Soyuz 9 Return Samples: Assessment of Air Quality Aboard the International Space Station

The toxicological assessments of 10 dual sorbent tubes (DSTs), one grab sample canister (GSC), and 12 pairs of formaldehyde badges returned aboard Soyuz 9 are reported. Analytical methods have not changed from earlier reports. The recoveries of the less volatile surrogates from the DSTs (including controls) averaged 95 and 99 %; however, ^{13}C-acetone was only recovered at an average of 56 %. Correction factors were applied to volatile polar compounds. Formaldehyde recoveries from 3 positive controls were 59, 78 and 84%.

The two general criteria used to assess air quality are the total-non-methane-volatile organic hydrocarbons (NMVOCs) and the total T-value (minus the CO_2 and formaldehyde contributions). Control of atmospheric alcohols is important to the water recovery system engineers, hence total alcohols (including acetone) are also shown for each sample. Because formaldehyde is quantified from sorbent badges, its concentration is also listed separately. These four indices of air quality are summarized below:

Module/Sample	Approx. Date	NMVOCs (mg/m^3)	T Value (units)	Alcohols (mg/m^3)	Formaldehyde (ug/m^3)
Lab/Formaldehyde	11/10/04	--	--	--	40
SM/Formaldehyde	11/10/04	--	--	--	29
Lab/DST/Formal.	12/10/04	8	0.9	5	27
SM/DST/Formal.	12/10/04	6	0.9	4	27
Lab/DST/Formal.	1/07/05	7	0.2	6	34
SM/DST/Formal.	1/07/05	8	0.5	6	27
Lab/DST/Formal.	2/10/05	6	1.0	4	35
SM/DST/Formal.	2/10/05	7	1.0	5	25
Lab/DST/Formal.	3/9/05	7	0.7	5	35
SM/DST/Formal.	3/9/05	7	0.3	5	28
Lab/GSC	3/9/05	8	0.8	5	--
Lab/DST/Formal.	4/13/05	8	0.8	7	39
SM/DST/Formal.	4/13/05	6	0.6	4	33
Guideline		*<25*	*<1.0*	*<5*	*<120*[1]

[1] A new long-term SMAC has been provisionally accepted by the National Research Council Committee on Toxicology and by the NASA Toxicology Group.

All formaldehyde concentrations were well within the new long-term SMAC. The Lab samples continue to show slightly higher values than the SM samples. The T values and NMVOCs are essentially within acceptable guidelines; however, the total alcohol levels periodically exceed the guideline of 5 mg/m^3 set to protect the water recovery system. The bumps of the T Values to 1.0 were caused by traces of acrolein, benzene, and/or dimethyldisulfide being present in some the samples. Although the air samples are sparse, there are no indications that air quality has degraded aboard the ISS.

Enclosures

Table 1: Analytical Concentrations of 9S DST and GSC Air Samples
Table 2: T-Value Calculations of 9S DST and GSC Air Samples

TABLE 1
ANALYTICAL RESULTS OF
SOYUZ-9S DUAL SORBENT TUBE & GRAB SAMPLE CONTAINER AIR SAMPLES

CHEMICAL CONTAMINANT	CONCENTRATION (mg/m3) DSTs												GSC
	AA03830W LAB S/N 1029 12/10/04 @ 10:40GMT	AA03831W SM S/N 1025 12/10/04 @ 10:45GMT	AA03824W SM S/N 1047 1/6/05 @ 9:30GMT	AA03825W LAB S/N 1046 1/6/05 @ 9:30GMT	AA03828W LAB S/N 1040 2/10/05 @ 9:30GMT	AA03829W SM S/N 1041 2/10/05 @ 9:30GMT	AA03823W LAB S/N 1042 3/9/05 @ 11:45GMT	AA03822W SM S/N 1044 3/9/05 @ 11:55GMT	AA03826W SM S/N 1036 4/13/05 @ 10:00GMT	AA03827W LAB S/N 1037 4/13/05 @ 10:00GMT	AA03832W S/N 1039	AA03833W UNUSED S/N 1038	AA03821 LAB SN1041 3/9/05 @ 1140 GMT
TARGET COMPOUNDS (TO-14/POLAR)* **													
FREON 12	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.05	TRACE	0.61	< 0.05	TRACE
CHLOROMETHANE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.05	TRACE
FREON 114	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
METHANOL	**0.3**	**0.3**	**0.6**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.1**	**0.3**	**0.5**	TRACE	0.40
ACETALDEHYDE	**0.6**	**0.7**	**0.4**	**0.2**	**0.6**	**0.8**	**0.6**	**0.3**	**0.2**	**0.5**	**1.7**	0.05	0.30
VINYL CHLORIDE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
BROMOMETHANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
ETHANOL	**4**	**3**	**5**	**5**	**3**	**4**	**4**	**4**	**4**	**6**	**6**	TRACE	4.0
CHLOROETHANE	TRACE	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
ACETONITRILE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE
PROPENAL	TRACE	TRACE	< 0.02	< 0.02	TRACE	TRACE	TRACE	< 0.02	TRACE	TRACE	TRACE	< 0.02	TRACE_
ACETONE	**0.3**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**	**1.1**	TRACE	0.30
PROPANAL	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE
2-PROPANOL	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.2**	**0.1**	**0.1**	**0.1**	**0.6**	TRACE	0.20
FREON 11	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.05	TRACE	0.093	< 0.05	TRACE
FURAN	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
ACRYLONITRILE	TRACE	< 0.06	< 0.06	< 0.05	< 0.06	TRACE	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	TRACE
PENTANE	TRACE	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
2-METHYL-2-PROPANOL	TRACE	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.11	< 0.05	TRACE
METHYL ACETATE	< 0.06	< 0.06	TRACE	TRACE	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.24	< 0.05	TRACE
1,1-DICHLOROETHENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
DICHLOROMETHANE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.19	< 0.05	0.070
3-CHLOROPROPENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
FREON 113	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
N-PROPANOL	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.06	< 0.05	0.060
1,1-DICHLOROETHANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
BUTANAL	TRACE	TRACE	< 0.06	< 0.05	TRACE	TRACE	< 0.06	< 0.05	TRACE	< 0.06	TRACE	< 0.05	TRACE
2-BUTANONE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.62	TRACE	TRACE
1,2-DICHLOROETHENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
2-METHYLFURAN	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
ETHYL ACETATE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	1.3	< 0.05	TRACE
HEXANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.06	< 0.05	<0.05
CHLOROFORM	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
2-BUTENAL	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
1,2-DICHLOROETHANE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.05	TRACE	0.061	< 0.05	TRACE
1,1,1-TRICHLOROETHANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
N-BUTANOL	0.07	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.49	< 0.05	0.10
BENZENE	< 0.06	< 0.06	TRACE	< 0.05	TRACE	TRACE	< 0.06	< 0.05	< 0.05	TRACE	TRACE	< 0.05	TRACE
TETRACHLOROMETHANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
2-PENTANONE	TRACE	TRACE	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	TRACE	TRACE	< 0.06	< 0.06	< 0.05	<0.05

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	AA03830W LAB S/N 1029 12/10/04 @ 10:40GMT	AA03831W SM S/N 1025 12/10/04 @ 10:45GMT	AA03824W SM S/N 1047 1/6/05 @ 9:30GMT	AA03825W LAB S/N 1046 1/6/05 @ 9:30GMT	AA03828W LAB S/N 1040 2/10/05 @ 9:30GMT	AA03829W SM S/N 1041 2/10/05 @ 9:30GMT	AA03823W LAB S/N 1042 3/9/05 @ 11:45GMT	AA03822W SM S/N 1044 3/9/05 @ 11:55GMT	AA03826W SM S/N 1036 4/13/05 @ 10:00GMT	AA03827W LAB S/N 1037 4/13/05 @ 10:00GMT	AA03832W S/N 1039	AA03833W UNUSED S/N 1038	AA03821 LAB SN1041 3/9/05 @ 1140 GMT
2-METHYLHEXANE	< 0.06	TRACE	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.45	< 0.05	TRACE
2,3-DIMETHYLPENTANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.29	< 0.05	TRACE
PENTANAL	TRACE	TRACE	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	TRACE	< 0.06	< 0.06	< 0.05	TRACE
3-METHYLHEXANE	TRACE	TRACE	TRACE	TRACE	< 0.06	TRACE	TRACE	TRACE	< 0.05	< 0.06	0.55	< 0.05	TRACE
1,2-DICHLOROPROPANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
1,4-DIOXANE	< 0.06	< 0.06	< 0.06	< 0.05	TRACE	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
TRICHLOROETHENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
2,5-DIMETHYLFURAN	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
HEPTANE	TRACE	TRACE	TRACE	< 0.05	< 0.06	< 0.05	TRACE	TRACE	< 0.05	< 0.06	0.30	< 0.05	TRACE
4-METHYL-2-PENTANONE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
CIS-1,3-DICHLOROPROPENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
2-PENTENAL	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
TRANS-1,3-DICHLOROPROPENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
1,1,2-TRICHLOROETHANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
TOLUENE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.50	< 0.05	TRACE
HEXANAL	TRACE	TRACE	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	TRACE	< 0.06	TRACE	< 0.05	TRACE
MESITYL OXIDE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
1,2-DIBROMOETHANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
BUTYL ACETATE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.05	< 0.06	0.15	< 0.05	TRACE
TETRACHLOROETHENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
CHLOROBENZENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
ETHYLBENZENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	TRACE
META+PARA-XYLENES	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.15	< 0.05	TRACE
2-HEPTANONE	TRACE	TRACE	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	TRACE	< 0.06	TRACE	< 0.05	<0.05
CYCLOHEXANONE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.06	TRACE	< 0.05	TRACE
HEPTANAL	TRACE	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	TRACE	< 0.06	TRACE	< 0.05	TRACE
STYRENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
1,1,2,2-TETRACHLOROETHANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
ORTHO-XYLENE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.066	0.066	TRACE	TRACE	1.3	< 0.05	0.14
1,3,5-TRIMETHYLBENZENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
1,2,4-TRIMETHYLBENZENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05
1,3-DICHLOROBENZENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
1,4-DICHLOROBENZENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
1,2-DICHLOROBENZENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
1,2,4-TRICHLOROBENZENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
HEXACHLOROBUTADIENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05

TARGET COMPOUNDS (TOXIC)													
1,3-BUTADIENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
ETHYLENE OXIDE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
CARBON DISULFIDE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE
2-METHYL-2-PROPENAL	TRACE	TRACE	< 0.06	< 0.05	< 0.06	TRACE	< 0.06	< 0.05	TRACE	< 0.06	TRACE	< 0.05	<0.05
3-BUTEN-2-ONE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.05	<0.05
2-ETHOXYETHANOL	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05	<0.05
DIMETHYLDISULFIDE	TRACE	TRACE	< 0.06	< 0.05	TRACE	TRACE	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	<0.05

CHEMICAL CONTAMINANT	CONCENTRATION (mg/m3) DSTs												GSC
	AA03830W LAB S/N 1029 12/10/04 @ 10:40GMT	AA03831W SM S/N 1025 12/10/04 @ 10:45GMT	AA03824W SM S/N 1047 1/6/05 @ 9:30GMT	AA03825W LAB S/N 1046 1/6/05 @ 9:30GMT	AA03828W LAB S/N 1040 2/10/05 @ 9:30GMT	AA03829W SM S/N 1041 2/10/05 @ 9:30GMT	AA03823W LAB S/N 1042 3/9/05 @ 11:45GMT	AA03822W SM S/N 1044 3/9/05 @ 11:55GMT	AA03826W SM S/N 1036 4/13/05 @ 10:00GMT	AA03827W LAB S/N 1037 4/13/05 @ 10:00GMT	AA03832W S/N 1039	AA03833W UNUSED S/N 1038	AA03821 LAB SN1041 3/9/05 @ 1140 GMT
OCTAMETHYLCYCLOTETRASILOXANE	0.26	0.23	0.16	0.15	0.25	0.12	0.15	0.17	0.12	TRACE	0.44	TRACE	0.40
NON-TARGET COMPOUNDS													
OCTAFLUOROPROPANE	0.36	0.24	0.21	0.18	0.17	0.19	0.14	0.17	0.13	0.22	0.36	< 0.05	0.29
1,1,1,2-TETRAFLUOROETHANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	
PROPENE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.11	TRACE	TRACE
CARBONYLSULFIDE	#	#	#	#	#	#	#	#	#	#	0.41	#	TRACE
1-BUTENE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.07	TRACE	
TRIMETHYLSILANOL	0.077	TRACE	TRACE	TRACE	0.067	0.064	TRACE	TRACE	TRACE	TRACE	0.48	TRACE	
1,3-DIOXOLANE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	7.7	TRACE	
2-METHYL-1-PROPANOL	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.16	< 0.05	
C7-ALKANE	TRACE	TRACE	< 0.06	< 0.05	< 0.06	TRACE	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	
C7-ALKANE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.05	TRACE	0.14	< 0.05	
C7-ALKANE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.073	< 0.05	
C2-SUBSTITUTEDCYCLOPENTANE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.063	< 0.05	
C2-SUBSTITUTEDCYCLOPENTANE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.05	< 0.06	0.075	< 0.05	
METHYLCYCLOHEXANE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.05	TRACE	TRACE	< 0.05	
C8-ALKENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	
HEXAMETHYLCYCLOTRISILOXANE	0.48	0.35	0.14	0.24	0.45	0.12	0.39	0.30	0.30	0.063	1.2	0.06	0.77
PINENEISOMER	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.19	< 0.05	
BENZALDEHYDE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.087	TRACE	
C10-ALKANE	TRACE	TRACE	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	TRACE	TRACE	< 0.06	0.15	< 0.05	
C4-SUBSTITUTEDCYCLOHEXANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	
C10-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	
C10-ALKANE	< 0.06	TRACE	< 0.06	< 0.05	< 0.06	TRACE	< 0.06	< 0.05	TRACE	< 0.06	0.090	< 0.05	
C3-SUBSTITUTEDBENZENE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	TRACE	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	
C10-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.088	< 0.05	
C4-SUBSTITUTEDBENZENE	TRACE	TRACE	< 0.06	< 0.05	TRACE	TRACE	TRACE	TRACE	< 0.05	TRACE	TRACE	< 0.05	
C11-ALKANE	< 0.06	< 0.06	< 0.06	TRACE	< 0.06	< 0.05	TRACE	TRACE	< 0.05	< 0.06	1.0	< 0.05	
LIMONENE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	0.14	TRACE	
C11-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.22	< 0.05	
C12-ALKANE	< 0.06	< 0.06	< 0.06	TRACE	< 0.06	< 0.05	< 0.06	< 0.05	TRACE	< 0.06	2.1	TRACE	
C12-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.19	< 0.05	
C12-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.36	< 0.05	
C12-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.26	< 0.05	
C12-ALKANE	< 0.06	< 0.06	TRACE	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	TRACE	< 0.06	3.7	TRACE	
C11-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.34	< 0.05	
C11-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.11	< 0.05	
C12-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	TRACE	< 0.06	0.44	TRACE	
C12-CYCLOALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.24	< 0.05	
C11-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	TRACE	< 0.06	0.50	TRACE	
C11-ALKANE	TRACE	TRACE	TRACE	< 0.05	TRACE	TRACE	< 0.06	TRACE	< 0.05	TRACE	0.19	TRACE	
C12-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.092	< 0.05	
C12-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.29	< 0.05	
C12-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.088	< 0.05	

CHEMICAL CONTAMINANT	CONCENTRATION (mg/m3) DSTs												GSC
	AA03830W LAB S/N 1029 12/10/04 @ 10:40GMT	AA03831W SM S/N 1025 12/10/04 @ 10:45GMT	AA03824W SM S/N 1047 1/6/05 @ 9:30GMT	AA03825W LAB S/N 1046 1/6/05 @ 9:30GMT	AA03828W LAB S/N 1040 2/10/05 @ 9:30GMT	AA03829W SM S/N 1041 2/10/05 @ 9:30GMT	AA03823W LAB S/N 1042 3/9/05 @ 11:45GMT	AA03822W SM S/N 1044 3/9/05 @ 11:55GMT	AA03826W SM S/N 1036 4/13/05 @ 10:00GMT	AA03827W LAB S/N 1037 4/13/05 @ 10:00GMT	AA03832W S/N 1039	AA03833W UNUSED S/N 1038	AA03821 LAB SN1041 3/9/05 @ 1140 GMT
C12-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.21	< 0.05	
C12-CYCLOALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	
DECAMETHYLCYCLOPENTASILOXANE	0.071	0.089	TRACE	0.053	0.063	TRACE	TRACE	TRACE	0.053	TRACE	0.48	TRACE	
C12-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	
C10-BICYCLIOKETONE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	
C11-CYCLOALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	TRACE	< 0.05	
C13-ALKANE	< 0.06	< 0.06	< 0.06	< 0.05	< 0.06	< 0.05	< 0.06	< 0.05	< 0.05	< 0.06	0.088	< 0.05	
C13-ALKANE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	TRACE	< 0.05	
TOTAL ALCOHOLS PLUS ACETONE	5.3	4.0	5.9	5.4	4.1	4.5	4.9	4.3	4.1	6.9	#REF!	0.10	5.0
TARGET COMPOUNDS (GC)* **													
CARBON MONOXIDE													1.18
METHANE													TRACE
HYDROGEN													TRACE
CARBON DIOXIDE													7200
TOTAL CONCENTRATION (NON-METHANE HYDROCARBONS)	8.3	6.7	7.8	7.1	6.5	6.9	7.1	6.2	5.8	8.5	#REF!	0.64	7.7

 # Carbonyl Sulfide was not quantified because of natural background concentrations and measurement uncertainty.

< : Values are less than the laboratory report detection limit.

TRACE: Amount detected is sufficient for compound identification only. Calculations are based on one-half of the laboratory report detection limit (0.05 mg/m3 for VOCs; and 0.02 mg/m3 for propenal.)

TABLE 2
ANALYTICAL RESULTS OF
SOYUZ-9S DUAL SORBENT TUBE & GRAB SAMPLE CONTAINER AIR SAMPLES

CHEMICAL CONTAMINANT	T-VALUE (180-day SMAC) DSTs												GSC
	AA03830W LAB S/N 1029 12/10/04 @ 10:40GMT	AA03831W SM S/N 1025 12/10/04 @ 10:45GMT	AA03824W SM S/N 1047 1/6/05 @ 9:30GMT	AA03825W LAB S/N 1046 1/6/05 @ 9:30GMT	AA03828W LAB S/N 1040 2/10/05 @ 9:30GMT	AA03829W SM S/N 1041 2/10/05 @ 9:30GMT	AA03823W LAB S/N 1042 3/9/05 @ 11:45GMT	AA03822W SM S/N 1044 3/9/05 @ 11:55GMT	AA03826W SM S/N 1036 4/13/05 @ 10:00GMT	AA03827W LAB S/N 1037 4/13/05 @ 10:00GMT	AA03832W S/N 1039	AA03833W UNUSED S/N 1038	AA03821 LAB SN1041 3/9/05 @ 1140 GMT
TARGET COMPOUNDS (TO-14/POLAR)* **													
FREON 12	0.00006	0.00006	0.00006	0.00005	0.00006	0.00005	0.00006	0.00005	ND	0.00006	0.00130	ND	0.00005
CHLOROMETHANE	0.00073	0.00073	0.00073	0.00061	0.00073	0.00061	0.00073	0.00061	0.00061	0.00073	0.00073	ND	0.00061
FREON 114	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
METHANOL	**0.03403**	**0.02949**	**0.06226**	**0.03651**	**0.03430**	**0.03671**	**0.03570**	**0.02868**	**0.01286**	**0.02982**	**0.05413**	**0.00278**	**0.04600**
ACETALDEHYDE	**0.14843**	**0.16270**	**0.11235**	**0.04113**	**0.14985**	**0.20368**	**0.14643**	**0.07503**	**0.05963**	**0.12908**	**0.43423**	**0.01265**	**0.07600**
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BROMOMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHANOL	**0.00225**	**0.00168**	**0.00254**	**0.00239**	**0.00168**	**0.00189**	**0.00207**	**0.00183**	**0.00186**	**0.00317**	**0.00309**	**0.00001**	**0.00200**
CHLOROETHANE	0.00012	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00012	ND	ND
ACETONITRILE	0.00448	0.00448	0.00448	0.00373	0.00448	0.00373	0.00448	0.00373	0.00373	0.00448	0.00448	0.00373	0.00370
PROPENAL*	0.33333	0.33333	ND	ND	0.33333	0.33333	0.33333	ND	0.33333	0.33333	0.33333	ND	0.33000
ACETONE	**0.00533**	**0.00445**	**0.00315**	**0.00295**	**0.00380**	**0.00417**	**0.00411**	**0.00419**	**0.00263**	**0.00340**	**0.02197**	**0.00048**	**0.00620**
PROPANAL	0.00833	0.00833	0.00833	0.00694	0.00833	0.00694	0.00833	0.00694	0.00694	0.00833	0.00833	0.00694	0.00690
2-PROPANOL	**0.00099**	**0.00073**	**0.00058**	**0.00081**	**0.00093**	**0.00092**	**0.00124**	**0.00099**	**0.00043**	**0.00069**	**0.00401**	**0.00017**	**0.00140**
FREON 11	0.00004	0.00004	0.00004	0.00003	0.00004	0.00003	0.00004	0.00003	ND	0.00004	0.00012	ND	0.00003
FURAN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.42857	ND	ND
ACRYLONITRILE	0.01071	ND	ND	ND	ND	0.00893	ND	ND	ND	ND	0.01071	ND	0.00890
PENTANE	0.00005	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00005	ND	ND
2-METHYL-2-PROPANOL	0.00025	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00094	ND	0.00021
METHYL ACETATE	ND	ND	0.00025	0.00021	ND	ND	ND	ND	ND	ND	0.00197	ND	0.00021
1,1-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DICHLOROMETHANE	0.00300	0.00300	0.00300	0.00250	0.00300	0.00250	0.00300	0.00250	0.00250	0.00300	0.01915	ND	0.00670
3-CHLOROPROPENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FREON 113	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00008	ND	ND
N-PROPANOL	0.00031	0.00031	0.00031	0.00026	0.00031	0.00026	0.00031	0.00026	0.00026	0.00031	0.00062	ND	0.00057
1,1-DICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BUTANAL	0.00682	0.00682	ND	ND	0.00682	0.00568	ND	ND	0.00568	ND	0.00682	ND	0.00570
2-BUTANONE	0.00100	0.00100	0.00100	0.00083	0.00100	0.00083	0.00100	0.00083	0.00083	0.00100	0.02062	0.00083	0.00083
1,2-DICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-METHYLFURAN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ETHYL ACETATE	0.00017	0.00017	0.00017	0.00014	0.00017	0.00014	0.00017	0.00014	0.00014	0.00017	0.00739	ND	0.00014
HEXANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00035	ND	ND
CHLOROFORM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00600	ND	ND
2-BUTENAL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01765	ND	ND
1,2-DICHLOROETHANE	0.03000	0.03000	0.03000	0.02500	0.03000	0.02500	0.03000	0.02500	ND	0.03000	0.06070	ND	0.02500
1,1,1-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-BUTANOL	0.00165	0.00075	0.00075	0.00063	0.00075	0.00063	0.00075	0.00063	0.00063	0.00075	0.01221	ND	0.00260
BENZENE	ND	ND	0.15000	ND	0.15000	0.12500	ND	ND	ND	0.15000	0.15000	ND	0.13000
TETRACHLOROMETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

CHEMICAL CONTAMINANT	T-VALUE (180-day SMAC) DSTs												GSC
	AA03830W LAB S/N 1029 12/10/04 @ 10:40GMT	AA03831W SM S/N 1025 12/10/04 @ 10:45GMT	AA03824W SM S/N 1047 1/6/05 @ 9:30GMT	AA03825W LAB S/N 1046 1/6/05 @ 9:30GMT	AA03828W LAB S/N 1040 2/10/05 @ 9:30GMT	AA03829W SM S/N 1041 2/10/05 @ 9:30GMT	AA03823W LAB S/N 1042 3/9/05 @ 11:45GMT	AA03822W SM S/N 1044 3/9/05 @ 11:55GMT	AA03826W SM S/N 1036 4/13/05 @ 10:00GMT	AA03827W LAB S/N 1037 4/13/05 @ 10:00GMT	AA03832W S/N 1039	AA03833W UNUSED S/N 1038	AA03821 LAB SN1041 3/9/05 @ 1140 GMT
2-PENTANONE	0.00043	0.00043	ND	ND	ND	ND	ND	0.00036	0.00036	ND	ND	ND	ND
2-METHYLHEXANE	ND	0.00103	ND	ND	ND	ND	ND	ND	ND	ND	0.01538	ND	0.00086
2,3-DIMETHYLPENTANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00143	ND	0.00012
PENTANAL	0.00566	0.00566	ND	ND	ND	ND	ND	ND	0.00472	ND	ND	ND	0.00470
3-METHYLHEXANE	0.00103	0.00103	0.00103	0.00086	ND	0.00086	0.00103	0.00086	ND	ND	0.01893	ND	0.00086
1,2-DICHLOROPROPANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DIOXANE	ND	ND	ND	ND	0.00042	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,5-DIMETHYLFURAN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HEPTANE	0.00015	0.00015	0.00015	ND	ND	ND	0.00015	0.00013	ND	ND	0.00151	ND	0.00013
4-METHYL-2-PENTANONE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00021	ND	ND
CIS-1,3-DICHLOROPROPENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-PENTENAL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRANS-1,3-DICHLOROPROPENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-TRICHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TOLUENE	0.00050	0.00050	0.00050	0.00042	0.00050	0.00042	0.00050	0.00042	0.00042	0.00050	0.00826	ND	0.00042
HEXANAL	0.00492	0.00492	ND	ND	ND	ND	ND	ND	0.00410	ND	0.00492	ND	0.00410
MESITYL OXIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00075	ND	ND
1,2-DIBROMOETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BUTYL ACETATE	0.00016	0.00016	0.00016	0.00013	0.00016	0.00013	0.00016	0.00013	ND	ND	0.00077	ND	0.00013
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00065	ND	ND
ETHYLBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00060	ND	0.00050
META+PARA-XYLENES	0.00014	0.00014	0.00014	0.00011	0.00014	0.00011	0.00014	0.00011	0.00011	0.00014	0.00068	ND	0.00011
2-HEPTANONE	0.00130	0.00130	ND	ND	ND	ND	ND	ND	0.00109	ND	0.00130	ND	ND
CYCLOHEXANONE	0.00050	0.00050	0.00050	0.00042	0.00050	0.00042	0.00050	0.00042	0.00042	ND	0.00050	ND	0.00042
HEPTANAL	0.00429	ND	ND	ND	ND	ND	ND	ND	0.00357	ND	0.00429	ND	0.00360
STYRENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00070	ND	ND
1,1,2,2-TETRACHLOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ORTHO-XYLENE	0.00014	0.00014	0.00014	0.00011	0.00014	0.00011	0.00030	0.00030	0.00011	0.00014	0.00578	ND	0.00063
1,3,5-TRIMETHYLBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRIMETHYLBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00200	ND	ND
1,3-DICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-DICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-TRICHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HEXACHLOROBUTADIENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TARGET COMPOUNDS (TOXIC)													
1,3-BUTADIENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00000	ND	ND	ND
ETHYLENE OXIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00000	ND	ND	ND
CARBON DISULFIDE	0.00188	0.00188	0.00188	0.00156	0.00188	0.00156	0.00188	0.00156	0.00156	0.00188	0.00188	0.00156	0.00156
2-METHYL-2-PROPENAL	0.01765	0.01765	ND	ND	ND	0.01471	ND	ND	0.01471	0.00000	0.01765	ND	ND
3-BUTEN-2-ONE	0.06977	0.06977	0.06977	0.05814	0.06977	0.05814	0.06977	0.05814	0.05814	0.06977	0.06977	ND	ND

CHEMICAL CONTAMINANT	T-VALUE (180-day SMAC) DSTs												GSC
	AA03830W LAB S/N 1029 12/10/04 @ 10:40GMT	AA03831W SM S/N 1025 12/10/04 @ 10:45GMT	AA03824W SM S/N 1047 1/6/05 @ 9:30GMT	AA03825W LAB S/N 1046 1/6/05 @ 9:30GMT	AA03828W LAB S/N 1040 2/10/05 @ 9:30GMT	AA03829W SM S/N 1041 2/10/05 @ 9:30GMT	AA03823W LAB S/N 1042 3/9/05 @ 11:45GMT	AA03822W SM S/N 1044 3/9/05 @ 11:55GMT	AA03826W SM S/N 1036 4/13/05 @ 10:00GMT	AA03827W LAB S/N 1037 4/13/05 @ 10:00GMT	AA03832W S/N 1039	AA03833W UNUSED S/N 1038	AA03821 LAB SN1041 3/9/05 @ 1140 GMT
2-ETHOXYETHANOL	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00000	ND	ND	ND
DIMETHYLDISULFIDE	0.15	0.15	ND	ND	0.15	0.125	ND	ND	ND	0.00000	0.15	ND	ND
OCTAMETHYLCYCLOTETRASILOXANE	0.02157	0.01933	0.01354	0.01284	0.02094	0.00995	0.01245	0.01412	0.00987	0.0025	0.03651	0.00208	0.03322
NON-TARGET COMPOUNDS													
OCTAFLUOROPROPANE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	ND	0.00000
1,1,1,2-TETRAFLUOROETHANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00029	ND	
PROPENE	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00012	0.00003	0.00003
CARBONYLSULFIDE	#	#	#	#	#	#	#	#	#	#	0.03425	#	0.00208
1-BUTENE	0.00007	0.00007	0.00007	0.00005	0.00007	0.00005	0.00007	0.00005	0.00005	0.00007	0.00015	0.00005	
TRIMETHYLSILANOL	0.00208	0.00081	0.00081	0.00068	0.00180	0.00174	0.00081	0.00068	0.00068	0.00081	0.01288	0.00068	
1,3-DIOXOLANE	0.00083	0.00083	0.00083	0.00069	0.00083	0.00069	0.00083	0.00069	0.00069	0.00083	0.21427	0.00069	
2-METHYL-1-PROPANOL	0.00025	0.00025	0.00025	0.00021	0.00025	0.00021	0.00025	0.00021	0.00021	0.00025	0.00135	ND	
C7-ALKANE	0.00015	0.00015	ND	ND	ND	0.00012	ND	ND	ND	ND	0.00015	ND	
C7-ALKANE	0.00015	0.00015	0.00015	0.00012	0.00015	0.00012	0.00015	0.00012	ND	0.00015	0.00067	ND	
C7-ALKANE	0.00015	0.00015	0.00015	0.00012	0.00015	0.00012	0.00015	0.00012	0.00012	0.00015	0.00036	ND	
C2-SUBSTITUTEDCYCLOPENTANE	0.00100	0.00100	0.00100	0.00083	0.00100	0.00083	0.00100	0.00083	0.00083	0.00100	0.00211	ND	
C2-SUBSTITUTEDCYCLOPENTANE	0.00100	0.00100	0.00100	0.00083	0.00100	0.00083	0.00100	0.00083	ND	ND	0.00251	ND	
METHYLCYCLOHEXANE	0.00050	0.00050	0.00050	0.00042	0.00050	0.00042	0.00050	0.00042	ND	0.00050	0.00050	ND	
C8-ALKENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00013	ND	
HEXAMETHYLCYCLOTRISILOXANE	0.05321	0.03866	0.01577	0.02696	0.04981	0.01302	0.04311	0.03332	0.03356	0.00704	0.13862	0.00671	0.08511
PINENEISOMER	0.00022	0.00022	0.00022	0.00018	0.00022	0.00018	0.00022	0.00018	0.00018	0.00022	0.00137	ND	
BENZALDEHYDE	0.00017	0.00017	0.00017	0.00014	0.00017	0.00014	0.00017	0.00014	0.00014	0.00017	0.00050	0.00014	
C10-ALKANE	0.00069	0.00069	ND	ND	ND	ND	ND	0.00057	0.00057	ND	0.00349	ND	
C4-SUBSTITUTEDCYCLOHEXANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00070	ND	
C10-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00069	ND	
C10-ALKANE	ND	0.00069	ND	ND	ND	0.00057	ND	ND	0.00057	ND	0.00208	ND	
C3-SUBSTITUTEDBENZENE	ND	ND	ND	ND	ND	0.00167	ND	ND	ND	ND	0.00200	ND	
C10-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00202	ND	
C4-SUBSTITUTEDBENZENE	0.00214	0.00214	ND	ND	0.00214	0.00179	0.00214	0.00179	ND	0.00214	0.00214	ND	
C11-ALKANE	ND	ND	ND	0.00052	ND	ND	0.00063	0.00052	ND	ND	0.02183	ND	
LIMONENE	0.00005	0.00005	0.00005	0.00004	0.00005	0.00004	0.00005	0.00004	0.00004	0.00005	0.00025	0.00004	
C11-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00451	ND	
C12-ALKANE	ND	ND	ND	0.00018	ND	ND	ND	ND	0.00018	ND	0.01535	0.00018	
C12-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00135	ND	
C12-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00258	ND	
C12-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00188	ND	
C12-ALKANE	ND	ND	0.00022	ND	ND	ND	ND	ND	0.00018	ND	0.02631	0.00018	
C11-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00716	ND	
C11-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00223	ND	
C12-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	0.00018	ND	0.00315	0.00018	
C12-CYCLOALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.24020	ND	
C11-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	0.00052	ND	0.01032	0.00052	
C11-ALKANE	0.00063	0.00063	0.00063	ND	0.00063	0.00052	ND	0.00052	ND	0.00063	0.00393	0.00052	

CHEMICAL CONTAMINANT	T-VALUE (180-day SMAC) DSTs												GSC
	AA03830W LAB S/N 1029 12/10/04 @ 10:40GMT	AA03831W SM S/N 1025 12/10/04 @ 10:45GMT	AA03824W SM S/N 1047 1/6/05 @ 9:30GMT	AA03825W LAB S/N 1046 1/6/05 @ 9:30GMT	AA03828W LAB S/N 1040 2/10/05 @ 9:30GMT	AA03829W SM S/N 1041 2/10/05 @ 9:30GMT	AA03823W LAB S/N 1042 3/9/05 @ 11:45GMT	AA03822W SM S/N 1044 3/9/05 @ 11:55GMT	AA03826W SM S/N 1036 4/13/05 @ 10:00GMT	AA03827W LAB S/N 1037 4/13/05 @ 10:00GMT	AA03832W S/N 1039	AA03833W UNUSED S/N 1038	AA03821 LAB SN1041 3/9/05 @ 1140 GMT
C12-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00066	ND	
C12-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00206	ND	
C12-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00063	ND	
C12-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00152	ND	
C12-CYCLOALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03000	ND	
DECAMETHYLCYCLOPENTASILOXANE	0.00473	0.00596	0.00200	0.00356	0.00421	0.00167	0.00200	0.00167	0.00350	0.00200	0.03180	0.00167	
C12-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00022	ND	
C10-BICYCLIOKETONE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03000	ND	
C11-CYCLOALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03000	ND	
C13-ALKANE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00158	ND	
C13-ALKANE	0.00054	0.00054	0.00054	0.00045	0.00054	0.00045	0.00054	0.00045	0.00045	0.00054	0.00054	ND	
TARGET COMPOUNDS (GC)* **													
CARBON MONOXIDE													0.10708
METHANE													0.00019
HYDROGEN													0.00109
CARBON DIOXIDE													0.55213
TOTAL T-VALUE	0.94076	0.91735	0.49220	0.23532	1.03758	0.99765	0.71228	0.27117	0.57392	0.78987	2.84755	0.04282	1.45122

*** Measurements are calibrated by multi-point initial calibration and verified by mid-point continuing calibration

 # Carbonyl Sulfide was not quantified because of natural background concentrations and measurement uncertainty.