Std Concentration:	1 µg/mL
File ID #:	A06184S1	Initial Calibration Date:	03/17/14

ANALYTE	Mean RRF	RRF	% Dif.
N-Nitrosodimethylamine	0.358	0.356	0.5
N-Nitrodimethylamine	0.139	0.15	-7.3
N-Nitroso-di-n-propylamine-d14	0.131	0.125	4.9
Bromacil	1.089	1.023	6.1

010030

Southwest Research Institute

Initial Calibration Data Sheet

SwRI Project #:	01.16988.01.103	Calibration Data:	03/17/14
Sponsor:	Navarro	Analytical Method:	TAP-01-0408-031
SwRI Standard ID:	100-04-120408017	Std Concentration:	0.01-10 µg/mL

ANALYTE	RRF 0.01	RRF 0.10	RRF 0.2	RRF1	RRF5	RRF10	Ave. RRF	RSD%
N-Nitrosodimethylamine	0.339	0.362	0.34	0.358	0.370	0.381	0.358	4.62
N-Nitrodimethylamine	0.127	0.13	0.136	0.144	0.148	0.152	0.139	7.23
N-Nitroso-di-n-propylamine-d14	0.128	0.128	0.124	0.131	0.137	0.141	0.131	4.71
Bromacil	0.973	1.068	1.018	1.114	1.150	1.210	1.089	7.99

CLIENT: Navarro Research and Engineering Inc.
SwRI PROJECT: 01.16988.01.103
TASK ORDER: 140606-9, 140611-4, 140613-8
NAVARRO PO #: 14EC002

010031

EXTRACTION AND INJECTION LOG

SwRI Labs
Client: Navarro
Project: 16988.01.10X
Case: 14EC002

(E607S) SOIL Extraction By Soxhlet 3540C (NRE)

X31389

Sample Receipt: 53283, 53306, 53327
TO#'s: 140606-9, 140611-4, 140613-8

010032

DATE EXTRACTED	06/17/14
ANALYSTS INVOLVED	Aaron Lopez (SU,SW,KD) Marina Lbron (SU,KD) Hamed Edrisi(SU,SP) Christina Menn (BD,QT,FV)
SURROGATE SOL ID	81-01-120408017
MTX SPK SOL ID	99-01-120408017
EXTRACTS LOCATION	Tracked by LIMS(06/18/14 CM)
CHEMICAL,BRAND &LOT#	Distilled DCM Optima Lot#DO031014 Sodium Sulfate ID:04-0402-004

NOTES	Wiretol II Micropipette ID: 50&100uL ID:465673(SURR,MS) Thermometer ID: G-075
ADDITIONAL NOTES	Soxhlets started at 4:00pm and ended the following day at 9:00am.
EXTRACTION FLOWCHART	Xg H2O-->>FV 1000uL DCM
REFRENCE BOOK &PAGE	13-0402-012 p142
TAP(S) USED	01-0402-152

	System ID	Type	Customer ID	SOLVENT VOL DCM (ML)	SAMPLE WT
1	553448		1406040942 (200-SB-20 9'/10')	200	31.13 g
2	553449		1406041203 (200-SB-20 30')	200	31.22 g
3	553450		1406041722 (200-SB-20 50')	200	30.34 g
4	554117		1406091137 (200-SB-21 7.5-10')	200	31.46 g
5	554118		1406091612 (200-SB-21)	200	30.52 g
6	554119		1406091747 (200-SB-21)	200	31.27 g
7	554786		1406111459 (200-SB-7 8-10')	200	30.48 g
8	554787	MS	1406111500 (200-SB-7 8-10')	200	30.52 g
9	554788		1406111632 (200-SB-7 18-21')	200	30.56 g
10	554789		1406120932 (200-SB-7 38-40')	200	31.02 g
11	555238		SMB_17JUN14	200	30.00 g
12	555239		LCS_17JUN14	200	30.00 g

	System ID	Type	Customer ID	SURROGATE SOL VOL	MTX SPK SOL VOL
1	553448		1406040942 (200-SB-20 9'/10')	100 uL	0 uL
2	553449		1406041203 (200-SB-20 30')	100 uL	0 uL
3	553450		1406041722 (200-SB-20 50')	100 uL	0 uL
4	554117		1406091137 (200-SB-21 7.5-10')	100 uL	0 uL
5	554118		1406091612 (200-SB-21)	100 uL	0 uL
6	554119		1406091747 (200-SB-21)	100 uL	0 uL
7	554786		1406111459 (200-SB-7 8-10')	100 uL	0 uL
8	554787	MS	1406111500 (200-SB-7 8-10')	100 uL	50 uL
9	554788		1406111632 (200-SB-7 18-21')	100 uL	0 uL
10	554789		1406120932 (200-SB-7 38-40')	100 uL	0 uL
11	555238		SMB_17JUN14	100 uL	0 uL
12	555239		LCS_17JUN14	100 uL	50 uL

SwRI Labs
Client: Navarro
Project: 16988.01.10X
Case: 14EC002

(E607S) SOIL Extraction By Soxhlet 3540C (NRE)

X31389

Sample Receipt: 53283, 53306, 53327
TO#'s: 140606-9, 140611-4, 140613-8

010033

	System ID	Type	Customer ID	FV DCM	% DRY WT
1	553448		1406040942 (200-SB-20 9'/10')	1000 uL	98.9
2	553449		1406041203 (200-SB-20 30')	1000 uL	99.5
3	553450		1406041722 (200-SB-20 50')	1000 uL	99.7
4	554117		1406091137 (200-SB-21 7.5-10')	1000 uL	94.4
5	554118		1406091612 (200-SB-21)	1000 uL	100.0
6	554119		1406091747 (200-SB-21)	1000 uL	98.5
7	554786		1406111459 (200-SB-7 8-10')	1000 uL	95.1
8	554787	MS	1406111500 (200-SB-7 8-10')	1000 uL	93.3
9	554788		1406111632 (200-SB-7 18-21')	1000 uL	90.7
10	554789		1406120932 (200-SB-7 38-40')	1000 uL	96.4
11	555238		SMB_17JUN14	1000 uL	100.0
12	555239		LCS_17JUN14	1000 uL	100.0

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Book: EXTRACTION LAB, Volume: EXT-2014, Page: 402 (Section 2 of 2)
Approved by HAMED EDRISI on Jun 19 2014 11:47AM

Date Printed: 6/19/2014

SwRI Labs
Client: Navarro
Project: 16988.01.10X
Case: 14EC002

% DRY WT DETERMINATION (NRE)

X31392

Sample Receipt: 53283, 53306, 53327
TO#'s: 140606-9, 140611-4, 140613-8

010034

DATE EXTRACTED	06/17/14
ANALYSTS INVOLVED	Hamed Edrisi
NOTES	Balance #61 was used

REFERENCE BOOK PAGE	13-0402-012 p142

	System ID	Type	Customer ID	TARE WT (G)	TARE + WET WT (G)	TARE + DRY WT (G)
1	553448		1406040942 (200-SB-20 9'/10')	0.97	7.34	7.27
2	553449		1406041203 (200-SB-20 30')	0.98	7.15	7.12
3	553450		1406041722 (200-SB-20 50')	1.00	9.95	9.92
4	554117		1406091137 (200-SB-21 7.5-10')	1.00	8.50	8.08
5	554118		1406091612 (200-SB-21)	1.03	6.61	6.61
6	554119		1406091747 (200-SB-21)	1.04	8.95	8.83
7	554786		1406111459 (200-SB-7 8-10')	1.05	6.77	6.49
8	554787		1406111500 (200-SB-7 8-10')	1.03	7.86	7.40
9	554788		1406111632 (200-SB-7 18-21')	1.03	9.01	8.27
10	554789		1406120932 (200-SB-7 38-40')	0.98	12.97	12.54

	System ID	Type	Customer ID	% DRY WT.
1	553448		1406040942 (200-SB-20 9'/10')	98.9
2	553449		1406041203 (200-SB-20 30')	99.5
3	553450		1406041722 (200-SB-20 50')	99.7
4	554117		1406091137 (200-SB-21 7.5-10')	94.4
5	554118		1406091612 (200-SB-21)	100.0
6	554119		1406091747 (200-SB-21)	98.5
7	554786		1406111459 (200-SB-7 8-10')	95.1
8	554787		1406111500 (200-SB-7 8-10')	93.3
9	554788		1406111632 (200-SB-7 18-21')	90.7
10	554789		1406120932 (200-SB-7 38-40')	96.4

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Date Printed: 6/19/2014

TITLE M-607

PROJECT NO. 16988.01.103

BOOK NO. 10-0408-024

SwRI®

Work continued from Page

010035

injlog

Southwest Research Institute GC/MS Injection Log

OPERATOR: GS SEQUENCE DATE: 06/18/14, 06/19/14 INSTRUMENT: Amidala
COLUMN: Agilent 122-0732 DB-1701, 0.25mm * 30m * 0.25um
CARRIER GAS: Helium SOLVENT: DCM
METHOD FILE: MET_607C, MET_607C.M
CLIENT NAME: NAVARRO PROJECT NUMBER: 16988.01.103
SRR: 53283, 53306, 53327 METHOD: M-607 MATRIX: Soil
DATA PATH: C:\MSDChem\1\DATA\2014\A061814

FILENAME	VIAL	DATE/TIME	METHOD	SAMPLE DESCRIPTION
A06184C1	100	06/18/14 13:43	MET_607C	SLUG
A06184C2	1	06/18/14 14:18	MET_607C	ISB
A06184S1	2	06/18/14 14:26	MET_607C	NDMA/DMN/BROMACIL STD 1NG/UL IS=0.2NG/UL
A0618401	3	06/18/14 15:01	MET_607C	SMB_17JUN14 IS=0.2NG/UL 555238
A0618402	4	06/18/14 15:35	MET_607C	LCS_17JUN14 IS=0.2NG/UL 555239
A0618403	5	06/18/14 16:10	MET_607C	1406040942 (200-SB-20 9'/10') IS=0.2NG/UL 553
A0618404	6	06/18/14 16:45	MET_607C	1406041203 (200-SB-20 30') IS=0.2NG/UL 553449
A0618405	7	06/18/14 17:19	MET_607C	1406041722 (200-SB-20 50') IS=0.2NG/UL 553450
A0618406	8	06/18/14 17:54	MET_607C	1406091137 (200-SB-21 7.5-10') IS=0.2NG/UL 55
A0618407	9	06/18/14 18:29	MET_607C	1406091612 (200-SB-21) IS=0.2NG/UL 554118
A0618408	10	06/18/14 19:03	MET_607C	1406091747 (200-SB-21) IS=0.2NG/UL 554119
A0618409	11	06/18/14 19:38	MET_607C	1406111459 (200-SB-7 8-10') IS=0.2NG/UL 55478
A0618410	12	06/18/14 20:13	MET_607C	1406111500 (200-SB-7 8-10') IS=0.2NG/UL 55478
A0618411	13	06/18/14 20:47	MET_607C	1406111632 (200-SB-7 18-21') IS=0.2NG/UL 5547
A0618412	14	06/18/14 21:22	MET_607C	1406120932 (200-SB-7 38-40') IS=0.2NG/UL 5547
A0618413	15	06/19/14 11:06	MET_607C	1406041722 (200-SB-20 50') IS=0.2NG/UL 553450

6-19-14

REVIEWED BY: Alice Yan
DATE: 06/19/14

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Work continued to Page

SIGNATURE DATE 6/19/14

DISCLOSED TO AND UNDERSTOOD BY | DATE | WITNESS | DATE

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729737

Location: WSTF
Sample ID: 200-SB-5, 1406151126-field sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1647

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-5, 1406151142-field sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1708

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

Location: WSTF
Sample ID: 200-SB-5, 1406151142- (dup) sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1730

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729726

Location: WSTF
Sample ID: 200-SB-6, 1406141701-field sample
Date Received: 6/19/2014
Date Extracted: 6/19/2014
Date Analyzed: 6/19/2014

QA Batch Number: 4
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/19/2014, 1818

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713a

Location: WSTF
Sample ID: 200-SB-7, 1406111457-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1834

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

Location: WSTF
Sample ID: 200-SB-7, 1406111458-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1916

Name	CAS Number	Result (mg/kg)	Reporting (Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	0.42	0.050	
Methylhydrazine	60-34-4	0.57	0.050	
N,N-Dimethylhydrazine	57-14-7	0.78	0.050	

Location: WSTF
Sample ID: 200-SB-7, 1406111458 (dup.sample)
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1937

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713a

Location: WSTF
Sample ID: 200-SB-7, 1406111458-matrix spike
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1958

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.
All matrix spikes are spiked to 1 ppm hydrazines.

Location: WSTF
Sample ID: 200-SB-7, 1406111631-field sample
Date Received: 6/13/2014
Date Extracted: 6/19/2014
Date Analyzed: 6/19/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/19/2014, 1653

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-7, 1406120931-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 2019

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit (0.050 mg/kg)

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713b

Location: WSTF
Sample ID: 200-SB-8, 1406130801-field sample
Date Received: 6/13/2014
Date Extracted: 6/17/2014
Date Analyzed: 6/17/2014

QA Batch Number: 3
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/17/2014, 1734

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

Location: WSTF
Sample ID: 200-SB-8, 1406130811-field sample
Date Received: 6/13/2014
Date Extracted: 6/17/2014
Date Analyzed: 6/17/2014

QA Batch Number: 3
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/17/2014, 1755

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-8, 1406130941-field sample
Date Received: 6/19/2014
Date Extracted: 6/19/2014
Date Analyzed: 6/19/2014

QA Batch Number: 4
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/19/2014, 1715

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713b

Location: WSTF
Sample ID: 200-SB-8, 1406131301-field sample
Date Received: 6/19/2014
Date Extracted: 6/19/2014
Date Analyzed: 6/19/2014

QA Batch Number: 4
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/19/2014, 1736

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729737

Location: WSTF
Sample ID: 200-SB-13, 1406161401-field sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1812

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-13, 1406161542-field sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1833

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-13, 1406161543-field sample
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1854

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729737

Location: WSTF
Sample ID: 200-SB-13, 1406161543-matrix spike
Date Received: 6/19/2014
Date Extracted: 6/23/2014
Date Analyzed: 6/23/2014

QA Batch Number: 5
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/23/2014, 1915

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	0.10	0.050	

All matrix spikes are spiked to 1 ppm hydrazines.

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713

Location: WSTF
Sample ID: 200-SB-20, 1406040811-field sample
Date Received: 6/13/2014
Date Extracted: 6/13/2014
Date Analyzed: 6/13/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: water
Time sample analyzed: 6/13/2014, 1537

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/L)	QA Flag
Hydrazine	302-01-2	ND*	0.01	
Methylhydrazine	60-34-4	ND	0.01	
N,N-Dimethylhydrazine	57-14-7	ND	0.01	

Location: WSTF
Sample ID: 200-SB-20, 1406040941-field sample
Date Received: 6/13/2014
Date Extracted: 6/13/2014
Date Analyzed: 6/13/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/13/2014, 1559

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-20, 1406040941**matrix spike
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1901

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	0.17	0.050	
Methylhydrazine	60-34-4	0.18	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

**Matrix spike of extraction fluid

ND indicates the result is below the reporting limit.

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713

Location: WSTF
Sample ID: 200-SB-20, 1406040941(dup.,sample)
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 2041

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-20, 1406041202-field sample
Date Received: 6/13/2014
Date Extracted: 6/13/2014
Date Analyzed: 6/13/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/13/2014, 1620

Name	CAS Number	Result (mg/kg)	Reporting (Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-20, 1406041202[1]-matrix spike
Date Received: 6/13/2014
Date Extracted: 6/17/2014
Date Analyzed: 6/17/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/17/2014, 1652

Name	CAS Number	Result (mg/kg)	Reporting (Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	0.42	0.050	
Methylhydrazine	60-34-4	0.57	0.050	
N,N-Dimethylhydrazine	57-14-7	0.78	0.050	

[1]Matrix Spike of soil, pre-extraction

ND indicates the result is below the reporting limit.

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713

Location: WSTF
Sample ID: 200-SB-20, 1406041721-field sample
Date Received: 6/13/2014
Date Extracted: 6/13/2014
Date Analyzed: 6/13/2014

QA Batch Number: 1
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/13/2014, 1641

Name	CAS Number	Result (mg/kg)	Reporting Limit(mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND indicates the result is below the reporting limit.

All matrix spikes are spiked to 1 ppm hydrazines.

PRELIMINARY

WHITE SANDS TEST FACILITY ANALYTICAL CHEMISTRY LABORATORY

LABORATORY WORK ORDER: 729713a

Location: WSTF
Sample ID: 200-SB-21, 1406091136-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1709

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

Location: WSTF
Sample ID: 200-SB-21, 1406091611-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1730

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND*	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

ND* indicates the result is below the reporting limit.

Location: WSTF
Sample ID: 200-SB-21, 1406091746-field sample
Date Received: 6/13/2014
Date Extracted: 6/16/2014
Date Analyzed: 6/16/2014

QA Batch Number: 2
Analytical Method: HPLC (WSTF WJI-CHEMLAB-0268)
Dilution Factor: 1
Sample Matrix: soil
Time sample analyzed: 6/16/2014, 1752

Name	CAS Number	Result (mg/kg)	Reporting Limit (mg/kg)	QA Flag
Hydrazine	302-01-2	ND	0.050	
Methylhydrazine	60-34-4	ND	0.050	
N,N-Dimethylhydrazine	57-14-7	ND	0.050	

PRELIMINARY

Project 200 · SB · 5 Notebook No. SAUZ #7

Continues from Page N/A

M. Avalos & R. Burrows present. Weather is hot & clear. Drillers decon rig & BLN core barrel prior to sampling. All sampling equipment triple rinsed prior to use. Carboy G-2.

Rinsate BLN Core Barrel

Sample #	Analysis	Preservative	Container	Lot	LAB
140615 1050	VOC by 8260C (TB)	HCL/Ice	(3) 40 mL vials	0407143	ALS
1110	VOC by 8260C	"	"	"	"
1111	Hydrazines	Acetate Buffer	(1) 40 mL amber	0117014	WSTF
1112	NDMA/Bromacil	Ice	(1) 1L amber	105827	SRI
1113	SVOC by 8270	Ice	(2) 1L amber	"	ALS
1114	Perchlorate	"	(1) 250 mL Poly		"
1115	Dioxins & Furans	"	(2) 1L amber	105812	TBD
1116	Total Metals	HNO3/Ice	(1) 500 mL poly	100213	"
1117	Hexavalent Chromium	Ice	(1) 250 mL poly	112612	"
1118	Total Cyanide	NaOH/Ice	"	10311	"
1119	Anions	Ice	"	112612	"

Soil Samples 8-10 ft.

Sample #	Analysis	Preservative	Container	Lot	LAB
140615 1125	VOC by 8260C	Ice	(2) 4oz Jar	0059299	ALS
1126	Hydrazines	"	(1) 40 mL vial amber	0117014	WSTF
1127	NDMA/Bromacil	"	(1) 4oz Jar	0059299	SRI
1128	SVOC/Perchlorate	"	"	"	ALS
1129	Dioxins/Furans	"	"	"	"
1130	(Total Metals/Hex Chrome) (Total Cyanide/Anions)	"	"	"	"
1131	Soil PH	"	"	"	"

Continued on Page 11

Read and Understood By

Marcos Avalos — Signed — 6/15/14 — Date

D T Wiele — Signed — 6/30/14 — Date

Project 200 · SB · 5 Notebook No. SAVE # 7

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Soil Samples (Duplicate)

Sample #	Analysis	Preservative	Container	Lot	LAB
140615 1141	VOC by 8260C	Ice	(2) 4 oz Jar	0059299	ALS
—— 1142	Hydrazines	"	(1) 40 mL amber	0175014	WSTF
—— 1143	NDMA / Bromacil	"	(1) 4 oz Jar	0059299	SRI
—— 1144	SVOC / Perchlorate	"	"	"	ALS
—— 1145	Dioxins / Furans	"	"	"	"
—— 1146	(Total Metals, Hex Chrome) (Total Cyanide, Anions)	"	"	"	"
—— 1147	Soil PH	"	"	"	"

Continued on Page NA

Read and Understood By

Signed	Date	Signed	Date
Marcus Arnold	6/15/14	D Wiele	6/30/14

Project 200-SB-6 Notebook No. SAVZ #7

Continues from Page NA

T. Kondy + F. Gallagous present. Weather is hot, sunny and windy. Drillers decon Rig and BLN core barrel prior to sampling.

Rinsate BLN core barrel Carboy G2

Sample #	Time	Analysis	Preserv	Cont.	Lot #	Lab
140614	~~1650~~ 1200	8260c (TB)	Ice, HCL	(3) 40 ml Vial	040714 3	ALS
—	1650	8260c	Ice, HCL	(3) 40 ml Vial	"	ALS
—	1651	Hydrazine	Ice	(1) 40 ml Amber	0117501Y	WSTF
—	1652	NDMA/Bromacil	Ice	(1) 1 Liter Amber	105812 Z	SRI
—	1653	8270c	Ice	(2) 1 Liter Amber	"	ALS
—	1654	perchlorate	Ice	(1) 250 ml poly	1119034	ALS
—	1655	Dioxins/Furans	Ice	(2) 1 Liter Amber	105812 Z	TBD
—	1656	Total Metals	Ice, HNO_3	(1) 500 ml poly	100713	ALS
—	1657	Hex Chrome	Ice	(1) 250 ml poly	112612	ALS
—	1658	Total cyanide	Ice, NaOH	(1) 250 ml poly	103111	ALS
—	1659	Anions	Ice	(1) 250 ml poly	112612	ALS

Soil S-10

Sample #	Time	Analysis	Preserv	Cont.	Lot #	Lab
140614	1700	8260c	Ice	(2) 4 oz Jar	0059299	ALS
—	1701	Hydrazine	Ice	(1) 40 ml Amber	0117501Y	WSTF
—	1702	NDMA/Bromacil	Ice	(1) 4 oz Jar	0059299	SRI
—	1703	8270c/perchlorate	Ice	(1) 4 oz Jar	"	ALS
—	1704	Dioxins/Furans	Ice	(1) 4 oz Jar	"	TBD
—	1705	(Total Metals/Hex Chrome Total cyanide/Anions)	Ice	(1) 4 oz Jar	"	ALS
—	1706	Soil PH	Ice	(1) 4 oz Jar	"	ALS

X Soil S-10 Start Time 140614/1700

Continued on Page

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Signed: [signature] Date: 6-14-14

Signed: [signature] Date: 6/30/14

Project 200-SB-7 Notebook No. Sav 2 # 7

Continues from Page 6

T. Kondy + M Adolos present. Weather is hot and clear. Rinsate will be taken on BLN cone barrel prior to taking sample. Carboy # G2 Drillers decon Rig and BLN cone barrel. Robert Burrows & Brad Williams took over @ 3:00 pm.

Rinsate BLN cone barrel Carboy G2

Sample #	Analysis	Preserv	cont.	Lot #	Lab
140611 1435	8260c (TB)	Ice, HCL	(3) 40 ml Vial	0407143	ALS
— 1435	8260c	Ice, HCL	(3) 40 ml Vial	"	ALS
— 1436	Hydrazine	Ice	(1) 40 ml Amber Vial	0117501Y	WSTF
— 1437	NDMA/Biomass	Ice	(1) 1 LT Amber	1058122	SRI
— 1438	SVOC	Ice	(2) 1 LT Amber	"	ALS
— 1439	perchlorate	Ice	(1) 250 ml poly	1119034	ALS
— 1440	Dioxins/Furans	Ice	(2) 1 LT Amber	1058122	
— 1441	Total Metal	Ice, HNO_3	(1) 500 ml poly	100713	ALS
— 1442	Hex Chrome	Ice	(1) 250 ml poly	112612	ALS
— 1443	Total cyanide	Ice, NaOH	(1) 250 ml poly	103111	ALS
— 1444	Anions	Ice	(1) 250 ml poly		ALS

Soil 8-10 ft.

Sample #	Analysis	Preserv	cont.	Lot #	Lab
140611 1455	8260c	Ice	(2) 4 oz Jar	0059299	ALS
— 1456	" (MS)	"	"	"	"
— 1457	Hydrazine	Ice	(1) 40 ml Amber	0117501Y	WSTF
— 1458	" (MS)	"	"	"	"
— 1459	NDMA/Biomass	Ice	(1) 4 oz Jar ~~Vial~~	0059299	SRI
~~—~~	~~SVOC/Perchlorate~~				
— 1500	" (MS)	"	"	"	"
— 1501	SVOC/Perchlorate	Ice	(1) 4 oz Jar		ALS
— 1502	" (MS)	"	"	"	"
— 1503	Dioxins/Furans	Ice	(1) 4 oz Jar		
— 1504	" (MS)	"	"	"	"
— 1505	(Total Metals/Hex Chrome)	Ice	(1) 4 oz Jar	"	ALS
~~—~~	~~cyanide~~ / Anions				
— 1506	" (MS)	"	"		"
— 1507	Soil pH	Ice	1 4 oz Jar	"	"
— 1508	" (MS)	"	"		

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Read and Understood By

Signed	Date	Signed	Date
[signature]	6-11-14	D T Wiebe	6/12/14

Project 200-SB-7 Notebook No. SAV #2 #7

Continues from Page 5

Tripled Rinsed Sample Bowl & Spoon For next sample with DI water. Soil Samples 18-21 ft. IDW - 1 gal.

Sample #	Analysis	Preservative	Container	Lot #	Lab
140611 1630	8260C	ICE	(2) 4oz JARS	03101014	ALS
— 1631	Hydrazines	"	(1) 40 ml vials	01175014	WSTF
— 1632	NDMA/Bromacil	"	(1) 4oz JARS	03101014	SRI
— 1633	SVOC's/Perchlorate	"	(1) "	"	ALS
— 1634	Dioxins ~~Dioxins~~/Furans	"	(1) "	"	
— 1635	Total Metals/Hex Chrom / Cyanide/Anions	"	(1) "	"	ALS
IDW					
— 1636	Soil pH	"	(1) "	"	ALS

Tripled Rinsed Sample Bowl & Spoon for next sample with DI water. Soil Samples 38-40

Sample #	Analysis	Preservative	Container	Lot #	Lab
140612 0930	8260C	ICE	(2) 4oz JARS	03101014	ALS
— 0931	Hydrazines	"	(1) 40 ml vial	01175014	WSTF
— 0932	NDMA/Bromacil	"	(1) 4oz JARS	03101014	SRI
— 0933	SVOC's/Perchlorate	"	(1) "	"	ALS
— 0934	Dioxins ~~Dioxins~~/Furans	"	(1) "	"	
— 0935	Total metals/Hex chrom / Cyanide/Anions	"	(1) "	"	ALS
— 0936	Soil pH	"	(1) "	"	ALS

T. Wiebe on site at ~0915. Observed sample collection and performed brief QA check. No safety issues noted. Traffic and personnel access control was satisfactory. Exclusion zone well marked and adhered to by Area personnel not assigned to the investigation project.
- Observation: When using stainless steel bowls for sample collection, keep them cool (shaded, ice chest) prior to collecting soil to minimize ~~volat~~ loss of volatiles. Other sampling performed in accordance with protocol. Troy Wiebe 6/12/14.

Continued on Page

Read and Understood By

Signed	Date	Signed	Date
Robert Dunwood	6-11-14 6-12-14 RK	DT Wiebe	6/12/14

Project 20-SB-8 Notebook No. SAV 2 & 7

Continues from Page

T. Kondy + M Alvalos present. Weather is hot, windy and a few clouds. Drillers decone BLM core barrel prior to Rinsate.

Rinsate BLM core barrel Carboy G2.

Sample #	Analysis	Preserv	Cont.	Lot #	Lab
140613 0700	8260c (TB)	Ice, HCL	(3) 40 ml Vial	0407143	ALS
— 0720	8260c	Ice, HCL	(3) 40 ml Vial	"	ALS
— 0721	Hydrazine	Ice	(1) 40 ml Vial	0117501Y	WSTF
— 0722	NDMA/Bromacil	Ice	(1) 1 LT Amber	105812Z	SRI
— 0723	8270c	Ice	(2) 1 LT Amber	"	ALS
— 0724	Perchlorate	Ice	(1) 250 ml poly	1119034	ALS
— 0725	Dioxins/Furans	Ice	(2) 1 LT Amber	105812Z	~~ALS~~
— 0726	Total Metals	Ice, HNO_3	(1) 500 ml poly	1000713	ALS
— 0727	Hex Chrome	Ice	(1) 250 ml poly	0407143	ALS
— 0728	Total cyanide	Ice, NaOH	(1) 250 ml poly	103111	ALS
— 0729	Anions	Ice	(1) 250 ml poly	0407143	ALS

Soil Samples 8-10

Sample #	Analysis	Preserv	Cont.	Lot #	Lab
140613 0800	8260c	Ice	(2) 4 oz Jar	0059299	ALS
— 0801	Hydrazine	Ice	(1) 40 ml Amber	0117501Y	WSTF
— 0802	NDMA/Bromacil	Ice	(1) 4 oz Jar	0059299	SRI
— 0803	8270c/ Perchlorate	Ice	(1) 4 oz Jar	"	ALS
— 0804	Dioxins/Furans	Ice	(1) 4 oz Jar	"	
— 0805	(Total Metals/Hex chrome Total Cyanide/Anions)	Ice	(1) 4 oz Jar	"	ALS
— 0806	Soil PH	Ice	(1) 4 oz Jar	"	

Continued on Page 8

Read and Understood By

Tim Kondy — Signed; 6-13-14 — Date; D Wiehe — Signed; 6/30/14 — Date

Project 200-SB-8 Notebook No. SAV2 #7

Continues from Page 7

Soil (Dupl) 8-10

Sample #	Analysis	Preserv	Cont.	Lot #	Lab
1406130810	8260C	Ice	(2) 4 oz Jar	0059299	ALS
— 0811	Hydrazine	Ice	(1) 40 ml Vial Amber	01175014	WSTF
— 0812	NDMA/Bromacil	Ice	(1) 4 oz Jar	0059299	SRI
— 0813	SVOC/perchlorate	Ice	(1) 4 oz Jar	"	ALS
— 0814	Dioxins/Furans	Ice	(1) 4 oz Jar	"	TBD
— 0815	(Total Metals/Hex Chrome	Ice	(1) 4 oz Jar	"	ALS
—	total cyanide/Anions)				
— 0816	Soil pH	Ice	(1) 4 oz Jar	"	ALS

Soil 28-30

Sample #	Analysis	Preserv	Cont.	Lot #	Lab
1406130940	8260C	Ice	(2) 4 oz Jar	0059299	ALS
— 0941	Hydrazine	Ice	(1) 40 ml Amber Vial	01175014	WSTF
— 0942	NDMA/Bromacil	Ice	(1) 4 oz Jar	0059299	SRI
— 0943	SVOC/perchlorate	Ice	(1) 4 oz Jar	"	ALS
— 0944	Dioxins/Furans	Ice	(1) 4 oz Jar	"	TBD
— 0945	(Total Metals/Hex Chrome	Ice	(1) 4 oz Jar	"	ALS
	total cyanide/Anions)				
— 0946	Soil pH	Ice	(1) 4 oz Jar	"	ALS

Soil 43-45

Sample #	Analysis	Preserv	Cont.	Lot #	Lab
1406131300	8260C	Ice	(2) 4 oz Jar	0059299	ALS
— 1301	Hydrazine	Ice	(1) 40 ml Amber	01175014	WSTF
— 1302	NDMA/Bromacil	Ice	(1) 4 oz Jar	0059299	SRI
— 1303	SVOC/perchlorate	Ice	(1) 4 oz Jar	"	ALS
— 1304	Dioxins/Furans	Ice	(1) 4 oz Jar	"	TBD
— 1305	(Total Metals/Hex Chrome	Ice	(1) 4 oz Jar	"	ALS
	Total Cyanide/Anions)	Ice	(1) 4 oz Jar	"	
— 1306	Soil pH	Ice	(1) 4 oz Jar	"	ALS

Continued on Page NA

Read and Understood By

Signed	Date	Signed	Date
Tim Kaster	6-14-14	D Wiehe	6/30/14

Project 200-SB-~~14~~ TK 13 Notebook No. SHV 2 #7

Continues from Page NA

T. Kowly + M. Avados present. Weather is hot and clear. Drillers decond Rig and BLN core barrel prior to Sampling. All equipment triple rinsed. Carboy G2.

Sample Rinsate BLN Core barrel

Sample #	Analysis	Preserv	Cont.	Lot #	Lab
140616 0730	8260c TB	Ice, HCL	(3) 40 ml Vial	0407143	ALS
—— 1340	8260c	Ice, HCL	(3) 40 ml Vial	"	ALS
—— 1341	Hydrazine	Ice	(1) 40 ml Amber	0117501Y	WSTF
—— 1342	NDMA/Bromacil	Ice	(1) 1 LT Amber	105812 Z	SRI
—— 1343	8270c	Ice	(2) 1 LT Amber	"	ALS
—— 1344	perchlorate	Ice	(1) 250 ml poly	1119034	ALS
—— 1345	Dioxins/Furans	Ice	(2) 1 LT Amber	105842 Z	TBD
—— 1346	Total Metals	Ice, HNO_3	(1) 500 ml poly	100713	ALS
—— 1347	Total cyanide	Ice, NaOH	(1) 250 ml poly	103111	ALS
—— 1348	Anions	Ice	(1) 250 ml poly	112612	ALS

Soil 8-10

Sample #	Analysis	Preserv	Cont.	Lot #	Lab
140616 1400	8260c	Ice	(2) 4 oz Jar	0059299	ALS
—— 1401	Hydrazine	Ice	(1) 40 ml Vial	0117501Y	WSTF
—— 1402	NDMA/Bromacil	Ice	(1) 4 oz Jar	0059299	SRI
—— 1403	8270c/perchlorate	Ice	(1) 4 oz Jar	"	ALS
—— 1404	Dioxins/Furans	Ice	(1) 4 oz Jar	"	TBD ~~ALS~~
—— 1405	(Total Metals/Hex Chrome total cyanide/Anions)	Ice	(1) 4 oz Jar	"	ALS
—— 1406	Soil PH	Ice	(1) 4 oz Jar	"	ALS

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Read and Understood By

Signed	Date	Signed	Date
T. Kowly	6-16-14	D Wiele	6/30/14

Project 200-SB-13 Notebook No. SAVZ #7

Continues from Page 12

D. Halvorsen & B. Williams Present @ 1500 hrs.

Soil Sample

Sample #	Analysis	Preserve	Cont.	Lot	Lab
140616	8260C	Ice	(2) 4oz Jar		ALS
	Hydrazine	Ice	(1) 40 ml Vial		WSTF
	UDMA/Bromacil	Ice	(1) 4oz Jar		SRL
	8270C/Perchlorate	Ice	(1) 4oz Jar		ALS
	Dioxins/Furans	Ice	(1) 4oz Jar		ALS
	(Total Metals/Hex Chrome	Ice	(1) 4oz Jar		ALS
	Total Cyanide/Anions)	"			
	Soil PH	Ice	(1) 4oz Jar		ALS

Soil Sample 28-30/30-32

Sample #	Analysis	Preserve	Cont.	Lot	Lab
140616 1540	8260C	Ice	(2) 4oz Jar	0059299	ALS
1541	" " (MS)	"	" "	"	"
1542	Hydrazine	"	(1) 40 ml Vial	0117501Y	WSTF
1543	" (MS)	"	" "	"	"
1544	UDMA/Bromacil	"	(1) 4oz Jar	0059299	SRL
1545	" " (MS)	"	" "	"	"
1546	8270C/Perchlorate	"	" "	"	ALS
1547	" " (MS)	"	" "	"	"
1548	Dioxins/Furans	"	" "	"	"
1549	" " (MS)	"	" "	"	"
1550	(Total Metals/Hex Chrome	"	" "	"	"
	Total Cyanide/Anions)			"	
1551	~~Soil PH~~ " " (MS)	"	" "	"	"
1552	Soil PH	"	" "	"	"
1553	" " (MS)	"	" "	"	"
~~1554~~	~~GEOTECH~~				

Continued on Page 14

Read and Understood By

Signed	Date	Signed	Date
[signature]	6-16-14	[signature]	6/30/14

Project 200-SW-13 Notebook No. SAV 2 #7

Continues from Page 13

Soil Samples

SAMPLE#	Analysis	Preserve	Cont.	LOT	LAB
1406	8260C	Ice	(2) 4oz Jar		ALS
	Hydrazine	"	(1) 40ml Vial	0117G014	WSTF
	NDMA/Bromacil	"	(1) 4oz Jar		SRI
	8270C/Perchlorate	"	"		ALS
	Dioxins/Furans	"	"		"
	Total metals/Hex Chrome Total cyanide/Anions	"	"		"
	Soil PH	"	"		"

* NO Samples - TD well

Continued on Page NA

Read and Understood By

Signed Date Signed Date

T. Kondy & M. Anokes present. Weather is hot and clear.

Rinsate Samples Cooler G-2

Sample #	Analysis	Preserv	Cont'	Lot #	Lab
1060410810	8260C	Ice, HCL	(3) 40 ml Vial	3-294-003	ALS
0811	Hydrazines	Ice, Acetate Buffer	(1) 40 ml Vial	0117501Y	WSTF
0812	NDMA/Bromuit	Ice	(1) 1LT Amber	01058012	SRI
0813	SVOC/8270e	Ice	(2) 1LT Amber	01058012	ALS
0814	perchlorate	Ice	(1) 250 ml poly	1119031	ALS
0815	Dioxins/Furans	Ice	(2) 1LT Amber	01508012	[redacted]
0816	Total Metals	Ice, HNO3	(1) 500 ml poly	100713.2A10	ALS
~~0817~~	~~Hexavalent Chromium~~	~~Ice~~	~~(1) 250 ml poly~~	Not req'd TW 6/10/14	ALS
0818	Total cyanide	Ice, NaOH	(1) 250 ml poly	103111	ALS
0819	Anions	Ice	(1) 250 ml poly	112612	ALS
→ 0730	8260c TB	Ice, HCL	(3) 40 ml Vial		ALS

Soil Samples 9-10'

Sample #	Analysis	Preserv	Cont	Lot #	Lab
1060410940	VOC by 8260C	Ice	(2) 4 oz Jar	059299	ALS
0941	Hydrazines	Ice	(1) 40 ml Vial	0117501Y	WSTF
0942	NDMA/Bromuit	Ice	(1) 4 oz Jar	059299	SRI

*NOTE - Sample 4-7 not obtainable due to no Recovery.

Continued on Page 2

Read and Understood By

Signed	Date	Signed	Date
[signature]	6-4-14	DT Wiebe	6/10/14

Project 200-SB-20 Notebook No. SAV2 #7

Continues from Page 1

Soil Samples 30'

Sample #	Analysis	Preserv	Cont	Lot #	Lab
140604 1200	8260 C	Ice	(2) 4oz Jar	059299	ALS
— 1202	Hydrazines	acetate Buffer	(1) 40 ml Vial	01175 01Y	WSTF
— 1203	NDMA/Bromide		(1) 4oz Jar	059299	SRT
— 1204	8270 C		(1) 4oz Jar	059299	ALS
	perchlorate				
— 1205	Dioxins/Furans		(1) 4oz Jar	059299	
	Total Metals		(1) 4oz Jar	059299	ALS
— 1206	~~Hexavalent chromium~~	Not Req'd TW 6/10/14			
	Anions				
— 1207	Soil pH		(1) 4oz Jar	059299	

* R. Burrows replaced T. Kordy @ 1500 hrs 6/4/14

Soil Samples 50'

Sample #	Analysis	Preserv	Cont	Lot #	Lab
140604 1720	8260 C	Ice	(2) 4oz Jar		ALS
— 1721	Hydrazine	Ice, Acetate Buffer	(1) 40 ml Vial	01175 01Y	WSTF
— 1722	NDMA/Bromide	Ice	(1) 4oz Jar	059299	SRT
— 1723	SVOC/Perchlorate	Ice	(1) 4oz Jar	"	ALS
— 1724	Dioxins/Furans	Ice	(1) 4oz Jar	"	
— 1725	(Total Metal, ~~chromium~~ *	Ice	(1) 4oz Jar	"	ALS
	cyanide, Anions)				
— 1726	Soil pH	Ice	(1) 4oz Jar	"	ALS

* Hex chromium not req'd TW 6/10/14

Continued on Page NA

Read and Understood By

Signed	Date	Signed	Date
T. Kordy	6-4-14	D Wiebe	6/10/14

T. Kondy. M. Anglos present. Weather is hot and clear.
R Burrows + B Williams Replaced Replaced Kondy + Anglos.

Rinsate Samples.

Sample #	Analysis	Preserv	Cont.	Lot #	Lab
1406090810	8260 C	Ice, HCL	(3) 40 ml Vial	3-294-003	ALS
— 0811	8260C (TB)	Ice, HCL	(3) 40 ml Vial	3-294-003	ALS
— 0812	Hydrazines	Ice, Acetate Buffer	(1) 40 ml Amber Vial	0105801Z	WSTF
— 0813	NDMA/Bromacil	Ice	(1) 1 LT Amber	0105801Z	SRI
— 0814	8270C	Ice	(2) 1 LT Amber	0105801Z	ALS
— 0815	Perchlorate	Ice	(1) 250 ml poly	111903Y	ALS
— 0816	Dioxins/Furans	Ice	(2) 1 LT Amber	0105801Z	
— 0817	Total Metals	Ice, HNO_3	(1) 500 ml poly	100713	ALS
— 0818	Total cyanide	Ice, NaOH	(1) 250 ml poly	103111	ALS
— 0819	Anions	Ice	(1) 250 ml poly	112612	ALS

Soil Samples 7.5 - 10

Sample #	Analysis	Preserv	Cont.	Lot #	Lab
1406091135	8260C	Ice	(2) 4 oz Jar	059299	ALS
— 1136	Hydrazines	Ice	(1) 40 ml Amber Vial	3-294-003	WSTF
— 1137	NDMA/Bromacil	Ice	(1) 4 oz Jar	059299	SRI
— 1138	8270C, perchlorate	Ice	(1) 4 oz Jar	"	ALS
— 1139	Dioxins, Furans	Ice	(1) 4 oz Jar	"	
— 1140	(Total Metals, Hex chrome, Total cyanide, Anions) Not req'd TW 6/10/14	Ice	(1) 4 oz Jar	"	ALS
— 1141	Soil pH	Ice	(1) 4 oz Jar	"	ALS

Soil Sample 17.5 - 22.5

Sample #	Analysis	Preservative	cont.	Lot #	Lab
1406091610	8260C	ICE	2 4 oz jar	0310101Y	ALS
— 1611	Hydrazines	"	(1) 40 ml vial	0117501Y	WSTF
— 1612	NDMA/Bromacil	"	(1) 4 oz Jar	0310101Y	SRI
— 1613	8270C, perchlorate	"	(1) "	"	ALS
— 1614	Dioxins/Furans	"	(1) "	"	
— 1615	(Total metals, Hexchrom, Total cyanide, Anions) Not req'd TW	"	(1) "	"	ALS
— 1616	Soil pH 6/10/14	"	(1) "	"	ALS

Continued on Page 4

Read and Understood By

Tim Kondy / Robert Burrows 6-9-2014 — Signed, Date

D T Wiebe 6/10/14 — Signed, Date

Project 200-SB-21 Notebook No. SAUZ # 7

Continues from Page 3

Soil Samples 27.5 - ~~29.5~~ RB - 32.5 ft.

Sample #	Analysis	Preservative	Container	Lot #	Lab
140609 ~~1745~~ RB	8260C	ICE	(2) 4oz Jars	0310101Y	ALS
— 1546	Hydrazines	"	(1) 40 ml Vials	0117501Y	WSTF
— 1547	NDMA/Bromacil	"	(1) 4oz Jars	0310101Y	SRI
— 1548	SVOCs/Perchlorate	"	(1)	"	"	ALS
— 1549	Dioxins/Furans	"	(1)	"	"	
— 1550	Total Metals/~~chrom~~ Hex	not req'd TW 6/10/14 "	(1)	"	"	ALS
~~1551~~ TW	Cyanide/Anions	"	~~(1)~~ RB	~~" RB~~	~~" RB~~	
— 1552	Soil pH	"	(1)	"	"	ALS

~~Rinsate~~ ~~Geo tech~~

Sample #	Analysis	Preserv	Cont.	Lot #	Lab
140610 0800	8260C	Ice, HCL	(3) 40 ml Vial	~~RB 0310101Y~~	ALS
— 0801	Hydrazine	Ice, Acetate Buff	(1) 40 ml Vial	~~0117501Y~~	WSTF
— 0802	NDMA/Bromacil	Ice	(1) 1LT Amber	0108 8012 ~~0310101Y~~	SRI
— 0803	8270C	Ice	(2) 1LT Amber	0108 8012	ALS
— 0804	perchlorate	Ice	(1) 250 ml poly	"	ALS
— 0805	Dioxins/Furans	Ice	(2) 1LT Amber	0108 8012	
— 0806	Total Metals	Ice, HNO_3	(1) 500 ml poly		ALS
— 0807	Total cyanide	Ice, NaOH	(1) 250 ml poly		ALS
— 0808	Anions	Ice	(1) 250 ml poly		ALS

Note: Geotech Samples do not require equipment blanks. Only one set of Rinsates are required per boring. TW 6/10/14

Troy Wiebe performed a brief site QA check on 6/10/14 @ 0830. All safety requirements, including briefings, were as required. Records were up to date. Haz waste management was performed as directed by Compliance (S. Maestas representing Compliance). Housekeeping was excellent. No quality or safety issues were noted. Troy Wiebe

Continued on Page

Read and Understood By

Signed 6-9-14 Date

Signed 6-10-14 Date

6/10/14

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

CT 6/19/2014

010008 Page 1 of 1

Laboratory / PO # ~~PO 14EC002~~ PO 14EC012B

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓ (575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Analyte / Method: NDMA and Bromacil 607								Comments
1406130802	200-SB-8 8/10'	1	X	X								
1406130812	" "	1	X	X								
1406130942	200-SB-8 28/30'	1	X	X								
1406131302	" 43/45'	1	X	X								
1406141702	200-SB-6 8/10'	1	X	X								
1406151127	200-SB-5 8/10'	1	X	X								
1406151143	" "	1	X	X								

Client: Navarro
SRR #53355
Project # 16988.01.f0X
Case: 14EC002
VTSR: 06/17/14
Sample(s) Received: Intact
Temperature: 4.4 °C/ SN#: 18439

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John V Minnick	6-16-14 / 1100 HRS	[signature]	6/17/14 1730

ST-381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-18-14

Laboratory / PO # 14EC011B

Address shipping questions to:

Attn: ☑ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☑ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

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Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: Dioxins/Furans 8290								Comments
1406131304	200-SB-8 43/45'	1	X	X								
1406141704	200-SB-6 8/10'	1	X	X								
1406151129	200-SB-5 8/10'	1	X	X								
1406151145	" "	1	X	X								
1406161404	200-SB-13 8/10'	1	X	X								
1406161548	" 28-30/32'	1	X	X								
1406161549	" "	1	X	X								*Matrix Spike for #1406161548

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-18-14 / 1100 HRS.	[signature] ACS 6/19/14 0935	

R1404651 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

CT 6/19/2014

010008 Page 1 of 1

Laboratory / PO # ~~PO 14EC002~~ PO 14EC012B

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓ (575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Analyte / Method: NDMA and Bromacil 607								Comments
1406130802	200-SB-8 8/10'	1	X	X								
1406130812	" "	1	X	X								
1406130942	200-SB-8 28/30'	1	X	X								
1406131302	" 43/45'	1	X	X								
1406141702	200-SB-6 8/10'	1	X	X								
1406151127	200-SB-5 8/10'	1	X	X								
1406151143	" "	1	X	X								

Client: Navarro
SRR #53355
Project # 16988.01.f0X
Case: 14EC002
VTSR: 06/17/14
Sample(s) Received: Intact
Temperature: 4.4 °C/ SN#: 18439

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John V Minnick	6-16-14 / 1100 HRS	[signature]	6/17/14 1730

ST-381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-18-14

Laboratory / PO # 14EC011B

Address shipping questions to:

Attn: ☑ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☑ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: Dioxins/Furans 8290								Comments
1406131304	200-SB-8 43/45'	1	X	X								
1406141704	200-SB-6 8/10'	1	X	X								
1406151129	200-SB-5 8/10'	1	X	X								
1406151145	" "	1	X	X								
1406161404	200-SB-13 8/10'	1	X	X								
1406161548	" 28-30/32'	1	X	X								
1406161549	" "	1	X	X								*Matrix Spike for #1406161548

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-18-14 / 1100 HRS.	[signature] ACS 6/19/14 0935	

R1404651 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-12-14

010011 Page 1 of 1

Laboratory / PO # **PO 14EC002**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓ (575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: 607 NDMA and Bromacil							Comments
1406111459	200-SB-7 8-10'	1	X	X							
1406111500	" "	1	X	X							*Matrix Spike for #1406111459
1406111632	" 18-21'	1	X	X							
1406120932	" 38-40'	1	X	X							

Client: Navarro
SRR #53327
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/13/14
Sample(s) Received: Intact
Temperature: 1.0 °C/ SN#: 18440

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-12-14 / 1100 HRS.	[signature]	6/13/14 0850

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-18-14

Laboratory / PO # ~~14EC00~~ 14EC011B

Address shipping questions to:

Attn: ☒ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☒ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: Dioxins / Furans 8290								Comments
1406041206	200-SB-20 30'	1	X	X								
1406041724	" 50'	1	X	X								
1406091139	200-SB-21 7.5/10'	1	X	X								
1406091614	"	1	X	X								
1406091749	"	1	X	X								
1406111503	200-SB-7 8/10'	1	X	X								
1406111504	" "	1	X	X								*Matrix Spike for # 1406111503
1406111634	" 18/21'	1	X	X								
1406120934	" 38/40'	1	X	X								
1406130804	200-SB-8 8/10'	1	X	X								
1406130814	" "	1	X	X								
1406130944	" 28/30'	1	X	X								

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	6-18-14 / 1100 HRS.	[signature] ALS 6/18/14 0935	

R1404651 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

CT 6/19/2014

010008 Page 1 of 1

Laboratory / PO # ~~PO 14EC002~~ PO 14EC012B

Address shipping questions to:

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Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Analyte / Method: NDMA and Bromacil 607								Comments
1406130802	200-SB-8 8/10'	1	X	X								
1406130812	" "	1	X	X								
1406130942	200-SB-8 28/30'	1	X	X								
1406131302	" 43/45'	1	X	X								
1406141702	200-SB-6 8/10'	1	X	X								
1406151127	200-SB-5 8/10'	1	X	X								
1406151143	" "	1	X	X								

Client: Navarro
SRR #53355
Project # 16988.01.f0X
Case: 14EC002
VTSR: 06/17/14
Sample(s) Received: Intact
Temperature: 4.4 °C/ SN#: 18439

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John V Minnick	6-16-14 / 1100 HRS	[signature]	6/17/14 1730

ST-381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-18-14

Laboratory / PO # ~~14EC00~~ 14EC011B

Address shipping questions to:

Attn: ☒ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☒ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: Dioxins / Furans 8290								Comments
1406041206	200-SB-20 30'	1	X	X								
1406041724	" 50'	1	X	X								
1406091139	200-SB-21 7.5/10'	1	X	X								
1406091614	"	1	X	X								
1406091749	"	1	X	X								
1406111503	200-SB-7 8/10'	1	X	X								
1406111504	" "	1	X	X								*Matrix Spike for # 1406111503
1406111634	" 18/21'	1	X	X								
1406120934	" 38/40'	1	X	X								
1406130804	200-SB-8 8/10'	1	X	X								
1406130814	" "	1	X	X								
1406130944	" 28/30'	1	X	X								

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	6-18-14 / 1100 HRS.	[signature] ALS 6/18/14 0935	

R1404651 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-18-14

Laboratory / PO # 14EC011B

Address shipping questions to:

Attn: ☑ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☑ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: Dioxins/Furans 8290								Comments
1406131304	200-SB-8 43/45'	1	X	X								
1406141704	200-SB-6 8/10'	1	X	X								
1406151129	200-SB-5 8/10'	1	X	X								
1406151145	" "	1	X	X								
1406161404	200-SB-13 8/10'	1	X	X								
1406161548	" 28-30/32'	1	X	X								
1406161549	" "	1	X	X								*Matrix Spike for #1406161548

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-18-14 / 1100 HRS.	[signature] ACS 6/19/14 0935	

R1404651 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

Date 6-17-14

WSTF CHAIN OF CUSTODY RECORD

010016 Page 1 of 1

Laboratory / PO # **PO 14EC002**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓ (575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@rasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Analytes / Method: NDMA and Bromacil (607)							Comments
1406161402	200-SB-13 8-10'	1	X		X						
1406161544	200-SB-13 28-30/32'	1	X		X						
1406161545	"	1	X		X						*Matrix Spike for #1406161544

Client: Navarro
SRR #53369
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/19/14
Sample(s) Received Intact
Temperature: 8.1 °C, SN#: 18439

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-17-14 / 1100 hrs.	[signature]	6/19/14 0830

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-18-14

Laboratory / PO # 14EC011B

Address shipping questions to:

Attn: ☑ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☑ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: Dioxins/Furans 8290								Comments
1406131304	200-SB-8 43/45'	1	X	X								
1406141704	200-SB-6 8/10'	1	X	X								
1406151129	200-SB-5 8/10'	1	X	X								
1406151145	" "	1	X	X								
1406161404	200-SB-13 8/10'	1	X	X								
1406161548	" 28-30/32'	1	X	X								
1406161549	" "	1	X	X								*Matrix Spike for #1406161548

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-18-14 / 1100 HRS.	[signature] ACS 6/19/14 0935	

R1404651 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-5-14

010005 Page 1 of 1

Laboratory / PO # **PO 14EC002**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓ (575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: NDMA and Bromacil							Comments
1406040942	200-SB-20 9'/10'	1	X	X							
1406041203	" 30'	1	X	X							
1406041722	" 50'	1	X	X							

Client: Navarro
SRR #53283
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/06/14
Sample(s) Received: Intact
Temperature: 0.2 °C/ SN#: 18440

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-5-14 / 1100 Hrs.	[signature]	6/6/14 0900

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-18-14

Laboratory / PO # ~~14EC00~~ 14EC011B

Address shipping questions to:

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(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☒ Carlyn A. Tufts ☐ Other _____

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Return Address:

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12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: Dioxins / Furans 8290								Comments
1406041206	200-SB-20 30'	1	X	X								
1406041724	" 50'	1	X	X								
1406091139	200-SB-21 7.5/10'	1	X	X								
1406091614	"	1	X	X								
1406091749	"	1	X	X								
1406111503	200-SB-7 8/10'	1	X	X								
1406111504	" "	1	X	X								*Matrix Spike for # 1406111503
1406111634	" 18/21'	1	X	X								
1406120934	" 38/40'	1	X	X								
1406130804	200-SB-8 8/10'	1	X	X								
1406130814	" "	1	X	X								
1406130944	" 28/30'	1	X	X								

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	6-18-14 / 1100 HRS.	[signature] ALS 6/18/14 0935	

R1404651 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-10-14

010008 Page 1 of 1

Laboratory / PO # **PO 14EC002**

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Attn: ✓ Carlyn A. Tufts ☐ Other _____

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Return Address:

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12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: 607 NDMA and Bromacil								Comments
1406091137	7.5-10' 200-SB-21	1	X		X							
1406091612	200-SB-21	1	X		X							
1406091747	200-SB-21	1	X		X							

Client: Navarro
SRR #53306
Project # 16988.01.10X
Case: 14EC002
VTSR: 06/11/14
Sample(s) Received: Intact
Temperature: 2.1 °C/ SN#: 18440

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-10-14 / 1100 HRS	[signature]	6/11/14 0830

WSTF 381B (03/13)

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

Address shipping questions to:

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Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

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Analysis Requirements

Special Instructions

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Return Address:

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12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406130726	200-SB-8	1	X	X							
1406130727	"	1	X		X						
1406130729	"	1	X			X		X			
1406130728	"	1	X				X				
1406130724	"	1	X						X		
1406141656	200-SB-6	1	X	X							
1406141657	"	1	X		X						
1406141658	"	1	X				X				
1406141659	"	1	X			X		X			
1406141654	"	1	X						X		
1406151116	200-SB-5	1	X	X							
1406151117	"	1	X		X						

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 / 1100 HRS	[illegible] ACS	6/17/14 0920

R1404589 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

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✓(575) 524-5119 (575) 524-_____

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Return Address:

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406151118	200-SB-5	1	X				X				
1406151119	"	1	X			X		X			
1406151114	"	1	X						X		

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 / 1100HRS.	ACS	6/17/14 0720

R1404589 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

Address shipping questions to:

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Analysis Requirements

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Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406130805	200-SB-8 8/10'	1	X		X	X	X	X	X			
1406130815	" "	1	X		X	X	X	X	X			
1406130803	" "	1	X							X		
1406130813	" "	1	X							X		
1406130943	" 28/30'	1	X							X		
1406131303	" 43/45'	1	X							X		
1406141703	200-SB-6 8/10'	1	X							X		
1406151128	200-SB-5 8/10'	1	X							X		
1406151144	" 8/10'	1	X							X		
1406130945	200-SB-8 28/30'	1	X		X	X	X	X	X			
1406131305	" 43/45'	1	X		X	X	X	X	X			
1406141705	200-SB-6 8/10'	1	X		X	X	X	X	X			

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-16-14 /1100 HRS.	[illegible] MCS	6/17/14 0920
			R1404589

WSTF 381B (03/13)

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

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Send Analytical Reports to:

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Analysis Requirements

Special Instructions

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Return Address:

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12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate			Comments
1406151130	200-SB-5 8/10'	1	X	X	X	X	X	X				
1406151146	" "	1	X	X	X	X	X	X				

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 1100 HRS.	John Minnick ACS	6/17/14 0920
			R1404589

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-12-14

Laboratory / PO # **13ECO59B**

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Attn: ✓ Carlyn A. Tufts ☐ Other _____

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Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate	Comments
1406111441	200-SB-7	1	X	X						
1406111442	"	1	X		X					
1406111444	"	1	X			X		X		
1406111443	"	1	X				X			
1406111439	"	1	X						X	

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-12-14 / 1100 HRS	[illegible] ACS 6/13/14 1020	

R1404507 5

NASA/WSTF/Navarro White Sands Test Facility

WSTF 381B (03/13)

Date 6-12-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

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Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406111505	200-SB-7 8-10'	1	X		X	X	X	X	X			
1406111506	"	1	X		X	X	X	X	X			*Matrix Spike for #1406111505
1406111635	200-SB-7 18-21'	1	X		X	X	X	X	X			
1406120935	200-SB-7 38-40'	1	X		X	X	X	X	X			
1406111501	200-SB-7 8-10'	1	X							X		
1406111502	"	1	X							X		*Matrix Spike for #1406111501
1406111633	200-SB-7 18-21'	1	X							X		
1406120933	200-SB-7 38-40'	1	X							X		

R1404507 5
NASA/WSTF/Navarro
White Sands Test Facility

Relinquished By:	Date/Time:	Accepted By:
Lori Minnick	6-12-14 / 1100 HRS.	[illegible] 6/12/14 1020

WSTF CHAIN OF CUSTODY RECORD

Date 6-12-14

Laboratory / PO # **14EC01**

Address shipping questions to:

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Send Analytical Reports to:

Attn: ✓Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: VOC	SVOC						Comments
1406111501	200-SB-7 8-10'	1	X		X						
1406111502	" "	1	X		X						*MATRIX SPIKE FOR # 1406111501
1406111633	" 18-21'	1	X		X						
1406120933	" 38-40'	1	X		X						
1406111455	" 8-10'	2	X	X							
1406111456	" "	2	X	X							*MATRIX SPIKE FOR # 1406111455
1406111630	" 18-21'	2	X	X							
1406120930	" 38-40'	2	X	X							

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-12-14 /1100 HRS.	[signature] MS 6/13/14 1020	

R1404510 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-17-14

Laboratory / PO # ~~[illegible]~~ 14EC009B

Address shipping questions to:

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carlyn.a.tufts@nasa.gov _____

Analysis Requirements

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Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes	VOC	SVOC	pH					Comments
1406161400	200-SB-13 8/10'	2	X		X							
1406161403	"	1	X			X						
1406161540	" 28-30/32'	2	X		X							
1406161541	" "	2	X		X							*MATRIX SPIKE FOR #1406161540
1406161546	" "	1	X			X						
1406161547	" "	1	X			X						*MATRIX SPIKE FOR #1406161546
1406161406	200-SB-13 8/10'	1	X				X					
1406161552	" 28-30/32'	1	X				X					
1406161553	" "	1	X				X					*MATRIX SPIKE FOR #1406161552

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-17-14 / 1100 HRS.	[illegible] ACS 6/19/14 0935	

R1404618 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

Date 6-17-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

Address shipping questions to:

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Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406161346	200-SB-13	1	X	X							
1406161347	"	1	X				X				
1406161348	"	1	X			X		X			
1406161344	"	1	X						X		

Relinquished By	Date/Time:	Accepted By:	Date/Time:
[signature]	6-17-14 / 1100 Hrs.	[signature] MS 6/19/14 0925	

R1404622 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-17-14

Laboratory / PO # **13ECO59B**

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Special Instructions

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Return Address:

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406161403	200-SB-13 8/10'	1	X						X		
1406161546	" 28-30/32'	1	X						X		
1406161547	" "	1	X						X		*MATRIX SPIKE FOR #1406161546
1406161405	200-SB-13 8/10'	1	X	X		X	X	X			
1406161550	" 28-30/32'	1	X	X		X	X	X			
1406161551	" "	1	X	X		X	X	X			*MATRIX SPIKE FOR #1406161550.

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	6-17-14 / 1100 HRS	[signature] ARS	6/18/14 0935

R1404622 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-6-14

Laboratory / PO # **14EC01**

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Return Address:

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes	VOC	SVOC						Comments
1406040940	200-SB-20 9-10'	2	X		X							
1406041200	" 30'	2	X		X							
1406041720	50'	2	X		X							
1406041204	200-SB-20 30'	1	X			X						
1406041723	" 50'	1	X			X						

R1404316 5
NASA/WSTF/Navarro
White Sands Test Facility

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[illegible]	6-5-14 1100 HRS.	[illegible]	6/6/14 1000

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-5-14

Laboratory / PO # **13ECO59B**

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Return Address:

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Method / Analytes	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406040816	200-SB-20	1	X		X							
~~1406040817~~	"	1	X			X						
1406040818	"	1	X					X				
1406040819	"	1	X				X		X			
1406040814	"	1	X							X		

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John W. Minnick	6-5-14 / 1100 HRS.	[illegible]	6/6/14 1020

R1404273 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-5-14

Laboratory / PO # **13ECO59B**

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Attn: ✓ Carlyn A. Tufts ☐ Other_____

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Return Address:

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406041206	200-SB-20 30'	1	X		X		X	X	X			
1406041725	" 50'	1	X		X		X	X	X			
1406041204	200-SB-20 30'	1	X							X		
1406041723	" 50'	1	X							X		

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	6-5-14 / 1100 HRS	[signature]	6/6/14 1000

R1404273 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-10-14

Laboratory / PO # **14EC01**

Address shipping questions to:

Attn: ✓Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: VOC 8260	SVOC						Comments
1406091135	200-SB-21 7.5-10'	2	X	X							
1406091610	200-SB-21	2	X	X							
1406091745	200-SB-21	2	X	X							
1406091138	200-SB-21 7.5-10'	1	X		X						
1406091613	200-SB-21	1	X		X						
1406091748	200-SB-21	1	X		X						

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-10-14 / 1100 HRS.	Chris Wright	6/11/14 1010

R1404425 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-10-14

Laboratory / PO # **14EC01**

Address shipping questions to:

Attn: ✓Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

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Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: VOC 8260	SVOC						Comments
1406091135	200-SB-21 7.5-10'	2	X	X							
1406091610	200-SB-21	2	X	X							
1406091745	200-SB-21	2	X	X							
1406091138	200-SB-21 7.5-10'	1	X		X						
1406091613	200-SB-21	1	X		X						
1406091748	200-SB-21	1	X		X						

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-10-14 / 1100 HRS.	Chris Wright	6/11/14 1010

R1404425 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-10-14

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

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Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Total Metals	~~Hex. Chromium~~	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate	Comments
1406090817	200-SB-21	1	X	X						
1406090815	"	1	X						X	
1406090818	"	1	X				X			
1406090819	"	1	X			X		X		

R1404421 5
NASA/WSTF/Navarro
White Sands Test Facility

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-10-14 1100 Hrs.	Chris Wright	6/11/14 1010

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-10-14

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

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Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Total Metals	~~Hex. Chromium~~	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406091138	200-SB-21 7.5-10'	1	X						X		
1406091613	200-SB-21	1	X						X		
1406091748	200-SB-21	1	X						X		
1406091140	200-SB-21 7.5/10'	1	X		X		X	X	X		
1406091615	200-SB-21	1	X		X		X	X	X		
1406091750	200-SB-21	1	X		X		X	X	X		

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-10-14 /1100 HRS.	Chris Wright	6/14/14 1010

R1404421 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-18-14

Laboratory / PO # ~~14EC00~~ 14EC011B

Address shipping questions to:

Attn: ☒ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☒ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

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Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: Dioxins / Furans 8290								Comments
1406041206	200-SB-20 30'	1	X	X								
1406041724	" 50'	1	X	X								
1406091139	200-SB-21 7.5/10'	1	X	X								
1406091614	"	1	X	X								
1406091749	"	1	X	X								
1406111503	200-SB-7 8/10'	1	X	X								
1406111504	" "	1	X	X								*Matrix Spike for # 1406111503
1406111634	" 18/21'	1	X	X								
1406120934	" 38/40'	1	X	X								
1406130804	200-SB-8 8/10'	1	X	X								
1406130814	" "	1	X	X								
1406130944	" 28/30'	1	X	X								

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	6-18-14 / 1100 HRS.	[signature] ALS 6/18/14 0935	

R1404651 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-18-14

Laboratory / PO # 14EC011B

Address shipping questions to:

Attn: ☑ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☑ Carlyn A. Tufts ☐ Other _____

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Analysis Requirements

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Return Address:

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12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: Dioxins/Furans 8290								Comments
1406131304	200-SB-8 43/45'	1	X	X								
1406141704	200-SB-6 8/10'	1	X	X								
1406151129	200-SB-5 8/10'	1	X	X								
1406151145	" "	1	X	X								
1406161404	200-SB-13 8/10'	1	X	X								
1406161548	" 28-30/32'	1	X	X								
1406161549	" "	1	X	X								*Matrix Spike for #1406161548

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-18-14 / 1100 HRS.	[signature] ACS 6/19/14 0935	

R1404651 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-18-14

Laboratory / PO # ~~14EC00~~ 14EC011B

Address shipping questions to:

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(575) 524-5119 (575) 524-_____

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Attn: ☒ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: Dioxins / Furans 8290								Comments
1406041206	200-SB-20 30'	1	X	X								
1406041724	" 50'	1	X	X								
1406091139	200-SB-21 7.5/10'	1	X	X								
1406091614	"	1	X	X								
1406091749	"	1	X	X								
1406111503	200-SB-7 8/10'	1	X	X								
1406111504	" "	1	X	X								*Matrix Spike for # 1406111503
1406111634	" 18/21'	1	X	X								
1406120934	" 38/40'	1	X	X								
1406130804	200-SB-8 8/10'	1	X	X								
1406130814	" "	1	X	X								
1406130944	" 28/30'	1	X	X								

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	6-18-14 / 1100 HRS.	[signature] ALS 6/18/14 0935	

R1404651 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

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Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406130726	200-SB-8	1	X	X							
1406130727	"	1	X		X						
1406130729	"	1	X			X		X			
1406130728	"	1	X				X				
1406130724	"	1	X						X		
1406141656	200-SB-6	1	X	X							
1406141657	"	1	X		X						
1406141658	"	1	X				X				
1406141659	"	1	X			X		X			
1406141654	"	1	X						X		
1406151116	200-SB-5	1	X	X							
1406151117	"	1	X		X						

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 / 1100 HRS	[illegible] ACS	6/17/14 0920

R1404589 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

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NASA WSTF Environmental Department

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406151118	200-SB-5	1	X				X				
1406151119	"	1	X			X		X			
1406151114	"	1	X						X		

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 / 1100HRS.	ACS	6/17/14 0720

R1404589 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

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Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406130805	200-SB-8 8/10'	1	X		X	X	X	X	X			
1406130815	" "	1	X		X	X	X	X	X			
1406130803	" "	1	X							X		
1406130813	" "	1	X							X		
1406130943	" 28/30'	1	X							X		
1406131303	" 43/45'	1	X							X		
1406141703	200-SB-6 8/10'	1	X							X		
1406151128	200-SB-5 8/10'	1	X							X		
1406151144	" 8/10'	1	X							X		
1406130945	200-SB-8 28/30'	1	X		X	X	X	X	X			
1406131305	" 43/45'	1	X		X	X	X	X	X			
1406141705	200-SB-6 8/10'	1	X		X	X	X	X	X			

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-16-14 /1100 HRS.	[illegible] MCS	6/17/14 0920
			R1404589

WSTF 381B (03/13)

Date 6-16-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

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Return Address:

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12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate			Comments
1406151130	200-SB-5 8/10'	1	X	X	X	X	X	X				
1406151146	" "	1	X	X	X	X	X	X				

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 1100 HRS.	John Minnick ACS	6/17/14 0920
			R1404589

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-12-14

Laboratory / PO # **14EC01**

Address shipping questions to:

Attn: ✓Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

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Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: VOC	SVOC						Comments
1406111501	200-SB-7 8-10'	1	X		X						
1406111502	" "	1	X		X						*MATRIX SPIKE FOR # 1406111501
1406111633	" 18-21'	1	X		X						
1406120933	" 38-40'	1	X		X						
1406111455	" 8-10'	2	X	X							
1406111456	" "	2	X	X							*MATRIX SPIKE FOR # 1406111455
1406111630	" 18-21'	2	X	X							
1406120930	" 38-40'	2	X	X							

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-12-14 /1100 HRS.	[signature] MS 6/13/14 1020	

R1404510 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-12-14

Laboratory / PO # **13ECO59B**

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Attn: ✓ Carlyn A. Tufts ☐ Other _____

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Analysis Requirements

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Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate	Comments
1406111441	200-SB-7	1	X	X						
1406111442	"	1	X		X					
1406111444	"	1	X			X		X		
1406111443	"	1	X				X			
1406111439	"	1	X						X	

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-12-14 / 1100 HRS	[illegible] ACS 6/13/14 1020	

R1404507 5

NASA/WSTF/Navarro White Sands Test Facility

WSTF 381B (03/13)

Date 6-12-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

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Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406111505	200-SB-7 8-10'	1	X		X	X	X	X	X			
1406111506	"	1	X		X	X	X	X	X			*Matrix Spike for #1406111505
1406111635	200-SB-7 18-21'	1	X		X	X	X	X	X			
1406120935	200-SB-7 38-40'	1	X		X	X	X	X	X			
1406111501	200-SB-7 8-10'	1	X							X		
1406111502	"	1	X							X		*Matrix Spike for #1406111501
1406111633	200-SB-7 18-21'	1	X							X		
1406120933	200-SB-7 38-40'	1	X							X		

R1404507 5
NASA/WSTF/Navarro
White Sands Test Facility

Relinquished By:	Date/Time:	Accepted By:
Lori Minnick	6-12-14 / 1100 HRS.	[illegible] 6/12/14 1020

WSTF CHAIN OF CUSTODY RECORD

Date 6-16-14

Laboratory / PO # 14EC009B

Address shipping questions to:

Attn: ☐ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☐ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Method

Analytes: Pb

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Pb								Comments
1406041207	200-SB-20 30'	1	X	X								
1406041726	" 50'	1	X	X								
1406091141	200-SB-21 7.5/10'	1	X	X								
1406091616	"	1	X	X								
1406091751	"	1	X	X								
1406111507	200-SB-7 8-10'	1	X	X								
1406111508	" "	1	X	X								*MATRIX SPIKE FOR #1406111507
1406111636	200-SB-7 18/21'	1	X	X								
1406120936	" 38/40'	1	X	X								
1406130806	200-SB-8 8/10'	1	X	X								
1406130816	" " "	1	X	X								
1406130946	" 28/30'	1	X	X								

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-16-14 / 1100HRS.	[illegible] NCS	6/17/14 0920

R1404590 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-16-14

Laboratory / PO # 14EC009B

Address shipping questions to:

Attn: ☐ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☐ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Method 8260 Analytes VOA	Method 8270 Analytes SVOC	pH						Comments
1406130800	200-SB-8 8'/10'	2	X	X								
1406130810	" "	2	X	X								
1406130803	" "	1	X		X							
1406130813	" "	1	X		X							
1406131306	" 43'/45'	1	X			X						
1406141706	200-SB-6 8'/10'	1	X			X						
1406151131	200-SB-5 8'/10'	1	X			X						
1406151147	" 8'/10'	1	X			X						
1406130943	200-SB-8 28'/30'	1	X		X							
1406131303	" 43'/45'	1	X		X							
1406141703	200-SB-6 8'/10'	1	X		X							
1406151128	200-SB-5 8'/10'	1	X		X							

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 / 1100 1425	ACS	6/17/14 0920

R1404590 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-16-14

Laboratory / PO # 14EC009B

Address shipping questions to:

Attn: ☐ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☐ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

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Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: VOA 8260	SVOC 8270							Comments
1406151144	200-SB-5 8/10'	1	X		X							
1406130940	200-SB-8 28/30'	2	X	X								
1406131300	" 43/45'	2	X	X								
1406141700	200-SB-6 8/10'	2	X	X								
1406151125	200-SB-5 8/10'	2	X	X								
1406151141	" "	2	X	X								

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 / 1100 hrs.	ALS	6/17/14 0920
			R1404590

WSTF CHAIN OF CUSTODY RECORD

Date 6-16-14

Page 4 of 4

Laboratory / PO # 14EC009B

Address shipping questions to:

Attn: ☑ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☑ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (4)	Analytes / Method: VOA 8260	SVOC 8270							Comments
1406130700	200-SB-8	3	X	X								
1406130720	"	3	X	X								
1406130723	"	2	X		X							
1406141200	200-SB-6	3	X	X								
1406141650	"	3	X	X								(Bubbles)
1406141653	"	2	X		X							
1406151050	200-SB-5	3	X	X								(Bubbles)
1406151110	"	3	X	X								(Bubbles)
1406151113	"	2	X		X							

Relinquished By	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 / 1100 HRS.	[illegible] MS	6/17/14 0920
			R404590

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-12-14

Laboratory / PO # **14EC01**

Address shipping questions to:

Attn: ✓Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: VOC	SVOC						Comments
1406111501	200-SB-7 8-10'	1	X		X						
1406111502	" "	1	X		X						*MATRIX SPIKE FOR # 1406111501
1406111633	" 18-21'	1	X		X						
1406120933	" 38-40'	1	X		X						
1406111455	" 8-10'	2	X	X							
1406111456	" "	2	X	X							*MATRIX SPIKE FOR # 1406111455
1406111630	" 18-21'	2	X	X							
1406120930	" 38-40'	2	X	X							

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-12-14 /1100 HRS.	[signature] MS 6/13/14 1020	

R1404510 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 7/1/14

Page 1 of 2

Laboratory / PO #

Address shipping questions to:

Attn: ☐ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☐ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Analysis Requirements

Sample No.	Sample Location	# of Containers	Sample Type	Analytes / Method: 8260C	UDMH/Biomass 15mL	8270C/Perchlorate	Dioxins/Furans	Total Metals, Anions + total Cyanide	Soil pH			Comments
140628 1018	200-SB-10 (16'-18')	3	S	X								
~~1020~~		1										
1021		1				X						
1022		1					X					
1023		1						X				
1024		1							X			
140628 1505	200-SB-10 (36'-38')	3	S	X								
1508		1				X						
1509		1					X					
1510		1						X				
1511		1							X			

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature] Eglen	7/1/14 1315	[signature]	7/1/14 1310
		[signature] MS	7/2/14 1000

R1405032 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 7/1/14

Laboratory / PO #

Address shipping questions to:

Attn: ☐ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☐ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type ( )	Analysis Requirements: Method / Analytes: 8260C	8270C/Perchlorate	Dioxins/Furans	Total Metals, Anions	Total Cyanide	Soil pH				Comments
1406281200	200-SB-10 (26'-28')	3	S	X									
1203		1			X								
1204		1				X							
1205		1					X						
1206		1						X					
1406301545	200-SB-09	3	S	X									
1548		1			X								
1549		1				X							
1550		1					X						
1551		1						X					

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	7/1/14 1315	[signature]	7/1/14 1318
		[signature] pcs	7/2/14 1002

R1405032 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-10-14

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Total Metals	~~Hex. Chromium~~	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate	Comments
1406090817	200-SB-21	1	X	X						
1406090815	"	1	X						X	
1406090818	"	1	X				X			
1406090819	"	1	X			X		X		

R1404421 5
NASA/WSTF/Navarro
White Sands Test Facility

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-10-14 1100 Hrs.	Chris Wright	6/11/14 1010

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-10-14

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Total Metals	~~Hex. Chromium~~	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406091138	200-SB-21 7.5-10'	1	X						X		
1406091613	200-SB-21	1	X						X		
1406091748	200-SB-21	1	X						X		
1406091140	200-SB-21 7.5/10'	1	X		X		X	X	X		
1406091615	200-SB-21	1	X		X		X	X	X		
1406091750	200-SB-21	1	X		X		X	X	X		

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-10-14 /1100 HRS.	Chris Wright	6/14/14 1010

R1404421 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-17-14

Laboratory / PO # ~~[illegible]~~ 14EC009B

Address shipping questions to:

Attn: ✓Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes	VOC	SVOC	pH					Comments
1406161400	200-SB-13 8/10'	2	X		X							
1406161403	"	1	X			X						
1406161540	" 28-30/32'	2	X		X							
1406161541	" "	2	X		X							*MATRIX SPIKE FOR #1406161540
1406161546	" "	1	X			X						
1406161547	" "	1	X			X						*MATRIX SPIKE FOR #1406161546
1406161406	200-SB-13 8/10'	1	X				X					
1406161552	" 28-30/32'	1	X				X					
1406161553	" "	1	X				X					*MATRIX SPIKE FOR #1406161552

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-17-14 / 1100 HRS.	[illegible] ACS 6/19/14 0935	

R1404618 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

Date 6-17-14

WSTF CHAIN OF CUSTODY RECORD

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406161346	200-SB-13	1	X	X							
1406161347	"	1	X				X				
1406161348	"	1	X			X		X			
1406161344	"	1	X						X		

Relinquished By	Date/Time:	Accepted By:	Date/Time:
[signature]	6-17-14 / 1100 Hrs.	[signature] MS 6/19/14 0925	

R1404622 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-17-14

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406161403	200-SB-13 8/10'	1	X						X		
1406161546	" 28-30/32'	1	X						X		
1406161547	" "	1	X						X		*MATRIX SPIKE FOR #1406161546
1406161405	200-SB-13 8/10'	1	X	X		X	X	X			
1406161550	" 28-30/32'	1	X	X		X	X	X			
1406161551	" "	1	X	X		X	X	X			*MATRIX SPIKE FOR #1406161550.

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	6-17-14 / 1100 HRS	[signature] ARS	6/18/14 0935

R1404622 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-6-14

Laboratory / PO # **14EC01**

Address shipping questions to:

Attn: ✓Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes	VOC	SVOC						Comments
1406040940	200-SB-20 9-10'	2	X		X							
1406041200	" 30'	2	X		X							
1406041720	50'	2	X		X							
1406041204	200-SB-20 30'	1	X			X						
1406041723	" 50'	1	X			X						

R1404316 5
NASA/WSTF/Navarro
White Sands Test Facility

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[illegible]	6-5-14 1100 HRS.	[illegible]	6/6/14 1000

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-5-14

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (WATER)	Method / Analytes	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406040816	200-SB-20	1	X		X							
~~1406040817~~	"	1	X			X						
1406040818	"	1	X					X				
1406040819	"	1	X				X		X			
1406040814	"	1	X							X		

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John W. Minnick	6-5-14 / 1100 HRS.	[illegible]	6/6/14 1020

R1404273 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-5-14

Laboratory / PO # **13ECO59B**

Address shipping questions to:

Attn: ✓ Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓ Carlyn A. Tufts ☐ Other_____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes	Total Metals	Hex. Chromium	Chloride	Cyanide	Nitrate/Nitrite	Perchlorate		Comments
1406041206	200-SB-20 30'	1	X		X		X	X	X			
1406041725	" 50'	1	X		X		X	X	X			
1406041204	200-SB-20 30'	1	X							X		
1406041723	" 50'	1	X							X		

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
[signature]	6-5-14 / 1100 HRS	[signature]	6/6/14 1000

R1404273 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-10-14

Laboratory / PO # **14EC01**

Address shipping questions to:

Attn: ✓Lori Minnick ☐ Other _____

✓(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ✓Carlyn A. Tufts ☐ Other _____

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Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (SOIL)	Method / Analytes: VOC 8260	SVOC						Comments
1406091135	200-SB-21 7.5-10'	2	X	X							
1406091610	200-SB-21	2	X	X							
1406091745	200-SB-21	2	X	X							
1406091138	200-SB-21 7.5-10'	1	X		X						
1406091613	200-SB-21	1	X		X						
1406091748	200-SB-21	1	X		X						

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-10-14 / 1100 HRS.	Chris Wright	6/11/14 1010

R1404425 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-16-14

Laboratory / PO # 14EC009B

Address shipping questions to:

Attn: ☐ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☐ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov _____

Analysis Requirements

Method

Analytes: Pb

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Pb								Comments
1406041207	200-SB-20 30'	1	X	X								
1406041726	" 50'	1	X	X								
1406091141	200-SB-21 7.5/10'	1	X	X								
1406091616	"	1	X	X								
1406091751	"	1	X	X								
1406111507	200-SB-7 8-10'	1	X	X								
1406111508	" "	1	X	X								*MATRIX SPIKE FOR #1406111507
1406111636	200-SB-7 18/21'	1	X	X								
1406120936	" 38/40'	1	X	X								
1406130806	200-SB-8 8/10'	1	X	X								
1406130816	" " "	1	X	X								
1406130946	" 28/30'	1	X	X								

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
Lori Minnick	6-16-14 / 1100HRS.	[illegible] NCS	6/17/14 0920

R1404590 5

NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-16-14

Laboratory / PO # 14EC009B

Address shipping questions to:

Attn: ☐ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☐ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Method 8260 Analytes VOA	Method 8270 Analytes SVOC	pH						Comments
1406130800	200-SB-8 8'/10'	2	X	X								
1406130810	" "	2	X	X								
1406130803	" "	1	X		X							
1406130813	" "	1	X		X							
1406131306	" 43'/45'	1	X			X						
1406141706	200-SB-6 8'/10'	1	X			X						
1406151131	200-SB-5 8'/10'	1	X			X						
1406151147	" 8'/10'	1	X			X						
1406130943	200-SB-8 28'/30'	1	X		X							
1406131303	" 43'/45'	1	X		X							
1406141703	200-SB-6 8'/10'	1	X		X							
1406151128	200-SB-5 8'/10'	1	X		X							

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 / 1100 1425	ACS	6/17/14 0920

R1404590 5
NASA/WSTF/Navarro
White Sands Test Facility

WSTF 381B (03/13)

WSTF CHAIN OF CUSTODY RECORD

Date 6-16-14

Laboratory / PO # 14EC009B

Address shipping questions to:

Attn: ☐ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☐ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (S)	Analytes / Method: VOA 8260	SVOC 8270							Comments
1406151144	200-SB-5 8/10'	1	X		X							
1406130940	200-SB-8 28/30'	2	X	X								
1406131300	" 43/45'	2	X	X								
1406141700	200-SB-6 8/10'	2	X	X								
1406151125	200-SB-5 8/10'	2	X	X								
1406151141	" "	2	X	X								

Relinquished By:	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 / 1100 hrs.	ALS	6/17/14 0920
			R1404590

WSTF CHAIN OF CUSTODY RECORD

Date 6-16-14

Page 4 of 4

Laboratory / PO # 14EC009B

Address shipping questions to:

Attn: ☑ Lori Minnick ☐ Other _____

(575) 524-5119 (575) 524-_____

Send Analytical Reports to:

Attn: ☑ Carlyn A. Tufts ☐ Other _____

carlyn.a.tufts@nasa.gov

Analysis Requirements

Special Instructions

Return coolers and reusable packaging materials within 14 days as required in statement of work to:

Return Address:

NASA WSTF Environmental Department

12600 NASA Road; Bldg. 120

Las Cruces, NM 88012

Attn: Lori Minnick

Sample No.	Sample Location	# of Containers	Sample Type (4)	Analytes / Method: VOA 8260	SVOC 8270							Comments
1406130700	200-SB-8	3	X	X								
1406130720	"	3	X	X								
1406130723	"	2	X		X							
1406141200	200-SB-6	3	X	X								
1406141650	"	3	X	X								(Bubbles)
1406141653	"	2	X		X							
1406151050	200-SB-5	3	X	X								(Bubbles)
1406151110	"	3	X	X								(Bubbles)
1406151113	"	2	X		X							

Relinquished By	Date/Time:	Accepted By:	Date/Time:
John Minnick	6-16-14 / 1100 HRS.	[illegible] MS	6/17/14 0920
			R404590

WSTF 381B (03/13)