January 28, 2003

56910 002

Mr. Thomas Anderson PAI/ISSi NASA Ames Research Center, MS 19-21 Moffett Field, California 94035-1000

Lead Impacted Soil Sampling and Removal Action Workplan Implementation Initial Soil Sample Results NASA Research Park Moffett Field, California

Dear Mr. Anderson:

This report presents the results of soil sampling performed by MACTEC Engineering and Consulting, Inc. (MACTEC; formerly known as Harding ESE, Inc.) for PAI/ISSi at the National Aeronautics and Space Administrations (NASA) Research Park (NRP), Moffett Field, California. The intent of this investigation was to assess the levels of lead in soil from lead-based paint (LBP) at the NASA NRP, Moffett Field, California (Site; Plate 1). MACTEC conducted this assessment and prepared this report under contract to PAI/ISSi on behalf of the NASA Ames Research Center.

Background

In July 2002, Harding ESE, prepared *Lead Impacted Soil Summary Report and Sampling and Removal Action Workplan, NASA Research Park, Moffett Field, California (Harding ESE, 2002)* to summarize previous LBP in soil data collected by others at the NRP. That document also presented the following:

- A description of additional soil sampling activities (Initial Soil Lead Assessments) for those buildings where the presence of LBP in the building materials is suspected or confirmed
- An outline of removal action activities for areas where previous data has confirmed the presence of LBP in soil
- The process and protocols to be utilized for the Initial Soil Lead Assessment.

The objective of the Workplan was to identify and develop removal procedures for soil that contains lead exceeding the San Francisco Regional Water Quality Control Board (SFRWQCB) risk-based screening level (RBSL) and to confirm that this cleanup level is not exceeded after soil removal activities. Based on a residential land use scenario, the RBSL for lead in surface soils (<3 meters (m) in depth) used for NRP is 200 milligrams per kilogram (mg/kg).

On the basis of the review of previous data, MACTEC identified multiple buildings/areas where leadimpacted soils were identified or suspected. On October 24, 2001, Harding ESE conducted a site visit

to inspect these buildings/areas and to identify those that were surrounded by soil. Buildings/areas surrounded by paved surfaces were not included for soil lead assessments. The areas identified for initial soil lead assessments are the pre-1978 buildings with the potential for lead based paint (*Harding ESE, 2002*). The sampling locations are shown on Plates 2 through 12. In addition, a building/area's previous use was also considered. For example, Building 38 (Area 2, Parcel 1) is and has historically been tennis courts. Therefore, LBP impacts were not suspected and sampling was not recommended.

Field Investigation

MACTEC collected samples from the Site on September 17 and 18, 2002, in accordance with protocols outlined in the workplan. The samples were collected using a stainless steel trowel and immediately transferred to clean four-ounce glass jars. The soil assessment included collecting a suite of composite samples in unpaved areas at the building corners, near suspect discharge points such as downspouts, and at regular intervals around the periphery of the building. The sampling grid consisted of six samples collected from cells up to 30-feet long by 20-feet wide. Samples were collected from 0 to 6 inches below the surface at the dripline or no more than 2-feet from the building wall if the dripline was not apparent.

Six samples per cell were collected and the samples from each cell were thoroughly mixed and composited in accordance with ASTM Standard D-6051-96 (*ASTM*, 1996). The samples were labeled and transported under chain of custody procedures to a state-certified analytical laboratory for total lead analysis by EPA Test Method 6010. Samples with total lead concentrations greater than 50 mg/kg were also analyzed for leachable lead using the Waste Extraction Test (WET) method in accordance with the Workplan.

Upon inspection of the site and discussion with Mr. Tom Anderson of PAI/ISSi, ten building locations were established and sampled. Several sites were eliminated from the original sampling program due to the soil bed being a veneer of soil over an asphaltic concrete (AC) pavement. One building was a transite roofed open structure on steel poles above a recreational barbecue area. Two additional building locations, Area 10 buildings 512C and 547B were added by request. Sampling locations are shown on Plates 2 (overview) through 12 and are summarized as follows:

Area 2 Building 24	6 samples
Area 3 Building 943	6 samples
Area 4 Building 510	6 samples
Area 5 Building 29	2 samples (discrete sample and duplicate collected at east side downspout)
Area 6b Building 3	72 samples

Area 7

Building 533 6 samples

Area 9

Building 113 6 samples (one exposed soil location only)

Area 10

Building 512C 24 samples Area 10 Building 547B 6 samples

Area 11

Building 329 6 samples (samples collected from voids in the AC surfacing where accessible)

Field Investigation

Analytical Results

Table 1 summarizes the total lead results of the soil composites and the corresponding leachable lead results for samples yielding results greater than or equal to 50 mg/kg total lead. The analytical reports and chain of custody documentation are presented in Appendix A.

MACTEC's evaluation of the analytical data is summarized as follows:

- With the exception of the sample collected from Building 113, Area 9, all total lead results were below the 200 mg/kg RBSL. Lead was detected at a concentration of 990 mg/kg in the sample collected from Building 113. Lead was detected in the remainder of the samples at concentrations between 14 and 170 mg/kg.
- Samples from 22 locations (Building 3 [11 locations and one duplicate sample], Building 24 [original and duplicate samples], Building 29 [original and duplicate samples], Building 113, Building 329, Building 510, Building 512C, Building 533, and Building 943) exceeded 50 mg/kg and were analyzed for leachable lead using the WET method.
- The leachable lead results for samples from Building 3 (East side of building, north end 1st inset), Building 29 (original and duplicate samples), Building 113 and Building. 510) were at or above the STLC threshold of 5.0 milligrams per liter (mg/L) as cited in Title 22, California Code of Regulations. It should be noted that the sample location at Building 29 represents materials washed into the gutters and deposited on the AC surfacing materials surrounding the building and do not necessarily indicate soil concentrations below the AC cover.

Summary

Based on the results of the sampling, soil from the vicinity of Building 113, exceeds the NASA RBSL of 200 mg/kg. Prior to building demolition, soil in the vicinity of this building will require removal and disposal as Class I hazardous waste because the leachable lead concentration exceeded the STLC. Confirmation sampling of soil below the excavated area will need to be performed in accordance with procedures outlined in the Workplan developed for the NRP. All other sample results were below the NASA RBSL and soil at these building locations does not require additional investigation or removal.

Based on the results of the leachable lead analysis, soil in the vicinity of Buildings 3 (East side of building, north end 1st inset), 29, 113 and 510 has leachable lead concentrations that exceed the STLC threshold of 5.0 mg/L. Because the soil did not exceed the RBSL, it is acceptable for the soil to be left in place. However, if the soil is to be excavated and moved elsewhere, then the soil must be disposed of as a Class I waste because the leachable lead concentrations exceeded the STLC threshold.

Due to the limited nature of the sampling program, it is possible that concealed materials above the RBSL or hazardous waste levels may be present or encountered during excavation or other intrusive activities. If other hazardous materials are discovered during excavation or construction activity, work should cease and NASA soil screening policy and procedures should be implemented to determine the nature and extent of the encountered hazard.

If you have questions or would like additional information, please contact Gary Lieberman at (415) 884-3158

Very truly yours,

MACTEC Engineering and Consulting, Inc.

Matthew H. Walraven, CSST 96-2072 Staff Environmental Scientist <u>MHWalraven@mactec.com</u>

Gary A. Lieberman Senior Geologist GALieberman@mactec.com

MW/GL/kb/KB59306.DOC-NASA

Attachments: Plate 1. Site Vicinity Map Plate 2. Base Map, Soil/Lead Sampling Plates 3-12. Sampling Locations Table 1. Summary of Soil Analytical Results Appendix. A. Laboratory Analytical Results and Chain of Custody Forms

References

American Society for Testing and Materials (ASTM), 1996. *Guide D6051-96(2001) Standard Guide for Composite Sampling and Field Subsampling for Environmental Waste Management Activities.*

MACTEC Engineering and Environmental Services, Inc. (MACTEC) 2002. Lead Impacted Soil Summary Report and Sampling and Removal Action Workplan, NASA Research Park, Moffett Field, California. July 24.

Distribution

Ms. Sandy Olliges MS 218-1 NASA Ames Research Center Moffett Field, California 94035

Thomas Anderson MS 19-21 NASA Ames Research Center Moffett Field, California 94035

Ms. Alana Lee SFD7-4 Environmental Protection Agency 75 Hawthorne Street San Francisco, California 94105

Ms. Carmen White SFD8-1 Environmental Protection Agency 75 Hawthorne Street San Francisco, California 94105

Ms. Adriana Constantinescu California Regional Water Quality Control Board 1515 Clay Street Oakland, California 94612

Mr. Lawrence Lansdale BRAC- Environmental Coordinator BRAC Operations, Code 06CM.MP 1230 Columbia Street, Suite 100 San Diego, California 92101

Mr. Jim Boarer Locus Technologies 299 Fairchild Drive Mountain View, California 94043

Mr. Tom Kalinowski EKI 1870 Ogden Drive Burlingame, California 94919-5306 Mr. Jeff Kellam ATSDR MS E-56 1600 Clifton Road Atlanta, Georgia 30333

RAB- Community Co-Chair Mr. Bob Moss PBAF-410 4010 Orme Street Palo Alto, California 94306

RAB- Committee Mr. Jim McClure 4957 Northdale Drive Fremont, California 94536

Trish Morrissey NASA Ames Research Center MS 204-2 Moffett Field, CA 94035

Mr. George Sloup NASA Ames Research Center MS 202 A-4 Moffett Field, CA 94035

Mejghan Haider NASA Ames Research Center MS 204-2 Moffett Field, CA 94035

NASA PARTNERS

Mr. Dan Blunk UCSC Environmental 1156 High St. Santa Cruz, California 95064

Kevin Lamb Office of Planning Services Carnegie Mellon University 5000 Forbes Ave. Pittsburgh, Pennsylvania 15213

Karen Matthews Computer History Museum P.O. Box 367 Moffett Field, California 94035

Daphne C. Tirado 17210 Torry Ct. Morgan Hill, California 95037

Nancy Bussani San Jose State University 1 Washington Sq. San Jose California 95192-0025

Lisa Akeson Kerr Hall- 3rd Floor UCSC 1156 High St. Santa Cruz, California 95064

Jonathan Wyke Lockheed 20 E. Clementon Rd. Suite 102 South Gibbsborow, New Jersey 08026

Rick Leas (650) 254-2250 Golden Bay Federal Credit Union 556 Edquiba Road Moffett Field, CA 94035

Mike Finn Ion America / Girvan Institute NASA Ames Research Center Building 543 Moffett Field, Ca. 94035 Space Technology Center Dave Englebert 19327 Northampton Dr. Saratoga, California 95070

Lt. Col. Alexander, CANG California Air National Guard 129th Air Rescue P.O. Box 103- Stop 17 Moffett Federal Airfield Moffett Field, California 94035

Col. Manto, Army Reserve P.O. Box 96 Moffett Federal Airfield Moffett Field, California 94035

Maureen Talbott, NEX Building 476 Navy Exchange #110- 340 Moffett Federal Airfield Moffett Field, California 94035

William Penny, Commissary, P.O. Box 387 Moffett Field, California 94035 Building 12 DECA

Ken Baker, US Post Office 1070 La Avienda Ave. Mountain View, California 94043

City of Mountain View Public Library 585 Franklin St. Mountain View, Ca. 94041-1988

City of Sunnyvale Reference Desk 665 W. Olive Ave. Sunnyvale, Ca. 94086-7655

Area	Building	Location	MACTEC	Sequoia	Results:	Results:
			Sample Number	Sample ID	Total Lead mg/kg	Leachable Lead mg/L
Area 2 –	Bldg. 24	West side of building, south end	020917024001			
Parcel 1			020917024002	-		
			020917024003	P209467-01	79	
			020917024004	P210470-01		< 0.38
			020917024005	-		
		West side of building, north end	020917024006			
Area 4 –	Bldg. 510	West side of building, south end	020917510007	-		
Parcel 2			020917510008	D200467.02	100	
			020917510009	P209467-02	120	14
			02091/510010	P210470-02		14
		Wast side of building north and	020917510011	-		
Arrag (D	Dida 2	South side of building, north east	020917310012			
Parcel 2	Diug. 5	south side of building, northeast	020917003013	-		
1 arcer 2		Samples collected from west to east	020917003014	P200467-03	53	
		Samples conceled from west to east.	020917003015	P210470-03	55	15
			020917003017	12101/0 03		1.5
			020917003018	-		
		South side of building east end	020917003019			
		South side of building, east clid.	020917003020	-		
		Samples conceled from west to east	020917003021	P209467-04	40	
			020917003022	1207107-01	10	NA
			020917003023	-		
			020917003024			
		East side of building, south end inset	020917003025			
		Samples collected from south to north.	020917003026	-		
		r · · · · · · · · · · · · · · · · · · ·	020917003027	P209467-05	62	
			020917003028	P210470-04		2.3
			020917003029			
			020917003030	-		
		East side of building, south end face	020917003031			
		Samples collected from south to north.	020917003032			
			020917003033	P209467-06	110	
			020917003034	P210470-05		4.3
			020917003035	-		
			020917003036			
		East side of building, north end 1 st inset	020917003037	-		
		Samples collected from south to north.	020917003038	-		
			020917003039	P209467-07	130	
			020917003040	P210470-06		5.1
			020917003041	-		
			020917003042			
		North side of building, east end inset	020917003043	4		
		Samples collected from east to west.	020917003044	D 000467.00	110	
			020917003045	P209467-08	110	1 5
			020917003046	F2104/0-0/		4.5
			020917003047 020917003048	-		
	1	East side of building, north end 2^{na} inset	020917003049	1		

Area	Building	Location	MACTEC	Sequoia	Results:	Results:
			Sample Number	Sample ID	Total Lead mg/kg	Leachable Lead mg/L
		Samples collected from south to north.	020917003050			
Area 6B –	Bldg. 3	North end 2 nd inset (continued)	020917003051			
Parcel 2			020917003052	P209467-09	60	1.9
			020917003053	P210470-08		
			020917003054			
		North side of building, building face.	020917003055			
		Samples collected from east to west.	020917003056	D200467 10	75	
			020917003057	P209467-10 P210470.00	75	<0.28
			020917003038	F 210470-09		<0.38
			020917003060			
		North side of building western inset	020917003061			
		Samples collected from east to west	020917003062			
		Sumples conceled nom case to west.	020917003063	P209467-11	60	
			020917003064	P210470-10	00	< 0.38
			020917003065			
			020917003066			
		West side of building, northern end	020917003067			
		Samples collected from north to south.	020917003068			
		-	020917003069	P209467-12	14 mg/kg	
			020917003070	NA		NA
			020917003071			
			020917003072			
		South side of building, west end (face).	020917003073			
		Samples collected from west to east	020917003074			
			020917003075	P209467-13	120	
			020917003076	P210470-11		4.6
			020917003077			
			020917003078			
		South side of building, west end inset.	020917003079			
		Samples collected from west to east	020917003080	D200467 14	01	
			020917003081	P209407-14 P210470-12	91	3.8
			020917003082	1210470-12	-	5.0
			020917003084			
Area 11 –	Bldg 329	East side of building	020917329091			
Parcel 4	Blag. 327	Samples collected from south to north.	020917329092			
		This building has AC cover on all sides,	020917329093	P209467-15	140	
		samples collected from breaks in AC.	020917329094	P210470-13		< 0.38
		Sample from northwest corner exposed	020917329095			
		soil.				
		Sample from southwest corner exposed soil.	020917329096			
Area 5 – Parcel 2	Bldg. 29	Downspout accumulation	020917029101 *	P209467-16 P210470-14	90	5.0
		Duplicate: Downspout accumulation	020917029102 *	P209467-17	93	
				P210470-15		6.4

Area	Building	Location	MACTEC	Sequoia	Results:	Results:
	_		Sample Number	Sample ID	Total Lead mg/kg	Leachable Lead mg/L
Area 9 –	Bldg. 113	North side of building, east end.	020917113103			
Parcel 5		Samples collected from east to west.	020917113104	-		
			020917113105	P209467-18	990	
			020917113106	P209467-18		22
			020917113107	-		
		North side of building, west end.	020917113108			
Area 7 –	Bldg. 533	West side of building, south end.	020917533109	-		
Parcel 5		Samples collected from north to south.	020917533110	-		
			020917533111	P209467-19	58	
			020917533112	P210470-16		<0.38
			020917533113	-		
			020917533114			
Area 10 –	Bldg.	South side of building.	020917512115	-		
Parcel 5	512C	Samples collected from west to east.	020917512116			
			020917512117	P209467-20	36	
			020917512118	NA		NA
			020917512119	-		
			020917512120			
		East side of building.	020917512121			
		Samples collected from south to north.	020917512122			
			020917512123	P209467-21	85	
			020917512124	P210470-17		<0.38
			020917512125	-		
			020917512126			
		North side of building.	020917512127	-		
		Samples collected from east to west.	020917512128			
			020917512129	P209467-22	23	
			020917512130	-		NA
			020917512131	-		
			020917512132			
		West side of building.	020917512133	-		
		Samples collected from north to south.	020917512134	D200467.00	1.5	
			020917512135	P209467-23	16	
			020917512136			NA
			02091/51213/	-		
A 10	D11		020917512138			
Area $10 -$	Bldg.	East side of building.	02091/54/139			
Parcel 5	547B	Samples collected from south to north.	02091/54/140	D200467-24	25	
			02091/54/141	P209467-24	25	NT A
			02091/54/142	-		NA
			02091/54/143	-		
A	D11.042		02091/54/144			
Area $3 -$	Bldg. 943	west side of building, north end	020918943145			
Parcel I			020918943146	D200467.25	170	
			020918943147	P209407-23	170	1.0
			020918943148	r210470-18		1.0
			020918943149			
		West side of building, south end	020918943150			
Area 2 –	Bldg. 24	QA/QC Duplicate	020917024A	P209467-26	160	
Parcel 1	_	_	(001-006)	P210470-19		< 0.38

Area	Building	Location	MACTEC Sample Number	Sequoia Sample ID	Results: Total Lead mg/kg	Results: Leachable Lead mg/L
Area 6B –	Bldg. 3	QA/QC Duplicate	020917003A	P209467-27	99	
Parcel 2			(031-036)	P210470-20		2.0
Area 11 –	Bldg. 329	QA/QC Duplicate	020917329A	P209467-28	49	
Parcel 4	-	-	(091-096)			NA

NOTES:

mg/kg milligrams per kilogram, equivalent to parts per million (ppm)

mg/L milligrams per liter, equivalent to parts per million (ppm)

NA Not analyzed by this method

<0.38 Not detected at indicated reporting limit

* Indicates that samples were analyzed discretely, not as a composite.

Sample results are for six-point composites unless otherwise noted.

Samples with total lead concentrations greater than 50 mg/kg were also analyzed for soluble lead.

Bolded result indicates exceedance of NASA RBSL.





NOTES: 1. Buildings surrounded by concrete were not included in sampling plan and are shown as green.



NASA Research Park Moffett Field, California APPROVED

GAL

Base Map

Soil/Lead Sampling

DATE 10/01



PLATE

REVISED DATE























4 October, 2002

Gary Lieberman Harding ESE 90 Digital Drive Novato, CA 94949

RE: General Commercial Sequoia Work Order: P209467

Enclosed are the results of analyses for samples received by the laboratory on 09/19/02 13:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Michelle M. Mitte

Michelle M. Wiita Project Manager

CA ELAP Certificate #2374

Page 1 of 8



Harding ESE 90 Digital Drive Novato CA, 94949

Project: General Commercial Project Number: NASA 56910.001 Project Manager: Gary Lieberman

P209467 Reported: 10/04/02 13:43

ANALYTICAL REPORT FOR SAMPLES

Comp 020917024(001-006) P209467-01 Soil 09/1702 08:48 09/19/02 13:00 Comp 02091703(015-012) P209467-02 Soil 09/17/02 10:00 09/19/02 13:00 Comp 02091703(015-018) P209467-04 Soil 09/17/02 10:12 09/19/02 13:00 Comp 02091703(015-018) P209467-04 Soil 09/17/02 10:12 09/19/02 13:00 Comp 02091703(015-030) P209467-05 Soil 09/17/02 10:42 09/19/02 13:00 Comp 020917003(031-036) P209467-06 Soil 09/17/02 10:42 09/19/02 13:00 Comp 020917003(043-048) P209467-07 Soil 09/17/02 11:34 09/19/02 13:00 Comp 020917003(044-054) P209467-16 Soil 09/17/02 11:34 09/19/02 13:00 Comp 020917003(064-054) P209467-11 Soil 09/17/02 11:34 09/19/02 13:00 Comp 020917003(067-072) P209467-12 Soil 09/17/02 11:36 09/19/02 13:00 Comp 020917003(067-072) P209467-13 Soil 09/17/02 12:38 09/19/02 13:00 Comp 020917003(079-084) P209467-14 Soil 09/17/02 12:38	Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received	1
Comp 020917510(007-012) P209467-02 Soil 09/17/02 09:10 09/19/02 13:00 Comp 020917003(013-018) P209467-03 Soil 09/17/02 10:12 09/19/02 13:00 Comp 020917003(019-024) P209467-05 Soil 09/17/02 10:12 09/19/02 13:00 Comp 020917003(013-036) P209467-07 Soil 09/17/02 10:42 09/19/02 13:00 Comp 020917003(013-036) P209467-07 Soil 09/17/02 10:42 09/19/02 13:00 Comp 020917003(043-048) P209467-07 Soil 09/17/02 11:34 09/19/02 13:00 Comp 020917003(049-054) P209467-10 Soil 09/17/02 11:34 09/19/02 13:00 Comp 020917003(055-060) P209467-11 Soil 09/17/02 11:34 09/19/02 13:00 Comp 020917003(067-072) P209467-13 Soil 09/17/02 12:80 09/19/02 13:00 Comp 020917003(077-078) P209467-13 Soil 09/17/02 12:80 09/19/02 13:00 Comp 020917003(079-084) P209467-14 Soil 09/17/02 12:80 09/19/02 13:00 Comp 020917032(091-096) P209467-15 Soil 09/17/02 17:50 <td>Comp 020917024(001-006)</td> <td>P209467-01</td> <td>Soil</td> <td>09/17/02 08:48</td> <td>09/19/02 13:00</td> <td></td>	Comp 020917024(001-006)	P209467-01	Soil	09/17/02 08:48	09/19/02 13:00	
Comp 020917003(013-018) P209467-03 Soil 09/17/02 10:00 09/19/02 13:00 Comp 020917003(015-024) P209467-05 Soil 09/17/02 10:12 09/19/02 13:00 Comp 020917003(025-030) P209467-05 Soil 09/17/02 10:42 09/19/02 13:00 Comp 020917003(037-042) P209467-06 Soil 09/17/02 10:42 09/19/02 13:00 Comp 020917003(037-042) P209467-07 Soil 09/17/02 10:44 09/19/02 13:00 Comp 020917003(037-042) P209467-08 Soil 09/17/02 11:46 09/19/02 13:00 Comp 020917003(03-046) P209467-10 Soil 09/17/02 11:48 09/19/02 13:00 Comp 020917003(05-060) P209467-11 Soil 09/17/02 11:48 09/19/02 13:00 Comp 020917003(067-072) P209467-13 Soil 09/17/02 12:26 09/19/02 13:00 Comp 020917003(079-084) P209467-14 Soil 09/17/02 12:26 09/19/02 13:00 Comp 020917003(079-084) P209467-15 Soil 09/17/02 12:26 09/19/02 13:00 Comp 02091703(070-984) P209467-16 Soil 09/17/02 12:26	Comp 020917510(007-012)	P209467-02	Soil	09/17/02 09:10	09/19/02 13:00	
Comp 020917003(019-024) P209467-04 Soil 09/17/02 10:12 09/19/02 13:00 Comp 020917003(025-030) P209467-05 Soil 09/17/02 10:42 09/19/02 13:00 Comp 020917003(031-036) P209467-06 Soil 09/17/02 10:42 09/19/02 13:00 Comp 020917003(031-042) P209467-07 Soil 09/17/02 11:66 09/19/02 13:00 Comp 020917003(043-048) P209467-08 Soil 09/17/02 11:46 09/19/02 13:00 Comp 020917003(05-060) P209467-10 Soil 09/17/02 11:58 09/19/02 13:00 Comp 020917003(061-066) P209467-11 Soil 09/17/02 11:58 09/19/02 13:00 Comp 020917003(073-078) P209467-12 Soil 09/17/02 12:26 09/19/02 13:00 Comp 020917003(079-084) P209467-15 Soil 09/17/02 12:26 09/19/02 13:00 Comp 02091703(079-084) P209467-16 Soil 09/17/02 10:40 09/19/02 13:00 Comp 02091703(079-084) P209467-16 Soil 09/17/02 10:40 09/19/02 13:00 Comp 02091703(079-084) P209467-16 Soil 09/17/02 10:40	Comp 020917003(013-018)	P209467-03	Soil	09/17/02 10:00	09/19/02 13:00	
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Comp 020917003(031-036) P209467-06 Soil 09/17/02 10:42 09/19/02 13:00 Comp 020917003(037-042) P209467-07 Soil 09/17/02 10:54 09/19/02 13:00 Comp 020917003(044-048) P209467-08 Soil 09/17/02 11:34 09/19/02 13:00 Comp 020917003(044-054) P209467-09 Soil 09/17/02 11:34 09/19/02 13:00 Comp 020917003(055-060) P209467-11 Soil 09/17/02 11:38 09/19/02 13:00 Comp 020917003(061-066) P209467-12 Soil 09/17/02 12:26 09/19/02 13:00 Comp 020917003(067-072) P209467-13 Soil 09/17/02 12:26 09/19/02 13:00 Comp 020917003(079-084) P209467-13 Soil 09/17/02 12:26 09/19/02 13:00 Comp 020917023(091-096) P209467-14 Soil 09/17/02 12:28 09/19/02 13:00 020917029101 P209467-17 Soil 09/17/02 15:21 09/19/02 13:00 020917029102 P209467-19 Soil 09/17/02 15:21 09/19/02 13:00 Comp 02091732(115-120) P209467-23 Soil 09/17/02 16:40 09/19/02	Comp 020917003(025-030)	P209467-05	Soil	09/17/02 10:30	09/19/02 13:00	
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Comp 020917003(067-072) P209467-12 Soil 09/17/02 12:10 09/19/02 13:00 Comp 020917003(073-078) P209467-13 Soil 09/17/02 12:26 09/19/02 13:00 Comp 020917003(079-084) P209467-14 Soil 09/17/02 12:38 09/19/02 13:00 Comp 020917029(091-096) P209467-15 Soil 09/17/02 09:58 09/19/02 13:00 020917029101 P209467-16 Soil 09/17/02 15:20 09/19/02 13:00 020917029102 P209467-17 Soil 09/17/02 15:21 09/19/02 13:00 020917029102 P209467-18 Soil 09/17/02 17:51 09/19/02 13:00 Comp 020917131(103-108) P209467-20 Soil 09/17/02 17:51 09/19/02 13:00 Comp 020917512(115-120) P209467-21 Soil 09/17/02 17:52 09/19/02 13:00 Comp 020917512(121-126) P209467-23 Soil 09/17/02 17:52 09/19/02 13:00 Comp 020917512(121-126) P209467-23 Soil 09/17/02 18:04 09/19/02 13:00 Comp 020917512(121-126) P209467-24 Soil 09/17/02 18:04 09/19/02 13:00	Comp 020917003(061-066)	P209467-11	Soil	09/17/02 11:58	09/19/02 13:00	
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Comp 020917512(127-132) P209467-22 Soil 09/17/02 18:04 09/19/02 13:00 Comp 020917512(133-138) P209467-23 Soil 09/17/02 18:10 09/19/02 13:00 Comp 020917547(139-144) P209467-24 Soil 09/17/02 18:16 09/19/02 13:00 Comp 020918943(145-150) P209467-25 Soil 09/18/02 11:25 09/19/02 13:00 020917024A P209467-26 Soil 09/17/02 08:48 09/19/02 13:00 020917003A P209467-27 Soil 09/17/02 10:42 09/19/02 13:00 020917329A P209467-28 Soil 09/17/02 10:42 09/19/02 13:00	Comp 020917512(121-126)	P209467-21	Soil	09/17/02 17:52	09/19/02 13:00	
Comp 020917512(133-138) P209467-23 Soil 09/17/02 18:10 09/19/02 13:00 Comp 020917547(139-144) P209467-24 Soil 09/17/02 18:16 09/19/02 13:00 Comp 020918943(145-150) P209467-25 Soil 09/18/02 11:25 09/19/02 13:00 020917024A P209467-26 Soil 09/17/02 08:48 09/19/02 13:00 020917003A P209467-27 Soil 09/17/02 10:42 09/19/02 13:00 020917329A P209467-28 Soil 09/17/02 10:42 09/19/02 13:00	Comp 020917512(127-132)	P209467-22	Soil	09/17/02 18:04	09/19/02 13:00	
Comp 020917547(139-144) P209467-24 Soil 09/17/02 18:16 09/19/02 13:00 Comp 020918943(145-150) P209467-25 Soil 09/18/02 11:25 09/19/02 13:00 020917024A P209467-26 Soil 09/17/02 08:48 09/19/02 13:00 020917003A P209467-27 Soil 09/17/02 10:42 09/19/02 13:00 020917329A P209467-28 Soil 09/17/02 10:42 09/19/02 13:00	Comp 020917512(133-138)	P209467-23	Soil	09/17/02 18:10	09/19/02 13:00	
Comp 020918943(145-150) P209467-25 Soil 09/18/02 11:25 09/19/02 13:00 020917024A P209467-26 Soil 09/17/02 08:48 09/19/02 13:00 020917003A P209467-27 Soil 09/17/02 10:42 09/19/02 13:00 020917329A P209467-28 Soil 09/17/02 10:42 09/19/02 13:00	Comp 020917547(139-144)	P209467-24	Soil	09/17/02 18:16	09/19/02 13:00	
020917024A P209467-26 Soil 09/17/02 08:48 09/19/02 13:00 020917003A P209467-27 Soil 09/17/02 10:42 09/19/02 13:00 020917329A P209467-28 Soil 09/17/02 09:58 09/19/02 13:00	Comp 020918943(145-150)	P209467-25	Soil	09/18/02 11:25	09/19/02 13:00	
020917003A P209467-27 Soil 09/17/02 10:42 09/19/02 13:00 020917329A P209467-28 Soil 09/17/02 09:58 09/19/02 13:00	020917024A	P209467-26	Soil	09/17/02 08:48	09/19/02 13:00	
020917329A P209467-28 Soil 09/17/02 09:58 09/19/02 13:00	020917003A	P209467-27	Soil	09/17/02 10:42	09/19/02 13:00	
	020917329A	P209467-28	Soil	09/17/02 09:58	09/19/02 13:00	



Harding ESE 90 Digital Drive Novato CA, 94949		Project Nu Project Ma		P209467 Reported: 10/04/02 13:43					
То	tal Meta Se	ls by EP equoia Ai	A 600 nalytic	0/7000 S cal - Peta	eries M luma	ethods			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Comp 020917024(001-006) (P209467-01) Soil	Sampled	: 09/17/02 (08:48 F	Received: 09	0/19/02 13:	:00			
Lead	79	9.6	mg/kg	L.	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917510(007-012) (P209467-02) Soil	Sampled	: 09/17/02 0	9:10 F	Received: 09	/19/02 13:	00			
Lead	120	12	mg/kg	1	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917003(013-018) (P209467-03) Soil	Sampled	: 09/17/02 1	0:00 R	Received: 09	/19/02 13:	00			
Lead	53	12	mg/kg	1	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917003(019-024) (P209467-04) Soil	Sampled	09/17/02 1	0:12 R	Received: 09	/19/02 13:	00			
Lead	40	12	mg/kg	, 1	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917003(025-030) (P209467-05) Soil	Sampled:	09/17/02 1	0:30 R	eceived: 09	/19/02 13:	00			
Lead	62	12	mg/kg	1	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917003(031-036) (P209467-06) Soil	Sampled:	09/17/02 1	0:42 R	eceived: 09/	19/02 13:0	00			
Lead	110	12	mg/kg	1	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917003(037-042) (P209467-07) Soil	Sampled:	09/17/02 10):54 R	eceived: 09/	19/02 13:0	00			
Lead	130	11	mg/kg	1	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917003(043-048) (P209467-08) Soil	Sampled:	09/17/02 11	:06 R	eceived: 09/	19/02 13:0	0			
Lead	110	12	mg/kg	1	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917003(049-054) (P209467-09) Soil	Sampled:	09/17/02 11	:34 Re	eceived: 09/	19/02 13:0	0			
Lead	160	12	mg/kg	1	2090737	10/02/02	10/03/02	EPA 6010B	

Sequoia Analytical								1455 McDowell Bly Petalu FAX	vd, North Ste ima, CA 9495 (707) 792-186 (707) 792-034 equoialabs.co
Harding ESE 90 Digital Drive Novato CA 94949		P Project N	roject: (umber: N	General Con NASA 5691	nmercial 0.001			P20946 Reporte	i7 :d:
Novalo CA, 34343		Project Ma	nager: C	Jary Lieberr	nan		_	10/04/02 1	3:43
	Total Me	tals by EP Sequoia A	A 600 nalytic	0/7000 S al - Peta	eries M luma	ethods			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Comp 020917003(055-060) (P209467-10) S	Soil Sample	ed: 09/17/02	11:46 R	eceived: 09	0/19/02 13	:00			
Lead	75	12	mg/kg	1	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917003(061-066) (P209467-11) S	oil Sample	ed: 09/17/02 1	11:58 R	eceived: 09	/19/02 13:	:00		Sector Sector	
Lead	60	12	mg/kg	1	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917003(067-072) (P209467-12) Second	oil Sample	d: 09/17/02 1	2:10 R	eceived: 09	/19/02 13:	00			
Lead	14	12	mg/kg	1	2090737	10/02/02	10/03/02	EPA 6010B	
Comp 020917003(073-078) (P209467-13) Second	oil Sample	d: 09/17/02 1	2:26 R	eceived: 09	/19/02 13:	00	Converse of		
Lead	120	12	mg/kg	1	2090737	10/02/02	10/03/02	FPA 6010B	
Comp 020917003(079-084) (P209467-14) So	oil Sample	d: 09/17/02 1	2:38 R	ceived: 09	/19/02 13:	00		Difficulty	
Lead	91	12	mg/kg	1	2090737	10/02/02	10/04/02	EPA 6010B	
Comp 020917329(091-096) (P209467-15) So	al Sample	l: 09/17/02 0	9:58 Re	ceived: 09/	19/02 13-	00	1212 002		
Lead	140	10	mg/kg	1	2090737	10/02/02	10/04/02	EPA 6010P	
020917029101 (P209467-16) Soil Sampled	: 09/17/02 1	5:20 Receiv	ed: 09/19	0/02 13:00	arease.		10/04/02	ELY OUTOB	
Lead	90	11	mg/kg	1	2090737	10/02/02	10/04/02	EPA 6010B	
020917029102 (P209467-17) Soil Sampled:	: 09/17/02 15	5:21 Receive	d: 09/19	/02 13.00			10101102	LIA UUIUB	
Lead	93	12	mg/kg	1	2090737	10/02/02	10/04/02	EPA 60108	
Comp 020917113(103-108) (P209467-18) Soi	il Sampled	: 09/17/02 10	:40 Re	ceived: 09/1	19/02 13-0	0		STR OUTUB	
Lead	990	12	mg/kg	1 3	2090737	10/02/02	10/04/02	EPA 6010B	

Sequoia Analytical								1455 McDowell Biv Petalu FAX (www.so	rd, North Ste ma, CA 949: (707) 792-186 (707) 792-034 equoialabs.co
Harding ESE 90 Digital Drive Novato CA, 94949		Project Nu Project Ma		P209467 Reported: 10/04/02 13:43					
То	tal Met	tals by EP Sequoia Ai	A 600 nalytic	0/7000 S al - Petal	eries M luma	ethods			
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Comp 020917533(109-114) (P209467-19) Soil	Sample	ed: 09/17/02	17:15 R	eceived: 09	/19/02 13	:00			
Lead	58	12	mg/kg	1	2090737	10/02/02	10/04/02	EPA 6010B	
Comp 020917512(115-120) (P209467-20) Soil	Sample	d: 09/17/02 1	7:40 R	eceived: 09	/19/02 13:	00	1.1.1		
Lead	36	12	mg/kg	1	2090737	10/02/02	10/04/02	EPA 6010B	
Comp 020917512(121-126) (P209467-21) Soil	Sample	d: 09/17/02 1	7:52 R	eceived: 09	/19/02 13:	00			
Lead	85	15	mg/kg	1	2090738	10/02/02	10/03/02	EPA 6010B	
Comp 020917512(127-132) (P209467-22) Soil	Sample	d: 09/17/02 1	8:04 R	eceived: 09	/19/02 13:	00	1000		
Lead	23	14	mg/kg	1	2090738	10/02/02	10/03/02	EPA 6010B	
Comp 020917512(133-138) (P209467-23) Soil	Sample	d: 09/17/02 1	8:10 R	eceived: 09/	19/02 13:	00			
Lead	16	15	mg/kg	a l	2090738	10/02/02	10/03/02	EPA 6010B	
Comp 020917547(139-144) (P209467-24) Soil	Sample	d: 09/17/02 1	8:16 Re	eceived: 09/	19/02 13:0	00	1000		
Lead	25	14	mg/kg	1	2090738	10/02/02	10/03/02	EPA 6010B	
Comp 020918943(145-150) (P209467-25) Soil	Sample	d: 09/18/02 1	1:25 Re	ceived: 09/	19/02 13:0	00			
Lead	170	15	mg/kg	1	2090738	10/02/02	10/03/02	EPA 6010B	
020917024A (P209467-26) Soil Sampled: 09/	17/02 08:4	48 Received	: 09/19/0	02 13:00					_
Lead	160	15	mg/kg	1	2090738	10/02/02	10/03/02	EPA 6010B	
20917003A (P209467-27) Soil Sampled: 09/1	17/02 10:4	42 Received	: 09/19/0	2 13:00	1.1.1.1.1.1.1			and the second	
Lead	99	15	mg/kg	1 3	2090738	10/02/02	10/03/02	EPA 6010B	

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Harding ESEProject:General Commercial90 Digital DriveProject Number:NASA 56910.001Novato CA, 94949Project Manager:Gary Lieberman								P209467 Reported: 10/04/02 13:43		
	Total Mo	etals by E Sequoia .	PA 6000 Analytic	0/7000 S al - Peta	eries M luma	ethods				
Analyte	Result	Reportin Limi	g t Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
20917329A (P209467-28) Soil	Sampled: 09/17/02 0	9:58 Recei	ved: 09/19/	/02 13:00						
lead	49	- 1:	5 mg/kg	1	2090738	10/02/02	10/03/02	EPA 6010B		

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Harding ESE 90 Digital Drive Novato CA, 94949		Project: General Commercial Project Number: NASA 56910.001 Project Manager: Gary Lieberman								467 ted: 13:43
Total M	etals by E	CPA 6000/ Sequoia 2	/7000 S Analyti	eries Me cal - Peta	thods - luma	Quality	or Contro	1		
Analyte	Result	Reporting	g Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2090737 - EPA 3050B									Linin	110103
Blank (2090737-BLK1)				Prepared	: 10/02/02	Analyze	d: 10/03/02			
Lead	ND	12	mg/kg							
Matrix Spike (2090737-MS1)	Se	ource: P2094	67-01	Prepared:	10/02/02	Analyzed	1: 10/03/02			
Lead	113	12	mg/kg	48.3	79	70	80-120			QM-07
Matrix Spike Dup (2090737-MSD1)	So	urce: P2094	67-01	Prenared:	10/02/02	Analyzed	- 10/03/02			
Lead	189	12	mg/kg	49.5	79	222	80-120	50	20	QM-07, QR-07
Batch 2090738 - EPA 3050B										
Blank (2090738-BLK1)				Prepared:	10/02/02	Analyzed	10/03/02			
Lead	ND	15	mg/kg		CONTRACTOR OF THE		TUTUT			
Laboratory Control Sample (2090738-BS)	()			Prepared.	10/02/02	Analyzed	10/03/02			
Lead	49.6	15	mg/kg	50.0		99	80-120			
Matrix Spike (2090738-MS1)	Sou	rce: P20946	7-21	Prepared:	0/02/02	Analyzed.	10/03/02			
ead	106	15	mg/kg	48.5	85	43	80-120			QM-07
Aatrix Spike Dup (2090738-MSD1)	Sou	rce: P20946	7-21	Prepared: 1	0/02/02 /	Analyzed:	10/03/02			
ead	126	14	mg/kg	47.7	85	86	80-120	17	20	

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Harding ESE 90 Digital Drive Novato CA, 94949	Project: General Commercial Project Number: NASA 56910.001 Project Manager: Gary Lieberman	P209467 Reported:
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Notes and Definitions

QM-07	The spike recovery was outside control limits for the MS and/or MSD.	The batch was accepted based on acceptable LCS
	recovery.	

- QR-07 The RPD was outside control limits. The results may still be useful for their intended purpose,
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

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1455 McDowell Bivd, North Ste D Petaluma, CA 94954 (707) 792-1865 FAX (707) 792-0342 FAX (707) 792-0342 29 October, 2002

Gary Lieberman Harding ESE Novato, CA 94949

RE: General Commercial Sequoia Work Order: P210470

Enclosed are the results of analyses for samples received by the laboratory on 10/21/02 06:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Andelle M. Howe

Project Manager

CA ELAP Certificate #2374

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Novato CA, 94949	Project Managet: Gary Lieberman	t0:01 20/6Z/01	
90 Digital Drive	Project Number: NASA 56910.001	Reported:	
Harding ESE	Project: General Commercial	P210470	

ANALYTICAL REPORT FOR SAMPLES

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Comp 020917024(001-006)	P210470129	lios	84:80 20/21/60	55:90 20/12/01
Comp 020917510(007-012)	P210470-02	lio2	01:60 20/21/60	SE:90 20/12/01
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The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirely.



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t0:01 20/67/01	Сагу Lieberman	Project Manager:	Novato CA, 94949
Reported:	100.01692 ASAN	Project Number:	90 Digital Drive
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STLC CAM Metals by EPA 6000/7000 Series Methods

Sequoia Analytical - Petaluma

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Comp 020917003(031-036) (P210470-05) Soil	Sampled	20/21/60 :	0:45 Be	01 :baviace	:90 20/12/	S			
рвэД	00EZ	380	l/In	T I	\$69001 Z	20/52/01	20/22/01	EPA 6010B	
Comp 020917003(025-030) (P210470-04) Soil	balqme2	20/21/60	0:30 B	01 :bevies	:90 20/12/	56			
Сеяд	0051	980	ı∕8n	T	6110012	20/92/01	20/82/01	EPA 6010B	
Lio2 (20-0740129) (810-210)200712020 gmo2	belgme2	20/21/60 :	0:00 R	OI :beviese	:90 20/12/	SE		Ten 19 1	
рвэ.Т	14000	086	[∕∂n	Ţ	¥69001Z	20/52/01	20/22/01	EPA 6010B	
Comp 020917510(007-012) (P210470-02) Soil	Sampled	20/21/60:	A 01:0	01 :bsvisse	:90 20/12/	SE			
Lead	an	380	l∕3n	1	\$690012	20/52/01	20/22/01	EPA 6010B	
Comp 020917024(001-006) (P210470-01) Soil	balqma2	20/21/60 :	A 84:8	OI :beviece	:90 Z0/1Z/	SE			
aiyisnA	Result	Junidan Jimid	zinU	Dilution	Batch	Prepared	Analyzed	Method	Notes

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.



	Construction of Communications of American		
10:01 20/62/01	at Manager: Gary Lieberman	49 Project	Novato CA, 949.
Keported:	100.01685 ASAN :rodmuN to:	Proje	90 Digital Drive
P210470	Project: General Commercial		Harding ESE
			and the second sec

STLC CAM Metals by EPA 6000/7000 Series Methods

Sequoia Analytical - Petaluma

Lead	1000	(08 £	l∕ðn	i .	z	6220017	20/92/01	20/82/01	EPA 6010B	
Comp 020918943(145-150) (P210470-1	mag lio	(ed : balga	1 20/81/	I SZI	baviaca	2/01 :	E:90 Z0/13	S		10.51	
Lead	an	(380	1/8n	1	2	6220012	20/92/01	20/82/01	EPA 6010B	
Comp 020917512(121-126) (P210470-1	med lio	(ed : balgn	1 20//1/	I ZS:L	bəviəsə	7/01 :	E:90 Z0/13	S			
Геад	AD		380	I∕ ∂n	I.	2	6440012	20/92/01	20/82/01	EPA 6010B	
Comp 020917533(109-114) (P210470-1	me2 lio	(ed :bəlqn	I ZO/LI/	I SI:L	beviese	2/01 :	E:90 ZO/13	S			
рвэД	9400	C	380	l/ðn	I	5	6220012	20/92/01	20/82/01	EPA 6010B	
ms2 lio2 (21-0740129) 201920719020	0/LI/60 :P	12:51 20	Receiv	/01 :bə	90 20/12	SE:			_		
Lead	0005	0	380	J∕ān	1	z –	6220012	20/92/01	20/82/01	EPA 6010B	
ma2 lio2 (41-0740129) 101020710020	0/L1/60 :P	02:51 20	ГіэээЯ	/01 :pə.	90 20/12	SE:					
Lead	ND	0	380	l/8n	I.	5	6LL0012	20/92/01	20/82/01	EPA 6010B	
Comp 020917329(091-096) (P210470-1	me2 lio	(ed : balga	0 20/21/	85:6	beviese	Z/OT :	:90 Z0/17	SI		-	
рвэД	3800	0	380	l/au	I		6110012	20/92/01	20/82/01	EPA 6010B	
Comp 020917003(079-084) (P210470-1	ma2 lio	eo :balga	1 20/21/	1 86:2	beviese	2/01:	:90 Z0/17	51	_		-
bs9.J	4600	0	380	l∕8n	I.		6440012	20/92/01	20/82/01	EPA 6010B	
Comp 020917003(073-078) (P210470-1	med lio	eo :balqn	I Z0/LI/	5:26	beviese	2/01:	:90 Z0/12	Si		10000	
Lead	ND	c	380	l/an	T		6LL001Z	20/92/01	20/82/01	EPA 6010B	
Comp 020917003(061-066) (P210470-1	mez lio	eo :belga	20/21/	1 85:1	bevieses	2/01:	:90 20/12	S			
эјуіблА	Result	li Kej	gnitroq timi.l	Uaits	Dilu	noii	Batch	Prepared	bəzylenA	Method	Notes

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.



10/29/02 10:04

Reported:

P210470

Project: General Commercial Project Number: NASA 56910,001 Project Managet: Gary Lieberman Harding ESE 90 Digital Drive Novato CA, 94949

STLC CAM Metals by EPA 6000/7000 Series Methods

Sequoia Analytical - Petaluma

Гезд	000Z	085	1/3n	Ţ	6220012	20/92/01	20/82/01	EPA 6010B	
1105 (02-0740129) AE00712020	Sampled: 09/17/02 10:42	Received:	0/17/01	SE:90 2		-	1	1	1
Lead	an	085]/ ∂n	I	6440012	20/92/01	20/82/01	EPA 6010B	
110S (01-0740129) A420710020	84:80 20/71/00 :bolgme2	Received	0/12/01	SE:90 Z					
Апајуtе	Result	leporting Limit	Units	Dilution	Batch	Prepared	bəzylanA	Method	Notes

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirely.



10/23/02 10:04	Project: General Commercial	arding ESE
Keborted:	Project Mumber: MASA 56910.001) Digital Drive
P210470	Project Manager: Cary Lieberman	ovato CA, 94949

STLC CAM Metals by EPA 6000/7000 Series Methods - Quality Control

Sequoia Analytical - Petaluma

pear	0678	085	l/Sn	0052	0079	* 8	071-08	I	50	
(IQSM-6770012) qud shiq2 xirish	inos	0240124 :99	SI	Prepared: 1	20/22/0	f :bosylenA	20/82/0			
Dear	0858	085	1/8n	00SZ	0079	L 8	021-08			
(ISM-0770012) shiq2 xiris	inos	0440124 :99.	SI	Prepared: 1	20/22/02	Analyzed:	20/82/01			
רפסק	0062	085	1/3n	0052		26	071-08			
Laboratory Control Sample (2100779-BSI)		- 19/		Prepared:	20/23/03	Analyzed:	20/82/01			
L.ead	an	085	1/8n							
Blank (2100779-BLK1)				Prepared:	20/22/01	:bosylenA	20/82/01			
Batch 2100779 - EPA 3010A										
DE9-T	0292	085	L/Sn	0052	540	\$6	071-08	z	50	_
Matrix Spike Dup (2100694-MSD1)	nos	rce: P210470	10-	Prepared:	20/52/01	Analyzed:	20/22/01			
DEST	0452	08£	1/8n	0052	540	٤6	80-150			
Matrix Spike (2100694-MS1)	nos	Tce: P21047	10-0	Prepared:	20/52/01	:bosylenA	20/22/01			
דינות	0252	085	I∕∄n	0052		101	80-150			
Laboratory Control Sample (2100694-BS1)				Prepared:	20/52/01	Analyzed:	20/22/01			
rega	an	085	[/Sn							
Blank (2100694-BLKI)				Prepared:	20/52/01	bezylenA	20/22/01			
Batch 2100694 - EPA 3010A										
9jylanA	Result	aminuqan timid	atinU	Level	Result	%BEC	%REC	QAA	Limit Limit	Notes

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.



10/29/02 10:04 Keborted: P2104770

Project Number: NASA 56910.001 Project Number: UASA 56910.001 Harding ESE 90 Digital Drive Novato CA, 94949

Notes and Definitions

- DET Vusiyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference





18 October, 2002

Gary Lieberman Narding ESE 90 Digital Drive Secon CA 94949

RE: General Commercial Sequoia Work Order: P209467

Enclosed are the results of analyses for samples received by the laboratory on 09/19/02 13:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

- Andelle M. Howen

Project Manager

CA ELAP Certificate #2374

2 to 1 ogeq





Vovato CA, 94949	Project Manager: Gary Lieberman	87:61 20/81/01
90 Digital Drive	Project Number: NASA 56910.001	Keported:
Harding ESE	Project: General Commercial	L976024

AVALYTICAL REPORT FOR SAMPLES

			A CONTRACTOR OF THE CONTRACTOR OF TO CONTR	
00:61 20/61/60 09:00	01 70/21/60	lio2	P209467-18	Comp 020917113(103-108)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.



84:01 20/81/01

Reported:

P209467



Project Manager: Gary Lieberman Project Number: NASA 56910.001 Project: General Commercial

Novato CA, 94949 90 Digital Drive **Harding ESE**

STLC CAM Metals by EPA 6000/7000 Series Methods

Sequoia Analytical - Petaluma

15 m						-			and the second se
Notes	Method	Analyzed	Prepared	Batch	Dilution	Units	limiJ	Result	Analyte
							Reporting		

Comp 02017113(103-108) (P209467-18) Soil Sampled: 09/17/02 10:40 Received: 09/19/02 13:00

EPA 6010B Z0/L1/01 20/21/01 \$/10012 1/8n I 380 00022 Lead

basis. This analytical report must be reproduced in its entirety. of custody document. Unless otherwise stated, results are reported on a wet weight The results in this report apply to the samples analyzed in accordance with the chain





Harding ESEProject: General CommercialP20946790 Digital DriveProject Number: MASA 56910.001Reported:90 Digital DriveProject Nanager: Gary Lieberman10/18/02 19:48

STLC CAM Metals by EPA 6000/7000 Series Methods - Quality Control

Sequoia Analytical - Petaluma

	50	9	80-120	104	22000	0057	I/an	08£	54600	Lead
1			20/11/01	Analyzed:	20/21/01	Prepared: 1	81-2	TCe: P209467	nos	Matrix Spike Dup (2100174-MSD1)
70-MQ		071-08	44	22000	0052	l/Sn	380	00152	Гезд	
			Prepared: 10/13/02 Analyzed: 10/17/02		1946024 :997	nos	(ISM-4710015) Spike (2100174-MS1)			
			80-120	L6		0052	1/8n	086	5450	реэд
			20/11/01	Analyzed:	20/21/01	Prepared:				Laboratory Control Sample (2100174-BSI)
							1/8n	08£	an	pead
			20/11/01	Analyzed:	20/21/01	Prepared:	-			Blank (2100174-BLKI)
										Batch 2100174 - EPA 3005A
Notes	Limit	RPD	Limits	%BEC	Result	Level	Units	уши літі.	Result	alylenA

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.





10/18/03 19:48 Keborted: P209467 Project: General Commercial Project Number: NASA 56910.001 Project Manager: Gary Lieberman Harding ESE 90 Digital Drive Novato CA, 94949

Notes and Definitions

- QM-07 The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- DET Vusive DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise staled, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.