12269 East Vassar Drive, Aurora, CO 80014
303.881.6816, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	Dioxin/Furans by Method 1613
QC Level:	V[1]
SDG:	IPB1429
Matrix:	Soil/Water
No. of Samples:	8
No. of Reanalyses:	0
Date Reviewed:	March 12, 2006
Reviewer:	K. Shadowlight
Reference:	*National Functional Guidelines for Chlorinated Dioxin/Furan Data Review* (8/02), USEPA *Method 1613*
Samples Reviewed:	MJ610, MJ615, MJ617, MJ618, MJ619, MJ620, MJ621 and MJ636

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C. The samples were shipped to Alta for dioxin/furan analysis and were received below the temperature limits at 0°C. As the samples were not noted to be damaged or frozen, no qualifications were required. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. The original COC and transfer COC were signed and dated by field and laboratory personnel. The original COC requested the analysis of dioxins by EPA Method 8290. The transfer COC requested analysis by Method 1613. The laboratory analyzed the samples by Method 1613 as indicated on the transfer COC. The EPA IDs were added to the sample result summaries.	No qualifications were required.

	Findings	Qualifications
Sample Management (cont.)	The samples were extracted and analyzed within one year of sample collection.	No qualifications were required.
4. Method Blanks 0-7786-MB001 (soil) 0-7776-MB001 (water) 0-7987-MB001 (soil)	Target compound 1,2,3,4,6,7,8-HpCDF was reported at a concentration below the laboratory lower calibration level in the soil method blank, 0-7786-MB001. Target compounds OCDD, 1,2,3,4,6,7,8-HpCDF and OCDF were reported at concentrations below the laboratory lower calibration level in soil method blank, 0-7987-MB001. These target compounds were also reported in the samples of this SDG; however, the detects in the samples exceeded five times the concentration reported in the method blank. Target compounds 1,2,3,6,7,8-HxCDF and total HxCDF were reported as EMPCs in the soil method blank 0-7786-MB001 and 1,2,3,4,7,8-HxCDF was reported as an EMPC in soil method blank 0-7987-MB001. Target compound PeCDD was reported as an EMPC in the water method blank. There were no other detects reported in the method blank.	No qualifications were required.
5. OPR 0-7786-OPR001 0-7776-OPR001 0-7987-OPR001	All recoveries were within the acceptance criteria listed in Table 6 of Method 1613.	No qualifications were required.
6. MS/MSDs	MS/MSD analyses were not performed on the samples in this SDG.	No qualifications were required.
7. Field QC Samples FB: None ER: MJ615	Target compounds 1,2,3,4,6,7,8-HpCDD and OCDD were reported at concentrations below the laboratory lower calibration level in the equipment rinsate. These target compounds were also reported in the samples of this SDG; however, the detects in the samples exceeded five times the concentrations reported in the equipment rinsate.	No qualifications were required.

	Findings	Qualifications
10. Other	EMPCs were identified in this SDG.	Any EMPC was qualified as an estimated nondetect, "UJ."
	Target compound 2,3,7,8-TCDF was reported in samples MJ610, MJ621 and MJ636; however, a confirmation analysis was not performed by the laboratory.	The detects for 2,3,7,8-TCDF were qualified as estimated, "J," in samples MJ610, MJ621and MJ636.
	Any detects below the laboratory lower calibration level were qualified as estimated, "J," by the laboratory.	
	Diphenyl ether interference was present in several samples of this SDG and was denoted with a "D" flag by the laboratory.	Any detects with diethyl ether interference were qualified as estimated, "J," in the samples of this SDG
	Sample results were reported in units of pg/g on a dry-weight basis.	
Comments	Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613 for all samples in this SDG.	None

[1] Level V validation consists of cursory review of the summary forms and chromatograms, and raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed include instrument performance, initial and continuing calibrations.

ALTA

Sample ID:	IPB1429-03 MB1610				EPA Method 1613
Client Data		**Sample Data**		**Laboratory Data**	
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	27302-001
Project:	IPB1429	Sample Size:	10.7 g	QC Batch No.:	7786
Date Collected:	13-Feb-06	%Solids:	92.8	Date Analyzed DB-5:	27-Feb-06
Time Collected:	1345			Date Analyzed DB-225:	NA
				Date Received:	17-Feb-06
				Date Extracted:	26-Feb-06

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.129		
1,2,3,7,8-PeCDD	ND	0.128		
1,2,3,4,7,8-HxCDD	ND	0.340		
1,2,3,6,7,8-HxCDD	0.333			J
1,2,3,7,8,9-HxCDD	ND	0.197		
1,2,3,4,6,7,8-HpCDD	12.7			
OCDD	151			
2,3,7,8-TCDF	0.186			J
1,2,3,7,8-PeCDF	0.167			J
2,3,4,7,8-PeCDF	0.187			J
1,2,3,4,7,8-HxCDF	0.404			J
1,2,3,6,7,8-HxCDF	0.178			J
2,3,4,6,7,8-HxCDF	0.235			J
1,2,3,7,8,9-HxCDF	ND	0.269		
1,2,3,4,6,7,8-HpCDF	1.87			J,B
1,2,3,4,7,8,9-HpCDF	ND		0.189	
OCDF	3.09			J

Labeled Standard		%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	87.3	25 - 164	
	13C-1,2,3,7,8-PeCDD	89.8	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	77.2	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	91.4	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	94.3	23 - 140	
	13C-OCDD	68.6	17 - 157	
	13C-2,3,7,8-TCDF	93.1	24 - 169	
	13C-1,2,3,7,8-PeCDF	94.3	24 - 185	
	13C-2,3,4,7,8-PeCDF	92.8	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	91.1	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	93.5	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	86.4	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	84.8	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	86.5	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	102	26 - 138	
	13C-OCDF	82.2	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	81.8	35 - 197	

Totals			
Total TCDD	0.734	0.910	
Total PeCDD	0.494	0.786	
Total HxCDD	3.68		
Total HpCDD	48.2		
Total TCDF	0.928		
Total PeCDF	1.32		
Total HxCDF	3.96	4.21	
Total HpCDF	6.83	7.02	B

Toxic Equivalent Quotient (TEQ) Data [c]

TEQ (Min): 0.535

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit

e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF)

Analyst: DMS

Approved By: William J. Luksemburg 02-Mar-2006 10:36

ALTA

Sample ID:	IPB1429-07				EPA Method 1613
Client Data		**Sample Data**		**Laboratory Data**	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	27302-002
Project:	IPB1429	Sample Size:	1.00 L	QC Batch No:	7776
Date Collected:	13-Feb-06			Date Analyzed DB-5:	24-Feb-06
Time Collected:	1620			Date Received:	17-Feb-06
				Date Extracted:	22-Feb-06
				Date Analyzed DB-225:	NA

Analyte	Conc. (pg/L)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	1.69		
1,2,3,7,8-PeCDD	ND	1.89		
1,2,3,4,7,8-HxCDD	ND	2.84		
1,2,3,6,7,8-HxCDD	ND	2.95		
1,2,3,7,8,9-HxCDD	ND	2.80		
1,2,3,4,6,7,8-HpCDD	2.07			J
OCDD	8.27			J
2,3,7,8-TCDF	ND	1.75		
1,2,3,7,8-PeCDF	ND	2.79		
2,3,4,7,8-PeCDF	ND	2.72		
1,2,3,4,7,8-HxCDF	ND	0.449		
1,2,3,6,7,8-HxCDF	ND	0.457		
2,3,4,6,7,8-HxCDF	ND	0.551		
1,2,3,7,8,9-HxCDF	ND	0.878		
1,2,3,4,6,7,8-HpCDF	ND	1.06		
1,2,3,4,7,8,9-HpCDF	ND	1.13		
OCDF	ND	4.25		

Labeled Standard		%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	65.9	25 - 164	
	13C-1,2,3,7,8-PeCDD	63.0	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	62.0	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	71.3	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	75.4	23 - 140	
	13C-OCDD	46.5	17 - 157	
	13C-2,3,7,8-TCDF	72.2	24 - 169	
	13C-1,2,3,7,8-PeCDF	71.1	24 - 185	
	13C-2,3,4,7,8-PeCDF	71.9	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	75.8	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	74.8	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	67.5	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	69.3	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	68.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	76.9	26 - 138	
	13C-OCDF	55.4	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	91.6	35 - 197	

Totals		
Total TCDD	ND	1.69
Total PeCDD	ND	1.89
Total HxCDD	ND	2.86
Total HpCDD	2.07	
Total TCDF	ND	1.75
Total PeCDF	ND	2.76
Total HxCDF	ND	0.567
Total HpCDF	ND	1.10

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 0.0290

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration

c. Method detection limit.

d. Lower control limit - upper control limit.

e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF)

Analyst: DMS

Approved By: William J Luksemburg 02-Mar-2006 10:36

ALTA

Sample ID:	IPB1429-09			EPA Method 1613
Client Data		**Sample Data**		**Laboratory Data**
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample: 27302-003
Project:	IPB1429	Sample Size:	10.5 g	QC Batch No.: 7786
Date Collected:	14-Feb-06	%Solids:	93.9	Date Analyzed DB-5: 27-Feb-06
Time Collected:	0851			Date Received: 17-Feb-06
				Date Extracted: 26-Feb-06
				Date Analyzed DB-225: NA

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.111		
1,2,3,7,8-PeCDD	0.477			J
1,2,3,4,7,8-HxCDD	0.841			J
1,2,3,6,7,8-HxCDD	2.11			J
1,2,3,7,8,9-HxCDD	1.94			J
1,2,3,4,6,7,8-HpCDD	75.0			
OCDD	946			
2,3,7,8-TCDF	ND		0.371	
1,2,3,7,8-PeCDF	ND		0.181	
2,3,4,7,8-PeCDF	0.530			J
1,2,3,4,7,8-HxCDF	0.798			J
1,2,3,6,7,8-HxCDF	0.437			J
2,3,4,6,7,8-HxCDF	0.710			J
1,2,3,7,8,9-HxCDF	ND		0.289	
1,2,3,4,6,7,8-HpCDF	12.8			B
1,2,3,4,7,8,9-HpCDF	1.20			J
OCDF	85.7			

Labeled Standard		%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	91.6	25 - 164	
	13C-1,2,3,7,8-PeCDD	94.7	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	83.3	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	95.5	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	105	23 - 140	
	13C-OCDD	88.2	17 - 157	
	13C-2,3,7,8-TCDF	99.4	24 - 169	
	13C-1,2,3,7,8-PeCDF	98.0	24 - 185	
	13C-2,3,4,7,8-PeCDF	96.7	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	97.8	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	98.7	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	92.9	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	90.6	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	93.0	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	111	26 - 138	
	13C-OCDF	99.2	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	83.1	35 - 197	

Totals				
Total TCDD	ND	0.111		
Total PeCDD	1.18		1.94	
Total HxCDD	16.2			
Total HpCDD	149			
Total TCDF	2.00		2.37	
Total PeCDF	4.81		4.99	
Total HxCDF	15.8		16.1	
Total HpCDF	58.2			B

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 3.11

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF).

Analyst: DMS

Approved By: William J. Luksemburg 02-Mar-2006 10:36

ALTA

Sample ID: IPB1429-10 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	27302-004	Date Received:	17-Feb-06
Project:	IPB1429	Sample Size:	11.0 g	QC Batch No.:	7786	Date Extracted	26-Feb-06
Date Collected:	14-Feb-06	%Solids:	92.3	Date Analyzed DB-5	27-Feb-06	Dates Analyzed DB-225	28-Feb-06
Time Collected:	0910						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.252		
1,2,3,7,8-PeCDD	0.491			J
1,2,3,4,7,8-HxCDD	0.862			J
1,2,3,6,7,8-HxCDD	3.35			
1,2,3,7,8,9-HxCDD	1.89			J
1,2,3,4,6,7,8-HpCDD	125			
OCDD	1510			
2,3,7,8-TCDF	1.48			
1,2,3,7,8-PeCDF	0.647			J
2,3,4,7,8-PeCDF	1.62			J
1,2,3,4,7,8-HxCDF	2.60			
1,2,3,6,7,8-HxCDF	1.22			J
2,3,4,6,7,8-HxCDF	1.45			J
1,2,3,7,8,9-HxCDF	0.806			J
1,2,3,4,6,7,8-HpCDF	22.3			B
1,2,3,4,7,8,9-HpCDF	1.86			J
OCDF	48.9			

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	94.3	25 - 164	
	13C-1,2,3,7,8-PeCDD	95.8	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	89.6	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	96.6	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	91.7	23 - 140	
	13C-OCDD	74.7	17 - 157	
	13C-2,3,7,8-TCDF	97.2	24 - 169	
	13C-1,2,3,7,8-PeCDF	98.7	24 - 185	
	13C-2,3,4,7,8-PeCDF	95.8	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	103	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	101	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	95.5	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	85.3	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	84.8	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	102	26 - 138	
	13C-OCDF	84.7	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	85.6	35 - 197	

Totals			Toxic Equivalent Quotient (TEQ) Data [e]
Total TCDD	4.04	4.36	**TEQ (Min):** 5.50
Total PeCDD	3.31	3.98	
Total HxCDD	30.0		a. Sample specific estimated detection limit.
Total HpCDD	373		b. Estimated maximum possible concentration.
Total TCDF	14.0		c. Method detection limit.
Total PeCDF	11.6		d. Lower control limit - upper control limit.
Total HxCDF	38.8		e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF).
Total HpCDF	70.6	B	

Analyst: DMS

Approved By: William J. Luksemburg 02-Mar-2006 14:16

Sample ID: IPB1429-11 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	27302-005	Date Received:	17-Feb-06
Project:	IPB1429	Sample Size:	11.3 g	QC Batch No.:	7786	Date Extracted:	26-Feb-06
Date Collected:	14-Feb-06	%Solids:	89.6	Date Analyzed DB-5:	27-Feb-06	Dates Analyzed DB-225:	28-Feb-06
Time Collected:	0932						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	2.92			
1,2,3,7,8-PeCDD	9.24			
1,2,3,4,7,8-HxCDD	22.2			
1,2,3,6,7,8-HxCDD	98.8			
1,2,3,7,8,9-HxCDD	38.5			
1,2,3,4,6,7,8-HpCDD	2420			
OCDD	28000			
2,3,7,8-TCDF	2.20			
1,2,3,7,8-PeCDF	1.47			J
2,3,4,7,8-PeCDF	4.35			
1,2,3,4,7,8-HxCDF	13.4			
1,2,3,6,7,8-HxCDF	10.4			
2,3,4,6,7,8-HxCDF	24.3			
1,2,3,7,8,9-HxCDF	2.55			
1,2,3,4,6,7,8-HpCDF	380			B
1,2,3,4,7,8,9-HpCDF	36.1			
OCDF	1030			

Labeled Standard		%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	99.2	25 - 164	
	13C-1,2,3,7,8-PeCDD	99.5	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	92.1	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	99.2	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	97.4	23 - 140	
	13C-OCDD	86.5	17 - 157	
	13C-2,3,7,8-TCDF	102	24 - 169	
	13C-1,2,3,7,8-PeCDF	103	24 - 185	
	13C-2,3,4,7,8-PeCDF	102	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	105	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	103	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	96.9	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	86.2	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	86.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	105	26 - 138	
	13C-OCDF	91.4	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	87.7	35 - 197	

Totals			
Total TCDD	6.39	6.62	
Total PeCDD	51.5		
Total HxCDD	550		
Total HpCDD	4370		
Total TCDF	31.5	32.6	
Total PeCDF	111		
Total HxCDF	682		
Total HpCDF	1650		B

Toxic Equivalent Quotient (TEQ) Data [c]

TEQ (Min): 88.4

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF)

Analyst: DMS

Approved By: William J. Luksemburg 02-Mar-2006 14:16

ALTA

Sample ID: IPB1429-12 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	27302-006	Date Received:	17-Feb-06
Project:	IPB1429	Sample Size:	10.7 g	QC Batch No.:	7786	Date Extracted:	26-Feb-06
Date Collected:	14-Feb-06	%Solids:	92.9	Date Analyzed DB-5:	27-Feb-06	Dates Analyzed DB-225:	28-Feb-06
Time Collected:	0938						

Analyte	Conc. (pg/g)	DL [a]	EMPC[b]	Qualifiers
2,3,7,8-TCDD	2.81			
1,2,3,7,8-PeCDD	8.36			
1,2,3,4,7,8-HxCDD	21.4			
1,2,3,6,7,8-HxCDD	87.1			
1,2,3,7,8,9-HxCDD	33.4			
1,2,3,4,6,7,8-HpCDD	1880			
OCDD	20200			
2,3,7,8-TCDF	1.05			
1,2,3,7,8-PeCDF	1.29			J
2,3,4,7,8-PeCDF	2.91			
1,2,3,4,7,8-HxCDF	11.6			
1,2,3,6,7,8-HxCDF	9.42			
2,3,4,6,7,8-HxCDF	19.0			
1,2,3,7,8,9-HxCDF	2.19			J
1,2,3,4,6,7,8-HpCDF	297			B
1,2,3,4,7,8,9-HpCDF	26.3			
OCDF	743			

	Labeled Standard	%R	LCL-UCL[d]	Qualifiers
IS	13C-2,3,7,8-TCDD	84.4	25 - 164	
	13C-1,2,3,7,8-PeCDD	90.4	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	77.9	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	84.4	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	82.6	23 - 140	
	13C-OCDD	66.6	17 - 157	
	13C-2,3,7,8-TCDF	88.0	24 - 169	
	13C-1,2,3,7,8-PeCDF	95.3	24 - 185	
	13C-2,3,4,7,8-PeCDF	94.1	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	86.6	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	85.7	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	84.0	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	81.6	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	82.3	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	82.8	26 - 138	
	13C-OCDF	67.5	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	76.1	35 - 197	

Totals	
Total TCDD	12.5
Total PeCDD	60.4
Total HxCDD	475
Total HpCDD	3510
Total TCDF	22.0
Total PeCDF	95.4
Total HxCDF	577
Total HpCDF	1410 B

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 70.0

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF).

Analyst: DMS

Approved By: William J. Luksemburg 02-Mar-2006 10:36

ALTA

Sample ID: IPB1429-13 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	27302-007	Date Received:	17-Feb-06
Project:	IPB1429	Sample Size:	12.0 g	QC Batch No:	7786	Date Extracted:	26-Feb-06
Date Collected	14-Feb-06	%Solids:	83.5	Date Analyzed DB-5:	27-Feb-06	Date Analyzed DB-225:	NA
Time Collected	1003						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	0.543			
1,2,3,7,8-PeCDD	2.17			J
1,2,3,4,7,8-HxCDD	5.18			
1,2,3,6,7,8-HxCDD	19.2			
1,2,3,7,8,9-HxCDD	7.62			
1,2,3,4,6,7,8-HpCDD	457			
OCDD	5160			
2,3,7,8-TCDF	0.982			
1,2,3,7,8-PeCDF	0.455			J
2,3,4,7,8-PeCDF	1.31			J
1,2,3,4,7,8-HxCDF	3.60			
1,2,3,6,7,8-HxCDF	2.64			
2,3,4,6,7,8-HxCDF	5.11			
1,2,3,7,8,9-HxCDF	0.660			J
1,2,3,4,6,7,8-HpCDF	82.0			B
1,2,3,4,7,8,9-HpCDF	7.23			
OCDF	231			

Labeled Standard		%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	107	25 - 164	
	13C-1,2,3,7,8-PeCDD	108	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	101	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	108	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	99.0	23 - 140	
	13C-OCDD	101	17 - 157	
	13C-2,3,7,8-TCDF	113	24 - 169	
	13C-1,2,3,7,8-PeCDF	111	24 - 185	
	13C-2,3,4,7,8-PeCDF	112	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	111	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	112	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	105	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	99.1	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	93.0	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	111	26 - 138	
	13C-OCDF	105	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	87.1	35 - 197	

Totals			
Total TCDD	0.755		
Total PeCDD	10.6	11.9	
Total HxCDD	112		
Total HpCDD	892		
Total TCDF	10.7		
Total PeCDF	24.2		
Total HxCDF	139		
Total HpCDF	334		B

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 17.7

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit

d. Lower control limit - upper control limit.

e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF)

Analyst: DMS

Approved By: William J. Luksemburg 02-Mar-2006 10:36

ALTA

Sample ID:	IPB1429-24 MJ6036			EPA Method 1613
Client Data		**Sample Data**		**Laboratory Data**
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample: 27639-005
Project:	IPD2761	Sample Size:	12.4 g	QC Batch No: 7987
Date Collected:	14-Feb-06	%Solids:	82.9	Date Analyzed DB-5: 4-May-06
Time Collected:	1510			Date Received: 29-Apr-06
				Date Extracted: 3-May-06
				Date Analyzed DB-225: NA

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	0.534			
1,2,3,7,8-PeCDD	2.20			J
1,2,3,4,7,8-HxCDD	5.25			
1,2,3,6,7,8-HxCDD	32.8			
1,2,3,7,8,9-HxCDD	10.6			
1,2,3,4,6,7,8-HpCDD	1320			
OCDD	18600			B
2,3,7,8-TCDF	0.789			
1,2,3,7,8-PeCDF	0.580			J
2,3,4,7,8-PeCDF	1.64			J
1,2,3,4,7,8-HxCDF	3.65			
1,2,3,6,7,8-HxCDF	3.37			
2,3,4,6,7,8-HxCDF	6.44			
1,2,3,7,8,9-HxCDF	0.968			J
1,2,3,4,6,7,8-HpCDF	100			B,D
1,2,3,4,7,8,9-HpCDF	10.0			
OCDF	245			B

Labeled Standard		%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	94.7	25 - 164	
	13C-1,2,3,7,8-PeCDD	88.6	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	91.0	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	97.8	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	100	23 - 140	
	13C-OCDD	106	17 - 157	
	13C-2,3,7,8-TCDF	104	24 - 169	
	13C-1,2,3,7,8-PeCDF	97.1	24 - 185	
	13C-2,3,4,7,8-PeCDF	95.2	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	92.3	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	90.7	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	94.7	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	96.2	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	92.2	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	87.3	26 - 138	
	13C-OCDF	78.1	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	96.2	35 - 197	

Totals	
Total TCDD	3.12
Total PeCDD	16.0
Total HxCDD	264
Total HpCDD	2440
Total TCDF	9.32
Total PeCDF	41.3
Total HxCDF	192
Total HpCDF	427

Toxic Equivalent Quotient (TEQ) Data [e]	
TEQ (Min):	42.0

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (1989) International Toxic Equivalent Factors (ITEF)

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 12:31

550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026
303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Methyl Mercury
QC Level:	V[1]
SDG:	MWH8301
Matrix:	Soil
No. of Samples:	5
REs/DLs:	0
Date Reviewed:	September 06, 2001
Reviewer:	P. Meeks
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	MM001, MM002, MM003, MM004, MM005

Data Validation Findings

	Findings	Qualifications
1. Sample Management	According to the case narrative, the sample containers were not broken The cooler was received within the temperature limits of 4°±2°C and the samples were frozen upon receipt at the laboratory. No information was provided about cooler custody seals. The holding time is indefinite for soils frozen upon receipt at the laboratory.	No qualifications were required.
3. Method Blanks	One soil method blank was analyzed with this SDG. Methyl mercury was not reported above the MDL in the method blank.	No qualifications were required.
4. LCS/BS	One soil blank was analyzed in this SDG. The recovery for methyl mercury was within the laboratory QC limits.	No qualifications were required.
6. MS/MSDs	No MS/MSD analyses were performed in association with the samples in this SDG.	No qualifications were required.

	Findings	Qualifications
7. Field QC Samples ER: None FB: None FD: None	No field QC samples were associated with the samples in this SDG.	No qualifications were required.
8. Other	Sample results were reported on a dry-weight basis.	None
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

QC Results for Montgomery Watson

Reported August 20, 2001

Frontier Geosciences Inc., 414 Pontius Ave. N, Suite B, Seattle WA 98109

Analyte	MeHg (ng/g)		Total Solids %
Sample ID	Dry Weight	Per Qual	Qual Code
MM001	1.61		96.0
MM002	< 0.004	U	95.7
MM003	3.62		99.0
MM004	1.50		95.0
MM005	5.68		97.8

550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026
303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Metals by Method 7471A
QC Level:	V[1]
SDG:	MJ001
Matrix:	Soil/Water
No. of Samples:	14
Date Reviewed:	June 27, 2002
Reviewer:	A. Lang
Reference:	*USEPA SW-846 Method 7471A (11/90)*
Samples Reviewed:	MJ003, MJ004, MJ008, MJ010, MJ011, MJ012, MJ013, MJ014, MJ015, MJ016, MJ017, MJ018, MJ019, MJ020

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The coolers were received with temperatures above the QC limits of 4°±2° C. The sample IDs listed as RJ454-RJ476 on the COCs were changed to MJ001-MJ020 per a change request from AMEC-San Diego dated 8/14/01. Samples MJ001, MJ002, MJ005, MJ006, MJ007, and MJ009 were placed on hold as requested on the COC. The COC matched the samples and accounted for the analysis. No custody seals were present on the coolers. The analysis was performed within the 28-day holding time for mercury.	Due to the nonvolatile nature of the analytes, no qualifications were required.
3. Method Blanks	Mercury was not detected in the method blank associated with the samples in this SDG.	No qualifications were required.
5. LCS/BS	One solid LCS sample was analyzed with the samples. The recovery for mercury was within the laboratory defined QC limits.	No qualifications were required.

	Findings	Qualifications
6. Duplicates Performed for MJ004	The RPD was less than the control limit of ±20%.	No qualifications were required.
7. MS/MSDs Performed for MJ004	The %Rs were within the control limits of 75-125%.	No qualifications were required.
9. ICP Serial Dilution	None.	No qualifications were required.
10. Other	None.	No qualifications were required.
11. Field QC Samples FB: MJ019 Field duplicates: none	Mercury was not detected in the field QC sample.	No qualifications were required.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ003

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-03

Level (low/med): LOW Date Received: 08/04/01

% Solids: 92.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.03	U		AV	U	

LEVEL V AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ004

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-04

Level (low/med): LOW Date Received: 08/04/01

% Solids: 89.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.05	B		AV		

LEVEL V

AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
MJ008

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-08

Level (low/med): LOW Date Received: 08/04/01

% Solids: 90.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.85			AV

Rev Qual | Qual code

LEVEL V

AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ010

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-10

Level (low/med): LOW Date Received: 08/04/01

% Solids: 94.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual code
7439-97-6	Mercury	0.31			AV		

LEVEL V

AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ011

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-11

Level (low/med): LOW Date Received: 08/04/01

% Solids: 95.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual Code
7439-97-6	Mercury	0.26			AV	

LEVEL V

AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ012

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-12

Level (low/med): LOW Date Received: 08/04/01

% Solids: 95.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual code
7439-97-6	Mercury	0.13			AV		

LEVEL V

AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ013

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-13

Level (low/med): LOW Date Received: 08/04/01

% Solids: 98.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.11			AV		

LEVEL V

AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ014

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-14

Level (low/med): LOW Date Received: 08/04/01

% Solids: 98.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	1.1			AV		

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ015

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-15

Level (low/med): LOW Date Received: 08/04/01

% Solids: 95.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual Code
7439-97-6	Mercury	0.78			AV	

LEVEL V AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ016

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-16

Level (low/med): LOW Date Received: 08/04/01

% Solids: 97.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.21			AV		

LEVEL V

AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ017

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-17

Level (low/med): LOW Date Received: 08/04/01

% Solids: 94.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.10	B		AV		

LEVEL V AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ018

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-18

Level (low/med): LOW Date Received: 08/04/01

% Solids: 95.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.23			AV

Rev Qual Qual code

LEVEL V

AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Ceimic

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ019

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): WATER Lab Sample ID: 010662-19

Level (low/med): LOW Date Received: 08/04/01

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

CAS No.	Analyte	Concentration	C	Q	M	Raw Qual	Qual Code
7439-97-6	Mercury	0.05	U		AV	U	

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL MERCURY

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MJ020

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010662 SAS No.: SDG NO.: MJ001

Matrix (soil/water): SOIL Lab Sample ID: 010662-20

Level (low/med): LOW Date Received: 08/04/01

% Solids: 96.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.32			AV		

LEVEL V

AMEC VALIDATED

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026
303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI
Project Manager: D. Hambrick
Analysis/Method: General Minerals by 314 and 9045C
QC Level: V[1]
SDG: RJ001
Matrix: Soil
No. of Samples: 7
Date Reviewed: January 14, 2003
Reviewer: P. Meeks
Reference: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review* (2/94)
Samples Reviewed: RJ003, RJ018, RJ019, RJ506, RJ511, RJ512, RJ513

Data Validation Findings

	Findings	Qualifications
1. Sample Management	Temperature upon receipt was above the QC limits of 4°±2°C. The COCs accounted for the samples and analyses in this SDG. Custody seals were present and intact on the cooler. The perchlorate holding times were met. The pH holding times were exceeded.	Due to the nonvolatlie nature of the analyte, no qualifications were required. The pH results were qualified as estimated, "J."
3. Method Blanks	One soil method blank was analyzed in association with the samples in this SDG. Perchlorate was not detected in the method blank. The method blank does not apply to pH.	No qualifications were required.
5. LCS/BS	One soil LCS was analyzed in association with the samples in this SDG. The recovery for perchlorate was within the laboratory-established control limits of 80-120%. The LCS does not apply to pH.	No qualifications were required.
6. Duplicates RJ506 – pH only	The RPD was less than the laboratory-established control limit of 20%.	No qualifications were required.

	Findings	Qualifications
7. MS/MSDs None	None.	No qualifications were required.
10. Other	None.	No qualifications were required.
11. Field QC Samples ER: RJ630, RJ631, RJ636 (SDG RJ629) FB: RJ638 (SDG RJ629) Field duplicates: none	Perchlorate was detected in equipment rinsate RJ636, but was not detected in the site sample in this SDG. There were no field QC samples associated with the site samples analyzed for pH.	No qualifications were required.
Comments	None	None

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CEIMIC
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"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ003

Date Sampled: 06/28/00 Laboratory ID: 200456-03

Date Sample Received: 07/03/00

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Rev Qual	Qua Code
* Perchlorate	ND	mg/L	0.005	07/10/00	07/10/00	U	

ND = Not Detected

* Analysis performed on ASTM leachate

Reported by: _____ Approved by: _____

705

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ018

Date Sampled: 06/30/00

Laboratory ID: 200456-08

Date Sample Received: 07/03/00

Percent Solids: 88.2

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Re Qual	Qua Cod
pH	7.89	pH Units		07/10/00	07/10/00	J	H

+ Dry weight basis.

Reported by: _____ Approved by: _____

AMEC VALIDATED

CEIMIC
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INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ019

Date Sampled: 06/30/00

Laboratory ID: 200456-09

Date Sample Received: 07/03/00

Percent Solids: 88.1

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Rev Qual	Qua Code
pH	8.35	pH Units		07/10/00	07/10/00	J	H

+ Dry weight basis.

Reported by: Virginia Williams

Approved by: DH

CEIMIC
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"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ506

Date Sampled: 06/30/00

Laboratory ID: 200456-10

Date Sample Received: 07/03/00

Percent Solids: 84.5

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Rw Qual	Qua Cod
pH	4.62	pH Units		07/10/00	07/10/00	J	H

+ Dry weight basis.

Reported by: _____

Approved by: _____

AMEC VALIDATED

709

CEIMIC
Corporation
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INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ511

Date Sampled: 06/30/00

Laboratory ID: 200456-15

Date Sample Received: 07/03/00

Percent Solids: 98.5

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Av Qual	Qual Code
pH	6.33	pH Units		07/10/00	07/10/00	J	H

+ Dry weight basis.

Reported by: _____ Approved by: _____

AMEC VALIDATED

711

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ512

Date Sampled: 06/30/00

Laboratory ID: 200456-16

Date Sample Received: 07/03/00

Percent Solids: 94.3

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	RW Qual	Qual Code
pH	9.29	pH Units		07/10/00	07/10/00	J	H

+ Dry weight basis.

Reported by: _____

AMEC VALIDATED

Approved by: _____

CEIMIC
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"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ513

Date Sampled: 06/30/00

Laboratory ID: 200456-17

Date Sample Received: 07/03/00

Percent Solids: 97.9

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Rev Qual	Qual Code
pH	4.63	pH Units		07/10/00	07/10/00	J	H

+ Dry weight basis.

ANEC VALIDATED

Reported by: _____ Approved by: _____

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	General Minerals by IC and 9045
QC Level:	V[1]
SDG:	RJ149
Matrix:	Soil
No. of Samples:	5
Date Reviewed:	June 12, 2001
Reviewer:	P. Meeks
Reference:	*USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review* (2/94)
Samples Reviewed:	RJ152, RJ153, RJ155, RJ156, RJ158

Data Validation Findings

	Findings	Qualifications
1. Sample Management	Temperatures were within the QC limits of 4°±2°C. COC matches samples and accounts for analyses. Custody seals were present on the cooler. The holding time was met for fluoride. The holding time for pH was exceeded.	The pH results for the samples were qualified "J."
3. Method Blanks	Fluoride was not detected in the method blank. Not applicable to the pH analysis.	No qualifications were required.
5. LCS/BS	Acceptable as reviewed for fluoride. Not performed for the pH analysis.	No qualifications were required.
6. Duplicates	None performed.	No qualifications were required.
7. MS/MSDs	None performed.	No qualifications were required.
10. Other	The fluoride analysis of RJ155 was performed at a 25× dilution.	No qualifications were required.
11. Field QC Samples Field duplicates: none	There were no field QC samples associated with the samples in this SDG.	No qualifications were required.
Comments	None	None

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INORGANIC ANALYTES

Client: AMEC

Client Sample ID: RJ152

Date Sampled: 03/26/01

Laboratory ID: 010272-04

Date Sample Received: 03/29/01

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Rev Qual	Qual Code
pH	7.72	pH Units		04/09/01	04/09/01	J	H

+ Dry weight basis.

CGDEN VALIDATED

LEVEL V

Reported by: KBF

Approved by: JM

CEIMIC
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INORGANIC ANALYTES

Client. AMEC

Client Sample ID: RJ153

Date Sampled: 03/26/01

Laboratory ID: 010272-05

Date Sample Received. 03/29/01

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Lab Qual	Qual Code
pH	7.12	pH Units		04/09/01	04/09/01	J	#

+ Dry weight basis.

OGDEN VALIDATED

LEVEL V

Reported by: KBR

Approved by: JM

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: AMEC

Client Sample ID: RJ155

Date Sampled: 03/27/01

Laboratory ID: 010272-07

Date Sample Received: 03/29/01

Percent Solids: 86.2

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Rev Qual	Qual Code
Fluoride*	137	mg/Kg+	25.0	04/10/01	04/10/01		
pH	8.73	pH Units		04/09/01	04/09/01	J	H

+ Dry weight basis.
* Analysis performed on the ASTM leachate

OGDEN VALIDATED

LEVEL V

Reported by: CBF

Approved by: JM

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: AMEC

Client Sample ID: RJ156

Date Sampled: 03/27/01

Laboratory ID: 010272-08

Date Sample Received: 03/29/01

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Rev Qual	Qual Code
pH	5.37	pH Units		04/09/01	04/09/01	J	H

+ Dry weight basis.

OGDEN VALIDATED

LEVEL V

Reported by: KBF

Approved by: LM

830

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: AMEC

Client Sample ID: RI158

Date Sampled: 03/28/01

Laboratory ID: 010272-10

Date Sample Received: 03/29/01

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed	Rev Qual	Qua Cod
pH	7.25	pH Units		04/09/01	04/09/01	J	H

+ Dry weight basis.

CEIMIC VALIDATED

LEVEL V

Reported by: CBF

Approved by: JM

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
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303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	General Minerals by Methods 9045 and IC
QC Level:	V[1]
SDG:	RJ772
Matrix:	Soil
No. of Samples:	17
Date Reviewed:	January 19, 2001
Reviewer:	K. Chapman
Reference:	*USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review* (2/94)
Samples Reviewed:	RJ772, RJ773, RJ774, RJ775, RJ776, RJ777, RJ778, RJ779, RJ780, RJ781, RJ782, RJ784, RJ785, RJ788, RJ789, RJ790, RJ791

Data Validation Findings

	Findings	Qualifications
1. Sample Management	Temperatures were within QC limits of 4°±2°C. COCs match samples and account for analyses. Custody seals intact. Holding time exceeded for pH analyses.	Sample pH results qualified "J."
3. Method Blanks	No detects reported for perchlorate analysis. Not applicable to pH analysis.	No qualifications were required.
5. LCS/BS	Acceptable as reviewed.	No qualifications were required.
6. Duplicates Performed for pH on sample RJ773	Acceptable as reviewed. No duplicate analysis performed for the perchlorate analysis.	No qualifications were required.
7. MS/MSDs	No matrix spike analysis performed for the perchlorate analysis. No applicable to the pH analysis.	No qualifications were required.
10. Other	None	No qualifications were required.
11. Field QC Samples Field duplicates: RJ772/RJ773, RJ774/RJ775, RJ784/RJ785, RJ788/RJ789, and RJ790/RJ791	Not applicable to pH analysis. For the perchlorate analysis: ER: RJ631 FB: RJ638 Duplicate pairs in good agreement.	No qualifications were required.

	Findings	Qualifications
Comments	None	None

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INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ772

Date Sampled: 11/01/00

Laboratory ID: 200794-01

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	8.01	pH Units		11/08/00	11/08/00

+ Dry weight basis.

LEVEL V

Reported by: KBF

Approved by: ZLP

CEIMIC
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"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ773

Date Sampled: 11/01/00

Laboratory ID: 200794-02

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	7.82	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: KBF

Approved by: ZP

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ774

Date Sampled: 11/01/00

Laboratory ID: 200794-03

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	7.51	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: _____ Approved by: _____

1450

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ775

Date Sampled: 11/01/00

Laboratory ID: 200794-04

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	7.63	pH Units		12/04/00	12/04/00

+ Dry weight basis.

Reported by: _____

Approved by: _____

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ776

Date Sampled: 11/01/00

Laboratory ID: 200794-05

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	7.80	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: _____ Approved by: _____

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ777

Date Sampled: 11/01/00

Laboratory ID: 200794-06

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	7.23	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: _____ Approved by: _____

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ778

Date Sampled: 11/01/00

Laboratory ID: 200794-07

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	7.33	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: _____

Approved by: _____

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ779

Date Sampled: 11/01/00

Laboratory ID: 200794-08

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	6.74	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: KBK

Approved by: MP

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ780

Date Sampled: 11/01/00

Laboratory ID: 200794-09

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	6.52	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: _____

Approved by: _____

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ781

Date Sampled: 11/01/00

Laboratory ID: 200794-10

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	7.59	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: KSF

Approved by: ZP

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ782

Date Sampled: 11/02/00

Laboratory ID: 200794-11

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	7.92	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: _____ Approved by: _____

CEIMIC
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INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ784

Date Sampled: 11/02/00

Laboratory ID: 200794-13

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Lab Qual	Qual Code	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Perchlorate	U		ND	mg/Kg+	0.05	11/09/00	11/09/00
pH	J	H	6.75	pH Units		11/08/00	11/08/00

ND = Not Detected
+ Dry weight basis.

Reported by: KBK

Approved by: 211

CEIMIC
Corporation
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INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ785

Date Sampled: 11/02/00

Laboratory ID: 200794-14

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Perchlorate	ND	mg/Kg+	0.05	11/09/00	11/09/00
pH	6.71	pH Units		11/08/00	11/08/00

ND = Not Detected
+ Dry weight basis.

Reported by: _____

Approved by: _____

CEIMIC
Corporation
"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ788

Date Sampled: 11/02/00

Laboratory ID: 200794-16

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	6.23	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: KSF

Approved by: 7/12

1469

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ789

Date Sampled: 11/02/00

Laboratory ID: 200794-17

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	6.31	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: _____ Approved by: _____

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ790

Date Sampled: 11/02/00

Laboratory ID: 200794-18

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	5.62	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: KVB

Approved by: MP

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INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ791

Date Sampled: 11/02/00

Laboratory ID: 200794-19

Date Sample Received: 11/06/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	5.06	pH Units		11/08/00	11/08/00

+ Dry weight basis.

Reported by: KB PC

Approved by: JJP

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	General Minerals by Method 9045, Method 340.2, Method 7196, and IC
QC Level:	V[1]
SDG:	RJ514
Matrix:	Soil/Water
No. of Samples:	5
Date Reviewed:	January 25, 2001
Reviewer:	K. Chapman
Reference:	*USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review* (2/94)
Samples Reviewed:	RJ516, RJ517, RJ520, RJ526, RJ543

Data Validation Findings

	Findings	Qualifications
1. Sample Management	Temperatures were within the QC limits of 4°±2°C. COC matches samples and accounts for analyses. Custody seals present. Holding time exceeded for pH and fluoride analysis. Forty-eight hour holding time for nitrate/nitrite and o-phosphate exceeded by 21 days.	Sample RJ543 was identified as a field QC sample; therefore, it was not qualified for holding time, unless rejected. Sample pH and fluoride results qualified "J." Sample nitrate/nitrite and o-phosphate results rejected.
3. Method Blanks	No detects reported.	No qualifications were required.
5. LCS/BS	Acceptable as reviewed.	No qualifications were required.
6. Duplicates	None performed.	No qualifications were required.
7. MS/MSDs	None performed.	No qualifications were required.
10. Other	None	No qualifications were required.
11. Field QC Samples Field duplicates: None	None.	No qualifications were required.
Comments	None	None

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CEIMIC
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INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ516

Date Sampled: 07/05/00

Laboratory ID: 200484-03

Date Sample Received: 07/08/00

Percent Solids:

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	7.19	pH Units		08/22/00	08/22/00

+ Dry weight basis.

LEVEL V

Reported by: KBF

Approved by: JJ

1415

CEIMIC
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"Analytical Chemistry for Environmental Management"

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ517

Date Sampled: 07/05/00

Laboratory ID: 200484-04

Date Sample Received: 07/08/00

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	6.94	pH Units		08/22/00	08/22/00

Reported by: KBF

Approved by: JD

1416

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ520

Date Sampled: 07/06/00

Laboratory ID: 200484-07

Date Sample Received: 07/08/00

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
pH	7.57	pH Units		08/22/00	08/22/00

Reported by: KBF

Approved by: JD

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ526

Date Sampled: 07/07/00

Laboratory ID: 200484-13

Date Sample Received: 07/08/00

Matrix: Soil

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Fluoride	4.41	~~mg/L~~ mg/kg	1.00	08/24/00	08/24/00

Reported by: KBF

Approved by: JP

1418

INORGANIC ANALYTES

Client: Ogden Environmental

Client Sample ID: RJ543

Date Sampled: 07/12/00

Laboratory ID: 200484-21

Date Sample Received: 07/13/00

Matrix: Aqueous

Target Analyte	Result	Units	Method Reporting Limit	Date Prep'd	Date Analyzed
Bromide	ND	mg/L	0.05	08/02/00	08/02/00
Chloride	ND	mg/L	0.015	08/02/00	08/02/00
Fluoride	ND	mg/L	0.10	08/24/00	08/24/00
Hex. Chromium	ND	mg/L	0.010	07/13/00	07/13/00
Nitrate as N	ND	mg/L	0.05	08/02/00	08/02/00
Nitrite	ND	mg/L	0.05	08/02/00	08/02/00
o-Phosphate	ND	mg/L	0.10	08/02/00	08/02/00
pH	5.10	pH Units		08/22/00	08/22/00
Sulfate	0.131	mg/L	0.075	08/02/00	08/02/00

ND = Not Detected

Reported by: KBR

Approved by: JJ

1419

550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026
303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne, SSFL RFI Program
Project Manager:	D. Hambrick
Analysis/Method:	Volatiles by Method 8260B
QC Level:	V[1]
SDG:	RJ397
Matrix:	Soil
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Date Reviewed:	10/16/01
Reviewer:	D. A. Buckheister
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ398

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COC was signed by both field and laboratory personnel. A laboratory sample receipt checklist noted that sample vials were received intact. Custody seals were not present on the cooler. The cooler temperature was recorded as 18°C. RJ398 was analyzed within 14 days of sample collection.	All target compounds were qualified as estimated, "UJ" for nondetects and "J" for detects, sample RJ398.
4. Method Blanks	One method blank was analyzed with this SDG. Methylene chloride and naphthalene were reported in the method blank at 5ug/Kg and 2ug/Kg, respectively. TICs were also reported in the method blank.	The reporting limit for methylene chloride was raised to the level of contamination and the result qualified as an estimated nondetect, "UJ," in sample RJ398. The TICS were also present in RJ398 and were rejected, R," as blank contamination.

	Findings	Qualifications
5. LCS/BS	One LCS was analyzed with this SDG. Methylene chloride and tert-butyl benzene were recovered below the QC limits but above 10% in the LCS.	The nondetect results for compounds recovered below the QC limits in the LCS were qualified as estimated, "UJ."
6. Surrogates	The surrogate recoveries were within the laboratory-established QC limits.	No qualifications were required.
7. MS/MSDs	No MS/MSD pair was analyzed with this SDG.	No qualifications were required.
8. Field QC Samples ER: None TB: None FB: RJ543 FD: None	There were no reportable detects in the field blank.	No qualifications were required.
9. Other	Reporting limits were not adjusted for percent moisture or sample weight; however any detects in the sample were adjusted for both. The sample was analyzed for added compounds chlorotrifluoroethene, 1,1,2-trichlorofluoroethane, and 2-chloroethyl-vinyl ether. There were no reportable TICs in RJ398 (see section 4).	No qualifications were required.
Comments	None.	None.

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ398

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ397

Matrix: (soil/water) SOIL Lab Sample ID: 010418-02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: LC727

Level: (low/med) LOW Date Received: 05/19/01

% Moisture: not dec. _____ Date Analyzed: 05/30/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	5	U	UJ	*1
74-87-3	Chloromethane	5	U		
75-01-4	Vinyl Chloride	5	U		
74-83-9	Bromomethane	5	U		
75-00-3	Chloroethane	5	U		
75-69-4	Trichlorofluoromethane	5	U		
67-64-1	Acetone	20		J	
75-35-4	1,1-Dichloroethene	5	U		
75-09-2	Methylene Chloride	7	B	UJ	B,L
75-15-0	Carbon Disulfide	5	U	UJ	
1634-04-4	Methyl tert-Butyl Ether	5	U		
156-60-5	trans-1,2-Dichloroethene	5	U		
75-34-3	1,1-Dichloroethane	5	U		
78-93-3	2-Butanone	10	U		
594-20-7	2,2-Dichloropropane	5	U		
156-59-2	cis-1,2-Dichloroethene	5	U		
540-59-0	1,2-Dichloroethene (total)	10	U		
67-66-3	Chloroform	5	U		
74-97-5	Bromochloromethane	5	U		
71-55-6	1,1,1-Trichloroethane	5	U		
563-58-6	1,1-Dichloropropene	5	U		
56-23-5	Carbon Tetrachloride	5	U		
107-06-2	1,2-Dichloroethane	5	U		
71-43-2	Benzene	5	U		
79-01-6	Trichloroethene	5	U		
78-87-5	1,2-Dichloropropane	5	U		
75-27-4	Bromodichloromethane	5	U		
74-95-3	Dibromomethane	5	U		
10061-01-5	cis-1,3-Dichloropropene	5	U		
108-88-3	Toluene	5	U		
10061-02-6	trans-1,3-Dichloropropene	5	U		
79-00-5	1,1,2-Trichloroethane	5	U		
127-18-4	Tetrachloroethene	5	U		

FORM I VOA

AMEC VALIDATED

LEVEL V

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ398

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ397

Matrix: (soil/water) SOIL Lab Sample ID: 010418-02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: LC727

Level: (low/med) LOW Date Received: 05/19/01

% Moisture: not dec. _____ Date Analyzed: 05/30/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
108-10-1	4-Methyl-2-Pentanone	10	U	UJ	*1
591-78-6	2-Hexanone	10	U		
142-28-9	1,3-Dichloropropane	5	U		
124-48-1	Dibromochloromethane	5	U		
106-93-4	1,2-Dibromoethane	5	U		
544-10-5	1-Chlorohexane	5	U		
108-90-7	Chlorobenzene	5	U		
630-20-6	1,1,1,2-Tetrachloroethane	5	U		
100-41-4	Ethylbenzene	5	U		
1330-20-7	Xylenes (total)	15	U		
108-38-3	m,p-Xylenes	10	U		
95-47-6	o-Xylene	5	U		
100-42-5	Styrene	5	U		
75-25-2	Bromoform	5	U		
98-82-8	Isopropylbenzene	5	U		
79-34-5	1,1,2,2-Tetrachloroethane	5	U		
96-18-4	1,2,3-Trichloropropane	5	U		
106-65-1	n-Propylbenzene	5	U		
108-86-1	Bromobenzene	5	U		
108-67-8	1,3,5-Trimethylbenzene	5	U		
95-49-8	2-Chlorotoluene	5	U		
106-43-4	4-Chlorotoluene	5	U		
98-06-6	tert-Butylbenzene	5	U	UJ	L
95-63-6	1,2,4-Trimethylbenzene	5	U		
135-98-8	sec-Butylbenzene	5	U		
99-87-6	p-Isopropyltoluene	5	U		
541-73-1	1,3-Dichlorobenzene	5	U		
106-46-7	1,4-Dichlorobenzene	5	U		
104-51-8	n-Butylbenzene	5	U		
95-50-1	1,2-Dichlorobenzene	5	U		
96-12-8	1,2-Dibromo-3-Chloropropane	5	U		
120-82-1	1,2,4-Trichlorobenzene	5	U		
87-68-3	Hexachlorobutadiene	5	U		

AMEC VALIDATED

FORM I VOA

LEVEL V

GOLDEN VALIDATED

DAB
10/18/01

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ398

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ397

Matrix: (soil/water) SOIL Lab Sample ID: 010418-02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: LC727

Level: (low/med) LOW Date Received: 05/19/01

% Moisture: not dec. _____ Date Analyzed: 05/30/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	REV QUAL CODE
91-20-3	Naphthalene	5	U	UJ	*1
87-61-6	1,2,3-Trichlorobenzene	5	U	↓	↓
110-75-8	2-Chloroethylvinyl ether	5	U		
79-38-9	Chlorotriflouroethene	5	U		
76-13-1	1,1,2-Trichloroflourethane	5	U		

AMEC VALIDATED

LDVDL V22

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

AMEC SAMPLE NO.

RJ398

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ397

Matrix: (soil/water) SOIL Lab Sample ID: 010418-02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: LC727

Level: (low/med) LOW Date Received: 05/19/01

% Moisture: not dec. _____ Date Analyzed: 05/30/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	DEV QUAL	QUAL CODE
1.		UNKNOWN	1.78	300	JB	R	B
2.		UNKNOWN	1.87	1000	JB	↓	↓
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AMEC VALIDATED

LEVEL 23 V

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title: Rocketdyne, SSFL RFI Program
Project Manager: D. Hambrick
Analysis/Method: Volatiles by GC/EPA Method 8260B
QC Level: V[1]
SDG: RJ514
Matrix: Soil and Water
No. of Samples: 11
No. of Reanalyses/Dilutions: 2
Date Reviewed: 05/03/01
Reviewer: D. A. Buckheister
Reference: National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:RJ516, RJ517, RJ517DL, RJ518, RJ519, RJ521, RJ522, RJ525, RJ526, RJ526RE, RJ527, RJ543, and RJ544.

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COC was signed by both field and laboratory personnel. A laboratory sample receipt checklist noted that the samples were received intact with custody seals present on the coolers and at a temperature of 6°C.	No qualifications were required.
	All samples were initially analyzed within 14 days of sample collection. Sample RJ517 was extracted as a medium level soil after the initial analysis indicated the need for a dilution. The medium level soil was analyzed within forty days of the extraction date.	The reviewer was unable to determine the extraction date of the medium level soil. No qualifications were required.
4. Method Blanks	Two low level soil method blanks (VBLKLZ and VBLKLH), one medium level soil method blank (VBLKFI), and one water method blank (VBLKBA) were analyzed with this SDG. Methylene chloride was reported in VBLKLH, VBLKFI, and VBLKBA.	The methylene chloride reporting limits were raised to the levels of contamination and the results were qualified as estimated nondetects, "UJ," in samples RJ518, RJ527, RJ543, and RJ544.

	Findings	Qualifications
5. LCS/BS	Two soil LCSs (VLCSLZ and VLCSLH), one medium level soil LCS (VLCSFI) and one water LCS (VLCSBA)were analyzed with this SDG. All percent recoveries were within the laboratory QC limits, with the exception of several QC outliers, some below the QC limits but greater than 10% and some above the QC limits, in VLCSFI and VLCSBA.	No qualifications were required for the outliers in VLCSFI, as these compounds were not retained in RJ517DL. No qualifications were required for the outliers in VLCSBA, as all of the associated samples were identified as field QC .
6. Surrogates	The surrogate recoveries for all samples were within the laboratory QC limits with the exception of the recovery for dibromomethane which was below the QC limit in sample RJ526.	Sample RJ526 was reanalyzed and RJ526RE exhibited acceptable surrogate recoveries. The initial analysis was rejected, "R," in favor of the reanalysis.
7. MS/MSDs	There were no MS/MSD analyses performed with the samples in this SDG.	No qualifications were required.
8. Field QC Samples ER: None TB: RJ527, RJ544 FB: RJ543 FD: None	There were no reportable detects in the field QC samples.	No qualifications were required.
9. Other	The laboratory conducted a library search for added compounds chlorofluoroethane, chlorofluoroethylene, 2-chloroethylvinyl ether, 1,1,2-trichlorotrifluoroethane, and chlorotrifluoroethylene, as they were not included in the calibration. The added compounds were not present as TICs in any of the samples in this SDG. Soil sample RJ517 was extracted as a medium level soil after the initial analysis yielded a concentration for acetone above the linear range of the calibration standards. TICs were reported in the majority of the samples in this SDG.	None Acetone was rejected, "R," in RJ517 and reported from RJ517DL. All other compounds were rejected, "R," in RJ517DL. Those TICs not rejected as siloxanes, indicative of column degradation, were qualified as tentatively identified and estimated, "NJ."
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ516

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-03A

Sample wt/vol: 5.2 (g/mL) G Lab File ID: L8551

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. _____ Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	5	U	u	
74-87-3	Chloromethane	5	U		
75-01-4	Vinyl Chloride	5	U		
74-83-9	Bromomethane	5	U		
75-00-3	Chloroethane	5	U		
75-69-4	Trichlorofluoromethane	5	U		
67-64-1	Acetone	67			
75-35-4	1,1-Dichloroethene	5	U	u	
75-09-2	Methylene Chloride	13			
156-60-5	trans-1,2-Dichloroethene	5	U	u	
75-34-3	1,1-Dichloroethane	5	U		
78-93-3	2-Butanone	5			
156-59-2	cis-1,2-Dichloroethene	5	U	u	
540-59-0	1,2-Dichloroethene (total)	10	U		
67-66-3	Chloroform	5	U		
71-55-6	1,1,1-Trichloroethane	5	U		
56-23-5	Carbon Tetrachloride	5	U		
107-06-2	1,2-Dichloroethane	5	U		
71-43-2	Benzene	5	U		
79-01-6	Trichloroethene	5	U		
75-27-4	Bromodichloromethane	5	U		
108-88-3	Toluene	5	U		
10061-02-6	trans-1,3-Dichloropropene	5	U		
79-00-5	1,1,2-Trichloroethane	5	U		
127-18-4	Tetrachloroethene	5	U		
108-90-7	Chlorobenzene	5	U		
630-20-6	1,1,1,2-Tetrachloroethane	5	U		
100-41-4	Ethylbenzene	5	U		
1330-20-7	Xylenes (total)	15	U		
108-38-3	m,p-Xylenes	10	U		
95-47-6	o-Xylene	5	U		
75-25-2	Bromoform	5	U		
79-34-5	1,1,2,2-Tetrachloroethane	5	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ516

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-03A

Sample wt/vol: 5.2 (g/mL) G Lab File ID: L8551

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. _____ Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL
108-67-8	1,3,5-Trimethylbenzene	5	U	U
95-63-6	1,2,4-Trimethylbenzene	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	U	
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-Chloropropane	5	U	

QUAL CODE

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ516

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-03A

Sample wt/vol: 5.2 (g/mL) G Lab File ID: L8551

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. _____ Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	REV QUAL	QUAL CODE
1.	66-25-1	HEXANAL	11.19	21	NJ	NJ	
2.	98-01-1	2-FURANCARBOXALDEHYDE	12.11	7	NJ	↓	
3.	556-67-2	CYCLOTETRASILOXANE, OCTAMETH	13.23	8	NJ	R	*12
4.	1137-12-8	1,2,4-METHENOAZULENE, DECAHY	19.93	14	NJ	NJ	
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ517

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-04A

Sample wt/vol: 5.8 (g/mL) G Lab File ID: L8552

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 4 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	5	U	U	
74-87-3	Chloromethane	5	U		
75-01-4	Vinyl Chloride	5	U		
74-83-9	Bromomethane	5	U		
75-00-3	Chloroethane	5	U		
75-69-4	Trichlorofluoromethane	5	U		
67-64-1	Acetone	760	E	R	D
75-35-4	1,1-Dichloroethene	5	U	U	
75-09-2	Methylene Chloride	11			
156-60-5	trans-1,2-Dichloroethene	5	U	U	
75-34-3	1,1-Dichloroethane	5	U		
78-93-3	2-Butanone	37			
156-59-2	cis-1,2-Dichloroethene	5	U	U	
540-59-0	1,2-Dichloroethene (total)	10	U		
67-66-3	Chloroform	5	U		
71-55-6	1,1,1-Trichloroethane	5	U		
56-23-5	Carbon Tetrachloride	5	U		
107-06-2	1,2-Dichloroethane	5	U		
71-43-2	Benzene	5	U		
79-01-6	Trichloroethene	5	U		
75-27-4	Bromodichloromethane	5	U		
108-88-3	Toluene	3	J		
10061-02-6	trans-1,3-Dichloropropene	5	U		
79-00-5	1,1,2-Trichloroethane	5	U		
127-18-4	Tetrachloroethene	5	U		
108-90-7	Chlorobenzene	5	U		
630-20-6	1,1,1,2-Tetrachloroethane	5	U		
100-41-4	Ethylbenzene	5	U		
1330-20-7	Xylenes (total)	15	U		
108-38-3	m,p-Xylenes	10	U		
95-47-6	o-Xylene	5	U		
75-25-2	Bromoform	5	U		
79-34-5	1,1,2,2-Tetrachloroethane	5	U		

LEVEL V

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ517

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-04A

Sample wt/vol: 5.8 (g/mL) G Lab File ID: L8552

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 4 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
108-67-8	1,3,5-Trimethylbenzene	5	U	U	
95-63-6	1,2,4-Trimethylbenzene	5	U		
541-73-1	1,3-Dichlorobenzene	5	U		
106-46-7	1,4-Dichlorobenzene	5	U		
95-50-1	1,2-Dichlorobenzene	5	U		
96-12-8	1,2-Dibromo-3-Chloropropane	5	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ517

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-04A

Sample wt/vol: 5.8 (g/mL) G Lab File ID: L8552

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 4 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 11

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	REV QUAL	QUAL CODE
1.		BRANCHED ALKANE	2.58	5	J	NJ	
2.	109-66-0	PENTANE	2.88	25	NJ		
3.	123-72-8	BUTANAL	6.09	6	NJ		
4.	110-62-3	PENTANAL	9.19	19	NJ		
5.	66-25-1	HEXANAL	11.19	60	NJ		
6.	98-01-1	2-FURANCARBOXALDEHYDE	12.11	7	NJ		
7.	111-71-7	HEPTANAL	12.71	6	NJ		
8.	80-56-8	.ALPHA.-PINENE	12.87	5	NJ		
9.	79-92-5	CAMPHENE	13.14	6	NJ		
10.	5989-27-5	D-LIMONENE	14.09	17	NJ		
11.	76-22-2	CAMPHOR	16.18	6	NJ		
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ517DL

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-04ADL

Sample wt/vol: 2.8 (g/mL) G Lab File ID: FDH84

Level: (low/med) MED Date Received: 07/08/00

% Moisture: not dec. 4 Date Analyzed: 07/25/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 50 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	1900	U	R	D
74-87-3	Chloromethane	1900	U		
75-01-4	Vinyl Chloride	1900	U		
74-83-9	Bromomethane	430	DJ		
75-00-3	Chloroethane	1900	U		
75-69-4	Trichlorofluoromethane	1900	U		
67-64-1	Acetone	5200	D		
75-35-4	1,1-Dichloroethene	1900	U	R	D
75-09-2	Methylene Chloride	3200	DB		
156-60-5	trans-1,2-Dichloroethene	1900	U		
75-34-3	1,1-Dichloroethane	1900	U		
78-93-3	2-Butanone	24000	D		
156-59-2	cis-1,2-Dichloroethene	1900	U		
540-59-0	1,2-Dichloroethene (total)	3700	U		
67-66-3	Chloroform	1900	U		
71-55-6	1,1,1-Trichloroethane	1900	U		
56-23-5	Carbon Tetrachloride	1900	U		
107-06-2	1,2-Dichloroethane	1900	U		
71-43-2	Benzene	1900	U		
79-01-6	Trichloroethene	1900	U		
75-27-4	Bromodichloromethane	1900	U		
108-88-3	Toluene	1900	U		
10061-02-6	trans-1,3-Dichloropropene	1900	U		
79-00-5	1,1,2-Trichloroethane	1900	U		
127-18-4	Tetrachloroethene	1900	U		
108-90-7	Chlorobenzene	1900	U		
630-20-6	1,1,1,2-Tetrachloroethane	1900	U		
100-41-4	Ethylbenzene	1900	U		
1330-20-7	Xylenes (total)	5600	U		
108-38-3	m,p-Xylenes	3700	U		
95-47-6	o-Xylene	1900	U		
75-25-2	Bromoform	1900	U		
79-34-5	1,1,2,2-Tetrachloroethane	1900	U		

LEVEL V

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ517DL

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-04ADL

Sample wt/vol: 2.8 (g/mL) G Lab File ID: FDH84

Level: (low/med) MED Date Received: 07/08/00

% Moisture: not dec. 4 Date Analyzed: 07/25/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 50 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	1900	U	R	D
95-63-6	1,2,4-Trimethylbenzene	1900	U		
541-73-1	1,3-Dichlorobenzene	1900	U		
106-46-7	1,4-Dichlorobenzene	1900	U		
95-50-1	1,2-Dichlorobenzene	1900	U		
96-12-8	1,2-Dibromo-3-Chloropropane	1900	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ517DL

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-04ADL

Sample wt/vol: 2.8 (g/mL) G Lab File ID: FDH84

Level: (low/med) MED Date Received: 07/08/00

% Moisture: not dec. 4 Date Analyzed: 07/25/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 50 (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ518

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-05A

Sample wt/vol: 4.5 (g/mL) G Lab File ID: L8561

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 2 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	6	U	U	
74-87-3	Chloromethane	6	U		
75-01-4	Vinyl Chloride	6	U		
74-83-9	Bromomethane	6	U		
75-00-3	Chloroethane	6	U		
75-69-4	Trichlorofluoromethane	6	U		
67-64-1	Acetone	150			
75-35-4	1,1-Dichloroethene	6	U	U	
75-09-2	Methylene Chloride	9	B	UJ	B
156-60-5	trans-1,2-Dichloroethene	6	U	U	
75-34-3	1,1-Dichloroethane	6	U		
78-93-3	2-Butanone	9			
156-59-2	cis-1,2-Dichloroethene	6	U	U	
540-59-0	1,2-Dichloroethene (total)	11	U		
67-66-3	Chloroform	6	U		
71-55-6	1,1,1-Trichloroethane	6	U		
56-23-5	Carbon Tetrachloride	6	U		
107-06-2	1,2-Dichloroethane	6	U		
71-43-2	Benzene	6	U		
79-01-6	Trichloroethene	6	U		
75-27-4	Bromodichloromethane	6	U		
108-88-3	Toluene	6	U		
10061-02-6	trans-1,3-Dichloropropene	6	U		
79-00-5	1,1,2-Trichloroethane	6	U		
127-18-4	Tetrachloroethene	6	U		
108-90-7	Chlorobenzene	6	U		
630-20-6	1,1,1,2-Tetrachloroethane	6	U		
100-41-4	Ethylbenzene	6	U		
1330-20-7	Xylenes (total)	17	U		
108-38-3	m,p-Xylenes	11	U		
95-47-6	o-Xylene	6	U		
75-25-2	Bromoform	6	U		
79-34-5	1,1,2,2-Tetrachloroethane	6	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ518

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-05A

Sample wt/vol: 4.5 (g/mL) G Lab File ID: L8561

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 2 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	6	U	U	
95-63-6	1,2,4-Trimethylbenzene	6	U		
541-73-1	1,3-Dichlorobenzene	6	U		
106-46-7	1,4-Dichlorobenzene	6	U		
95-50-1	1,2-Dichlorobenzene	6	U		
96-12-8	1,2-Dibromo-3-Chloropropane	6	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ518

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-05A

Sample wt/vol: 4.5 (g/mL) G Lab File ID: L8561

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 2 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	REV QUAL	QUAL CODE
1.	66-25-1	HEXANAL	11.19	13	NJ	NJ	
2.	98-01-1	2-FURANCARBOXALDEHYDE	12.11	6	NJ	↓	
3.	556-67-2	CYCLOTETRASILOXANE, OCTAMETH	13.24	12	NJ	R	*12
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LEVEL 3

OGDEN VALIDATED

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ519

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-06A

Sample wt/vol: 6.4 (g/mL) G Lab File ID: L8562

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 13 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	5	U	u	
74-87-3	Chloromethane	5	U		
75-01-4	Vinyl Chloride	5	U		
74-83-9	Bromomethane	5	U		
75-00-3	Chloroethane	5	U		
75-69-4	Trichlorofluoromethane	5	U		
67-64-1	Acetone	36			
75-35-4	1,1-Dichloroethene	5	U	u	
75-09-2	Methylene Chloride	13	B		
156-60-5	trans-1,2-Dichloroethene	5	U	u	
75-34-3	1,1-Dichloroethane	5	U		
78-93-3	2-Butanone	5	U		
156-59-2	cis-1,2-Dichloroethene	5	U		
540-59-0	1,2-Dichloroethene (total)	10	U		
67-66-3	Chloroform	5	U		
71-55-6	1,1,1-Trichloroethane	5	U		
56-23-5	Carbon Tetrachloride	5	U		
107-06-2	1,2-Dichloroethane	5	U		
71-43-2	Benzene	5	U		
79-01-6	Trichloroethene	5	U		
75-27-4	Bromodichloromethane	5	U		
108-88-3	Toluene	5	U		
10061-02-6	trans-1,3-Dichloropropene	5	U		
79-00-5	1,1,2-Trichloroethane	5	U		
127-18-4	Tetrachloroethene	5	U		
108-90-7	Chlorobenzene	5	U		
630-20-6	1,1,1,2-Tetrachloroethane	5	U		
100-41-4	Ethylbenzene	5	U		
1330-20-7	Xylenes (total)	15	U		
108-38-3	m,p-Xylenes	10	U		
95-47-6	o-Xylene	5	U		
75-25-2	Bromoform	5	U		
79-34-5	1,1,2,2-Tetrachloroethane	5	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ519

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-06A

Sample wt/vol: 6.4 (g/mL) G Lab File ID: L8562

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 13 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	5	U	U	
95-63-6	1,2,4-Trimethylbenzene	5	U		
541-73-1	1,3-Dichlorobenzene	5	U		
106-46-7	1,4-Dichlorobenzene	5	U		
95-50-1	1,2-Dichlorobenzene	5	U		
96-12-8	1,2-Dibromo-3-Chloropropane	5	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ519

Lab Name: CEIMIC CORP. Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-06A

Sample wt/vol: 6.4 (g/mL) G Lab File ID: L8562

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 13 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ521

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-08A

Sample wt/vol: 4.4 (g/mL) G Lab File ID: L8563

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 10 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	6	U	U	
74-87-3	Chloromethane	6	U		
75-01-4	Vinyl Chloride	6	U		
74-83-9	Bromomethane	6	U		
75-00-3	Chloroethane	6	U		
75-69-4	Trichlorofluoromethane	6	U		
67-64-1	Acetone	140			
75-35-4	1,1-Dichloroethene	6	U	U	
75-09-2	Methylene Chloride	15	B		
156-60-5	trans-1,2-Dichloroethene	6	U	U	
75-34-3	1,1-Dichloroethane	6	U		
78-93-3	2-Butanone	7			
156-59-2	cis-1,2-Dichloroethene	6	U	U	
540-59-0	1,2-Dichloroethene (total)	13	U		
67-66-3	Chloroform	6	U		
71-55-6	1,1,1-Trichloroethane	6	U		
56-23-5	Carbon Tetrachloride	6	U		
107-06-2	1,2-Dichloroethane	6	U		
71-43-2	Benzene	6	U		
79-01-6	Trichloroethene	6	U		
75-27-4	Bromodichloromethane	6	U		
108-88-3	Toluene	6	U		
10061-02-6	trans-1,3-Dichloropropene	6	U		
79-00-5	1,1,2-Trichloroethane	6	U		
127-18-4	Tetrachloroethene	6	U		
108-90-7	Chlorobenzene	6	U		
630-20-6	1,1,1,2-Tetrachloroethane	6	U		
100-41-4	Ethylbenzene	6	U		
1330-20-7	Xylenes (total)	19	U		
108-38-3	m,p-Xylenes	13	U		
95-47-6	o-Xylene	6	U		
75-25-2	Bromoform	6	U		
79-34-5	1,1,2,2-Tetrachloroethane	6	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ521

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-08A

Sample wt/vol: 4.4 (g/mL) G Lab File ID: L8563

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 10 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	6	U	U
95-63-6	1,2,4-Trimethylbenzene	6	U	
541-73-1	1,3-Dichlorobenzene	6	U	
106-46-7	1,4-Dichlorobenzene	6	U	
95-50-1	1,2-Dichlorobenzene	6	U	
96-12-8	1,2-Dibromo-3-Chloropropane	6	U	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ521

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-08A

Sample wt/vol: 4.4 (g/mL) G Lab File ID: L8563

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 10 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	REV QUAL	QUAL CODE
1.	110-62-3	PENTANAL	9.19	8	NJ	NJ	
2.	98-01-1	2-FURANCARBOXALDEHYDE	12.11	11	NJ		
3.							
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ522

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-09A

Sample wt/vol: 5.7 (g/mL) G Lab File ID: L8564

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 5 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	5	U	U	
74-87-3	Chloromethane	5	U		
75-01-4	Vinyl Chloride	5	U		
74-83-9	Bromomethane	5	U		
75-00-3	Chloroethane	5	U		
75-69-4	Trichlorofluoromethane	5	U		
67-64-1	Acetone	62			
75-35-4	1,1-Dichloroethene	5	U	U	
75-09-2	Methylene Chloride	13	B		
156-60-5	trans-1,2-Dichloroethene	5	U	U	
75-34-3	1,1-Dichloroethane	5	U	U	
78-93-3	2-Butanone	2	J	J	
156-59-2	cis-1,2-Dichloroethene	5	U	U	
540-59-0	1,2-Dichloroethene (total)	10	U		
67-66-3	Chloroform	5	U		
71-55-6	1,1,1-Trichloroethane	5	U		
56-23-5	Carbon Tetrachloride	5	U		
107-06-2	1,2-Dichloroethane	5	U		
71-43-2	Benzene	5	U		
79-01-6	Trichloroethene	5	U		
75-27-4	Bromodichloromethane	5	U		
108-88-3	Toluene	5	U		
10061-02-6	trans-1,3-Dichloropropene	5	U		
79-00-5	1,1,2-Trichloroethane	5	U		
127-18-4	Tetrachloroethene	5	U		
108-90-7	Chlorobenzene	5	U		
630-20-6	1,1,1,2-Tetrachloroethane	5	U		
100-41-4	Ethylbenzene	5	U		
1330-20-7	Xylenes (total)	15	U		
108-38-3	m,p-Xylenes	10	U		
95-47-6	o-Xylene	5	U		
75-25-2	Bromoform	5	U		
79-34-5	1,1,2,2-Tetrachloroethane	5	U		

OGDEN VALIDATED LEVEL

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ522

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-09A

Sample wt/vol: 5.7 (g/mL) G Lab File ID: L8564

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 5 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	5	U	W	
95-63-6	1,2,4-Trimethylbenzene	5	U		
541-73-1	1,3-Dichlorobenzene	5	U		
106-46-7	1,4-Dichlorobenzene	5	U		
95-50-1	1,2-Dichlorobenzene	5	U		
96-12-8	1,2-Dibromo-3-Chloropropane	5	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ522

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-09A

Sample wt/vol: 5.7 (g/mL) G Lab File ID: L8564

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 5 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	REV QUAL	QUAL CODE
1.	66-25-1	HEXANAL	11.19	20	NJ	NJ	
2.							
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ525

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-12A

Sample wt/vol: 5.2 (g/mL) G Lab File ID: L8565

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 43 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
75-71-8	Dichlorodifluoromethane	8	U	U	
74-87-3	Chloromethane	8	U		
75-01-4	Vinyl Chloride	8	U		
74-83-9	Bromomethane	8	U		
75-00-3	Chloroethane	8	U		
75-69-4	Trichlorofluoromethane	8	U		
67-64-1	Acetone	160			
75-35-4	1,1-Dichloroethene	8	U	U	
75-09-2	Methylene Chloride	20	B		
156-60-5	trans-1,2-Dichloroethene	8	U	U	
75-34-3	1,1-Dichloroethane	8	U	U	
78-93-3	2-Butanone	16			
156-59-2	cis-1,2-Dichloroethene	8	U	U	
540-59-0	1,2-Dichloroethene (total)	17	U		
67-66-3	Chloroform	8	U		
71-55-6	1,1,1-Trichloroethane	8	U		
56-23-5	Carbon Tetrachloride	8	U		
107-06-2	1,2-Dichloroethane	8	U		
71-43-2	Benzene	3	J	J	
79-01-6	Trichloroethene	8	U		
75-27-4	Bromodichloromethane	8	U		
108-88-3	Toluene	2	J	J	
10061-02-6	trans-1,3-Dichloropropene	8	U	U	
79-00-5	1,1,2-Trichloroethane	8	U		
127-18-4	Tetrachloroethene	8	U		
108-90-7	Chlorobenzene	8	U		
630-20-6	1,1,1,2-Tetrachloroethane	8	U		
100-41-4	Ethylbenzene	8	U		
1330-20-7	Xylenes (total)	25	U		
108-38-3	m,p-Xylenes	17	U		
95-47-6	o-Xylene	8	U		
75-25-2	Bromoform	8	U		
79-34-5	1,1,2,2-Tetrachloroethane	8	U		

REVISION 1
DAB 6/27/01

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ525

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-12A

Sample wt/vol: 5.2 (g/mL) G Lab File ID: L8565

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 43 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	8	U	U	
95-63-6	1,2,4-Trimethylbenzene	8	U		
541-73-1	1,3-Dichlorobenzene	8	U		
106-46-7	1,4-Dichlorobenzene	8	U		
95-50-1	1,2-Dichlorobenzene	8	U		
96-12-8	1,2-Dibromo-3-Chloropropane	8	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ525

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-12A

Sample wt/vol: 5.2 (g/mL) G Lab File ID: L8565

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 43 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	REV QUAL	QUAL CODE
1.	556-67-2	CYCLOTETRASILOXANE, OCTAMETH	13.24	14	NJ	R	*12
2.	62238-01-1	DECANE, 2,2,8-TRIMETHYL-	13.79	17	NJ	NJ	
3.	3891-98-3	DODECANE, 2,6,10-TRIMETHYL-	14.03	19	NJ	↓	
4.	62108-31-0	HEPTANE, 4-ETHYL-2,2,6,6-TET	14.28	21	NJ		
5.	6975-98-0	DECANE, 2-METHYL-	14.48	9	NJ		
6.	26730-14-3	TRIDECANE, 7-METHYL-	16.80	11	NJ		
7.	3891-98-3	DODECANE, 2,6,10-TRIMETHYL-	18.72	11	NJ		
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ526

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-13A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L8566

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 40 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	8	U	R	D
74-87-3	Chloromethane	8	U		
75-01-4	Vinyl Chloride	8	U		
74-83-9	Bromomethane	8	U		
75-00-3	Chloroethane	8	U		
75-69-4	Trichlorofluoromethane	8	U		
67-64-1	Acetone	8	U		
75-35-4	1,1-Dichloroethene	8	U		
75-09-2	Methylene Chloride	120	B		
156-60-5	trans-1,2-Dichloroethene	8	U		
75-34-3	1,1-Dichloroethane	8	U		
78-93-3	2-Butanone	8	U		
156-59-2	cis-1,2-Dichloroethene	8	U		
540-59-0	1,2-Dichloroethene (total)	17	U		
67-66-3	Chloroform	8	U		
71-55-6	1,1,1-Trichloroethane	8	U		
56-23-5	Carbon Tetrachloride	8	U		
107-06-2	1,2-Dichloroethane	8	U		
71-43-2	Benzene	150			
79-01-6	Trichloroethene	8	U		
75-27-4	Bromodichloromethane	8	U		
108-88-3	Toluene	48			
10061-02-6	trans-1,3-Dichloropropene	8	U		
79-00-5	1,1,2-Trichloroethane	8	U		
127-18-4	Tetrachloroethene	19			
108-90-7	Chlorobenzene	8	U		
630-20-6	1,1,1,2-Tetrachloroethane	8	U		
100-41-4	Ethylbenzene	22			
1330-20-7	Xylenes (total)	61			
108-38-3	m,p-Xylenes	43			
95-47-6	o-Xylene	18			
75-25-2	Bromoform	8	U		
79-34-5	1,1,2,2-Tetrachloroethane	8	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ526

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-13A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L8566

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 40 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	8	U	R	D
95-63-6	1,2,4-Trimethylbenzene	20			
541-73-1	1,3-Dichlorobenzene	31			
106-46-7	1,4-Dichlorobenzene	33			
95-50-1	1,2-Dichlorobenzene	23			
96-12-8	1,2-Dibromo-3-Chloropropane	8	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ526

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-13A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L8566

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 40 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	REV QUAL CODE	QUAL CODE
1.	930-36-9	1H-PYRAZOLE, 1-METHYL-	5.72	77	NJ	R	D
2.		CYCLIC ALKANE	8.81	37	J		
3.		CYCLIC ALKENE	8.92	27	J		
4.		UNKNOWN	9.19	27	J		
5.		BRANCHED ALKANE	10.54	10	J		
6.		UNKNOWN	10.80	11	J		
7.	541-05-9	CYCLOTRISILOXANE, HEXAMETHYL	10.88	25	NJ		
8.		UNKNOWN	12.72	14	J		
9.		C3-BENZENE ISOMER	12.87	11	J		
10.	108-86-1	BENZENE, BROMO-	13.17	20	NJ		
11.		UNKNOWN SILOXANE	13.23	26	J		
12.		UNKNOWN	13.99	22	J		
13.		UNKNOWN	14.35	13	J		
14.		UNKNOWN SILOXANE	15.01	14	J		
15.		UNKNOWN	15.17	16	J		
16.	108-70-3	BENZENE, 1,3,5-TRICHLORO-	16.34	32	NJ		
17.		BRANCHED ALKANE	16.80	9	J		
18.		C3-BENZENE ISOMER	17.05	15	J		
19.		UNKNOWN	18.68	10	J		
20.		BRANCHED ALKANE	20.83	12	J		
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ526RE

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-13ARE

Sample wt/vol: 5.2 (g/mL) G Lab File ID: L8568

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 40 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	8	U	U	
74-87-3	Chloromethane	8	U		
75-01-4	Vinyl Chloride	8	U		
74-83-9	Bromomethane	8	U		
75-00-3	Chloroethane	8	U		
75-69-4	Trichlorofluoromethane	8	U		
67-64-1	Acetone	8	U		
75-35-4	1,1-Dichloroethene	8	U	U	
75-09-2	Methylene Chloride	13	B		
156-60-5	trans-1,2-Dichloroethene	8	U	U	
75-34-3	1,1-Dichloroethane	8	U		
78-93-3	2-Butanone	8	U		
156-59-2	cis-1,2-Dichloroethene	8	U		
540-59-0	1,2-Dichloroethene (total)	16	U		
67-66-3	Chloroform	8	U		
71-55-6	1,1,1-Trichloroethane	8	U		
56-23-5	Carbon Tetrachloride	8	U		
107-06-2	1,2-Dichloroethane	8	U		
71-43-2	Benzene	8	U		
79-01-6	Trichloroethene	8	U		
75-27-4	Bromodichloromethane	8	U		
108-88-3	Toluene	2	J	U J	
10061-02-6	trans-1,3-Dichloropropene	8	U	U	
79-00-5	1,1,2-Trichloroethane	8	U		
127-18-4	Tetrachloroethene	8	U		
108-90-7	Chlorobenzene	8	U		
630-20-6	1,1,1,2-Tetrachloroethane	8	U		
100-41-4	Ethylbenzene	8	U		
1330-20-7	Xylenes (total)	24	U		
108-38-3	m,p-Xylenes	16	U		
95-47-6	o-Xylene	8	U		
75-25-2	Bromoform	8	U		
79-34-5	1,1,2,2-Tetrachloroethane	8	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ526RE

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-13ARE

Sample wt/vol: 5.2 (g/mL) G Lab File ID: L8568

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 40 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	8	U	U	
95-63-6	1,2,4-Trimethylbenzene	8	U		
541-73-1	1,3-Dichlorobenzene	8	U		
106-46-7	1,4-Dichlorobenzene	8	U		
95-50-1	1,2-Dichlorobenzene	8	U		
96-12-8	1,2-Dibromo-3-Chloropropane	8	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ526RE

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-13ARE

Sample wt/vol: 5.2 (g/mL) G Lab File ID: L8568

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. 40 Date Analyzed: 07/19/00

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume:_____(uL)

Number TICs found: 17

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	REV QUAL	QUAL CODE
1.		STRAIGHT-CHAIN ALKANE	2.80	18	J	NJ	
2.		UNKNOWN	3.78	14	J		
3.		UNKNOWN	15.84	8	J		
4.	6044-71-9	DODECANE, 6-METHYL-	15.96	19	NJ		
5.		STRAIGHT-CHAIN ALKANE	16.09	15	J		
6.		BRANCHED ALKANE	16.35	9	J		
7.	54676-39-0	CYCLOHEXANE, 2-BUTYL-1,1,3-T	16.55	16	NJ		
8.	61141-72-8	DODECANE, 4,6-DIMETHYL-	16.80	26	NJ		
9.		CYCLIC ALKANE	16.93	18	J		
10.		CYCLIC ALKANE	17.44	12	J		
11.		UNKNOWN	18.13	15	J		
12.	3891-98-3	DODECANE, 2,6,10-TRIMETHYL-	18.71	39	NJ		
13.		CYCLIC ALKENE	19.03	12	J		
14.	2456-28-2	DECANE, 1,1'-OXYBIS-	19.30	12	NJ		
15.		STRAIGHT-CHAIN ALKANE	19.42	11	J		
16.		CYCLIC ALKANE	19.67	13	J		
17.	31295-56-4	DODECANE, 2,6,11-TRIMETHYL-	20.83	40	NJ		
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ527

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) WATER Lab Sample ID: 200484-14A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: BGD71

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. _____ Date Analyzed: ~~04/23/03~~ 07/20/00 q/is/wal

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	REV Qual	Qual Code
75-71-8	Dichlorodifluoromethane	1.00	U	U	
74-87-3	Chloromethane	1.00	U		
75-01-4	Vinyl Chloride	1.00	U		
74-83-9	Bromomethane	1.00	U		
75-00-3	Chloroethane	1.00	U		
75-69-4	Trichlorofluoromethane	1.00	U		
67-64-1	Acetone	5.00	U		
75-35-4	1,1-Dichloroethene	1.00	U		
75-09-2	Methylene Chloride	3.30	B	UJ	B
156-60-5	trans-1,2-Dichloroethene	1.00	U	U	
75-34-3	1,1-Dichloroethane	1.00	U		
78-93-3	2-Butanone	5.00	U		
156-59-2	cis-1,2-Dichloroethene	1.00	U		
540-59-0	1,2-Dichloroethene (total)	2.00	U		
67-66-3	Chloroform	1.00	U		
71-55-6	1,1,1-Trichloroethane	1.00	U		
56-23-5	Carbon Tetrachloride	1.00	U		
107-06-2	1,2-Dichloroethane	1.00	U		
71-43-2	Benzene	1.00	U		
79-01-6	Trichloroethene	1.00	U		
75-27-4	Bromodichloromethane	1.00	U		
108-88-3	Toluene	1.00	U		
10061-02-6	trans-1,3-Dichloropropene	1.00	U		
79-00-5	1,1,2-Trichloroethane	1.00	U		
127-18-4	Tetrachloroethene	1.00	U		
108-90-7	Chlorobenzene	1.00	U		
630-20-6	1,1,1,2-Tetrachloroethane	1.00	U		
100-41-4	Ethylbenzene	1.00	U		
1330-20-7	Xylenes (total)	3.00	U		
108-38-3	m,p-Xylenes	2.00	U		
95-47-6	o-Xylene	1.00	U		
75-25-2	Bromoform	1.00	U		
79-34-5	1,1,2,2-Tetrachloroethane	1.00	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ527

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) WATER Lab Sample ID: 200484-14A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: BGD71

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. _____ Date Analyzed: ~~04/23/83~~ 07/20/00 9/15/00 gl (

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	REV QUAL QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	1.00	U	U
95-63-6	1,2,4-Trimethylbenzene	1.00	U	
541-73-1	1,3-Dichlorobenzene	1.00	U	
106-46-7	1,4-Dichlorobenzene	1.00	U	
95-50-1	1,2-Dichlorobenzene	1.00	U	
96-12-8	1,2-Dibromo-3-Chloropropane	1.00	U	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ527

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) WATER Lab Sample ID: 200484-14A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: BGD71

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: not dec. _____ Date Analyzed: ~~04/23/83~~ 07/20/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/l

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ543

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) WATER Lab Sample ID: 200484-21A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: BGD72

Level: (low/med) LOW Date Received: 07/13/00

% Moisture: not dec. _____ Date Analyzed: ~~04/23/83~~ 07/20/00
8/15/00 ef (

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume:_____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	1.00	U	U	
74-87-3	Chloromethane	1.00	U		
75-01-4	Vinyl Chloride	1.00	U		
74-83-9	Bromomethane	1.00	U		
75-00-3	Chloroethane	1.00	U		
75-69-4	Trichlorofluoromethane	1.00	U		
67-64-1	Acetone	5.00	U		
75-35-4	1,1-Dichloroethene	1.00	U		
75-09-2	Methylene Chloride	2.84	B	U5	B
156-60-5	trans-1,2-Dichloroethene	1.00	U	U	
75-34-3	1,1-Dichloroethane	1.00	U		
78-93-3	2-Butanone	5.00	U		
156-59-2	cis-1,2-Dichloroethene	1.00	U		
540-59-0	1,2-Dichloroethene (total)	2.00	U		
67-66-3	Chloroform	1.00	U		
71-55-6	1,1,1-Trichloroethane	1.00	U		
56-23-5	Carbon Tetrachloride	1.00	U		
107-06-2	1,2-Dichloroethane	1.00	U		
71-43-2	Benzene	1.00	U		
79-01-6	Trichloroethene	1.00	U		
75-27-4	Bromodichloromethane	1.00	U		
108-88-3	Toluene	1.00	U		
10061-02-6	trans-1,3-Dichloropropene	1.00	U		
79-00-5	1,1,2-Trichloroethane	1.00	U		
127-18-4	Tetrachloroethene	1.00	U		
108-90-7	Chlorobenzene	1.00	U		
630-20-6	1,1,1,2-Tetrachloroethane	1.00	U		
100-41-4	Ethylbenzene	1.00	U		
1330-20-7	Xylenes (total)	3.00	U		
108-38-3	m,p-Xylenes	2.00	U		
95-47-6	o-Xylene	1.00	U		
75-25-2	Bromoform	1.00	U		
79-34-5	1,1,2,2-Tetrachloroethane	1.00	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ543

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) WATER Lab Sample ID: 200484-21A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: BGD72

Level: (low/med) LOW Date Received: 07/13/00

% Moisture: not dec. _____ Date Analyzed: ~~04/23/83~~ 07/20/00 9/15/00 G/C

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	REV QUAL	QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	1.00	U	U	
95-63-6	1,2,4-Trimethylbenzene	1.00	U		
541-73-1	1,3-Dichlorobenzene	1.00	U		
106-46-7	1,4-Dichlorobenzene	1.00	U		
95-50-1	1,2-Dichlorobenzene	1.00	U		
96-12-8	1,2-Dibromo-3-Chloropropane	1.00	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ543

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) WATER Lab Sample ID: 200484-21A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: BGD72

Level: (low/med) LOW Date Received: 07/13/00

% Moisture: not dec. _____ Date Analyzed: ~~04/23/03~~ 07/20/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0 9/15/00 GC

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/l

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ544

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) WATER Lab Sample ID: 200484-22A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: BGD73

Level: (low/med) LOW Date Received: 07/13/00

% Moisture: not dec. _____ Date Analyzed: ~~04/23/83~~ 07/26/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0 9/15/00 a/(

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	REV QUAL	QUAL CODE
75-71-8	Dichlorodifluoromethane	1.00	U	U	
74-87-3	Chloromethane	1.00	U		
75-01-4	Vinyl Chloride	1.00	U		
74-83-9	Bromomethane	1.00	U		
75-00-3	Chloroethane	1.00	U		
75-69-4	Trichlorofluoromethane	1.00	U		
67-64-1	Acetone	5.00	U		
75-35-4	1,1-Dichloroethene	1.00	U		
75-09-2	Methylene Chloride	2.60	B	UJ	B
156-60-5	trans-1,2-Dichloroethene	1.00	U	U	
75-34-3	1,1-Dichloroethane	1.00	U		
78-93-3	2-Butanone	5.00	U		
156-59-2	cis-1,2-Dichloroethene	1.00	U		
540-59-0	1,2-Dichloroethene (total)	2.00	U		
67-66-3	Chloroform	1.00	U		
71-55-6	1,1,1-Trichloroethane	1.00	U		
56-23-5	Carbon Tetrachloride	1.00	U		
107-06-2	1,2-Dichloroethane	1.00	U		
71-43-2	Benzene	1.00	U		
79-01-6	Trichloroethene	1.00	U		
75-27-4	Bromodichloromethane	1.00	U		
108-88-3	Toluene	1.00	U		
10061-02-6	trans-1,3-Dichloropropene	1.00	U		
79-00-5	1,1,2-Trichloroethane	1.00	U		
127-18-4	Tetrachloroethene	1.00	U		
108-90-7	Chlorobenzene	1.00	U		
630-20-6	1,1,1,2-Tetrachloroethane	1.00	U		
100-41-4	Ethylbenzene	1.00	U		
1330-20-7	Xylenes (total)	3.00	U		
108-38-3	m,p-Xylenes	2.00	U		
95-47-6	o-Xylene	1.00	U		
75-25-2	Bromoform	1.00	U		
79-34-5	1,1,2,2-Tetrachloroethane	1.00	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Ogden SAMPLE NO.

RJ544

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) WATER Lab Sample ID: 200484-22A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: BGD73

Level: (low/med) LOW Date Received: 07/13/00

% Moisture: not dec. _____ Date Analyzed: ~~04/23/83~~ 07/20/00 7/15/00 (

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	REV QUAL	QUAL CODE
108-67-8	1,3,5-Trimethylbenzene	1.00	U	U	
95-63-6	1,2,4-Trimethylbenzene	1.00	U		
541-73-1	1,3-Dichlorobenzene	1.00	U		
106-46-7	1,4-Dichlorobenzene	1.00	U		
95-50-1	1,2-Dichlorobenzene	1.00	U		
96-12-8	1,2-Dibromo-3-Chloropropane	1.00	U		

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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Ogden SAMPLE NO.

RJ544

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) WATER Lab Sample ID: 200484-22A

Sample wt/vol: 25.00 (g/mL) ML Lab File ID: BGD73

Level: (low/med) LOW Date Received: 07/13/00

% Moisture: not dec. _____ Date Analyzed: ~~04/23/83~~ 07/20/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0 9/15/00 GC

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/l

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Volatiles by EPA Method 8260B
QC Level:	V[1]
SDG:	RJ149
Matrix:	Soil
No. of Samples:	4
Date Reviewed:	June 15, 2001
Reviewer:	K. McNeill
Reference:	National Functional Guidelines For Organic Data Review (2/94)
Samples Reviewed:	RJ152, RJ158, RJ159, & RJ160.

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received intact, and no sample receipt discrepancies were noted by the laboratory. The COC requested EPA method 8260M, but the samples were run under method 8260B. The samples were analyzed within 14 days of sample collection. The COC requested an MS/MSD analysis for RJ158; however, the case narrative noted that insufficient volume was provided to perform the requested analyses.	No qualifications were required.
4. Method Blanks	Two method blanks were analyzed with this SDG. Method blank VBLKLB reported nondetects for all target compounds. Method blank VBLKLA reported methylene chloride at 4 ug/L, and nondetects for all other target compounds.	Site sample RJ152 had methylene chloride raised to the reporting limit and qualified "U." No other qualifications were required.
5. LCS/BS	Three LCS samples (SLCSLA, SLCSLB, and VLCSLC) were analyzed in this SDG. All three reported a low recovery for methylene chloride (36%: QC limits 65-135%) and all other percent recoveries were within the laboratory QC limits.	Methylene chloride was qualified "UJ" for nondetects and "J" for detects in site samples RJ152, RJ158, RJ159, and RJ160. No other qualifications were required.

	Findings	Qualifications
6. Surrogates	The surrogate recoveries for all samples were within the laboratory QC limits stated on the associated Form Is.	No qualifications were required.
7. MS/MSDs	No MS/MSD analyses were associated with this package.	No qualifications were required.
8. Field QC Samples ER: None TB: None FB: None Duplicate: None	No trip blank was sent with the site samples reported on this SDG. No ER or FB samples were identified for this SDG.	No qualifications were required.
9. Other	The detects associated with samples RJ152 and RJ158 were adjusted for percent moisture value and sample weight. The case narrative noted detects for RJ159 and RJ160 were not adjusted for percent moisture, but were adjusted for sample weight. The case narrative noted that insufficient volume was available to perform a percent moisture evaluation. The reporting limits for nondetects in all four samples were not adjusted for percent moisture or sample weight. The volatile soil sample analyses did not include the following compounds as required by the project: chlorotrifluoroethene, 1,1,2-trichlorotrifluoroethane, and 2-chloroethyl vinyl ether. Other SDG case narratives noted a TIC search was performed to search for the three missing compounds; but the case narrative associated with this SDG did not mention a TIC search.	No qualifications were required.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ152

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-04

Sample wt/vol: 6.1 (g/mL) G Lab File ID: LB497

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. 17 Date Analyzed: 04/09/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Raw Qual	Qual Code
75-71-8	Dichlorodifluoromethane	5	U	U	
74-87-3	Chloromethane	5	U		
75-01-4	Vinyl Chloride	5	U		
74-83-9	Bromomethane	5	U		
75-00-3	Chloroethane	5	U		
75-69-4	Trichlorofluoromethane	5	U	U	
67-64-1	Acetone	20			
75-35-4	1,1-Dichloroethene	5	U	U	
75-09-2	Methylene Chloride	5.2	BJ		UJ B,L
156-60-5	trans-1,2-Dichloroethene	5	U	U	
75-34-3	1,1-Dichloroethane	5	U		
78-93-3	2-Butanone	5	U		
156-59-2	cis-1,2-Dichloroethene	5	U		
540-59-0	1,2-Dichloroethene (total)	10	U		
67-66-3	Chloroform	5	U		
71-55-6	1,1,1-Trichloroethane	5	U		
56-23-5	Carbon Tetrachloride	5	U		
107-06-2	1,2-Dichloroethane	5	U		
71-43-2	Benzene	5	U		
79-01-6	Trichloroethene	5	U		
75-27-4	Bromodichloromethane	5	U		
108-88-3	Toluene	5	U		
10061-02-6	trans-1,3-Dichloropropene	5	U		
79-00-5	1,1,2-Trichloroethane	5	U		
127-18-4	Tetrachloroethene	5	U		
108-90-7	Chlorobenzene	5	U		
630-20-6	1,1,1,2-Tetrachloroethane	5	U	U	
100-41-4	Ethylbenzene	5	U		
1330-20-7	Xylenes (total)	0.6	J	J	
108-38-3	m,p-Xylenes	0.6	J		
95-47-6	o-Xylene	5	U	U	
75-25-2	Bromoform	5	U		
79-34-5	1,1,2,2-Tetrachloroethane	5	U		

LEVEL V FORM I VOA

OGDEN VALIDATED

KM 6.15.01

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ152

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-04

Sample wt/vol: 6.1 (g/mL) G Lab File ID: LB497

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. 17 Date Analyzed: 04/09/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
108-67-8	1,3,5-Trimethylbenzene	5	U	U	
95-63-6	1,2,4-Trimethylbenzene	5	U		
541-73-1	1,3-Dichlorobenzene	5	U		
106-46-7	1,4-Dichlorobenzene	5	U		
95-50-1	1,2-Dichlorobenzene	5	U		
96-12-8	1,2-Dibromo-3-Chloropropane	5	U		
110-75-8	2-Chloroethylvinyl ether	5	U		
79-38-9	Chlorotriflouroethene	5	U		
76-13-1	1,1,2-Trichloroflourethane	5	U	U	

LEVEL V FORM I VOA OGDEN VALIDATED

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

AMEC SAMPLE NO.

RJ152

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-04

Sample wt/vol: 6.1 (g/mL) G Lab File ID: LB497

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. 17 Date Analyzed: 04/09/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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LEVEL V FORM I VOA-TIC

OGDEN VALIDATED

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ158

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-10

Sample wt/vol: 5.7 (g/mL) G Lab File ID: LB523

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. 33 Date Analyzed: 04/11/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
75-71-8	Dichlorodifluoromethane	7	U	U	
74-87-3	Chloromethane	7	U		
75-01-4	Vinyl Chloride	7	U		
74-83-9	Bromomethane	7	U		
75-00-3	Chloroethane	7	U		
75-69-4	Trichlorofluoromethane	7	U		
67-64-1	Acetone	7	U	U	
75-35-4	1,1-Dichloroethene	7	U		
75-09-2	Methylene Chloride	0.9	J	J	L
156-60-5	trans-1,2-Dichloroethene	7	U	U	
75-34-3	1,1-Dichloroethane	7	U		
78-93-3	2-Butanone	7	U		
156-59-2	cis-1,2-Dichloroethene	7	U		
540-59-0	1,2-Dichloroethene (total)	13	U		
67-66-3	Chloroform	7	U		
71-55-6	1,1,1-Trichloroethane	7	U		
56-23-5	Carbon Tetrachloride	7	U		
107-06-2	1,2-Dichloroethane	7	U		
71-43-2	Benzene	7	U		
79-01-6	Trichloroethene	7	U		
75-27-4	Bromodichloromethane	7	U		
108-88-3	Toluene	7	U		
10061-02-6	trans-1,3-Dichloropropene	7	U		
79-00-5	1,1,2-Trichloroethane	7	U		
127-18-4	Tetrachloroethene	7	U		
108-90-7	Chlorobenzene	7	U		
630-20-6	1,1,1,2-Tetrachloroethane	7	U		
100-41-4	Ethylbenzene	7	U		
1330-20-7	Xylenes (total)	20	U		
108-38-3	m,p-Xylenes	13	U		
95-47-6	o-Xylene	7	U		
75-25-2	Bromoform	7	U		
79-34-5	1,1,2,2-Tetrachloroethane	7	U	U	

LEVEL V

OGDEN VALIDATED

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ158

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-10

Sample wt/vol: 5.7 (g/mL) G Lab File ID: LB523

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. 33 Date Analyzed: 04/11/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
108-67-8	1,3,5-Trimethylbenzene	7	U	U	
95-63-6	1,2,4-Trimethylbenzene	7	U		
541-73-1	1,3-Dichlorobenzene	7	U		
106-46-7	1,4-Dichlorobenzene	7	U		
95-50-1	1,2-Dichlorobenzene	7	U		
96-12-8	1,2-Dibromo-3-Chloropropane	7	U		
110-75-8	2-Chloroethylvinyl ether	7	U		
79-38-9	Chlorotriflouroethene	7	U		
76-13-1	1,1,2-Trichloroflourethane	7	U	U	

LEVEL V

OGDEN VALIDATED

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

AMEC SAMPLE NO.

RJ158

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-10

Sample wt/vol: 5.7 (g/mL) G Lab File ID: LB523

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. 33 Date Analyzed: 04/11/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ159

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-11

Sample wt/vol: 5.9 (g/mL) G Lab File ID: LB524

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. _____ Date Analyzed: 04/11/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
75-71-8	Dichlorodifluoromethane	5	U	U	
74-87-3	Chloromethane	5	U	U	
75-01-4	Vinyl Chloride	5	U	U	
74-83-9	Bromomethane	5	U	U	
75-00-3	Chloroethane	5	U	U	
75-69-4	Trichlorofluoromethane	5	U	U	
67-64-1	Acetone	24		U	
75-35-4	1,1-Dichloroethene	5	U	U	
75-09-2	Methylene Chloride	1	J	J	L
156-60-5	trans-1,2-Dichloroethene	5	U	U	
75-34-3	1,1-Dichloroethane	5	U	U	
78-93-3	2-Butanone	5	U	U	
156-59-2	cis-1,2-Dichloroethene	5			
540-59-0	1,2-Dichloroethene (total)	5	J	J	
67-66-3	Chloroform	5	U	U	
71-55-6	1,1,1-Trichloroethane	5	U	U	
56-23-5	Carbon Tetrachloride	5	U	U	
107-06-2	1,2-Dichloroethane	5	U	U	
71-43-2	Benzene	5	U	U	
79-01-6	Trichloroethene	6			
75-27-4	Bromodichloromethane	5	U	U	
108-88-3	Toluene	5	U	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	U	
79-00-5	1,1,2-Trichloroethane	5	U	U	
127-18-4	Tetrachloroethene	5	U	U	
108-90-7	Chlorobenzene	5	U	U	
630-20-6	1,1,1,2-Tetrachloroethane	5	U	U	
100-41-4	Ethylbenzene	5	U	U	
1330-20-7	Xylenes (total)	15	U	U	
108-38-3	m,p-Xylenes	10	U	U	
95-47-6	o-Xylene	5	U	U	
75-25-2	Bromoform	5	U	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	U	

KM 6-15-01

LEVEL V FORM I VOA

OGDEN VALIDATED

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ159

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-11

Sample wt/vol: 5.9 (g/mL) G Lab File ID: LB524

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. _____ Date Analyzed: 04/11/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
108-67-8	1,3,5-Trimethylbenzene	5	U	U	
95-63-6	1,2,4-Trimethylbenzene	5	U		
541-73-1	1,3-Dichlorobenzene	5	U		
106-46-7	1,4-Dichlorobenzene	5	U		
95-50-1	1,2-Dichlorobenzene	5	U		
96-12-8	1,2-Dibromo-3-Chloropropane	5	U		
110-75-8	2-Chloroethylvinyl ether	5	U		
79-38-9	Chlorotriflouroethene	5	U		
76-13-1	1,1,2-Trichloroflourethane	5	U	U	

LEVEL V FORM I VOA

OGDEN VALIDATED

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

AMEC SAMPLE NO.

RJ159

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-11

Sample wt/vol: 5.9 (g/mL) G Lab File ID: LB524

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. _____ Date Analyzed: 04/11/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
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LEVEL V

FORM I VOA-TIC

OGDEN VALIDATED

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ160

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-12

Sample wt/vol: 6.2 (g/mL) G Lab File ID: LB525

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. _____ Date Analyzed: 04/11/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
75-71-8	Dichlorodifluoromethane	5	U	U	
74-87-3	Chloromethane	5	U		
75-01-4	Vinyl Chloride	5	U		
74-83-9	Bromomethane	5	U		
75-00-3	Chloroethane	5	U		
75-69-4	Trichlorofluoromethane	5	U	U	
67-64-1	Acetone	12			
75-35-4	1,1-Dichloroethene	5	U	U	
75-09-2	Methylene Chloride	1	J	J	L
156-60-5	trans-1,2-Dichloroethene	5	U	U	
75-34-3	1,1-Dichloroethane	5	U		
78-93-3	2-Butanone	5	U	U	
156-59-2	cis-1,2-Dichloroethene	6			
540-59-0	1,2-Dichloroethene (total)	7	J	J	
67-66-3	Chloroform	5	U	U	
71-55-6	1,1,1-Trichloroethane	5	U		
56-23-5	Carbon Tetrachloride	5	U		
107-06-2	1,2-Dichloroethane	5	U		
71-43-2	Benzene	5	U	U	
79-01-6	Trichloroethene	8			
75-27-4	Bromodichloromethane	5	U	U	
108-88-3	Toluene	5	U		
10061-02-6	trans-1,3-Dichloropropene	5	U		
79-00-5	1,1,2-Trichloroethane	5	U		
127-18-4	Tetrachloroethene	5	U		
108-90-7	Chlorobenzene	5	U		
630-20-6	1,1,1,2-Tetrachloroethane	5	U		
100-41-4	Ethylbenzene	5	U		
1330-20-7	Xylenes (total)	15	U		
108-38-3	m,p-Xylenes	10	U		
95-47-6	o-Xylene	5	U		
75-25-2	Bromoform	5	U		
79-34-5	1,1,2,2-Tetrachloroethane	5	U	U	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ160

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-12

Sample wt/vol: 6.2 (g/mL) G Lab File ID: LB525

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. _____ Date Analyzed: 04/11/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
108-67-8	1,3,5-Trimethylbenzene	5	U	U	
95-63-6	1,2,4-Trimethylbenzene	5	U		
541-73-1	1,3-Dichlorobenzene	5	U		
106-46-7	1,4-Dichlorobenzene	5	U		
95-50-1	1,2-Dichlorobenzene	5	U		
96-12-8	1,2-Dibromo-3-Chloropropane	5	U		
110-75-8	2-Chloroethylvinyl ether	5	U		
79-38-9	Chlorotriflouroethene	5	U		
76-13-1	1,1,2-Trichloroflourethane	5	U	U	

LEVEL V

OGDEN VALIDATED

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

AMEC SAMPLE NO.

RJ160

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ149

Matrix: (soil/water) SOIL Lab Sample ID: 010272-12

Sample wt/vol: 6.2 (g/mL) G Lab File ID: LB525

Level: (low/med) LOW Date Received: 03/29/01

% Moisture: not dec. _____ Date Analyzed: 04/11/01

GC Column: DB624 ID: 0.18 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
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OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne, SSFL RFI Program
Project Manager:	D. Hambrick
Analysis/Method:	Volatiles by Method 8260B
QC Level:	V[1]
SDG:	RJ836
Matrix:	Soil
No. of Samples:	2
No. of Reanalyses/Dilutions:	0
Date Reviewed:	05/14/01
Reviewer:	D. A. Buckheister
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ842, RJ843

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COC was signed by both field and laboratory personnel. A laboratory sample receipt checklist noted that the samples were received intact and at a temperature of 6°C. The samples were analyzed within fourteen days of the sampling date.	No qualifications were required. No qualifications were required.
4. Method Blanks	One method blank was analyzed with this SDG. 2-Butanone and naphthalane were reported in the method blank at 2µg/Kg and 3µg/Kg, respectively.	The reporting limit for 2-butanone in RJ843 was raised to the level of contamination and the results qualified as an estimated nondetect, "UJ."
5. LCS/BS	One LCS was analyzed with this SDG. All percent recoveries were within the laboratory QC limits, with the exception of the percent recoveries for bromomethane and trichlorofluromethane, which were recovered above the QC limits.	Bromomethane and trichlorofluoromethane were not reported in either sample. No qualifications were required.

	Findings	Qualifications
6. Surrogates	The surrogate recoveries for both samples were within the laboratory QC, with the exception of bromofluorobenzene, which was recovered below the QC limit, in sample RJ843.	All target compounds in RJ843 were qualified as estimated, "J" for detects and "UJ" for non-detects.
7. MS/MSDs	There were no MS/MSD analyses performed with this SDG.	No qualifications were required.
8. Field QC Samples ER: None TB: None FB: RJ543 FD: None	There were no reportable detects in the field blank.	No qualifications were required.
9. Other	The laboratory conducted a library search for added compounds chlorofluoroethane, chlorofluoroethylene, 2-chloroethylvinyl ether, 1,1,2-trichlorotrifluoroethane, and chlorotrifluoroethylene, as they were not included in the calibration. The added compounds were not present as TICs in any of the samples in this SDG. TICs were reported in both samples in this SDG.	No qualifications were required TICs not rejected as siloxanes, indicative of column degradation, were qualified as tentatively identified and estimated, "NJ."
Comments	None	No qualifications were required

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ842

Lab Name: CEIMIC CORP Contract: 313150002

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ836

Matrix: (soil/water) SOIL Lab Sample ID: 200827-07A

Sample wt/vol: 6.1 (g/mL) G Lab File ID: OE515

Level: (low/med) LOW Date Received: 11/20/00

% Moisture: not dec. 10 Date Analyzed: 12/01/00

GC Column: VOCOL ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
67-64-1	Acetone	21	
75-35-4	1,1-Dichloroethene	5	U
75-09-2	Methylene Chloride	6	
75-15-0	Carbon Disulfide	5	U
1634-04-4	Methyl tert-Butyl Ether	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
78-93-3	2-Butanone	24	B
594-20-7	2,2-Dichloropropane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	5	U
74-97-5	Bromochloromethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
563-58-6	1,1-Dichloropropene	5	U
56-23-5	Carbon Tetrachloride	5	U
107-06-2	1,2-Dichloroethane	5	U
71-43-2	Benzene	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
74-95-3	Dibromomethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	5	U

LEVEL

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ842

Lab Name: CEIMIC CORP Contract: 313150002

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ836

Matrix: (soil/water) SOIL Lab Sample ID: 200827-07A

Sample wt/vol: 6.1 (g/mL) G Lab File ID: OE515

Level: (low/med) LOW Date Received: 11/20/00

% Moisture: not dec. 10 Date Analyzed: 12/01/00

GC Column: VOCOL ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Rev Qual	Final Code
108-10-1	4-Methyl-2-Pentanone	10	U		UJ
591-78-6	2-Hexanone	3	J		J
142-28-9	1,3-Dichloropropane	5	U		U
124-48-1	Dibromochloromethane	5	U		
106-93-4	1,2-Dibromoethane	5	U		
544-10-5	1-Chlorohexane	1	J		
108-90-7	Chlorobenzene	5	U		
630-20-6	1,1,1,2-Tetrachloroethane	5	U		
100-41-4	Ethylbenzene	5	U		
1330-20-7	Xylenes (total)	15	U		
108-38-3	m,p-Xylenes	10	U		
95-47-6	o-Xylene	5	U		
100-42-5	Styrene	5	U		
75-25-2	Bromoform	5	U		
98-82-8	Isopropylbenzene	5	U		
79-34-5	1,1,2,2-Tetrachloroethane	5	U		
96-18-4	1,2,3-Trichloropropane	5	U		
106-65-1	n-Propylbenzene	5	U		
108-86-1	Bromobenzene	5	U		
108-67-8	1,3,5-Trimethylbenzene	5	U		
95-49-8	2-Chlorotoluene	5	U		
106-43-4	4-Chlorotoluene	5	U		
98-06-6	tert-Butylbenzene	5	U		
95-63-6	1,2,4-Trimethylbenzene	5	U		
135-98-8	sec-Butylbenzene	5	U		
99-87-6	p-Isopropyltoluene	5	U		
541-73-1	1,3-Dichlorobenzene	5	U		
106-46-7	1,4-Dichlorobenzene	5	U		
104-51-8	n-Butylbenzene	5	U		
95-50-1	1,2-Dichlorobenzene	5	U		
96-12-8	1,2-Dibromo-3-Chloropropane	5	U		
120-82-1	1,2,4-Trichlorobenzene	5	U		
87-68-3	Hexachlorobutadiene	5	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ842

Lab Name: CEIMIC CORP Contract: 313150002

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ836

Matrix: (soil/water) SOIL Lab Sample ID: 200827-07A

Sample wt/vol: 6.1 (g/mL) G Lab File ID: OE515

Level: (low/med) LOW Date Received: 11/20/00

% Moisture: not dec. 10 Date Analyzed: 12/01/00

GC Column: VOCOL ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual Code
91-20-3	Naphthalene	5	U	U
87-61-6	1,2,3-Trichlorobenzene	5	U	↓

OGDEN VALIDATED

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

OGDEN SAMPLE NO.

RJ842

Lab Name: CEIMIC CORP Contract: 313150002

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ836

Matrix: (soil/water) SOIL Lab Sample ID: 200827-07A

Sample wt/vol: 6.1 (g/mL) G Lab File ID: OE515

Level: (low/med) LOW Date Received: 11/20/00

% Moisture: not dec. 10 Date Analyzed: 12/01/00

GC Column: VOCOL ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Rev Qual	Qual Code
1.	67-63-0	ISOPROPYL ALCOHOL	4.86	24	NJ	NJ	
2.		UNKNOWN SILOXANE	17.72	19	J	R	*12
3.							
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LEVEL

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ843

Lab Name: CEIMIC CORP Contract: 313150002

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ836

Matrix: (soil/water) SOIL Lab Sample ID: 200827-08A

Sample wt/vol: 6.7 (g/mL) G Lab File ID: OE516

Level: (low/med) LOW Date Received: 11/20/00

% Moisture: not dec. 11 Date Analyzed: 12/01/00

GC Column: VOCOL ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
75-71-8	Dichlorodifluoromethane	5	U	UJ	S
74-87-3	Chloromethane	5	U		
75-01-4	Vinyl Chloride	5	U		
74-83-9	Bromomethane	5	U		
75-00-3	Chloroethane	5	U		
75-69-4	Trichlorofluoromethane	5	U		
67-64-1	Acetone	68		J	S
75-35-4	1,1-Dichloroethene	5	U	UJ	S
75-09-2	Methylene Chloride	7		J	S
75-15-0	Carbon Disulfide	5	U	UJ	S
1634-04-4	Methyl tert-Butyl Ether	5	U		
156-60-5	trans-1,2-Dichloroethene	5	U		
75-34-3	1,1-Dichloroethane	5	U		
78-93-3	2-Butanone	19	B	UJ	B,S
594-20-7	2,2-Dichloropropane	5	U	UJ	S
156-59-2	cis-1,2-Dichloroethene	5	U		
540-59-0	1,2-Dichloroethene (total)	10	U		
67-66-3	Chloroform	5	U		
74-97-5	Bromochloromethane	5	U		
71-55-6	1,1,1-Trichloroethane	5	U		
563-58-6	1,1-Dichloropropene	5	U		
56-23-5	Carbon Tetrachloride	5	U		
107-06-2	1,2-Dichloroethane	5	U		
71-43-2	Benzene	5	U		
79-01-6	Trichloroethene	5	U		
78-87-5	1,2-Dichloropropane	5	U		
75-27-4	Bromodichloromethane	5	U		
74-95-3	Dibromomethane	5	U		
10061-01-5	cis-1,3-Dichloropropene	5	U		
108-88-3	Toluene	5	U		
10061-02-6	trans-1,3-Dichloropropene	5	U		
79-00-5	1,1,2-Trichloroethane	5	U		
127-18-4	Tetrachloroethene	5	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ843

Lab Name: CEIMIC CORP Contract: 313150002

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ836

Matrix: (soil/water) SOIL Lab Sample ID: 200827-08A

Sample wt/vol: 6.7 (g/mL) G Lab File ID: OE516

Level: (low/med) LOW Date Received: 11/20/00

% Moisture: not dec. 11 Date Analyzed: 12/01/00

GC Column: VOCOL ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
108-10-1	4-Methyl-2-Pentanone	10	U	UJ	S
591-78-6	2-Hexanone	10	U		
142-28-9	1,3-Dichloropropane	5	U		
124-48-1	Dibromochloromethane	5	U		
106-93-4	1,2-Dibromoethane	5	U		
544-10-5	1-Chlorohexane	1	J	J	
108-90-7	Chlorobenzene	5	U	UJ	S
630-20-6	1,1,1,2-Tetrachloroethane	5	U		
100-41-4	Ethylbenzene	5	U		
1330-20-7	Xylenes (total)	15	U		
108-38-3	m,p-Xylenes	10	U		
95-47-6	o-Xylene	5	U		
100-42-5	Styrene	5	U		
75-25-2	Bromoform	5	U		
98-82-8	Isopropylbenzene	5	U		
79-34-5	1,1,2,2-Tetrachloroethane	5	U		
96-18-4	1,2,3-Trichloropropane	5	U		
106-65-1	n-Propylbenzene	5	U		
108-86-1	Bromobenzene	5	U		
108-67-8	1,3,5-Trimethylbenzene	5	U		
95-49-8	2-Chlorotoluene	5	U		
106-43-4	4-Chlorotoluene	5	U		
98-06-6	tert-Butylbenzene	5	U		
95-63-6	1,2,4-Trimethylbenzene	5	U		
135-98-8	sec-Butylbenzene	5	U		
99-87-6	p-Isopropyltoluene	5	U		
541-73-1	1,3-Dichlorobenzene	5	U		
106-46-7	1,4-Dichlorobenzene	5	U		
104-51-8	n-Butylbenzene	5	U		
95-50-1	1,2-Dichlorobenzene	5	U		
96-12-8	1,2-Dibromo-3-Chloropropane	5	U		
120-82-1	1,2,4-Trichlorobenzene	5	U		
87-68-3	Hexachlorobutadiene	5	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ843

Lab Name: CEIMIC CORP Contract: 313150002

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ836

Matrix: (soil/water) SOIL Lab Sample ID: 200827-08A

Sample wt/vol: 6.7 (g/mL) G Lab File ID: OE516

Level: (low/med) LOW Date Received: 11/20/00

% Moisture: not dec. 11 Date Analyzed: 12/01/00

GC Column: VOCOL ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG			
91-20-3	Naphthalene	5	U	UJ ↓	S ↓
87-61-6	1,2,3-Trichlorobenzene	5	U		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

OGDEN SAMPLE NO.

RJ843

Lab Name: CEIMIC CORP Contract: 313150002

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ836

Matrix: (soil/water) SOIL Lab Sample ID: 200827-08A

Sample wt/vol: 6.7 (g/mL) G Lab File ID: OE516

Level: (low/med) LOW Date Received: 11/20/00

% Moisture: not dec. 11 Date Analyzed: 12/01/00

GC Column: VOCOL ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Qual Code
1.	67-63-0	ISOPROPYL ALCOHOL	4.98	240	NJ	NJ
2.		UNKNOWN SILOXANE	17.77	19	J	*R 12*12
3.						
4.						
5.						
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30.						

DATA 5/17/01

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	Dixie Hambrick
Analysis/Method:	Total Fuel Hydrocarbons by GC/EPA Method 8015M
QC Level:	V[1]
SDG:	RJ397
Matrix:	Soil
No. of Samples:	11
Date Reviewed:	September 7, 2001
Reviewer:	L. Calvin
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ398, RJ403, RJ404, RJ405, RJ406, RJ407, RJ408, RJ410, RJ411, RJ412, RJ413

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COCs were signed by the laboratory and field personnel. The laboratory's sample receiving checklist noted that the samples were received with a cooler temperatures above the limits of 4°C ± 2°C, at 18°C, and custody seals were not present on the cooler. All samples were accounted for on the COC. The TPH analysis was also requested for samples RJ397, RJ404, and RJ409; however, analyses for the aforementioned samples were on hold on the COC. Sample RJ404 was subsequently taken off hold with an Analytical Request Change Form dated 05/29/01. Another Analytical Request Change Form dated 05/23/01 added the TPH analysis for samples RJ405, RJ406, and RJ407.	Due to the nonvolatile nature of the extractable TPH analysis, no qualification was necessary for the elevated cooler temperature.
	According to the sample result summaries, the samples were extracted within 14 days of collection, with the exception of sample RJ404. All samples were analyzed within 40 days of extraction.	Nondetect results for sample RJ404 were qualified as estimated "UJ."

	Findings	Qualifications
3. Method Blanks	Three soil method blanks were extracted and analyzed with this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
4. LCS/BS	Three soil LCSs were extracted and analyzed with this SDG. The percent recoveries for the four hydrocarbon ranges were within the laboratory QC limits for the LCSs, with the exception of recoveries below the QC limits for the lubricant oil range in the LCSs extracted 05/23/01 and 06/05/01.	Results for the lubricant oil range were qualified as estimated, "J," for detects, and "UJ," for nondetects in associated samples RJ398, RJ403, RJ404, RJ408, RJ410, RJ411, RJ412, and RJ413.
5. Surrogates	The surrogate recoveries for all samples were within the laboratory QC limits.	No qualifications were required.
6. MS/MSDs	Sample RJ398 was analyzed as the MS/MSD for this SDG. All recoveries were within the laboratory QC limits, with the exception of a recovery below the QC limits for for the lubricant oil range in the MSD only. All RPDs were less than the QC limit of 20%.	No qualifications were required.
7. Field QC Samples ER: RJ242 (SDG RJ214) FB: RJ543 (SDG RJ514) FD: None	There were no detects for target compounds in the equipment rinsate or the field blank.	No qualifications were required.
9. Other	Sample results and reporting limits were reported on a dry-weight basis. The laboratory inconsistently reported sample reporting limits using one significant figure, and detects using two or three significant figures.	No qualifications were required. The reviewer manually made any necessary edits to sample results and/or reporting limits to reflect two significant figures on the sample result summaries.
Comments	The reviewer noted that for both the LCS and the MS/MSD, the spiking levels for all ranges were less than the quantitation or reporting limit, and the spiking levels for the gasoline and kerosene ranges were less than one half the reporting limit.	None.

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ398

Date Sampled: 05/16/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 79

Laboratory ID: 010418-02

Date Sample Extracted: 05/23/01

Date Sample Analyzed: 06/01/01

Associated Method Blank: F0523-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Val qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND	↓		4
C20-C30 (Lubricant Oil Range)	ND	UJ	L	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	64	58 - 115
n-Eicosane	88	67 - 132
p-Terphenyl-d14	80	75 - 135

Reported by: TS

Approved by: [signature]

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ403

Date Sampled: 05/16/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 89

Laboratory ID: 010418-07

Date Sample Extracted: 05/23/01

Date Sample Analyzed: 06/02/01

Associated Method Blank: F0523-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	new qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	6.59			4
C11-C14 (Kerosene Range)	ND	U		4
C14-C20 (Diesel Range)	ND	U		4
C20-C30 (Lubricant Oil Range)	14.9	J	L	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	81	58 - 115
n-Eicosane	105	67 - 132
p-Terphenyl-d14	91	75 - 135

OGDEN VALID
LEVEL V

Reported by: TS

Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ404

Date Sampled: 05/16/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 88

Laboratory ID: 010418-08

Date Sample Extracted: 06/05/01

Date Sample Analyzed: 06/09/01

Associated Method Blank: F0605-B6

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	qual	Vcode	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U5	H	4
C11-C14 (Kerosene Range)	ND	↓	↓	4
C14-C20 (Diesel Range)	ND	↓	↓	4
C20-C30 (Lubricant Oil Range)	ND	↓	↓ L	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	76	58 - 115
n-Eicosane	85	67 - 132
p-Terphenyl-d14	81	75 - 135

TS

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ405

Date Sampled: 05/17/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 95

Laboratory ID: 010418-09

Date Sample Extracted: 05/30/01

Date Sample Analyzed: 06/02/01

Associated Method Blank: F0530-B6

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	qual	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U	3
C11-C14 (Kerosene Range)	ND	U	3
C14-C20 (Diesel Range)	ND	U	3
C20-C30 (Lubricant Oil Range)	2.3J	J	3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	99	58 - 115
n-Eicosane	123	67 - 132
p-Terphenyl-d14	111	75 - 135

LEVEL V

Reported by: TS

Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ406

Date Sampled: 05/17/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 95

Laboratory ID: 010418-10

Date Sample Extracted: 05/30/01

Date Sample Analyzed: 06/02/01

Associated Method Blank: F0530-B6

Final Extract Volume (mL):1.0

Dilution Factor: 1

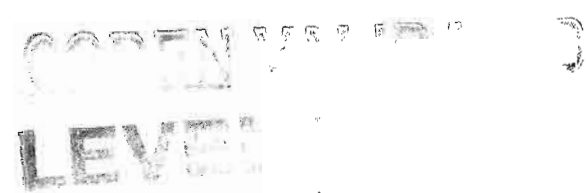
Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	val qual	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U	3
C11-C14 (Kerosene Range)	ND	↓	3
C14-C20 (Diesel Range)	2.3J	J	3
C20-C30 (Lubricant Oil Range)	4.73		3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	77	58 - 115
n-Eicosane	86	67 - 132
p-Terphenyl-d14	81	75 - 135



TS

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ407

Date Sampled: 05/17/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 94

Laboratory ID: 010418-11

Date Sample Extracted: 05/30/01

Date Sample Analyzed: 06/02/01

Associated Method Blank: F0530-B6

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	rev qual / qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U	4
C11-C14 (Kerosene Range)	ND	↓	4
C14-C20 (Diesel Range)	4.41		4
C20-C30 (Lubricant Oil Range)	6.93		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	76	58 - 115
n-Eicosane	91	67 - 132
p-Terphenyl-d14	84	75 - 135

LEVEL V

TS

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ408

Date Sampled: 05/17/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 88

Laboratory ID: 010418-12

Date Sample Extracted: 05/23/01

Date Sample Analyzed: 06/02/01

Associated Method Blank: F0523-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND	↓		4
C20-C30 (Lubricant Oil Range)	ND	UJ	L	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	71	58 - 115
n-Eicosane	96	67 - 132
p-Terphenyl-d14	88	75 - 135

LEVEL V

Reported by: TS

Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ410

Date Sampled: 05/17/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 92

Laboratory ID: 010418-14

Date Sample Extracted: 05/23/01

Date Sample Analyzed: 06/02/01

Associated Method Blank: F0523-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	qual	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U	4
C11-C14 (Kerosene Range)	ND	↓	4
C14-C20 (Diesel Range)	ND	↓	4
C20-C30 (Lubricant Oil Range)	ND	U	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	81	58 - 115
n-Eicosane	102	67 - 132
p-Terphenyl-d14	93	75 - 135

Reported by: TS

Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ411

Date Sampled: 05/18/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 93

Laboratory ID: 010418-15

Date Sample Extracted: 05/23/01

Date Sample Analyzed: 06/02/01

Associated Method Blank: F0523-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	rev qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND	↓		4
C20-C30 (Lubricant Oil Range)	8.78	J	L	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	74	58 - 115
n-Eicosane	101	67 - 132
p-Terphenyl-d14	108	75 - 135

LEVEL V

Reported by: TS

Approved by: B

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ412

Date Sampled: 05/18/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 89

Laboratory ID: 010418-16

Date Sample Extracted: 05/23/01

Date Sample Analyzed: 06/02/01

Associated Method Blank: F0523-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	qual (rev)	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	9.14			4
C20-C30 (Lubricant Oil Range)	18.1	J	L	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	68	58 - 115
n-Eicosane	99	67 - 132
p-Terphenyl-d14	83	75 - 135

LEVEL V

Reported by: TS

Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ413

Date Sampled: 05/18/01

Date Sample Received: 05/19/01

Matrix: Soil

Percent Solids: 91

Laboratory ID: 010418-17

Date Sample Extracted: 05/23/01

Date Sample Analyzed: 06/02/01

Associated Method Blank: F0523-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	2.3J	J		4
C11-C14 (Kerosene Range)	ND	U		4
C14-C20 (Diesel Range)	ND	↓		4
C20-C30 (Lubricant Oil Range)	4.20	J	L	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	70	58 - 115
n-Eicosane	104	67 - 132
p-Terphenyl-d14	90	75 - 135

SCREENED

LEVEL V

Reported by: TS

Approved by: _____

Form I TPH

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	Dixie Hambrick
Analysis/Method:	Total Fuel Hydrocarbons by GC/EPA Method 8015M
QC Level:	V[1]
SDG:	RJ249
Matrix:	Soil
No. of Samples:	3
Date Reviewed:	June 25, 2001
Reviewer:	L. Calvin
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ249, RJ251, RJ253

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COC was signed by the laboratory and field personnel. The laboratory's sample receiving checklist noted that the samples were received with a cooler temperature within the limits of 4°C ± 2°C, at 6°C, and custody seals were not present on the cooler. All samples were accounted for on the COC. The TPH analysis was also requested for samples RJ250 and RJ252; however, both samples were on hold on the COC. According to the sample result summaries, the samples were extracted within 14 days of collection and analyzed within 40 days of extraction.	No qualifications were required.
3. Method Blanks	One soil method blank was analyzed with this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
4. LCS/BS	One soil LCS was analyzed in this SDG. The percent recoveries for the four hydrocarbon ranges were within the laboratory QC limits.	No qualifications were required.

	Findings	Qualifications
5. Surrogates	The surrogate recoveries for all samples were within the laboratory QC limits.	No qualifications were required.
6. MS/MSDs	There were no MS/MSD analyses performed with this SDG. Evaluation of method accuracy was based on the blank spike results.	No qualifications were required.
7. Field QC Samples ER: RJ242 (SDG RJ214) FB: RJ543 (SDG RJ514) FD: None	There were no detects for target compounds in the field blank or the equipment rinsate.	No qualifications were required.
9. Other	Sample results and reporting limits were reported on a dry-weight basis. The laboratory inconsistently reported sample reporting limits using one significant figure, and detects using two or three significant figures.	None. The reviewer manually made any necessary edits to sample results and/or reporting limits to reflect two significant figures on the sample result summaries.
Comments	The reviewer noted that for both the LCS and the MS/MSD, the spiking levels for all ranges were less than the quantitation or reporting limit, and the levels for the gasoline and kerosene ranges were less than one half the reporting limit.	None.

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ249

Date Sampled: 04/17/01

Date Sample Received: 04/19/01

Matrix: Soil

Percent Solids: 92

Laboratory ID: 010340-01

Date Sample Extracted: 04/26/01

Date Sample Analyzed: 05/11/01

Associated Method Blank: F0426-B1

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U	4
C11-C14 (Kerosene Range)	ND	↓	4
C14-C20 (Diesel Range)	ND	↓	4
C20-C30 (Lubricant Oil Range)	ND	↓	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	69	58 - 115
n-Eicosane	88	67 - 132
p-Terphenyl-d14	86	75 - 135

CAMPBELL WILDFIELD
LEVEL V

Reported by: TS

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ251

Date Sampled: 04/18/01

Date Sample Received: 04/19/01

Matrix: Soil

Percent Solids: 91

Laboratory ID: 010340-03

Date Sample Extracted: 04/26/01

Date Sample Analyzed: 05/11/01

Associated Method Blank: F0426-B1

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	rev qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND			4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	3.4J	J		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	71	58 - 115
n-Eicosane	92	67 - 132
p-Terphenyl-d14	90	75 - 135

Reported by: TS

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ253

Date Sampled: 04/18/01

Date Sample Received: 04/19/01

Matrix: Soil

Percent Solids: 87

Laboratory ID: 010340-05

Date Sample Extracted: 04/26/01

Date Sample Analyzed: 05/12/01

Associated Method Blank: F0426-B1

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U	4
C11-C14 (Kerosene Range)	ND		4
C14-C20 (Diesel Range)	ND		4
C20-C30 (Lubricant Oil Range)	ND		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	72	58 - 115
n-Eicosane	90	67 - 132
p-Terphenyl-d14	87	75 - 135

CODEN VALIDATED

LEVEL V

Reported by: TS

Approved by: _____

Form I TPH

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	Dixie Hambrick
Analysis/Method:	Total Fuel Hydrocarbons by GC/EPA Method 8015M
QC Level:	V[1]
SDG:	RJ258
Matrix:	Soil
No. of Samples:	1
Date Reviewed:	June 22, 2001
Reviewer:	L. Calvin
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ271

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COC was signed by the laboratory and field personnel. The laboratory's sample receiving checklist noted that the sample was received with a cooler temperature above the limits of 4°C ± 2°C, at 10°C, and that custody seals were present on the cooler. The sample was accounted for on the COC. According to the sample result summary, the sample was extracted within 14 days of collection and analyzed within 40 days of extraction.	As cooler temperature has little or no effect on the extractable TPH analysis, no qualifications were necessary for the elevated cooler temperature.
3. Method Blanks	One soil method blank was analyzed with this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
4. LCS/BS	One soil LCS was analyzed with this SDG. The percent recoveries for the four hydrocarbon ranges were within the laboratory QC limits.	No qualifications were required.
5. Surrogates	The surrogate recoveries for the sample were within the laboratory QC limits.	No qualifications were required.

	Findings	Qualifications
6. MS/MSDs	There were no MS/MSD analyses performed for this SDG. Evaluation of method accuracy was based on the blank spike results.	No qualifications were required.
7. Field QC Samples ER: RJ242 (SDG RJ214) FB: RJ543 (SDG RJ514) FD: None	There were no detects for target compounds in the field blank or the equipment rinsate.	No qualifications were required.
9. Other	Sample results and reporting limits were reported on a dry-weight basis. The laboratory inconsistently reported sample reporting limits using one significant figure, and detects using two or three significant figures.	None. The reviewer manually made any necessary edits to sample results and/or reporting limits to reflect two significant figures on the sample result summaries.
Comments	The reviewer noted that the LCS spiking levels for all ranges were less than the quantitation or reporting limit, and the levels for the gasoline and kerosene ranges were less than one half the reporting limit.	None.

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ271

Date Sampled: 04/25/01

Date Sample Received: 04/26/01

Matrix: Soil

Percent Solids: 94

Laboratory ID: 010358-13

Date Sample Extracted: 05/04/01

Date Sample Analyzed: 05/14/01

Associated Method Blank: F0504-BB3

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	rev qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND	↓		4
C20-C30 (Lubricant Oil Range)	ND	↓		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	73	58 - 115
n-Eicosane	86	67 - 132
p-Terphenyl-d14	83	75 - 135

SCREEN VALIDATED

Reported by: TS

Approved by: _____

Form I TPH

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	Dixie Hambrick
Analysis/Method:	Total Fuel Hydrocarbons by GC/EPA Method 8015M
QC Level:	V[1]
SDG:	RJ186
Matrix:	Soil
No. of Samples:	1
Date Reviewed:	June 22, 2001
Reviewer:	L. Calvin
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ202

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COC was signed by the laboratory and field personnel. The laboratory's sample receiving checklist noted indicated that the sample was received with a cooler temperature above the limits of 4°C ± 2°C, at 10°C, and that custody seals were not present on the cooler. The sample and analysis was accounted for on the COC. The case narrative for this SDG indicated that the original extract for RJ202 was lost in extract concentration process. The sample was reextracted beyond the extraction holding time of 14 days from sample collection. The sample was analyzed within 40 days of extraction.	No qualifications were necessary. Results for RJ202 were qualified as estimated, "UJ," for nondetects, and "J," for detects.
3. Method Blanks	One soil method blank was analyzed with this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
4. LCS/BS	One soil LCS was analyzed with this SDG. The percent recoveries for the four hydrocarbon ranges were within the laboratory QC limits.	No qualifications were required.

	Findings	Qualifications
5. Surrogates	The surrogate recoveries for the sample were within the laboratory QC limits.	No qualifications were required.
6. MS/MSDs	There were no MS/MSD analyses performed for this SDG. Evaluation of method accuracy was based on the blank spike results.	No qualifications were required.
7. Field QC Samples ER: None FB: RJ543 (SDG RJ514) FD: None	There were no detects for target compounds in the field blank RJ543.	No qualifications were required.
9. Other	Sample results and reporting limits were reported on a dry-weight basis. The laboratory inconsistently reported sample reporting limits using one significant figure, and detects using two or three significant figures.	None. The reviewer manually made any necessary edits to sample results and/or reporting limits to reflect two significant figures on the sample result summaries.
Comments	The reviewer noted that the LCS spiking levels for all ranges were less than the quantitation or reporting limit, and the levels for the gasoline and kerosene ranges were less than one half the reporting limit.	None.

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TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ202

Date Sampled: 04/06/01

Date Sample Received: 04/07/01

Matrix: Soil

Percent Solids: 87

Laboratory ID: 010297-16

Date Sample Extracted: 05/10/01

Date Sample Analyzed: 05/12/01

Associated Method Blank: F0510-B3

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	new qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	UJ	H	4
C11-C14 (Kerosene Range)	ND	↓	↓	4
C14-C20 (Diesel Range)	ND	↓	↓	4
C20-C30 (Lubricant Oil Range)	6.25	J	↓	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	76	58 - 115
n-Eicosane	92	67 - 132
p-Terphenyl-d14	89	75 - 135

Reported by: TS

Approved by: _____

Form I TPH

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	Dixie Hambrick
Analysis/Method:	Total Fuel Hydrocarbons by GC/EPA Method 8015M
QC Level:	V[1]
SDG:	RJ149
Matrix:	Soil
No. of Samples:	7
Date Reviewed:	June 11, 2001
Reviewer:	L. Calvin
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ152, RJ153, RJ155, RJ156, RJ158, RJ167, AJ168

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COCs were signed by the laboratory and field personnel. The COCs indicated that all samples were received with cooler temperatures within the limits of 4°C ± 2°C, and the laboratory's sample receiving checklist noted that custody seals were present on the coolers. All samples were accounted for on the COCs; however, two samples listed on the COCs for TPH analysis were not included in the data package. The laboratory login information documented that both samples were on hold. According to the sample result summaries, all samples were extracted within 14 days of collection and analyzed within 40 days of extraction.	No qualifications were necessary.
3. Method Blanks	One soil method blank was analyzed with this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
4. LCS/BS	One soil LCS was analyzed in this SDG. The percent recoveries for the four hydrocarbon ranges were within the laboratory QC limits.	No qualifications were required.

	Findings	Qualifications
5. Surrogates	The surrogate recoveries for all samples were within the laboratory QC limits, with the exception of a recovery for p-terphenyl-d14 below the QC limit in sample RJ158.	The results for sample RJ158 were qualified as estimated, "J.
6. MS/MSDs	Sample RJ158 was analyzed as the MS/MSD for this SDG. All recoveries were below the laboratory QC limits, and RPDs for the gasoline and diesel ranges were greater than 20%.	Results for gasoline, kerosene, and diesel ranges were qualified as estimated, "J." As the unspiked sample amount for the lubricant oil range exceeded four times the spike amount, no further qualifications were assigned.
7. Field QC Samples ER: None FB: RJ543 (SDG RJ514) FD: None	There were no detects for target compounds in the field blank RJ543.	No qualifications were required.
9. Other	Sample results and reporting limits were reported on a dry-weight basis. The laboratory inconsistently reported sample reporting limits using one significant figure, and detects using two or three significant figures.	None. The reviewer manually made any necessary edits to sample results and/or reporting limits to reflect two significant figures on the sample result summaries.
Comments	The reviewer noted that for both the LCS and the MS/MSD, the spiking levels for all ranges were less than the quantitation or reporting limit, and the levels for the gasoline and kerosene ranges were less than one half the reporting limit.	None.

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TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ152

Date Sampled: 03/26/01

Date Sample Received: 03/29/01

Matrix: Soil

Percent Solids: 90

Laboratory ID: 010272-04

Date Sample Extracted: 04/03/01

Date Sample Analyzed: 04/10/01

Associated Method Blank: F0403-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	qual (qual code)	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U	4
C11-C14 (Kerosene Range)	ND	↓	4
C14-C20 (Diesel Range)	ND	↓	4
C20-C30 (Lubricant Oil Range)	ND	↓	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	76	58 - 115
n-Eicosane	93	67 - 132
p-Terphenyl-d14	88	75 - 135

LEVEL V

Reported by: TS

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ153

Date Sampled: 03/26/01

Date Sample Received: 03/29/01

Matrix: Soil

Percent Solids: 81

Laboratory ID: 010272-05

Date Sample Extracted: 04/03/01

Date Sample Analyzed: 04/10/01

Associated Method Blank: F0403-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	rev qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND	↓		4
C20-C30 (Lubricant Oil Range)	ND	↓		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	88	58 - 115
n-Eicosane	106	67 - 132
p-Terphenyl-d14	100	75 - 135

LEVEL V

Reported by: TS

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ155

Date Sampled: 03/27/01

Date Sample Received: 03/29/01

Matrix: Soil

Percent Solids: 86

Laboratory ID: 010272-07

Date Sample Extracted: 04/03/01

Date Sample Analyzed: 04/10/01

Associated Method Blank: F0403-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	qual (vert)	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND	↓		4
C20-C30 (Lubricant Oil Range)	ND	↓		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	75	58 - 115
n-Eicosane	88	67 - 132
p-Terphenyl-d14	82	75 - 135

Reported by: TS

Approved by: PL

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ156

Date Sampled: 03/27/01

Date Sample Received: 03/29/01

Matrix: Soil

Percent Solids: 87

Laboratory ID: 010272-08

Date Sample Extracted: 04/03/01

Date Sample Analyzed: 04/10/01

Associated Method Blank: F0403-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	val qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND	↓		4
C20-C30 (Lubricant Oil Range)	ND	↓		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	78	58 - 115
n-Eicosane	102	67 - 132
p-Terphenyl-d14	95	75 - 135

Reported by: TS

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ158

Date Sampled: 03/28/01

Date Sample Received: 03/29/01

Matrix: Soil

Percent Solids: 66

Laboratory ID: 010272-10

Date Sample Extracted: 04/03/01

Date Sample Analyzed: 04/10/01

Associated Method Blank: F0403-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	val qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	3.4J	J	Q5	5
C11-C14 (Kerosene Range)	1.4J			5
C14-C20 (Diesel Range)	18			5
C20-C30 (Lubricant Oil Range)	29		S	5

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	70	58 - 115
n-Eicosane	86	67 - 132
p-Terphenyl-d14	72	75 - 135

Reported by: TS

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ167

Date Sampled: 03/28/01

Date Sample Received: 03/29/01

Matrix: Soil

Percent Solids: 86

Laboratory ID: 010272-19

Date Sample Extracted: 04/03/01

Date Sample Analyzed: 04/10/01

Associated Method Blank: F0403-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	rev qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND	↓		4
C20-C30 (Lubricant Oil Range)	ND	↓		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	69	58 - 115
n-Eicosane	85	67 - 132
p-Terphenyl-d14	81	75 - 135

CASE NARRATIVE
LEVEL V

Reported by: TS

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: AMEC

Client Sample ID: RJ168

Date Sampled: 03/28/01

Date Sample Received: 03/29/01

Matrix: Soil

Percent Solids: 87

Laboratory ID: 010272-20

Date Sample Extracted: 04/03/01

Date Sample Analyzed: 04/10/01

Associated Method Blank: F0403-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm) +

Target Analyte	Sample Concentration	rep1 qual	qual code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	ND			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	70	58 - 115
n-Eicosane	90	67 - 132
p-Terphenyl-d14	85	75 - 135

[redacted]

Reported by: TS

Approved by: [redacted]

Form I TPH

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	Dixie Hambrick
Analysis/Method:	Total Fuel Hydrocarbons by GC/EPA Method 8015M
QC Level:	V[1]
SDG:	RJ772
Matrix:	Soil
No. of Samples:	13
No. of DLs/REs:	1
Date Reviewed:	June 12, 2001
Reviewer:	H. White
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ786, RJ788, RJ789, RJ790, RJ791, RJ792, RJ772, RJ773, RJ774, RJ775, RJ775RE, RJ776, RJ781, RJ782

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COCs were signed by the laboratory and field personnel. The COCs indicated that all samples were received with cooler temperatures within the limits of 4°C ± 2°C, and the laboratory's sample receiving checklist noted that custody seals were present on the coolers. All samples were accounted for on the COCs. According to the sample result summaries, all samples were initially extracted within 14 days of collection and analyzed within 40 days of extraction. According to the case narrative, due to contamination of the blank and blank spike, sample RJ775 was re-extracted two days outside the holding time.	No qualifications were required. Nondetects in the re-extraction, RJ775RE, were qualified as estimated, "UJ, " and detects as "J."
3. Method Blanks	Two applicable soil method blanks were analyzed with this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.

	Findings	Qualifications
4. LCS/BS	Two applicable soil LCSs were analyzed in this SDG. The percent recoveries for the four hydrocarbon ranges were within the laboratory QC limits for the LCSs.	No qualifications were required.
5. Surrogates	The surrogate recoveries for p-Terphenyl-d14 exceeded the QC limits for samples RJ788, RJ789, RJ790, and RJ791. A hand-annotated note implied the high recoveries were due to co-elution. All remaining surrogate recoveries were within the QC limits.	Target compound detects were qualified as estimated, "J," in the aforementioned samples.
6. MS/MSDs	The MS/MSD analysis was performed on sample RJ773. The recoveries for the c20-C30 range exceeded the laboratory-established QC limits in the MS and MSD. The MS recovery for the C14-C20 range was 9%. The RPDs for the C11-C14 and C14-C20 ranges exceeded the QC limit of 20%	The sample concentration for C20-C30 was greater than 4× the spike concentration; therefore, no qualifications were required. The C14-C20 MSD result was within the QC limits; therefore, no qualification was assigned for the MS outlier. Qualifications are not applied for RPD outliers.
7. Field QC Samples ER: None FB: RJ543 (SDG RJ514) FD: RJ788/RJ789	There were no detects for target compounds in the field blank RJ543. Detects for the C14-C20 and C20-C30 ranges were reported for samples RJ788 and RJ789, with RPDs of 0% and 7.4%, respectively.	No qualifications were required.
9. Other	Sample results and reporting limits were reported on a dry-weight basis. Detects were reported below the reporting limits. Samples RJ786, RJ774, and RJ782 were reported at a five-fold dilution due to target compound concentrations above the linear range of the calibration curve. Sample RJ775 was re-analyzed due to contamination in the blank and blank spike. The laboratory inconsistently reported sample reporting limits using one significant figure, and detects using two or three significant figures.	No qualifications were required. Detects reported below the reporting limits were qualified as estimated, "J." The initial analysis for RJ775 was rejected in favor of the re-extraction, RJ775RE. The reviewer manually made any necessary edits to sample results and/or reporting limits to reflect two significant figures on the sample result summaries.

	Findings	Qualifications
Comments	The reviewer noted that for both the LCS and the MS/MSD, the spiking levels for all ranges were less than the quantitation or reporting limit, and the levels for the gasoline and kerosene ranges were less than one half the reporting limit.	No qualifications were required.

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ772

Date Sampled: 11/01/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 96

Laboratory ID: 200794-01

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/14/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u		3
C11-C14 (Kerosene Range)	ND	u		3
C14-C20 (Diesel Range)	ND	u		3
C20-C30 (Lubricant Oil Range)	18			3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	58	40 - 133
n-Eicosane	64	58 - 124
p-Terphenyl-d14	70	34 - 136

Reported by: DM

Approved by: B

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ773

Date Sampled: 11/01/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 96

Laboratory ID: 200794-02

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/14/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Lab Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	U		4
C14-C20 (Diesel Range)	2.1J	J		4
C20-C30 (Lubricant Oil Range)	34			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	56	40 - 133
n-Eicosane	69	58 - 124
p-Terphenyl-d14	73	34 - 136

OGDEN VALLEY

LEVEL V

Reported by: DM

Approved by: 13

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ774

Date Sampled: 11/01/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 97

Laboratory ID: 200794-03

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/14/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 5

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Lab Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		17
C11-C14 (Kerosene Range)	ND	U		17
C14-C20 (Diesel Range)	6.5J	J		17
C20-C30 (Lubricant Oil Range)	550			17

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	57	40 - 133
n-Eicosane	66	58 - 124
p-Terphenyl-d14	74	34 - 136

(OGDEN VALIDATED)

LEVEL V

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ775

Date Sampled: 11/01/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 96

Laboratory ID: 200794-04

Date Sample Extracted: 11/16/00

Date Sample Analyzed: 11/21/00

Associated Method Blank: F1116-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Raw Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	R	D	3
C11-C14 (Kerosene Range)	ND			3
C14-C20 (Diesel Range)	ND			3
C20-C30 (Lubricant Oil Range)	17			3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	71	40 - 133
n-Eicosane	83	58 - 124
p-Terphenyl-d14	91	34 - 136

LEVEL V

Reported by: DR

Approved by: JS

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ775 RE

Date Sampled: 11/01/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 96

Laboratory ID: 200794-04 RE

Date Sample Extracted: 11/22/00

Date Sample Analyzed: 11/22/00

Associated Method Blank: F1122-B1

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Real Qual / Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	UJ / H	3
C11-C14 (Kerosene Range)	ND	↓ / ↓	3
C14-C20 (Diesel Range)	ND	↓ / ↓	3
C20-C30 (Lubricant Oil Range)	3.6	J / ↓	3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	77	40 - 133
n-Eicosane	91	58 - 124
p-Terphenyl-d14	95	34 - 136

LEVEL V

Reported by: DR

Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ776

Date Sampled: 11/01/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 93

Laboratory ID: 200794-05

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/13/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Reported Qual	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U	4
C11-C14 (Kerosene Range)	ND	↓	4
C14-C20 (Diesel Range)	ND		4
C20-C30 (Lubricant Oil Range)	ND		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	69	40 - 133
n-Eicosane	78	58 - 124
p-Terphenyl-d14	85	34 - 136

LEVEL V

Reported by: DM

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ781

Date Sampled: 11/01/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 94

Laboratory ID: 200794-10

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/14/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u	4
C11-C14 (Kerosene Range)	ND	u	4
C14-C20 (Diesel Range)	ND	u	4
C20-C30 (Lubricant Oil Range)	18		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	71	40 - 133
n-Eicosane	80	58 - 124
p-Terphenyl-d14	88	34 - 136

LEVEL V

Reported by: DL

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ782

Date Sampled: 11/02/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 98

Laboratory ID: 200794-11

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/14/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 5

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Reported Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		17
C11-C14 (Kerosene Range)	ND	U		17
C14-C20 (Diesel Range)	1.7J	J		17
C20-C30 (Lubricant Oil Range)	120			17

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	61	40 - 133
n-Eicosane	80	58 - 124
p-Terphenyl-d14	85	34 - 136

LEVEL V

Reported by: DM

Approved by: [signature]

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ786

Date Sampled: 11/02/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 92

Laboratory ID: 200794-15

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/14/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 5

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		18
C11-C14 (Kerosene Range)	40			18
C14-C20 (Diesel Range)	ND	U		18
C20-C30 (Lubricant Oil Range)	470			18

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	61	40 - 133
n-Eicosane	80	58 - 124
p-Terphenyl-d14	86	34 - 136

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LEVEL V

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ788

Date Sampled: 11/02/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 97

Laboratory ID: 200794-16

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/14/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Raw Data Qual	Diesel Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		3
C11-C14 (Kerosene Range)	ND	U		3
C14-C20 (Diesel Range)	14	J	S	3
C20-C30 (Lubricant Oil Range)	130	J	S	3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)		QC Limits(%)
n-Decane	72		40 - 133
n-Eicosane	89		58 - 124
p-Terphenyl-d14	324	CO	34 - 136

OGDEN REVISED
LEVEL V

Reported by: DL

Approved by: [signature]

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ789

Date Sampled: 11/02/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 95

Laboratory ID: 200794-17

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/14/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	U		4
C14-C20 (Diesel Range)	14	J	S	4
C20-C30 (Lubricant Oil Range)	140	J	S	4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)		QC Limits(%)
n-Decane	59		40 - 133
n-Eicosane	58		58 - 124
p-Terphenyl-d14	307	CO	34 - 136

OGDEN VALIDATED
LEVEL V

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ790

Date Sampled: 11/02/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 95

Laboratory ID: 200794-18

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/14/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 5

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		17
C11-C14 (Kerosene Range)	ND	U		17
C14-C20 (Diesel Range)	18	J	S	17
C20-C30 (Lubricant Oil Range)	340	J	S	17

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)		QC Limits(%)
n-Decane	39		40 - 133
n-Eicosane	43		58 - 124
p-Terphenyl-d14	372	CD	34 - 136

Reported by: DM

Approved by: B

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ791

Date Sampled: 11/02/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 97

Laboratory ID: 200794-19

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/14/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 5

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		17
C11-C14 (Kerosene Range)	ND	U		17
C14-C20 (Diesel Range)	16J	J	S	17
C20-C30 (Lubricant Oil Range)	270	J	S	17

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)		QC Limits(%)
n-Decane	62		40 - 133
n-Eicosane	68		58 - 124
p-Terphenyl-d14	256	CO	34 - 136

[redacted]

Reported by: DL

Approved by: [signature]

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ792

Date Sampled: 11/03/00

Date Sample Received: 11/06/00

Matrix: Soil

Percent Solids: 90

Laboratory ID: 200794-20

Date Sample Extracted: 11/08/00

Date Sample Analyzed: 11/13/00

Associated Method Blank: F1108-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	ND			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	78	40 - 133
n-Eicosane	83	58 - 124
p-Terphenyl-d14	91	34 - 136

Reported by: DM

Approved by: B

Form I TPH

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Total Fuel Hydrocarbons by GC/EPA Method 8015M
QC Level:	V[1]
SDG:	RJ836
Matrix:	Soil
No. of Samples:	12
Date Reviewed:	January 31, 2001
Reviewer:	H. Chang
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ836, RJ837, RJ838, RJ839, RJ840, RJ841, RJ842, RJ843, RJ844, RJ845, RJ848, and RJ851

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COCs were signed by the laboratory and field personnel. The Sample Receiving Checklist indicated that all samples were received with cooler temperatures within the 4°C ± 2°C, all sample bottles were intact, all samples were accounted for on the COCs, and the sample labels agreed with the COCs. Samples RJ842 and RJ843 were not requested for a TFH analysis on the COC; however, a memo was issued by an Ogden personnel on 11/30 requesting a TFH analysis be performed for these samples. The same memo also noted that the sample RJ851 was incorrectly labeled as RJ849 on both the sample and the COC. The correct ID was used by the laboratory and in this report. All samples were extracted within 14 days of collection and analyzed within 40 days of extraction.	No qualifications were required.

	Findings	Qualifications
3. Method Blanks	Three soil method blanks were analyzed with this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
4. LCS/BS	Three soil LCSs were analyzed in this SDG. The percent recoveries for the four hydrocarbon ranges were within the laboratory QC limits in all LCS analyses.	No qualifications were required.
5. Surrogates	The surrogate recoveries for all samples were within the laboratory QC limits.	No qualifications were required.
6. MS/MSDs RJ841	All MS/MSD %Rs were within the laboratory QC limits. The RPD for the gasoline range was above the QC limit.	No qualifications were required.
7. Field QC Samples ER: None FB: RJ543 (SDG RJ514) FD: RJ848/RJ851	There were no detects for target compounds in the field blank RJ543. There was a low level detect (below the RL) for the lube oil range in sample RJ848 but not in sample RJ851.	No qualifications were required.
9. Other	None The Laboratory inconsistently reported sample reporting limits using one significant figure, and detects using two or three significant figures.	None The reviewer manually made any necessary edits to sample results and/or reporting limits to reflect two significant figures on the sample result summaries.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ836

Date Sampled: 11/17/00

Date Sample Received: 11/20/00

Matrix: Soil

Percent Solids: 90

Laboratory ID: 200827-01

Date Sample Extracted: 11/27/00

Date Sample Analyzed: 12/02/00

Associated Method Blank: F1127-B3

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual. Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	28			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	65	40 - 133
n-Eicosane	74	58 - 124
p-Terphenyl-d14	76	34 - 136

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Reported by: DSR

Approved by: [signature]

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ837

Date Sampled: 11/17/00

Date Sample Received: 11/20/00

Matrix: Soil

Percent Solids: 89

Laboratory ID: 200827-02

Date Sample Extracted: 11/27/00

Date Sample Analyzed: 12/02/00

Associated Method Blank: F1127-B3

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	ND			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	94	40 - 133
n-Eicosane	104	58 - 124
p-Terphenyl-d14	105	34 - 136

LEVEL V

OGDEN VALIDATED

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ838

Date Sampled: 11/17/00

Date Sample Received: 11/20/00

Matrix: Soil

Percent Solids: 89

Laboratory ID: 200827-03

Date Sample Extracted: 11/27/00

Date Sample Analyzed: 12/03/00

Associated Method Blank: F1127-B3

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u		4
C11-C14 (Kerosene Range)	ND	u		4
C14-C20 (Diesel Range)	12			4
C20-C30 (Lubricant Oil Range)	100			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	78	40 - 133
n-Eicosane	89	58 - 124
p-Terphenyl-d14	95	34 - 136

OGDEN VALIDATED

LEVEL V

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ839

Date Sampled: 11/17/00

Date Sample Received: 11/20/00

Matrix: Soil

Percent Solids: 89

Laboratory ID: 200827-04

Date Sample Extracted: 11/27/00

Date Sample Analyzed: 12/02/00

Associated Method Blank: F1127-B3

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u		4
C11-C14 (Kerosene Range)	ND	u		4
C14-C20 (Diesel Range)	ND	u		4
C20-C30 (Lubricant Oil Range)	19			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	78	40 - 133
n-Eicosane	92	58 - 124
p-Terphenyl-d14	94	34 - 136

LEVEL V

OGDEN VALIDATED

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ840

Date Sampled: 11/17/00

Date Sample Received: 11/20/00

Matrix: Soil

Percent Solids: 97

Laboratory ID: 200827-05

Date Sample Extracted: 11/27/00

Date Sample Analyzed: 12/02/00

Associated Method Blank: F1127-B3

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		3
C11-C14 (Kerosene Range)	ND	U		3
C14-C20 (Diesel Range)	ND	U		3
C20-C30 (Lubricant Oil Range)	2.3J	J		3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	100	40 - 133
n-Eicosane	115	58 - 124
p-Terphenyl-d14	118	34 - 136

LEVEL V

OGDEN VALIDATED

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ841

Date Sampled: 11/17/00

Date Sample Received: 11/20/00

Matrix: Soil

Percent Solids: 91

Laboratory ID: 200827-06

Date Sample Extracted: 11/27/00

Date Sample Analyzed: 12/02/00

Associated Method Blank: F1127-B3

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	ND			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	75	40 - 133
n-Eicosane	82	58 - 124
p-Terphenyl-d14	83	34 - 136

LEVEL V

OGDEN VALIDATED

Reported by: DM

Approved by: B

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ842

Date Sampled: 11/17/00

Date Sample Received: 11/22/00

Matrix: Soil

Percent Solids: 91

Laboratory ID: 200827-07

Date Sample Extracted: 12/01/00

Date Sample Analyzed: 12/02/00

Associated Method Blank: F1201-B3

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	ND			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	82	40 - 133
n-Eicosane	88	58 - 124
p-Terphenyl-d14	86	34 - 136

LEVEL II OGDEN VALID

Reported by: DM

Approved by: JB

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ843

Date Sampled: 11/17/00

Date Sample Received: 11/22/00

Matrix: Soil

Percent Solids: 87

Laboratory ID: 200827-08

Date Sample Extracted: 12/01/00

Date Sample Analyzed: 12/03/00

Associated Method Blank: F1201-B3

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	4.2			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	75	40 - 133
n-Eicosane	88	58 - 124
p-Terphenyl-d14	88	34 - 136

OGDEN VALIDATED

Reported by: DM

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ844

Date Sampled: 11/21/00

Date Sample Received: 11/22/00

Matrix: Soil

Percent Solids: 87

Laboratory ID: 200827-11

Date Sample Extracted: 11/28/00

Date Sample Analyzed: 12/02/00

Associated Method Blank: F1128-B1

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	ND			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	80	40 - 133
n-Eicosane	89	58 - 124
p-Terphenyl-d14	88	34 - 136

OGDEN VALIDATED

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ845

Date Sampled: 11/21/00

Date Sample Received: 11/22/00

Matrix: Soil

Percent Solids: 87

Laboratory ID: 200827-12

Date Sample Extracted: 11/28/00

Date Sample Analyzed: 12/02/00

Associated Method Blank: F1128-B1

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	6.3			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	78	40 - 133
n-Eicosane	88	58 - 124
p-Terphenyl-d14	89	34 - 136

LEVEL V

OGDEN VALIDATED

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ848

Date Sampled: 11/21/00

Date Sample Received: 11/22/00

Matrix: Soil

Percent Solids: 86

Laboratory ID: 200827-09

Date Sample Extracted: 11/28/00

Date Sample Analyzed: 12/02/00

Associated Method Blank: F1128-B1

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND	↓		4
C20-C30 (Lubricant Oil Range)	2.8J	J		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	74	40 - 133
n-Eicosane	84	58 - 124
p-Terphenyl-d14	83	34 - 136

LEVEL 1

OGDEN VALIDATED

Reported by: _____ Approved by: _____

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ851

Date Sampled: 11/21/00

Date Sample Received: 11/22/00

Matrix: Soil

Percent Solids: 88

Laboratory ID: 200827-10

Date Sample Extracted: 11/28/00

Date Sample Analyzed: 12/02/00

Associated Method Blank: F1128-B1

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	↓		4
C14-C20 (Diesel Range)	ND			4
C20-C30 (Lubricant Oil Range)	ND			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	76	40 - 133
n-Eicosane	86	58 - 124
p-Terphenyl-d14	86	34 - 136

LEVEL 1

OGDEN VALIDATED

Reported by: DM

Approved by: [signature]

Form I TPH

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	Dixie Hambrick
Analysis/Method:	Total Fuel Hydrocarbons by GC/EPA Method 8015M
QC Level:	V[1]
SDG:	RJ048
Matrix:	Soil
No. of Samples:	5
No. of DLs/REs:	0
Date Reviewed:	June 12, 2001
Reviewer:	H. White
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ650, RJ651, RJ652, RJ653, RJ627

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COCs were signed by the laboratory and field personnel. The COCs indicated that all samples were received with cooler temperatures within the limits of 4°C ± 2°C, and the laboratory's sample receiving checklist noted that custody seals were present on the coolers. All samples were accounted for on the COCs. According to the sample result summaries, all samples were extracted within 14 days of collection and analyzed within 40 days of extraction.	No qualifications were required.
3. Method Blanks	Two soil method blanks were analyzed with this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
4. LCS/BS	Two soil LCSs were analyzed in this SDG. The percent recoveries for the four hydrocarbon ranges were within the laboratory QC limits.	No qualifications were required.
5. Surrogates	The surrogate recoveries for all samples were within the laboratory QC limits.	No qualifications were required.

	Findings	Qualifications
6. MS/MSDs	No MS/MSD analysis was performed in conjunction with the samples in this SDG. Method accuracy was evaluated based on blank spike results.	No qualifications were required.
7. Field QC Samples ER: None FB: RJ543 (SDG RJ514) FD: None	There were no detects for target compounds in the field blank RJ543.	No qualifications were required.
9. Other	Sample results and reporting limits were reported on a dry-weight basis. The laboratory inconsistently reported sample reporting limits using one significant figure, and detects using two or three significant figures.	No qualifications were required. The reviewer manually made any necessary edits to sample results and/or reporting limits to reflect two significant figures on the sample result summaries.
Comments	The reviewer noted that for both LCSs, the spiking levels for all ranges were less than the quantitation or reporting limit, and the levels for the gasoline and kerosene ranges were less than one half the reporting limit.	No qualifications were required.

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ627

Date Sampled: 09/27/00

Date Sample Received: 09/30/00

Matrix: Soil

Percent Solids: 94

Laboratory ID: 200729-18

Date Sample Extracted: 10/02/00

Date Sample Analyzed: 10/04/00

Associated Method Blank: F1002-B13

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U	4
C11-C14 (Kerosene Range)	ND		4
C14-C20 (Diesel Range)	ND		4
C20-C30 (Lubricant Oil Range)	ND		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	104	40 - 133
n-Eicosane	118	58 - 124
p-Terphenyl-d14	123	34 - 136

Reported by: DM

Approved by:

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ650

Date Sampled: 09/28/00

Date Sample Received: 09/30/00

Matrix: Soil

Percent Solids: 95

Laboratory ID: 200729-12

Date Sample Extracted: 10/05/00

Date Sample Analyzed: 10/13/00

Associated Method Blank: F1005-B4

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	U		4
C14-C20 (Diesel Range)	ND	U		4
C20-C30 (Lubricant Oil Range)	17			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	84	40 - 133
n-Eicosane	111	58 - 124
p-Terphenyl-d14	116	34 - 136

OGDEN VALIDATED
LEVEL V

Reported by: DK

Approved by: RL

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ651

Date Sampled: 09/29/00

Date Sample Received: 09/30/00

Matrix: Soil

Percent Solids: 93

Laboratory ID: 200729-13

Date Sample Extracted: 10/05/00

Date Sample Analyzed: 10/12/00

Associated Method Blank: F1005-B4

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	U		4
C14-C20 (Diesel Range)	ND	U		4
C20-C30 (Lubricant Oil Range)	~~4.4~~ 5			4
	10/13/00 DR			

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	96	40 - 133
n-Eicosane	115	58 - 124
p-Terphenyl-d14	120	34 - 136

OGDEN VALIDATED
LEVEL V

Reported by: DR

Approved by: IR

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ652

Date Sampled: 09/29/00

Date Sample Received: 09/30/00

Matrix: Soil

Percent Solids: 95

Laboratory ID: 200729-14

Date Sample Extracted: 10/05/00

Date Sample Analyzed: 10/12/00

Associated Method Blank: F1005-B4

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Dwl / Dwl Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u	4
C11-C14 (Kerosene Range)	ND		4
C14-C20 (Diesel Range)	ND		4
C20-C30 (Lubricant Oil Range)	ND		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	99	40 - 133
n-Eicosane	115	58 - 124
p-Terphenyl-d14	121	34 - 136

Reported by: DK

Approved by: PL

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ653

Date Sampled: 09/29/00

Date Sample Received: 09/30/00

Matrix: Soil

Percent Solids: 88

Laboratory ID: 200729-15

Date Sample Extracted: 10/05/00

Date Sample Analyzed: 10/13/00

Associated Method Blank: F1005-B4

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Real Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		4
C11-C14 (Kerosene Range)	ND	U		4
C14-C20 (Diesel Range)	16			4
C20-C30 (Lubricant Oil Range)	140			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	83	40 - 133
n-Eicosane	106	58 - 124
p-Terphenyl-d14	114	34 - 136

OGDEN CONSOLIDATED

Reported by: _____ Approved by: _____

Form I TPH

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Total Fuel Hydrocarbons by GC/EPA Method 8015M
QC Level:	V[1]
SDG:	RJ514
Matrix:	Soil/Water
No. of Samples:	7
Date Reviewed:	May 16, 2001
Reviewer:	H. Chang
Reference:	National Functional Guidelines For Organic Data Review (2/94)
Samples Reviewed:	RJ516, RJ517, RJ520, RJ523, RJ525, RJ526, and RJ543

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COCs were signed by the field personnel. One of the COCs was not signed by the laboratory personnel. The Sample Receiving Checklist indicated that the custody seals were present and intact, the samples were received intact, all samples were accounted for on the COCs, and the sample labels agreed with the COCs except for sample RJ543. The laboratory noted that some of the bottles for sample RJ543 were labeled incorrectly as RJ542 or RJ544. All samples were received with cooler temperatures within 4°C ± 2°C. TFH analysis was not requested on the COC for sample RJ523. Water sample RJ543 was extracted outside the holding time. All soil samples were extracted within 14 days of collection and all extracts were analyzed within 40 days of extraction.	No qualifications were required for the holding time exceedance since sample RJ543 was identified as a field blank.

	Findings	Qualifications
3. Method Blanks	One soil and one water method blanks were analyzed with this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
4. LCS/BS	One soil and one water LCSs were analyzed in this SDG. All recoveries were within the laboratory QC limits.	No qualifications were required.
5. Surrogates	The surrogate recoveries for all samples were within the laboratory QC limits.	No qualifications were required.
6. MS/MSDs	No MS/MSD analyses were performed in this SDG.	No qualifications were required.
7. Field QC Samples FB: RJ543 (SDG RJ514) ER: RJ522 (SDG RJ028) FD: None	There were no detects for target compounds in either the field blank or the equipment rinsate.	No qualifications were required.
9. Other	All soil samples were reported on a dry-weight basis. The laboratory inconsistently reported sample reporting limits using one significant figure, and detects using two or three significant figures.	None The reviewer manually made any necessary edits to sample results and/or reporting limits to reflect two significant figures on the sample result summaries.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ516

Date Sampled: 07/05/00

Date Sample Received: 07/08/00

Matrix: Soil

Percent Solids: 100

Laboratory ID: 200484-03

Date Sample Extracted: 07/17/00

Date Sample Analyzed: 07/29/00

Associated Method Blank: F0717-B6

Final Extract Volume (mL):30.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u		99
C11-C14 (Kerosene Range)	ND	u		99
C14-C20 (Diesel Range)	ND	u		99
C20-C30 (Lubricant Oil Range)	420			99

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	64	40 - 133
n-Eicosane	87	58 - 124
p-Terphenyl-d14	86	34 - 136

OGDEN VALIDATED

LEVEL V

Reported by: DT

Approved by: [illegible]

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ517

Date Sampled: 07/05/00

Date Sample Received: 07/08/00

Matrix: Soil

Percent Solids: 96

Laboratory ID: 200484-04

Date Sample Extracted: 07/17/00

Date Sample Analyzed: 07/28/00

Associated Method Blank: F0717-B6

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Raw Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	"		3
C11-C14 (Kerosene Range)	ND	"		3
C14-C20 (Diesel Range)	ND	"		3
C20-C30 (Lubricant Oil Range)	12			3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	66	40 - 133
n-Eicosane	77	58 - 124
p-Terphenyl-d14	81	34 - 136

OGDEN VALIDATED

Reported by: DT

Approved by: NL

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ520

Date Sampled: 07/06/00

Date Sample Received: 07/08/00

Matrix: Soil

Percent Solids: 61

Laboratory ID: 200484-07

Date Sample Extracted: 07/17/00

Date Sample Analyzed: 07/28/00

Associated Method Blank: F0717-B6

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm) +

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u		5
C11-C14 (Kerosene Range)	ND	u		5
C14-C20 (Diesel Range)	ND	u		5
C20-C30 (Lubricant Oil Range)	36			5

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	83	40 - 133
n-Eicosane	97	58 - 124
p-Terphenyl-d14	102	34 - 136

OGDEN VALIDATED

LEVEL V

Reported by: DT

Approved by: [illegible]

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ523

Date Sampled: 07/07/00

Date Sample Received: 07/08/00

Matrix: Soil

Percent Solids: 88

Laboratory ID: 200484-10

Date Sample Extracted: 07/17/00

Date Sample Analyzed: 07/29/00

Associated Method Blank: F0717-B6

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u		4
C11-C14 (Kerosene Range)	ND	u		4
C14-C20 (Diesel Range)	5.4			4
C20-C30 (Lubricant Oil Range)	150			4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	73	40 - 133
n-Eicosane	94	58 - 124
p-Terphenyl-d14	107	34 - 136

OGDEN VALIDATED LEVEL V

90

Reported by: _____ Approved by: _____

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ525

Date Sampled: 07/07/00

Date Sample Received: 07/08/00

Matrix: Soil

Percent Solids: 57

Laboratory ID: 200484-12

Date Sample Extracted: 07/17/00

Date Sample Analyzed: 07/29/00

Associated Method Blank: F0717-B6

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	u		6
C11-C14 (Kerosene Range)	9.4			6
C14-C20 (Diesel Range)	26			6
C20-C30 (Lubricant Oil Range)	85			6

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	60	40 - 133
n-Eicosane	77	58 - 124
p-Terphenyl-d14	85	34 - 136

OGDEN VALIDATED

LEVEL V

Reported by: DT

Approved by: HC

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ526

Date Sampled: 07/07/00

Date Sample Received: 07/08/00

Matrix: Soil

Percent Solids: 60

Laboratory ID: 200484-13

Date Sample Extracted: 07/17/00

Date Sample Analyzed: 07/29/00

Associated Method Blank: F0717-B6

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm) +

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		6
C11-C14 (Kerosene Range)	3.0J			6
C14-C20 (Diesel Range)	16			6
C20-C30 (Lubricant Oil Range)	130			6

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	75	40 - 133
n-Eicosane	96	58 - 124
p-Terphenyl-d14	105	34 - 136

OGDEN [illegible] LEVELY

Reported by: PDJ

Approved by: [signature]

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ543

Date Sampled: 07/12/00

Date Sample Received: 07/13/00

Matrix: Aqueous

Laboratory ID: 200484-21

Date Sample Extracted: 07/26/00

Date Sample Analyzed: 08/02/00

Associated Method Blank: F0726-B17

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/L (ppm)

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		0.10
C11-C14 (Kerosene Range)	ND	↓		0.10
C14-C20 (Diesel Range)	ND			0.10
C20-C30 (Lubricant Oil Range)	ND			0.10

ND = Not detected

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	85	41 - 134
n-Eicosane	98	54 - 144
p-Terphenyl-d14	100	13 - 152

OGDEN VALIDATED LEVEL V

Reported by: DD Approved by: [signature]

DATA VALIDATION REPORT

ROCKETDYNE
SSFL RFI PROGRAM

ANALYSIS: TOTAL FUEL HYDROCARBONS

SAMPLE DELIVERY GROUP: RJ001

Prepared by

Ogden—Denver Operations
550 South Wadsworth Blvd. Suite 500
Lakewood, CO 80226

1. INTRODUCTION

Task Order Title:	Rocketdyne, SSFL RFI Program
SDG#:	RJ001
Project Manager:	D. Hambrick
Matrix:	Soil
Analysis:	Total Fuel Hydrocarbons
QC Level:	IV
No. of Samples:	6
No. of Reanalyses/Dilutions:	0
Reviewer:	H. Chang
Date of Review:	January 30, 2001

The samples listed in Table 1 were validated based on the guidelines outlined in the Ogden *Project Procedures Manual* data validation procedure for Levels C and D total fuel hydrocarbons (SOP DVP-8, Rev. 2) and USEPA SW-846 Method 8015B. Any deviations from this procedure are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	COC Method
WTBS01S01	RJ001	200456-01	soil	8015BOG
WTBS02S01	RJ002	200456-02	soil	8015BOG
SLBS31S01	RJ018	200456-08	soil	8015BOG
SLBS32S01	RJ019	200456-09	soil	8015BOG
SRSU01S01	RJ506	200456-10	soil	8015BOG
SRBS09S01	RJ513	200456-17	soil	8015BOG

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples were received at the laboratory with cooler temperatures of 13 and 23°C. No qualificatioins were required since the cooler temperature has little or no effect on extractable TFH analyses. No other problems with sample handling and trasport were noted.

2.1.2 Chain of Custody

The COCs were present for the samples in this SDG and were legible. All samples were accounted for on the COCs, and all COCs were signed by both field and laboratory personnel. No qualifications were required.

2.1.3 Holding Times

The samples were extracted within 14 days of sampling and analyzed within 40 days of extraction; therefore, no qualifications were necessary.

2.2 CALIBRATION

The initial calibration associated with this SDG consisted of a standard containing n-alkanes analyzed at five concentration levels. The continuing calibrations consisted of a mid-level (50 ppm) standard containing n-alkanes. All %RSDs for the initial calibration were below the QC limit of 20% and all %Ds in the continuing calibrations were below the QC limit of 15%; therefore, no qualifications were necessary. The representative number of %RSDs and %Ds were verified from the raw data and no errors were noted.

2.3 BLANKS

The laboratory analyzed one soil blank with this SDG. There were no detects in the method blank; therefore, no qualifications were required. No false negatives were noted from the raw data.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory analyzed one soil blank spike with this SDG. The LCS was spiked with n-alkanes. The gasoline and kerosene range recoveries were below the laboratory QC limits. Gasoline and kerosene ranges were qualified as estimated nondetects, "UJ," in all samples except RJ506 which was associated with acceptable MS/MSD analyses. The blank spike recoveries were recalculated from the raw data and no errors were noted.

2.5 SURROGATE RECOVERY

All surrogate recoveries were within the laboratory control limits with the exception of n-decane in the LCS and RJ506MS analyses. Since the site samples had acceptable surrogate recoveries, no qualifications were required. The reported surrogate recoveries were verified from the raw data for several samples and no errors were noted.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were performed on sample RJ506. The sample was spiked with n-alkanes and quantified as four fuel ranges. The diesel range was recovered within the laboratory QC limits. Due to high level of lube oil range hydrocarbons present in the sample, the lube oil range recoveries could not be calculated. The summary form reported 0% recoveries for the gasoline and kerosene ranges. It was noted that the spike amount was one half the reporting limits for the gasoline and kerosene ranges. Since the calculated concentrations of the gasoline and kerosene ranges in the MS and MSD analyses were less than one half the reporting limits, the laboratory did not report these detects. The concentrations and the recoveries of gasoline and kerosene ranges were calculated from the raw data and the recoveries were within the laboratory QC limits. The RPDs for the gasoline and kerosene ranges were above the QC limit of 20%. No qualifications were required.

2.7 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based only on method blanks. Any remaining detects are used to evaluate the associated samples.

Following are findings associated with field QC samples:

2.7.1 Field Blanks and Equipment Rinsates

Sample RJ543 (SDG RJ514) was identified as the field blank associated with the samples. There was no associated equipment rinsate. There were no detects for the target compounds in the field blank; therefore, no qualifications were necessary.

2.7.2Field Duplicates

No field duplicates were identified in this SDG. Since they are required at a frequency of 10% per matrix for the site samples; consequently, field duplicates are not required in every package.

2.8 COMPOUND IDENTIFICATION

Compound identification was defined by hydrocarbon ranges based on retention times from an n–alkane standard. No qualifications were necessary.

2.9 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

The compound quantitation was performed using the average response factors from initial calibration standards containing n-alkanes. The reporting limits were also based on the concentration levels of single n-alkane in the low level standard of the initial calibration. The reported concentrations for all detectes were re-calculated from the raw data for verification. The reported results could not be exactly duplicated; however, the differences between the reported result and the re-calculated values were less than 1% and are most likely due to rounding. The reporting limits and the results are reported on a dry-weight basis.

It was noted that the parent sample RJ506 was analyzed at $10_{\times}$ dilution due to a high level of lube oil range hydrocarbons present in the samples; however, the MS and MSD analyses performed on this sample were analyzed without any dilution. The lube oil range concentration in the native sample was approximately 6 and 8 times the concentrations measured in the MS and MSD analyses; respectively. No qualifications were necessary.

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ001

Date Sampled: 06/28/00

Date Sample Received: 07/03/00

Matrix: Soil

Percent Solids: 98

Laboratory ID: 200456-01

Date Sample Extracted: 07/06/00

Date Sample Analyzed: 07/28/00

Associated Method Blank: F0706-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm) +

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U	L	3
C11-C14 (Kerosene Range)	ND	U	L	3
C14-C20 (Diesel Range)	ND	U		3
C20-C30 (Lubricant Oil Range)	31			3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	58	40 - 133
n-Eicosane	92	58 - 124
p-Terphenyl-d14	102	34 - 136

LEVEL IV

OGDEN VALIDATED

Reported by: _____ Approved by: _____

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ002

Date Sampled: 06/28/00

Date Sample Received: 07/03/00

Matrix: Soil

Percent Solids: 96

Laboratory ID: 200456-02

Date Sample Extracted: 07/06/00

Date Sample Analyzed: 07/27/00

Associated Method Blank: F0706-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	UJ	L	3
C11-C14 (Kerosene Range)	ND	UJ	L	3
C14-C20 (Diesel Range)	3.3J	J		3
C20-C30 (Lubricant Oil Range)	200			3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	81	40 - 133
n-Eicosane	96	58 - 124
p-Terphenyl-d14	105	34 - 136

LEVEL IV OGDEN VALIDATED

Reported by: _____ Approved by: _____

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ018

Date Sampled: 06/30/00

Date Sample Received: 07/03/00

Matrix: Soil

Percent Solids: 88

Laboratory ID: 200456-08

Date Sample Extracted: 07/06/00

Date Sample Analyzed: 07/27/00

Associated Method Blank. F0706-B2

Final Extract Volume (mL):1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm)+

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	UJ	L	4
C11-C14 (Kerosene Range)	ND	UJ	L	4
C14-C20 (Diesel Range)	ND	U		4
C20-C30 (Lubricant Oil Range)	ND	U		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	63	40 - 133
n-Eicosane	84	58 - 124
p-Terphenyl-d14	89	34 - 136

LEVEL IV

OGDEN VALIDATED

039

Reported by: DJT

Approved by: KJL

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ019

Date Sampled: 06/30/00

Date Sample Received: 07/03/00

Matrix: Soil

Percent Solids: 88

Laboratory ID: 200456-09

Date Sample Extracted: 07/06/00

Date Sample Analyzed: 07/27/00

Associated Method Blank: F0706-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm) +

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U J	L	4
C11-C14 (Kerosene Range)	ND	U J	L	4
C14-C20 (Diesel Range)	ND	U		4
C20-C30 (Lubricant Oil Range)	ND	U		4

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	91	40 - 133
n-Eicosane	107	58 - 124
p-Terphenyl-d14	113	34 - 136

LEVEL IV

OGDEN VALIDATED

040

Reported by: DT

Approved by:

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ506

Date Sampled: 06/30/00

Date Sample Received: 07/03/00

Matrix: Soil

Percent Solids: 85

Laboratory ID: 200456-10

Date Sample Extracted: 07/06/00

Date Sample Analyzed: 07/28/00

Associated Method Blank: F0706-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 10

Concentration in: mg/Kg (ppm) +

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	U		39
C11-C14 (Kerosene Range)	ND	↓		39
C14-C20 (Diesel Range)	ND			39
C20-C30 (Lubricant Oil Range)	350			39

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	55	40 - 133
n-Eicosane	73	58 - 124
p-Terphenyl-d14	133	34 - 136

LEVEL IV

OGDEN VALIDATED

Reported by: DT

Approved by: MC

Form I TPH

TOTAL PETROLEUM HYDROCARBONS (TPH)
(Extractables)
by Modified SW846 Method 8015B

Client: Ogden Environmental

Client Sample ID: RJ513

Date Sampled: 06/30/00

Date Sample Received: 07/03/00

Matrix: Soil

Percent Solids: 96

Laboratory ID: 200456-17

Date Sample Extracted: 07/06/00

Date Sample Analyzed: 07/28/00

Associated Method Blank: F0706-B2

Final Extract Volume (mL): 1.0

Dilution Factor: 1

Concentration in: mg/Kg (ppm) +

Target Analyte	Sample Concentration	Rev Qual	Qual Code	Quantitation Limit
C08-C11 (Gasoline Range)	ND	UJ	L	3
C11-C14 (Kerosene Range)	ND	UJ	L	3
C14-C20 (Diesel Range)	ND	U		3
C20-C30 (Lubricant Oil Range)	66			3

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)
n-Decane	75	40 - 133
n-Eicosane	95	58 - 124
p-Terphenyl-d14	98	34 - 136

LEVEL IV

OGDEN VALIDATED

Reported by: DT

Approved by: KL

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	PCBs by EPA Method 8082
QC Level:	V[1]
SDG:	RJ786
Matrix:	Soil
No. of Samples:	1
REs/DLs:	0
Date Reviewed:	February 1, 2001
Reviewer:	H. White
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ786

Data Validation Findings

	Findings	Qualifications
1. Sample Management	According to the COCs, there were no broken sample containers and the COC matched the samples. Cooler temperatures were within 4°C± 2°C. The sample was extracted outside the 14 day holding time, but within 42 days from the time of sample collection. PCB analysis was not originally requested on the COC for this sample. PCB analysis was added via a memo from Ogden personnel on 11/29/00, after the prescribed holding time.	No qualifications were required. All target compounds were qualified as estimated, "UJ," for nondetects, and "J," for detects.
3. Method Blanks	One soil method blank was analyzed with this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
4. LCS/BS	One soil blank spike was analyzed in this SDG. All percent recoveries were within the laboratory QC limits.	No qualifications were required.

	Findings	Qualifications
5. Surrogates	The surrogate recoveries for all samples were within the laboratory QC limits of 30-150%.	No qualifications were required.
6. MS/MSDs	No MS/MSD analysis was performed in conjunction with the samples in this SDG.	No qualifications were required.
7. Field QC Samples ER: None FB: RJ543 (SDJ RJ514) FD: None	No target compounds were detected in the field blank. No equipment rinsate was associated with the samples in this SDG.	No qualifications were required.
8. Other	Reporting limits and sample results were adjusted for percent moisture.	No qualifications were required.
Comments	PCB analysis was requested for an additional nine samples in this SDG. These sample results can be found in Ogden Package ID T700PP13.	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ786

Lab Name: CEIMIC CORP Contract: ROCKETDYNE

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ786

Matrix: (soil/water) SOIL Lab Sample ID: 200838-01

Sample wt/vol: 30.0(g/mL) G Lab File ID: A8007723

% Moisture: 8 Decanted: (Y/N) N Date Received: 11/29/00

Extraction: (Type) SONC Date Extracted: 11/30/00

Concentrated Extract Volume: 10000(uL) Date Analyzed: 11/30/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	Rev Qual	Qual Code	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	UJ	H	36	U
11104-28-2	Aroclor-1221	UJ	H	73	U
11141-16-5	Aroclor-1232	UJ	H	36	U
53469-21-9	Aroclor-1242	UJ	H	36	U
12672-29-6	Aroclor-1248	UJ	H	36	U
11097-69-1	Aroclor-1254	J	H	60	
11096-82-5	Aroclor-1260	UJ	H	36	U

OGDEN VALIDATED

LEVEL V

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	PCBs by EPA Method 8082
QC Level:	V[1]
SDG:	RJ048
Matrix:	Soil
No. of Samples:	1
REs/DLs:	0
Date Reviewed:	February 1, 2001
Reviewer:	H. White
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RJ627

Data Validation Findings

	Findings	Qualifications
1. Sample Management	According to the COCs, there were no broken sample containers and the COC matched the samples. Cooler temperatures were within 4°C± 2°C. The sample was extracted within 14 days of the date of collection, and analyzed within 40 days of extraction.	No qualifications were required.
3. Method Blanks	One soil method blank was analyzed with this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
4. LCS/BS	One soil blank spike was analyzed in this SDG. All percent recoveries were within the laboratory QC limits.	No qualifications were required.
5. Surrogates	The surrogate recoveries for the sample were within the laboratory QC limits of 35-135% for TCX and 25-143% for DCB.	No qualifications were required.
6. MS/MSDs	No MS/MSD analysis was performed in conjunction with the samples in this SDG.	No qualifications were required.

	Findings	Qualifications
7. Field QC Samples ER: None FB: RJ543 (SDG RJ514) FD: None	No target compounds were detected in the field blank. No equipment rinsate was associated with the samples in this SDG.	No qualifications were required.
8. Other	Reporting limits and results were adjusted for percent moisture.	No qualifications were required.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

POLYCHLORINATED BIPHENYLS (PCB)
by SW846 Method 8082

Client: Ogden Environmental

Client Sample ID: RJ627

Date Sampled: 09/27/00

Date Sample Received: 09/30/00

Matrix: Soil

Percent Solids: 94

Laboratory ID: 200729-18

Date Sample Extracted: 10/02/00

Date Sample Analyzed: 10/04/00

Associated Method Blank: P1002-B12

Final Extract Volume (mL): 10.0

Dilution Factor: 1

Concentration in: ug/Kg (ppb)+

Target Analyte	Sample Concentration	Qual Code	Quantitation Limit
Aroclor-1016	ND	U	35
Aroclor-1221	ND		70
Aroclor-1232	ND		35
Aroclor-1242	ND		35
Aroclor-1248	ND		35
Aroclor-1254	ND		35
Aroclor-1260	ND		35

ND = Not detected
+ Dry weight basis.

Surrogate Spike Recovery

Surrogate Compound	Recovery(%)	QC Limits(%)*
Tetrachloro-m-xylene	53	35 - 135
Decachlorobiphenyl	75	25 - 143

* These limits are provided for advisory purposes.

OGDEN VALIDATED

LEVEL V

Reported by: DR

Approved by:

Form I PCB

550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026
303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Polyaromatic Hydrocarbons by SIM 8270
QC Level:	V[1]
SDG:	RJ249
Matrix:	Soil
No. of Samples:	3
No. of Reanalyses/Dilutions:	1
Date Reviewed:	September 17, 2001
Reviewer:	M. Pokorny
Reference:	National Functional Guidelines For Organic Data Review (2/94)
Samples Reviewed:	RJ249, RJ249RE, RJ251, RJ253

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received by the laboratory with an acceptable cooler temperature of 6°C. The samples were received intact, and no shipping or receiving problems were noted by the laboratory. Custody seals were not present on the coolers. The samples were originally extracted within 14 days of collection and analyzed within 40 days of extraction. Sample RJ249RE was extracted out of holding time, but was not retained.	No qualifications were required.
4. Method Blanks SBLKIB	One method blank was associated with the retained samples in this SDG. Method blank SBLKIB reported nondetects for all target compounds.	No qualifications were required.
5. LCS/BS SLCSIB	One laboratory control sample was reported with the retained samples of this SDG. SLCSIB reported acceptable recoveries for all spiked compounds.	No qualifications were required.

	Findings	Qualifications
6. Surrogates	The site samples reported recoveries for the three surrogate compounds within the laboratory QC limits of 20%-140% except for recoveries above the reporting limits of 2-fluorbiphenyl and terphenyl-d14 for sample RJ249. Sample RJ249 was reextracted and also had elevated surrogate recoveries.	No qualifications were required for the surrogate recoveries above the reporting limit since no target compounds were reported in sample RJ249. Sample RJ249RE was rejected, "R," in favor of the original analysis.
7. MS/MSDs	No MS/MSD analyses were associated with the samples in this package.	No qualifications were required.
8. Field QC Samples ER: RJ015 (SDG: RJ503) FB: RJ543 (SDG: RJ514) Duplicates: None	Equipment rinsate RJ015 and field blank RJ543 both reported nondetects for all target compounds.	No qualifications were required.
9. Other	The Level IV validation package noted that the laboratory SOP used the criteria of 35%RSD for evaluation of initial calibrations and 35%D for continuing calibrations. The level IV reviewer used the Method 8270 criteria of 15%RSD and 20%D for evaluation of the package. This resulted in calibration qualifications in the Level IV package. The raw data for the n-nitrosodimethylamine detect in sample RJ249 was reviewed. Based on the difference between the expected and actual retention time of the detect, the reviewer deemed the reported detect a false positive. Compound detects below the reporting limit were qualified as estiamted, "J." Reporting limits and sample results were reported on a dry-weight basis, and were adjusted for variation in sample weight.	No qualifications were required because initial and continuing calibrations are not reviewed in level V validation reports. The result for n-nitrosodimethylamine was changed to a nondetect, "U," and the result raised to the reporting limit.
Comments	N/A	N/A

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ249

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ249

Matrix: (soil/water) SOIL Lab Sample ID: 010340-01

Sample wt/vol: 30.6 (g/mL) G Lab File ID: IB073

Level: (low/med) LOW Date Received: 04/19/01

% Moisture: 8 decanted: (Y/N) N Date Extracted: 04/26/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/14/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
62-75-9	N-Nitrosodimethylamine	~~4~~ 2	J	UB	XR
91-20-3	Naphthalene	4	U	U	
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	4	U		
86-73-7	Fluorene	4	U		
85-01-8	Phenanthrene	4	U		
120-12-7	Anthracene	4	U		
206-44-0	Fluoranthene	4	U		
129-00-0	Pyrene	4	U		
56-55-3	Benzo(a)anthracene	4	U		
218-01-9	Chrysene	4	U		
205-99-2	Benzo(b)fluoranthene	4	U		
207-08-9	Benzo(k)fluoranthene	4	U		
50-32-8	Benzo(a)pyrene	4	U		
193-39-5	Indeno(1,2,3-cd)pyrene	4	U		
53-70-3	Dibenzo(a,h)anthracene	4	U		
191-24-2	Benzo(g,h,i)perylene	4	U		

AMEC VALIDATED

LEVEL V

MP 9.17.01

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ249RE

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ249

Matrix: (soil/water) SOIL Lab Sample ID: 010340-01RE

Sample wt/vol: 30.4 (g/mL) G Lab File ID: IB104

Level: (low/med) LOW Date Received: 04/19/01

% Moisture: 8 decanted: (Y/N) N Date Extracted:05/15/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/16/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
62-75-9	N-Nitrosodimethylamine	4	U	R	D
91-20-3	Naphthalene	4	U		
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	4	U		
86-73-7	Fluorene	4	U		
85-01-8	Phenanthrene	4	U		
120-12-7	Anthracene	4	U		
206-44-0	Fluoranthene	4	U		
129-00-0	Pyrene	4	U		
56-55-3	Benzo(a)anthracene	4	U		
218-01-9	Chrysene	4	U		
205-99-2	Benzo(b)fluoranthene	4	U		
207-08-9	Benzo(k)fluoranthene	4	U		
50-32-8	Benzo(a)pyrene	4	U		
193-39-5	Indeno(1,2,3-cd)pyrene	4	U		
53-70-3	Dibenzo(a,h)anthracene	4	U		
191-24-2	Benzo(g,h,i)perylene	4	U		

AMEC VALIDATED

FORM I SV

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ251

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ249

Matrix: (soil/water) SOIL Lab Sample ID: 010340-03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: IB074

Level: (low/med) LOW Date Received: 04/19/01

% Moisture: 9 decanted: (Y/N) N Date Extracted: 04/26/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/14/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
62-75-9	N-Nitrosodimethylamine	4	U	U	
91-20-3	Naphthalene	4	U		
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	4	U		
86-73-7	Fluorene	4	U		
85-01-8	Phenanthrene	8			
120-12-7	Anthracene	2	J	J	
206-44-0	Fluoranthene	17			
129-00-0	Pyrene	13			
56-55-3	Benzo(a)anthracene	11			
218-01-9	Chrysene	9			
205-99-2	Benzo(b)fluoranthene	7			
207-08-9	Benzo(k)fluoranthene	7			
50-32-8	Benzo(a)pyrene	9			
193-39-5	Indeno(1,2,3-cd)pyrene	8			
53-70-3	Dibenzo(a,h)anthracene	5			
191-24-2	Benzo(g,h,i)perylene	6			

AMEC VALIDATED

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ253

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ249

Matrix: (soil/water) SOIL Lab Sample ID: 010340-05

Sample wt/vol: 30.1 (g/mL) G Lab File ID: IB075

Level: (low/med) LOW Date Received: 04/19/01

% Moisture: 13 decanted: (Y/N) N Date Extracted:04/26/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/14/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
62-75-9	N-Nitrosodimethylamine	4	U	U	
91-20-3	Naphthalene	4	U		
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	3	J	J	
86-73-7	Fluorene	4	U	U	
85-01-8	Phenanthrene	4	U		
120-12-7	Anthracene	4	U		
206-44-0	Fluoranthene	4	U		
129-00-0	Pyrene	4	U		
56-55-3	Benzo(a)anthracene	4	U		
218-01-9	Chrysene	4	U		
205-99-2	Benzo(b)fluoranthene	4	U		
207-08-9	Benzo(k)fluoranthene	4	U		
50-32-8	Benzo(a)pyrene	4	U		
193-39-5	Indeno(1,2,3-cd)pyrene	4	U		
53-70-3	Dibenzo(a,h)anthracene	4	U		
191-24-2	Benzo(g,h,i)perylene	4	U		

AMEC VALIDATED

LEVEL V

550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026
303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI
Project Manager: D. Hambrick
Analysis/Method: Polyaromatic Hydrocarbons by SIM 8270
QC Level: V[1]
SDG: RJ258
Matrix: Soil
No. of Samples: 1
No. of Reanalyses/Dilutions: 1
Date Reviewed: September 10, 2001
Reviewer: M .Pokorny
Reference: National Functional Guidelines For Organic Data Review (2/94)
Samples Reviewed: RJ271, RJ271RE

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The sample was received by the laboratory with a cooler temperature of 10°C. The sample was received intact, and no shipping or receiving problems were noted by the laboratory. The samples were extracted within 14 days of collection and analyzed within 40 days of extraction.	No qualifications were required due to the non-volatile nature of the analytes.
4. Method Blanks SBLKIC	One method blank was associated with the samples in this SDG. Method blank SBLKIC reported nondetects for all target compounds.	No qualifications were required.
5. LCS/BS SLCSIC	One laboratory control sample was reported with this SDG. SLCSIC reported acceptable recoveries for all spiked compounds.	No qualifications were required.

	Findings	Qualifications
6. Surrogates	The site samples reported acceptable recoveries for the three surrogate compounds.	No qualifications were required.
7. MS/MSDs	No MS/MSD analyses were associated with the samples in this package.	No qualifications were required.
8. Field QC Samples ER: RJ015 (SDG: RJ503) FB: RJ543 (SDG: RJ514) Duplicates: None	Equipment rinsate RJ015 and field blank RJ543 both reported nondetects for all target compounds.	No qualifications were required.
9. Other	The Level IV validation package noted that the laboratory SOP used the criteria of 35%RSD for evaluation of initial calibrations and 35%D for continuing calibrations. The level IV reviewer used the Method 8270 criteria of 15%RSD and 20%D for evaluation of the package. This resulted in calibration qualifications in the Level IV package. The surrogates associated with the LCS were not recovered, although the spiked compounds were recovered within the QC limits. The sample was reextracted with a new LCS which had acceptable surrogate recoveries. Reporting limits and sample results were reported on a dry-weight basis.	No qualifications were required because initial and continuing calibrations are not reviewed in level V validation reports. The original analysis was retained in favor of the reanalysis; therefore, no qualifications were required. Compounds reported below the reporting limit were qualified as estimated, "J."
Comments	N/A	N/A

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ271

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ258

Matrix: (soil/water) SOIL Lab Sample ID: 010358-13

Sample wt/vol: 30.3 (g/mL) G Lab File ID: IB078

Level: (low/med) LOW Date Received: 04/26/01

% Moisture: 6 decanted: (Y/N) N Date Extracted:05/04/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/14/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev QUAL	QUAL CODE
62-75-9	N-Nitrosodimethylamine	3	U	U	
91-20-3	Naphthalene	3	J	J	
91-57-6	2-Methylnaphthalene	3	U	U	
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U		
120-12-7	Anthracene	3	U		
206-44-0	Fluoranthene	3	U		
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U		
205-99-2	Benzo(b)fluoranthene	3	U		
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U		

AMEC VALIDATED

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ271RE

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ258

Matrix: (soil/water) SOIL Lab Sample ID: 010358-13RE

Sample wt/vol: 30.2 (g/mL) G Lab File ID: IB106

Level: (low/med) LOW Date Received: 04/26/01

% Moisture: 6 decanted: (Y/N) N Date Extracted:05/15/01

Concentrated Extract Volume: 500(uL) Date Analyzed: 05/16/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
62-75-9	N-Nitrosodimethylamine	3	U	R	D
91-20-3	Naphthalene	3	U		
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U		
120-12-7	Anthracene	3	U		
206-44-0	Fluoranthene	3	U		
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U		
205-99-2	Benzo(b)fluoranthene	3	U		
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U		

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303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Polyaromatic Hydrocarbons by SIM 8270
QC Level:	V[1]
SDG:	RJ186
Matrix:	Soil
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Date Reviewed:	September 10, 2001
Reviewer:	M .Pokorny
Reference:	National Functional Guidelines For Organic Data Review (2/94)
Samples Reviewed:	RJ203

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The sample was received by the laboratory with an acceptable cooler temperature of 6°C. The sample was received intact, and no shipping or receiving problems were noted by the laboratory. The sample was extracted within 14 days of collection and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks SBLKIA	One method blank was associated with the samples in this SDG. Method blank SBLKIA reported nondetects for all target compounds.	No qualifications were required.
5. LCS/BS SLCSIA	One laboratory control sample was reported with this SDG. SLCSIA reported acceptable recoveries for all spiked compounds.	No qualifications were required.

	Findings	Qualifications
6. Surrogates	The site sample reported acceptable recoveries for the three surrogate compounds.	No qualifications were required.
7. MS/MSDs	No MS/MSD analyses were associated with the samples in this package.	No qualifications were required.
8. Field QC Samples ER: RJ015 (SDG: RJ503) FB: RJ543 (SDG: RJ514) Duplicates: None	Equipment rinsate RJ015 and field blank RJ543 both reported nondetects for all target compounds.	No qualifications were required.
9. Other	The Level IV validation package noted that the laboratory SOP used the criteria of 35%RSD for evaluation of initial calibrations and 35%D for continuing calibrations. The level IV reviewer used the Method 8270 criteria of 15%RSD and 20%D for evaluation of the package. This resulted in calibration qualifications in the Level IV package. At the request of the Project manager, the raw data for the n-nitrosodimethylamine detect in sample RJ203 was reviewed. Reporting limits and sample results were reported on a dry-weight basis.	No qualifications were required because initial and continuing calibrations are not reviewed in level V validation reports. The detect for n-nitrosodimethylamine was changed to an estimated nondetect, "UJ." Compounds reported below the reporting limit were qualified as estimated, "J."
Comments	N/A	N/A

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

AMEC SAMPLE NO.

RJ203

Lab Name: CEIMIC CORP Contract: AMEC

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ186

Matrix: (soil/water) SOIL Lab Sample ID: 010297-20

Sample wt/vol: 30.4 (g/mL) G Lab File ID: IB068

Level: (low/med) LOW Date Received: 04/07/01

% Moisture: 9 decanted: (Y/N) N Date Extracted: 04/18/01

Concentrated Extract Volume: 500 (uL) Date Analyzed: 05/14/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	REV QUAL	QUAL CODE
62-75-9	N-Nitrosodimethylamine	9		UJ	*9
91-20-3	Naphthalene	4	U	U	
91-57-6	2-Methylnaphthalene	2	J	J	
208-96-8	Acenaphthylene	4	U	U	
83-32-9	Acenaphthene	2	J	J	
86-73-7	Fluorene	4	U	U	
85-01-8	Phenanthrene	4	U		
120-12-7	Anthracene	4	U		
206-44-0	Fluoranthene	4	U		
129-00-0	Pyrene	4	U		
56-55-3	Benzo(a)anthracene	4	U		
218-01-9	Chrysene	4	U		
205-99-2	Benzo(b)fluoranthene	4	U		
207-08-9	Benzo(k)fluoranthene	4	U		
50-32-8	Benzo(a)pyrene	4	U		
193-39-5	Indeno(1,2,3-cd)pyrene	4	U		
53-70-3	Dibenzo(a,h)anthracene	4	U		
191-24-2	Benzo(g,h,i)perylene	4	U		

AMEC VALIDATED

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Polyaromatic Hydrocarbons by SIM 8270
QC Level:	V[1]
SDG:	RJ772
Matrix:	Soil
No. of Samples:	16
No. of Reanalyses/Dilutions:	5
Date Reviewed:	November 8, 2001
Reviewer:	K. McNeill
Reference:	National Functional Guidelines For Organic Data Review (2/94)
Samples Reviewed:	RJ772, RJ773, RJ774, RJ775, RJ776, RJ777, RJ778, RJ779, RJ780. RJ781, RJ782, RJ783, RJ783DL, RJ788, RJ788DL, RJ789, RJ789DL, RJ790, RJ790DL, RJ791, & RJ791DL.

Data Validation Findings

	Findings	Qualifications
1. Sample Management	All site samples were received with a cooler temperature of 4°C. The laboratory did not mention any sample management problems.	No qualifications were required.
4. Method Blanks	Three method blanks were reported in this package. All three reported nondetects for all target compounds.	No qualifications were required.
5. LCS/BS	Three laboratory control samples were reported with this SDG. SLCSMB reported a low recovery of 18% for N-nitrosodimethylamine (QC limits 20%-140%). All other compounds reported acceptable recoveries. SLCSME and SLCSMF both reported acceptable recoveries for all compounds.	The compound N-nitrosodimethylamine was rejected "R" for nondetects in site samples RJ772, RJ773, RJ774, RJ775, RJ776, RJ777, RJ778, RJ779, RJ780. RJ781, RJ782, RJ783, RJ788, RJ789, and RJ791.

	Findings	Qualifications
6. Surrogates	Site samples RJ783DL, RJ788, RJ788DL, RJ789, RJ789DL, RJ790, RJ790DL, RJ791, and RJ791DL all reported outlier surrogate recoveries. The original 5X analyses for RJ788, RJ789, and RJ791 reported high recoveries, and the remaining samples reported 0% recoveries for all three surrogates. All of the samples were analyzed with dilutions.	No qualifications were required because the surrogate recoveries were outlier due to the dilutions and matrix interference's.
7. MS/MSDs	Sample RJ774 was the MS/MSD analysis associated with this SDG. RJ774MS and RJ774MSD both reported acceptable recoveries and RPD values.	No qualifications were required.
8. Field QC Samples ER: RJ552 (SDG: RJ028) FB: RJ543 (SDG: RJ514) Duplicates: None	Equipment rinsate RJ552 and field blank RJ543 both reported nondetects for all target compounds.	No qualifications were required.
9. Other	The Level IV validation package noted that the laboratory SOP used the criteria of 35%RSD for evaluation of initial calibrations and 35%D for continuing calibrations. The level IV reviewer used the Method 8270 criteria of 15%RSD and 20%D for evaluation of the package. This resulted in calibration qualifications in the Level IV package.	No qualifications were required because initial and continuing calibrations are not reviewed in level V validation reports.

	Findings	Qualifications
Comments		
	1) Samples RJ788, RJ788DL, RJ789, RJ790, RJ790DL, RJ791, and RJ791DL all reported matrix interference causing poor recoveries for internal standard chrysene-d12. The aforementioned samples had all associated compounds quantitated from an alternative IS, phenanthrene-d10, due to the poor chrysene-d12 recovery. A cursory review of the raw data revealed possible matrix interference around the retention time of the chrysene-d12 IS; but no recalculations were performed to confirm the detected compounds IS associations.	1) The compounds pyrene, benzo(a)anthracene, chrysene, and indeno(1,2,3-cd)pyrene were qualified "UJ" for nondetects and "J" for detects in RJ788, RJ789, RJ790DL, RJ791, and RJ791DL due to the quantitation from an alternative IS if they were not rejected "R" in favor of the original or diluted analysis.
	2) Samples RJ788, RJ789, RJ791 were initially analyzed at a 5X dilution, and RJ790 was initially analyzed at 100X dilution. All four samples were reanalyzed with 100X or 1000X dilutions.	2) No qualifications were required.
	3) The undiluted analysis of sample RJ783 reported compound detects above upper calibration limit for naphthalene, 2-methylnepthalene, phenanthrene, fluoranthene, pyrene, and chrysene. The sample was reanalyzed at 5X dilution, with acceptable recoveries for the aforementioned compounds.	3) The target compounds naphthalene, 2-methylnepthalene, phenanthrene, fluoranthene, pyrene, and chrysene were all rejected "R" in RJ783, and retained in RJ783DL. All other target compounds were retained in RJ783.

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ772

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-01

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M2692

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 4 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/13/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	R	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	7			
120-12-7	Anthracene	3	U	U	
206-44-0	Fluoranthene	18			
129-00-0	Pyrene	17			
56-55-3	Benzo(a)anthracene	9			
218-01-9	Chrysene	22			
205-99-2	Benzo(b)fluoranthene	18			
207-08-9	Benzo(k)fluoranthene	17			
50-32-8	Benzo(a)pyrene	8			
193-39-5	Indeno(1,2,3-cd)pyrene	6			
53-70-3	Dibenzo(a,h)anthracene	3	U	U	
191-24-2	Benzo(g,h,i)perylene	6			

OGDEN VALIDATED

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ773

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-02

Sample wt/vol: 30.3 (g/mL) G Lab File ID: M2699

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 4 decanted: (Y/N) N Date Extracted:11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/13/00

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	17	U	R	L
91-20-3	Naphthalene	17	U	U	
91-57-6	2-Methylnaphthalene	17	U		
208-96-8	Acenaphthylene	17	U		
83-32-9	Acenaphthene	17	U		
86-73-7	Fluorene	17	U		
85-01-8	Phenanthrene	17	U		
120-12-7	Anthracene	17	U		
206-44-0	Fluoranthene	18			
129-00-0	Pyrene	17	U	U	
56-55-3	Benzo(a)anthracene	17	U	U	
218-01-9	Chrysene	18			
205-99-2	Benzo(b)fluoranthene	17	U	U	
207-08-9	Benzo(k)fluoranthene	17	U		
50-32-8	Benzo(a)pyrene	17	U		
193-39-5	Indeno(1,2,3-cd)pyrene	17	U		
53-70-3	Dibenzo(a,h)anthracene	17	U		
191-24-2	Benzo(g,h,i)perylene	17	U		

OGDEN VALIDATED

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ774

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-03

Sample wt/vol: 30.4 (g/mL) G Lab File ID: M2693

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 3 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/13/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine		3	U	R	L
91-20-3	Naphthalene		3	U	U	
91-57-6	2-Methylnaphthalene		3	U		
208-96-8	Acenaphthylene		3	U		
83-32-9	Acenaphthene		3	U		
86-73-7	Fluorene		3	U		
85-01-8	Phenanthrene		6			
120-12-7	Anthracene		3	U	U	
206-44-0	Fluoranthene		4			
129-00-0	Pyrene		5			
56-55-3	Benzo(a)anthracene		3	U	U	
218-01-9	Chrysene		4			
205-99-2	Benzo(b)fluoranthene		3	U	U	
207-08-9	Benzo(k)fluoranthene		3	U		
50-32-8	Benzo(a)pyrene		3	U		
193-39-5	Indeno(1,2,3-cd)pyrene		3	U		
53-70-3	Dibenzo(a,h)anthracene		3	U		
191-24-2	Benzo(g,h,i)perylene		3	U		

C[illegible]EN VALIDATED

LEVEL V

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ775

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-04

Sample wt/vol: 30.1 (g/mL) G Lab File ID: M2823

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 4 decanted: (Y/N) N Date Extracted: 11/16/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/22/00

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	17	U	R	L
91-20-3	Naphthalene	17	U	U	
91-57-6	2-Methylnaphthalene	17	U		
208-96-8	Acenaphthylene	17	U		
83-32-9	Acenaphthene	17	U		
86-73-7	Fluorene	17	U		
85-01-8	Phenanthrene	17	U		
120-12-7	Anthracene	17	U		
206-44-0	Fluoranthene	17	U		
129-00-0	Pyrene	17	U		
56-55-3	Benzo(a)anthracene	17	U		
218-01-9	Chrysene	17	U		
205-99-2	Benzo(b)fluoranthene	17	U		
207-08-9	Benzo(k)fluoranthene	17	U		
50-32-8	Benzo(a)pyrene	17	U		
193-39-5	Indeno(1,2,3-cd)pyrene	17	U		
53-70-3	Dibenzo(a,h)anthracene	17	U		
191-24-2	Benzo(g,h,i)perylene	17	U		

C[illegible]EN VALIDATED

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ776

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-05

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M2688

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 7 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/13/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	ReV Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	4	U	R	L
91-20-3	Naphthalene	4	U	U	
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	4	U		
86-73-7	Fluorene	4	U		
85-01-8	Phenanthrene	4	U		
120-12-7	Anthracene	4	U		
206-44-0	Fluoranthene	4	U		
129-00-0	Pyrene	4	U		
56-55-3	Benzo(a)anthracene	4	U		
218-01-9	Chrysene	4	U		
205-99-2	Benzo(b)fluoranthene	4	U		
207-08-9	Benzo(k)fluoranthene	4	U		
50-32-8	Benzo(a)pyrene	4	U		
193-39-5	Indeno(1,2,3-cd)pyrene	4	U		
53-70-3	Dibenzo(a,h)anthracene	4	U		
191-24-2	Benzo(g,h,i)perylene	4	U		

C___ VALIDATED

LEVEL V

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ777

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-06

Sample wt/vol: 30.4 (g/mL) G Lab File ID: M2696

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/13/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	R	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	25			
120-12-7	Anthracene	3	U	U	
206-44-0	Fluoranthene	65			
129-00-0	Pyrene	63			
56-55-3	Benzo(a)anthracene	17			
218-01-9	Chrysene	44			
205-99-2	Benzo(b)fluoranthene	38			
207-08-9	Benzo(k)fluoranthene	48			
50-32-8	Benzo(a)pyrene	34			
193-39-5	Indeno(1,2,3-cd)pyrene	22			
53-70-3	Dibenzo(a,h)anthracene	6			
191-24-2	Benzo(g,h,i)perylene	19			

VALIDATED

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ778

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-07

Sample wt/vol: 30.1 (g/mL) G Lab File ID: M2689

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 3 decanted: (Y/N) N Date Extracted:11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/13/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	R	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U		
120-12-7	Anthracene	3	U		
206-44-0	Fluoranthene	3	U		
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U		
205-99-2	Benzo(b)fluoranthene	3	U		
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U		

OGDEN VALIDATED

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ779

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-08

Sample wt/vol: 30.1 (g/mL) G Lab File ID: M2690

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/13/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Rev Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	R	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U		
120-12-7	Anthracene	3	U		
206-44-0	Fluoranthene	3	U		
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U		
205-99-2	Benzo(b)fluoranthene	3	U		
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U	▽	

OGDEN VALIDATED

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ780

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-09

Sample wt/vol: 30.3 (g/mL) G Lab File ID: M2691

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/13/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	R	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U		
120-12-7	Anthracene	3	U		
206-44-0	Fluoranthene	3	U		
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U		
205-99-2	Benzo(b)fluoranthene	3	U		
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U		

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LEVEL V

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ781

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-10

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M2697

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 6 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/13/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	R	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U		
120-12-7	Anthracene	3	U		
206-44-0	Fluoranthene	3	U		
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U		
205-99-2	Benzo(b)fluoranthene	3	U		
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U		

VALIDATED

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ782

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-11

Sample wt/vol: 30.5 (g/mL) G Lab File ID: M2698

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 2 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/13/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	R	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	4			
120-12-7	Anthracene	3	U	U	
206-44-0	Fluoranthene	9			
129-00-0	Pyrene	9			
56-55-3	Benzo(a)anthracene	4			
218-01-9	Chrysene	8			
205-99-2	Benzo(b)fluoranthene	8			
207-08-9	Benzo(k)fluoranthene	7			
50-32-8	Benzo(a)pyrene	6			
193-39-5	Indeno(1,2,3-cd)pyrene	3	U	U	
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U		

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ783

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-12

Sample wt/vol: 30.4 (g/mL) G Lab File ID: M2707

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 3 decanted: (Y/N) N Date Extracted:11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/14/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Ref Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	R	J
91-20-3	Naphthalene	130	E	R	D
91-57-6	2-Methylnaphthalene	180	E	R	D
208-96-8	Acenaphthylene	7			
83-32-9	Acenaphthene	8			
86-73-7	Fluorene	6			
85-01-8	Phenanthrene	100	E	R	D
120-12-7	Anthracene	8			
206-44-0	Fluoranthene	110	E	R	D
129-00-0	Pyrene	88	E	R	D
56-55-3	Benzo(a)anthracene	35			
218-01-9	Chrysene	74	E	R	D
205-99-2	Benzo(b)fluoranthene	56			
207-08-9	Benzo(k)fluoranthene	62			
50-32-8	Benzo(a)pyrene	29			
193-39-5	Indeno(1,2,3-cd)pyrene	20			
53-70-3	Dibenzo(a,h)anthracene	6			
191-24-2	Benzo(g,h,i)perylene	14			

OGDEN VALIDATED

VELV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ783DL

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-12DL

Sample wt/vol: 30.4 (g/mL) G Lab File ID: M2712

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 3 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/14/00

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	17	U	R	D
91-20-3	Naphthalene	150	D		
91-57-6	2-Methylnaphthalene	210	D		
208-96-8	Acenaphthylene	17	U	R	D
83-32-9	Acenaphthene	17	U	↓	↓
86-73-7	Fluorene	17	U	↓	↓
85-01-8	Phenanthrene	130	D		
120-12-7	Anthracene	17	U	R	D
206-44-0	Fluoranthene	140	D		
129-00-0	Pyrene	120	D		
56-55-3	Benzo(a)anthracene	45	D	R	D
218-01-9	Chrysene	96	D		
205-99-2	Benzo(b)fluoranthene	95	D	R	D
207-08-9	Benzo(k)fluoranthene	90	D	↓	↓
50-32-8	Benzo(a)pyrene	45	D		
193-39-5	Indeno(1,2,3-cd)pyrene	33	D		
53-70-3	Dibenzo(a,h)anthracene	17	U		
191-24-2	Benzo(g,h,i)perylene	21	D	↓	↓

OGDEN VALIDATED

VELV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ788

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-16

Sample wt/vol: 30.4 (g/mL) G Lab File ID: M2708

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 8 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/14/00

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	18	U	UR	L
91-20-3	Naphthalene	58			
91-57-6	2-Methylnaphthalene	25			
208-96-8	Acenaphthylene	18	U	U	
83-32-9	Acenaphthene	200			
86-73-7	Fluorene	210			
85-01-8	Phenanthrene	460	E	R	D
120-12-7	Anthracene	18	U	U	
206-44-0	Fluoranthene	640	E	R	D
129-00-0	Pyrene	32000	E	↓	↓
56-55-3	Benzo(a)anthracene	25000	E	↓	↓
218-01-9	Chrysene	18	U	UJ	I
205-99-2	Benzo(b)fluoranthene	1900	E	R	D
207-08-9	Benzo(k)fluoranthene	2200	E	↓	↓
50-32-8	Benzo(a)pyrene	2400	E	↓	↓
193-39-5	Indeno(1,2,3-cd)pyrene	880	E	R	D
53-70-3	Dibenzo(a,h)anthracene	310			
191-24-2	Benzo(g,h,i)perylene	510	E	R	D

KM 4-23-01

LEVEL V

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ788DL

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-16DL

Sample wt/vol: 30.4 (g/mL) G Lab File ID: M2714

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 8 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/14/00

Injection Volume: 2.0(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	350	U	R	D
91-20-3	Naphthalene	350	U		
91-57-6	2-Methylnaphthalene	350	U		
208-96-8	Acenaphthylene	350	U		
83-32-9	Acenaphthene	350	U		
86-73-7	Fluorene	350	U		
85-01-8	Phenanthrene	3300	D		
120-12-7	Anthracene	930	D	R	D
206-44-0	Fluoranthene	7000	D		
129-00-0	Pyrene	5600	D	J	I
56-55-3	Benzo(a)anthracene	3900	D	J	I
218-01-9	Chrysene	3500	D	R	D
205-99-2	Benzo(b)fluoranthene	4100	D		
207-08-9	Benzo(k)fluoranthene	4000	D		
50-32-8	Benzo(a)pyrene	4200	D		
193-39-5	Indeno(1,2,3-cd)pyrene	1700	D	J	I
53-70-3	Dibenzo(a,h)anthracene	590	D	R	D
191-24-2	Benzo(g,h,i)perylene	950	D		

LEVEL V

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ789

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-17

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M2709

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 3 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/14/00

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	17	U	~~UJ~~ R	L
91-20-3	Naphthalene	53			
91-57-6	2-Methylnaphthalene	22			
208-96-8	Acenaphthylene	17	U	U	
83-32-9	Acenaphthene	160			
86-73-7	Fluorene	160			
85-01-8	Phenanthrene	620	E	R	D
120-12-7	Anthracene	17	U	U	
206-44-0	Fluoranthene	680	E	R	D
129-00-0	Pyrene	84000	E	R	D
56-55-3	Benzo(a)anthracene	81000	E	R	D
218-01-9	Chrysene	17	U	UJ	I
205-99-2	Benzo(b)fluoranthene	1200	E	R	D
207-08-9	Benzo(k)fluoranthene	1300	E	↓	↓
50-32-8	Benzo(a)pyrene	1300	E	↓	↓
193-39-5	Indeno(1,2,3-cd)pyrene	500	E	R	D
53-70-3	Dibenzo(a,h)anthracene	180			
191-24-2	Benzo(g,h,i)perylene	260			

LEVEL V

FORM I SV

KM 4-23-01

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ789DL

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-17DL

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M2723

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 3 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/15/00

Injection Volume: 2.0(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	340	U	R	D
91-20-3	Naphthalene	340	U		
91-57-6	2-Methylnaphthalene	340	U		
208-96-8	Acenaphthylene	340	U		
83-32-9	Acenaphthene	340	U		
86-73-7	Fluorene	340	U	R	D
85-01-8	Phenanthrene	2900	D		
120-12-7	Anthracene	690	D	R	D
206-44-0	Fluoranthene	5200	D		
129-00-0	Pyrene	4100	D		
56-55-3	Benzo(a)anthracene	2700	D		
218-01-9	Chrysene	2600	D	R	D
205-99-2	Benzo(b)fluoranthene	2600	D		
207-08-9	Benzo(k)fluoranthene	3000	D		
50-32-8	Benzo(a)pyrene	2800	D		
193-39-5	Indeno(1,2,3-cd)pyrene	1200	D	R	D
53-70-3	Dibenzo(a,h)anthracene	420	D	R	D
191-24-2	Benzo(g,h,i)perylene	620	D		

LEVEL V

KM
4.23.01

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ790

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-18

Sample wt/vol: 30.1 (g/mL) G Lab File ID: M2836

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/15/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/27/00

Injection Volume: 2.0(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Raw Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	350	U	U	
91-20-3	Naphthalene	350	U	U	
91-57-6	2-Methylnaphthalene	350	U	U	
208-96-8	Acenaphthylene	350	U	U	
83-32-9	Acenaphthene	900			
86-73-7	Fluorene	920			
85-01-8	Phenanthrene	12000	E	R	D
120-12-7	Anthracene	4000			
206-44-0	Fluoranthene	27000	E	R	D
129-00-0	Pyrene	21000	E		
56-55-3	Benzo(a)anthracene	15000	E		
218-01-9	Chrysene	14000	E		
205-99-2	Benzo(b)fluoranthene	14000	E		
207-08-9	Benzo(k)fluoranthene	16000	E		
50-32-8	Benzo(a)pyrene	17000	E	R	D
193-39-5	Indeno(1,2,3-cd)pyrene	6400		UJ	H
53-70-3	Dibenzo(a,h)anthracene	2200			
191-24-2	Benzo(g,h,i)perylene	4700			

EVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ790DL

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-18DL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: M2837

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 5 decanted: (Y/N) N Date Extracted: 11/15/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/27/00

Injection Volume: 2.0(uL) Dilution Factor: 1000.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Raw Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3500	U	R	D
91-20-3	Naphthalene	3500	U		
91-57-6	2-Methylnaphthalene	3500	U		
208-96-8	Acenaphthylene	3500	U		
83-32-9	Acenaphthene	3500	U		
86-73-7	Fluorene	3500	U		
85-01-8	Phenanthrene	11000	D		
120-12-7	Anthracene	3500	D	R	D
206-44-0	Fluoranthene	25000	D		
129-00-0	Pyrene	21000	D		
56-55-3	Benzo(a)anthracene	14000	D	J	H
218-01-9	Chrysene	13000	D		
205-99-2	Benzo(b)fluoranthene	13000	D		
207-08-9	Benzo(k)fluoranthene	15000	D		
50-32-8	Benzo(a)pyrene	15000	D		
193-39-5	Indeno(1,2,3-cd)pyrene	5500	D	R	D
53-70-3	Dibenzo(a,h)anthracene	3500	U		
191-24-2	Benzo(g,h,i)perylene	4300	D		

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

OGDEN SAMPLE NO.

RJ790DL

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-18DL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: M2837

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 5 decanted: (Y/N) N Date Extracted:11/15/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/27/00

Injection Volume: 2.0(uL) Dilution Factor: 1000.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	Rev Qual Code
1.		UNKNOWN	2.58	69000	JD	NJ
2.		UNKNOWN	4.51	13000	JBD	NJ
3.						
4.						
5.						
6.						
7.						
8.						
9.						
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FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ791

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-19

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M2711

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 3 decanted: (Y/N) N Date Extracted: 11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/14/00

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	17	U	UR	L
91-20-3	Naphthalene	50			
91-57-6	2-Methylnaphthalene	21			
208-96-8	Acenaphthylene	17	U	U	
83-32-9	Acenaphthene	160			
86-73-7	Fluorene	170			
85-01-8	Phenanthrene	630	E	R	D
120-12-7	Anthracene	17	U	U	
206-44-0	Fluoranthene	490	E	R	D
129-00-0	Pyrene	32000	E	↓	↓
56-55-3	Benzo(a)anthracene	28000	E	↓	↓
218-01-9	Chrysene	17	U	UJ	F
205-99-2	Benzo(b)fluoranthene	1300	E	R	D
207-08-9	Benzo(k)fluoranthene	1400	E	↓	↓
50-32-8	Benzo(a)pyrene	1500	E	↓	↓
193-39-5	Indeno(1,2,3-cd)pyrene	480	E	↓	↓
53-70-3	Dibenzo(a,h)anthracene	200			
191-24-2	Benzo(g,h,i)perylene	240			

KM
4.23.01

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ791DL

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ772

Matrix: (soil/water) SOIL Lab Sample ID: 200794-19DL

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M2725

Level: (low/med) LOW Date Received: 11/06/00

% Moisture: 3 decanted: (Y/N) N Date Extracted:11/08/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 11/15/00

Injection Volume: 2.0(uL) Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	340	U	UR	D
91-20-3	Naphthalene	340	U		
91-57-6	2-Methylnaphthalene	340	U		
208-96-8	Acenaphthylene	340	U		
83-32-9	Acenaphthene	340	U		
86-73-7	Fluorene	340	U		
85-01-8	Phenanthrene	2900	D		
120-12-7	Anthracene	790	D	R	D
206-44-0	Fluoranthene	5500	D		
129-00-0	Pyrene	4400	D	J	H
56-55-3	Benzo(a)anthracene	3000	D	J	H
218-01-9	Chrysene	2900	D	R	D
205-99-2	Benzo(b)fluoranthene	3000	D		
207-08-9	Benzo(k)fluoranthene	2900	D		
50-32-8	Benzo(a)pyrene	3000	D		
193-39-5	Indeno(1,2,3-cd)pyrene	1300	D	J	H
53-70-3	Dibenzo(a,h)anthracene	440	D	R	D
191-24-2	Benzo(g,h,i)perylene	690	D	R	D

LEVEL V

FORM I SV

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OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Polyaromatic Hydrocarbons by SIM 8270
QC Level:	V[1]
SDG:	RJ514
Matrix:	Soil & Water
No. of Samples:	9
Date Reviewed:	March 07, 2001
Reviewer:	K. McNeill
Reference:	National Functional Guidelines For Organic Data Review (2/94)
Samples Reviewed:	RJ516, RJ517, RJ520, RJ523, RJ524, RJ537, RJ539, RJ542, & RJ543.

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received with cooler temperatures of 4°C and 6°C.	No qualifications were required.
4. Method Blanks	Two method blanks were reported with this package, which reported nondetects for all target compounds.	No qualifications were required.
5. LCS/BS	Two laboratory control samples were reported with this SDG. Both LCS samples reported acceptable recoveries (QC limits: 20%-140%) for all compounds.	No qualifications were required.
6. Surrogates	Samples RJ520, RJ542, RJ517, and RJ524 all reported low surrogate recovery values for surrogate 1,2-dichlorobenzene-d4.	No qualifications were required for RJ520, RJ542, RJ517, and RJ524 because only one of three surrogates reported an outlier recovery.
	Sample RJ537 reported 0% recovery for surrogates terphenyl-d14 and 1,2-dichlorobenzene-d4.	No qualifications were required for RJ537 because the two recoveries were outlier due to the dilution.
	All other samples reported acceptable surrogate recoveries.	No qualifications were required.
7. MS/MSDs	No MS/MSD analyses were reported in this SDG.	No qualifications were required.

	Findings	Qualifications
8. Field QC Samples ER: RJ015 (SDG : RJ503) FB: RJ543 Duplicates: None	Equipment rinsate RJ015 and field blank RJ543 both reported nondetects for all target compounds.	No qualifications were required.
9. Other	The Level IV validation package noted that the laboratory SOP used the criteria of 35%RSD for evaluation of initial calibrations and 35%D for continuing calibrations. The level IV reviewer used the Method 8270 criteria of 15%RSD and 20%D for evaluation of the package. This resulted in calibration qualifications in the Level IV package. Sample RJ537 was analyzed at a 5X analysis only. No undiluted analysis of RJ537 was provided.	No qualifications were required because initial and continuing calibrations are not reviewed in level V validation reports.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ516

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-03

Sample wt/vol: 30.3 (g/mL) G Lab File ID: IZ467

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: 0 decanted: (Y/N) N Date Extracted: 07/17/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/24/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	C	
91-20-3	Naphthalene	3	U		
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U	C	
85-01-8	Phenanthrene	2	J		J
120-12-7	Anthracene	3	U	C	
206-44-0	Fluoranthene	4			
129-00-0	Pyrene	5			
56-55-3	Benzo(a)anthracene	2	J		J
218-01-9	Chrysene	5			
205-99-2	Benzo(b)fluoranthene	5			
207-08-9	Benzo(k)fluoranthene	4			
50-32-8	Benzo(a)pyrene	4			
193-39-5	Indeno(1,2,3-cd)pyrene	5			
53-70-3	Dibenzo(a,h)anthracene	3	U	C	
191-24-2	Benzo(g,h,i)perylene	3	U	C	

OGDEN VALIDATED

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ517

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-04

Sample wt/vol: 30.5 (g/mL) G Lab File ID: IZ490

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: 4 decanted: (Y/N) N Date Extracted: 07/17/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/25/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	U
91-20-3	Naphthalene	3	U	
91-57-6	2-Methylnaphthalene	3	U	
208-96-8	Acenaphthylene	3	U	
83-32-9	Acenaphthene	3	U	
86-73-7	Fluorene	3	U	
85-01-8	Phenanthrene	3	U	
120-12-7	Anthracene	3	U	U
206-44-0	Fluoranthene	4		
129-00-0	Pyrene	3	J	J
56-55-3	Benzo(a)anthracene	3	U	U
218-01-9	Chrysene	5		
205-99-2	Benzo(b)fluoranthene	3	J	J
207-08-9	Benzo(k)fluoranthene	3	U	U
50-32-8	Benzo(a)pyrene	3	U	
193-39-5	Indeno(1,2,3-cd)pyrene	3	U	
53-70-3	Dibenzo(a,h)anthracene	3	U	
191-24-2	Benzo(g,h,i)perylene	3	U	U

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ520

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: IZ469

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: 39 decanted: (Y/N) N Date Extracted:07/17/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/24/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	5	U	U	
91-20-3	Naphthalene	5	U		
91-57-6	2-Methylnaphthalene	5	U		
208-96-8	Acenaphthylene	5	U		
83-32-9	Acenaphthene	5	U		
86-73-7	Fluorene	5	U	U	
85-01-8	Phenanthrene	4	J	J	
120-12-7	Anthracene	5	U	U	
206-44-0	Fluoranthene	9			
129-00-0	Pyrene	9			
56-55-3	Benzo(a)anthracene	3	J	J	
218-01-9	Chrysene	6			
205-99-2	Benzo(b)fluoranthene	5	J	J	
207-08-9	Benzo(k)fluoranthene	3	J	J	
50-32-8	Benzo(a)pyrene	5	U	U	
193-39-5	Indeno(1,2,3-cd)pyrene	5	U		
53-70-3	Dibenzo(a,h)anthracene	5	U		
191-24-2	Benzo(g,h,i)perylene	5	U		

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ523

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-10

Sample wt/vol: 30.4 (g/mL) G Lab File ID: IZ470

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: 12 decanted: (Y/N) N Date Extracted: 07/17/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/24/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	4	U	C	
91-20-3	Naphthalene	4	U		
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	4	U		
86-73-7	Fluorene	4	U		
85-01-8	Phenanthrene	4			
120-12-7	Anthracene	4	U	C	
206-44-0	Fluoranthene	8			
129-00-0	Pyrene	8			
56-55-3	Benzo(a)anthracene	4			
218-01-9	Chrysene	10			
205-99-2	Benzo(b)fluoranthene	8			
207-08-9	Benzo(k)fluoranthene	5			
50-32-8	Benzo(a)pyrene	2	J		
193-39-5	Indeno(1,2,3-cd)pyrene	3	J		
53-70-3	Dibenzo(a,h)anthracene	4	U	CC	
191-24-2	Benzo(g,h,i)perylene	4	U		

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ524

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-11

Sample wt/vol: 30.1 (g/mL) G Lab File ID: IZ491

Level: (low/med) LOW Date Received: 07/08/00

% Moisture: 6 decanted: (Y/N) N Date Extracted:07/17/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/25/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	U	
91-20-3	Naphthalene	3	U		
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U		
120-12-7	Anthracene	3	U		
206-44-0	Fluoranthene	3	U		
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U		
205-99-2	Benzo(b)fluoranthene	3	U		
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U	U	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ537

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-16

Sample wt/vol: 30.5 (g/mL) G Lab File ID: IZ472

Level: (low/med) LOW Date Received: 07/13/00

% Moisture: 13 decanted: (Y/N) N Date Extracted: 07/17/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/24/00

Injection Volume: 2.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Raw Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	19	U	U	
91-20-3	Naphthalene	19	U		
91-57-6	2-Methylnaphthalene	19	U		
208-96-8	Acenaphthylene	19	U		
83-32-9	Acenaphthene	19	U		
86-73-7	Fluorene	19	U	U	
85-01-8	Phenanthrene	43			
120-12-7	Anthracene	19	U	U	
206-44-0	Fluoranthene	59			
129-00-0	Pyrene	50			
56-55-3	Benzo(a)anthracene	27			
218-01-9	Chrysene	35			
205-99-2	Benzo(b)fluoranthene	31			
207-08-9	Benzo(k)fluoranthene	18	J	J	
50-32-8	Benzo(a)pyrene	15	J	J	
193-39-5	Indeno(1,2,3-cd)pyrene	16	J	J	
53-70-3	Dibenzo(a,h)anthracene	19	U	U	
191-24-2	Benzo(g,h,i)perylene	19	U	U	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ539

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-18

Sample wt/vol: 30.2 (g/mL) G Lab File ID: IZ473

Level: (low/med) LOW Date Received: 07/13/00

% Moisture: 6 decanted: (Y/N) N Date Extracted: 07/17/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/24/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	U	
91-20-3	Naphthalene	3	U		
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U	U	
85-01-8	Phenanthrene	2	J		J
120-12-7	Anthracene	3	U	U	
206-44-0	Fluoranthene	4			
129-00-0	Pyrene	4			
56-55-3	Benzo(a)anthracene	2	J		J
218-01-9	Chrysene	5			
205-99-2	Benzo(b)fluoranthene	4			
207-08-9	Benzo(k)fluoranthene	3	U	U	
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U	U	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ542

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) SOIL Lab Sample ID: 200484-20

Sample wt/vol: 30.0 (g/mL) G Lab File ID: IZ474

Level: (low/med) LOW Date Received: 07/13/00

% Moisture: 4 decanted: (Y/N) N Date Extracted: 07/17/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/24/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rpt Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	U	
91-20-3	Naphthalene	3	U		
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U		
120-12-7	Anthracene	3	U		
206-44-0	Fluoranthene	3	U		
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U		
205-99-2	Benzo(b)fluoranthene	3	U		
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U	U	

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ543

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ514

Matrix: (soil/water) WATER Lab Sample ID: 200484-21

Sample wt/vol: 1000 (g/mL) ML Lab File ID: IZ477

Level: (low/med) LOW Date Received: 07/13/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted:07/18/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/24/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	0.1	U	U	
91-20-3	Naphthalene	0.1	U		
91-57-6	2-Methylnaphthalene	0.1	U		
208-96-8	Acenaphthylene	0.1	U		
83-32-9	Acenaphthene	0.1	U		
86-73-7	Fluorene	0.1	U		
85-01-8	Phenanthrene	0.1	U		
120-12-7	Anthracene	0.1	U		
206-44-0	Fluoranthene	0.1	U		
129-00-0	Pyrene	0.1	U		
56-55-3	Benzo(a)anthracene	0.1	U		
218-01-9	Chrysene	0.1	U		
205-99-2	Benzo(b)fluoranthene	0.1	U		
207-08-9	Benzo(k)fluoranthene	0.1	U		
50-32-8	Benzo(a)pyrene	0.1	U		
193-39-5	Indeno(1,2,3-cd)pyrene	0.1	U		
53-70-3	Dibenzo(a,h)anthracene	0.1	U		
191-24-2	Benzo(g,h,i)perylene	0.1	U	U	

LEVEL V

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Polyaromatic Hydrocarbons by SIM 8270
QC Level:	V[1]
SDG:	RJ028
Matrix:	Soil & Water
No. of Samples:	10
No. of Reanalyses/Dilutions:	1
Date Reviewed:	June 11, 2001
Reviewer:	K. McNeill
Reference:	National Functional Guidelines For Organic Data Review (2/94)
Samples Reviewed:	RJ028, RJ029, RJ033, RJ034, RJ035, RJ036, RJ036DL, RJ038, RJ548, RJ550, & RJ552.

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received with acceptable cooler temperatures of 4°C and 5°C. The COCs were signed by field and laboratory personnel. Samples RJ028 and RJ029 did not request the 8270SIM analysis on the associated COC (COC# RJ028). The case narrative did not mention the request of the additional analysis, no memo was available for review; however, the sample log noted the two samples were incorrectly requested for 8270R on 07/18/00.	No qualifications were required.
4. Method Blanks	Two method blanks, SBLKMA and SBLKMB, were reported with this package. Both method blanks reported nondetects for all target compounds.	No qualifications were required.
5. LCS/BS	Two laboratory control samples, SLCSMA and SLCSMB, were reported with this SDG. SLCSMA reported low recoveries for N-nitrosodimethylamine (9%), anthracene (18%), benzo(a)pyrene (15%), benzo(g,h,I)perylene (15%), and acceptable recoveries for all other spiked compounds. SLCSMB reported acceptable recoveries (QC limits: 20%-140%) for all spiked compounds.	The outlier compounds anthracene, benzo(a)pyrene, benzo(g,h,I)perylene were qualified "UJ" for nondetects and "J" for detects and nondetects for N-nitrosodimethylamine were rejected "R" (due to the %R below 10%) in site samples RJ028, RJ029, RJ033, RJ034, RJ035, RJ036, RJ038, RJ548, and RJ550.

	Findings	Qualifications
6. Surrogates	Sample RJ036 reported a 0% recovery for two surrogates, and a high surrogate recovery of 138% for the third surrogate. The reanalysis, RJ036DL, reported 0% recovery for all three surrogates. All other samples reported acceptable surrogate recovery values.	No qualifications were required because the surrogates were considered diluted out. RJ036 was retained, and the reanalysis was rejected "R."
7. MS/MSDs	No MS/MSD analyses were reported in this SDG.	No qualifications were required.
8. Field QC Samples ER: RJ552 FB: None Duplicates: RJ028 & RJ029	Equipment rinsate RJ552 reported nondetects for all target compounds. Samples RJ028 and RJ029 were field duplicates reported in this SDG. Both samples reported the same ten target compounds.	No qualifications were required. All RPD values for the ten detected compounds were less than 100%. No qualifications are applied towards field duplicate samples.
9. Other	The Level IV validation package noted that the laboratory SOP used the criteria of 35%RSD for evaluation of initial calibrations and 35%D for continuing calibrations. The level IV reviewer used the Method 8270 criteria of 15%RSD and 20%D for evaluation of the package. This resulted in calibration qualifications in the Level IV package. Sample RJ036 was initially analyzed at 5X dilution because the matrix was noticed to be a dark color and highly viscous. The sample was reanalyzed at a 10X dilution; however, the original 5X analysis was retained and the 10X reanalysis was rejected. Sample RJ552 was incorrectly listed as "FJ552" on the Form I and associated raw data forms. The ID was corrected on the Form I only by the reviewer.	No qualifications were required because initial and continuing calibrations are not reviewed in level V validation reports. N/A (see section 6) No qualifications were required.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ028

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) SOIL Lab Sample ID: 200546-01

Sample wt/vol: 30.3 (g/mL) G Lab File ID: M2193

Level: (low/med) LOW Date Received: 07/18/00

% Moisture: 3 decanted: (Y/N) N Date Extracted:07/26/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/26/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	UJ	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U	U	
85-01-8	Phenanthrene	4			
120-12-7	Anthracene	3	U	UJ	L
206-44-0	Fluoranthene	7			
129-00-0	Pyrene	10			
56-55-3	Benzo(a)anthracene	3	J	J	
218-01-9	Chrysene	7			
205-99-2	Benzo(b)fluoranthene	9			
207-08-9	Benzo(k)fluoranthene	5			
50-32-8	Benzo(a)pyrene	5		J	L
193-39-5	Indeno(1,2,3-cd)pyrene	9			
53-70-3	Dibenzo(a,h)anthracene	3	U	U	
191-24-2	Benzo(g,h,i)perylene	8		J	L

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FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ029

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) SOIL Lab Sample ID: 200546-02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: M2194

Level: (low/med) LOW Date Received: 07/18/00

% Moisture: 6 decanted: (Y/N) N Date Extracted: 07/26/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/26/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	4	U	R	L
91-20-3	Naphthalene	4	U	U	
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	4	U		
86-73-7	Fluorene	4	U	U	
85-01-8	Phenanthrene	10			
120-12-7	Anthracene	4	U	UJ	L
206-44-0	Fluoranthene	17			
129-00-0	Pyrene	22			
56-55-3	Benzo(a)anthracene	8			
218-01-9	Chrysene	14			
205-99-2	Benzo(b)fluoranthene	11			
207-08-9	Benzo(k)fluoranthene	9			
50-32-8	Benzo(a)pyrene	8		J	L
193-39-5	Indeno(1,2,3-cd)pyrene	10			
53-70-3	Dibenzo(a,h)anthracene	4	U	U	
191-24-2	Benzo(g,h,i)perylene	8		J	L

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FORM I SV

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FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ033

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) SOIL Lab Sample ID: 200546-14

Sample wt/vol: 30.3 (g/mL) G Lab File ID: M2197

Level: (low/med) LOW Date Received: 07/25/00

% Moisture: 5 decanted: (Y/N) N Date Extracted: 07/26/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/26/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	R UJ	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U	U	
85-01-8	Phenanthrene	4			
120-12-7	Anthracene	3	U	UJ	L
206-44-0	Fluoranthene	7			
129-00-0	Pyrene	7			
56-55-3	Benzo(a)anthracene	3	U	U	
218-01-9	Chrysene	8			
205-99-2	Benzo(b)fluoranthene	6			
207-08-9	Benzo(k)fluoranthene	4			
50-32-8	Benzo(a)pyrene	3	U	UJ	L
193-39-5	Indeno(1,2,3-cd)pyrene	3	U	U	
53-70-3	Dibenzo(a,h)anthracene	3	U	U	
191-24-2	Benzo(g,h,i)perylene	3	U	UJ	L

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FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ034

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) SOIL Lab Sample ID: 200546-15

Sample wt/vol: 30.3 (g/mL) G Lab File ID: M2198

Level: (low/med) LOW Date Received: 07/25/00

% Moisture: 5 decanted: (Y/N) N Date Extracted: 07/26/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/26/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	UJ	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U		
120-12-7	Anthracene	3	U	UJ	L
206-44-0	Fluoranthene	3	U	U	
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U		
205-99-2	Benzo(b)fluoranthene	3	U		
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U	UJ	L
193-39-5	Indeno(1,2,3-cd)pyrene	3	U	U	
53-70-3	Dibenzo(a,h)anthracene	3	U	U	
191-24-2	Benzo(g,h,i)perylene	3	U	UJ	L

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FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ035

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) SOIL Lab Sample ID: 200546-16

Sample wt/vol: 30.5 (g/mL) G Lab File ID: M2199

Level: (low/med) LOW Date Received: 07/25/00

% Moisture: 25 decanted: (Y/N) N Date Extracted: 07/26/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/26/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	4	U	R UJ	L
91-20-3	Naphthalene	4	U	U	
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	4	U		
86-73-7	Fluorene	4	U		
85-01-8	Phenanthrene	4	U	U	
120-12-7	Anthracene	5		J	L
206-44-0	Fluoranthene	40			
129-00-0	Pyrene	48			
56-55-3	Benzo(a)anthracene	7			
218-01-9	Chrysene	11			
205-99-2	Benzo(b)fluoranthene	11			
207-08-9	Benzo(k)fluoranthene	10			
50-32-8	Benzo(a)pyrene	8		J	L
193-39-5	Indeno(1,2,3-cd)pyrene	10			
53-70-3	Dibenzo(a,h)anthracene	4	U	U	
191-24-2	Benzo(g,h,i)perylene	4	U	UJ	L

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FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ036

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) SOIL Lab Sample ID: 200546-17

Sample wt/vol: 30.1 (g/mL) G Lab File ID: M2210

Level: (low/med) LOW Date Received: 07/25/00

% Moisture: 22 decanted: (Y/N) N Date Extracted:07/26/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/28/00

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	21	U	R	L
91-20-3	Naphthalene	99			
91-57-6	2-Methylnaphthalene	21	U	U	
208-96-8	Acenaphthylene	21	U	↓	
83-32-9	Acenaphthene	21	U		
86-73-7	Fluorene	38			
85-01-8	Phenanthrene	55			
120-12-7	Anthracene	21	U	UJ	L
206-44-0	Fluoranthene	140			
129-00-0	Pyrene	330			
56-55-3	Benzo(a)anthracene	28			
218-01-9	Chrysene	48			
205-99-2	Benzo(b)fluoranthene	67			
207-08-9	Benzo(k)fluoranthene	35			
50-32-8	Benzo(a)pyrene	47		J	L
193-39-5	Indeno(1,2,3-cd)pyrene	38			
53-70-3	Dibenzo(a,h)anthracene	21	U	U	
191-24-2	Benzo(g,h,i)perylene	53		J	L

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LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ036DL

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) SOIL Lab Sample ID: 200546-17DL

Sample wt/vol: 30.1 (g/mL) G Lab File ID: M2209

Level: (low/med) LOW Date Received: 07/25/00

% Moisture: 22 decanted: (Y/N) N Date Extracted:07/26/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/28/00

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	42	U	R	D
91-20-3	Naphthalene	95	D		
91-57-6	2-Methylnaphthalene	42	U		
208-96-8	Acenaphthylene	42	U		
83-32-9	Acenaphthene	42	U		
86-73-7	Fluorene	42	U		
85-01-8	Phenanthrene	53	D		
120-12-7	Anthracene	42	U		
206-44-0	Fluoranthene	130	D		
129-00-0	Pyrene	310	D		
56-55-3	Benzo(a)anthracene	42	U		
218-01-9	Chrysene	49	D		
205-99-2	Benzo(b)fluoranthene	60	D		
207-08-9	Benzo(k)fluoranthene	42	U		
50-32-8	Benzo(a)pyrene	43	D		
193-39-5	Indeno(1,2,3-cd)pyrene	42	U		
53-70-3	Dibenzo(a,h)anthracene	42	U		
191-24-2	Benzo(g,h,i)perylene	53	D	R	D

OGDEN VALIDATED

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ038

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) SOIL Lab Sample ID: 200546-19

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M2201

Level: (low/med) LOW Date Received: 07/25/00

% Moisture: 9 decanted: (Y/N) N Date Extracted: 07/26/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/26/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Rev Qual Code
62-75-9	N-Nitrosodimethylamine	4	U	R	UJ L
91-20-3	Naphthalene	4	U	U	
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	4	U		
86-73-7	Fluorene	4	U	U	
85-01-8	Phenanthrene	6			
120-12-7	Anthracene	4	U		UJ L
206-44-0	Fluoranthene	12			
129-00-0	Pyrene	16			
56-55-3	Benzo(a)anthracene	6			
218-01-9	Chrysene	12			
205-99-2	Benzo(b)fluoranthene	11			
207-08-9	Benzo(k)fluoranthene	6			
50-32-8	Benzo(a)pyrene	5			J L
193-39-5	Indeno(1,2,3-cd)pyrene	4	U	U	
53-70-3	Dibenzo(a,h)anthracene	4	U	U	
191-24-2	Benzo(g,h,i)perylene	4	U		UJ L

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LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ548

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) SOIL Lab Sample ID: 200546-08

Sample wt/vol: 30.4 (g/mL) G Lab File ID: M2195

Level: (low/med) LOW Date Received: 07/18/00

% Moisture: 3 decanted: (Y/N) N Date Extracted: 07/26/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/26/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U	R UJ	L
91-20-3	Naphthalene	3	U	U	
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U	U	
85-01-8	Phenanthrene	4			
120-12-7	Anthracene	3	U	UJ	L
206-44-0	Fluoranthene	8			
129-00-0	Pyrene	7			
56-55-3	Benzo(a)anthracene	4			
218-01-9	Chrysene	8			
205-99-2	Benzo(b)fluoranthene	9			
207-08-9	Benzo(k)fluoranthene	6			
50-32-8	Benzo(a)pyrene	4		J	L
193-39-5	Indeno(1,2,3-cd)pyrene	3	U	U	
53-70-3	Dibenzo(a,h)anthracene	3	U	U	
191-24-2	Benzo(g,h,i)perylene	3	U	UJ	L

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6.11.01

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

RJ550

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) SOIL Lab Sample ID: 200546-10

Sample wt/vol: 30.2 (g/mL) G Lab File ID: M2196

Level: (low/med) LOW Date Received: 07/18/00

% Moisture: 2 decanted: (Y/N) N Date Extracted: 07/26/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 08/26/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q	Rev Qual	Qual Code
62-75-9	N-Nitrosodimethylamine	3	U		U	L
91-20-3	Naphthalene	3	U		U	
91-57-6	2-Methylnaphthalene	3	U		U	
208-96-8	Acenaphthylene	3	U		U	
83-32-9	Acenaphthene	3	U		U	
86-73-7	Fluorene	3	U		U	
85-01-8	Phenanthrene	3	U		U	
120-12-7	Anthracene	3	U		UJ	L
206-44-0	Fluoranthene	4				
129-00-0	Pyrene	3	J		J	
56-55-3	Benzo(a)anthracene	3	U		U	
218-01-9	Chrysene	3	U		U	
205-99-2	Benzo(b)fluoranthene	3	U		U	
207-08-9	Benzo(k)fluoranthene	3	U		U	
50-32-8	Benzo(a)pyrene	3	U		UJ	L
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		U	
53-70-3	Dibenzo(a,h)anthracene	3	U		U	
191-24-2	Benzo(g,h,i)perylene	3	U		UJ	L

km
6-11-01

LEVEL V

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.

~~RJ552~~ RJ552 KM 6.11.01

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ028

Matrix: (soil/water) WATER Lab Sample ID: 200546-12

Sample wt/vol: 1000 (g/mL) ML Lab File ID: M2192

Level: (low/med) LOW Date Received: 07/18/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted:07/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/26/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Rev Qual	Rev Qual Code
62-75-9	N-Nitrosodimethylamine	0.1	U	U	
91-20-3	Naphthalene	0.1	U		
91-57-6	2-Methylnaphthalene	0.1	U		
208-96-8	Acenaphthylene	0.1	U		
83-32-9	Acenaphthene	0.1	U		
86-73-7	Fluorene	0.1	U		
85-01-8	Phenanthrene	0.1	U		
120-12-7	Anthracene	0.1	U		
206-44-0	Fluoranthene	0.1	U		
129-00-0	Pyrene	0.1	U		
56-55-3	Benzo(a)anthracene	0.1	U		
218-01-9	Chrysene	0.1	U		
205-99-2	Benzo(b)fluoranthene	0.1	U		
207-08-9	Benzo(k)fluoranthene	0.1	U		
50-32-8	Benzo(a)pyrene	0.1	U		
193-39-5	Indeno(1,2,3-cd)pyrene	0.1	U		
53-70-3	Dibenzo(a,h)anthracene	0.1	U		
191-24-2	Benzo(g,h,i)perylene	0.1	U	U	

OGDEN VALIDATED

LEVEL V

DATA VALIDATION REPORT

ROCKETDYNE
SSFL RFI PROGRAM

ANALYSIS: POLYNUCLEAR AROMATIC HYDROCARBONS

SAMPLE DELIVERY GROUP: RJ001

Prepared by

Ogden—Denver Operations
550 South Wadsworth Boulevard Suite 500
Lakewood, Colorado 80226

1. INTRODUCTION

Task Order Title:	Rocketdyne, SSFL RFI Program
SDG#:	RJ001
Project Manager:	D. Hambrick
Matrix:	Soils
Analysis:	PAH
QC Level:	IV
No. of Samples:	6
No. of Reanalyses/Dilutions:	2
Reviewer:	L. Calvin
Date of Review:	February 21, 2001

The samples listed in Table 1 were validated based on the guidelines outlined in the Ogden *Project Procedures Manual* data validation procedure for semivolatile organics (DVP-3, Rev. 2), the *Ceimic SOP for Semivolatile Analysis by Modified SW846 Method 8270SIM (SOP No.8270SIM)* revised 11/00, and the USEPA CLP *National Functional Guidelines For Organic Data Review* (2/94). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab ID	Matrix	COC Method
SLBS30S01	RJ016	200456-06	soil	8270SIM
SLBS30S02	RJ017	200456-07	soil	8270SIM
CLBS59S01	RJ500	200456-18	soil	8270SIM
CLBS60S01	RJ501	200456-19	soil	8270SIM
CLBS60S01	RJ501RE	200456-19RE	soil	8270SIM
SRSV01S01	RJ506	200456-10	soil	8270SIM
SRBS09S01	RJ513	200456-17	soil	8270SIM
SRBS09S01	RJ513RE	200456-17RE	soil	8270SIM

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The laboratory sample receipt checklist noted that the samples in this SDG were received with a cooler temperature of 13°C, above the QC limits of 4°C " 2°C; however, due to the nonvolatile nature of the semivolatile analysis, no qualifications were assigned. No other problems were noted regarding sample handling and transport. No qualifications were required.

2.1.2 Chain of Custody

All of the COCs were signed by both field and laboratory personnel. No information regarding sample conditions upon receipt was recorded on the COCs; however, the laboratory sample receipt checklist documented that the coolers were received with custody seals intact. No qualifications were required.

2.1.3 Holding Times

The soil samples were extracted within 14 days of collection, and analyzed within 40 days of extraction. No qualifications were required.

2.2 GC/MS TUNING

All tunes met the ion abundance criteria which were derived from USEPA SW-846 Method 8270C, and all samples were analyzed within 12 hours of the DFTPP injection times. No qualifications were required.

2.3 CALIBRATION

The initial calibration consisted of five concentration levels of standards. The initial calibration associated with this SDG, dated 07/13/00, had %RSDs above 15% for all target compounds except n-nitrosodimethylamine, phenanthrene, and chrysene. Results for all but the aforementioned compounds were qualified as estimated, "J," for detects, and "UJ," for nondetects in all samples, unless otherwise rejected (see section 2.9). The continuing calibration was acceptable with %Ds below 20% for all target compounds. All average RRFs for the initial calibration, and RRFs for the continuing calibration were greater than 0.05. The reviewer noted that the laboratory used the criteria of 35%RSD for evaluation of the initial calibration, and 35%D for the continuing calibrations.

The average RRFs and %RSDs for the initial calibration, and RRFs and %Ds for the continuing calibration reported on the Form VIs and Form VIIs were verified for several analytes from the raw data and no errors were found. No further qualifications were required.

2.4 BLANKS

One soil method blank (SBLKIM) was extracted and analyzed with the samples in this SDG. No target compounds were present in the method blank. The raw data was reviewed for false negatives, and none were found. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One soil blank spike was extracted and analyzed with the samples in this SDG. All of the recoveries were within the laboratory QC limits of 20-140%. The results reported on Form III were verified from the raw data for a representative number of compounds, and no errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

All surrogate recoveries for the retained analyses of the samples of this SDG were within the laboratory control limits. The results reported on Form II were verified from the raw data and no errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample RJ506 was analyzed as the MS/MSD pair for this SDG. Recoveries for both the MS and MSD were within the laboratory QC limits of 20-140% listed on the Form III, and all RPDs were less than the QC limit of 40%. The results reported on Form III were verified from the raw data for a representative number of compounds, and no errors were noted. No qualifications were required.

2.8 FIELD QC SAMPLES

Field QC samples were evaluated and, if necessary, qualified based on method blanks only (see Section 2.4). Remaining detects were then used to qualify the samples. The following are findings associated with field QC samples:

2.8.1 Field Blanks and Equipment Rinsates

Sample RJ543 (SDG RJ514) was identified as the field blank, and RJ015 (SDG RJ503) was identified as the equipment rinsate associated with the site samples in this SDG. No target compounds were found in the field QC samples; therefore, no qualifications were necessary.

2.8.2 Field Duplicates

There were no field duplicate pairs associated with this package. Field duplicates are required at a rate of 10% per matrix for site samples only; therefore, field duplicates are not required in every package.

Qualifications are not routinely assigned based on field duplicate results.

2.9 INTERNAL STANDARDS PERFORMANCE

The retention times and the area counts of the internal standards were within their respective QC limits of "30 seconds and +100%/-50% of the associated continuing calibration standard for all samples, with the exception of no recovery of internal standard perylene-d12 in sample RJ501, and an area for below the lower control limit and less than 25% for perylene-d12 in sample RJ513. Both samples were reanalyzed, with similar results, indicating a matrix effect on the internal standard. The reanalyses, RJ501RE and RJ513RE were rejected, "R," in favor of the original analyses. Although the case narrative for this SDG noted that the target compounds referencing perylene-d12 were reprocessed using the previous internal standard, chrysene-d12, which has a response similar to that of perylene-d12 when both are recovered within control limits, the reviewer deemed it appropriate to reject, "R," the nondetect results for the target compounds referencing perylene-d12 in samples RJ501 and RJ513, as the matrix effect on the internal standard could also have affected those target compounds.

The internal standard retention times and areas on the Form VIIIs were checked from the raw data for a representative number of samples, and no errors were noted. No qualifications were required.

2.10 TARGET COMPOUND IDENTIFICATION

The laboratory analyzed for 18 polynuclear aromatic hydrocarbons using GC/MS-Selective Ion Monitoring (SIM) mode. Chromatograms and spectra were examined and no identification problems were noted. No qualifications were necessary.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

The reporting limits were supported by the laboratory MDL study dated July, 2000, and corresponded to the concentration level of the lowest standard in the initial calibration. Samples RJ017 and RJ513 were analyzed only at 2H dilutions due to high levels of target compounds. All reporting limits were adjusted for %moisture and dilution, if applicable. Compounds reported below the reporting limits were qualified as estimated, "J," by the laboratory. A representative number of reported results were verified from the raw data and no errors were noted. No qualifications were required.

2.12 SYSTEM PERFORMANCE

The overall system performance was acceptable. Chromatograms were acceptable and showed expected baseline shifts at retention times corresponding to the start of a new SIM descriptor. No qualifications were necessary.

T700PA1

FORM 1 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.: RJ016

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ001

Matrix: (soil/water) SOIL Lab Sample ID: 200456-06

Sample wt/vol: 30.2 (g/mL) G Lab File ID: IZ018

Level: (low/med) LOW Date Received: 07/03/00

% Moisture: 11 decanted: (Y/N) N Date Extracted: 07/07/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/14/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	rev qual	qual code
62-75-9	N-Nitrosodimethylamine	4	U	UJ	C
91-20-3	Naphthalene	4	U		
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	4	U		
86-73-7	Fluorene	4	U		
85-01-8	Phenanthrene	10			
120-12-7	Anthracene	4	U	UJ	C
206-44-0	Fluoranthene	26		J	
129-00-0	Pyrene	22			
56-55-3	Benzo(a)anthracene	9			
218-01-9	Chrysene	27			
205-99-2	Benzo(b)fluoranthene	16		J	C
207-08-9	Benzo(k)fluoranthene	8			
50-32-8	Benzo(a)pyrene	11			
193-39-5	Indeno(1,2,3-cd)pyrene	7			
53-70-3	Dibenzo(a,h)anthracene	4	U	UJ	
191-24-2	Benzo(g,h,i)perylene	11		J	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.
RJ017

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ001

Matrix: (soil/water) SOIL Lab Sample ID: 200456-07

Sample wt/vol: 30.3 (g/mL) G Lab File ID: IZ022

Level: (low/med) LOW Date Received: 07/03/00

% Moisture: 8 decanted: (Y/N) N Date Extracted: 07/07/00

Concentrated Extract Volume: 500 (uL) Date Analyzed: 07/14/00

Injection Volume: 2.0 (uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	rev qual	qual code
62-75-9	N-Nitrosodimethylamine	7	U	U	
91-20-3	Naphthalene	7	U	UJ	C
91-57-6	2-Methylnaphthalene	7	U		
208-96-8	Acenaphthylene	7	U		
83-32-9	Acenaphthene	7	U		
86-73-7	Fluorene	7	U		
85-01-8	Phenanthrene	9			
120-12-7	Anthracene	7	U	UJ	C
206-44-0	Fluoranthene	21		J	
129-00-0	Pyrene	21			
56-55-3	Benzo(a)anthracene	10			
218-01-9	Chrysene	15			
205-99-2	Benzo(b)fluoranthene	10		J	C
207-08-9	Benzo(k)fluoranthene	9			
50-32-8	Benzo(a)pyrene	10			
193-39-5	Indeno(1,2,3-cd)pyrene	7	U	UJ	
53-70-3	Dibenzo(a,h)anthracene	7	U		
191-24-2	Benzo(g,h,i)perylene	7	J	J	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.: RJ500

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ001

Matrix: (soil/water) SOIL Lab Sample ID: 200456-18

Sample wt/vol: 30.4 (g/mL) G Lab File ID: IZ019

Level: (low/med) LOW Date Received: 07/03/00

% Moisture: 2 decanted: (Y/N) N Date Extracted: 07/07/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/14/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q	rev qual	qual code
62-75-9	N-Nitrosodimethylamine		3	U	UJ	C
91-20-3	Naphthalene		3	U	UJ	
91-57-6	2-Methylnaphthalene		5		J	
208-96-8	Acenaphthylene		3	U	UJ	
83-32-9	Acenaphthene		3	U		
86-73-7	Fluorene		3	U		
85-01-8	Phenanthrene		4			
120-12-7	Anthracene		3	U	UJ	C
206-44-0	Fluoranthene		6		J	
129-00-0	Pyrene		6			
56-55-3	Benzo(a)anthracene		3	U	UJ	
218-01-9	Chrysene		6			
205-99-2	Benzo(b)fluoranthene		5		J	C
207-08-9	Benzo(k)fluoranthene		4			
50-32-8	Benzo(a)pyrene		3	U	UJ	
193-39-5	Indeno(1,2,3-cd)pyrene		4		J	
53-70-3	Dibenzo(a,h)anthracene		3	U	UJ	
191-24-2	Benzo(g,h,i)perylene		9		J	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.
RJ501

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ001

Matrix: (soil/water) SOIL Lab Sample ID: 200456-19

Sample wt/vol: 30.2 (g/mL) G Lab File ID: IZ020

Level: (low/med) LOW Date Received: 07/03/00

% Moisture: 3 decanted: (Y/N) N Date Extracted:07/07/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/14/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	rev qual	qual code
62-75-9	N-Nitrosodimethylamine	3	U	U	
91-20-3	Naphthalene	3	U	UJ	C
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U	U	
120-12-7	Anthracene	3	U	UJ	C
206-44-0	Fluoranthene	3	U		
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U	U	
205-99-2	Benzo(b)fluoranthene	3	U	R	I
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U		

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.
RJ501RE

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ001

Matrix: (soil/water) SOIL Lab Sample ID: 200456-19RE

Sample wt/vol: 30.2 (g/mL) G Lab File ID: IZ035

Level: (low/med) LOW Date Received: 07/03/00

% Moisture: 3 decanted: (Y/N) N Date Extracted: 07/07/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/18/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	rev qual	qual code
62-75-9	N-Nitrosodimethylamine	3	U	R	D
91-20-3	Naphthalene	3	U		
91-57-6	2-Methylnaphthalene	3	U		
208-96-8	Acenaphthylene	3	U		
83-32-9	Acenaphthene	3	U		
86-73-7	Fluorene	3	U		
85-01-8	Phenanthrene	3	U		
120-12-7	Anthracene	3	U		
206-44-0	Fluoranthene	3	U		
129-00-0	Pyrene	3	U		
56-55-3	Benzo(a)anthracene	3	U		
218-01-9	Chrysene	3	U		
205-99-2	Benzo(b)fluoranthene	3	U		
207-08-9	Benzo(k)fluoranthene	3	U		
50-32-8	Benzo(a)pyrene	3	U		
193-39-5	Indeno(1,2,3-cd)pyrene	3	U		
53-70-3	Dibenzo(a,h)anthracene	3	U		
191-24-2	Benzo(g,h,i)perylene	3	U		

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.
RJ506

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ001

Matrix: (soil/water) SOIL Lab Sample ID: 200456-10

Sample wt/vol: 30.2 (g/mL) G Lab File ID: IZ014

Level: (low/med) LOW Date Received: 07/03/00

% Moisture: 15 decanted: (Y/N) N Date Extracted:07/07/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/14/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	rev qual	qual code
62-75-9	N-Nitrosodimethylamine	4	U		
91-20-3	Naphthalene	4	U	UJ	C
91-57-6	2-Methylnaphthalene	4	U		
208-96-8	Acenaphthylene	4	U		
83-32-9	Acenaphthene	4	U		
86-73-7	Fluorene	4	U		
85-01-8	Phenanthrene	4	U		
120-12-7	Anthracene	4	U	UJ	C
206-44-0	Fluoranthene	4	U		
129-00-0	Pyrene	4	U		
56-55-3	Benzo(a)anthracene	4	U		
218-01-9	Chrysene	4	U		
205-99-2	Benzo(b)fluoranthene	4	U	UJ	C
207-08-9	Benzo(k)fluoranthene	4	U		
50-32-8	Benzo(a)pyrene	4	U		
193-39-5	Indeno(1,2,3-cd)pyrene	4	U		
53-70-3	Dibenzo(a,h)anthracene	4	U		
191-24-2	Benzo(g,h,i)perylene	4	U		

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.
RJ513

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ001

Matrix: (soil/water) SOIL Lab Sample ID: 200456-17

Sample wt/vol: 30.2 (g/mL) G Lab File ID: IZ021

Level: (low/med) LOW Date Received: 07/03/00

% Moisture: 4 decanted: (Y/N) N Date Extracted: 07/07/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/14/00

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	rev qual	qual code
62-75-9	N-Nitrosodimethylamine	7	U	U	
91-20-3	Naphthalene	7	U	UJ	C
91-57-6	2-Methylnaphthalene	7	U	↓	↓
208-96-8	Acenaphthylene	7	U		
83-32-9	Acenaphthene	7	U		
86-73-7	Fluorene	7	U		
85-01-8	Phenanthrene	54			
120-12-7	Anthracene	7	U	UJ	C
206-44-0	Fluoranthene	7	U	↓	↓
129-00-0	Pyrene	7	U		
56-55-3	Benzo(a)anthracene	7	U		
218-01-9	Chrysene	7	U		
205-99-2	Benzo(b)fluoranthene	7	U	U	I
207-08-9	Benzo(k)fluoranthene	7	U	R	↓
50-32-8	Benzo(a)pyrene	7	U	↓	
193-39-5	Indeno(1,2,3-cd)pyrene	7	U		
53-70-3	Dibenzo(a,h)anthracene	7	U		
191-24-2	Benzo(g,h,i)perylene	7	U		

FORM 1 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

OGDEN SAMPLE NO.
RJ513RE

Lab Name: CEIMIC CORP Contract: OGDEN

Lab Code: CEIMIC Case No.: 313150 SAS No.: SDG No.: RJ001

Matrix: (soil/water) SOIL Lab Sample ID: 200456-17RE

Sample wt/vol: 30.2 (g/mL) G Lab File ID: IZ036

Level: (low/med) LOW Date Received: 07/03/00

% Moisture: 4 decanted: (Y/N) N Date Extracted:07/07/00

Concentrated Extract Volume: 500(uL) Date Analyzed: 07/18/00

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	rev qual	qual code
62-75-9	N-Nitrosodimethylamine	7	U	R	D
91-20-3	Naphthalene	7	U		
91-57-6	2-Methylnaphthalene	7	U		
208-96-8	Acenaphthylene	7	U		
83-32-9	Acenaphthene	7	U		
86-73-7	Fluorene	7	U		
85-01-8	Phenanthrene	18			
120-12-7	Anthracene	7	U		
206-44-0	Fluoranthene	7	U		
129-00-0	Pyrene	7	U		
56-55-3	Benzo(a)anthracene	7	U		
218-01-9	Chrysene	7	U		
205-99-2	Benzo(b)fluoranthene	7	U		
207-08-9	Benzo(k)fluoranthene	7	U		
50-32-8	Benzo(a)pyrene	7	U		
193-39-5	Indeno(1,2,3-cd)pyrene	7	U		
53-70-3	Dibenzo(a,h)anthracene	7	U		
191-24-2	Benzo(g,h,i)perylene	7	U		

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LEVEL IV

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DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI
Project Manager: D. Hambrick
Analysis/Method: Mercury by Method 7471A
QC Level: V[1]
SDG: RJ417
Matrix: Soil
No. of Samples: 13
Date Reviewed: October 23 2001
Reviewer: P. Meeks
Reference: *USEPA SW-846 Methods 3050B, 6010B, and 7471A (11/90)*
Samples Reviewed: RJ417, RJ418, RJ419, RJ422, RJ423, RJ424, RJ425, RJ427, RJ428, RJ431, RJ432, RJ434, RJ435

Data Validation Findings

	Findings	Qualifications
1. Sample Management	Except for sample RJ424, the samples were received above the temperatures limits of $4^{o}\pm2^{o}$ C. Custody seals were present on the cooler containing sample RJ424. Analyses performed within holding times. Samples RJ417-RJ419 were on hold and silver was originally requested on the COC. A memo from AMEC-San Diego personnel, dated 05/29/01, requested that these samples be analyzed for mercury only. The COC matched the samples and accounted for the analyses. All mercury analyses were performed beyond the 28-day holding time.	Due to the nonvolatile nature of the analytes, no qualifications were required. Mercury in the samples was qualified as estimated, "J," for detects, and "UJ," for nondetects.
3. Method Blanks	Mercury was not detected in the method blank.	No qualifications were required.

	Findings	Qualifications
5. LCS/BS .	Two solid LCS samples were analyzed with the samples. The recoveries for mercury were within the laboratory defined QC limits.	No qualifications were required.
6. Duplicates	None performed.	No qualifications were required.
7. MS/MSDs	None performed.	No qualifications were required.
9. ICP Serial Dilution	None performed.	No qualifications were required.
10. Other	None.	No qualifications were required.
11. Field QC Samples ER: RJ242 (SDG: RJ214) FB: RJ543 (SDG RJ514) Field duplicates: RJ423/RJ424, RJ427/RJ428	Mercury was not detected in either of the field QC samples. Mercury was not detected in field duplicate samples RJ423/RJ424. Mercury was detected in field duplicate samples RJ427/RJ428 with an RPD of 120%.	No qualifications were required.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ417

Date Sampled: 05/18/01

Laboratory ID: 010419-01

Date Sample Received: 05/19/01

Date Analysis Completed: 06/28/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0628	35.0	0.1	J	H

AMEC VALIDATED

Reported by: _____ Approved by: _____

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/p

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"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ418

Date Sampled: 05/18/01

Laboratory ID: 010419-02

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Lab Qual	Qual Code
Mercury	0615	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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/p

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TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ419

Date Sampled: 05/18/01

Laboratory ID: 010419-03

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: ZM

Approved by: M

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/p

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TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ422

Date Sampled: 05/22/01

Laboratory ID: 010419-06

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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/p

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TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ423

Date Sampled: 05/22/01

Laboratory ID: 010419-07

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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/p

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TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ424

Date Sampled: 05/22/01

Laboratory ID: 010419-08

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ425

Date Sampled: 05/24/01

Laboratory ID: 010419-09

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	0.4	0.1	J	H

AMEC VALIDATED

Reported by: _____ Approved by: _____

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/p

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TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ427

Date Sampled: 05/24/01

Laboratory ID: 010419-10

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	0.40	0.10	J	H

AMEC VALIDATED

Reported by: _____ Approved by: _____

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/p

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TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ428

Date Sampled: 05/24/01

Laboratory ID: 010419-11

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	0.1	0.1	J	H

AMEC VALIDATED

Reported by: _____ Approved by: _____

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/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ431

Date Sampled: 05/24/01

Laboratory ID: 010419-14

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	0.5	0.1	J	H

AMEC VALIDATED

Reported by: JM

Approved by: M

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/p

CEIMIC Corporation

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TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ432

Date Sampled: 05/24/01

Laboratory ID: 010419-15

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	ND	0.10	U	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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/p

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TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ434

Date Sampled: 05/24/01

Laboratory ID: 010419-17

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	2.6	0.1	J	H

AMEC VALIDATED

Reported by: _____ Approved by: _____

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/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ435

Date Sampled: 05/24/01

Laboratory ID: 010419-18

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0615	1.4	0.1	J	H

AMEC VALIDATED

Reported by: _____ Approved by: _____

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DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI
Project Manager: D. Hambrick
Analysis/Method: Metals by Method 6010B and 7471A
QC Level: V[1]
SDG: RJ397
Matrix: Soil
No. of Samples: 13
Date Reviewed: October 23 2001
Reviewer: P. Meeks
Reference: *USEPA SW-846 Methods 3050B, 6010B, and 7471A (11/90)*
Samples Reviewed: RJ398, RJ399, RJ401, RJ403, RJ405, RJ406, RJ407, RJ411, RJ412, RJ413, RJ414, RJ415, RJ416

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The coolers were received with temperatures above the QC limits of $4^{o}\pm2^{o}$ C. Silver only was requested on the COC for sample RJ415. A change request from AMEC-San Diego dated 05/29/01 requested mercury only for this sample. The COCs matched the samples and accounted for the remaining analyses. No custody seals were present on the coolers. Analyses performed within holding times, except for the mercury analyses.	Due to the nonvolatile nature of the analytes, no qualifications were required, due to the high cooler temperature. Mercury detected in the samples was qualified as estimated, "J," and nondetected mercury was qualified "UJ."
3. Method Blanks	The following analytes were reported in the method blank associated with the samples in this SDG: Sb = -0.352 mg/kg Cd = -0.071 mg/kg Tl = -0.255mg/kg	Antimony and thallium were later rejected for poor matrix spike recoveries, and were not therefore, qualified for negative blank results. Cadmium in the samples was qualified as estimated, "J," for detects and "UJ," for nondetects.
5. LCS/BS	Two solid LCS samples were analyzed with the samples. The recoveries were within the laboratory defined QC limits.	No qualifications were required.

	Findings	Qualifications
6. Duplicates Performed for RJ398 MS/MSD	All RPDs were less than the control limit of ±20%, except for selenium (47.9%).	Selenium detected in the samples was qualified as estimated, "J."
7. MS/MSDs Performed for RJ398	The following recoveries were outside the control limits of 75-125%: Sb: MS = 20.2%; MSD = 17.6% Ag: MS = 0%; MSD = 0% Tl: MS = 0%; MSD = 0% Se: MSD = 226.6%	Nondetected antimony, thallium, and silver in the samples was rejected, "R." Silver and selenium detected in the samples was qualified as estimated, "J."
9. ICP Serial Dilution Performed for RJ398	All %Ds were within the control limits of ±10%	No qualifications were required.
10. Other	Two selenium results were reported for RJ406. The reviewer hand-corrected the Form I to reflect the correct selenium value.	No qualifications were required.
11. Field QC Samples ER: RJ242 (SDG: RJ214) lead only FB: RJ543 (SDG RJ514) Field duplicates: none	Cobalt, lead, magnesium, nickel, vanadium, and zinc were detected in the field QC samples, but not at sufficient concentration to qualify site samples.	No qualifications were required.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ414

Date Sampled: 05/18/01

Laboratory ID: 010418-18

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm) ÷

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0611	0.5	0.1	J	H

AMEC Verified

Reported by: ZM

Approved by: M

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/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ415

Date Sampled: 05/18/01

Laboratory ID: 010418-19

Date Sample Received: 05/19/01

Date Analysis Completed: 06/28/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Lab Qual	Qual Code
Mercury	0611	13.5	0.5	J	H

AMEC VALIDATED

Reported by: Leonilyn Magpiel

Approved by: [illegible]

P160 revised 7/11/01 BF

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CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ416

Date Sampled: 05/18/01

Laboratory ID: 010418-20

Date Sample Received: 05/19/01

Date Analysis Completed: 06/28/01

Matrix: Soil

Concentration in: mg/Kg (ppm) +

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0611	3.9	0.2	J	H

AMEC VALIDATED

Reported by: ZM

Approved by: M

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TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ399

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010418 SAS No.: SDG NO.: RJ397

Matrix (soil/water): SOIL Lab Sample ID: 010418-03

Level (low/med): LOW Date Received: 05/19/01

% Solids: 96.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Lab Qual	Qual Code
7440-22-4	Silver	19.8		N	P	J	Q

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ401

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010418 SAS No.: SDG NO.: RJ397

Matrix (soil/water): SOIL Lab Sample ID: 010418-05

Level (low/med): LOW Date Received: 05/19/01

% Solids: 91.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7440-22-4	Silver	0.74	B	N	P	J	Q

AMEC VALIDATED
LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ398

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010418 SAS No.: SDG NO.: RJ397

Matrix (soil/water): SOIL Lab Sample ID: 010418-02

Level (low/med): LOW Date Received: 05/19/01

% Solids: 84.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Lab Qual	Qual Code
7429-90-5	Aluminum	10600			P		
7440-36-0	Antimony	0.14	U	N	P	UJ R	B, Q
7440-38-2	Arsenic	4.2			P		
7440-39-3	Barium	47.8			P		
7440-41-7	Beryllium	0.62			P		
7440-42-8	Boron	3.5	U		P	U	
7440-43-9	Cadmium	0.03	U		P	UJ	B
7440-70-2	Calcium	1630			P		
7440-47-3	Chromium	11.2			P		
7440-48-4	Cobalt	6.5			P		
7440-50-8	Copper	5.2			P		
7439-89-6	Iron	16200			P		
7439-92-1	Lead	4.7			P		
7439-95-4	Magnesium	4050			P		
7439-96-5	Manganese	211			P		
7439-98-7	Molybdenum	0.67	U		P	U	
7440-02-0	Nickel	8.1			P		
7440-09-7	Potassium	1040			P		
7782-49-2	Selenium	0.53		N*	P	J	Q, E
7440-22-4	Silver	4.6	U	N	P	R	Q
7440-23-5	Sodium	183	B		P		
7440-28-0	Thallium	1.8	U	N	P	UJ R	B, Q
7440-62-2	Vanadium	29.3			P		
7440-66-6	Zinc	39.9			P		

AMEC VALIDATED LEVEL V

PM 10/23/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ398

Date Sampled: 05/16/01

Laboratory ID: 010418-02

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0611	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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755

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: RJ403

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010418 SAS No.: SDG NO.: RJ397

Matrix (soil/water): SOIL Lab Sample ID: 010418-07

Level (low/med): LOW Date Received: 05/19/01

% Solids: 93.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	13000			P		
7440-36-0	Antimony	0.13	U	N	P	UJ R	B,Q
7440-38-2	Arsenic	5.3			P		
7440-39-3	Barium	107			P		
7440-41-7	Beryllium	0.73			P		
7440-42-8	Boron	3.2	U		P	U	
7440-43-9	Cadmium	0.02	U		P	UJ	B
7440-70-2	Calcium	5860			P		
7440-47-3	Chromium	24.8			P		
7440-48-4	Cobalt	8.4			P		
7440-50-8	Copper	12.8			P		
7439-89-6	Iron	19900			P		
7439-92-1	Lead	8.8			P		
7439-95-4	Magnesium	5250			P		
7439-96-5	Manganese	265			P		
7439-98-7	Molybdenum	0.62	U		P	U	
7440-02-0	Nickel	17.3			P		
7440-09-7	Potassium	3080			P		
7782-49-2	Selenium	0.26	U	N*	P	U	
7440-22-4	Silver	4.3	U	N	P	J R	Q
7440-23-5	Sodium	273	B		P		
7440-28-0	Thallium	1.7	U	N	P	UJ R	B,Q
7440-62-2	Vanadium	38.5			P		
7440-66-6	Zinc	62.7			P		

pm 10/23/01

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ403

Date Sampled: 05/16/01

Laboratory ID: 010418-07

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0611	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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756

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: RJ405

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010418 SAS No.: SDG NO.: RJ397

Matrix (soil/water): SOIL Lab Sample ID: 010418-09

Level (low/med): LOW Date Received: 05/19/01

% Solids: 90.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	8840			P		
7440-36-0	Antimony	0.13	U	N	P	UJ R	B, Q
7440-38-2	Arsenic	5.4			P		
7440-39-3	Barium	48.5			P		
7440-41-7	Beryllium	0.55			P		
7440-42-8	Boron	3.3	U		P	U	
7440-43-9	Cadmium	0.04	B		P	J	B
7440-70-2	Calcium	1850			P		
7440-47-3	Chromium	16.0			P		
7440-48-4	Cobalt	5.9			P		
7440-50-8	Copper	11.4			P		
7439-89-6	Iron	15300			P		
7439-92-1	Lead	9.9			P		
7439-95-4	Magnesium	3610			P		
7439-96-5	Manganese	211			P		
7439-98-7	Molybdenum	0.63	U		P	U	
7440-02-0	Nickel	10.6			P		
7440-09-7	Potassium	1780			P		
7782-49-2	Selenium	0.55		N*	P	J	Q, E
7440-22-4	Silver	4.4	U	N	P	R	Q
7440-23-5	Sodium	55.7	B		P		
7440-28-0	Thallium	1.7	U	N	P	UJ R	B, Q
7440-62-2	Vanadium	28.4			P		
7440-66-6	Zinc	52.8			P		

AMEC VALIDATED PM 10/23/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ405

Date Sampled: 05/17/01

Laboratory ID: 010418-09

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0611	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ406

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010418 SAS No.: SDG NO.: RJ397

Matrix (soil/water): SOIL Lab Sample ID: 010418-10

Level (low/med): LOW Date Received: 05/19/01

% Solids: 97.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	8670			P		
7440-36-0	Antimony	0.13	U	N	P	~~UJ~~ R	B,Q
7440-38-2	Arsenic	4.7			P		
7440-39-3	Barium	44.0			P		
7440-41-7	Beryllium	0.46			P		
7440-42-8	Boron	3.2	U		P	U	
7440-43-9	Cadmium	0.03	B		P	J	B
7440-70-2	Calcium	1640			P		
7440-47-3	Chromium	15.9			P		
7440-48-4	Cobalt	4.8			P		
7440-50-8	Copper	8.5			P		
7439-89-6	Iron	13500			P		
7439-92-1	Lead	9.1			P		
7439-95-4	Magnesium	3110			P		
7439-96-5	Manganese	173			P		
7439-98-7	Molybdenum	0.62	U		P	U	
7440-02-0	Nickel	8.7			P		
7440-09-7	Potassium	1790			P		
7782-49-2	Selenium	0.26	U	N*	P	U	
~~7782-49-2~~	~~Selenium~~	~~0.50~~	~~U~~	~~N*~~	~~P~~		
7440-22-4	Silver	4.3	U	N	P	R	Q
7440-23-5	Sodium	61.2	B		P		
7440-28-0	Thallium	1.7	U	N	P	~~UJ~~ R	B,Q
7440-62-2	Vanadium	23.8			P		
7440-66-6	Zinc	54.0			P		

AMEC VALIDATED

PM 10/23/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ406

Date Sampled: 05/17/01

Laboratory ID: 010418-10

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0611	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ407

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010418 SAS No.: SDG NO.: RJ397

Matrix (soil/water): SOIL Lab Sample ID: 010418-11

Level (low/med): LOW Date Received: 05/19/01

% Solids: 92.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	11600			P		
7440-36-0	Antimony	0.14	U	N	P	~~UJ~~ R	B,Q
7440-38-2	Arsenic	7.5			P		
7440-39-3	Barium	69.7			P		
7440-41-7	Beryllium	0.74			P		
7440-42-8	Boron	3.5	U		P	U	
7440-43-9	Cadmium	0.03	U		P	UJ	B
7440-70-2	Calcium	2430			P		
7440-47-3	Chromium	20.4			P		
7440-48-4	Cobalt	9.2			P		
7440-50-8	Copper	16.6			P		
7439-89-6	Iron	20300			P		
7439-92-1	Lead	12.3			P		
7439-95-4	Magnesium	5050			P		
7439-96-5	Manganese	228			P		
7439-98-7	Molybdenum	0.67	U		P	U	
7440-02-0	Nickel	17.9			P		
7440-09-7	Potassium	2060			P		
7782-49-2	Selenium	0.28	U	N*	P	U	
7440-22-4	Silver	4.6	U	N	P	R	Q
7440-23-5	Sodium	126	B		P		
7440-28-0	Thallium	1.8	U	N	P	~~UJ~~ R	B,Q
7440-62-2	Vanadium	36.9			P		
7440-66-6	Zinc	67.7			P		

AMEC VALIDATED

PM 10/23/01

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ407

Date Sampled: 05/17/01

Laboratory ID: 010418-11

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm) ÷

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0611	ND	0.1	U	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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759

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ411

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010418 SAS No.: SDG NO.: RJ397

Matrix (soil/water): SOIL Lab Sample ID: 010418-15

Level (low/med): LOW Date Received: 05/19/01

% Solids: 83.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rw Qual	Qual Code
7429-90-5	Aluminum	10600			P		
7440-36-0	Antimony	0.14	U	N	P	UJ R	B,Q
7440-38-2	Arsenic	4.7			P		
7440-39-3	Barium	84.7			P		
7440-41-7	Beryllium	0.61			P		
7440-42-8	Boron	3.5	U		P	U	
7440-43-9	Cadmium	0.20	B		P	J	B
7440-70-2	Calcium	5950			P		
7440-47-3	Chromium	20.9			P		
7440-48-4	Cobalt	7.1			P		
7440-50-8	Copper	12.4			P		
7439-89-6	Iron	17800			P		
7439-92-1	Lead	15.7			P		
7439-95-4	Magnesium	4320			P		
7439-96-5	Manganese	260			P		
7439-98-7	Molybdenum	0.67	U		P	U	
7440-02-0	Nickel	13.3			P		
7440-09-7	Potassium	2220			P		
7782-49-2	Selenium	0.28	U	N*	P	U	
7440-22-4	Silver	4.7	U	N	P	R	Q
7440-23-5	Sodium	215	B		P		
7440-28-0	Thallium	1.8	U	N	P	UJ R	B,Q
7440-62-2	Vanadium	33.1			P		
7440-66-6	Zinc	119			P		

AMEC VALIDATED

PM 10/23/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ411

Date Sampled: 05/18/01

Laboratory ID: 010418-15

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0611	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: _____ Approved by: _____

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760

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ412

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010418 SAS No.: SDG NO.: RJ397

Matrix (soil/water): SOIL Lab Sample ID: 010418-16

Level (low/med): LOW Date Received: 05/19/01

% Solids: 90.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	RW Qual	Qual Code
7429-90-5	Aluminum	9920			P		
7440-36-0	Antimony	0.11	U	N	P	UJ R	B, Q
7440-38-2	Arsenic	3.7			P		
7440-39-3	Barium	85.8			P		
7440-41-7	Beryllium	0.58			P		
7440-42-8	Boron	2.9	U		P	U	
7440-43-9	Cadmium	0.02	U		P	UJ	B
7440-70-2	Calcium	2950			P		
7440-47-3	Chromium	18.3			P		
7440-48-4	Cobalt	6.6			P		
7440-50-8	Copper	9.8			P		
7439-89-6	Iron	16500			P		
7439-92-1	Lead	7.9			P		
7439-95-4	Magnesium	4490			P		
7439-96-5	Manganese	247			P		
7439-98-7	Molybdenum	0.55	U		P	U	
7440-02-0	Nickel	13.4			P		
7440-09-7	Potassium	2580			P		
7782-49-2	Selenium	0.50		N*	P	J	Q, E
7440-22-4	Silver	3.9	U	N	P	R	Q
7440-23-5	Sodium	298	B		P		
7440-28-0	Thallium	1.5	U	N	P	UJ R	B, Q
7440-62-2	Vanadium	31.4			P		
7440-66-6	Zinc	75.2			P		

AMEC VALIDATED

PM 10/23/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ412

Date Sampled: 05/18/01

Laboratory ID: 010418-16

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0611	0.1	0.1	J	H

AMEC VALIDATED

Reported by: _____ Approved by: _____

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TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: RJ413

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010418 SAS No.: SDG NO.: RJ397

Matrix (soil/water): SOIL Lab Sample ID: 010418-17

Level (low/med): LOW Date Received: 05/19/01

% Solids: 90.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	14400			P		
7440-36-0	Antimony	0.14	U	N	P	UJ R	B,Q
7440-38-2	Arsenic	5.9			P		
7440-39-3	Barium	126			P		
7440-41-7	Beryllium	0.78			P		
7440-42-8	Boron	3.4	U		P	U	
7440-43-9	Cadmium	0.03	U		P	UJ	B
7440-70-2	Calcium	8790			P		
7440-47-3	Chromium	28.0			P		
7440-48-4	Cobalt	9.2			P		
7440-50-8	Copper	15.8			P		
7439-89-6	Iron	22800			P		
7439-92-1	Lead	9.5			P		
7439-95-4	Magnesium	5950			P		
7439-96-5	Manganese	346			P		
7439-98-7	Molybdenum	0.66	U		P	U	
7440-02-0	Nickel	17.5			P		
7440-09-7	Potassium	3640			P		
7782-49-2	Selenium	0.50		N*	P	J	Q,E
7440-22-4	Silver	4.6	U	N	P	R	Q
7440-23-5	Sodium	859			P		
7440-28-0	Thallium	1.8	U	N	P	UJ R	B,Q
7440-62-2	Vanadium	43.7			P		
7440-66-6	Zinc	77.7			P		

AMEC VALIDATED

PM 10/23/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

/p

CEIMIC Corporation

"Analytical Chemistry for Environmental Management"

TOTAL METALS
SW846 METHOD 6010B AND 7471A

Client: AMEC

Client Sample ID: RJ413

Date Sampled: 05/18/01

Laboratory ID: 010418-17

Date Sample Received: 05/19/01

Date Analysis Completed: 06/27/01

Matrix: Soil

Concentration in: mg/Kg (ppm)+

Target Analyte	Preparation Batch	Sample Concentration	Quantitation Limit	Rev Qual	Qual Code
Mercury	0611	ND	0.1	UJ	H

ND = Not Detected

AMEC VALIDATED

Reported by: ZM

Approved by: M

762

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DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI
Project Manager: D. Hambrick
Analysis/Method: Metals by Method ILM04
QC Level: V[1]
SDG: RJ249
Matrix: Soil
No. of Samples: 3
Date Reviewed: September 14 2001
Reviewer: P. Meeks
Reference: *USEPA SW-846 Methods 3050B, 6010B, and 7471A (11/90)*
Samples Reviewed: RJ249, RJ251, RJ253

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received with temperatures within the QC limits of 4°±2° C. COCs match samples and account for analyses. No custody seals were present on the coolers. Analyses performed within holding times.	Due to the nonvolatile nature of the analytes, no qualifications were required for the exceeded temperature.
3. Method Blanks	Hg = 0.073 mg/kg Tl = -0.888 mg/kg	Mercury detected in RJ249 and RJ251 was qualified "UJ." Thallium detected in the site samples was qualified "J."
5. LCS/BS	A solid LCS sample was analyzed with the samples. The recoveries for all analytes were within the laboratory defined QC limits, except for aluminum, which was recovered above the QC limit.	Aluminum detected in the samples was qualified "J."
6. Duplicates Performed for RJ253 MS/MSD	The laboratory duplicate analyses were performed for mercury only. The RPD was less than the control limit of ±20%.	No qualifications were required.

	Findings	Qualifications
7. MS/MSDs Performed for RJ253	The MS/MSD analyses were performed for mercury only. The %Rs were within the control limits of 75-125%.	No qualifications were required.
9. ICP Serial Dilution	None performed.	No qualifications were required.
10. Other	None	No qualifications were required.
11. Field QC Samples ER: RJ242 FB: RJ543 (SDG RJ514) Field duplicates: none	Lead, magnesium, and zinc were detected in the equipment rinsate, but not at sufficient concentration to qualify site samples. Cobalt, lead, nickel, antimony, and vanadium were detected in the field blank, but not at sufficient concentration to qualify site samples. Antimony was detected in the field blank at 2.0 µg/L.	Antimony detected in RJ249, was qualified "J."
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ249

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010340 SAS No.: SDG NO.: RJ249

Matrix (soil/water): SOIL Lab Sample ID: 010340-01

Level (low/med): LOW Date Received: 04/19/01

% Solids: 91.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	11800			P	J	L
7440-36-0	Antimony	0.64	B		P	J	F
7440-38-2	Arsenic	12.5			P		
7440-39-3	Barium	89.2			P		
7440-41-7	Beryllium	0.65			P		
7440-42-8	Boron	8.2	B		P		
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	1860			P		
7440-47-3	Chromium	21.5			P		
7440-48-4	Cobalt	7.4			P		
7440-50-8	Copper	10.1			P		
7439-89-6	Iron	18400			P		
7439-92-1	Lead	6.9			P		
7439-95-4	Magnesium	4540			P		
7439-96-5	Manganese	335			P		
7439-97-6	Mercury	0.02	B		AV	UJ	B
7439-98-7	Molybdenum	0.86	B		P		
7440-02-0	Nickel	13.7			P		
7440-09-7	Potassium	3920			P		
7782-49-2	Selenium	1.1			P		
7440-22-4	Silver	0.54	U		P	U	
7440-23-5	Sodium	100	B		P		
7440-28-0	Thallium	2.1			P	J	B
7440-62-2	Vanadium	33.7			P		
7440-66-6	Zinc	58.0			P		

AMEC VALIDATED
LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ251

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010340 SAS No.: SDG NO.: RJ249

Matrix (soil/water): SOIL Lab Sample ID: 010340-03

Level (low/med): LOW Date Received: 04/19/01

% Solids: 91.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	12700			P	J	L
7440-36-0	Antimony	0.93	B		P		
7440-38-2	Arsenic	3.0			P		
7440-39-3	Barium	67.3			P		
7440-41-7	Beryllium	0.60			P		
7440-42-8	Boron	8.7	B		P		
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	1490			P		
7440-47-3	Chromium	13.5			P		
7440-48-4	Cobalt	5.5			P		
7440-50-8	Copper	4.5			P		
7439-89-6	Iron	16600			P		
7439-92-1	Lead	5.4			P		
7439-95-4	Magnesium	3380			P		
7439-96-5	Manganese	183			P		
7439-97-6	Mercury	0.02	B		AV	U	B
7439-98-7	Molybdenum	0.68	U		P	U	
7440-02-0	Nickel	7.0			P		
7440-09-7	Potassium	2000			P		
7782-49-2	Selenium	0.96			P		
7440-22-4	Silver	0.47	U		P	U	
7440-23-5	Sodium	200	B		P		
7440-28-0	Thallium	2.1			P	J	B
7440-62-2	Vanadium	28.8			P		
7440-66-6	Zinc	45.0			P		

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ253

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010340 SAS No.: SDG NO.: RJ249

Matrix (soil/water): SOIL Lab Sample ID: 010340-05

Level (low/med): LOW Date Received: 04/19/01

% Solids: 88.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rv Qual	Qual Code
7429-90-5	Aluminum	14300			P	J	L
7440-36-0	Antimony	0.81	B		P		
7440-38-2	Arsenic	3.4			P		
7440-39-3	Barium	88.3			P		
7440-41-7	Beryllium	0.76			P		
7440-42-8	Boron	8.8	B		P		
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	2320			P		
7440-47-3	Chromium	17.6			P		
7440-48-4	Cobalt	7.2			P		
7440-50-8	Copper	4.6			P		
7439-89-6	Iron	19200			P		
7439-92-1	Lead	6.0			P		
7439-95-4	Magnesium	4530			P		
7439-96-5	Manganese	243			P		
7439-97-6	Mercury	0.02	U		AV	U	
7439-98-7	Molybdenum	0.67	B		P		
7440-02-0	Nickel	8.9			P		
7440-09-7	Potassium	1850			P		
7782-49-2	Selenium	0.67			P		
7440-22-4	Silver	0.46	U		P	U	
7440-23-5	Sodium	161	B		P		
7440-28-0	Thallium	4.0			P	J	B
7440-62-2	Vanadium	38.6			P		
7440-66-6	Zinc	44.2			P		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026
303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI
Project Manager: D. Hambrick
Analysis/Method: Metals by Method ILM04
QC Level: V[1]
SDG: RJ258
Matrix: Soil
No. of Samples: 1
Date Reviewed: September 13, 2001
Reviewer: P. Meeks
Reference: *USEPA SW-846 Methods 3050B, 6010B, and 7471A (11/90)*
Samples Reviewed: RJ271

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The coolers were received with temperatures above the QC limits of 4°±2° C. COCs match samples and account for analyses. Custody seals were present on the coolers. Analyses performed within holding times.	Due to the nonvolatile nature of the analytes, no qualifications were required for the exceeded temperature.
3. Method Blanks	Sb = 0.184 mg/kg Cd = -0.055 mg/kg Mg = -8.498 mg/kg Hg = -0.025 mg/kg	Nondetected cadmium, magnesium and mercury in RJ271 were qualified "UJ." Antimony detected in RJ271 was qualified "UJ."
5. LCS/BS	A solid LCS sample was analyzed with the samples. The recoveries for all analytes were within the laboratory defined QC limits.	No qualifications were required.
6. Duplicates	None performed.	No qualifications were required.
7. MS/MSDs	None performed.	No qualifications were required.

	Findings	Qualifications
9. ICP Serial Dilution	None performed.	No qualifications were required.
10. Other	None	No qualifications were required.
11. Field QC Samples ER: RJ552 (SDG RJ028) FB: RJ543 (SDG RJ514) Field duplicates: none	Barium, iron, magnesium, and zinc were detected in the equipment rinsate, but not at sufficient concentration to qualify site samples. Cobalt, lead, nickel, antimony, and vanadium were detected in the field blank, but not at sufficient concentration to qualify site samples.	No qualifications were required.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ271

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010358 SAS No.: SDG NO.: RJ258

Matrix (soil/water): SOIL Lab Sample ID: 010358-13

Level (low/med): LOW Date Received: 04/26/01

% Solids: 90.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	3.7	U		P	U	
7440-36-0	Antimony	0.68	B		P	UJ	B
7440-38-2	Arsenic	4.3			P		
7440-39-3	Barium	0.24	U		P	U	
7440-41-7	Beryllium	0.03	U		P	U	
7440-42-8	Boron	5.3	B		P		
7440-43-9	Cadmium	0.02	U		P	UJ	B
7440-70-2	Calcium	12.3	B		P		
7440-47-3	Chromium	0.38	U		P	U	
7440-48-4	Cobalt	0.19	U		P		
7440-50-8	Copper	0.51	U		P		
7439-89-6	Iron	2.8	U		P		
7439-92-1	Lead	5.4			P		
7439-95-4	Magnesium	5.0	U		P	UJ	B
7439-96-5	Manganese	0.40	B		P		
7439-97-6	Mercury	0.02	U		AV	UJ	B
7439-98-7	Molybdenum	0.52	U		P	U	
7440-02-0	Nickel	0.43	U		P		
7440-09-7	Potassium	15.6	U		P		
7782-49-2	Selenium	0.86			P		
7440-22-4	Silver	0.36	U		P	U	
7440-23-5	Sodium	22.6	B		P		
7440-28-0	Thallium	1.4	U		P	U	
7440-62-2	Vanadium	0.27	U		P		
7440-66-6	Zinc	0.42	U		P		

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

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DATA ASSESSMENT FORM

Project Title: Rocketdyne SSFL RFI
Project Manager: D. Hambrick
Analysis/Method: Metals by Method ILM04
QC Level: V[1]
SDG: RJ210
Matrix: Soil/Water
No. of Samples: 15
Date Reviewed: September 13, 2001
Reviewer: P. Meeks
Reference: *USEPA SW-846 Methods 3050B, 6010B, and 7471A (11/90)*
Samples Reviewed: RJ210, RJ211, RJ212, RJ213, RJ223, RJ225, RJ226, RJ227, RJ229, RJ230, RJ231, RJ232, RJ233, RJ235, RJ236

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The coolers were received with temperatures above the QC limits of $4^{o}\pm2^{o}$ C. The sample containers for RJ234 and RJ237 were received smashed, with no volume available for analysis. COCs match samples and account for analyses. No custody seals were present on the coolers. Analyses performed within holding times.	Due to the nonvolatile nature of the analytes, no qualifications were required for the exceeded temperature.
3. Method Blanks	Hg = -0.020 mg/kg Al = 91.5 µg/L Mn = 6.470 µg/L B = 47.8 µg/L Tl = -0.888 µg/L Tl = -4.49 µg/L	Nondetected mercury in RJ229 and RJ230 was qualified "UJ." Mercury detected in RJ225 and RJ227 was qualified "J." Aluminum and boron detected in RJ210-RJ213 were qualified "UJ." Manganese detected in RJ212 and RJ213 was qualified "UJ." Nondetected thallium in RJ210-RJ213 was qualified "UJ."

	Findings	Qualifications
5. LCS/BS .	Solid and aqueous LCS samples were analyzed with the samples. The recoveries for all analytes were within the laboratory defined QC limits, except for aluminum in the soil LCS sample which was recovered above the QC limit.	Aluminum detected in RJ229 and RJ230 was qualified "J."
6. Duplicates Performed for RJ210 and RJ230	For RJ210 Se = 29.1% RPD For RJ230 Sb = 25.1% RPD Tl = 34.2% RPD	As selenium was nondetected in the associated water samples, no qualifications were required. Antimony and thallium detected in RJ229 and RJ230 were qualified "J."
7. MS/MSDs Performed for RJ210 and RJ230	For RJ210 K: MS = 238.7%, MSD = 215.2% Se: MSD = 134.4% Ag: MS = 128.8%; MSD = 128.9% Zn: MS = 130.6% For RJ230 Sb: MS = 21.7%; MSD = 28.3% As: MSD = 125.9% Cr: MSD = 133.2% Pb: MS = 140.2%; MSD = 155.6% Se: MS = 65.8% Ag: MSD = 128.9% Tl: MSD = 157.1%	Potassium and zinc detected in RJ210-RJ213 were qualified "J." Selenium and silver were nondetected in the associated samples and therefore, did not require qualificaiton. Antimony, chromium, arsenic, lead, selenium, and thallium detected in RJ229 and RJ230 were qualified "J."
9. ICP Serial Dilution Performed for RJ210 and RJ230	All %Ds were within the ±10 control limits, except for zinc (13.4%) in the serial dilution of RJ230.	Zinc detected in RJ229 and RJ230 was qualified "J."
10. Other	None	No qualifications were required.
11. Field QC Samples ER: RJ552 (SDG RJ028) FB: RJ543 (SDG RJ514) Field duplicates: none	Barium, iron, magnesium, and zinc were detected in the equipment rinsate, but not at sufficient concentration to qualify site samples. Cobalt, lead, nickel, antimony, and vanadium were detected in the field blank, but not at sufficient concentration to qualify site samples. Antimony was detected in the field blank at 2.0 µg/L.	Antimony detected in RJ230 was qualified "J."

	Findings	Qualifications
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ210

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): WATER Lab Sample ID: 010329-01

Level (low/med): LOW Date Received: 04/13/01

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

CAS No.	Analyte	Concentration	C	Q	M	Rv Qual	Qual Code
7429-90-5	Aluminum	263			P	UJ	B
7440-36-0	Antimony	1.8	U		P	U	
7440-38-2	Arsenic	5.0	U		P	U	
7440-39-3	Barium	29.8	B		P		
7440-41-7	Beryllium	0.48	U		P	U	
7440-42-8	Boron	102	B		P	UJ	B
7440-43-9	Cadmium	0.35	U		P	U	
7440-70-2	Calcium	36900			P		
7440-47-3	Chromium	6.4	U		P	U	
7440-48-4	Cobalt	3.3	U		P	U	
7440-50-8	Copper	8.7	U		P	U	
7439-89-6	Iron	596			P		
7439-92-1	Lead	2.2	B		P		
7439-95-4	Magnesium	10200			P		
7439-96-5	Manganese	48.2			P		
7439-97-6	Mercury	0.06	U		AV	U	
7439-98-7	Molybdenum	8.8	U		P	U	
7440-02-0	Nickel	7.3	U		P	U	
7440-09-7	Potassium	1730	B	N	P	J	Q
7782-49-2	Selenium	3.7	U	N*	P	U	
7440-22-4	Silver	6.1	U	N	P	U	
7440-23-5	Sodium	29100			P		
7440-28-0	Thallium	2.4	U		P	UJ	B
7440-62-2	Vanadium	4.5	U		P	U	
7440-66-6	Zinc	46.2		N	P	J	Q

AMEC VALIDATED

LEVEL V

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ211

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): WATER Lab Sample ID: 010329-02

Level (low/med): LOW Date Received: 04/13/01

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	381			P	UJ	B
7440-36-0	Antimony	2.6	B		P	J	B
7440-38-2	Arsenic	5.0	U		P	U	
7440-39-3	Barium	20.3	B		P		
7440-41-7	Beryllium	0.48	U		P	U	
7440-42-8	Boron	129	B		P	UJ	B
7440-43-9	Cadmium	0.35	U		P	U	
7440-70-2	Calcium	33200			P		
7440-47-3	Chromium	6.4	U		P	U	
7440-48-4	Cobalt	3.3	U		P	U	
7440-50-8	Copper	8.7	U		P	U	
7439-89-6	Iron	815			P		
7439-92-1	Lead	3.7			P		
7439-95-4	Magnesium	8840			P		
7439-96-5	Manganese	38.3			P		
7439-97-6	Mercury	0.06	U		AV	U	
7439-98-7	Molybdenum	8.8	U		P	U	
7440-02-0	Nickel	7.3	U		P	U	
7440-09-7	Potassium	1390	B	N	P	J	Q
7782-49-2	Selenium	3.7	U	N*	P	U	
7440-22-4	Silver	6.1	U	N	P	U	
7440-23-5	Sodium	32000			P		
7440-28-0	Thallium	2.4	U		P	UJ	B
7440-62-2	Vanadium	4.5	U		P	U	
7440-66-6	Zinc	56.4		N	P	J	Q

PM 09/13/01

AMEC VALIDATED
LEVEL V

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ212

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): WATER Lab Sample ID: 010329-03

Level (low/med): LOW Date Received: 04/13/01

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	301			P	UJ	B
7440-36-0	Antimony	2.0	B		P	UJ	B
7440-38-2	Arsenic	5.0	U		P	U	
7440-39-3	Barium	27.8	B		P		
7440-41-7	Beryllium	0.48	U		P	U	
7440-42-8	Boron	146	B		P	UJ	B
7440-43-9	Cadmium	0.35	U		P	U	
7440-70-2	Calcium	37900			P		
7440-47-3	Chromium	6.4	U		P	U	
7440-48-4	Cobalt	3.3	U		P	U	
7440-50-8	Copper	8.7	U		P	U	
7439-89-6	Iron	1660			P		
7439-92-1	Lead	1.8	U		P	U	
7439-95-4	Magnesium	9030			P		
7439-96-5	Manganese	23.1			P	UJ	B
7439-97-6	Mercury	0.06	U		AV	U	
7439-98-7	Molybdenum	8.8	U		P	U	
7440-02-0	Nickel	8.3	B		P		
7440-09-7	Potassium	1450	B	N	P	J	Q
7782-49-2	Selenium	3.7	U	N*	P	U	
7440-22-4	Silver	6.1	U	N	P	U	
7440-23-5	Sodium	28900			P		
7440-28-0	Thallium	2.4	U		P	UJ	B
7440-62-2	Vanadium	4.8	B		P		
7440-66-6	Zinc	36.4		N	P	J	Q

AMEC VALIDATED
LEVEL V

PM 09/13/01

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ213

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): WATER Lab Sample ID: 010329-04

Level (low/med): LOW Date Received: 04/13/01

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	226			P	UJ	B
7440-36-0	Antimony	1.8	U		P	U	
7440-38-2	Arsenic	5.0	U		P	U	
7440-39-3	Barium	24.0	B		P		
7440-41-7	Beryllium	0.48	U		P	U	
7440-42-8	Boron	135	B		P	UJ	B
7440-43-9	Cadmium	0.35	U		P	U	
7440-70-2	Calcium	29800			P		
7440-47-3	Chromium	6.4	U		P	U	
7440-48-4	Cobalt	3.3	U		P	U	
7440-50-8	Copper	8.7	U		P	U	
7439-89-6	Iron	260			P		
7439-92-1	Lead	5.4			P		
7439-95-4	Magnesium	6480			P		
7439-96-5	Manganese	17.9			P	UJ	B
7439-97-6	Mercury	0.06	U		AV	U	
7439-98-7	Molybdenum	8.8	U		P	U	
7440-02-0	Nickel	7.3	U		P	U	
7440-09-7	Potassium	2090	B	N	P	J	Q
7782-49-2	Selenium	3.7	U	N*	P	U	
7440-22-4	Silver	6.1	U	N	P	U	
7440-23-5	Sodium	25600			P		
7440-28-0	Thallium	2.4	U		P	UJ	B
7440-62-2	Vanadium	4.5	U		P	U	
7440-66-6	Zinc	35.4		N	P	J	Q

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ223

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-05

Level (low/med): LOW Date Received: 04/13/01

% Solids: 90.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.12			AV		

AMEC VALIDATED

REVIEW

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ225

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-07

Level (low/med): LOW Date Received: 04/13/01

% Solids: 91.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.02	B		AV	J	B

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: RJ226

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-08

Level (low/med): LOW Date Received: 04/13/01

% Solids: 87.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Lab Qual	Qual Code
7439-97-6	Mercury	0.30			AV		

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ227

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-09

Level (low/med): LOW Date Received: 04/13/01

% Solids: 89.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.04	B		AV	J	B

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ229

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-11

Level (low/med): LOW Date Received: 04/13/01

% Solids: 84.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	12600			P	J	L
7440-36-0	Antimony	0.88	B	N*	P	J	E, Q
7440-38-2	Arsenic	6.3		N	P	J	Q
7440-39-3	Barium	77.3			P		
7440-41-7	Beryllium	0.84			P		
7440-42-8	Boron	11.5	B		P		
7440-43-9	Cadmium	0.55			P		
7440-70-2	Calcium	5680			P		
7440-47-3	Chromium	21.2		N	P	J	Q
7440-48-4	Cobalt	8.1			P		
7440-50-8	Copper	62.4			P		
7439-89-6	Iron	24300			P		
7439-92-1	Lead	16.8		N	P	J	Q
7439-95-4	Magnesium	4620			P		
7439-96-5	Manganese	345			P		
7439-97-6	Mercury	0.02	U		AV	UJ	B
7439-98-7	Molybdenum	0.72	U		P	U	
7440-02-0	Nickel	14.9			P		
7440-09-7	Potassium	2590			P		
7782-49-2	Selenium	1.0		N	P	J	Q
7440-22-4	Silver	0.50	U	N	P	U	
7440-23-5	Sodium	138	B		P		
7440-28-0	Thallium	3.6		N*	P	J	E, Q
7440-62-2	Vanadium	38.1			P		
7440-66-6	Zinc	96.5		E	P	J	A

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ230

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-12

Level (low/med): LOW Date Received: 04/13/01

% Solids: 90.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Raw Qual	Qual Code
7429-90-5	Aluminum	6120			P	J	L
7440-36-0	Antimony	0.47	B	N*	P	J	E, Q, F
7440-38-2	Arsenic	2.7		N	P	J	Q
7440-39-3	Barium	61.0			P		
7440-41-7	Beryllium	0.30	B		P		
7440-42-8	Boron	6.0	B		P		
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	6690			P		
7440-47-3	Chromium	8.9		N	P	J	Q
7440-48-4	Cobalt	4.8			P		
7440-50-8	Copper	5.7			P		
7439-89-6	Iron	13100			P		
7439-92-1	Lead	2.9		N	P	J	Q
7439-95-4	Magnesium	3520			P		
7439-96-5	Manganese	197			P		
7439-97-6	Mercury	0.02	U		AV	UJ	B
7439-98-7	Molybdenum	0.69	U		P	U	
7440-02-0	Nickel	5.6			P		
7440-09-7	Potassium	2370			P		
7782-49-2	Selenium	0.80		N	P	J	Q
7440-22-4	Silver	0.48	U	N	P	U	
7440-23-5	Sodium	117	B		P		
7440-28-0	Thallium	0.23	B	N*	P	J	E, Q
7440-62-2	Vanadium	19.3			P		
7440-66-6	Zinc	43.2		E	P	J	A

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ231

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-13

Level (low/med): LOW Date Received: 04/13/01

% Solids: 87.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.30			AV		

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ232

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-14

Level (low/med): LOW Date Received: 04/13/01

% Solids: 84.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.56			AV		

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ233

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-15

Level (low/med): LOW Date Received: 04/13/01

% Solids: 90.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rw Qual	Qual Code
7439-97-6	Mercury	0.49			AV		

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ235

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-17

Level (low/med): LOW Date Received: 04/13/01

% Solids: 92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	11.5			AV		

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ236

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010329 SAS No.: SDG NO.: RJ210

Matrix (soil/water): SOIL Lab Sample ID: 010329-18

Level (low/med): LOW Date Received: 04/13/01

% Solids: 87.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.05	B		AV		

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026
303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Metals by Method ILM04
QC Level:	V[1]
SDG:	RJ186
Matrix:	Soil
No. of Samples:	16
Date Reviewed:	September 10, 2001
Reviewer:	P. Meeks
Reference:	*USEPA SW-846 Methods 3050B, 6010B, and 7471A (11/90)*
Samples Reviewed:	RJ133, RJ141, RJ142, RJ186, RJ188, RJ190, RJ192, RJ194, RJ195, RJ196, RJ197, RJ199, RJ200, RJ201, RJ202, RJ203

Data Validation Findings

	Findings	Qualifications
1. Sample Management	One cooler was received within the QC limits and one was received above the QC limits of 4°±2° C. COCs match samples and account for analyses. No custody seals were present on the coolers. Analyses performed within holding times.	Due to the nonvolatile nature of the analytes, no qualifications were required for the exceeded temperature.
3. Method Blanks	Tl = -0.484 mg/kg Hg = 0.073 mg/kg	Nondetected thallium and detected mercury in RJ202 and RJ203 were qualified as estimated, "UJ."
5. LCS/BS	A solid LCS was analyzed with the samples. The recoveries for all analytes were within the laboratory defined QC limits.	No qualifications were required.
6. Duplicates	Not performed.	No qualifications were required.
7. MS/MSDs	Not performed.	No qualifications were required.
9. ICP Serial Dilution	Not performed.	No qualifications required.

	Findings	Qualifications
10. Other	None	No qualifications were required.
11. Field QC Samples ER: RJ552 (SDG RJ028) FB: RJ543 (SDG RJ514) Field duplicates: none	Barium, iron, magnesium, and zinc were detected in the equipment rinsate, but not at sufficient concentration to qualify site samples. Cobalt, lead, nickel, and vanadium were detected in the field blank, but not at sufficient concentration to qualify site samples. Antimony was detected in the field blank at 2.0 µg/L.	Antimony detected in RJ202 was qualified as estimated, "J."
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ133

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-17

Level (low/med): LOW Date Received: 04/07/01

% Solids: 85.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	3.6			AV		

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ141

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-18

Level (low/med): LOW Date Received: 04/07/01

% Solids: 93.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	1.6			AV		

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ142

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-19

Level (low/med): LOW Date Received: 04/07/01

% Solids: 85.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Re Qual	Qual Code
7439-97-6	Mercury	0.03	B		AV		

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ186

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-01

Level (low/med): LOW Date Received: 04/06/01

% Solids: 94.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7440-22-4	Silver	100			P		

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ188

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-03

Level (low/med): LOW Date Received: 04/06/01

% Solids: 87.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7440-22-4	Silver	0.46	B		P		

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ190

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-05

Level (low/med): LOW Date Received: 04/06/01

% Solids: 88.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7440-22-4	Silver	0.48	U		P	U	

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ192

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-07

Level (low/med): LOW Date Received: 04/06/01

% Solids: 88.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Lab Qual	Qual Code
7440-22-4	Silver	8.6			P		

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ194

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-09

Level (low/med): LOW Date Received: 04/06/01

% Solids: 89.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7440-22-4	Silver	6.6			P		

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ195

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-10

Level (low/med): LOW Date Received: 04/06/01

% Solids: 86.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Rej Code
7440-22-4	Silver	0.59	B		P		

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ196

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-11

Level (low/med): LOW Date Received: 04/06/01

% Solids: 88.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Per Qual	Qual Code
7440-22-4	Silver	2.6			P		

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ197

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-12

Level (low/med): LOW Date Received: 04/06/01

% Solids: 89.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7440-22-4	Silver	27.2			P		

AMEC VALIDATED

VELY

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ199

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-13

Level (low/med): LOW Date Received: 04/06/01

% Solids: 92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Lab Qual	Qual Code
7440-22-4	Silver	0.34	U		P	U	

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ200

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-14

Level (low/med): LOW Date Received: 04/06/01

% Solids: 89.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7440-22-4	Silver	1.0			P		

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ201

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-15

Level (low/med): LOW Date Received: 04/06/01

% Solids: 88.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Raw Qual	Qual Code
7440-22-4	Silver	38.7			P		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ202

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-16

Level (low/med): LOW Date Received: 04/07/01

% Solids: 87.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	6450			P		
7440-36-0	Antimony	0.45	B		P	J	BF
7440-38-2	Arsenic	2.7			P		
7440-39-3	Barium	55.1			P		
7440-41-7	Beryllium	0.38			P		
7440-42-8	Boron	2.9	U		P	U	
7440-43-9	Cadmium	0.29	B		P		
7440-70-2	Calcium	2020			P		
7440-47-3	Chromium	10.1			P		
7440-48-4	Cobalt	4.4			P		
7440-50-8	Copper	6.2			P		
7439-89-6	Iron	12800			P		
7439-92-1	Lead	5.0			P		
7439-95-4	Magnesium	3180			P		
7439-96-5	Manganese	292			P		
7439-97-6	Mercury	0.04	B		AV	UJ	B
7439-98-7	Molybdenum	0.55	U		P	U	
7440-02-0	Nickel	5.7			P		
7440-09-7	Potassium	1970			P		
7782-49-2	Selenium	0.77			P		
7440-22-4	Silver	0.38	U		P	U	
7440-23-5	Sodium	103	B		P		
7440-28-0	Thallium	0.15	U		P	UJ	B
7440-62-2	Vanadium	21.6			P		
7440-66-6	Zinc	84.5			P		

PM 10/26/01

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ203

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010297 SAS No.: SDG NO.: RJ186

Matrix (soil/water): SOIL Lab Sample ID: 010297-20

Level (low/med): LOW Date Received: 04/07/01

% Solids: 87.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	12100			P		
7440-36-0	Antimony	0.83	B		P		
7440-38-2	Arsenic	2.9			P		
7440-39-3	Barium	54.0			P		
7440-41-7	Beryllium	0.57			P		
7440-42-8	Boron	3.7	B		P		
7440-43-9	Cadmium	0.15	B		P		
7440-70-2	Calcium	799			P		
7440-47-3	Chromium	12.8			P		
7440-48-4	Cobalt	4.2			P		
7440-50-8	Copper	4.1			P		
7439-89-6	Iron	16800			P		
7439-92-1	Lead	5.0			P		
7439-95-4	Magnesium	3380			P		
7439-96-5	Manganese	125			P		
7439-97-6	Mercury	0.04	B		AV	UJ	B
7439-98-7	Molybdenum	0.66	U		P	U	
7440-02-0	Nickel	5.8			P		
7440-09-7	Potassium	1670			P		
7782-49-2	Selenium	1.0			P		
7440-22-4	Silver	0.46	U		P	U	
7440-23-5	Sodium	221	B		P		
7440-28-0	Thallium	0.18	U		P	UJ	B
7440-62-2	Vanadium	28.6			P		
7440-66-6	Zinc	42.7			P		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026
303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Metals by Method ILM04
QC Level:	V[1]
SDG:	RJ149
Matrix:	Soil
No. of Samples:	17
Date Reviewed:	September 13, 2001
Reviewer:	P. Meeks
Reference:	*USEPA SW-846 Methods 3050B, 6010B, and 7471A (11/90)*
Samples Reviewed:	RJ149, RJ150, RJ151, RJ152, RJ153, RJ155, RJ156, RJ158, RJ161, RJ162, RJ163, RJ164, RJ165, RJ166, RJ167, RJ168, RJ148

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The coolers were received at temperatures within the QC limits of 4°±2° C. Samples RJ161 – RJ166 were originally listed on the COC for lead only. Per a memo from J. Toledo, dated 4/11/01, the originally requested COC method was changed to full metals by 6010B/7000. The metals analyses for samples RJ164 and RJ166 were then subsequently placed on hold per Jose Toledo, 4/20/01. Mercury only was reported for these two samples. Custody seals were present on the coolers. Analyses performed within holding times.	None required.
3. Method Blanks ICP method blank 0409PBS	Tl = 0.265 mg/kg	Thallium detected in samples RJ152, RJ153, RJ155, RJ161, RJ165, RJ167, and RJ168 was qualified "UJ."
5. LCS/BS	Solid LCS samples were analyzed with the samples. The recoveries for all analytes were within the laboratory defined QC limits, except for chromium in the soil LCS sample which was recovered below the QC limit.	Chromium detected in the samples was qualified "J."

	Findings	Qualifications
6. Duplicates RJ158MS/MSD	The % RPDs between the spiked aliquots were <20% for all reported analytes.	None
7. MS/MSDs Performed for RJ158	As: MS at 15.3% / MSD at 28.7% Cr: MS at 51.4% / MSD at 54.0% Cu: MS at 51.1% / MSD at 36.6% Ni: MS at 72.6% / MSD at 71.2% Se: MS at 66.2% / MSD at 52.4% Na: MSD at 71.4%	Arsenic, chromium, copper, sodium, and nickel detected in the samples were qualified "J." Selenium detected in the samples was qualified "J," and nondetected selenium in sample RJ163 was qualified "UJ."
9. ICP Serial Dilution Performed for RJ158	The %Ds were within the ±10% control limits, except for : Al 63.7%, Ba 69.8%, Ca 75.3%, Cu 63.8%, Fe 79.0%, Pb 94.1%, Mg 70.0%, Mn 75.4%, K 60.8%, V 67.6%, and Zn 70.4%	Al, Ba, Ca, Cu, Fe, Pb, Mg, Mn, K, V, and Zn detected in the samples was qualified "J."
10. Other	Lead was reported in the ICSA1 solution at a level above the CRDL.	No qualifications were required.
11. Field QC Samples ER: RJ552 (SDG RJ028) FB: RJ543 (SDG RJ514) Field duplicates: none	Barium, iron, magnesium, and zinc were detected in the equipment rinsate, but not at sufficient concentration to qualify site samples. Cobalt, lead, nickel, and vanadium were detected in the field blank, but not at sufficient concentration to qualify site samples. Antimony was detected in the field blank at 2.0 µg/L.	Antimony detected in samples RJ152, RJ153, RJ155, RJ156, RJ161, RJ162, and RJ165 was qualified "J."
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ148

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-21

Level (low/med): LOW Date Received: 03/29/01

% Solids: 88.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	16.1			AV		

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ149

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-01

Level (low/med): LOW Date Received: 03/29/01

% Solids: 82.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	13.3			AV		

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ150

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-02

Level (low/med): LOW Date Received: 03/29/01

% Solids: 87.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	1.1			AV		

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ151

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-03

Level (low/med): LOW Date Received: 03/29/01

% Solids: 83.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	1.5			AV		

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ152

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-04

Level (low/med): LOW Date Received: 03/29/01

% Solids: 83.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Revised Qual	Qual Code
7429-90-5	Aluminum	7220		E	P	J	A
7440-36-0	Antimony	0.47	B		P	J	F
7440-38-2	Arsenic	2.5		N	P	J	Q
7440-39-3	Barium	39.6		E	P	J	A
7440-41-7	Beryllium	0.43			P		
7440-42-8	Boron	3.7	U		P	U	
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	1060		E	P	J	A
7440-47-3	Chromium	8.2		N	P	J	Q, L
7440-48-4	Cobalt	3.4	B		P		
7440-50-8	Copper	7.2		NE	P	J	Q, A
7439-89-6	Iron	11300		E	P	J	A
7439-92-1	Lead	3.4		E	P	J	A
7439-95-4	Magnesium	2670		E	P	J	A
7439-96-5	Manganese	114		E	P	J	A
7439-97-6	Mercury	0.02	U		AV	U	
7439-98-7	Molybdenum	0.72	U		P	U	
7440-02-0	Nickel	3.7		N	P	J	Q
7440-09-7	Potassium	817		E	P	J	A
7782-49-2	Selenium	0.31	B	N	P	J	Q
7440-22-4	Silver	0.50	U		P	U	
7440-23-5	Sodium	179	B		P	J	Q
7440-28-0	Thallium	1.1			P	UJ	B
7440-62-2	Vanadium	20.1		E	P	J	A
7440-66-6	Zinc	161		E	P	J	A

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ153

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-05

Level (low/med): LOW Date Received: 03/29/01

% Solids: 81.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	6850		E	P	J	A
7440-36-0	Antimony	0.49	B		P	J	F
7440-38-2	Arsenic	3.9		N	P	J	Q
7440-39-3	Barium	44.4		E	P	J	A
7440-41-7	Beryllium	0.37	B		P		
7440-42-8	Boron	4.4	U		P	U	
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	1330		E	P	J	A
7440-47-3	Chromium	13.9		N	P	J	Q, L
7440-48-4	Cobalt	5.5			P		
7440-50-8	Copper	5.5		NE	P	J	Q, A
7439-89-6	Iron	13700		E	P	J	A
7439-92-1	Lead	3.6		E	P	J	A
7439-95-4	Magnesium	4000		E	P	J	A
7439-96-5	Manganese	228		E	P	J	A
7439-97-6	Mercury	0.02	U		AV	U	
7439-98-7	Molybdenum	0.86	U		P	U	
7440-02-0	Nickel	11.4		N	P	J	Q
7440-09-7	Potassium	1320		E	P	J	A
7782-49-2	Selenium	0.69		N	P	J	Q
7440-22-4	Silver	0.60	U		P	U	
7440-23-5	Sodium	79.6	B		P	J	Q
7440-28-0	Thallium	1.6			P	UJ	B
7440-62-2	Vanadium	23.2		E	P	J	A
7440-66-6	Zinc	34.4		E	P	J	A

AMEC VALIDATED
LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ155

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-07

Level (low/med): LOW Date Received: 03/29/01

% Solids: 86.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	11900		E	P	J	A
7440-36-0	Antimony	0.59	B		P	J	F
7440-38-2	Arsenic	5.5		N	P	J	Q
7440-39-3	Barium	67.8		E	P	J	A
7440-41-7	Beryllium	0.64			P		
7440-42-8	Boron	4.6	B		P		
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	1830		E	P	J	A
7440-47-3	Chromium	14.7		N	P	J	Q, L
7440-48-4	Cobalt	6.1			P		
7440-50-8	Copper	6.7		NE	P	J	Q, A
7439-89-6	Iron	16500		E	P	J	A
7439-92-1	Lead	7.3		E	P	J	A
7439-95-4	Magnesium	3360		E	P	J	A
7439-96-5	Manganese	235		E	P	J	A
7439-97-6	Mercury	0.02	U		AV	U	
7439-98-7	Molybdenum	0.75	U		P	U	
7440-02-0	Nickel	8.4		N	P	J	Q
7440-09-7	Potassium	3080		E	P	J	A
7782-49-2	Selenium	0.74		N	P	J	Q
7440-22-4	Silver	0.52	U		P	U	
7440-23-5	Sodium	1050			P	J	Q
7440-28-0	Thallium	0.68	B		P	UJ	B
7440-62-2	Vanadium	25.9		E	P	J	A
7440-66-6	Zinc	46.9		E	P	J	A

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ156

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-08

Level (low/med): LOW Date Received: 03/29/01

% Solids: 87.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	10700		E	P	J	A
7440-36-0	Antimony	0.77	B		P	J	F
7440-38-2	Arsenic	3.2		N	P	J	Q
7440-39-3	Barium	51.4		E	P	J	A
7440-41-7	Beryllium	0.45			P		
7440-42-8	Boron	4.3	B		P		
7440-43-9	Cadmium	0.03	U		P	UL	
7440-70-2	Calcium	1370		E	P	J	A
7440-47-3	Chromium	18.3		N	P	J	Q, L
7440-48-4	Cobalt	7.3			P		
7440-50-8	Copper	8.4		NE	P	J	Q, A
7439-89-6	Iron	18000		E	P	J	A
7439-92-1	Lead	3.3		E	P	J	A
7439-95-4	Magnesium	4740		E	P	J	A
7439-96-5	Manganese	132		E	P	J	A
7439-97-6	Mercury	0.02	U		AV	UL	
7439-98-7	Molybdenum	0.72	U		P	UL	
7440-02-0	Nickel	16.3		N	P	J	Q
7440-09-7	Potassium	1610		E	P	J	A
7782-49-2	Selenium	0.81		N	P	J	Q
7440-22-4	Silver	0.50	U		P	UL	
7440-23-5	Sodium	83.2	B		P	J	Q
7440-28-0	Thallium	1.9			P		
7440-62-2	Vanadium	31.9		E	P	J	A
7440-66-6	Zinc	43.2		E	P	J	A

AMEC VALIDATED
LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ158

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-10

Level (low/med): LOW Date Received: 03/29/01

% Solids: 67.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	7310		E	P	J	A
7440-36-0	Antimony	1.4	B		P		
7440-38-2	Arsenic	9.1		N	P	J	Q
7440-39-3	Barium	82.5		E	P	J	A
7440-41-7	Beryllium	0.45	B		P		
7440-42-8	Boron	11.1	B		P		
7440-43-9	Cadmium	2.8			P		
7440-70-2	Calcium	5000		E	P	J	A
7440-47-3	Chromium	23.0		N	P	J	Q, L
7440-48-4	Cobalt	9.7			P		
7440-50-8	Copper	60.9		NE	P	J	Q, A
7439-89-6	Iron	32200		E	P	J	A
7439-92-1	Lead	59.3		E	P	J	A
7439-95-4	Magnesium	2890		E	P	J	A
7439-96-5	Manganese	332		E	P	J	A
7439-97-6	Mercury	0.03	U		AV	U	
7439-98-7	Molybdenum	0.99	U		P	U	
7440-02-0	Nickel	22.5		N	P	J	Q
7440-09-7	Potassium	2140		E	P	J	A
7782-49-2	Selenium	2.1		N	P	J	Q
7440-22-4	Silver	0.69	U		P	U	
7440-23-5	Sodium	154	B		P	J	Q
7440-28-0	Thallium	2.7			P		
7440-62-2	Vanadium	26.2		E	P	J	A
7440-66-6	Zinc	254		E	P	J	A

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ161

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-13

Level (low/med): LOW Date Received: 03/29/01

% Solids: 85.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	7130		E	P	J	A
7440-36-0	Antimony	0.52	B		P	UJ	F
7440-38-2	Arsenic	7.0		N	P	J	Q
7440-39-3	Barium	63.9		E	P	J	A
7440-41-7	Beryllium	0.50			P		
7440-42-8	Boron	3.4	B		P		
7440-43-9	Cadmium	0.02	U		P	U	
7440-70-2	Calcium	1300		E	P	J	A
7440-47-3	Chromium	9.8		N	P	J	Q, L
7440-48-4	Cobalt	4.2			P		
7440-50-8	Copper	4.7		NE	P	J	Q, A
7439-89-6	Iron	11600		E	P	J	A
7439-92-1	Lead	4.7		E	P	J	A
7439-95-4	Magnesium	2380		E	P	J	A
7439-96-5	Manganese	229		E	P	J	A
7439-97-6	Mercury	0.02	U		AV	U	
7439-98-7	Molybdenum	0.56	U		P	U	
7440-02-0	Nickel	6.0		N	P	J	Q
7440-09-7	Potassium	2070		E	P	J	A
7782-49-2	Selenium	0.47		N	P	J	Q
7440-22-4	Silver	605			P		
7440-23-5	Sodium	58.0	B		P	J	Q
7440-28-0	Thallium	1.3			P	UJ	B
7440-62-2	Vanadium	19.2		E	P	J	A
7440-66-6	Zinc	37.1		E	P	J	A

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ162

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-14

Level (low/med): LOW Date Received: 03/29/01

% Solids: 91.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	7300		E	P	J	A
7440-36-0	Antimony	0.58	B		P	J	F
7440-38-2	Arsenic	6.2		N	P	J	Q
7440-39-3	Barium	62.5		E	P	J	A
7440-41-7	Beryllium	0.48			P		
7440-42-8	Boron	3.9	U		P	U	
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	1220		E	P	J	A
7440-47-3	Chromium	11.4		N	P	J	Q, L
7440-48-4	Cobalt	4.7			P		
7440-50-8	Copper	6.0		NE	P	J	Q, A
7439-89-6	Iron	12700		E	P	J	A
7439-92-1	Lead	8.3		E	P	J	A
7439-95-4	Magnesium	2600		E	P	J	A
7439-96-5	Manganese	203		E	P	J	A
7439-97-6	Mercury	0.23			AV		
7439-98-7	Molybdenum	0.75	U		P	U	
7440-02-0	Nickel	7.2		N	P	J	Q
7440-09-7	Potassium	2470		E	P	J	A
7782-49-2	Selenium	0.70		N	P	J	Q
7440-22-4	Silver	0.52	U		P	U	
7440-23-5	Sodium	59.9	B		P	J	Q
7440-28-0	Thallium	2.0			P		
7440-62-2	Vanadium	20.7		E	P	J	A
7440-66-6	Zinc	43.9		E	P	J	A

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ163

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-15

Level (low/med): LOW Date Received: 03/29/01

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	6180		E	P	J	A
7440-36-0	Antimony	4.3	B		P		
7440-38-2	Arsenic	8.9		N	P	J	Q
7440-39-3	Barium	6880		E	P	J	A
7440-41-7	Beryllium	0.36	B		P		
7440-42-8	Boron	70.5			P		
7440-43-9	Cadmium	4.1			P		
7440-70-2	Calcium	21400		E	P	J	A
7440-47-3	Chromium	19.3		N	P	J	Q, L
7440-48-4	Cobalt	11.8			P		
7440-50-8	Copper	233		NE	P	J	Q, A
7439-89-6	Iron	5790		E	P	J	A
7439-92-1	Lead	719		E	P	J	A
7439-95-4	Magnesium	2050		E	P	J	A
7439-96-5	Manganese	150		E	P	J	A
7439-97-6	Mercury	0.02	U		AV	UL	
7439-98-7	Molybdenum	1.1	B		P		
7440-02-0	Nickel	54.2		N	P	J	Q
7440-09-7	Potassium	1010		E	P	J	A
7782-49-2	Selenium	0.41	U	N	P	UJ	Q
7440-22-4	Silver	0.83	B		P		
7440-23-5	Sodium	547			P	J	Q
7440-28-0	Thallium	0.53	U		P	UL	
7440-62-2	Vanadium	28.4		E	P	J	A
7440-66-6	Zinc	5970		E	P	J	A

AMEC VALIDATED

LEVEL V

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-I-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ164

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-16

Level (low/med): LOW Date Received: 03/29/01

% Solids: 87.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev. Qual	Qual Code
7439-97-6	Mercury	0.02	U		AV	R	

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ165

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-17

Level (low/med): LOW Date Received: 03/29/01

% Solids: 89.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev. Qual	Qual Code
7429-90-5	Aluminum	6160		E	P	J	A
7440-36-0	Antimony	0.39	B		P	J	F
7440-38-2	Arsenic	6.4		N	P	J	Q
7440-39-3	Barium	101		E	P	J	A
7440-41-7	Beryllium	0.38	B		P		
7440-42-8	Boron	4.2	U		P	U	
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	1640		E	P	J	A
7440-47-3	Chromium	8.4		N	P	J	Q, L
7440-48-4	Cobalt	5.7			P		
7440-50-8	Copper	5.9		NE	P	J	Q, A
7439-89-6	Iron	12100		E	P	J	A
7439-92-1	Lead	3.8		E	P	J	A
7439-95-4	Magnesium	2720		E	P	J	A
7439-96-5	Manganese	1020		E	P	J	A
7439-97-6	Mercury	0.02	U		AV	U	
7439-98-7	Molybdenum	1.7	B		P		
7440-02-0	Nickel	6.5		N	P	J	Q
7440-09-7	Potassium	2290		E	P	J	A
7782-49-2	Selenium	0.96		N	P	J	Q
7440-22-4	Silver	0.57	U		P	U	
7440-23-5	Sodium	60.8	B		P	J	Q
7440-28-0	Thallium	0.90	B		P	UJ	B
7440-62-2	Vanadium	19.1		E	P	J	A
7440-66-6	Zinc	37.4		E	P	J	A

LEVEL V

AMEC VALIDATED

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ166

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-18

Level (low/med): LOW Date Received: 03/29/01

% Solids: 87.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.02	U		AV	U	

AMEC VALIDATED

LEVEL V

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ167

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-19

Level (low/med): LOW Date Received: 03/29/01

% Solids: 86.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	10300		E	P	J	A
7440-36-0	Antimony	0.88	B		P		
7440-38-2	Arsenic	5.4		N	P	J	Q
7440-39-3	Barium	87.9		E	P	J	A
7440-41-7	Beryllium	0.55			P		
7440-42-8	Boron	3.7	B		P		
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	2730		E	P	J	A
7440-47-3	Chromium	22.7		N	P	J	Q, L
7440-48-4	Cobalt	8.1			P		
7440-50-8	Copper	15.1		NE	P	J	Q, A
7439-89-6	Iron	17500		E	P	J	A
7439-92-1	Lead	17.3		E	P	J	A
7439-95-4	Magnesium	5190		E	P	J	A
7439-96-5	Manganese	287		E	P	J	A
7439-97-6	Mercury	0.02	U		AV	U	
7439-98-7	Molybdenum	0.64	U		P	U	
7440-02-0	Nickel	30.7		N	P	J	Q
7440-09-7	Potassium	3870		E	P	J	A
7782-49-2	Selenium	0.76		N	P	J	Q
7440-22-4	Silver	0.44	U		P	U	
7440-23-5	Sodium	67.7	B		P	J	Q
7440-28-0	Thallium	0.46	B		P	UJ	B
7440-62-2	Vanadium	31.7		E	P	J	A
7440-66-6	Zinc	63.8		E	P	J	A

LEVEL V **AMEC VALIDATED**

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ168

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 010272 SAS No.: SDG NO.: RJ149

Matrix (soil/water): SOIL Lab Sample ID: 010272-20

Level (low/med): LOW Date Received: 03/29/01

% Solids: 83.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	9690		E	P	J	A
7440-36-0	Antimony	0.71	B		P		
7440-38-2	Arsenic	4.9		N	P	J	Q
7440-39-3	Barium	78.4		E	P	J	A
7440-41-7	Beryllium	0.55			P		
7440-42-8	Boron	3.6	B		P		
7440-43-9	Cadmium	0.02	U		P	U	
7440-70-2	Calcium	2200		E	P	J	A
7440-47-3	Chromium	16.7		N	P	J	Q, L
7440-48-4	Cobalt	7.0			P		
7440-50-8	Copper	11.6		NE	P	J	Q, A
7439-89-6	Iron	15900		E	P	J	A
7439-92-1	Lead	11.7		E	P	J	A
7439-95-4	Magnesium	4010		E	P	J	A
7439-96-5	Manganese	254		E	P	J	A
7439-97-6	Mercury	0.02	U		AV	U	
7439-98-7	Molybdenum	0.61	U		P	U	
7440-02-0	Nickel	14.0		N	P	J	Q
7440-09-7	Potassium	3520		E	P	J	A
7782-49-2	Selenium	0.73		N	P	J	Q
7440-22-4	Silver	0.42	U		P	U	
7440-23-5	Sodium	83.7	B		P	J	Q
7440-28-0	Thallium	0.45	B		P	UJ	B
7440-62-2	Vanadium	28.3		E	P	J	A
7440-66-6	Zinc	51.6		E	P	J	A

AMEC VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

DATA VALIDATION REPORT

ROCKETDYNE
SSFL RFI Program

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: 80254

Prepared by

Ogden Denver Operations
550 South Wadsworth Boulevard, Suite 500
Lakewood, Colorado 80226

1. INTRODUCTION

Project:	Rocketdyne, SSFL RFI Program
Contract Task Order #:	313150002
SDG#:	80254
Project Manager:	D. Hambrick
Matrix:	Soil
Analysis:	Metals
QC Level:	IV
No. of Samples:	10
No. of Reanalyses/Dilutions:	0
Reviewer:	P. Meeks
Date of Review:	January 25, 2001

The samples listed in Table 1 were validated based on the guidelines outlined in the *Ogden Data Validation Procedure for Levels C and D metals and cyanide* (DVP-5, Rev. 2), *USEPA SW-846 Methods 6010A, 7000A* (11/90)*, and 7470A* (09/94), and the *National Functional Guidelines for Inorganic Data Review* (2/94). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on the Sample Result Forms with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the R data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
R1BS17S01	RZ009	434340	soil	6010/7000
SRBS10S01	RZ516	434339	soil	6010/7000
CDTS01S01	RZ523	434335	soil	6010/7000
CDBS25S01	RZ528	434336	soil	6010/7000
CDBS35S01	RZ539A	434334	soil	6010/7000
CTTS02S01	RZ553	434333	soil	6010/7000
BATS05S01	RZ561	434331	soil	6010/7000
BATS07S01	RZ563	434332	soil	6010/7000
CABS28S01	RZ570	434337	soil	6010/7000
BATS15S02	RZ587	434338	soil	6010/7000

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples arrived at the laboratory within the established temperature limit of 4°C ∀ 2°C. No sample preservation, handling or transport problems were noted for the metals samples. No sample qualifications were required.

2.1.2 Chain of Custody

The COCs in the package were legible, were signed by the laboratory personnel and accounted for the analyses presented in the data package. A sample receiving checklist was included for all the samples. Custody seals were present and intact on the coolers. There was no documentation as to whether custody seals were present on the sample containers. No qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analysis recorded in the raw data documented that all sample analyses were performed within the specified holding time of 6 months. No qualifications were assigned to sample results.

2.2 CALIBRATION

All ICV and CCV results provided on the Form IIs showed acceptable %Rs, 90-110% for silver by ICP. No qualifications were required based on the calibration information.

2.3 BLANKS

Silver was not reported in the method blank or the CCBs associated with this SDG. No qualifications were required.

2.4 ICP INTERFERENCE CHECK SAMPLE (ICP ICS)

The results for the ICSAB analyses reported on the Form IVs were within established control limits. No sample qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

A solid sample was analyzed with this SDG. The silver LCS result reported on the Form VII was within the laboratory's control limits. No qualifications were required.

2.6 LABORATORY DUPLICATES

No laboratory duplicate analysis was performed in association with the site samples; therefore, no assessment was made with respect to this criteria.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No matrix spike analysis was performed in association with the site samples; therefore, no assessment was made with respect to this criteria.

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analysis of these samples; therefore, furnace atomic absorption QC is not applicable.

2.9 ICP SERIAL DILUTION

The ICP serial dilution analysis was performed for sample RZ561 in association with the site samples. The silver result reported on the Form IX was within QC control limit of 10%. No qualifications were required.

2.10 SAMPLE RESULT VERIFICATION

An EPA Level IV review was performed for the samples in this data package. The sample results were verified against the instrument output and were found to be acceptable for the ICAP analyses.

2.11 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

2.11.1 Field Blanks and Equipment Rinsates

There were no field QC samples associated with the samples in this SDG. No qualifications were required.

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this package. Field duplicates are required at a rate of 10% per matrix for site samples; consequently, field duplicates are not required in every package.

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RZ009

Lab Name: STL_BURLINGTON Contract: 80254

Lab Code: STLVT Case No.: 20000 SAS No.: SDG No.: 80254

Matrix (soil/water): SOIL Lab Sample ID: 434340

Level (low/med): LOW Date Received: 10/18/00

% Solids: 88.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum				NR		
7440-36-0	Antimony				NR		
7440-38-2	Arsenic				NR		
7440-39-3	Barium				NR		
7440-41-7	Beryllium				NR		
7440-43-9	Cadmium				NR		
7440-70-2	Calcium				NR		
7440-47-3	Chromium				NR		
7440-48-4	Cobalt				NR		
7440-50-8	Copper				NR		
7439-89-6	Iron				NR		
7439-92-1	Lead				NR		
7439-95-4	Magnesium				NR		
7439-96-5	Manganese				NR		
7439-97-6	Mercury				NR		
7440-02-0	Nickel				NR		
7440-09-7	Potassium				NR		
7782-49-2	Selenium				NR		
7440-22-4	Silver	0.20	U		P	U	
7440-23-5	Sodium				NR		
7440-28-0	Thallium				NR		
7440-62-2	Vanadium				NR		
7440-66-6	Zinc				NR		
	Cyanide				NR		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

OGDEN VALIDATED LEVEL IV

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
RZ516

Lab Name: STL_BURLINGTON Contract: 80254

Lab Code: STLVT Case No.: 20000 SAS No.: SDG No.: 80254

Matrix (soil/water): SOIL Lab Sample ID: 434339

Level (low/med): LOW Date Received: 10/18/00

% Solids: 97.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	RW Qual	Qual Code
7429-90-5	Aluminum				NR		
7440-36-0	Antimony				NR		
7440-38-2	Arsenic				NR		
7440-39-3	Barium				NR		
7440-41-7	Beryllium				NR		
7440-43-9	Cadmium				NR		
7440-70-2	Calcium				NR		
7440-47-3	Chromium				NR		
7440-48-4	Cobalt				NR		
7440-50-8	Copper				NR		
7439-89-6	Iron				NR		
7439-92-1	Lead				NR		
7439-95-4	Magnesium				NR		
7439-96-5	Manganese				NR		
7439-97-6	Mercury				NR		
7440-02-0	Nickel				NR		
7440-09-7	Potassium				NR		
7782-49-2	Selenium				NR		
7440-22-4	Silver	0.19	U		P	U	
7440-23-5	Sodium				NR		
7440-28-0	Thallium				NR		
7440-62-2	Vanadium				NR		
7440-66-6	Zinc				NR		
	Cyanide				NR		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: YES

Comments:
ROCKS_PRESENT_IN_SAMPLE.

CLP - VALIDATED LEVEL IV

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RZ523

Lab Name: STL_BURLINGTON_____ Contract: 80254_____

Lab Code: STLVT_ Case No.: 20000_ SAS No.: _____ SDG No.: 80254_

Matrix (soil/water): SOIL_ Lab Sample ID: 434335

Level (low/med): LOW__ Date Received: 10/18/00

% Solids: _85.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Raw Qual	Qual Code
7429-90-5	Aluminum				NR		
7440-36-0	Antimony				NR		
7440-38-2	Arsenic				NR		
7440-39-3	Barium				NR		
7440-41-7	Beryllium				NR		
7440-43-9	Cadmium				NR		
7440-70-2	Calcium				NR		
7440-47-3	Chromium				NR		
7440-48-4	Cobalt				NR		
7440-50-8	Copper				NR		
7439-89-6	Iron				NR		
7439-92-1	Lead				NR		
7439-95-4	Magnesium				NR		
7439-96-5	Manganese				NR		
7439-97-6	Mercury				NR		
7440-02-0	Nickel				NR		
7440-09-7	Potassium				NR		
7782-49-2	Selenium				NR		
7440-22-4	Silver	4.8			P		
7440-23-5	Sodium				NR		
7440-28-0	Thallium				NR		
7440-62-2	Vanadium				NR		
7440-66-6	Zinc				NR		
	Cyanide				NR		

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:

ROOTS_AND_ROCKS_PRESENT_IN_SAMPLE._____

CLP-M VALIDATED LEVEL IV

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RZ528

Lab Name: STL_BURLINGTON_____ Contract: 80254_____

Lab Code: STLVT_ Case No.: 20000_ SAS No.: _____ SDG No.: 80254_

Matrix (soil/water): SOIL_ Lab Sample ID: 434336

Level (low/med): LOW__ Date Received: 10/18/00

% Solids: _98.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Reviewer Qual	Qual Code
7429-90-5	Aluminum				NR		
7440-36-0	Antimony				NR		
7440-38-2	Arsenic				NR		
7440-39-3	Barium				NR		
7440-41-7	Beryllium				NR		
7440-43-9	Cadmium				NR		
7440-70-2	Calcium				NR		
7440-47-3	Chromium				NR		
7440-48-4	Cobalt				NR		
7440-50-8	Copper				NR		
7439-89-6	Iron				NR		
7439-92-1	Lead				NR		
7439-95-4	Magnesium				NR		
7439-96-5	Manganese				NR		
7439-97-6	Mercury				NR		
7440-02-0	Nickel				NR		
7440-09-7	Potassium				NR		
7782-49-2	Selenium				NR		
7440-22-4	Silver	0.19	U		P	U	
7440-23-5	Sodium				NR		
7440-28-0	Thallium				NR		
7440-62-2	Vanadium				NR		
7440-66-6	Zinc				NR		
	Cyanide				NR		

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:

ROOTS_AND_ROCKS_PRESENT_IN_SAMPLE._____

UNDER VALIDATED LEVEL IV

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
RZ539A

Lab Name: STL_BURLINGTON_____ Contract: 80254_____

Lab Code: STLVT_ Case No.: 20000_ SAS No.: _____ SDG No.: 80254_

Matrix (soil/water): SOIL_ Lab Sample ID: 434334

Level (low/med): LOW__ Date Received: 10/18/00

% Solids: _94.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum				NR		
7440-36-0	Antimony				NR		
7440-38-2	Arsenic				NR		
7440-39-3	Barium				NR		
7440-41-7	Beryllium				NR		
7440-43-9	Cadmium				NR		
7440-70-2	Calcium				NR		
7440-47-3	Chromium				NR		
7440-48-4	Cobalt				NR		
7440-50-8	Copper				NR		
7439-89-6	Iron				NR		
7439-92-1	Lead				NR		
7439-95-4	Magnesium				NR		
7439-96-5	Manganese				NR		
7439-97-6	Mercury				NR		
7440-02-0	Nickel				NR		
7440-09-7	Potassium				NR		
7782-49-2	Selenium				NR		
7440-22-4	Silver	1.5			P		
7440-23-5	Sodium				NR		
7440-28-0	Thallium				NR		
7440-62-2	Vanadium				NR		
7440-66-6	Zinc				NR		
	Cyanide				NR		

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:
ROOTS_AND_ROCKS_PRESENT_IN_SAMPLE._____

LEVEL IV

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RZ553

Lab Name: STL_BURLINGTON_____ Contract: 80254_____

Lab Code: STLVT_ Case No.: 20000_ SAS No.: _____ SDG No.: 80254_

Matrix (soil/water): SOIL_ Lab Sample ID: 434333

Level (low/med): LOW__ Date Received: 10/18/00

% Solids: _94.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum_				NR		
7440-36-0	Antimony_				NR		
7440-38-2	Arsenic__				NR		
7440-39-3	Barium___				NR		
7440-41-7	Beryllium				NR		
7440-43-9	Cadmium__				NR		
7440-70-2	Calcium__				NR		
7440-47-3	Chromium_				NR		
7440-48-4	Cobalt___				NR		
7440-50-8	Copper___				NR		
7439-89-6	Iron_____				NR		
7439-92-1	Lead_____				NR		
7439-95-4	Magnesium				NR		
7439-96-5	Manganese				NR		
7439-97-6	Mercury__				NR		
7440-02-0	Nickel___				NR		
7440-09-7	Potassium				NR		
7782-49-2	Selenium_				NR		
7440-22-4	Silver___	0.16	U		P_	U	
7440-23-5	Sodium___				NR		
7440-28-0	Thallium_				NR		
7440-62-2	Vanadium_				NR		
7440-66-6	Zinc_____				NR		
_____	Cyanide__				NR		
_____	_____						

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:

ROCKS_PRESENT_IN_SAMPLE._____

USEPA VALIDATED LEVEL IV

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RZ561

Lab Name: STL_BURLINGTON_____ Contract: 80254_____

Lab Code: STLVT_ Case No.: 20000_ SAS No.: _____ SDG No.: 80254_

Matrix (soil/water): SOIL_ Lab Sample ID: 434331

Level (low/med): LOW__ Date Received: 10/18/00

% Solids: _93.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum				NR		
7440-36-0	Antimony				NR		
7440-38-2	Arsenic				NR		
7440-39-3	Barium				NR		
7440-41-7	Beryllium				NR		
7440-43-9	Cadmium				NR		
7440-70-2	Calcium				NR		
7440-47-3	Chromium				NR		
7440-48-4	Cobalt				NR		
7440-50-8	Copper				NR		
7439-89-6	Iron				NR		
7439-92-1	Lead				NR		
7439-95-4	Magnesium				NR		
7439-96-5	Manganese				NR		
7439-97-6	Mercury				NR		
7440-02-0	Nickel				NR		
7440-09-7	Potassium				NR		
7782-49-2	Selenium				NR		
7440-22-4	Silver	0.25	B		P		
7440-23-5	Sodium				NR		
7440-28-0	Thallium				NR		
7440-62-2	Vanadium				NR		
7440-66-6	Zinc				NR		
	Cyanide				NR		

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:

ROCKS_PRESENT_IN_SAMPLE._____

~~GOLDEN VALIDATED~~ LEVEL IV

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RZ563

Lab Name: STL_BURLINGTON_____ Contract: 80254_____

Lab Code: STLVT_ Case No.: 20000_ SAS No.: _____ SDG No.: 80254_

Matrix (soil/water): SOIL_ Lab Sample ID: 434332

Level (low/med): LOW__ Date Received: 10/18/00

% Solids: _96.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Raw Qual	Qual Code
7429-90-5	Aluminum				NR		
7440-36-0	Antimony				NR		
7440-38-2	Arsenic				NR		
7440-39-3	Barium				NR		
7440-41-7	Beryllium				NR		
7440-43-9	Cadmium				NR		
7440-70-2	Calcium				NR		
7440-47-3	Chromium				NR		
7440-48-4	Cobalt				NR		
7440-50-8	Copper				NR		
7439-89-6	Iron				NR		
7439-92-1	Lead				NR		
7439-95-4	Magnesium				NR		
7439-96-5	Manganese				NR		
7439-97-6	Mercury				NR		
7440-02-0	Nickel				NR		
7440-09-7	Potassium				NR		
7782-49-2	Selenium				NR		
7440-22-4	Silver	0.17	U		P	U	
7440-23-5	Sodium				NR		
7440-28-0	Thallium				NR		
7440-62-2	Vanadium				NR		
7440-66-6	Zinc				NR		
	Cyanide				NR		

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:

ROCKS_PRESENT_IN_SAMPLE._____

LEVEL IV

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

RZ570

Lab Name: STL_BURLINGTON_____ Contract: 80254_____

Lab Code: STLVT_ Case No.: 20000_ SAS No.: _____ SDG No.: 80254_

Matrix (soil/water): SOIL_ Lab Sample ID: 434337

Level (low/med): LOW__ Date Received: 10/18/00

% Solids: _77.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum				NR		
7440-36-0	Antimony				NR		
7440-38-2	Arsenic				NR		
7440-39-3	Barium				NR		
7440-41-7	Beryllium				NR		
7440-43-9	Cadmium				NR		
7440-70-2	Calcium				NR		
7440-47-3	Chromium				NR		
7440-48-4	Cobalt				NR		
7440-50-8	Copper				NR		
7439-89-6	Iron				NR		
7439-92-1	Lead				NR		
7439-95-4	Magnesium				NR		
7439-96-5	Manganese				NR		
7439-97-6	Mercury				NR		
7440-02-0	Nickel				NR		
7440-09-7	Potassium				NR		
7782-49-2	Selenium				NR		
7440-22-4	Silver	0.38	B		P		
7440-23-5	Sodium				NR		
7440-28-0	Thallium				NR		
7440-62-2	Vanadium				NR		
7440-66-6	Zinc				NR		
	Cyanide				NR		

Color Before: GREY_____ Clarity Before: _____ Texture: COARSE

Color After: YELLOW___ Clarity After: CLEAR_ Artifacts: YES___

Comments:

ROCKS_PRESENT_IN_SAMPLE.

LEVEL IV

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.
RZ587

Lab Name: STL_BURLINGTON Contract: 80254

Lab Code: STLVT Case No.: 20000 SAS No.: SDG No.: 80254

Matrix (soil/water): SOIL Lab Sample ID: 434338

Level (low/med): LOW Date Received: 10/18/00

% Solids: 89.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum				NR		
7440-36-0	Antimony				NR		
7440-38-2	Arsenic				NR		
7440-39-3	Barium				NR		
7440-41-7	Beryllium				NR		
7440-43-9	Cadmium				NR		
7440-70-2	Calcium				NR		
7440-47-3	Chromium				NR		
7440-48-4	Cobalt				NR		
7440-50-8	Copper				NR		
7439-89-6	Iron				NR		
7439-92-1	Lead				NR		
7439-95-4	Magnesium				NR		
7439-96-5	Manganese				NR		
7439-97-6	Mercury				NR		
7440-02-0	Nickel				NR		
7440-09-7	Potassium				NR		
7782-49-2	Selenium				NR		
7440-22-4	Silver	0.19	U		P	U	
7440-23-5	Sodium				NR		
7440-28-0	Thallium				NR		
7440-62-2	Vanadium				NR		
7440-66-6	Zinc				NR		
	Cyanide				NR		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

CERTIFIED LEVEL IV

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Metals by Method ILM04
QC Level:	V[1]
SDG:	RJ772
Matrix:	Soil
No. of Samples:	17
Date Reviewed:	January 24, 2001
Reviewer:	P. Meeks
Reference:	*USEPA SW-846 Methods 3050B, 6010B, and 7471A (11/90)*
Samples Reviewed:	RJ772, RJ773, RJ774, RJ775, RJ776, RJ777, RJ778, RJ779, RJ780, RJ781, RJ782, RJ784, RJ785, RJ788, RJ789, RJ790, RJ791

Data Validation Findings

	Findings	Qualifications
1. Sample Management	Temperatures were within QC limits of $4^{o}\pm2^{o}$ C. COCs match samples and account for analyses. Two COCs were not signed as received by the laboratory. Custody seals intact. Analyses performed within holding times.	No qualifications required.

	Findings	Qualifications
3. Method Blanks	Hg = 0.029 and –0.035 mg/kg Tl = -0.256, -0.322, and -0.499 mg/kg Sb = 0.250 mg/kg Co = 0.767 mg/kg Ni = 1.620 mg/kg K = 89.1 mg/kg Zn = 1.89 mg/kg Molybdenum, cadmium, aluminum, calcium, copper, magnesium, manganese, vanadium, and lead were also detected/reported in the method blank, but were either not detected in the site samples or not detected at sufficient concentrations in the method blanks to qualify site samples.	Mercury detected in RJ775 was qualified "J," and detected mercury in samples RJ773, RJ774, RJ776-RJ785 was qualified "UJ." Detected thallium in all site samples, except RJ780, was qualified "J." Antimony detected in samples RJ776-RJ780, RJ782, RJ784, RJ785, RJ788-RJ791 was qualified "UJ." The antimony nondetects were subsequently rejected due to low matrix spike recovery. Cobalt detected in samples RJ782 and RJ784 was qualified "UJ." Nickel detected in samples RJ776, RJ779-RJ782, RJ784, RJ785, RJ788-RJ791 was qualified "UJ." Potassium and zinc detected in sample RJ772 were qualified "UJ."
5. LCS/BS	Solid LCSs wereanalyzed with the samples. The recovery for all analytes were within the laboratory defined QC limits.	No qualifications were required.
6. Duplicates Performed for sample RJ774 MS/MSD	The RPD for copper was outside the QC limits of ±20%, or ±CRDL when applicable. The RPDs for all other analytes were within the QC limits.	Detected copper in the samples was qualified "J."
7. MS/MSDs Performed for sample AJ774	Sb: MS = 31.3%R; MSD = 20.9%R Se: MS = 0%R; MSD = 0%R The recoveries for selenium were incorrectly reported on the Form Vs as –28.7% and –3.4%. The reviewer hand-corrected the Form Vs to reflect the correct recoveries, 0%, respectively.	Nondetected antimony in the site samples was rejected, "R." Detected antimony in the samples was qualified "J."
9. ICP Serial Dilution Performed for sample RJ774	All samples were within the QC limits of ±10% except for zinc (13.7%).	Zinc detected in the samples was qualified "J."
10. Other	None	No qualifications were required.

	Findings	Qualifications
11. Field QC Samples ER: RJ552 (SDG RJ028) FB: RJ543 (SDG RJ514) Field Duplicates: RJ772/RJ773, RJ774/RJ775, RJ784/RJ785, RJ788/RJ789	Barium, iron, magnesium, and zinc were detected in the equipment rinsate, but not at sufficient concentration to qualify site samples. Antimony, cobalt, lead, nickel, and vanadium were detected in the field blank, but not at sufficient concentration to qualify site samples. RJ772/RJ773: The RPDs for aluminum, calcium, chromium, magnesium, manganese, and zinc were 191.1%, 185.6%, 180.1%, 189.9%, 189.1%, 186.4%, and 195.7%, respectively. Cobalt, copper, nickel, potassium, and vanadium were detected in RJ773 but not in RJ772. Mercury and nickel were detected in RJ772 but not in RJ773. RJ774/RJ775: The RPDs for copper and nickel were 111.2% and 105.8%, respectively.	No qualifications were required.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ772

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-01

Level (low/med): LOW Date Received: 11/06/00

% Solids: 96.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	258			P	R	*10
7440-36-0	Antimony	2.8	B	N	P	J	Q
7440-38-2	Arsenic	3.2			P		
7440-39-3	Barium	168			P		
7440-41-7	Beryllium	0.46			P		
7440-42-8	Boron	5.8			P		
7440-43-9	Cadmium	1.5			P		
7440-70-2	Calcium	322	B		P		
7440-47-3	Chromium	2.3			P		
7440-48-4	Cobalt	0.26	U		P	UJ	B
7440-50-8	Copper	0.69	U	*	P	UJ	B
7439-89-6	Iron	513			P		
7439-92-1	Lead	113			P		
7439-95-4	Magnesium	118	B		P		
7439-96-5	Manganese	10.8			P		
7439-97-6	Mercury	0.17			AV		
7439-98-7	Molybdenum	0.69	U		P	U	
7440-02-0	Nickel	0.58	U		P	U	
7440-09-7	Potassium	54.9	B		P	UJ	B
7782-49-2	Selenium	2.9	U	N	P	R	Q
7440-22-4	Silver	11.3			P		
7440-23-5	Sodium	24.1	B		P		
7440-28-0	Thallium	1.2			P	J	B
7440-62-2	Vanadium	0.36	U		P	U	
7440-66-6	Zinc	8.0		E	P	UJ	B

PM 01/24/01 PM 02/11/03 Rev 1

CONSOLIDATED LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ773

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-02

Level (low/med): LOW Date Received: 11/06/00

% Solids: 95.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	11300			P		
7440-36-0	Antimony	17.5		N	P	J	Q
7440-38-2	Arsenic	5.0			P		
7440-39-3	Barium	154			P		
7440-41-7	Beryllium	0.46			P		
7440-42-8	Boron	6.9			P		
7440-43-9	Cadmium	3.0			P		
7440-70-2	Calcium	8620			P		
7440-47-3	Chromium	44.0			P		
7440-48-4	Cobalt	7.8			P		
7440-50-8	Copper	60.4		*	P	J	E
7439-89-6	Iron	19900			P		
7439-92-1	Lead	143			P		
7439-95-4	Magnesium	4200			P		
7439-96-5	Manganese	308			P		
7439-97-6	Mercury	0.10			AV	UJ	B
7439-98-7	Molybdenum	0.81	U		P	UJ	*10, $
7440-02-0	Nickel	18.7			P		
7440-09-7	Potassium	2920			P		
7782-49-2	Selenium	1.7	U	N	P	RR	Q Q
7440-22-4	Silver	7.9			P	UJ	*10
7440-23-5	Sodium	423	B		P		
7440-28-0	Thallium	~~0.24~~ 0.11	B		P	RJ	R; *10, $ B
7440-62-2	Vanadium	34.1			P		
7440-66-6	Zinc	729		E	P	J	A

PM 01/24/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ774

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-03

Level (low/med): LOW Date Received: 11/06/00

% Solids: 97.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	9000			P		
7440-36-0	Antimony	11.6		N	P	J	Q
7440-38-2	Arsenic	6.5			P		
7440-39-3	Barium	100			P		
7440-41-7	Beryllium	0.40	B		P		
7440-42-8	Boron	4.1	U		P	U	
7440-43-9	Cadmium	0.68			P		
7440-70-2	Calcium	2690			P		
7440-47-3	Chromium	22.8			P		
7440-48-4	Cobalt	5.8			P		
7440-50-8	Copper	32.6		*	P	J	E
7439-89-6	Iron	13800			P		
7439-92-1	Lead	35.7			P		
7439-95-4	Magnesium	3110			P		
7439-96-5	Manganese	211			P		
7439-97-6	Mercury	0.02	B		AV	UJ	B
7439-98-7	Molybdenum	0.80	U		P	UJ	*10, $
7440-02-0	Nickel	27.9			P		
7440-09-7	Potassium	1740			P		
7782-49-2	Selenium	0.67	U	N	P	RR	Q Q
7440-22-4	Silver	4.3			P	UJ	*10, $
7440-23-5	Sodium	160	B		P		
7440-28-0	Thallium	0.81	B		P	UJ	B, *10, $
7440-62-2	Vanadium	27.7			P		
7440-66-6	Zinc	127		E	P	J	A

PM 01/24/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ775

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-04

Level (low/med): LOW Date Received: 11/06/00

% Solids: 97.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	7260			P		
7440-36-0	Antimony	13.3			P	J	Q
7440-38-2	Arsenic	4.1			P		
7440-39-3	Barium	69.5			P		
7440-41-7	Beryllium	0.33	B		P		
7440-42-8	Boron	4.2	U		P	U	
7440-43-9	Cadmium	0.53			P		
7440-70-2	Calcium	1950			P		
7440-47-3	Chromium	12.3			P		
7440-48-4	Cobalt	4.8			P		
7440-50-8	Copper	9.3			P	J	E
7439-89-6	Iron	11400			P		
7439-92-1	Lead	29.0			P		
7439-95-4	Magnesium	2590			P		
7439-96-5	Manganese	161			P		
7439-97-6	Mercury	0.04	B		AV	J	B
7439-98-7	Molybdenum	~~0.81~~	U		P	UJ	*10,$
7440-02-0	Nickel	8.6			P		
7440-09-7	Potassium	1610			P		
7782-49-2	Selenium	1.7	U		P	R R	Q Q
7440-22-4	Silver	~~3.1~~		~~3.4.5~~	P	UJ	*10,$
7440-23-5	Sodium	156	B		P		
7440-28-0	Thallium	~~0.69~~ ~~1.00.64~~	B		P	J UJ	R, *10, $ B
7440-62-2	Vanadium	21.7			P		
7440-66-6	Zinc	171			P	J	A

PM 01/24/01
PM 02/11/03

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ776

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-05

Level (low/med): LOW Date Received: 11/06/00

% Solids: 93.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	14000			P		
7440-36-0	Antimony	0.53	B	N	P	UJ R	B, Q
7440-38-2	Arsenic	3.5			P		
7440-39-3	Barium	63.0			P		
7440-41-7	Beryllium	0.54			P		
7440-42-8	Boron	4.1	U		P	U	
7440-43-9	Cadmium	0.16	U		P	U	
7440-70-2	Calcium	2570			P		
7440-47-3	Chromium	17.9			P		
7440-48-4	Cobalt	4.9			P		
7440-50-8	Copper	6.9		*	P	J	E
7439-89-6	Iron	18200			P		
7439-92-1	Lead	4.2			P		
7439-95-4	Magnesium	4470			P		
7439-96-5	Manganese	122			P		
7439-97-6	Mercury	0.02	B		AV	UJ	B
7439-98-7	Molybdenum	~~10.10~~ 0.80	U		P	UJ	*10, $
7440-02-0	Nickel	5.7			P	UJ	B
7440-09-7	Potassium	1800			P		
7782-49-2	Selenium	1.7	U	N	P	~~UJ R~~ UJ	~~Q~~ Q
7440-22-4	Silver	~~4.5 4.8~~ 4.3			P	UJ	*10, $
7440-23-5	Sodium	121	B		P		
7440-28-0	Thallium	2.3			P	J	B, ~~X10~~
7440-62-2	Vanadium	33.2			P		
7440-66-6	Zinc	45.4		E	P	J	A

PM 01/24/01

PM 12/18/03

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ777

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-06

Level (low/med): LOW Date Received: 11/06/00

% Solids: 86.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	8140			P		
7440-36-0	Antimony	0.53	B	N	P	UJ R	B, Q
7440-38-2	Arsenic	2.4			P		
7440-39-3	Barium	56.2			P		
7440-41-7	Beryllium	0.40	B		P		
7440-42-8	Boron	9.7			P		
7440-43-9	Cadmium	0.17	U		P	U	
7440-70-2	Calcium	2800			P		
7440-47-3	Chromium	12.9			P		
7440-48-4	Cobalt	5.6			P		
7440-50-8	Copper	10.4		*	P	J	E
7439-89-6	Iron	14700			P		
7439-92-1	Lead	10.3			P		
7439-95-4	Magnesium	3110			P		
7439-96-5	Manganese	178			P		
7439-97-6	Mercury	0.05			AV	UJ	B
7439-98-7	Molybdenum	10 ~~12~~ ~~0.84~~	U		P	UJ	*10, $
7440-02-0	Nickel	14.3			P		
7440-09-7	Potassium	2110			P		
7782-49-2	Selenium	1.8	U	N	P	R R	Q Q
7440-22-4	Silver	4.5 5.2 ~~3.5~~			P	UJ	*10, $
7440-23-5	Sodium	150	B		P		
7440-28-0	Thallium	1.3			P	J	B, ~~R~~
7440-62-2	Vanadium	26.1			P		
7440-66-6	Zinc	84.1		E	P	J	A

PM 01/24/01
PM 02/11/03

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ778

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-07

Level (low/med): LOW Date Received: 11/06/00

% Solids: 87.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	11100			P		
7440-36-0	Antimony	0.70	B	N	P	~~UJ~~ R	B, Q
7440-38-2	Arsenic	4.2			P		
7440-39-3	Barium	89.1			P		
7440-41-7	Beryllium	0.46			P		
7440-42-8	Boron	3.6	U		P	U	
7440-43-9	Cadmium	0.28	U		P	U	
7440-70-2	Calcium	2480			P		
7440-47-3	Chromium	17.5			P		
7440-48-4	Cobalt	7.1			P		
7440-50-8	Copper	10.5		*	P	J	E
7439-89-6	Iron	19100			P		
7439-92-1	Lead	4.5			P		
7439-95-4	Magnesium	5400			P		
7439-96-5	Manganese	259			P		
7439-97-6	Mercury	0.02	B		AV	UJ	B
7439-98-7	Molybdenum	~~0.69~~ 1.0	U		P	UJ	*10, $
7440-02-0	Nickel	9.2			P		
7440-09-7	Potassium	3410			P		
7782-49-2	Selenium	2.9	U	N	P	RR	Q, Q
7440-22-4	Silver	~~4.5~~ 5.2 ~~4.5~~			P	UJ	*10, $
7440-23-5	Sodium	57.3	B		P		
7440-28-0	Thallium	1.1			P	J	B, ~~*10~~
7440-62-2	Vanadium	37.7			P		
7440-66-6	Zinc	65.1		E	P	J	A

PM 01/24/01

PM 02/16/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ779

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-08

Level (low/med): LOW Date Received: 11/06/00

% Solids: 95.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	New Qual	Qual Code
7429-90-5	Aluminum	16100			P		
7440-36-0	Antimony	0.56	B	N	P	UJ R	B, Q
7440-38-2	Arsenic	4.5			P		
7440-39-3	Barium	81.0			P		
7440-41-7	Beryllium	0.71			P		
7440-42-8	Boron	3.8	U		P	U	
7440-43-9	Cadmium	0.15	U		P	U	
7440-70-2	Calcium	782			P		
7440-47-3	Chromium	9.7			P		
7440-48-4	Cobalt	5.4			P		
7440-50-8	Copper	10.2		*	P	J	E
7439-89-6	Iron	12100			P		
7439-92-1	Lead	7.3			P		
7439-95-4	Magnesium	3340			P		
7439-96-5	Manganese	144			P		
7439-97-6	Mercury	0.03	B		AV	UJ	B
7439-98-7	Molybdenum	~~0.74~~ 1.0	U		P	UJ	*10, $
7440-02-0	Nickel	6.0			P	UJ	B
7440-09-7	Potassium	1480			P		
7782-49-2	Selenium	1.6	U	N	P	R R	Q Q
7440-22-4	Silver	~~4.7~~ 4.1			P	UJ	*10, $
7440-23-5	Sodium	111	B		P		
7440-28-0	Thallium	1.7			P	J	B, ~~*10~~
7440-62-2	Vanadium	24.1			P		
7440-66-6	Zinc	66.1		E	P	J	A

PM 01/24/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ780

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-09

Level (low/med): LOW Date Received: 11/06/00

% Solids: 95.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	17000			P		
7440-36-0	Antimony	0.31	B	N	P	UJ R	B, Q
7440-38-2	Arsenic	4.3			P		
7440-39-3	Barium	92.8			P		
7440-41-7	Beryllium	0.77			P		
7440-42-8	Boron	4.0	U		P	U	
7440-43-9	Cadmium	0.15	U		P	U	
7440-70-2	Calcium	819			P		
7440-47-3	Chromium	12.3			P		
7440-48-4	Cobalt	5.3			P		
7440-50-8	Copper	8.5		*	P	J	E
7439-89-6	Iron	14100			P		
7439-92-1	Lead	5.4			P		
7439-95-4	Magnesium	4070			P		
7439-96-5	Manganese	139			P		
7439-97-6	Mercury	0.03	B		AV	UJ	B
7439-98-7	Molybdenum	~~0.77~~ 0.77	U		P	UJ	*, $
7440-02-0	Nickel	6.9			P	UJ	B
7440-09-7	Potassium	1300			P		
7782-49-2	Selenium	1.6	U	N	P	R R	Q Q
7440-22-4	Silver	~~0.77~~ 0.77			P	UJ	*, $
7440-23-5	Sodium	120	B		P		
7440-28-0	Thallium	2.8			P	J	*
7440-62-2	Vanadium	29.8			P		
7440-66-6	Zinc	32.8		E	P	J	A

PM 01/24/01
PM 02/11/05

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ781

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-10

Level (low/med): LOW Date Received: 11/06/00

% Solids: 95.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	11400			P		
7440-36-0	Antimony	2.0	B	N	P	J	Q
7440-38-2	Arsenic	3.7			P		
7440-39-3	Barium	87.2			P		
7440-41-7	Beryllium	0.47			P		
7440-42-8	Boron	4.3	U		P	U	
7440-43-9	Cadmium	0.16	U		P	U	
7440-70-2	Calcium	883			P		
7440-47-3	Chromium	9.9			P		
7440-48-4	Cobalt	5.0			P		
7440-50-8	Copper	19.4		*	P	J	E
7439-89-6	Iron	9990			P		
7439-92-1	Lead	7.6			P		
7439-95-4	Magnesium	3830			P		
7439-96-5	Manganese	130			P		
7439-97-6	Mercury	0.02	B		AV	UJ	B
7439-98-7	Molybdenum	to 0.82	U		P	UJ	$, *10
7440-02-0	Nickel	7.4			P	UJ	B
7440-09-7	Potassium	1990			P		
7782-49-2	Selenium	1.7	U	N	P	~~R~~ R	Q Q
7440-22-4	Silver	10.8			P		
7440-23-5	Sodium	84.4	B		P		
7440-28-0	Thallium	1.7			P	J	B, ~~*10~~
7440-62-2	Vanadium	19.6			P		
7440-66-6	Zinc	69.5		E	P	J	A

PM 01/24/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ782

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-11

Level (low/med): LOW Date Received: 11/06/00

% Solids: 97.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	4440			P		
7440-36-0	Antimony	0.59	B	N	P	~~R~~	B,Q
7440-38-2	Arsenic	2.7			P		
7440-39-3	Barium	46.4			P		
7440-41-7	Beryllium	0.19	B		P		
7440-42-8	Boron	3.5	U		P	U	
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	1190			P		
7440-47-3	Chromium	14.8			P		
7440-48-4	Cobalt	2.2	B		P	UJ	B
7440-50-8	Copper	11.6		*	P	J	E
7439-89-6	Iron	5230			P		
7439-92-1	Lead	94.2			P		
7439-95-4	Magnesium	1860			P		
7439-96-5	Manganese	62.3			P		
7439-97-6	Mercury	0.05			AV	UJ	B
7439-98-7	Molybdenum	10 0.67	U		P	UJ	$,*10
7440-02-0	Nickel	2.5	B		P	UJ	B
7440-09-7	Potassium	1660			P		
7782-49-2	Selenium	0.57	U	N	P	~~R~~ R	Q Q
7440-22-4	Silver	2.2			P		
7440-23-5	Sodium	88.0	B		P		
7440-28-0	Thallium	1.0 0.90			P	~~J~~ UJ	B,*10,$
7440-62-2	Vanadium	10.3			P		
7440-66-6	Zinc	48.2		E	P	J	A

PM 01/24/01
PM 02/11/03

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ784

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-13

Level (low/med): LOW Date Received: 11/06/00

% Solids: 88.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	11000			P		
7440-36-0	Antimony	0.35	B	N	P	UJ R	B, Q
7440-38-2	Arsenic	5.1			P		
7440-39-3	Barium	52.3			P		
7440-41-7	Beryllium	0.54			P		
7440-42-8	Boron	3.8	U		P	U	
7440-43-9	Cadmium	0.15	U		P	U	
7440-70-2	Calcium	459			P		
7440-47-3	Chromium	7.0			P		
7440-48-4	Cobalt	2.8	B		P	UJ	B
7440-50-8	Copper	7.9		*	P	J	E
7439-89-6	Iron	8050			P		
7439-92-1	Lead	4.4			P		
7439-95-4	Magnesium	2630			P		
7439-96-5	Manganese	90.7			P		
7439-97-6	Mercury	0.02	B		AV	UJ	B
7439-98-7	Molybdenum	10 0.73	U		P	UJ	$, *10
7440-02-0	Nickel	5.4			P	UJ	B
7440-09-7	Potassium	2300			P		
7782-49-2	Selenium	1.5	U	N	P	R R	Q, Q
7440-22-4	Silver	4.8			P		
7440-23-5	Sodium	149	B		P		
7440-28-0	Thallium	1.1			P	J	B, ~~*10~~
7440-62-2	Vanadium	13.9			P		
7440-66-6	Zinc	26.3		E	P	J	A

PM 01/24/01

PM 02/11/03

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ785

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-14

Level (low/med): LOW Date Received: 11/06/00

% Solids: 87.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	9940			P		
7440-36-0	Antimony	0.31	B	N	P	~~UJ~~ R	B, Q
7440-38-2	Arsenic	5.4			P		
7440-39-3	Barium	56.1			P		
7440-41-7	Beryllium	0.55			P		
7440-42-8	Boron	3.5	U		P	U	
7440-43-9	Cadmium	0.13	U		P	U	
7440-70-2	Calcium	652			P		
7440-47-3	Chromium	7.2			P		
7440-48-4	Cobalt	3.8	B		P		
7440-50-8	Copper	9.3		*	P	J	E
7439-89-6	Iron	9600			P		
7439-92-1	Lead	4.7			P		
7439-95-4	Magnesium	2830			P		
7439-96-5	Manganese	135			P		
7439-97-6	Mercury	0.02	B		AV	UJ	B
7439-98-7	Molybdenum	~~0.68~~ 0.68	U		P	UJ	$, *, O
7440-02-0	Nickel	6.5			P	UJ	B
7440-09-7	Potassium	2300			P		
7782-49-2	Selenium	1.4	U	N	P	R R	Q Q
7440-22-4	Silver	3.0			P		
7440-23-5	Sodium	136	B		P		
7440-28-0	Thallium	2.6			P	J	B, ~~*~~
7440-62-2	Vanadium	17.0			P		
7440-66-6	Zinc	30.3		E	P	J	A

PM 01/24/01

PM 02/11/03

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ788

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-16

Level (low/med): LOW Date Received: 11/06/00

% Solids: 95.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	9720			P		
7440-36-0	Antimony	0.44	B	N	P	UJ R	B, Q
7440-38-2	Arsenic	2.8			P		
7440-39-3	Barium	97.3			P		
7440-41-7	Beryllium	0.46			P		
7440-42-8	Boron	3.7	U		P	U	
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	694			P		
7440-47-3	Chromium	7.4			P		
7440-48-4	Cobalt	4.4			P		
7440-50-8	Copper	16.0		*	P	J	E
7439-89-6	Iron	10300			P		
7439-92-1	Lead	13.1			P		
7439-95-4	Magnesium	2910			P		
7439-96-5	Manganese	526			P		
7439-97-6	Mercury	0.34			AV		
7439-98-7	Molybdenum	10 0.72	U		P	UJ	*10, F
7440-02-0	Nickel	4.9			P	UJ	B
7440-09-7	Potassium	2830			P		
7782-49-2	Selenium	0.60	U	N	P	R R	Q Q
7440-22-4	Silver	4.6			P	NJ	*16
7440-23-5	Sodium	122	B		P		
7440-28-0	Thallium	2.0			P	J	B, *10
7440-62-2	Vanadium	16.9			P		
7440-66-6	Zinc	57.8		E	P	J	A

PM 01/24/01
PM 02/11/03

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: RJ789

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-17

Level (low/med): LOW Date Received: 11/06/00

% Solids: 95.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	9690			P		
7440-36-0	Antimony	0.79	B	N	P	UJ R	B, Q
7440-38-2	Arsenic	2.2			P		
7440-39-3	Barium	130			P		
7440-41-7	Beryllium	0.38	B		P		
7440-42-8	Boron	4.1	U		P	U	
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	646			P		
7440-47-3	Chromium	6.8			P		
7440-48-4	Cobalt	4.5	B		P		
7440-50-8	Copper	16.3		*	P	J	E
7439-89-6	Iron	9950			P		
7439-92-1	Lead	11.1			P		
7439-95-4	Magnesium	3700			P		
7439-96-5	Manganese	274			P		
7439-97-6	Mercury	0.47			AV		
7439-98-7	Molybdenum	10 0.80	U		P	UJ	$, *10
7440-02-0	Nickel	3.5	B		P	UJ	B
7440-09-7	Potassium	3890			P		
7782-49-2	Selenium	1.7	U	N	P	R R	Q Q
7440-22-4	Silver	4.6			P		
7440-23-5	Sodium	145	B		P		
7440-28-0	Thallium	1.4			P	J	B, ~~*10~~
7440-62-2	Vanadium	18.6			P		
7440-66-6	Zinc	52.1		E	P	J	A

PM 01/24/01
PM 02/11/03

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ790

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-18

Level (low/med): LOW Date Received: 11/06/00

% Solids: 90.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	11200			P		
7440-36-0	Antimony	0.56	B	N	P	UJ R	B, Q
7440-38-2	Arsenic	2.4			P		
7440-39-3	Barium	103			P		
7440-41-7	Beryllium	0.45			P		
7440-42-8	Boron	3.8	U		P	U	
7440-43-9	Cadmium	0.29	U		P	U	
7440-70-2	Calcium	2000			P		
7440-47-3	Chromium	19.8			P		
7440-48-4	Cobalt	7.4			P		
7440-50-8	Copper	31.1		*	P	J	E
7439-89-6	Iron	19000			P		
7439-92-1	Lead	25.4			P		
7439-95-4	Magnesium	4600			P		
7439-96-5	Manganese	204			P		
7439-97-6	Mercury	0.81			AV		
7439-98-7	Molybdenum	0.73	U		P	UJ	*10, $
7440-02-0	Nickel	6.6			P	UJ	B
7440-09-7	Potassium	3280			P		
7782-49-2	Selenium	3.1	U	N	P	R R	Q Q
7440-22-4	Silver	11.4			P	J	*10
7440-23-5	Sodium	84.2	B		P		
7440-28-0	Thallium	2.1			P	J	B, ~~*10~~
7440-62-2	Vanadium	33.7			P		
7440-66-6	Zinc	57.2		E	P	J	A

PM 01/24/01

PM 2/11/0

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ791

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200794 SAS No.: SDG NO.: RJ772

Matrix (soil/water): SOIL Lab Sample ID: 200794-19

Level (low/med): LOW Date Received: 11/06/00

% Solids: 89.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	11200			P		
7440-36-0	Antimony	0.55	B	N	P	UJR	B, Q
7440-38-2	Arsenic	2.4			P		
7440-39-3	Barium	96.8			P		
7440-41-7	Beryllium	0.44			P		
7440-42-8	Boron	3.5	U		P	U	
7440-43-9	Cadmium	0.14	U		P	U	
7440-70-2	Calcium	1730			P		
7440-47-3	Chromium	11.9			P		
7440-48-4	Cobalt	5.9			P		
7440-50-8	Copper	19.0		*	P	J	E
7439-89-6	Iron	15700			P		
7439-92-1	Lead	14.0			P		
7439-95-4	Magnesium	4240			P		
7439-96-5	Manganese	189			P		
7439-97-6	Mercury	2.7			AV		
7439-98-7	Molybdenum	~~0.68~~ 10	U		P	UJ	X, $
7440-02-0	Nickel	5.5			P	UJ	B
7440-09-7	Potassium	3120			P		
7782-49-2	Selenium	1.4	U	N	P	R R	Q Q
7440-22-4	Silver	6.5			P	J	X
7440-23-5	Sodium	106	B		P		
7440-28-0	Thallium	1.5			P	J	B, ~~X~~
7440-62-2	Vanadium	29.6			P		
7440-66-6	Zinc	50.7		E	P	J	A

PM 01/24/01
PM 02/16/01

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Metals by Method ILM04
QC Level:	V[1]
SDG:	RJ048
Matrix:	Soil
No. of Samples:	16
Date Reviewed:	December 26, 2000
Reviewer:	P. Meeks
Reference:	*USEPA SW-846 Methods 3050B, 6010B, and 7471A (11/90)*
Samples Reviewed:	RJ048, RJ049, RJ050, RJ051, RJ052, RJ053, RJ054, RJ055, RJ056, RJ057, RJ058, RJ650, RJ651, RJ652, RJ653, RJ627

Data Validation Findings

	Findings	Qualifications
1. Sample Management	Temperatures were within QC limits of $4^{o}\pm2^{o}$C. COCs match samples and account for analyses. Custody seals intact. Analyses performed within holding times.	No qualifications required.
3. Method Blanks	Be = -0.085 mg/kg Mo = -1.504 mg/kg Tl = -0.387 mg/kg Calcium, cobalt, manganese, and zinc were detected/reported in the method blank, but not at sufficient concentration to qualify site samples.	Nondetected molybdenum in the site samples was qualified "UJ." Beryllium detected in samples AJ650, RJ651, and RJ627 was qualified "J." Nondetected thallium in sampleRJ627 was qualified "UJ."
5. LCS/BS	The recovery for mercury in one of the LCS samples was above the laboratory defined QC limits.	Mercury detected in the site samples was qualified "J."

	Findings	Qualifications
6. Duplicates Performed on RJ049 – mercury only	The Form VI incorrectly listed the mercury RPD. The reviewer hand-corrected the RPD to match the data on the Form VI. The RPD was within QC limits of ±20%.	No qualifications were required.
7. MS/MSDs Performed on sample RJ049 – mercury only	The recoveries for mercury in the MS and MSD were within QC control limits.	No qualifications were required.
9. ICP Serial Dilution	Not performed.	No qualifications were required.
10. Other	None	No qualifications were required.
11. Field QC Samples ER: RJ552 (SDG RJ028) FB: RJ543 (SDG RJ514) Field Duplicates: RJ057/RJ058 – mercury only	Barium, iron, magnesium, and zinc were detected in the equipment rinsate, but not at sufficient concentration to qualify site samples. Cobalt, lead, nickel, and vanadium were detected in the field blank, but not at sufficient concentration to qualify site samples. Antimony was detected in the field blank at 2.0 µg/L. The RPD for mercury was 100.0%.	Antimony detected in the site samples was qualified "UJ."
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

T700MT13

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ048

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-01

Level (low/med): LOW Date Received: 09/30/00

% Solids: 98.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Lab Qual	Qual Code
7439-97-6	Mercury	3.9		*	AV	J	L

OGDEN VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ049

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-02

Level (low/med): LOW Date Received: 09/30/00

% Solids: 97.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Raw Qual	Qual Code
7439-97-6	Mercury	16.9		*	AV	J	L

OGDEN VALIDATED

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ050

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-03

Level (low/med): LOW Date Received: 09/30/00

% Solids: 98.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	4.9		*	AV	J	L

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

66

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ051

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-04

Level (low/med): LOW Date Received: 09/30/00

% Solids: 95.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.01	U	*	AV	U	

UNVALIDATED
LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ052

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-05

Level (low/med): LOW Date Received: 09/30/00

% Solids: 97.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	1.1		*	AV	J	L

LEVEL

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ053

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-06

Level (low/med): LOW Date Received: 09/30/00

% Solids: 96.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Raw Qual	Qual Code
7439-97-6	Mercury	0.30		*	AV	J	L

CEIMIC Corporation

LEVEL V

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ054

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-07

Level (low/med): LOW Date Received: 09/30/00

% Solids: 96.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.01	B	*	AV	J	L

CONFIRMATION

LEVEL 4

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

70

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ055

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-08

Level (low/med): LOW Date Received: 09/30/00

% Solids: 92.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.14		*	AV	J	L

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ056

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-09

Level (low/med): LOW Date Received: 09/30/00

% Solids: 98.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.88		*	AV	J	L

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ057

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-10

Level (low/med): LOW Date Received: 09/30/00

% Solids: 96.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Raw Qual	Qual Code
7439-97-6	Mercury	0.02	B	*	AV	J	L

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ058

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-11

Level (low/med): LOW Date Received: 09/30/00

% Solids: 97.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.06		*	AV	J	L

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ627

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-18

Level (low/med): LOW Date Received: 09/30/00

% Solids: 91.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Raw Qual	Qual Code
7429-90-5	Aluminum	11200			P		
7440-36-0	Antimony	0.30	B		P	J	F
7440-38-2	Arsenic	2.2			P		
7440-39-3	Barium	45.9			P		
7440-41-7	Beryllium	0.38	B		P	J	B
7440-42-8	Boron	4.6	U		P	U	
7440-43-9	Cadmium	0.18	U		P	U	
7440-70-2	Calcium	996			P		
7440-47-3	Chromium	8.4			P		
7440-48-4	Cobalt	5.0	B		P		
7440-50-8	Copper	5.7			P		
7439-89-6	Iron	13400			P		
7439-92-1	Lead	3.7			P		
7439-95-4	Magnesium	2630			P		
7439-96-5	Manganese	144			P		
7439-97-6	Mercury	0.01	U		AV	U	
7439-98-7	Molybdenum	0.88	U		P	UJ	B
7440-02-0	Nickel	5.2			P		
7440-09-7	Potassium	1720			P		
7782-49-2	Selenium	0.37	U		P	U	
7440-22-4	Silver	3.3			P		
7440-23-5	Sodium	90.0	B		P		
7440-28-0	Thallium	0.24	U		P	UJ	B
7440-62-2	Vanadium	20.0			P		
7440-66-6	Zinc	39.1			P		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ650

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-12

Level (low/med): LOW Date Received: 09/30/00

% Solids: 94.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	12600			P		
7440-36-0	Antimony	0.48	B		P	J	F
7440-38-2	Arsenic	0.86	B		P		
7440-39-3	Barium	58.3			P		
7440-41-7	Beryllium	0.24	B		P	J	B
7440-42-8	Boron	4.3	U		P	U	
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	1570			P		
7440-47-3	Chromium	34.3			P		
7440-48-4	Cobalt	5.2			P		
7440-50-8	Copper	8.3			P		
7439-89-6	Iron	15500			P		
7439-92-1	Lead	6.6			P		
7439-95-4	Magnesium	4000			P		
7439-96-5	Manganese	104			P		
7439-97-6	Mercury	0.02	B	*	AV	J	L
7439-98-7	Molybdenum	0.83	U		P	UJ	B
7440-02-0	Nickel	6.7			P		
7440-09-7	Potassium	2990			P		
7782-49-2	Selenium	0.35	U		P	U	
7440-22-4	Silver	130			P		
7440-23-5	Sodium	251	B		P		
7440-28-0	Thallium	3.9			P		
7440-62-2	Vanadium	27.7			P		
7440-66-6	Zinc	50.1			P		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ651

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-13

Level (low/med): LOW Date Received: 09/30/00

% Solids: 94.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	12000			P		
7440-36-0	Antimony	0.34	B		P	J	F
7440-38-2	Arsenic	0.63	B		P		
7440-39-3	Barium	73.3			P		
7440-41-7	Beryllium	0.27	B		P	J	B
7440-42-8	Boron	4.3	U		P	U	
7440-43-9	Cadmium	0.67			P		
7440-70-2	Calcium	484			P		
7440-47-3	Chromium	23.0			P		
7440-48-4	Cobalt	4.6	B		P		
7440-50-8	Copper	8.9			P		
7439-89-6	Iron	12300			P		
7439-92-1	Lead	5.4			P		
7439-95-4	Magnesium	3450			P		
7439-96-5	Manganese	89.3			P		
7439-97-6	Mercury	0.01	U	*	AV	U	
7439-98-7	Molybdenum	0.84	U		P	UJ	B
7440-02-0	Nickel	6.3			P		
7440-09-7	Potassium	4170			P		
7782-49-2	Selenium	0.35	U		P	U	
7440-22-4	Silver	33.2			P		
7440-23-5	Sodium	136	B		P		
7440-28-0	Thallium	2.6			P		
7440-62-2	Vanadium	26.5			P		
7440-66-6	Zinc	57.6			P		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ652

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-14

Level (low/med): LOW Date Received: 09/30/00

% Solids: 95.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	12000			P		
7440-36-0	Antimony	0.23	B		P	J	F
7440-38-2	Arsenic	3.0			P		
7440-39-3	Barium	70.3			P		
7440-41-7	Beryllium	0.48			P		
7440-42-8	Boron	4.2	U		P	U	
7440-43-9	Cadmium	0.07	U		P	U	
7440-70-2	Calcium	1160			P		
7440-47-3	Chromium	12.5			P		
7440-48-4	Cobalt	6.4			P		
7440-50-8	Copper	9.3			P		
7439-89-6	Iron	13300			P		
7439-92-1	Lead	4.8			P		
7439-95-4	Magnesium	3710			P		
7439-96-5	Manganese	237			P		
7439-97-6	Mercury	0.01	U	*	AV	U	
7439-98-7	Molybdenum	0.82	U		P	UJ	B
7440-02-0	Nickel	8.9			P		
7440-09-7	Potassium	4400			P		
7782-49-2	Selenium	0.35	U		P	U	
7440-22-4	Silver	6.1			P		
7440-23-5	Sodium	107	B		P		
7440-28-0	Thallium	2.7			P		
7440-62-2	Vanadium	23.0			P		
7440-66-6	Zinc	45.9			P		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ653

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200729 SAS No.: SDG NO.: RJ048

Matrix (soil/water): SOIL Lab Sample ID: 200729-15

Level (low/med): LOW Date Received: 09/30/00

% Solids: 90.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rw Qual	Qual Code
7429-90-5	Aluminum	17900			P		
7440-36-0	Antimony	0.80	B		P	J	F
7440-38-2	Arsenic	11.3			P		
7440-39-3	Barium	88.5			P		
7440-41-7	Beryllium	0.58			P		
7440-42-8	Boron	4.2	U		P	U	
7440-43-9	Cadmium	1.3			P		
7440-70-2	Calcium	9960			P		
7440-47-3	Chromium	45.8			P		
7440-48-4	Cobalt	9.3			P		
7440-50-8	Copper	70.7			P		
7439-89-6	Iron	18000			P		
7439-92-1	Lead	19.3			P		
7439-95-4	Magnesium	5890			P		
7439-96-5	Manganese	218			P		
7439-97-6	Mercury	0.11		*	AV	J	L
7439-98-7	Molybdenum	0.82	U		P	UJ	B
7440-02-0	Nickel	18.1			P		
7440-09-7	Potassium	4210			P		
7782-49-2	Selenium	0.69	U		P	U	
7440-22-4	Silver	86.4			P		
7440-23-5	Sodium	148	B		P		
7440-28-0	Thallium	2.4			P		
7440-62-2	Vanadium	32.9			P		
7440-66-6	Zinc	155			P		

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

OGDEN

DATA VALIDATION REPORT

ROCKETDYNE
SSFL RFI Program

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: RJ514

Prepared by

Ogden—Denver Operations
550 South Wadsworth Boulevard, Suite 500
Lakewood, Colorado 80226

1. INTRODUCTION

Project:	Rocketdyne, SSFL RFI Program
Contract Task Order #:	313150002
SDG#:	RJ514
Project Manager:	D. Hambrick
Matrix:	Soil and water
Analysis:	Metals
QC Level:	IV
No. of Samples:	8
No. of Reanalyses/Dilutions:	0
Reviewer:	P. Meeks
Date of Review:	September 29, 2000

The samples listed in Table 1 were validated based on the guidelines outlined in the *Ogden Data Validation Procedure for Levels C and D metals and cyanide* (DVP-5, Rev. 2), *USEPA SW-846 Methods 6010A, 7000A* (11/90)*, and 7470A* (09/94), and the *National Functional Guidelines for Inorganic Data Review* (2/94). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on the Sample Result Forms with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
SRBS10S01	RJ516	200484-03	soil	6010/7000
SRBS11S01	RJ517	200484-04	soil	6010/7000
SNBS16S01	RJ520	200484-07	soil	6010/7000
CDT501S01	RJ523	200484-10	soil	6010/7000
CDBS34S01	RJ537	200484-16	soil	6010/7000
CDBS35S01	RJ539	200484-18	soil	6010/7000
CDBS38S01	RJ542	200484-20	soil	6010/7000
CDQW01F01	RJ543	200484-21	water	6010/7000

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples arrived at the laboratory within the established temperature limit of 4°C " 2°C. No sample preservation, handling or transport problems were noted for the metals samples. No sample qualifications were required.

2.1.2 Chain of Custody

The COCs in the package were legible, were signed by the field and laboratory personnel, and accounted for the analyses presented in the data package, except for sample RJ523. Metals were not requested on the COC; however, per a memo from field personnel, the sample was analyzed for mercury and ICP metals. The sample condition questions were answered only on the 07/05/00 COC, but sample receiving checklists with this and additional information were included for all the samples. Custody seals were present and intact on the coolers. There was no documentation as to whether custody seals were present on the sample containers. No qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analysis recorded in the raw data documented that all sample analyses were performed within the specified holding times of 6 months for metals (except mercury) and 28 days for mercury. No qualifications were assigned to sample results.

2.2 CALIBRATION

All ICV and CCV results provided on the Form IIs showed acceptable %Rs, 90-110% for the ICP metals, 85-115% for cyanide, and 80-120% for mercury. No qualifications were required based on the calibration information.

2.3 BLANKS

Detects and negative results were reported in the method blanks associated with the samples in this SDG. Calcium (664.0 ìg/L), magnesium (99.0 ìg/L), manganese (9.0 ìg/L), molybdenum (36.8 ìg/L), and mercury (0.062 ìg/L) were detected in the aqueous prep blank; therefore, detected calcium, magnesium, manganese, molybdenum, and mercury in sample RJ543 were qualified "UJ." Barium and thallium were detected in CCB1 at 4.5 and 2.8 ìg/L, respectively; therefore, detected barium in sample RJ543 and detected thallium in sample RJ516 were qualified "UJ." Mercury was reported in CCB1 and CCB2 at -0.04 and -0.05 ìg/L, respectively; therefore, nondetected mercury in sample RJ542 was qualified "UJ." No further qualifications were required.

2.4 ICP INTERFERENCE CHECK SAMPLE (ICP ICS)

The results for the ICSAB analyses reported on the Form IVs were within established control limits, except for aluminum (121.0%) and magnesium (120.8%) in ICSAB2; therefore, detected aluminum and magnesium in the site soil samples was qualified as estimated, "J." The recovery for boron in ICSAB2 was also above control limits; however, boron was not detected in the site soil samples. Cadmium and chromium, which are not present in the ICSA solution, were reported in the ICSA analyses at greater than CRDL, but less than 2HCRDL. No further sample qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Solid and aqueous LCS samples were analyzed with this SDG. All of the LCS results reported on the Form VIIs were within the laboratory's control limits, except for calcium (75.4%) and chromium (76.0%) in the solid ICP LCS; therefore, detected calcium and chromium in the site soil samples were qualified "J." No aqueous mercury LCS sample was prepared. No further qualifications were required.

2.6 LABORATORY DUPLICATES

No laboratory duplicate analysis was performed in association with the site samples; therefore, no assessment was made with respect to this criteria.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No matrix spike analysis was performed in association with the site samples; therefore, no assessment was made with respect to this criteria.

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analysis of these samples; therefore, furnace atomic absorption QC is not applicable.

2.9 ICP SERIAL DILUTION

No ICP serial dilution analysis was performed in association with the site samples; therefore, no assessment was made with respect to this criteria.

2.10 SAMPLE RESULT VERIFICATION

An EPA Level IV review was performed for the samples in this data package. The sample results were verified against the instrument output and were found to be acceptable for the ICAP and CVAA analyses.

Samples RJ516, RJ523, and RJ539 were subsequently analyzed for silver at Severn Trent Laboratory in Vermont and reported as RZ516, RZ523, and RZ539A. The results of the analyses at STL-Vt indicate that the sample matrix affected Ceimic's ICP and that the results reported by Ceimic were erroneous; therefore, the silver results for samples RJ516, RJ523, RJ539 were rejected, "R," in favor of the results reported in SDG 80254. No further qualificaitons were required.

2.11 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

2.11.1 Field Blanks and Equipment Rinsates

There were no equipment rinsates associated with this SDG. RJ543 was identified as the field blank associated with the site soil samples. Cobalt, lead, nickel, and vanadium were detected in RJ543, but not at sufficient concentration to qualify site samples. Antimony was detected in RJ543 at 2.0 ìg/L; therefore detected antimony in RJ516, RJ520, RJ537, RJ539, and RJ542 was qualified as estimated, "J." No further qualifications were required.

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this package. Field duplicates are required at a rate of 10% per matrix for site samples; consequently, field duplicates are not required in every package.

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ516

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200484 SAS No.: SDG NO.: RJ514

Matrix (soil/water): SOIL Lab Sample ID: 200484-03

Level (low/med): LOW Date Received: 07/08/00

% Solids: 97.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	11800			P	J	I
7440-36-0	Antimony	0.65	B		P	J	F
7440-38-2	Arsenic	2.9			P		
7440-39-3	Barium	43.1			P		
7440-41-7	Beryllium	0.50			P		
7440-42-8	Boron	3.3	U		P	U	
7440-43-9	Cadmium	0.05	U		P	U	
7440-70-2	Calcium	1180			P	J	L
7440-47-3	Chromium	16.4			P	J	L
7440-48-4	Cobalt	5.7			P		
7440-50-8	Copper	6.1			P		
7439-89-6	Iron	14300			P		
7439-92-1	Lead	4.6			P		
7439-95-4	Magnesium	3010			P	J	I
7439-96-5	Manganese	138			P		
7439-97-6	Mercury	0.25			AV		
7439-98-7	Molybdenum	0.65	U		P	U	
7440-02-0	Nickel	7.2			P		
7440-09-7	Potassium	1700			P		
7782-49-2	Selenium	0.27	U		P	U	
7440-22-4	Silver	3.7			P		
7440-23-5	Sodium	91.6	B		P		
7440-28-0	Thallium	0.93			P	UJ	B
7440-62-2	Vanadium	23.4			P		
7440-66-6	Zinc	50.0			P		

OGDEN VALIDATED LEVEL IV

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

1237

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ517

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200484 SAS No.: SDG NO.: RJ514

Matrix (soil/water): SOIL Lab Sample ID: 200484-04

Level (low/med): LOW Date Received: 07/08/00

% Solids: 94.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	8250			P	J	I
7440-36-0	Antimony	0.86	B		P		
7440-38-2	Arsenic	3.5			P		
7440-39-3	Barium	86.5			P		
7440-41-7	Beryllium	0.36	B		P		
7440-42-8	Boron	3.7	U		P	U	
7440-43-9	Cadmium	0.33	B		P		
7440-70-2	Calcium	4260			P	J	L
7440-47-3	Chromium	17.1			P	J	L
7440-48-4	Cobalt	6.0			P		
7440-50-8	Copper	36.9			P		
7439-89-6	Iron	15800			P		
7439-92-1	Lead	15.3			P		
7439-95-4	Magnesium	3340			P	J	I
7439-96-5	Manganese	907			P		
7439-97-6	Mercury	0.17			AV		
7439-98-7	Molybdenum	0.72	U		P	U	
7440-02-0	Nickel	7.4			P		
7440-09-7	Potassium	2150			P		
7782-49-2	Selenium	0.30	U		P	U	
7440-22-4	Silver	4.1			P		
7440-23-5	Sodium	149	B		P		
7440-28-0	Thallium	0.20	U		P	U	
7440-62-2	Vanadium	22.8			P		
7440-66-6	Zinc	378			P		

OGDEN VALIDATED LEVEL IV

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

1288

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ520

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200484 SAS No.: SDG NO.: RJ514

Matrix (soil/water): SOIL Lab Sample ID: 200484-07

Level (low/med): LOW Date Received: 07/08/00

% Solids: 61.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	10000			P	J	I
7440-36-0	Antimony	1.0	B		P	J	F
7440-38-2	Arsenic	4.5			P		
7440-39-3	Barium	86.3			P		
7440-41-7	Beryllium	0.51	B		P		
7440-42-8	Boron	6.2	U		P	U	
7440-43-9	Cadmium	0.05	U		P	U	
7440-70-2	Calcium	11000			P	J	L
7440-47-3	Chromium	16.6			P	J	L
7440-48-4	Cobalt	6.0	B		P		
7440-50-8	Copper	14.3			P		
7439-89-6	Iron	17200			P		
7439-92-1	Lead	17.8			P		
7439-95-4	Magnesium	4740			P	J	I
7439-96-5	Manganese	605			P		
7439-97-6	Mercury	0.07			AV		
7439-98-7	Molybdenum	1.2	U		P	U	
7440-02-0	Nickel	10.5			P		
7440-09-7	Potassium	2170			P		
7782-49-2	Selenium	0.51	U		P	U	
7440-22-4	Silver	6.2			P		
7440-23-5	Sodium	1180			P		
7440-28-0	Thallium	0.33	U		P	U	
7440-62-2	Vanadium	25.7			P		
7440-66-6	Zinc	92.4			P		

OGDEN VALIDATED

LEVEL IV

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

1239

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ523

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200484 SAS No.: SDG NO.: RJ514

Matrix (soil/water): SOIL Lab Sample ID: 200484-10

Level (low/med): LOW Date Received: 07/08/00

% Solids: 85.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	20000			P	J	I
7440-36-0	Antimony	1.0	B		P		
7440-38-2	Arsenic	7.0			P		
7440-39-3	Barium	129			P		
7440-41-7	Beryllium	0.83			P		
7440-42-8	Boron	4.2	U		P	U	
7440-43-9	Cadmium	0.81			P		
7440-70-2	Calcium	9270			P	J	L
7440-47-3	Chromium	30.1			P	J	L
7440-48-4	Cobalt	10.0			P		
7440-50-8	Copper	35.4			P		
7439-89-6	Iron	25900			P		
7439-92-1	Lead	32.2			P		
7439-95-4	Magnesium	6590			P	J	I
7439-96-5	Manganese	331			P		
7439-97-6	Mercury	0.11			AV		
7439-98-7	Molybdenum	0.81	U		P	U	
7440-02-0	Nickel	19.7			P		
7440-09-7	Potassium	4430			P		
7782-49-2	Selenium	1.7	U		P	U	
7440-22-4	Silver	9.7			P		
7440-23-5	Sodium	86.8	B		P		
7440-28-0	Thallium	0.72	B		P		
7440-62-2	Vanadium	48.4			P		
7440-66-6	Zinc	213			P		

OGDEN VALIDATED LEVEL IV

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

1230

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ537

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200484 SAS No.: SDG NO.: RJ514

Matrix (soil/water): SOIL Lab Sample ID: 200484-16

Level (low/med): LOW Date Received: 07/13/00

% Solids: 94.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	9810			P	J	I
7440-36-0	Antimony	0.66	B		P	J	F
7440-38-2	Arsenic	3.5			P		
7440-39-3	Barium	67.4			P		
7440-41-7	Beryllium	0.44	B		P		
7440-42-8	Boron	4.6	U		P	U	
7440-43-9	Cadmium	0.04	U		P	U	
7440-70-2	Calcium	6040			P	J	L
7440-47-3	Chromium	16.2			P	J	L
7440-48-4	Cobalt	5.4			P		
7440-50-8	Copper	14.8			P		
7439-89-6	Iron	13800			P		
7439-92-1	Lead	18.0			P		
7439-95-4	Magnesium	3570			P	J	I
7439-96-5	Manganese	214			P		
7439-97-6	Mercury	0.18			AV		
7439-98-7	Molybdenum	0.89	U		P	U	
7440-02-0	Nickel	9.5			P		
7440-09-7	Potassium	2790			P		
7782-49-2	Selenium	0.37	U		P	U	
7440-22-4	Silver	5.3			P		
7440-23-5	Sodium	100	B		P		
7440-28-0	Thallium	0.50	B		P		
7440-62-2	Vanadium	23.4			P		
7440-66-6	Zinc	98.3			P		

OGDEN VALIDATED LEVEL IV

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

1291

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ539

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200484 SAS No.: SDG NO.: RJ514

Matrix (soil/water): SOIL Lab Sample ID: 200484-18

Level (low/med): LOW Date Received: 07/13/00

% Solids: 94.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	8840			P	J	I
7440-36-0	Antimony	0.78	B		P	J	F
7440-38-2	Arsenic	2.6			P		
7440-39-3	Barium	75.6			P		
7440-41-7	Beryllium	0.40	B		P		
7440-42-8	Boron	4.2	U		P	U	
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	2310			P	J	L
7440-47-3	Chromium	14.6			P	J	L
7440-48-4	Cobalt	5.5			P		
7440-50-8	Copper	10.0			P		
7439-89-6	Iron	14700			P		
7439-92-1	Lead	11.9			P		
7439-95-4	Magnesium	3080			P	J	I
7439-96-5	Manganese	268			P		
7439-97-6	Mercury	0.06			AV		
7439-98-7	Molybdenum	0.80	U		P	U	
7440-02-0	Nickel	9.7			P		
7440-09-7	Potassium	2730			P		
7782-49-2	Selenium	0.34	U		P	U	
7440-22-4	Silver	4.4			P	R	D
7440-23-5	Sodium	66.4	B		P		
7440-28-0	Thallium	0.53	B		P		
7440-62-2	Vanadium	24.5			P		
7440-66-6	Zinc	58.9			P		

PM 12/29/00

OGDEN VALIDATED

LEVEL IV

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

1292

Comments:

Ceimic

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ542

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200484 SAS No.: SDG NO.: RJ514

Matrix (soil/water): SOIL Lab Sample ID: 200484-20

Level (low/med): LOW Date Received: 07/13/00

% Solids: 96.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	8640			P	J	I
7440-36-0	Antimony	0.69	B		P	J	F
7440-38-2	Arsenic	3.3			P		
7440-39-3	Barium	36.5			P		
7440-41-7	Beryllium	0.41			P		
7440-42-8	Boron	3.5	U		P	U	
7440-43-9	Cadmium	0.14	U		P	U	
7440-70-2	Calcium	3590			P	J	L
7440-47-3	Chromium	14.9			P	J	L
7440-48-4	Cobalt	5.6			P		
7440-50-8	Copper	9.4			P		
7439-89-6	Iron	16100			P		
7439-92-1	Lead	3.9			P		
7439-95-4	Magnesium	4110			P	J	I
7439-96-5	Manganese	171			P		
7439-97-6	Mercury	0.01	U		AV	UJ	B
7439-98-7	Molybdenum	0.68	U		P	U	
7440-02-0	Nickel	6.8			P		
7440-09-7	Potassium	1950			P		
7782-49-2	Selenium	1.4	U		P	U	
7440-22-4	Silver	3.8			P		
7440-23-5	Sodium	84.0	B		P		
7440-28-0	Thallium	0.36	B		P		
7440-62-2	Vanadium	28.3			P		
7440-66-6	Zinc	50.2			P		

OGDEN VALIDATED

LEVEL IV

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

1293

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ543
ER

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200484 SAS No.: SDG NO.: RJ514

Matrix (soil/water): WATER Lab Sample ID: 200484-21

Level (low/med): LOW Date Received: 07/13/00

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	62.0	U		P	U	
7440-36-0	Antimony	2.0	B		P		
7440-38-2	Arsenic	5.0	U		P	U	
7440-39-3	Barium	4.7	B		P	UJ	B
7440-41-7	Beryllium	0.48	U		P	U	
7440-42-8	Boron	45.4	U		P	U	
7440-43-9	Cadmium	0.35	U		P	U	
7440-70-2	Calcium	525	B		P	UJ	B
7440-47-3	Chromium	6.4	U		P	U	
7440-48-4	Cobalt	4.3	B		P		
7440-50-8	Copper	8.7	U		P	U	
7439-89-6	Iron	47.0	U		P	U	
7439-92-1	Lead	2.2	B		P		
7439-95-4	Magnesium	110	B		P	UJ	B
7439-96-5	Manganese	3.2	B		P	UJ	B
7439-97-6	Mercury	0.06	B		AV	UJ	B
7439-98-7	Molybdenum	24.5	B		P	UJ	B
7440-02-0	Nickel	7.4	B		P		
7440-09-7	Potassium	265	U		P	U	
7782-49-2	Selenium	3.7	U		P		
7440-22-4	Silver	6.1	U		P		
7440-23-5	Sodium	242	U		P		
7440-28-0	Thallium	2.4	U		P		
7440-62-2	Vanadium	5.4	B		P		
7440-66-6	Zinc	7.1	U		P	U	

OGDEN VALIDATED

LEVEL IV

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

161

Comments:

DATA VALIDATION REPORT

ROCKETDYNE
SSFL RFI Program

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: RJ001

Prepared by

Ogden—Denver Operations
550 South Wadsworth Boulevard, Suite 500
Lakewood, Colorado 80226

1. INTRODUCTION

Project:	Rocketdyne, SSFL RFI Program
Contract Task Order #:	313150002
SDG#:	RJ001
Project Manager:	D. Hambrick
Matrix:	Soil and water
Analysis:	Metals
QC Level:	IV
No. of Samples:	11
No. of Reanalyses/Dilutions:	0
Reviewer:	P. Meeks
Date of Review:	September 15, 2000

The samples listed in Table 1 were validated based on the guidelines outlined in the *Ogden Data Validation Procedure for Levels C and D metals and cyanide* (DVP-5, Rev. 2), *USEPA SW-846 Methods 6010A, 7000A* (11/90)*, and 7470A* (09/94), and the *National Functional Guidelines for Inorganic Data Review* (2/94). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on the Sample Result Forms with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
CFTS01S01	RJ003	200456-03	soil	6010/7000
SLBS31S01	RJ018	200456-08	soil	6010/7000
SLBS32S01	RJ019	200456-09	soil	6010/7000
SRSV01S01	RJ506	200456-10	soil	6010/7000
SRSS02S01	RJ507	200456-11	soil	mercury only
SRSS03S01	RJ508	200456-12	soil	mercury only
SRSS04S01	RJ509	200456-13	soil	mercury only
SRSS05S01	RJ510	200456-14	soil	mercury only
SRBS07S01	RJ511	200456-15	soil	6010/7000
SRBS08S01	RJ512	200456-16	soil	6010/7000
SRBS09S01	RJ513	200456-17	soil	6010/7000

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples arrived at the laboratory above the established temperature limit of 4◦C " 2◦C; however, due to the nonvolatile nature of the analytes, no qualifications were required. No sample preservation, handling or transport problems were noted for the metals samples. No sample qualifications were required.

2.1.2 Chain of Custody

The COCs in the package were legible, were signed by the field and laboratory personnel, and accounted for the analyses presented in the data package. The sample condition questions were not answered on the COCs, but sample receiving checklists with this and additional information were included for all the samples. Custody seals were present and intact on the coolers. There was no documentation as to whether custody seals were present on the sample containers. No qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analysis recorded in the raw data documented that all sample analyses were performed within the specified holding times of 6 months for metals (except mercury) and 28 days for mercury. No qualifications were assigned to sample results.

2.2 CALIBRATION

All ICV and CCV results provided on the Form IIs showed acceptable %Rs, 90-110% for the ICP metals, 85-115% for cyanide, and 80-120% for mercury. No qualifications were required based on the calibration information.

2.3 BLANKS

Detects and negative results were reported in the method blanks associated with the samples in this SDG. The sample results were qualified for the blanks as follows:

Findings	Associated Samples	Qualification of Data
Boron was reported in the soil method blank at -4.906 mg/kg.	RJ003 RJ018 RJ019 RJ506 RJ511 RJ512 RJ513	Nondetected boron in the samples was qualified "UJ."
Molybdenum was reported in the soil method blank at -5.074 mg/kg.	RJ003 RJ018 RJ019 RJ506 RJ511 RJ512 RJ513	Nondetected molybdenum in the sample was qualified "UJ."
Mercury was detected in the soil method blank at 0.082 mg/kg.	all site samples except RJ508 and RJ510	Detected mercury in the samples was qualified "UJ."
Nickel was detected in the soil method blank at 3.75 mg/kg.	RJ018 RJ506 RJ511 RJ512 RJ513	Detected nickel in the samples was qualified "UJ."

2.4 ICP INTERFERENCE CHECK SAMPLE (ICP ICS)

The results for the ICSAB analyses reported on the Form IVs were within established control limits, but there were negative results in the ICSA analyses for boron and selenium, which are not present in the ICSA solution. The absolute values of these results were greater than the applicable CRDLs. Selenium and cadmium were also present in the ICSA analyses at, or greater than CRDL, but less than 2HCRDL. No sample qualifications were applied.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Solid LCS samples were analyzed with this SDG. All of the LCS results reported on the Form VIIs were within the laboratory's control limits, except for boron (78.5%), calcium (79.3%), molybdenum (79.2%), and mercury (127.0%); therefore, nondetected boron and molybdenum were qualified "UJ." Detected calcium in the site samples, and detected mercury in RJ508 and RJ510 were qualified as estimated, "J." No further qualifications were required.

2.6 LABORATORY DUPLICATES

The laboratory duplicate analysis was performed for samples RJ506 in association with the site soil samples. The RPDs reported on the Form VIs were all within the established control limits of "20% RPD, or "CRDL when applicable, and no qualifications were required.

2.7MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The matrix spike/matrix spike duplicate analysis was performed for sample RJ506 in association with the site soil samples. The matrix spike control limit is 75-125 percent; this control limit does not

apply if the sample concentration exceeds the spike concentration by a factor of 4 or more. The matrix spike recoveries were within control limits with the exception of antimony (16.9%) and Molybdenum (67.8%); therefore, detected antimony in the site samples was qualified as estimated "J", and nondetected molybdenum in the site samples was qualified "UJ." The boron and selenium recoveries were also out of control at 161.4% and 707.3%, respectively; however, neither boron nor selenium were detected in the site samples. No further qualifications were required.

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analysis of these samples; therefore, furnace atomic absorption QC is not applicable.

2.9 ICP SERIAL DILUTION

The ICP serial dilution analyses were performed for sample RJ506 in association with site soil samples. All of the serial dilution results were within the 10%D control limit and no qualifications were required.

2.10 SAMPLE RESULT VERIFICATION

An EPA Level IV review was performed for the samples in this data package. The sample results were verified against the instrument output and were found to be acceptable for the ICAP and CVAA analyses. The iron result for sample RJ003 was reported from a 10H dilution.

2.11 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

2.11.1 Field Blanks and Equipment Rinsates

There were no equipment rinsates associated with this SDG. RJ543 (SDG RJ514) was identified as the field blank associated with the site soil samples. Cobalt, lead, nickel, and vanadium were detected in RJ543, but not at sufficient concentration to qualify site samples. Antimony was detected in RJ543 at 2.0 ìg/L; therefore detected antimony in RJ018, RJ019, RJ506, RJ511, RJ512, and RJ513 was qualified as estimated, "J." No further qualifications were required.

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this package. Field duplicates are required at a rate of 10% per matrix for site samples; consequently, field duplicates are not required in every package.

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TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ003

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-03

Level (low/med): LOW Date Received: 07/03/00

% Solids: 92.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	14400			P		
7440-36-0	Antimony	52.0		N	P	J	Q
7440-38-2	Arsenic	28.0			P		
7440-39-3	Barium	1330			P		
7440-41-7	Beryllium	0.40	B		P		
7440-42-8	Boron	16.7	U	N	P-	UJ	B, L
7440-43-9	Cadmium	1.6	U		P	U	
7440-70-2	Calcium	18100			P	J	L
7440-47-3	Chromium	144		N	P		
7440-48-4	Cobalt	36.8			P		
7440-50-8	Copper	631			P		
7439-89-6	Iron	282000			P		
7439-92-1	Lead	2080			P		
7439-95-4	Magnesium	2720			P		
7439-96-5	Manganese	2730			P		
7439-97-6	Mercury	0.32			AV	UJ	B
7439-98-7	Molybdenum	3.2	U	N	P	UJ	B, Q, L
7440-02-0	Nickel	118		N	P		
7440-09-7	Potassium	1590			P		
7782-49-2	Selenium	34.0	U	N	P	U	
7440-22-4	Silver	336			P		
7440-23-5	Sodium	289	B		P		
7440-28-0	Thallium	4.8	B		P		
7440-62-2	Vanadium	37.7			P		
7440-66-6	Zinc	6290			P		

OGDEN VALIDATED

LEVEL IV

064

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts

Ceimic

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ018

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-08

Level (low/med): LOW Date Received: 07/03/00

% Solids: 88.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	14100			P		
7440-36-0	Antimony	0.55	B	N	P	J	Q, F
7440-38-2	Arsenic	3.4			P		
7440-39-3	Barium	71.9			P		
7440-41-7	Beryllium	0.59			P		
7440-42-8	Boron	4.0	U	N	P	UJ	B, L
7440-43-9	Cadmium	0.03	U		P	U	
7440-70-2	Calcium	2710			P	J	L
7440-47-3	Chromium	21.1		N	P		
7440-48-4	Cobalt	3.4	B		P		
7440-50-8	Copper	6.9			P		
7439-89-6	Iron	18100			P		
7439-92-1	Lead	4.5			P		
7439-95-4	Magnesium	4490			P		
7439-96-5	Manganese	138			P		
7439-97-6	Mercury	0.05			AV	UJ	B
7439-98-7	Molybdenum	0.78	U	N	P	UJ	B, Q, L
7440-02-0	Nickel	15.4		N	P	UJ	B
7440-09-7	Potassium	1620			P		
7782-49-2	Selenium	1.3	U	N	P	U	
7440-22-4	Silver	4.4			P		
7440-23-5	Sodium	220	B		P		
7440-28-0	Thallium	0.55	B		P		
7440-62-2	Vanadium	33.8			P		
7440-66-6	Zinc	43.9			P		

OGDEN VALIDATE

LEVEL IV

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Ceimic

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ019

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-09

Level (low/med): LOW Date Received: 07/03/00

% Solids: 88.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	18100			P		
7440-36-0	Antimony	0.78	B	N	P	J	Q, F
7440-38-2	Arsenic	4.7			P		
7440-39-3	Barium	95.6			P		
7440-41-7	Beryllium	0.73			P		
7440-42-8	Boron	3.8	U	N	P	UJ	B, L
7440-43-9	Cadmium	0.12	U		P	U	
7440-70-2	Calcium	5480			P	J	L
7440-47-3	Chromium	30.2		N	P		
7440-48-4	Cobalt	8.5			P		
7440-50-8	Copper	9.6			P		
7439-89-6	Iron	23100			P		
7439-92-1	Lead	6.6			P		
7439-95-4	Magnesium	6240			P		
7439-96-5	Manganese	290			P		
7439-97-6	Mercury	0.05			AV	UJ	B
7439-98-7	Molybdenum	0.74	U	N	P	UJ	B, Q, L
7440-02-0	Nickel	21.9		N	P		
7440-09-7	Potassium	1920			P		
7782-49-2	Selenium	0.31	U	N	P	U	
7440-22-4	Silver	5.8			P		
7440-23-5	Sodium	919			P		
7440-28-0	Thallium	0.27	B		P		
7440-62-2	Vanadium	46.6			P		
7440-66-6	Zinc	50.3			P		

GDEN VALIDATED LEVEL IV

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Ceimic

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ506

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-10

Level (low/med): LOW Date Received: 07/03/00

% Solids: 84.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	17400			P		
7440-36-0	Antimony	0.57	B	N	P	J	Q, F
7440-38-2	Arsenic	4.5			P		
7440-39-3	Barium	70.6			P		
7440-41-7	Beryllium	0.75			P		
7440-42-8	Boron	3.8	U	N	P	UJ	B, L
7440-43-9	Cadmium	0.26	B		P		
7440-70-2	Calcium	1610			P	J	L
7440-47-3	Chromium	16.4		N	P		
7440-48-4	Cobalt	7.7			P		
7440-50-8	Copper	10.1			P		
7439-89-6	Iron	24700			P		
7439-92-1	Lead	5.9			P		
7439-95-4	Magnesium	4700			P		
7439-96-5	Manganese	218			P		
7439-97-6	Mercury	0.06			AV	UJ	B
7439-98-7	Molybdenum	0.73	U	N	P	UJ	B, Q, L
7440-02-0	Nickel	10.8		N	P	UJ	B
7440-09-7	Potassium	1630			P		
7782-49-2	Selenium	1.2	U	N	P	U	
7440-22-4	Silver	6.0			P		
7440-23-5	Sodium	168	B		P		
7440-28-0	Thallium	0.20	U		P	U	
7440-62-2	Vanadium	37.7			P		
7440-66-6	Zinc	826			P		

OGDEN VALIDATE

LEVEL IV

067

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Ceimic

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ507

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-11

Level (low/med): LOW Date Received: 07/03/00

% Solids: 98.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.22			AV	UJ	B

GDEN VALIDATED

LEVEL IV

068

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Ceimic

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ508

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-12

Level (low/med): LOW Date Received: 07/03/00

% Solids: 98.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.90			AV	J	L

LEVEL IV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts

Ceimic

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ509

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-13

Level (low/med): LOW Date Received: 07/03/00

% Solids: 98.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.29			AV	UJ	B

OGDEN VALIDATION

LEVEL IV

070

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Ceimic

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ510

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-14

Level (low/med): LOW Date Received: 07/03/00

% Solids: 97.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7439-97-6	Mercury	0.97			AV	J	L

DEN VALIDATED LEVEL IV

071

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts

Ceimic

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ511

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-15

Level (low/med): LOW Date Received: 07/03/00

% Solids: 98.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Raw Qual	Qual Code
7429-90-5	Aluminum	12100			P		
7440-36-0	Antimony	0.49	B	N	P	J	Q, F
7440-38-2	Arsenic	6.4			P		
7440-39-3	Barium	74.0			P		
7440-41-7	Beryllium	0.76			P		
7440-42-8	Boron	4.2	U	N	P	UJ	B, L
7440-43-9	Cadmium	0.13	U		P	U	
7440-70-2	Calcium	1530			P	J	L
7440-47-3	Chromium	16.7		N	P		
7440-48-4	Cobalt	6.8			P		
7440-50-8	Copper	9.3			P		
7439-89-6	Iron	18200			P		
7439-92-1	Lead	4.7			P		
7439-95-4	Magnesium	3630			P		
7439-96-5	Manganese	313			P		
7439-97-6	Mercury	0.05			AV	UJ	B
7439-98-7	Molybdenum	0.81	U	N	P	UJ	B, Q, L
7440-02-0	Nickel	11.7		N	P	UJ	B
7440-09-7	Potassium	3570			P		
7782-49-2	Selenium	1.4	U	N	P	U	
7440-22-4	Silver	4.8			P		
7440-23-5	Sodium	40.5	B		P		
7440-28-0	Thallium	0.22	U		P	U	
7440-62-2	Vanadium	29.4			P		
7440-66-6	Zinc	49.0			P		

GDEN VALIDATED LEVEL IV

072

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Ceimic

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
RJ512

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-16

Level (low/med): LOW Date Received: 07/03/00

% Solids: 94.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	13400			P		
7440-36-0	Antimony	0.53	B	N	P	J	Q, F
7440-38-2	Arsenic	3.7			P		
7440-39-3	Barium	71.7			P		
7440-41-7	Beryllium	0.55			P		
7440-42-8	Boron	3.3	U	N	P	UJ	B, L
7440-43-9	Cadmium	0.10	U		P	U	
7440-70-2	Calcium	3120			P	J	L
7440-47-3	Chromium	22.7		N	P		
7440-48-4	Cobalt	6.5			P		
7440-50-8	Copper	7.4			P		
7439-89-6	Iron	17500			P		
7439-92-1	Lead	4.0			P		
7439-95-4	Magnesium	4330			P		
7439-96-5	Manganese	258			P		
7439-97-6	Mercury	0.15			AV	UJ	B
7439-98-7	Molybdenum	0.65	U	N	P	UJ	B, Q, L
7440-02-0	Nickel	11.1		N	P	UJ	B
7440-09-7	Potassium	2140			P		
7782-49-2	Selenium	1.1	U	N	P	U	
7440-22-4	Silver	4.5			P		
7440-23-5	Sodium	692			P		
7440-28-0	Thallium	0.18	U		P	U	
7440-62-2	Vanadium	34.5			P		
7440-66-6	Zinc	42.0			P		

GDEN VALIDATED LEVEL IV

073

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Ceimic

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

RJ513

Contract: Rocketdyne

Lab Code: CEIMIC Case No.: 200456 SAS No.: SDG NO.: RJ001

Matrix (soil/water): SOIL Lab Sample ID: 200456-17

Level (low/med): LOW Date Received: 07/03/00

% Solids: 97.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	Rev Qual	Qual Code
7429-90-5	Aluminum	7940			P		
7440-36-0	Antimony	0.45	B	N	P	J	Q, F
7440-38-2	Arsenic	2.2			P		
7440-39-3	Barium	41.7			P		
7440-41-7	Beryllium	0.40			P		
7440-42-8	Boron	2.9	U	N	P	UJ	B, L
7440-43-9	Cadmium	0.02	U		P	U	
7440-70-2	Calcium	1710			P	J	L
7440-47-3	Chromium	15.5		N	P		
7440-48-4	Cobalt	4.0			P		
7440-50-8	Copper	7.1			P		
7439-89-6	Iron	12600			P		
7439-92-1	Lead	7.4			P		
7439-95-4	Magnesium	2950			P		
7439-96-5	Manganese	252			P		
7439-97-6	Mercury	0.23			AV	UJ	B
7439-98-7	Molybdenum	0.57	U	N	P	UJ	B, Q, L
7440-02-0	Nickel	9.4		N	P	UJ	B
7440-09-7	Potassium	1880			P		
7782-49-2	Selenium	0.96	U	N	P	U	
7440-22-4	Silver	3.3			P		
7440-23-5	Sodium	72.9	B		P		
7440-28-0	Thallium	0.16	U		P	U	
7440-62-2	Vanadium	20.4			P		
7440-66-6	Zinc	155			P		

GDEN VALIDATED LEVEL IV

074

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After:

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	General Minerals by Method 314 and 9045
QC Level:	V[1]
SDG:	17392
Matrix:	Soil
No. of Samples:	4
Date Reviewed:	April 12, 2001
Reviewer:	P. Meeks
Reference:	*USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review* (2/94)
Samples Reviewed:	RZ776, RZ781, RZ784, RZ788

Data Validation Findings

	Findings	Qualifications
1. Sample Management	No temperature information provided. COC matches samples. Holding time exceeded for pH analyses.	pH results qualified "J."
3. Method Blanks	Perchlorate not detected. Not applicable to pH analysis.	No qualifications were required.
5. LCS/BS	Acceptable as reviewed for perchlorate. None performed for pH.	No qualifications were required.
6. Duplicates Performed for RZ776 and RZ788 for pH.	Acceptable as reviewed.	No qualifications were required.
7. MS/MSDs Performed for RZ784 for perchlorate.	Acceptable as reviewed.	No qualifications were required.
10. Other	None.	No qualifications were required.
11. Field QC Samples ER/FB: None Field Duplicates: none	None.	No qualifications were required.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

Weck Laboratories, Inc.
Environmental and Analytical Services - Since 1964

Report Date: *Thursday, December 14, 2000*
Received Date: *Wednesday, November 15, 2000*
Log By: mr
Log Time: 12:12

Client: Centrum Analytical Laboratories, Inc.
290 Tennessee Street
Redlands, CA 92373
Attn.: Marilu Escher

Phone: (909) 798-9336
FAX: (909) 793-1559

Project: Rocketdyne / 17392

P.O. #:
Turnaround Time: Normal

CERTIFICATE OF ANALYSIS

Lab#: A008107-001 **Sample ID:** RZ784 **Matrix:** Soil
Sampled By: Client **Date:** 11/2/00 **Time:** 7:00

Parameter	Result	Flag	Units	Dilution Factor	RL	Method	Analyzed	Worksheet #	Rev Qual	Qual Code
Prep. Method: Water Leach										
Perchlorate	ND		ug/kg	1	40	EPA 314	12/6/00 dc	WS20321	U	

Authorized Signature

ELAP # 1132
LACSD # 10143
AZ0526

Flags for Data Qualifiers:
B = Compound detected in the blank. Sample result equal or less than 10 times the concentration in the blank.
J = Estimated value, detected but below the reporting limit.
H = Estimated value, result over the calibration range
R = Result is suspect, LCS recovery greater than the upper control limit.
L = Result is suspect, LCS recovery lower than the control limit.
Q = QC result out of acceptance limits.
T = Trace detection, detected but below the reporting limit.

Notes:
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless specified.
RL = Reporting Limit.
ND = Not detected, below the reporting limit.
Sub = Subcontracted analysis, original report enclosed.

LEVEL V

14859 East Clark Avenue, City of Industry, California 91745-1396 (626) 336-2139 FAX (626) 336-2634
www.wecklabs.com

General Chemistry

Client: Ogden
Project: Rocketdyne
Job No.: 17392
Matrix: Soil
Analyst: TLR/GF

Date Sampled: 11/02-07/00
Date Received 11/09/00

Analysis:	pH	pH	Moisture Content		
Method Number:	9045	9045	D2974-87A		
Sample ID	pH Units	pH Units	Percent (%)	Lab Qual	Qual Code
RZ784	7.2	NA	17*	J	H
RZ788	6.3	NA	5*	J	H
RZ812	NA	NA	21*		
RZ781	NA	7.2	6*	J	H
RZ776	NA	7.9	8*	J	H
Detection Limit:	4.0-12.5	4.0-12.5	NA		
Date Analyzed:	11/09/00	11/14/00	11/14/00		
QC Batch # :	9045S0344	9045S0345	2974S0020		

*Analysis Not Valid

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Total Fuel Hydrocarbons by EPA Method 8015M
QC Level:	V[1]
SDG:	17392
Matrix:	Soil
No. of samples:	3
Dilution/Reanalyses:	0
Date Reviewed:	April 23, 2001
Reviewer:	L. Calvin
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	RZ776, RZ781, and RZ788

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COC was signed by both field and laboratory personnel. No information regarding sample conditions or cooler temperatures upon receipt were recorded on the COC; however, the case narrative for this SDG noted that the sample containers were received chilled and intact. The Method 8015M analysis was requested for sample RZ812 on the COC; however, the laboratory did not include results for this sample in the data package. According to the extraction and analysis dates on the sample result form, the samples were extracted within 14 days of collection and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was extracted and analyzed with the samples in this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.

	Findings	Qualifications
5. LCS/BS	One soil LCS/LCSD pair spiked with diesel was extracted and analyzed with the samples in this SDG. The percent recoveries for diesel were within the laboratory QC limits of 70-130%, and the RPD was less than the QC limit of 29%.	No qualifications were required.
6. Surrogates	The surrogate recovery for site samples RZ776 and RZ781 were above the laboratory QC limits of 80-130%.	As there were no reported detects in either sample, no qualifications were required.
7. MS/MSDs	There were no MS/MSD analyses performed for this SDG. Evaluation of method accuracy and precision was based on the LCS/LCSD results.	No qualifications were required.
8. Field QC Samples ER: None TB: None FB: None FD: None	There were no identified field QC samples associated with the samples in this SDG. No evaluation of possible field contamination was performed.	No qualifications were reqired.
9. Other	The samples in this SDG did not require dilution. Reporting limits were not adjusted for sample percent moisture; however, a footnote on the sample results summary indicated that results were reported on a dry-weight basis. Results for the samples in this SDG were reported in three carbon ranges (<C12, C12-C22, and >C22) rather than the four carbon ranges for gasoline (C8-C11), kerosene (C11-C14), diesel (C14-C20), and lubricant oil (C20-C30), as reported in previous SDGs.	No qualifications were required.
Comments	None.	None.

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

Centrum
(800) 798-9336

Modified 8015 - Hydrocarbons by Carbon Chain Length

Client:	Ogden	Date Sampled:	11/02-07/00
Project:	Rocketdyne	Date Received:	11/09/00
Job No.:	17392	Batch Number:	8015DS2068
Matrix:	Soil		
Analyst:	JB		

Carbon Chain Length:	<C12		C12-C22		>C22		
Detection Limits:	10.00		10		10		
Units:	mg/Kg*	rev qual	mg/Kg*	rev qual	mg/Kg*	rev qual	qual code
Blank *	ND	U	ND		ND	U	
RZ788	10		78		75		
RZ781	ND	U	ND	U	ND	U	
RZ776	ND	U	ND	U	ND	U	
Date Extracted:	11/15/00		11/15/00		11/15/00		
Date Analyzed:	11/15-16/00		11/15-16/00		11/15-16/00		

*Concentrations are reported in mg/Kg by sample dry weight.

* Not validated.

LEVEL V

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Semivolatiles by 8270
QC Level:	V[1]
SDG:	17392
Matrix:	Soil
No. of Samples:	3
Date Reviewed:	April 13, 2001
Reviewer:	K. McNeill
Reference:	National Functional Guidelines For Organic Data Review (2/94)
Samples Reviewed:	RZ776, RZ781, and RZ788.

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COC was signed by field and laboratory personnel. The cooler receipt temperature was not listed. The COC requested method 8270SIM, but the samples were run under method 8270R. No memo was provided authorizing the change in analysis.	No qualifications were required.
4. Method Blanks	Two method blanks were reported with this package, and reported nondetects for all target compounds.	No qualifications were required.
5. LCS/BS	One laboratory control sample/ laboratory control sample duplicate was reported with this SDG. The LCS reported acceptable recoveries for all spiked compounds.	No qualifications were required.
6. Surrogates	All samples reported acceptable surrogate recovery values.	No qualifications were required.
7. MS/MSDs	No MS/MSD analysis was associated with this SDG.	No qualifications were required.
8. Field QC Samples ER: None FB: None Duplicates: None	No field QC samples were associated with this package.	No qualifications were required.

	Findings	Qualifications
9. Other	Sample RZ781 was reported at a 3.6X dilution. The Form I noted the case narrative provided an explanation for the raised detection limits; however, none was present. A cursory review of the raw data was not possible because the raw data listed laboratory sample IDs, the Form I's only provided Ogden IDs, and no other information was provided in the package to associate the raw data with the Form I data. However, a cursory review of the quantitation report for lab sample 17392-2 indicated possible matrix interference.	None
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

Centrum
(800) 798-9336

EPA 8270 Semivolatile Organics

11.1.00 KM 4.13.01

Client:	Ogden	Date Sampled:	~~11/02-07/00~~
Project:	Rocketdyne	Date Received:	11/09/00
Job No.:	17392	Date Extracted:	11/14/00
Matrix:	Soil	Dates Analyzed:	11/17-18/00
Analyst:	TPW	Batch Number:	8270S0675

NV NV

	Sample ID:	Blank	RZ788	RZ776	Rev Qual Code
Compound	**DL**	mg/Kg	mg/Kg*	mg/Kg	
Acenaphthene	0.033	ND	**0.53**	ND	U
Acenaphthylene	0.033	ND	ND	ND	
Anthracene	0.033	ND	**1.8**	ND	
Benzo[a]anthracene	0.066	ND	**8.0**	ND	
Benzo[a]pyrene	0.066	ND	**5.7**	ND	
Benzo[b]fluoranthene	0.033	ND	**16**	ND	
Benzo[g,h,i]perylene	0.099	ND	**3.1**	ND	
Benzo[k]fluoranthene	0.099	ND	**13**	ND	
Benzyl alcohol	0.13	ND	ND	ND	
bis(2-Chloroethoxy)methane	0.066	ND	ND	ND	
bis(2-Chloroethyl)ether	0.066	ND	ND	ND	
bis(2-Chloroisopropyl)ether	0.099	ND	ND	ND	
bis(2-Ethylhexyl)phthalate	0.33	ND	ND	ND	
4-Bromophenylphenylether	0.033	ND	ND	ND	
Butylbenzylphthalate	0.033	ND	ND	ND	
4-Chloro-3-methylphenol	0.16	ND	ND	ND	
4-Chloroaniline	0.16	ND	ND	ND	
2-Chloronaphthalene	0.033	ND	ND	ND	
2-Chlorophenol	0.13	ND	ND	ND	
4-Chlorophenylphenylether	0.033	ND	ND	ND	
Chrysene	0.033	ND	**5.3**	ND	
Di-n-butylphthalate	0.33	ND	ND	ND	
Di-n-octylphthalate	0.033	ND	ND	ND	
Dibenzo[a,h]anthracene	0.099	ND	**3.9**	ND	
Dibenzofuran	0.033	ND	**0.28**	ND	
1,2-Dichlorobenzene	0.033	ND	ND	ND	
1,3-Dichlorobenzene	0.033	ND	ND	ND	
1,4-Dichlorobenzene	0.033	ND	ND	ND	
3,3-Dichlorobenzidine	0.13	ND	ND	ND	
2,4-Dichlorophenol	0.16	ND	ND	ND	
Diethylphthalate	0.33	ND	ND	ND	
2,4-Dimethylphenol	0.099	ND	ND	ND	
Dimethylphthalate	0.033	ND	ND	ND	
4,6-Dinitro-2-methylphenol	0.33	ND	ND	ND	
2,4-Dinitrophenol	1.6	ND	ND	ND	
2,4-Dinitrotoluene	0.033	ND	ND	ND	

*Concentrations are reported in mg/Kg by sample dry weight.

NV – Not Validated.

LEVEL V

Centrum
(800) 798-9336

EPA 8270 Semivolatile Organics

Client:	Ogden	Date Sampled:	~~11/02-07/00~~ 11.1.00 KM
Project:	Rocketdyne	Date Received:	11/09/00
Job No.:	17392	Date Extracted:	11/14/00
Matrix:	Soil	Dates Analyzed:	11/17-18/00 4.13.01
Analyst:	TPW	Batch Number:	8270S0675

NV NV

	Sample ID:	Blank	RZ788	RZ776	Rev Qual	Qual Code
Compound	**DL**	mg/Kg	mg/Kg*	mg/Kg		
2,6-Dinitrotoluene	0.099	ND	ND	ND	U	
Fluoranthene	0.033	ND	**12**	ND		
Fluorene	0.033	ND	**0.47**	ND		
Hexachlorobenzene	0.033	ND	ND	ND		
Hexachlorobutadiene	0.033	ND	ND	ND		
Hexachlorocyclopentadiene	1.6	ND	ND	ND		
Hexachloroethane	0.033	ND	ND	ND		
Indeno[1,2,3-c,d]pyrene	0.13	ND	**3.1**	ND		
Isophorone	0.033	ND	ND	ND		
2-Methylnaphthalene	0.033	ND	**0.040**	ND		
2-Methylphenol	0.16	ND	ND	ND		
4-Methylphenol	0.16	ND	ND	ND		
N-Nitrosodi-n-propylamine	0.033	ND	ND	ND		
N-Nitrosodiphenylamine	0.033	ND	ND	ND		
Naphthalene	0.033	ND	**0.14**	ND		
2-Nitroaniline	0.099	ND	ND	ND		
3-Nitroaniline	0.099	ND	ND	ND		
4-Nitroaniline	0.33	ND	ND	ND		
Nitrobenzene	0.099	ND	ND	ND		
2-Nitrophenol	0.13	ND	ND	ND		
4-Nitrophenol	0.33	ND	ND	ND		
Pentachlorophenol	1.6	ND	ND	ND		
Phenanthrene	0.066	ND	**5.3**	ND		
Phenol	0.13	ND	ND	ND		
Pyrene	0.033	ND	**12**	ND		
1,2,4-Trichlorobenzene	0.033	ND	ND	ND		
2,4,5-Trichlorophenol	0.2	ND	ND	ND		
2,4,6-Trichlorophenol	0.33	ND	ND	ND	U	

*Concentrations are reported in mg/Kg by sample dry weight.

NV – Not Validated.

Surrogates (Limits) in Percent Recovery

Sample ID:	Blank	RZ788	RZ776
2-Fluorophenol (25 - 121%)	93	74	96
Phenol-D5 (24 - 113%)	89	71	91
Nitrobenzene-D5 (23 - 120%)	88	70	87
2-Fluorobiphenyl (30 - 115%)	103	82	101
2,4,6-Tribromophenol (19 - 122%)	100	84	107
p-Terphenyl-D14 (18 - 137%)	108	100	97

LEVEL V

Centrum
(800) 798-9336

EPA 8270 Semivolatile Organics

11.1.00 KY
4.13.01

Client:	Ogden	Date Sampled:	~~11/02-07/00~~
Project:	Rocketdyne	Date Received:	11/09/00
Job No..	17392	Date Extracted:	11/14/00
Matrix:	Soil	Dates Analyzed:	11/17-18/00
Analyst:	TPW	Batch Number	8270S0675

NV

	Sample ID:	Blank	RZ781	Raw Qual	Qual Code
Compound	**DL***	mg/Kg	mg/Kg		
Acenaphthene	0.12	ND	ND	U	
Acenaphthylene	0.12	ND	ND		
Anthracene	0.12	ND	ND		
Benzo[a]anthracene	0.25	ND	ND		
Benzo[a]pyrene	0.25	ND	ND		
Benzo[b]fluoranthene	0.12	ND	ND		
Benzo[g,h,i]perylene	0.37	ND	ND		
Benzo[k]fluoranthene	0.37	ND	ND		
Benzyl alcohol	0.49	ND	ND		
bis(2-Chloroethoxy)methane	0.25	ND	ND		
bis(2-Chloroethyl)ether	0.25	ND	ND		
bis(2-Chloroisopropyl)ether	0.37	ND	ND		
bis(2-Ethylhexyl)phthalate	1.24	ND	ND		
4-Bromophenylphenylether	0.12	ND	ND		
Butylbenzylphthalate	0.12	ND	ND		
4-Chloro-3-methylphenol	0.60	ND	ND		
4-Chloroaniline	0.60	ND	ND		
2-Chloronaphthalene	0.12	ND	ND		
2-Chlorophenol	0.49	ND	ND		
4-Chlorophenylphenylether	0.12	ND	ND		
Chrysene	0.12	ND	ND		
Di-n-butylphthalate	1.24	ND	ND		
Di-n-octylphthalate	0.12	ND	ND		
Dibenzo[a,h]anthracene	0.37	ND	ND		
Dibenzofuran	0.12	ND	ND		
1,2-Dichlorobenzene	0.12	ND	ND		
1,3-Dichlorobenzene	0.12	ND	ND		
1,4-Dichlorobenzene	0.12	ND	ND		
3,3-Dichlorobenzidine	0.49	ND	ND		
2,4-Dichlorophenol	0.60	ND	ND		
Diethylphthalate	1.24	ND	ND		
2,4-Dimethylphenol	0.37	ND	ND		
Dimethylphthalate	0.12	ND	ND		
4,6-Dinitro-2-methylphenol	1.24	ND	ND		
2,4-Dinitrophenol	6.00	ND	ND		
2,4-Dinitrotoluene	0.12	ND	ND	U	

* See Case Narrative regarding higher than usual detection limits.

NV - Not Validated

Centrum
(800) 798-9336

EPA 8270 Semivolatile Organics

11·1·00
KM
4·13·01

Client:	Ogden	Date Sampled:	~~11/02-07/00~~
Project:	Rocketdyne	Date Received:	11/09/00
Job No.:	17392	Date Extracted:	11/14/00
Matrix:	Soil	Dates Analyzed:	11/17-18/00
Analyst:	TPW	Batch Number:	8270S0675

NV

Sample ID:		Blank	RZ781	Rev Qual	Qual Code
Compound	DL*	mg/Kg	mg/Kg		
2,6-Dinitrotoluene	0.37	ND	ND	U	
Fluoranthene	0.12	ND	ND		
Fluorene	0.12	ND	ND		
Hexachlorobenzene	0.12	ND	ND		
Hexachlorobutadiene	0.12	ND	ND		
Hexachlorocyclopentadiene	6.00	ND	ND		
Hexachloroethane	0.12	ND	ND		
Indeno[1,2,3-c,d]pyrene	0.49	ND	ND		
Isophorone	0.12	ND	ND		
2-Methylnaphthalene	0.12	ND	ND		
2-Methylphenol	0.60	ND	ND		
4-Methylphenol	0.60	ND	ND		
N-Nitrosodi-n-propylamine	0.12	ND	ND		
N-Nitrosodiphenylamine	0.12	ND	ND		
Naphthalene	0.12	ND	ND		
2-Nitroaniline	0.37	ND	ND		
3-Nitroaniline	0.37	ND	ND		
4-Nitroaniline	1.24	ND	ND		
Nitrobenzene	0.37	ND	ND		
2-Nitrophenol	0.49	ND	ND		
4-Nitrophenol	1.24	ND	ND		
Pentachlorophenol	6.00	ND	ND		
Phenanthrene	0.25	ND	ND		
Phenol	0.49	ND	ND		
Pyrene	0.12	ND	ND		
1,2,4-Trichlorobenzene	0.12	ND	ND		
2,4,5-Trichlorophenol	0.75	ND	ND		
2,4,6-Trichlorophenol	1.24	ND	ND	U	

* See Case Narrative regarding higher than usual detection limits.

NV - Not Validated.

Surrogates (Limits) in Percent Recovery

Sample ID:	Blank	RZ781
2-Fluorophenol (25 - 121%)	93	90
Phenol-D5 (24 - 113%)	89	85
Nitrobenzene-D5 (23 - 120%)	88	86
2-Fluorobiphenyl (30 - 115%)	103	102
2,4,6-Tribromophenol (19 - 122%)	100	105
p-Terphenyl-D14 (18 - 137%)	108	103

Centrum
(800) 798-9336

EPA 8270 Semivolatile Organics

11.2.00 KM 4.13.01

Client:	Ogden	Date Sampled:	~~11/02-07/00~~
Project:	Rocketdyne	Date Received:	11/09/00
Job No.:	17392	Date Extracted:	11/14/00
Matrix:	Soil	Dates Analyzed:	11/17-18/00
Analyst:	TPW	Batch Number:	8270S0675

NV NV

	Sample ID:	Blank	RZ788	RZ776	Rev Qual	Qual Code
Compound	**DL**	mg/Kg	mg/Kg*	mg/Kg		
Acenaphthene	0.033	ND	**0.53**	ND		
Acenaphthylene	0.033	ND	ND	ND	U	
Anthracene	0.033	ND	**1.8**	ND		
Benzo[a]anthracene	0.066	ND	**8.0**	ND		
Benzo[a]pyrene	0.066	ND	**5.7**	ND		
Benzo[b]fluoranthene	0.033	ND	**16**	ND		
Benzo[g,h,i]perylene	0.099	ND	**3.1**	ND		
Benzo[k]fluoranthene	0.099	ND	**13**	ND		
Benzyl alcohol	0.13	ND	ND	ND	U	
bis(2-Chloroethoxy)methane	0.066	ND	ND	ND		
bis(2-Chloroethyl)ether	0.066	ND	ND	ND		
bis(2-Chloroisopropyl)ether	0.099	ND	ND	ND		
bis(2-Ethylhexyl)phthalate	0.33	ND	ND	ND		
4-Bromophenylphenylether	0.033	ND	ND	ND		
Butylbenzylphthalate	0.033	ND	ND	ND		
4-Chloro-3-methylphenol	0.16	ND	ND	ND		
4-Chloroaniline	0.16	ND	ND	ND		
2-Chloronaphthalene	0.033	ND	ND	ND		
2-Chlorophenol	0.13	ND	ND	ND		
4-Chlorophenylphenylether	0.033	ND	ND	ND		
Chrysene	0.033	ND	**5.3**	ND		
Di-n-butylphthalate	0.33	ND	ND	ND	U	
Di-n-octylphthalate	0.033	ND	ND	ND	U	
Dibenzo[a,h]anthracene	0.099	ND	**3.9**	ND		
Dibenzofuran	0.033	ND	**0.28**	ND		
1,2-Dichlorobenzene	0.033	ND	ND	ND	U	
1,3-Dichlorobenzene	0.033	ND	ND	ND		
1,4-Dichlorobenzene	0.033	ND	ND	ND		
3,3-Dichlorobenzidine	0.13	ND	ND	ND		
2,4-Dichlorophenol	0.16	ND	ND	ND		
Diethylphthalate	0.33	ND	ND	ND		
2,4-Dimethylphenol	0.099	ND	ND	ND		
Dimethylphthalate	0.033	ND	ND	ND		
4,6-Dinitro-2-methylphenol	0.33	ND	ND	ND		
2,4-Dinitrophenol	1.6	ND	ND	ND		
2,4-Dinitrotoluene	0.033	ND	ND	ND		

*Concentrations are reported in mg/Kg by sample dry weight.

NV - Not Validated.

LEVEL V

OGDEN VALIDATED

Centrum
(800) 798-9336

EPA 8270 Semivolatile Organics

11.2.00 KM 4.13.00 01

Client:	Ogden	Date Sampled:	~~11/02-07/00~~
Project:	Rocketdyne	Date Received:	11/09/00
Job No.:	17392	Date Extracted:	11/14/00
Matrix:	Soil	Dates Analyzed:	11/17-18/00
Analyst:	TPW	Batch Number:	8270S0675

NV NV

Compound	Sample ID: DL	Blank mg/Kg	RZ788 mg/Kg*	RZ776 mg/Kg	Lab Qual	Ref Code
2,6-Dinitrotoluene	0.099	ND	ND	ND	U	
Fluoranthene	0.033	ND	**12**	ND		
Fluorene	0.033	ND	**0.47**	ND		
Hexachlorobenzene	0.033	ND	ND	ND	U	
Hexachlorobutadiene	0.033	ND	ND	ND		
Hexachlorocyclopentadiene	1.6	ND	ND	ND		
Hexachloroethane	0.033	ND	ND	ND		
Indeno[1,2,3-c,d]pyrene	0.13	ND	**3.1**	ND		
Isophorone	0.033	ND	ND	ND	U	
2-Methylnaphthalene	0.033	ND	**0.040**	ND		
2-Methylphenol	0.16	ND	ND	ND	U	
4-Methylphenol	0.16	ND	ND	ND		
N-Nitrosodi-n-propylamine	0.033	ND	ND	ND		
N-Nitrosodiphenylamine	0.033	ND	ND	ND		
Naphthalene	0.033	ND	**0.14**	ND		
2-Nitroaniline	0.099	ND	ND	ND	U	
3-Nitroaniline	0.099	ND	ND	ND		
4-Nitroaniline	0.33	ND	ND	ND		
Nitrobenzene	0.099	ND	ND	ND		
2-Nitrophenol	0.13	ND	ND	ND		
4-Nitrophenol	0.33	ND	ND	ND		
Pentachlorophenol	1.6	ND	ND	ND		
Phenanthrene	0.066	ND	**5.3**	ND		
Phenol	0.13	ND	ND	ND	U	
Pyrene	0.033	ND	**12**	ND		
1,2,4-Trichlorobenzene	0.033	ND	ND	ND	U	
2,4,5-Trichlorophenol	0.2	ND	ND	ND		
2,4,6-Trichlorophenol	0.33	ND	ND	ND		

*Concentrations are reported in mg/Kg by sample dry weight.

NV - Not Validated.

Surrogates (Limits) in Percent Recovery

Sample ID:	Blank	RZ788	RZ776
2-Fluorophenol (25 - 121%)	93	74	96
Phenol-D5 (24 - 113%)	89	71	91
Nitrobenzene-D5 (23 - 120%)	88	70	87
2-Fluorobiphenyl (30 - 115%)	103	82	101
2,4,6-Tribromophenol (19 - 122%)	100	84	107
p-Terphenyl-D14 (18 - 137%)	108	100	97

LEVEL V

UNVALIDATED

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Metals by EPA Methods SW6010B and SW7471
QC Level:	V[1]
SDG:	17392
Matrix:	Soil
No. of Samples:	4
Date Reviewed:	April 19, 2001
Reviewer:	A. Lang
Reference:	USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994)
Samples Reviewed:	RZ784, RZ788, RZ781, RZ776

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COCs were signed by the field personnel, but not by the laboratory personnel. The COC accounted for the analyses presented in the data package. The presence of custody seals was not documented on the COC. The sample receipt temperature was not noted on the COC. The laboratory documented that the samples were received chilled and sample containers were intact. The sample analysis holding times were met.	No qualifications were required.
3. Method Blanks	Two soil method blanks were reported for this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
5. LCS/BS	Two soil LCSs were reported for this SDG. All percent recoveries were within the method QC limits.	No qualifications were required.
7. MS/MSDs None	The MS/MSDs were not analyzed on one of the samples in this SDG.	None
8. Furnace Atomic absorption QC	No GFAA analyses were performed for the samples in this SDG.	Samples not assessed for this criteria.

	Findings	Qualifications
9. ICP Serial Dilution None	No serial dilution analysis was reported.	Samples not assessed for this criteria.
10. Other	At the Level V validation, site samples are not assessed for the laboratory QC samples that evaluate instrument performance. The QC samples which are not assessed include initial and continuing calibration information, initial and continuing calibration blank information, and the ICP Interference Check Solution, ICS, sample analyses.	None
11. Field QC Samples ER: None FB: None Field Duplicates: None	None	None
12. Comments	Sample results are reported on a dry weight basis, but the hardcopy does not include the individual sample dry weight reporting limits.	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

Centrum
(800) 798-9336

Metals

Client: Ogden
Project: Rocketdyne
Job No: 17392
Matrix: Soil
Analyst: RLB/TLR

Date Sampled: 11/02-07/00
Date Received: 11/09/00
Date Digested: 11/14/00
Date Analyzed: 11/14/00
Batch Number: 6010S1787
7000S0362

		Sample ID:	Blank	RZ 781	RZ 776
Element	Method #	RL	mg/Kg	mg/Kg*	mg/Kg*
Antimony	6010B	2.0	ND	* ND u	ND u
Arsenic	6010B	1.0	ND	5.6	5.7
Barium	6010B	0.50	ND	76	68
Beryllium	6010B	0.50	ND	ND u	ND u
Cadmium	6010B	0.50	ND	ND u	ND u
Chromium	6010B	0.50	ND	16	19
Cobalt	6010B	0.50	ND	6.6	5.3
Copper	6010B	0.50	ND	8.3	7.6
Lead	6010B	1.0	ND	3.9	3.8
Mercury	7471	0.10	ND	ND u	ND u
Molybdenum	6010B	1.0	ND	ND u	ND u
Nickel	6010B	1.0	ND	10	8.6
Selenium	6010B	5.0	ND	ND u	ND u
Silver	6010B	2.0	ND	ND u	ND u
Thallium	6010B	5.0	ND	ND u	ND u
Vanadium	6010B	0.50	ND	31	33
Zinc	6010B	10	ND	57	44
Aluminum	6010B	10	ND	11,000	14,000
Boron	6010B	10	ND	ND u	ND u

*Concentrations are reported in mg/Kg by sample dry weight.

* Analysis not validated

OGDEN VALIDATED

LEVEL V

Centrum
(800) 798-9336

Metals

Client: Ogden
Project: Rocketdyne
Job No: 17392
Matrix: Soil
Analyst: RLB/TLR

Date Sampled: 11/02-07/00
Date Received: 11/09/00
Date Digested: 11/09/00
Date Analyzed: 11/09/00
Batch Number: 6010S1782
7000S0361

		Sample ID:	Blank	RZ 784	RZ 788
Element	**Method #**	**RL**	mg/Kg	mg/Kg*	mg/Kg*
Antimony	6010B	2.0	ND	* ND U	ND U
Arsenic	6010B	1.0	ND	**7.1**	**4.2**
Barium	6010B	0.50	ND	**62**	**100**
Beryllium	6010B	0.50	ND	ND U	ND U
Cadmium	6010B	0.50	ND	ND U	**0.84**
Chromium	6010B	0.50	ND	**14**	**14**
Cobalt	6010B	0.50	ND	**7.5**	**6.5**
Copper	6010B	0.50	ND	**7.5**	**13**
Lead	6010B	1.0	ND	**4.5**	**9.8**
Mercury	7471	0.10	ND	ND U	**1.4**
Molybdenum	6010B	1.0	ND	ND U	**1.2**
Nickel	6010B	1.0	ND	**11**	**8.9**
Selenium	6010B	5.0	ND	ND U	ND U
Silver	6010B	2.0	ND	ND U	ND U
Thallium	6010B	5.0	ND	ND U	ND U
Vanadium	6010B	0.50	ND	**24**	**25**
Zinc	6010B	10	ND	**39**	**76**
Aluminum	6010B	10	ND	**9,400**	**8,700**
Boron	6010B	10	ND	ND U	ND U

*Concentrations are reported in mg/Kg by sample dry weight.

* Analysis not validated

LEVEL V

OGDEN VALIDATED

OGDEN ENVIRONMENTAL AND ENERGY SERVICES
550 South Wadsworth Blvd., Suite 500, Lakewood, CO 80226
303/935-6505, Fax 303/935-6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	Metals by EPA Methods SW6010B and SW7471
QC Level:	V[1]
SDG:	17132
Matrix:	Soil
No. of Samples:	1
Date Reviewed:	April 19, 2001
Reviewer:	A. Lang
Reference:	USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994)
Samples Reviewed:	RZ057

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COCs were signed by the field and laboratory personnel and accounted for the analyses presented in the data package. The presence of custody seals was not documented on the COC. The sample receipt temperature was not noted on the COC. The laboratory documented that the samples were received chilled and sample containers were intact. The sample analysis holding times were met.	No qualifications were required.
3. Method Blanks	One soil method blank was reported for this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5. LCS/BS	One soil LCS was reported for this SDG. All percent recoveries were within the method QC limits.	No qualifications were required.
7. MS/MSDs None	The MS/MSDs were not analyzed on the sample in this SDG.	None
8. Furnace Atomic absorption QC	No GFAA analyses were performed for the samples in this SDG.	Samples not assessed for this criteria.

	Findings	Qualifications
9. ICP Serial Dilution None	No serial dilution analysis was reported.	Samples not assessed for this criteria.
10. Other	At the Level V validation, site samples are not assessed for the laboratory QC samples that evaluate instrument performance. The QC samples which are not assessed include initial and continuing calibration information, initial and continuing calibration blank information, and the ICP Interference Check Solution, ICS, sample analyses.	None
11. Field QC Samples ER: None FB: None Field Duplicates: None	None	None
12. Comments	Sample results are reported on a dry weight basis, but the hardcopy does not include the individual sample dry weight reporting limits.	None

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

Centrum
(800) 798-9336

Mercury By Cold Vapor AA

Client:	Ogden	Date Sampled:	09/28/00
Project:	Rocketdyne	Date Received:	10/02/00
Job No.:	17132	Date Analyzed:	10/04/00
Matrix:	Soil	Batch Number:	7000S0343
Analyst:	TLR	Method Number:	7471

	Detection Limit	Mercury	Rpt Qual	Qual Code
Sample ID	mg/kg	mg/kg		
Method Blank	0.10	ND	*	
RZ057	0.10	**0.12**		

Dry Weight

* Analysis not validated

LEVEL V

OGDEN VALIDATED

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

0

550 South Wadsworth Blvd. Ste. 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Project Manager: D. Hambrick
Analysis/Method: Hexavalant chromium and pH
No. of Samples: 3
Date Completed: October 20, 1998
Reviewer: K. Chapman
Ref: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994), Columbia Analytical Services SOP 96-WET-PHS-00* (Revision 1, 7/26/96), and *Columbia Analytical Services SOP 96-WET-Cr6S-00M* (Revision 1, 7/26/96)
SDG: L9800197
Samples Reviewed: RS144, RS145, RS656

EPA Level V- General Minerals Assessment Form

	Problems	**Qualifications**
1. Sample Management	The holding time for the pH analysis was exceeded. All other holding times were met. Some of the corrections on both the COCs listing these samples were initialed, but not dated.	The pH result was qualified as estimated, "J."
2. Method Blanks	Acceptable as reviewed.	None
3. LCS/BS	Acceptable as reviewed.	None
4. Duplicates Performed on sample RS656	Acceptable as reviewed. (pH only)	None
5. MS/MSDs Performed on sample RS142	Acceptable as reviewed. (hexavalant chromium only)	None
6. Field QC Samples ER: RF388 FB: RF848	No detects were reported for either field QC sample.	None

Field duplicates: none		
7. Other	None	None
8. Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/23/98
Sample Matrix:	Soil	**Date Received:**	1/23/98

Inorganic Parameters

Sample Name: RS144
Lab Code: L9800197-001
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.12	10	1/24/98	1/25/98	1.2	U

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schwartz Date: 3/13/98

1S44/021397p

7002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/23/98
Sample Matrix:	Soil	**Date Received:**	1/23/98

Inorganic Parameters

Sample Name: RS145
Lab Code: L9800197-002
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.12	10	1/24/98	1/25/98	1.2	U

LEVEL V

OGDEN VALIDATED

Approved By: Cydie Schwartz Date: 3/13/98

1S44/021397p

7003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Soil	**Date Received:**	1/26/98

Inorganic Parameters

Sample Name: RS656
Lab Code: L9800197-020
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	1/27/98	1/27/98	7.5	

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schwartz Date: 3/13/98

IS44/021397p

7004

OGDEN ***ENVIRONMENTAL AND ENERGY SERVICES***

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550 South Wadsworth Blvd. Ste. 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Project Manager: D. Hambrick
Analysis/Method: Hexavalant chromium, pH
No. of Samples: 12
Date Completed: October 20, 1998
Reviewer: K. Chapman
Ref: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994), Columbia Analytical Services SOP 96-WET-PHS-00* (Revision 1, 7/26/96), and *Columbia Analytical Services SOP 96-WET-Cr6S-00M* (Revision 1, 7/26/96)
SDG: L9800238
Samples Reviewed: RS683, RS684, RS685, RS686, RS688, RS689, RS690, RS691, RS692, RS693, RS694, RS696

EPA Level V- General Minerals Assessment Form

	Problems	Qualifications
1. Sample Management	The holding time for the pH analysis was exceeded. All other holding times were met. The temperature upon receipt at the laboratory was 7EC.	The pH result for sample RS683 was qualified as estimated, "J." As the target analytes are not volatile, qualifications were not deemed necessary.
2. Method Blanks	Acceptable as reviewed.	None
3. LCS/BS	Acceptable as reviewed.	None
4. Duplicates Perfomed on sample RS683	Acceptable as reviewed. (pH only)	None
5. MS/MSDs Performed on sample RS688	Acceptable as reviewed.	None
6. Field QC Samples ER: RF724 FB: RF848 Field duplicates: none	No detects were reported for either field QC sample.	None

7. Other	None	None
8. Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS683
Lab Code: L9800238-003
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	1/30/98	1/30/98	7.2	J

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LEVEL V

OGDEN VALIDATED

Approved By: Cydia Schwartz Date: 3/16/98

1S44/021397p

7002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS684
Lab Code: L9800238-004 Basis: Dry
Test Notes:

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	Rev Qual	Qual
Chromium, Hexavalent	MG/KG	7196	0.2	5	1/30/98	1/30/98	1	U	U	

LEVEL V

OGDEN VALIDATED

Approved By: Cydie Schwartz Date: 3/16/98

1S44/021397p

7003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS685
Lab Code: L9800238-005 Basis: Dry
Test Notes:

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.2	5	1/30/98	1/30/98	1	U

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schuraft Date: 3/16/98

1S44/021397p

7004

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Sludge	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS686
Lab Code: L9800238-006
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.2	5	1/30/98	1/30/98	1	U

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schuurt Date: 3/16/98

1S44/021397p

7005

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS688
Lab Code: L9800238-008
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.2	1	1/30/98	1/30/98	0.2	U

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schuyt Date: 3/16/98

1S44/021397p

7006

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS689
Lab Code: L9800238-009 Basis: Dry
Test Notes:

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.2	5	1/30/98	1/30/98	1	U

LEVEL V

OGDEN VALIDATED

Approved By: Cydie Schwartz Date: 3/16/98

1S44/021397p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS690
Lab Code: L9800238-010
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.2	10	1/30/98	1/30/98	2	U

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schwartz Date: 3/16/98

1S44/021397p

7098

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS691
Lab Code: L9800238-011
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.2	25	1/30/98	1/30/98	5	U

LEVEL V

OGDEN VALIDATED

Approved By: Ephie Schuett Date: 3/16/98

1S44/021397p

7009

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS692
Lab Code: L9800238-012
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.2	10	1/30/98	1/30/98	2	U

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schwartz Date: 3/16/98

1S44/021397p

7010

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS693
Lab Code: L9800238-013
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.2	10	1/30/98	1/30/98	2	U

LEVEL V

OGDEN VALIDATED

Approved By: Cydie Schuraft Date: 3/16/98

1S44/021397p

7011

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Sludge	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS694
Lab Code: L9800238-014
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.2	25	1/30/98	1/30/98	5	U

LEVEL V

OGDEN VALIDATED

Approved By: Cynthia Schuraft Date: 3/16/98

1S44/021397p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Inorganic Parameters

Sample Name: RS696
Lab Code: L9800238-017
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Chromium, Hexavalent	MG/KG	7196	0.2	1	1/30/98	1/30/98	0.2	U

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schwartz Date: 3/16/98

IS44/021397p

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

550 South Wadsworth Blvd. Ste. 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Project Manager: D. Hambrick
Analysis/Method: General Minerals
No. of Samples: 6
Date Completed: October 20, 1998
Reviewer: K. Chapman
Ref: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994), Columbia Analytical Services SOP 96-WET-IC-00M* (Revision 1, 7/26/96), *Columbia Analytical Services SOP 96-WET-FISE-00M* (Revision 1, 7/26/96), and *Columbia Analytical Services SOP 96-WET-PHS-00* (Revision 1, 7/26/96)
SDG: L9704318
Samples Reviewed: RS579, RS580, RS584, RS585, RS589, RS594

EPA Level V- General Minerals Assessment Form

	Problems	Qualifications
1. Sample Management	The holding time was exceeded for the pH and nitrate/nitrite analyses. All other holding times were met. The temperature of samples RS579 and RS580 upon reciept at the laboratory was 11EC. Corrections to the COC listing samples RS579 and RS580 were initialed, but not dated.	All site sample pH and nitrate/nitrite results were qualified as estimated, "J" for detects and "UJ" for nodetects. As the target analytes are not volatile, qualifications are not assigned for the temperature of the samples upon receipt; therefore, no qualifications were deemed necessary.
2. Method Blanks	Acceptable as reviewed.	None
3. LCS/BS	Acceptable as reviewed.	None
4. Duplicates Perfomed on samples RS579 and RS584	Acceptable as reviewed. (pH only)	None
5. MS/MSDs Performed on sample RS594	Acceptable as reviewed.	None

6. Field QC Samples ER: RF857 and RF810 FB: RF848 Field duplicates: none	No detects were reported for any of the field QC samples.	None
7. Other	None	None
8. Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/16/97
Sample Matrix:	Soil	**Date Received:**	12/16/97

Inorganic Parameters

Sample Name: RS579
Lab Code: L9704318-005
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/17/97	12/17/97	7.3	

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schwartz Date: 3/10/98

IS44/021397p

13002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/16/97
Sample Matrix:	Soil	**Date Received:**	12/16/97

Inorganic Parameters

Sample Name: RS580
Lab Code: L9704318-006
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/17/97	12/17/97	7.5	

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schuetz Date: 3/10/98

1S44/021397p

13003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/17/97
Sample Matrix:	Soil	**Date Received:**	12/17/97

Inorganic Parameters

Sample Name: RS584
Lab Code: L9704318-009
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/18/97	12/18/97	6.1	

Qual Code / Rev Qual / 4 / 5

LEVEL V

OGDEN VALIDATED

Approved By: Cydie Schwartz Date: 3/10/98

IS44/021397p

13004

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/17/97
Sample Matrix:	Soil	**Date Received:**	12/17/97

Inorganic Parameters

Sample Name: RS585
Lab Code: L9704318-010
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/18/97	12/18/97	7.5	

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schuett Date: 3/10/98

1S44/021397p

13005

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/17/97
Sample Matrix:	Sludge	**Date Received:**	12/17/97

Inorganic Parameters

Sample Name: RS589
Lab Code: L9704318-014
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/18/97	12/18/97	8.1	

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schwartz Date: 3/10/98

1S44/021397p

13006

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/17/97
Sample Matrix:	Soil	**Date Received:**	12/17/97

Inorganic Parameters

Sample Name: RS594
Lab Code: L9704318-019
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/18/97	12/18/97	8.0	
Chloride	MG/KG	300.0	11	1	12/24/97	12/24/97	18	
Fluoride	MG/KG	340.2	2.0	1	12/24/97	12/26/97	8.5	
Nitrate as Nitrate	MG/KG	300.0	11	1	12/24/97	12/24/97	11	U
Nitrite	MG/KG	300.0	11	1	12/24/97	12/24/97	11	U

LEVEL V

OGDEN VALIDATED

Approved By: Cydie Schuraf Date: 3/10/98

1S44/021397p

13007

OGDEN ***ENVIRONMENTAL AND ENERGY SERVICES***

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550 South Wadsworth Blvd. Ste. 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Project Manager: D. Hambrick
Analysis/Method: General Mineral
No. of Samples: 15
Date Completed:December 2, 1998
Reviewer: A. Lang
Ref: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994)*, Columbia Analytical Services SOP 96-WET-PHS-00 (Revision 1, 7/26/96).
SDG: L9704114
Samples Reviewed: RF977, RF978, RF979, RF980, RF397, RF398, RF982, RF985, RF405, RF410, RF992, RF994, RF995, RF413, RF414

EPA Level V- General Minerals Assessment Form

	Problems	Qualifications
1. Sample Management	Holding time exceeded for pH analysis.	All site sample pH results qualified as estimated, "J."
2. Method Blanks	Not applicable.	None
3. LCS/BS	Acceptable as reviewed.	None
4. Duplicates Performed on samples RF977, RF982, RF992	Acceptable as reviewed. (pH only)	None
5. MS/MSDs	Not applicable.	None
6. Field QC Samples ER: RS529, RS516, RF158, RF388, RF149, RS582, RF263 FB: RF848, RS682, RF850	Not applicable to pH analysis.	None
7. Other		

	None.	None.
8. Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Inorganic Parameters

Sample Name: RF397
Lab Code: L9704114-005
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/3/97	12/3/97	7.2	J H

OGDEN VALIDATED

LEVEL V

Approved By: Eddie Schubert Date: 3/6/98

1S44/021397p

7005

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Inorganic Parameters

Sample Name: RF398
Lab Code: L9704114-006
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/3/97	12/3/97	6.9	

OGDEN VALIDATED

LEVEL V

Approved By: Eudie Schwartz Date: 3/5/98

LS44/021397p

7006

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Inorganic Parameters

Sample Name: RF405
Lab Code: L9704114-012
Test Notes:

Basis: Dry

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Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/4/97	12/4/97	7.1	

OGDEN VALIDATED

LEVEL V

Approved By: Eydie Schuett Date: 3/2/98

1S44/021397p

7009

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Inorganic Parameters

Sample Name: RF410
Lab Code: L9704114-013
Test Notes:

Basis: Dry

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Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/4/97	12/4/97	6.8	

OGDEN VALIDATED

LEVEL V

Approved By: Cyndi Schmidt Date: 3/2/98

1544/021397p

7010

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Inorganic Parameters

Sample Name: RF413
Lab Code: L9704114-019
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/5/97	12/5/97	9.3	

OGDEN VALIDATED

LEVEL V

Approved By: Cynthia Schmidt Date: 3/20/98

IS44/021397p

7014

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Inorganic Parameters

Sample Name: RF414
Lab Code: L9704114-020
Test Notes:

Basis: Dry

Qual Code
Analyst

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/5/97	12/5/97	7.2	J H

OGDEN VALIDATED

LEVEL V

Approved By: Cydia Nakamatsu Date: 3/5/98

IS44/021397p

7015

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Inorganic Parameters

Sample Name: RF977
Lab Code: L9704114-001
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/3/97	12/3/97	7.8	

LEVEL V

Approved By: Eydie Schuett Date: 3/2/98

IS44/021397p

7001

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Inorganic Parameters

Sample Name: RF978
Lab Code: L9704114-002
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/3/97	12/3/97	7.5	J

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OGDEN VALIDATED

LEVEL V

Approved By: Cindy Schmidt Date: 3/5/98

1S44/021397p

7002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Inorganic Parameters

Sample Name: RF979
Lab Code: L9704114-003
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/3/97	12/3/97	7.5	J H

Lab Code Anomaly

OGDEN VALIDATED

LEVEL V

Approved By: Cindy Schwartz Date: 3/6/98

IIS44/021397p

7003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Inorganic Parameters

Sample Name: RF980
Lab Code: L9704114-004
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/3/97	12/3/97	7.5	J

Lab Qual
Non Qual
H

OGDEN VALIDATED

LEVEL V

Approved By: Cydie Schmidt Date: 3/2/98

1S44/021397p

7004

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Inorganic Parameters

Sample Name: RF982
Lab Code: L9704114-007
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/4/97	12/4/97	7.2	J

Jane copy I
Ben Lab

OGDEN VALIDATED

LEVEL V

Approved By: Cydia Lohmann Date: 2/5/98

1S44/021397p

7007

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Inorganic Parameters

Sample Name: RF985
Lab Code: L9704114-008
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/4/97	12/4/97	7.7	J H

Low Level Perc Level

OGDEN VALIDATED

LEVEL V

Approved By: Cindy Schuman Date: 12/5/97

1S44/021397p

7008

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Inorganic Parameters

Sample Name: RF992
Lab Code: L9704114-015
Test Notes:

Basis: Dry

Qual Code / Anr Qual: H / J

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/5/97	12/5/97	7.3	

OGDEN VALIDATED

LEVEL V

Approved By: Eydie Schmidt Date: 3/5/98

IS44/021397p

7011

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Sludge	**Date Received:**	12/4/97

Inorganic Parameters

Sample Name: RF994
Lab Code: L9704114-017
Test Notes:

Basis: Dry

Dup Lab Rep Dup

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/5/97	12/5/97	6.4	J H

OGDEN VALIDATED

LEVEL V

Approved By: Evelyn Schmidt Date: 3/2/98

1S44/021397p

7012

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Inorganic Parameters

Sample Name: RF995
Lab Code: L9704114-018
Test Notes:

Basis: Dry

Analyte	Units	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
pH	pH UNITS	9045	0.1	1	12/5/97	12/5/97	7.7	J H

OGDEN VALIDATED

LEVEL V

Approved By: Cynthia Lehnert Date: 2/10/98

1S44/021397p

7013

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

0

550 South Wadsworth Blvd., Suite 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: SW846 Method 8021A
No. of Samples: 43
Date Reviewed: November 30, 1998
Reviewer: L. Calvin
Reference: *Ogden Data Validation Procedures for Halogenated Volatiles by GC and Aromatic Volatiles by GC* (DVPs-7 and -9, Rev. 2).
SDG: L9704088
Samples Reviewed: RD373, RD374, RD375, RD389, RD390, RD391, RD392, RD393, RD394, RD395, RD403, RD417, RD418, RD419, RD420, RD421, RD422, RD423, RD424, RD425, RD427, RD428, RM503, RM506, RD959, RD962, RD963, RD964, RD965, RD975, RD977, RD979, RD980, RD982, RD988, RD990, RD992, RD993, RD994, RD995, RD997, RD998, and RD999
Matrix: Soil and Water

EPA Level V-GC Volatiles Assessment Form

	Problems	Qualifications
1. Sample Management	According to the case narrative and COCs, samples were received chilled and intact. COC seals were not present. Actual temperature of sample receipt was not recorded. Some corrections were missing dates.	Because the samples were collected by Ogden personnel, placed in coolers containing ice, and hand delivered to the Columbia laboratory, the absence of COC seals and recorded temperatures was considered acceptable. No qualifications were required.
Method Blanks VBLK97120101 VBLK97120201 VBLK97120301 VBLK97120401 VBLK97120501 VBLK97120801 VBLK97120901	Seven method blanks were analyzed with this SDG. No target compounds were reported in the method blanks.	No qualifications were required.
4. LCS/BS VLCS97120101 VLCS97120201	Seven blank spikes were analyzed with the samples of this SDG. All percent recoveries were within the laboratory QC	No qualifications were required.

	Problems	Qualifications
VLCS97120301 VLCS97120401 VLCS97120501 VLCS97120801 VLCS97120901	limits.	
5. Surrogates	All surrogate recoveries were within laboratory QC limits on both the ELCD and PID detectors.	No qualifications were required.
6. MS/MSDs Performed on RD419, RD977, and RD993	Three MS/MSD pairs were analyzed with this SDG. All recoveries and RPDs were within the laboratory QC limits.	No qualifications were required.
7. Field QC Samples ER: RD455 (SDG L9704175) RD999 FB: RD856 (SDG L9703803) FD: None	There were no target analytes detected in equipment rinsate RD455 or the field blank associated with this SDG. Acetone was detected in equipment rinsate RD999, but was not detected in any of the associated site samples.	No qualifications were required.
8. Other	Samples RD988, RD997, and RD998 were analyzed at dilutions of 1000H. According to the case narratives, the dilutions were required due to the matrix of the samples. The presence of the following compounds was not confirmed by the confirmation analyses: 1,1-dichloroethene in samples RD391, RD394, and RD425; 1,1,1-trichloroethane in samples RD391 and RD394; and trichloroethene in samples RD390, RD391, RD392, RD393, RD394, RD420, RD421, RD425, RD964, and RD965. No confirmation for trichloroethene was analyzed for sample RD962.	No qualifications were assigned based on dilutions. All unconfirmed values were qualified as estimated, "J," as these compounds were previously characterized contaminants of concern. Raw data was not examined at Level V validation to determine the presence of those unconfirmed detects which should have been detected on both the ELCD and PID detectors in the original analysis.
Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD373
Lab Code: L9704088-001
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Methylene Chloride	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Chloroform	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Benzene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Bromodichloromethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/1/97	12/1/97	56	U
Toluene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
Chlorobenzene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Ethylbenzene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
m,p-Xylenes	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
o-Xylene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Bromoform	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/1/97	12/1/97	56	U
Acetone	EPA 5030	8021A	56	1	12/1/97	12/1/97	56	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U

rev qual code

Approved By: Thomas K. Manning Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD374
Lab Code: L9704088-002
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Benzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	55	1	12/1/97	12/1/97	55	U
Toluene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	55	1	12/1/97	12/1/97	55	U
Acetone	EPA 5030	8021A	55	1	12/1/97	12/1/97	55	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U

rev qual code

Approved By: Thomas P. Adams Date: 2/10/98
1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD375
Lab Code: L9704088-003
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Benzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/1/97	12/1/97	54	U
Toluene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/1/97	12/1/97	54	U
Acetone	EPA 5030	8021A	54	1	12/1/97	12/1/97	54	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U

Approved By: Thomas K Rohrig Date: 2/10/98
1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: InterPhase Environmental
Project: Rocketdyne/313150001
Sample Matrix: Soil

Service Request: L9704088
Date Collected: 12/2/97
Date Received: 12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD389
Lab Code: L9704088-019
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	rev qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Methylene Chloride	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Chloroform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Benzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Bromodichloromethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U		
Toluene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
Chlorobenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Ethylbenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
m,p-Xylenes	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
o-Xylene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Bromoform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U		
Acetone	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		

Approved By: Thomas D. Rhein Date: 2/10/98
1S44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD390	Units:	UG/KG
Lab Code:	L9704088-020	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Benzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	11	
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U
Toluene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U
Acetone	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U

rev qual code

*8

Approved By: Thomas D. Adams Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD391	Units:	UG/KG
Lab Code:	L9704088-021	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	ver qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97X	7		J	*8
Methylene Chloride	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U	U	
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
Chloroform	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/3/97	12/3/97X	8		J	*8
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U	U	
Benzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/3/97	12/3/97X	19		J	*8
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U	U	
Bromodichloromethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U		
Toluene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
Chlorobenzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
Ethylbenzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
m,p-Xylenes	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
o-Xylene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
Bromoform	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U		
Acetone	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		

Approved By: Thomas D Robinson Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

3022

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD392	Units:	UG/KG
Lab Code:	L9704088-022	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Methylene Chloride	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Chloroform	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Benzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/3/97	12/3/97	7	J *8
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Bromodichloromethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U
Toluene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
Chlorobenzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Ethylbenzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
m,p-Xylenes	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
o-Xylene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Bromoform	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U
Acetone	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U

ver qual / qual code

Approved By: Thomas D. Robinson Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL

3023

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: InterPhase Environmental
Project: Rocketdyne/313150001
Sample Matrix: Soil

Service Request: L9704088
Date Collected: 12/2/97
Date Received: 12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD393
Lab Code: L9704088-023
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	rev qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
Methylene Chloride	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
Chloroform	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
Benzene	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/4/97	12/4/97 X	6		J	*8
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U	U	
Bromodichloromethane	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/4/97	12/4/97	56	U		
Toluene	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
Chlorobenzene	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
Ethylbenzene	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
m,p-Xylenes	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
o-Xylene	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
Bromoform	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/4/97	12/4/97	6	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/4/97	12/4/97	56	U		
Acetone	EPA 5030	8021A	56	1	12/4/97	12/4/97	56	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		

Approved By: Thomas D Nolan Date: 2/10/98
1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD394	Units:	UG/KG
Lab Code:	L9704088-024	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	rev qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97 X	16		J	*8
Methylene Chloride	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U	U	
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
Chloroform	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/3/97	12/3/97 X	17		J	*8
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U	U	
Benzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/3/97	12/3/97 X	65		J	*8
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U	U	
Bromodichloromethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U		
Toluene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
Chlorobenzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
Ethylbenzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
m,p-Xylenes	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
o-Xylene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
Bromoform	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U		
Acetone	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		

Approved By: Thomas D. Maloney Date: 2/10/98

1544/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD395
Lab Code: L9704088-025
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Methylene Chloride	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Chloroform	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Benzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/3/97	12/3/97	150	
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Bromodichloromethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U
Toluene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
Chlorobenzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Ethylbenzene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
m,p-Xylenes	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
o-Xylene	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
Bromoform	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/3/97	12/3/97	6	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U
Acetone	EPA 5030	8021A	56	1	12/3/97	12/3/97	56	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U

Approved By: Thomas D. Robinson Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: InterPhase Environmental
Project: Rocketdyne/313150001
Sample Matrix: Soil

Service Request: L9704088
Date Collected: 12/3/97
Date Received: 12/3/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD403
Lab Code: L9704088-039
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	ver qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Methylene Chloride	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Chloroform	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/4/97	12/4/97 MC	5	U		
Benzene	EPA 5030	8021A	5	1	12/4/97	12/4/97 MC	5	U		
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/4/97	~~12/4/97~~ *	5	U		
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Bromodichloromethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/4/97	12/4/97	54	U		
Toluene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
Chlorobenzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Ethylbenzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
m,p-Xylenes	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
o-Xylene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Bromoform	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/4/97	12/4/97	54	U		
Acetone	EPA 5030	8021A	54	1	12/4/97	12/4/97	54	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		

~~Conf.~~ analysis has 11 ng/kg TCE MC

Approved By: Thomas D Rhein Date: 2/10/98

IS44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: InterPhase Environmental
Project: Rocketdyne/313150001
Sample Matrix: Soil

Service Request: L9704088
Date Collected: 12/4/97
Date Received: 12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD417
Lab Code: L9704088-059
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Methylene Chloride	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Benzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	53	1	12/5/97	12/5/97	53	U
Toluene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
Chlorobenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
2-Butanone (MEK)	EPA 5030	8021A	53	1	12/5/97	12/5/97	53	U
Acetone	EPA 5030	8021A	53	1	12/5/97	12/5/97	53	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U

Approved By: Thomas D. Rehring Date: 2/10/98

1844/021397p

OGDEN VALIDATED

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD418	Units:	UG/KG
Lab Code:	L9704088-060	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	Val Code / Rev Qual
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	U
Chloromethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	
Vinyl Chloride	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	
Bromomethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	
Chloroethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
Methylene Chloride	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U	
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
Chloroform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
Benzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	12		
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U	
Toluene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U	
Chlorobenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
Ethylbenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
m,p-Xylenes	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
o-Xylene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
Bromoform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U	
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U	
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U	
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U	
Acetone	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U	
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U	
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U	
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U	

Approved By: Thomas D. Brown Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

3039

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD419
Lab Code: L9704088-061
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	ver qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Methylene Chloride	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Chloroform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Benzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Bromodichloromethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U		
Toluene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
Chlorobenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Ethylbenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
m,p-Xylenes	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
o-Xylene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Bromoform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U		
Acetone	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		

Approved By: Thomas D. Gibson Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: InterPhase Environmental
Project: Rocketdyne/313150001
Sample Matrix: Soil

Service Request: L9704088
Date Collected: 12/4/97
Date Received: 12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD420
Lab Code: L9704088-062
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Benzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97 X	7	
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U
Toluene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U
Acetone	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U

new qual code

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Approved By: Thomas D. Mahoney Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD421
Lab Code: L9704088-063
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Methylene Chloride	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Benzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97 X	7	
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	53	1	12/5/97	12/5/97	53	U
Toluene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
Chlorobenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
2-Butanone (MEK)	EPA 5030	8021A	53	1	12/5/97	12/5/97	53	U
Acetone	EPA 5030	8021A	53	1	12/5/97	12/5/97	53	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	21	1	12/5/97	12/5/97	21	U

vel qual
qual code
*8

Approved By: Thomas D. Arbing Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V

3042

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD422	Units:	UG/KG
Lab Code:	L9704088-064	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Methylene Chloride	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Benzene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	53	1	12/8/97	12/8/97	53	U
Toluene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
Chlorobenzene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
2-Butanone (MEK)	EPA 5030	8021A	53	1	12/8/97	12/8/97	53	U
Acetone	EPA 5030	8021A	53	1	12/8/97	12/8/97	53	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U

val qual code

Approved By: Thomas D. Myers Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

3043

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD423	Units:	UG/KG
Lab Code:	L9704088-065	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Methylene Chloride	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Benzene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	53	1	12/8/97	12/8/97	53	U
Toluene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
Chlorobenzene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
2-Butanone (MEK)	EPA 5030	8021A	53	1	12/8/97	12/8/97	53	U
Acetone	EPA 5030	8021A	53	1	12/8/97	12/8/97	53	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	21	1	12/8/97	12/8/97	21	U

rev qual code

Approved By: Thomas D. Rohling Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD424	Units:	UG/KG
Lab Code:	L9704088-066	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
Methylene Chloride	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
Chloroform	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
Benzene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/5/97	12/5/97	8	
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
Bromodichloromethane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/5/97	12/5/97	56	U
Toluene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
Chlorobenzene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
Ethylbenzene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
m,p-Xylenes	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
o-Xylene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
Bromoform	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/5/97	12/5/97	56	U
Acetone	EPA 5030	8021A	56	1	12/5/97	12/5/97	56	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U

rev qual code

Approved By: Thomas D. Robinson Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: InterPhase Environmental
Project: Rocketdyne/313150001
Sample Matrix: Soil

Service Request: L9704088
Date Collected: 12/4/97
Date Received: 12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD425
Lab Code: L9704088-067
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	rev qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/5/97	12/5/97X	6		J	*8
Methylene Chloride	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U	U	
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
Chloroform	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
Benzene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/5/97	12/5/97X	7		J	*8
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U	U	
Bromodichloromethane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/5/97	12/5/97	56	U		
Toluene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
Chlorobenzene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
Ethylbenzene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
m,p-Xylenes	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
o-Xylene	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
Bromoform	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/5/97	12/5/97	6	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/5/97	12/5/97	56	U		
Acetone	EPA 5030	8021A	56	1	12/5/97	12/5/97	56	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		

Approved By: Thomas D. Robins Date: 2/10/98
1544/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/5/97
Sample Matrix:	Soil	**Date Received:**	12/5/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD427
Lab Code: L9704088-072
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/8/97	12/8/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Benzene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	55	1	12/8/97	12/8/97	55	U
Toluene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/8/97	12/8/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/8/97	12/8/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/8/97	12/8/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/8/97	12/8/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/8/97	12/8/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/8/97	12/8/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	55	1	12/8/97	12/8/97	55	U
Acetone	EPA 5030	8021A	55	1	12/8/97	12/8/97	55	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/8/97	12/8/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/8/97	12/8/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/8/97	12/8/97	22	U

rev qual / final code

Approved By: Thomas D. Gohring Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/5/97
Sample Matrix:	Soil	**Date Received:**	12/5/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD428
Lab Code: L9704088-073
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Benzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	12	
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	55	1	12/5/97	12/5/97	55	U
Toluene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	55	1	12/5/97	12/5/97	55	U
Acetone	EPA 5030	8021A	55	1	12/5/97	12/5/97	55	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U

Approved By: Thomas D Robinson Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD959
Lab Code: L9704088-004
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Methylene Chloride	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Chloroform	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Benzene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Bromodichloromethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/1/97	12/1/97	56	U
Toluene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
Chlorobenzene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Ethylbenzene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
m,p-Xylenes	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
o-Xylene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Bromoform	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/1/97	12/1/97	56	U
Acetone	EPA 5030	8021A	56	1	12/1/97	12/1/97	56	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U

rev qual code

Approved By: Thomas K Nobuoka Date: 2/10/98
1S44/021397p

OGDEN VALIDATED LEVEL V

3011

No cond.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: InterPhase Environmental
Project: Rocketdyne/313150001
Sample Matrix: Soil

Service Request: L9704088
Date Collected: 12/1/97
Date Received: 12/1/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD962
Lab Code: L9704088-007
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Methylene Chloride	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Chloroform	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Benzene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/1/97	12/1/97 *	12	J *8
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Bromodichloromethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/1/97	12/1/97	56	U
Toluene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
Chlorobenzene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Ethylbenzene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
m,p-Xylenes	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
o-Xylene	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
Bromoform	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/1/97	12/1/97	6	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/1/97	12/1/97	56	U
Acetone	EPA 5030	8021A	56	1	12/1/97	12/1/97	56	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U

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* No cond analysis provided.

Approved By: Thomas X. Arbing Date: 2/10/98
1S44/021397p

OGDEN VALIDATED

LEVEL V 3012

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD963	Units:	UG/KG
Lab Code:	L9704088-008	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Benzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	55	1	12/1/97	12/1/97	55	U
Toluene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	55	1	12/1/97	12/1/97	55	U
Acetone	EPA 5030	8021A	55	1	12/1/97	12/1/97	55	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/1/97	12/1/97	22	U

rev qual code

Approved By: Thomas D. Arbing Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V 3013

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD964	Units:	UG/KG
Lab Code:	L9704088-009	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Methylene Chloride	EPA 5030	8021A	21	1	12/1/97	12/1/97	21	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Benzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/1/97	12/1/97	38	
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	53	1	12/1/97	12/1/97	53	U
Toluene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	21	1	12/1/97	12/1/97	21	U
Chlorobenzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/1/97	12/1/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/1/97	12/1/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	21	1	12/1/97	12/1/97	21	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	21	1	12/1/97	12/1/97	21	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	21	1	12/1/97	12/1/97	21	U
2-Butanone (MEK)	EPA 5030	8021A	53	1	12/1/97	12/1/97	53	U
Acetone	EPA 5030	8021A	53	1	12/1/97	12/1/97	53	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	21	1	12/1/97	12/1/97	21	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	21	1	12/1/97	12/1/97	21	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	21	1	12/1/97	12/1/97	21	U

Approved By: Thomas P. Nolan Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD965
Lab Code: L9704088-010
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
Benzene	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/2/97	12/2/97 X	9	
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	55	1	12/2/97	12/2/97	55	U
Toluene	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/2/97	12/2/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	55	1	12/2/97	12/2/97	55	U
Acetone	EPA 5030	8021A	55	1	12/2/97	12/2/97	55	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U

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Approved By: Thomas D. Robinson Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD975
Lab Code: L9704088-013
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
1,1-Dichloroethene	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
Methylene Chloride	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
1,1-Dichloroethane	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
Chloroform	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
Carbon Tetrachloride	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
Benzene	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
1,2-Dichloroethane	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
Trichloroethene (TCE)	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
1,2-Dichloropropane	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
Bromodichloromethane	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	56	1	12/2/97	12/2/97	56	U
Toluene	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
Chlorobenzene	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
Ethylbenzene	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
m,p-Xylenes	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
o-Xylene	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
Bromoform	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	12/2/97	12/2/97	6	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/2/97	12/2/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	56	1	12/2/97	12/2/97	56	U
Acetone	EPA 5030	8021A	56	1	12/2/97	12/2/97	56	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/2/97	12/2/97	22	U

Approved By: Thomas K. Arbuckle Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

3016

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD977	Units:	UG/KG
Lab Code:	L9704088-015	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Benzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U
Toluene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U
Acetone	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U

Approved By: Thomas D Manning Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD979	Units:	UG/KG
Lab Code:	L9704088-017	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	rev Qual	Qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Methylene Chloride	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Chloroform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Benzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Bromodichloromethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U		
Toluene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
Chlorobenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Ethylbenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
m,p-Xylenes	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
o-Xylene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Bromoform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U		
Acetone	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		

Approved By: Thomas D. Mahoney Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

04088VOA.BK2 - Sample (3) 2/10/98

LEVEL V 3018

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD980	Units:	UG/KG
Lab Code:	L9704088-018	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	rev qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Methylene Chloride	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Chloroform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Benzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Bromodichloromethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U		
Toluene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
Chlorobenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Ethylbenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
m,p-Xylenes	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
o-Xylene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
Bromoform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U		
Acetone	EPA 5030	8021A	54	1	12/3/97	12/3/97	54	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U		

Approved By: Thomas D. Adams Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: InterPhase Environmental
Project: Rocketdyne/313150001
Sample Matrix: Soil

Service Request: L9704088
Date Collected: 12/3/97
Date Received: 12/3/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD982
Lab Code: L9704088-033
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Benzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	55	1	12/3/97	12/3/97	55	U
Toluene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/3/97	12/3/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/3/97	12/3/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	55	1	12/3/97	12/3/97	55	U
Acetone	EPA 5030	8021A	55	1	12/3/97	12/3/97	55	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/3/97	12/3/97	22	U

rev qual code

Approved By: _____ Date: 2/10/98
1S44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD988	Units:	UG/KG
Lab Code:	L9704088-038	Basis:	Dry
Test Notes:	C2A		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11000	1000	12/8/97	12/8/97	11000	U
Chloromethane	EPA 5030	8021A	11000	1000	12/8/97	12/8/97	11000	U
Vinyl Chloride	EPA 5030	8021A	11000	1000	12/8/97	12/8/97	11000	U
Bromomethane	EPA 5030	8021A	11000	1000	12/8/97	12/8/97	11000	U
Chloroethane	EPA 5030	8021A	11000	1000	12/8/97	12/8/97	11000	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
1,1-Dichloroethene	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
Methylene Chloride	EPA 5030	8021A	22000	1000	12/8/97	12/8/97	22000	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
1,1-Dichloroethane	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
Chloroform	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
Carbon Tetrachloride	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
Benzene	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
1,2-Dichloroethane	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
Trichloroethene (TCE)	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
1,2-Dichloropropane	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
Bromodichloromethane	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	55000	1000	12/8/97	12/8/97	55000	U
Toluene	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
1,1,2-Trichloroethane	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22000	1000	12/8/97	12/8/97	22000	U
Chlorobenzene	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
Ethylbenzene	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
m,p-Xylenes	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
o-Xylene	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
Bromoform	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5500	1000	12/8/97	12/8/97	5500	U
1,3-Dichlorobenzene	EPA 5030	8021A	11000	1000	12/8/97	12/8/97	11000	U
1,4-Dichlorobenzene	EPA 5030	8021A	11000	1000	12/8/97	12/8/97	11000	U
1,2-Dichlorobenzene	EPA 5030	8021A	11000	1000	12/8/97	12/8/97	11000	U
Chlorotrifluoroethene	EPA 5030	8021A	22000	1000	12/8/97	12/8/97	22000	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22000	1000	12/8/97	12/8/97	22000	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22000	1000	12/8/97	12/8/97	22000	U
2-Butanone (MEK)	EPA 5030	8021A	55000	1000	12/8/97	12/8/97	55000	U
Acetone	EPA 5030	8021A	55000	1000	12/8/97	12/8/97	55000	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22000	1000	12/8/97	12/8/97	22000	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22000	1000	12/8/97	12/8/97	22000	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22000	1000	12/8/97	12/8/97	22000	U

rev qual code

C2A MRL is elevated because of matrix interferences and because the sample required diluting.

Approved By: Thomas P. Bolin Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V 3028

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: InterPhase Environmental
Project: Rocketdyne/313150001
Sample Matrix: Soil

Service Request: L9704088
Date Collected: 12/4/97
Date Received: 12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD990
Lab Code: L9704088-049
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Benzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	55	1	12/4/97	12/4/97	55	U
Toluene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	55	1	12/4/97	12/4/97	55	U
Acetone	EPA 5030	8021A	55	1	12/4/97	12/4/97	55	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U

rev qual code

Approved By: Thomas P. Murray Date: 2/10/98
1S44/021397p

QC DATA VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: InterPhase Environmental
Project: Rocketdyne/313150001
Sample Matrix: Soil

Service Request: L9704088
Date Collected: 12/4/97
Date Received: 12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD992
Lab Code: L9704088-050
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	ver qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Methylene Chloride	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Chloroform	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Benzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Bromodichloromethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/4/97	12/4/97	54	U		
Toluene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
Chlorobenzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Ethylbenzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
m,p-Xylenes	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
o-Xylene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
Bromoform	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/4/97	12/4/97	54	U		
Acetone	EPA 5030	8021A	54	1	12/4/97	12/4/97	54	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U		

Approved By: Thomas D. Rising Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V3031

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD993	Units:	UG/KG
Lab Code:	L9704088-051	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Benzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/4/97	12/4/97	54	U
Toluene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/4/97	12/4/97	54	U
Acetone	EPA 5030	8021A	54	1	12/4/97	12/4/97	54	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/4/97	12/4/97	22	U

Approved By: Thomas A Robinson Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD994	Units:	UG/KG
Lab Code:	L9704088-052	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	16	1	12/4/97	12/4/97	16	U
Chloromethane	EPA 5030	8021A	16	1	12/4/97	12/4/97	16	U
Vinyl Chloride	EPA 5030	8021A	16	1	12/4/97	12/4/97	16	U
Bromomethane	EPA 5030	8021A	16	1	12/4/97	12/4/97	16	U
Chloroethane	EPA 5030	8021A	16	1	12/4/97	12/4/97	16	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
1,1-Dichloroethene	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
Methylene Chloride	EPA 5030	8021A	32	1	12/4/97	12/4/97	32	U
trans-1,2-Dichloroethene	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
cis-1,2-Dichloroethene	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
1,1-Dichloroethane	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
Chloroform	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
Carbon Tetrachloride	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
Benzene	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
1,2-Dichloroethane	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
Trichloroethene (TCE)	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
1,2-Dichloropropane	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
Bromodichloromethane	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	81	1	12/4/97	12/4/97	81	U
Toluene	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
trans-1,3-Dichloropropene	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
cis-1,3-Dichloropropene	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
1,1,2-Trichloroethane	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
Tetrachloroethene (PCE)	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	32	1	12/4/97	12/4/97	32	U
Chlorobenzene	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
Ethylbenzene	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
m,p-Xylenes	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
o-Xylene	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
Bromoform	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	8	1	12/4/97	12/4/97	8	U
1,3-Dichlorobenzene	EPA 5030	8021A	16	1	12/4/97	12/4/97	16	U
1,4-Dichlorobenzene	EPA 5030	8021A	16	1	12/4/97	12/4/97	16	U
1,2-Dichlorobenzene	EPA 5030	8021A	16	1	12/4/97	12/4/97	16	U
Chlorotrifluoroethene	EPA 5030	8021A	32	1	12/4/97	12/4/97	32	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	32	1	12/4/97	12/4/97	32	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	32	1	12/4/97	12/4/97	32	U
2-Butanone (MEK)	EPA 5030	8021A	81	1	12/4/97	12/4/97	81	U
Acetone	EPA 5030	8021A	81	1	12/4/97	12/4/97	81	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	32	1	12/4/97	12/4/97	32	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	32	1	12/4/97	12/4/97	32	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	32	1	12/4/97	12/4/97	32	U

Approved By: Thomas D. Lobring Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD995	Units:	UG/KG
Lab Code:	L9704088-053	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Methylene Chloride	EPA 5030	8021A	21	1	12/4/97	12/4/97	21	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Benzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	53	1	12/4/97	12/4/97	53	U
Toluene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	21	1	12/4/97	12/4/97	21	U
Chlorobenzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/4/97	12/4/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/4/97	12/4/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	21	1	12/4/97	12/4/97	21	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	21	1	12/4/97	12/4/97	21	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	21	1	12/4/97	12/4/97	21	U
2-Butanone (MEK)	EPA 5030	8021A	53	1	12/4/97	12/4/97	53	U
Acetone	EPA 5030	8021A	53	1	12/4/97	12/4/97	53	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	21	1	12/4/97	12/4/97	21	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	21	1	12/4/97	12/4/97	21	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	21	1	12/4/97	12/4/97	21	U

ver qual
qual code
U

Approved By: Thomas D. Bowling Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD997	Units:	UG/KG
Lab Code:	L9704088-055	Basis:	Dry
Test Notes:	C2A		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	rev. qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U	U	
Chloromethane	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U		
Vinyl Chloride	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U		
Bromomethane	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U		
Chloroethane	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
1,1-Dichloroethene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
Methylene Chloride	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U		
trans-1,2-Dichloroethene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
1,1-Dichloroethane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
Chloroform	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
Carbon Tetrachloride	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
Benzene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
1,2-Dichloroethane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
Trichloroethene (TCE)	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
1,2-Dichloropropane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
Bromodichloromethane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	55000	1000	12/9/97	12/9/97	55000	U		
Toluene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
1,1,2-Trichloroethane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U		
Chlorobenzene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
Ethylbenzene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
m,p-Xylenes	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
o-Xylene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
Bromoform	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U		
Chlorotrifluoroethene	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U		
2-Butanone (MEK)	EPA 5030	8021A	55000	1000	12/9/97	12/9/97	55000	U		
Acetone	EPA 5030	8021A	55000	1000	12/9/97	12/9/97	55000	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U		

C2A MRL is elevated because of matrix interferences and because the sample required diluting.

Approved By: Thomas P. Murray Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V 3035

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RD998	Units:	UG/KG
Lab Code:	L9704088-056	Basis:	Dry
Test Notes:	C2A		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U
Chloromethane	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U
Vinyl Chloride	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U
Bromomethane	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U
Chloroethane	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
1,1-Dichloroethene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
Methylene Chloride	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
1,1-Dichloroethane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
Chloroform	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
Carbon Tetrachloride	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
Benzene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
1,2-Dichloroethane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
Trichloroethene (TCE)	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
1,2-Dichloropropane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
Bromodichloromethane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	55000	1000	12/9/97	12/9/97	55000	U
Toluene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
1,1,2-Trichloroethane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U
Chlorobenzene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
Ethylbenzene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
m,p-Xylenes	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
o-Xylene	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
Bromoform	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5500	1000	12/9/97	12/9/97	5500	U
1,3-Dichlorobenzene	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U
1,4-Dichlorobenzene	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U
1,2-Dichlorobenzene	EPA 5030	8021A	11000	1000	12/9/97	12/9/97	11000	U
Chlorotrifluoroethene	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U
2-Butanone (MEK)	EPA 5030	8021A	55000	1000	12/9/97	12/9/97	55000	U
Acetone	EPA 5030	8021A	55000	1000	12/9/97	12/9/97	55000	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22000	1000	12/9/97	12/9/97	22000	U

verify qual code

C2A MRL is elevated because of matrix interferences and because the sample required diluting.

Approved By: Thomas D. Robins Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Water	**Date Received:**	12/4/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RD999
Lab Code: L9704088-057
Test Notes:

Units: UG/L
Basis: NA

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	rev qual	qual code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	10	1	12/5/97	12/5/97	10	U	U	
Chloromethane	EPA 5030	8021A	10	1	12/5/97	12/5/97	10	U		
Vinyl Chloride	EPA 5030	8021A	10	1	12/5/97	12/5/97	10	U		
Bromomethane	EPA 5030	8021A	10	1	12/5/97	12/5/97	10	U		
Chloroethane	EPA 5030	8021A	10	1	12/5/97	12/5/97	10	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Methylene Chloride	EPA 5030	8021A	20	1	12/5/97	12/5/97	20	U		
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Chloroform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Benzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Bromodichloromethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	50	1	12/5/97	12/5/97	50	U		
Toluene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	20	1	12/5/97	12/5/97	20	U		
Chlorobenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Ethylbenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
m,p-Xylenes	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
o-Xylene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Bromoform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,3-Dichlorobenzene	EPA 5030	8021A	10	1	12/5/97	12/5/97	10	U		
1,4-Dichlorobenzene	EPA 5030	8021A	10	1	12/5/97	12/5/97	10	U		
1,2-Dichlorobenzene	EPA 5030	8021A	10	1	12/5/97	12/5/97	10	U		
Chlorotrifluoroethene	EPA 5030	8021A	20	1	12/5/97	12/5/97	20	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	20	1	12/5/97	12/5/97	20	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	20	1	12/5/97	12/5/97	20	U		
2-Butanone (MEK)	EPA 5030	8021A	50	1	12/5/97	12/5/97	50	U		
Acetone	EPA 5030	8021A	50	1	12/5/97	12/5/97	78			
1,2,4-Trimethylbenzene	EPA 5030	8021A	20	1	12/5/97	12/5/97	20	U	U	
1,3,5-Trimethylbenzene	EPA 5030	8021A	20	1	12/5/97	12/5/97	20	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	20	1	12/5/97	12/5/97	20	U		

Approved By: Thomas P. Rohring Date: 2/10/98

IS44/021397p

OGDEN VALIDATED

LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/5/97
Sample Matrix:	Soil	**Date Received:**	12/5/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name: RM503
Lab Code: L9704088-070
Test Notes:

Units: UG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	ver qual	final code
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U	U	
Chloromethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Vinyl Chloride	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Bromomethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Chloroethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Methylene Chloride	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Chloroform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Benzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	17			
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U	U	
Bromodichloromethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U		
Toluene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
Chlorobenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Ethylbenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
m,p-Xylenes	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
o-Xylene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
Bromoform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U		
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U		
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U		
Acetone	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U		
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U		

Approved By: Thomas D. Arking Date: 2/10/98

1S44/021397p

OGDEN VALIDATED

3047

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/5/97
Sample Matrix:	Soil	**Date Received:**	12/5/97

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RM506	Units:	UG/KG
Lab Code:	L9704088-071	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloromethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Vinyl Chloride	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Bromomethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chloroethane	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Methylene Chloride	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
trans-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
cis-1,2-Dichloroethene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Chloroform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Carbon Tetrachloride	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Benzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,2-Dichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Trichloroethene (TCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,2-Dichloropropane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Bromodichloromethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U
Toluene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
trans-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
cis-1,3-Dichloropropene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,2-Trichloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Tetrachloroethene (PCE)	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
Chlorobenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Ethylbenzene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
m,p-Xylenes	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
o-Xylene	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
Bromoform	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	5	1	12/5/97	12/5/97	5	U
1,3-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,4-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
1,2-Dichlorobenzene	EPA 5030	8021A	11	1	12/5/97	12/5/97	11	U
Chlorotrifluoroethene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
2-Butanone (MEK)	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U
Acetone	EPA 5030	8021A	54	1	12/5/97	12/5/97	54	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	22	1	12/5/97	12/5/97	22	U

rev qual code

Approved By: Thomas D Rohrig Date: 2/10/98

1S44/021397p

OGDEN VALIDATED LEVEL V

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

550 South Wadsworth Blvd., Suite 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: SW846 Method 8021A
No. of Samples: 3
Date Reviewed: November 24, 1998
Reviewer: L. Calvin
Reference: *Ogden Data Validation Procedures for Halogenated Volatiles by GC and Aromatic Volatiles by GC* (DVPs-7 and -9, Rev. 2). *Columbia Analytical Services, Inc.-Canoga Park, Halogenated and Aromatic Volatile Organic Compounds SOP VOC-8021A,* (12/97, Rev. 1.0).
SDG: L9800197
Samples Reviewed: RS155, RS654, and RS655
Matrix: Soil

EPA Level V-GC Volatiles Assessment Form

	Problems	Qualifications
1. Sample Management	According to the case narrative and COCs, samples were received chilled and intact, at 6°C. COC seals were not present. Crossouts on the COCs were missing dates. A memo dated 01/28/98 from Ogden to the analytical laboratory added the analysis for Method 8021 to sample RS155. All samples were analyzed within 14 days of collection.	No custody seals were present on the coolers, but because they were transported directly to the laboratory by field personnel, this was acceptable. No qualifications were required.
3. Method Blanks VBLK98012701 VBLK98012901	Two method blanks were analyzed with this SDG. No target compounds were reported in the method blanks.	No qualifications were required.
4. LCS/BS VLCS98012701 VLCS98013001	Two blank spikes were analyzed with the samples of this SDG. All percent recoveries were within the laboratory QC limits.	No qualifications were required.
5. Surrogates	All surrogate recoveries were within laboratory QC limits on both the ELCD	No qualifications were required.

	Problems	Qualifications
	and PID detectors.	
6. MS/MSDs Performed on RS170 (SDG L9800225)	One MS/MSD was analyzed with this SDG. All recoveries and RPDs were within the laboratory QC limits.	No qualifications were required.
7. Field QC Samples ER: RS131 (SDG L9800164) RS571 (SDG L9704311) FB: RD856 (SDG L9703803) FD: None	There were no target analytes detected in equipment rinsate RS131or the field blank associated with this SDG. Equipment rinsate RS571 was cancelled on the COC.	No qualifications were required.
8. Other	Sample RS155 was analyzed at a 50H dilution. The result summary footnoted matrix interferences as the reason for the dilution.	No qualifications were required.
Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Soil	**Date Received:**	1/26/98

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RS155DL MC 4.23.98	Units:	UG/KG
Lab Code:	L9800197-011	Basis:	Dry
Test Notes:	C2A		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	560	50	1/29/98	1/29/98	560	U
Chloromethane	EPA 5030	8021A	560	50	1/29/98	1/29/98	560	U
Vinyl Chloride	EPA 5030	8021A	560	50	1/29/98	1/29/98	560	U
Bromomethane	EPA 5030	8021A	560	50	1/29/98	1/29/98	560	U
Chloroethane	EPA 5030	8021A	560	50	1/29/98	1/29/98	560	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
1,1-Dichloroethene	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
Methylene Chloride	EPA 5030	8021A	1120	50	1/29/98	1/29/98	1120	U
trans-1,2-Dichloroethene	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
cis-1,2-Dichloroethene	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
1,1-Dichloroethane	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
Chloroform	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
Carbon Tetrachloride	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
Benzene	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
1,2-Dichloroethane	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
Trichloroethene (TCE)	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
1,2-Dichloropropane	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
Bromodich!oromethane	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	2800	50	1/29/98	1/29/98	2800	U
Toluene	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
trans-1,3-Dichloropropene	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
cis-1,3-Dichloropropene	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
1,1,2-Trichloroethane	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
Tetrachloroethene (PCE)	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	1120	50	1/29/98	1/29/98	1120	U
Chlorobenzene	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
Ethylbenzene	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
m,p-Xylenes	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
o-Xylene	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
Bromoform	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	280	50	1/29/98	1/29/98	280	U
1,3-Dichlorobenzene	EPA 5030	8021A	560	50	1/29/98	1/29/98	560	U
1,4-Dichlorobenzene	EPA 5030	8021A	560	50	1/29/98	1/29/98	560	U
1,2-Dichlorobenzene	EPA 5030	8021A	560	50	1/29/98	1/29/98	560	U
Chlorotrifluoroethene	EPA 5030	8021A	1120	50	1/29/98	1/29/98	1120	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	1120	50	1/29/98	1/29/98	1120	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	1120	50	1/29/98	1/29/98	1120	U
2-Butanone (MEK)	EPA 5030	8021A	2800	50	1/29/98	1/29/98	2800	U
Acetone	EPA 5030	8021A	2800	50	1/29/98	1/29/98	2800	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	1120	50	1/29/98	1/29/98	1120	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	1120	50	1/29/98	1/29/98	1120	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	1120	50	1/29/98	1/29/98	1120	U

vev qual code

U

C2A PQL is elevated because of matrix interferences and because the sample required diluting.

Approved By: Eydie Schuart Date: 3/16/98

1S44/021397p

OGDEN VALIDATED **LEVEL V**

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Soil	**Date Received:**	1/26/98

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RS654	Units:	UG/KG
Lab Code:	L9800197-018	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Chloromethane	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Vinyl Chloride	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Bromomethane	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Chloroethane	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,1-Dichloroethene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Methylene Chloride	EPA 5030	8021A	23	1	1/27/98	1/27/98	23	U
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,1-Dichloroethane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Chloroform	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Carbon Tetrachloride	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Benzene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,2-Dichloroethane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Trichloroethene (TCE)	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,2-Dichloropropane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Bromodichloromethane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	58	1	1/27/98	1/27/98	58	U
Toluene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	23	1	1/27/98	1/27/98	23	U
Chlorobenzene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Ethylbenzene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
m,p-Xylenes	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
o-Xylene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Bromoform	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,3-Dichlorobenzene	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
1,4-Dichlorobenzene	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
1,2-Dichlorobenzene	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Chlorotrifluoroethene	EPA 5030	8021A	23	1	1/27/98	1/27/98	23	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	23	1	1/27/98	1/27/98	23	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	23	1	1/27/98	1/27/98	23	U
2-Butanone (MEK)	EPA 5030	8021A	58	1	1/27/98	1/27/98	58	U
Acetone	EPA 5030	8021A	58	1	1/27/98	1/27/98	58	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	23	1	1/27/98	1/27/98	23	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	23	1	1/27/98	1/27/98	23	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	23	1	1/27/98	1/27/98	23	U

rev qual code

Approved By: Cindie Schwartz Date: 3/16/98

1S44/021397p

OGDEN VALIDATED **LEVEL V**

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Soil	**Date Received:**	1/26/98

Halogenated and Aromatic Volatile Organic Compounds

Sample Name:	RS655	Units:	UG/KG
Lab Code:	L9800197-019	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Dichlorodifluoromethane (CFC 12)	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Chloromethane	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Vinyl Chloride	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Bromomethane	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Chloroethane	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Trichlorofluoromethane (CFC 11)	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,1-Dichloroethene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Methylene Chloride	EPA 5030	8021A	24	1	1/27/98	1/27/98	24	U
trans-1,2-Dichloroethene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
cis-1,2-Dichloroethene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,1-Dichloroethane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Chloroform	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,1,1-Trichloroethane (TCA)	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Carbon Tetrachloride	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Benzene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,2-Dichloroethane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Trichloroethene (TCE)	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,2-Dichloropropane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Bromodichloromethane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
2-Chloroethyl Vinyl Ether	EPA 5030	8021A	59	1	1/27/98	1/27/98	59	U
Toluene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
trans-1,3-Dichloropropene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
cis-1,3-Dichloropropene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,1,2-Trichloroethane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Tetrachloroethene (PCE)	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
2-Chloro-1,1,1-trifluoroethane	EPA 5030	8021A	24	1	1/27/98	1/27/98	24	U
Chlorobenzene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Ethylbenzene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
m,p-Xylenes	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
o-Xylene	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
Bromoform	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,1,2,2-Tetrachloroethane	EPA 5030	8021A	6	1	1/27/98	1/27/98	6	U
1,3-Dichlorobenzene	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
1,4-Dichlorobenzene	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
1,2-Dichlorobenzene	EPA 5030	8021A	12	1	1/27/98	1/27/98	12	U
Chlorotrifluoroethene	EPA 5030	8021A	24	1	1/27/98	1/27/98	24	U
1,1,1,2-Tetrachloroethane	EPA 5030	8021A	24	1	1/27/98	1/27/98	24	U
1,1,2-Trichlorotrifluoroethane (CFC 113)	EPA 5030	8021A	24	1	1/27/98	1/27/98	24	U
2-Butanone (MEK)	EPA 5030	8021A	59	1	1/27/98	1/27/98	59	U
Acetone	EPA 5030	8021A	59	1	1/27/98	1/27/98	59	U
1,2,4-Trimethylbenzene	EPA 5030	8021A	24	1	1/27/98	1/27/98	24	U
1,3,5-Trimethylbenzene	EPA 5030	8021A	24	1	1/27/98	1/27/98	24	U
1,2-Dibromo-3-chloropropane (DBCP)	EPA 5030	8021A	24	1	1/27/98	1/27/98	24	U

new qual code

Approved By: Cydie Schwartz Date: 3/16/98

1S44/021397p

OGDEN VALIDATED LEVEL V

3005

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

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550 South Wadsworth Blvd. Suite 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: EPA Method 8015M
No. of Samples: 55
Date Reviewed: 12/8/98
Reviewer: M. Pokorny
Reference: *USEPA Contract Laboratory Program National Functional Guidelines For Organic Data Review (Feb. 1994); Columbia Analytical Services, SOP Number: SOH-DIES, Revision1.2, 12/18/97*
SDG: L9704088Samples Reviewed: RD373, RD374, RD375, RD959, RD960, RD961, RD963, RD964, RD965, RD972, RD973, RD976, RD977, RD978, RD979, RD980, RD389, RD390, RD391, RD392, RD393, RD394, RD396, RD398, RD399, RD981, RD982, RD985, RD987, RD988, RD403, RD404, RD405, RD410, RD411, RD989, RD990, RD992, RD993, RD994, RD995, RD996, RD997, RD998, RD999, RD413, RD418, RD419, RD420, RD421, RD422, RD423, RD426, RM500, RM506
Matrix: Soil and Water

EPA Level V-Total Petroleum Hydrocarbons Assessment Form

	Problems	Qualifications
1. Sample Management	According to the case narrative and COCs, samples were received chilled and intact. Sample reciept temperatures were not listed on the COCs. COC seals were not present.	No qualifications were required. The sample was collected by Ogden personnel, placed in coolers containing ice, and hand delivered to the mobile Columbia laboratory. No custody seals were present on the coolers, but because they were transported directly to the laboratory by field personnel, this was acceptable.
2. Method Blanks	Five method blanks were analyzed with this SDG. No target compounds were detected in the method blanks.	No qualifications were required.
3. LCS/BS	Five blank spikes were analyzed with the samples in this SDG. The recovery of the spiked compounds were within the QC limits of 41%-136%.	No qualifications were required.

	Problems	Qualifications
4. Surrogates	All surrogate recoveries were within the QC limits of 50%-140% except for sample RD988 which had a surrogate recovery above the QC limit and sample RD989 which had a surrogate recovery below the QC limit. However, it was determined during the Level IV data validation of another TFH data package that some of the laboratory surrogate results could not be reproduced from the raw data. This SDG was determined to be one of the data packages from which the surrogate recoveries could not be verified.	All nondetects were qualified as estimated nondetects, "UJ," and all detects were qualified as estimated, "J." No other qualifications were required.
5. MS/MSDs RM515 (L9704175) RD373 RD976 RD411 RD426	The recoveries of the spiked compound were within the QC limits of 41%-136% for all of the MS and MSD samples.	No qualifications were required.
6. Field QC Samples ER: RD455 (L9704175) RD999 FB: RS682 (L9800210) Field Duplicates: None	The equipment rinsates did not have any target compound detects. The field blank did not have any target compound detects.	No qualifications were required. No qualifications were required.
7. Other	During a Level IV validation of another TFH package, it was noted that sample quantitation was not acceptable for samples analyzed at the mobile Columbia Analytical Services Laboratory. The samples of this SDG were analyzed at the mobile laboratory. Sample RD988 was analyzed at a 10H dilution due to target compound detects; the sample was not analyzed at a 1H dilution.	All nondetects were qualified as estimated nondetects, "UJ," and all detects were qualified as estimated, "J." No other qualifications were required.

	Problems	Qualifications
Comments	None	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120297S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD373	Units:	MG/KG
Lab Code:	L9704088-001	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/2/97	12/13/97	12	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/2/97	12/13/97	12	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/2/97	12/13/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/2/97	12/13/97	12	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Arbuiny Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120297S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD374	Units:	MG/KG
Lab Code:	L9704088-002	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Mooney Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120297S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD375	Units:	MG/KG
Lab Code:	L9704088-003	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	UJ	S, #7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Adams Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD389	Units:	MG/KG
Lab Code:	L9704088-019	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	UJ	*7, 5
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas X. Murray Date: 2/10/98

1S22/020597p
04088SOH.BK2 - Sample (7) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD390	Units:	MG/KG
Lab Code:	L9704088-020	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	↓	↓ ↓
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	↓	↓ ↓

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Rehring Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD391	Units:	MG/KG
Lab Code:	L9704088-021	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U	UJ	S, 47
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

OGDEN VALIDATED

LEVEL V

Approved By: Thomas D. Murray Date: 2/10/98

1S22/020597p
04088SOH.BK2 - Sample (9) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD392	Units:	MG/KG
Lab Code:	L9704088-022	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

OGDEN VALIDATED

LEVEL V

Approved By: Thomas D Mooney Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD393	Units:	MG/KG
Lab Code:	L9704088-023	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas K. Mowry Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD394	Units:	MG/KG
Lab Code:	L9704088-024	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	UJ	S, #7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

VALIDATED

Approved By: Thomas D. Robinson Date: 2/10/98

1S22/020597p
04088SOH.BK3 - Sample (2) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD396	Units:	MG/KG
Lab Code:	L9704088-026	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	20		J	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	62		J	
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	300		J	

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

OGDEN VALIDATED

LEVEL V

Approved By: Thomas D. Robinson Date: 2/10/98

1S22/020597p
04088SOH.BK3 - Sample (3) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD398	Units:	MG/KG
Lab Code:	L9704088-027	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/4/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/4/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/4/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/4/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

ORDER VALIDATED

[illegible] VEL V

Approved By: [signature] Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD399	Units:	MG/KG
Lab Code:	L9704088-028	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/4/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/4/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/4/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/4/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

VALIDATED

LEVEL V

Approved By: Thomas P. Robinson Date: 2/10/98

1S22/020597p
04088SOH.BK3 - Sample (5) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120497S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD403	Units:	MG/KG
Lab Code:	L9704088-039	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

WHEN VALIDATED

FINAL

Approved By: Thomas D. Boring Date: 2/10/98

1S22/020597p
04088SOH.BK4 - Sample (5) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120497S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD404	Units:	MG/KG
Lab Code:	L9704088-040	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		

DLDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Young Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120497S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD405	Units:	MG/KG
Lab Code:	L9704088-041	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	12	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	12	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	12	U		

DEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D Robinson Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120497S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD410	Units:	MG/KG
Lab Code:	L9704088-046	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U	UJ	S1 Y7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: _____ Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120497S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD411	Units:	MG/KG
Lab Code:	L9704088-047	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U	UJ	S, #7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		

VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL

Approved By: _____ Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD413	Units:	MG/KG
Lab Code:	L9704088-058	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, X7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Arling Date: 2/10/98

1S22/020597p
04088SOH.BK6 - Sample 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD418	Units:	MG/KG
Lab Code:	L9704088-060	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		

VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Rowing Date: 2/10/98

1S22/020597p
04088SOH.BK6 - Sample (2) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD419	Units:	MG/KG
Lab Code:	L9704088-061	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		

CODES VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas R Ring Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD420	Units:	MG/KG
Lab Code:	L9704088-062	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		

DATA VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D Monroy Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD421	Units:	MG/KG
Lab Code:	L9704088-063	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Robins Date: 2/10/98

1S22/020597p
04088SOH.BK6 - Sample (5) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD422	Units:	MG/KG
Lab Code:	L9704088-064	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Robinson Date: 2/10/98

1S22/020597p
04088SOH.BK6 - Sample (6) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD423	Units:	MG/KG
Lab Code:	L9704088-065	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		

EVALUATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Nolan Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD426	Units:	MG/KG
Lab Code:	L9704088-068	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Mahoney Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120297S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD959	Units:	MG/KG
Lab Code:	L9704088-004	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D Rehring Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120297S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD960	Units:	MG/KG
Lab Code:	L9704088-005	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U		

CODEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Alming Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120297S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD961	Units:	MG/KG
Lab Code:	L9704088-006	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U	UJ	5, *7
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/2/97	12/2/97	12	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

CCDEN VALIDATED

LEVEL V

Approved By: Thomas D. Arbuckle Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120297S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD963	Units:	MG/KG
Lab Code:	L9704088-008	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

OGDEN VALIDATED

LEVEL V

Approved By: Thomas D. Rubin Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120297S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD964	Units:	MG/KG
Lab Code:	L9704088-009	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

CGDEN VALIDATED

LEVEL V

Approved By: Thomas D. Murray Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120297S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD965	Units:	MG/KG
Lab Code:	L9704088-010	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

GOLDEN VALIDATED

LEVEL V

Approved By: Thomas P. Abing Date: 2/10/98

1S22/020597p
04088SOH.BK1 - Sample (9) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/1/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120297S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD972	Units:	MG/KG
Lab Code:	L9704088-011	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/2/97	12/2/97	11	U		

GOLDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas P. Arbino Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD973	Units:	MG/KG
Lab Code:	L9704088-012	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		

GOLDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Robinson Date: 2/10/98

1S22/020597p
04088SOH.BK2 - Sample 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD976	Units:	MG/KG
Lab Code:	L9704088-014	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U		
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/3/97	12/3/97	12	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: _____ Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD977	Units:	MG/KG
Lab Code:	L9704088-015	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Ming Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD978	Units:	MG/KG
Lab Code:	L9704088-016	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	13	1	12/3/97	12/3/97	13	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	13	1	12/3/97	12/3/97	13	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	13	1	12/3/97	12/3/97	13	U		
C20 - C30 LORO	EPA 3550M	8015M	13	1	12/3/97	12/3/97	13	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Mahoney Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD979	Units:	MG/KG
Lab Code:	L9704088-017	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	REV QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Nobing Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120397S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD980	Units:	MG/KG
Lab Code:	L9704088-018	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	UJ	S, #7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/3/97	12/3/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Robinson Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120497S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD981	Units:	MG/KG
Lab Code:	L9704088-032	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	REV QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	12	U	UJ	S, 47
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	12	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	12	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: _____ Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120497S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD982	Units:	MG/KG
Lab Code:	L9704088-033	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/4/97	12/4/97	11	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Rhing Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120497S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD985	Units:	MG/KG
Lab Code:	L9704088-036	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	12	U	UJ	5, *7
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	12		J	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	24		J	
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/4/97	12/4/97	130		J	

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Robinson Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120997S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD987	Units:	MG/KG
Lab Code:	L9704088-037	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	REV QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/9/97	12/9/97	12	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/9/97	12/9/97	12	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/9/97	12/9/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/9/97	12/9/97	12	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Robinson Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120497S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD988	Units:	MG/KG
Lab Code:	L9704088-038	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	109	10	12/4/97	12/4/97	250		UJ	S
C11 - C14 KRO	EPA 3550M	8015M	109	10	12/4/97	12/4/97	2400		UJ	S
C14 - C20 DRO	EPA 3550M	8015M	109	10	12/4/97	12/4/97	8500		UJ	S
C20 - C30 LORO	EPA 3550M	8015M	109	10	12/4/97	12/4/97	109	U	UJ	S

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas P. Mooney Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD989	Units:	MG/KG
Lab Code:	L9704088-048	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/6/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/6/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/6/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/6/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Arbuckle Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD990	Units:	MG/KG
Lab Code:	L9704088-049	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	12		J	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	18		J	
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	140		J	

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Mehring Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD992	Units:	MG/KG
Lab Code:	L9704088-050	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Rhein Date: 2/10/98

1S22/020597p
04088SOH.BK5 - Sample (3) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD993	Units:	MG/KG
Lab Code:	L9704088-051	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	17		J	↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	140		J	↓
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	160		J	↓

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Mahoney Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD994	Units:	MG/KG
Lab Code:	L9704088-052	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	17	1	12/5/97	12/5/97	17	U	UJ	S, #7
C11 - C14 KRO	EPA 3550M	8015M	17	1	12/5/97	12/5/97	17	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	17	1	12/5/97	12/5/97	17	U		
C20 - C30 LORO	EPA 3550M	8015M	17	1	12/5/97	12/5/97	17	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: _____ Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD995	Units:	MG/KG
Lab Code:	L9704088-053	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	U J	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	U J	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	19		J	
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	150		J	

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

Approved By: Thomas D. Ming Date: 2/10/98

1S22/020597p
04088SOH.BK5 - Sample (6) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Sludge	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD996	Units:	MG/KG
Lab Code:	L9704088-054	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	12	1	12/5/97	12/5/97	12	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	12	1	12/5/97	12/5/97	12	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	12	1	12/5/97	12/5/97	12	U		
C20 - C30 LORO	EPA 3550M	8015M	12	1	12/5/97	12/5/97	12	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Rhing Date: 2/10/98

1S22/020597p
04088SOH.BK5 - Sample (7) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD997	Units:	MG/KG
Lab Code:	L9704088-055	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	39		J	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	760		J	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	3700		J	
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Rushing Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC121120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD998	Units:	MG/KG
Lab Code:	L9704088-056	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	120		J	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	930		J	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	2800		J	
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	U J	

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Young Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/4/97
Sample Matrix:	Water	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RD999	Units:	MG/L
Lab Code:	L9704088-057	Basis:	NA
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	10	1	12/5/97	12/5/97	10	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	10	1	12/5/97	12/5/97	10	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	10	1	12/5/97	12/5/97	10	U		
C20 - C30 LORO	EPA 3550M	8015M	10	1	12/5/97	12/5/97	10	U		

N VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Murphy Date: 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/5/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RM500	Units:	MG/KG
Lab Code:	L9704088-069	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/6/97	11	U	UJ	S, *7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/6/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/6/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/6/97	11	U		

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Murray Date: 2/10/98

1S22/020597p
04088SOH.BK6 - Sample (9) 2/10/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	InterPhase Environmental	**Service Request:**	L9704088
Project:	Rocketdyne/313150001	**Date Collected:**	12/5/97
Sample Matrix:	Soil	**Date Received:**	12/1/97
Batch Number:	GC12120597S		

Hydrocarbon Scan / Fuel Characterization

Sample Name:	RM506	Units:	MG/KG
Lab Code:	L9704088-071	Basis:	Dry
Test Notes:	X		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
C8 - C11 GRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	UJ	S, #7
C11 - C14 KRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U	↓	↓ ↓
C14 - C20 DRO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		
C20 - C30 LORO	EPA 3550M	8015M	11	1	12/5/97	12/5/97	11	U		

OGDEN VALIDATED

GRO	Gasoline Range Organics
KRO	Kerosene Range Organics
DRO	Diesel Range Organics
LRO	Lubricating Oil Range Organics
X	Quantified with diesel fuel

LEVEL V

Approved By: Thomas D. Mobley Date: 2/10/98

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1

550 South Wadsworth Blvd. Suite 500
Lakewood, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: EPA Method 8270-SIM
No. of Samples: 9, 1 dilution
Date Reviewed: 11/18/98
Reviewer: M. Pokorny
Reference: *USEPA Contract Laboratory Program National Functional Guidelines For Organic Data Review (Feb. 1994)*, and Columbia Analytical Services SOP 97-SOA-SIM-00M (Revision 1, 10/14/97).
SDG: L9704114
Samples Reviewed: RF977, RF978DL, RF979, RF980, RF397, RF982, RF985DL, RF985DLDL, RF986DL, RF403
Matrix: Soil

EPA Level V- Polynuclear Aromatic Hydrocarbons Assessment Form

	Problems	Qualifications
1. Sample Management	The samples were received at temperatures between 4EC and 5EC. The samples were received intact and no shipping/receipt problems were noted.	No qualifications were required. The samples were hand delivered to the laboratory the day of sampling by a courier; however, the laboratory case narrative failed to note this.
4. Method Blanks	Two method blanks were analyzed with this SDG. No target compounds were detected in the method blanks.	No qualifications were required.
5. LCS/BS	Two LCS were analyzed with this SDG. The LCS had acceptable recovery values for all compounds.	No qualifications were required.
6. Surrogates	All samples had acceptable surrogate recovery values except for samples RF986DL and RF985DLDL which had the surrogate compounds diluted out due to the 100H dilutions.	No qualifications were required.
7. MS/MSDs RF964 (L9704100)	The MS/MSD had acceptable %R and RPD values.	No qualifications were required.

	Problems	Qualifications
8. Field QC Samples ER: RS529 (L9703919) RF388 (L9704101) FB: RS682 (L9800210) Duplicates: None	Equipment rinsate RS529 did not have any target compounds detected. Equipment rinsate RF388 had bis(2-ethylhexyl)phthalate detected. Field blank RS682 had nondetects for all target compounds.	No qualifications were required.
9. Other	Samples RF978DL and RF985DL were analyzed at 10H dilutions. Samples RF985DLDL and RF986DL were analyzed at 100H dilutions. Samples RF985DL and RF985DLDL were analyzed at dilutions due to high concentrations of target compounds. The laboratory case narrative did not address why the dilutions for were performed for samples RF978DL and RF986DL. Bis(2-ethylhexyl)phthalate was detected above the linear range of the instrument in sample RF985DL.	Bis(2-ethylhexyl)phthalate was rejected in sample RF985DL; all analytes except for bis(2-ethylhexyl)phthalate were rejected in sample RF985DLDL.
10. Comments	None	N/A

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Selected Ion Monitoring (SIM)
Base Neutral Semivolatile Organic Compounds

Sample Name:	RF397	Units:	UG/KG
Lab Code:	L9704114-005	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
N-Nitrosodimethylamine	EPA 3550	8270SIM	2	1	12/5/97	12/15/97	2	U	U	
Naphthalene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Acenaphthylene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Acenaphthene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Diethyl Phthalate	EPA 3550	8270SIM	110	1	12/5/97	12/15/97	110	U		
Fluorene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Phenanthrene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Anthracene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Di-n-butyl Phthalate	EPA 3550	8270SIM	110	1	12/5/97	12/15/97	110	U		
Fluoranthene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Pyrene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Benz(a)anthracene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Bis(2-ethylhexyl) Phthalate	EPA 3550	8270SIM	110	1	12/5/97	12/15/97	110	U		
Chrysene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Benzo(b)fluoranthene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Benzo(k)fluoranthene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Benzo(a)pyrene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Indeno(1,2,3-cd)pyrene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Dibenz(a,h)anthracene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Benzo(g,h,i)perylene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
N-Nitrosodiphenylamine	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		

N-Nitrosodimethylamine Reported Method Detection Limit

OGDEN VALIDATED

LEVEL V

Approved By: Date: 3/2/98

1S22/020597p

04I14SOA.AA1 - Sample (5) 3/2/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Selected Ion Monitoring (SIM)
Base Neutral Semivolatile Organic Compounds

Sample Name:	RF403	Units:	UG/KG
Lab Code:	L9704114-011	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
N-Nitrosodimethylamine	EPA 3550	8270SIM	2	1	12/8/97	12/19/97	2	U	U	
Naphthalene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Acenaphthylene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Acenaphthene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Diethyl Phthalate	EPA 3550	8270SIM	110	1	12/8/97	12/19/97	110	U		
Fluorene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Phenanthrene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Anthracene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Di-n-butyl Phthalate	EPA 3550	8270SIM	110	1	12/8/97	12/19/97	110	U		
Fluoranthene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Pyrene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Benz(a)anthracene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Bis(2-ethylhexyl) Phthalate	EPA 3550	8270SIM	110	1	12/8/97	12/19/97	110	U		
Chrysene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Benzo(b)fluoranthene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Benzo(k)fluoranthene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Benzo(a)pyrene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Indeno(1,2,3-cd)pyrene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Dibenz(a,h)anthracene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
Benzo(g,h,i)perylene	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		
N-Nitrosodiphenylamine	EPA 3550	8270SIM	33	1	12/8/97	12/19/97	33	U		

N-Nitrosodimethylamine Reported Method Detection Limit

OGDEN VALIDATED

Approved By: Cynthia Schmidt Date: 3/2/98 LEVEL V

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Selected Ion Monitoring (SIM)
Base Neutral Semivolatile Organic Compounds

Sample Name:	RF977	Units:	UG/KG
Lab Code:	L9704114-001	Basis:	Dry
Test Notes:	-		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
N-Nitrosodimethylamine	EPA 3550	8270SIM	2	1	12/5/97	12/15/97	2	U	U	
Naphthalene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Acenaphthylene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Acenaphthene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Diethyl Phthalate	EPA 3550	8270SIM	110	1	12/5/97	12/15/97	110	U		
Fluorene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Phenanthrene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Anthracene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Di-n-butyl Phthalate	EPA 3550	8270SIM	110	1	12/5/97	12/15/97	110	U		
Fluoranthene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Pyrene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Benz(a)anthracene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Bis(2-ethylhexyl) Phthalate	EPA 3550	8270SIM	110	1	12/5/97	12/15/97	110	U		
Chrysene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Benzo(b)fluoranthene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Benzo(k)fluoranthene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Benzo(a)pyrene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Indeno(1,2,3-cd)pyrene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Dibenz(a,h)anthracene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
Benzo(g,h,i)perylene	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		
N-Nitrosodiphenylamine	EPA 3550	8270SIM	34	1	12/5/97	12/15/97	34	U		

N-Nitrosodimethylamine Reported Method Detection Limit

OGDEN VALIDATED **LEVEL V**

Approved By: Linda Schwait Date: 3/2/98

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Selected Ion Monitoring (SIM)
Base Neutral Semivolatile Organic Compounds

Sample Name:	RF978DL	Units:	UG/KG
Lab Code:	L9704114-002	Basis:	Dry
Test Notes:	C2A		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
N-Nitrosodimethylamine	EPA 3550	8270SIM	28	10	12/5/97	12/21/97	28	U	U	
Naphthalene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Acenaphthylene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Acenaphthene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Diethyl Phthalate	EPA 3550	8270SIM	1400	10	12/5/97	12/21/97	1400	U		
Fluorene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Phenanthrene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Anthracene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Di-n-butyl Phthalate	EPA 3550	8270SIM	1400	10	12/5/97	12/21/97	1400	U		
Fluoranthene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Pyrene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Benz(a)anthracene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Bis(2-ethylhexyl) Phthalate	EPA 3550	8270SIM	1400	10	12/5/97	12/21/97	1400	U		
Chrysene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Benzo(b)fluoranthene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Benzo(k)fluoranthene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Benzo(a)pyrene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Indeno(1,2,3-cd)pyrene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Dibenz(a,h)anthracene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
Benzo(g,h,i)perylene	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		
N-Nitrosodiphenylamine	EPA 3550	8270SIM	420	10	12/5/97	12/21/97	420	U		

N-Nitrosodimethylamine — Reported Method Detection Limit

C2A — PQL is elevated because of matrix interferences and because the sample required diluting.

OGDEN VALIDATED **LEVEL V**

Approved By: Eydie Schwartz Date: 3/2/98

1004

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Selected Ion Monitoring (SIM)
Base Neutral Semivolatile Organic Compounds

Sample Name:	RF979	Units:	UG/KG
Lab Code:	L9704114-003	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
N-Nitrosodimethylamine	EPA 3550	8270SIM	3	1	12/5/97	12/23/97	3	U	U	
Naphthalene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Acenaphthylene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Acenaphthene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Diethyl Phthalate	EPA 3550	8270SIM	130	1	12/5/97	12/23/97	130	U		
Fluorene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Phenanthrene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Anthracene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Di-n-butyl Phthalate	EPA 3550	8270SIM	130	1	12/5/97	12/23/97	130	U		
Fluoranthene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Pyrene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Benz(a)anthracene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Bis(2-ethylhexyl) Phthalate	EPA 3550	8270SIM	130	1	12/5/97	12/23/97	130	U		
Chrysene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Benzo(b)fluoranthene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Benzo(k)fluoranthene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Benzo(a)pyrene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Indeno(1,2,3-cd)pyrene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Dibenz(a,h)anthracene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
Benzo(g,h,i)perylene	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		
N-Nitrosodiphenylamine	EPA 3550	8270SIM	39	1	12/5/97	12/23/97	39	U		

N-Nitrosodimethylamine Reported Method Detection Limit

OGDEN VALIDATED

LEVEL V

Approved By: Eddie Schmidt Date: 3/2/98

1005

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Selected Ion Monitoring (SIM)
Base Neutral Semivolatile Organic Compounds

Sample Name:	RF980	Units:	UG/KG
Lab Code:	L9704114-004	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
N-Nitrosodimethylamine	EPA 3550	8270SIM	3	1	12/5/97	12/22/97	3	U	U	
Naphthalene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Acenaphthylene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Acenaphthene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Diethyl Phthalate	EPA 3550	8270SIM	130	1	12/5/97	12/22/97	130	U		
Fluorene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Phenanthrene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Anthracene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Di-n-butyl Phthalate	EPA 3550	8270SIM	130	1	12/5/97	12/22/97	130	U		
Fluoranthene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Pyrene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Benz(a)anthracene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Bis(2-ethylhexyl) Phthalate	EPA 3550	8270SIM	130	1	12/5/97	12/22/97	130	U		
Chrysene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Benzo(b)fluoranthene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Benzo(k)fluoranthene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Benzo(a)pyrene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Indeno(1,2,3-cd)pyrene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Dibenz(a,h)anthracene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
Benzo(g,h,i)perylene	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		
N-Nitrosodiphenylamine	EPA 3550	8270SIM	38	1	12/5/97	12/22/97	38	U		

N-Nitrosodimethylamine Reported Method Detection Limit

OGDEN VALIDATED

LEVEL V

Approved By: Cindy Stewart Date: 3/6/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Selected Ion Monitoring (SIM)
Base Neutral Semivolatile Organic Compounds

Sample Name:	RF982	Units:	UG/KG
Lab Code:	L9704114-007	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
N-Nitrosodimethylamine	EPA 3550	8270SIM	2	1	12/8/97	12/15/97	2	U	U	
Naphthalene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Acenaphthylene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Acenaphthene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Diethyl Phthalate	EPA 3550	8270SIM	100	1	12/8/97	12/15/97	100	U		
Fluorene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Phenanthrene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Anthracene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Di-n-butyl Phthalate	EPA 3550	8270SIM	100	1	12/8/97	12/15/97	100	U		
Fluoranthene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Pyrene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Benz(a)anthracene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Bis(2-ethylhexyl) Phthalate	EPA 3550	8270SIM	100	1	12/8/97	12/15/97	100	U		
Chrysene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Benzo(b)fluoranthene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Benzo(k)fluoranthene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Benzo(a)pyrene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Indeno(1,2,3-cd)pyrene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Dibenz(a,h)anthracene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
Benzo(g,h,i)perylene	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		
N-Nitrosodiphenylamine	EPA 3550	8270SIM	31	1	12/8/97	12/15/97	31	U		

N-Nitrosodimethylamine Reported Method Detection Limit

OGDEN VALIDATED

LEVEL V

Approved By: Eric Schmidt Date: 3/2/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Selected Ion Monitoring (SIM)
Base Neutral Semivolatile Organic Compounds

Sample Name:	RF985DL	Units:	UG/KG
Lab Code:	L9704114-008	Basis:	Dry
Test Notes:	C2A		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
N-Nitrosodimethylamine	EPA 3550	8270SIM	24	10	12/8/97	12/21/97	24	U	U	
Naphthalene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Acenaphthylene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Acenaphthene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Diethyl Phthalate	EPA 3550	8270SIM	1200	10	12/8/97	12/21/97	1200	U		
Fluorene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Phenanthrene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Anthracene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Di-n-butyl Phthalate	EPA 3550	8270SIM	1200	10	12/8/97	12/21/97	1200	U		
Fluoranthene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360			
Pyrene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U	U	
Benz(a)anthracene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U	U	
Bis(2-ethylhexyl) Phthalate	EPA 3550	8270SIM	1200	10	12/8/97	12/21/97	830	E	R	D
Chrysene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U	U	
Benzo(b)fluoranthene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Benzo(k)fluoranthene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Benzo(a)pyrene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Indeno(1,2,3-cd)pyrene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Dibenz(a,h)anthracene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
Benzo(g,h,i)perylene	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		
N-Nitrosodiphenylamine	EPA 3550	8270SIM	360	10	12/8/97	12/21/97	360	U		

N-Nitrosodimethylamine — Reported Method Detection Limit

C2A — PQL is elevated because of matrix interferences and because the sample required diluting.

OGDEN VALIDATED

LEVEL V

Approved By: Eydie Schmidt Date: 3/2/98

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Selected Ion Monitoring (SIM)
Base Neutral Semivolatile Organic Compounds

Sample Name:	RF985DLDL	Units:	UG/KG
Lab Code:	L9704114-008	Basis:	Dry
Test Notes:	C2A		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
N-Nitrosodimethylamine	EPA 3550	8270SIM	240	100	12/8/97	12/16/97	240	U	R	D
Naphthalene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Acenaphthylene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Acenaphthene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Diethyl Phthalate	EPA 3550	8270SIM	12000	100	12/8/97	12/16/97	12000	U		
Fluorene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Phenanthrene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Anthracene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Di-n-butyl Phthalate	EPA 3550	8270SIM	12000	100	12/8/97	12/16/97	12000	U		
Fluoranthene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Pyrene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Benz(a)anthracene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U	R	
Bis(2-ethylhexyl) Phthalate	EPA 3550	8270SIM	12000	100	12/8/97	12/16/97	4500	J	J	
Chrysene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U	R	D
Benzo(b)fluoranthene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Benzo(k)fluoranthene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Benzo(a)pyrene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Indeno(1,2,3-cd)pyrene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Dibenz(a,h)anthracene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
Benzo(g,h,i)perylene	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		
N-Nitrosodiphenylamine	EPA 3550	8270SIM	3600	100	12/8/97	12/16/97	3600	U		

N-Nitrosodimethylamine — Reported Method Detection Limit

C2A — PQL is elevated because of matrix interferences and because the sample required diluting.

OGDEN VALIDATED

LEVEL V

Approved By: Eddie Achuzia Date: 3/2/98

MP 11-18-98

1010

Page No

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Selected Ion Monitoring (SIM)
Base Neutral Semivolatile Organic Compounds

Sample Name:	RF986DL	Units:	UG/KG
Lab Code:	L9704114-009	Basis:	Dry
Test Notes:	C2A		

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes	REV QUAL	QUAL CODE
N-Nitrosodimethylamine	EPA 3550	8270SIM	270	100	12/8/97	12/19/97	270	U	U	
Naphthalene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Acenaphthylene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Acenaphthene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Diethyl Phthalate	EPA 3550	8270SIM	14000	100	12/8/97	12/19/97	14000	U		
Fluorene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Phenanthrene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Anthracene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Di-n-butyl Phthalate	EPA 3550	8270SIM	14000	100	12/8/97	12/19/97	14000	U		
Fluoranthene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Pyrene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Benz(a)anthracene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Bis(2-ethylhexyl) Phthalate	EPA 3550	8270SIM	14000	100	12/8/97	12/19/97	14000	U		
Chrysene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Benzo(b)fluoranthene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Benzo(k)fluoranthene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Benzo(a)pyrene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Indeno(1,2,3-cd)pyrene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Dibenz(a,h)anthracene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
Benzo(g,h,i)perylene	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		
N-Nitrosodiphenylamine	EPA 3550	8270SIM	4100	100	12/8/97	12/19/97	4100	U		

N-Nitrosodimethylamine — Reported Method Detection Limit

C2A — PQL is elevated because of matrix interferences and because the sample required diluting.

OGDEN VALIDATED

LEVEL V

Approved By: Eddie Lehnert Date: 3/2/98

1S22/020597p

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1

550 South Wadsworth Blvd. Ste. 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: 6010/7000
No. of Samples: 8
Date Completed: November 3, 1998
Reviewer: K. Okonzak-Lowry
Ref: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994), Columbia Analytical Services, Inc. - Canoga Park, Determination of Trace Elements by Inductively Coupled Plasma, Optical Emission Spectrometry SOP ICP-OES, Revision 1.0* (8/96), *Columbia Analytical Services, Inc. - Canoga Park, Graphite Furnace Atomic Absorption Spectrometry SOP GFA-GFAA, Revision 1.0* (8/96), *Columbia Analytical Services, Inc. - Canoga Park, Mercury in Solid or Semisolid Waste SOP MET-7471, Revision 2.0* (3/98).
SDG: L9800197
Samples Reviewed: RS144, RS145, RS149, RS150, RS151, RS152, RS153, RS656

EPA Level V- Metals Assessment Form

	Problems	Qualifications
1. Sample Management	The cooler temperatures were noted at 6 and 5°C; the specified control limits are 4°C "2°C. Sample condition questions were answered on the COCs. Samples were collected by Ogden personnel, placed in coolers containing ice, and hand delivered to the laboratory. Some corrections were initialled but not individually dated. No sample preservation or handling problems were noted.	None
2. Method Blanks	None. All method blank results were below laboratory determined PQLs.	None
3. LCS	The LCS results were all within the laboratory established control limits of 75-125%R.	None
4. Duplicates	None performed.	None
5. MS/MSDs		

	Problems	Qualifications
Performed on soil sample RS656	Antimony: MS at 55%R/MSD at 40%R.	The antimony nondetect for sample RS656 was qualified "UJ."
6. Furnace Atomic Absorption QC Post digestion spikes performed on samples RS656 and RS150	The post digestion spike recoveries for the arsenic, selenium, and thallium analyses were within the 85-115%R control limit. The validator determined the post spike results by reviewing the GFAA raw data.	None
7. ICP Serial Dilution Performed on sample RS656	All serial dilution results greater than 10H the PQL were within the 10%D control limit with the exception of aluminum and barium which had %Ds of 16% and 12.1%, respectively. There was no ICP serial dilution form in the report. The validator determined the serial dilution results by reviewing the ICP raw data.	The aluminum and barium detects for sample RS656 were qualified "J."
8. Field QC Samples ER samples: RS665, RF149, and RS516 FB sample: RS682 Field Duplicates: None identified for this SDG	There were detects in the field QC samples, but none at high enough levels to require qualifications to the site sample results.	None
9. Other	None	None
10. Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/23/98
Sample Matrix:	Soil	**Date Received:**	1/23/98

Metals

Sample Name:	RS144	Units:	MG/KG
Lab Code:	L9800197-001	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Arsenic	EPA 3050	7060	6	1	2/9/98	2/9/98	14			
Cobalt	EPA 3050	6010	2	1	2/9/98	2/10/98	5			
Mercury	EPA 7471	7471	0.2	1	2/9/98	2/10/98	0.2	U	UL	

OGDEN VALIDATED

LEVEL V

Approved By: Cydie Schwartz Date: 3/13/98

1S44/021397p

5002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/23/98
Sample Matrix:	Soil	**Date Received:**	1/23/98

Metals

Sample Name:	RS145	Units:	MG/KG
Lab Code:	L9800197-002	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qua Code
Arsenic	EPA 3050	7060	6	1	2/9/98	2/9/98	21			
Cobalt	EPA 3050	6010	2	1	2/9/98	2/10/98	9			
Mercury	EPA 7471	7471	0.2	1	2/9/98	2/10/98	0.2	U	u	

OGDEN VALIDATED

LEVEL V

Approved By: Cydie Schwartz Date: 3/13/98

1S44/021397p

5003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Soil	**Date Received:**	1/26/98

Metals

Sample Name:	RS149	Units:	MG/KG
Lab Code:	L9800197-006	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes Rev Qual	Qual Code
Arsenic	EPA 3050	7060	5	1	2/9/98	2/9/98	18		

OGDEN VALIDATED

LEVEL V

Approved By: Eydie Schwartz Date: 3/13/98

1S44/021397p

5004

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Soil	**Date Received:**	1/26/98

Metals

Sample Name:	RS150	Units:	MG/KG
Lab Code:	L9800197-007	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Arsenic	EPA 3050	7060	6	1	2/9/98	2/9/98	14			

OGDEN VALIDATED

LEVEL V

Approved By: Cydia Schwartz Date: 3/13/98

IS44/021397p

5005

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Soil	**Date Received:**	1/26/98

Metals

Sample Name:	RS151	Units:	MG/KG
Lab Code:	L9800197-008	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Arsenic	EPA 3050	7060	6	1	2/9/98	2/9/98	15			

OGDEN VALIDATED

LEVEL V

Approved By: Cynthia Schwartz Date: 3/13/98

1S44/021397p

5006

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Soil	**Date Received:**	1/26/98

Metals

Sample Name:	RS152	Units:	MG/KG
Lab Code:	L9800197-009	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Arsenic	EPA 3050	7060	6	1	2/9/98	2/9/98	20			

OGDEN VALIDATED

LEVEL V

Approved By: Cynthia Schwartz Date: 3/13/98

IS44/021397p

5007

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Soil	**Date Received:**	1/26/98

Metals

Sample Name:	RS153	Units:	MG/KG
Lab Code:	L9800197-010	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Arsenic	EPA 3050	7060	6	1	2/9/98	2/9/98	43			

OGDEN VALIDATED

LEVEL V

Approved By: Cydie Schwartz Date: 3/13/98

IS44/021397p

5008

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800197
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Soil	**Date Received:**	1/26/98

Metals

Sample Name:	RS656	Units:	MG/KG
Lab Code:	L9800197-020	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Aluminum	EPA 3050	6010	11	1	2/9/98	2/10/98	14000		J	A
Antimony	EPA 3050	6010	11	1	2/9/98	2/10/98	11	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	2/9/98	2/9/98	6	U	U	
Barium	EPA 3050	6010	1	1	2/9/98	2/10/98	92		J	A
Beryllium	EPA 3050	6010	0.6	1	2/9/98	2/10/98	0.7			
Boron	EPA 3050	6010	11	1	2/9/98	2/10/98	11	U	U	
Cadmium	EPA 3050	6010	1	1	2/9/98	2/10/98	1	U	U	
Chromium	EPA 3050	6010	2	1	2/9/98	2/10/98	16			
Cobalt	EPA 3050	6010	2	1	2/9/98	2/10/98	6			
Copper	EPA 3050	6010	2	1	2/9/98	2/10/98	6			
Lead	EPA 3050	6010	6	1	2/9/98	2/10/98	7			
Mercury	EPA 7471	7471	0.2	1	2/9/98	2/10/98	0.2	U	U	
Molybdenum	EPA 3050	6010	11	1	2/9/98	2/10/98	11	U	U	
Nickel	EPA 3050	6010	6	1	2/9/98	2/10/98	10			
Selenium	EPA 3050	7740	6	1	2/9/98	2/9/98	6	U	U	
Silver	EPA 3050	6010	1	1	2/9/98	2/10/98	1	U	U	
Thallium	EPA 3050	7841	6	1	2/9/98	2/10/98	6	U	U	
Vanadium	EPA 3050	6010	2	1	2/9/98	2/10/98	36			
Zinc	EPA 3050	6010	1	1	2/9/98	2/10/98	45			

LEVEL V

Approved By: Cynthia Schwartz Date: 3/13/98

1S44/021397p

5009

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1

550 South Wadsworth Blvd. Ste. 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: 6010/7000
No. of Samples: 2
Date Completed: November 3, 1998
Reviewer: K. Okonzak-Lowry
Ref: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994), Columbia Analytical Services, Inc. - Canoga Park, Determination of Trace Elements by Inductively Coupled Plasma, Optical Emission Spectrometry SOP ICP-OES, Revision 1.0* (8/96), *Columbia Analytical Services, Inc. - Canoga Park, Graphite Furnace Atomic Absorption Spectrometry SOP GFA-GFAA, Revision 1.0* (8/96), *Columbia Analytical Services, Inc. - Canoga Park, Mercury in Liquid by Cold Vapor Atomic Absorption Spectroscopy SOP CVA-Hg, Revision 1.0* (8/96).
SDG: L9800210
Samples Reviewed: RS665, RS682

EPA Level V- Metals Assessment Form

	Problems	Qualifications
1. Sample Management	The cooler temperatures were noted at 6 and 8°C; the specified control limits are 4°C "2°C. Sample condition questions were answered on the COCs. Samples were collected by Ogden personnel, placed in coolers containing ice, and hand delivered to the laboratory; therefore, the cooler temperatures did not have time to equilibrate. No sample preservation or handling problems were noted.	Due to the nonvolatile nature of the analytes, the samples were not qualified for the elevated cooler temperature.
2. Method Blanks	The method blank results for barium and zinc were reported as less than 0.02 mg/L which is twice as high as the laboratory stated PQL for barium and zinc of 0.01 mg/L. The raw data was validated to determine that the method blank results for barium and zinc were actually nondetects at 0.01 mg/L.	None

	Problems	Qualifications
3. LCS	The LCS results were acceptable as reviewed.	None
4. Duplicates	None performed.	None
5. MS/MSDs	The field QC sample in this package was not assessed for this criteria.	None
6. Furnace Atomic Absorption QC	The field QC sample in this package was not assessed for this criteria.	None
7. ICP Serial Dilution No serial dilution form was provided in the data package.	The field QC sample in this package was not assessed for this criteria.	None
8. Field QC Samples None applicable	The field QC sample in this package was not assessed for this criteria.	None
9. Other	The barium and zinc results for the field QC samples in this SDG were reported with a higher PQL than the laboratory's stated barium and zinc PQL for this project.	The Form I barium and zinc results were corrected to reflect the 0.01 mg/L PQL for barium and zinc. The validator verified the raw data to determine whether the sample results were detects or nondetects at the 0.01 mg/L level.
10. Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800210
Project:	Rocketdyne/313150002	**Date Collected:**	1/26/98
Sample Matrix:	Water	**Date Received:**	1/26/98

Metals

Sample Name:	RS665	Units:	MG/L
Lab Code:	L9800210-001	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Aluminum	EPA 3010	6010	0.05	1	2/10/98	2/11/98	0.05	U	u	
Antimony	EPA 3010	6010	0.05	1	2/10/98	2/11/98	0.05	U	u	
Arsenic	EPA 3020	7060	0.005	1	2/10/98	2/10/98	0.005	U	u	
Barium	EPA 3010	6010	~~0.02~~ 0.01	1	2/10/98	2/11/98	~~0.02~~ 0.01	U	u	$_1$*
Beryllium	EPA 3010	6010	0.005	1	2/10/98	2/11/98	0.005	U	u	
Boron	EPA 3010	6010	0.05	1	2/10/98	2/11/98	0.05	U	u	
Cadmium	EPA 3010	6010	0.005	1	2/10/98	2/11/98	0.005	U	u	
Chromium	EPA 3010	6010	0.01	1	2/10/98	2/11/98	0.01	U	u	
Cobalt	EPA 3010	6010	0.01	1	2/10/98	2/11/98	0.01	U	u	
Copper	EPA 3010	6010	0.01	1	2/10/98	2/11/98	0.01	U	u	
Lead	EPA 3010	6010	0.05	1	2/10/98	2/11/98	0.05	U	u	
Mercury	METHOD	7470	0.001	1	2/10/98	2/11/98	0.001	U	u	
Molybdenum	EPA 3010	6010	0.02	1	2/10/98	2/11/98	0.02	U	u	
Nickel	EPA 3010	6010	0.04	1	2/10/98	2/11/98	0.04	U	u	
Selenium	EPA 3020	7740	0.005	1	2/10/98	2/10/98	0.005	U	u	
Silver	EPA 3010	6010	0.01	1	2/10/98	2/11/98	0.01	U	u	
Thallium	EPA 3020	7841	0.005	1	2/10/98	2/10/98	0.005	U	u	
Vanadium	EPA 3010	6010	0.01	1	2/10/98	2/11/98	0.01	U	u	
Zinc	EPA 3010	6010	~~0.02~~ 0.01	1	2/10/98	2/11/98	~~0.02~~ 0.01	U	u	$_1$*

KAA 10/20/98

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schwartz Date: 3/13/98

IS44/021397p

5002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800210
Project:	Rocketdyne/313150002	**Date Collected:**	1/28/98
Sample Matrix:	Water	**Date Received:**	1/28/98

Metals

Sample Name:	RS682	Units:	MG/L
Lab Code:	L9800210-003	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qua Cod
Aluminum	EPA 3010	6010	0.05	1	2/10/98	2/11/98	0.05	U	u	
Antimony	EPA 3010	6010	0.05	1	2/10/98	2/11/98	0.05	U	u	
Arsenic	EPA 3020	7060	0.005	1	2/10/98	2/10/98	0.005	U	u	
Barium	EPA 3010	6010	0.02 0.01	1	2/10/98	2/11/98	~~0.02~~ 0.01	U	u	$,*
Beryllium	EPA 3010	6010	0.005	1	2/10/98	2/11/98	0.005	U	u	
Boron	EPA 3010	6010	0.05	1	2/10/98	2/11/98	0.05	U	u	
Cadmium	EPA 3010	6010	0.005	1	2/10/98	2/11/98	0.005	U	u	
Chromium	EPA 3010	6010	0.01	1	2/10/98	2/11/98	0.01	U	u	
Cobalt	EPA 3010	6010	0.01	1	2/10/98	2/11/98	0.01	U	u	
Copper	EPA 3010	6010	0.01	1	2/10/98	2/11/98	0.01	U	u	
Lead	EPA 3010	6010	0.05	1	2/10/98	2/11/98	0.05	U	u	
Mercury	METHOD	7470	0.001	1	2/10/98	2/11/98	0.001	U	u	
Molybdenum	EPA 3010	6010	0.02	1	2/10/98	2/11/98	0.02	U	u	
Nickel	EPA 3010	6010	0.04	1	2/10/98	2/11/98	0.04	U	u	
Selenium	EPA 3020	7740	0.005	1	2/10/98	2/10/98	0.005	U	u	
Silver	EPA 3010	6010	0.01	1	2/10/98	2/11/98	0.01	U	u	
Thallium	EPA 3020	7841	0.005	1	2/10/98	2/10/98	0.005	U	u	
Vanadium	EPA 3010	6010	0.01	1	2/10/98	2/11/98	0.01	U	u	
Zinc	EPA 3010	6010	0.02 0.01	1	2/10/98	2/11/98	0.02	~~U~~		$,*

KMC
7/28/98

LEVEL V

OGDEN VALIDATED

Approved By: Cydie Schwartz Date: 3/13/98

1S44/021397p

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1

550 South Wadsworth Blvd. Ste. 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: 6010/7000
No. of Samples: 1
Date Completed: November 3, 1998
Reviewer: K. Okonzak-Lowry
Ref: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994), Columbia Analytical Services, Inc. - Canoga Park, Determination of Trace Elements by Inductively Coupled Plasma, Optical Emission Spectrometry SOP ICP-OES, Revision 1.0* (8/96), *Columbia Analytical Services, Inc. - Canoga Park, Graphite Furnace Atomic Absorption Spectrometry SOP GFA-GFAA, Revision 1.0* (8/96), *Columbia Analytical Services, Inc. - Canoga Park, Mercury in Solid or Semisolid Waste SOP MET-7471, Revision 2.0* (3/98).
SDG: L9800238
Samples Reviewed: RS683

EPA Level V- Metals Assessment Form

	Problems	Qualifications
1. Sample Management	The cooler temperature was noted at 17°C; the specified control limits are 4°C "2°C. Sample condition questions were answered on the COCs. Samples were collected by Ogden personnel, placed in coolers containing ice, and hand delivered to the laboratory; therefore, the cooler temperatures did not have time to equilibrate. No sample preservation or handling problems were noted.	Due to the nonvolatile nature of the analytes, the sample results were not qualified due to the high cooler temperature.
2. Method Blanks	None. All method blank results were below laboratory determined PQLs.	None
3. LCS	The LCS results were all within the laboratory established control limits of 75-125%R.	None
4. Duplicates	None performed.	None
5. MS/MSDs		

	Problems	Qualifications
Performed on soil sample RS683	Antimony: MS at 52%R/MSD at 74%R Chromium: MS at 62%R/MSD at 62%R Nickel: MS at 71%R/MSD at 73%R Selenium: MS at 58%R/MSD at 65%R	The antimony and selenium nondetects for sample RS683 were qualified "UJ." The chromium and nickel detects for sample RS683 were qualified "J."
6. Furnace Atomic Absorption QC Post digestion spikes performed on sample RS683	The post digestion spike recoveries for the arsenic, selenium, and thallium analyses were within the 85-115%R control limit. The validator determined the post spike results by reviewing the GFAA raw data.	None
7. ICP Serial Dilution Performed on sample RS683	All serial dilution results greater than 10H the PQL were within the 10%D control limit with the exception of aluminum and barium which had %Ds of 15.3% and 14.2%, respectively. There was no ICP serial dilution form in the report. The validator determined the serial dilution results by reviewing the ICP raw data.	The aluminum and barium detects in the samples were qualified "J."
8. Field QC Samples ER samples: RS665 and RS516 FB sample: RS682 Field Duplicates: None identified for this SDG	There were detects in the field QC samples, but none at high enough levels to require qualifications to the site sample results.	None
9. Other	None	None
10. Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9800238
Project:	Rocketdyne/313150002	**Date Collected:**	1/29/98
Sample Matrix:	Soil	**Date Received:**	1/29/98

Metals

Sample Name:	RS683	Units:	MG/KG
Lab Code:	L9800238-003	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Aluminum	EPA 3050	6010	12	1	2/11/98	2/12/98	8200		J	A
Antimony	EPA 3050	6010	12	1	2/11/98	2/12/98	12	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	2/11/98	2/11/98	6	U	U	
Barium	EPA 3050	6010	1	1	2/11/98	2/12/98	60		J	A
Beryllium	EPA 3050	6010	0.6	1	2/11/98	2/12/98	0.6	U	U	
Boron	EPA 3050	6010	12	1	2/11/98	2/12/98	12	U	U	
Cadmium	EPA 3050	6010	1	1	2/11/98	2/12/98	1	U	U	
Chromium	EPA 3050	6010	2	1	2/11/98	2/12/98	30		J	Q
Cobalt	EPA 3050	6010	2	1	2/11/98	2/12/98	5			
Copper	EPA 3050	6010	2	1	2/11/98	2/12/98	6			
Lead	EPA 3050	6010	6	1	2/11/98	2/12/98	18			
Mercury	EPA 7471	7471	0.2	1	2/13/98	2/16/98	0.2	U	U	
Molybdenum	EPA 3050	6010	12	1	2/11/98	2/12/98	12	U	U	
Nickel	EPA 3050	6010	6	1	2/11/98	2/12/98	20		J	Q
Selenium	EPA 3050	7740	6	1	2/11/98	2/11/98	6	U	UJ	Q
Silver	EPA 3050	6010	1	1	2/11/98	2/12/98	1	U	U	
Thallium	EPA 3050	7841	6	1	2/11/98	2/11/98	6	U	U	
Vanadium	EPA 3050	6010	2	1	2/11/98	2/12/98	24			
Zinc	EPA 3050	6010	1	1	2/11/98	2/12/98	47			

OGDEN VALIDATED

LEVEL V

KMR 11/03/98

Approved By: Eydie Schwartz Date: 3/16/98

1S44/021397p

5002

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1

550 South Wadsworth Blvd. Ste. 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: 6010/7000
No. of Samples: 7
Date Completed: November 17, 1998
Reviewer: K. Okonzak-Lowry
Ref: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994), Columbia Analytical Services, Inc. - Canoga Park, Determination of Trace Elements by Inductively Coupled Plasma, Optical Emission Spectrometry SOP ICP-OES, Revision 1.0* (8/96), *Columbia Analytical Services, Inc. - Canoga Park, Graphite Furnace Atomic Absorption Spectrometry SOP GFA-GFAA, Revision 1.0* (8/96), *Columbia Analytical Services, Inc. - Canoga Park, Mercury in Solid or Semisolid Waste SOP MET-7471, Revision 2.0* (3/98).
SDG: L9704318
Samples Reviewed: RS579, RS580, RS581, RS584, RS585, RS588, RS589

EPA Level V- Metals Assessment Form

	Problems	Qualifications
1. Sample Management	The cooler temperatures were noted at 11 and 4°C; the specified control limit is 4°C"2°C. Samples were collected by Ogden personnel, placed in coolers containing ice, and hand delivered to the laboratory; therefore, the cooler temperatures did not have time to equilibrate. A correction to the COC was not individually dated. A COC correction to the Ogden ID for sample RS584 was scribbled out instead of being crossed out with a single line. There was no signature on the line reserved for the laboratory, but it appears that laboratory personnel did sign the COC on one of the other signature lines. No sample preservation or handling problems were noted.	Due to the nonvolatile nature of the analytes, the sample results were not qualified due to the high cooler temperature.
2. Method Blanks	None. All method blank results	None

	Problems	Qualifications
	were below laboratory determined PQLs.	
3. LCS	The LCS results were all within the laboratory established control limits of 75-125%R.	None
4. Duplicates	None performed.	None
5. MS/MSDs Performed on soil sample RS579	Antimony: MS at 48%R/MSD at 51%R Selenium: MS at 67%R/MSD at 63%R	Nondetected antimony and selenium in the samples was qualified "UJ."
6. Furnace Atomic Absorption QC	The post digestion spike recoveries for the arsenic, selenium, and thallium analyses were within the 85-115%R control limit. The validator determined the post spike results by reviewing the GFAA raw data.	None
7. ICP Serial Dilution Performed on sample RS584	All serial dilution results greater than 10H the PQL were within the 10%D control limit and no qualifications were required. There was no ICP serial dilution form in the report. The validator determined the serial dilution results by reviewing the ICP raw data.	None
8. Field QC Samples ER sample: RS516 FB sample: RS682 Field Duplicates: None identified for this SDG	There were detects in the field QC samples but none at high enough levels to require sample qualifications.	None
9. Other	None	None
10. Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/16/97
Sample Matrix:	Soil	**Date Received:**	12/16/97

Metals

Sample Name:	RS579	Units:	MG/KG
Lab Code:	L9704318-005	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qua Cod
Antimony	EPA 3050	6010	10	1	12/26/97	1/2/98	10	U	UJ	Q
Arsenic	EPA 3050	7060	5	1	12/26/97	12/29/97	5	U	U	
Barium	EPA 3050	6010	1	1	12/26/97	1/2/98	48			
Beryllium	EPA 3050	6010	0.5	1	12/26/97	1/2/98	0.5	U	U	
Cadmium	EPA 3050	6010	1	1	12/26/97	1/2/98	1	U	U	
Chromium	EPA 3050	6010	2	1	12/26/97	1/2/98	10			
Cobalt	EPA 3050	6010	2	1	12/26/97	1/2/98	4			
Copper	EPA 3050	6010	2	1	12/26/97	1/2/98	5			
Lead	EPA 3050	6010	5	1	12/26/97	1/2/98	6			
Mercury	METHOD	7471	0.2	1	12/26/97	12/29/97	0.2	U	U	
Molybdenum	EPA 3050	6010	10	1	12/26/97	1/2/98	10	U	U	
Nickel	EPA 3050	6010	5	1	12/26/97	1/2/98	7			
Selenium	EPA 3050	7740	5	1	12/26/97	12/29/97	5	U	UJ	Q
Silver	EPA 3050	6010	1	1	12/26/97	1/2/98	1	U	U	
Thallium	EPA 3050	7841	5	1	12/26/97	12/29/97	5	U	U	
Vanadium	EPA 3050	6010	2	1	12/26/97	1/2/98	21			
Zinc	EPA 3050	6010	1	1	12/26/97	1/2/98	38			

OGDEN VALIDATED

LEVEL V

Approved By: Cindi Schuurst Date: 3/10/98

IS44/021397p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/16/97
Sample Matrix:	Soil	**Date Received:**	12/16/97

Metals

Sample Name:	RS580	Units:	MG/KG
Lab Code:	L9704318-006	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	11	1	12/26/97	1/2/98	11	U	UJ	Q
Arsenic	EPA 3050	7060	5	1	12/26/97	12/29/97	5	U	U	
Barium	EPA 3050	6010	1	1	12/26/97	1/2/98	55			
Beryllium	EPA 3050	6010	0.5	1	12/26/97	1/2/98	0.5	U	U	
Cadmium	EPA 3050	6010	1	1	12/26/97	1/2/98	4			
Chromium	EPA 3050	6010	2	1	12/26/97	1/2/98	87			
Cobalt	EPA 3050	6010	2	1	12/26/97	1/2/98	6			
Copper	EPA 3050	6010	2	1	12/26/97	1/2/98	20			
Lead	EPA 3050	6010	5	1	12/26/97	1/2/98	47			
Mercury	METHOD	7471	0.2	1	12/26/97	12/29/97	0.2	U	U	
Molybdenum	EPA 3050	6010	11	1	12/26/97	1/2/98	11	U	U	
Nickel	EPA 3050	6010	5	1	12/26/97	1/2/98	69			
Selenium	EPA 3050	7740	5	1	12/26/97	12/29/97	5	U	UJ	Q
Silver	EPA 3050	6010	1	1	12/26/97	1/2/98	1	U	U	
Thallium	EPA 3050	7841	5	1	12/26/97	12/29/97	5	U	U	
Vanadium	EPA 3050	6010	2	1	12/26/97	1/2/98	19			
Zinc	EPA 3050	6010	1	1	12/26/97	1/2/98	310			

CODEN VALIDATED

LEVEL V

Approved By: Cydia Schuraft Date: 3/10/98

1S44/021397p

11003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/16/97
Sample Matrix:	Sludge	**Date Received:**	12/16/97

Metals

Sample Name:	RS581	Units:	MG/KG
Lab Code:	L9704318-007	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Silver	EPA 3050	6010	1	1	12/26/97	1/2/98	1	U	U	

OGDEN VALIDATED

LEVEL V

Approved By: Cynthia Schwartz Date: 3/10/98

1S44/021397p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/17/97
Sample Matrix:	Soil	**Date Received:**	12/17/97

Metals

Sample Name:	RS584	Units:	MG/KG
Lab Code:	L9704318-009	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	16	1	12/26/97	1/2/98	16	U	UJ	Q
Arsenic	EPA 3050	7060	8	1	12/26/97	12/29/97	9			
Barium	EPA 3050	6010	2	1	12/26/97	1/2/98	200			
Beryllium	EPA 3050	6010	0.8	1	12/26/97	1/2/98	1.4			
Cadmium	EPA 3050	6010	2	1	12/26/97	1/2/98	2			
Chromium	EPA 3050	6010	3	1	12/26/97	1/2/98	41			
Cobalt	EPA 3050	6010	3	1	12/26/97	1/2/98	15			
Copper	EPA 3050	6010	3	1	12/26/97	1/2/98	130			
Lead	EPA 3050	6010	8	1	12/26/97	1/2/98	58			
Mercury	METHOD	7471	0.3	5	12/26/97	12/29/97	1.2			
Molybdenum	EPA 3050	6010	16	1	12/26/97	1/2/98	16	U	U	
Nickel	EPA 3050	6010	8	1	12/26/97	1/2/98	24			
Selenium	EPA 3050	7740	8	1	12/26/97	12/29/97	8	U	UJ	Q
Silver	EPA 3050	6010	2	1	12/26/97	1/2/98	2	U	U	
Thallium	EPA 3050	7841	8	1	12/26/97	12/29/97	8	U	U	
Vanadium	EPA 3050	6010	3	1	12/26/97	1/2/98	77			
Zinc	EPA 3050	6010	2	1	12/26/97	1/2/98	490			

OGDEN VALIDATED

LEVEL V

Approved By: Cydia Schuzt Date: 3/10/98

IS44/021397p

11005

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/17/97
Sample Matrix:	Soil	**Date Received:**	12/17/97

Metals

Sample Name:	RS585	Units:	MG/KG
Lab Code:	L9704318-010	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	13	1	12/26/97	1/2/98	13	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/26/97	12/29/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/26/97	1/2/98	69			
Beryllium	EPA 3050	6010	0.6	1	12/26/97	1/2/98	0.6	U	U	
Cadmium	EPA 3050	6010	1	1	12/26/97	1/2/98	1	U	U	
Chromium	EPA 3050	6010	3	1	12/26/97	1/2/98	16			
Cobalt	EPA 3050	6010	3	1	12/26/97	1/2/98	6			
Copper	EPA 3050	6010	3	1	12/26/97	1/2/98	18			
Lead	EPA 3050	6010	6	1	12/26/97	1/2/98	9			
Mercury	METHOD	7471	0.3	1	12/26/97	12/29/97	0.3	U	U	
Molybdenum	EPA 3050	6010	13	1	12/26/97	1/2/98	13	U	U	
Nickel	EPA 3050	6010	6	1	12/26/97	1/2/98	9			
Selenium	EPA 3050	7740	6	1	12/26/97	12/29/97	6	U	UJ	Q
Silver	EPA 3050	6010	1	1	12/26/97	1/2/98	1	U	U	
Thallium	EPA 3050	7841	6	1	12/26/97	12/29/97	6	U	U	
Vanadium	EPA 3050	6010	3	1	12/26/97	1/2/98	32			
Zinc	EPA 3050	6010	1	1	12/26/97	1/2/98	68			

OGDEN VALIDATED

LEVEL V

Approved By: Cydie Schwartz Date: 3/10/98

IS44/021397p

11006

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/17/97
Sample Matrix:	Soil	**Date Received:**	12/17/97

Metals

Sample Name:	RS588	Units:	MG/KG
Lab Code:	L9704318-013	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	17	1	12/26/97	1/2/98	17	U	UJ	Q
Arsenic	EPA 3050	7060	8	1	12/26/97	12/29/97	8	U	U	
Barium	EPA 3050	6010	2	1	12/26/97	1/2/98	76			
Beryllium	EPA 3050	6010	0.8	1	12/26/97	1/2/98	0.8	U	U	
Cadmium	EPA 3050	6010	2	1	12/26/97	1/2/98	3			
Chromium	EPA 3050	6010	3	1	12/26/97	1/2/98	25			
Cobalt	EPA 3050	6010	3	1	12/26/97	1/2/98	5			
Copper	EPA 3050	6010	3	1	12/26/97	1/2/98	25			
Lead	EPA 3050	6010	8	1	12/26/97	1/2/98	42			
Mercury	METHOD	7471	0.3	1	12/26/97	12/29/97	0.3	U	U	
Molybdenum	EPA 3050	6010	17	1	12/26/97	1/2/98	17	U	U	
Nickel	EPA 3050	6010	8	1	12/26/97	1/2/98	16			
Selenium	EPA 3050	7740	8	1	12/26/97	12/29/97	8	U	UJ	Q
Silver	EPA 3050	6010	2	1	12/26/97	1/2/98	2	U	U	
Thallium	EPA 3050	7841	8	1	12/26/97	12/29/97	8	U	U	
Vanadium	EPA 3050	6010	3	1	12/26/97	1/2/98	22			
Zinc	EPA 3050	6010	2	1	12/26/97	1/2/98	500			

OGDEN VALIDATED

LEVEL V

Approved By: Eydie Schwartz Date: 3/10/98

1S44/021397p

11007

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704318
Project:	Rocketdyne/313150002	**Date Collected:**	12/17/97
Sample Matrix:	Sludge	**Date Received:**	12/17/97

Metals

Sample Name:	RS589	Units:	MG/KG
Lab Code:	L9704318-014	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qua Code
Antimony	EPA 3050	6010	12	1	12/26/97	1/2/98	12	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/26/97	12/29/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/26/97	1/2/98	50			
Beryllium	EPA 3050	6010	0.6	1	12/26/97	1/2/98	0.6	U	U	
Cadmium	EPA 3050	6010	1	1	12/26/97	1/2/98	1	U	U	
Chromium	EPA 3050	6010	2	1	12/26/97	1/2/98	15			
Cobalt	EPA 3050	6010	2	1	12/26/97	1/2/98	4			
Copper	EPA 3050	6010	2	1	12/26/97	1/2/98	9			
Lead	EPA 3050	6010	6	1	12/26/97	1/2/98	11			
Mercury	METHOD	7471	0.2	1	12/26/97	12/29/97	0.2	U	U	
Molybdenum	EPA 3050	6010	12	1	12/26/97	1/2/98	12	U	U	
Nickel	EPA 3050	6010	6	1	12/26/97	1/2/98	7			
Selenium	EPA 3050	7740	6	1	12/26/97	12/29/97	6	U	UJ	Q
Silver	EPA 3050	6010	1	1	12/26/97	1/2/98	1	U	U	
Thallium	EPA 3050	7841	6	1	12/26/97	12/29/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/26/97	1/2/98	16			
Zinc	EPA 3050	6010	1	1	12/26/97	1/2/98	76			

OGDEN VALIDATED

LEVEL V

Approved By: Eydie Schwartz Date: 3/10/98

1S44/021397p

11008

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1

550 South Wadsworth Blvd. Ste. 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: 6010/7000
No. of Samples: 18
Date Completed: October 28, 1998
Reviewer: K. Chapman
Ref: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994), Columbia Analytical Services, Inc. - Canoga Park, Determination of Trace Elements by Inductively Coupled Plasma, Optical Emission Spectrometry SOP ICP-OES, Revision 1.0* (8/96), *Columbia Analytical Services, Inc. - Canoga Park, Graphite Furnace Atomic Absorption Spectrometry SOP GFA-GFAA, Revision 1.0* (8/96), *Columbia Analytical Services, Inc. - Canoga Park, Mercury in Solid or Semisolid Waste SOP MET-7471, Revision 2.0* (3/98).
SDG: L9704114
Samples Reviewed: RF977, RF978, RF979, RF980, RF397, RF398, RF982, RF985, RF986, RF405, RF410, RF991, RF992, RF993, RF994, RF995, RF413, RF414

EPA Level V- Metals Assessment Form

	Problems	Qualifications
1. Sample Management	The sample condition questions were answered on the applicable COCs. The sample cooler temperatures upon receipt were noted on the COCs between 4E and 6EC. The COCs were signed by the field and laboratory personnel. No cooler custody seals were present.	None
2. Method Blanks	None. All method blank results were below laboratory determined PQLs.	None
3. LCS	The LCS results were all within the laboratory established control limits of 75-125%R.	None
4. Duplicates	None performed.	None
5. MS/MSDs Performed on soil samples RF977	Antimony: MS at 67%R/MSD at 51%R	Antimony nondetects were qualified "UJ" for the MS/MSD %Rs.

	Problems	Qualifications
and RF405	The RPD between the antimony MS and MSD was 27%.	As no detects were reported for antimony in the samples, no qualifications were assigned for the high RPD.
Furnace Atomic Absorption QC Post digestion spikes performed on samples RF978 and RF405	The post digestion spike recoveries for the arsenic, selenium, and thallium analyses were within the 85-115%R control limit. The validator determined the post spike results by reviewing the GFAA raw data.	None
7. ICP Serial Dilution Performed on sample RF978	With the exception of zinc, all serial dilution results greater than 10H the PQL were within the 10%D control limit. The %D for the zinc serial dilution was calculated at 14.1%. There was no ICP serial dilution form in the report. The validator determined the serial dilution results by reviewing the ICP raw data.	All zinc detects were qualified as estimated, "J."
8. Field QC Samples ER samples: RS516 and RF149 FB sample: RS682 Field Duplicates: none	Zinc was reported in equipment rinsate RF149 at 0.16mg/L.	Zinc detects were qualified as estimated, "J," in samples RF397, RF405, RF410, RF413 and RF414
9. Other	None	None
10. Comments	None	None

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Metals

Sample Name:	RF397	Units:	MG/KG
Lab Code:	L9704114-005	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	89			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	1.0			
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	25			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	8			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	12			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	13			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.4			
Molybdenum	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	16			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	41			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	84		J	A,F

LEVEL V

OGDEN VALIDATED

Approved By: Eric Schmidt Date: 3/2/98

1S44/021397p

5007

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Metals

Sample Name: RF398
Lab Code: L9704114-006
Test Notes:

Units: MG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	UJ	Q
Arsenic	EPA 3050	7060	5	5	12/16/97	12/16/97	94			
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	77			
Beryllium	EPA 3050	6010	0.5	1	12/16/97	12/18/97	0.5	U	U	
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	12			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	5			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	7			
Lead	EPA 3050	6010	5	1	12/16/97	12/18/97	7			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.2	U	U	
Molybdenum	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	U	
Nickel	EPA 3050	6010	5	1	12/16/97	12/18/97	9			
Selenium	EPA 3050	7740	5	1	12/16/97	12/16/97	5	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	5	1	12/16/97	12/16/97	5	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	21			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	45		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Eddie Schwartz Date: 3/5/98

IS44/021397p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Metals

Sample Name: RF405
Lab Code: L9704114-012
Test Notes:

Units: MG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	13			
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	81			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	0.7			
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	16			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	7			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	6			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	8			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.2	U	U	
Molybdenum	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	9			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	29			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	43		J	A,F

LEVEL V

OGDEN VALIDATED

Approved By: _____ Date: 3/3/98

IS44/021397p

5012

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Metals

Sample Name: RF410
Lab Code: L9704114-013
Test Notes:

Units: MG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	78			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	0.6			
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1			
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	21			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	5			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	7			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	7			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.2	U	U	
Molybdenum	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	9			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	26			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	55		J	A,F

LEVEL V

OGDEN VALIDATED

Approved By: Cydia Schuett Date: 3/6/98

IS44/021397p

5013

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Metals

Sample Name:	RF413	Units:	MG/KG
Lab Code:	L9704114-019	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	12	1	12/16/97	12/18/97	12	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	69			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	0.6			
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	16			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	6			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	8			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	9			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.2	U	U	
Molybdenum	EPA 3050	6010	12	1	12/16/97	12/18/97	12	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	10			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	26			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	47		J	A,F

LEVEL V

OGDEN VALIDATED

Approved By: Elyse DeHaven Date: 3/9/98

IS44/021397p

5019

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Metals

Sample Name:	RF414	Units:	MG/KG
Lab Code:	L9704114-020	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	8			
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	72			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	0.6	U	U	
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	13			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	5			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	8			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	7			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.2	U	U	
Molybdenum	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	9			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	23			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	60		J	A,F

LEVEL V

OGDEN VALIDATED

Approved By: _____ Date: 12/28

IS/4/021397p

5020

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Metals

Sample Name:	RF977	Units:	MG/KG
Lab Code:	L9704114-001	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	62			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	0.6	U	U	
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	11			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	6			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	5			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	6			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.2	U	U	
Molybdenum	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	6			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	28			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	41		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Eddie Schwartz Date: 3/2/98

IS44021397p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Metals

Sample Name:	RF978	Units:	MG/KG
Lab Code:	L9704114-002	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	14	1	12/16/97	12/18/97	14	U	UJ	Q
Arsenic	EPA 3050	7060	7	1	12/16/97	12/16/97	7	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	76			
Beryllium	EPA 3050	6010	0.7	1	12/16/97	12/18/97	0.7	U	U	
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	2			
Chromium	EPA 3050	6010	3	1	12/16/97	12/18/97	21			
Cobalt	EPA 3050	6010	3	1	12/16/97	12/18/97	10			
Copper	EPA 3050	6010	3	1	12/16/97	12/18/97	20			
Lead	EPA 3050	6010	7	1	12/16/97	12/18/97	56			
Mercury	METHOD	7471	0.3	1	12/17/97	12/18/97	0.3	U	U	
Molybdenum	EPA 3050	6010	14	1	12/16/97	12/18/97	14	U	U	
Nickel	EPA 3050	6010	7	1	12/16/97	12/18/97	11			
Selenium	EPA 3050	7740	7	1	12/16/97	12/16/97	7	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	7	1	12/16/97	12/16/97	7	U	U	
Vanadium	EPA 3050	6010	3	1	12/16/97	12/18/97	25			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	840		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Cydne Jackson Date: 3/2/98

IS44/021397p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Metals

Sample Name: RF979
Lab Code: L9704114-003
Test Notes:

Units: MG/KG
Basis: Dry

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	13	1	12/16/97	12/18/97	13	U	UJ	Q
Arsenic	EPA 3050	7060	7	1	12/16/97	12/16/97	7	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	67			
Beryllium	EPA 3050	6010	0.7	1	12/16/97	12/18/97	0.7	U	U	
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Chromium	EPA 3050	6010	3	1	12/16/97	12/18/97	15			
Cobalt	EPA 3050	6010	3	1	12/16/97	12/18/97	6			
Copper	EPA 3050	6010	3	1	12/16/97	12/18/97	19			
Lead	EPA 3050	6010	7	1	12/16/97	12/18/97	19			
Mercury	METHOD	7471	0.3	1	12/17/97	12/18/97	0.6			
Molybdenum	EPA 3050	6010	13	1	12/16/97	12/18/97	13	U	U	
Nickel	EPA 3050	6010	7	1	12/16/97	12/18/97	9			
Selenium	EPA 3050	7740	7	1	12/16/97	12/16/97	7	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	7	1	12/16/97	12/16/97	7	U	U	
Vanadium	EPA 3050	6010	3	1	12/16/97	12/18/97	30			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	210		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Cindie Schmidt Date: 3/2/98

1S44/021397p

5005

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/2/97
Sample Matrix:	Soil	**Date Received:**	12/2/97

Metals

Sample Name:	RF980	Units:	MG/KG
Lab Code:	L9704114-004	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	13	1	12/16/97	12/18/97	13	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	60			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	0.6	U	U	
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Chromium	EPA 3050	6010	3	1	12/16/97	12/18/97	22			
Cobalt	EPA 3050	6010	3	1	12/16/97	12/18/97	5			
Copper	EPA 3050	6010	3	1	12/16/97	12/18/97	21			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	10			
Mercury	METHOD	7471	0.3	1	12/17/97	12/18/97	0.3	U	U	
Molybdenum	EPA 3050	6010	13	1	12/16/97	12/18/97	13	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	7			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	3	1	12/16/97	12/18/97	27			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	99		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Eddie Schmidt Date: 3/6/98

1S44/021397p

5006

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Metals

Sample Name:	RF982	Units:	MG/KG
Lab Code:	L9704114-007	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qua Code
Antimony	EPA 3050	6010	10	1	12/16/97	12/18/97	10	U	UJ	Q
Arsenic	EPA 3050	7060	5	1	12/16/97	12/16/97	16			
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	83			
Beryllium	EPA 3050	6010	0.5	1	12/16/97	12/18/97	0.7			
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	22			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	7			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	10			
Lead	EPA 3050	6010	5	1	12/16/97	12/18/97	8			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.2	U	U	
Molybdenum	EPA 3050	6010	10	1	12/16/97	12/18/97	10	U	U	
Nickel	EPA 3050	6010	5	1	12/16/97	12/18/97	15			
Selenium	EPA 3050	7740	5	1	12/16/97	12/16/97	5	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	5	1	12/16/97	12/16/97	5	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	34			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	50		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Eddie DeHuratt Date: 3/2/98

1S44/021397p

5009

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Metals

Sample Name:	RF985	Units:	MG/KG
Lab Code:	L9704114-008	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	12	1	12/16/97	12/18/97	12	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	73			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	0.6	U	U	
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	17			
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	65			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	7			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	35			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	91			
Mercury	METHOD	7471	0.2	50	12/17/97	12/18/97	20			
Molybdenum	EPA 3050	6010	12	1	12/16/97	12/18/97	12	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	28			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	24			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	770		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Eddie Johnson Date: 3/5/98

IS44/021397p

5010

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/3/97
Sample Matrix:	Soil	**Date Received:**	12/3/97

Metals

Sample Name:	RF986	Units:	MG/KG
Lab Code:	L9704114-009	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Aluminum	EPA 3050	6010	14	1	12/23/97	12/26/97	9600			
Boron	EPA 3050	6010	14	1	12/23/97	12/26/97	14	U	u	

LEVEL V

OGDEN VALIDATED

Approved By: Eudie Schmidt Date: 3/6/98

IS44/021397p

5011

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Metals

Sample Name:	RF991	Units:	MG/KG
Lab Code:	L9704114-014	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Mercury	METHOD	7471	0.2	50	12/17/97	12/18/97	10			

LEVEL V

OGDEN VALIDATED

Approved By: Cindia Schmidt Date: 3/2/98

1544/021397p

5014

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Metals

Sample Name:	RF992	Units:	MG/KG
Lab Code:	L9704114-015	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	78			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	0.6			
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	24			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	7			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	15			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	12			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.2	U	U	
Molybdenum	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	16			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	34			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	160		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Elyse Schwartz Date: 2/2/98

IS44/021397p

5015

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Metals

Sample Name:	RF993	Units:	MG/KG
Lab Code:	L9704114-016	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	50			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	0.6	U	U	
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	1			
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	18			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	5			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	13			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	25			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.2	U	U	
Molybdenum	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	12			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	26			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	160		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Cydio Leibrandt Date: 3/2/98

1S44/021197p

5016

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Sludge	**Date Received:**	12/4/97

Metals

Sample Name:	RF994	Units:	MG/KG
Lab Code:	L9704114-017	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	13	1	12/16/97	12/18/97	13	U	UJ	Q
Arsenic	EPA 3050	7060	7	1	12/16/97	12/16/97	7	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	89			
Beryllium	EPA 3050	6010	0.7	1	12/16/97	12/18/97	0.7	U	U	
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	6			
Chromium	EPA 3050	6010	3	1	12/16/97	12/18/97	69			
Cobalt	EPA 3050	6010	3	1	12/16/97	12/18/97	7			
Copper	EPA 3050	6010	3	1	12/16/97	12/18/97	64			
Lead	EPA 3050	6010	7	1	12/16/97	12/18/97	120			
Mercury	METHOD	7471	0.3	1	12/17/97	12/18/97	0.3	U	U	
Molybdenum	EPA 3050	6010	13	1	12/16/97	12/18/97	13	U	U	
Nickel	EPA 3050	6010	7	1	12/16/97	12/18/97	22			
Selenium	EPA 3050	7740	7	1	12/16/97	12/16/97	7	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	7	1	12/16/97	12/16/97	7	U	U	
Vanadium	EPA 3050	6010	3	1	12/16/97	12/18/97	40			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	510		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Lehrer Date: 3/20/98

IS44/021397p

5017

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ogden Environmental	**Service Request:**	L9704114
Project:	Rocketdyne/313150002	**Date Collected:**	12/4/97
Sample Matrix:	Soil	**Date Received:**	12/4/97

Metals

Sample Name:	RF995	Units:	MG/KG
Lab Code:	L9704114-018	Basis:	Dry
Test Notes:			

Analyte	Prep Method	Analysis Method	PQL	Dilution Factor	Date Digested	Date Analyzed	Result	Result Notes	Rev Qual	Qual Code
Antimony	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	UJ	Q
Arsenic	EPA 3050	7060	6	1	12/16/97	12/16/97	6	U	U	
Barium	EPA 3050	6010	1	1	12/16/97	12/18/97	65			
Beryllium	EPA 3050	6010	0.6	1	12/16/97	12/18/97	0.6	U	U	
Cadmium	EPA 3050	6010	1	1	12/16/97	12/18/97	2			
Chromium	EPA 3050	6010	2	1	12/16/97	12/18/97	22			
Cobalt	EPA 3050	6010	2	1	12/16/97	12/18/97	6			
Copper	EPA 3050	6010	2	1	12/16/97	12/18/97	16			
Lead	EPA 3050	6010	6	1	12/16/97	12/18/97	32			
Mercury	METHOD	7471	0.2	1	12/17/97	12/18/97	0.2	U	U	
Molybdenum	EPA 3050	6010	11	1	12/16/97	12/18/97	11	U	U	
Nickel	EPA 3050	6010	6	1	12/16/97	12/18/97	14			
Selenium	EPA 3050	7740	6	1	12/16/97	12/16/97	6	U	U	
Silver	EPA 3050	6010	1	1	12/16/97	12/18/97	1	U	U	
Thallium	EPA 3050	7841	6	1	12/16/97	12/16/97	6	U	U	
Vanadium	EPA 3050	6010	2	1	12/16/97	12/18/97	32			
Zinc	EPA 3050	6010	1	1	12/16/97	12/18/97	600		J	A

LEVEL V

OGDEN VALIDATED

Approved By: Eydie Schuraft Date: 3/2/98

IS44/021397p

5018

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1

550 South Wadsworth Blvd. Suite 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: EPA Method 8240
No. of Samples: 35
Date Reviewed: 02/19/99
Reviewer: L. Calvin
Reference: *USEPA Contract Laboratory Program National Functional Guidelines For Organic Data Review (Feb. 1994)*, and *Ogden Data Validation Procedure for Volatile Organics by GC/MS* (DVP-2, Rev. 2).
SDG: R2 POND
Samples Reviewed: PS-1 0-.5, PS-1 1-1.5, PS-2 0-.5, PS-2 1-1.5, PS-3 0-.5, PS-3 1-1.5, PS-4 0-.5, PS-4 1-1.5, PS-5 0-.5, PS-5 1-1.5, PS-5 2-2.5, PS-6 0-.5, PS-6 1-1.5, PS-6 2-2.5, PS-7 0-.5, PS-7 1-1.5, PS-7 2-2.5, PS-7 3-3.5, PS-8 0-.5, PS-8 1-1.5, PS-8 2-2.5, PS-8 3-3.5, PS-9 0-.5, PS-9 1-1.5, PS-9 2-2.5, PS-9 3-3.5, PS-10 0-.5, PS-10 1-1.5, PS-11 0-.5, PS-11 1-1.5, PS-11 2-2.5, PS-12 0-.5, PS-12 1-1.5, PS-12 2-2.5, PS-12 3-3.5
Matrix: Soil

EPA Level V- Volatiles Assessment Form

	Problems	Qualifications
1. Sample Management	The COCs were signed by field and laboratory personnel. Sample conditions and cooler temperatures were not recorded on the COCs; therefore, no evaluation of the sample data could be made based on sample conditions upon receipt. All samples were extracted and analyzed within 14 days of collection.	No qualifications were required.
4. Method Blanks	Three method blanks were associated with the samples of this SDG, analyzed each day that associated samples were analyzed. No target compounds or TICs were detected in any of the analyses of the method blanks.	No qualifications were required.
5. LCS/BS	Three blank spike/blank spike duplicate pairs were associated with the samples of this SDG, analyzed each day that associated samples were analyzed. The	No qualifications were required.

	Problems	Qualifications
	laboratory's report did not include recovery or RPD QC limits; however, in the professional judgement of the reviewer, percent recoveries and RPDs for all spiked analytes were acceptable for all analyses of the blank spike/blank spike duplicate pairs.	
6. Surrogates	Though the laboratory's report did not include surrogate recovery QC limits, outlier surrogate recoveries were flagged on the sample result summaries. The following were reported as outlier recoveries below QC limits: d4-1,2-dichloroethane in samples PS-2 0-.5, PS-4 0-.5, PS-6 0-.5, PS-11 0-.5, and PS-12 0-.5; BFB in samples PS-6 0-.5 and PS-11 0-.5; and d8-toluene in samples PS-2 0-.5, PS-6 0-.5, PS-11 0-.5, and PS-12 0-.5. Though footnotes on the sample result summaries indicated that outlier surrogate recoveries were due to sample matrix interference, reanalyses confirming the matrix effect were not submitted by the laboratory.	Nondetect results in the aforementioned samples were qualified as estimated, "UJ."
7. MS/MSDs	The laboratory did not analyze any MS/MSD pairs with the samples of this SDG; however, laboratory precision and accuracy was evaluated based on blank spike/blank spike duplicates (see section 5.).	No qualifications were required.
8. Field QC Samples TB: none ER: none FB: none Field duplicates: none	The data package did not contain field QC sample information; no evaluation of sample data was made based on field QC.	No qualifications were required.
10. Other	TICs were reported in several of the samples of this SDG. The compounds 1,2-, 1,3-, and 1,4–dichlorobenzene were included on each TIC report as added compounds, with	TICs were qualified as estimated and tentatively identified, "NJ." Because the dichlorobenzene isomers were apparently searched for as TICs, and would have been

	Problems	Qualifications
	reporting limits footnoted as being derived from a standard. Nominal reporting limits for the samples of this SDG were approximately 25H less than the EPA CLP reporting limits for medium-level soils. Neither a laboratory method detection limit study (MDL) nor sample prep information were available to aid in determining how the reporting limits were derived.	quantitated as TICs if detected, nondetect results were qualified as estimated, "UJ." No qualifications were required.
11. Comments	None	None

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526501

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-1 0-.5	DATE ANALYZED	: 05/25/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	72
4-BROMOFLUOROBENZENE (%)	86
TOLUENE-D8 (%)	79

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-1 0-.5

ATI I.D. : 00526501

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	verif qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526502

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-1 1-1.5	DATE ANALYZED	: 05/25/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	ver qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	79
BFB (%)	84
TOLUENE-D8 (%)	85

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-1 1-1.5

ATI I.D. : 00526502

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

LEVEL V

@ - A standard was used to quantitate this value.

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533001

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-10 0-.5	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	79
B (%)	81
TOLUENE-D8 (%)	82

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-10 0-.5

ATI I.D. : 00533001

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	U	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533002

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-10 1-1.5	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rel qua	qua code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	75
BFB (%)	81
TOLUENE-D8 (%)	81

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-10 1-1.5

ATI I.D. : 00533002

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 00533003

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-11 0-.5	DATE ANALYZED	: 06/01/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	UJ	S
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
3UTANONE (MEK)	<1.0		
,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	64*
B (%)	64*
TOLUENE-D8 (%)	66*

* Result out of limits due to sample matrix interference

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-11 0-.5

ATI I.D. : 00533003

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rel qua	qua code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533004

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-11 1-1.5	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qua code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	71
BFB (%)	74
TOLUENE-D8 (%)	76

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-11 1-1.5

ATI I.D. : 00533004

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	ver qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@		
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

LEVEL V

@ - A standard was used to quantitate this value.

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533005

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-11 2-2.5	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	ver qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
3UTANONE (MEK)	<1.0		
ı,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	73
ɒfB (%)	80
TOLUENE-D8 (%)	78

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-11 2-2.5

ATI I.D. : 00533005

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533006

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-12 0-.5	DATE ANALYZED	: 05/31/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	vel qual	qual code
CHLOROMETHANE	<0.50	UJ	S
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	68*
BFB (%)	69
TOLUENE-D8 (%)	70*

* Result out of limits due to sample matrix interference

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-12 0-.5

ATI I.D. : 00533006

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	val qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@		
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533007

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-12 1-1.5	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
UTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

-DICHLOROETHANE-D4 (%)	86
B (%)	93
TOLUENE-D8 (%)	93

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-12 1-1.5

ATI I.D. : 00533007

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@		
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533008

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-12 2-2.5	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	83
BROMOFLUOROBENZENE (%)	92
TOLUENE-D8 (%)	91

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-12 2-2.5

ATI I.D. : 00533008

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@		
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533009

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-12 3-3.5	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
3UTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1-DICHLOROETHANE-D4 (%)	81
BrB (%)	85
TOLUENE-D8 (%)	85

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-12 3-3.5

ATI I.D. : 00533009

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	val qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	X 10
1,4-DICHLOROBENZENE	<0.05@		
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526503

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT =	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-2 0-.5	DATE ANALYZED	: 05/25/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS		
CHLOROMETHANE	<0.50	UJ	S
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
UTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	62*
B (%)	66
TOLUENE-D8 (%)	66*

* Result out of limits due to sample matrix interference

LEVEL V

OGDEN VALIDATED

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-2 0-.5

ATI I.D. : 00526503

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1721 ALIPHATIC HYDROCARBON	0.4	NJ	
1840 ALIPHATIC HYDROCARBON	0.4	↓	
1900 ALIPHATIC HYDROCARBON	0.3	↓	
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	
1,2-DICHLOROBENZENE	<0.05@	↓	

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526504

TEST : EPA 3240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-2 1-1.5	DATE ANALYZED	: 05/26/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	73
BFB (%)	81
TOLUENE-D8 (%)	80

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-2 1-1.5

ATI I.D. : 00526504

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1717 ALIPHATIC HYDROCARBON	0.9	NJ	
1822 ALIPHATIC HYDROCARBON	0.8	↓	
1837 ALIPHATIC HYDROCARBON	0.8	↓	
1919 CYCLIC HYDROCARBON	0.8	↓	
2027 POLYNUCLEAR AROMATIC	1.0	↓	
1,3-DICHLOROBENZENE	<0.05@	UJ	* 10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@	↓	↓

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526505

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-3 0-.5	DATE ANALYZED	: 05/26/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	ver qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
3UTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	0.08		
DIBROMOCHLOROMETHANE	<0.05	U	
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	79
BrB (%)	94
TOLUENE-D8 (%)	86

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-3 0-.5

ATI I.D. : 00526505

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1717 ALIPHATIC HYDROCARBON	0.5	NJ	
1835 ALIPHATIC HYDROCARBON	1.0	↓	
1897 ALIPHATIC HYDROCARBON	0.4		
1920 CYCLIC HYDROCARBON	0.5		
2028 POLYNUCLEAR AROMATIC	0.5		
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

LEVEL V

@ - A standard was used to quantitate this value.

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526506

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS3 1-1.5	DATE ANALYZED	: 05/25/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	69
BFB (%)	76
TOLUENE-D8 (%)	72

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-3 1-1.5

ATI I.D. : 00526506

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1719 ALIPHATIC HYDROCARBON	0.80	AJ	
1825 ALIPHATIC HYDROCARBON	0.50	↓	
1839 ALIPHATIC HYDROCARBON	0.70		
1899 ALIPHATIC HYDROCARBON	0.60		
2029 POLYNUCLEAR AROMATIC HYDROCARBON	0.70		
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526507

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/9
PROJECT #	: 8640	DATE RECEIVED	: 05/17/9
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/9
CLIENT I.D.	: PS-4 0-.5	DATE ANALYZED	: 05/24/9
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	val qual	qua code
CHLOROMETHANE	<0.50	UJ	5
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	68*
DCB (%)	74
TOLUENE-D8 (%)	72

* Result outside of limits due to sample matrix interference

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

VS-4 0-.5

ATI I.D. : 00526507

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qua	qua code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526508

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT =	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-4 1-1.5	DATE ANALYZED	: 05/24/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	verif qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	74
BrB (%)	76
TOLUENE-D8 (%)	77

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-4 1-1.5

ATI I.D. : 00526508

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1578 ALIPHATIC HYDROCARBON	0.5	NJ	
1719 ALIPHATIC HYDROCARBON	1	↓	
1838 AROMATIC HYDROCARBON	0.7		
1899 AROMATIC HYDROCARBON	0.9		
1921 ALIPHATIC HYDROCARBON	0.5		
1,3-DICHLOROBENZENE	<0.05@	UJ	* 10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526509

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-5 0-.5	DATE ANALYZED	: 05/24/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rel qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	76
BrB (%)	80
TOLUENE-D8 (%)	79

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-5 0-.5

ATI I.D. : 00526509

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	val qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	* 10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526510

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-5 1-1.5	DATE ANALYZED	: 05/24/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	ver qual	qua code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	78
BFB (%)	83
TOLUENE-D8 (%)	82

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-5 1-1.5

ATI I.D. : 00526510

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526511

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-5 2-2.5	DATE ANALYZED	: 05/24/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	very qua	qua code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	91
BFB (%)	100
TOLUENE-D8 (%)	99

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-5 2-2.5

ATI I.D. : 00526511

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	ver qual	qua code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526512

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-6 0-.5	DATE ANALYZED	: 05/25/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	UJ	S
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	62*
BROMOFLUOROBENZENE (%)	60*
TOLUENE-D8 (%)	63*

* Result out of limits due to sample matrix interference

LEVEL V

OGDEN VALIDATED

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-4 0-.5

ATI I.D. : 00526512

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

LEVEL V

@ - A standard was used to quantitate this value.

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526513

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-6 1-1.5	DATE ANALYZED	: 05/24/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
3UTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	74
B (%)	102
TOLUENE-D8 (%)	97

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-4 1-1.5

ATI I.D. : 00526513

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	ver qual	qual code
1923 ALIPHATIC HYDROCARBON	0.30	NJ	
1,3-DICHLOROBENZENE	<0.05@	UJ	* 10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

LEVEL V

@ - A standard was used to quantitate this value.

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526514

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-6 2-2.5	DATE ANALYZED	: 05/24/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
UTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

-DICHLOROETHANE-D4 (%)	85
B (%)	98
TOLUENE-D8 (%)	99

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-4 2-2.5

ATI I.D. : 00526514

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	ver qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@		
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

LEVEL V

@ - A standard was used to quantitate this value.

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529001

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-7 0-.5	DATE ANALYZED	: 05/29/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	VEO qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	0.13		
DIBROMOCHLOROMETHANE	<0.05	U	
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	0.10		
TOLUENE	0.42		
CHLOROBENZENE	<0.05	U	
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	0.08		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	78
BFB (%)	78
TOLUENE-D8 (%)	79

OGDEN VALIDATED

LEVEL V

AnalyticalTechnologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-7 0-.5

ATI I.D. : 00529001

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	ver qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

LEVEL V

@ - A standard was used to quantitate this value.

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529002

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-7 1-1.5'	DATE ANALYZED	: 05/29/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	ver qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	92
BrB (%)	93
TOLUENE-D8 (%)	92

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-7 1-1.5

ATI I.D. : 00529002

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529003

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-7 2-2.5'	DATE ANALYZED	: 05/29/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	ver qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1.2-DICHLOROETHANE	<0.05		
3UTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	88
BFB (%)	94
TOLUENE-D8 (%)	94

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-7 2-2.5

ATI I.D. : 00529003

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	ver qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@		
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529004

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-7 3-3.5'	DATE ANALYZED	: 05/29/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	vell qua	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	82
BFB (%)	91
TOLUENE-D8 (%)	87

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-7 3-3.5

ATI I.D. : 00529004

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	ver qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	* 10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@	↓	↓
1919 ALIPHATIC HYDROCARBON	0.90	NJ	

OGDEN VALIDATED

@ A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529005

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-8 0-.5'	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	0.22		
DIBROMOCHLOROMETHANE	<0.05	U	
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	96
BFB (%)	108
TOLUENE-D8 (%)	99

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-8 0-.5

ATI I.D. : 00529005

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@	↓	
1607 ALIPHATIC HYDROCARBON	1.0	NJ	
1917 ALIPHATIC HYDROCARBON	0.4	↓	

OGDEN VALIDATED

LEVEL V

@ - A standard was used to quantitate this value.

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529006

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-8 1-1.5	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rev qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	0.12		
CHLOROFORM	<0.05	U	
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	92
BROMOFLUOROBENZENE (%)	104
TOLUENE-D8 (%)	96

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-8 1-1.5

ATI I.D. : 00529006

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		
1610 ALIPHATIC HYDROCARBON	0.9	NJ	

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529007

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-8 2-2.5'	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	val qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	4.2		
ACETONE	<1.0	U	
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	0.13		
1,2-DICHLOROETHENE (TOTAL)	0.05		
CHLOROFORM	<0.05	U	
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	0.4		
CARBON TETRACHLORIDE	<0.05	U	
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	1.0		
DIBROMOCHLOROMETHANE	<0.05	U	
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	0.33		
TOLUENE	3.6		
CHLOROBENZENE	<0.05	U	
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	0.52		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	98
BFB (%)	112
TOLUENE-D8 (%)	112

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-4 2-2.5

ATI I.D. : 00529007

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529008

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-8 3-3.5'	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	verif qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50	↓	
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	3.7		
ACETONE	<1.0	U	
CARBON DISULFIDE	<0.05	↓	
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	0.09		
1,2-DICHLOROETHENE (TOTAL)	<0.05	U	
CHLOROFORM	<0.05	↓	
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	0.4		
CARBON TETRACHLORIDE	<0.05	U	
VINYL ACETATE	<0.50	↓	
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	0.81		
DIBROMOCHLOROMETHANE	<0.05	U	
1,1,2 TRICHLOROETHANE	<0.05	↓	
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	0.25		
TOLUENE	3.0		
CHLOROBENZENE	<0.05	U	
ETHYL BENZENE	0.10		
STYRENE	<0.05	U	
TOTAL XYLENES	0.37		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	91
BFB (%)	100
TOLUENE-D8 (%)	96

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-4 3-3.5

ATI I.D. : 00529008

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	ret qual	qua code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529009

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-9 0-.5'	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	VEO qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	86
4-B (%)	99
TOLUENE-D8 (%)	93

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-9 0-.5

ATI I.D. : 00529009

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@		
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529010

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-9 1-1.5'	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	val qual	qua code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
2-BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	0.07		
DIBROMOCHLOROMETHANE	<0.05	U	
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	78
BFB (%)	88
TOLUENE-D8 (%)	86

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-9 1-1.5

ATI I.D. : 00529010

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	ver qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	* 10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529011

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/9
PROJECT =	: 8640	DATE RECEIVED	: 05/18/9
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/9
CLIENT I.D.	: PS-9 2-2.5'	DATE ANALYZED	: 05/30/9
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rett qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	0.09		
1,2-DICHLOROETHANE	<0.05	U	
3UTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	0.06		
1,1,2,2-TETRACHLOROETHANE	<0.05	U	
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	79
B (%)	85
TOLUENE-D8 (%)	83

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS9 2-2.5

ATI I.D. : 00529011

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	ver qual	qual code
1,3-DICHLOROBENZENE	<0.05@	U	*10
1,4-DICHLOROBENZENE	<0.05@		
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529012

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT =	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-9 3-3.5'	DATE ANALYZED	: 05/30/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	val qual	qual code
CHLOROMETHANE	<0.50	U	
BROMOMETHANE	<0.50		
VINYL CHLORIDE	<0.05		
CHLOROETHANE	<0.05		
METHYLENE CHLORIDE	<0.3		
ACETONE	<1.0		
CARBON DISULFIDE	<0.05		
1,1-DICHLOROETHENE	<0.05		
1,1-DICHLOROETHANE	<0.05		
1,2-DICHLOROETHENE (TOTAL)	<0.05		
CHLOROFORM	<0.05		
1,2-DICHLOROETHANE	<0.05		
BUTANONE (MEK)	<1.0		
1,1,1-TRICHLOROETHANE	<0.05		
CARBON TETRACHLORIDE	<0.05		
VINYL ACETATE	<0.50		
BROMODICHLOROMETHANE	<0.05		
1,1,2,2-TETRACHLOROETHANE	<0.05		
1,2-DICHLOROPROPANE	<0.05		
TRANS-1,3-DICHLOROPROPENE	<0.05		
TRICHLOROETHENE	<0.05		
DIBROMOCHLOROMETHANE	<0.05		
1,1,2 TRICHLOROETHANE	<0.05		
BENZENE	<0.05		
CIS-1,3-DICHLOROPROPENE	<0.05		
BROMOFORM	<0.3		
2-HEXANONE (MBK)	<0.50		
4-METHYL-2-PENTANONE (MIBK)	<0.50		
TETRACHLOROETHENE	<0.05		
TOLUENE	<0.10		
CHLOROBENZENE	<0.05		
ETHYL BENZENE	<0.05		
STYRENE	<0.05		
TOTAL XYLENES	<0.05		

SURROGATE PERCENT RECOVERIES

2-DICHLOROETHANE-D4 (%)	84
BFB (%)	89
TOLUENE-D8 (%)	95

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8240 (GC/MS FOR VOLATILE ORGANICS)

PS-9 3-3.5

ATI I.D. : 00529012

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	rev qual	qual code
1,3-DICHLOROBENZENE	<0.05@	UJ	*10
1,4-DICHLOROBENZENE	<0.05@	↓	↓
1,2-DICHLOROBENZENE	<0.05@		

OGDEN VALIDATED

@ - A standard was used to quantitate this value.

LEVEL V

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1

550 South Wadsworth Blvd. Suite 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: Modified EPA Method 8015
No. of Samples: 3
Date Reviewed: 02/23/99
Reviewer: L. Calvin
Reference: *USEPA Contract Laboratory Program National Functional Guidelines For Organic Data Review (Feb. 1994)*, and *Ogden Data Validation Procedure for Extractable Total Fuel Hydrocarbons by GC* (DVP-8, Rev. 2).
SDG: R2 POND
Samples Reviewed: PS-1 0-.5, PS-8 0-.5, PS-9 0-.5
Matrix: Soil

EPA Level V- Volatiles Assessment Form

	Problems	Qualifications
1. Sample Management	The COCs were signed by field and laboratory personnel. Sample conditions and cooler temperatures were not recorded on the COCs; therefore, no evaluation of the sample data could be made based on sample conditions upon receipt. A notation on the COC indicated that the analytical request for Method 8015 was added to sample PS-9 0-.5 four days after sample receipt. Samples were extracted within 14 days of collection and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	Method blank results were not included in the laboratory's report. Evaluation of possible laboratory contamination could not be made.	No qualifications were required.
5. LCS/BS	There were no blank spikes included in the laboratory's report; however, MS/MSDs associated with the samples of this SDG provided data for evaluation	No qualifications were required.

	Problems	Qualifications
	of accuracy and precision (see section 7.).	
6. Surrogates	Whether the samples were spiked with a surrogate could not be determined, as sample surrogate recoveries were not included in the laboratory's report. No evaluation of sample data was made on the basis of surrogate recoveries.	No qualifications were required.
7. MS/MSDs	There were three MS/MSD pairs associated with the samples in this SDG.	No qualifications were required.
8. Field QC Samples TB: none ER: none FB: none Field duplicates: none	The data package did not contain field QC sample information; no evaluation of sample data was made based on field QC.	No qualifications were required.
10. Other	The sample result summaries indicated that laboratory reported results in the n-alkane range of C18-C23 and quantitated results using a diesel standard.	No qualifications were required.
11. Comments	None	None

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 00526501

TEST : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-1 0-.5	DATE ANALYZED	: 05/21/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	lab qual	qual code
FUEL HYDROCARBONS	<5.0	U	
HYDROCARBON RANGE	-		
HYDROCARBONS QUANTITATED USING	-		

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 00529005

TEST : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/24/90
CLIENT I.D.	: PS-8 0-.5'	DATE ANALYZED	: 05/25/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	rep qual	qual code
FUEL HYDROCARBONS	<5.0	U	
HYDROCARBON RANGE	-		
HYDROCARBONS QUANTITATED USING	-		

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 00529009

TEST : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/22/90
CLIENT I.D.	: PS-9 0-.5'	DATE ANALYZED	: 05/23/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	ver qual	qual code
FUEL HYDROCARBONS	44		
HYDROCARBON RANGE	C18-C23		
HYDROCARBONS QUANTITATED USING	DIESEL		

OGDEN VALIDATED

LEVEL V

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1

550 South Wadsworth Blvd. Suite 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Method: EPA Method 8270
No. of Samples: 35
Date Reviewed: 02/19/99
Reviewer: M. Pokorny
Reference: *USEPA Contract Laboratory Program National Functional Guidelines For Organic Data Review (Feb. 1994)*, and *Ogden Data Validation Procedure for Semivolatile Organics by GC/MS* (DVP-3, Rev. 2).
SDG: R2 POND
Samples Reviewed: PS-1 0-.5´, PS-1 1-1.5´, PS-2 0-.5´, PS-2 1-1.5´, PS-3 0-.5´, PS-3 1-1.5´, PS-4 0-.5´, PS-4 1-1.5´, PS-5 0-.5´, PS-5 1-1.5´, PS-5 2-2.5´, PS-6 0-.5´, PS-6 1-1.5´, PS-6 2-2.5´, PS-7 0-.5´, PS-7 1-1.5´, PS-7 2-2.5´, PS-7 3-3.5´, PS-8 0-.5´, PS-8 1-1.5´, PS-8 2-2.5´, PS-8 3-3.5´, PS-9 0-.5´, PS-9 1-1.5´, PS-9 2-2.5´, PS-9 3-3.5´, PS-10 0-.5´, PS-10 1-1.5´, PS-11 0-.5´, PS-11 1-1.5´, PS-11 2-2.5´, PS-12 0-.5´, PS-12 1-1.5´, PS-12 2-2.5´, PS-12 3-3.5´
Matrix: Soil

EPA Level V- Semivolatiles Assessment Form

	Problems	Qualifications
1. Sample Management	The COCs were signed by field and laboratory personnel. The conditions of the samples or the temperatures at which they were received were not recorded on the COCs; no evaluation of the samples could be made in regards to sample receipt conditions.	No qualifications were required.
4. Method Blanks	The laboratory analyzed three method blanks with the sample of this SDG. No target compounds were detected in the method blanks. Four, one, and three TICs, respectively, were found in the method blanks; however, none of the blank TICs were detected in the associated samples.	No qualifications were required.
5. LCS/BS	The data package did not contain blank spike information; no evaluation of the samples could be made in regards to laboratory accuracy.	No qualifications were required.

	Problems	Qualifications
6. Surrogates	All sample surrogate recoveries were within the EPA Method 8270 QC limits.	No qualifications were required.
7. MS/MSDs PS-5 1-1.5´ PS-6 1-1.5´ PS-8 2-2.5´ PS-8 1-1.5´	The laboratory MS/MSD summaries did not have QC limits listed. All of the spiked compounds were recovered within 48% to 96% for all of the MS and MSDs and all RPDs were 26% or less. In the professional judgement of the reviewer, the MS and MSD % recoveries and RPDs were acceptable.	No qualifications were required.
8. Field QC Samples ER: none FB: none Field duplicates: None	The data package did not contain field QC sample information; no evaluation of the samples could be made in regards to field QC samples.	No qualifications were required.
10. Other	TICs were reported in several of the samples of this SDG. Nominal reporting limits for the samples of this SDG were one half the normal reporting limits for Method 8270.	TICs were qualified as estimated and tentatively identified, "NJ." .
11. Comments	None	None

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526501

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT =	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-1 0-.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
XACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc. GCMS - RESULTS

ATI I.D. : 00526501

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	0.29		
BENZIDINE	<1.7	U	
PYRENE	0.32		
BUTYLBENZYLPHTHALATE	<0.17	U	
3,3-DICHLOROBENZIDINE	<0.34	U	
BENZO(a)ANTHRACENE	TR<0.17	U	
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17	U	
CHRYSENE	0.23		
DI-N-OCTYLPHTHALATE	<0.17	U	
BENZO(b)FLUORANTHENE	0.26		
BENZO(k)FLUORANTHENE	<0.17	U	
BENZO(a)PYRENE	0.22		
INDENO(1,2,3-cd)PYRENE	0.23		
DIBENZO(a,h)ANTHRACENE	<0.17	U	
BENZO(g,h,i)PERYLENE	0.23		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	72
2-FLUOROBIPHENYL (%)	75
TERPHENYL (%)	75
PHENOL-D6 (%)	68
2-FLUOROPHENOL (%)	69
2,4,6-TRIBROMOPHENOL (%)	86

TR - Compound detected at an unquantifiable trace level

OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526501

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1621 MOLECULAR SULFUR	0.7	NJ	
2048 ALIPHATIC HYDROCARBON C23	1	↓	
2159 ALIPHATIC HYDROCARBON C25	2		
2254 ALIPHATIC HYDROCARBON C26	1		
2262 ALIPHATIC HYDROCARBON C26	1		
800-2500 TOTAL EXTRACTABLE HYDROCARBONS C11-C28	30	NJ	

OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526502

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-1 1-1.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc. GCMS - RESULTS

ATI I.D. : 00526502

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	0.19		
BENZIDINE	<1.7	U	
PYRENE	0.19		
BUTYLBENZYLPHTHALATE	<0.17	U	
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
IZO(b)FLUORANTHENE	<0.17		
NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	82
2-FLUOROBIPHENYL (%)	87
TERPHENYL (%)	77
PHENOL-D6 (%)	76
2-FLUOROPHENOL (%)	78
2,4,6-TRIBROMOPHENOL (%)	100

OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526502

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
934 ALIPHATIC HYDROCARBON C12	3	NJ	
981 ALIPHATIC HYDROCARBON C13	1	↓	
1045 ALIPHATIC HYDROCARBON C13	4		
1130 ALIPHATIC HYDROCARBON C14	4		
1352 ALIPHATIC HYDROCARBON C17	1		
500-2500 TOTAL EXTRACTABLE HYDROCARBONS C8-C28	70	NJ	

OGDEN VALIDATED

LEVEL V

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 00533001

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/22/90
CLIENT I.D.	: PS-10 0-.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
ITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
ITROPHENOL	<0.85		
BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 00533001

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
IZO(b)FLUORANTHENE	<0.17		
bENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	75
2-FLUOROBIPHENYL (%)	75
TERPHENYL (%)	70
PHENOL-D6 (%)	70
2-FLUOROPHENOL (%)	69
2,4,6-TRIBROMOPHENOL (%)	72

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00533001

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2261 ALIPHATIC HYDROCARBON C26	0.2	NJ	

LEVEL

OGDEN VALIDATED

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 00533002

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/22/90
CLIENT I.D.	: PS-10 1-1.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
N-NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED LEVE

AnalyticalTechnologies, Inc. GCMS - RESULTS

ATI I.D. : 00533002

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
ZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	84
2-FLUOROBIPHENYL (%)	82
TERPHENYL (%)	74
PHENOL-D6 (%)	63
2-FLUOROPHENOL (%)	46
2,4,6-TRIBROMOPHENOL (%)	53

QUALITY VALIDATED LEVEL

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00533002

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1878 ALIPHATIC HYDROCARBON C22	1	NJ	
1882 ALIPHATIC HYDROCARBON C22	0.7	NJ	

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533003

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/22/90
CLIENT I.D.	: PS-11 0-.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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Analytical Technologies, Inc. GCMS - RESULTS

ATI I.D. : 00533003

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	79
2-FLUOROBIPHENYL (%)	71
TERPHENYL (%)	69
PHENOL-D6 (%)	67
2-FLUOROPHENOL (%)	70
2,4,6-TRIBROMOPHENOL (%)	79

DATA VALIDATED LEVE

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00533003

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
991 ALIPHATIC HYDROCARBON C13	0.5	NJ	
2047 ALIPHATIC HYDROCARBON C23	0.4	↓	
2157 ALIPHATIC HYDROCARBON C25	0.6		
2261 ALIPHATIC HYDROCARBON C26	0.4		

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533004

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/22/90
CLIENT I.D.	: PS-11 1-1.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 00533004

LIST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	84
2-FLUOROBIPHENYL (%)	82
TERPHENYL (%)	80
PHENOL-D6 (%)	76
2-FLUOROPHENOL (%)	77
2,4,6-TRIBROMOPHENOL (%)	89

Analytical Technologies, In ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00533004

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1867 ALIPHATIC HYDROCARBON C22	0.2	NJ	
2047 ALIPHATIC HYDROCARBON C23	0.2	↓	
2157 ALIPHATIC HYDROCARBON C25	0.4		
2260 ALIPHATIC HYDROCARBON C26	0.4		

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533005

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/22/90
CLIENT I.D.	: PS-11 2-2.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533005

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
IZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	83
2-FLUOROBIPHENYL (%)	80
TERPHENYL (%)	70
PHENOL-D6 (%)	75
2-FLUOROPHENOL (%)	76
2,4,6-TRIBROMOPHENOL (%)	76

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00533005

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2046 AROMATIC HYDROCARBON	10	NJ	
2074 AROMATIC HYDROCARBON	20		
2092 AROMATIC HYDROCARBON	10		
2097 AROMATIC HYDROCARBON	3		
2113 AROMATIC HYDROCARBON	6		
1500-2500 TOTAL EXTRACTABLE HYDROCARBONS C18-C28	90	NJ	

AnalyticalTechnologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533006

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/22/90
CLIENT I.D.	: PS-12 0-.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	RBV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 00533006

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
IZO(b)FLUORANTHENE	<0.17		
bENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	72
2-FLUOROBIPHENYL (%)	68
TERPHENYL (%)	70
PHENOL-D6 (%)	59
2-FLUOROPHENOL (%)	62
2,4,6-TRIBROMOPHENOL (%)	78

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00533006

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2046 ALIPHATIC HYDROCARBON C23	0.3	NJ	
2060 ALIPHATIC HYDROCARBON C26	0.2	NJ	

OGDEN VALIDATED

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533007

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/22/90
CLIENT I.D.	: PS-12 1-1.5	DATE ANALYZED	: 06/02/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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AnalyticalTechnologies, Inc. GCMS - RESULTS

ATI I.D. : 00533007

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	RQ QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
NZO(b)FLUORANTHENE	<0.17		
NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	61
2-FLUOROBIPHENYL (%)	67
TERPHENYL (%)	51
PHENOL-D6 (%)	55
2-FLUOROPHENOL (%)	56
2,4,6-TRIBROMOPHENOL (%)	63

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00533007

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
883 ALIPHATIC HYDROCARBON C12	0.4	NJ	
990 ALIPHATIC HYDROCARBON C13	0.4	↓	
1877 ALIPHATIC HYDROCARBON C22	1		
1881 ALIPHATIC HYDROCARBON C23	0.3		

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533008

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/22/90
CLIENT I.D.	: PS-12 2-2.5	DATE ANALYZED	: 06/02/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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AnalyticalTechnologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533008

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
NZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	66
2-FLUOROBIPHENYL (%)	70
TERPHENYL (%)	54
PHENOL-D6 (%)	55
2-FLUOROPHENOL (%)	54
2,4,6-TRIBROMOPHENOL (%)	62

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00533008

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
990 ALIPHATIC HYDROCARBON C13	0.5	NJ	

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00533009

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/18/90
PROJECT #	: 8640	DATE RECEIVED	: 05/19/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/22/90
CLIENT I.D.	: PS-12 3-3.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 00533009

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
JZO(b)FLUORANTHENE	<0.17		
bENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	64
2-FLUOROBIPHENYL (%)	64
TERPHENYL (%)	69
PHENOL-D6 (%)	58
2-FLUOROPHENOL (%)	59
2,4,6-TRIBROMOPHENOL (%)	75

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00533009

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526503

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-2 0-.5	DATE ANALYZED	: 06/01/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526503

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		
SURROGATE PERCENT RECOVERIES			
NITROBENZENE-D5 (%)	67		
2-FLUOROBIPHENYL (%)	66		
TERPHENYL (%)	49		
PHENOL-D6 (%)	61		
2-FLUOROPHENOL (%)	63		
2,4,6-TRIBROMOPHENOL (%)	54		

TR - Compound detected at an unquantifiable trace level

OGDEN VALIDATED

LEVEL

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526503

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2047 ALIPHATIC HYDROCARBON C23	2	NJ	
2159 ALIPHATIC HYDROCARBON C25	4	↓	
2255 ALIPHATIC HYDROCARBON C26	2	↓	
2262 ALIPHATIC HYDROCARBON C26	2	↓	
2464 ALIPHATIC HYDROCARBON C28	1	↓	
600-2500 TOTAL EXTRACTABLE HYDROCARBONS C9-C28	50	NJ	

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526504

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-2 1-1.5	DATE ANALYZED	: 06/01/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
' 'ITROSO-DI-N-PROPYLAMINE	<0.17		
H..ACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
' 'ITROPHENOL	<0.85		
D..BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED LEVEL V

AnalyticalTechnologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526504

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		
SURROGATE PERCENT RECOVERIES			
NITROBENZENE-D5 (%)	56		
2-FLUOROBIPHENYL (%)	63		
TERPHENYL (%)	48		
PHENOL-D6 (%)	57		
2-FLUOROPHENOL (%)	57		
2,4,6-TRIBROMOPHENOL (%)	56		

TR - Compound detected at an unquantifiable trace level

OGDEN VALIDATED

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526504

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
931 ALIPHATIC HYDROCARBON C12	2	NJ	
1042 ALIPHATIC HYDROCARBON C13	3	↓	
1129 ALIPHATIC HYDROCARBON C14	4		
1214 ALIPHATIC HYDROCARBON C14	2		
1353 ALIPHATIC HYDROCARBON C17	3		
700-2500 TOTAL EXTRACTABLE HYDROCARBONS C10-C28	80	NJ	

OGDEN VALIDATED

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526505

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT =	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-3 0-.5	DATE ANALYZED	: 06/02/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526505

'T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	0.20		
BENZIDINE	<1.7	U	
PYRENE	0.23		
BUTYLBENZYLPHTHALATE	<0.17	U	
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	0.18		
DI-N-OCTYLPHTHALATE	<0.17	U	
BENZO(b)FLUORANTHENE	0.24		
BENZO(k)FLUORANTHENE	<0.17	U	
BENZO(a)PYRENE	0.24		
INDENO(1,2,3-cd)PYRENE	0.43		
DIBENZO(a,h)ANTHRACENE	<0.17	U	
BENZO(g,h,i)PERYLENE	0.46		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	74
2-FLUOROBIPHENYL (%)	85
TERPHENYL (%)	63
PHENOL-D6 (%)	75
2-FLUOROPHENOL (%)	72
2,4,6-TRIBROMOPHENOL (%)	97

TR - Compound detected at an unquantifiable trace level

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526505

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1042 ALIPHATIC HYDROCARBON C13	2	NJ	
1628 MOLECULAR SULFUR	2		
2161 ALIPHATIC HYDROCARBON C25	3		
2257 ALIPHATIC HYDROCARBON C26	4		
2264 ALIPHATIC HYDROCARBON C26	2		
600-2500 TOTAL EXTRACTABLE HYDROCARBONS C9-C28	70	NJ	

OGDEN VALIDATED

LEVEL V

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 00526506

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS3 1-1.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526506

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
NZO(b)FLUORANTHENE	<0.17		
NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17	U	
INDENO(1,2,3-cd)PYRENE*	0.24		
DIBENZO(a,h)ANTHRACENE	<0.17	U	
BENZO(g,h,i)PERYLENE	0.26		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	69
2-FLUOROBIPHENYL (%)	84
TERPHENYL (%)	62
PHENOL-D6 (%)	73
2-FLUOROPHENOL (%)	71
2,4,6-TRIBROMOPHENOL (%)	74

TR - Compound detected at an unquantifiable trace level

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526506

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1044 ALIPHATIC HYDROCARBON C13	3	NJ	
1622 MOLECULAR SULFUR	4	↓	
1638 MOLECULAR SULFUR	3		
2161 ALIPHATIC HYDROCARBON C25	4		
2256 ALIPHATIC HYDROCARBON C26	3	NJ	
600-2500 TOTAL EXTRACTABLE HYDROCARBONS C9-C25	70	NJ	

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526507

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-4 0-.5	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526507

;T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
NZO(b)FLUORANTHENE	<0.17		
NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	77
2-FLUOROBIPHENYL (%)	74
TERPHENYL (%)	68
PHENOL-D6 (%)	73
2-FLUOROPHENOL (%)	74
2,4,6-TRIBROMOPHENOL (%)	86

TR - Compound detected at an unquantifiable trace level

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526507

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1988 POLYNUCLEAR AROMATIC HYDROCARBON	2	NJ	
2051 ALIPHATIC HYDROCARBON C23	7	↓	
2160 ALIPHATIC HYDROCARBON C25	6		
2422 ALIPHATIC HYDROCARBON C27	2		
2468 ALIPHATIC HYDROCARBON C28	2		
700-2500 TOTAL EXTRACTABLE HYDROCARBONS C10-C28	70	NJ	

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526508

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/15/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-4 1-1.5	DATE ANALYZED	: 06/01/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

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Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526508

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1632 MOLECULAR SULFUR	4	NJ	
2052 ALIPHATIC HYDROCARBON C24	10		
2234 ALIPHATIC HYDROCARBON C25	3		
2426 ALIPHATIC HYDROCARBON C27	9		
2470 ALIPHATIC HYDROCARBON C28	5		
500-1200 TOTAL EXTRACTABLE HYDROCARBONS C8-C15	20	NJ	
1700-2500 TOTAL EXTRACTABLE HYDROCARBONS C20-C28	100	NJ	

OGDEN VALIDATED LEVEL

T2505V6

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526509

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-5 0-.5	DATE ANALYZED	: 06/01/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526509

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
NZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	60
2-FLUOROBIPHENYL (%)	60
TERPHENYL (%)	47
PHENOL-D6 (%)	55
2-FLUOROPHENOL (%)	55
2,4,6-TRIBROMOPHENOL (%)	57

OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526509

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	RAW QUAL	QUAL CODE
1750 ALIPHATIC HYDROCARBON C20	1	NJ	
1885 ALIPHATIC HYDROCARBON C22	1		
2046 ALIPHATIC HYDROCARBON C24	1		
2158 ALIPHATIC HYDROCARBON C26	4		
2261 ALIPHATIC HYDROCARBON C27	1		
1200-2500 TOTAL EXTRACTABLE HYDROCARBONS C15-C28	30	NJ	

OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526510

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-5 1-1.5	DATE ANALYZED	: 05/31/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	RE QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526510

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
IZO(b)FLUORANTHENE	<0.17		
NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	73
2-FLUOROBIPHENYL (%)	67
TERPHENYL (%)	50
PHENOL-D6 (%)	63
2-FLUOROPHENOL (%)	56
2,4,6-TRIBROMOPHENOL (%)	62

OGDEN VALIDATED

ELV

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526510

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS
NONE DETECTED	N/A

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526511

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-5 2-2.5	DATE ANALYZED	: 06/01/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUA	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED LEVEL

AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 00526511

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL.	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	67
2-FLUOROBIPHENYL (%)	62
TERPHENYL (%)	57
PHENOL-D6 (%)	60
2-FLUOROPHENOL (%)	62
2,4,6-TRIBROMOPHENOL (%)	60

OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526511

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2044 ALIPHATIC HYDROCARBON C23	0.1	NJ	
2155 ALIPHATIC HYDROCARBON C25	0.8		
2258 ALIPHATIC HYDROCARBON C26	0.2		
2353 ALIPHATIC HYDROCARBON C27	0.3		
2413 ALIPHATIC HYDROCARBON C27	0.2		

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526512

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-6 0-.5	DATE ANALYZED	: 06/01/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526512

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
~NZO(b)FLUORANTHENE	<0.17		
~NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	60
2-FLUOROBIPHENYL (%)	52
TERPHENYL (%)	46
PHENOL-D6 (%)	58
2-FLUOROPHENOL (%)	56
2,4,6-TRIBROMOPHENOL (%)	54

OGDEN VALIDATED

VEL

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526512

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1813 ALIPHATIC HYDROCARBON C21	1	NJ	
2007 ALIPHATIC HYDROCARBON C23	1	↓	
2158 ALIPHATIC HYDROCARBON C25	5		
2259 ALIPHATIC HYDROCARBON C26	0.9		
2356 ALIPHATIC HYDROCARBON C27	1.3		
1500-2500 TOTAL EXTRACTABLE HYDROCARBONS C18-C28	30	NJ	

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526513

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT #	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-6 1-1.5	DATE ANALYZED	: 05/31/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	RQV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 00526513

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	RGV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
NZO(b)FLUORANTHENE	<0.17		
NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	56
2-FLUOROBIPHENYL (%)	52
TERPHENYL (%)	47
PHENOL-D6 (%)	50
2-FLUOROPHENOL (%)	48
2,4,6-TRIBROMOPHENOL (%)	69

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526513

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2354 ALIPHATIC HYDROCARBON C24	0.2	NJ	

OGDEN VALIDATED

VELT

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526514

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/16/90
PROJECT =	: 8640	DATE RECEIVED	: 05/17/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/18/90
CLIENT I.D.	: PS-6 2-2.5	DATE ANALYZED	: 06/01/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
' NITROSO-DI-N-PROPYLAMINE	<0.17		
.. XACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
.. BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00526514

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
'NZO(b)FLUORANTHENE	<0.17		
ENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	67
2-FLUOROBIPHENYL (%)	67
TERPHENYL (%)	59
PHENOL-D6 (%)	61
2-FLUOROPHENOL (%)	64
2,4,6-TRIBROMOPHENOL (%)	52

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00526514

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2258 ALIPHATIC HYDROCARBON C26	0.1	NJ	

OGDEN VALIDATED

LEVEL

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529001

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-7 0-.5	DATE ANALYZED	: 06/06/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

LEVEL V

AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 00529001

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	0.28		
ANTHRACENE	<0.17	U	
DI-BUTYL PHTHALATE	<0.17	U	
FLUORANTHENE	0.30		
BENZIDINE	<1.7	U	
PYRENE	0.29		
BUTYLBENZYLPHTHALATE	<0.17	U	
3,3-DICHLOROBENZIDINE	<0.34	U	
BENZO(a)ANTHRACENE	0.24		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17	U	
CHRYSENE	0.22		
DI-N-OCTYLPHTHALATE	<0.17	U	
BENZO(b)FLUORANTHENE	0.54		
BENZO(k)FLUORANTHENE	<0.17	U	
BENZO(a)PYRENE	0.24		
INDENO(1,2,3-cd)PYRENE	0.20		
DIBENZO(a,h)ANTHRACENE	<0.17	U	
BENZO(g,h,i)PERYLENE	0.23		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	78
2-FLUOROBIPHENYL (%)	76
TERPHENYL (%)	65
PHENOL-D6 (%)	69
2-FLUOROPHENOL (%)	65
2,4,6-TRIBROMOPHENOL (%)	61

OGDEN VALIDATED

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529001

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2038 ALIPHATIC HYDROCARBON C24	5	NJ	
2152 ALIPHATIC HYDROCARBON C25	10		
2252 ALIPHATIC HYDROCARBON C26	4		
2408 ALIPHATIC HYDROCARBON C28	4		
2449 ALIPHATIC HYDROCARBON C28	3		
1300-2500 TOTAL EXTRACTABLE HYDROCARBONS C16-C28	80	NJ	

OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529002

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-7 1-1.5'	DATE ANALYZED	: 06/06/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
N-NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED LEVEL ✓

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 00529002

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	72
2-FLUOROBIPHENYL (%)	78
TERPHENYL (%)	65
PHENOL-D6 (%)	74
2-FLUOROPHENOL (%)	71
2,4,6-TRIBROMOPHENOL (%)	76

OGDEN VALIDATED

VELT

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529002

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2328 ALIPHATIC HYDROCARBON C27	0.2	NJ	

OGDEN VALIDATED

LEVEL V

AnalyticalTechnologies,Inc.

GCMS - RESULTS

ATI I.D. : 00529003

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-7 2-2.5'	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
XACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2.4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED

Analytical Technologies, Inc. GCMS - RESULTS

ATI I.D. : 00529003

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	72
2-FLUOROBIPHENYL (%)	82
TERPHENYL (%)	76
PHENOL-D6 (%)	62
2-FLUOROPHENOL (%)	73
2,4,6-TRIBROMOPHENOL (%)	94

OGDEN VALIDATED

LEVEL

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529003

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1929 ALIPHATIC HYDROCARBON C22	0.2	NJ	
2048 ALIPHATIC HYDROCARBON C23	0.6		
2159 ALIPHATIC HYDROCARBON C25	1		
2263 ALIPHATIC HYDROCARBON C26	0.4		
2423 ALIPHATIC HYDROCARBON C27	0.3		

OGDEN VALIDATED

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529004

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-7 3-3.5'	DATE ANALYZED	: 06/06/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
XACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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AnalyticalTechnologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529004

:T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
[illegible]NZO(b)FLUORANTHENE	<0.17		
[illegible]NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	72
2-FLUOROBIPHENYL (%)	74
TERPHENYL (%)	59
PHENOL-D6 (%)	70
2-FLUOROPHENOL (%)	71
2,4,6-TRIBROMOPHENOL (%)	74

OGDEN VALIDATED

[illegible]EL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529004

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2277 ALIPHATIC HYDROCARBON C26	0.2	NJ	
2388 ALIPHATIC HYDROCARBON C27	0.3	NJ	

LEVI

OGDEN VALIDATED

AnalyticalTechnologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529005

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-8 0-.5'	DATE ANALYZED	: 06/03/90 MP 2.19.9
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U NJ	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
` IITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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LEVEL V

Analytical Technologies, Inc. GCMS - RESULTS

ATI I.D. : 00529005

NP 2.19.99

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U NJ	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	59
2-FLUOROBIPHENYL (%)	69
TERPHENYL (%)	63
PHENOL-D6 (%)	50
2-FLUOROPHENOL (%)	62
2,4,6-TRIBROMOPHENOL (%)	74

LEVEL

OGDEN VALIDATED

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529005

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2047 ALIPHATIC HYDROCARBON C23	0.8	NJ	
2126 ALIPHATIC HYDROCARBON C24	0.8		
2159 ALIPHATIC HYDROCARBON C25	3		
2262 ALIPHATIC HYDROCARBON C26	1		
2359 ALIPHATIC HYDROCARBON C27	0.6		

LEVEL

OGDEN VALIDATED

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529006

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT =	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-8 1-1.5'	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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AnalyticalTechnologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529006

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
[illegible]NZO(b)FLUORANTHENE	<0.17		
[illegible]NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	73
2-FLUOROBIPHENYL (%)	85
TERPHENYL (%)	70
PHENOL-D6 (%)	62
2-FLUOROPHENOL (%)	80
2,4,6-TRIBROMOPHENOL (%)	88

OGDEN VALIDATED LEVEL V

Analytical Technologies, Inc. ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529006

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2047 ALIPHATIC HYDROCARBON C23	0.2	NJ	
2158 ALIPHATIC HYDROCARBON C25	1		
2261 ALIPHATIC HYDROCARBON C26	0.8		
2358 ALIPHATIC HYDROCARBON C27	0.5		

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529007

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 3640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-8 2-2.5'	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
N-NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 00529007

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
[illegible]NZO(b)FLUORANTHENE	<0.17		
[illegible]NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	58
2-FLUOROBIPHENYL (%)	70
TERPHENYL (%)	58
PHENOL-D6 (%)	48
2-FLUOROPHENOL (%)	59
2,4,6-TRIBROMOPHENOL (%)	71

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529007

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2053 ALIPHATIC HYDROCARBON C24	0.4	NJ	
2157 ALIPHATIC HYDROCARBON C25	0.3	↓	
2261 ALIPHATIC HYDROCARBON C26	0.2		

USEPA VALIDATED LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529008

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-8 3-3.5'	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
N-NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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Analytical Technologies, Inc. GCMS - RESULTS

ATI I.D. : 00529008

T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	58
2-FLUOROBIPHENYL (%)	69
TERPHENYL (%)	64
PHENOL-D6 (%)	49
2-FLUOROPHENOL (%)	66
2,4,6-TRIBROMOPHENOL (%)	81

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529008

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2010 ALIPHATIC HYDROCARBON C23	0.2	NJ	
2158 ALIPHATIC HYDROCARBON C25	0.5	↓	
2261 ALIPHATIC HYDROCARBON C26	0.3		
2421 ALIPHATIC HYDROCARBON C27	0.1		

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529009

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-9 0-.5'	DATE ANALYZED	: 06/06/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
`-NITROSO-DI-N-PROPYLAMINE	<0.17		
XACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
-NITROPHENOL	<0.85		
BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 00529009

:T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
~~NZO(b)FLUORANTHENE	<0.17		
NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	75
2-FLUOROBIPHENYL (%)	80
TERPHENYL (%)	63
PHENOL-D6 (%)	74
2-FLUOROPHENOL (%)	70
2,4,6-TRIBROMOPHENOL (%)	77

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529009

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2027 ALIPHATIC HYDROCARBON C24	0.8	NJ	
2138 ALIPHATIC HYDROCARBON C25	1	↓	
2193 ALIPHATIC HYDROCARBON C26	0.2	↓	
2241 ALIPHATIC HYDROCARBON C26	0.5	↓	
2269 ALIPHATIC HYDROCARBON C26	0.2	↓	

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529010

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-9 1-1.5'	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
NITROSO-DI-N-PROPYLAMINE	<0.17		
XACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
NITROPHENOL	<0.85		
BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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OGDEN VALIDATED LEVEL V

AnalyticalTechnologies,Inc. GCMS - RESULTS

ATI I.D. : 00529010

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	59
2-FLUOROBIPHENYL (%)	67
TERPHENYL (%)	60
PHENOL-D6 (%)	49
2-FLUOROPHENOL (%)	63
2,4,6-TRIBROMOPHENOL (%)	78

OGDEN VALIDATED

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529010

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
2047 ALIPHATIC HYDROCARBON C23	0.3	NJ	
2157 ALIPHATIC HYDROCARBON C25	0.4		
2261 ALIPHATIC HYDROCARBON C26	0.3		

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529011

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-9 2-2.5'	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
`NITROSO-DI-N-PROPYLAMINE	<0.17		
.XACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
-NITROPHENOL	<0.85		
.BENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529011

ST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
BENZO(b)FLUORANTHENE	<0.17		
BENZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		
SURROGATE PERCENT RECOVERIES			
NITROBENZENE-D5 (%)	56		
2-FLUOROBIPHENYL (%)	66		
TERPHENYL (%)	66		
PHENOL-D6 (%)	44		
2-FLUOROPHENOL (%)	53		
2,4,6-TRIBROMOPHENOL (%)	78		

OGDEN VALIDATED

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529011

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1627 MOLECULAR SULFUR	1	NJ	
2047 ALIPHATIC HYDROCARBON C23	0.4	↓	
2158 ALIPHATIC HYDROCARBON C25	0.7		
2262 ALIPHATIC HYDROCARBON C26	0.4		

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 00529012

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

CLIENT	: GROUNDWATER RESOURCES	DATE SAMPLED	: 05/17/90
PROJECT #	: 8640	DATE RECEIVED	: 05/18/90
PROJECT NAME	: ROCKETDYNE SSFL	DATE EXTRACTED	: 05/21/90
CLIENT I.D.	: PS-9 3-3.5'	DATE ANALYZED	: 06/03/90
SAMPLE MATRIX	: SOIL	UNITS	: MG/KG
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
N-NITROSODIMETHYLAMINE	<0.17	U	
PHENOL	<0.17		
ANILINE	<0.17		
BIS(2-CHLOROETHYL)ETHER	<0.17		
2-CHLOROPHENOL	<0.17		
1,3-DICHLOROBENZENE	<0.17		
1,4-DICHLOROBENZENE	<0.17		
BENZYL ALCOHOL	<0.17		
1,2-DICHLOROBENZENE	<0.17		
2-METHYLPHENOL	<0.17		
BIS(2-CHLOROISOPROPYL)ETHER	<0.17		
4-METHYLPHENOL	<0.17		
N-NITROSO-DI-N-PROPYLAMINE	<0.17		
HEXACHLOROETHANE	<0.17		
NITROBENZENE	<0.17		
ISOPHORONE	<0.17		
2-NITROPHENOL	<0.17		
2,4-DIMETHYLPHENOL	<0.17		
BENZOIC ACID	<0.85		
BIS(2-CHLOROETHOXY)METHANE	<0.17		
2,4-DICHLOROPHENOL	<0.17		
1,2,4-TRICHLOROBENZENE	<0.17		
NAPHTHALENE	<0.17		
4-CHLOROANILINE	<0.17		
HEXACHLOROBUTADIENE	<0.17		
4-CHLORO-3-METHYLPHENOL	<0.17		
2-METHYLNAPHTHALENE	<0.17		
HEXACHLOROCYCLOPENTADIENE	<0.17		
2,4,6-TRICHLOROPHENOL	<0.17		
2,4,5-TRICHLOROPHENOL	<0.85		
2-CHLORONAPHTHALENE	<0.17		
2-NITROANILINE	<0.85		
DIMETHYL PHTHALATE	<0.17		
ACENAPHTHYLENE	<0.17		
3-NITROANILINE	<0.85		
ACENAPHTHENE	<0.17		
2,4-DINITROPHENOL	<0.85		
4-NITROPHENOL	<0.85		
DIBENZOFURAN	<0.17		
2,4-DINITROTOLUENE	<0.17		
2,6-DINITROTOLUENE	<0.17		
DIETHYLPHTHALATE	<0.17		

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Analytical Technologies, Inc. GCMS - RESULTS

ATI I.D. : 00529012

:T : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
4-CHLOROPHENYL PHENYL ETHER	<0.17	U	
FLUORENE	<0.17		
4-NITROANILINE	<0.85		
4,6-DINITRO-2-METHYLPHENOL	<0.85		
N-NITROSODIPHENYLAMINE	<0.17		
4-BROMOPHENYL PHENYL ETHER	<0.17		
HEXACHLOROBENZENE	<0.17		
PENTACHLOROPHENOL	<0.85		
PHENANTHRENE	<0.17		
ANTHRACENE	<0.17		
DI-BUTYL PHTHALATE	<0.17		
FLUORANTHENE	<0.17		
BENZIDINE	<1.7		
PYRENE	<0.17		
BUTYLBENZYLPHTHALATE	<0.17		
3,3-DICHLOROBENZIDINE	<0.34		
BENZO(a)ANTHRACENE	<0.17		
BIS(2-ETHYLHEXYL)PHTHALATE	<0.17		
CHRYSENE	<0.17		
DI-N-OCTYLPHTHALATE	<0.17		
[illegible]NZO(b)FLUORANTHENE	<0.17		
[illegible]NZO(k)FLUORANTHENE	<0.17		
BENZO(a)PYRENE	<0.17		
INDENO(1,2,3-cd)PYRENE	<0.17		
DIBENZO(a,h)ANTHRACENE	<0.17		
BENZO(g,h,i)PERYLENE	<0.17		

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	49
2-FLUOROBIPHENYL (%)	57
TERPHENYL (%)	60
PHENOL-D6 (%)	39
2-FLUOROPHENOL (%)	54
2,4,6-TRIBROMOPHENOL (%)	74

OGDEN VALIDATED

LEVEL V

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : EPA 8270 (GC/MS FOR SEMIVOLATILE ORGANICS)

ATI I.D. : 00529012

MATRIX : SOIL

UNITS : MG/KG

COMPOUNDS	RESULTS	REV QUAL	QUAL CODE
1629 MOLECULAR SULFUR	0.8	NJ	
2047 ALIPHATIC HYDROCARBON C27	0.2		
2158 ALIPHATIC HYDROCARBON C25	0.5		
2261 ALIPHATIC HYDROCARBON C26	0.3		

OGDEN VALIDATED

LEVEL

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

1

550 South Wadsworth Blvd. Ste. 500
Denver, CO 80226
(303) 935-6505

Rocketdyne
Analysis/Methods: (6010/7471/7060/7740/7841)
No. of Samples: 35
Date Completed: April 6, 1999
Reviewer: K. Okonzak-Lowry
Ref: *USEPA Contract Laboratory Program National Functional Guidelines For Inorganic Data Review (Feb. 1994)*
Samples Reviewed: PS-1 0-.5, PS-1 1-1.5, PS-2 0-.5, PS-2 1-1.5, PS-3 0-.5, PS-3 1-1.5, PS-4 0-.5, PS-4 1-1.5, PS-5 0-.5, PS-5 1-1.5, PS-5 2-2.5, PS-6 0-.5, PS-6 1-1.5, PS-6 2-2.5, PS-7 0-.5, PS-7 1-1.5, PS-7 2-2.5, PS-7 3-3.5, PS-8 0-.5, PS-8 1-1.5, PS-8 2-2.5, PS-8 3-3.5, PS-9 0-.5, PS-9 1-1.5, PS-9 2-2.5, PS-9 3-3.5, PS-10 0-.5, PS-10 1-1.5, PS-11 0-.5, PS-11 1-1.5, PS-11 2-2.5, PS-12 0-.5, PS-12 1-1.5, PS-12 2-2.5, PS-12 3-3.5

EPA Level V- Metals Assessment Form

	Problems	Qualifications
1. Sample Management	The COCs were signed by field and laboratory personnel. Sample conditions and cooler temperatures were not recorded on the COCs; therefore, no evaluation of the sample data could be made based on sample conditions upon receipt.	None
2. Method Blanks	No information was provided on the blank analysis; no assessment was made with repect to this criteria.	None
3. LCS/BS	No information was provided on the blank spike analysis; no assessment was made with repect to this criteria.	None
4. Duplicates	The RPD for lead in one of the duplicate analyses was greater than 35% with an RPD of 40%. No further sample qualifications were required due to laboratory	Lead detects in the following 12 samples were qualified as estimated,"J:" PS-7 0-.5, PS-7 1-1.5, PS-7 2-2.5, PS-7 3-3.5, PS-8 0-.5, PS-8 1-1.5, PS-8 2-2.5, PS-8 3-3.5, PS-9 0-.5, PS-9 1-1.5, PS-9 2-2.5, PS-9 3-3.5

	Problems	Qualifications
	were required due to laboratory duplicate analyses.	
5. MS/MSDs	Antimony was recoved below the control limit of 75% in all of the applicable matrix spike analyses. Zinc recoveries were above and below the 75% to 125% recovery limits in one set of matrix spike analyses which applied to twelve of the site samples.	Antimony was qualified as "UJ" for the nondetects in all site samples. Zinc was qualified as estimated,"J" for detects in the following site samples: PS-7 0-.5, PS-7 1-1.5, PS-7 2-2.5, PS-7 3-3.5, PS-8 0-.5, PS-8 1-1.5, PS-8 2-2.5, PS-8 3-3.5, PS-9 0-.5, PS-9 1-1.5, PS-9 2-2.5, PS-9 3-3.5
6. ICP Serial Dilution	No information was provided on the serial dilution; no assessment was made with repect to this criteria.	None
7. Field QC Samples	The data package did not contain field QC sample information; no evaluation of sample data was made based on field QC.	None
8. Other	None	None
9. Comments	CAL WET extraction analysis results were provided for 34 of the 35 site samples included in this data package. The CAL WET results were not validated per E. Wessling, Ogden-Denver.	None

Analytical Technologies, Inc. METALS RESULTS

ATI I.D. : 005330

CLIENT : GROUNDWATER RESOURCES
PROJECT # : 8640
PROJECT NAME : ROCKETDYNE SSFL

DATE RECEIVED : 05/19/90
REPORT DATE : 06/11/90

PARAMETER	UNITS	PS-10 0-.5 01	Lab Qual	Qual Code	PS-10 1-1.5 02	Lab Qual	Qual Code	PS-11 0-.5 03	Lab Qual	Qual Code	PS-11 1-1.5 04	Lab Qual	Qual Code	PS-11 2-2.5 05	Lab Qual	Qual Code
SILVER	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
ARSENIC	MG/KG	11.2			7.0			16.5			15.4			13.9		
BARIUM	MG/KG	44.2			37.2			70.1			53.9			54.4		
BERYLLIUM	MG/KG	<0.5	U		<0.5	U		0.5			0.5			<0.5	U	
CADMIUM	MG/KG	<0.5	U		<0.5	U		<0.5	U		<0.5	U		<0.5	U	
COBALT	MG/KG	4.7			3.6			6.2			5.9			5.6		
CHROMIUM	MG/KG	12.6			11.4			16.9			15.8			15.7		
COPPER	MG/KG	15.1			6.4			36.8			20.8			10.5		
MERCURY	MG/KG	<0.25	U		<0.25	U		<0.25	U		<0.25	U		<0.25	U	
MOLYBDENUM	MG/KG	<1.0	U		<1.0	U		1.5			<1.0	U		<1.0	U	
NICKEL	MG/KG	9.4			7.4			14.5			13.1			11.1		
LEAD	MG/KG	8.4			3.9			12.8			10.5			6.2		
ANTIMONY	MG/KG	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q
SELENIUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
THALLIUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
VANADIUM	MG/KG	20.5			17.7			25.2			23.6			22.5		
ZINC	MG/KG	53.5			43.0			92.1			86.9			45.7		

LEVEL V

Analytical Technologies, Inc. METALS RESULTS

ATI I.D. : 005330

CLIENT : GROUNDWATER RESOURCES
PROJECT # : 8640
PROJECT NAME : ROCKETDYNE SSFL

DATE RECEIVED : 05/19/90
REPORT DATE : 06/11/90

PARAMETER	UNITS	B5-12 0-0.5 06	Dup	Dup Code	B5-12 1-1.5 07	Dup	Dup Code	B5-12 2-2.5 08	Dup	Dup Code	B5-12 3-3.5 09	Dup	Dup Code
SILVER	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U	
ARSENIC	MG/KG	14.5			19.9			16.8			14.8		
BARIUM	MG/KG	55.7			56.3			60.4			44.2		
BERYLLIUM	MG/KG	0.5			0.6			0.6			<0.5	U	
CADMIUM	MG/KG	<0.5	U		<0.5	U		<0.5	U		<0.5	U	
COBALT	MG/KG	5.3			6.6			7.7			5.4		
CHROMIUM	MG/KG	14.9			19.2			20.1			14.4		
COPPER	MG/KG	28.8			18.9			17.1			18.4		
MERCURY	MG/KG	<0.25	U		<0.25	U		<0.25	U		<0.25	U	
MOLYBDENUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U	
NICKEL	MG/KG	11.8			16.4			17.2			11.1		
LEAD	MG/KG	12.7			9.6			11.0			7.3		
ANTIMONY	MG/KG	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q
SELENIUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U	
THALLIUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U	
VANADIUM	MG/KG	22.4			27.7			29.1			22.8		
ZINC	MG/KG	96.5			65.5			68.7			56.8		

LEVEL V

OGDEN VALIDATED

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 005265

CLIENT : GROUNDWATER RESOURCES
PROJECT # : 8640
PROJECT NAME : ROCKETDYNE SSFL

DATE RECEIVED : 05/17/90
REPORT DATE : 06/19/90

PARAMETER	UNITS	PS-1 0-.5 01	Rev Qual	Qual Code	PS-1 1-1.5 02	Rev Qual	Qual Code	PS-2 0-.5 03	Rev Qual	Qual Code	PS-2 1-1.5 04	Rev Qual	Qual Code	PS-3 0-.5 05	Rev Qual	Qual Code
SILVER	MG/KG	3.7			1.1			3.0			4.7			3.6		
ARSENIC	MG/KG	2.0			3.1			2.6			2.4			2.1		
BARIUM	MG/KG	54.3			69.9			77.2			67.8			69.0		
BERYLLIUM	MG/KG	<0.5	U		0.5			<0.5	U		<0.5	U		<0.5	U	
CADMIUM	MG/KG	<0.5	U		<0.5	U		0.6			0.5			0.5		
COBALT	MG/KG	4.2			6.1			4.9			6.2			4.7		
CHROMIUM	MG/KG	13.7			17.8			16.7			18.0			15.8		
COPPER	MG/KG	56.4			110			59.5			88.5			56.7		
MERCURY	MG/KG	<0.25	U		<0.25	U		<0.25	U		<0.25	U		<0.25	U	
MOLYBDENUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
NICKEL	MG/KG	11.9			11.9			13.8			17.0			13.3		
LEAD	MG/KG	13.3			9.6			17.4			19.1			16.2		
ANTIMONY	MG/KG	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q
SELENIUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
THALLIUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
VANADIUM	MG/KG	17.0			29.6			20.5			22.2			17.7		
ZINC	MG/KG	203			117			250			226			246		

KKR
3/31/94

LEVEL V

GOLDEN VALIDATED

Analytical Technologies, Inc. METALS RESULTS

ATI I.D. : 005265

CLIENT : GROUNDWATER RESOURCES
PROJECT # : 8640
PROJECT NAME : ROCKETDYNE SSFL

DATE RECEIVED : 05/17/90
REPORT DATE : 06/19/90

PARAMETER	UNITS	PS-3 1-1.5 06	Lab Qual	Lab Code	PS-4 0-.5 07	Lab Qual	Lab Code	PS-4 1-1.5 08	Lab Qual	Lab Code	PS-5 0-.5 09	Lab Qual	Lab Code	PS-5 1-1.5 10	Lab Qual	Lab Code
SILVER	MG/KG	3.3			<1.0	U		<1.0	U		<1.0	U		<1.0	U	
ARSENIC	MG/KG	3.2			2.3			2.4			2.2			1.8		
BARIUM	MG/KG	68.3			52.5			40.8			56.5			51.6		
BERYLLIUM	MG/KG	<0.5	U		<0.5	U		<0.5	U		<0.5	U		<0.5	U	
CADMIUM	MG/KG	0.6			<0.5	U		<0.5	U		<0.5	U		<0.5	U	
COBALT	MG/KG	7.5			4.4			4.3			3.8			4.1		
CHROMIUM	MG/KG	17.9			11.4			10.9			15.8			12.2		
COPPER	MG/KG	73.0			81.4			38.0			53.3			24.4		
MERCURY	MG/KG	<0.25	U		<0.25	U		<0.25	U		0.78			<0.25	U	
MOLYBDENUM	MG/KG	1.1			1.3			2.1			<1.0	U		<1.0	U	
NICKEL	MG/KG	17.7			10.7			9.2			7.6			6.6		
LEAD	MG/KG	19.1			14.0			12.1			21.2			5.2		
ANTIMONY	MG/KG	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q
SELENIUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
THALLIUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
VANADIUM	MG/KG	21.9			14.4			14.3			23.1			23.7		
ZINC	MG/KG	199			208			100			165			49.1		

JMR 3/31/99

LEVEL V

CCDEN VALIDATED

Analytical**Technologies,**Inc. METALS RESULTS

ATI I.D. : 005265

CLIENT : GROUNDWATER RESOURCES
PROJECT # : 8640
PROJECT NAME : ROCKETDYNE SSFL

DATE RECEIVED : 05/17/90
REPORT DATE : 06/19/90

PARAMETER	UNITS	PS-5 2-2.5 Rinsate Blank		PS-6 0-.5 Rinsate Blank		PS-6 1-1.5 Rinsate Blank		PS-6 2-2.5 Rinsate Blank	
		11		12		13		14	
SILVER	MG/KG	<1.0	U	<1.0	U	<1.0	U	<1.0	U
ARSENIC	MG/KG	3.7		3.6		2.1		1.7	
BARIUM	MG/KG	59.3		107		66.5		56.3	
BERYLLIUM	MG/KG	0.5		0.9		<0.5	U	<0.5	U
CADMIUM	MG/KG	<0.5	U	<0.5	U	<0.5	U	<0.5	U
COBALT	MG/KG	4.4		7.0		4.4		4.3	
CHROMIUM	MG/KG	12.4		24.7		15.1		13.4	
COPPER	MG/KG	11.8		51.8		9.4		15.3	
MERCURY	MG/KG	<0.25	U	1.3		<0.25	U	<0.25	U
MOLYBDENUM	MG/KG	<1.0	U	<1.0	U	<1.0	U	<1.0	U
NICKEL	MG/KG	7.1		13.8		7.3		6.8	
LEAD	MG/KG	6.0		36.9		6.0		7.7	
ANTIMONY	MG/KG	<3.0	UJ Q	<3.0	UJ Q	<3.0	UJ Q	<3.0	UJ Q
SELENIUM	MG/KG	<1.0	U	<1.0	U	<1.0	U	<1.0	U
THALLIUM	MG/KG	<1.0	U	<1.0	U	<1.0	U	<1.0	U
VANADIUM	MG/KG	24.1		39.8		24.7		22.2	
ZINC	MG/KG	42.2		326		44.7		56.1	

LEVEL V

OGDEN VALIDATED

Analytical**Technologies,**Inc. METALS RESULTS

ATI I.D. : 005290

CLIENT : GROUNDWATER RESOURCES
PROJECT # : 8640
PROJECT NAME : ROCKETDYNE SSFL

DATE RECEIVED : 05/18/90
REPORT DATE : 06/18/90

PARAMETER	UNITS	PS-7 0-.5' 01	Qual Code	PS-7 1-1.5' 02	Qual Code	PS-7 2-2.5' 03	Qual Code	PS-7 3-3.5' 04	Qual Code	PS-7 0-.5' 05	Qual Code
SILVER	MG/KG	<1.0 u		<1.0 u		<1.0 u		<1.0 u		<1.0 u	
ARSENIC	MG/KG	3.0		1.7		1.7		1.2		2.4	
BARIUM	MG/KG	71.2		45.6		59.8		35.2		51.6	
BERYLLIUM	MG/KG	<0.5 u		<0.5 u		0.5		<0.5 u		<0.5 u	
CADMIUM	MG/KG	4.6		<0.5 u		<0.5 u		<0.5 u		<0.5 u	
COBALT	MG/KG	5.5		4.2		4.7		4.1		5.9	
CHROMIUM	MG/KG	25.0		9.0		13.7		9.0		11.0	
COPPER	MG/KG	46.0		8.7		15.5		10.5		11.0	
MERCURY	MG/KG	1.3		<0.25u		0.30		<0.25u		0.36	
MOLYBDENUM	MG/KG	<1.0 u		<1.0 u		<1.0 u		<1.0 u		<1.0 u	
NICKEL	MG/KG	17.3		5.9		8.5		6.0		6.2	
LEAD	MG/KG	89.6J	E	7.2J	E	10.1J	E	6.8J	E	6.3J	E
ANTIMONY	MG/KG	<3.0uJ	Q	<3.0uJ	Q	<3.0uJ	Q	<3.0uJ	Q	<3.0uJ	Q
SELENIUM	MG/KG	<1.0 u		<1.0 u		<1.0 u		<1.0 u		<1.0 u	
THALLIUM	MG/KG	<1.0 u		<1.0 u		<1.0 u		<1.0 u		<1.0 u	
VANADIUM	MG/KG	19.3		18.0		23.9		15.9		21.5	
ZINC	MG/KG	1460J	Q	66.0J	Q	90.8J	Q	111J	Q	46.8J	Q

LEVEL V

CORDEN VALIDATED

AnalyticalTechnologies,Inc. METALS RESULTS

ATI I.D. : 005290

CLIENT : GROUNDWATER RESOURCES
PROJECT # : 8640
PROJECT NAME : ROCKETDYNE SSFL

DATE RECEIVED : 05/18/90
REPORT DATE : 06/18/90

PARAMETER	UNITS	PS-8 1-1.5 06	Qual Code	Rev Qual Code	PS-8 2-2.5 07	Qual Code	Rev Qual Code	PS-8 3-3.5 08	Qual Code	Rev Qual Code	PS-9 0-.5' 09	Qual Code	Rev Qual Code	PS-9 1-1.5' 10	Qual Code	Rev Qual Code
SILVER	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
ARSENIC	MG/KG	1.8			1.3			1.7			3.2			1.9		
BARIUM	MG/KG	40.2			31.4			50.3			26.4			28.9		
BERYLLIUM	MG/KG	<0.5	U		<0.5	U		<0.5	U		<0.5	U		<0.5	U	
CADMIUM	MG/KG	<0.5	U		<0.5	U		<0.5	U		<0.5	U		<0.5	U	
COBALT	MG/KG	4.0			3.2			4.2			3.6			3.4		
CHROMIUM	MG/KG	8.2			8.3			11.7			8.3			8.7		
COPPER	MG/KG	13.1			9.9			13.5			10.5			9.5		
MERCURY	MG/KG	<0.25	U		<0.25	U		<0.25	U		<0.25	U		<0.25	U	
MOLYBDENUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
NICKEL	MG/KG	4.9			5.2			6.8			5.8			6.0		
LEAD	MG/KG	5.2	J	E	4.4	J	E	6.0	J	E	5.9	J	E	7.5	J	E
ANTIMONY	MG/KG	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q	<3.0	UJ	Q
SELENIUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
THALLIUM	MG/KG	<1.0	U		<1.0	U		<1.0	U		<1.0	U		<1.0	U	
VANADIUM	MG/KG	17.6			13.9			21.1			11.1			13.6		
ZINC	MG/KG	37.2	J	Q	32.3	J	Q	47.9	J	Q	44.5	J	Q	40.4	J	Q

LEVEL V

Analytical Technologies, Inc. METALS RESULTS

ATI I.D. : 005290

CLIENT : GROUNDWATER RESOURCES
PROJECT # : 8640
PROJECT NAME : ROCKETDYNE SSFL

DATE RECEIVED : 05/18/90
REPORT DATE : 06/18/90

PARAMETER	UNITS	PS-9 2-2.5' 11	Qual Code	PS-9 3-3.5' 12	Qual Code
SILVER	MG/KG	<1.0 U		<1.0 U	
ARSENIC	MG/KG	4.0		3.3	
BARIUM	MG/KG	33.3		46.8	
BERYLLIUM	MG/KG	<0.5 U		<0.5 U	
CADMIUM	MG/KG	<0.5 U		<0.5 U	
COBALT	MG/KG	3.4		4.5	
CHROMIUM	MG/KG	9.3		12.8	
COPPER	MG/KG	13.0		14.8	
MERCURY	MG/KG	<0.25 U		<0.25 U	
MOLYBDENUM	MG/KG	<1.0 U		<1.0 U	
NICKEL	MG/KG	6.6		9.0	
LEAD	MG/KG	7.2 J	E	7.3 J	E
ANTIMONY	MG/KG	<3.0 UJ	Q	<3.0 UJ	Q
SELENIUM	MG/KG	<1.0 U		<1.0 U	
THALLIUM	MG/KG	<1.0 U		<1.0 U	
VANADIUM	MG/KG	13.9		19.3	
ZINC	MG/KG	40.0 J	Q	45.6 J	Q

LEVEL V

OGDEN VALIDATED

12269 East Vassar Drive, Aurora, CO 80014
303.881.6816, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	General Minerals by EPA 7196A
QC Level:	V[1]
SDG:	IPB1641
Matrix:	Soil
No. of Samples:	5
No. of Reanalyses:	0
Date Reviewed:	March 17, 2006
Reviewer:	P. Meeks
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/94)
Samples Reviewed:	MJ638, MJ639, MJ640, MJ641, MJ642

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received within the temperature limits of 4°±2°C, at 5°C. The COC was signed and dated by field and laboratory personnel and accounted for the samples and analyses presented in this SDG. As the samples were taken from the field to the laboratory by courier, custody seals were not necessary. The 24-hour hexavalent chromium analytical holding time was met.	No qualifications were required.
3. Method Blanks 6B23063-BLK1 6B28082-BLK1	Hexavalent chromium was detected in 6B23063-BLK1, but was not detected in the associated site sample. Hexavalent chromium was reported in 6B28082-BLK1 at –0.20 mg/kg and in the ICB and bracketing CCBs at -0.00562, -0.00588, -0.00498, and -0.00652 mg/L.	Nondetected hexavalent chromium in MJ639, MJ640, and MJ642 was qualified as estimated, "UJ," and hexavalent chromium detected in MJ641 was qualified as estimated, "J."
5. LCS/BS 6B23063-BS1 6B28082-BS1	The recoveries were within the laboratory-established control limits of 80-120%.	No qualifications were required.

	Findings	Qualifications
6. Duplicates None	None	None
7. MS/MSDs None	None	None
10. Other	None	None
11. Field QC Samples Field blanks: None Equipment rinsates: None Field duplicates: MJ640/MJ641	There were no field QC samples associated with the samples in this SDG. Hexavalent chromium was detected below the reporting limit in MJ641 but was not detected in MJ640.	No qualifications were required.
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only, and raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed include initial and continuing calibration and continuing calibration blanks.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Rev Qual	Qual Code
Sample ID: IPB1641-15 (MJ654 - Soil)										
Reporting Units: %										
Percent Solids	EPA 160.3 MOD	6B21094	0.10	0.10	**96**	1	02/21/06	02/21/06	*	
Sample ID: IPB1641-02 (MJ638 - Soil)										
Reporting Units: mg/kg dry										
Chromium VI	EPA 7196A	6B23063	0.028	1.1	ND	1	02/23/06	02/23/06	U	
Sample ID: IPB1641-03 (MJ639 - Soil)									*	
Reporting Units: mg/kg dry										
Chromium VI	EPA 7196A	6B28082	0.029	1.1	ND	1	02/28/06	02/28/06	UJ	B
Sample ID: IPB1641-04 (MJ640 - Soil)										
Reporting Units: mg/kg dry										
Chromium VI	EPA 7196A	6B28082	0.027	1.0	ND	1	02/28/06	02/28/06		
Sample ID: IPB1641-05 (MJ641 - Soil)										
Reporting Units: mg/kg dry										
Chromium VI	EPA 7196A	6B28082	0.027	1.0	**0.21**	1	02/28/06	02/28/06	J J	B
Sample ID: IPB1641-06 (MJ642 - Soil)										
Reporting Units: mg/kg dry										
Chromium VI	EPA 7196A	6B28082	0.029	1.1	ND	1	02/28/06	02/28/06	UJ	B

Am 3/20/06

* Analysis not validated

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL IV

12269 East Vassar Drive, Aurora, CO 80014
303.881.6816, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title: Boeing SSFL RFI, Group 6 Data Gap
Project Manager: D. Hambrick
Analysis/Method: Volatiles by Method 8260B
QC Level: V[1]
SDG: IPB1641
Matrix: Soil/Water
No. of Samples: 5
No. of Reanalyses: 0
Date Reviewed: March 17, 2006
Reviewer: L. Calvin
Reference: USEPA *Contract Laboratory Program National Functional Guidelines For Organic Data Review* (2/94)
Samples Reviewed: MJ639, MJ642, MJ643, MJ646, MJ647

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C, at 4°C. The COC was signed and dated by field and laboratory personnel and accounted for the analyses presented in this SDG. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary.	No qualifications were required.
	The soil and water samples were analyzed within 14 days of collection. Both the COC and instrument run log indicated the water samples were preserved. The laboratory verified that unpreserved aliquots were inadvertently not provided for the analysis of 2-chloroethyl vinyl ether in water samples MJ646 and MJ647.	As target compound 2-chloroethyl vinyl ether cannot be recovered from samples preserved with HCl, the nondetect sample results for 2-chloroethyl vinyl ether were rejected, "R," in samples MJ646 and MJ647.
4. Method Blanks 06B20037-MB1 (soil) 06B24009-MB1 (water)	There were no target compounds detected in the associated method blanks.	No qualifications were required.

	Findings	Qualifications
5. LCS/BS 06B20037-BS1 (soil) 06B24009-BS1 (water)	The recoveries for both blank spikes were within the laboratory-established QC limits. Added target compounds 2-chloro-1,1,1-trifluoroethane and chlorotrifluoroethene were not included in the blank spikes (see section 10).	No qualifications were required.
6. Surrogates	The recoveries were within the laboratory-established QC limits.	No qualifications were required.
7. MS/MSDs None	MS/MSD analyses were not performed on the samples of this SDG.	No qualifications were required.
9. Field QC Samples TB: MJ646 FB: None ER: MJ647 FD: MJ642/MJ643	The trip blank had no target compound detects. Acetone and chloroform were detected in the equipment rinsate below the reporting limits at concentrations of 8.3 µg/L and 0.43 µg/L, respectively. Acetone was detected in associated site samples MJ642 and MJ643 at concentrations less than ten times that in the equipment rinsate. Chloroform was not detected in the associated site samples. The field duplicate samples had common detects for acetone, with an RPD of <100%. The pair was considered to be in good agreement.	Acetone detects in site samples MJ642 and MJ643 were qualified as estimated, "J," due to equipment rinsate contamination.
10. Other	Requested target compounds 2-chloro-1,1,1-trifluoroethane and chlorotrifluoroethene were searched for only as TICs. Soil sample results were reported in units of µg/Kg (ppb) on a dry-weight basis, and the water samples were reported in units of µg/L.	Results for 2-chloro-1,1,1-trifluoroethane and chlorotrifluoroethene (all nondetects) were qualified as estimated, "UJ," in the site samples.
Comments	None	None.

[1] Level V validation consists of cursory review of the summary forms and chromatograms, and raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed include instrument tunes, initial and continuing calibrations, compound identification, and compound quantification.

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17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
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MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-03 (MJ639 - Soil)									
Reporting Units: ng/kg dry									
Acetone	EPA 8260B	6B20037	6.4	9.1	ND	0.829	02/20/06	02/21/06	
Benzene	EPA 8260B	6B20037	0.46	1.8	ND	0.829	02/20/06	02/21/06	
Bromobenzene	EPA 8260B	6B20037	0.77	4.6	ND	0.829	02/20/06	02/21/06	
Bromochloromethane	EPA 8260B	6B20037	0.65	4.6	ND	0.829	02/20/06	02/21/06	
Bromodichloromethane	EPA 8260B	6B20037	0.38	1.8	ND	0.829	02/20/06	02/21/06	
Bromoform	EPA 8260B	6B20037	0.73	4.6	ND	0.829	02/20/06	02/21/06	
Bromomethane	EPA 8260B	6B20037	0.84	4.6	ND	0.829	02/20/06	02/21/06	
2-Butanone (MEK)	EPA 8260B	6B20037	5.5	9.1	ND	0.829	02/20/06	02/21/06	
n-Butylbenzene	EPA 8260B	6B20037	0.66	4.6	ND	0.829	02/20/06	02/21/06	
sec-Butylbenzene	EPA 8260B	6B20037	0.61	4.6	ND	0.829	02/20/06	02/21/06	
tert-Butylbenzene	EPA 8260B	6B20037	0.57	4.6	ND	0.829	02/20/06	02/21/06	
Carbon tetrachloride	EPA 8260B	6B20037	0.46	4.6	ND	0.829	02/20/06	02/21/06	
Chlorobenzene	EPA 8260B	6B20037	0.47	1.8	ND	0.829	02/20/06	02/21/06	
Chloroethane	EPA 8260B	6B20037	1.4	4.6	ND	0.829	02/20/06	02/21/06	
2-Chloroethyl vinyl ether	EPA 8260B	6B20037	3.5	4.6	ND	0.829	02/20/06	02/21/06	
Chloroform	EPA 8260B	6B20037	0.37	1.8	ND	0.829	02/20/06	02/21/06	
Chloromethane	EPA 8260B	6B20037	0.91	4.6	ND	0.829	02/20/06	02/21/06	
2-Chlorotoluene	EPA 8260B	6B20037	0.79	4.6	ND	0.829	02/20/06	02/21/06	
4-Chlorotoluene	EPA 8260B	6B20037	0.68	4.6	ND	0.829	02/20/06	02/21/06	
Dibromochloromethane	EPA 8260B	6B20037	0.51	1.8	ND	0.829	02/20/06	02/21/06	
1,2-Dibromo-3-chloropropane	EPA 8260B	6B20037	1.4	4.6	ND	0.829	02/20/06	02/21/06	
1,2-Dibromoethane (EDB)	EPA 8260B	6B20037	0.73	1.8	ND	0.829	02/20/06	02/21/06	
Dibromomethane	EPA 8260B	6B20037	0.57	1.8	ND	0.829	02/20/06	02/21/06	
1,2-Dichlorobenzene	EPA 8260B	6B20037	0.87	1.8	ND	0.829	02/20/06	02/21/06	
1,3-Dichlorobenzene	EPA 8260B	6B20037	0.77	1.8	ND	0.829	02/20/06	02/21/06	
1,4-Dichlorobenzene	EPA 8260B	6B20037	0.86	1.8	ND	0.829	02/20/06	02/21/06	
Dichlorodifluoromethane	EPA 8260B	6B20037	1.4	4.6	ND	0.829	02/20/06	02/21/06	
1,1-Dichloroethane	EPA 8260B	6B20037	0.34	1.8	ND	0.829	02/20/06	02/21/06	
1,2-Dichloroethane	EPA 8260B	6B20037	0.73	1.8	ND	0.829	02/20/06	02/21/06	
1,1-Dichloroethene	EPA 8260B	6B20037	0.41	4.6	ND	0.829	02/20/06	02/21/06	
cis-1,2-Dichloroethene	EPA 8260B	6B20037	0.76	1.8	ND	0.829	02/20/06	02/21/06	
trans-1,2-Dichloroethene	EPA 8260B	6B20037	0.37	1.8	ND	0.829	02/20/06	02/21/06	
1,2-Dichloropropane	EPA 8260B	6B20037	0.32	1.8	ND	0.829	02/20/06	02/21/06	
1,3-Dichloropropane	EPA 8260B	6B20037	0.58	1.8	ND	0.829	02/20/06	02/21/06	
2,2-Dichloropropane	EPA 8260B	6B20037	0.41	1.8	ND	0.829	02/20/06	02/21/06	
1,1-Dichloropropene	EPA 8260B	6B20037	0.30	1.8	ND	0.829	02/20/06	02/21/06	
cis-1,3-Dichloropropene	EPA 8260B	6B20037	0.40	1.8	ND	0.829	02/20/06	02/21/06	
trans-1,3-Dichloropropene	EPA 8260B	6B20037	0.56	1.8	ND	0.829	02/20/06	02/21/06	
Ethylbenzene	EPA 8260B	6B20037	0.46	1.8	ND	0.829	02/20/06	02/21/06	
Hexachlorobutadiene	EPA 8260B	6B20037	0.67	4.6	ND	0.829	02/20/06	02/21/06	
2-Hexanone	EPA 8260B	6B20037	8.3	9.1	ND	0.829	02/20/06	02/21/06	

vel qual qual code

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level IV

Del Mar Analytical

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Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
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VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-03 (MJ639 - Soil) - cont.									
Reporting Units: ug/kg dry									
Isopropylbenzene	EPA 8260B	6B20037	0.49	1.8	ND	0.829	02/20/06	02/21/06	U
p-Isopropyltoluene	EPA 8260B	6B20037	0.66	1.8	ND	0.829	02/20/06	02/21/06	
Methylene chloride	EPA 8260B	6B20037	5.9	18	ND	0.829	02/20/06	02/21/06	
4-Methyl-2-pentanone (MIBK)	EPA 8260B	6B20037	2.9	4.6	ND	0.829	02/20/06	02/21/06	
Methyl-tert-butyl Ether (MTBE)	EPA 8260B	6B20037	0.91	4.6	ND	0.829	02/20/06	02/21/06	
Naphthalene	EPA 8260B	6B20037	1.0	4.6	ND	0.829	02/20/06	02/21/06	
n-Propylbenzene	EPA 8260B	6B20037	0.56	1.8	ND	0.829	02/20/06	02/21/06	
Styrene	EPA 8260B	6B20037	0.53	1.8	ND	0.829	02/20/06	02/21/06	
1,1,1,2-Tetrachloroethane	EPA 8260B	6B20037	0.52	4.6	ND	0.829	02/20/06	02/21/06	
1,1,2,2-Tetrachloroethane	EPA 8260B	6B20037	0.79	1.8	ND	0.829	02/20/06	02/21/06	
Tetrachloroethene	EPA 8260B	6B20037	0.45	1.8	ND	0.829	02/20/06	02/21/06	
Toluene	EPA 8260B	6B20037	0.46	1.8	ND	0.829	02/20/06	02/21/06	
1,2,3-Trichlorobenzene	EPA 8260B	6B20037	0.91	4.6	ND	0.829	02/20/06	02/21/06	
1,2,4-Trichlorobenzene	EPA 8260B	6B20037	0.91	4.6	ND	0.829	02/20/06	02/21/06	
1,1,1-Trichloroethane	EPA 8260B	6B20037	0.36	1.8	ND	0.829	02/20/06	02/21/06	
1,1,2-Trichloroethane	EPA 8260B	6B20037	0.79	1.8	ND	0.829	02/20/06	02/21/06	
Trichloroethene	EPA 8260B	6B20037	0.31	1.8	ND	0.829	02/20/06	02/21/06	
Trichlorofluoromethane	EPA 8260B	6B20037	0.49	4.6	ND	0.829	02/20/06	02/21/06	
1,2,3-Trichloropropane	EPA 8260B	6B20037	0.91	9.1	ND	0.829	02/20/06	02/21/06	
1,2,4-Trimethylbenzene	EPA 8260B	6B20037	0.71	1.8	ND	0.829	02/20/06	02/21/06	
1,3,5-Trimethylbenzene	EPA 8260B	6B20037	0.58	1.8	ND	0.829	02/20/06	02/21/06	
Vinyl chloride	EPA 8260B	6B20037	0.83	1.8	ND	0.829	02/20/06	02/21/06	
o-Xylene	EPA 8260B	6B20037	0.46	1.8	ND	0.829	02/20/06	02/21/06	
m,p-Xylenes	EPA 8260B	6B20037	0.73	1.8	ND	0.829	02/20/06	02/21/06	
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	6B20037	1.8	4.6	ND	0.829	02/20/06	02/21/06	
Surrogate: Dibromofluoromethane (80-125%)					*114 %*				
Surrogate: Toluene-d8 (80-120%)					*114 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*104 %*				

very qual qual code

Level V

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Project Manager

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VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-06 (MJ642 - Soil)									
Reporting Units: ug/kg dry									
Acetone	EPA 8260B	6B20037	7.5	11	**32**	0.965	02/20/06	02/21/06	J
Benzene	EPA 8260B	6B20037	0.54	2.2	ND	0.965	02/20/06	02/21/06	U
Bromobenzene	EPA 8260B	6B20037	0.90	5.4	ND	0.965	02/20/06	02/21/06	
Bromochloromethane	EPA 8260B	6B20037	0.76	5.4	ND	0.965	02/20/06	02/21/06	
Bromodichloromethane	EPA 8260B	6B20037	0.45	2.2	ND	0.965	02/20/06	02/21/06	
Bromoform	EPA 8260B	6B20037	0.86	5.4	ND	0.965	02/20/06	02/21/06	
Bromomethane	EPA 8260B	6B20037	0.99	5.4	ND	0.965	02/20/06	02/21/06	
2-Butanone (MEK)	EPA 8260B	6B20037	6.5	11	ND	0.965	02/20/06	02/21/06	
n-Butylbenzene	EPA 8260B	6B20037	0.77	5.4	ND	0.965	02/20/06	02/21/06	
sec-Butylbenzene	EPA 8260B	6B20037	0.72	5.4	ND	0.965	02/20/06	02/21/06	
tert-Butylbenzene	EPA 8260B	6B20037	0.67	5.4	ND	0.965	02/20/06	02/21/06	
Carbon tetrachloride	EPA 8260B	6B20037	0.54	5.4	ND	0.965	02/20/06	02/21/06	
Chlorobenzene	EPA 8260B	6B20037	0.56	2.2	ND	0.965	02/20/06	02/21/06	
Chloroethane	EPA 8260B	6B20037	1.6	5.4	ND	0.965	02/20/06	02/21/06	
2-Chloroethyl vinyl ether	EPA 8260B	6B20037	4.1	5.4	ND	0.965	02/20/06	02/21/06	
Chloroform	EPA 8260B	6B20037	0.43	2.2	ND	0.965	02/20/06	02/21/06	
Chloromethane	EPA 8260B	6B20037	1.1	5.4	ND	0.965	02/20/06	02/21/06	
2-Chlorotoluene	EPA 8260B	6B20037	0.94	5.4	ND	0.965	02/20/06	02/21/06	
4-Chlorotoluene	EPA 8260B	6B20037	0.80	5.4	ND	0.965	02/20/06	02/21/06	
Dibromochloromethane	EPA 8260B	6B20037	0.60	2.2	ND	0.965	02/20/06	02/21/06	
1,2-Dibromo-3-chloropropane	EPA 8260B	6B20037	1.6	5.4	ND	0.965	02/20/06	02/21/06	
1,2-Dibromoethane (EDB)	EPA 8260B	6B20037	0.86	2.2	ND	0.965	02/20/06	02/21/06	
Dibromomethane	EPA 8260B	6B20037	0.67	2.2	ND	0.965	02/20/06	02/21/06	
1,2-Dichlorobenzene	EPA 8260B	6B20037	1.0	2.2	ND	0.965	02/20/06	02/21/06	
1,3-Dichlorobenzene	EPA 8260B	6B20037	0.90	2.2	ND	0.965	02/20/06	02/21/06	
1,4-Dichlorobenzene	EPA 8260B	6B20037	1.0	2.2	ND	0.965	02/20/06	02/21/06	
Dichlorodifluoromethane	EPA 8260B	6B20037	1.6	5.4	ND	0.965	02/20/06	02/21/06	
1,1-Dichloroethane	EPA 8260B	6B20037	0.40	2.2	ND	0.965	02/20/06	02/21/06	
1,2-Dichloroethane	EPA 8260B	6B20037	0.86	2.2	ND	0.965	02/20/06	02/21/06	
1,1-Dichloroethene	EPA 8260B	6B20037	0.48	5.4	ND	0.965	02/20/06	02/21/06	
cis-1,2-Dichloroethene	EPA 8260B	6B20037	0.89	2.2	ND	0.965	02/20/06	02/21/06	
trans-1,2-Dichloroethene	EPA 8260B	6B20037	0.44	2.2	ND	0.965	02/20/06	02/21/06	
1,2-Dichloropropane	EPA 8260B	6B20037	0.38	2.2	ND	0.965	02/20/06	02/21/06	
1,3-Dichloropropane	EPA 8260B	6B20037	0.68	2.2	ND	0.965	02/20/06	02/21/06	
2,2-Dichloropropane	EPA 8260B	6B20037	0.48	2.2	ND	0.965	02/20/06	02/21/06	
1,1-Dichloropropene	EPA 8260B	6B20037	0.36	2.2	ND	0.965	02/20/06	02/21/06	
cis-1,3-Dichloropropene	EPA 8260B	6B20037	0.47	2.2	ND	0.965	02/20/06	02/21/06	
trans-1,3-Dichloropropene	EPA 8260B	6B20037	0.66	2.2	ND	0.965	02/20/06	02/21/06	
Ethylbenzene	EPA 8260B	6B20037	0.54	2.2	ND	0.965	02/20/06	02/21/06	
Hexachlorobutadiene	EPA 8260B	6B20037	0.79	5.4	ND	0.965	02/20/06	02/21/06	
2-Hexanone	EPA 8260B	6B20037	9.8	11	ND	0.965	02/20/06	02/21/06	

qual | qual code

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Level II

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
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Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-06 (MJ642 - Soil) - cont.									
Reporting Units: ug/kg dry									
Isopropylbenzene	EPA 8260B	6B20037	0.58	2.2	ND	0.965	02/20/06	02/21/06	
p-Isopropyltoluene	EPA 8260B	6B20037	0.77	2.2	ND	0.965	02/20/06	02/21/06	
Methylene chloride	EPA 8260B	6B20037	7.0	22	ND	0.965	02/20/06	02/21/06	
4-Methyl-2-pentanone (MIBK)	EPA 8260B	6B20037	3.4	5.4	ND	0.965	02/20/06	02/21/06	
Methyl-tert-butyl Ether (MTBE)	EPA 8260B	6B20037	1.1	5.4	ND	0.965	02/20/06	02/21/06	
Naphthalene	EPA 8260B	6B20037	1.2	5.4	ND	0.965	02/20/06	02/21/06	
n-Propylbenzene	EPA 8260B	6B20037	0.66	2.2	ND	0.965	02/20/06	02/21/06	
Styrene	EPA 8260B	6B20037	0.62	2.2	ND	0.965	02/20/06	02/21/06	
1,1,1,2-Tetrachloroethane	EPA 8260B	6B20037	0.61	5.4	ND	0.965	02/20/06	02/21/06	
1,1,2,2-Tetrachloroethane	EPA 8260B	6B20037	0.93	2.2	ND	0.965	02/20/06	02/21/06	
Tetrachloroethene	EPA 8260B	6B20037	0.53	2.2	ND	0.965	02/20/06	02/21/06	
Toluene	EPA 8260B	6B20037	0.54	2.2	ND	0.965	02/20/06	02/21/06	
1,2,3-Trichlorobenzene	EPA 8260B	6B20037	1.1	5.4	ND	0.965	02/20/06	02/21/06	
1,2,4-Trichlorobenzene	EPA 8260B	6B20037	1.1	5.4	ND	0.965	02/20/06	02/21/06	
1,1,1-Trichloroethane	EPA 8260B	6B20037	0.42	2.2	ND	0.965	02/20/06	02/21/06	
1,1,2-Trichloroethane	EPA 8260B	6B20037	0.94	2.2	ND	0.965	02/20/06	02/21/06	
Trichloroethene	EPA 8260B	6B20037	0.37	2.2	ND	0.965	02/20/06	02/21/06	
Trichlorofluoromethane	EPA 8260B	6B20037	0.58	5.4	ND	0.965	02/20/06	02/21/06	
1,2,3-Trichloropropane	EPA 8260B	6B20037	1.1	11	ND	0.965	02/20/06	02/21/06	
1,2,4-Trimethylbenzene	EPA 8260B	6B20037	0.84	2.2	ND	0.965	02/20/06	02/21/06	
1,3,5-Trimethylbenzene	EPA 8260B	6B20037	0.68	2.2	ND	0.965	02/20/06	02/21/06	
Vinyl chloride	EPA 8260B	6B20037	0.98	2.2	ND	0.965	02/20/06	02/21/06	
o-Xylene	EPA 8260B	6B20037	0.54	2.2	ND	0.965	02/20/06	02/21/06	
m,p-Xylenes	EPA 8260B	6B20037	0.86	2.2	ND	0.965	02/20/06	02/21/06	
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	6B20037	2.2	5.4	ND	0.965	02/20/06	02/21/06	
Surrogate: Dibromofluoromethane (80-125%)					*116 %*				
Surrogate: Toluene-d8 (80-120%)					*114 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*97 %*				

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-07 (MJ643 - Soil)									
Reporting Units: ug/kg dry									
Acetone	EPA 8260B	6B20037	7.0	10	22	0.916	02/20/06	02/21/06	J
Benzene	EPA 8260B	6B20037	0.50	2.0	ND	0.916	02/20/06	02/21/06	U
Bromobenzene	EPA 8260B	6B20037	0.84	5.0	ND	0.916	02/20/06	02/21/06	
Bromochloromethane	EPA 8260B	6B20037	0.71	5.0	ND	0.916	02/20/06	02/21/06	
Bromodichloromethane	EPA 8260B	6B20037	0.42	2.0	ND	0.916	02/20/06	02/21/06	
Bromoform	EPA 8260B	6B20037	0.80	5.0	ND	0.916	02/20/06	02/21/06	
Bromomethane	EPA 8260B	6B20037	0.92	5.0	ND	0.916	02/20/06	02/21/06	
2-Butanone (MEK)	EPA 8260B	6B20037	6.0	10	ND	0.916	02/20/06	02/21/06	
n-Butylbenzene	EPA 8260B	6B20037	0.72	5.0	ND	0.916	02/20/06	02/21/06	
sec-Butylbenzene	EPA 8260B	6B20037	0.67	5.0	ND	0.916	02/20/06	02/21/06	
tert-Butylbenzene	EPA 8260B	6B20037	0.62	5.0	ND	0.916	02/20/06	02/21/06	
Carbon tetrachloride	EPA 8260B	6B20037	0.50	5.0	ND	0.916	02/20/06	02/21/06	
Chlorobenzene	EPA 8260B	6B20037	0.52	2.0	ND	0.916	02/20/06	02/21/06	
Chloroethane	EPA 8260B	6B20037	1.5	5.0	ND	0.916	02/20/06	02/21/06	
2-Chloroethyl vinyl ether	EPA 8260B	6B20037	3.8	5.0	ND	0.916	02/20/06	02/21/06	
Chloroform	EPA 8260B	6B20037	0.40	2.0	ND	0.916	02/20/06	02/21/06	
Chloromethane	EPA 8260B	6B20037	1.0	5.0	ND	0.916	02/20/06	02/21/06	
2-Chlorotoluene	EPA 8260B	6B20037	0.87	5.0	ND	0.916	02/20/06	02/21/06	
4-Chlorotoluene	EPA 8260B	6B20037	0.74	5.0	ND	0.916	02/20/06	02/21/06	
Dibromochloromethane	EPA 8260B	6B20037	0.56	2.0	ND	0.916	02/20/06	02/21/06	
1,2-Dibromo-3-chloropropane	EPA 8260B	6B20037	1.5	5.0	ND	0.916	02/20/06	02/21/06	
1,2-Dibromoethane (EDB)	EPA 8260B	6B20037	0.80	2.0	ND	0.916	02/20/06	02/21/06	
Dibromomethane	EPA 8260B	6B20037	0.62	2.0	ND	0.916	02/20/06	02/21/06	
1,2-Dichlorobenzene	EPA 8260B	6B20037	0.95	2.0	ND	0.916	02/20/06	02/21/06	
1,3-Dichlorobenzene	EPA 8260B	6B20037	0.84	2.0	ND	0.916	02/20/06	02/21/06	
1,4-Dichlorobenzene	EPA 8260B	6B20037	0.94	2.0	ND	0.916	02/20/06	02/21/06	
Dichlorodifluoromethane	EPA 8260B	6B20037	1.5	5.0	ND	0.916	02/20/06	02/21/06	
1,1-Dichloroethane	EPA 8260B	6B20037	0.37	2.0	ND	0.916	02/20/06	02/21/06	
1,2-Dichloroethane	EPA 8260B	6B20037	0.80	2.0	ND	0.916	02/20/06	02/21/06	
1,1-Dichloroethene	EPA 8260B	6B20037	0.45	5.0	ND	0.916	02/20/06	02/21/06	
cis-1,2-Dichloroethene	EPA 8260B	6B20037	0.83	2.0	ND	0.916	02/20/06	02/21/06	
trans-1,2-Dichloroethene	EPA 8260B	6B20037	0.41	2.0	ND	0.916	02/20/06	02/21/06	
1,2-Dichloropropane	EPA 8260B	6B20037	0.35	2.0	ND	0.916	02/20/06	02/21/06	
1,3-Dichloropropane	EPA 8260B	6B20037	0.63	2.0	ND	0.916	02/20/06	02/21/06	
2,2-Dichloropropane	EPA 8260B	6B20037	0.45	2.0	ND	0.916	02/20/06	02/21/06	
1,1-Dichloropropene	EPA 8260B	6B20037	0.33	2.0	ND	0.916	02/20/06	02/21/06	
cis-1,3-Dichloropropene	EPA 8260B	6B20037	0.44	2.0	ND	0.916	02/20/06	02/21/06	
trans-1,3-Dichloropropene	EPA 8260B	6B20037	0.61	2.0	ND	0.916	02/20/06	02/21/06	
Ethylbenzene	EPA 8260B	6B20037	0.50	2.0	ND	0.916	02/20/06	02/21/06	
Hexachlorobutadiene	EPA 8260B	6B20037	0.73	5.0	ND	0.916	02/20/06	02/21/06	
2-Hexanone	EPA 8260B	6B20037	9.1	10	ND	0.916	02/20/06	02/21/06	

rev qual code

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-07 (MJ643 - Soil) - cont.									
Reporting Units: ug/kg dry									
Isopropylbenzene	EPA 8260B	6B20037	0.54	2.0	ND	0.916	02/20/06	02/21/06	U
p-Isopropyltoluene	EPA 8260B	6B20037	0.72	2.0	ND	0.916	02/20/06	02/21/06	
Methylene chloride	EPA 8260B	6B20037	6.5	20	ND	0.916	02/20/06	02/21/06	
4-Methyl-2-pentanone (MIBK)	EPA 8260B	6B20037	3.2	5.0	ND	0.916	02/20/06	02/21/06	
Methyl-tert-butyl Ether (MTBE)	EPA 8260B	6B20037	1.0	5.0	ND	0.916	02/20/06	02/21/06	
Naphthalene	EPA 8260B	6B20037	1.1	5.0	ND	0.916	02/20/06	02/21/06	
n-Propylbenzene	EPA 8260B	6B20037	0.61	2.0	ND	0.916	02/20/06	02/21/06	
Styrene	EPA 8260B	6B20037	0.58	2.0	ND	0.916	02/20/06	02/21/06	
1,1,1,2-Tetrachloroethane	EPA 8260B	6B20037	0.57	5.0	ND	0.916	02/20/06	02/21/06	
1,1,2,2-Tetrachloroethane	EPA 8260B	6B20037	0.86	2.0	ND	0.916	02/20/06	02/21/06	
Tetrachloroethene	EPA 8260B	6B20037	0.49	2.0	ND	0.916	02/20/06	02/21/06	
Toluene	EPA 8260B	6B20037	0.50	2.0	ND	0.916	02/20/06	02/21/06	
1,2,3-Trichlorobenzene	EPA 8260B	6B20037	1.0	5.0	ND	0.916	02/20/06	02/21/06	
1,2,4-Trichlorobenzene	EPA 8260B	6B20037	1.0	5.0	ND	0.916	02/20/06	02/21/06	
1,1,1-Trichloroethane	EPA 8260B	6B20037	0.39	2.0	ND	0.916	02/20/06	02/21/06	
1,1,2-Trichloroethane	EPA 8260B	6B20037	0.87	2.0	ND	0.916	02/20/06	02/21/06	
Trichloroethene	EPA 8260B	6B20037	0.34	2.0	ND	0.916	02/20/06	02/21/06	
Trichlorofluoromethane	EPA 8260B	6B20037	0.54	5.0	ND	0.916	02/20/06	02/21/06	
1,2,3-Trichloropropane	EPA 8260B	6B20037	1.0	10	ND	0.916	02/20/06	02/21/06	
1,2,4-Trimethylbenzene	EPA 8260B	6B20037	0.78	2.0	ND	0.916	02/20/06	02/21/06	
1,3,5-Trimethylbenzene	EPA 8260B	6B20037	0.63	2.0	ND	0.916	02/20/06	02/21/06	
Vinyl chloride	EPA 8260B	6B20037	0.91	2.0	ND	0.916	02/20/06	02/21/06	
o-Xylene	EPA 8260B	6B20037	0.50	2.0	ND	0.916	02/20/06	02/21/06	
m,p-Xylenes	EPA 8260B	6B20037	0.80	2.0	ND	0.916	02/20/06	02/21/06	
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	6B20037	2.0	5.0	ND	0.916	02/20/06	02/21/06	
Surrogate: Dibromofluoromethane (80-125%)					*121 %*				
Surrogate: Toluene-d8 (80-120%)					*114 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*96 %*				

vel qual | qual code

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level II

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Del Mar Analytical

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

VOLATILE ORGANICS with KETONES by GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-10 (MJ646 - Water)									
Reporting Units: ug/l									
Acetone	EPA 8260B	6B24009	4.5	10	ND	1	02/24/06	02/24/06	U
Benzene	EPA 8260B	6B24009	0.28	2.0	ND	1	02/24/06	02/24/06	
Bromobenzene	EPA 8260B	6B24009	0.27	5.0	ND	1	02/24/06	02/24/06	
Bromochloromethane	EPA 8260B	6B24009	0.32	5.0	ND	1	02/24/06	02/24/06	
Bromodichloromethane	EPA 8260B	6B24009	0.30	2.0	ND	1	02/24/06	02/24/06	
Bromoform	EPA 8260B	6B24009	0.32	5.0	ND	1	02/24/06	02/24/06	
Bromomethane	EPA 8260B	6B24009	0.42	5.0	ND	1	02/24/06	02/24/06	
2-Butanone (MEK)	EPA 8260B	6B24009	3.8	10	ND	1	02/24/06	02/24/06	
n-Butylbenzene	EPA 8260B	6B24009	0.37	5.0	ND	1	02/24/06	02/24/06	
sec-Butylbenzene	EPA 8260B	6B24009	0.25	5.0	ND	1	02/24/06	02/24/06	
tert-Butylbenzene	EPA 8260B	6B24009	0.22	5.0	ND	1	02/24/06	02/24/06	
Carbon tetrachloride	EPA 8260B	6B24009	0.28	5.0	ND	1	02/24/06	02/24/06	
Chlorobenzene	EPA 8260B	6B24009	0.36	2.0	ND	1	02/24/06	02/24/06	
Chloroethane	EPA 8260B	6B24009	0.40	5.0	ND	1	02/24/06	02/24/06	
Chloroform	EPA 8260B	6B24009	0.33	2.0	ND	1	02/24/06	02/24/06	
Chloromethane	EPA 8260B	6B24009	0.30	5.0	ND	1	02/24/06	02/24/06	
2-Chlorotoluene	EPA 8260B	6B24009	0.28	5.0	ND	1	02/24/06	02/24/06	
4-Chlorotoluene	EPA 8260B	6B24009	0.29	5.0	ND	1	02/24/06	02/24/06	
Dibromochloromethane	EPA 8260B	6B24009	0.28	2.0	ND	1	02/24/06	02/24/06	
1,2-Dibromo-3-chloropropane	EPA 8260B	6B24009	0.92	5.0	ND	1	02/24/06	02/24/06	
1,2-Dibromoethane (EDB)	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
Dibromomethane	EPA 8260B	6B24009	0.36	2.0	ND	1	02/24/06	02/24/06	
1,2-Dichlorobenzene	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
1,3-Dichlorobenzene	EPA 8260B	6B24009	0.35	2.0	ND	1	02/24/06	02/24/06	
1,4-Dichlorobenzene	EPA 8260B	6B24009	0.37	2.0	ND	1	02/24/06	02/24/06	
Dichlorodifluoromethane	EPA 8260B	6B24009	0.79	5.0	ND	1	02/24/06	02/24/06	
1,1-Dichloroethane	EPA 8260B	6B24009	0.27	2.0	ND	1	02/24/06	02/24/06	
1,2-Dichloroethane	EPA 8260B	6B24009	0.28	2.0	ND	1	02/24/06	02/24/06	
1,1-Dichloroethene	EPA 8260B	6B24009	0.42	5.0	ND	1	02/24/06	02/24/06	
cis-1,2-Dichloroethene	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
trans-1,2-Dichloroethene	EPA 8260B	6B24009	0.27	2.0	ND	1	02/24/06	02/24/06	
1,2-Dichloropropane	EPA 8260B	6B24009	0.35	2.0	ND	1	02/24/06	02/24/06	
1,3-Dichloropropane	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
2,2-Dichloropropane	EPA 8260B	6B24009	0.34	2.0	ND	1	02/24/06	02/24/06	
1,1-Dichloropropene	EPA 8260B	6B24009	0.28	2.0	ND	1	02/24/06	02/24/06	
cis-1,3-Dichloropropene	EPA 8260B	6B24009	0.22	2.0	ND	1	02/24/06	02/24/06	
trans-1,3-Dichloropropene	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
Ethylbenzene	EPA 8260B	6B24009	0.25	2.0	ND	1	02/24/06	02/24/06	
Hexachlorobutadiene	EPA 8260B	6B24009	0.38	5.0	ND	1	02/24/06	02/24/06	
2-Hexanone	EPA 8260B	6B24009	2.6	10	ND	1	02/24/06	02/24/06	
Isopropylbenzene	EPA 8260B	6B24009	0.25	2.0	ND	1	02/24/06	02/24/06	

ver qual | qual code

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level IV

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

VOLATILE ORGANICS with KETONES by GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-10 (MJ646 - Water) - cont.									
Reporting Units: ug/l									
p-Isopropyltoluene	EPA 8260B	6B24009	0.28	2.0	ND	1	02/24/06	02/24/06	U
Methylene chloride	EPA 8260B	6B24009	0.70	5.0	ND	1	02/24/06	02/24/06	
4-Methyl-2-pentanone (MIBK)	EPA 8260B	6B24009	3.5	10	ND	1	02/24/06	02/24/06	
Methyl-tert-butyl Ether (MTBE)	EPA 8260B	6B24009	0.32	5.0	ND	1	02/24/06	02/24/06	
Naphthalene	EPA 8260B	6B24009	0.41	5.0	ND	1	02/24/06	02/24/06	
n-Propylbenzene	EPA 8260B	6B24009	0.27	2.0	ND	1	02/24/06	02/24/06	
Styrene	EPA 8260B	6B24009	0.16	2.0	ND	1	02/24/06	02/24/06	
1,1,1,2-Tetrachloroethane	EPA 8260B	6B24009	0.27	5.0	ND	1	02/24/06	02/24/06	
1,1,2,2-Tetrachloroethane	EPA 8260B	6B24009	0.24	2.0	ND	1	02/24/06	02/24/06	
Tetrachloroethene	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
Toluene	EPA 8260B	6B24009	0.36	2.0	ND	1	02/24/06	02/24/06	
1,2,3-Trichlorobenzene	EPA 8260B	6B24009	0.45	5.0	ND	1	02/24/06	02/24/06	
1,2,4-Trichlorobenzene	EPA 8260B	6B24009	0.48	5.0	ND	1	02/24/06	02/24/06	
1,1,1-Trichloroethane	EPA 8260B	6B24009	0.30	2.0	ND	1	02/24/06	02/24/06	
1,1,2-Trichloroethane	EPA 8260B	6B24009	0.30	2.0	ND	1	02/24/06	02/24/06	
Trichloroethene	EPA 8260B	6B24009	0.26	2.0	ND	1	02/24/06	02/24/06	
Trichlorofluoromethane	EPA 8260B	6B24009	0.34	5.0	ND	1	02/24/06	02/24/06	
1,2,3-Trichloropropane	EPA 8260B	6B24009	0.40	10	ND	1	02/24/06	02/24/06	
1,2,4-Trimethylbenzene	EPA 8260B	6B24009	0.23	2.0	ND	1	02/24/06	02/24/06	
1,3,5-Trimethylbenzene	EPA 8260B	6B24009	0.26	2.0	ND	1	02/24/06	02/24/06	
Vinyl chloride	EPA 8260B	6B24009	0.26	5.0	ND	1	02/24/06	02/24/06	
o-Xylene	EPA 8260B	6B24009	0.30	2.0	ND	1	02/24/06	02/24/06	
m,p-Xylenes	EPA 8260B	6B24009	0.60	2.0	ND	1	02/24/06	02/24/06	
Xylenes, Total	EPA 8260B	6B24009	0.90	2.0	ND	1	02/24/06	02/24/06	
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	6B24009	1.2	5.0	ND	1	02/24/06	02/24/06	
Surrogate: Dibromofluoromethane (80-120%)					*111 %*				
Surrogate: Toluene-d8 (80-120%)					*112 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*97 %*				

yellow qual | qual code

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level II

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

VOLATILE ORGANICS with KETONES by GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers (lev qual / qual code)
Sample ID: IPB1641-11 (MJ647 - Water)									
Reporting Units: ug/l									
Acetone	EPA 8260B	6B24009	4.5	10	**8.3**	1	02/24/06	02/24/06	J / J
Benzene	EPA 8260B	6B24009	0.28	2.0	ND	1	02/24/06	02/24/06	U
Bromobenzene	EPA 8260B	6B24009	0.27	5.0	ND	1	02/24/06	02/24/06	
Bromochloromethane	EPA 8260B	6B24009	0.32	5.0	ND	1	02/24/06	02/24/06	
Bromodichloromethane	EPA 8260B	6B24009	0.30	2.0	ND	1	02/24/06	02/24/06	
Bromoform	EPA 8260B	6B24009	0.32	5.0	ND	1	02/24/06	02/24/06	
Bromomethane	EPA 8260B	6B24009	0.42	5.0	ND	1	02/24/06	02/24/06	
2-Butanone (MEK)	EPA 8260B	6B24009	3.8	10	ND	1	02/24/06	02/24/06	
n-Butylbenzene	EPA 8260B	6B24009	0.37	5.0	ND	1	02/24/06	02/24/06	
sec-Butylbenzene	EPA 8260B	6B24009	0.25	5.0	ND	1	02/24/06	02/24/06	
tert-Butylbenzene	EPA 8260B	6B24009	0.22	5.0	ND	1	02/24/06	02/24/06	
Carbon tetrachloride	EPA 8260B	6B24009	0.28	5.0	ND	1	02/24/06	02/24/06	
Chlorobenzene	EPA 8260B	6B24009	0.36	2.0	ND	1	02/24/06	02/24/06	
Chloroethane	EPA 8260B	6B24009	0.40	5.0	ND	1	02/24/06	02/24/06	
Chloroform	EPA 8260B	6B24009	0.33	2.0	**0.43**	1	02/24/06	02/24/06	J / J
Chloromethane	EPA 8260B	6B24009	0.30	5.0	ND	1	02/24/06	02/24/06	U
2-Chlorotoluene	EPA 8260B	6B24009	0.28	5.0	ND	1	02/24/06	02/24/06	
4-Chlorotoluene	EPA 8260B	6B24009	0.29	5.0	ND	1	02/24/06	02/24/06	
Dibromochloromethane	EPA 8260B	6B24009	0.28	2.0	ND	1	02/24/06	02/24/06	
1,2-Dibromo-3-chloropropane	EPA 8260B	6B24009	0.92	5.0	ND	1	02/24/06	02/24/06	
1,2-Dibromoethane (EDB)	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
Dibromomethane	EPA 8260B	6B24009	0.36	2.0	ND	1	02/24/06	02/24/06	
1,2-Dichlorobenzene	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
1,3-Dichlorobenzene	EPA 8260B	6B24009	0.35	2.0	ND	1	02/24/06	02/24/06	
1,4-Dichlorobenzene	EPA 8260B	6B24009	0.37	2.0	ND	1	02/24/06	02/24/06	
Dichlorodifluoromethane	EPA 8260B	6B24009	0.79	5.0	ND	1	02/24/06	02/24/06	
1,1-Dichloroethane	EPA 8260B	6B24009	0.27	2.0	ND	1	02/24/06	02/24/06	
1,2-Dichloroethane	EPA 8260B	6B24009	0.28	2.0	ND	1	02/24/06	02/24/06	
1,1-Dichloroethene	EPA 8260B	6B24009	0.42	5.0	ND	1	02/24/06	02/24/06	
cis-1,2-Dichloroethene	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
trans-1,2-Dichloroethene	EPA 8260B	6B24009	0.27	2.0	ND	1	02/24/06	02/24/06	
1,2-Dichloropropane	EPA 8260B	6B24009	0.35	2.0	ND	1	02/24/06	02/24/06	
1,3-Dichloropropane	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
2,2-Dichloropropane	EPA 8260B	6B24009	0.34	2.0	ND	1	02/24/06	02/24/06	
1,1-Dichloropropene	EPA 8260B	6B24009	0.28	2.0	ND	1	02/24/06	02/24/06	
cis-1,3-Dichloropropene	EPA 8260B	6B24009	0.22	2.0	ND	1	02/24/06	02/24/06	
trans-1,3-Dichloropropene	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
Ethylbenzene	EPA 8260B	6B24009	0.25	2.0	ND	1	02/24/06	02/24/06	
Hexachlorobutadiene	EPA 8260B	6B24009	0.38	5.0	ND	1	02/24/06	02/24/06	
2-Hexanone	EPA 8260B	6B24009	2.6	10	ND	1	02/24/06	02/24/06	
Isopropylbenzene	EPA 8260B	6B24009	0.25	2.0	ND	1	02/24/06	02/24/06	

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level IV

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

VOLATILE ORGANICS with KETONES by GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-11 (MJ647 - Water) - cont.									
Reporting Units: ug/l									
p-Isopropyltoluene	EPA 8260B	6B24009	0.28	2.0	ND	1	02/24/06	02/24/06	
Methylene chloride	EPA 8260B	6B24009	0.70	5.0	ND	1	02/24/06	02/24/06	
4-Methyl-2-pentanone (MIBK)	EPA 8260B	6B24009	3.5	10	ND	1	02/24/06	02/24/06	
Methyl-tert-butyl Ether (MTBE)	EPA 8260B	6B24009	0.32	5.0	ND	1	02/24/06	02/24/06	
Naphthalene	EPA 8260B	6B24009	0.41	5.0	ND	1	02/24/06	02/24/06	
n-Propylbenzene	EPA 8260B	6B24009	0.27	2.0	ND	1	02/24/06	02/24/06	
Styrene	EPA 8260B	6B24009	0.16	2.0	ND	1	02/24/06	02/24/06	
1,1,1,2-Tetrachloroethane	EPA 8260B	6B24009	0.27	5.0	ND	1	02/24/06	02/24/06	
1,1,2,2-Tetrachloroethane	EPA 8260B	6B24009	0.24	2.0	ND	1	02/24/06	02/24/06	
Tetrachloroethene	EPA 8260B	6B24009	0.32	2.0	ND	1	02/24/06	02/24/06	
Toluene	EPA 8260B	6B24009	0.36	2.0	ND	1	02/24/06	02/24/06	
1,2,3-Trichlorobenzene	EPA 8260B	6B24009	0.45	5.0	ND	1	02/24/06	02/24/06	
1,2,4-Trichlorobenzene	EPA 8260B	6B24009	0.48	5.0	ND	1	02/24/06	02/24/06	
1,1,1-Trichloroethane	EPA 8260B	6B24009	0.30	2.0	ND	1	02/24/06	02/24/06	
1,1,2-Trichloroethane	EPA 8260B	6B24009	0.30	2.0	ND	1	02/24/06	02/24/06	
Trichloroethene	EPA 8260B	6B24009	0.26	2.0	ND	1	02/24/06	02/24/06	
Trichlorofluoromethane	EPA 8260B	6B24009	0.34	5.0	ND	1	02/24/06	02/24/06	
1,2,3-Trichloropropane	EPA 8260B	6B24009	0.40	10	ND	1	02/24/06	02/24/06	
1,2,4-Trimethylbenzene	EPA 8260B	6B24009	0.23	2.0	ND	1	02/24/06	02/24/06	
1,3,5-Trimethylbenzene	EPA 8260B	6B24009	0.26	2.0	ND	1	02/24/06	02/24/06	
Vinyl chloride	EPA 8260B	6B24009	0.26	5.0	ND	1	02/24/06	02/24/06	
o-Xylene	EPA 8260B	6B24009	0.30	2.0	ND	1	02/24/06	02/24/06	
m,p-Xylenes	EPA 8260B	6B24009	0.60	2.0	ND	1	02/24/06	02/24/06	
Xylenes, Total	EPA 8260B	6B24009	0.90	2.0	ND	1	02/24/06	02/24/06	
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	6B24009	1.2	5.0	ND	1	02/24/06	02/24/06	
Surrogate: Dibromofluoromethane (80-120%)					*114 %*				
Surrogate: Toluene-d8 (80-120%)					*110 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*98 %*				

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level II

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

VOLATILE ORGANICS by GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-10 (MJ646 - Water)									P, pH
Reporting Units: ug/l									
2-Chloroethyl vinyl ether	EPA 8260B	6B24009	1.8	5.0	ND	1	02/24/06	02/24/06	* 1
Surrogate: Dibromofluoromethane (80-120%)					*111 %*				
Surrogate: Toluene-d8 (80-120%)					*112 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*97 %*				
Sample ID: IPB1641-11 (MJ647 - Water)									P, pH
Reporting Units: ug/l									
2-Chloroethyl vinyl ether	EPA 8260B	6B24009	1.8	5.0	ND	1	02/24/06	02/24/06	* 1
Surrogate: Dibromofluoromethane (80-120%)					*114 %*				
Surrogate: Toluene-d8 (80-120%)					*110 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*98 %*				

03.21.06

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
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MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6 Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-03 (MJ639 - Soil)									
Reporting Units: ug/kg dry									
2-Chloro-1,1,1-trifluoroethane	EPA 8260B	6B20037	N/A	46	ND	0.829	02/20/06	02/21/06	UJ, *10
Chlorotrifluoroethene	EPA 8260B	6B20037	N/A	46	ND	0.829	02/20/06	02/21/06	↓, ↓
Sample ID: IPB1641-06 (MJ642 - Soil)									
Reporting Units: ug/kg dry									
2-Chloro-1,1,1-trifluoroethane	EPA 8260B	6B20037	N/A	54	ND	0.965	02/20/06	02/21/06	UJ, *10
Chlorotrifluoroethene	EPA 8260B	6B20037	N/A	54	ND	0.965	02/20/06	02/21/06	↓, ↓
Sample ID: IPB1641-07 (MJ643 - Soil)									
Reporting Units: ug/kg dry									
2-Chloro-1,1,1-trifluoroethane	EPA 8260B	6B20037	N/A	50	ND	0.916	02/20/06	02/21/06	UJ, *10
Chlorotrifluoroethene	EPA 8260B	6B20037	N/A	50	ND	0.916	02/20/06	02/21/06	↓, ↓
Sample ID: IPB1641-10 (MJ646 - Water)									
Reporting Units: ug/l									
2-Chloro-1,1,1-trifluoroethane	EPA 8260B	6B24009	N/A	50	ND	1	02/24/06	02/24/06	U, *10
Chlorotrifluoroethene	EPA 8260B	6B24009	N/A	50	ND	1	02/24/06	02/24/06	↓, ↓
Sample ID: IPB1641-11 (MJ647 - Water)									
Reporting Units: ug/l									
2-Chloro-1,1,1-trifluoroethane	EPA 8260B	6B24009	N/A	50	ND	1	02/24/06	02/24/06	U, *10
Chlorotrifluoroethene	EPA 8260B	6B24009	N/A	50	ND	1	02/24/06	02/24/06	↓, ↓

revised qual

MC 03.17.06

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level V

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	TFH (EFH) by EPA Method 8015M
QC Level:	V[1]
SDG:	IPB1719
Matrix:	Soil
No. of Samples:	7
No. of Reanalyses/Dilutions:	0
Date Reviewed:	March 17, 2006
Reviewer:	L. Calvin
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines for Organic Data Review* (2/94)
Samples Reviewed:	MJ661, MJ662, MJ663, MJ664, MJ682, MJ683, MJ684

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C, at 3°C. The COC was signed and dated by field and laboratory personnel. EFH analyses were requested for sample MJ683 as per a memo from MWH personnel dated 3/22/06. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary.	No qualifications were required.
	MJ682 was extracted beyond the 14 day holding time. The remaining soil samples were extracted within 14 days of collection, and were analyzed within 40 days of extraction.	EFH hydrocarbon ranges in MJ682 were qualified as estimated, "J," for detects and "UJ" for nondetects.
4. Method Blanks 6B24056-BLK1 6C28088-BLK1	There were no detects for the EFH hydrocarbon ranges in the soil method blanks.	No qualifications were required.

	Findings	Qualifications
5. LCS/BS 6B24056-BS1 6C28088-BS1	The recoveries for total EFH (C8-C30) were within the laboratory QC limits of 40-120%.	No qualifications were required.
6. Surrogates	The sample surrogate recoveries were within the laboratory QC limits of 40-125%.	No qualifications were required.
7. MS/MSDs	MS/MSD analyses were not performed on the samples of this SDG.	No qualifications were required.
9. Field QC Samples FB: None ER: MJ632 (IPB1429) FD: MJ683/MJ684	The equipment rinsate had a detect below the reporting limit for EFH (C21-C30) at a concentration of 0.13 mg/L. Any detects for EFH (C21-C30) in the site samples were greater than five times the equipment rinsate concentration. The field duplicate samples had common detects for EFH (C15-C20) below the reporting limit and EFH (C21-C30) above the reporting limit, with RPDs <100%. The pair was considered to be in agreement.	No qualifications were required.
10. Other	The soil samples were reported on a dry-weight basis in units of mg/Kg. Four EFH hydrocarbon ranges were reported: C8-C11, C12-C14, C15-C20, and C21-C30, as well as a total, C8-C30. All of the samples had 2 ml final extract volumes (rather than 1 ml) resulting in effective dilutions of 2×. Reporting limits were adjusted accordingly. Any sample detects between the MDL and the reporting limit were qualified as estimated, "J."	Results for total EFH (C8-C30) were rejected, "R," as duplicate data, as the total result was represented by the four separate ranges.
Comments	None.	None.

[1] Level V validation consists of cursory review of the summary forms only; raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed included instrument performance, analytical sequence, initial calibration, continuing calibration, compound identification, and compound quantification.

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
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Del Mar Analytical

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1719-16 (MJ682 - Soil)									H-1
Reporting Units: mg/kg dry									
EFH (C8 - C30)	EPA 8015 MOD.	6C28088	3.6	10	**75**	2	03/28/06	03/28/06	J B, H
EFH (C8 - C11)	EPA 8015 MOD.	6C28088	3.6	10	ND	2	03/28/06	03/28/06	U, H
EFH (C12 - C14)	EPA 8015 MOD.	6C28088	3.6	10	ND	2	03/28/06	03/28/06	U
EFH (C15 - C20)	EPA 8015 MOD.	6C28088	3.6	10	**4.2**	2	03/28/06	03/28/06	J, J
EFH (C21 - C30)	EPA 8015 MOD.	6C28088	3.6	10	**69**	2	03/28/06	03/28/06	J
Surrogate: n-Octacosane (40-125%)					*46 %*				

QM 5/4/06

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
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Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1719-01 (MJ661 - Soil)									RL-1
Reporting Units: mg/kg dry									
EFH (C8 - C30)	EPA 8015 MOD.	6B24056	4.2	12	**4.5**	2	02/24/06	02/24/06	J
EFH (C8 - C11)	EPA 8015 MOD.	6B24056	4.2	12	ND	2	02/24/06	02/24/06	
EFH (C12 - C14)	EPA 8015 MOD.	6B24056	4.2	12	ND	2	02/24/06	02/24/06	
EFH (C15 - C20)	EPA 8015 MOD.	6B24056	4.2	12	ND	2	02/24/06	02/24/06	
EFH (C21 - C30)	EPA 8015 MOD.	6B24056	4.2	12	ND	2	02/24/06	02/24/06	
Surrogate: n-Octacosane (40-125%)					*75 %*				
Sample ID: IPB1719-02 (MJ662 - Soil)									RL-1
Reporting Units: mg/kg dry									
EFH (C8 - C30)	EPA 8015 MOD.	6B24056	4.0	11	**8.2**	2	02/24/06	02/25/06	J
EFH (C8 - C11)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	
EFH (C12 - C14)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	
EFH (C15 - C20)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	
EFH (C21 - C30)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	
Surrogate: n-Octacosane (40-125%)					*93 %*				
Sample ID: IPB1719-03 (MJ663 - Soil)									RL-1
Reporting Units: mg/kg dry									
EFH (C8 - C30)	EPA 8015 MOD.	6B24056	4.0	11	**6.7**	2	02/24/06	02/25/06	J
EFH (C8 - C11)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	
EFH (C12 - C14)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	
EFH (C15 - C20)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	
EFH (C21 - C30)	EPA 8015 MOD.	6B24056	4.0	11	**5.0**	2	02/24/06	02/25/06	J
Surrogate: n-Octacosane (40-125%)					*79 %*				
Sample ID: IPB1719-04 (MJ664 - Soil)									RL-1
Reporting Units: mg/kg dry									
EFH (C8 - C30)	EPA 8015 MOD.	6B24056	3.9	11	**7.9**	2	02/24/06	02/25/06	J
EFH (C8 - C11)	EPA 8015 MOD.	6B24056	3.9	11	ND	2	02/24/06	02/25/06	
EFH (C12 - C14)	EPA 8015 MOD.	6B24056	3.9	11	ND	2	02/24/06	02/25/06	
EFH (C15 - C20)	EPA 8015 MOD.	6B24056	3.9	11	ND	2	02/24/06	02/25/06	
EFH (C21 - C30)	EPA 8015 MOD.	6B24056	3.9	11	**6.3**	2	02/24/06	02/25/06	J
Surrogate: n-Octacosane (40-125%)					*75 %*				
Sample ID: IPB1719-17 (MJ683 - Soil)									
Reporting Units: mg/kg dry									
EFH (C8 - C30)	EPA 8015 MOD.	6B24056	4.0	11	**64**	2	02/24/06	02/25/06	D
EFH (C8 - C11)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	
EFH (C12 - C14)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	
EFH (C15 - C20)	EPA 8015 MOD.	6B24056	4.0	11	**8.8**	2	02/24/06	02/25/06	J
EFH (C21 - C30)	EPA 8015 MOD.	6B24056	4.0	11	**52**	2	02/24/06	02/25/06	
Surrogate: n-Octacosane (40-125%)					*75 %*				

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level IV

Del Mar Analytical

17461 Derian Ave., Suite 106, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego	Project ID: SSFL Group 6	
9444 Farnham Street, Suite 300	Data Gap	Sampled: 02/16/06
San Diego, CA 92123	Report Number: IPB1719	Received: 02/16/06
Attention: Lisa J. Tucker		

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									rev qual	equal code
Sample ID: IPB1719-18 (MJ684 - Soil)										
Reporting Units: mg/kg dry										
EFH (C8 - C30)	EPA 8015 MOD.	6B24056	4.0	11	**85**	2	02/24/06	02/25/06	R	D
EFH (C8 - C11)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	〃	
EFH (C12 - C14)	EPA 8015 MOD.	6B24056	4.0	11	ND	2	02/24/06	02/25/06	↓	
EFH (C15 - C20)	EPA 8015 MOD.	6B24056	4.0	11	**10**	2	02/24/06	02/25/06	J	J
EFH (C21 - C30)	EPA 8015 MOD.	6B24056	4.0	11	**71**	2	02/24/06	02/25/06		
Surrogate: n-Octacosane (40-125%)					*73 %*					

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level II

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	TFH (EFH) by EPA Method 8015M
QC Level:	V[1]
SDG:	IPB1429
Matrix:	Soil/Water
No. of Samples:	3
No. of Reanalyses/Dilutions:	0
Date Reviewed:	March 13, 2006
Reviewer:	L. Calvin
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines For Organic Data Review* (2/94)
Samples Reviewed:	MJ630, MJ631, MJ632

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C, at 5°C. The COC was signed and dated by field and laboratory personnel and accounted for the analyses presented in this SDG. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. The soil samples were extracted within 14 days and the water sample within seven days of collection. All samples were analyzed within 40 days of extraction.	No qualifications were required.

	Findings	Qualifications
4. Method Blanks 6B23049-MB (soil) 6B18058-MB (water)	There were no detects for the EFH hydrocarbon ranges in the soil method blank. EFH (C8-C11) was reported in the water method blank at 0.0474 mg/L; however, EFH (C8-C11) was not detected in the associated water sample.	No qualifications were required.
5. LCS/BS 6B23049-BS1 (soil) 6B18058BS1/BSD1 (water)	The recoveries for total EFH (C8-C30) were within the laboratory-established QC limits for all blank spikes, and the RPD for the BS1/BSD1 pair was within the QC limits	No qualifications were required.
6. Surrogates	The surrogate recoveries were within the laboratory-established QC limits.	No qualifications were required.
7. MS/MSDs	No MS/MSD analyses were performed.	No qualifications were required.
9. Field QC Samples FB: None ER: MJ632 FD: None	EFH hydrocarbon range C21-C30 was reported in the equipment rinsate between the MDL and the reporting limit at a concentration of 0.13 mg/L; however, the concentration reported in site sample MJ631 exceeded five times the equipment rinsate concentration.	No qualifications were required.
10. Other	The soil samples were reported on a dry-weight basis in units of mg/Kg, and the water sample was reported in units of mg/L. Four EFH hydrocarbon ranges were reported: C8-C11, C12-C14, C15-C20, and C21-C30, as well as a total, C8-C30. Sample detects between the MDL and the reporting limit were qualified as estimated, "J," by the laboratory.	Results for total EFH (C8-C30) were rejected, "R," as duplicate data, as the total result was represented by the four separate ranges.
Comments	None.	None.

[1] Level V validation consists of cursory review of the summary forms only; raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed included instrument performance, analytical sequence, initial calibration, continuing calibration, compound identification, and compound quantification.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/13/06-02/14/06
Received: 02/14/06

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1429-18 (MJ630 - Soil)					**Sampled: 02/14/06**				
Reporting Units: mg/kg dry									
EFH (C8 - C30)	EPA 8015 MOD.	6B23049	1.9	5.4	**2.5**	1	02/23/06	02/23/06	R J D
EFH (C8 - C11)	EPA 8015 MOD.	6B23049	1.9	5.4	ND	1	02/23/06	02/23/06	U
EFH (C12 - C14)	EPA 8015 MOD.	6B23049	1.9	5.4	ND	1	02/23/06	02/23/06	
EFH (C15 - C20)	EPA 8015 MOD.	6B23049	1.9	5.4	ND	1	02/23/06	02/23/06	
EFH (C21 - C30)	EPA 8015 MOD.	6B23049	1.9	5.4	ND	1	02/23/06	02/23/06	
Surrogate: n-Octacosane (40-125%)					*80 %*				
Sample ID: IPB1429-19 (MJ631 - Soil)					**Sampled: 02/14/06**				
Reporting Units: mg/kg dry									
EFH (C8 - C30)	EPA 8015 MOD.	6B23049	1.9	5.3	**12**	1	02/23/06	02/23/06	R D
EFH (C8 - C11)	EPA 8015 MOD.	6B23049	1.9	5.3	ND	1	02/23/06	02/23/06	U
EFH (C12 - C14)	EPA 8015 MOD.	6B23049	1.9	5.3	ND	1	02/23/06	02/23/06	
EFH (C15 - C20)	EPA 8015 MOD.	6B23049	1.9	5.3	ND	1	02/23/06	02/23/06	
EFH (C21 - C30)	EPA 8015 MOD.	6B23049	1.9	5.3	**11**	1	02/23/06	02/23/06	
Surrogate: n-Octacosane (40-125%)					*80 %*				

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level IV

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/13/06-02/14/06
Received: 02/14/06

EXTRACTABLE FUEL HYDROCARBONS (EPA 3510C/8015 CADHS Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1429-20 (MJ632 - Water)					**Sampled: 02/14/06**				
Reporting Units: mg/l									
EFH (C8 - C30)	EPA 8015 MOD.	6B18058	0.044	0.49	**0.20**	0.971	02/18/06	02/21/06	R J, B D
EFH (C8 - C11)	EPA 8015 MOD.	6B18058	0.044	0.49	ND	0.971	02/18/06	02/21/06	U
EFH (C12 - C14)	EPA 8015 MOD.	6B18058	0.044	0.49	ND	0.971	02/18/06	02/21/06	
EFH (C15 - C20)	EPA 8015 MOD.	6B18058	0.044	0.49	ND	0.971	02/18/06	02/21/06	
EFH (C21 - C30)	EPA 8015 MOD.	6B18058	0.044	0.49	**0.13**	0.971	02/18/06	02/21/06	J J
Surrogate: n-Octacosane (40-125%)					*88 %*				

rev qual | qual code

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level V

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	PCBs by EPA Method 8082
QC Level:	V[1]
SDG:	IPB1641
Matrix:	Soil
No. of Samples:	5
No. of Reanalyses/Dilutions:	0
Date Reviewed:	March 16, 2006
Reviewer:	K. Shadowlight
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines For Organic Data Review* (2/94)
Samples Reviewed:	MJ644, MJ648, MJ652, MJ653, MJ654

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C, at 5°C. The COC was signed and dated by field and laboratory personnel. The COC noted sample MJ648 was a composite of samples MJ649-MJ651 and sample MJ654 was a composite of samples MJ655-Mj657. Nine of 13 samples for PCB analysis on the COC were on a "hold" status. As per a memo from MWH personnel dated 3/28/06 requested PCB analyses for MJ644. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. MJ644 was extracted beyond the 14 day holding time. The remaining soil samples were extracted within 14 days of collection and all samples were analyzed within 40 days of extraction.	No qualifications were required. Nondetected Aroclors in MJ644 were qualified as estimated, "UJ."

	Findings	Qualifications
4. Method Blanks 6B22048-BLK1 6C28048-BLK1	There were no Aroclors detected in the method blanks.	No qualifications were required.
5. LCS/BS 6B22048-BS1 6C28048-BS2	The recoveries for Aroclor 1016 and Aroclor 1260 were within the laboratory-established QC limits.	No qualifications were required.
6. Surrogates	The surrogate recoveries were within the laboratory-established QC limits.	No qualifications were required.
7. MS/MSDs	No MS/MSD analyses were performed.	No qualifications were required.
9. Field QC Samples FB: None ER: MJ632 (IPB1429) FD: None	There were no target compound detects in the equipment rinsate.	No qualifications were required.
10. Other	The soil samples were reported on a dry-weight basis in units of µg/Kg.	None.
Comments	None.	None.

[1] Level V validation consists of cursory review of the summary forms only; raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed included instrument performance, analytical sequence, initial calibration, continuing calibration, instrument blanks, sample clean-up performance, compound identification, and compound quantification.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-12 (MJ648 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	11	56	ND	1	02/22/06	02/22/06	
Aroclor 1221	EPA 3545/8082	6B22048	15	56	ND	1	02/22/06	02/22/06	
Aroclor 1232	EPA 3545/8082	6B22048	6.7	56	ND	1	02/22/06	02/22/06	
Aroclor 1242	EPA 3545/8082	6B22048	18	56	ND	1	02/22/06	02/22/06	
Aroclor 1248	EPA 3545/8082	6B22048	11	56	ND	1	02/22/06	02/22/06	
Aroclor 1254	EPA 3545/8082	6B22048	18	56	ND	1	02/22/06	02/22/06	
Aroclor 1260	EPA 3545/8082	6B22048	28	56	ND	1	02/22/06	02/22/06	
Surrogate: Decachlorobiphenyl (45-120%)					*64 %*				
Sample ID: IPB1641-13 (MJ652 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	10	54	ND	1	02/22/06	02/22/06	
Aroclor 1221	EPA 3545/8082	6B22048	14	54	ND	1	02/22/06	02/22/06	
Aroclor 1232	EPA 3545/8082	6B22048	6.5	54	ND	1	02/22/06	02/22/06	
Aroclor 1242	EPA 3545/8082	6B22048	17	54	ND	1	02/22/06	02/22/06	
Aroclor 1248	EPA 3545/8082	6B22048	11	54	ND	1	02/22/06	02/22/06	
Aroclor 1254	EPA 3545/8082	6B22048	17	54	ND	1	02/22/06	02/22/06	
Aroclor 1260	EPA 3545/8082	6B22048	27	54	ND	1	02/22/06	02/22/06	
Surrogate: Decachlorobiphenyl (45-120%)					*61 %*				
Sample ID: IPB1641-14 (MJ653 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	10	53	ND	1	02/22/06	02/23/06	
Aroclor 1221	EPA 3545/8082	6B22048	14	53	ND	1	02/22/06	02/23/06	
Aroclor 1232	EPA 3545/8082	6B22048	6.3	53	ND	1	02/22/06	02/23/06	
Aroclor 1242	EPA 3545/8082	6B22048	17	53	ND	1	02/22/06	02/23/06	
Aroclor 1248	EPA 3545/8082	6B22048	11	53	ND	1	02/22/06	02/23/06	
Aroclor 1254	EPA 3545/8082	6B22048	17	53	ND	1	02/22/06	02/23/06	
Aroclor 1260	EPA 3545/8082	6B22048	26	53	ND	1	02/22/06	02/23/06	
Surrogate: Decachlorobiphenyl (45-120%)					*63 %*				

Level II

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-15 (MJ654 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	9.9	52	ND	1	02/22/06	02/23/06	
Aroclor 1221	EPA 3545/8082	6B22048	14	52	ND	1	02/22/06	02/23/06	
Aroclor 1232	EPA 3545/8082	6B22048	6.3	52	ND	1	02/22/06	02/23/06	
Aroclor 1242	EPA 3545/8082	6B22048	17	52	ND	1	02/22/06	02/23/06	
Aroclor 1248	EPA 3545/8082	6B22048	10	52	ND	1	02/22/06	02/23/06	
Aroclor 1254	EPA 3545/8082	6B22048	17	52	ND	1	02/22/06	02/23/06	
Aroclor 1260	EPA 3545/8082	6B22048	26	52	ND	1	02/22/06	02/23/06	
Surrogate: Decachlorobiphenyl (45-120%)					*70 %*				

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1641-08 (MJ644 - Soil)									H4, RL-1
Reporting Units: ug/kg dry									Rev Qual / Qual Code
Aroclor 1016	EPA 3545/8082	6C28048	17	91	ND	1.5	03/28/06	03/29/06	UJ / C / H
Aroclor 1221	EPA 3545/8082	6C28048	24	91	ND	1.5	03/28/06	03/29/06	
Aroclor 1232	EPA 3545/8082	6C28048	11	91	ND	1.5	03/28/06	03/29/06	
Aroclor 1242	EPA 3545/8082	6C28048	29	91	ND	1.5	03/28/06	03/29/06	
Aroclor 1248	EPA 3545/8082	6C28048	18	91	ND	1.5	03/28/06	03/29/06	
Aroclor 1254	EPA 3545/8082	6C28048	29	91	ND	1.5	03/28/06	03/29/06	
Aroclor 1260	EPA 3545/8082	6C28048	46	91	ND	1.5	03/28/06	03/29/06	
Surrogate: Decachlorobiphenyl (45-120%)					*85 %*				

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	PCBs by EPA Method 8082
QC Level:	V[1]
SDG:	IPB1719
Matrix:	Soil
No. of Samples:	5
No. of Reanalyses/Dilutions:	0
Date Reviewed:	March 16, 2006
Reviewer:	K. Shadowlight
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines for Organic Data Review* (2/94)
Samples Reviewed:	MJ664, MJ668, MJ682, MJ683, MJ684

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C, at 3°C. The COC was signed and dated by field and laboratory personnel. In a memo dated 02/21/06, the PCB analysis was placed on a "hold" status for samples MJ673, MJ674, and MJ675. The COC noted sample MJ668 was a composite of samples MJ669-MJ671. PCB analyses were requested for MJ682 in a memo from MWH personnel dated 03/21/06. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary.	No qualifications were required.
	MJ682 was extracted beyond 14 days of collection. The remaining soil samples were extracted within 14 days of collection and all samples were analyzed within 40 days of extraction.	Aroclors in MJ682 were qualified as estimated, "J," for detects and "UJ," for nondetects.

	Findings	Qualifications
4. Method Blanks 6B22048-BLK1 6C28048-BLK1	There were no Aroclors detected in the method blanks.	No qualifications were required.
5. LCS/BS 6B22048-BS1 6C28048-BS1	The recoveries for Aroclor 1016 and Aroclor 1260 were within the laboratory-established QC limits.	No qualifications were required.
6. Surrogates	The surrogate recoveries were within the laboratory-established QC limits.	No qualifications were required.
7. MS/MSDs	No MS/MSD analyses were performed.	No qualifications were required.
9. Field QC Samples FB: None ER: MJ632 (IPB1429) FD: MJ683/MJ684	There were no target compound detects in the equipment rinsate. There was a common detect for Aroclor 1254 in the field duplicate pair with a calculated RPD of 18%. Aroclor 1260 was reported in sample MJ683 only.	No qualifications were required.
10. Other	The soil samples were reported on a dry-weight basis in units of µg/Kg. The laboratory noted that for MJ682, Aroclors 1254 and 1260 coeluted.	None. The reviewer qualified Aroclors 1254 and 1260 detected in MJ682 as estimated, "J."
Comments	None.	None.

[1] Level V validation consists of cursory review of the summary forms only; raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed included instrument performance, analytical sequence, initial calibration, continuing calibration, instrument blanks, sample clean-up performance, compound identification, and compound quantification.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1719-04 (MJ664 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	16	82	ND	1.5	02/22/06	02/23/06	
Aroclor 1221	EPA 3545/8082	6B22048	21	82	ND	1.5	02/22/06	02/23/06	
Aroclor 1232	EPA 3545/8082	6B22048	9.8	82	ND	1.5	02/22/06	02/23/06	
Aroclor 1242	EPA 3545/8082	6B22048	26	82	ND	1.5	02/22/06	02/23/06	
Aroclor 1248	EPA 3545/8082	6B22048	16	82	ND	1.5	02/22/06	02/23/06	
Aroclor 1254	EPA 3545/8082	6B22048	26	82	ND	1.5	02/22/06	02/23/06	
Aroclor 1260	EPA 3545/8082	6B22048	41	82	ND	1.5	02/22/06	02/23/06	
Surrogate: Decachlorobiphenyl (45-120%)					*74 %*				
Sample ID: IPB1719-08 (MJ668 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	10	53	ND	1	02/22/06	02/23/06	
Aroclor 1221	EPA 3545/8082	6B22048	14	53	ND	1	02/22/06	02/23/06	
Aroclor 1232	EPA 3545/8082	6B22048	6.4	53	ND	1	02/22/06	02/23/06	
Aroclor 1242	EPA 3545/8082	6B22048	17	53	ND	1	02/22/06	02/23/06	
Aroclor 1248	EPA 3545/8082	6B22048	11	53	ND	1	02/22/06	02/23/06	
Aroclor 1254	EPA 3545/8082	6B22048	17	53	**72**	1	02/22/06	02/23/06	A-01
Aroclor 1260	EPA 3545/8082	6B22048	27	53	**55**	1	02/22/06	02/23/06	A-01
Surrogate: Decachlorobiphenyl (45-120%)					*64 %*				
Sample ID: IPB1719-17 (MJ683 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	11	56	ND	1	02/22/06	02/23/06	
Aroclor 1221	EPA 3545/8082	6B22048	15	56	ND	1	02/22/06	02/23/06	
Aroclor 1232	EPA 3545/8082	6B22048	6.7	56	ND	1	02/22/06	02/23/06	
Aroclor 1242	EPA 3545/8082	6B22048	18	56	ND	1	02/22/06	02/23/06	
Aroclor 1248	EPA 3545/8082	6B22048	11	56	ND	1	02/22/06	02/23/06	
Aroclor 1254	EPA 3545/8082	6B22048	18	56	**400**	1	02/22/06	02/23/06	A-01
Aroclor 1260	EPA 3545/8082	6B22048	28	56	**95**	1	02/22/06	02/23/06	A-01a
Surrogate: Decachlorobiphenyl (45-120%)					*65 %*				

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1719-18 (MJ684 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	11	56	ND	1	02/22/06	02/23/06	
Aroclor 1221	EPA 3545/8082	6B22048	15	56	ND	1	02/22/06	02/23/06	
Aroclor 1232	EPA 3545/8082	6B22048	6.7	56	ND	1	02/22/06	02/23/06	
Aroclor 1242	EPA 3545/8082	6B22048	18	56	ND	1	02/22/06	02/23/06	
Aroclor 1248	EPA 3545/8082	6B22048	11	56	ND	1	02/22/06	02/23/06	
Aroclor 1254	EPA 3545/8082	6B22048	18	56	**480**	1	02/22/06	02/23/06	
Aroclor 1260	EPA 3545/8082	6B22048	28	56	ND	1	02/22/06	02/23/06	
Surrogate: Decachlorobiphenyl (45-120%)					*76 %*				

Level V

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Del Mar Analytical

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1719-16 (MJ682 - Soil) - cont.									H4
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C28048	9.5	50	ND	1	03/28/06	03/29/06	UJ C
Aroclor 1221	EPA 3545/8082	6C28048	13	50	ND	1	03/28/06	03/29/06	
Aroclor 1232	EPA 3545/8082	6C28048	6.0	50	ND	1	03/28/06	03/29/06	
Aroclor 1242	EPA 3545/8082	6C28048	16	50	ND	1	03/28/06	03/29/06	
Aroclor 1248	EPA 3545/8082	6C28048	10	50	ND	1	03/28/06	03/29/06	
Aroclor 1254	EPA 3545/8082	6C28048	16	50	**110**	1	03/28/06	03/29/06	J A-01
Aroclor 1260	EPA 3545/8082	6C28048	25	50	**53**	1	03/28/06	03/29/06	J A-01
Surrogate: Decachlorobiphenyl (45-120%)					*87 %*				

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL IV

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	PCBs by EPA Method 8082
QC Level:	V[1]
SDG:	IPB1429
Matrix:	Soil/Water
No. of Samples:	9
No. of Reanalyses/Dilutions:	0
Date Reviewed:	March 13, 2006
Reviewer:	L. Calvin
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines For Organic Data Review* (2/94)
Samples Reviewed:	MJ619, MJ622, MJ628, MJ629, MJ630, MJ631, MJ632, MJ635, MJ636

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C, at 5°C. The COC was signed and dated by field and laboratory personnel. A memo dated 02/24/06 changed the MWH_ID for sample MJ622. Five of 11 samples for PCB analysis on the COC were on a "hold" status. MJ619, MJ635, and MJ636 were released from "hold" as per memos from MWH personnel dated 3/31/06. The COC noted sample MJ622 was a composite of samples MJ623-MJ626. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary.	No qualifications were required.
	MJ635 was extracted beyond the 14 day holding time and MJ619 and MJ636 were extracted more than 3× beyond	Aroclor results for MJ635 were qualified as estimated, "J," for detects and, "UJ," for

	Findings	Qualifications
1. Sample Management (cont)	the 14 day holding time. The remaining soil samples were extracted within 14 days and the water sample within seven days of collection. All samples were analyzed within 40 days of extraction.	nondetects. Nondetected Aroclors in MJ619 and MJ636 were rejected, "R," and Aroclors detected in the samples were qualified as estimated, "J."
4. Method Blanks 6B21048-BLK1 6B22048-BLK1 6C29051-BLK1 6C28048-BLK1	There were no Aroclors detected in the method blanks.	No qualifications were required.
5. LCS/BS 6B21048-BS2/BSD2 6B22048-BS1 6C29051-BS1/BSD1 6C28048-BS2	The recoveries for Aroclor 1016 and Aroclor 1260 were within the laboratory-established QC limits for all blank spikes, and the RPD for the blank spike/blank spike duplicate pairs were within the QC limits	No qualifications were required.
6. Surrogates	The surrogate recoveries were within the laboratory-established QC limits.	No qualifications were required.
7. MS/MSDs	No MS/MSD analyses were performed.	No qualifications were required.
9. Field QC Samples FB: None ER: MJ632 FD: None	The equipment rinsate had no target compound detects.	No qualifications were required.
10. Other	The soil samples were reported on a dry-weight basis in units of µg/Kg, and the water sample was reported in units of µg/L.	None.
Comments	None.	None.

[1] Level V validation consists of cursory review of the summary forms only; raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed included instrument performance, analytical sequence, initial calibration, continuing calibration, instrument blanks, sample clean-up performance, compound identification, and compound quantification.

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Del Mar Analytical

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/14/06
Received: 02/14/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1429-11 (MJ619 - Soil)									H4
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C29051	11	57	ND	1	03/29/06	03/31/06	R C
Aroclor 1221	EPA 3545/8082	6C29051	15	57	ND	1	03/29/06	03/31/06	
Aroclor 1232	EPA 3545/8082	6C29051	6.8	57	ND	1	03/29/06	03/31/06	
Aroclor 1242	EPA 3545/8082	6C29051	18	57	ND	1	03/29/06	03/31/06	
Aroclor 1248	EPA 3545/8082	6C29051	11	57	ND	1	03/29/06	03/31/06	
Aroclor 1254	EPA 3545/8082	6C29051	18	57	**71**	1	03/29/06	03/31/06	J
Aroclor 1260	EPA 3545/8082	6C29051	28	57	ND	1	03/29/06	03/31/06	R
Surrogate: Decachlorobiphenyl (45-120%)					*79 %*				
Sample ID: IPB1429-23 (MJ635 - Soil)									H4
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C28048	16	85	ND	1.5	03/28/06	03/29/06	JC
Aroclor 1221	EPA 3545/8082	6C28048	22	85	ND	1.5	03/28/06	03/29/06	
Aroclor 1232	EPA 3545/8082	6C28048	10	85	ND	1.5	03/28/06	03/29/06	
Aroclor 1242	EPA 3545/8082	6C28048	27	85	ND	1.5	03/28/06	03/29/06	
Aroclor 1248	EPA 3545/8082	6C28048	17	85	ND	1.5	03/28/06	03/29/06	
Aroclor 1254	EPA 3545/8082	6C28048	27	85	**110**	1.5	03/28/06	03/29/06	J A-01
Aroclor 1260	EPA 3545/8082	6C28048	43	85	**180**	1.5	03/28/06	03/29/06	A-01
Surrogate: Decachlorobiphenyl (45-120%)					*90 %*				
Sample ID: IPB1429-24 (MJ636 - Soil)									H4
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C29051	11	59	ND	1	03/29/06	03/31/06	R C
Aroclor 1221	EPA 3545/8082	6C29051	15	59	ND	1	03/29/06	03/31/06	
Aroclor 1232	EPA 3545/8082	6C29051	7.1	59	ND	1	03/29/06	03/31/06	
Aroclor 1242	EPA 3545/8082	6C29051	19	59	ND	1	03/29/06	03/31/06	
Aroclor 1248	EPA 3545/8082	6C29051	12	59	ND	1	03/29/06	03/31/06	
Aroclor 1254	EPA 3545/8082	6C29051	19	59	ND	1	03/29/06	03/31/06	
Aroclor 1260	EPA 3545/8082	6C29051	30	59	ND	1	03/29/06	03/31/06	
Surrogate: Decachlorobiphenyl (45-120%)					*94 %*				

Rev 2 AM 5/17/06

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B 120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/13/06-02/14/06
Received: 02/14/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1429-14 (MJ622 - Soil)					**Sampled: 02/14/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	100	540	ND	10	02/22/06	02/23/06	U
Aroclor 1221	EPA 3545/8082	6B22048	140	540	ND	10	02/22/06	02/23/06	
Aroclor 1232	EPA 3545/8082	6B22048	65	540	ND	10	02/22/06	02/23/06	
Aroclor 1242	EPA 3545/8082	6B22048	170	540	ND	10	02/22/06	02/23/06	
Aroclor 1248	EPA 3545/8082	6B22048	110	540	ND	10	02/22/06	02/23/06	
Aroclor 1254	EPA 3545/8082	6B22048	170	540	ND	10	02/22/06	02/23/06	
Aroclor 1260	EPA 3545/8082	6B22048	270	540	**6300**	10	02/22/06	02/23/06	
Surrogate: Decachlorobiphenyl (45-120%)					*21 %*				Z3
Sample ID: IPB1429-16 (MJ628 - Soil)					**Sampled: 02/14/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	10	53	ND	1	02/22/06	02/22/06	U
Aroclor 1221	EPA 3545/8082	6B22048	14	53	ND	1	02/22/06	02/22/06	
Aroclor 1232	EPA 3545/8082	6B22048	6.4	53	ND	1	02/22/06	02/22/06	
Aroclor 1242	EPA 3545/8082	6B22048	17	53	ND	1	02/22/06	02/22/06	
Aroclor 1248	EPA 3545/8082	6B22048	11	53	ND	1	02/22/06	02/22/06	
Aroclor 1254	EPA 3545/8082	6B22048	17	53	**430**	1	02/22/06	02/22/06	
Aroclor 1260	EPA 3545/8082	6B22048	27	53	ND	1	02/22/06	02/22/06	U
Surrogate: Decachlorobiphenyl (45-120%)					*66 %*				
Sample ID: IPB1429-17 (MJ629 - Soil)					**Sampled: 02/14/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	16	82	ND	1.5	02/22/06	02/22/06	U
Aroclor 1221	EPA 3545/8082	6B22048	21	82	ND	1.5	02/22/06	02/22/06	
Aroclor 1232	EPA 3545/8082	6B22048	9.8	82	ND	1.5	02/22/06	02/22/06	
Aroclor 1242	EPA 3545/8082	6B22048	26	82	ND	1.5	02/22/06	02/22/06	
Aroclor 1248	EPA 3545/8082	6B22048	16	82	ND	1.5	02/22/06	02/22/06	
Aroclor 1254	EPA 3545/8082	6B22048	26	82	**160**	1.5	02/22/06	02/22/06	
Aroclor 1260	EPA 3545/8082	6B22048	41	82	ND	1.5	02/22/06	02/22/06	U
Surrogate: Decachlorobiphenyl (45-120%)					*65 %*				

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
4320 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/13/06-02/14/06
Received: 02/14/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1429-18 (MJ630 - Soil)					**Sampled: 02/14/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	10	54	ND	1	02/22/06	02/22/06	
Aroclor 1221	EPA 3545/8082	6B22048	14	54	ND	1	02/22/06	02/22/06	
Aroclor 1232	EPA 3545/8082	6B22048	6.4	54	ND	1	02/22/06	02/22/06	
Aroclor 1242	EPA 3545/8082	6B22048	17	54	ND	1	02/22/06	02/22/06	
Aroclor 1248	EPA 3545/8082	6B22048	11	54	ND	1	02/22/06	02/22/06	
Aroclor 1254	EPA 3545/8082	6B22048	17	54	ND	1	02/22/06	02/22/06	
Aroclor 1260	EPA 3545/8082	6B22048	27	54	ND	1	02/22/06	02/22/06	
Surrogate: Decachlorobiphenyl (45-120%)					*96 %*				
Sample ID: IPB1429-19 (MJ631 - Soil)					**Sampled: 02/14/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	10	53	ND	1	02/22/06	02/22/06	
Aroclor 1221	EPA 3545/8082	6B22048	14	53	ND	1	02/22/06	02/22/06	
Aroclor 1232	EPA 3545/8082	6B22048	6.4	53	ND	1	02/22/06	02/22/06	
Aroclor 1242	EPA 3545/8082	6B22048	17	53	ND	1	02/22/06	02/22/06	
Aroclor 1248	EPA 3545/8082	6B22048	11	53	ND	1	02/22/06	02/22/06	
Aroclor 1254	EPA 3545/8082	6B22048	17	53	ND	1	02/22/06	02/22/06	
Aroclor 1260	EPA 3545/8082	6B22048	27	53	ND	1	02/22/06	02/22/06	
Surrogate: Decachlorobiphenyl (45-120%)					*76 %*				
Sample ID: IPB1429-20 (MJ632 - Water)					**Sampled: 02/14/06**				**RL-4**
Reporting Units: ug/l									
Aroclor 1016	EPA 3510/8082	6B21048	0.21	1.1	ND	1.05	02/21/06	02/21/06	C
Aroclor 1221	EPA 3510/8082	6B21048	0.11	1.1	ND	1.05	02/21/06	02/21/06	
Aroclor 1232	EPA 3510/8082	6B21048	0.26	1.1	ND	1.05	02/21/06	02/21/06	
Aroclor 1242	EPA 3510/8082	6B21048	0.26	1.1	ND	1.05	02/21/06	02/21/06	
Aroclor 1248	EPA 3510/8082	6B21048	0.26	1.1	ND	1.05	02/21/06	02/21/06	
Aroclor 1254	EPA 3510/8082	6B21048	0.26	1.1	ND	1.05	02/21/06	02/21/06	
Aroclor 1260	EPA 3510/8082	6B21048	0.42	1.1	ND	1.05	02/21/06	02/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*78 %*				

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Level II

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	PCBs by EPA Method 8082
QC Level:	V[1]
SDG:	IPD1302
Matrix:	Soil
No. of Samples:	18
No. of Reanalyses/Dilutions:	2
Date Reviewed:	May 8, 2006
Reviewer:	P. Meeks
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines for Organic Data Review* (2/94)
Samples Reviewed:	MJ776, MJ777, MJ781, MJ782, MJ782RE, MJ783, MJ784, MJ784RE, MJ786, MJ787, MJ788, MJ789, MJ790, MJ791, MJ794, MJ795, MJ796, MJ798, MJ799, MJ800

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C, at 4°C. The COC was signed and dated by field and laboratory personnel. MJ776 and MJ777 were received on HOLD. As per a memo from MWH personnel dated 4/14/06, the samples were analyzed for PCBs. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. The soil samples were extracted within 14 days of collection and all samples were analyzed within 40 days of extraction.	No qualifications were required.

	Findings	Qualifications
4. Method Blanks 6D22026-BLK1 6D20050-BLK1 6D21050-BLK1	There were no Aroclors detected in the method blanks.	No qualifications were required.
5. LCS/BS 6D22026-BS1 6D20050-BS1 6D21050-BS1	The recoveries for Aroclor 1016 and Aroclor 1260 were within the laboratory-established QC limits.	No qualifications were required.
6. Surrogates	The surrogate recoveries were within the laboratory-established QC limits. Surrogates were not considered recoverable in samples analyzed at dilutions of 10× or greater.	No qualifications were required.
7. MS/MSDs MJ783, MJ798	The recoveries for Aroclor 1016 and Aroclor 1260 were within the laboratory-established QC limits.	None
9. Field QC Samples FB: MJ813 (IPD1477) ER: MJ812 (IPD1477) FD: None	There were no target compound detects in the field QC samples.	No qualifications were required.
10. Other	Due to large concentrations of target analytes Aroclors 1248 and 1250 in MJ782RE were both reported from a 15× dilution, and Aroclor 1248 in MJ784RE was reported from a 30000× dilution. The concentration of the following target compounds were affected by coelution: Aroclor 1260 in MJ782, Aroclors 1248 and 1254 in MJ782RE, Aroclor 1260 in MJ784, Aroclor 1248 in MJ784RE, and Aroclors 1248 and 1254 in MJ787. The soil samples were reported on a dry-weight basis in units of µg/Kg.	None. These target compounds were qualified as estimated, "J."
Comments	None.	None.

[1] Level V validation consists of cursory review of the summary forms only; raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed included instrument performance, analytical sequence, initial calibration, continuing calibration, instrument blanks, sample clean-up performance, compound identification, and compound quantification.

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Del Mar Analytical

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1302

Sampled: 04/12/06
Received: 04/12/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPD1302-01 (MJ776 - Soil)									RL-1
Reporting Units: ug/kg dry									Rev Qual / Qual Code
Aroclor 1016	EPA 3545/8082	6D22026	17	88	ND	1.5	04/22/06	04/22/06	U
Aroclor 1221	EPA 3545/8082	6D22026	23	88	ND	1.5	04/22/06	04/22/06	
Aroclor 1232	EPA 3545/8082	6D22026	11	88	ND	1.5	04/22/06	04/22/06	
Aroclor 1242	EPA 3545/8082	6D22026	28	88	ND	1.5	04/22/06	04/22/06	
Aroclor 1248	EPA 3545/8082	6D22026	18	88	ND	1.5	04/22/06	04/22/06	
Aroclor 1254	EPA 3545/8082	6D22026	28	88	ND	1.5	04/22/06	04/22/06	
Aroclor 1260	EPA 3545/8082	6D22026	44	88	ND	1.5	04/22/06	04/22/06	
Surrogate: Decachlorobiphenyl (45-120%)					*89 %*				
Sample ID: IPD1302-02 (MJ777 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D22026	17	88	ND	1.5	04/22/06	04/22/06	U
Aroclor 1221	EPA 3545/8082	6D22026	23	88	ND	1.5	04/22/06	04/22/06	
Aroclor 1232	EPA 3545/8082	6D22026	11	88	ND	1.5	04/22/06	04/22/06	
Aroclor 1242	EPA 3545/8082	6D22026	28	88	ND	1.5	04/22/06	04/22/06	
Aroclor 1248	EPA 3545/8082	6D22026	18	88	ND	1.5	04/22/06	04/22/06	
Aroclor 1254	EPA 3545/8082	6D22026	28	88	ND	1.5	04/22/06	04/22/06	
Aroclor 1260	EPA 3545/8082	6D22026	44	88	ND	1.5	04/22/06	04/22/06	
Surrogate: Decachlorobiphenyl (45-120%)					*87 %*				
Sample ID: IPD1302-06 (MJ781 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	17	89	ND	1.5	04/20/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D20050	23	89	ND	1.5	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	11	89	ND	1.5	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	28	89	ND	1.5	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	18	89	**170**	1.5	04/20/06	04/21/06	R-10
Aroclor 1254	EPA 3545/8082	6D20050	28	89	ND	1.5	04/20/06	04/21/06	U
Aroclor 1260	EPA 3545/8082	6D20050	44	89	ND	1.5	04/20/06	04/21/06	U
Surrogate: Decachlorobiphenyl (45-120%)					*58 %*				

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Del Mar Analytical

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1302

Sampled: 04/12/06
Received: 04/12/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Rev Qual	Qual Code
Sample ID: IPD1302-07 (MJ782 - Soil)										
Reporting Units: ug/kg dry										
Aroclor 1016	EPA 3545/8082	6D20050	17	89	ND	1.5	04/20/06	04/21/06	U	
Aroclor 1221	EPA 3545/8082	6D20050	23	89	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1232	EPA 3545/8082	6D20050	11	89	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1242	EPA 3545/8082	6D20050	28	89	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1260	EPA 3545/8082	6D20050	44	89	**430**	1.5	04/20/06	04/21/06	J A-01b	*ID
Surrogate: Decachlorobiphenyl (45-120%)					*65 %*					
Sample ID: IPD1302-07RE1 (MJ782 - Soil)										
Reporting Units: ug/kg dry										
Aroclor 1248	EPA 3545/8082	6D20050	180	890	**13000**	15	04/20/06	04/21/06	J A-01b	*ID
Aroclor 1254	EPA 3545/8082	6D20050	280	890	**5400**	15	04/20/06	04/21/06	↓ A-01b	↓
Surrogate: Decachlorobiphenyl (45-120%)					*132 %*				*Z3*	
Sample ID: IPD1302-08 (MJ783 - Soil)										
Reporting Units: ug/kg dry										
Aroclor 1016	EPA 3545/8082	6D20050	17	89	ND	1.5	04/20/06	04/21/06	U	
Aroclor 1221	EPA 3545/8082	6D20050	23	89	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1232	EPA 3545/8082	6D20050	11	89	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1242	EPA 3545/8082	6D20050	28	89	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1248	EPA 3545/8082	6D20050	18	89	**180**	1.5	04/20/06	04/21/06		
Aroclor 1254	EPA 3545/8082	6D20050	28	89	ND	1.5	04/20/06	04/21/06	U	
Aroclor 1260	EPA 3545/8082	6D20050	44	89	ND	1.5	04/20/06	04/21/06	U	
Surrogate: Decachlorobiphenyl (45-120%)					*82 %*					
Sample ID: IPD1302-09 (MJ784 - Soil)										
Reporting Units: ug/kg dry										
Aroclor 1016	EPA 3545/8082	6D20050	16000	86000	ND	1500	04/20/06	04/24/06	U	
Aroclor 1221	EPA 3545/8082	6D20050	22000	86000	ND	1500	04/20/06	04/24/06	↓	
Aroclor 1232	EPA 3545/8082	6D20050	10000	86000	ND	1500	04/20/06	04/24/06	↓	
Aroclor 1242	EPA 3545/8082	6D20050	27000	86000	ND	1500	04/20/06	04/24/06	↓	
Aroclor 1254	EPA 3545/8082	6D20050	27000	86000	ND	1500	04/20/06	04/24/06	↓	
Aroclor 1260	EPA 3545/8082	6D20050	43000	86000	**630000**	1500	04/20/06	04/24/06	J A-01a	*ID
Surrogate: Decachlorobiphenyl (45-120%)					*				*Z3*	
Sample ID: IPD1302-09RE1 (MJ784 - Soil)										
Reporting Units: ug/kg dry										
Aroclor 1248	EPA 3545/8082	6D20050	340000	1700000	**24000000**	30000	04/20/06	04/23/06	J A-01a	*ID
Surrogate: Decachlorobiphenyl (45-120%)					*				*Z3*	

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Del Mar Analytical

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1302

Sampled: 04/12/06
Received: 04/12/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Raw Qual	Qual Code
Sample ID: IPD1302-11 (MJ786 - Soil)										
Reporting Units: ug/kg dry										
Aroclor 1016	EPA 3545/8082	6D20050	18	94	ND	1.5	04/20/06	04/21/06	U	
Aroclor 1221	EPA 3545/8082	6D20050	24	94	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1232	EPA 3545/8082	6D20050	11	94	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1242	EPA 3545/8082	6D20050	30	94	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1248	EPA 3545/8082	6D20050	19	94	**110**	1.5	04/20/06	04/21/06		
Aroclor 1254	EPA 3545/8082	6D20050	30	94	ND	1.5	04/20/06	04/21/06	U	
Aroclor 1260	EPA 3545/8082	6D20050	47	94	ND	1.5	04/20/06	04/21/06	U	
Surrogate: Decachlorobiphenyl (45-120%)					*60 %*					
Sample ID: IPD1302-12 (MJ787 - Soil)										
Reporting Units: ug/kg dry										
Aroclor 1016	EPA 3545/8082	6D20050	18	96	ND	1.5	04/20/06	04/21/06	U	
Aroclor 1221	EPA 3545/8082	6D20050	25	96	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1232	EPA 3545/8082	6D20050	11	96	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1242	EPA 3545/8082	6D20050	31	96	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1248	EPA 3545/8082	6D20050	19	96	**110**	1.5	04/20/06	04/21/06	J A-01	#10
Aroclor 1254	EPA 3545/8082	6D20050	31	96	**250**	1.5	04/20/06	04/21/06	↓ A-01	↓
Aroclor 1260	EPA 3545/8082	6D20050	48	96	ND	1.5	04/20/06	04/21/06	U	
Surrogate: Decachlorobiphenyl (45-120%)					*78 %*					
Sample ID: IPD1302-13 (MJ788 - Soil)									**RL-1**	
Reporting Units: ug/kg dry										
Aroclor 1016	EPA 3545/8082	6D20050	17	91	ND	1.5	04/20/06	04/21/06	U	
Aroclor 1221	EPA 3545/8082	6D20050	24	91	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1232	EPA 3545/8082	6D20050	11	91	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1242	EPA 3545/8082	6D20050	29	91	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1248	EPA 3545/8082	6D20050	18	91	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1254	EPA 3545/8082	6D20050	29	91	ND	1.5	04/20/06	04/21/06	↓	
Aroclor 1260	EPA 3545/8082	6D20050	46	91	ND	1.5	04/20/06	04/21/06	↓	
Surrogate: Decachlorobiphenyl (45-120%)					*87 %*					

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
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MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1302

Sampled: 04/12/06
Received: 04/12/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers (Raw Qual / Qual Code)
Sample ID: IPD1302-14 (MJ789 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	11	56	ND	1	04/20/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D20050	15	56	ND	1	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	6.7	56	ND	1	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	18	56	ND	1	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	11	56	ND	1	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	18	56	ND	1	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	28	56	ND	1	04/20/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*80 %*				
Sample ID: IPD1302-15 (MJ790 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	17	91	ND	1.5	04/20/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D20050	24	91	ND	1.5	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	11	91	ND	1.5	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	29	91	ND	1.5	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	18	91	ND	1.5	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	29	91	ND	1.5	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	45	91	ND	1.5	04/20/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*81 %*				
Sample ID: IPD1302-16 (MJ791 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	16	86	ND	1.5	04/20/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D20050	22	86	ND	1.5	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	10	86	ND	1.5	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	28	86	ND	1.5	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	17	86	ND	1.5	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	28	86	ND	1.5	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	43	86	ND	1.5	04/20/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*84 %*				

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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Del Mar Analytical

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1302

Sampled: 04/12/06
Received: 04/12/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPD1302-19 (MJ794 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	17	90	ND	1.5	04/20/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D20050	23	90	ND	1.5	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	11	90	ND	1.5	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	29	90	ND	1.5	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	18	90	ND	1.5	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	29	90	ND	1.5	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	45	90	ND	1.5	04/20/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*85 %*				
Sample ID: IPD1302-20 (MJ795 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	20	100	ND	1.5	04/20/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D20050	27	100	ND	1.5	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	12	100	ND	1.5	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	33	100	ND	1.5	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	21	100	ND	1.5	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	33	100	ND	1.5	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	52	100	ND	1.5	04/20/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*76 %*				
Sample ID: IPD1302-21 (MJ796 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	36	190	ND	3	04/20/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D20050	50	190	ND	3	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	23	190	ND	3	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	61	190	ND	3	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	38	190	ND	3	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	61	190	ND	3	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	95	190	ND	3	04/20/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*84 %*				

Rev Qual | Qual Code

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL IV

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1302

Sampled: 04/12/06
Received: 04/12/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPD1302-23 (MJ798 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D21050	16	84	ND	1.5	04/21/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D21050	22	84	ND	1.5	04/21/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D21050	10	84	ND	1.5	04/21/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D21050	27	84	ND	1.5	04/21/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D21050	17	84	ND	1.5	04/21/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D21050	27	84	ND	1.5	04/21/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D21050	42	84	ND	1.5	04/21/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*60 %*				
Sample ID: IPD1302-24 (MJ799 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D21050	16	82	ND	1.5	04/21/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D21050	21	82	ND	1.5	04/21/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D21050	9.8	82	ND	1.5	04/21/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D21050	26	82	ND	1.5	04/21/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D21050	16	82	ND	1.5	04/21/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D21050	26	82	ND	1.5	04/21/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D21050	41	82	ND	1.5	04/21/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*76 %*				
Sample ID: IPD1302-25 (MJ800 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D21050	15	81	ND	1.5	04/21/06	04/22/06	U
Aroclor 1221	EPA 3545/8082	6D21050	21	81	ND	1.5	04/21/06	04/22/06	
Aroclor 1232	EPA 3545/8082	6D21050	9.8	81	ND	1.5	04/21/06	04/22/06	
Aroclor 1242	EPA 3545/8082	6D21050	26	81	ND	1.5	04/21/06	04/22/06	
Aroclor 1248	EPA 3545/8082	6D21050	16	81	ND	1.5	04/21/06	04/22/06	
Aroclor 1254	EPA 3545/8082	6D21050	26	81	ND	1.5	04/21/06	04/22/06	
Aroclor 1260	EPA 3545/8082	6D21050	41	81	ND	1.5	04/21/06	04/22/06	
Surrogate: Decachlorobiphenyl (45-120%)					*66 %*				

Qual Rev Qual | Qual Code

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	PCBs by EPA Method 8082
QC Level:	V[1]
SDG:	IPD1108
Matrix:	Soil
No. of Samples:	7
No. of Reanalyses/Dilutions:	0
Date Reviewed:	May 5, 2006
Reviewer:	P. Meeks
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines for Organic Data Review* (2/94)
Samples Reviewed:	MJ739, MJ744, MJ745, MJ765, MJ767, MJ768, MJ769

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of $4^{o} \pm 2^{o}C$, at $3^{o}C$. The COC was signed and dated by field and laboratory personnel and accounted for the analyses presented in this SDG. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. The soil samples were extracted within 14 days of collection and all samples were analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks 6D200501-MB	There were no Aroclors detected in the method blank.	No qualifications were required.
5. LCS/BS 6D20050-BS1	The recoveries for Aroclor 1016 and Aroclor 1260 were within the laboratory-established QC limits.	No qualifications were required.

	Findings	Qualifications
6. Surrogates	The surrogate recoveries were within the laboratory-established QC limits.	No qualifications were required.
7. MS/MSDs	None	None
9. Field QC Samples FB: MJ813 (IPD1477) ER: MJ812 (IPD1477) FD: None	There were no target compound detects in the field QC samples.	No qualifications were required.
10. Other	The soil samples were reported on a dry-weight basis in units of μg/Kg. All target compounds in samples MJ765 and MJ767 were reported from 3× dilutions. The remaining samples reflected a 1.5× dilution due to limited extraction amount (10 grams rather than 15 grams).	None.
Comments	None.	None.

[1] Level V validation consists of cursory review of the summary forms only; raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed included instrument performance, analytical sequence, initial calibration, continuing calibration, instrument blanks, sample clean-up performance, compound identification, and compound quantification.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1108

Sampled: 04/11/06
Received: 04/11/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPD1108-01 (MJ739 - Soil) - cont.									RL-1 Qual / Rev Qual / Code
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	16	84	ND	1.5	04/20/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D20050	22	84	ND	1.5	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	10	84	ND	1.5	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	27	84	ND	1.5	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	17	84	ND	1.5	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	27	84	ND	1.5	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	42	84	ND	1.5	04/20/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*77 %*				
Sample ID: IPD1108-06 (MJ744 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	17	92	ND	1.5	04/20/06	04/21/06	
Aroclor 1221	EPA 3545/8082	6D20050	24	92	ND	1.5	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	11	92	ND	1.5	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	29	92	ND	1.5	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	18	92	ND	1.5	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	29	92	**260**	1.5	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	46	92	ND	1.5	04/20/06	04/21/06	U
Surrogate: Decachlorobiphenyl (45-120%)					*74 %*				
Sample ID: IPD1108-07 (MJ745 - Soil)									
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	19	100	ND	1.5	04/20/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D20050	26	100	ND	1.5	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	12	100	ND	1.5	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	32	100	ND	1.5	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	20	100	ND	1.5	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	32	100	**350**	1.5	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	50	100	ND	1.5	04/20/06	04/21/06	U
Surrogate: Decachlorobiphenyl (45-120%)					*64 %*				

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1108

Sampled: 04/11/06
Received: 04/11/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPD1108-27 (MJ765 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	34	180	ND	3	04/20/06	04/21/06	U
Aroclor 1221	EPA 3545/8082	6D20050	47	180	ND	3	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	22	180	ND	3	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	58	180	ND	3	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	36	180	ND	3	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	58	180	ND	3	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	90	180	ND	3	04/20/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*60 %*				
Sample ID: IPD1108-29 (MJ767 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	39	210	ND	3	04/20/06	04/21/06	
Aroclor 1221	EPA 3545/8082	6D20050	53	210	ND	3	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	25	210	ND	3	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	66	210	ND	3	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	41	210	ND	3	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	66	210	ND	3	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	100	210	ND	3	04/20/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*56 %*				
Sample ID: IPD1108-30 (MJ768 - Soil)									RL-1
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6D20050	16	85	ND	1.5	04/20/06	04/21/06	
Aroclor 1221	EPA 3545/8082	6D20050	22	85	ND	1.5	04/20/06	04/21/06	
Aroclor 1232	EPA 3545/8082	6D20050	10	85	ND	1.5	04/20/06	04/21/06	
Aroclor 1242	EPA 3545/8082	6D20050	27	85	ND	1.5	04/20/06	04/21/06	
Aroclor 1248	EPA 3545/8082	6D20050	17	85	ND	1.5	04/20/06	04/21/06	
Aroclor 1254	EPA 3545/8082	6D20050	27	85	ND	1.5	04/20/06	04/21/06	
Aroclor 1260	EPA 3545/8082	6D20050	42	85	ND	1.5	04/20/06	04/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*52 %*				

Raw Qual | Qual Code

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1108

Sampled: 04/11/06
Received: 04/11/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Raw Qual	Qual Code
Sample ID: IPD1108-31 (MJ769 - Soil)										
Reporting Units: ug/kg dry										
Aroclor 1016	EPA 3545/8082	6D20050	18	96	ND	1.5	04/20/06	04/21/06	U	
Aroclor 1221	EPA 3545/8082	6D20050	25	96	ND	1.5	04/20/06	04/21/06		
Aroclor 1232	EPA 3545/8082	6D20050	12	96	ND	1.5	04/20/06	04/21/06		
Aroclor 1242	EPA 3545/8082	6D20050	31	96	ND	1.5	04/20/06	04/21/06		
Aroclor 1248	EPA 3545/8082	6D20050	19	96	ND	1.5	04/20/06	04/21/06		
Aroclor 1254	EPA 3545/8082	6D20050	31	96	ND	1.5	04/20/06	04/21/06		
Aroclor 1260	EPA 3545/8082	6D20050	48	96	**240**	1.5	04/20/06	04/21/06	R-10	
Surrogate: Decachlorobiphenyl (45-120%)					*52 %*					

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap Analysis
Project Manager:	D. Hambrick
Analysis/Method:	PCBs by EPA Method 8082
QC Level:	V[1]
SDG:	IPC1562
Matrix:	Soil
No. of Samples:	13
No. of Reanalyses/Dilutions:	0
Date Reviewed:	May 4, 2006
Reviewer:	E. Wessling
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines for Organic Data Review* (2/94)
Samples Reviewed:	MJ623, MJ624, MJ625, MJ626, MJ627, MJ669, MJ670, MJ671, MJ672, MJ688, MJ689, MJ690 and MJ709

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C, at 5°C. The COC was signed and dated by field and laboratory personnel. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary.	No qualifications were required.
	Samples MJ688, MJ689, MJ690 and MJ709 were extracted beyond the 14 day holding time. The remaining samples were extracted within 14 days of collection. All samples were analyzed within 40 days of extraction.	Samples MJ688, MJ689, MJ690 and MJ709 were qualified as estimated, "J," for detects and, "UJ," for nondetects.
4. Method Blanks 6B22048-BLK1 6D19021-BLK1	There were no Aroclors detected in the method blanks.	No qualifications were required.

	Findings	Qualifications
5. LCS/BS 6B22048-BS1 6D19021-BS1/BSD1	The recoveries for Aroclor 1016 and Aroclor 1260 were within the laboratory-established QC limits for the blank spike. Recoveries and RPD were within the laboratory-established QC limits for the BS/BSD pair.	No qualifications were required.
6. Surrogates	The surrogate recovery was within the laboratory-established QC limits with the exception of MJ690 which was recovered above QC limits. Samples requiring dilution above a 10-fold dilution were not evaluated for surrogate recovery.	Detects in sample MJ690 were qualified as estimated, "J". No further qualifications were required.
7. MS/MSDs None	None	None
9. Field QC Samples FB: None ER: None FD: None	There were no field QC samples associated with the samples in this SDG.	No qualifications were required.
10. Other	The soil samples were reported on a dry-weight basis in units of µg/Kg.	None
Comments	Overlapping peaks were used for target compound quantitation for Aroclors 1248, 1254 and 1260; therefore, samples with detects for both congeners were estimated.	Detects for Aroclors 1254 and 1260 in samples MJ669, MJ670 and MJ671 and for Aroclors 1248 and 1260 in sample MJ690 were qualified as estimated, "J."

[1] Level V validation consists of cursory review of the summary forms only; raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed included instrument performance, analytical sequence, initial calibration, continuing calibration, instrument blanks, sample clean-up performance, compound identification, and compound quantification.

Del Mar Analytical

17451 Derian Ave., Suite 105, Irvine, CA 92614 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2320 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPC1562

Sampled: 02/14/06-02/17/06
Received: 03/13/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC1562-01 (MJ623 - Soil)					**Sampled: 02/14/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	200	1100	ND	20	03/19/06	03/21/06	U
Aroclor 1221	EPA 3545/8082	6C19021	280	1100	ND	20	03/19/06	03/21/06	
Aroclor 1232	EPA 3545/8082	6C19021	130	1100	ND	20	03/19/06	03/21/06	
Aroclor 1242	EPA 3545/8082	6C19021	340	1100	ND	20	03/19/06	03/21/06	
Aroclor 1248	EPA 3545/8082	6C19021	210	1100	ND	20	03/19/06	03/21/06	
Aroclor 1254	EPA 3545/8082	6C19021	340	1100	ND	20	03/19/06	03/21/06	
Aroclor 1260	EPA 3545/8082	6C19021	530	1100	**6900**	20	03/19/06	03/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*121 %*				Z3
Sample ID: IPC1562-02 (MJ624 - Soil)					**Sampled: 02/14/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	200	1100	ND	20	03/19/06	03/21/06	U
Aroclor 1221	EPA 3545/8082	6C19021	280	1100	ND	20	03/19/06	03/21/06	
Aroclor 1232	EPA 3545/8082	6C19021	130	1100	ND	20	03/19/06	03/21/06	
Aroclor 1242	EPA 3545/8082	6C19021	340	1100	ND	20	03/19/06	03/21/06	
Aroclor 1248	EPA 3545/8082	6C19021	220	1100	ND	20	03/19/06	03/21/06	
Aroclor 1254	EPA 3545/8082	6C19021	340	1100	ND	20	03/19/06	03/21/06	
Aroclor 1260	EPA 3545/8082	6C19021	540	1100	**6400**	20	03/19/06	03/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*115 %*				Z3
Sample ID: IPC1562-03 (MJ625 - Soil)					**Sampled: 02/14/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	100	540	ND	10	03/19/06	03/21/06	U
Aroclor 1221	EPA 3545/8082	6C19021	140	540	ND	10	03/19/06	03/21/06	
Aroclor 1232	EPA 3545/8082	6C19021	65	540	ND	10	03/19/06	03/21/06	
Aroclor 1242	EPA 3545/8082	6C19021	170	540	ND	10	03/19/06	03/21/06	
Aroclor 1248	EPA 3545/8082	6C19021	110	540	ND	10	03/19/06	03/21/06	
Aroclor 1254	EPA 3545/8082	6C19021	170	540	ND	10	03/19/06	03/21/06	
Aroclor 1260	EPA 3545/8082	6C19021	270	540	**4800**	10	03/19/06	03/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*112 %*				Z3

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

17461 Derian Ave, Suite 100, Irvine, CA 92614 (949) 261-1022 FAX 261-1228
1614 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-131, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
1370 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Del Mar Analytical

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPC1562

Sampled: 02/14/06-02/17/06
Received: 03/13/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC1562-04 (MJ626 - Soil)					**Sampled: 02/14/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	210	1100	ND	20	03/19/06	03/21/06	U
Aroclor 1221	EPA 3545/8082	6C19021	280	1100	ND	20	03/19/06	03/21/06	
Aroclor 1232	EPA 3545/8082	6C19021	130	1100	ND	20	03/19/06	03/21/06	
Aroclor 1242	EPA 3545/8082	6C19021	350	1100	ND	20	03/19/06	03/21/06	
Aroclor 1248	EPA 3545/8082	6C19021	220	1100	ND	20	03/19/06	03/21/06	
Aroclor 1254	EPA 3545/8082	6C19021	350	1100	ND	20	03/19/06	03/21/06	
Aroclor 1260	EPA 3545/8082	6C19021	550	1100	**7800**	20	03/19/06	03/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*129 %*				Z5
Sample ID: IPC1562-05 (MJ627 - Soil)					**Sampled: 02/14/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	11	56	ND	1	03/19/06	03/20/06	U
Aroclor 1221	EPA 3545/8082	6C19021	15	56	ND	1	03/19/06	03/20/06	
Aroclor 1232	EPA 3545/8082	6C19021	6.7	56	ND	1	03/19/06	03/20/06	
Aroclor 1242	EPA 3545/8082	6C19021	18	56	ND	1	03/19/06	03/20/06	
Aroclor 1248	EPA 3545/8082	6C19021	11	56	ND	1	03/19/06	03/20/06	
Aroclor 1254	EPA 3545/8082	6C19021	18	56	ND	1	03/19/06	03/20/06	
Aroclor 1260	EPA 3545/8082	6C19021	28	56	**140**	1	03/19/06	03/20/06	
Surrogate: Decachlorobiphenyl (45-120%)					*72 %*				
Sample ID: IPC1562-06 (MJ669 - Soil)					**Sampled: 02/16/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	9.9	52	ND	1	03/19/06	03/20/06	U
Aroclor 1221	EPA 3545/8082	6C19021	14	52	ND	1	03/19/06	03/20/06	
Aroclor 1232	EPA 3545/8082	6C19021	6.2	52	ND	1	03/19/06	03/20/06	
Aroclor 1242	EPA 3545/8082	6C19021	17	52	ND	1	03/19/06	03/20/06	
Aroclor 1248	EPA 3545/8082	6C19021	10	52	ND	1	03/19/06	03/20/06	
Aroclor 1254	EPA 3545/8082	6C19021	17	52	**75**	1	03/19/06	03/20/06	J A-01
Aroclor 1260	EPA 3545/8082	6C19021	26	52	**43**	1	03/19/06	03/20/06	J A-01
Surrogate: Decachlorobiphenyl (45-120%)					*83 %*				

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

Del Mar Analytical

17461 Derian Ave, Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
16-A E. Cooper Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
1320 E. Sunset Rd. #, Las Vegas, NV 89119 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPC1562

Sampled: 02/14-06-02/17-06
Received: 02/17/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC1562-07 (MJ670 - Soil)					**Sampled: 02/16/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	9.9	52	ND	1	03/19/06	03/20/06	U
Aroclor 1221	EPA 3545/8082	6C19021	14	52	ND	1	03/19/06	03/20/06	
Aroclor 1232	EPA 3545/8082	6C19021	6.2	52	ND	1	03/19/06	03/20/06	
Aroclor 1242	EPA 3545/8082	6C19021	17	52	ND	1	03/19/06	03/20/06	
Aroclor 1248	EPA 3545/8082	6C19021	10	52	ND	1	03/19/06	03/20/06	
Aroclor 1254	EPA 3545/8082	6C19021	17	52	**37**	1	03/19/06	03/20/06	A-01a, J
Aroclor 1260	EPA 3545/8082	6C19021	26	52	**46**	1	03/19/06	03/20/06	A-01a, J
Surrogate: Decachlorobiphenyl (45-120%)					*77 %*				
Sample ID: IPC1562-08 (MJ671 - Soil)					**Sampled: 02/16/06**				
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	11	56	ND	1	03/19/06	03/20/06	U
Aroclor 1221	EPA 3545/8082	6C19021	14	56	ND	1	03/19/06	03/20/06	
Aroclor 1232	EPA 3545/8082	6C19021	6.7	56	ND	1	03/19/06	03/20/06	
Aroclor 1242	EPA 3545/8082	6C19021	18	56	ND	1	03/19/06	03/20/06	
Aroclor 1248	EPA 3545/8082	6C19021	11	56	ND	1	03/19/06	03/20/06	
Aroclor 1254	EPA 3545/8082	6C19021	18	56	**120**	1	03/19/06	03/20/06	A-01a
Aroclor 1260	EPA 3545/8082	6C19021	28	56	**85**	1	03/19/06	03/20/06	A-01a, R-10
Surrogate: Decachlorobiphenyl (45-120%)					*88 %*				
Sample ID: IPC1562-09 (MJ672 - Soil)					**Sampled: 02/16/06**				**RL-1**
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6B22048	16	84	ND	1.5	02/22/06	02/23/06	U
Aroclor 1221	EPA 3545/8082	6B22048	22	84	ND	1.5	02/22/06	02/23/06	
Aroclor 1232	EPA 3545/8082	6B22048	10	84	ND	1.5	02/22/06	02/23/06	
Aroclor 1242	EPA 3545/8082	6B22048	27	84	ND	1.5	02/22/06	02/23/06	
Aroclor 1248	EPA 3545/8082	6B22048	17	84	ND	1.5	02/22/06	02/23/06	
Aroclor 1254	EPA 3545/8082	6B22048	27	84	ND	1.5	02/22/06	02/23/06	
Aroclor 1260	EPA 3545/8082	6B22048	42	84	ND	1.5	02/22/06	02/23/06	
Surrogate: Decachlorobiphenyl (45-120%)					*69 %*				

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B 120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2320 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPC1562

Sampled: 02/14/06-02/17/06
Received: 03/13/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC1562-10 (MJ688 - Soil)					**Sampled: 02/17/06**				H4
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	10	54	ND	1	03/19/06	03/21/06	
Aroclor 1221	EPA 3545/8082	6C19021	14	54	ND	1	03/19/06	03/21/06	
Aroclor 1232	EPA 3545/8082	6C19021	6.5	54	ND	1	03/19/06	03/21/06	
Aroclor 1242	EPA 3545/8082	6C19021	17	54	ND	1	03/19/06	03/21/06	
Aroclor 1248	EPA 3545/8082	6C19021	11	54	**100**	1	03/19/06	03/21/06	
Aroclor 1254	EPA 3545/8082	6C19021	17	54	ND	1	03/19/06	03/21/06	
Aroclor 1260	EPA 3545/8082	6C19021	27	54	ND	1	03/19/06	03/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*86 %*				
Sample ID: IPC1562-11 (MJ689 - Soil)					**Sampled: 02/17/06**				H4
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	10	55	ND	1	03/19/06	03/21/06	
Aroclor 1221	EPA 3545/8082	6C19021	14	55	ND	1	03/19/06	03/21/06	
Aroclor 1232	EPA 3545/8082	6C19021	6.6	55	ND	1	03/19/06	03/21/06	
Aroclor 1242	EPA 3545/8082	6C19021	17	55	ND	1	03/19/06	03/21/06	
Aroclor 1248	EPA 3545/8082	6C19021	11	55	**120**	1	03/19/06	03/21/06	
Aroclor 1254	EPA 3545/8082	6C19021	17	55	ND	1	03/19/06	03/21/06	
Aroclor 1260	EPA 3545/8082	6C19021	27	55	ND	1	03/19/06	03/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*106 %*				
Sample ID: IPC1562-12 (MJ690 - Soil)					**Sampled: 02/17/06**				H4
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	10	55	ND	1	03/19/06	03/21/06	
Aroclor 1221	EPA 3545/8082	6C19021	14	55	ND	1	03/19/06	03/21/06	
Aroclor 1232	EPA 3545/8082	6C19021	6.6	55	ND	1	03/19/06	03/21/06	
Aroclor 1242	EPA 3545/8082	6C19021	18	55	ND	1	03/19/06	03/21/06	
Aroclor 1248	EPA 3545/8082	6C19021	11	55	**310**	1	03/19/06	03/21/06	A-01
Aroclor 1254	EPA 3545/8082	6C19021	18	55	ND	1	03/19/06	03/21/06	
Aroclor 1260	EPA 3545/8082	6C19021	27	55	**32**	1	03/19/06	03/21/06	A-01, J
Surrogate: Decachlorobiphenyl (45-120%)					*123 %*				Z5

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 261-1228
7014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
7328 E. Sunset Rd. #1, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPC1562

Sampled: 02/14/06-02/17/06
Received: 03/13/06

POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPC1562-13 (MJ709 - Soil)					**Sampled: 02/17/06**				H4
Reporting Units: ug/kg dry									
Aroclor 1016	EPA 3545/8082	6C19021	10	54	ND	1	03/19/06	03/21/06	
Aroclor 1221	EPA 3545/8082	6C19021	14	54	ND	1	03/19/06	03/21/06	
Aroclor 1232	EPA 3545/8082	6C19021	6.4	54	ND	1	03/19/06	03/21/06	
Aroclor 1242	EPA 3545/8082	6C19021	17	54	ND	1	03/19/06	03/21/06	
Aroclor 1248	EPA 3545/8082	6C19021	11	54	ND	1	03/19/06	03/21/06	
Aroclor 1254	EPA 3545/8082	6C19021	17	54	ND	1	03/19/06	03/21/06	
Aroclor 1260	EPA 3545/8082	6C19021	27	54	ND	1	03/19/06	03/21/06	
Surrogate: Decachlorobiphenyl (45-120%)					*89 %*				

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Building 203 Interim Measure
Project Manager:	D. Hambrick
Analysis/Method:	Metals by EPA 7470A
QC Level:	V[1]
SDG:	IPE0642
Matrix:	Soil
No. of Samples:	1
No. of Reanalyses:	0
Date Reviewed:	May 25, 2006
Reviewer:	P. Meeks
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/94)
Samples Reviewed:	MJ816

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The sample was received within the temperature limits of 4°±2°C, at 4°C. The COC was signed and dated by field and laboratory personnel and accounted for the sample and analysis presented in this SDG. As the sample was couriered directly from the field to the laboratory, custody seals were not necessary. The 28-day mercury analytical holding time was met.	No qualifications were required.
3. Method Blanks 6E15065-BLK1	Mercury was not detected or reported in the method blank or CCBs at concentrations that would require sample qualification.	No qualifications were required.
5. LCS/BS 6E15065-BS1	The recovery was within the laboratory-established control limits.	No qualifications were required.
6. Duplicates None	None	None
7. MS/MSDs None	None	None
10. Other	None	None

	Findings	Qualifications
11. Field QC Samples Field blank: MJ813 (IPD1477) Equipment rinsate: MJ812 (IPD1477) Field duplicates: None	Mercury was not detected in either field QC sample.	None
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only, and raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed include initial and continuing calibration, continuing calibration blanks, interference check samples (ICSA/ICSAB), and serial dilutions.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPE0642

Sampled: 05/05/06
Received: 05/05/06

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPE0642-01 (MJ816 - Soil)									Rev Qual / Qual Code
Reporting Units: mg/kg dry									
Mercury	EPA 7471A	6E15065	0.0031	0.021	**0.34**	1	05/15/06	05/15/06	

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	Metals by EPA 6010B, 6020, and 7471A
QC Level:	V[1]
SDG:	IPD1108
Matrix:	Soil
No. of Samples:	12
No. of Reanalyses:	0
Date Reviewed:	May 5, 2006
Reviewer:	P. Meeks
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/94)
Samples Reviewed:	MJ739, MJ740, MJ741, MJ742, MJ743, MJ744, MJ745, MJ770, MJ771, MJ772, MJ773, MJ774

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received within the temperature limits of 4°±2°C, at 3°C. The COC was signed and dated by field and laboratory personnel and accounted for the samples and analyses presented in this SDG. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. The 6-month ICP and ICP-MS metals and the 28 day mercury analytical holding times were met.	No qualifications were required.

	Findings	Qualifications
3. Method Blanks 6D20107-BLK1 6D20105-BLK1 6D20073-BLK1	Beryllium, selenium, molybdenum, thallium, silver, cadmium, and antimony were reported n the method blank at -0.25, -0.48, -0.40, -0.35, -0.045, -0.26, and -0.47 mg/kg. Mercury was reported in a bracketing CCB at -0.044 mg/kg. Antimony was detected in a bracketing CCB at 0.318 µg/L.	Beryllium, selenium, molybdenum, and thallium detected in the samples were qualified as estimated, "J," for detects and "UJ," for nondetects. Silver and antimony detected in MJ739 were qualified as estimated, "J," for detects and "UJ," for nondetects" Cadmium detected in MJ739 and MJ745 were qualified as estimated, "J." Mercury detected in MJ739 was qualified as estimated, "J." Antimony detected in MJ744 and MJ745 was qualified as estimated, "UJ."
5. LCS/BS 6D20107-BS1 6D20105-BS1 6D20073-BS1	All recoveries were within the laboratory-established control limits.	No qualifications were required.
6. Duplicates None	None	None
7. MS/MSDs MJ739 (no mercury) MJ744 (mercury only)	Barium was recovered below the control limit in MS only and antimony and zinc were recovered below the control limit in both the MS and the MSD.	Barium, antimony, and zinc in the samples was qualified as estimated, "J," for detects and, "UJ," for nondetects.
10. Other	None	None
11. Field QC Samples Field blanks: None Equipment rinsates: MJ615 (IPB1462) Field duplicates: MJ773/MJ774	Barium, chromium, copper, lead, and zinc were detected in MJ812 at 1.7, 1.7, 29, 4.0, 370 µg/L, respectively. Chromium, copper, lead, and zinc were detected in MJ813 at 0.6, 2.3, 0.44, 46 µg/L, respectively. Mercury was detected in both field duplicate samples with an RPD ≤100%.	Copper and zinc in all samples were qualified as estimated, "J."
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only, and raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed include initial and continuing calibration, continuing calibration blanks, interference check samples (ICSA/ICSAB), and serial dilutions.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1108

Sampled: 04/11/06
Received: 04/11/06

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IPD1108-01 (MJ739 - Soil)									Rev Qual	
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6D20107	5.6	11	**13000**	1	04/20/06	04/20/06	M-HA	
Antimony	EPA 6020	6D20105	0.034	1.1	ND	1	04/20/06	04/26/06	M2 J	B, Q
Arsenic	EPA 6020	6D20105	0.28	0.56	**3.4**	1	04/20/06	04/26/06		
Barium	EPA 6020	6D20105	0.090	0.56	**110**	1	04/20/06	04/26/06	J M2	Q
Beryllium	EPA 6020	6D20105	0.045	0.34	**0.46**	1	04/20/06	04/26/06	J	B
Boron	EPA 6010B	6D20107	1.1	5.6	**2.5**	1	04/20/06	04/20/06	J	
Cadmium	EPA 6020	6D20105	0.022	0.56	**0.12**	1	04/20/06	04/26/06	J J	B, K
Chromium	EPA 6020	6D20105	0.34	1.1	**21**	1	04/20/06	04/26/06		
Cobalt	EPA 6020	6D20105	0.022	0.56	**7.7**	1	04/20/06	04/26/06		
Copper	EPA 6020	6D20105	0.22	1.1	**13**	1	04/20/06	04/26/06	J	F
Lead	EPA 6020	6D20105	0.022	0.56	**14**	1	04/20/06	04/26/06		
Mercury	EPA 7471A	6D20073	0.0034	0.022	**0.0060**	1	04/20/06	04/20/06	J J	B
Molybdenum	EPA 6020	6D20105	0.11	1.1	**0.49**	1	04/20/06	04/26/06	J	
Nickel	EPA 6020	6D20105	0.22	1.1	**14**	1	04/20/06	04/26/06		F
Selenium	EPA 6020	6D20105	0.22	1.1	ND	1	04/20/06	04/26/06	UJ	B
Silver	EPA 6020	6D20105	0.022	0.56	**0.13**	1	04/20/06	04/26/06	J J	B
Thallium	EPA 6020	6D20105	0.11	0.56	**0.35**	1	04/20/06	04/26/06	J J	B
Vanadium	EPA 6020	6D20105	0.45	1.1	**38**	1	04/20/06	04/26/06		
Zinc	EPA 6020	6D20105	0.56	11	**53**	1	04/20/06	04/26/06	M2 J	F, Q
Sample ID: IPD1108-02 (MJ740 - Soil)										
Reporting Units: mg/kg dry										
Silver	EPA 6020	6D20105	0.024	0.61	**0.34**	1	04/20/06	04/26/06	J	
Sample ID: IPD1108-03 (MJ741 - Soil)										
Reporting Units: mg/kg dry										
Silver	EPA 6020	6D20105	0.024	0.59	**0.026**	1	04/20/06	04/26/06	J	
Sample ID: IPD1108-04 (MJ742 - Soil)										
Reporting Units: mg/kg dry										
Silver	EPA 6020	6D20105	0.023	0.59	**0.061**	1	04/20/06	04/26/06	J	
Sample ID: IPD1108-05 (MJ743 - Soil)										
Reporting Units: mg/kg dry										
Silver	EPA 6020	6D20105	0.024	0.60	**0.15**	1	04/20/06	04/26/06	J	
Sample ID: IPD1108-06 (MJ744 - Soil)										
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6D20107	6.1	12	**8300**	1	04/20/06	04/20/06		
Antimony	EPA 6020	6D20105	0.037	1.2	**0.24**	1	04/20/06	04/26/06	J	B, Q
Arsenic	EPA 6020	6D20105	0.31	0.61	**2.0**	1	04/20/06	04/26/06		
Barium	EPA 6020	6D20105	0.098	0.61	**67**	1	04/20/06	04/26/06	J	Q
Beryllium	EPA 6020	6D20105	0.049	0.37	**0.34**	1	04/20/06	04/26/06	J J	B

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1108

Sampled: 04/11/06
Received: 04/11/06

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Raw Qual	Qual Codes
Sample ID: IPD1108-06 (MJ744 - Soil) - cont.											
Reporting Units: mg/kg dry											
Boron	EPA 6010B	6D20107	1.2	6.1	**4.4**	1	04/20/06	04/20/06	J		
Cadmium	EPA 6020	6D20105	0.024	0.61	**1.5**	1	04/20/06	04/26/06			
Chromium	EPA 6020	6D20105	0.37	1.2	**15**	1	04/20/06	04/26/06			
Cobalt	EPA 6020	6D20105	0.024	0.61	**4.5**	1	04/20/06	04/26/06			
Copper	EPA 6020	6D20105	0.24	1.2	**20**	1	04/20/06	04/26/06	J	J	F
Lead	EPA 6020	6D20105	0.024	0.61	**68**	1	04/20/06	04/26/06			
Mercury	EPA 7471A	6D20073	0.37	2.4	**23**	100	04/20/06	04/20/06			
Molybdenum	EPA 6020	6D20105	0.12	1.2	**0.86**	1	04/20/06	04/26/06	J		
Nickel	EPA 6020	6D20105	0.24	1.2	**21**	1	04/20/06	04/26/06	J	J	F
Selenium	EPA 6020	6D20105	0.24	1.2	ND	1	04/20/06	04/26/06	UJ	UJ	B
Silver	EPA 6020	6D20105	0.024	0.61	**2.6**	1	04/20/06	04/26/06			
Thallium	EPA 6020	6D20105	0.12	0.61	**0.18**	1	04/20/06	04/26/06	J	J	B
Vanadium	EPA 6020	6D20105	0.49	1.2	**24**	1	04/20/06	04/26/06			
Zinc	EPA 6020	6D20105	0.61	12	**130**	1	04/20/06	04/26/06	J	J	F, Q
Sample ID: IPD1108-07 (MJ745 - Soil)											
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6D20107	6.7	13	**8500**	1	04/20/06	04/20/06			
Antimony	EPA 6020	6D20105	0.040	1.3	**0.26**	1	04/20/06	04/26/06	UJ	J	B, Q
Arsenic	EPA 6020	6D20105	0.34	0.67	**2.1**	1	04/20/06	04/26/06			
Barium	EPA 6020	6D20105	0.11	0.67	**61**	1	04/20/06	04/26/06	J	J	Q
Beryllium	EPA 6020	6D20105	0.054	0.40	**0.39**	1	04/20/06	04/26/06	J	J	B
Boron	EPA 6010B	6D20107	1.3	6.7	**3.2**	1	04/20/06	04/20/06	J		
Cadmium	EPA 6020	6D20105	0.027	0.67	**2.0**	1	04/20/06	04/26/06	J	J	B
Chromium	EPA 6020	6D20105	0.40	1.3	**15**	1	04/20/06	04/26/06			
Cobalt	EPA 6020	6D20105	0.027	0.67	**4.7**	1	04/20/06	04/26/06			
Copper	EPA 6020	6D20105	0.27	1.3	**17**	1	04/20/06	04/26/06	J	J	F
Lead	EPA 6020	6D20105	0.027	0.67	**33**	1	04/20/06	04/26/06			
Mercury	EPA 7471A	6D20073	0.0040	0.027	**0.10**	1	04/20/06	04/20/06			
Molybdenum	EPA 6020	6D20105	0.13	1.3	**0.61**	1	04/20/06	04/26/06	J		
Nickel	EPA 6020	6D20105	0.27	1.3	**22**	1	04/20/06	04/26/06	J	J	F
Selenium	EPA 6020	6D20105	0.27	1.3	ND	1	04/20/06	04/26/06	UJ	UJ	B
Silver	EPA 6020	6D20105	0.027	0.67	**2.4**	1	04/20/06	04/26/06			
Thallium	EPA 6020	6D20105	0.13	0.67	**0.16**	1	04/20/06	04/26/06	J	J	B
Vanadium	EPA 6020	6D20105	0.54	1.3	**25**	1	04/20/06	04/26/06			
Zinc	EPA 6020	6D20105	0.67	13	**160**	1	04/20/06	04/26/06	J	J	F, Q

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

PM 5/10/06

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPD1108

Sampled: 04/11/06
Received: 04/11/06

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPD1108-32 (MJ770 - Soil)									
Reporting Units: mg/kg dry									
Mercury	EPA 7471A	6D20073	0.0041	0.028	**0.036**	1	04/20/06	04/20/06	
Sample ID: IPD1108-33 (MJ771 - Soil)									
Reporting Units: mg/kg dry									
Mercury	EPA 7471A	6D20073	0.0037	0.025	**0.72**	1	04/20/06	04/20/06	
Sample ID: IPD1108-34 (MJ772 - Soil)									
Reporting Units: mg/kg dry									
Mercury	EPA 7471A	6D20073	0.0039	0.026	**0.034**	1	04/20/06	04/20/06	
Sample ID: IPD1108-35 (MJ773 - Soil)									
Reporting Units: mg/kg dry									
Mercury	EPA 7471A	6D20073	0.0040	0.026	**0.058**	1	04/20/06	04/20/06	
Sample ID: IPD1108-36 (MJ774 - Soil)									
Reporting Units: mg/kg dry									
Mercury	EPA 7471A	6D20073	0.0037	0.025	**0.059**	1	04/20/06	04/20/06	

Bar Qual | Qual Code

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	Metals by EPA 6010B, 6020, 7470A, and 7471A
QC Level:	V[1]
SDG:	IPB1641
Matrix:	Soil
No. of Samples:	6
No. of Reanalyses:	0
Date Reviewed:	March 16, 2006
Reviewer:	P. Meeks
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/94)
Samples Reviewed:	MJ638, MJ639, MJ640, MJ641, MJ642, MJ644

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received within the temperature limits of 4°±2°C, at 5 °C. The COCs were signed and dated by field and laboratory personnel and accounted for the samples and analyses presented in this SDG. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. The 6-month ICP and ICP-MS metals, and the 28-day mercury analytical holding times were met.	No qualifications were required.
3. Method Blanks 6B20177-BLK1 6B21131-BLK1 6B21132-BLK1 6B22094-BLK1 6B22108-BLK1 6B23059-BLK1	Boron was detected in 6B21131-BLK1 at 1.56 mg/kg and antimony was detected in 6B21132-BLK1 at 0.0960 mg/kg. Silver was detected in a CCB bracketing MJ644 at 0.026 µg/L, and was reported in a CCB bracketing the remaining samples at -0.076 µg/L.	Boron in MJ639, MJ640, and MJ641, antimony in MJ639, MJ640, MJ641, and MJ642, and silver in MJ644 were qualified as estimated nondetects, "UJ." Nondetected silver in the remaining samples was qualified as estimated non detects, "UJ."

	Findings	Qualifications
5. LCS/BS 6B20177-BS1 6B21131-BS1 6B21132-BS1 6B22094-BS1 6B22108-BS1 6B23059-BS1	The recoveries were within the laboratory-established control limits.	No qualifications were required.
6. Duplicates None	None	None
7. MS/MSDs MJ638	Antimony was recovered below 30% and mercury was recovered above the control limit in both the MS and the MSD. Copper was recovered below the control limit in the MSD only. The remaining recoveries were within the control limits of 75-125% for the ICP and ICP-MS metals and 65-135% for mercury.	Antimony detected in MJ638 was qualified as estimated, "J," and nondetected antimony (see Section 3) in the remaining samples was rejected, "R." Copper and mercury detected in the site samples were qualified as estimated, "J."
10. Other	Selenium, reported as nondetected in all site soil samples was reported as negative, in the raw data, from -0.88 to -1.22 µg/L.	The reviewer raised the MDL for all soil samples to the absolute value of the highest level of interference reported, 1.22 µg/L.
11. Field QC Samples Field blanks: None Equipment rinsates: MJ615 (IPB1429) Field duplicates: MJ640/MJ641	Cadmium, copper, nickel, lead, and zinc were detected in MJ615 at 0.084, 19, 58, 3.8, 140 µg/L, respectively. The field duplicate pair had all detects in common and all RPDs were less than 100%.	Cadmium, copper, nickel, and zinc detected in the soil site samples were qualified as estimated detects, "J." Lead detected in samples MJ639, MJ640, MJ641, and MJ642 was qualified as estimated, "J."
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only, and raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed include initial and continuing calibration, continuing calibration blanks, interference check samples (ICSA/ICSAB), and serial dilutions.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St. Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IPB1641-02 (MJ638 - Soil)										
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6B21131	5.4	11	**13000**	1	02/21/06	02/23/06	M-HA	
Antimony	EPA 6020	6B21132	0.032	1.1	**0.59**	1	02/21/06	02/22/06	J, B, M2	
Arsenic	EPA 6020	6B21132	0.27	0.54	**3.3**	1	02/21/06	02/22/06		
Barium	EPA 6020	6B21132	0.086	0.54	**76**	1	02/21/06	02/22/06		
Beryllium	EPA 6020	6B21132	0.043	0.32	**0.50**	1	02/21/06	02/22/06		
Boron	EPA 6010B	6B21131	1.1	5.4	**10**	1	02/21/06	02/24/06	B	
Cadmium	EPA 6020	6B21132	0.022	0.54	**0.15**	1	02/21/06	02/22/06	J	
Chromium	EPA 6020	6B21132	0.32	1.1	**13**	1	02/21/06	02/22/06		
Cobalt	EPA 6020	6B21132	0.022	0.54	**4.7**	1	02/21/06	02/22/06		
Copper	EPA 6020	6B21132	0.22	1.1	**19**	1	02/21/06	02/22/06	M2	
Lead	EPA 6020	6B21132	0.022	0.54	**18**	1	02/21/06	02/22/06		
Mercury	EPA 7471A	6B22108	0.000032	0.00022	**0.0041**	0.01	02/22/06	02/22/06	M1	
Molybdenum	EPA 6020	6B21132	0.11	1.1	**0.63**	1	02/21/06	02/22/06	J	
Nickel	EPA 6020	6B21132	0.22	1.1	**8.6**	1	02/21/06	02/22/06		
Selenium	EPA 6020	6B21132	~~0.22~~ 0.82	1.1	ND	1	02/21/06	02/22/06	U	
Silver	EPA 6020	6B21132	0.022	0.54	ND	1	02/21/06	02/22/06	U	
Thallium	EPA 6020	6B21132	0.11	0.54	**0.33**	1	02/21/06	02/22/06	J	
Vanadium	EPA 6020	6B21132	0.43	1.1	**27**	1	02/21/06	02/22/06	M2	
Zinc	EPA 6020	6B21132	0.54	11	**57**	1	02/21/06	02/22/06	M2	
Sample ID: IPB1641-03 (MJ639 - Soil)										
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6B21131	5.5	11	**16000**	1	02/21/06	02/23/06		
Antimony	EPA 6020	6B21132	0.033	1.1	**0.46**	1	02/21/06	02/22/06	J, B	
Arsenic	EPA 6020	6B21132	0.28	0.55	**3.8**	1	02/21/06	02/22/06		
Barium	EPA 6020	6B21132	0.088	0.55	**63**	1	02/21/06	02/22/06		
Beryllium	EPA 6020	6B21132	0.044	0.33	**0.59**	1	02/21/06	02/22/06		
Boron	EPA 6010B	6B21131	1.1	5.5	**5.3**	1	02/21/06	02/24/06	B, J	
Cadmium	EPA 6020	6B21132	0.022	0.55	ND	1	02/21/06	02/22/06	U	
Chromium	EPA 6020	6B21132	0.33	1.1	**13**	1	02/21/06	02/22/06		
Cobalt	EPA 6020	6B21132	0.022	0.55	**7.1**	1	02/21/06	02/22/06		
Copper	EPA 6020	6B21132	0.22	1.1	**6.1**	1	02/21/06	02/22/06		
Lead	EPA 6020	6B21132	0.022	0.55	**4.9**	1	02/21/06	02/22/06		
Mercury	EPA 7471A	6B22094	0.0033	0.022	**0.020**	1	02/22/06	02/22/06	J	
Molybdenum	EPA 6020	6B21132	0.11	1.1	**0.71**	1	02/21/06	02/22/06	J	
Nickel	EPA 6020	6B21132	0.22	1.1	**8.0**	1	02/21/06	02/22/06		
Selenium	EPA 6020	6B21132	~~0.22~~ 0.99	1.1	ND	1	02/21/06	02/22/06	U	
Silver	EPA 6020	6B21132	0.022	0.55	ND	1	02/21/06	02/22/06	U	
Thallium	EPA 6020	6B21132	0.11	0.55	**0.32**	1	02/21/06	02/22/06	J	
Vanadium	EPA 6020	6B21132	0.44	1.1	**30**	1	02/21/06	02/22/06		
Zinc	EPA 6020	6B21132	0.55	11	**36**	1	02/21/06	02/22/06		

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL IV

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Del Mar Analytical

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IPB1641-04 (MJ640 - Soil)											
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21131	5.2	10	**15000**	1	02/21/06	02/23/06			
Antimony	EPA 6020	6B21132	0.031	1.0	**0.21**	1	02/21/06	02/22/06	R J, B	R J, B	B, Q
Arsenic	EPA 6020	6B21132	0.26	0.52	**4.6**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21132	0.082	0.52	**79**	1	02/21/06	02/22/06			
Beryllium	EPA 6020	6B21132	0.041	0.31	**0.53**	1	02/21/06	02/22/06			
Boron	EPA 6010B	6B21131	1.0	5.2	**6.6**	1	02/21/06	02/24/06	UJ B	UJ B	B
Cadmium	EPA 6020	6B21132	0.021	0.52	**0.090**	1	02/21/06	02/22/06	J J	J J	F
Chromium	EPA 6020	6B21132	0.31	1.0	**16**	1	02/21/06	02/22/06			
Cobalt	EPA 6020	6B21132	0.021	0.52	**8.1**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21132	0.21	1.0	**11**	1	02/21/06	02/22/06	J	J	F, Q
Lead	EPA 6020	6B21132	0.021	0.52	**7.0**	1	02/21/06	02/22/06	J	J	F
Mercury	EPA 7471A	6B23059	0.0031	0.021	**0.043**	1	02/23/06	02/23/06	J	J	Q
Molybdenum	EPA 6020	6B21132	0.10	1.0	**0.45**	1	02/21/06	02/22/06	J	J	
Nickel	EPA 6020	6B21132	0.21	1.0	**9.1**	1	02/21/06	02/22/06	J	J	F
Selenium	EPA 6020	6B21132	~~0.21~~ 0.79	1.0	ND	1	02/21/06	02/22/06	U	U	$
Silver	EPA 6020	6B21132	0.021	0.52	ND	1	02/21/06	02/22/06	UJ	UJ	B
Thallium	EPA 6020	6B21132	0.10	0.52	**0.26**	1	02/21/06	02/22/06	J	J	
Vanadium	EPA 6020	6B21132	0.41	1.0	**32**	1	02/21/06	02/22/06			
Zinc	EPA 6020	6B21132	0.52	10	**43**	1	02/21/06	02/22/06	J	J	F
Sample ID: IPB1641-05 (MJ641 - Soil)											
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21131	5.2	10	**15000**	1	02/21/06	02/23/06			
Antimony	EPA 6020	6B21132	0.031	1.0	**0.13**	1	02/21/06	02/22/06	R J, B	R J, B	B, Q
Arsenic	EPA 6020	6B21132	0.26	0.52	**4.8**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21132	0.083	0.52	**75**	1	02/21/06	02/22/06			
Beryllium	EPA 6020	6B21132	0.041	0.31	**0.53**	1	02/21/06	02/22/06			
Boron	EPA 6010B	6B21131	1.0	5.2	**6.0**	1	02/21/06	02/24/06	UJ B	UJ B	B
Cadmium	EPA 6020	6B21132	0.021	0.52	**0.071**	1	02/21/06	02/22/06	J J	J J	F
Chromium	EPA 6020	6B21132	0.31	1.0	**15**	1	02/21/06	02/22/06			
Cobalt	EPA 6020	6B21132	0.021	0.52	**6.0**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21132	0.21	1.0	**8.2**	1	02/21/06	02/22/06	J	J	F, Q
Lead	EPA 6020	6B21132	0.021	0.52	**5.7**	1	02/21/06	02/22/06	J	J	F
Mercury	EPA 7471A	6B23059	0.0031	0.021	**0.032**	1	02/23/06	02/23/06	J	J	Q
Molybdenum	EPA 6020	6B21132	0.10	1.0	**0.44**	1	02/21/06	02/22/06	J	J	
Nickel	EPA 6020	6B21132	0.21	1.0	**8.4**	1	02/21/06	02/22/06	J	J	F
Selenium	EPA 6020	6B21132	~~0.21~~ 0.79	1.0	ND	1	02/21/06	02/22/06	U	U	$
Silver	EPA 6020	6B21132	0.021	0.52	ND	1	02/21/06	02/22/06	UJ	UJ	B
Thallium	EPA 6020	6B21132	0.10	0.52	**0.24**	1	02/21/06	02/22/06	J	J	
Vanadium	EPA 6020	6B21132	0.41	1.0	**31**	1	02/21/06	02/22/06			
Zinc	EPA 6020	6B21132	0.52	10	**40**	1	02/21/06	02/22/06	J	J	F

PM 3/17/06

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1641

Sampled: 02/15/06
Received: 02/15/06

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IPB1641-06 (MJ642 - Soil)										
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6B21131	5.6	11	**22000**	1	02/21/06	02/23/06		
Antimony	EPA 6020	6B21132	0.033	1.1	**0.16**	1	02/21/06	02/22/06	J, B	B,Q
Arsenic	EPA 6020	6B21132	0.28	0.56	**3.3**	1	02/21/06	02/22/06		
Barium	EPA 6020	6B21132	0.089	0.56	**100**	1	02/21/06	02/22/06		
Beryllium	EPA 6020	6B21132	0.045	0.33	**0.67**	1	02/21/06	02/22/06		
Boron	EPA 6010B	6B21131	1.1	5.6	**9.1**	1	02/21/06	02/24/06	B	
Cadmium	EPA 6020	6B21132	0.022	0.56	**0.18**	1	02/21/06	02/22/06	J	F
Chromium	EPA 6020	6B21132	0.33	1.1	**22**	1	02/21/06	02/22/06		
Cobalt	EPA 6020	6B21132	0.022	0.56	**7.1**	1	02/21/06	02/22/06		
Copper	EPA 6020	6B21132	0.22	1.1	**11**	1	02/21/06	02/22/06		F, Q
Lead	EPA 6020	6B21132	0.022	0.56	**8.4**	1	02/21/06	02/22/06		F, Q
Mercury	EPA 7471A	6B23059	0.0033	0.022	**0.014**	1	02/23/06	02/23/06	J	Q
Molybdenum	EPA 6020	6B21132	0.11	1.1	**0.32**	1	02/21/06	02/22/06	J	
Nickel	EPA 6020	6B21132	0.22	1.1	**14**	1	02/21/06	02/22/06		F
Selenium	EPA 6020	6B21132	~~0.22~~ 0.45	1.1	ND	1	02/21/06	02/22/06	U	$
Silver	EPA 6020	6B21132	0.022	0.56	ND	1	02/21/06	02/22/06	UJ	B
Thallium	EPA 6020	6B21132	0.11	0.56	**0.32**	1	02/21/06	02/22/06	J	
Vanadium	EPA 6020	6B21132	0.45	1.1	**40**	1	02/21/06	02/22/06		
Zinc	EPA 6020	6B21132	0.56	11	**48**	1	02/21/06	02/22/06		F
Sample ID: IPB1641-08 (MJ644 - Soil)										
Reporting Units: mg/kg dry										
Selenium	EPA 6020	6B20117	~~0.24~~ 0.43	1.2	ND	1	02/20/06	02/21/06	U	$
Silver	EPA 6020	6B20117	0.024	0.61	**0.066**	1	02/20/06	02/21/06	UJ	B
Thallium	EPA 6020	6B20117	0.12	0.61	**0.13**	1	02/20/06	02/21/06	J	

Pm 3/17/06

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL V

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	Metals by EPA 6010B, 6020, 7470A, and 7471A
QC Level:	V[1]
SDG:	IPB1719
Matrix:	Soil
No. of Samples:	12
No. of Reanalyses:	0
Date Reviewed:	March 17, 2006
Reviewer:	P. Meeks
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/94)
Samples Reviewed:	MJ664, MJ665, MJ666, MJ676, MJ677, MJ678, MJ679, MJ680, MJ682, MJ684, MJ685, MJ686

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received within the temperature limits of 4°±2°C, at 3 °C. Metals analyses were not requested for MJ682. The analyses were added as per a memo from MWH personnel dated 03/22/06. The COCs were signed and dated by field and laboratory personnel and accounted for the remaining samples and analyses presented in this SDG. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary.	No qualifications were required.
	The 6-month ICP and ICP-MS metals analytical holding times were met. The 28-day mercury analytical holding time was met for all samples except MJ682.	Mercury detected in MJ682 was qualified as estimated, "J."

	Findings	Qualifications
3. Method Blanks 6B21131-BLK1 6B21132-BLK1 6B22114-BLK1 6B23059-BLK1 6B23083-BLK1 6C27086-BLK1 6C29125-BLK1 6C30094-BLK1	Boron was detected in 6B21131-BLK1 at 1.56 mg/kg and antimony was detected in 6B21132-BLK1 at 0.0960 mg/kg. Silver was reported in 6B21132-BLK1 at -0.095 µg/L. Beryllium was reported in a bracketing CCB at 0.13 µg/L.	Boron and antimony detected in all soil samples except MJ682 were qualified as estimated nondetects, "UJ." Nondetected silver in all samples except MJ682 was qualified as estimated, "UJ," and silver detected in MJ664 and MJ680 was qualified as estimated, "J." Beryllium detected in MJ682 was qualified as estimated, "UJ."
5. LCS/BS 6B21131-BS1 6B21132-BS1 6B22114-BS1 6B23059-BS1 6B23083-BS1 6C27086-BS1 6C29125-BS1 6C30094-BS1	The recoveries were within the laboratory-established control limits.	No qualifications were required.
6. Duplicates None	None	None
7. MS/MSDs None	Although MS/MSD analyses were not performed on a sample in this SDG, the MS/MSD associated with this SDG was performed on a soil sample from the Boeing SSFL RFI site. Antimony was recovered below 30% in both the MS and the MSD.	As antimony has not been recovered in any of the MS/MSD analyses performed on soil samples from the site, nondetected antimony (see Section 3) in samples in this SDG was rejected, "R."
10. Other	Selenium, reported as nondetected in all site soil samples except MJ682, was reported as negative in the raw data, from -0.88 to -1.56 µg/L, except for MJ680.	The reviewer raised the MDL for all soil samples, except MJ680 and MJ682, to the highest level of interference reported, 1.56 µg/L.
11. Field QC Samples Field blanks: None Equipment rinsates: MJ615 (IPB1462) Field duplicates: None	Cadmium, copper, nickel, lead, and zinc were detected in MJ615 at 0.084, 19, 58, 3.8, 140 µg/L, respectively.	Copper, nickel, and zinc detected in the soil site samples were qualified as estimated detects, "J." Cadmium and lead detected in sample MJ680 were qualified as estimated, "J."
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only, and raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed include initial and continuing calibration, continuing calibration blanks, interference check samples (ICSA/ICSAB), and serial dilutions.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IPB1719-04 (MJ664 - Soil)										
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6B21131	5.5	11	**11000**	1	02/21/06	02/24/06		
Antimony	EPA 6020	6B21132	0.033	1.1	**0.10**	1	02/21/06	02/22/06	B, J	B, Q
Arsenic	EPA 6020	6B21132	0.27	0.55	**2.2**	1	02/21/06	02/22/06		
Barium	EPA 6020	6B21132	0.088	0.55	**68**	1	02/21/06	02/22/06		
Beryllium	EPA 6020	6B21132	0.044	0.33	**0.43**	1	02/21/06	02/22/06		
Boron	EPA 6010B	6B21131	1.1	5.5	**5.6**	1	02/21/06	02/24/06	B	B
Cadmium	EPA 6020	6B21132	0.022	0.55	**0.86**	1	02/21/06	02/22/06		
Chromium	EPA 6020	6B21132	0.33	1.1	**13**	1	02/21/06	02/22/06		
Cobalt	EPA 6020	6B21132	0.022	0.55	**3.7**	1	02/21/06	02/22/06		
Copper	EPA 6020	6B21132	0.22	1.1	**8.2**	1	02/21/06	02/22/06	J	F
Lead	EPA 6020	6B21132	0.022	0.55	**20**	1	02/21/06	02/22/06		
Mercury	EPA 7471A	6B23059	0.0033	0.022	**0.37**	1	02/23/06	02/23/06		
Molybdenum	EPA 6020	6B21132	0.11	1.1	**0.50**	1	02/21/06	02/22/06	J	
Nickel	EPA 6020	6B21132	0.22	1.1	**8.8**	1	02/21/06	02/22/06	J	F
Selenium	EPA 6020	6B21132	~~0.22~~ 1.1	1.1	ND	1	02/21/06	02/22/06	U	F
Silver	EPA 6020	6B21132	0.022	0.55	**0.055**	1	02/21/06	02/22/06	J	B
Thallium	EPA 6020	6B21132	0.11	0.55	**0.24**	1	02/21/06	02/22/06	J	
Vanadium	EPA 6020	6B21132	0.44	1.1	**19**	1	02/21/06	02/22/06		
Zinc	EPA 6020	6B21132	0.55	11	**86**	1	02/21/06	02/22/06	J	F
Sample ID: IPB1719-05 (MJ665 - Soil)										
Reporting Units: mg/kg dry										
Thallium	EPA 6020	6B21132	0.10	0.52	**0.21**	1	02/21/06	02/22/06	J	
Sample ID: IPB1719-06 (MJ666 - Soil)										
Reporting Units: mg/kg dry										
Thallium	EPA 6020	6B21132	0.10	0.52	**0.21**	1	02/21/06	02/22/06	J	
Sample ID: IPB1719-10 (MJ676 - Soil)										
Reporting Units: mg/kg dry										
Silver	EPA 6020	6B21132	0.021	0.52	**0.41**	1	02/21/06	02/22/06	J	
Thallium	EPA 6020	6B21132	0.10	0.52	**0.19**	1	02/21/06	02/22/06	J	
Sample ID: IPB1719-11 (MJ677 - Soil)										
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6B21131	5.3	11	**9400**	1	02/21/06	02/24/06		
Antimony	EPA 6020	6B21132	0.032	1.1	**0.14**	1	02/21/06	02/22/06	B, J	B, Q
Arsenic	EPA 6020	6B21132	0.26	0.53	**2.1**	1	02/21/06	02/22/06		
Barium	EPA 6020	6B21132	0.084	0.53	**73**	1	02/21/06	02/22/06		
Beryllium	EPA 6020	6B21132	0.042	0.32	**0.27**	1	02/21/06	02/22/06	J	
Boron	EPA 6010B	6B21131	1.1	5.3	**6.1**	1	02/21/06	02/24/06	B	B
Cadmium	EPA 6020	6B21132	0.021	0.53	**0.36**	1	02/21/06	02/22/06	J	
Chromium	EPA 6020	6B21132	0.32	1.1	**11**	1	02/21/06	02/22/06		

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Lab Qual	Qual Code
Sample ID: IPB1719-11 (MJ677 - Soil) - cont.											
Reporting Units: mg/kg dry											
Cobalt	EPA 6020	6B21132	0.021	0.53	**4.2**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21132	0.21	1.1	**10**	1	02/21/06	02/22/06	J	J	F
Lead	EPA 6020	6B21132	0.021	0.53	**18**	1	02/21/06	02/22/06			
Mercury	EPA 7471A	6B23083	0.0032	0.021	**0.030**	1	02/23/06	02/23/06			
Molybdenum	EPA 6020	6B21132	0.11	1.1	**0.38**	1	02/21/06	02/22/06	J		
Nickel	EPA 6020	6B21132	0.21	1.1	**8.2**	1	02/21/06	02/22/06	J	J	F
Selenium	EPA 6020	6B21132	~~0.21~~ 1.1	1.1	ND	1	02/21/06	02/22/06	U	U	$
Silver	EPA 6020	6B21132	0.021	0.53	**0.85**	1	02/21/06	02/22/06			
Thallium	EPA 6020	6B21132	0.11	0.53	**0.17**	1	02/21/06	02/22/06	J		
Vanadium	EPA 6020	6B21132	0.42	1.1	**32**	1	02/21/06	02/22/06			
Zinc	EPA 6020	6B21132	0.53	11	**90**	1	02/21/06	02/22/06	J	J	F
Sample ID: IPB1719-12 (MJ678 - Soil)											
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21131	5.3	11	**8800**	1	02/21/06	02/24/06			
Antimony	EPA 6020	6B21132	0.032	1.1	**0.24**	1	02/21/06	02/22/06	B, J	B, J	B, Q
Arsenic	EPA 6020	6B21132	0.27	0.53	**2.3**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21132	0.085	0.53	**68**	1	02/21/06	02/22/06			
Beryllium	EPA 6020	6B21132	0.042	0.32	**0.30**	1	02/21/06	02/22/06	J		
Boron	EPA 6010B	6B21131	1.1	5.3	**5.5**	1	02/21/06	02/24/06	B	UJ B	B
Cadmium	EPA 6020	6B21132	0.021	0.53	**0.38**	1	02/21/06	02/22/06	J		
Chromium	EPA 6020	6B21132	0.32	1.1	**12**	1	02/21/06	02/22/06			
Cobalt	EPA 6020	6B21132	0.021	0.53	**3.7**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21132	0.21	1.1	**12**	1	02/21/06	02/22/06	J	J	F
Lead	EPA 6020	6B21132	0.021	0.53	**15**	1	02/21/06	02/22/06			
Mercury	EPA 7471A	6B23083	0.0032	0.021	**0.039**	1	02/23/06	02/23/06			
Molybdenum	EPA 6020	6B21132	0.11	1.1	**0.58**	1	02/21/06	02/22/06	J		
Nickel	EPA 6020	6B21132	0.21	1.1	**8.4**	1	02/21/06	02/22/06	J	J	F
Selenium	EPA 6020	6B21132	~~0.21~~ 1.1	1.1	ND	1	02/21/06	02/22/06	U	U	$
Silver	EPA 6020	6B21132	0.021	0.53	**0.95**	1	02/21/06	02/22/06			
Thallium	EPA 6020	6B21132	0.11	0.53	**0.16**	1	02/21/06	02/22/06	J		
Vanadium	EPA 6020	6B21132	0.42	1.1	**23**	1	02/21/06	02/22/06			
Zinc	EPA 6020	6B21132	0.53	11	**120**	1	02/21/06	02/22/06	J	J	F

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Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IPB1719-13 (MJ679 - Soil)									Raw Qual	
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6B21131	5.4	11	**8300**	1	02/21/06	02/24/06		
Antimony	EPA 6020	6B21132	0.032	1.1	**0.18**	1	02/21/06	02/22/06	R UJ B, J	B,Q
Arsenic	EPA 6020	6B21132	0.27	0.54	**2.5**	1	02/21/06	02/22/06		
Barium	EPA 6020	6B21132	0.086	0.54	**64**	1	02/21/06	02/22/06		
Beryllium	EPA 6020	6B21132	0.043	0.32	**0.33**	1	02/21/06	02/22/06		
Boron	EPA 6010B	6B21131	1.1	5.4	**5.3**	1	02/21/06	02/24/06	UJ J, B	B
Cadmium	EPA 6020	6B21132	0.022	0.54	**0.48**	1	02/21/06	02/22/06	J	
Chromium	EPA 6020	6B21132	0.32	1.1	**14**	1	02/21/06	02/22/06		
Cobalt	EPA 6020	6B21132	0.022	0.54	**4.0**	1	02/21/06	02/22/06		
Copper	EPA 6020	6B21132	0.22	1.1	**11**	1	02/21/06	02/22/06	J	F
Lead	EPA 6020	6B21132	0.022	0.54	**32**	1	02/21/06	02/22/06		
Mercury	EPA 7471A	6B23083	0.0032	0.022	**0.016**	1	02/23/06	02/23/06	J J	B
Molybdenum	EPA 6020	6B21132	0.11	1.1	**0.62**	1	02/21/06	02/22/06	J	
Nickel	EPA 6020	6B21132	0.22	1.1	**12**	1	02/21/06	02/22/06	J	F
Selenium	EPA 6020	6B21132	~~0.22~~ 1.1	1.1	ND	1	02/21/06	02/22/06	U	U
Silver	EPA 6020	6B21132	0.022	0.54	**1.4**	1	02/21/06	02/22/06		
Thallium	EPA 6020	6B21132	0.11	0.54	**0.17**	1	02/21/06	02/22/06	J	
Vanadium	EPA 6020	6B21132	0.43	1.1	**22**	1	02/21/06	02/22/06		
Zinc	EPA 6020	6B21132	0.54	11	**65**	1	02/21/06	02/22/06	J	F
Sample ID: IPB1719-14 (MJ680 - Soil)										
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6B21131	5.2	10	**12000**	1	02/21/06	02/24/06		
Antimony	EPA 6020	6B21132	0.031	1.0	**0.094**	1	02/21/06	02/22/06	R UJ B, J	B,Q
Arsenic	EPA 6020	6B21132	0.26	0.52	**2.7**	1	02/21/06	02/22/06		
Barium	EPA 6020	6B21132	0.083	0.52	**79**	1	02/21/06	02/22/06		
Beryllium	EPA 6020	6B21132	0.041	0.31	**0.46**	1	02/21/06	02/22/06		
Boron	EPA 6010B	6B21131	1.0	5.2	**5.3**	1	02/21/06	02/24/06	UJ B	B
Cadmium	EPA 6020	6B21132	0.021	0.52	**0.19**	1	02/21/06	02/22/06	J J	F
Chromium	EPA 6020	6B21132	0.31	1.0	**14**	1	02/21/06	02/22/06		
Cobalt	EPA 6020	6B21132	0.021	0.52	**4.5**	1	02/21/06	02/22/06		
Copper	EPA 6020	6B21132	0.21	1.0	**8.6**	1	02/21/06	02/22/06	J	F
Lead	EPA 6020	6B21132	0.021	0.52	**11**	1	02/21/06	02/22/06	J	F
Mercury	EPA 7471A	6B23083	0.0031	0.021	**0.010**	1	02/23/06	02/23/06	J J	B
Molybdenum	EPA 6020	6B21132	0.10	1.0	**0.40**	1	02/21/06	02/22/06	J	
Nickel	EPA 6020	6B21132	0.21	1.0	**9.9**	1	02/21/06	02/22/06	J	F
Selenium	EPA 6020	6B21132	0.21	1.0	ND	1	02/21/06	02/22/06	U	
Silver	EPA 6020	6B21132	0.021	0.52	**0.24**	1	02/21/06	02/22/06	J J	B
Thallium	EPA 6020	6B21132	0.10	0.52	**0.22**	1	02/21/06	02/22/06	J	
Vanadium	EPA 6020	6B21132	0.41	1.0	**26**	1	02/21/06	02/22/06		
Zinc	EPA 6020	6B21132	0.52	10	**55**	1	02/21/06	02/22/06	J	F

PM 3/7/06

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IPB1719-18 (MJ684 - Soil)											
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21131	5.6	11	**12000**	1	02/21/06	02/24/06			
Antimony	EPA 6020	6B21132	0.034	1.1	**0.26**	1	02/21/06	02/22/06	B, J	R,UJ	B,Q
Arsenic	EPA 6020	6B21132	0.28	0.56	**2.4**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21132	0.090	0.56	**77**	1	02/21/06	02/22/06			
Beryllium	EPA 6020	6B21132	0.045	0.34	**0.40**	1	02/21/06	02/22/06			
Boron	EPA 6010B	6B21131	1.1	5.6	**7.2**	1	02/21/06	02/24/06	B	UJ	B
Cadmium	EPA 6020	6B21132	0.022	0.56	**2.2**	1	02/21/06	02/22/06			
Chromium	EPA 6020	6B21132	0.34	1.1	**16**	1	02/21/06	02/22/06			
Cobalt	EPA 6020	6B21132	0.022	0.56	**5.0**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21132	0.22	1.1	**21**	1	02/21/06	02/22/06		J	F
Lead	EPA 6020	6B21132	0.022	0.56	**25**	1	02/21/06	02/22/06			
Mercury	EPA 7471A	6B23083	0.0034	0.022	**0.13**	1	02/23/06	02/23/06			
Molybdenum	EPA 6020	6B21132	0.11	1.1	**0.82**	1	02/21/06	02/22/06	J		
Nickel	EPA 6020	6B21132	0.22	1.1	**22**	1	02/21/06	02/22/06		J	F
Selenium	EPA 6020	6B21132	~~0.22~~ 1.1	1.1	ND	1	02/21/06	02/22/06		U	S
Silver	EPA 6020	6B21132	0.022	0.56	**3.3**	1	02/21/06	02/22/06			
Thallium	EPA 6020	6B21132	0.11	0.56	**0.23**	1	02/21/06	02/22/06	J		
Vanadium	EPA 6020	6B21132	0.45	1.1	**26**	1	02/21/06	02/22/06			
Zinc	EPA 6020	6B21132	0.56	11	**150**	1	02/21/06	02/22/06			
Sample ID: IPB1719-19 (MJ685 - Soil)											
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21131	5.3	11	**8900**	1	02/21/06	02/24/06			
Antimony	EPA 6020	6B21132	0.032	1.1	**0.76**	1	02/21/06	02/22/06	B, J	R,UJ	B,Q
Arsenic	EPA 6020	6B21132	0.26	0.53	**2.1**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21132	0.084	0.53	**60**	1	02/21/06	02/22/06			
Beryllium	EPA 6020	6B21132	0.042	0.32	**0.32**	1	02/21/06	02/22/06			
Boron	EPA 6010B	6B21131	1.1	5.3	**8.5**	1	02/21/06	02/24/06	B	UJ	B
Cadmium	EPA 6020	6B21132	0.021	0.53	**1.5**	1	02/21/06	02/22/06			
Chromium	EPA 6020	6B21132	0.32	1.1	**13**	1	02/21/06	02/22/06			
Cobalt	EPA 6020	6B21132	0.021	0.53	**3.4**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21132	0.21	1.1	**10**	1	02/21/06	02/22/06		J	F
Lead	EPA 6020	6B21132	0.021	0.53	**49**	1	02/21/06	02/22/06			
Mercury	EPA 7471A	6B23083	0.0032	0.021	**0.13**	1	02/23/06	02/23/06			
Molybdenum	EPA 6020	6B21132	0.11	1.1	**0.47**	1	02/21/06	02/22/06	J		
Nickel	EPA 6020	6B21132	0.21	1.1	**11**	1	02/21/06	02/22/06		J	F
Selenium	EPA 6020	6B21132	~~0.21~~ 1.1	1.1	ND	1	02/21/06	02/22/06		U	S
Silver	EPA 6020	6B21132	0.021	0.53	**2.2**	1	02/21/06	02/22/06			
Thallium	EPA 6020	6B21132	0.11	0.53	**0.17**	1	02/21/06	02/22/06	J		
Vanadium	EPA 6020	6B21132	0.42	1.1	**18**	1	02/21/06	02/22/06			
Zinc	EPA 6020	6B21132	0.53	11	**79**	1	02/21/06	02/22/06			

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

PM 3/1/06

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1719-20 (MJ686 - Soil)									
Reporting Units: mg/kg dry									
Thallium	EPA 6020	6B22114	0.12	0.62	**0.13**	1	02/22/06	02/23/06	J

RW Qual Code

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1719

Sampled: 02/16/06
Received: 02/16/06

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IPB1719-16 (MJ682 - Soil) - cont.										
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6C27086	5.0	10	**5000**	1	03/27/06	03/28/06		
Antimony	EPA 6020	6C29125	0.030	1.0	**0.12**	1	03/29/06	03/30/06	J	
Arsenic	EPA 6020	6C29125	0.25	0.50	**1.1**	1	03/29/06	03/30/06		
Barium	EPA 6020	6C29125	0.080	0.50	**43**	1	03/29/06	03/30/06		
Beryllium	EPA 6020	6C29125	0.040	0.30	**0.21**	1	03/29/06	03/31/06	J	B
Boron	EPA 6010B	6C27086	1.0	5.0	**2.5**	1	03/27/06	03/28/06	J	
Cadmium	EPA 6020	6C29125	0.020	0.50	**0.68**	1	03/29/06	03/30/06		
Chromium	EPA 6020	6C29125	0.30	1.0	**10**	1	03/29/06	03/30/06		
Cobalt	EPA 6020	6C29125	0.020	0.50	**3.5**	1	03/29/06	03/30/06		
Copper	EPA 6020	6C29125	0.20	1.0	**11**	1	03/29/06	03/30/06	J	F
Lead	EPA 6020	6C29125	0.020	0.50	**41**	1	03/29/06	03/30/06		
Mercury	EPA 7471A	6C30094	0.0030	0.020	**0.53**	1	03/30/06	03/30/06		
Molybdenum	EPA 6020	6C29125	0.10	1.0	**0.25**	1	03/29/06	03/30/06	J	
Nickel	EPA 6020	6C29125	0.20	1.0	**12**	1	03/29/06	03/30/06	J	F
Selenium	EPA 6020	6C29125	0.20	1.0	ND	1	03/29/06	03/30/06	U	
Silver	EPA 6020	6C29125	0.020	0.50	**0.72**	1	03/29/06	03/30/06		
Thallium	EPA 6020	6C29125	0.10	0.50	ND	1	03/29/06	03/30/06	U	
Vanadium	EPA 6020	6C29125	0.40	1.0	**15**	1	03/29/06	03/30/06		
Zinc	EPA 6020	6C29125	0.50	10	**130**	1	03/29/06	03/30/06	J	F

Del Mar Analytical - Irvine
Michele Chamberlin
Project Manager

LEVEL V

12269 East Vassar Drive, Aurora, CO 80014
720.535.5502, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	Metals by EPA 6010B, 6020, 7470A, and 7471A
QC Level:	V[1]
SDG:	IPB1429
Matrix:	Soil/Water
No. of Samples:	13
No. of Reanalyses:	0
Date Reviewed:	March 13, 2006
Reviewer:	P. Meeks
Reference:	USEPA *Contract Laboratory Program National Functional Guidelines For Inorganic Data Review* (2/94)
Samples Reviewed:	MJ611, MJ612, MJ614, MJ615, MJ616, MJ619, MJ620, MJ621, MJ630, MJ631, MJ633, MJ634, MJ635

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received within the temperature limits of 4°±2°C, at 5 °C. The COCs were signed and dated by field and laboratory personnel and accounted for the samples and analyses presented in this SDG. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. The 6-month ICP and ICP-MS metals, and the 28-day mercury analytical holding times were met.	No qualifications were required.

	Findings	Qualifications
3. Method Blanks 6B17075-BLK1 6B20085-BLK1 6B20087-BLK1 6B21105-BLK1 6B21108-BLK1 6B22092-BLK1	Boron was detected in 6B21108-BLK1 at 2.37 mg/kg and mercury was detected in 6B22092-BLK1 at 0.00405 mg/kg. Antimony, molybdenum, and silver were detected in a bracketing CCB at 0.520, 0.231, and 0.036 µg/L, respectively.	Boron and antimony detected in all site soil samples, and molybdenum in all soil site samples except MJ630 were qualified as estimated nondetects, "UJ." Mercury detected in MJ611, MJ614, and MJ620 and silver detected in MJ611, MJ614, MJ630, MJ631, MJ633, and MJ634 were qualified as estimated nondetects, "UJ."
5. LCS/BS 6B17075-BS1 6B20085-BS1 6B20087-BS1 6B21105-BS1 6B21108-BS1 6B22092-BS1	The recoveries were within the laboratory-established control limits.	No qualifications were required.
6. Duplicates None	None	None
7. MS/MSDs MJ611	Antimony was recovered below 30% and selenium and molybdenum were recovered below the control limit in both the MS and the MSD. Barium, cadmium, chromium, copper, nickel, vanadium, and zinc were recovered below the control limit in the MSD only. The remaining recoveries were within the control limits of 75-125% for the ICP and ICP-MS metals and 65-135% for mercury.	Nondetected antimony (see Section 3) in all soil site samples was rejected, "R." Barium, cadmium, chromium, copper, molybdenum, nickel, selenium, vanadium, and zinc were qualified as estimated, "UJ," for nondetects and, "J," for detects.
10. Other	None	None
11. Field QC Samples Field blanks: None Equipment rinsates: MJ615 Field duplicates: None	Cadmium, copper, nickel, lead, and zinc were detected in MJ615 at 0.084, 19, 58, 3.8, 140 µg/L, respectively.	Copper, nickel, and zinc in all soil site samples were qualified as estimated detects, "J." Cadmium in samples MJ611, MJ614, MJ630, and MJ631 and lead in samples MJ611, MJ612, MJ630 were qualified as estimated detects, "J."
Comments	None	None

[1] Level V validation consists of cursory review of the summary forms only, and raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed include initial and continuing calibration, continuing calibration blanks, interference check samples (ICSA/ICSAB), and serial dilutions.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2320 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/13/06-02/14/06
Received: 02/14/06

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IPB1429-04 (MJ611 - Soil)					**Sampled: 02/13/06**						
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21108	5.2	10	**12000**	1	02/21/06	02/23/06	M-HA		
Antimony	EPA 6020	6B21105	0.031	1.0	**0.42**	1	02/21/06	02/21/06	~~R~~ J, M2		B, Q
Arsenic	EPA 6020	6B21105	0.26	0.52	**2.0**	1	02/21/06	02/21/06	M2		
Barium	EPA 6020	6B21105	0.083	0.52	**82**	1	02/21/06	02/21/06	J M2		Q
Beryllium	EPA 6020	6B21105	0.042	0.31	**0.49**	1	02/21/06	02/21/06	M2		
Boron	EPA 6010B	6B21108	1.0	5.2	**6.8**	1	02/21/06	02/23/06	UJ B		B
Cadmium	EPA 6020	6B21105	0.021	0.52	**0.14**	1	02/21/06	02/21/06	J M2, J		Q, F
Chromium	EPA 6020	6B21105	0.31	1.0	**15**	1	02/21/06	02/21/06	↓ M2		↓
Cobalt	EPA 6020	6B21105	0.021	0.52	**5.2**	1	02/21/06	02/21/06	M2		
Copper	EPA 6020	6B21105	0.21	1.0	**8.8**	1	02/21/06	02/21/06	J M2		Q, F
Lead	EPA 6020	6B21105	0.021	0.52	**4.9**	1	02/21/06	02/21/06	J		F
Mercury	EPA 7471A	6B22092	0.0031	0.021	**0.0087**	1	02/22/06	02/22/06	UJ B, J		B
Molybdenum	EPA 6020	6B21105	0.10	1.0	**0.59**	1	02/21/06	02/21/06	UJ M2, J		B, Q
Nickel	EPA 6020	6B21105	0.21	1.0	**11**	1	02/21/06	02/21/06	J M2		Q, F
Selenium	EPA 6020	6B21105	0.21	1.0	ND	1	02/21/06	02/21/06	UJ M2		Q
Silver	EPA 6020	6B21105	0.021	0.52	**0.078**	1	02/21/06	02/21/06	UJ J		B
Thallium	EPA 6020	6B21105	0.10	0.52	**0.33**	1	02/21/06	02/21/06	J		
Vanadium	EPA 6020	6B21105	0.42	1.0	**26**	1	02/21/06	02/21/06	J		Q
Zinc	EPA 6020	6B21105	0.52	10	**43**	1	02/21/06	02/22/06	↓ M2		↓, F
Sample ID: IPB1429-05 (MJ612 - Soil)					**Sampled: 02/13/06**						
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21108	6.2	12	**10000**	1	02/21/06	02/23/06			
Antimony	EPA 6020	6B21105	0.037	1.2	**0.60**	1	02/21/06	02/22/06	R J		B, Q
Arsenic	EPA 6020	6B21105	0.31	0.62	**1.9**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21105	0.10	0.62	**79**	1	02/21/06	02/22/06	J		Q
Beryllium	EPA 6020	6B21105	0.050	0.37	**0.36**	1	02/21/06	02/22/06	J		
Boron	EPA 6010B	6B21108	1.2	6.2	**6.6**	1	02/21/06	02/23/06	UJ B		B
Cadmium	EPA 6020	6B21105	0.025	0.62	**0.33**	1	02/21/06	02/22/06	J J		Q
Chromium	EPA 6020	6B21105	0.37	1.2	**14**	1	02/21/06	02/22/06	↓		↓
Cobalt	EPA 6020	6B21105	0.025	0.62	**4.3**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21105	0.25	1.2	**8.5**	1	02/21/06	02/22/06	J		Q, F
Lead	EPA 6020	6B21105	0.025	0.62	**11**	1	02/21/06	02/22/06	J		F
Mercury	EPA 7471A	6B22092	0.0037	0.025	**0.12**	1	02/22/06	02/22/06			
Molybdenum	EPA 6020	6B21105	0.12	1.2	**0.66**	1	02/21/06	02/22/06	UJ J		B, Q
Nickel	EPA 6020	6B21105	0.25	1.2	**9.2**	1	02/21/06	02/22/06	J		Q, F
Selenium	EPA 6020	6B21105	0.25	1.2	ND	1	02/21/06	02/22/06	UJ		Q
Silver	EPA 6020	6B21105	0.025	0.62	**0.57**	1	02/21/06	02/22/06	J		
Thallium	EPA 6020	6B21105	0.12	0.62	**0.34**	1	02/21/06	02/22/06	J		
Vanadium	EPA 6020	6B21105	0.50	1.2	**23**	1	02/21/06	02/22/06	J		Q
Zinc	EPA 6020	6B21105	0.62	12	**48**	1	02/21/06	02/22/06	↓		↓, F

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL IV

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-1621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/13/06-02/14/06
Received: 02/14/06

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPB1429-07 (MJ615 - Water) - cont.					**Sampled: 02/13/06**				Rev Qual / Qual Code
Reporting Units: ug/l									
Antimony	EPA 6020	6B20087	0.050	2.0	ND	1	02/20/06	02/23/06	U
Arsenic	EPA 6020	6B20087	0.50	1.0	ND	1	02/20/06	02/20/06	U
Barium	EPA 6020	6B20087	0.15	1.0	**3.3**	1	02/20/06	02/20/06	
Beryllium	EPA 6020	6B20087	0.075	0.50	ND	1	02/20/06	02/20/06	U
Cadmium	EPA 6020	6B20087	0.025	1.0	**0.084**	1	02/20/06	02/20/06	J
Chromium	EPA 6020	6B20087	0.56	2.0	ND	1	02/20/06	02/20/06	U
Cobalt	EPA 6020	6B20087	0.035	1.0	ND	1	02/20/06	02/20/06	U
Copper	EPA 6020	6B20087	0.25	2.0	**19**	1	02/20/06	02/20/06	
Lead	EPA 6020	6B20087	0.040	1.0	**3.8**	1	02/20/06	02/20/06	
Molybdenum	EPA 6020	6B20087	0.15	2.0	ND	1	02/20/06	02/20/06	U
Nickel	EPA 6020	6B20087	0.35	2.0	**58**	1	02/20/06	02/20/06	
Selenium	EPA 6020	6B20087	0.30	2.0	ND	1	02/20/06	02/20/06	U
Silver	EPA 6020	6B20087	0.025	1.0	ND	1	02/20/06	02/20/06	
Thallium	EPA 6020	6B20087	0.15	1.0	ND	1	02/20/06	02/20/06	
Vanadium	EPA 6020	6B20087	0.70	2.0	ND	1	02/20/06	02/20/06	
Zinc	EPA 6020	6B20087	1.0	20	**140**	1	02/20/06	02/20/06	

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-1297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/13/06-02/14/06
Received: 02/14/06

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IPB1429-06 (MJ614 - Soil)					**Sampled: 02/13/06**						
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21108	5.1	10	**12000**	1	02/21/06	02/23/06			
Antimony	EPA 6020	6B21105	0.031	1.0	**0.20**	1	02/21/06	02/22/06	R J	R J	B,Q
Arsenic	EPA 6020	6B21105	0.26	0.51	**2.4**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21105	0.082	0.51	**77**	1	02/21/06	02/22/06	J	J	Q
Beryllium	EPA 6020	6B21105	0.041	0.31	**0.46**	1	02/21/06	02/22/06			
Boron	EPA 6010B	6B21108	1.0	5.1	**6.3**	1	02/21/06	02/23/06	UJ B	UJ B	B
Cadmium	EPA 6020	6B21105	0.021	0.51	**0.14**	1	02/21/06	02/22/06	J J	J J	Q,F
Chromium	EPA 6020	6B21105	0.31	1.0	**16**	1	02/21/06	02/22/06	↓	↓	↓
Cobalt	EPA 6020	6B21105	0.021	0.51	**4.8**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21105	0.21	1.0	**8.5**	1	02/21/06	02/22/06	J	J	Q,F
Lead	EPA 6020	6B21105	0.021	0.51	**5.4**	1	02/21/06	02/22/06	J	J	F
Mercury	EPA 7471A	6B22092	0.0031	0.021	**0.011**	1	02/22/06	02/22/06	UJ B, J	UJ B, J	B
Molybdenum	EPA 6020	6B21105	0.10	1.0	**0.50**	1	02/21/06	02/22/06	UJ J	UJ J	B,Q
Nickel	EPA 6020	6B21105	0.21	1.0	**9.5**	1	02/21/06	02/22/06	J	J	Q,F
Selenium	EPA 6020	6B21105	0.21	1.0	ND	1	02/21/06	02/22/06	UJ	UJ	Q
Silver	EPA 6020	6B21105	0.021	0.51	**0.052**	1	02/21/06	02/22/06	UJ J	UJ J	B
Thallium	EPA 6020	6B21105	0.10	0.51	**0.26**	1	02/21/06	02/22/06	J	J	
Vanadium	EPA 6020	6B21105	0.41	1.0	**25**	1	02/21/06	02/22/06	J	J	Q
Zinc	EPA 6020	6B21105	0.51	10	**38**	1	02/21/06	02/22/06	↓	↓	↓,F
Sample ID: IPB1429-08 (MJ616 - Soil)					**Sampled: 02/14/06**						
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21108	5.5	11	**14000**	1	02/21/06	02/23/06			
Antimony	EPA 6020	6B21105	0.033	1.1	**0.20**	1	02/21/06	02/22/06	R J	R J	B,Q
Arsenic	EPA 6020	6B21105	0.28	0.55	**2.5**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21105	0.089	0.55	**95**	1	02/21/06	02/22/06	J	J	Q
Beryllium	EPA 6020	6B21105	0.044	0.33	**0.43**	1	02/21/06	02/22/06			
Boron	EPA 6010B	6B21108	1.1	5.5	**7.6**	1	02/21/06	02/23/06	UJ B	UJ B	B
Cadmium	EPA 6020	6B21105	0.022	0.55	**0.32**	1	02/21/06	02/22/06	J J	J J	Q
Chromium	EPA 6020	6B21105	0.33	1.1	**16**	1	02/21/06	02/22/06	↓	↓	↓
Cobalt	EPA 6020	6B21105	0.022	0.55	**5.2**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21105	0.22	1.1	**10**	1	02/21/06	02/22/06	J	J	Q,F
Lead	EPA 6020	6B21105	0.022	0.55	**20**	1	02/21/06	02/22/06			
Mercury	EPA 7471A	6B22092	0.0033	0.022	**0.033**	1	02/22/06	02/22/06	B	B	
Molybdenum	EPA 6020	6B21105	0.11	1.1	**0.57**	1	02/21/06	02/22/06	UJ J	UJ J	B,Q
Nickel	EPA 6020	6B21105	0.22	1.1	**11**	1	02/21/06	02/22/06	J	J	Q,F
Selenium	EPA 6020	6B21105	0.22	1.1	ND	1	02/21/06	02/22/06	UJ	UJ	Q
Silver	EPA 6020	6B21105	0.022	0.55	**2.4**	1	02/21/06	02/22/06			
Thallium	EPA 6020	6B21105	0.11	0.55	**0.26**	1	02/21/06	02/22/06	J	J	
Vanadium	EPA 6020	6B21105	0.44	1.1	**27**	1	02/21/06	02/22/06	J	J	Q
Zinc	EPA 6020	6B21105	0.55	11	**110**	1	02/21/06	02/22/06	↓	↓	↓,F

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL IV

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/13/06-02/14/06
Received: 02/14/06

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IPB1429-11 (MJ619 - Soil)					**Sampled: 02/14/06**				Raw Qual	
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6B21108	5.7	11	**8700**	1	02/21/06	02/23/06		
Antimony	EPA 6020	6B21105	0.034	1.1	**0.14**	1	02/21/06	02/22/06	R J	B,Q
Arsenic	EPA 6020	6B21105	0.28	0.57	**1.6**	1	02/21/06	02/22/06		
Barium	EPA 6020	6B21105	0.091	0.57	**52**	1	02/21/06	02/22/06	J	Q
Beryllium	EPA 6020	6B21105	0.045	0.34	**0.33**	1	02/21/06	02/22/06	J	
Boron	EPA 6010B	6B21108	1.1	5.7	**5.8**	1	02/21/06	02/23/06	UJ B	B
Cadmium	EPA 6020	6B21105	0.023	0.57	**0.53**	1	02/21/06	02/22/06	J J	Q
Chromium	EPA 6020	6B21105	0.34	1.1	**13**	1	02/21/06	02/22/06	↓	↓
Cobalt	EPA 6020	6B21105	0.023	0.57	**3.4**	1	02/21/06	02/22/06		
Copper	EPA 6020	6B21105	0.23	1.1	**12**	1	02/21/06	02/22/06	J	Q,F
Lead	EPA 6020	6B21105	0.023	0.57	**16**	1	02/21/06	02/22/06		
Mercury	EPA 7471A	6B22092	0.0034	0.023	**0.055**	1	02/22/06	02/22/06		
Molybdenum	EPA 6020	6B21105	0.11	1.1	**0.33**	1	02/21/06	02/22/06	UJ J	B,Q
Nickel	EPA 6020	6B21105	0.23	1.1	**8.9**	1	02/21/06	02/22/06	J	Q,F
Selenium	EPA 6020	6B21105	0.23	1.1	ND	1	02/21/06	02/22/06	UJ	Q
Silver	EPA 6020	6B21105	0.023	0.57	**0.47**	1	02/21/06	02/22/06	J	
Thallium	EPA 6020	6B21105	0.11	0.57	**0.17**	1	02/21/06	02/22/06	J	
Vanadium	EPA 6020	6B21105	0.45	1.1	**19**	1	02/21/06	02/22/06	J	Q
Zinc	EPA 6020	6B21105	0.57	11	**83**	1	02/21/06	02/22/06	↓	↓,F
Sample ID: IPB1429-12 (MJ620 - Soil)					**Sampled: 02/14/06**					
Reporting Units: mg/kg dry										
Aluminum	EPA 6010B	6B21108	5.4	11	**6900**	1	02/21/06	02/23/06		
Antimony	EPA 6020	6B21105	0.032	1.1	**0.13**	1	02/21/06	02/22/06	R J	B,Q
Arsenic	EPA 6020	6B21105	0.27	0.54	**2.4**	1	02/21/06	02/22/06		
Barium	EPA 6020	6B21105	0.086	0.54	**39**	1	02/21/06	02/22/06	J	Q
Beryllium	EPA 6020	6B21105	0.043	0.32	**0.23**	1	02/21/06	02/22/06	J	
Boron	EPA 6010B	6B21108	1.1	5.4	**5.6**	1	02/21/06	02/23/06	UJ B	B
Cadmium	EPA 6020	6B21105	0.021	0.54	**0.28**	1	02/21/06	02/22/06	J J	Q
Chromium	EPA 6020	6B21105	0.32	1.1	**14**	1	02/21/06	02/22/06	↓	↓
Cobalt	EPA 6020	6B21105	0.021	0.54	**3.5**	1	02/21/06	02/22/06		
Copper	EPA 6020	6B21105	0.21	1.1	**10**	1	02/21/06	02/22/06	J	Q,F
Lead	EPA 6020	6B21105	0.021	0.54	**41**	1	02/21/06	02/22/06		
Mercury	EPA 7471A	6B22092	0.0032	0.021	**0.015**	1	02/22/06	02/22/06	UJ B, J	B
Molybdenum	EPA 6020	6B21105	0.11	1.1	**0.35**	1	02/21/06	02/22/06	UJ J	B,Q
Nickel	EPA 6020	6B21105	0.21	1.1	**12**	1	02/21/06	02/22/06	J	Q,F
Selenium	EPA 6020	6B21105	0.21	1.1	ND	1	02/21/06	02/22/06	UJ	Q
Silver	EPA 6020	6B21105	0.021	0.54	**0.26**	1	02/21/06	02/22/06	J	
Thallium	EPA 6020	6B21105	0.11	0.54	**0.13**	1	02/21/06	02/22/06	J	
Vanadium	EPA 6020	6B21105	0.43	1.1	**17**	1	02/21/06	02/22/06	J	Q
Zinc	EPA 6020	6B21105	0.54	11	**54**	1	02/21/06	02/22/06	↓	↓,F

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL V

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-1620 FAX (702) 798-1621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/13/06-02/14/06
Received: 02/14/06

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IPB1429-13 (MJ621 - Soil)					**Sampled: 02/14/06**						
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21108	6.0	12	**11000**	1	02/21/06	02/23/06			
Antimony	EPA 6020	6B21105	0.036	1.2	**0.21**	1	02/21/06	02/22/06	R J	R J	B,Q
Arsenic	EPA 6020	6B21105	0.30	0.60	**2.2**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21105	0.096	0.60	**67**	1	02/21/06	02/22/06	J	J	Q
Beryllium	EPA 6020	6B21105	0.048	0.36	**0.39**	1	02/21/06	02/22/06			
Boron	EPA 6010B	6B21108	1.2	6.0	**6.3**	1	02/21/06	02/23/06	UJ B	UJ B	B
Cadmium	EPA 6020	6B21105	0.024	0.60	**0.34**	1	02/21/06	02/22/06	J J	J J	Q
Chromium	EPA 6020	6B21105	0.36	1.2	**15**	1	02/21/06	02/22/06	↓	↓	↓
Cobalt	EPA 6020	6B21105	0.024	0.60	**4.2**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21105	0.24	1.2	**10**	1	02/21/06	02/22/06	J	J	Q,F
Lead	EPA 6020	6B21105	0.024	0.60	**19**	1	02/21/06	02/22/06			
Mercury	EPA 7471A	6B22092	0.0036	0.024	**0.037**	1	02/22/06	02/22/06	B	B	
Molybdenum	EPA 6020	6B21105	0.12	1.2	**0.41**	1	02/21/06	02/22/06	UJ J	UJ J	B,Q
Nickel	EPA 6020	6B21105	0.24	1.2	**10**	1	02/21/06	02/22/06	J	J	Q,F
Selenium	EPA 6020	6B21105	0.24	1.2	ND	1	02/21/06	02/22/06	UJ	UJ	Q
Silver	EPA 6020	6B21105	0.024	0.60	**0.45**	1	02/21/06	02/22/06	J	J	
Thallium	EPA 6020	6B21105	0.12	0.60	**0.21**	1	02/21/06	02/22/06	J	J	
Vanadium	EPA 6020	6B21105	0.48	1.2	**24**	1	02/21/06	02/22/06	J	J	Q
Zinc	EPA 6020	6B21105	0.60	12	**67**	1	02/21/06	02/22/06	↓	↓	↓,F
Sample ID: IPB1429-18 (MJ630 - Soil)					**Sampled: 02/14/06**						
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21108	5.4	11	**8300**	1	02/21/06	02/23/06			
Antimony	EPA 6020	6B21105	0.032	1.1	**0.077**	1	02/21/06	02/22/06	R J	R J	B,Q
Arsenic	EPA 6020	6B21105	0.27	0.54	**1.2**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21105	0.086	0.54	**56**	1	02/21/06	02/22/06	J	J	Q
Beryllium	EPA 6020	6B21105	0.043	0.32	**0.26**	1	02/21/06	02/22/06	J	J	
Boron	EPA 6010B	6B21108	1.1	5.4	**4.4**	1	02/21/06	02/23/06	UJ B,J	UJ B,J	B
Cadmium	EPA 6020	6B21105	0.021	0.54	**0.22**	1	02/21/06	02/22/06	J J	J J	Q,F
Chromium	EPA 6020	6B21105	0.32	1.1	**8.0**	1	02/21/06	02/22/06	↓	↓	↓
Cobalt	EPA 6020	6B21105	0.021	0.54	**2.8**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21105	0.21	1.1	**5.3**	1	02/21/06	02/22/06	J	J	Q,F
Lead	EPA 6020	6B21105	0.021	0.54	**5.5**	1	02/21/06	02/22/06	J	J	F
Mercury	EPA 7471A	6B22092	0.0032	0.021	**0.025**	1	02/22/06	02/22/06	B	B	
Molybdenum	EPA 6020	6B21105	0.11	1.1	**0.65**	1	02/21/06	02/22/06	J J	J J	Q
Nickel	EPA 6020	6B21105	0.21	1.1	**4.5**	1	02/21/06	02/22/06	J	J	Q,F
Selenium	EPA 6020	6B21105	0.21	1.1	ND	1	02/21/06	02/22/06	UJ	UJ	Q
Silver	EPA 6020	6B21105	0.021	0.54	**0.034**	1	02/21/06	02/22/06	UJ J	UJ J	B
Thallium	EPA 6020	6B21105	0.11	0.54	0.19	1	02/21/06	02/22/06	J	J	
Vanadium	EPA 6020	6B21105	0.43	1.1	**15**	1	02/21/06	02/22/06	J	J	Q
Zinc	EPA 6020	6B21105	0.54	11	**48**	1	02/21/06	02/22/06	↓	↓	↓,F

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

LEVEL IV

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-San Diego
9444 Farnham Street, Suite 300
San Diego, CA 92123
Attention: Lisa J. Tucker

Project ID: SSFL Group 6
Data Gap
Report Number: IPB1429

Sampled: 02/13/06-02/14/06
Received: 02/14/06

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IPB1429-19 (MJ631 - Soil)					**Sampled: 02/14/06**						
Reporting Units: mg/kg dry											
Aluminum	EPA 6010B	6B21108	5.3	11	**9100**	1	02/21/06	02/23/06			
Antimony	EPA 6020	6B21105	0.032	1.1	**0.074**	1	02/21/06	02/22/06	R J	R J	B,Q
Arsenic	EPA 6020	6B21105	0.27	0.53	**1.2**	1	02/21/06	02/22/06			
Barium	EPA 6020	6B21105	0.085	0.53	**56**	1	02/21/06	02/22/06	J	J	Q
Beryllium	EPA 6020	6B21105	0.043	0.32	**0.29**	1	02/21/06	02/22/06	J	J	
Boron	EPA 6010B	6B21108	1.1	5.3	**4.6**	1	02/21/06	02/23/06	UJ B, J	UJ B, J	B
Cadmium	EPA 6020	6B21105	0.021	0.53	**0.17**	1	02/21/06	02/22/06	J J	J J	Q,F
Chromium	EPA 6020	6B21105	0.32	1.1	**9.0**	1	02/21/06	02/22/06	↓	↓	↓
Cobalt	EPA 6020	6B21105	0.021	0.53	**3.2**	1	02/21/06	02/22/06			
Copper	EPA 6020	6B21105	0.21	1.1	**5.8**	1	02/21/06	02/22/06	J	J	Q,F
Lead	EPA 6020	6B21105	0.021	0.53	**11**	1	02/21/06	02/22/06			
Mercury	EPA 7471A	6B22092	0.0032	0.023	**0.022**	1	02/22/06	02/22/06	B	B	
Molybdenum	EPA 6020	6B21105	0.11	1.1	**0.33**	1	02/21/06	02/22/06	UJ J	UJ J	B,Q
Nickel	EPA 6020	6B21105	0.21	1.1	**5.9**	1	02/21/06	02/22/06	J	J	Q,F
Selenium	EPA 6020	6B21105	0.21	1.1	ND	1	02/21/06	02/22/06	UJ	UJ	Q
Silver	EPA 6020	6B21105	0.021	0.53	**0.037**	1	02/21/06	02/22/06	UJ J	UJ J	B
Thallium	EPA 6020	6B21105	0.11	0.53	**0.19**	1	02/21/06	02/22/06	J	J	
Vanadium	EPA 6020	6B21105	0.43	1.1	**16**	1	02/21/06	02/22/06	J	J	Q
Zinc	EPA 6020	6B21105	0.53	11	**60**	1	02/21/06	02/22/06	↓	↓	↓,F
Sample ID: IPB1429-21 (MJ633 - Soil)					**Sampled: 02/14/06**						
Reporting Units: mg/kg dry											
Silver	EPA 6020	6B21105	0.021	0.52	**0.053**	1	02/21/06	02/22/06	UJ J	UJ J	B
Sample ID: IPB1429-22 (MJ634 - Soil)					**Sampled: 02/14/06**						
Reporting Units: mg/kg dry											
Silver	EPA 6020	6B21105	0.022	0.56	**0.034**	1	02/21/06	02/22/06	UJ J	UJ J	B
Sample ID: IPB1429-23 (MJ635 - Soil)					**Sampled: 02/14/06**						
Reporting Units: mg/kg dry											
Selenium	EPA 6020	6B21105	0.23	1.1	ND	1	02/21/06	02/22/06	UJ	UJ	Q
Silver	EPA 6020	6B21105	0.023	0.57	**0.14**	1	02/21/06	02/22/06	J	J	
Thallium	EPA 6020	6B21105	0.11	0.57	**0.16**	1	02/21/06	02/22/06	J	J	
Sample ID: IPB1429-07 (MJ615 - Water)					**Sampled: 02/13/06**						
Reporting Units: mg/l											
Aluminum	EPA 6010B	6B20085	0.040	0.050	ND	1	02/20/06	02/25/06	U		
Boron	EPA 6010B	6B20085	0.0080	0.050	ND	1	02/20/06	02/25/06	↓		
Mercury	EPA 7470A	6B17075	0.000050	0.00020	ND	1	02/17/06	02/17/06			

Del Mar Analytical, Irvine
Michele Chamberlin
Project Manager

12269 East Vassar Drive, Aurora, CO 80014
303.881.6816, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	Dioxin/Furans by Method 1613
QC Level:	V[1]
SDG:	IPD1302
Matrix:	Soil
No. of Samples:	2
No. of Reanalyses:	0
Date Reviewed:	May 22,2006
Reviewer:	E. Wessling
Reference:	*National Functional Guidelines for Chlorinated Dioxin/Furan Data Review* (8/02), USEPA *Method 1613*
Samples Reviewed:	MJ776 and MJ777

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C. The samples were shipped to Alta for dioxin/furan analysis and were received below the temperature limits at 0.1°C. As the samples were not noted to be damaged or frozen, no qualifications were required. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. The original COC and transfer COC were signed and dated by field and laboratory personnel. According to a memo from MWH personnel dated 05/02/06, the samples were removed from hold and requested for dioxin/furan analysis. The COCs accounted for the analyses presented in this SDG. The EPA IDs were added to the sample result summaries.	No qualifications were required.

	Findings	Qualifications
Sample Management Cont.	The samples were extracted and analyzed within one year of sample collection.	No qualifications were required.
4. Method Blanks 0-7990-MB001	No target compounds were detected in the method blank.	No qualifications were required.
5 OPR 0-7990-OPR001	All recoveries were within the acceptance criteria listed in Table 6 of Method 1613.	No qualifications were required.
6. MS/MSDs	MS/MSD analyses were not performed on the samples in this SDG.	No qualifications were required.
7. Field QC Samples FB: None ER: None FD: None	No field QC samples were known to be associated with these two samples.	No qualifications were required.
10. Other	Target compound 2,3,7,8-TCDF was reported in sample MJ777; however, a confirmation analysis was not performed by the laboratory. There were detects reported below the laboratory lower calibration level. Diphenyl ether interference was present in sample MJ776 of this SDG and was denoted with a "D" flag by the laboratory. Several target compounds were reported as EMPCs by the laboratory in the samples of this SDG. Sample results were reported in units of pg/g on a dry-weight basis.	The detect for 2,3,7,8-TCDF was qualified as estimated, "J," in sample MJ777. Any detects below the laboratory lower calibration level were qualified as estimated, "J." The detect for total HxCDF in MJ776 with diethyl ether interference was qualified as estimated, "J." Any EMPCs were qualified as estimated nondetects, "UJ."
Comments	Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613 for all samples in this SDG.	None

[1] Level V validation consists of cursory review of the summary forms and chromatograms, and raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed include instrument performance, initial and continuing calibrations.

ALTA

Sample ID:	IPD1302-02 MJ777			EPA Method 1613
Client Data		**Sample Data**		**Laboratory Data**
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample: 27648-002
Project:	IPD1302	Sample Size:	11.6 g	QC Batch No.: 7990
Date Collected:	12-Apr-06	%Solids:	86.0	Date Analyzed DB-5: 5-May-06
Time Collected:	0920			Date Received: 3-May-06
				Date Extracted: 4-May-06
				Date Analyzed DB-225: NA

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	0.400			J
1,2,3,7,8-PeCDD	1.50			J
1,2,3,4,7,8-HxCDD	4.20			
1,2,3,6,7,8-HxCDD	15.6			
1,2,3,7,8,9-HxCDD	7.53			
1,2,3,4,6,7,8-HpCDD	505			
OCDD	5760			
2,3,7,8-TCDF	0.788			
1,2,3,7,8-PeCDF	0.388			J
2,3,4,7,8-PeCDF	0.992			J
1,2,3,4,7,8-HxCDF	1.81			J
1,2,3,6,7,8-HxCDF	1.83			J
2,3,4,6,7,8-HxCDF	3.02			
1,2,3,7,8,9-HxCDF	0.175			J
1,2,3,4,6,7,8-HpCDF	49.6			
1,2,3,4,7,8,9-HpCDF	4.24			
OCDF	123			

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	89.5	25 - 164	
	13C-1,2,3,7,8-PeCDD	93.4	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	90.8	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	87.5	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	85.7	23 - 140	
	13C-OCDD	68.9	17 - 157	
	13C-2,3,7,8-TCDF	94.4	24 - 169	
	13C-1,2,3,7,8-PeCDF	103	24 - 185	
	13C-2,3,4,7,8-PeCDF	106	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	90.5	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	85.3	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	88.3	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	86.0	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	83.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	83.9	26 - 138	
	13C-OCDF	69.9	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	88.0	35 - 197	

Totals			
Total TCDD	0.688		
Total PeCDD	10.4	11.6	
Total HxCDD	110		
Total HpCDD	930		
Total TCDF	7.34	7.57	
Total PeCDF	18.4		
Total HxCDF	79.4		B
Total HpCDF	208		

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 16.6

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (1989) International Toxic Equivalent Factors (ITEF).

Analyst: DMS

Approved By: William J. Luksemburg 08-May-2006 15:29

ALTA

Sample ID: IPD1302-01 MB776 — EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	27648-001	Date Received:	3-May-06
Project	IPD1302	Sample Size:	13.1 g	QC Batch No.:	7990	Date Extracted:	4-May-06
Date Collected:	12-Apr-06	%Solids:	76.7	Date Analyzed DB-5:	5-May-06	Date Analyzed DB-225	NA
Time Collected:	0904						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND		0.187	
1,2,3,7,8-PeCDD	0.381			J
1,2,3,4,7,8-HxCDD	1.17			J
1,2,3,6,7,8-HxCDD	9.40			
1,2,3,7,8,9-HxCDD	2.17			J
1,2,3,4,6,7,8-HpCDD	318			
OCDD	7310			
2,3,7,8-TCDF	ND	0.216		
1,2,3,7,8-PeCDF	ND	0.111		
2,3,4,7,8-PeCDF	0.216			J
1,2,3,4,7,8-HxCDF	0.908			J
1,2,3,6,7,8-HxCDF	0.560			J
2,3,4,6,7,8-HxCDF	1.55			J
1,2,3,7,8,9-HxCDF	ND	0.196		
1,2,3,4,6,7,8-HpCDF	48.9			
1,2,3,4,7,8,9-HpCDF	4.11			
OCDF	154			

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	89.7	25 - 164	
	13C-1,2,3,7,8-PeCDD	91.7	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	86.1	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	82.3	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	80.0	23 - 140	
	13C-OCDD	66.5	17 - 157	
	13C-2,3,7,8-TCDF	96.1	24 - 169	
	13C-1,2,3,7,8-PeCDF	101	24 - 185	
	13C-2,3,4,7,8-PeCDF	103	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	84.4	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	82.0	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	84.0	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	81.6	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	74.7	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	78.6	26 - 138	
	13C-OCDF	66.1	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	93.0	35 - 197	

Totals			
Total TCDD	ND	0.187	
Total PeCDD	1.40	1.88	
Total HxCDD	38.6		
Total HpCDD	568		
Total TCDF	0.626		
Total PeCDF	3.93	4.44	
Total HxCDF	56.3		B,D
Total HpCDF	236		

Toxic Equivalent Quotient (TEQ) Data [c]

TEQ (Min): 13.0

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (1989) International Toxic Equivalent Factors (ITEF).

Analyst: DMS

Approved By: William J. Luksemburg 08-May-2006 15:29

12269 East Vassar Drive, Aurora, CO 80014
303.881.6816, Fax 720.535.7555

DATA ASSESSMENT FORM

Project Title:	Boeing SSFL RFI, Group 6 Data Gap
Project Manager:	D. Hambrick
Analysis/Method:	Dioxin/Furans by Method 1613
QC Level:	V[1]
SDG:	IPB1641
Matrix:	Soil
No. of Samples:	2
No. of Reanalyses:	0
Date Reviewed:	March 16, 2006
Reviewer:	K. Shadowlight
Reference:	*National Functional Guidelines for Chlorinated Dioxin/Furan Data Review* (8/02), USEPA *Method 1613*
Samples Reviewed:	MJ637, MJ645

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The samples were received at Del Mar within the temperature limits of 4° ±2°C. The samples were shipped to Alta for dioxin/furan analysis and were received below the temperature limits at 0°C. As the samples were not noted to be damaged or frozen, no qualifications were required. As the samples were couriered directly from the field to the laboratory, custody seals were not necessary. The original COC and transfer COC were signed and dated by field and laboratory personnel. The COCs accounted for the analyses presented in this SDG. The EPA IDs were added to the sample result summaries. The samples were extracted and analyzed within one year of sample collection.	No qualifications were required.

	Findings	Qualifications
4. Method Blanks 0-7786-MB001	Target compound 1,2,3,4,6,7,8-HpCDF was reported at a concentration below the laboratory lower calibration level in the method blank. This target compound was also reported in the samples of this SDG. The detect for 1,2,3,4,6,7,8-HpCDF in sample MJ637 was less than five times the concentration reported in the method blank. A portion of total HpCDF in sample MJ637 was qualified for method blank contamination. The detect for 1,2,3,4,6,7,8-HpCDF in sample MJ645 exceeded five times the concentration reported in the method blank. Target compounds 1,2,3,6,7,8-HxCDF and total HxCDF were reported as EMPCs in the method blank	The detect for 1,2,3,4,6,7,8-HpCDF in sample MJ637 was qualified as an estimated nondetect, "UJ," at the level of contamination. The result for total HpCDF was qualified as estimated, "J," in sample MJ637.
5. OPR 0-7786-OPR001	All recoveries were within the acceptance criteria listed in Table 6 of Method 1613.	No qualifications were required.
6. MS/MSDs	MS/MSD analyses were not performed on the samples in this SDG	No qualifications were required.
7. Field QC Samples FB: None ER: MJ615 (IPB1429) FD: None	Target compounds 1,2,3,4,6,7,8-HpCDD and OCDD were reported at concentrations below the laboratory lower calibration level in the equipment rinsate. HpCDD and OCDD were also reported in sample MJ637 at concentrations less than five times the amount in the equipment rinsate. The remaining detects for HpCDD and OCDD exceeded five times the concentrations reported in the method blank.	The detect for HpCDD in sample MJ637 was qualified as estimated, "J."

	Findings	Qualifications
10. Other	Target compound 1,2,3,7,8-PeCDF was reported as an EMPC in sample MJ645	The EMPC was qualified as an estimated nondetect, "UJ."
	Target compound 2,3,7,8-TCDF was reported in sample MJ645; however, a confirmation analysis was not performed by the laboratory	The detect for 2,3,7,8-TCDF was qualified as estimated, "J," in sample MJ645.
	There were detects reported below the laboratory lower calibration level.	Any detects below the laboratory lower calibration level were qualified as estimated, "J."
	Sample results were reported in units of pg/g on a dry-weight basis.	
Comments	Internal standard recoveries are not routinely evaluated at a Level V validation; however, the recoveries were reported on the sample result summaries. The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613 for all samples in this SDG.	None

[1] Level V validation consists of cursory review of the summary forms and chromatograms, and raw data is not evaluated. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed. Criteria not reviewed include instrument performance, initial and continuing calibrations.

Sample ID: IPB1641-01				EPA Method 1613				
Client Data		**Sample Data**		**Laboratory Data**				
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	27304-001	Date Received:	18-Feb-06	
Project:	IPB1641	Sample Size:	11.7 g	QC Batch No.:	7786	Date Extracted:	26-Feb-06	
Date Collected:	15-Feb-06	%Solids:	87.4	Date Analyzed DB-5:	28-Feb-06	Date Analyzed DB-225:	NA	

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
2,3,7,8-TCDD	ND	0.0750			IS 13C-2,3,7,8-TCDD	98.9	25 - 164	
1,2,3,7,8-PeCDD	ND	0.103			13C-1,2,3,7,8-PeCDD	101	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.207			13C-1,2,3,4,7,8-HxCDD	91.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.218			13C-1,2,3,6,7,8-HxCDD	100	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.206			13C-1,2,3,4,6,7,8-HpCDD	109	23 - 140	
1,2,3,4,6,7,8-HpCDD	1.02			J	13C-OCDD	83.6	17 - 157	
OCDD	9.73				13C-2,3,7,8-TCDF	103	24 - 169	
2,3,7,8-TCDF	ND	0.0972			13C-1,2,3,7,8-PeCDF	101	24 - 185	
1,2,3,7,8-PeCDF	ND	0.125			13C-2,3,4,7,8-PeCDF	100	21 - 178	
2,3,4,7,8-PeCDF	ND	0.119			13C-1,2,3,4,7,8-HxCDF	108	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.0782			13C-1,2,3,6,7,8-HxCDF	108	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.0780			13C-2,3,4,6,7,8-HxCDF	99.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.0924			13C-1,2,3,7,8,9-HxCDF	95.7	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.158			13C-1,2,3,4,6,7,8-HpCDF	93.5	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.195			J,B	13C-1,2,3,4,7,8,9-HpCDF	115	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.131			13C-OCDF	97.1	17 - 157	
OCDF	ND	0.278			CRS 37Cl-2,3,7,8-TCDD	88.0	35 - 197	

Totals			Toxic Equivalent Quotient (TEQ) Data [e]
Total TCDD	ND	0.0750	TEQ (Min): 0.0219
Total PeCDD	ND	0.103	
Total HxCDD	ND	0.210	a. Sample specific estimated detection limit.
Total HpCDD	1.73		b. Estimated maximum possible concentration.
Total TCDF	0.116		c. Method detection limit.
Total PeCDF	0.143		d. Lower control limit - upper control limit.
Total HxCDF	ND	0.0981	e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF).
Total HpCDF	0.538	B	

Analyst: DMS

Approved By: William J. Luksemburg 02-Mar-2006 07:57

Sample ID: IPB1641-09 MB

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	27304-002	Date Received:	18-Feb-06
Project:	IPB1641	Sample Size:	11.2 g	QC Batch No.:	7786	Date Extracted:	26-Feb-06
Date Collected:	15-Feb-06	%Solids:	90.2	Date Analyzed DB-5:	28-Feb-06	Date Analyzed DB-225:	NA
Time Collected:	1158						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.128		
1,2,3,7,8-PeCDD	0.316			J
1,2,3,4,7,8-HxCDD	1.05			J
1,2,3,6,7,8-HxCDD	3.22			
1,2,3,7,8,9-HxCDD	1.47			J
1,2,3,4,6,7,8-HpCDD	125			
OCDD	1800			
2,3,7,8-TCDF	0.515			
1,2,3,7,8-PeCDF	ND		0.165	
2,3,4,7,8-PeCDF	0.414			J
1,2,3,4,7,8-HxCDF	0.747			J
1,2,3,6,7,8-HxCDF	0.445			J
2,3,4,6,7,8-HxCDF	0.800			J
1,2,3,7,8,9-HxCDF	ND	0.408		
1,2,3,4,6,7,8-HpCDF	13.8			B
1,2,3,4,7,8,9-HpCDF	1.10			J
OCDF	32.2			

Totals				
Total TCDD	ND	0.128		
Total PeCDD	1.89		2.36	
Total HxCDD	20.5			
Total HpCDD	248			
Total TCDF	1.84		1.99	
Total PeCDF	4.61		4.78	
Total HxCDF	17.8			
Total HpCDF	50.7			B

Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS 13C-2,3,7,8-TCDD	101	25 - 164	
13C-1,2,3,7,8-PeCDD	104	25 - 181	
13C-1,2,3,4,7,8-HxCDD	88.8	32 - 141	
13C-1,2,3,6,7,8-HxCDD	97.2	28 - 130	
13C-1,2,3,4,6,7,8-HpCDD	80.4	23 - 140	
13C-OCDD	76.2	17 - 157	
13C-2,3,7,8-TCDF	99.7	24 - 169	
13C-1,2,3,7,8-PeCDF	102	24 - 185	
13C-2,3,4,7,8-PeCDF	97.3	21 - 178	
13C-1,2,3,4,7,8-HxCDF	97.5	26 - 152	
13C-1,2,3,6,7,8-HxCDF	98.7	26 - 123	
13C-2,3,4,6,7,8-HxCDF	95.8	28 - 136	
13C-1,2,3,7,8,9-HxCDF	94.9	29 - 147	
13C-1,2,3,4,6,7,8-HpCDF	85.3	28 - 143	
13C-1,2,3,4,7,8,9-HpCDF	81.9	26 - 138	
13C-OCDF	83.8	17 - 157	
CRS 37Cl-2,3,7,8-TCDD	86.3	35 - 197	

Toxic Equivalent Quotient (TEQ) Data [e]
TEQ (Min): 4.40

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF).

Analyst: DMS

Approved By: William J. Luksemburg 02-Mar-2006 07:57

550 South Wadsworth Boulevard, Suite 500, Lakewood, CO 80026
303.935.6505, Fax 303.935.6575

DATA ASSESSMENT FORM

Project Title:	Rocketdyne SSFL RFI
Project Manager:	D. Hambrick
Analysis/Method:	PCBs by EPA Method 8082
QC Level:	V[1]
SDG:	MJ246
Matrix:	Soil
No. of Samples:	3
No. of Reanalyses/Dilutions:	0
Date Reviewed:	June 17, 2004
Reviewer:	P. Meeks
Reference:	National Functional Guidelines for Organic Data Review (2/94)
Samples Reviewed:	MJ246, MJ247, MJ248

Data Validation Findings

	Findings	Qualifications
1. Sample Management	The COC was signed by field and laboratory personnel and accounted for the samples and analyses presented in this SDG. The MWH ID for sample MJ247 was changed per a memo from MWH personnel dated 05/23/03. The case narrative for this SDG noted that the samples were received intact, with a cooler temperature within the limits of 4°C ± 2°C. According to the sample result sheets, the samples were extracted within 14 days of collection, and the sample analyses were performed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was extracted and analyzed with this SDG. There were no target compounds reported in the method blank.	No qualifications were required.

	Findings	Qualifications
5. LCS/BS	One soil blank spike was extracted and analyzed with this SDG. Percent recoveries for Aroclor 1016 and Aroclor 1260 were within the laboratory-established QC limits.	No qualifications were required.
6. Surrogates	The surrogate recoveries for the sample analyses were within the laboratory-established QC limits.	No qualifications were required.
7. MS/MSDs None	None.	No qualifications were required.
8. Field QC Samples FB: None ER: None Field Duplicates: none	None.	No qualifications were required.
9. Other	The intercolumn %D exceeded 25% for the reported Aroclor 1254 detects in samples MJ246 and MJ248. After the analysis of these samples, it was determined that Ceimic Corporation's California State certification had lapsed.	Aroclor 1254 in samples MJ246 and MJ248 was qualified as estimated, "J." Although the data in this SDG is considered to be technically sound; the results for all samples in this SDG were qualified as estimated, "UJ," for nondetects and "J," for detects.
Comments		

[1] Level V validation consists of cursory review of the summary forms only. The reported values on the summary forms are presumed to be correct and no verification of the values from the raw instrument output is performed.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MJ246

Lab Name: CEIMIC CORP Contract: BOEING SSFL

Lab Code: CEIMIC Case No.: BOEING SAS No.: SDG No.: MJ246

Matrix: (soil/water) SOIL Lab Sample ID: 030606-01

Sample wt/vol: 30.4(g/mL) G Lab File ID: _____

% Moisture: 12 Decanted: (Y/N) N Date Received: 05/23/03

Extraction: (Type) SONC Date Extracted: 05/24/03

Concentrated Extract Volume: 10000(uL) Date Analyzed: 05/28/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
12674-11-2	Aroclor-1016	37	U	UJ	
11104-28-2	Aroclor-1221	75	U		
11141-16-5	Aroclor-1232	37	U		
53469-21-9	Aroclor-1242	37	U		
12672-29-6	Aroclor-1248	37	U		
11097-69-1	Aroclor-1254	62	P	J	*
11096-82-5	Aroclor-1260	37	U	UJ	

PM 06/18/04

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MJ247

Lab Name: CEIMIC CORP Contract: BOEING SSFL

Lab Code: CEIMIC Case No.: BOEING SAS No.: SDG No.: MJ246

Matrix: (soil/water) SOIL Lab Sample ID: 030606-02

Sample wt/vol: 30.2(g/mL) G Lab File ID: _____

% Moisture: 7 Decanted: (Y/N) N Date Received: 05/23/03

Extraction: (Type) SONC Date Extracted: 05/24/03

Concentrated Extract Volume: 10000(uL) Date Analyzed: 05/28/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual	Qual Code
12674-11-2	Aroclor-1016	35	U	UJ	
11104-28-2	Aroclor-1221	72	U		
11141-16-5	Aroclor-1232	35	U		
53469-21-9	Aroclor-1242	35	U		
12672-29-6	Aroclor-1248	35	U		
11097-69-1	Aroclor-1254	35	U		
11096-82-5	Aroclor-1260	35	U		

pm 06/18/04

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MJ248

Lab Name: CEIMIC CORP Contract: BOEING SSFL

Lab Code: CEIMIC Case No.: BOEING SAS No.: SDG No.: MJ246

Matrix: (soil/water) SOIL Lab Sample ID: 030606-03

Sample wt/vol: 30.3(g/mL) G Lab File ID: _____

% Moisture: 11 Decanted: (Y/N) N Date Received: 05/23/03

Extraction: (Type) SONC Date Extracted: 05/24/03

Concentrated Extract Volume: 10000(uL) Date Analyzed: 05/28/03

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Per Qual	Qual Code
12674-11-2	Aroclor-1016	37	U	UJ	*
11104-28-2	Aroclor-1221	75	U		
11141-16-5	Aroclor-1232	37	U		
53469-21-9	Aroclor-1242	37	U		
12672-29-6	Aroclor-1248	37	U		
11097-69-1	Aroclor-1254	120	P	J	*
11096-82-5	Aroclor-1260	37	U	UJ	

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