## CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA AMEC Earth & Environmental Package ID T703DF7 550 South Wadsworth Boulevard Task Order Suite 500 SDG No. Lakewood, CO 80226 No. of Analyses Laboratory Date: 03.1 Reviewer L. Analysis/Method Dioxins/Furans ACTION ITEMS<sup>a</sup> Case Narrative Deficiencies Out of Scope Analyses Analyses Not Conducted Missing Hardcopy **Deliverables** Incorrect Hardcopy **Deliverables** Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance COMMENTS<sup>b</sup>

Subcontracted analytical laboratory is not meeting contract and/or method requirements.

Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



# **DATA VALIDATION REPORT**

# Rocketdyne Former Sodium Disposal Facility Site Sampling Program

ANALYSIS: POLYCHLORINATED DIOXINS AND FURANS SAMPLE DELIVERY GROUP: IJH0950

Prepared by

AMEC—Denver Operations 550 South Wadsworth Boulevard, Suite 500 Lakewood, Colorado 80226

Rocketdyne IJH0950 D/F

DATA VALIDATION REPORT

## 1. INTRODUCTION

Task Order Title:

Rocketdyne

Former Sodium Disposal Facility Site Sampling

Program

Contract Task Order #:

313150008

SDG#:

IJH0950

Project Manager:

D. Hambrick Soil

Matrix:

Analysis: Dioxins/Furans

11

QC Level: IV

No. of Samples:

No. of Reanalyses/Dilutions: 0

Reviewer:

L. Calvin

Date of Review:

March 11, 2002

The samples listed in Table 1 were validated based on the guidelines outlined in the National Functional Guidelines for Organic Data Review (2/94), Triangle Laboratories, Inc. SOP DHR182 Version 8 (11/01), and SW-846 Method 8290 (9/94). Any deviations from these 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
CAC-89BE	CAC-89BE	IJH0950-11	soil	8290
CAC-89BW	CAC-89BW	IJH0950-17	soil	8290
CAC-90BE	CAC-90BE	IJH0950-09	soil	8290
CBC-91S	CBC-91S	IJH0950-01	soil	8290
CBC-92S	CBC-92S	IJH0950-02	soil	8290
CBC-93S	CBC-93S	IJН0950-06	soil	8290
CBC-94SW	CBC-94SW	IJH0950-07	soil	8290
PC-24	PC-24	IJH0950-15	soil	8290
PC-25	PC-25	IJН0950-14	soil	8290
PC-27	PC-27	IJH0950-04	soil	8290
PC-28	PC-28	IJH0950-05	soil	8290
PC-28D	PC-28D	IJH0950-16	soil	8290

IJH0950 Analysis: D/F

## 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 in this SDG were received at both Del Mar Analytical Laboratory and Triangle Laboratories within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were received intact and in good condition. No qualifications were required.

### 2.1.2 Chain of Custody

The COCs provided in the data package pertained to the transfer of samples from the field to Del Mar Laboratory, and from Del Mar to Triangle Laboratories. The COCs noted cooler temperatures and sample conditions upon receipt. The laboratory login sheets indicated custody seals were present and intact on both the coolers and sample containers. No qualifications were required.

### 2.1.3 Holding Times

The samples were extracted within 30 days of collection and analyzed within of 45 days of extraction. No qualifications were required.

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

### 2.2.1 GC Column Performance

The chromatographic separation was acceptable with a valley less than 25% between 2.3.7.8-TCDD and the other tetra-dioxin isomers on the DB-5 column and between 2,3,7,8-TCDF and the other tetrafuran isomers on the DB-225 column. All samples were run within 12 hours of a preceding GC Column Performance Check Solution analysis. No qualifications were required.

### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable. The SIM sensitivity was acceptable with a static resolving power of at least 10,000. M/Z 292.9825 was used as the low mass PFK reference ion and M/Z 416.9760 or M/Z 330.9792 was used as the high mass PFK reference ion. This deviation from the method was deemed acceptable. No qualifications were required.

Project: SDG No.: Analysis: Rocketdyne IJH0950 D/F

DATA VALIDATION REPORT

2.3 CALIBRATION

Following are findings associated with calibrations.

2.3.1 Initial Calibration

Two initial calibrations were analyzed on the DB-5 column dated 07/14/00 from two different instruments, and one initial calibration dated 11/22/99 was analyzed on the DB-225 column. The %RSDs were less than 20% for unlabeled compounds and less than 30% for the labeled compounds. All reported ion abundance ratios were within the QC windows and the signal-to-noise (S/N) ratios were greater than 10 for all compounds. No qualifications were required.

2.3.2 Continuing Calibration

The %Ds were less than 20% for unlabeled compounds and less than 30% for labeled compounds in all continuing calibrations. The ion abundance ratios were within the QC windows and S/N ratios were greater than 10 for all compounds. No qualifications were required.

2.4 BLANKS

One method blank was extracted and analyzed with the samples of this SDG. There were no reported detects in the method blank, and review of the method blank raw data revealed no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One LCS/LCSD pair was extracted and analyzed with the samples of this SDG. In both the LCS and LCSD, recoveries were above the laboratory control limits of 70-130% for 1,2,3,7,8-PeCDF and 2,3,4,7,8-PeCDF. The reported detects for 2,3,4,7,8-PeCDF in sample CAC-89BE and for both compounds in sample CAC-89BW were qualified as estimated, "J." As there were no other detects for the aforementioned compounds in the associated samples, no further qualifications were necessary for the elevated recoveries. All RPDs were within the method control limit of 20%. No further qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were performed on any of the samples. Evaluation of method accuracy and precision was based on the LCS/LCSD results. No qualifications were required.

Rocketdyne IJH0950 Analysis: D/F

### 2.7 FIELD QC SAMPLES

Following are findings associated with field OC:

## 2.7.1 Field Blanks and Equipment Rinsates

There were no identified field QC samples associated with the samples in this SDG. qualifications were required.

## 2.7.2 Field Duplicates

Samples PC-28 and PC-28D were the field duplicate pair associated with this SDG. Qualifications are not routinely assigned to sample results on the basis of field duplicate results; however, RPDs are calculated for those compounds present in both samples. If RPDs are greater than 50% for waters or 100% for soils, the RPDs and affected analytes are noted in the data validation report. Detects for 1,2,3,4,6,7,8,9-OCDD were reported in both samples at concentrations below the lower calibration level, with a calculated RPD of 9%. There were no other reported detects in either sample. The pair was considered to be in good agreement.

#### 2.8 INTERNAL STANDARDS

The laboratory utilized 40-130% and 25-130% for the internal standard recovery limits. The control limits specified in Method 8290 are 40-135%. The method-specified control limits were utilized for the validation. All internal standard recoveries were within the method control limits; therefore, no qualifications were necessary.

### 2.9 COMPOUND IDENTIFICATION

Identification of the reported detects was verified from the raw data for representative number of samples. The detects met the criteria for the signal-to-noise ratio and ion abundance ratios. The method, however, also requires that the quantitation ions must reach maximum simultaneously (within ±2 seconds) for all detects. As the laboratory raw data recorded the retention time of only one of the two ions, this identification criteria could not be verified.

Due to the non-specificity of 2,3,7,8-TCDF on the DB-5 column, confirmation analyses for samples with detects for 2,3,7,8-TCDF on the DB-5 column were performed on a DB-225 column. Since the laboratory reported the 2,3,7,8-TCDF results from both columns, the results on the DB-5 column were rejected, "R," in favor of the results from the DB-225 column for samples CAC-89BE and CBC-92S. As confirmation analysis was not performed for the 2,3,7,8-TCDF result in sample CAC-89BW, the result was qualified as estimated, "J." No further qualifications were required.

D/F

Analysis:

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

The compound quantitations were verified from the raw data for a representative number of reported detects and no errors were noted. The compounds denoted with the laboratory qualifier, "J," were detects reported below the lower method calibration limit (MCL). The concentration of 1,2,3,4,6,7,8,9-OCDD in sample CAC-89BE exceeded the linear range of the calibration. The result was qualified as estimated, "J."

The compounds reported only at the "Estimated Maximum Possible Concentration" (EMPC) on the associated sample results summary forms were qualified as estimated nondetects, "UJ." The compounds reported at the EMPC, by definition, are signals which do not meet the ion abundance ratio identification criteria (although retention time and signal to noise criteria are met); therefore, all EMPCs are considered nondetects.

Any reported total results which were also reported as EMPCs were qualified as estimated, "J," since those results include at least one or more individual target compound congener results meeting all identification criteria, as well as peaks not meeting criteria. The total compounds reported with the laboratory qualifier of "X," indicating the presence of diphenyl ether interference, were also reported as EMPCs even if the ion abundance ratios were acceptable. Since those EMPCs were already qualified as estimated, "J," no further qualification was necessary.

The laboratory made a deviation to the calculation of estimated detection limits (EDLs). The method specifies that the EDLs be calculated using the sum of the heights of the noise level for each quantitation ion for specific 2,3,7,8-substituted PCDD/PCDFs; however, the laboratory measured only the height of the noise levels of both quantitation ions for 2,3,7,8-TCDD. The sum of these heights was then multiplied by a laboratory-derived factor used to convert height to area. This factor could not be verified by the reviewer and it was not possible to ascertain how this value was derived. This area, then, was used to calculate the EDLs for all target compounds; therefore, the EDLs reported are not compound-specific as the method specifies. Evaluation of the raw data for all samples indicated that using the noise level for 2,3,7,8-TCDD produced generally higher EDLs than other substituted congeners; therefore, the reported EDLs are likely to be more conservative than compound-specific detection limits. qualification was deemed necessary, it should be noted that the EDLs are not compound-specific.

No further qualifications were required.

TLI Project:

51765A

Method 8290 PCDD/PCDF Analysis (b)

Client Sample: IJH0

IJH0950-11

Analysis File: U140703

Client Project: IIH0950 Sample Matrix: SOIL Date Received: 08/30/2000 Spike File: SPMIT32S TLI ID: 268-92-10 Date Extracted: 08/30/2000 ICal: UF57140 Date Analyzed: 09/06/2000 ConCal: U001405 CAMPAGE Sample Size: 12.100 g Dilution Factor: n/a % Moisture: 2.6 Dry Weight: 11.785 g Blank File: T004301 % Lipid: n/a GC Column: DB-5 % Solids: Analyst: **TMD** 97.4

Analytes	veu Val	Conc.	(ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	\ \ \ \	NI	)	0.3		-		
1,2,3,7,8-PeCDD	<b>4</b>	NL		0.4				
1,2,3,4,7,8-HxCDD	J	1.3	Į			1.14	34:17	
1,2,3,6,7,8-HxCDD		4.8	<b>}</b> ·			1.24	34:22	
1,2,3,7,8,9-HxCDD	J	3.0	5			1.22	34:41	J
1,2,3,4,6,7,8-HpCDD		320				1.05	37:38	
1,2,3,4,6,7,8,9-OCDD	J	* 10 6220				0.83	41:17	E
2,3,7,8-TCDF	灭	<b>b</b> 4.4	ļ			0.72	26:18	
1,2,3,7,8-PeCDF	W	NI	)	0.3				
2,3,4,7,8-PeCDF	J	<b>1</b> 2.2				1.41	30:51	J
1,2,3,4,7,8-HxCDF	J	4.2				1.31	33:36	J
1,2,3,6,7,8-HxCDF	Province Co.	2.1				1.31	33:42	J
2,3,4,6,7,8-HxCDF		2.7				1.19	34:10	J
1,2,3,7,8,9-HxCDF	V	0.9			,	1.11	34:57	J
1,2,3,4,6,7,8-HpCDF		18.7				1.05	36:37	
1,2,3,4,7,8,9-HpCDF	T	3.2				0.94	38:09	J
1,2,3,4,6,7,8,9-OCDF		18.7	1			0.89	41:29	
	100							

Totals			Conc. (ppt)	Numbe	r DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	M	*10.	ND EMPC 35.1 649	7 2	0.3	0.30	
Total TCDF Total PeCDF Total HxCDF Total HpCDF	7	*10	16.7 17.0 32.1 53.2	7 7 10 3		37.0 30.5 40.5 59.6	X_ X_ X_ X_



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TLI Project:

51765A

Method 8290 TCDD/TCDF Analysis (DB-225)

Client Sample:

IIH0950-11

Analysis File:

P003070

Client Project:

IIH0950

Sample Matrix: TLI ID:

SOIL 268-92-10 Date Received: Date Extracted:

08/30/2000 08/30/2000

Spike File: IČal:

SPC2NF2S PF2N229

111-39

Date Analyzed:

09/06/2000

ConCal:

P003065

Sample Size:

12.100 g 11.785 g Dilution Factor: n/a

DL

T004301

% Moisture: % Lipid:

2.6 n/a

Dry Weight: GC Column:

DB-225

Blank File: Analyst:

**DPW** 

% Solids:

97.4

**Analytes** 2,3,7,8-TCDF Conc. (ppt) 2.4

**EMPC** 

Ratio 0.80

RT Flags

Flags

Flags

Internal Standard Conc. (ppt) % Recovery

**QC Limits** 

Ratio RT

23:36

<sup>13</sup>C<sub>12</sub>-2,3,7,8-TCDF

151

89.1

40%-130%

0.78

Ratio

23:35

**Recovery Standard** 

<sup>13</sup>C<sub>12</sub>-1,2,3,4-TCDD

0.81

22:23

RT

MC 1.02

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Data Reviewer:

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TLI Project:

51765A

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJH0950-17

Analysis File: U140707

Client Project Sample Matri: TLI ID:		Date Received: Date Extracted: Date Analyzed:	08/30/2000	Spike File: ICal: ConCal:	SPMIT32S UF57140 U001405
Sample Size:	12.400 g	Dilution Factor:	n/a	% Moisture:	2.2
Dry Weight:	12.127 g	Blank File:	T004301	% Lipid:	n/a
GC Column:	DB-5	Analyst:	TMD	% Solids:	97.8

Analytes	qual	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	u	ND	0.2				
1,2,3,7,8-PeCDD	UJ UJ	*ID EMPC	0.2	0.92			<u></u>
1,2,3,4,7,8-HxCDD	J	0.98		0.72	1.05	34:17	J
1,2,3,6,7,8-HxCDD	1	1.3			1.18	34:22	J
1,2,3,7,8,9-HxCDD	The state of the s	1.6			1.22	34:41	J
1,2,3,4,6,7,8-HpCDD	$\downarrow$	3.9			1.01	37:38	J
1,2,3,4,6,7,8,9-OCDD		26.6			0.82	41:16	
	E-GS/MB/977/No-						
2,3,7,8-TCDF		*9 0.74			0.75	26:17	J
1,2,3,7,8-PeCDF	J.	1.4			1.48	30:10	J
2,3,4,7,8-PeCDF	V	1.2			1.62	30:51	J
1,2,3,4,7,8-HxCDF	J	1.3			1.35	33:35	J
1,2,3,6,7,8-HxCDF	O) O	1.1			1.19	33:41	J
2,3,4,6,7,8-HxCDF	and the same of th	1.2			1.37	34:10	J
1,2,3,7,8,9-HxCDF	Microsophia	1.8			1.33	34:58	J
1,2,3,4,6,7,8-HpCDF	Treit Carrier	2.8			0.96	36:36	J
1,2,3,4,7,8,9-HpCDF	an control	1.3			1.05	38:08	J
1,2,3,4,6,7,8,9-OCDF	<b>√</b>	3.2			0.89	41:28	J

Totals		Conc. (ppt)	Numbe	r DL	EMPC	Flags
Total TCDD	V.	ND		0.2		
Total PeCDD	<i>L</i> VJ	*10 EMPC			0.92	
Total HxCDD	J	* ID 3.9	3		4.8	
Total HpCDD	A. Carlotte	7.4	2			
Total TCDF	STATE OF THE PERSON NAMED IN	0.74	1			
Total PeCDF		2.6	2			·
Total HxCDF	of state of the st	6.5	6			
Total HpCDF	ownership	5.7	3			
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TLI Project:

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Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJH0950-09

Analysis File: T004309

Client Project: IJH0950 Sample Matrix: SOIL Date Received: 08/30/2000 Spike File: SPMIT32S TLI ID: 268-92-8 Date Extracted: 08/30/2000 ICal: TF57140 Date Analyzed: 09/06/2000 UM-90 RE ConCal: T004299 Sample Size: 12.000 g Dilution Factor: n/a % Moisture: 7.2 Dry Weight: 11.136 g Blank File: T004301 % Lipid: n/a GC Column: DB-5 Analyst: **TMD** % Solids: 92.8

Analytes	fual	teat Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	u	ND	0.4		,		**************************************
1,2,3,7,8-PeCDD	1	ND	0.7				
1,2,3,4,7,8-HxCDD	- September - Sept	ND	0.4				
1,2,3,6,7,8-HxCDD	l	ND	0.4				
1,2,3,7,8,9-HxCDD	$\downarrow$	ND	0.4				
1,2,3,4,6,7,8-HpCDD	T	1.3			0.97	37:11	J
1,2,3,4,6,7,8,9-OCDD	****	10.8			0.91	41:01	
		777					
2,3,7,8-TCDF	U	ND	0.3				-
1,2,3,7,8-PeCDF		ND	0.4				
2,3,4,7,8-PeCDF	Manager 1	ND	0.4				
1,2,3,4,7,8-HxCDF	279/2000	ND	0.3				-
1,2,3,6,7,8-HxCDF		ND	0.3				Application of the second
2,3,4,6,7,8-HxCDF		ND	0.3				
1,2,3,7,8,9-HxCDF		ND	0.3				
1,2,3,4,6,7,8-HpCDF	OCCUPANTS CONTRACTOR	ND	0.3				
1,2,3,4,7,8,9-HpCDF		ND	0.4				
1,2,3,4,6,7,8,9-OCDF	$\mathbf{V}$	ND	0.6				
	-						

Totals	Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	 ND ND ND 2.5	2	0.4 0.7 0.4		
Total TCDF Total PeCDF Total HxCDF Total HpCDF	ND ND ND ND		0.3 0.4 0.3 0.3		



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TLI Project:

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Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IIH0950-01

Analysis File: T004302

Client Project: IJH0950 Sample Matrix: SOIL Date Received: 08/30/2000 Spike File: SPMIT32S TLI ID: 268-92-1 Date Extracted: 08/30/2000 ICal: TF57140 Date Analyzed: 09/06/2000 ConCal: T004299 UFA-915 11.500 g Sample Size: Dilution Factor: n/a % Moisture: 4.3 Dry Weight: 11.006 g Blank File: T004301 % Lipid: n/a GC Column: DB-5 Analyst: **TMD** % Solids: 95.7

Analytes	Yey Tual	Code Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ル 人	ND	0.5		-		
1,2,3,7,8-PeCDD	1	ND	0.7				
1,2,3,4,7,8-HxCDD		ND	0.7				
1,2,3,6,7,8-HxCDD		ND	0.7				
1,2,3,7,8,9-HxCDD		ND	0.7				
1,2,3,4,6,7,8-HpCDD	$\downarrow$	ND	1.0				
1,2,3,4,6,7,8,9-OCDD		16.0			0.90	41:01	
2.2.7.0 EODE			0.4				
2,3,7,8-TCDF	K	ND	0.4				****
1,2,3,7,8-PeCDF	em with the	ND	0.5				
2,3,4,7,8-PeCDF	DOZGOWA	ND	0.4				
1,2,3,4,7,8-HxCDF	- CONTRACTOR CONTRACTO	ND	0.5				and the second
1,2,3,6,7,8-HxCDF	STreetours	ND	0.4				
2,3,4,6,7,8-HxCDF	2000	ND	0.5				
1,2,3,7,8,9-HxCDF	III.	ND	0.6				
1,2,3,4,6,7,8-HpCDF	and the same	ND	0.6				
1,2,3,4,7,8,9-HpCDF		ND	0.8				and the second state of
1,2,3,4,6,7,8,9-OCDF	<b>V</b>	ND	1.3				
							35-4-4-4-4

Totals		Conc. (ppt) Ni	umber DL EMPO	C	Flags
Total TCDD	ķ l	ND	0.5		
Total PeCDD		ND	0.7		
Total HxCDD	didatrota	ND	0.7		
Total HpCDD	<b>V</b>	ND	1.0		
Total TCDF	v l	ND	0.4		
Total PeCDF	and the second	ND	0.5		
Total HxCDF		ND	0.5		
Total HpCDF	<b>V</b>	ND	0.7		
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TLI Project:

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Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJH0950-02

Analysis File:

T004303

Client Project: IJH0950 Sample Matrix: SOIL TLI ÎD:

Date Received: 268-92-2 Date Extracted: 08/30/2000

08/30/2000 Date Analyzed: 09/06/2000

Spike File: IČal: ConCal:

SPMIT32S TF57140

T004299

Sample Size: Dry Weight:

CEO-925 11.600 g 11.391 g

Dilution Factor: n/a Blank File:

T004301

% Moisture: % Lipid:

1.8 n/a

GC Column:

DB-5

مدال مصد

Analyst:

**TMD** 

% Solids:

98.2

Analytes	gual	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	L U	ND	0.6				
1,2,3,7,8-PeCDD	Ŷ	ND	0.7		•		
1,2,3,4,7,8-HxCDD		ND	0.6				
1,2,3,6,7,8-HxCDD	J	2.1	0.0		1.06	33:50	<u></u>
1,2,3,7,8,9-HxCDD	$\tilde{\psi}$	2.5			1.30	34:09	J
1,2,3,4,6,7,8-HpCDD	- 1	57.2			1.06	37:12	<u> </u>
1,2,3,4,6,7,8,9-OCDI	1	706		,	0.86	41:01	
2,3,7,8-TCDF	K	1.9			0.82	25:50	
1,2,3,7,8-PeCDF		ND	0.5				
2,3,4,7,8-PeCDF	7	ND	0.5				
1,2,3,4,7,8-HxCDF	J	1.7			1.26	33:03	J
1,2,3,6,7,8-HxCDF	Question of the second	0.92			1.05	33:09	J
2,3,4,6,7,8-HxCDF	1	0.98			1.14	33:38	J
1,2,3,7,8,9-HxCDF	U	ND	0.5				
1,2,3,4,6,7,8-HpCDF		8.0			0.94	36:07	
1,2,3,4,7,8,9-HpCDF	u	ND	0.6				
1,2,3,4,6,7,8,9-OCDF		20.4			0.86	41:15	-

Totals		Conc. (ppl	) Numbe	r DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	T	ND ND 17.0 147	5 2	0.6 0.7	,	
Total TCDF Total PeCDF Total HxCDF Total HpCDF		10.3 13.5 13.3 27.0	5 3 5 3		22.5 15.2 17.9	XX

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TLI Project:

51765A

Method 8290 TCDD/TCDF Analysis (DB-225)

Client Sample:

IJH0950-02

Analysis File: P003068

Client Project: Sample Matrix: TLI ID:	IJH0950 SOIL 268-92-2	Date Received: Date Extracted: Date Analyzed:	08/30/2000	Spike File: ICal: ConCal:	SPC2NF2S PF2N229 P003065
Sample Size:	11.600 g	Dilution Factor:	n/a	% Moisture:	1.8
Dry Weight:	11.391 g	Blank File:	T004301	% Lipid:	n/a
GC Column:	DB-225	Analyst:	DPW	% Solids:	98.2

Analytes gus	Conc. (ppt) DL	EMPC Ratio	RT	Flags
2,3,7,8-TCDF	1.1	0.76	23:36	

Internal Standard	Conc. (ppt)	% Recovery	QC Limits	Ratio	RT	Flags
<sup>13</sup> C <sub>12</sub> -2,3,7,8-TCDF	151	86.2	40%-130%	0.78	23:36	***************************************

Recovery Standard	łatio	RT I	Flags
<sup>13</sup> C <sub>12</sub> -1,2,3,4-TCDD	0.81	22:23	and the second second

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Data Reviewer;

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TLI Project:

51765A

. . . .

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJH0950-06

Analysis File: T004306

Client Project: IJH0950 Sample Matrix: SOIL Date Received: 08/30/2000 Spike File: SPMIT32S TLI ID: 268-92-5 Date Extracted: 08/30/2000 ICal: TF57140 130-935 Date Analyzed: 09/06/2000 ConCal: T004299 Sample Size: 12.000 g Dilution Factor: n/a % Moisture: 6.2 Dry Weight: 11.256 g Blank File: T004301 % Lipid: n/a GC Column: DB-5 Analyst: **TMD** % Solids: 93.8

Analytes	Jual	TrateConc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	¥ ×	ND	0.4				
1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD	T V	ND * 10 EMPC	0.6	0.93			 J
1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD	1	2.4 0.99			1.21 1.13	33:51 34:10	J
1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8,9-OCDD		68.7 1280			1.04	37:12	J
2,3,7,8-TCDF	u		0.2		0.86	41:01	***************************************
1,2,3,7,8-PeCDF	Î	ND ND	0.3 0.4				
2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF	7	ND 1.4	0.4		1.07	33:03	<u></u>
1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF	Ω M3	*10 EMPC 0.81		0.52	1.20	33:38	J
1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF	ŭ	ND 13.3	0.4				J
1,2,3,4,7,8,9-HpCDF	7	1.9			1.11 0.99	36:07 37:44	J
1,2,3,4,6,7,8,9-OCDF	or the second second	27.5			0.87	41:14	

Totals			Conc. (ppt)	Numbe	r DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	+	*10	ND ND 12.7 150	4 2	0.4 0.6	13.6	
Total TCDF Total PeCDF Total HxCDF Total HpCDF	and the second	* 10	1.3 2.1 15.6 44.9	2 1 5 4		23.1	X



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TLI Project:

51765A

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJH0950-07

Analysis File: T004307

Client Project: IJH0950 Sample Matrix: SOIL Date Received: 08/30/2000 Spike File: SPMIT32S TLI ID: 268-92-6 Date Extracted: 08/30/2000 ICal: TF57140 Date Analyzed: 09/06/2000 ConCal: T004299 CYS1 -445W Sample Size: Dilution Factor: n/a

Dry Weight:

12.000 g 11.112 g

Blank File:

T004301 **TMD** 

% Moisture: 7.4 % Lipid: n/a GC Column: DB-5 Analyst: % Solids: 92.6

	-101)	aual			***************************************	~~~	
Analytes	gyal		DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	u	ND	0.2			derberke figelieben in geleigt die die der die Arteil der	
1,2,3,7,8-PeCDD	Ĩ	ND	0.3				
1,2,3,4,7,8-HxCDD	Mariocon	ND	0.2		•		
1,2,3,6,7,8-HxCDD	Steolessiaan	ND	0.2				
1,2,3,7,8,9-HxCDD	V	ND	0.2				
1,2,3,4,6,7,8-HpCDD	- 1	3.0	-		0.95	37:12	J
1,2,3,4,6,7,8,9-OCDD		43.6			0.90	41:03	J
2,3,7,8-TCDF	U	ND	0.1				
1,2,3,7,8-PeCDF	9	ND	0.2				
2,3,4,7,8-PeCDF	GODDO SECON	ND	0.2				
1,2,3,4,7,8-HxCDF	Security Sec	ND	0.1				
1,2,3,6,7,8-HxCDF	2000	ND	0.1				
2,3,4,6,7,8-HxCDF	200	ND	0.2				
1,2,3,7,8,9-HxCDF	V	ND	0.2				
1,2,3,4,6,7,8-HpCDF	j	0.52			1.00	36:07	
1,2,3,4,7,8,9-HpCDF	L	ND	0.2				
1,2,3,4,6,7,8,9-OCDF		1.6			0.90	41:14	J

Totals		Conc. (ppt)	Numbe	r DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	X	ND ND ND 3.0	1	0.2 0.3 0.2	5.4	
<del>-</del>	J *10	, , , , , , , , , , , , , , , , , , , ,	. 1		J. <del>4</del>	, application to require the contract of the c
Total TCDF Total PeCDF Total HxCDF	and	ND ND ND		0.1		-
Total HpCDF	V	1.8	2	0.2		



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TLI Project:

51765A

Method 8290 PCDD/PCDF Analysis (b)

Client Sample: IJH0950-15

Analysis File: U140705

Client Project: IJH0950 Sample Matrix: SOIL Date Received: 08/30/2000 Spike File: SPMIT32S TLI ID: 268-92-14 Date Extracted: 08/30/2000 ICal: UF57140 Date Analyzed: 09/06/2000 ConCal: U001405 MILAN 12.100 g Sample Size: Dilution Factor: n/a % Moisture: 6.0 Dry Weight: 11.374 g Blank File: T004301 % Lipid: n/a GC Column: % Solids: 94.0 DB-5 Analyst: **TMD** 

	401	aua				007000000000000000000000000000000000000	000000000000000000000000000000000000000
Analytes	gual	Joda Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
	$\cup$					<del>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </del>	<u></u>
2,3,7,8-TCDD	U	ND	0.3				emergy parkets when
1,2,3,7,8-PeCDD	<b>A</b>	ND	0.4				
1,2,3,4,7,8-HxCDD		ND	0.3				
1,2,3,6,7,8-HxCDD	J	1.1			1.17	34:22	J
1,2,3,7,8,9-HxCDD	ĭ	ND	0.3				
1,2,3,4,6,7,8-HpCDD	N~	28.0			1.09	37:38	22000000000
1,2,3,4,6,7,8,9-OCDD		696			0.84	41:16	
2,2,0,1,0,1,10,1							<del>42.4</del>
2,3,7,8-TCDF	U	ND	0.3				-
1,2,3,7,8-PeCDF	9	ND	0.3				
2,3,4,7,8-PeCDF	21107mdm	ND	0.3				
1,2,3,4,7,8-HxCDF	O. Total	ND	0.3				
1,2,3,6,7,8-HxCDF	NAME OF THE PERSON NAME OF THE P	ND	0.2				
2,3,4,6,7,8-HxCDF		ND	0.3				
1,2,3,7,8,9-HxCDF	J	ND	0.3				
1,2,3,4,6,7,8-HpCDF	*	6.0			1.12	36:37	
1,2,3,4,7,8,9-HpCDF	u	ND	0.4				
1,2,3,4,6,7,8,9-OCDF		12.7	J		0.90	41:29	
1,2,3,4,0,7,0,7 0001		12.,			0.20	13.20	

Totals		Conc. (ppt)	Number	r DL	EMPC	Flags
Total TCDD Total PeCDD	V	ND ND		0.3 0.4	,	
Total HxCDD Total HpCDD	d de l'especia de l	3.8 55.3	3 2			
Total TCDF Total PeCDF Total HxCDF Total HpCDF	<b>以一丁→</b>	ND ND *10 4.5 21.0	2 2	0.3	7.2 22.9	 X



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TLI Project:

51765A

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJH0950-14

Analysis File: U140704

Client Project: Sample Matrix: TLI ID:	IJH0950 SOIL 268-92-13 ₩C-2-5	Date Received: Datê Extracted: Date Analyzed:	08/30/2000	Spike File: ICal: ConCal:	SPMIT32S UF57140 U001405
Sample Size: Dry Weight: GC Column:	12.500 g	Dilution Factor:	n/a	% Moisture:	6.8
	11.650 g	Blank File:	T004301	% Lipid:	n/a
	DB-5	Analyst:	TMD	% Solids:	93.2

Analytes	qual	Code Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	J.	ND	0.3		-		
1,2,3,7,8-PeCDD	diaments.	ND	0.4				
1,2,3,4,7,8-HxCDD	PROCESS OF THE PROCES	ND	0.4				***************************************
1,2,3,6,7,8-HxCDD	NITRO CONTRACTOR OF THE PARTY O	ND	0.4				
1,2,3,7,8,9-HxCDD	<b>₩</b>	ND	0.4				
1,2,3,4,6,7,8-HpCDD	J	1.2			0.89	37:38	<u></u> J
1,2,3,4,6,7,8,9-OCDD		16.6			0.86	41:16	
2,3,7,8-TCDF	u	ND	0.3				
1,2,3,7,8-PeCDF	PATRICIA DE LA COMPANSION DE LA COMPANSI	ND	0.3				
2,3,4,7,8-PeCDF	one contractor	ND	0.3				
1,2,3,4,7,8-HxCDF		ND	0.3				***************************************
1,2,3,6,7,8-HxCDF	A TOTAL CONTROL OF	ND	0.2				
2,3,4,6,7,8-HxCDF	ANGELLA SANGERO SANGE	ND	0.3				
1,2,3,7,8,9-HxCDF	entroper, us	ND	0.3				
1,2,3,4,6,7,8-HpCDF	Beneficiologia Appropriate	ND	0.3				
1,2,3,4,7,8,9-HpCDF	MC 196CERTA	ND	0.4				
1,2,3,4,6,7,8,9-OCDF	<b>↓</b>	ND	0.6				Andrews and Station
	Zione Zione						

Totals		Conc. (ppt)	Numbe	r DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	¥	ND ND ND 2.4	2	0.3 0.4 0.4	,	
Total TCDF Total PeCDF Total HxCDF Total HpCDF	¥	ND ND ND 0.80	1	0.3 0.3 0.3		



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Date Analyzed: 09/06/2000

TLI Project:

51765A

Method 8290 PCDD/PCDF Analysis (b)

Analysis File:

T004304

Client Sample:

Client Project:

Sample Matrix:

IIH0950-04

IJH0950 SOIL Date Received: 08/30/2000 268-92-3 Date Extracted: 08/30/2000

Analyst:

Spike File: ICal: ConCal:

SPMIT32S TF57140 T004299

Sample Size: Dry Weight: GC Column:

TLI ID:

NO-27 12.500 g 11.713 g DB-5

Dilution Factor: n/a Blank File:

T004301 **TMD** 

% Moisture: % Lipid:

6.3 n/a

% Solids: 93.7

Analytes	Yey qual	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
•	U .	XTT	0.4				
2,3,7,8-TCDD	Ķ	ND	0.4				
1,2,3,7,8-PeCDD	and the state of t	ND	0.6				
1,2,3,4,7,8-HxCDD	Mental	ND	0.5				- market annual franchis
1,2,3,6,7,8-HxCDD	Survey	ND	0.5				
1,2,3,7,8,9-HxCDD	жения	ND	0.5				
1,2,3,4,6,7,8-HpCDD	V	ND	0.6				
1,2,3,4,6,7,8,9-OCDD	•	12.2			0.80	41:01	
		NA BELLANDING					
2,3,7,8-TCDF	K	ND	0.3				
1,2,3,7,8-PeCDF		ND	0.4				
2,3,4,7,8-PeCDF	200	ND	0.4				
1,2,3,4,7,8-HxCDF	NACOCATA SA	ND	0.3				-
1,2,3,6,7,8-HxCDF	r) andresson	ND	0.3				-
2,3,4,6,7,8-HxCDF	200000000000000000000000000000000000000	ND	0.3				**************************************
1,2,3,7,8,9-HxCDF	ell godd and a second	ND	0.4				<del></del>
1,2,3,4,6,7,8-HpCDF	Processor of the Control of the Cont	ND	0.4				
1,2,3,4,7,8,9-HpCDF	District Market	ND	0.5				
1,2,3,4,6,7,8,9-OCDF	1	ND	0.7				and the same of th
	,	captures					

Totals		Conc. (ppt) N	umber DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	<b>V</b>	ND ND ND ND	0.4 0.6 0.5 0.6	,	
Total TCDF Total PeCDF Total HxCDF Total HpCDF	u V	ND ND ND ND	0.3 0.4 0.3 0.5		



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TLI Project:

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Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJH0950-05

Analysis File: T004305

Client Project: Sample Matrix: TLI ID:

IJH0950 SOIL 268-92-4

Date Received: Date Extracted:

08/30/2000 08/30/2000 Date Analyzed: 09/06/2000

Spike File: ICal: ConCal:

SPMIT32S TF57140 T004299

Sample Size: Dry Weight:

13.000 g 11.752 g

pa-29

Dilution Factor: n/a Blank File:

T004301

% Moisture:

9.6 n/a

GC Column:

DB-5 na lau

Analyst:

**TMD** 

% Lipid: % Solids:

90.4

Analytes	7th	Code Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	W	ND	0.4		·		
1,2,3,7,8-PeCDD	Mirror	ND	0.5				-
1,2,3,4,7,8-HxCDD	THE STATE OF THE S	ND	0.4				
1,2,3,6,7,8-HxCDD	anadojusa.	ND	0.4				
1,2,3,7,8,9-HxCDD	200	ND	0.4				
1,2,3,4,6,7,8-HpCDD	<b>√</b>	ND	0.5				Angeles (APA-APA)
1,2,3,4,6,7,8,9-OCDD	7	3.2			0.89	41:03	J
2,3,7,8-TCDF	L.	ND	0.3				
1,2,3,7,8-PeCDF		ND	0.3				and delicated the control of the con
2,3,4,7,8-PeCDF		ND	0.3				<del></del>
1,2,3,4,7,8-HxCDF	200	ND	0.3				
1,2,3,6,7,8-HxCDF	The state of the s	ND	0.3				
2,3,4,6,7,8-HxCDF	Englander (CONTRACT	ND	0.3				
1,2,3,7,8,9-HxCDF	San	ND	0.4				***************************************
1,2,3,4,6,7,8-HpCDF	and	ND	0.4				- Marian pulsarian and a second
1,2,3,4,7,8,9-HpCDF	TOO SECURE CONTRACTOR	ND	0.5				
1,2,3,4,6,7,8,9-OCDF	<b>↓</b>	ND	0.6				egyegye indya yan physik
	Al television of the second						Annual Control

Totals		Conc. (ppt)	Number DL	EMPC Flags
Total TCDD	W.	ND	0.4	,
Total PeCDD	Officer	ND	0.5	
Total HxCDD	o real control	ND	0.4	- The second of
Total HpCDD	1	ND	0.5	
Total TCDF	U.	ND	0.3	
Total PeCDF	ald months	ND	0.3	
Total HxCDF	THE PARTY OF THE P	ND	0.3	and the state of t
Total HpCDF	<b>√</b>	ND	0.4	



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TLI Project:

1,2,3,6,7,8-HxCDF

2,3,4,6,7,8-HxCDF

1,2,3,7,8,9-HxCDF

1,2,3,4,6,7,8-HpCDF

1,2,3,4,7,8,9-HpCDF

1,2,3,4,6,7,8,9-OCDF

51765A

Method 8290 PCDD/PCDF Analysis (b)

Client Sample: IJH0950-16

Analysis File: U140706

Client Project: IJH0950 Sample Matrix: SOIL Date Received: 08/30/2000 Spike File: SPMIT32S TLI ID: 268-92-15 Date Extracted: 08/30/2000 ICal: UF57140 Date Analyzed: ConCal: 411-25D 09/06/2000 U001405 Sample Size: 12.100 g Dilution Factor: n/a % Moisture: 1.8 Dry Weight: 11.882 g Blank File: T004301 % Lipid: n/a GC Column:

DB-5 Analyst: TMD % Solids: 98.2 Wede Conc. (ppt) Analytes DL **EMPC** Ratio RT Flags 2,3,7,8-TCDD ND 0.2 1,2,3,7,8-PeCDD ND 0.3 1,2,3,4,7,8-HxCDD ND 0.2 1,2,3,6,7,8-HxCDD ND 0.2 1,2,3,7,8,9-HxCDD ND 0.2 1,2,3,4,6,7,8-HpCDD ND 0.3 1,2,3,4,6,7,8,9-OCDD 3.5 J 0.79 41:16 2,3,7,8-TCDF W ND 0.2 1,2,3,7,8-PeCDF ND 0.2 2,3,4,7,8-PeCDF ND 0.2 1,2,3,4,7,8-HxCDF ND 0.2

0.2

0.2

0.2

0.2

0.3

0.4

ND

ND

ND

ND

ND

ND

Totals		Conc. (ppt)	Number DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD	energy description of the second	ND ND ND	0.2 0.3 0.2	,	
Total HpCDD  Total TCDF	WJ.	ND EMPC	0.3	0.36	
Total PeCDF Total HxCDF Total HpCDF	X	ND ND ND	0.2 0.2 0.3		



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## **DATA ASSESSMENT FORM**

<u>Project Title</u>: Rocketdyne Project Manager: D. Hambrick

Analysis/Method: Dioxins and Furans/EPA Method 8290

QC Level: V<sup>1</sup>

SDG: IJG0192

Matrix: Soil

No. of Samples: 6
No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 4, 2002 <u>Reviewer</u>: L. Calvin

References: National Functional Guidelines for Organic Data Review (2/94) and SW-846

Method 8290 (9/94).

Samples Reviewed: CBC-49S, CBC-50S, CBC-52SW, CBC-55S, CBC-56SW, CBC-57SW

## **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	The COC had appropriate relinquish and receipt signatures. The samples were received at Triangle Laboratories with a cooler temperature within the limits of 4°C ±2°C. The COC noted that sample containers were received broken for samples CBC-50S, CBC-55S, and CBC-56SW. The case narrative noted that the aforementioned samples were transferred to plastic bags for storage.  The samples were extracted within 30 days of collection and analyzed within 45 days of extraction.	No qualifications were required.

Project: Rocketdyne SDG: IJG0192 Analysis: D/F

		Findings	Qualifications
4. Method	<u>I Blanks</u>	One soil method blank was extracted and analyzed with the samples in this SDG. Detects below the reporting limits for 1,2,3,4,6,7,8,9-OCDD, 1,2,3,4,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF, and totals for HxCDF and HpCDF were reported in the method blank.	All reported sample detects for 1,2,3,4,7,8-HxCDF, and detects for 1,2,3,4,6,7,8-HpCDF in samples CBC-52SW, CBC-55S, and CBC-57SW were less than five times the blank concentrations, and were therefore qualified as estimated nondetects, "UJ," at the levels of interference. All other sample concentrations for the compounds reported in the blank exceeded five times the method blank amounts. As all total concentrations in the samples included isomer concentrations other than the reported individual congeners, the sample totals were not qualified as method blank contamination.
5. LCS/BS	<u>S</u>	One soil LCS/LCSD pair was extracted and analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 70-130%, with the exception of recoveries above the QC limits for 2,3,7,8-TCDD, 1,2,3,7,8-PeCDF, and 2,3,4,7,8-PeCDF in the LCSD only. All RPDs were within the QC limit of 20%.	No qualifications were required.
6. <u>MS/MS</u>	SDs	No MS/MSD analyses were performed in this SDG. Evaluation of method accuracy and precision were based on the LCS/LCSD results.	No qualifications were required.
7. Field Q ER: None FB: None FD: None	•	No field QC samples were identified for the samples in this SDG.	No qualifications were required.
9. <u>Internal</u>	l Standards	All internal standard recoveries were within the method QC limits of 40-135%.	No qualifications were required.

Project: Rocketdyne SDG: IJG0192 Analysis: D/F

	Findings	Qualifications
10. Other	Any individual congener results reported as EMPCs were considered nondetects.	All target compound EMPCs were qualified as estimated nondetects, "UJ."
	Some total results which included individual congener results were also reported as EMPCs.	Any totals also including individual congener concentrations were qualified as estimated, "J."
	The sample results were reported on a dry-weight basis. Results reported with the laboratory qualifier "J," were concentrations below the lower calibration level.	
	Confirmation analysis on a DB-225 column was not performed for the 2,3,7,8-TCDF sample result reported below the lower calibration level in sample CBC-56SW.	
Comments	None	None

 $<sup>^{1}</sup>$  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.

TLI Project:

51383

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

CBC-49S/IJG0194-02

Analysis File: T003405

Client Project:	870071/IJG0194	Date Received:	07/13/00	Spike File:	SPMIT22S
Sample Matrix:	SOIL	Date Extracted:		ICal:	TF57140
TLI ID:	265-7-2	Date Analyzed:		ConCal:	T003401
Sample Size:	11.900 g	Dilution Factor:	n/a	% Moisture:	15.7
Dry Weight:	10.032 g	Blank File:	T003403	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JMM	% Solids:	84.3

Analytes	9421	Code Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	U	ND	0.5				
1,2,3,7,8-PeCDD	4	ND	0.6				
1,2,3,4,7,8-HxCDD	J	2.5			1.13	34:19	J
1,2,3,6,7,8-HxCDD		6.0			1.30	34:24	
1,2,3,7,8,9-HxCDD	J	3.3			1.30	34:45	J
1,2,3,4,6,7,8-HpCDD	EBabbear	187			1.03	37:54	
1,2,3,4,6,7,8,9-OCDD	- conditional transition of the Conditional Conditiona	2210			0.84	41:54	
2,3,7,8-TCDF	W	ND	0.4				energy and the second
1,2,3,7,8-PeCDF		ND	0.4				-
2,3,4,7,8-PeCDF	<b>V</b>	ND	0.4				
1,2,3,4,7,8-HxCDF	LU	<b>B</b> 3.6			1.13	33:35	JB_
1,2,3,6,7,8-HxCDF	J	2.0			1.06	33:42	J
2,3,4,6,7,8-HxCDF	V	2.2			1.21	34:12	J
1,2,3,7,8,9-HxCDF	W	ND	0.6				
1,2,3,4,6,7,8-HpCDF		29.5			1.06	36:47	В
1,2,3,4,7,8,9-HpCDF	J	3.5			1.03	38:27	J
1,2,3,4,6,7,8,9-OCDF		42.3			0.86	42:07	

Totals		Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	W. +	ND ND 45.9 359	6 2	0.5 0.6		
Total TCDF Total PeCDF Total HxCDF Total HpCDF	L.	ND 1.3 33.4 79.0	1 6 3	0.4		

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TLI Project:

51383

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

CBC-50S/IJG0194-03

Analysis File: T003406

Client Project:	870071/IJG0194	Date Received:	07/13/00	Spike File:	SPMIT22S
Sample Matrix:	SOIL	Date Extracted:		ICal:	TF57140
TLI ID:	265-7-3	Date Analyzed:		ConCal:	T003401
Sample Size:	10.400 g	Dilution Factor:	n/a	% Moisture:	3.6
Dry Weight:	10.026 g	Blank File:	T003403	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JMM	% Solids:	96.4

Analytes qua	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	ND	0.5				
1,2,3,7,8-PeCDD	ND	0.6				
1,2,3,4,7,8-HxCDD	ND .	0.6				
1,2,3,6,7,8-HxCDD	2.2			1.33	34:25	J
1,2,3,7,8,9-HxCDD	2.2			1.06	34:46	J
1,2,3,4,6,7,8-HpCDD	106			1.02	37:54	***************************************
1,2,3,4,6,7,8,9-OCDD	861			0.84	41:54	
2.3,7,8-TCDF	ND	0.4				<del></del>
1,2,3,7,8-PeCDF	ND	0.4				
2,3,4,7,8-PeCDF	ND	0.4				
1,2,3,4,7,8-HxCDF UN	3.1			1.09	33:35	JB_
1,2,3,6,7,8-HxCDF <b>J</b>	1.9			1.17	33:42	J
2,3,4,6,7,8-HxCDF	5.8			1.38	34:13	<del></del>
1,2,3,7,8,9-HxCDF	ND	0.6				
1,2,3,4,6,7,8-HpCDF	28.1			1.03	36:47	B
1,2,3,4,7,8,9-HpCDF	12.1			1.13	38:27	
1,2,3,4,6,7,8,9-OCDF	176		e	0.88	42:08	

Totals		Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD	W	ND		0.5	1	
Total PeCDD	<b>↓</b>	ND		0.6		
Total HxCDD	No.	22.8	5			
Total HpCDD	#00HT901479.LECO	190	2			gan and the
Total TCDF	X.	ND		0.4		
Total PeCDF	1	ND		0.4		A
Total HxCDF	·	20.5	9			
Total HpCDF	H (Pressource)	76.4	4			

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TLI Project:

51383

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

CBC-52SW/IJG0194-04

Analysis File: T003407

Client Project:	870071/IJG0194	Date Received:	07/13/00	Spike File:	SPMIT22S
Sample Matrix:	SOIL	Date Extracted:		ICal:	TF57140
TLI ID:	265-7-4	Date Analyzed:		ConCal:	T003401
Sample Size:	10.400 g	Dilution Factor:	n/a	% Moisture:	3.7
Dry Weight:	10.015 g	Blank File:	T003403	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JMM	% Solids:	96.3

Analytes	qual	Trade	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	u		ND	0.3				
1,2,3,7,8-PeCDD	all conjugate		ND	0.3				
1,2,3,4,7,8-HxCDD	₩.		ND	0.3				
1,2,3,6,7,8-HxCDD	LU	*10	EMPC		1.0			J
1,2,3,7,8,9-HxCDD	1	1	EMPC		0.73			J
1,2,3,4,6,7,8-HpCDD		-	21.1			1.06	37:55	
1,2,3,4,6,7,8,9-OCDD			221			0.85	41:54	
2,3,7,8-TCDF	ИJ	*10	EMPC		0.58			J
1,2,3,7,8-PeCDF			ND	0.2				
2,3,4,7,8-PeCDF	T U		ND	0.2				
1,2,3,4,7,8-HxCDF	UJ	B	1.1			1.42	33:35	JB_
1,2,3,6,7,8-HxCDF	J		0.66			1.23	33:41	J
2,3,4,6,7,8-HxCDF	Y V		ND	0.3				
1,2,3,7,8,9-HxCDF	<b>↓</b>		ND	0.3				
1,2,3,4,6,7,8-HpCDF	uJ	E	4.4			1.06	36:47	JB_
1,2,3,4,7,8,9-HpCDF	U		ND	0.4				
1,2,3,4,6,7,8,9-OCDF	T		7.7			0.94	42:07	J

Totals			Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	K T	**************************************	ND ND 4.9 47.9	3 2	0.3	6.7	
Total TCDF Total PeCDF Total HxCDF Total HpCDF	7	*10	2.9 3.5 5.3 12.0	1 3 4 2		3.5	

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TLI Project:

51383

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

CBC-55S/IJG0194-07

Analysis File:

T003410

Client Project:	870071/IJG0194	Date Received:	07/13/00	Spike File:	SPMIT22S
Sample Matrix:	SOIL	Date Extracted:		ICal:	TF57140
TLI ID:	265-7-7	Date Analyzed:		ConCal:	T003401
Sample Size:	12.500 g	Dilution Factor:	n/a	% Moisture:	19.8
Dry Weight:	10.025 g	Blank File:	T003403 .	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JMM	% Solids:	80.2

Analytes	qual	Code Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	u	ND	0.3				
1,2,3,7,8-PeCDD	Ì	ND	0.3				. ——
1,2,3,4,7,8-HxCDD	<b>₩</b>	ND	0.4				
1,2,3,6,7,8-HxCDD	J	1.3			1.40	34:23	J
1,2,3,7,8,9-HxCDD	U.	ND	0.4				
1,2,3,4,6,7,8-HpCDD		32.6			1.09	37:53	
1,2,3,4,6,7,8,9-OCDD		435			0.84	41:52	adapanta of darker (1984)
2,3,7,8-TCDF	L	ND	0.2				
1,2,3,7,8-PeCDF		ND	0.2				***************************************
2,3,4,7,8-PeCDF	₩	ND	0.2				
1,2,3,4,7,8-HxCDF	UJ	<b>B</b> 0.97			1.07	33:34	JB_
1,2,3,6,7,8-HxCDF	U	ND	0.3				
2,3,4,6,7,8-HxCDF		ND	0.3				
1,2,3,7,8,9-HxCDF	•	ND	0.4				
1,2,3,4,6,7,8-HpCDF	UJ	<b>B</b> 6.0			1.05	36:46	B
1,2,3,4,7,8,9-HpCDF	ц	ND	0.4				
1,2,3,4,6,7,8,9-OCDF	**************************************	10.8			0.87	42:06	

Totals		C	onc. (ppt)	Number	DL	EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	7	*10	ND ND 5.6 62.8	3 2	0.3 0.3	6.9	
Total TCDF Total PeCDF Total HxCDF Total HpCDF	u+		ND ND 5.9 17.5	3 2	0.2 0.2		

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TLI Project:

51383

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

CBC-56SW/IJG0194-08

Analysis File: T003411

Client Project:	870071/IJG0194	Date Received:	07/13/00	Spike File:	SPMIT22S
Sample Matrix:	SOIL	Date Extracted:		ICal:	TF57140
TLI ID:	265-7-8	Date Analyzed:		ConCal:	T003401
Sample Size:	11.000 g	Dilution Factor:	n/a	% Moisture:	9.0
Dry Weight:	10.010 g	Blank File:	T003403	% Lipid:	n/a
GC Column:	DB-5,	Analyst:	JMM	% Solids:	91.0

qual	(codeConc. (ppt)	DL	EMPC	Ratio	RT	Flags
u	ND	0.4				
<b>✓</b>	ND	0.4				
7	1.9			1.20	34:18	J
<b>D</b>	4.5			1.11	34:24	J
<b>√</b>	2.3			1.36	34:44	J
specific control	145			1.03	37:53	
A Property of the Property of	1770			0.84	41:53	
7	0.92			0.87	26:24	J
u	ND	0.3				and the state of the state of
V	ND	0.3				***************************************
	<b>S</b> 2.3			1.37	33:35	$JB_{\perp}$
J	1.2			1.14	33:41	J
₩	1.4			1.08	34:11	J
	ND	0.5				April 100 mm mm m
-	21.6			1.04	36:47	В
J	3.1			1.16	38:27	J
1000	44.7			0.85	42:07	-
	14-12-47 P-4-47 P-4-7	ND   ND   1.9   4.5   2.3   145   1770   ND   ND   ND   ND   ND   ND   ND   N	ND	ND 0.4 ND 0.4 ND 0.4 1.9 4.5 2.3 145 1770  ND 0.3 ND 0.3 ND 0.3 ND 0.3 ND 0.3 ND 0.3 1.2 1.4 ND 0.5 2.1.6 3.1	ND   0.4   ND   0.4   ND   1.20   1.36   1.36   1.45   1.03   1.770   0.84   ND   0.3   ND   0.3   ND   0.3   ND   0.3   1.2   1.14   1.08   ND   0.5   21.6   3.1   1.16   1.04   1.16   1.04   1.16   1.04   1.16   1.04   1.16   1.04   1.16   1.04   1.16   1.04   1.16   1.04   1.16   1.04   1.16   1.04   1.16   1.05   1.04   1.16   1.04   1.06   1.04   1.16   1.04   1.06   1.04   1.16   1.04   1.06   1.04   1.16   1.06   1.04   1.16   1.06   1.04   1.16   1.06   1.04   1.16   1.06   1.04   1.16   1.06   1.04   1.16   1.06   1.04   1.16   1.06   1.04   1.16   1.06   1.04   1.16   1.06   1.04   1.16   1.06   1.04   1.16   1.06   1.04   1.06   1.0	ND   0.4   ND   0.4   ND   0.4   1.9   1.20   34:18   4.5   1.11   34:24   2.3   1.36   34:44   145   1.03   37:53   1770   0.84   41:53   1.07   0.84   41:53   1.08   34:11   ND   0.5   21.6   1.04   36:47   3.1   1.16   38:27   1.16

Totals		(	Conc. (ppt)	Number	DL	EMPC	Flags
Total TCDD	从	independing	ND		0.4		Alexander .
Total PeCDD	<b>V</b>	STATE OF THE STATE	ND		0.4		
Total HxCDD		DOGGATTY	28.3	6			
Total HpCDD		A CONTRACTOR OF THE CONTRACTOR	280	2			**Nacion************************************
Total TCDF	J	*10	4.2	4		8.0	
Total PeCDF		or characteristics	3.0	2			
Total HxCDF		Vice and the second	24.8	6			
Total HpCDF			70.0	3			

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TLI Project:

51383

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

CBC-57SW/IJG0194-09

Analysis File: T003412

Client Project:	870071/IJG0194	Date Received:	07/13/00	Spike File:	SPMIT22S
Sample Matrix:	SOIL	Date Extracted:		ICal:	TF57140
TLI ID:	265-7-9	Date Analyzed:		ConCal:	T003401
Sample Size:	10.300 g	Dilution Factor:	n/a	% Moisture:	2.5
Dry Weight:	10.043 g	Blank File:	T003403	% Lipid:	n/a
GC Column:	DB-5	Analyst:	JMM	% Solids:	97.5

Analytes	qual	Pale	Conc. (ppt)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	Ų	and the second	ND	0.3				
1,2,3,7,8-PeCDD	The state of the s	The second	ND	0.3				
1,2,3,4,7,8-HxCDD	DOD LEADING TO SERVICE AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADD	2	ND	0.3				
1,2,3,6,7,8-HxCDD	Мин	DA MATERIAL DE COMPANION DE COM	ND ND					majorana majorany
1,2,3,7,8,9-HxCDD		of the Charles	ND	0.3				
1,2,3,4,6,7,8-HpCDD	*		6.2	0.3				
1.2,3,4,6,7,8,9-OCDD			84.7			1.04	37:52	
7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-			04.7			0.86	41:52	B
2,3,7,8-TCDF	u		ND	0.2				
1,2,3,7,8-PeCDF	# Color		ND	0.2				
2,3,4,7,8-PeCDF	$\downarrow$		ND	0.3				
1,2,3,4,7,8-HxCDF	UJ	B	0.93	0.2				Table 1
1,2,3,6,7,8-HxCDF	u		ND	0.3		1.14	33:34	JB_
.,3,4,6,7,8-HxCDF	No.		ND	0.3				
,2,3,7,8,9-HxCDF	<b>↓</b>		ND	0.3				The Transfer of the State of th
,2,3,4,6,7,8-HpCDF	uJ	5	1.4	0.5				minimum .
,2,3,4,7,8,9-HpCDF	u	<i>a</i>	ND	0.4		1.08	- 36:45	JB_
,2,3,4,6,7,8,9-OCDF	UJ	410	EMPC	0.4	1.6			
	~~3	-10	LIVIL C		1.6			J

Totals		Conc. (ppt)	Numbe	r DL EMP	€ Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	4	ND ND 0.81 11.8	1 2	0.3 0.3	
Total TCDF Total PeCDF Total HxCDF Total HpCDF	U V	ND ND 2.1 2.8	2 2	0.2 0.3	

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## **DATA ASSESSMENT FORM**

<u>Project Title</u>: Rocketdyne Project Manager: D. Hambrick

Analysis/Method: Dioxins and Furans/EPA Method 8290

QC Level: V¹
SDG: IJI0055
Matrix: Soil
No. of Samples: 5

No. of Reanalyses/Dilutions: 0

Date Reviewed: March 6, 2002

Reviewer: L. Calvin

References: National Functional Guidelines for Organic Data Review (2/94) and SW-846

Method 8290 (9/94).

Samples Reviewed: CBC-96SW, CBC-97SW, CBC-97SWD, CBC-98S, CBC-99SW

## **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	The COC had appropriate relinquish and receipt signatures. The samples were received at Triangle Laboratories with a cooler temperature within the limits of 4°C ±2°C. The COC noted that the samples were received intact.  The samples were extracted within 30 days of collection and analyzed within 45 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was extracted and analyzed with the samples in this SDG. Detects below the reporting limits for 1,2,3,4,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDD, 2,3,7,8-TCDF, 2,3,4,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,6,7,8,9-OCDF, and all totals were reported in the method blank. Results reported only as EMPCs in the method blank were considered nondetects.	Any sample detects for the aforementioned target compounds reported at concentrations less than five times the blank concentrations, were qualified as estimated nondetects, "UJ," at the levels of interference, as well as totals including only the individual congener concentration. Any total concentrations in the samples which included isomer concentrations other than those of the reported individual congeners were not qualified as method blank contamination.

Project: Rocketdyne SDG: IJI0055 Analysis: D/F

	Findings	Qualifications
5. <u>LCS/BS</u>	One soil LCS/LCSD pair was extracted and analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 70-130%, and all RPDs were within the QC limit of 20%.	No qualifications were required.
6. MS/MSDs	No MS/MSD analyses were performed in this SDG. Evaluation of method accuracy and precision were based on the LCS/LCSD results.	No qualifications were required.
7. Field QC Samples ER: None FB: None FD: CBC-97SW CBC-97SWD	No field blanks or equipment rinsates were identified for the samples in this SDG.  RPDs for the common detects in the field duplicate pair were less than 100%.	No qualifications were required.
9. <u>Internal Standards</u>	All internal standard recoveries were within the method QC limits of 40-135%, with the exception of recoveries below the QC limits for internal standard 13C12-1,2,3,4,6,7,8,9-OCDD in samples CBC-97SW, CBC-97SWD, and CBC-99SW.	Results for associated target compounds 1,2,3,4,6,7,8,9-OCDD and 1,2,3,4,6,7,8,9-OCDF were qualified as estimated, "UJ," for nondetects, and "J," for detects.
10. Other	Any individual congener results or totals reported as EMPCs were considered nondetects.  Some total results which included individual congener results were also reported as EMPCs.	All target compound and total EMPCs were qualified as estimated nondetects, "UJ."  Any reportable totals also including individual congener concentrations were qualified as estimated, "J."
	The sample results were reported on a dry-weight basis. Results reported with the laboratory qualifier "J," were concentrations below the lower calibration level.	
Comments	None	None

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 $<sup>^{1}</sup>$  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.

TLI Project:

51826

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJI0146-01/CBC-96SW

Analysis File: S004054

Client Project: Boeing Sample Matrix: SOIL Date Received: 09/07/2000 Spike File: SPMIT32S TLI ID: 269-54-1 Date Extracted: 09/08/2000 ICal: SF57130 Date Analyzed: 09/13/2000 ConCal: S004048 10.400 g Sample Size: Dilution Factor: n/a 3.2 % Moisture: Dry Weight: 10.067 g Blank File: S004038 % Lipid: n/a GC Column: DB-5 Analyst: **TMD** % Solids: 96.8 \_\_\_\_\_

Analytes	gual	That c	onc. (pg/g)	DL	EMPC	Ratio	AT	Flags
2,3,7,8-TCDD	J		0.07			0.80	27:07	J
1,2,3,7,8-PeCDD	1		0.27			1.53	31:16	J
1,2,3,4,7,8-HxCDD	W.		ND	0.2				
1,2,3,6,7,8-HxCDD	J		0.57			1.07	34:26	JB_
1,2,3,7,8,9-HxCDD	LN		EMPC		0.56			JB_
1,2,3,4,6,7,8-HpCDD	<b>↓</b>	15	2.1 =			0.90	37:44	JB_
1,2,3,4,6,7,8,9-OCDD			15.5			0.86	41:26	В
2,3,7,8-TCDF	ΓN	Б	0.53			0.71	26:25	JB_
1,2,3,7,8-PeCDF	T		0.35			1.36	30:16	JB_
2,3,4,7,8-PeCDF	<b>LY</b>	B	0.32			1.50	30:56	JB_
1,2,3,4,7,8-HxCDF	<b>↓</b>	*10	EMPC		0.39			JB_
1,2,3,6,7,8-HxCDF	μl		ND	0.1				-
2.3,4.6,7,8-HxCDF	Modern Control		ND	0.2				
1,2,3.7,8,9-HxCDF	*		ND	0.2				
1,2,3,4,6,7,8-HpCDF	LN	E	0.78			0.94	36:41	JB_
1,2,3,4,7,8,9-HpCDF	4		ND	0.4				
1,2,3,4,6,7,8,9-OCDF	<b>V</b>		ND	1.0				**********

Totals		C	onc. (pg/g)	Number	DL EMPC	Flags
Total TCDD	J	*10	2.0	6	2.4	
Total PeCDD	1		1.1	2	2.8	
Total HxCDD	<b>↓</b>	<b>↓</b>	1.9	3	3.8	
Total HpCDD		*	4.6	2		<del></del>
						wife companies.
Total TCDF	$\tau$	*10	2.4	6	2.6	
Total PeCDF		•	1.0	4		
Total HxCDF	LAX	*10	EMPC		0.85	
Total HpCDF		B	0.78	1	0.03	
	*	T <sub>ext</sub>	0.70	-		

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TLI Project:

51826

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJI0146-02/CBC-97SW

Analysis File: S004055

Client Project:	Boeing	Date Received:	09/08/2000	Spike File:	SPMIT32S
Sample Matrix:	SOIL	Date Extracted:		ICal:	SF57130
TLI ID:	269-54-2	Date Analyzed:		ConCal:	S004048
Sample Size:	10.500 g	Dilution Factor:	n/a	% Moisture:	2.6
Dry Weight:	10.227 g	Blank File:	S004038	% Lipid:	n/a
GC Column:	DB-5	Analyst:	TMD	% Solids:	97.4

Analytes	gual .	qua lead	Conc. (pg/g)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	U		ND	0.1				**************************************
1,2,3,7,8-PeCDD	U.		ND	0.2				
1,2,3,4,7,8-HxCDD	UJ	13	0.47			1.08	34:24	${ m JB}_{-}$
1,2,3,6,7,8-HxCDD	T		0.75			1.15	34:43	JB_
1,2,3,7,8,9-HxCDD	Ú.	Vertical Andrews	ND	0.4				
1,2,3,4,6,7,8-HpCDD	ŪΝ	15	2.0			1.04	37:42	JB_
1,2,3,4,6,7,8,9-OCDD	1	I	ND	1.8				
2,3,7,8-TCDF	tu	16	0.52			0.78	26:23	JB_
1,2,3,7,8-PeCDF	Ü	0.0000000000000000000000000000000000000	ND	0.1				
2,3,4,7,8-PeCDF	WJ	X10	EMPC		0.26			JB_
1,2,3,4,7,8-HxCDF		B	0.37			1.33	33:37	JB_
1,2,3,6,7,8-HxCDF		₩.	0.25			1.11	33:45	JB_
2,3,4,6.7,8-HxCDF	从		ND	0.2				entermodulus.co
1,2,3,7,8,9-HxCDF	J	and opposite the same of the s	0.35			1.10	34:59	J
1,2,3,4,6,7,8-HpCDF	MJ	B	0.52			1.13	36:39	JB_
1,2,3,4,7,8,9-HpCDF	I.	District order	ND	0.5				
1,2,3.4,6,7.8,9-OCDF	uj	TI	ND	1.5				

Totals	Conc. (pg/g)	Number	DL EMPC	Flags
Total TCDD	1.2	3		- Section Control
Total PeCDD V	<b>*10</b> 1.9	3	2.6	
Total HxCDD	2.0	3	3.1	**************************************
Total HpCDD UST	2.0	1	3.7	**************************************
Total TCDF	K10 2.1	5	2.3	epotinacion
Total PeCDF	0.57	1	1.1	<del>- Africanista</del>
Total HxCDF	1.3	4		-
Total HpCDF WJ	B 0.52	1		

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TLI Project:

51826

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJI0146-03/CBC-97SWD

Analysis File: S004056

Client Project: Boeing Sample Matrix: Date Received: Spike File: SOIL 09/07/2000 SPMIT32S Date Extracted: 09/08/2000 TLI ID: 269-54-3 ICal: SF57130 ConCal: Date Analyzed: 09/13/2000 S004048 Dilution Factor: n/a Sample Size: 11.300 g % Moisture: 11.1 Dry Weight: 10.046 g Blank File: S004038 % Lipid: n/a GC Column: DB-5 Analyst: **TMD** % Solids: 88.9

Analytes	gual.	Conc. (pg/g)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	u	ND	0.09		•		
1,2,3,7,8-PeCDD	UJ	*10 EMPC		0.22			J
1,2,3,4,7,8-HxCDD	U.	ND	0.2				and the state of t
1,2,3,6,7,8-HxCDD	KJ	*10 EMPC		0.49			JB_
1,2,3,7,8,9-HxCDD	Side of the latest and the latest an	<b>B</b> 0.71			1.25	34:44	JB_
1,2,3,4,6,7,8-HpCDD	1	*10 EMPC		1.1			JB_
1,2,3,4,6,7,8.9-OCDD	T	<b>T</b> 6.8			0.84	41:25	JB_
2,3,7,8-TCDF	LU	*10 EMPC		0.48			JB_
1,2,3,7,8-PeCDF	1	↓ EMPC		0.24			JB_
2,3,4,7,8-PeCDF		<b>B</b> 0.28			1.45	30:55	JB_
1,2,3,4,7,8-HxCDF	Stories and the	0.49			1.26	33:38	JB_
1,2,3,6,7,8-HxCDF	₩.	0.23			1.30	33:43	JB_
2,3,4,6,7,8-HxCDF	K J	ND	0.1				-
1,2,3,7.8,9-HxCDF	J	0.31			1.09	34:58	J
1,2,3,4,6,7,8-HpCDF	[EN				0.88	36:38	JB_
1,2,3,4,7,8,9-HpCDF	U	ND	0.3				
1,2,3,4,6,7.8,9-OCDF	しなり	I ND	0.9				

Totals			Conc. (pg/g)	Number DL	EMPC	Flags
Total TCDD	T	410	1.8	4	2.2	
Total PeCDD	LL CANADAS		1.2	2	3.6	
Total HxCDD	and the security of		2.1	3	4.0	
Total HpCDD	*	₩	1.3	1	2.3	
Total TCDF	3	×10	1.6	5	3.3	
Total PeCDF	Accordan		0.28	1 .	1.7	
Total HxCDF	V	V	1.4	4	1.6	was and the Republication
Total HpCDF	MI	$\boldsymbol{R}$	0.53	1		-



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### Del Mar Analytical

TLI Project:

51826

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

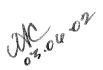
IJI0146-04/CBC-98S

Analysis File: S004057

Client Project: Boeing Sample Matrix: SOIL Date Received: 09/07/2000 Spike File: SPMIT32S TLI ID: 269-54-4 Date Extracted: 09/08/2000 ICal: SF57130 Date Analyzed: 09/13/2000 ConCal: S004048 Sample Size: Dilution Factor: n/a **10.400** g % Moisture: 3.3 10.057 g Dry Weight: Blank File: S004038 % Lipid: n/a GC Column: DB-5 Analyst: **TMD** % Solids: 96.7

Analytes	Jual Jual	Qua Conc. (pg/g	j) DL	EMPC Ratio	RT	Flags
2,3,7,8-TCDD	U.	ND	0.1			
1,2,3,7,8-PeCDD	J	0.48		1.54	31:17	J
1,2,3,4,7,8-HxCDD	DN	<b>B</b> 1.0		1.34	34:24	JB_
1,2,3,6,7,8-HxCDD	J	2.3		1.23	34:28	JB_
1,2,3,7,8,9-HxCDD	LU	B 1.5		1.21	34:47	JB_
1,2,3,4,6,7,8-HpCDD	22.67.48	50.3		0.91	37:45	
1.2.3,4,6,7.8,9-OCDD		654		0.84	41:28	***********
2,3,7,8-TCDF	W	0.75		0.76	26:23	JB_
1,2.3,7.8-PeCDF	U	ND	0.1	5,7,0		3.2
2,3,4,7,8-PeCDF	and the same	ND	0.2			
1,2,3,4,7,8-HxCDF	No.	ND	0.4			-
1.2,3,6,7,8-HxCDF		ND	0.4			V
2,3,4,6.7,8-HxCDF		ND	0.4			AND PROPERTY.
1,2,3,7,8,9-HxCDF		ND	0.5			-
1,2,3,4,6,7,8-HpCDF		9.0		1.02	36:42	B
1,2,3,4,7,8,9-HpCDF	L	ND	1.3	1.02	JU. 12	<u></u>
1,2,3,4,6,7,8,9-OCDF	and the state of t	17.2		0.95	41.40	

Totals			Conc. (pg/g	) Number	DL EMPC	Flags
Total TCDD Total PeCDD Total HxCDD Total HpCDD	7	地	1.1 2.1 13.6 102	2 3 5 2	1.7 2.9 15.3	
Total TCDF Total PeCDF Total HxCDF Total HpCDF	A STATE OF THE STATE OF T	***	2.3 2.0 5.1 25.9	3 2 1 2	11.2 7.3 14.4 28.9	X X X



Page 1 of 2



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### Del Mar Analytical

TLI Project:

51826

Method 8290 PCDD/PCDF Analysis (b)

Client Sample:

IJI0146-05/CBC-99SW

Analysis File: S004058

Client Project: Boeing Sample Matrix: SOIL Date Received: 09/07/2000 Spike File: SPMIT32S TLI ID: 269-54-5 Date Extracted: 09/08/2000 ICal: SF57130 Date Analyzed: 09/13/2000 ConCal: S004048 Sample Size: Dilution Factor: n/a 10.400 g % Moisture: 2.6 Dry Weight: 10.130 g Blank File: S004038 % Lipid: n/a GC Column: DB-5 Analyst: TMD % Solids: 97.4

Analytes	gual.	Conc. (pg/g)	DL	EMPC	Ratio	RT	Flags
2,3,7,8-TCDD	u,	ND	0.07				
1,2,3,7,8-PeCDD	J	0.23			1.71	31:15	<u></u>
1,2,3,4,7,8-HxCDD	u	ND	0.2				
1,2,3,6,7,8-HxCDD	1	1,1			1.39	34:26	JB_
1,2,3,7,8,9-HxCDD	UJ	0.97			1.24	34:44	JB_
1,2,3,4,6,7,8-HpCDD	-	35.0			1.07	37:42	В
1,2,3,4,6.7,8,9-OCDD	J	I 397			0.85	41:24	state the delighter year.
2,3,7,8-TCDF	DJ.	*ID EMPC		0.47			ЈВ_
1,2,3,7,8-PeCDF	J	0.21			1.53	30:14	JB_
2.3,4.7.8-PeCDF	MI	0.38			1.41	30:54	JB_
1,2,3,4,7,8-HxCDF	i i i i i i i i i i i i i i i i i i i	1.2			1.18	33:37	JB_
1,2,3,6.7.8-HxCDF		0.41			1.13	33:44	JB_
2,3,4,6.7.8-HxCDF	<b>↓</b>	0.84			1.20	34:12	JB_
1,2,3,7,8,9-HxCDF		0.36			1.31	34:59	J
1,2,3,4,6.7.8-HpCDF	A CONTROLLEGE	9.6			0.99	36:39	B
1,2,3,4,7,8.9-HpCDF		*10 EMPC		0.80			J
1,2,3,4.6.7,8,9-OCDF	J	T 45.0			0.88	41:36	nd the name of the same of the
						1	

Totals		Co	onc. (pg/g)	Number	DL EMPC	Flags
Total TCDD Total PeCDD	7	KIO	1.8	5	2.1 2.9	
Total HxCDD Total HpCDD	-		6.2 70.2	4	7.3	
Total TCDF			2.1	6	2.5	
Total PeCDF	emmentos (mes	K10 -	2.6	6	3.5 9.1	
Total HxCDF Total HpCDF	<b>V</b>		13.9 38.1	8 2	14.1 40.0	***************************************



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### **DATA ASSESSMENT FORM**

<u>Project Title</u>: Rocketdyne Project Manager: D. Hambrick

Analysis/Method: Dioxins and Furans/EPA Method 8290

 $\overline{QC} \overline{Level}$ :  $V^1$ 

SDG: IJF1026 Matrix: Soil

No. of Samples: 3
No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: February 28, 2002

Reviewer: L. Calvin

References: National Functional Guidelines for Organic Data Review (2/94) and SW-846

Method 8290 (9/94).

Samples Reviewed: PC-20, PC-21, PC-22

### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	The COC had appropriate relinquish and receipt signatures. The laboratory login sheet noted a cooler temperature within the limits of 4°C ±2°C.	No qualifications were required.
	The samples were extracted within 30 days of collection and analyzed within 45 days of extraction.	
4. Method Blanks	One soil method blank was extracted and analyzed with the samples in this SDG. There were no reported target compound detects in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One soil LCS was extracted and analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 50-150%.	No qualifications were required.
6. MS/MSDs	No MS/MSD analyses were performed in this SDG. Evaluation of method accuracy was based on the LCS results.	No qualifications were required.

Project: Rocketdyne SDG: IJF1026 Analysis: D/F

7. Field QC Samples ER: None FB: None FD: None	Findings  No field QC samples were identified for the samples in this SDG.	Qualifications  No qualifications were required.
9. <u>Internal Standards</u>	All internal standard recoveries were within the method QC limits of 40-135%, with the exception of recoveries below the QC limit for internal standards 13C-1,2,3,7,8-PeCDD, 13C-1,2,3,4,6,7,8-HpCDD, 13C-0CDD, 13C-1,2,3,7,8-PeCDF, 13C-1,2,3,4,7,8-HxCDF, and 13C-1,2,3,4,6,7,8-HpCDF in sample PC-20.	Associated individual congeners and their totals, all nondetects, were qualified as estimated, "UJ."
10. Other	The sample results were reported on a dry-weight basis.	No qualifications were required.
Comments	None	None

 $<sup>^{1}</sup>$  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.

### IT CORPORATION

### Dioxins/Furans, HRGC/HRMS (8290)

### Client Sample ID: PC-20

	G0F300201-016	Work Order #		'KQM102	Matrix:	SOLID
Date Sampled:	6/29/00	Date Receive	d: 6/	30/00	Instrument:	6D5
	7/5/00	Analysis Dat	e: 7/	9/00	Units:	pg/g
Prep Batch #:	0187203	Dilution Fac	tor: 1		% Moisture:	9.1
PARAMETER YE	Ugua RESULT		EPORTING IMIT	TEF FACTOR	TEQ Cor	
2,3,7,8-TCDD U	ND	0	. 62	1.000	A A A	·
Total TCDD	ND		.62	1.000	0.00	
1,2,3,7,8-PeCDD	L I ND		. 8	0.500	0.00	
Total PeCDD			. 6	0.300	0.00	
1,2,3,4,7,8-HxCDD U			. 0	0.100	2 02	
1,2,3,6,7,8-HxCDD	ND		. 97	0.100	0.00	
1,2,3,7,8,9-HxCDD	ND		.89	0.100	0.00	
Total HxCDD	ND	4.		0.100	0.00	
1,2,3,4,6,7,8-HPCDD U	JI ND	1.		0.010	0 00	
Total HpCDD	ND	1.		0.010	0.00	
OCDD	ND	1.		0.001	2 02	
2,3,7,8-TCDF A	ND		54	0.100	0.00	
Total TCDF	ND		54	0.100	0.00	
1,2,3,7,8-PeCDF UJ	I ND		96	0.050	0.00	
2,3,4,7,8-PeCDF	ND		96	0.500	0.00	
Total PeCDF	ND	0.		0.500	0.00	
1,2,3,4,7,8-HxCDF	ND	0.		0.100		
1,2,3,6,7,8-HxCDF	ND	0.			0.00	
2,3,4,6,7,8-HxCDF	ND	0.		0.100	0.00	
1,2,3,7,8,9-HxCDF	ND	0.		0.100 0.100	0.00	
Total HxCDF	ND	0.		0.100	0.00	
1,2,3,4,6,7,8-HpCDF	ND	0.		0.010	0.00	
1,2,3,4,7,8,9-HpCDF	ND	0.		0.010	0.00	
Total HpCDF	ND	0.		0.010	0.00	
OCDF *	₩ ND	;1,.e		0 001		
Total TEQ Concentratio		, <del></del>	•	0.001	0.00	
			,		0.00	
INTERNAL STANDARDS	PERCENT RECOVERY		RECOVERY LIMITS	Y		
13C-2,3,7,8-TCDD	43		40 - 13	35		
13C-1,2,3,7,8-PeCDD	34	*	40 - 13			
13C-1,2,3,6,7,8-HxCDD	43		40 - 13			
13C-1,2,3,4,6,7,8-HpCD	D 37	*	40 - 13			
13C-OCDD	33	*	40 - 13			
13C-2,3,7,8-TCDF	42		40 - 13			
13C-1,2,3,7,8-PeCDF		*				
130 1 2 2 1 = 2 = ==			40 - 13	55		

Calculations are performed before rounding to avoid round-off errors in calculated results

\* Surrogate recovery is outside stated control limits.

37

37

13C-1,2,3,4,7,8-HxCDF

13C-1,2,3,4,6,7,8-HpCDF

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LEVELV

40 - 135

40 - 135

### IT CORPORATION

### Dioxins/Furans, HRGC/HRMS (8290)

Client Sample ID: PC-21

Lot-Sample #:	CO E	00000 01 =						
Date Sampled:	6/29	300201-017	Work Ord		DFKQ		Matrix:	SOLID
Prep Date:		•	Date Rec		6/30		Instrument:	6D5
_	7/5/		Analysis		7/9/	00	Units:	pg/g
Prep Batch #:	0187	7203	Dilution	Factor:	1		% Moisture:	17
PARAMETER	revigue	al deresult		REPORTI LIMIT	NG	TEF FACTOR	TEQ Co	onc.
2,3,7,8-TCDD	U	ND		0.36	***************************************	1.000	0.00	
Total TCDD	A CONTRACTOR OF THE CONTRACTOR	ND		0.42		1.000	0.00	
1,2,3,7,8-PeCDD		ND		0,92		0.500	0.00	
Total PeCDD	9/24	ND		2.1		3,300	0.00	
1,2,3,4,7,8-HxCDD		ND		0.52		0.100	0.00	
1,2,3,6,7,8-HxCDD		ND		0.51		0.100	0.00	
1,2,3,7,8,9-HxCDD		ND		0.46		0.100	0.00	
Total HxCDD	GEODOGO GO	ND		5.4		******	0.00	
1,2,3,4,6,7,8-HpCDI		ND		0.47		0.010	0.00	
Total HpCDD	· SERVICIONAL SERVICES	ND		0.47			0.00	
OCDD	MONTH COURT	ND		1.6		0.001	0.00	
2,3,7,8-TCDF	THE COLUMN	ND		0.34		0.100	0.00	
Total TCDF	***************************************	ND		0.34			0.00	
1,2,3,7,8-PeCDF	(CV)	ND		0.46		0.050	0.00	
2,3,4,7,8-PeCDF	PARTICULAR PROPERTY AND ADDRESS OF THE PARTICULAR PROPERT	ND		0.47		0.500	0.00	
Total PeCDF		ND		0.47			0.00	
1,2,3,4,7,8-HxCDF		ND		0.29		0.100	0.00	
1,2,3,6,7,8-HxCDF	996423	ND		0.22		0.100	0.00	
2,3,4,6,7,8-HxCDF	***************************************	ND		0.30		0.100	0.00	
1,2,3,7,8,9-HxCDF		ND		0.30		0.100	0.00	
Total HxCDF	TOTAL PROPERTY.	ND		0.30			3.33	
1,2,3,4,6,7,8-HpCDF		ND		0.36		0.010	0.00	
1,2,3,4,7,8,9-HpCDF	o Chry impostra	ND		0.40		0.010	0.00	
Total HpCDF		ND		0.40				
OCDF	A Parameter Company	ND		0.69		0.001	0.00	
Total TEQ Concentra	tion*						0.00	
INTERNAL STANDARDS		PERCENT RECOVERY			COVERY			
13C-2,3,7,8-TCDD	***	83		40	<b>-</b> 135	<del></del>		
13C-1,2,3,7,8-PeCDD		71			- 135			
13C-1,2,3,6,7,8-HxC	DD	96			- 135			
13C-1,2,3,4,6,7,8-H		86			- 135			
13C-OCDD	_	82			- 135 - 135			
13C-2,3,7,8-TCDF		82						
13C-1,2,3,7,8-PeCDF		69	<del>-</del> -		- 135			
13C-1,2,3,4,7,8-HxC	DF	83			- 135			
13C-1 2 3 4 6 7 9 10		0.5		40	- 135			

Calculations are performed before rounding to avoid round-off errors in calculated results

86

\* Not validated

13C-1,2,3,4,6,7,8-HpCDF

NOTES:

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40 - 135

### IT CORPORATION

### Dioxins/Furans, HRGC/HRMS (8290)

Client Sample ID: PC-22

Lot-Sample #:	G0F300201-018	Work Order #:	DFKQW102	Matrix:	SOLID
Date Sampled:	6/29/00	Date Received:	6/30/00	Instrument:	6D5
Prep Date:	7/5/00	Analysis Date:		Units:	pg/g
Prep Batch #:	0187203	Dilution Factor:		% Moisture:	19
	el qua RESULT	REPORT LIMIT	CING TEF FACTOR	TEQ Cor	nc.
2,3,7,8-TCDD	ND	0.45	1.000	0.00	<del></del>
Total TCDD	ND	0.45	1.000	0.00	
1,2,3,7,8-PeCDD	ND	1.0	0.500	0.00	
Total PeCDD	ND	3.2		0.00	
1,2,3,4,7,8-HxCDD	ND	0.62	0.100	0.00	
1,2,3,6,7,8-HxCDD	ND	0.60	0.100	0.00	
1,2,3,7,8,9-HxCDD	ND	0.55	0.100	0.00	
Total HxCDD	ND	5.8			
1,2,3,4,6,7,8-HpCDD	ND .	0.68	0.010	0.00	
Total HpCDD	ND	0.68		0.00	
OCDD	<b>N</b> D	3.1	0.001	0.00	
2,3,7,8-TCDF	ND	0.40	0.100	0.00	
Total TCDF	ND	0.43			
1,2,3,7,8-PeCDF	ND	0.57	0.050	0.00	
2,3,4,7,8-PeCDF	ND	0.58	0.500	0.00	
Total PeCDF	ND	0.71			
1,2,3,4,7,8-HxCDF	ND	0.36	0.100	0.00	
1,2,3,6,7,8-HxCDF	ND	0.27	0.100	0.00	
2,3,4,6,7,8-HxCDF	ND	0.37	0.100	0.00	
1,2,3,7,8,9-HxCDF	ND	0.37	0.100	0.00	
Total HxCDF	ND	0.37			
1,2,3,4,6,7,8-HpCDF	ND	0.33	0.010	0.00	
1,2,3,4,7,8,9-HpCDF	ND	0.37	0.010	0.00	
Total HpCDF	ND	0.37			
OCDF	ND	0.61	0.001	0.00	
Total TEQ Concentrati	on *	,		0.00	
	PERCENT	RI	ECOVERY		
INTERNAL STANDARDS	RECOVERY	L	IMITS		
13C-2,3,7,8-TCDD	81		10 - 135		
13C-1,2,3,7,8-PeCDD	72		10 - 135		
13C-1,2,3,6,7,8-HxCDD	94		10 - 135		
13C-1,2,3,4,6,7,8-HpC	DD 84		10 - 135		
13C-OCDD	80		10 - 135		
13C-2,3,7,8-TCDF	80		10 - 135		
13C-1,2,3,7,8-PeCDF	68		10 - 135		
13C-1,2,3,4,7,8-HxCDF					
13C-1,2,3,4,6,7,8-HpC			10 - 135		
	Dr. 00	4	10 - 135		

Calculations are performed before rounding to avoid round-off errors in calculated results

Not validated.

NOTES:

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LEVELV



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

### **DATA ASSESSMENT FORM**

<u>Project Title</u>: Rocketdyne Project Manager: D. Hambrick

Analysis/Method: Metals by Method 7471A

QC Level: V<sup>1</sup>
SDG: IJJ0179
Matrix: Soil
No. of Samples: 2

Date Reviewed: March 7, 2002 Reviewer: A. Lang

Reference: USEPA SW-846 Method 7471A (11/90)

Samples Reviewed: PCS-46B, PCS-47B

### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	The coolers were received within temperature QC limits of 4°±2° C. 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.	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. <u>LCS/BS</u>	One solid LCS sample was analyzed with the samples. The recovery for mercury was within the laboratory defined QC limits.	No qualifications were required.
6. <u>Duplicates</u>	None.	No qualifications were required.
7. MS/MSDs	None.	No qualifications were required.
9. ICP Serial Dilution	None.	No qualifications were required.

Project: Rocketdyne SDG: IJJ0179 Analysis: Metals

	Findings	Qualifications
10. Other	None.	No qualifications were required.
11. Field QC Samples	None	No qualifications were required.
Comments	Sample results were reported on a wet weight basis.	None.

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJJ0179

Sampled: 10/04/00 Received: 10/05/00

**METALS** 

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
			mg/kg	mg/kg				By- ly
Sample ID: IJJ0179-01 (PCS-46B - Soil)							-	- <del> </del>
Mercury	EPA 7471A	I0J1334	0.020	0.030	1	10/13/00	10/13/00	
Sample ID: IJJ0179-02 (PCS-47B - Soil)					_	10, 15, 00	10, 13, 00	
Mercury	EPA 7471A	I0J1334	0.020	ND	1	10/13/00	10/13/00	u
Sample ID: IJJ0179-03 (BR-35 - Soil)					•	10/15/00	10/13/00	$\alpha$
Mercury	EPA 7471A	10Ј1334	0.020	ND	1	10/13/00	10/13/00	*
								į

\* analysia enot ralidated

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LEVELV

el Mar Analytical, Irvine

oject Manager



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

### **DATA ASSESSMENT FORM**

<u>Project Title</u>: Rocketdyne Project Manager: D. Hambrick

Analysis/Method: Metals by Method 7471A

 QC Level:
 V¹

 SDG:
 IJH0606

 Matrix:
 Soil

 No. of Samples:
 2

Date Reviewed: March 7, 2002 Reviewer: A. Lang

Reference: USEPA SW-846 Method 7471A (11/90)

Samples Reviewed: CBC-80S, PC-23

### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	The coolers were received within temperature QC limits of 4°±2° C. 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.	No qualifications were required.
3. Method Blanks	Mercury was not detected in the method blanks associated with the samples in this SDG.	No qualifications were required.
5. <u>LCS/BS</u>	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. <u>Duplicates</u>	None.	No qualifications were required.
7. MS/MSDs	None.	No qualifications were required.

Project: Rocketdyne SDG: IJH0606 Analysis: Metals

	Findings	Qualifications
9. ICP Serial Dilution	None.	No qualifications were required.
10. Other	None.	No qualifications were required.
11. Field QC Samples	None	No qualifications were required.
Comments	Sample results were reported on a wet weight basis.	None.

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0606

Sampled: 08/17/00 Received: 08/17/00

Analyte	Method		ETALS Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifie	ers
		1	mg/kg	mg/kg				Bur	Qua
<b>Sample ID: IJH0606-02 (CBC-79SW</b>	- Soil)							Qual.	100
Mercury	EPA 7471A	I0H2530	0.020	0.054	1	8/25/00	8/25/00	*	
Sample ID: IJH0606-03 (CBC-79SW)	D - Soil)							ブ	-
Mercury	EPA 7471A	I0H2530	0.020	0.044	1	8/25/00	8/25/00	*	
Sample ID: IJH0606-04 (CBC-80S - S	Soil)				-	0,23,00	0/23/00	/	
Mercury	EPA 7471A	I0H2530	0.020	ND	1	8/25/00	8/25/00	u	

\* analysis unot validated

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LEVEL V

Del Mar Analytical, Irvine

Pat Abe Project Manager



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0606

Sampled: 08/17/00 Received: 08/17/00

		$\mathbf{M}$	IETALS					
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IJH0606-01 (PC-23 - Soil)			mg/kg	mg/kg			had	Qual line
Mercury (PC-23 - Soli)	EPA 7471A	I0H2128	8 0.020	0.020	1	8/21/00	8/21/00	

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**Del Mar Analytical, Irvine** Pat Abe Project Manager

### **DATA VALIDATION REPORT**

# ROCKETDYNE Former Sodium Disposal Facility Site Sampling

**ANALYSIS: METALS** 

SAMPLE DELIVERY GROUP: IJF0961

Prepared by

AMEC—Denver Operations 550 South Wadsworth Boulevard, Suite 500 Lakewood, Colorado 80226 Project: Rocketdyne SDG No.: IJF0961

DATA VALIDATION REPORT Analysis: Metals

### 1. INTRODUCTION

Project: Rocketdyne Former Sodium Disposal Facility Site Sampling

Contract Task Order #: 313150008

SDG#: IJF0961

Project Manager: D. Hambrick

Matrix: Soil
Analysis: Metals
OC Level: IV

No. of Samples: 13 No. of Reanalyses/Dilutions: 0

Reviewer: P. Meeks

Date of Review: March 11, 2002

The samples listed in Table 1 were validated based on the guidelines outlined in the *Amec Data Validation Procedure for Levels C and D metals and cyanide* (DVP-5, Rev. 2), *USEPA SW-846 Method 7471A*, 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.

Project: Rocketdyne SDG No.: IJF0961 Analysis: Metals

DATA VALIDATION REPORT

**Table 1. Sample identification** 

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
PC-1	PC-1	IJF0961-01	soil	mercury
PC-3	PC-3	IJF0961-03	soil	mercury
PC-4	PC-4	IJF0961-04	soil	mercury
PC-6	PC-6	IJF0961-06	soil	mercury
PC-8	PC-8	IJF0961-08	soil	mercury
PC-9	PC-9	IJF0961-09	soil	mercury
PC-10	PC-10	IJF0961-10	soil	mercury
PC-12	PC-12	IJF0961-12	soil	mercury
PC-14B	PC-14B	IJF0961-14	soil	mercury
PC-14T	PC-14T	IJF0961-16	soil	mercury
PC-16T	PC-16T	IJF0961-19	soil	mercury
PC-16B	PC-16B	IJF0961-20	soil	mercury
PC-16BD	PC-16BD	IJF0961-21	soil	mercury

Project: Rocketdyne
SDG No.: IJF0961
DATA VALIDATION REPORT
Analysis: Metals

### 2. DATA VALIDATION FINDINGS

#### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

### 2.1.1Sample Preservation, Handling, and Transport

The samples arrived within the temperature limit of 4EC"2EC. No sample preservation, handling, or transport problems were noted, and no qualifications were required.

### 2.1.2Chain 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. There were no sample condition questions on the COCs, and no sample receiving checklist was included. No cooler or sample container custody seal information was provided. The case narrative, however, stated that the samples were received intact. No qualifications were required.

### 2.1.3 Holding Times

The date 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 28 days for mercury. No qualifications were assigned to sample results.

### 2.2 CALIBRATION

All mercury ICV and CCV results in the raw data showed acceptable %Rs, 80-120%. No qualifications were required based on the calibration information.

### 2.3 BLANKS

The mercury results reported on the summary forms and in the raw data for the blank analyses associated with these samples were nondetects at the reporting limits. The raw data blanks verification showed that all applicable method blank and CCB results were found at less than one half the absolute value of the reporting limits, which meets the laboratory SOP requirements for the blanks. No sample qualifications were required.

### 2.4 ICP INTERFERENCE CHECK SAMPLE (ICP ICS)

The ICP interference check sample is not applicable to the mercury analysis. No sample qualifications were required.

Project: Rocketdyne SDG No.: IJF0961 Analysis: Metals

DATA VALIDATION REPORT

### 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

A solid LCS sample was analyzed with the samples in this SDG. The LCS result reported on the Method Blank/QC Data Forms and in the raw data were within the laboratory's control limits of 85-115%R for the mercury analysis. The mercury LCS was identified as I0G0611-BS1. No qualifications were required

#### 2.6 LABORATORY DUPLICATES

No laboratory duplicate analyses were performed in association with the samples in this SDG; therefore, no assessment was made with respect to this criteria. No qualifications were required.

### 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were performed in association with the samples in this SDG; therefore, no assessment was made with respect to this criteria. No 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 is not applicable to the mercury analysis. No qualifications were required.

#### 2.10 SAMPLE RESULT VERIFICATION

An EPA Level IV review was performed for all samples in this data package. Calculations were verified, sample results reported on the Form Is were verified against the raw data, and no transcription errors or calculations errors were noted. The samples in this SDG were reported on a wet weight basis. No qualifications were necessary.

### 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.

Project: Rocketdyne SDG No.: IJF0961

DATA VALIDATION REPORT Analysis: Metals

### 2.11.1 Field Blanks and Equipment Rinsates

The samples in this SDG had no associated field QC samples. No qualifications were necessary.

### 2.11.2 Field Duplicates

Samples PC-16B/PC-16BD were identified as the field duplicate pair for the mercury only samples in this SDG. If RPDs are greater than 30% for waters or 50% for soils for sample results >5HCRDL, the RPDs and affected analytes are noted in the validation report. A control limit of "4HCRDL is used for soil sample values <5HCRDL. Mercury was detected in both field duplicate samples with an RPD of less than 50%.



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9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0843 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

METALS									
Method			Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Qual		
		mg/kg	mg/kg				Rev Qual	Qual Code	
EPA 7471A	I0G0611	0.020	ND	1	7/6/00	7/7/00	U		
EPA 7471A	10G0611	0.020	0.059	1	7/6/00	7/7/00	*		
EPA 7471A	10G0611	0.020	0.023	prod	7/6/00	7/7/00			
EPA 7471A	I0G0611	0.020	ND	g) data	7/6/00	7/7/00	U		
EPA 7471A	I0G0611	0.020	ND	process	7/6/00	7/7/00	U		
EPA 7471A	I0G0611	0.020	0.025	1	7/6/00	7/7/00			
EPA 7471A	10G0611	0.020	0.069	1	7/6/00	7/7/00			
EPA 7471A	10G0611	0.020	0.11	1	7/6/00	7/7/00			
	EPA 7471A EPA 7471A EPA 7471A EPA 7471A EPA 7471A EPA 7471A	Method Batch  EPA 7471A	Method         Batch Limit           mg/kg           EPA 7471A         I0G0611 0.020           EPA 7471A         I0G0611 0.020	Method         Batch         Reporting Limit         Sample Result           mg/kg         mg/kg         mg/kg           EPA 7471A         I0G0611 0.020         ND           EPA 7471A         I0G0611 0.020         0.059           EPA 7471A         I0G0611 0.020         0.023           EPA 7471A         I0G0611 0.020         ND           EPA 7471A         I0G0611 0.020         ND           EPA 7471A         I0G0611 0.020         0.025           EPA 7471A         I0G0611 0.020         0.069	Method         Batch Limit         Reporting Result         Sample Result         Dilution Factor           mg/kg         mg/kg         mg/kg           EPA 7471A         I0G0611         0.020         ND         1           EPA 7471A         I0G0611         0.020         0.059         1           EPA 7471A         I0G0611         0.020         0.023         1           EPA 7471A         I0G0611         0.020         ND         1           EPA 7471A         I0G0611         0.020         ND         1           EPA 7471A         I0G0611         0.020         0.025         1           EPA 7471A         I0G0611         0.020         0.069         1	Method         Batch Limit         Sample Result         Dilution Factor         Date Extracted           mg/kg         mg/kg         mg/kg         Pactor         Date Extracted           EPA 7471A         I0G0611         0.020         ND         1         7/6/00           EPA 7471A         I0G0611         0.020         0.059         1         7/6/00           EPA 7471A         I0G0611         0.020         ND         1         7/6/00           EPA 7471A         I0G0611         0.020         ND         1         7/6/00           EPA 7471A         I0G0611         0.020         ND         1         7/6/00           EPA 7471A         I0G0611         0.020         0.025         1         7/6/00           EPA 7471A         I0G0611         0.020         0.069         1         7/6/00	Method         Batch Limit         Reporting Limit         Sample Result         Dilution Factor         Date Extracted         Date Analyzed           EPA 7471A         I0G0611         0.020         ND         1         7/6/00         7/7/00           EPA 7471A         I0G0611         0.020         0.059         1         7/6/00         7/7/00           EPA 7471A         I0G0611         0.020         0.023         1         7/6/00         7/7/00           EPA 7471A         I0G0611         0.020         ND         1         7/6/00         7/7/00           EPA 7471A         I0G0611         0.020         ND         1         7/6/00         7/7/00           EPA 7471A         I0G0611         0.020         0.025         1         7/6/00         7/7/00           EPA 7471A         I0G0611         0.020         0.069         1         7/6/00         7/7/00	Method         Batch Limit         Sample Result         Dilution Factor         Date Extracted Analyzed         Date Analyzed Qual           mg/kg         mg/kg         mg/kg         logo611         0.020         ND         1         7/6/00         7/7/00         U           EPA 7471A         10G0611         0.020         0.059         1         7/6/00         7/7/00         ★           EPA 7471A         10G0611         0.020         0.023         1         7/6/00         7/7/00         U           EPA 7471A         10G0611         0.020         ND         1         7/6/00         7/7/00         U           EPA 7471A         10G0611         0.020         ND         1         7/6/00         7/7/00         U           EPA 7471A         10G0611         0.020         0.025         1         7/6/00         7/7/00         U           EPA 7471A         10G0611         0.020         0.069         1         7/6/00         7/7/00         EPA 7471A         10G0611         0.020         0.069         1         7/6/00         7/7/00         EPA 7471A         10G0611         0.020         0.014         0.014         0.014         0.014         0.014         0.014         0.014	

\*Analysis Not Validated

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

M	T	T,	A	Ŧ	C
Y	г.	1	$\mu_{\bullet}$	ŧ	

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat Quali	
Sample ID: IJF0961-12 (PC-12 - Soil)			mg/kg	mg/kg				Row	Qual Code
Hercury Sample ID: IJF0961-14 (PC-14B - Soil)	EPA 7471A	10G061	0.020	0.029	y was	7/6/00	7/7/00	i	
Jample ID: IJF0961-16 (PC-14T - Soil)	EPA 7471A	10G0611	0.020	0.029	g-ware	7/6/00	7/7/00		
dercury lample ID: IJF0961-19 (PC-16T - Soil)	EPA 7471A	10G0611	0.020	ND	power	7/6/00	7/7/00	U	
dercury lample ID: IJF0961-20 (PC-16B - Soil)	EPA 7471A	10G0611	0.020	0.023	guines.	7/6/00	7/7/00		
dercury lample ID: IJF0961-21 (PC-16BD - Soil	EPA 7471A )	10G0611	0.020	0.098	trend.	7/6/00	7/7/00		
lercury ample ID: IJF0961-24 (PC-18 - Soil)	EPA 7471A	10G0611	0.020	0.064	Year A	7/6/00	7/7/00		
lercury	EPA 7471A	10G0611	0.020	0.72	1	7/6/00	7/7/00	<del>-X</del>	

\*Analysis Not Validated

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Mar Analytical, Irvine Abe ject Manager

### **DATA VALIDATION REPORT**

# ROCKETDYNE Former Sodium Disposal Facility Site Sampling

**ANALYSIS: METALS** 

SAMPLE DELIVERY GROUP: IJI0547

Prepared by

AMEC—Denver Operations 550 South Wadsworth Boulevard, Suite 500 Lakewood, Colorado 80226 Project: Rocketdyne SDG No.: IJI0547

DATA VALIDATION REPORT Analysis: Metals

### 1. INTRODUCTION

Project: Rocketdyne Former Sodium Disposal Facility Site Sampling

Contract Task Order #: 313150008

SDG#: IJI0547

Project Manager: D. Hambrick

Matrix: Soil
Analysis: Metals
QC Level: IV

No. of Samples: 6

No. of Reanalyses/Dilutions: 0

Reviewer: K. Okonzak
Date of Review: March 07, 2002

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 6010B, and 7471A*, 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.

Project: Rocketdyne SDG No.: IJI0547 Analysis: Metals

DATA VALIDATION REPORT

**Table 1. Sample identification** 

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
PCS-29	PCS-29	IJI0547-01	soil	CAM 22 Metals
PCS-31	PCS-31	IJI0547-04	soil	CAM 22 Metals
CAC-100BE	CAC-100BE	IJI0547-06	soil	mercury
CAC-101BE	CAC-101BE	IJI0547-07	soil	mercury
CAC-101BED	CAC-101BED	IJI0547-08	soil	mercury
CBC-102SW	CBC-102SW	IJI0547-09	soil	mercury

Project:
SDG No.:
DATA VALIDATION REPORT
Analysis:

### 2. DATA VALIDATION FINDINGS

Rocketdvne

IJI0547

Metals

#### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

### 2.1.1Sample Preservation, Handling, and Transport

The samples arrived within the temperature limit of 4EC"2EC. No sample preservation, handling, or transport problems were noted, and no qualifications were required.

### 2.1.2Chain 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. There were no sample condition questions on the COCs, and no sample receiving checklist was included. No cooler or sample container custody seal information was provided. The case narrative, however, stated that the samples were received intact. No qualifications were required.

### 2.1.3 Holding Times

The date of collection recorded on the COC and the dates of analysis recorded in the raw data documented that all sample analyses were performed within the specified holding times of six months for metals and 28 days for mercury. No qualifications were assigned to sample results.

### 2.2 CALIBRATION

All ICAP and mercury ICV and CCV results in the raw data showed acceptable %Rs, 90-110% for ICAP and 80-120% for mercury. No qualifications were required based on the calibration information.

### 2.3 BLANKS

The ICAP and mercury results reported on the summary forms and in the raw data for the blank analyses associated with these samples were nondetects at the reporting limits. The raw data blanks verification showed that all applicable method blank and CCB results were found at less than one half the absolute value of the reporting limits, which meets the laboratory SOP requirements for the blanks. No sample qualifications were required.

### 2.4 ICP INTERFERENCE CHECK SAMPLE (ICP ICS)

The raw data results for the ICSAB sample, analyzed at the beginning of the analytical run, were within the established control limits of 80%-120%. No sample qualifications were required.

T703MT4 3 Revision 1

Project: Rocketdyne SDG No.: IJI0547

<u>DATA VALIDATION REPORT</u> Analysis: Metals

### 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Aqueous LCS samples were analyzed with this SDG. The LCS result reported on the Method Blank/QC Data Forms and in the raw data were within the laboratory's control limits of 80-120%R for the ICAP analytes and 85-115%R for the mercury analysis. The ICAP LCS was identified as I0I1858-BS1, and the mercury LCS was identified as I0I1937-BS1. No qualifications were required

#### 2.6 LABORATORY DUPLICATES

The ICAP MS/MSD analyses were performed on site sample PCS-29 in association with the site soil samples in this SDG. The RPDs between the MS/MSD aliquots were within the established limits of "20%. The mercury MS/MSD analyses reported in this package were performed on a sample not associated with this SDG; therefore, the mercury results were not assessed for the duplicate criteria. No qualifications were required.

### 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The ICAP MS/MSD analyses were performed on sample PCS-29 in association with the site soil samples in this SDG. The %Rs were within the laboratory-established control limits of 75-125%, with the exception of antimony, which had MS/MSD %Rs of 40.4% and 46.2%, respectively; therefore, the antimony nondetects were qualified "UJ" for samples PCS-29 and PCS-31. The mercury MS/MSD analyses reported in this package were performed on a sample not associated with this SDG; therefore, the mercury results were not assessed for the matrix spike criteria. 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 analysis was not performed for the samples in this SDG; therefore, the samples were not assessed for this criteria.

### 2.10 SAMPLE RESULT VERIFICATION

An EPA Level IV review was performed for all samples in this data package. Calculations were verified, sample results reported on the Form Is were verified against the raw data, and no transcription errors or calculations errors were noted. The samples in this SDG were reported on a wet weight basis. No qualifications were necessary.

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Project: Rocketdyne SDG No.: IJI0547

DATA VALIDATION REPORT Analysis: Metals

### 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

The samples in this SDG had no associated field QC samples. No qualifications were necessary.

### 2.11.2 Field Duplicates

Samples CAC-101BE/CAC-101BED were identified as the field duplicate pair for the mercury only samples in this SDG. If RPDs are greater than 30% for waters or 50% for soils for sample results >5HCRDL, the RPDs and affected analytes are noted in the validation report. A control limit of "4HCRDL is used for soil sample values <5HCRDL. Mercury was detected in both CAC-101BE and CAC-101BED with an RPD of less than 50%.

T703MT4 5 Revision 1

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0547

Sampled:09/15/00 Received:09/15/00

### **METALS**

Analyte	Method		Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
			mg/kg	mg/kg				Sev , Qual
Sample ID: IJI0547-01 (PCS-29 - Soil)								ual Coole
Antimony	EPA 6010B	I0I1858	10	ND	1	9/18/00	9/18/00 U	
Arsenic	EPA 6010B	I0I1858	2.0	5.1	1	9/18/00	9/18/00	
Barium	EPA 6010B	1011858	1.0	120	1	9/18/00	9/18/00	
Beryllium	EPA 6010B	I0I1858	0.50	0.85	1	9/18/00	9/18/00	
Cadmium	EPA 6010B	I0I1858	0.50	0.59	1	9/18/00	9/18/00	
Chromium	EPA 6010B	I0I1858	1.0	30	1	9/18/00	9/18/00	
Cobalt	EPA 6010B	I0I1858	1.0	9.5	1	9/18/00	9/18/00	
Copper	EPA 6010B	I0I1858	1.0	16	1	9/18/00	9/18/00	İ
Lead	EPA 6010B	I0I1858	2.0	9.0	1	9/18/00	9/18/00	
Mercury	EPA 7471A	I0I1937	0.020	ND	1	9/19/00	9/19/00	
Molybdenum	EPA 6010B	I0I1858	2.0	ND	1	9/18/00	9/18/00	
Nickel	EPA 6010B	I0I1858	1.0	19	1	9/18/00	9/18/00	
Selenium	EPA 6010B	I0I1858	2.0	ND	1	9/18/00	9/18/00	и. Т
Silver	EPA 6010B	1011858	1.0	ND	1	9/18/00	9/18/00	i
Thallium	EPA 6010B	1011858	10	ND	1	9/18/00	9/18/00	
Vanadium	EPA 6010B	I0I1858	1.0	54	1	9/18/00	9/18/00	
Zine	EPA 6010B	I0I1858	5.0	58	1	9/18/00	9/18/00	
Sample ID: IJI0547-02 (PCS-30 - Soil)								
Antimony	EPA 6010B	1011858	. 10	ND	1	9/18/00	9/18/00	*
Arsenic	EPA 6010B	1011858	2.0	5.8	1	9/18/00	9/18/00	
Barium	EPA 6010B	I0I1858	1.0	150	1	9/18/00	9/18/00	
Beryllium	EPA 6010B	1011858	0.50	0.84	1	9/18/00	9/18/00	
Cadmium	EPA 6010B	1011858	0.50	0.55	1	9/18/00	9/18/00	
Chromium	EPA 6010B	I0I1858	1.0	26	1	9/18/00	9/18/00	
Cobalt	EPA 6010B	I0I1858	1.0	9.6	1	9/18/00	9/18/00	11
Copper	EPA 6010B	1011858	1.0	14	1	9/18/00	9/18/00	11
Lead	EPA 6010B	I0I1858	2.0	9.3	1	9/18/00	9/18/00	
Mercury	EPA 7471A	I0I1937	0.020	ND	1	9/19/00	9/19/00	11
Molybdenum	EPA 6010B	I0I1858	2.0	ND	1	9/18/00	9/18/00	
Nickel	EPA 6010B	I0I1858	1.0	18	1	9/18/00	9/18/00	
Selenium	EPA 6010B	1011858	2.0	ND	1	9/18/00	9/18/00	
Silver	EPA 6010B	I0I1858	1.0	ND	1	9/18/00	9/18/00	Andreas Services
Thallium	EPA 6010B	I0I1858	10	ND	1	9/18/00	9/18/00	
Vanadium	EPA 6010B	I0I1858	1.0	49	1	9/18/00	9/18/00	
Zinc	EPA 6010B	1011858	5.0	55	1	9/18/00	9/18/00	W

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Pat Abe Project Manager **AMEC VALIDATED** 

\*Analysis Not Validated

*IJI0547* 

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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0547

Sampled:09/15/00

Received:09/15/00

### **METALS**

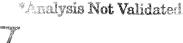
Analyte	Method	H Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Quali	
			mg/kg	mg/kg			<b>J</b>	<b>(</b>	
Sample ID: IJI0547-03 (PCS-32 - Soil)				************				Rev	Code
Antimony	EPA 6010B	1011858	10	ND	1	9/18/00	9/18/00	Qual	*
Arsenic	EPA 6010B	I0I1858	2.0	5.0	1	9/18/00	9/18/00		1
Barium	EPA 6010B	1011858	1.0	120	1	9/18/00	9/18/00	ļ	
Beryllium	EPA 6010B	I0I1858	0.50	0.76	1	9/18/00	9/18/00		
Cadmium	EPA 6010B	I0I1858	0.50	0.52	1	9/18/00	9/18/00	Ī	
Chromium	EPA 6010B	I0I1858	1.0	28	1	9/18/00	9/18/00		Charles
Cobalt	EPA 6010B	I0I1858	1.0	8.6	1	9/18/00	9/18/00		
Copper	EPA 6010B	I0I1858	1.0	14	1	9/18/00	9/18/00		
Lead	EPA 6010B	1011858	2.0	8.1	1	9/18/00	9/18/00		
Mercury	EPA 7471A	I0I1937		ND	1	9/19/00	9/19/00		
Molybdenum	EPA 6010B	1011858	2.0	ND	1	9/18/00	9/18/00		
Nickel	EPA 6010B	I0I1858	1.0	17	1	9/18/00	9/18/00		
Selenium	EPA 6010B	1011858	2.0	ND	1	9/18/00	9/18/00		
Silver	EPA 6010B	I0I1858	1.0	ND	1	9/18/00	9/18/00		
Thallium	EPA 6010B	1011858	10	ND	1	9/18/00	9/18/00		
Vanadium	EPA 6010B	I0I1858	1.0	49	1	9/18/00	9/18/00		
Zinc	EPA 6010B	I0I1858	5.0	52	1	9/18/00	9/18/00		V
Sample ID: IJI0547-04 (PCS-31 - Soil)						and a second second second second second	(2/2/1/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2		CATALOGICAL PORT
Antimony	EPA 6010B	I0I1858	10	ND	1	9/18/00	9/18/00	us	C
Arsenic	EPA 6010B	I0I1858	2.0	6.2	1	9/18/00	9/18/00		~ (
Barium	EPA 6010B	I0I1858	1.0	130	1	9/18/00	9/18/00		
Beryllium	EPA 6010B	I0I1858	0.50	0.86	1	9/18/00	9/18/00		
Cadmium	EPA 6010B	I0I1858	0.50	0.55	1	9/18/00	9/18/00		
Chromium	EPA 6010B	I0I1858	1.0	30	1	9/18/00	9/18/00		
Cobalt	EPA 6010B	I0I1858	1.0	9.4	1	9/18/00	9/18/00		
Copper	EPA 6010B	I0I1858	1.0	14	1	9/18/00	9/18/00		
Lead	EPA 6010B	I0I1858	2.0	9.1	1	9/18/00	9/18/00		
Mercury	EPA 7471A	I0I1937	0.020	ND	1	9/19/00	9/19/00	u	
Molybdenum	EPA 6010B	1011858	2.0	ND	1	9/18/00	9/18/00	u	
Nickel	EPA 6010B	I0I1858	1.0	18	1	9/18/00	9/18/00		
Selenium	EPA 6010B	1011858	2.0	ND	1	9/18/00	9/18/00	u	
Silver	EPA 6010B	1011858	1.0	ND	î	9/18/00	9/18/00	u	
Thallium	EPA 6010B	I0I1858	10	ND	1	9/18/00	9/18/00	ul	
Vanadium	EPA 6010B	I0I1858	1.0	53	1	9/18/00	9/18/00		
Zinc	EPA 6010B	I0I1858	5.0	55	1	9/18/00	9/18/00		
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**Del Mar Analytical, Irvine** Pat Abe

Project Manager

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0547

Sampled:09/15/00 Received:09/15/00

### **METALS**

		*****	* 1 * *						
Analyte	Method	F Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
			mg/kg	mg/kg				n i	
Sample ID: IJI0547-05 (PCS-33B - Soil)							,	Rev Coul	
Antimony	EPA 6010B	I0I1858	10	ND	1	9/18/00	9/18/00	*-	
Arsenic	EPA 6010B	I0I1858	2.0	3.9	.1	9/18/00	9/18/00	1 7	
Barium	EPA 6010B	I0I1858	1.0	64	1	9/18/00	9/18/00	1	
Beryllium	EPA 6010B	1011858	0.50	ND	1	9/18/00	9/18/00		
Cadmium	EPA 6010B	I0I1858	0.50	ND	1	9/18/00	9/18/00		
Chromium	EPA 6010B	I0I1858	1.0	17	1	9/18/00	9/18/00	A Company of the Comp	
Cobalt	EPA 6010B	I0I1858	1.0	5.0	1	9/18/00	9/18/00	Salah di mana	
Copper	EPA 6010B	I0I1858	1.0	8.9	1	9/18/00	9/18/00	ann value (1846	
Lead	EPA 6010B	1011858	2.0	5.3	1	9/18/00	9/18/00	navana	
Mercury	EPA 7471A	1011937	0.020	0.020	1	9/19/00	9/19/00		
Molybdenum	EPA 6010B	1011858	2.0	ND	1	9/18/00	9/18/00	-	
Nickel	EPA 6010B	I0I1858	1.0	11	1	9/18/00	9/18/00		
Selenium	EPA 6010B	I0I1858	2.0	ND	1	9/18/00	9/18/00		
Silver	EPA 6010B	I0I1858	1.0	ND	1	9/18/00	9/18/00	American State of the State of	
Thallium	EPA 6010B	I0I1858	10	ND	1	9/18/00	9/18/00		
Vanadium	EPA 6010B	I0I1858	1.0	33	1	9/18/00	9/18/00		
Zinc	EPA 6010B	I0I1858	5.0	28	1	9/18/00	9/18/00		
Sample ID: IJI0547-06 (CAC-100BE - Soil	)	hal a minus Commo Si lando misla de cuente etropas se que garas ( )	Martinia martina de la martinia de la proprio de Martinia de Salamana, de la martinia de la martinia de la com	ti ta	erickenholmer and erickenholmer ericken general general ericken general ericken general ericken general ericken	in an interesting date of the control of a Stimulation lands county study.			jum.
Mercury	EPA 7471A	I0I1937	0.020	ND	1	9/19/00	9/19/00	u	
Sample ID: IJI0547-07 (CAC-101BE - Soil	)							mer in housely pa	
Mercury	EPA 7471A	I0I1937	0.020	0.20	1	9/19/00	9/19/00	of the second second	

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\*Analysis Not Validated

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Pat Abe Project Manager



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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0547

Sampled:09/15/00 Received:09/15/00

M	$\mathbf{R}$	ľΔ	T	C
		_		

Analyte	Method	I Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
			mg/kg	mg/kg				Rei Gual
Sample ID: IJI0547-08 (CAC-101BED - So	oil)						/	and Code
Mercury	EPA 7471A	I0I1937	0.020	0.14	1	9/19/00	9/19/00	inci care
Sample ID: IJI0547-09 (CBC-102SW - Soil	l)							
Mercury	EPA 7471A	1011937	0.020	0.023	1	9/19/00	9/19/00	THE PARTY OF THE P

# **AMEC VALIDATED** LEVEL IV

Del Mar Analytical, Irvine Pat Abe

Project Manager



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

### **DATA ASSESSMENT FORM**

<u>Project Title</u>: Rocketdyne Project Manager: D. Hambrick

Analysis/Method: Metals by Method 7471A

QC Level: V<sup>1</sup>
SDG: IJF1026
Matrix: Soil
No. of Samples: 3

<u>Date Reviewed</u>: March 7, 2002 <u>Reviewer</u>: A. Lang

Reference: USEPA SW-846 Method 7471A (11/90)

Samples Reviewed: PC-20, PC-21, PC-22

### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	The coolers were received within temperature QC limits of 4°±2° C. 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.	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. <u>LCS/BS</u>	One solid LCS sample was analyzed with the samples. The recovery for mercury was within the laboratory defined QC limits.	No qualifications were required.
6. <u>Duplicates</u> Performed on PC-20	The RPD for the MS/MSD was within the 20%D control limit.	No qualifications were required.

Project: Rocketdyne SDG: IJF1026 Analysis: Metals

	Findings	Qualifications
7. MS/MSDs Performed on PC-20	The MS/MSD results were within the laboratory established control limits of 70-130%R.	No qualifications were required.
9. ICP Serial Dilution	None.	No qualifications were required.
10. Other	None.	No qualifications were required.
11. Field QC Samples	None	No qualifications were required.
Comments	Sample results were reported on a wet weight basis.	None.

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

Report Number: IJF1026

Sampled: 06/29/00 Received: 06/29/00

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		14.	LILALIO						
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualific	
Sample ID: IJF1026-01 (PC-20 - Soil)			mg/kg	mg/kg				Gual	An boo
Mercury Sample ID: IJF1026-02 (PC-21 - Soil)	EPA 7471A	I0F3006	0.020	0.026	l	6/30/00	6/30/00		
Mercury Sample ID: IJF1026-03 (PC-22 - Soil)	EPA 7471A	I0F3006	0.020	ND	1	6/30/00	6/30/00	u	
Mercury Sample ID: IJF1026-04 (R1890ML-1A	EPA 7471A - Soil)	10F3006	0.020	0.061	1	6/30/00	6/30/00		
Mercury Sample ID: IJF1026-05 (R1890ML-1B	EPA 7471A - Soil)	10F3006	0.040	2.7	2	6/30/00	6/30/00	*	The second secon
Mercury Sample ID: IJF1026-06 (R1890ML-1C	EPA 7471A - <b>Soil)</b>	10F3006	0.040	1.7	2	6/30/00	6/30/00	*	
Mercury Sample ID: IJF1026-07 (R1890ML-2A	EPA 7471A - Soil)	I0F3006	0.040	2.2	2	6/30/00	6/30/00	×	
Mercury Sample ID: IJF1026-08 (R1890ML-2B	EPA 7471A - <b>Soil)</b>	I0F3006	0.020	1.2	1	6/30/00	6/30/00	*	Andrew Company of the
Mercury	EPA 7471A	10F3006	0.020	1.2	1	6/30/00	6/30/00	*	NAME AND RESIDENCE AND REAL PROPERTY.
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**Del Mar Analytical, Irvine**Pat Abe
Project Manager



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF1026

Sampled: 06/29/00 Received: 06/29/00

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		*	EXILES						
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	ŝ
Sample ID: IJF1026-09 (R1890ML-2	C - Soil)		mg/kg	mg/kg			- nonecontacture	Qual	lu lea
Mercury Sample ID: IJF1026-10 (R1890ML-3	EPA 7471A	10F3006	0.020	1.2	1	6/30/00	6/30/00	X	
Mercury Sample ID: IJF1026-11 (R1890ML-3	EPA 7471A <b>B - Soil)</b>	I0F3006	0.040	2.6	2	6/30/00	6/30/00	*	
Mercury Sample ID: IJF1026-12 (R1890ML-3	EPA 7471A C - Soil)	I0F3006	0.20	3.5	10	6/30/00	6/30/00	*	
Mercury	EPA 7471A	I0F3006	0.20	5.1	10	6/30/00	6/30/00	*	

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LEVEL V

**Del Mar Analytical, Irvine**Pat Abe
Project Manager



# **DATA ASSESSMENT FORM**

<u>Project Title</u>: Rocketdyne Project Manager: D. Hambrick

Analysis/Method: Metals by Method 7471A

QC Level: V<sup>1</sup>
SDG: IJF0277
Matrix: Soil
No. of Samples: 2

Date Reviewed: March 7, 2002 Reviewer: A. Lang

Reference: USEPA SW-846 Method 7471A (11/90)

Samples Reviewed: CAC-32SW, CAC-31SW

	Findings	Qualifications
1. Sample Management	The coolers were received within temperature QC limits of 4°±2° C. 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.	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. <u>LCS/BS</u>	One solid LCS sample was analyzed with the samples. The recovery for mercury was within the laboratory defined QC limits.	No qualifications were required.
6. <u>Duplicates</u>	None.	No qualifications were required.
7. MS/MSDs	None.	No qualifications were required.

Project: Rocketdyne SDG: IJF0277 Analysis: Metals

	Findings	Qualifications
9. ICP Serial Dilution	None.	No qualifications were required.
10. Other	None.	No qualifications were required.
11. Field QC Samples	None	No qualifications were required.
Comments	Sample results were reported on a wet weight basis.	None.

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0277

Sampled: 06/07/00 Received: 06/08/00

#### **METALS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IJF0277-06 (CAC-32SW -	· Soil)		mg/kg	mg/kg				Par Qual
Mercury Sample ID: IJF0277-07 (CAC-31SW -	EPA 7471A • <b>Soil)</b>	I0F1310	0.020	0.20	1	06/13/00	06/13/00	
Mercury	EPA 7471A	I0F1310	0.020	0.035	1	06/13/00	06/13/00	A Commission of the Commission

# AMEC VALIDATED

LEVEL V

Del Mar Analytical, Irvine

Pat Abe Project Manager



# **DATA ASSESSMENT FORM**

<u>Project Title</u>: Rocketdyne Project Manager: D. Hambrick

Analysis/Method: Metals by Method 7471A

 $\frac{\text{QC Level:}}{\text{SDG:}} \quad \text{IJH0950}$ 

Matrix: Soil
No. of Samples: 11

Date Reviewed: March 7, 2002
Reviewer: A. Lang

Reference: USEPA SW-846 Method 7471A (11/90)

Samples Reviewed: CAC-90BE, CAC-89BW, PC-24, PC-25, CBC-91S, CBC-92S, PC-27, PC-28,

CBC-93S, CBC-94SW, PC-28D

		Findings	Qualifications
1. Sample M	anagement	The coolers were received within temperature QC limits of 4°±2° C. 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.	No qualifications were required.
3. Method B	<u>lanks</u>	Mercury was not detected in the method blanks associated with the samples in this SDG.	No qualifications were required.
5. <u>LCS/BS</u>		Three solid LCS samples were analyzed with the samples. The recoveries for mercury were within the laboratory defined QC limits.	No qualifications were required.
6. <u>Duplicates</u> Performed on		The RPDs for the MS/MSD were within the 20%D control limit.	No qualifications were required.

	Findings	Qualifications
7. MS/MSDs Performed on CBC-94SW CAC-90BE	The MS/MSD results were within the laboratory established control limits of 70-130%R.	No qualifications were required.
9. ICP Serial Dilution	None.	No qualifications were required.
10. Other	None.	No qualifications were required.
11. Field QC Samples Performed on PC-28	Mercury was detected in PC-28 but was not detected in PC-28D	No qualifications were required.
Comments	Sample results were reported on a wet weight basis.	None.

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Sample ID: IJH0950-07 (CBC-94SW - Soil)

Sample ID: IJH0950-08 (CBC-51SW - Soil)

Sample ID: IJH0950-16 (PC-28D - Soil)

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Mercury

Mercury

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

METALS

Report Number: IJH0950

Sampled: 08/28/00 Received: 08/28/00

Reporting Sample Dilution Date Data Limit Result Factor Extracted Analyzed **Oualifiers** Method Batch Analyte mg/kg mg/kg Sample ID: IJH0950-01 (CBC-91S - Soil) Mercury EPA 7471A 1010845 0.020 0.028 9/8/00 9/8/00 Sample ID: IJH0950-02 (CBC-92S - Soil) Mercury EPA 7471A 1010845 0.020 0.27 9/8/00 9/8/00 Sample ID: IJH0950-04 (PC-27 - Soil) ND 1 9/8/00 9/8/00 Mercury EPA 7471A I0I0845 0.020 11 Sample ID: IJH0950-05 (PC-28 - Soil) 9/8/00 9/8/00 EPA 7471A 1010845 0.020 0.043 Mercury Sample ID: IJH0950-06 (CBC-93S - Soil) 0.020 0.070 1 9/8/00 9/8/00 EPA 7471A 1010845

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**Del Mar Analytical, Irvine** 

Pat Abe Project Manager



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601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0919

Sampled: 08/25/00 Received: 08/25/00

		ME	ETALS						- ,,
Analyte	Method		eporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifie	
		n	ng/kg	mg/kg				By	Uyo
Sample ID: IJH0919-08 (CAC-90BE	- Soil)							<u> Auns</u>	100
Mercury	EPA 7471A	I0H3139	0.020	0.33	1	8/31/00	8/31/00	ĺ	
Sample ID: IJH0919-09 (CAC-90BW	' - Soil)						0,01,00		
Mercury	EPA 7471A	I0H3139	0.020	0.15	1	8/31/00	8/31/00	*	
Sample ID: IJH0919-14 (CAC-89BE	- Soil)							-^	
Mercury	EPA 7471A	I0H3139	0.020	0.59	1	8/31/00	8/31/00	*	
<b>Sample ID: IJH0919-15 (CAC-89BW</b>	- Soil)							- 7	
Mercury	EPA 7471A	I0H3139	0.020	0.097	1	8/31/00	8/31/00		
Sample ID: IJH0919-18 (PC-24 - Soil	) -								
Mercury	EPA 7471A	I0H3139	0.020	0.042	1	8/31/00	8/31/00		
Sample ID: IJH0919-19 (PC-25 - Soil	)								
Mercury	EPA 7471A	I0H3139	0.020	0.047	1	8/31/00	8/31/00		
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LEVEL V

Del Mar Analytical, Irvine Pat Abe

Project Manager



# **DATA ASSESSMENT FORM**

<u>Project Title</u>: Rocketdyne Project Manager: D. Hambrick

Analysis/Method: Metals by Method 7471A

QC Level: V<sup>1</sup>
SDG: IJG0192
Matrix: Soil

No. of Samples: 6

<u>Date Reviewed</u>: March 7, 2002 <u>Reviewer</u>: A. Lang

Reference: USEPA SW-846 Method 7471A (11/90)

Samples Reviewed: CBC-49S, CBC-50S, CBC-52SW, CBC-55S, CBC-56SW, CBC-57SW

	Findings	Qualifications
1. Sample Management	The coolers were received within temperature QC limits of 4°±2° C. 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.	No qualifications were required.
3. Method Blanks	Mercury was not detected in the method blanks associated with the samples in this SDG.	No qualifications were required.
5. <u>LCS/BS</u>	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. <u>Duplicates</u>	None.	No qualifications were required.
7. MS/MSDs	None.	No qualifications were required.

Project: Rocketdyne SDG: IJG0192 Analysis: Metals

	Findings	Qualifications
9. ICP Serial Dilution	None.	No qualifications were required.
10. Other	None.	No qualifications were required.
11. Field QC Samples	None	No qualifications were required.
Comments	Sample results were reported on a wet weight basis.	None.

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJG0192

Sampled: 07/10/00 Received: 07/10/00

#### METALS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifie	rs
			mg/kg	mg/kg				March	Mic.
Sample ID: IJG0192-01 (CBC-48S - S	oil)							<u> </u>	an
Mercury	EPA 7471A	I0G1428	3 0.020	0.085	1	7/14/00	7/14/00	X	
Sample ID: IJG0192-02 (CBC-49S - S	oil)			0.000	•	7714700	7714700	,,	
Mercury	EPA 7471A	I0G1428	3 0.020	0.031	1	7/14/00	7/14/00		
Sample ID: IJG0192-03 (CBC-50S - S	oil)				•	77 17 00	77 1-1700		
Mercury	EPA 7471A	I0G1428	3 0.020	ND *	1	7/14/00	7/14/00	W	
Sample ID: IJG0192-04 (CBC-52SW -	- Soil)				•	77 17 00	7717700	W	
Mercury	EPA 7471A	I0G1428	3 0.020	0.031	1	7/14/00	7/14/00		
Sample ID: IJG0192-05 (CBC-54SW -	- Soil)			3,352	•	77 1 -17 0 0	7/14/00		
Mercury	EPA 7471A	I0G1428	3 0.020	0.51	1	7/14/00	7/14/00	V	
Sample ID: IJG0192-06 (CBC-56SW -	- Soil)				•	77 1 1000	//14/00	*	
Mercury	EPA 7471A	I0G1428	0.020	0.041	1	7/14/00	7/14/00		
Sample ID: IJG0192-07 (CBC-57SW -	· Soil)				•	7711700	// 17/00		
Mercury	EPA 7471A	I0G1428	0.020	0.022	t	7/14/00	7/14/00		

\* analysis mot validated

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Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJG0104

Sampled: 07/06/00 Received: 07/06/00

#### **METALS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Samuel ID: 1100104-02 (CDC 72)			mg/kg	mg/kg				Burl look
Sample ID: IJG0104-03 (CBC-538	S - Soil)						Ţ	The state of the s
Mercury	EPA 7471A	I0G1727	0.020	0.052	1	7/17/00	7/17/00	*
Sample ID: IJG0104-05 (CBC-558	S - Soil)							
Mercury	EPA 7471A	I0G1727	0.020	0.027	1	7/17/00	7/17/00	A 3/8/02
Sample ID: IJG0104-08 (CBC-585	SW - Soil)							
Mercury	EPA 7471A	I0G1727	0.020	0.042	1	7/17/00	7/17/00	4

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LEVELV



# **DATA ASSESSMENT FORM**

<u>Project Title</u>: Rocketdyne Project Manager: D. Hambrick

Analysis/Method: Metals by Method 7471A

QC Level: V<sup>1</sup>
SDG: IJI0055
Matrix: Soil
No. of Samples: 5

<u>Date Reviewed</u>: March 7, 2002 <u>Reviewer</u>: A. Lang

Reference: USEPA SW-846 Method 7471A (11/90)

Samples Reviewed: CBC-96SW, CBC-97SW, CBC-98S, CBC-99SW, CBC-97SWD

	Findings	Qualifications
1. Sample Management	The coolers were received within temperature QC limits of 4°±2° C. 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.	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. <u>LCS/BS</u>	One solid LCS sample was analyzed with the samples. The recovery for mercury was within the laboratory defined QC limits.	No qualifications were required.
6. <u>Duplicates</u>	None.	No qualifications were required.
7. MS/MSDs	None.	No qualifications were required.

Project: Rocketdyne SDG: IJI0055 Analysis: Metals

	Findings	Qualifications
9. ICP Serial Dilution	None.	No qualifications were required.
10. Other	None.	No qualifications were required.
11. Field QC Samples Performed on CBC-97SW	Mercury was detected in CBC-97SWD while it was not detected in CBC-97SW.	No qualifications were required.
Comments	Sample results were reported on a wet weight basis.	None.

 $<sup>^{1}</sup>$  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.



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Sample ID: IJI0055-05 (CBC-99SW - Soil)

Sample ID: IJI0055-06 (CBC-97SWD - Soil)

Burbank, CA 91502 Attention: Sally Bilodeau

Mercury

Mercury

Client Project ID: Boeing/Rocketdyne

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Report Number: IJI0055

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EPA 7471A

EPA 7471A

EPA 7471A

Sampled: 09/01/00

Received: 09/01/00

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		[V]	IETALS					
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
			mg/kg	mg/kg				Mary Su
Sample ID: IJI0055-02 (CBC-96SW	- Soil)							<u> </u>
Mercury	EPA 7471A	I0I0741	0.020	ND	1	9/7/00	9/7/00	
Sample ID: IJ10055-03 (CBC-97SW .	- Soil)						<b>,</b>	
Mercury	EPA 7471A	1010741	0.020	ND	1	9/7/00	9/7/00	i d
Sample ID: IJ10055-04 (CBC-98S - S	oil)		4.0 <b>2</b> ,0	,	•	2//100	711100	u

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Del Mar Analytical, Irvine Pat Abe

Project Manager



# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

 $\begin{array}{c} \underline{\text{QC Level}}\colon & V^1 \\ \underline{\text{SDG}}\colon & \text{IJJ0179} \\ \underline{\text{Matrix}}\colon & \text{Soil} \\ \underline{\text{No. of Samples}}\colon & 2 \end{array}$ 

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 11, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: PCS-46B, PCS-47B

		Findings	Qualifications
1.	Sample Management	All samples were received intact and in good condition at 4°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4.	Method Blanks	One soil method blank was analyzed with the samples of this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5.	LCS/BS	One soil blank spike was analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 45-145%.	No qualifications were required.
6.	Surrogates	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.

Project: Rocketdyne SDG: IJJ0179 Analysis: PP

	Findings	Qualifications					
7. MS/MSDs	The MS/MSD analyses were performed on sample PCS-46B. The recoveries for both fortified compounds, Aroclor 1016 and Aroclor 1260, were within the laboratory-established QC limits in both the MS and MSD. The RPDs for the fortified compounds were within the QC limit of 20%.	No qualifications were required.					
8. Field QC Samples  ER: None FB: None Duplicates: None	There were no field QC samples associated with the samples of this SDG.	No qualifications were required.					
9. Other	Reporting limits and results were reported on a wet-weight basis.	No qualifications were required.					
Comments	None	No qualifications were required.					

 $<sup>^{1}</sup>$  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.

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601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJJ0179

Sampled: 10/04/00 Received: 10/05/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

						-,			
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat   Qualit	
			ug/kg	ug/kg				REV	QUAL
Sample ID: IJJ0179-01 (PCS-46B - S	Soil)		0 0	88				QUALR	(CCD)
Aroclor 1016	EPA 3550/8082	І0Ј1002	50	ND	1	10/10/00	10/10/00		
Aroclor 1221	EPA 3550/8082		50	ND	1	10/10/00	10/10/00	-	İ
Aroclor 1232	EPA 3550/8082	I0J1002	50	ND	1	10/10/00	10/10/00		
Aroclor 1242	EPA 3550/8082			ND	1	10/10/00	10/10/00	1	
Aroclor 1248	EPA 3550/8082		50	ND	1	10/10/00	10/10/00		
Aroclor 1254	EPA 3550/8082		50	ND	î	10/10/00	10/10/00	,	
Aroclor 1260	EPA 3550/8082		50	ND	1	10/10/00	10/10/00		
Surrogate: Decachlorobiphenyl (45-14	5%)			94.0 %	1	10/10/00	10/10/00	-	
Sample ID: IJJ0179-02 (PCS-47B - S	oil)			. , , .					
Aroclor 1016	EPA 3550/8082	І0Ј1002	50	ND	1	10/10/00	10/10/00	U	
Aroclor 1221	EPA 3550/8082	I0J1002	50	ND	1	10/10/00	10/10/00		
Aroclor 1232	EPA 3550/8082	I0J1002	50	ND	1	10/10/00	10/10/00	,	
Aroclor 1242	EPA 3550/8082	10J1002	50	ND	1	10/10/00	10/10/00		
Aroclor 1248	EPA 3550/8082	I0J1002	50	ND	1	10/10/00	10/10/00	1	
Aroclor 1254	EPA 3550/8082		50	ND	1	10/10/00	10/10/00		
Aroclor 1260	EPA 3550/8082	10Ј1002	50	ND	1	10/10/00	10/10/00	sJ. i	
Surrogate: Decachlorobiphenyl (45-14.				74.3 %	•	10/10/00	10/10/00		
Sample ID: IJJ0179-03 (BR-35 - Soil)	1								
Aroclor 1016	EPA 3550/8082	I0J1002	50	ND	1	10/10/00	10/10/00	*	
Aroclor 1221	EPA 3550/8082		50	ND	1	10/10/00	10/10/00		
Aroclor 1232	EPA 3550/8082		50	ND	1	10/10/00	10/10/00		
Aroclor 1242	EPA 3550/8082		50	ND	1	10/10/00	10/10/00		
Aroclor 1248	EPA 3550/8082	I0J1002	50	ND	1	10/10/00	10/10/00		
Aroclor 1254	EPA 3550/8082		50	ND	1	10/10/00	10/10/00		
Aroclor 1260	EPA 3550/8082		50	ND	1	10/10/00	10/10/00	¥	
Surrogate: Decachlorobiphenyl (45-14)				68.9 %	1	10/10/00	10/10/00	•	
	*			00.770					

\* = NOT VALIDATED

<*Page 2 of 8>* 

# AMEC VALIDATED

LEVEL V

Del Mar Analytical, Irvine

Pat Abe Project Manager



# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

QC Level: V<sup>1</sup>

SDG: IJH0606
Matrix: Soil

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 11, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: CBC-80S

	Findings	Qualifications
1. Sample Management	The sample was received intact and in good condition at 5°C. The sample in this SDG was accounted for on the COC.  The soil sample was extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was analyzed with the sample of this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5. LCS/BS	One soil blank spike was analyzed with the sample in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145.	No qualifications were required.
7. MS/MSDs	None performed. Evaluation of method accuracy and precision were based on blank spike/blank spike duplicate results.	No qualifications were required.

Project: Rocketdyne SDG: IJH0606 Analysis: PP

	Findings	Qualifications
8. Field QC Samples  ER: None FB: None Duplicates: None	There were no field QC samples associated with the sample of this SDG.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

(949) 261-1022 FAX (949) 261-1228 (909) 370-4667 FAX (909) 370-1046 (818) 779-1844 FAX (818) 779-1843 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0606

Sampled: 08/17/00 Received: 08/17/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method Ba	atch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Qual	
			ug/kg	ug/kg				REV	QUA
Sample ID: IJH0606-02 (CI	BC-79SW - Soil)							Goric	100
Aroclor 1016	EPA 3550/8082 IOH	12819	50	ND	1	8/28/00	8/30/00	*	1
Aroclor 1221	EPA 3550/8082 IOH		50	ND	1	8/28/00	8/30/00	) V	
Aroclor 1232	EPA 3550/8082 IOH	12819	50	ND	1	8/28/00	8/30/00		İ
Aroclor 1242	EPA 3550/8082 IOH	H2819	50	ND	1	8/28/00	8/30/00		
Aroclor 1248	EPA 3550/8082 IOH	H2819	50	ND	1	8/28/00	8/30/00		
Aroclor 1254	EPA 3550/8082 IOH	H2819	50	ND	1	8/28/00	8/30/00	)	
Aroclor 1260	EPA 3550/8082 IOH	£2819	50	ND	1	8/28/00	8/30/00	V	
Surrogate: Decachlorobipher				139 %					ĺ
Sample ID: IJH0606-03 (CB	SC-79SWD - Soil)								ĺ
Aroclor 1016	EPA 3550/8082 I0H	I2819	50	ND	1	8/28/00	8/30/00	*	1
Aroclor 1221	EPA 3550/8082 IOH	12819	50	ND	1	8/28/00	8/30/00	Î	
Aroclor 1232	EPA 3550/8082 IOH	12819	50	ND	1	8/28/00	8/30/00		
Aroclor 1242	EPA 3550/8082 I0H	I2819	50	ND	1	8/28/00	8/30/00		
Aroclor 1248	EPA 3550/8082 IOH	I2819	50	ND	1	8/28/00	8/30/00		
Aroclor 1254	EPA 3550/8082 I0H	12819	50	ND	1	8/28/00	8/30/00		
Aroclor 1260	EPA 3550/8082 I0H	12819	50	ND	1	8/28/00	8/30/00	₩ ]	
Surrogate: Decachlorobiphen				79.0 %					
Sample ID: IJH0606-04 (CB	C-80S - Soil)							М	2
Aroclor 1016	EPA 3550/8082 I0H	[2832	50	ND	1	8/28/00	9/1/00	اں	
Aroclor 1221	EPA 3550/8082 I0H	[2832	50	ND	1	8/28/00	9/1/00	Ī	
Aroclor 1232	EPA 3550/8082 I0H	[2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1242	EPA 3550/8082 I0H	12832	50	ND	1	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082 IOH	[2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1254	EPA 3550/8082 IOH	[2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1260	EPA 3550/8082 I0H	[2832	50	ND	1	8/28/00	9/1/00	V	
Surrogate: Decachlorobiphen	yl (45-145%)			85.0 %				.	

\* = NOT VALIDATED

# AMEC VALIDATED

LEVEL  $\nabla$ 

**Del Mar Analytical, Irvine** Pat Abe

Project Manager

# **DATA VALIDATION REPORT**

Rocketdyne Former Sodium Disposal Facility Site Sampling

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IJF0961

Prepared by

AMEC—Denver Operations 550 South Wadsworth Boulevard, Suite 500 Lakewood, Colorado 80226 Project: Rocketdyne SDG No.: IJF0961

DATA VALIDATION REPORT Analysis: PCB

#### 1. INTRODUCTION

Task Order Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Contract Task Order #: 313150008

SDG#: IJF0961

Project Manager: D. Hambrick

Matrix: Soils Analysis: PCBs QC Level: IV

No. of Samples: 13

No. of Reanalyses/Dilutions: 0

Reviewer: P. Meeks

Date of Review: March 12, 2002

The samples listed in Table 1 were validated based on AMEC Data Validation Procedure for Levels C and D pesticides/PCBs (DVP-4, Rev. 2), Delmar Analytical, SOP No. 8082.SOP, Revision 2 (03/01), PCB Analysis by SW846 Method 8082, USEPA SW846 Test Methods for Evaluating Solid Wastes, Method 8082 and Method 8000B (12/96), 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 estimated value were not denoted by a qualification code since the data had already been rejected.

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Project: Rocketdyne SDG No.: IJF0961 Analysis: PCB

DATA VALIDATION REPORT

**Table 1. Sample identification** 

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
PC-1	PC-1	IJF0961-01	soil	8082
PC-3	PC-3	IJF0961-03	soil	8082
PC-4	PC-4	IJF0961-04	soil	8082
PC-6	PC-6	IJF0961-06	soil	8082
PC-8	PC-8	IJF0961-08	soil	8082
PC-9	PC-9	IJF0961-09	soil	8082
PC-10	PC-10	IJF0961-10	soil	8082
PC-12	PC-12	IJF0961-12	soil	8082
PC-14B	PC-14B	IJF0961-14	soil	8082
PC-14T	PC-14T	IJF0961-16	soil	8082
PC-16T	PC-16T	IJF0961-19	soil	8082
PC-16B	PC-16B	IJF0961-20	soil	8082
PC-16BD	PC-16BD	IJF0961-21	soil	8082

Project:
SDG No.:
DATA VALIDATION REPORT
Analysis:

#### 2. DATA VALIDATION FINDINGS

Rocketdyne

IJF0961

**PCB** 

#### 2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

#### 2.1.1Sample Preservation, Handling, and Transport

According to the COCs, the cooler temperatures were within the established QC guidelines of 4°C " 2°C. No qualifications were required.

#### 2.1.2Chain of Custody

The COCs were legible and were signed by the field and laboratory personnel. The COCs accounted for the samples in the SDG. According to laboratory Receiving Checklist, all samples were received intact. There were no custody seals on the coolers. No information was provided about sample container custody seals. No qualifications were required based on sample receipt information.

#### 2.1.3 Holding Times

The soil samples were extracted within 14 days from the date of sample collection and all extracts were analyzed within 40 days of extraction. No qualifications were required.

#### 2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 8082, and according to the raw data provided, these check standards were not analyzed by the laboratory. A cursory review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the Method.

No surrogate or calibration retention time windows are specified in Method 8082. A cursory review of the raw data indicated that the retention time windows for decachlorobiphenyl were within "0.05 minutes, and the retention time windows for the Aroclor peaks were "0.10 minutes. No qualifications were required.

#### 2.3 CALIBRATION

#### 2.3.1 Analytical Sequence

Based on the data provided, the analytical sequence was in accordance with the requirements of the laboratory SOP and Method 8082. No qualifications were necessary.

Project: Rocketdyne SDG No.: IJF0961

DATA VALIDATION REPORT Analysis: PCB

#### 2.3.2 Initial Calibration

The initial calibrations associated with the samples of this SDG consisted of five-point curves for Aroclors 1016 and 1260. According to the laboratory SOP, whenever an Aroclor other than 1016 or 1260 is identified or expected to be present in a batch of samples, that Aroclor must be used as the calibration standard in place of Aroclors 1016 and 1260. For this SDG, Aroclor 1254 was present in some samples; therefore, a five-point curve for Aroclor 1254 was also provided by the laboratory. The initial calibrations for Aroclor 1254, Aroclor 1016, and Aroclor 1260 were analyzed on 06/12/00 and 06/14/00, respectively. To determine the %RSDs, individual peak %RSDs were calculated and then averaged for each Aroclor. The averaged %RSDs were then used to evaluate the initial calibration curves. The %RSDs for Aroclor 1254, Aroclor 1016, and 1260 were less than or equal to the Method 8000B QC limit of 20%. Due to software limitations, summary forms were not provided for the initial calibration. The %RSDs and calibration factors were verified from the raw data. No errors were noted and therefore, no qualifications were required.

The laboratory analyzed an initial calibration verification (ICV) at the beginning of the each analytical sequence, as noted in the laboratory SOP. The %Ds for the ICVs were less than 15%. No qualifications were required.

### 2.3.3 Continuing Calibration

Continuing calibrations consisted of a standard mix of Aroclors 1016 and 1260 analyzed at 12-hour intervals. Due to the presence of detects for Aroclor-1254 in some of the site samples, continuing calibration standards for Aroclor 1254 were analyzed to bracket these samples. The %Ds for the continuing calibrations were determined by averaging the results for the quantitation peaks. All %Ds were within the Method QC limit of 15%, except for the %Ds for Aroclor 1254 analyzed on 07/07/00 (01:40), and Aroclor 1260 analyzed 07/07/00 (02:03); therefore, the nondetected results for the aforementioned target compounds were qualified as estimated, "UJ," in associated samples PC-8, PC-16B, and PC-16BD. No summary forms were provided by the laboratory; therefore, %Ds were calculated from the raw data. No further qualifications were required.

#### 2.4 BLANKS

#### 2.4.1Instrument Blanks

Instrument blank summary forms or raw data were not provided in the data package; however, according to the analytical runlogs, instrument blanks were analyzed in conjunction with the samples. No evidence of carryover was present in the site samples or calibration standards. No qualifications were deemed necessary by the reviewer.

#### 2.4.2Method Blanks

Two soil method blanks (I0F3032-BLK1 and I0G0519-BLK1) were extracted and analyzed with the samples in this SDG. No target compound detects were present at or above the reporting limits in either method blank. No qualifications were required.

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Project: SDG No.: Analysis:

Rocketdyne IJF0961 PCB

#### 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Two blank spikes (I0F3032-BS1 and I0G0519-BS1) was extracted and analyzed with the samples in this SDG. The blank spike was fortified with Aroclors 1016 and 1260, in compliance with Method 8082 and the laboratory SOP. Recoveries were within the laboratory-established QC limits of 60-115% for both compounds and therefore, no qualifications were required. Recovery results were verified from the raw data. No qualifications were required.

#### 2.6 SURROGATE RECOVERY

The samples, blanks, and blank spikes were noted to contain the surrogate compound decachlorobiphenyl. All sample surrogate recoveries were within the laboratory-established QC limits of 45-145%. Recovery results were verified from the raw data. No qualifications were required.

#### 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Samples PC-4 and PC-14B were the MS/MSD pairs associated with this SDG. The recoveries of Aroclor 1016 and Aroclor 1260 were below the QC limits but greater than 10% in the MSD analysis of PC-4 only, and the RPDs for Aroclor 1016 and Aroclor 1260 both exceeded the QC limits of 20%. For PC-14B MS and MSD, both recoveries and RPDs were within QC limits. Recovery and RPD results were verified from the raw data. No qualifications were required.

#### 2.8 SAMPLE CLEANUP PERFORMANCE

No information was provided about sulfuric acid sample cleanup, either in the case narrative or in the raw data package. No qualifications were required.

#### 2.9 FIELD QC SAMPLES

Field QC samples are evaluated, and if necessary, qualified based on method blanks and laboratory QC samples for useability. Any remaining detects are used to evaluate the associated samples. The following are findings associated with field QC samples:

#### 2.9.1 Field Blanks and Equipment Rinsates

There were no field blanks or equipment rinsates associated with the samples in this SDG. No qualifications were required.

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 Project:
 Rocketdyne

 SDG No.:
 IJF0961

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 Analysis:
 PCB

#### 2.9.2 Field Duplicates

Samples PC-16B and PC-16BD were identified as the field duplicate pair associated with this SDG. Qualifications are not routinely assigned to sample results on the basis of field duplicate results; however, RPDs are calculated for those compounds present in both samples. If RPDs are greater than 50% for waters or 100% for soils, the RPDs and affected analytes are noted in the data validation report. There were no reportable detects in either of the samples and the field duplicate pair was considered to be in agreement.

#### 2.10 COMPOUND IDENTIFICATION

Compound identification was verified from the raw data. No false negatives or false positives were noted. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified from the raw data. The samples were reported on a wet-weight basis. No qualifications were required.

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyze		ita ifiers
Complete HENDOCA OF COMP			ug/kg	ug/kg				Rev	Qual
Sample ID: IJF0961-01 (PC-1 - Soil)								qual	iscle
Aroclor 1016	EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/6/00	u	
Aroclor 1221	EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/6/00	1	
Aroclor 1232	EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/6/00		
Aroclor 1242	EPA 3550/8082	10F3032	50	ND	1	6/30/00	7/6/00		
Aroclor 1248	EPA 3550/8082	10F3032	50	ND .	1	6/30/00	7/6/00		
Aroclor 1254	EPA 3550/8082	10F3032	50	ND	1	6/30/00	7/6/00		
Aroclor 1260	EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/6/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				79.6 %					
Sample ID: IJF0961-02 (PC-2 - Soil)									
Aroclor 1016	EPA 3550/8082	I0F3032	10000	ND	200	6/30/00	7/6/00	*	
Aroclor 1221	EPA 3550/8082	I0F3032	10000	ND	200	6/30/00	7/6/00	A	
Aroclor 1232	EPA 3550/8082	I0F3032	10000	ND	200	6/30/00	7/6/00	1	
Aroclor 1242	EPA 3550/8082	I0F3032	10000	ND	200	6/30/00	7/6/00	1	
Aroclor 1248	EPA 3550/8082	I0F3032	10000	ND	200	6/30/00	7/6/00	- 1	
Aroclor 1254	EPA 3550/8082	I0F3032	10000	22000	200	6/30/00	7/6/00		
Aroclor 1260	EPA 3550/8082	I0F3032	10000	ND	200	6/30/00	7/6/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				113 %		0.50.00	77 07 00	0 0.0	1.0.1
Sample ID: IJF0961-03 (PC-3 - Soil)								Kovan	Yuga
Aroclor 1016	EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/6/00	u	
Aroclor 1221	EPA 3550/8082	10F3032	50	ND	1	6/30/00	7/6/00	~	
Aroclor 1232	EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/6/00		
Aroclor 1242	EPA 3550/8082	I0F3032	50	ND	î	6/30/00	7/6/00		
Aroclor 1248	EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/6/00		
Aroclor 1254	EPA 3550/8082	I0F3032	50	ND	i	6/30/00	7/6/00		
Aroclor 1260	EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/6/00		
Surrogate: Decachlorobiphenyl (45-145%)				49.5 %		5/5/0/00	770700	<b>v</b>	

# AMEC VALIDATED

Amalysis Not Validated

LEVEL IV

(909) 370-4667 FAX (909) 370-1046 (818) 779-1844 FAX (818) 779-1843 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

	(======================================							
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IJF0961-04 (PC-4 - Soil)			ug/kg	ug/kg			ler Pua	Pual Pual
Aroclor 1016	EPA 3550/8082	I0F3032	50	ND	1	6/30/00	6/30/00	
Aroclor 1221	EPA 3550/8082	I0F3032	50	ND	i	6/30/00	6/30/00 ( 6/30/00 (	~
Aroclor 1232	EPA 3550/8082	I0F3032	50	ND	1	6/30/00	6/30/00	e constant
Aroclor 1242	EPA 3550/8082	I0F3032	50	ND	i	6/30/00	6/30/00	
Aroclor 1248	EPA 3550/8082	I0F3032	50	ND.	i	6/30/00	6/30/00	
Aroclor 1254	EPA 3550/8082	I0F3032	50	ND	i	6/30/00	6/30/00	Withous
Aroclor 1260	EPA 3550/8082	I0F3032	50	ND	l	6/30/00	6/30/00	a processor
Surrogate: Decachlorobiphenyl (45-145%)				77.8 %		0.00,00	$\rho_{n,j}$	·
Sample ID: IJF0961-06 (PC-6 - Soil)							Qui	Yual Cach
Aroclor 1016	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00 4	
Aroclor 1221	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	The second
Aroclor 1232	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	
Aroclor 1242	EPA 3550/8082	10G0519	50	ND	1	7/5/00	7/6/00	
Aroclor 1248	EPA 3550/8082	I0G0519	50	ND	l	7/5/00	7/6/00	
Aroclor 1254	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	
Aroclor 1260	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	
Surrogate: Decachlorobiphenyl (45-145%)				100 %			0.	1.0.01
Sample ID: IJF0961-08 (PC-8 - Soil)							fer Fuc	Li Qual
Aroclor 1016	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00 ux	8
Aroclor 1221	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00 U	
Aroclor 1232	EPA 3550/8082	I0G0519	50 .	ND	1	7/5/00	7/6/00	PRO-000
Aroclor 1242	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	44
Aroclor 1248	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	
Aroclor 1254	EPA 3550/8082	10G0519	50	ND	i	7/5/00	7/6/00 uz	C
Aroclor 1260	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00 <b>u</b> 3	
Surrogate: Decachlorobiphenyl (45-145%)				91.0 %	•	775700	110100 <b>V</b> (_	

KS 03/12/02





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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

## POLYCHLORINATED BIPHENYLS (EPA 8082)

					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyze	I d Qu:	Data alifiers
Sample ID: IJF0961-09 (PC-9 - Soil)			ug/kg	ug/kg			R	ev Fual	Ital Vode
Aroclor 1016	EPA 3550/8082	10G0519	50	ND	1	7/5/00	7/7/00	1/	
Aroclor 1221	EPA 3550/8082	10G0519	50	ND	i	7/5/00	7/7/00	u	1
Aroclor 1232	EPA 3550/8082	I0G0519	50	ND	ì	7/5/00	7/7/00	1	
Aroclor 1242	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/7/00	1	
Aroclor 1248	EPA 3550/8082	I0G0519	50	ND.	1	7/5/00	7/7/00	1	
Aroclor 1254	EPA 3550/8082	I0G0519	50	59	ĺ	7/5/00	7/7/00	*	
Aroclor 1260	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/7/00	*A	
Surrogate: Decachlorobiphenyl (45-145%)				104 %			77 00	kes.	Dual
Sample ID: IJF0961-10 (PC-10 - Soil)								Qual	bde
Aroclor 1016	EPA 3550/8082	10G0519	50	ND	1	7/5/00	7/7/00	Li	-
Aroclor 1221	EPA 3550/8082	I0G0519	50	ND	ì	7/5/00	7/7/00	u	
Aroclor 1232	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/7/00	- 1	
Aroclor 1242	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/7/00		
Aroclor 1248	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/7/00		
Aroclor 1254	EPA 3550/8082	10G0519	50	58	1	7/5/00	7/7/00	1	
Aroclor 1260	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/7/00	Hu	
Surrogate: Decachlorobiphenyl (45-145%)				105 %			,,,,,,,	1000	$\cap$ $\wedge$
<b>Sample ID: IJF0961-12 (PC-12 - Soil)</b>								Qual	Yugi 1
Aroclor 1016	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		Viac
Aroclor 1221	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	u	ļ
Aroclor 1232	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1242	EPA 3550/8082	I0G0519	50	ND	i	7/5/00	7/6/00		
Aroclor 1248	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		l
Aroclor 1254	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1260	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	1	
Surrogate: Decachlorobiphenyl (45-145%)				108 %	,		770700	·	

03/12/02







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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		ata lifiers
Sample ID: IJF0961-14 (PC-14B - So	oil)		ug/kg	ug/kg			6	Rev Vual	Hal Isde
Aroclor 1016	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	1.4	
Aroclor 1221	EPA 3550/8082	I0G0519		ND	1	7/5/00	7/6/00	N	
Aroclor 1232	EPA 3550/8082	I0G0519	50	ND	ì	7/5/00	7/6/00	1	
Aroclor 1242	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1248	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1254	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1260	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	<b>V</b> ·	1
Surrogate: Decachlorobiphenyl (45-145%)				98.2 %				Per	Dunt
Sample ID: IJF0961-16 (PC-14T - So	il)							Qual	. That
Aroclor 1016	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	u	<del>                                     </del>
Aroclor 1221	EPA 3550/8082	I0G0519	50	ND	I	7/5/00	7/6/00	W.	
Aroclor 1232	EPA 3550/8082	10G0519	50	ND	1	7/5/00	7/6/00	1	
Aroclor 1242	EPA 3550/8082	10G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1248	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1254	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1260	EPA 3550/8082	10G0519	50	ND	1	7/5/00	7/6/00	V	1
Surrogate: Decachlorobiphenyl (45-145%)				87.4 %				Ron	12.1
Sample ID: IJF0961-19 (PC-16T - So	il)							Such	· Yuak
Aroclor 1016	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1221	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	U	
Aroclor 1232	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	j	
Aroclor 1242	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	- 1	
Aroclor 1248	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1254	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00		
Aroclor 1260	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	$\Psi$	
Surrogate: Decachlorobiphenyl (45-145%)				100 %	-		770700		•

**Del Mar Analytical, Irvine** Pat Abe

Project Manager



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

## POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Comple ID. HE00(1 20 (BC 1/B G )			ug/kg	ug/kg			Per	Qual
Sample ID: IJF0961-20 (PC-16B - Soi	*						quo	
Aroclor 1016	EPA 3550/8082	10G0519		ND	1	7/5/00	7/6/00 US	7 1
Aroclor 1221	EPA 3550/8082	10G0519		ND	1	7/5/00	7/6/00 W	`   `
Aroclor 1232	EPA 3550/8082	10G0519	50	ND	1	7/5/00	7/6/00	
Aroclor 1242	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	
Aroclor 1248	EPA 3550/8082	10G0519		ND .	1	7/5/00	7/6/00 <b>V</b>	
Aroclor 1254	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00 U	
Aroclor 1260	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00 V	13 IC
Surrogate: Decachlorobiphenyl (45-145%)				90.4 %			Pa	W Qual
Sample ID: IJF0961-21 (PC-16BD - Se	oil)						ŶĨ	16 bol
Aroclor 1016	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00 US	8
Aroclor 1221	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00 U	`   `
Aroclor 1232	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	
Aroclor 1242	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00	
Aroclor 1248	EPA 3550/8082	10G0519	50	ND	1	7/5/00	7/6/00	1
Aroclor 1254	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00 U2	c
Aroclor 1260	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/6/00 U	
Surrogate: Decachlorobiphenyl (45-145%)				98.2 %				
Sample ID: IJF0961-24 (PC-18 - Soil)								
Aroclor 1016	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/7/00	<u>_</u>
Aroclor 1221	EPA 3550/8082	I0G0519	50	ND	i	7/5/00	7/7/00	•
Aroclor 1232	EPA 3550/8082	I0G0519		ND	1	7/5/00	7/7/00	
Aroclor 1242	EPA 3550/8082	I0G0519		ND	1	7/5/00	7/7/00	
Aroclor 1248	EPA 3550/8082	I0G0519		ND	i	7/5/00	7/7/00	1
Aroclor 1254	EPA 3550/8082	I0G0519		ND	1	7/5/00	7/7/00	
Aroclor 1260	EPA 3550/8082	I0G0519		ND	1	7/5/00	7/7/00	
Surrogate: Decachlorobiphenyl (45-145%)				94.6 %	*	715100	""	•

KS 03/12/02

\*Analysis Not Validated

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Project Manager





# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

QC Level: V<sup>1</sup>
SDG: IJI0547
Matrix: Soil
of Samples: 2

No. of Samples: 2 No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 11, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: PCS-29, PCS-31

	Findings	Qualifications
1. Sample Management	The samples were received intact and in good condition at 5°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was analyzed with the samples of this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One soil blank spike was analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 45-145%.	No qualifications were required.
6. Surrogates	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.
7. MS/MSDs	None performed. Evaluation of method accuracy and precision were based on blank spike/blank spike duplicate results.	No qualifications were required.

Project: Rocketdyne SDG: IJI0547 Analysis: PP

	Findings	Qualifications
8. Field QC Samples  ER: None FB: None Duplicates: None	There were no field QC samples associated with the sample of this SDG.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0547

Sampled:09/15/00 Received:09/15/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	F Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers		
Sample ID: IJI0547-01 (PCS-29 - Soil)			ug/kg	ug/kg				REV	QUAL	
Aroclor 1016	EPA 3550/8082	1011802	50	ND	1	9/18/00	9/19/00	()		
Aroclor 1221	EPA 3550/8082		50	ND	1	9/18/00	9/19/00	_		
Aroclor 1232	EPA 3550/8082		50	ND	1	9/18/00	9/19/00	)		
Aroclor 1242	EPA 3550/8082		50	ND	1	9/18/00	9/19/00			
Aroclor 1248	EPA 3550/8082		50	ND	1	9/18/00	9/19/00	م آ ۔		
Aroclor 1254	EPA 3550/8082		50	97	1	9/18/00	9/19/00	1/2		
Aroclor 1260	EPA 3550/8082		50	ND	1	9/18/00	9/19/00	. 14		
Surrogate: Decachlorobiphenyl (45-145%)				75.4 %	1	2/10/00	9/19/00			
Sample ID: IJI0547-02 (PCS-30 - Soil)										
Aroclor 1016	EPA 3550/8082		50	ND	1	9/18/00	9/19/00	*	1	
Aroclor 1221	EPA 3550/8082		50	ND	1	9/18/00	9/19/00	Ï		
Aroclor 1232	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00	1		
Aroclor 1242	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00			
Aroclor 1248	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00		l	
Aroclor 1254	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00			
Aroclor 1260	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00	71		
Surrogate: Decachlorobiphenyl (45-145%) Sample ID: IJI0547-03 (PCS-32 - Soil)				77.2 %				•		
Aroclor 1016	FDA 2550/0002	1011000								
Aroclor 1221	EPA 3550/8082		50	ND	1	9/18/00	9/19/00	*		
Aroclor 1221 Aroclor 1232	EPA 3550/8082		50	ND	1	9/18/00	9/19/00	}		
Aroclor 1232 Aroclor 1242	EPA 3550/8082		50	ND	1	9/18/00	9/19/00	1 1		
Aroclor 1242 Aroclor 1248	EPA 3550/8082		50	ND	1	9/18/00	9/19/00			
	EPA 3550/8082		50	ND	1	9/18/00	9/19/00			
Arcelor 1254	EPA 3550/8082		50	ND	1	9/18/00	9/19/00			
Aroclor 1260	EPA 3550/8082	1011802	50	ND	1	9/18/00	9/19/00	V		
Surrogate: Decachlorobiphenyl (45-145%)				92.2 %						

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LEVEL Y

Del Mar Analytical, Irvine

Pat Abe Project Manager



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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0547

Sampled:09/15/00 Received:09/15/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	I Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
			ug/kg	ug/kg				REV	QUAL
Sample ID: IJI0547-04 (PCS-31 - Soil)				0 0			_	QUAL	CODE
Aroclor 1016	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00	U	
Aroclor 1221	EPA 3550/8082	1011802	50	ND	î	9/18/00	9/19/00	)	
Aroclor 1232	EPA 3550/8082	1011802	50	ND	i	9/18/00	9/19/00	- 1	
Aroclor 1242	EPA 3550/8082	1011802	50	ND	1	9/18/00	9/19/00	- 1	
Aroclor 1248	EPA 3550/8082	1011802	50	ND	1	9/18/00	9/19/00	- 1	
Aroclor 1254	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00		
Aroclor 1260	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				82.6 %		2, 20, 33	21 12100		
Sample ID: IJI0547-05 (PCS-33B - Soil)									
Aroclor 1016	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00	*	
Aroclor 1221	EPA 3550/8082	1011802	50	ND	1	9/18/00	9/19/00	i l	
Aroclor 1232	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00		
Aroclor 1242	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00		
Aroclor 1248	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00		
Aroclor 1254	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00		
Aroclor 1260	EPA 3550/8082	I0I1802	50	ND	1	9/18/00	9/19/00	<b>V</b>	
Surrogate: Decachlorobiphenyl (45-145%)				80.8 %	-	1.10,00	2, 29, 00		

# AMEC VALIDATED



Del Mar Analytical, Irvine

Pat Abe

Project Manager



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

#### DATA ASSESSMENT FORM

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

QC Level: V<sup>1</sup>
SDG: IJG0597
Matrix: Soil

Matrix: Soil
No. of Samples: 5

No. of Reanalyses/Dilutions: 1

<u>Date Reviewed</u>: March 12, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: CAC-66B@3", CAC-66D@3", CAC-70B@3", CAC-69B@9", CAC-63B@9",

CAC-63B@9"RE

#### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	The samples were received intact and in good condition at 3°C. The samples in this SDG were accounted for on the COC.	
	The soil samples were originally extracted within the 14 day holding time and analyzed within 40 days of extraction. Sample CAC-63B@9"RE was extracted out of holding time.	Nondetects were qualified as estimate, "UJ," and detects were qualified "J," for sample CAC-63B@9"RE.
4. Method Blanks	Three soil method blanks were analyzed with the samples of this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
5. <u>LCS/BS</u>	Three soil blank spikes were analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115% except for the recovery of Aroclor 1016 below the QC limits for I0G2728-BS2.	Sample CAC-69B@9" had Aroclors 1016, 1221, 1232, 1242, and 1248 qualified as estimated nondetects, "UJ."

Project: Rocketdyne SDG: IJG0597 Analysis: PP

	Findings	Qualifications
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145% except for sample CAC-63B@9" which had a surrogate recovery below the QC limit. Sample CAC-63B@9" was reextracted with an acceptable surrogate recovery.	Sample CAC-63B@9" was rejected, "R," in favor of the reextraction, CAC-63B@9"RE.
7. MS/MSDs	MS/MSD analyses were performed on sample CAC-63B@9". The recoveries for Aroclor 1254 were above the laboratory-established QC limits in the MS/MSD pair. The RPD for the Aroclor-1254 was less than the QC limit of 20%, and the RPD for Aroclor-1016 was greater than 20% for CAC-63B@9".	No qualifications were required due to high concentrations of Aroclor-1254 in the samples as the sample was rejected for poor surrogate recovery (see Section 6).
8. Field QC Samples  ER: None FB: None Duplicates: CAC-66B@3" / CAC-66D@3"	Both of the field duplicate samples had detects for Aroclor-1254 with an RPD of 31%.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.  Samples CAC-66B@3" and CAC-63B@9"RE were analyzed at 2.5X dilutions and sample CAC-66D@3" was analyzed at a 5X dilution due to high concentrations of target compounds.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

(949) 261-1022 FAX (949) 261-1228 (909) 370-4667 FAX (909) 370-1046 (818) 779-1844 FAX (818) 779-1843 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

Report Number: IJG0597

Sampled: 07/21/00 Received: 07/21/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

	()										
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	D: Qua	ata lifiers		
Sample ID: IJG0597-01 (CAC-66B@	@3'' - Soil)√		ug/kg	ug/kg				20AL	QUAL		
Aroclor 1016	EPA 3550/8082	10G2430	130	ND	2.5	7/24/00	7/25/00	U			
Aroclor 1221	EPA 3550/8082	10G2430		ND	2.5	7/24/00	7/25/00	7			
Aroclor 1232	EPA 3550/8082	10G2430		ND	2.5	7/24/00	7/25/00				
Aroclor 1242	EPA 3550/8082	10G2430		ND	2.5	7/24/00	7/25/00	- 1			
Aroclor 1248	EPA 3550/8082	10G2430		ND	2.5	7/24/00	7/25/00	₩			
Aroclor 1254	EPA 3550/8082	I0G2430		380	2.5	7/24/00	7/25/00	•			
Aroclor 1260	EPA 3550/8082	10G2430	130	ND	2.5	7/24/00	7/25/00	U			
Surrogate: Decachlorobiphenyl (45-145%)				82.6 %			1123100	Nagar.			
Sample ID: IJG0597-02 (CAC-66D)	@3'' - Soil)										
Aroclor 1016	EPA 3550/8082	I0G2430	250	ND	5	7/24/00	7/25/00	U			
Aroclor 1221	EPA 3550/8082	I0G2430		ND	5	7/24/00	7/25/00	Y			
Aroclor 1232	EPA 3550/8082	I0G2430	250	ND	5	7/24/00	7/25/00				
Aroclor 1242	EPA 3550/8082	10G2430	250	ND	5	7/24/00	7/25/00				
Aroclor 1248	EPA 3550/8082	I0G2430	250	ND	5	7/24/00	7/25/00	$\checkmark$			
Aroclor 1254_	EPA 3550/8082	I0G2430	250	520	5	7/24/00	7/25/00				
Aroclor 1260	EPA 3550/8082	I0G2430	250	ND	5	7/24/00	7/25/00	U			
Surrogate: Decachlorobiphenyl (45-145%)				88.6 %			1123100		73		
Sample ID: IJG0597-03 (CAC-69B@	93'' - Soil)							1	ĺ		
Aroclor 1016	EPA 3550/8082	I0G2430	1000	ND	20	7/24/00	7/25/00	*			
Aroclor 1221	EPA 3550/8082	I0G2430	1000	ND	20	7/24/00	7/25/00	η			
Aroclor 1232	EPA 3550/8082	I0G2430		ND	20	7/24/00	7/25/00				
Aroclor 1242	EPA 3550/8082	10G2430	1000	ND	20	7/24/00	7/25/00				
Aroclor 1248	EPA 3550/8082	I0G2430	1000	ND	20	7/24/00	7/25/00				
Aroclor 1254	EPA 3550/8082	10G2430		2600	20	7/24/00	7/25/00				
Aroclor 1260	EPA 3550/8082	I0G2430		ND	20	7/24/00	7/25/00	T	NOTITION SHARE SERVICES		
Surrogate: Decachlorobiphenyl (45-145%)				101 %	20	7/21/00	1123100	*	2.3		

\* = NOT VALIDATED

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJG0597

Sampled: 07/21/00 Received: 07/21/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Quali	
Sample ID: IJG0597-04 (CAC-70B@	3'' - Soil)		ug/kg	ug/kg				REV QUAL	COSE
Aroclor 1016	EPA 3550/8082	10G2430	50	ND	1	7/24/00	7/25/00	U.	
Aroclor 1221	EPA 3550/8082	I0G2430	50	ND	1	7/24/00	7/25/00	7	
Aroclor 1232	EPA 3550/8082	I0G2430	50	ND	1	7/24/00	7/25/00		
Aroclor 1242	EPA 3550/8082	10G2430	50	ND	1	7/24/00	7/25/00	1	
Aroclor 1248	EPA 3550/8082	I0G2430	50	ND	1	7/24/00	7/25/00	$\Psi$	
Aroclor 1254	EPA 3550/8082	I0G2430	50	140	1	7/24/00	7/25/00		
Aroclor 1260	EPA 3550/8082	I0G2430	50	ND	1	7/24/00	7/25/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				74.3 %				_	

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**Del Mar Analytical, Irvine**Pat Abe
Project Manager



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

Report Number: IJG0597

Sampled: 07/21/00 Received: 07/21/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyze		ıta ifiers
Sample ID: IJG0597-21 (CAC-69B@	6'' - Soil)		ug/kg	ug/kg				REV	CODE
Aroclor 1016 Aroclor 1221 Aroclor 1232 Aroclor 1242 Aroclor 1248 Aroclor 1254 Aroclor 1260 Surrogate: Decachlorobiphenyl (45-145%) Sample ID: HC0507 22 (CAC (ODC)	EPA 3550/8082 EPA 3550/8082 EPA 3550/8082 EPA 3550/8082 EPA 3550/8082 EPA 3550/8082	10G2728 10G2728 10G2728 10G2728 10G2728 10G2728	3 500 3 500 3 500 3 500 3 500	ND ND ND ND 1100 ND	10 10 10 10 10 10	7/27/00 7/27/00 7/27/00 7/27/00 7/27/00 7/27/00 7/27/00	7/28/00 7/28/00 7/28/00 7/28/00 7/28/00 7/28/00 7/28/00		
Aroclor 1016 Aroclor 1221 Aroclor 1232 Aroclor 1242 Aroclor 1248 Aroclor 1254 Aroclor 1260 Surrogate: Decachlorobiphenyl (45-145%)	EPA 3550/8082 EPA 3550/8082 EPA 3550/8082 EPA 3550/8082 EPA 3550/8082 EPA 3550/8082 EPA 3550/8082	I0G2728 I0G2728 I0G2728 I0G2728 I0G2728 I0G2728	3 50 3 50 3 50 3 50 3 50	ND ND ND ND ND 120 ND	1 1 1 1 1	7/27/00 7/27/00 7/27/00 7/27/00 7/27/00 7/27/00 7/27/00	7/28/00 7/28/00 7/28/00 7/28/00 7/28/00 7/28/00 7/28/00	) \ \ \ \ \ \ \ \ \	<b>-</b>

\*= NOT VALIDATED

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**Del Mar Analytical, Irvine** Pat Abe Project Manager



£652 Alton Ave., fryms, CA 92606 1014 E. Cooley Dr., Suite A. Celfon, CA 92324 16525 Sherman Way, Suite C-11, Van Noys, CA 92408 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-9596 FAX (858) 505-9689

(949) 261-1022 FAX (949) 261-1228 (909) 370-4667 FAX (909) 370-1046 (818) 779-1844 FAX (818) 779-1843 9830 Couth 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0643 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071 Report Number: IJG0597

Sampled: 07/21/00 Received: 07/21/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

	(22110002)										
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da 1 Qua	ata lifiers		
	J.		ug/kg	ug/kg				REV	QUAT		
Sample ID: IJG0597-23 (CAC-63B)	@9'' - Soil) 🗹						2	JAUS	Cabe		
Aroclor 1016	EPA 3550/8082	I0H0328	3 50	ND	1	8/3/00	8/4/00	<i>(</i> 2)	1		
Aroclor 1221	EPA 3550/8082	I0H0328	3 50	ND	i	8/3/00	8/4/00	R	D		
Aroclor 1232	EPA 3550/8082	I0H0328	50	ND	1	8/3/00	8/4/00		1 1		
Aroclor 1242	EPA 3550/8082	I0H0328	50	ND	ĺ	8/3/00	8/4/00	1			
Aroclor 1248	EPA 3550/8082	10H0328	50	ND	1	8/3/00	8/4/00	V			
Aroclor 1254	EPA 3550/8082	I0H0328	50	160	1	8/3/00	8/4/00	2			
Aroclor 1260	EPA 3550/8082	I0H0328	50	ND	1	8/3/00	8/4/00	Ŕ	++		
Surrogate: Decachlorobiphenyl (45-145%)				26.6 %				- K 2	V		
Sample ID: IJG0597-23RE1 (CAC-	63B@9'' - Soil)∤? E							1	H		
Aroclor 1016	EPA 3550/8082	I0H0743	130	ND	2.5	8/7/00	8/7/00	1 \	Ť		
Aroclor 1221	EPA 3550/8082	I0H0743		ND	2.5	8/7/00	8/7/00	Ų.Σ.	H		
Aroclor 1232	EPA 3550/8082	I0H0743		ND	2.5	8/7/00	8/7/00				
Aroclor 1242	EPA 3550/8082	I0H0743		ND	2.5	8/7/00	8/7/00				
Aroclor 1248	EPA 3550/8082	I0H0743	130	ND	2.5	8/7/00	8/7/00	1			
Aroclor 1254	EPA 3550/8082	I0H0743	130	330	2.5	8/7/00	8/7/00	J			
Aroclor 1260	EPA 3550/8082	I0H0743	130	ND	2.5	8/7/00	8/7/00	ひず	1 .1.		
Surrogate: Decachlorobiphenyl (45-145%)				75.0 %			0, 1, 00		V		
Sample ID: IJG0597-24 (CAC-62B@	99'' - Soil)										
Aroclor 1016	EPA 3550/8082	I0H0328	500	NĐ	10	8/3/00	8/4/00	¥			
Aroclor 1221	EPA 3550/8082	I0H0328	500	ND	10	8/3/00	8/4/00	-K-			
Aroclor 1232	EPA 3550/8082	I0H0328	500	ND	10	8/3/00	8/4/00	1			
Aroclor 1242	EPA 3550/8082	I0H0328	500	ND	10	8/3/00	8/4/00				
Aroclor 1248	EPA 3550/8082	I0H0328	500	ND	10	8/3/00	8/4/00				
Aroclor 1254	EPA 3550/8082	I0H0328	500	950	10	8/3/00	8/4/00		1		
Aroclor 1260	EPA 3550/8082	I0H0328		ND	10	8/3/00	8/4/00	$\Psi$			
Surrogate: Decachlorobiphenyl (45-145%)				62.3 %	• •	3/3/00	0,7,00	Z	3		

\* = NOT VALIDATED

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

#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

QC Level: V<sup>1</sup>

SDG: IJH0438
Matrix: Soil
No. of Samples: 8

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 12, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: CAC-71B, CAC-72B, CAC-72D, CAC-73B, CAC-74B, CAC-76B, CAC-77B,

CAC-78B

#### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	All samples were received intact and in good condition at 3°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was analyzed with the samples of this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One soil blank spike was analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.

Project: Rocketdyne SDG: IJH0438 Analysis: PP

	Findings	Qualifications
7. MS/MSDs	The MS/MSD analyses were performed on sample CAC-77B. The recoveries for both fortified compounds, Aroclor 1016 and Aroclor 1260, were within the laboratory-established QC limits in both the MS and MSD. The RPDs for the fortified compounds were within the QC limit of 20%.	No qualifications were required.
8. Field QC Samples  ER: None FB: None Duplicates: CAC-72B/ CAC-72D	Although sample CAC-72D does not follow the standard duplicate naming convention, it appears to be a field duplicate of sample CAC-72B. No target compounds were reported in either of the field duplicate samples.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071, 94040000 Report Number: IJH0438

Sampled: 08/11/00 Received: 08/11/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

	("										
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da I Quali			
			ug/kg	ug/kg				REV	1000		
Sample ID: IJH0438-01 (CAC-71 B	- Soil)			- 0				QUAL	CODE		
Aroclor 1016	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	U			
Aroclor 1221	EPA 3550/8082	I0H1620		ND	1	8/16/00	8/18/00	)			
Aroclor 1232	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	1			
Aroclor 1242	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	- 1			
Aroclor 1248	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00				
Aroclor 1254	EPA 3550/8082	I0H1620		ND	i	8/16/00	8/18/00				
Aroclor 1260	EPA 3550/8082	I0H1620	50	ND	i	8/16/00	8/18/00	$\checkmark$			
Surrogate: Decachlorobiphenyl (45-145%)				61.7 %	-	0, 10, 00	0/10/00				
Sample ID: IJH0438-02 (CAC-72 B	- Soil)										
Aroclor 1016	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	U			
Aroclor 1221	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	Ĭ			
Aroclor 1232	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00				
Aroclor 1242	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00				
Aroclor 1248	EPA 3550/8082	I0H1620	50	ND	. 1	8/16/00	8/18/00				
Aroclor 1254	EPA 3550/8082	I0H1620	50	ND	Į	8/16/00	8/18/00				
Aroclor 1260	EPA 3550/8082	I0H1620	50	ND	l	8/16/00	8/18/00	₩			
Surrogate: Decachlorobiphenyl (45-145%)				64.7 %							
Sample ID: IJH0438-03 (CAC-72 D	- Soil)										
Aroclor 1016	EPA 3550/8082	I0H1620	50	ND	l	8/16/00	8/19/00	U			
Aroclor 1221	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/19/00	ĭ			
Aroclor 1232	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/19/00				
Aroclor 1242	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/19/00				
Aroclor 1248	EPA 3550/8082	I0H1620	50 .	ND	1	8/16/00	8/19/00				
Aroclor 1254	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/19/00	- ↓			
Aroclor 1260	EPA 3550/8082	10H1620	50	ND	1	8/16/00	8/19/00	Ů			
Surrogate: Decachlorobiphenyl (45-145%)				64.7 %				_			
									İ		

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Del Mar Analytical, Irvine

Pat Abe

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071, 94040000

Report Number: IJH0438

Sampled: 08/11/00 Received: 08/11/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat Quali	
			ug/kg	ug/kg				REV	PAUAL
Sample ID: IJH0438-04 (CAC-73 B	- Soil)			0 0			Nec	QUAL	COD
Aroclor 1016	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	1.1	
Aroclor 1221	EPA 3550/8082	I0H1620		ND	1	8/16/00	8/18/00	ب	
Aroclor 1232	EPA 3550/8082	I0H1620		ND	1	8/16/00	8/18/00	- 1	
Aroclor 1242	EPA 3550/8082	I0H1620		ND	1	8/16/00	8/18/00	1	
Aroclor 1248	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00		
Aroclor 1254	EPA 3550/8082	I0H1620		ND	1	8/16/00	8/18/00		
Aroclor 1260	EPA 3550/8082	I0H1620		ND	Î	8/16/00	8/18/00	Y	
Surrogate: Decachlorobiphenyl (45-145%)				70.1 %	,	0.10,00	0/10/00	0	
Sample ID: IJH0438-05 (CAC-74 B	- Soil)								
Aroclor 1016	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	IJ	
Aroclor 1221	EPA 3550/8082	I0H1620	50	ND	i	8/16/00	8/18/00	7	
Aroclor 1232	EPA 3550/8082	I0H1620	50	ND	ĺ	8/16/00	8/18/00		
Aroclor 1242	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00		
Aroclor 1248	EPA 3550/8082	I0H1620	50	ND	. 1	8/16/00	8/18/00		
Aroclor 1254	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00		
Aroclor 1260	EPA 3550/8082	I0H1620	50	ND	}	8/16/00	8/18/00	<b>V</b>	ĺ
Surrogate: Decachlorobiphenyl (45-145%)				65.3 %					
<b>Sample ID: IJH0438-06 (CAC-75 B</b>	- Soil)								
Aroclor 1016	EPA 3550/8082	I0H1620	1000	ND	20	8/16/00	8/18/00	¥	İ
Aroclor 1221	EPA 3550/8082	I0H1620	1000	ND	20	8/16/00	8/18/00	î	
Aroclor 1232	EPA 3550/8082	I0H1620	1000	ND	. 20	8/16/00	8/18/00		İ
Aroclor 1242	EPA 3550/8082	I0H1620	1000	ND	20	8/16/00	8/18/00		
Aroclor 1248	EPA 3550/8082	I0H1620	1000	ND	20	8/16/00	8/18/00		
Aroclor 1254	EPA 3550/8082	I0H1620	1000	1500	20	8/16/00	8/18/00		
Aroclor 1260	EPA 3550/8082	10H1620	1000	ND	20	8/16/00	8/18/00	V 1	ļ
Surrogate: Decachlorobiphenyl (45-145%)				59.9 %			3 0. 00	Z3	

\* = NOT VALIDATED

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071, 94040000

Report Number: IJH0438

Sampled: 08/11/00 Received: 08/11/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Quali	
			ug/kg	ug/kg				<b>S</b> EA	QUAI
Sample ID: IJH0438-07 (CAC-76 B	- Soil)		0 0	0 0			-	QUAL	CCDE
Aroclor 1016	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	U	
Aroclor 1221	EPA 3550/8082	I0H1620		ND	1	8/16/00	8/18/00	7	
Aroclor 1232	EPA 3550/8082	I0H1620		ND	1	8/16/00	8/18/00		
Aroclor 1242	EPA 3550/8082	I0H1620		ND	i	8/16/00	8/18/00	1	
Aroclor 1248	EPA 3550/8082	I0H1620		ND	i	8/16/00	8/18/00	V	
Aroclor 1254	EPA 3550/8082	I0H1620		140	i	8/16/00	8/18/00	•	
Aroclor 1260	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	U	Anna Carrier (Control of the Control
Surrogate: Decachlorobiphenyl (45-145%)				82.0 %	•	0.10,00	0/10/00		
Sample ID: IJH0438-08 (CAC-77 B	- Soil)								
Aroclor 1016	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	U	
Aroclor 1221	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	ĩ	
Aroclor 1232	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	\	
Aroclor 1242	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00		
Aroclor 1248	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	₩	
Aroclor 1254	EPA 3550/8082	I0H1620	50	58	1	8/16/00	8/18/00		
Aroclor 1260	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				45.0 %					
Sample ID: IJH0438-09 (CAC-78 B	- Soil)								
Aroclor 1016	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	U	
Aroclor 1221	EPA 3550/8082	10H1620	50	ND	1	8/16/00	8/18/00	)	
Aroclor 1232	EPA 3550/8082	I0H1620	50	ND	. 1	8/16/00	8/18/00		
Aroclor 1242	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00		
Aroclor 1248	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00		
Aroclor 1254	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00		
Aroclor 1260	EPA 3550/8082	I0H1620	50	ND	1	8/16/00	8/18/00	↓	
Surrogate: Decachlorobiphenyl (45-145%)				51.1 %					

# AMEC VALIDATED

LEVEL  $\nabla$ 

Del Mar Analytical, Irvine Pat Abe



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

#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

QC Level: V<sup>1</sup>
SDG: IJG0225
Matrix: Soil

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 12, 2002 <u>Reviewer</u>: M. Pokorny

<u>Reference</u>: National Functional Guidelines For Organic Data Review (2/94) <u>Samples Reviewed</u>: CAC-59B@3", CAC-60B, CAC-61B, CAC-65B@3", CAC-67B@3",

CAC-68B@3", CAC-64B@9"

#### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	All samples were received intact and in good condition at 2°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	Two soil method blank were analyzed with the samples of this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
5. LCS/BS	Two soil blank spikes were analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145% except for sample CAC-64B@9" which had the surrogate recovered above the QC limits.	Sample CAC-64B@9" had Aroclor-1254 qualified as estimated, "J."

Project: Rocketdyne SDG: IJG0225 Analysis: PP

	Findings	Qualifications
7. MS/MSDs	The MS/MSD analyses were performed on sample CAC-64B@9". The recovery for Aroclor 1016 was within the laboratoryestablished QC limits in both the MS and MSD. The recovery of Aroclor-1260 was above the QC limits in both the MS and MSD. The RPDs for the fortified compounds were within the QC limit of 20%.	As Aroclor-1260 was not reported in sample CAC-64B@9", no qualifications were required.
8. Field QC Samples  ER: None FB: None Duplicates: None	There were no field QC samples associated with the samples of this SDG.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.  Samples CAC-60B, CAC-61B, and CAC-64B@9"RE were analyzed at 5X dilutions and sample CAC-65B@3" was analyzed at a 2X dilution due to high concentrations of target compounds.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

(949) 261-1022 FAX (949) 261-1228 (909) 370-4667 FAX (909) 370-1046 (818) 779-1844 FAX (818) 779-1843 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJG0225

Sampled: 07/11/00 Received: 07/11/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		Data alifiers
			ug/kg	ug/kg				SEV	QUAL
Sample ID: IJG0225-01 (CAC-59B@	03'' - Soil)		88	~~ S			•	QUAL	CODE
Aroclor 1016	EPA 3550/8082	I0G1236	5 50	ND	ŧ	7/12/00	7/13/00		
Aroclor 1221	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00	Y	
Aroclor 1232	EPA 3550/8082	I0G1236		ND	i 1	7/12/00	7/13/00	1	
Aroclor 1242	EPA 3550/8082	10G1236	5 50	ND	1	7/12/00	7/13/00	1	
Aroclor 1248	EPA 3550/8082	I0G1236	5 50	ND	i	7/12/00	7/13/00	ĺ	
Aroclor 1254	EPA 3550/8082	I0G1236	5 50	ND	1	7/12/00	7/13/00	V	
Aroclor 1260	EPA 3550/8082	I0G1230	5 50	ND	1	7/12/00	7/13/00	Ű	
Surrogate: Decachlorobiphenyl (45-145%)				82.6 %		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	., 15.00	O	
Sample ID: IJG0225-02 (CAC-60B -	Soil)								
Aroclor 1016	EPA 3550/8082	I0G1236	5 250	ND	5	7/12/00	7/13/00	()	
Aroclor 1221	EPA 3550/8082	I0G1236	5 250	ND	5	7/12/00	7/13/00	Ì	
Aroclor 1232	EPA 3550/8082	I0G1236	5 250	ND	5	7/12/00	7/13/00	- 1	
Aroclor 1242	EPA 3550/8082	I0G1236	5 250	ND	5	7/12/00	7/13/00		**************************************
Aroclor 1248	EPA 3550/8082	I0G1236	5 250	ND	5	7/12/00	7/13/00	$\checkmark$	
Aroclor 1254	EPA 3550/8082	I0G1236	5 250	590	5	7/12/00	7/13/00		A-01
Aroclor 1260	EPA 3550/8082	10G1236	5 250	ND	5	7/12/00	7/13/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				91.0 %				400	Z3
Sample ID: IJG0225-03 (CAC-61B -	Soil)								
Aroclor 1016	EPA 3550/8082	10G1236	5 250	ND	5	7/12/00	7/13/00	U	
Aroclor 1221	EPA 3550/8082	I0G1236	250	ND	5	7/12/00	7/13/00	ĭ	
Aroclor 1232	EPA 3550/8082	I0G1236	250	ND	5	7/12/00	7/13/00	- 1	
Aroclor 1242	EPA 3550/8082	10G1236	250	ND	5	7/12/00	7/13/00		
Aroclor 1248	EPA 3550/8082	10G1236	250	ND	5	7/12/00	7/13/00	V	
Aroclor 1254	EPA 3550/8082	I0G1236	250	400	5	7/12/00	7/13/00		A-01
Aroclor 1260	EPA 3550/8082	I0G1236	250	ND	5	7/12/00	7/13/00	U	- minormalina (Pinanga)
Surrogate: Decachlorobiphenyl (45-145%)				79.0 %					Z3

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJG0225

Sampled: 07/11/00 Received: 07/11/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		Data Ialifiers
			ug/kg	ug/kg				Rev	IQUAL
Sample ID: IJG0225-07 (CAC-65B@	3'' - Soil)			0 0				JUAL	CODE
Aroclor 1016	EPA 3550/8082	10G1236	5 100	ND	2	7/12/00	7/13/00	U	
Aroclor 1221	EPA 3550/8082	I0G1236	5 100	ND	2	7/12/00	7/13/00	Ĭ	
Aroclor 1232	EPA 3550/8082	10G1236	5 100	ND	2	7/12/00	7/13/00		
Aroclor 1242	EPA 3550/8082	I0G1236		ND	2	7/12/00	7/13/00		
Aroclor 1248	EPA 3550/8082	I0G1236	5 100	ND	$\overline{2}$	7/12/00	7/13/00	$\checkmark$	
Aroclor 1254	EPA 3550/8082	I0G1230	100	260	2	7/12/00	7/13/00		A-01
Aroclor 1260	EPA 3550/8082	I0G1236	100	ND	2	7/12/00	7/13/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				77.2 %					
Sample ID: IJG0225-08 (CAC-67B@	3'' - Soil)								
Aroclor 1016	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	U	
Aroclor 1221	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	ì	
Aroclor 1232	EPA 3550/8082	I0G1236	50	ND	I	7/12/00	7/13/00		
Aroclor 1242	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00		
Aroclor 1248	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00	4	
Aroclor 1254	EPA 3550/8082	10G1236	50	120	1	7/12/00	7/13/00		A-01
Aroclor 1260	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				77.8 %				- Second	
Sample ID: IJG0225-09 (CAC-68B@	3'' - Soil)								
Aroclor 1016	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00	Ü	
Aroclor 1221	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00	1	
Aroclor 1232	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00		1
Aroclor 1242	EPA 3550/8082	I0G1236	50	ND	i	7/12/00	7/13/00		İ
Aroclor 1248	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00		
Aroclor 1254	EPA 3550/8082	10G1236		ND	1	7/12/00	7/13/00	}	
Aroclor 1260	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	$\downarrow$	
Surrogate: Decachlorobiphenyl (45-145%)				76.6 %				•	

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Del Mar Analytical, Irvine Pat Abe Project Manager



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071 Report Number: IJG0225

Sampled: 07/11/00 Received: 07/11/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Quali	
Samula ID: 1100225 12 (CAC (4DC	2011 0 112		ug/kg	ug/kg				REV	QUAL
Sample ID: IJG0225-13 (CAC-64B@	99'' - Soil)							QUAL	CODE
Aroclor 1016	EPA 3550/8082	I0G2128	250	ND	5	7/21/00	7/21/00	U	
Aroclor 1221	EPA 3550/8082	I0G2128	250	ND	5	7/21/00	7/21/00	Y	
Aroclor 1232	EPA 3550/8082	I0G2128	250	ND	5	7/21/00	7/21/00	1	
Aroclor 1242	EPA 3550/8082	I0G2128	250	ND	5	7/21/00	7/21/00	1	
Aroclor 1248	EPA 3550/8082	I0G2128	250	ND	5	7/21/00	7/21/00	V	
Aroclor 1254	EPA 3550/8082	I0G2128	250	350	5	7/21/00	7/21/00	ت	<
Aroclor 1260	EPA 3550/8082	I0G2128	250	ND	5	7/21/00	7/21/00	ŭ	٠
Surrogate: Decachlorobiphenyl (45-145%)				150 %	J	21700	,,21,00	Z	

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#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

QC Level: V<sup>1</sup>
SDG: IJF0901
Matrix: Soil
No. of Samples: 8

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 12, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: CAC-40B-DUP, CAC-36B, CAC-38B, CAC-40B, CAC-44B, CBC-45B,

CBC-46B, CBC-47B

#### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	All samples were received intact and in good condition at 6°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	Two soil method blank were analyzed with the samples of this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
5. <u>LCS/BS</u>	Two soil blank spikes were analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. Surrogates	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.

Project: Rocketdyne SDG: IJF0901 Analysis: PP

	Findings	Qualifications
7. MS/MSDs	The MS/MSD analyses were performed on sample CAC-44B. The recoveries for Aroclor -1016 and Aroclor-1260 were within the laboratory-established QC limits in both the MS and MSD. The RPDs for the fortified compounds were less than the QC limit of 20%.	No qualifications were required.
8. Field QC Samples  ER: None FB: None Duplicates: CAC-40B/ CAC-40B-DUP	Both of the samples of the field duplicate pair had Aroclor-1254 detected with an RPD of 5.5%.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.  Sample CAC-38B was analyzed at a 5X dilution due to a high concentration of target compounds.	No qualifications were required.
Comments	None	No qualifications were required.

<sup>&</sup>lt;sup>1</sup> 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.

1014 6 Cords / Ott. Fam A. Colton, CA 02024 (909) 370 4867 FAX (909) 370-1046 18525 Ohanniau Wity, Suite C. L., Vita Nirya, CA 92466 (818) 779-1844 SAX (818) 779-1843 9986 Chwappaka Cr., Sulto 20c, Sac Mego, CA 90125 9830 South Silst St., Seite E. 199, cheenis, AZ 85044

(689) 201-020 FAX (046) 281-629 (8+9) 505-9508 FAX (619) 595-9868 (480) 745-0043 FAX (480) 785-0061

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0901

Sampled: 06/27/00 Received: 06/27/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		ata lifiers
			ug/kg	ug/kg				REV	QUAL
Sample ID: IJF0901-07 (CAC-39B -	Soil)							<u> </u>	CeDi
Aroclor 1016	EPA 3550/8082	I0F2832	2 250	ND	5	6/28/00	6/29/00	<del>X</del> -	
Aroclor 1221	EPA 3550/8082	10F2832		ND	5	6/28/00	6/29/00	* ·	
Aroclor 1232	EPA 3550/8082	I0F2832		ND	5	6/28/00	6/29/00		
Aroclor 1242	EPA 3550/8082	I0F2832	2 250	ND	5	6/28/00	6/29/00	- 1	
Aroclor 1248	EPA 3550/8082	I0F2832	2 250	ND	5	6/28/00	6/29/00		
Aroclor 1254	EPA 3550/8082	10F2832	2 250	610	5	6/28/00	6/29/00		
Aroclor 1260	EPA 3550/8082	I0F2832	2 250	ND	5	6/28/00	6/29/00	V	
Surrogate: Decachlorobiphenyl (45-145%)	_			106 %			0.27.00	Z	<u>.</u> }
Sample ID: IJF0901-08 (CAC-40B -	Soil)								
Aroclor 1016	EPA 3550/8082	I0F2832	2 50	ND	1	6/28/00	6/29/00	U	
Aroclor 1221	EPA 3550/8082	I0F2832		ND	1	6/28/00	6/29/00	7	
Aroclor 1232	EPA 3550/8082	I0F2832		ND	1	6/28/00	6/29/00	-	
Aroclor 1242	EPA 3550/8082	10F2832		ND	1	6/28/00	6/29/00		
Aroclor 1248	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	₩	
Aroclor 1254	EPA 3550/8082	I0F2832	50	71	1	6/28/00	6/29/00	•	
Aroclor 1260	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				89.2 %			0.23,00	. ~	
Sample ID: IJF0901-09 (CAC-41B -	Soil)								
Aroclor 1016	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00	*	
Aroclor 1221	EPA 3550/8082	I0F2832		ND	20	6/28/00	6/29/00	/\ 1	
Aroclor 1232	EPA 3550/8082	I0F2832		ND	20	6/28/00	6/29/00		
Aroclor 1242	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00		
Aroclor 1248	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00		
Aroclor 1254	EPA 3550/8082	10F2832	1000	1800	20	6/28/00	6/29/00		
Aroclor 1260	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00	$\checkmark$	
Surrogate: Decachlorobiphenyl (45-145%)				101 %			3,22,00	▼ Z.	B
								2.	

Vandysis Not Validated

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LEVEL V

1014 C. Cooley Dr., Store A. Cotton, CA 92008 (989) 379-4607 FAZ (989) 370-1046 1802h Sherman Way, State C. H. Sha Nays, CA 92400 (318) 779-1844 FAX (818) 779-1842 9484 Chevapenka Dr., Suita 805, San Diego, CA 97123 (619) 005 9000 FEX (619) 505 9000 FEX

(949) 2014 UKE FAX (8MP) 9614 228 (480) 786-0040 FAX (480) 766-0661

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0901

Sampled: 06/27/00 Received: 06/27/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Qual:	
			ug/kg	ug/kg				REV	QUAL
Sample ID: IJF0901-10 (CAC-42B -	Soil)		88	********************			· ·	CLUML	CCDE
Aroclor 1016	EPA 3550/8082	I0F2832	250	ND	5	6/28/00	6/29/00	*	
Aroclor 1221	EPA 3550/8082	I0F2832		ND	5	6/28/00	6/29/00	<b>7</b> -	
Aroclor 1232	EPA 3550/8082	10F2832		ND	- 5	6/28/00	6/29/00	1	
Aroclor 1242	EPA 3550/8082	I0F2832		ND	5	6/28/00	6/29/00		
Aroclor 1248	EPA 3550/8082	I0F2832		ND	5	6/28/00	6/29/00	1	
Aroclor 1254	EPA 3550/8082	10F2832		670	5	6/28/00	6/29/00		
Aroclor 1260	EPA 3550/8082	I0F2832		ND	5	6/28/00	6/29/00	V	
Surrogate: Decachlorobiphenyl (45-145%)			200	86.2 %	,	0/20/00	0/29/00	Z.	
Sample ID: IJF0901-11 (CAC-43B -	Soil)							L.	1
Aroclor 1016	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00	<del>X</del> -	
Aroclor 1221	EPA 3550/8082	I0F2832		ND	20	6/28/00	6/29/00	î	
Aroclor 1232	EPA 3550/8082	10F2832	1000	ND	20	6/28/00	6/29/00	)	
Aroclor 1242	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00		
Aroclor 1248	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00		
Aroclor 1254	EPA 3550/8082	I0F2832	1000	2500	20	6/28/00	6/29/00		
Aroclor 1260	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				107 %	20	0/20/00	0/27/00	Z	
Sample ID: IJF0901-12 (CAC-44B - :	Soil) -							2.	
Aroclor 1016	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	1.	
Aroclor 1221	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	Ų	
Aroclor 1232	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	1	
Aroclor 1242	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	1	
Aroclor 1248	EPA 3550/8082	I0F2832	50	ND	i	6/28/00	6/29/00	l	
Aroclor 1254	EPA 3550/8082	I0F2832	50	ND	i	6/28/00	6/29/00	- 1	
Aroclor 1260	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00		
Surrogate: Decachlorobiphenyl (45-145%)			•	82.0 %	•	3/20/00	<i>3127100</i>	•	

\*Analysis Not Validated

# AMEC VALIDATED

Del Mar Analytical, Irvine Pat Abe



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071 Report Number: IJF0901

Sampled: 06/27/00 Received: 06/27/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Quali	
			ug/kg	ug/kg				REV	QUAL
Sample ID: IJF0901-13 (CBC-45B -	Soil)							CHUML	CODE
Aroclor 1016	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	U	
Aroclor 1221	EPA 3550/8082	I0F2832	50	ND	i	6/28/00	6/29/00	7	
Aroclor 1232	EPA 3550/8082	I0F2832	50	ND	i	6/28/00	6/29/00	- 1	
Aroclor 1242	EPA 3550/8082	I0F2832	50	ND	i	6/28/00	6/29/00	- 1	
Aroclor 1248	EPA 3550/8082	I0F2832		ND	1	6/28/00	6/29/00	$\checkmark$	
Aroclor 1254	EPA 3550/8082	I0F2832		52	i	6/28/00	6/29/00	•	
Aroclor 1260	EPA 3550/8082	I0F2832	50	ND		6/28/00	6/29/00	Ü	
Surrogate: Decachlorobiphenyl (45-145%)				83.8 %	•	0,20,00	0/20/00	0	
Sample ID: IJF0901-14 (CBC-46B -	Soil)								
Aroclor 1016	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	U	
Aroclor 1221	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	) I	
Aroclor 1232	EPA 3550/8082	10F2832	50	ND	1	6/28/00	6/29/00	1	
Aroclor 1242	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	- 1	
Aroclor 1248	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	1	
Aroclor 1254	EPA 3550/8082	10F2832	50	54	1	6/28/00	6/29/00	•	
Aroclor 1260	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				85.0 %	-	o. <b>2</b> o, o o	G/ <b>2</b> 5/ 00		
Sample ID: IJF0901-15 (CBC-47B -	Soil)								
Aroclor 1016	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	U	
Aroclor 1221	EPA 3550/8082	I0F2832	50	ND	î	6/28/00	6/29/00	١	
Aroclor 1232	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00		
Aroclor 1242	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00		
Aroclor 1248	EPA 3550/8082	I0F2832	50	ND	l	6/28/00	6/29/00		
Aroclor 1254	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00		
Aroclor 1260	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	₩	
Surrogate: Decachlorobiphenyl (45-145%)				87.4 %	•	5,20,00	0,27,00	•	



Del Mar Analytical, Irvine Pat Abe Project Manager



(949) 261-1022 FAX (949) 261-1228 (818) 779-1844 FAX (818) 779-1843 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0901

Sampled: 06/27/00 Received: 06/27/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

				,	,				
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyze		ata lifiers
			ug/kg	ug/kg				12EV	QUAL
Sample ID: IJF0901-16 (CAC-34B-	DUP - Soil)		0 0	8 8				QUAL	COD
Aroclor 1016	EPA 3550/8082	I0G0519	630	ND	12.5	7/5/00	7/7/00	*	
Aroclor 1221	EPA 3550/8082	I0G0519		ND	12.5	7/5/00	7/7/00	î	
Aroclor 1232	EPA 3550/8082	I0G0519		ND	12.5	7/5/00	7/7/00	- 1	
Aroclor 1242	EPA 3550/8082	I0G0519		ND	12.5	7/5/00	7/7/00	j	
Aroclor 1248	EPA 3550/8082	I0G0519		ND.	12.5	7/5/00	7/7/00	1	
Aroclor 1254	EPA 3550/8082	I0G0519		1300	12.5	7/5/00	7/7/00		
Aroclor 1260	EPA 3550/8082	I0G0519	630	ND	12.5	7/5/00	7/7/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				115 %		770700	.,,,,,,,	2	B
Sample ID: IJF0901-17 (CAC-35B-	DUP - Soil)								
Aroclor 1016	EPA 3550/8082	I0G0519	250	ND	5	7/5/00	7/7/00	*	
Aroclor 1221	EPA 3550/8082	I0G0519		ND	5	7/5/00	7/7/00	î	
Aroclor 1232	EPA 3550/8082	I0G0519		ND	5	7/5/00	7/7/00		
Aroclor 1242	EPA 3550/8082	I0G0519	250	ND	5	7/5/00	7/7/00	1	
Aroclor 1248	EPA 3550/8082	I0G0519	250	ND	5	7/5/00	7/7/00		
Aroclor 1254	EPA 3550/8082	I0G0519	250	600	5	7/5/00	7/7/00	l	
Aroclor 1260	EPA 3550/8082	I0G0519	250	ND	5	7/5/00	7/7/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				97.0 %				· · Z	3
Sample ID: IJF0901-18 (CAC-40B-1	DUP - Soil)								
Aroclor 1016	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/7/00	U	
Aroclor 1221	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/7/00	Ĭ	
Aroclor 1232	EPA 3550/8082	10G0519		ND	1	7/5/00	7/7/00	- 1	
Aroclor 1242	EPA 3550/8082	10G0519	50	ND	1	7/5/00	7/7/00		
Aroclor 1248	EPA 3550/8082	I0G0519	50	ND	1	7/5/00	7/7/00	$\checkmark$	
Aroclor 1254	EPA 3550/8082	I0G0519	50	75	1	7/5/00	7/7/00	•	
Aroclor 1260	EPA 3550/8082	I0G0519	and the second s	ND	1	7/5/00	7/7/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				99.4 %			,	_	

X = NOT VALIDATED

AMEC VALIDATED

LEVEL V

Del Mar Analytical, Irvine Pat Abe

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0901

Sampled: 06/27/00 Received: 06/27/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Comple ID. ITE0001 04 (CAC 24D	a.m./		ug/kg	ug/kg				REV QUAL COS
Sample ID: IJF0901-04 (CAC-36B	- Soil)							
Aroclor 1016	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	υ
Aroclor 1221	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	Ϋ́Ι
Aroclor 1232	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	
Aroclor 1242	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	
Aroclor 1248	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	<b>4</b>
Aroclor 1254	EPA 3550/8082	I0F2832	50	150	1	6/28/00	6/29/00	
Aroclor 1260	EPA 3550/8082	I0F2832	50	ND	1	6/28/00	6/29/00	U
Surrogate: Decachlorobiphenyl (45-145%)				89.2 %				
Sample ID: IJF0901-05 (CAC-37B	- Soil)							
Aroclor 1016	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00	*
Aroclor 1221	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00	7
Aroclor 1232	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00	
Aroclor 1242	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00	
Aroclor 1248	EPA 3550/8082	10F2832	1000	ND	20	6/28/00	6/29/00	
Aroclor 1254	EPA 3550/8082	I0F2832	1000	2100	20	6/28/00	6/29/00	
Aroclor 1260	EPA 3550/8082	I0F2832	1000	ND	20	6/28/00	6/29/00	<b>V</b>
Surrogate: Decachlorobiphenyl (45-145%)				100 %		0/20/00	0/27/00	<i>Z3</i>
Sample ID: IJF0901-06 (CAC-38B.	- Soil) 🗸							2.3
Aroclor 1016	EPA 3550/8082	I0F2832	250	ND	5	6/28/00	6/29/00	
Aroclor 1221	EPA 3550/8082	I0F2832	250	ND	5	6/28/00	6/29/00	4
Aroclor 1232	EPA 3550/8082	I0F2832	250	ND	5	6/28/00	6/29/00	garage (garage)
Aroclor 1242	EPA 3550/8082	I0F2832	250	ND	5	6/28/00	6/29/00	
Aroclor 1248	EPA 3550/8082	I0F2832	250	ND	5	6/28/00	6/29/00	<b>V</b>
Aroclor 1254	EPA 3550/8082	I0F2832	250	500	5	6/28/00	6/29/00	•
Aroclor 1260	EPA 3550/8082	I0F2832	250	ND	5	6/28/00	6/29/00	U
Surrogate: Decachlorobiphenyl (45-145%)	. , , , , ,			107 %	,	0/20/00	0/27/00	Z3

\*Analysis Not Validated







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

#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 12, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: CAC-1S, CAC-2R, CAC-3ST, CAC-3SB, CAC-4ST, CAC-4SB, CAC-5S,

CAC-6ST, CAC-6SB, CAC-7ST, CAC-7SB, CAC-8B, CAC-9R, CAC-11ST,

CAC-11SB, CAC-12ST, CAC-12SB, CAC-13R

#### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	All samples were received intact and in good condition at 4°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	Two soil method blanks were analyzed with the samples of this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
5. LCS/BS	Two soil blank spikes were analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.

Project: Rocketdyne SDG: IJF0189 Analysis: PP

	Findings	Qualifications
7. MS/MSDs	The MS/MSD analyses were performed on sample CAC-6ST. The recoveries for Aroclor-1016 and Aroclor-1260 were within the laboratory-established QC limits in both the MS and MSD. The RPD for Aroclor-1260 was above the QC limit of 20% and the RPD for Aroclor-1016 was less than 20%.	No qualifications were required.
8. Field QC Samples  ER: None FB: None Duplicates: None	No field QC samples were associated with this SDG.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.  Sample CAC- 8B was analyzed at a 5X dilution due to a high concentration of target compounds.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

2852 Alton Ave., Irvine, CA 92606 1014 E. Gooley Dr., Cuite A, Colten, CA 92324 (909) 370-4667 FAX (909) 370-1046 18525 Sherman Way, Suite C-11 Van Nuys, CA 92406 (818) 779-1844 FAX (818) 779-1843 9484 Chasapeake Dr., Suite 805, San Diego, CA 92123 (658) 505-9596 FAX (658) 505-9669

(949) 261-1022 FAX (949) 261-1228 9890 South 51st St., Seite 8-129, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071 Report Number: IJF0189

Sampled: 06/06/00 Received: 06/07/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da 1 Quali	
			ug/kg	ug/kg				REV	CODE
Sample ID: IJF0189-01 (CAC-1S - S	Soil) *						•	**************************************	***************************************
Aroclor 1016	EPA 3550/8082	J0F0920	50	ND	1	6/9/00	6/10/00	U	
Aroclor 1221	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	1	
Aroclor 1232	EPA 3550/8082	I0F0920	50	ND	i	6/9/00	6/10/00	- 1	
Aroclor 1242	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		-
Aroclor 1248	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		DARF - GARAGE
Aroclor 1254	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	1	
Aroclor 1260	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	₩.	***************************************
Surrogate: Decachlorobiphenyl (45-145%)				92.8 %				·	AMOUNT STATE
Sample ID: IJF0189-02 (CAC-2R - 5	Soil) <								on the state of th
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	ı	6/9/00	6/10/00	U	No. of Control Pro-
Aroclor 1221	EPA 3550/8082	10F0920		ND	1	6/9/00	6/10/00	1	C Berrier in
Aroclor 1232	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00		
Aroclor 1242	EPA 3550/8082	I0F0920		ND		6/9/00	6/10/00		and the second
Aroclor 1248	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00	į .	Description of the control of the co
Aroclor 1254	EPA 3550/8082	I0F0920		ND	î	6/9/00	6/10/00	1	
Aroclor 1260	EPA 3550/8082	I0F0920	50	ND	i	6/9/00	6/10/00	1	Villa Laurenge
Surrogate: Decachlorobiphenyl (45-145%)				105 %	•	0,7,00	0/10/00	. •	
Sample ID: IJF0189-03 (CAC-3ST -	Soil) ~								
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	U	
Aroclor 1221	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00	ĭ	
Aroclor 1232	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1242	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	ŀ	
Aroclor 1248	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00	1	
Aroclor 1254	EPA 3550/8082	10F0920	50	54	1	6/9/00	6/10/00	*	Professional Communication of the Communication of
Aroclor 1260	EPA 3550/8082	10F0920	50	ND		6/9/00	6/10/00	U	-
Surrogate: Decachlorobiphenyl (45-145%)				85.0 %		3/2/00	0/10/00	O	

# **AMEC VALIDATED**

# LEVELV

Del Mar Analytical, Irvine

Pat Abe

2852 Alton Ave., Irvine, CA 92506 1014 5 Cooley Ox., Suite A. Celton, CA 92324 (909) 370 4667 FAX (909) 370 1046 16525 Sherman Way, Suite C-11, Van Nuys, CA 92406 (813) 779-1844 FAX (818) 779-1845 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-9596 FAX (858) 505-9689

(949) 261-1022 FAX (949) 261-1228 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0189

Sampled: 06/06/00 Received: 06/07/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da I Quali	
			ug/kg	ug/kg				Rev	COL
Sample ID: IJF0189-04 (CAC-3SB -	Soil)			0 0				PMS Complete conference and a con-	
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1221	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00	Ų	
Aroclor 1232	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00		
Aroclor 1242	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00	1	-
Aroclor 1248	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00	1	and and and and and and and and and and
Aroclor 1254	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00		El acceptant
Aroclor 1260	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00	$\checkmark$	
Surrogate: Decachlorobiphenyl (45-145%)				88.0 %	•	0.5700	0/10/00	Ť	
Sample ID: IJF0189-05 (CAC-4ST -	Soil)								
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	. \	ROSE AND AND AND AND AND AND AND AND AND AND
Aroclor 1221	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00	Ų	
Aroclor 1232	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00		
Aroclor 1242	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00	1	
Aroclor 1248	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00		and the same of th
Aroclor 1254	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1260	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	4	
Surrogate: Decachlorobiphenyl (45-145%)				86.8 %	-	4.3700	0.10.00	. *	
Sample ID: IJF0189-06 (CAC-4SB -	Soil)								
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	4. 3	No.
Aroclor 1221	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00	Ų	- Company
Aroclor 1232	EPA 3550/8082	I0F0920		ND	ĺ	6/9/00	6/10/00	and the same of th	
Aroclor 1242	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1248	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	- 1	
Aroclor 1254	EPA 3550/8082	I0F0920	50	ND	Ī	6/9/00	6/10/00		
Aroclor 1260	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	4	
Surrogate: Decachlorobiphenyl (45-145%)				83.2 %	•	0, 5, 00	3/10/00	₩	
								ì	i

# **AMEC VALIDATED**

LEVEL  $\nabla$ 

Del Mar Analytical, Irvine Pat Abe

2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228 1014 E. Cooley Dr., Suite A. Colion, CA 92324 (909) 370-4667 FAX (909) 370-1046 (16525 Sherman Way, Suite C-11, Van Nuys, CA 92405 (818) 779-1844 FAX (818) 779-1843 (9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-9596 FAX (858) 505-9888 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJF0189

Sampled: 06/06/00 Received: 06/07/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat Qualif	
			ug/kg	ug/kg				REV	QUAL
Sample ID: IJF0189-07 (CAC-5S - S	oil)								
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	$\upsilon$	4
Aroclor 1221	EPA 3550/8082	I0F0920		ND	i	6/9/00	6/10/00	7	
Aroclor 1232	EPA 3550/8082	I0F0920	50	ND	ì	6/9/00	6/10/00	- Andrews	delenan
Aroclor 1242	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	1	- MCDB
Aroclor 1248	EPA 3550/8082	I0F0920	50	ND	î	6/9/00	6/10/00	1	
Aroclor 1254	EPA 3550/8082	I0F0920	50	65	1	6/9/00	6/10/00	*	Type of the second
Aroclor 1260	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	U	A STATE OF THE STA
Surrogate: Decachlorobiphenyl (45-145%)				89.2 %				V.08	100
Sample ID: IJF0189-08 (CAC-6ST -	Soil)								The second secon
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	U	
Aroclor 1221	EPA 3550/8082	I0F0920		ND	i	6/9/00	6/10/00		competition and a second
Aroclor 1232	EPA 3550/8082	I0F0920		ND	i	6/9/00	6/10/00		
Aroclor 1242	EPA 3550/8082	I0F0920	50	ND	ì	6/9/00	6/10/00		
Aroclor 1248	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	Paragraphic Control of	
Aroclor 1254	EPA 3550/8082	10F0920	50	66	1	6/9/00	6/10/00		
Aroclor 1260	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	- V	
Surrogate: Decachlorobiphenyl (45-145%)				86.2 %			2. 2 3. 3 3	,	
Sample ID: IJF0189-09 (CAC-6SB -	Soil)								
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	U	The state of the s
Aroclor 1221	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00	9	
Aroclor 1232	EPA 3550/8082	10F0920	50 .	ND	1	6/9/00	6/10/00		
Aroclor 1242	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00		
Aroclor 1248	EPA 3550/8082	I0F0920	50	ND	i	6/9/00	6/10/00		
Aroclor 1254	EPA 3550/8082	I0F0920	50	ND	ì	6/9/00	6/10/00	The same of the sa	
Aroclor 1260	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				87.4 %	•	2.2.00	5, 15,00	•	

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Del Mar Analytical, Irvine

Pat Abe Project Manager

2852 Allon Ave., Irvine, CA 92605 (949) 251-1922 FAX (949) 261-1228 1014 E. Godley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 (813) 779-1844 FAX (819) 779-1840 S481 Chesapaske Dr., Suite 505, San Diego, OA 92123 (858) 505-9596 FAX (858) 505-9689 9830 South 51st St., Suite 5-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Sampled: 06/06/00 Report Number: IJF0189 Received: 06/07/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Qual	
			ug/kg	ug/kg				REV	QUA
Sample ID: IJF0189-10 (CAC-7ST	- Soil)							***************************************	
Aroclor 1016	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00	• .	
Aroclor 1221	EPA 3550/8082	10F0920		ND	i	6/9/00	6/10/00	Υ	
Aroclor 1232	EPA 3550/8082	10F0920		ND	1	6/9/00	6/10/00		0
Aroclor 1242	EPA 3550/8082	10F0920	) 50	ND	1	6/9/00	6/10/00	-	
Aroclor 1248	EPA 3550/8082	10F0920		ND	1	6/9/00	6/10/00	. ↓	1
Aroclor 1254	EPA 3550/8082	I0F0920	50	170	1	6/9/00	6/10/00	•	
Aroclor 1260	EPA 3550/8082	I0F0920	) 50	ND	1	6/9/00	6/10/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				82.6 %		0.3.00	0/10/00		
Sample ID: IJF0189-11 (CAC-7SB -	- Soil)								der crossed
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	O	100
Aroclor 1221	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00	1	NACCO NACCO
Aroclor 1232	EPA 3550/8082	I0F0920	50	ND	ì	6/9/00	6/10/00		
Aroclor 1242	EPA 3550/8082	10F0920	50	ND	Ī	6/9/00	6/10/00	1	
Aroclor 1248	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	<b>V</b>	- Annie and - Anni
Aroclor 1254	EPA 3550/8082	I0F0920	50	120	1	6/9/00	6/10/00		No.
Aroclor 1260	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				85.6 %			0, 10, 00		
Sample ID: IJF0189-12 (CAC-8B - 8	Soil)								
Aroclor 1016	EPA 3550/8082	I0F0920	250	ND	5	6/9/00	6/10/00	$\mathbf{c}$	ACMINISTRATION OF THE PERSON O
Aroclor 1221	EPA 3550/8082	I0F0920	250	ND	5	6/9/00	6/10/00	$\sim$	i i
Aroclor 1232	EPA 3550/8082	10F0920	250	ND	5	6/9/00	6/10/00	77	
Aroclor 1242	EPA 3550/8082	I0F0920		ND	5	6/9/00	6/10/00	]	
Aroclor 1248	EPA 3550/8082	10F0920	250	ND	5	6/9/00	6/10/00	$\downarrow$	
Aroclor 1254	EPA 3550/8082	I0F0920	250	390	5	6/9/00	6/10/00	•	OVER THE PROPERTY OF THE PROPE
Aroclor 1260	EPA 3550/8082	I0F0920	250	ND	5	6/9/00	6/10/00	U	
Surrogate: Decachlorobiphenyl (45-145%)				97.0 %				Z4	Å
									Name of the last o

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2852 Allon Ave., irvine, CA 92606 1014 E. Cooley Dr., Suite A. Colton, CA 92324 16525 Sherman Way, Suite C 41, Van Nuys, CA 92406 (818) 779-1844 FAX (818) 779-1843 9484 Chosapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-9506 FAX (858) 505-9689 9830 South 51st St., Suite B 120, Phoenix, AZ 85044

(949) 261-1022 FAX (949) 261-1228 (909) 370-4667 FAX (909) 370-1046 (480) 785-0043 FAX (486) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071 Report Number: IJF0189

Sampled: 06/06/00 Received: 06/07/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		ita lifiers
			ug/kg	ug/kg				REV	CODE
Sample ID: IJF0189-13 (CAC-9R - S	oil)						•		-
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	U	DEPOSIT DEPOSIT
Aroclor 1221	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	7	-
Aroclor 1232	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	ļ	
Aroclor 1242	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1248	EPA 3550/8082	I0F0920	50	ND	Î	6/9/00	6/10/00		
Aroclor 1254	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1260	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				81.4 %		,	0, 10, 00		9
Sample ID: IJF0189-14 (CAC-10B -	Soil)								
Aroclor 1016	EPA 3550/8082	10F0920	500	ND	10	6/9/00	6/10/00	¥	
Aroclor 1221	EPA 3550/8082	I0F0920	500	ND	10	6/9/00	6/10/00		
Aroclor 1232	EPA 3550/8082	I0F0920	500	ND	10	6/9/00	6/10/00		
Aroclor 1242	EPA 3550/8082	I0F0920	500	ND	10	6/9/00	6/10/00	Ì	
Aroclor 1248	EPA 3550/8082	I0F0920	500	ND	10	6/9/00	6/10/00		
Aroclor 1254	EPA 3550/8082	I0F0920	500	1700	10	6/9/00	6/10/00	1	
Aroclor 1260	EPA 3550/8082	I0F0920	500	ND	10	6/9/00	6/10/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				102 %			0,10,00	. • Z	4
Sample ID: IJF0189-15 (CAC-11-ST	- Soil)								Control of the Contro
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	U	
Aroclor 1221	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	Y	one of the contract of the con
Aroclor 1232	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		On A Charles
Aroclor 1242	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1248	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1254	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1260	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00	₩	
Surrogate: Decachlorobiphenyl (45-145%)				86.8 %			5 0. 50	•	

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X = NOT VALIDATED

LEVEL V

2852 Alton Ave., Irvins, CA 92606 (949) 261 1022 FAX (949) 261 1228 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 (818) 779-1844 FAX (818) 779-1843 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-9596 FAX (858) 505-9689

9830 South 51st St., Suite S-120, Phoenix, AZ 85044 (480) 765-0043 FAX (480) 765-0854

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071 Report Number: IJF0189

Sampled: 06/06/00 Received: 06/07/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat Quali	
			ug/kg	ug/kg				REV	QUAL
Sample ID: IJF0189-16 (CAC-11-SI	3 - Soil)		0 0					***************************************	
Aroclor 1016	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00	υ	
Aroclor 1221	EPA 3550/8082	I0F0920		ND	1	6/9/00	6/10/00	Ÿ	
Aroclor 1232	EPA 3550/8082	10F0920		ND	1	6/9/00	6/10/00		
Aroclor 1242	EPA 3550/8082	I0F0920		ND	i	6/9/00	6/10/00		
Aroclor 1248	EPA 3550/8082	10F0920		ND	i	6/9/00	6/10/00	1	
Aroclor 1254	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	- 1	
Aroclor 1260	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				85.0 %		0.2.00	0.10.00		
Sample ID: IJF0189-17 (CAC-12-ST	' - Soil)								and the same of th
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	U	P Device Color
Aroclor 1221	EPA 3550/8082	I0F0920	50	ND	i	6/9/00	6/10/00	,	
Aroclor 1232	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	1	
Aroclor 1242	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1248	EPA 3550/8082	I0F0920	50	ND	ĺ	6/9/00	6/10/00		T-News
Aroclor 1254	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00		
Aroclor 1260	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/10/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				90.4 %				•	
Sample ID: IJF0189-18 (CAC-12SB	- Soil)								
Aroclor 1016	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/11/00	$\cup$	
Aroclor 1221	EPA 3550/8082	I0F0920	50	ND	i	6/9/00	6/11/00	9	
Aroclor 1232	EPA 3550/8082	I0F0920	50 .	ND	1	6/9/00	6/11/00		
Aroclor 1242	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/11/00		
Aroclor 1248	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/11/00		
Aroclor 1254	EPA 3550/8082	10F0920	50	ND	1	6/9/00	6/11/00		
Aroclor 1260	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/11/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				85.6 %	-		3. 11. 00	•	

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LEVEL V

Del Mar Analytical, Irvine

Pat Abe

2852 Alton Ave., Irvine, CA 92506 1014 E. Cooley On, Suite A. Colton, CA 92424 (909) 376-4867 FAX (909) 370-1046 16525 Sherman Way, Suite C-11, Van Nuys, CA 92496 (818) 779-1844 FAX (818) 779-1843 9484 Chesapeake Dr., Suite 805, San Diogo, CA 92123 (858) 505-9596 FAX (858) 505-9689 9830 South 51sr St., Suite 8-120, Phoenix, AZ 95044 (480) 785-0043 FAX (480) 785-0851

(949) 261 1022 FAX (949) 261-1228

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0189

Sampled: 06/06/00 Received: 06/07/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Quali	
C	^		ug/kg	ug/kg				REV	CODE
Sample ID: IJF0189-19 (CAC-13R -	Soil)							NAMES OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF T	***************************************
Aroclor 1016	EPA 3550/8082	I0F0920	) 50 -	ND	1	6/9/00	6/11/00	$\cup$	
Aroclor 1221	EPA 3550/8082	I0F0920	50	ND	i	6/9/00	6/11/00	Y	
Aroclor 1232	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/11/00	1	
Aroclor 1242	EPA 3550/8082	I0F0920	50	ND	i	6/9/00	6/11/00		ĺ
Aroclor 1248	EPA 3550/8082	I0F0920	50	ND	Ì	6/9/00	6/11/00	$\checkmark$	
Aroclor 1254	EPA 3550/8082	I0F0920	50	56	î	6/9/00	6/11/00	Ψ	
Aroclor 1260	EPA 3550/8082	I0F0920	50	ND	1	6/9/00	6/11/00	Ü	
Surrogate: Decachlorobiphenyl (45-145%)				83.8 %	•	0, 2, 00	0/11/00		
Sample ID: IJF0189-20 (CAC-14B -	Soil)								
Aroclor 1016	EPA 3550/8082	I0F1210	500	ND	10	6/12/00	6/14/00	*	
Aroclor 1221	EPA 3550/8082	I0F1210	500	ND	10	6/12/00	6/14/00	7	
Aroclor 1232	EPA 3550/8082	I0F1210	500	ND	10	6/12/00	6/14/00		
Aroclor 1242	EPA 3550/8082	I0F1210	500	ND	10	6/12/00	6/14/00		
Aroclor 1248	EPA 3550/8082	I0F1210	500	ND	10	6/12/00	6/14/00	1 1	
Aroclor 1254	EPA 3550/8082	I0F1210	500	900	10	6/12/00	6/14/00	]	
Aroclor 1260	EPA 3550/8082	I0F1210	500	ND	10	6/12/00	6/14/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				128 %	•	0/12/00	0/17/00	. 1	

\* = NOT VALIDATED

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 Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

<u>QC Level</u>: V<sup>1</sup>
<u>SDG</u>: IJF1026
<u>Matrix</u>: Soil
<u>No. of Samples</u>: 3

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 12, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: PC-20, PC-21, PC-22

#### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	All samples were received intact and in good condition at 3°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was analyzed with the samples of this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One soil blank spike was analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.
7. MS/MSDs	No MS/MSD was performed with this SDG. Evaluation of method accuracy was based on blank spike results.	No qualifications were required.

Project: Rocketdyne SDG: IJF1026 Analysis: PP

	Findings	Qualifications
8. Field QC Samples  ER: None FB: None Duplicates:	No field QC samples were associated with this SDG.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

(949) 261-1022 FAX (949) 261-1228 (909) 370-4667 FAX (909) 370-1046 (818) 779-1844 FAX (818) 779-1843 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071 Report Number: IJF1026

Sampled: 06/29/00 Received: 06/29/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

			(1)	111 0002)	,			
Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyze	Data d Qualifi	
		ng/kg	na/ka					Qu
		ug/kg	ug/Kg				QUAL	Cc
EDA 2550/0002	1002022	50	) IFS					
				l			$\cup$	
				1			)	
				1				
				1				
				1			1.	
				1			V	
ErA 3330/8082	1013032	50		I	6/30/00	7/5/00	U	
			73.7 %					
EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/5/00	1)	
EPA 3550/8082	10F3032	50	ND	1	6/30/00	7/5/00	7	
EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/5/00	1	
EPA 3550/8082	10F3032		ND	1	6/30/00	7/5/00		
EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/5/00		
EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/5/00	<b>√</b>	
EPA 3550/8082	10F3032	50	ND	1	6/30/00	7/5/00	$\dot{o}$	
			88.0 %					
EPA 3550/8082	I0F3032	50	ND	1	6/30/00	7/5/00		
EPA 3550/8082	I0F3032			1			7	
	I0F3032			1			Andrews Andrews	
EPA 3550/8082	I0F3032			1				
EPA 3550/8082				1				
EPA 3550/8082				1				
				1			*	
	.5,5052	50	86.8 %	1	0/30/00	//3/00		
	Method  EPA 3550/8082	Method         Batch           EPA 3550/8082         10F3032           EPA 3550/8082         10F3032	Method         Batch         Reporting Limit           ug/kg           EPA 3550/8082         10F3032         50           EPA 3550/8082         10F3032         50	Method         Batch         Reporting Limit         Sample Result           ug/kg         ug/kg         ug/kg           EPA 3550/8082         10F3032         50         ND           EPA 3550/8082         10F3032         50         ND </td <td>Method         Batch Limit         Sample Result         Dilution Factor           ug/kg         ug/kg         Ug/kg           EPA 3550/8082         10F3032         50         ND         1           EPA 3550/8082         10F3032         5</td> <td>Method         Batch         Limit         Result         Factor         Extracted           ug/kg         ug/kg         ug/kg         Extracted           EPA 3550/8082         10F3032         50         ND         1         6/30/00           EPA 3550/8082         10F3032         50         ND         1         6/30/00</td> <td>Method         Batch Limit         Reporting Result         Sample Result         Dilution Factor         Date Extracted         Date Analyzer Analyzer           Limit         Result         Batch Factor         Dilution Extracted         Date Analyzer           Limit         Ug/kg         Ug/kg         Ug/kg           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00           EPA 3550/8082         10F3032</td> <td>Method         Batch Limit         Sample Result         Dilution Factor         Date Extracted         Date Analyzed         Date Qualification           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓</td>	Method         Batch Limit         Sample Result         Dilution Factor           ug/kg         ug/kg         Ug/kg           EPA 3550/8082         10F3032         50         ND         1           EPA 3550/8082         10F3032         5	Method         Batch         Limit         Result         Factor         Extracted           ug/kg         ug/kg         ug/kg         Extracted           EPA 3550/8082         10F3032         50         ND         1         6/30/00           EPA 3550/8082         10F3032         50         ND         1         6/30/00	Method         Batch Limit         Reporting Result         Sample Result         Dilution Factor         Date Extracted         Date Analyzer Analyzer           Limit         Result         Batch Factor         Dilution Extracted         Date Analyzer           Limit         Ug/kg         Ug/kg         Ug/kg           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00           EPA 3550/8082         10F3032	Method         Batch Limit         Sample Result         Dilution Factor         Date Extracted         Date Analyzed         Date Qualification           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓           EPA 3550/8082         10F3032         50         ND         1         6/30/00         7/5/00         ✓

# **AMEC VALIDATED**

# LEVEL V

Del Mar Analytical, Irvine

Pat Abe Project Manager



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

#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

QC Level: V<sup>1</sup>

SDG: IJK0373
Matrix: Soil
No. of Samples: 3

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 11, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: Brandeis-1, Brandeis-1D, Brandeis-2

#### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	All samples were received intact and in good condition at 4°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was analyzed with the samples of this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One soil blank spike was analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.

Project: Rocketdyne SDG: IJK0373 Analysis: PP

	Findings	Qualifications
7. MS/MSDs	The MS/MSD analyses were performed on sample Brandeis-2. The recoveries for both fortified compounds, Aroclor-1016 and Aroclor 1260, were within the laboratory-established QC limits in both the MS and MSD. The RPDs for the fortified compounds were within the QC limit of 20%.	No qualifications were required.
8. Field QC Samples  ER: None FB: None Duplicates: Brandeis-1 / Brandeis-1D	Aroclor-1254 was detected in both samples of the field duplicate pair with an RPD of 56%.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

2692 Alton Ave., Irvine, CA 92606 1014 E. Cooley Dr., Suite A, Coffen, CA 92324 16529 Sherman Way, Suite G-11, Van Nuys, CA 92406 (818) 779-1844 FAX (818) 779-1843 9484 Chesapeake Dr., Suite 865, San Diego, CA 92123 (858) 505-9596 FAX (858) 505-9669 9830 South 51st St., Suite B 120, Phoenix, AZ 85044

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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJK0373

Sampled: 11/09/00 Received: 11/09/00

POLYCHLORINATED BIPHENYLS (EPA 8082)

	TOLICILORI	1 1/4 1 1/3	<i>)</i> DU 11E.	ares (E	I A ouo	<i>4)</i>			
			Reporting	Sample	Dilution	Date	Date	Data	a
Analyte	Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifi	
							v	REV	, QUA
Sample ID: IJK0373-01 (B	randais_1 - Sail)		ug/kg	ug/kg				QUAL	Cas
Aroclor 1016	EPA 3550/8082	10K0060	50	ND	1	11/0/00	11/10/00		<b></b>
Aroclor 1221	EPA 3550/8082				1	11/9/00	11/10/00	Y	
Aroclor 1232	EPA 3550/8082			ND ND	1	11/9/00	11/10/00	l	
Aroclor 1242	EPA 3550/8082 EPA 3550/8082			ND	j	11/9/00	11/10/00		
Aroclor 1248				ND	l ,	11/9/00	11/10/00		
Aroclor 1254	EPA 3550/8082		50	ND	l ,	11/9/00	11/10/00	V	
Aroclor 1260	EPA 3550/8082		50	91	<u> </u>	11/9/00	11/10/00		
	EPA 3550/8082	10K0960	50	ND	1	11/9/00	11/10/00	U	
Surrogate: Decachlorobiphe				60.5 %					
Sample ID: IJK0373-02 (B	· ·								
Aroclor 1016	EPA 3550/8082		50	ND	1	11/9/00	11/10/00	Ų	
Aroclor 1221	EPA 3550/8082		50	ND	1	11/9/00	11/10/00		
Aroclor 1232	EPA 3550/8082		50	ND	1	11/9/00	11/10/00		
Aroclor 1242	EPA 3550/8082		50	ND	1	11/9/00	11/10/00		
Aroclor 1248	EPA 3550/8082	I0K0960	50	ND	1	11/9/00	11/10/00	↓	
Aroclor 1254	EPA 3550/8082	10K0960	50	51	1	11/9/00	11/10/00	1	
Aroclor 1260	EPA 3550/8082	I0K0960	50	ND	1	11/9/00	11/10/00	U	
Surrogate: Decachlorobiphe	nyl (45-145%)			67.1 %				-	
Sample ID: IJK0373-03 (Ba	randeis-2 - Soil)								
Aroclor 1016	EPA 3550/8082	I0K0960	50	ND	1	11/9/00	11/10/00	U	
Aroclor 1221	EPA 3550/8082	I0K0960	50	ND	1	11/9/00	11/10/00	)	
Aroclor 1232	EPA 3550/8082	I0K0960	50	ND	1	11/9/00	11/10/00		
Aroclor 1242	EPA 3550/8082	I0K0960	50	ND	Ī	11/9/00	11/10/00		
Aroclor 1248	EPA 3550/8082		50	ND	1	11/9/00	11/10/00	↓	
Aroclor 1254	EPA 3550/8082		50	53	1	11/9/00	11/10/00	`	
Aroclor 1260	EPA 3550/8082	at the annual contract of the party of the p	50	ND	1	11/9/00	11/10/00	U	
Surrogate: Decachlorobiphe			20	71.9%	1	11///00	11/10/00	_	
J. T. F.	J (			, 1.7 / 0					

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LEVEL V

Del Mar Analytical, Irvine

Pat Abe



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

#### DATA ASSESSMENT FORM

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

QC Level: V<sup>1</sup> SDG: IJF0277

SDG: IJF027' Matrix: Soil

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 12, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: CAC-15R, CAC-15B, CAC-28B, CAC-32SW, CAC-31SW, CAC-30B,

CAC-29B, CAC-16R, CAC-17R, CCC-25B, CAC-18B, CCC-19R, CCC-20B,

CCC-21B, CCC-22B, CCC-23B

#### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	All samples were received intact and in good condition at 3°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was analyzed with the samples of this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5. LCS/BS	One soil blank spike was analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.

Project: Rocketdyne SDG: IJF0277 Analysis: PP

	Findings	Qualifications
7. MS/MSDs	The MS/MSD analyses were performed on sample CAC-15B. The recoveries for both fortified compounds, Aroclor 1016 and Aroclor 1260, were within the laboratory-established QC limits in both the MS and MSD. The RPDs for the fortified compounds were less than the QC limit of 20%.	No qualifications were required.
8. Field QC Samples  ER: None FB: None Duplicates: None	No field QC samples were associated with this SDG.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.  Sample CAC-32SW was analyzed at a 2X dilution and sample CCC-22B was analyzed at a 4X dilution due to high concentrations of target compounds.	No qualifications were required.
<u>Comments</u>	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228 1014 E. Cooley Dr., Suite A. Colton, CA 92324 16525 Shorman Way, Suite C-11, Van Nuys, CA 92406 (818) 779-1844 FAX (818) 779-1843 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-9596 FAX (858) 505-9689 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (489) 785-0851

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

8700**7**1

Report Number: IJF0277

Sampled: 06/07/00 Received: 06/08/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

		(								
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat Quali		
			ug/kg	ug/kg				REV	QUAL	
Sample ID: IJF0277-01 (CAC-15R -	- Soil)							QUAL	CaDe	
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	ı	06/12/00	06/14/00	U		
Aroclor 1221	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	7	4.04	
Aroclor 1232	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	-		
Aroclor 1242	EPA 3550/8082	I0F1210		ND	i	06/12/00	06/14/00	- 1		
Aroclor 1248	EPA 3550/8082	I0F1210		ND	i	06/12/00	06/14/00		•	
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00			
Aroclor 1260	EPA 3550/8082	I0F1210	50	ND	I	06/12/00	06/14/00	V		
Surrogate: Decachlorobiphenyl (45-145%)				86.2 %						
Sample ID: IJF0277-02 (CAC-15B -	Soil)									
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/13/00	U		
Aroclor 1221	EPA 3550/8082	I0F1210	50	ND	i	06/12/00	06/13/00	ĭ		
Aroclor 1232	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/13/00			
Aroclor 1242	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/13/00			
Aroclor 1248	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/13/00			
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/13/00			
Aroclor 1260	EPA 3550/8082	10F1210	50	ND	1	06/12/00	06/13/00	. ↓		
Surrogate: Decachlorobiphenyl (45-145%)				100 %				▼		
Sample ID: IJF0277-03 (CAC-26B -	Soil)									
Aroclor 1016	EPA 3550/8082	I0F1210	250	ND	5	06/12/00	06/14/00	X		
Aroclor 1221	EPA 3550/8082	I0F1210		ND	5	06/12/00	06/14/00	î		
Aroclor 1232	EPA 3550/8082	I0F1210		ND	5	06/12/00	06/14/00			
Aroclor 1242	EPA 3550/8082	10F1210	*	ND	5	06/12/00	06/14/00			
Aroclor 1248	EPA 3550/8082	I0F1210	250	ND	5	06/12/00	06/14/00			
Aroclor 1254	EPA 3550/8082	I0F1210	250	ND	5	06/12/00	06/14/00	The same of the sa		
Aroclor 1260	EPA 3550/8082	I0F1210	250	830	5	06/12/00	06/14/00	<b>V</b> A-0	1	
Surrogate: Decachlorobiphenyl (45-145%)				102 %				Z4		
									l	

X = NOT VALIDATED

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Del Mar Analytical, Irvine

Pat Abe

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Sampled: 06/07/00 Report Number: IJF0277 Received: 06/08/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		ata lifiers
							6	26	1 a m
			ug/kg	ug/kg				UAL	COE
Sample ID: IJF0277-04 (CAC-27B -	Soil)			0 0			Service	* The state of the second of t	
Aroclor 1016	EPA 3550/8082	I0F1210	250	ND	5	06/12/00	06/14/00	v	
Aroclor 1221	EPA 3550/8082	I0F1210		ND	5	06/12/00	06/14/00	¥	
Aroclor 1232	EPA 3550/8082	I0F1210		ND	5	06/12/00	06/14/00	1	
Aroclor 1242	EPA 3550/8082	I0F1210		ND	5	06/12/00	06/14/00		
Aroclor 1248	EPA 3550/8082	I0F1210		ND	5	06/12/00	06/14/00		Name of the last o
Aroclor 1254	EPA 3550/8082	I0F1210		ND	5	06/12/00	06/14/00		and the second s
Aroclor 1260	EPA 3550/8082	I0F1210		720	5	06/12/00	06/14/00	₩ A	-01
Surrogate: Decachlorobiphenyl (45-145%)				96.4 %	,	00/12/00	00/14/00		7.4
Sample ID: IJF0277-05 (CAC-28B -	Soil)							1	arrange manage and a second
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	U	w.e.
Aroclor 1221	EPA 3550/8082	I0F1210	50	ND	Î	06/12/00	06/14/00	Y	
Aroclor 1232	EPA 3550/8082	I0F1210	50	ND	. 1	06/12/00	06/14/00		
Aroclor 1242	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00		
Aroclor 1248	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00		
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	V	
Aroclor 1260	EPA 3550/8082	I0F1210	50	86	1	06/12/00	06/14/00	Α	-01
Surrogate: Decachlorobiphenyl (45-145%)				74.9 %		t tip van een verde de die de de teere van de de de de de de de de de de de de de			
Sample ID: IJF0277-06 (CAC-32SW	' - Soil)							9	
Aroclor 1016	EPA 3550/8082	I0F1210	100	ND	2	06/12/00	06/14/00	U	
Aroclor 1221	EPA 3550/8082	I0F1210	1.00	ND	2	06/12/00	06/14/00	ĭ	
Aroclor 1232	EPA 3550/8082	I0F1210	100	ND	2	06/12/00	06/14/00		
Aroclor 1242	EPA 3550/8082	I0F1210		ND	2	06/12/00	06/14/00	200	
Aroclor 1248	EPA 3550/8082	I0F1210	100	ND	2	06/12/00	06/14/00		
Aroclor 1254	EPA 3550/8082	I0F1210		ND	2	06/12/00	06/14/00	₩	
Aroclor 1260	EPA 3550/8082	I0F1210	100	330	2	06/12/00	06/14/00	,	-01
Surrogate: Decachlorobiphenyl (45-145%)			ormonomente de la financia de la financia de la financia de la financia de la financia de la financia de la fin	96.4 %	erenenter anni ressa anna a Talliga e e e e e e e e e e e e e e e e e e e	and the second s	50/11/00		Z4
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X = NOT VALIDATED

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Del Mar Analytical, Irvine

Pat Abe Project Manager



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0277

Sampled: 06/07/00 Received: 06/08/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat Qualif	
			ug/kg	ug/kg				REV	QUA
Sample ID: IJF0277-07 (CAC-31SW	- Soil)							***************************************	<del>-</del>
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	15	Patricipa
Aroclor 1221	EPA 3550/8082	10F1210		ND	1	06/12/00	06/14/00	7	-200
Aroclor 1232	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00		
Aroclor 1242	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00		Richard Co.
Aroclor 1248	EPA 3550/8082	I0F1210	50	ND.	1	06/12/00	06/14/00	1	
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	-	1
Aroclor 1260	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	· · ·	
Surrogate: Decachlorobiphenyl (45-145%)				95.8 %					Por dela
Sample ID: IJF0277-08 (CAC-30B -	Soil)								W. Carlotte
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	U	design of the second
Aroclor 1221	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	1	chips the off
Aroclor 1232	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00		in the second
Aroclor 1242	EPA 3550/8082	10F1210	50	ND	1	06/12/00	06/14/00	1	A EMPLOYEE AND A STATE OF THE S
Aroclor 1248	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00		The second
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	₩	
Aroclor 1260	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	را	ent re-
Surrogate: Decachlorobiphenyl (45-145%)				95.8 %				. •	2-100
Sample ID: IJF0277-09 (CAC-29B -	Soil)								William Control of the Control of th
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	U	E
Aroclor 1221	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	1	S. S. S. S. S. S. S. S. S. S. S. S. S. S
Aroclor 1232	EPA 3550/8082	I0F1210		ND	i	06/12/00	06/14/00	and the same of th	photos and
Aroclor 1242	EPA 3550/8082	I0F1210		ND	i	06/12/00	06/14/00		and the second
Aroclor 1248	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	0.00	e e e e e e e e e e e e e e e e e e e
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	C. Administra	77
Aroclor 1260	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	₩	*consta
Surrogate: Decachlorobiphenyl (45-145%)				82.0 %				*	





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Pat Abe

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJF0277

Sampled: 06/07/00 Received: 06/08/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da I Qual	
			ug/kg	ug/kg			v	REV	QUAL
Sample ID: IJF0277-10 (CAC-16R -	Soil)							Arron-sherido estambaser accuedante	***************************************
Aroclor 1016	EPA 3550/8082	10F1210	50	ND	1	06/12/00	06/14/00	$\omega$	
Aroclor 1221	EPA 3550/8082	I0F1210		ND	i	06/12/00	06/14/00	7	
Aroclor 1232	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00		
Aroclor 1242	EPA 3550/8082	10F1210	50	ND	1	06/12/00	06/14/00		
Aroclor 1248	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00		-
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	1	
Aroclor 1260	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	₩	
Surrogate: Decachlorobiphenyl (45-145%)				86.2 %	-	3 3 . 12 . 3 3	00.1000	•	approximate the second
Sample ID: IJF0277-11 (CAC-17R -	Soil)								T. Commission of
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	U	NAME OF TAXABLE PARTY.
Aroclor 1221	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	ĭ	-
Aroclor 1232	EPA 3550/8082	I0F1210		ND	. i	06/12/00	06/14/00	-	MAN PROPERTY.
Aroclor 1242	EPA 3550/8082	I0F1210	50	ND	i	06/12/00	06/14/00		
Aroclor 1248	EPA 3550/8082	I0F1210		ND	i	06/12/00	06/14/00	- ↓	
Aroclor 1254	EPA 3550/8082	I0F1210	50	110	ĺ	06/12/00	06/14/00	A-(	)la
Aroclor 1260	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	Ü	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Surrogate: Decachlorobiphenyl (45-145%)				91.6%			30.200	Nor	and the same of th
Sample ID: IJF0277-12 (CCC-25B -	Soil)								Park common your
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	U	a composition
Aroclor 1221	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	Y	i.
Aroclor 1232	EPA 3550/8082	I0F1210		ND	i	06/12/00	06/14/00	1	The second of th
Aroclor 1242	EPA 3550/8082	I0F1210		ND	i	06/12/00	06/14/00	1	-
Aroclor 1248	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00		ALCOHOLOGICA
Aroclor 1254	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	4	THE PROPERTY.
Aroclor 1260_	EPA 3550/8082	I0F1210	50	160	i	06/12/00	06/14/00	<b>A</b> -	
Surrogate: Decachlorobiphenyl (45-145%)	The second secon	anne en er eith der handell en en her illan en h	and the second s	88.0 %	the constitution of the co	er-vireksis <del>elette</del> e di dan oo		de esta de la constante de la	1

## AMEC VALIDATED



Del Mar Analytical, Irvine

Pat Abe Project Manager

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0277

Sampled: 06/07/00 Received: 06/08/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

	(3212000)										
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers			
			ug/kg	ug/kg				REV QUAL			
Sample ID: IJF0277-13 (CAC-18B -	Soil)		0 0					QUAL CODE			
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	U			
Aroclor 1221	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	0			
Aroclor 1232	EPA 3550/8082	I0F1210		ND	i	06/12/00	06/14/00				
Aroclor 1242	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00				
Aroclor 1248	EPA 3550/8082	I0F1210	50	ND.	1	06/12/00	06/14/00	1			
Aroclor 1254	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00				
Aroclor 1260	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	V			
Surrogate: Decachlorobiphenyl (45-145%)				81.4 %							
Sample ID: IJF0277-14 (CCC-19R -	Soil)							. Birrary			
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	U			
Aroclor 1221	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	ī			
Aroclor 1232	EPA 3550/8082	I0F1210	50	ND	. 1	06/12/00	06/14/00				
Aroclor 1242	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00				
Aroclor 1248	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00				
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	/			
Aroclor 1260	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	<b>V</b>			
Surrogate: Decachlorobiphenyl (45-145%)				84.4 %							
Sample ID: IJF0277-15 (CCC-20B -	Soil)							Maga Layers and			
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	U			
Aroclor 1221	EPA 3550/8082	I0F1210	50.	ND	1	06/12/00	06/14/00	ĭ			
Aroclor 1232	EPA 3550/8082	I0F1210	50 .	ND	1	06/12/00	06/14/00				
Aroclor 1242	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00				
Aroclor 1248	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00				
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	V			
Aroclor 1260	EPA 3550/8082	I0F1210	50	140	I	06/12/00	06/14/00	A-01			
Surrogate: Decachlorobiphenyl (45-145%)				83.2 %							

AWIEC VALIDATED



Del Mar Analytical, Irvine Pat Abe

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0277

Sampled: 06/07/00 Received: 06/08/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
			ug/kg	ug/kg				REV QUAL QUAL COD
Sample ID: IJF0277-16 (CCC-21B -	Soil)							200
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	υ
Aroclor 1221	EPA 3550/8082	I0F1210		ND	1	06/12/00	06/14/00	7 1
Aroclor 1232	EPA 3550/8082	10F1210	50	ND	1	06/12/00	06/14/00	
Aroclor 1242	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	}
Aroclor 1248	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	1
Aroclor 1260	EPA 3550/8082	I0F1210	50	93	1	06/12/00	06/14/00	A-01
Surrogate: Decachlorobiphenyl (45-145%)				88.0 %				
Sample ID: IJF0277-17 (CCC-22B -	Soil)							
Aroclor 1016	EPA 3550/8082	I0F1210	200	ND	4	06/12/00	06/15/00	U
Aroclor 1221	EPA 3550/8082	I0F1210	200	ND	4	06/12/00	06/15/00	
Aroclor 1232	EPA 3550/8082	I0F1210	200	ND	4	06/12/00	06/15/00	
Aroclor 1242	EPA 3550/8082	I0F1210	200	ND	4	06/12/00	06/15/00	
Aroclor 1248	EPA 3550/8082	10F1210	200	ND	4	06/12/00	06/15/00	1 1
Aroclor 1254	EPA 3550/8082	I0F1210	200	ND	4	06/12/00	06/15/00	<b>√</b>
Aroclor 1260	EPA 3550/8082	I0F1210	200	250	4	06/12/00	06/15/00	A-01
Surrogate: Decachlorobiphenyl (45-145%)				89.8 %				Z4
Sample ID: IJF0277-18 (CCC-23B -	Soil)							
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	U
Aroclor 1221	EPA 3550/8082	I0F1210	-50	ND	1	06/12/00	06/14/00	ĭ
Aroclor 1232	EPA 3550/8082	I0F1210	50 .	ND	1	06/12/00	06/14/00	
Aroclor 1242	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	
Aroclor 1248	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	4
Aroclor 1260	EPA 3550/8082	I0F1210	50	86	1	06/12/00	06/14/00	A-01
Surrogate: Decachlorobiphenyl (45-145%)				74.3 %				

ANEC VALIDATED



Del Mar Analytical, Irvine

Pat Abe



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#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

QC Level: V<sup>1</sup>
SDG: IJI0967
Matrix: Soil
No. of Samples: 1

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 12, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: PC-43

#### **Data Validation Findings**

		Findings	Qualifications
1. <u>S</u>	Sample Management	The sample was received intact and in good condition at 5°C. The sample in this SDG was accounted for on the COC.  The soil sample was extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. <u>N</u>	Method Blanks	One soil method blank was analyzed with the sample of this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5. <u>L</u>	LCS/BS	One soil blank spike was analyzed with the sample in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>S</u>	Surrogates	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.

Project: Rocketdyne SDG: IJI0967 Analysis: PP

	Findings	Qualifications
7. MS/MSDs	An MS/MSD was not analyzed with this SDG. Method accuracy was evaluated based on blank spike results.	No qualifications were required.
8. Field QC Samples  ER: None FB: None Duplicates: None	No field QC samples were associated with this SDG.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0967

Sampled:09/28/00 Received:09/28/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

				(-	1 - 000	<del>-</del> ,			
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted			ifiers
			ug/kg	ug/kg				REV	QUA COD
Sample ID: IJI0967-01 (PC-42 - Soil)							_		M1
Aroclor 1016	EPA 3550/8082	1012927	250	ND	5	9/29/00	9/29/00	*	1741
Aroclor 1221	EPA 3550/8082	1012927		ND	5	9/29/00	9/29/00		
Aroclor 1232	EPA 3550/8082	1012927	250	ND	5	9/29/00	9/29/00	1 1	
Aroclor 1242	EPA 3550/8082	1012927	250	ND	5	9/29/00	9/29/00	1 1	
Aroclor 1248	EPA 3550/8082	1012927	250	ND	5	9/29/00	9/29/00		
Aroclor 1254	EPA 3550/8082	1012927	250	850	5	9/29/00	9/29/00		
Aroclor 1260	EPA 3550/8082	1012927	250	ND	5	9/29/00	9/29/00	V	
Surrogate: Decachlorobiphenyl (45-145%)				114 %				Z	3
Sample ID: IJI0967-02 (PC-43 - Soil)								_	
Aroclor 1016	EPA 3550/8082	1012927	50	ND	1	9/29/00	9/29/00	U	
Aroclor 1221	EPA 3550/8082	1012927	50	ND	1	9/29/00	9/29/00	. 1	
Aroclor 1232	EPA 3550/8082	1012927	50	ND	1	9/29/00	9/29/00	1 1	
Aroclor 1242	EPA 3550/8082	1012927	50	ND	1	9/29/00	9/29/00		
Aroclor 1248	EPA 3550/8082	1012927	50	ND	1	9/29/00	9/29/00	1 1	
Aroclor 1254	EPA 3550/8082	1012927	50	ND	1	9/29/00	9/29/00	1 1	
Aroclor 1260	EPA 3550/8082	1012927	50	ND	1	9/29/00	9/29/00	1 1	
Surrogate: Decachlorobiphenyl (45-145%)				90.4 %				· V	
								İ	

X = NOT VALIDATED

# LEVEL V

## **AMEC VALIDATED**

Del Mar Analytical, Irvine Pat Abe



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#### DATA ASSESSMENT FORM

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

QC Level: V<sup>1</sup>

SDG: IJH0950 Matrix: Soil amples: 21

No. of Reanalyses/Dilutions: 0

Date Reviewed: March 12, 2002
Reviewer: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: CAC-80B, CAC-81B, CAC-82B, CAC-83B, CAC-84B, CAC-85B, CAC-90BE,

CAC-86B, CAC-86D, CAC-87B, CAC-88B, CAC-89BW, PC-24, PC-25, CBC-

91S, CBC-92S, PC-27, PC-28, CBC-93S, CBC-94SW, PC-28D

#### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	All samples were received intact and in good condition at 4°C and 5°C. The samples in this SDG were accounted for on the COC.	No qualifications were required.
	The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	
4. Method Blanks	Two soil method blanks were analyzed with the samples of this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
5. LCS/BS	Two soil blank spikes were analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.

Project: Rocketdyne SDG: IJH0950 Analysis: PP

	Findings	Qualifications
7. MS/MSDs	The MS/MSD analyses were performed on sample CBC-91S. The recoveries for both fortified compounds, Aroclor 1016 and Aroclor 1260, were within the laboratory-established QC limits in both the MS and MSD. The RPDs for the fortified compounds were within the QC limit of 20%.	No qualifications were required.
8. Field QC Samples  ER: None FB: None Duplicates: CAC-86B/CAC-86D PC-28/PC28D	For the CAC-86B/CAC-86D field duplicate pair, both samples had Aroclor-1254 detects with an RPD of 12%.  For the PC-28/PC28D field duplicate pair, no target compounds were detected in either sample.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.  Sample CAC-80B was analyzed at a 5X dilution and sample CAC-87B was analyzed at a 10X dilution due to high concentrations of target compounds.	No qualifications were required.
<u>Comments</u>	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228 1014 E. Cooley Dr., Suite A, Colton, CA 92324 16525 Sherman Way, Suite C-11, Van Nuys, CA 92406 (818) 779-1844 FAX (818) 779-1843 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-9596 FAX (858) 505-9689 9830 South 51st St., Suite B-120, Phoenix, AZ 85044

(909) 370-4667 FAX (909) 370-1046 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0919

Sampled: 08/25/00 Received: 08/25/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

	IOLICILOMNA	I ED DIL III	DIATES (1	LIA OUO	14)		
Analyte	Method Bate	Reporting h Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifie
		ug/kg	ug/kg				REVIC
Sample ID: IJH0919-01 (	CAC-79B - Soil)						QUAL
Aroclor 1016	EPA 3550/8082 I0H28	332 500	ND	10	8/28/00	9/1/00	*
Aroclor 1221	EPA 3550/8082 I0H28		ND	10	8/28/00	9/1/00	î
Aroclor 1232	EPA 3550/8082 I0H28	332 500	ND	10	8/28/00	9/1/00	
Aroclor 1242	EPA 3550/8082 I0H28	332 500	ND	10	8/28/00	9/1/00	
Aroclor 1248	EPA 3550/8082 I0H28	332 500	ND	10	8/28/00	9/1/00	
Aroclor 1254	EPA 3550/8082 I0H28	332 500	1100	10	8/28/00	9/1/00	
Aroclor 1260	EPA 3550/8082 I0H28	332 500	ND	10	8/28/00	9/1/00	$\vee$
Surrogate: Decachlorobip	henyl (45-145%)		105 %				$Z_3$
Sample ID: IJH0919-02 (	CAC-80B - Soil)						
Aroclor 1016	EPA 3550/8082 I0H28	32 250	ND	5	8/28/00	9/5/00	U
Aroclor 1221	EPA 3550/8082 I0H28	32 250	ND	5	8/28/00	9/5/00	1
Aroclor 1232	EPA 3550/8082 I0H28	32 250	ND	5	8/28/00	9/5/00	
Aroclor 1242	EPA 3550/8082 I0H28	32 250	ND	5	8/28/00	9/5/00	
Aroclor 1248	EPA 3550/8082 I0H28	32 250	ND	5	8/28/00	9/5/00	↓
Aroclor 1254	EPA 3550/8082 I0H28	32 250	440	5	8/28/00	9/5/00	
Aroclor 1260	EPA 3550/8082 I0H28	32 250	ND	5	8/28/00	9/5/00	U
Surrogate: Decachlorobiph	henyl (45-145%)		102 %				Z3
Sample ID: IJH0919-03 (	CAC-81B - Soil)						
Aroclor 1016	EPA 3550/8082 I0H28	32 50	ND	1	8/28/00	9/1/00	()
Aroclor 1221	EPA 3550/8082 I0H28	32 50	ND	1	8/28/00	9/1/00	Ĭ
Aroclor 1232	EPA 3550/8082 I0H28	32 50	ND	1	8/28/00	9/1/00	
Aroclor 1242	EPA 3550/8082 I0H28	32 50	ND	1	8/28/00	9/1/00	
Aroclor 1248	EPA 3550/8082 I0H28	32 50	ND	1	8/28/00	9/1/00	↓
Aroclor 1254	EPA 3550/8082 I0H28	32 50	130	1	8/28/00	9/1/00	
Aroclor 1260	EPA 3550/8082 I0H28	32 50	ND	1	8/28/00	9/1/00	ان
Surrogate: Decachlorobiph	nenyl (45-145%)		71.9 %	_	· · · ·	3, 2, 00	_

AMEC VALIDATED

LEVEL V

Del Mar Analytical, Irvine

Pat Abe Project Manager

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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0919

Sampled: 08/25/00 Received: 08/25/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution	Date Extracted	Date Analyzed	_	ifiers
			ug/kg	ug/kg				REV QUAL	COD
Sample ID: IJH0919-04 (CAC-821	B - Soil)								1
Aroclor 1016	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	U	
Aroclor 1221	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	Ī	
Aroclor 1232	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	1	
Aroclor 1242	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1254	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	1	
Aroclor 1260	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	Ů	
Surrogate: Decachlorobiphenyl (45-	/			85.6 %					
Sample ID: IJH0919-05 (CAC-831	3 - Soil)								
Aroclor 1016	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	1)	
Aroclor 1221	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	ì	
Aroclor 1232	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1242	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1254	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1260	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	V	
Surrogate: Decachlorobiphenyl (45-	_			66.5 %					
Sample ID: IJH0919-06 (CAC-84F	3 - Soil)								
Aroclor 1016	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	U	
Aroclor 1221	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	Ĭ	
Aroclor 1232	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1242	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	₩	
Aroclor 1254	EPA 3550/8082	I0H2832	50	59	1	8/28/00	9/1/00		
Aroclor 1260	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	U	
Surrogate: Decachlorobiphenyl (45-	-145%)			80.2 %				į	

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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0919

Sampled: 08/25/00 Received: 08/25/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
		ug/kg	ug/kg				REV QUAL
Sample ID: IJH0919-07 (C	CAC-85B - Soil)	0 0	0.6				QUAL CODE
Aroclor 1016	EPA 3550/8082 I0H2832	2 50	ND	1	8/28/00	9/1/00	• .
Aroclor 1221	EPA 3550/8082 I0H2832		ND	1	8/28/00	9/1/00	Y
Aroclor 1232	EPA 3550/8082 I0H2832		ND	1	8/28/00	9/1/00	
Aroclor 1242	EPA 3550/8082 I0H2832		ND	1	8/28/00	9/1/00	
Aroclor 1248	EPA 3550/8082 I0H2832		ND	1	8/28/00	9/1/00	<b>V</b>
Aroclor 1254	EPA 3550/8082 I0H2832		95	1	8/28/00	9/1/00	•
Aroclor 1260	EPA 3550/8082 I0H2832		ND	1	8/28/00	9/1/00	U
Surrogate: Decachlorobiph			78.4 %	-	0,20,00	37 17 00	
Sample ID: IJH0919-08 (C							
Aroclor 1016	EPA 3550/8082 I0H2832	50	ND	1	8/28/00	9/1/00	U
Aroclor 1221	EPA 3550/8082 I0H2832		ND	1	8/28/00	9/1/00	
Aroclor 1232	EPA 3550/8082 I0H2832		ND	1	8/28/00	9/1/00	- Horizon
Aroclor 1242	EPA 3550/8082 I0H2832	50	ND	1	8/28/00	9/1/00	
Aroclor 1248	EPA 3550/8082 I0H2832		ND	1	8/28/00	9/1/00	<b>V</b>
Aroclor 1254	EPA 3550/8082 I0H2832	50	51	1	8/28/00	9/1/00	
Aroclor 1260	EPA 3550/8082 I0H2832	50	ND	1	8/28/00	9/1/00	U
Surrogate: Decachlorobiphe	enyl (45-145%)		74.3 %				
Sample ID: IJH0919-09 (C	AC-90BW - Soil)						Anadomy s
Aroclor 1016	EPA 3550/8082 I0H2832	50	ND	1	8/28/00	9/1/00	*
Aroclor 1221	EPA 3550/8082 I0H2832	50	ND	1	8/28/00	9/1/00	1
Aroclor 1232	EPA 3550/8082 I0H2832	50	ND	1	8/28/00	9/1/00	
Aroclor 1242	EPA 3550/8082 I0H2832	50	ND	1	8/28/00	9/1/00	
Aroclor 1248	EPA 3550/8082 I0H2832	50	ND	1	8/28/00	9/1/00	
Aroclor 1254	EPA 3550/8082 I0H2832	50	ND	1	8/28/00	9/1/00	
Aroclor 1260	EPA 3550/8082 I0H2832	50	ND	1	8/28/00	9/1/00	1
Surrogate: Decachlorobiphe	enyl (45-145%)		71.9 %		-		*
				*Analys	is Not Va	lidated	ı

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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0919

Sampled: 08/25/00

Received: 08/25/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method		Reporting Limit	Sample Result	Dilution	Date Extracted	Date Analyzed	Dat   Quali	
			ug/kg	ug/kg				ROUML	QUAL
Sample ID: IJH0919-10 (CAC-86B	- Soil)		-88	~ <del>6</del> ~				~~~	CODE
Aroclor 1016	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	υ	
Aroclor 1221	EPA 3550/8082			ND	1	8/28/00	9/1/00	Ĭ	
Aroclor 1232	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1242	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	▼	
Aroclor 1254	EPA 3550/8082	I0H2832	50	87	1	8/28/00	9/1/00	777	
Aroclor 1260	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	U	
Surrogate: Decachlorobiphenyl (45-1	45%)			73.7 %		0.20.00	21.2700	•	
Sample ID: IJH0919-11 (CAC-86D	- Soil)								
Aroclor 1016	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	U	
Aroclor 1221	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	Ī	
Aroclor 1232	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	1 1	
Aroclor 1242	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	<b>V</b>	
Aroclor 1254	EPA 3550/8082	I0H2832	50	98	1	8/28/00	9/1/00		
Aroclor 1260	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	U	The second secon
Surrogate: Decachlorobiphenyl (45-1				67.1 %					
<b>Sample ID: IJH0919-12 (CAC-87B</b>	- Soil)								
Aroclor 1016	EPA 3550/8082	I0H2832	500	ND	10	8/28/00	9/1/00	U	
Aroclor 1221	EPA 3550/8082	I0H2832	500	ND	10	8/28/00	9/1/00	Ĭ	
Aroclor 1232	EPA 3550/8082	I0H2832	500	ND	10	8/28/00	9/1/00		
Aroclor 1242	EPA 3550/8082	I0H2832	500	ND	10	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082	I0H2832	500	ND	10	8/28/00	9/1/00	<b>V</b>	
Aroclor 1254	EPA 3550/8082	I0H2832	500	590	10	8/28/00	9/1/00	-	
Aroclor 1260	EPA 3550/8082	I0H2832	500	ND	10	8/28/00	9/1/00	U	
Surrogate: Decachlorobiphenyl (45-1	45%)			89.8 %			2. 2. 30	Z3	

## AMEC VALIDATED

Del Mar Analytical, Irvine

Pat Abe Project Manager LEVEL V

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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0919

Sampled: 08/25/00

Received: 08/25/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method B:		Reporting Limit	Sample	Dilution	Date	Date	Da	
Analyte	Method B:	atch	Limit	Result	Factor	Extracted	Analyzed	Quali	ifiers
			ug/kg	ug/kg				RN	QUA
<b>Sample ID: IJH0919-13 (CAC</b>	C-88B - Soil)							WONL	COD
Aroclor 1016	EPA 3550/8082 IOH	£2832	50	ND	1	8/28/00	9/1/00	U	
Aroclor 1221	EPA 3550/8082 IOH		50	ND	1	8/28/00	9/1/00	Ĭ	
Aroclor 1232	EPA 3550/8082 IOH	H2832	50	ND	1	8/28/00	9/1/00	1	
Aroclor 1242	EPA 3550/8082 IOH	12832	50	ND	1	8/28/00	9/1/00	- 1	
Aroclor 1248	EPA 3550/8082 IOH	12832	50	ND	1	8/28/00	9/1/00	1	
Aroclor 1254	EPA 3550/8082 IOH	I2832	50	56	1	8/28/00	9/1/00		
Aroclor 1260	EPA 3550/8082 IOH	12832	50	ND	1	8/28/00	9/1/00	U	
Surrogate: Decachlorobipheny	l (45-145%)			76.6 %			3, 2, 00		
Sample ID: IJH0919-14 (CAC	C-89BE - Soil)								
Aroclor 1016	EPA 3550/8082 IOH	I2832	500	ND	10	8/28/00	9/1/00	¥	
Aroclor 1221	EPA 3550/8082 IOH	12832	500	ND	10	8/28/00	9/1/00	ì	
Aroclor 1232	EPA 3550/8082 IOH	12832	500	ND	10	8/28/00	9/1/00		
Aroclor 1242	EPA 3550/8082 IOH	12832	500	ND	10	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082 I0H	12832	500	ND	10	8/28/00	9/1/00		
Aroclor 1254	EPA 3550/8082 IOH	[2832	500	550	10	8/28/00	9/1/00		
Aroclor 1260	EPA 3550/8082 IOH	12832	500	ND	10	8/28/00	9/1/00	V	
Surrogate: Decachlorobipheny	! (45-145%)			110 %				Z	3
Sample ID: IJH0919-15 (CAC	C-89BW - Soil)								
Aroclor 1016	EPA 3550/8082 I0H	[2832	50	ND	1	8/28/00	9/1/00	U	
Aroclor 1221	EPA 3550/8082 I0H	[2832	50	ND	1	8/28/00	9/1/00	Ī	
Aroclor 1232	EPA 3550/8082 I0H	[2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1242	EPA 3550/8082 I0H	12832	50	ND	1	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082 I0H	12832	50	ND	1	8/28/00	9/1/00	4	
Aroclor 1254	EPA 3550/8082 IOH	[2832	50	52	1	8/28/00	9/1/00		
Aroclor 1260	EPA 3550/8082 I0H	2832	50	ND	1	8/28/00	9/1/00	U	
Surrogate: Decachlorobipheny	! (45-145%)			65.9 %				1	

X = NOT VALIDATED

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Del Mar Analytical, Irvine

Pat Abe Project Manager LEVEL V



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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0919

Sampled: 08/25/00 Received: 08/25/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		
			ug/kg	ug/kg				REV	CODE
Sample ID: IJH0919-18 (PC-24 - So	oil)								Case
Aroclor 1016	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	U	
Aroclor 1221	EPA 3550/8082			ND	1	8/28/00	9/1/00	ĭ	
Aroclor 1232	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1242	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1254	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1260	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	V	
Surrogate: Decachlorobiphenyl (45-1	/			89.8 %					
Sample ID: IJH0919-19 (PC-25 - So	oil)								
Aroclor 1016	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	U	
Aroclor 1221	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	ī	
Aroclor 1232	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1242	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1248	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1254	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00		
Aroclor 1260	EPA 3550/8082	I0H2832	50	ND	1	8/28/00	9/1/00	<b>V</b>	
Surrogate: Decachlorobiphenyl (45-1	45%)			83.8 %				,	

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Del Mar Analytical, Irvine Pat Abe



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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0950

Sampled: 08/28/00

Received: 08/28/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method Batch	Reporting Limit	Sample Result	Dilution	,	Date Analyzed		fiers
		ug/kg	ug/kg				REV	QUAL
Sample ID: IJH0950-01 (C	CBC-91S - Soil)	0 0	0 0			-		
Aroclor 1016	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	$\cup$	
Aroclor 1221	EPA 3550/8082 I0H2928		ND	1	8/29/00	9/5/00	Ĭ	
Aroclor 1232	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1242	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1248	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	- 1	
Aroclor 1254	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	- 1	
Aroclor 1260	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	V	
Surrogate: Decachlorobiphe	enyl (45-145%)		103 %	-	0.2	310100	•	
Sample ID: IJH0950-02 (C	BC-92S - Soil)							
Aroclor 1016	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	U	
Aroclor 1221	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	Ĭ	
Aroclor 1232	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1242	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1248	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	V	
Aroclor 1254	EPA 3550/8082 I0H2928	50	110	1	8/29/00	9/5/00		
Aroclor 1260	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	U	
Surrogate: Decachlorobiphe			76.0 %					
Sample ID: IJH0950-04 (P	C-27 - Soil)							
Aroclor 1016	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	U	
Aroclor 1221	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	)	
Aroclor 1232	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1242	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	\ \	
Aroclor 1248	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1254	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1260	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	4	
Surrogate: Decachlorobiphe	enyl (45-145%)		90.4 %				•	

AMEC VALIDATED

Del Mar Analytical, Irvine

Pat Abe Project Manager LEVEL  $\Sigma$ 



2852 Alton Ave., Irvine, CA 92606 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 16525 Sherman Way, Suite C-11, Van Nuys, CA 92406 (818) 779-1844 FAX (818) 779-1843 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 9830 South 51st St., Suite B-120, Phoenix, AZ 85044

(949) 261-1022 FAX (949) 261-1228 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0950

Sampled: 08/28/00 Received: 08/28/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		fiers
			ug/kg	ug/kg				REV	CCD
Sample ID: 1JH0950-05 (P	C-28 - Soil)			3 8					
Aroclor 1016	EPA 3550/8082 IO	0H2928	50	ND	1	8/29/00	9/5/00	U	
Aroclor 1221	EPA 3550/8082 IO		50	ND	1	8/29/00	9/5/00	Ĭ	
Aroclor 1232	EPA 3550/8082 I	0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1242	EPA 3550/8082 IC	0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1248	EPA 3550/8082 IO	0H2928	50	ND	1	8/29/00	9/5/00	1	
Aroclor 1254	EPA 3550/8082 IO	0H2928	50	ND	1	8/29/00	9/5/00	-	
Aroclor 1260	EPA 3550/8082 IO	0H2928	50	ND	1	8/29/00	9/5/00	¥	
Surrogate: Decachlorobiphe	nyl (45-145%)			83.8 %			310100		
<b>Sample ID: IJH0950-06 (C</b>	BC-93S - Soil)								
Aroclor 1016	EPA 3550/8082 IC	0H2928	50	ND	1	8/29/00	9/5/00	U	
Aroclor 1221	EPA 3550/8082 IO	0H2928	50	ND	1	8/29/00	9/5/00	-	
Aroclor 1232	EPA 3550/8082 IO	0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1242	EPA 3550/8082 IO	0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1248	EPA 3550/8082 IO	0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1254	EPA 3550/8082 IO	0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1260	EPA 3550/8082 IO	0H2928	50	ND	1	8/29/00	9/5/00	<b>V</b>	
Surrogate: Decachlorobiphe				85.0 %				•	
Sample ID: IJH0950-07 (C	BC-94SW - Soil)								
Aroclor 1016	EPA 3550/8082 IO	)H2928	50	ND	1	8/29/00	8/31/00	U	
Aroclor 1221	EPA 3550/8082 IO	)H2928	50	ND	1	8/29/00	8/31/00		
Aroclor 1232	EPA 3550/8082 IO	)H2928	50	ND	1	8/29/00	8/31/00		
Aroclor 1242	EPA 3550/8082 IO	)H2928	50	ND	1	8/29/00	8/31/00		
Aroclor 1248	EPA 3550/8082 IO	)H2928	50	ND	1	8/29/00	8/31/00		
Aroclor 1254	EPA 3550/8082 IO	)H2928	50	ND	1	8/29/00	8/31/00		
Aroclor 1260	EPA 3550/8082 IO	)H2928	50	ND	1	8/29/00	8/31/00	4	
Surrogate: Decachlorobiphe.	nyl (45-145%)			89.8 %				4	

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Del Mar Analytical, Irvine

Pat Abe Project Manager LEVEL V



2852 Alton Ave., Irvine, CA 92606 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 16525 Sherman Way, Suite C-11, Van Nuys, CA 92406 (818) 779-1844 FAX (818) 779-1843 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 9830 South 51st St., Suite B-120, Phoenix, AZ 85044

(949) 261-1022 FAX (949) 261-1228 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0950

Sampled: 08/28/00 Received: 08/28/00

#### POLYCHLORINATED BIPHENYLS (EPA 8082)

					-,			
Analyte	Method Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat Qualif	
		ug/kg	ug/kg				REV	Car
Sample ID: IJH0950-08 (0	CBC-51SW - Soil)						rich militari dirichin (babbi) ili mumaru sasa nasumunung nag	***************************************
Aroclor 1016	EPA 3550/8082 I0H2928	3 50	ND	1	8/29/00	9/5/00	X	
Aroclor 1221	EPA 3550/8082 I0H2928	3 50	ND	1	8/29/00	9/5/00	ì	
Aroclor 1232	EPA 3550/8082 I0H2928	3 50	ND	1	8/29/00	9/5/00		
Aroclor 1242	EPA 3550/8082 I0H2928	3 50	ND	1	8/29/00	9/5/00		
Aroclor 1248	EPA 3550/8082 I0H2928	3 50	ND	1	8/29/00	9/5/00		
Aroclor 1254	EPA 3550/8082 I0H2928	3 50	ND	1	8/29/00	9/5/00		
Aroclor 1260	EPA 3550/8082 I0H2928	3 50	ND	1	8/29/00	9/5/00	V	
Surrogate: Decachlorobiph			88.6 %					
Sample ID: IJH0950-16 (F	PC-28D - Soil)							
Aroclor 1016	EPA 3550/8082 I0H2928	3 50	ND	1	8/29/00	9/5/00	()	
Aroclor 1221	EPA 3550/8082 I0H2928	3 50	ND	1	8/29/00	9/5/00	Ĭ	
Aroclor 1232	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1242	EPA 3550/8082 I0H2928	3 50	ND	1	8/29/00	9/5/00		
Aroclor 1248	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1254	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00		
Aroclor 1260	EPA 3550/8082 I0H2928	50	ND	1	8/29/00	9/5/00	V	
Surrogate: Decachlorobiph	enyl (45-145%)		89.2 %					

\* = NOT VALIDATED

AMEC VALIDATED

Del Mar Analytical, Irvine

Pat Abe Project Manager LEVEL V



### **DATA VALIDATION REPORT**

## Rocketdyne Former Sodium Disposal Facility Site Sampling Program

ANALYSIS: PCB Congeners

SAMPLE DELIVERY GROUP: IJH0950

Prepared by

AMEC—Denver Operations 550 South Wadsworth Boulevard, Suite 500 Lakewood, Colorado 80226 
 Project:
 Rocketdyne

 SDG No.:
 IJH0950

 DATA VALIDATION REPORT
 Analysis:
 PCB

#### 1. INTRODUCTION

Task Order Title: Former Sodium Disposal Facility Site Sampling Program

Contract Task Order #: 313150008

SDG#: IJH0950

Project Manager: D. Hambrick

Matrix: Soil

Analysis: PCB Congeners

QC Level: IV

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Reviewer: H. Chang

Date of Review: March 12, 2002

The samples listed in Table 1 were validated based on the guidelines outlined in the USEPA CLP National Functional Guidelines For Organic Data Review (2/94) and USEPA Method 1668, Revision A (12/99). 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 estimated value were not denoted by a qualification code since the data had already been rejected.

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Project: Rocketdyne SDG No.: IJH0950 Analysis: PCB

DATA VALIDATION REPORT SDG No.:
Analysis:

**Table 1. Sample identification** 

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
CAC-66BC	CAC-66BC	268-92-11	soil	1668M
CAC-69BC	CAC-69BC	268-92-12	soil	1668M

Project: Rocketdyne
SDG No.: IJH0950
Analysis: PCB

DATA VALIDATION REPORT

#### 2. DATA VALIDATION FINDINGS

#### 2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

#### 2.1.1Sample Preservation, Handling, and Transport

The samples were received at both Del Mar Analytical and Triangle Laboratories intact and within the temperature limits of 4°C "2°C. No qualifications were required.

#### 2.1.2Chain of Custody

The COC from the field to Del Mar Analytical was legible and was signed by field and laboratory personnel. The COC accounted for the samples in the SDG. Although there was no specific information regarding the custody seals, the COC noted that the sample integrity was intact. There was no COC from Del Mar Analytical to Triangle Laboratories; however, the Triangle's Login-in Record showed that the custody seals and sample seals were present and intact. No qualifications were required based on custody information.

#### 2.1.3 Holding Times

There are no established holding times for this method. The Method 1668 allows up to one year for the extraction and analyses of the dioxin-like PCBs. Both samples were extracted and analyzed within 1 year of sampling; therefore, no qualifications were required.

#### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 GC Column Performance

The laboratory analyzed a retention windows check at prior to initial calibration analyses. The retention windows check contained the first and last eluting isomers for level of chlorination, establishing the windows for the total CBs. The laboratory utilized a DB-35 column for which there are no evaluation criteria for the compound specificity and the laboratory did not perform any check for GC column separation of the target compounds. No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable. M/Z 218.98565 and M/Z 263.9871 were used as the PFK reference ion. No qualifications were required.

#### 2.3 CALIBRATION

Project: Rocketdyne SDG No.: IJH0950 Analysis: PCB

DATA VALIDATION REPORT

Following are findings associated with calibrations.

#### 2.3.1 Initial Calibration

There were two initial calibrations associated with this SDG, dated 09/22/00 and 10/02/00. The %RSDs were less than 20% for all compounds. All reported ion abundance ratios were within the QC limits and the signal-to-noise ratios (S/N) were greater than 10 for all target compounds. A representative number of %RSDs, average RRFs, and ion abundance ratios were calculated by the reviewer. No calculation or transcription errors were noted. No qualifications were applied.

The laboratory utilized ions other than those listed in the Method 1668 for several of the homologues. The ion abundance ratios were evaluated using the windows provided by the laboratory.

#### 2.3.2 Continuing Calibration

Although the laboratory provided summary reports for two continuing calibrations, they were both midlevel standards (CS3) analyzed as part of the initial calibrations, and not separate continuing calibration verifications. Since the samples were analyzed within 12 hours of the initial calibration analyses, a separate beginning continuing calibration verification was not deemed necessary. The laboratory did not analyze a continuing calibration verification at the end of the 12 hour sequence. No qualifications were required.

#### 2.4 BLANKS

One method blank was extracted and analyzed with the samples of this SDG. There were detects for 2,2',3,4,4',5,5'-heptaCB, total triCB, total tetraCB, total hexaCB, and total heptaCB. The detects in the associated samples were at concentrations greater than five times those in the blank, therefore, no qualifications were required.

#### 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

There was one pair of LCS/LCSD extracted and analyzed with the samples in this SDG. The laboratory did not provide any QC limits. The QC limits of 50-150% for the native and 35-135% for the labeled compounds listed in Method 1668 were used for the data validation purposes. The limit of 20% for the RPDs was utilized. All LCS/LCSD recoveries and RPDs were within these QC limits with the exception of the 2,2',3,3',4,4',5-heptaCB recovery in the LCSD above QC limits and the 2,3,3',4,4',5-hexaCB RPD. No qualifications were required. The recoveries were calculated from the raw data and no calculation or transcription errors were found.

#### 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were performed on any of the samples. Evaluation of method accuracy and

Project: Rocketdyne SDG No.: IJH0950

DATA VALIDATION REPORT Analysis: PCB

precision was based on the LCS/LCSD results. No qualifications were required.

#### 2.7 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:

#### 2.7.1Field Blanks and Equipment Rinsates

There were no identified field QC samples associated with the samples in this SDG. No qualifications were required.

#### 2.7.2Field Duplicates

There were no field duplicates identified in this SDG. No qualifications were required.

#### 2.8 INTERNAL STANDARDS PERFORMANCE

The laboratory utilized 12 carbon-13 labeled PCB congeners as the internal standards. All internal standard recoveries were within the QC limits of 25-150% with the exception of 13C-2,2',4,5,5'-pentaCB and 13C-3,3',4,4',5,5'-hexaCB which were recovered above the upper limit in both samples. Since 13C-2,2',4,5,5'-pentaCB was utilized for quantitation of only the unknown CBs, total pentaCB was qualified as estimated, "J." 13C-3,3',4,4',5,5'-hexaCB was utilized for quantitation of all named hexaCBs, therefore, the detects for 2,3,4,4',5,5',-HexaCB, 2,3,3',4,4',5-hexaCB, 2,3,3',4,4',5-hexaCB, and total hexaCB were qualified as estimated, "J." No other qualifications were required.

#### 2.9 TARGET COMPOUND IDENTIFICATION

The laboratory analyzed for 14 dioxin-like PCB congeners by high resolution GC/MS. Although there was no specific reference to any published method, the guidelines in Method 1668 and Method 8290 were utilized for the validation. Identification of the reported detects was verified from the raw data for a representative number of samples. The detects met the criteria for the signal-to-noise ratio and ion abundance ratios. However, the quantitation ions should reach maximum simultaneously (within "2 seconds) for all detects for positive identification. As the laboratory did not record retention times in any of the spectra and the summary quantitation report recorded the retention time of only one of the two ions, this identification criteria could not be verified.

#### 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

The compound quantitations were verified from the raw data for a representative number of reported detects and no errors were noted. The compounds denoted with the laboratory qualifier, "J," were detects reported below the lower method calibration limit (MCL). The concentrations of 2,3,4,4',5-pentaCB, two

 Project:
 Rocketdyne

 SDG No.:
 IJH0950

 DATA VALIDATION REPORT
 Analysis:
 PCB

unknown pentaCB and two unknown hexaCB in sample CAC-69BCexceeded the linear range of the calibration. The results for 2,3,4,4',5-pentaCB, total pentaCB and total hexaCB were qualified as estimated, "J."

The reported detection limits were compound-specific detection limits calculated based on 2.5 times the height of the noise. The detection limit calculations were also verified from the raw data and no errors were noted.

The compounds reported only at the "Estimated Maximum Possible Concentration" (EMPC) on the associated sample results summary forms were qualified as estimated nondetects, "UJ." The compounds reported at the EMPC, by definition, are signals which do not meet the ion abundance ratio identification criteria (although retention time and signal to noise criteria are met); therefore, all EMPCs are considered nondetects. Any reported total results which were also reported as EMPCs were qualified as estimated, "J," since those results include at least one or more individual target compound congener results meeting all identification criteria, as well as peaks not meeting criteria.

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#### Del Mar Analytical

TLI Project:

51765B

WHO Polychlorinated Biphenyls Analysis

Client Sample:

IJH0950-12

Analysis File: W001902

IJH0950 Client Project: Sample Matrix: SOIL Date Received: 08/30/2000 Spike File: SPPCB810 TLI ID: 268-92-11 Date Extracted: 09/08/2000 ICal: WPC9220 Date Analyzed: 09/23/2000 ConCal: W001888 Sample Size: Dilution Factor: n/a 10.010 g % Moisture: 2.9 Dry Weight: Blank File: 9.720 g W001979 % Lipid: n/a **DB-35** GC Column: Analyst: **JMM** % Solids: 97.1

Analytes	Conc. (ppb)	NumbFe	r DL	EMPC	Rev Quu	Code	Ratio	RT	Flags
3,4,4',5-TetraCB #81)	0.08					or production and control of the con	0.84	17:34	-
3,3',4,4'-TetraCB (#77)	EMPC			0.06	UJ.	¥10			
2,3,4,4',5-PentaCB (#114)	0.74						0.60	18:27	
2,3',4,4',5-PentaCB (#118)	1.5						0.61	18:41	
2',3,4,4',5-PentaCB (#123)	0.08					NAMES AND ASSESSED.	0.65	19:23	
2,3,3',4,4'-PentaCB (#105)	0.55					Section 14 Available	0.62	20:15	
3,3',4,4',5-PentaCB (#126)	0.03				J	er company	0.54	21:32	J
2,3',4,4',5,5'-HexaCB (#167)	0.16				3"	T	1.25	21:51	Q Q
2,3,3',4,4',5-HexaCB (#156)	0.18			•	ď	I	1.24	23:15	Q
2,3,3',4,4',5'-HexaCB (#157)	0.10				J	T.	1.25	23:35	Q
3,3',4,4',5,5'-HexaCB (#169)	ND		0.004		u				
2,2',3,4,4',5,5'-HeptaCB (#180)	1.6						0.99	23:27	er. mediavel
2,2',3,3',4,4',5-HeptaCB (#170)	1.4						0.98	25:27	
2,3,3',4,4',5,5'-HeptaCB (#189)	0.07						1.06	26:50	
Total MonoCB	EMPC			0.004	ИТ	X10			
Total DiCB	0.14	3		0.15	J	¥10			
Total TriCB	0.17	9		0.19	And the same of th	diameter diameter			
Total TetraCB	1.5	17		1.7	and the same of th				<del></del>
Total PentaCB	9.8	23	* .	10.0	J	L			Q
Total HexaCB	19.1	25		19.1	J	T			
Total HeptaCB	7.3	16							
Total OctaCB	0.70	7		0.72	T	110			
Total NonaCB	0.08	2							
DecaCB (#209)	ND		0.04		и				

# LEVEL IV AMEC VALIDATED

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PCB8\_PSR v1.05, LARS 6.25.001

#### Del Mar Analytical

TLI Project:

51765B

WHO Polychlorinated Biphenyls Analysis

Client Sample:

IJH0950-13

Analysis File: W001903

Client Project: IJH0950 Sample Matrix: SOIL Date Received: 08/30/2000 Spike File: SPPCB810 TLI ID: 268-92-12 Date Extracted: 09/08/2000 ICal: WPC9220 Date Analyzed: 09/23/2000 ConCal: W001888 Dilution Factor: n/a Sample Size: % Moisture: 2.5 10.000 g Dry Weight: Blank File: 9.750 g W001979 % Lipid: n/a **DB-35** GC Column: Analyst: **IMM** % Solids: 97.5

Analytes	Conc. (ppb)	NumbFe	ir DL	EMPC	Hev Qual	Qued Cedz.	Ratio	ЯT	The state of the s
3,4,4',5-TetraCB #81)	0.20					Andrew Comments	0.88	17:35	
3,3',4,4'-TetraCB (#77)	EMPC			0.24	NJ.				
2,3,4,4',5-PentaCB (#114)	5.1					on the same of the	0.61	18:27	-
2,3',4,4',5-PentaCB (#118)	23.0				2,	HO .	0.62	18:41	· E
2',3,4,4',5-PentaCB (#123)	0.50					SERVICE SERVIC	0.60	19:23	**************************************
2,3,3',4,4'-PentaCB (#105)	9.0					CALLE OF STAND	0.62	20:16	·
3,3',4,4',5-PentaCB (#126)	0.06					NO PROPERTY OF THE PROPERTY OF	0.62	21:32	<u>Q_</u>
2,3',4,4',5,5'-HexaCB (#167)	0.41				2	I	1.13	21:51	Q
2,3,3',4,4',5-HexaCB (#156)	1.0			•	1.5	T	1.18	23:15	Q
2,3,3',4,4',5'-HexaCB (#157)	0.27				7.	T	1.18	23:35	Q
3,3',4,4',5,5'-HexaCB (#169)	ND		0.005		u				
2,2',3,4,4',5,5'-HeptaCB (#180)	4.7						0.98	23:27	
2,2',3,3',4,4',5-HeptaCB (#170)	4.0						0.98	25:27	
2,3,3',4,4',5,5'-HeptaCB (#189)	0.21						1.05	26:50	**************************************
Total MonoCB	0.003	1				Temperature Control of the Control o			
Total DiCB	0.13	3		0.14	T	¥10			
Total TriCB	0.49	13				-			
Total TetraCB	10.3	22		10.8	J	110			
Total PentaCB	81.1	25		81.6	7	I 41	5		QE_
Total HexaCB	55.7	27		55.7	J	I., +1			Ē
Total HeptaCB	20.9	15							
Total OctaCB	2.3	9				Necessary and the second			
Total NonaCB	0.23	3				the second			
DecaCB (#209)	ND		0.08		Ų.				
						Total Bridge			



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PCB8\_PSR v1.05, LARS 6.25.00I



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

#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

 QC Level:
 V¹

 SDG:
 IJF0313

 Matrix:
 Soil

 No. of Samples:
 1

No. of Reanalyses/Dilutions: 0

<u>Date Reviewed</u>: March 13, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: CCC-24B

#### **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	The sample was received intact and in good condition at 4°C. The sample in this SDG was accounted for on the COC.  The soil sample was extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was analyzed with the sample of this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5. LCS/BS	One soil blank spike was analyzed with the sample in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.
7. MS/MSDs	An MS/MSD was not analyzed with this SDG. Method accuracy was evaluated based on blank spike results.	No qualifications were required.

Project: Rocketdyne SDG: IJF0313 Analysis: PP

	Findings	Qualifications
8. Field QC Samples  ER: None FB: None Duplicates: None	No field QC samples were associated with this SDG.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

2852 Alton Ave., Irvine, GA 92606 1014 E. Cooley Dr., Suite A. Colfen, CA 92324 (909) 370-4667 FAX (909) 370-1046 16525 Sherman Way, Suite C-11, Van Nuys, CA 92406 (818) 779-1844 FAX (818) 779-1843 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 9830 South 51st St., Suite B-120, Phoenix, AZ 85044

(949) 261-1022 FAX (949) 261-1228 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0313

Sampled: 06/08/00 Received: 06/08/00

#### POLYCHLORINATED BIPHENYLS (EPA 3550B/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da I Quali	
Sample ID: IJF0313-01 (CCC-24B -	Soil)		ug/kg	ug/kg				REV	CODE
Aroclor 1016	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	دا	
Aroclor 1221	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	Name of Street	
Aroclor 1232	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	j	
Aroclor 1242	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	1	
Aroclor 1248	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00	i	
Aroclor 1254	EPA 3550/8082	I0F1210	50	ND	1	06/12/00	06/14/00		
Aroclor 1260	EPA 3550/8082	I0F1210	50	200	1	06/12/00	06/14/00	1	)1
Surrogate: Decachlorobiphenyl (45-145%)				89.2 %	to the track the same of the same and the sa	n ann 27 airthe tailleanna an an an Ann Ann an Ann an Ann an Ann an Ann an Ann an Ann an Ann an Ann an Ann an	VVI I TI VV		/ k

## AMEC VALIDATED

# LEVEL $\nabla$

Del Mar Analytical, Irvine Pat Abe



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

# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

 $\frac{\text{QC Level}:}{\text{SDG}:} \quad \text{IJG0192}$   $\frac{\text{Matrix}:}{\text{Soil}}$ 

No. of Reanalyses/Dilutions: 6

<u>Date Reviewed</u>: March 13, 2002 <u>Reviewer</u>: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)
Samples Reviewed: CBC-49S, CBC-50S, CBC-52SW, CBC-56SW, CBC-57SW, CBC-55S

# **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	All samples were received intact and in good condition at 4°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	Two soil method blanks were analyzed with the samples of this SDG. No target analyte detects were reported in the method blanks.	No qualifications were required.
5. <u>LCS/BS</u>	Two soil blank spikes were analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. <u>Surrogates</u>	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.
7. MS/MSDs	An MS/MSD was not analyzed with this SDG. Method accuracy was evaluated based on blank spike results.	No qualifications were required.

Project: Rocketdyne SDG: IJG0192 Analysis: PP

	Findings	Qualifications
8. Field QC Samples  ER: None FB: None Duplicates: None	No field QC samples were associated with this SDG.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

(949) 261-1022 FAX (949) 261-1228 (909) 370-4667 FAX (909) 370-1046 (818) 779-1844 FAX (818) 779-1843 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJG0192

Sampled: 07/10/00 Received: 07/10/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyze		ıta ifiers
			_					REV	, QUAL
			ug/kg	ug/kg				QUAL	CODE
Sample ID: IJG0192-01 (CBC-48S -	Soil)						-		
Aroclor 1016	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	*	
Aroclor 1221	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	ĺ	
Aroclor 1232	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00		
Aroclor 1242	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00	1	and the second
Aroclor 1248	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	7	
Aroclor 1254	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00		77
Aroclor 1260	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	$\Psi$	
Surrogate: Decachlorobiphenyl (45-145%)				84.4 %					
Sample ID: IJG0192-02 (CBC-49S -	Soil)								The state of the s
Aroclor 1016	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	1)	
Aroclor 1221	EPA 3550/8082	I0G1236		ND	î	7/12/00	7/13/00	T	
Aroclor 1232	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00		THE STATE OF THE S
Aroclor 1242	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00		The state of the s
Aroclor 1248	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	-	The state of the s
Aroclor 1254	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00		NATION OF THE PARTICULAR OF TH
Aroclor 1260	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	1	his and a second
Surrogate: Decachlorobiphenyl (45-145%)				81.4 %				. *	To the second
Sample ID: IJG0192-03 (CBC-50S - S	Soil)								
Aroclor 1016	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	O	
Aroclor 1221	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	7	
Aroclor 1232	EPA 3550/8082	I0G1236	50 .	ND	1	7/12/00	7/13/00		
Aroclor 1242	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00	N/e	
Aroclor 1248	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00		
Aroclor 1254	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00		
Aroclor 1260	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	1	
Surrogate: Decachlorobiphenyl (45-145%)				89.2 %				W SOLDEN	
								1000	

X = NOT VALIDATED

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LEVEL V

Del Mar Analytical, Irvine

Pat Abe Project Manager

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

Report Number: IJG0192

Sampled: 07/10/00 Received: 07/10/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

	(2111000)										
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	n Date r Extracted	Date Analyzed	Da: Quali			
								REV	, QUA		
			ug/kg	ug/kg				QUAL	Cap		
Sample ID: IJG0192-04 (CBC-52SW	V - Soil)							American	100		
Aroclor 1016	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	U			
Aroclor 1221	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00	7			
Aroclor 1232	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00				
Aroclor 1242	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00				
Aroclor 1248	EPA 3550/8082	10G1236		ND	1	7/12/00	7/13/00		av composition of the compositio		
Aroclor 1254	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00		C100 TT TT TT TT TT TT TT TT TT TT TT TT T		
Aroclor 1260	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	V	O ANGELLE		
Surrogate: Decachlorobiphenyl (45-145%)				86.8 %	·		1115100	¥	100		
Sample ID: IJG0192-05 (CBC-54SW	/ - Soil)										
Aroclor 1016	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	X	and the second		
Aroclor 1221	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00	74~			
Aroclor 1232	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00	The state of the s			
Aroclor 1242	EPA 3550/8082	I0G1236		ND		7/12/00	7/13/00		and the second		
Aroclor 1248	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00		and the same of th		
Aroclor 1254	EPA 3550/8082	I0G1236		ND	ì	7/12/00	7/13/00	l	DOCUMENT.		
Aroclor 1260	EPA 3550/8082	I0G1236		ND	i	7/12/00	7/13/00	V	Abelicano		
Surrogate: Decachlorobiphenyl (45-145%)				84.4 %	•	,, 12,00	1115100	, <b>V</b>	200		
Sample ID: IJG0192-06 (CBC-56SW	' - Soil)								ne state consti		
Aroclor 1016	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	()			
Aroclor 1221	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00	$\sim$	TO STATE OF THE ST		
Aroclor 1232	EPA 3550/8082	I0G1236		ND	î	7/12/00	7/13/00	To the same of the	er company		
Aroclor 1242	EPA 3550/8082	I0G1236	50	ND	i	7/12/00	7/13/00				
Aroclor 1248	EPA 3550/8082	I0G1236	50	ND	î	7/12/00	7/13/00	77			
Aroclor 1254	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00				
Aroclor 1260	EPA 3550/8082	I0G1236	50	ND	i	7/12/00	7/13/00	V			
Surrogate: Decachlorobiphenyl (45-145%)				93.4 %	•	77.127.00	71 1 57 00	A			

\* = NOT VALIDATED

AMEC VALIDATED



**Del Mar Analytical, Irvine** 

Pat Abe

Project Manager



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJG0192

Sampled: 07/10/00 Received: 07/10/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IJG0192-07 (CBC-57SW	- Soil)		ug/kg	ug/kg				RAJ QUAL QUAL CODE
Aroclor 1016	EPA 3550/8082	I0G1236	5 50	ND	1	7/12/00	7/13/00	1)
Aroclor 1221	EPA 3550/8082	I0G1236	5 50	ND	1	7/12/00	7/13/00	7
Aroclor 1232	EPA 3550/8082	I0G1236	5 50	ND	1	7/12/00	7/13/00	
Aroclor 1242	EPA 3550/8082	I0G1236	5 50	ND	1	7/12/00	7/13/00	
Aroclor 1248	EPA 3550/8082	I0G1236	5 50	ND	1	7/12/00	7/13/00	
Aroclor 1254	EPA 3550/8082	I0G1236	5 50	ND	1	7/12/00	7/13/00	
Aroclor 1260	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	- ↓ '
Surrogate: Decachlorobiphenyl (45-145%)				83.2 %				*

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Del Mar Analytical, Irvine Pat Abe Project Manager

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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJG0104

Sampled: 07/06/00 Received: 07/06/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat I Qualit	
			ug/kg	na/ka				REV	1QUA
Sample ID: IJG0104-03 (CBC-53S - 9	Coin		ug/kg	ug/kg				QUAL	COD
•	,								
Aroclor 1016	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00	X	
Aroclor 1221	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00	ì	
Aroclor 1232	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00		
Aroclor 1242	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00		
Aroclor 1248	EPA 3550/8082	10G1236		ND	1	7/12/00	7/13/00		
Aroclor 1254	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00		
Aroclor 1260	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	4	
Surrogate: Decachlorobiphenyl (45-145%)				93.4 %				4	
Sample ID: IJG0104-05 (CBC-55S - 8	Soil)								
Aroclor 1016	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00	11	
Aroclor 1221	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00	1	
Aroclor 1232	EPA 3550/8082	10G1236	50	ND	1	7/12/00	7/13/00	)	
Aroclor 1242	EPA 3550/8082	I0G1236	50	ND	î	7/12/00	7/13/00		
Aroclor 1248	EPA 3550/8082	I0G1236		ND	i	7/12/00	7/13/00	- 1 .	
Aroclor 1254	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00		
Aroclor 1260	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00	4	and the same of th
Surrogate: Decachlorobiphenyl (45-145%)				89.2 %	•	// <b>12</b> / 00	7715700	A	
Sample ID: IJG0104-08 (CBC-58SW	- Soil)								
Aroclor 1016	EPA 3550/8082	I0G1236	50	ND	1	7/12/00	7/13/00	X	
Aroclor 1221	EPA 3550/8082	10G1236		ND	1	7/12/00	7/13/00	*	
Aroclor 1232	EPA 3550/8082	10G1236		ND	1	7/12/00	7/13/00		
Aroclor 1242	EPA 3550/8082	I0G1236		ND	1	7/12/00	7/13/00	1	
Aroclor 1248	EPA 3550/8082	10G1236		ND	1	7/12/00		The state of the s	
Aroclor 1254	EPA 3550/8082	10G1236		ND ND	t 1	7/12/00	7/13/00		
Aroclor 1260	EPA 3550/8082	10G1236		ND	1 1	7/12/00	7/13/00		
Surrogate: Decachlorobiphenyl (45-145%)	Di / 1 3330/0002	1001230	50	77.2 %	i	//12/00	7/13/00	₩	
				11.2 70					

\* = NOT VALIDATED





Del Mar Analytical, Irvine

Pat Abe

Project Manager



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

# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: PCBs by EPA Method 8082

 $\begin{array}{ccc} \underline{QC \ Level} \colon & V^1 \\ \underline{SDG} \colon & IJI0055 \\ \underline{Matrix} \colon & Soil \\ \underline{No. \ of \ Samples} \colon & 6 \end{array}$ 

No. of Reanalyses/Dilutions: 0

Date Reviewed: March 13, 2002

Reviewer: M. Pokorny

Reference: National Functional Guidelines For Organic Data Review (2/94)

Samples Reviewed: CAC-95B, CBC-96SW, CBC-97SW, CBC-98S, CBC-99SW, CBC-97SWD

# **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	All samples were received intact and in good condition at 4°C. The samples in this SDG were accounted for on the COC.  The soil samples were extracted within the 14 day holding time and analyzed within 40 days of extraction.	No qualifications were required.
4. Method Blanks	One soil method blank was analyzed with the samples of this SDG. No target analyte detects were reported in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One soil blank spike was analyzed with the samples in this SDG. All percent recoveries were within the laboratory QC limits of 60-115%.	No qualifications were required.
6. Surrogates	All QC and site sample surrogate recoveries were within laboratory QC limits of 45-145%.	No qualifications were required.
7. MS/MSDs	An MS/MSD was not analyzed with this SDG. Method accuracy was evaluated based on blank spike results.	No qualifications were required.

Project: Rocketdyne SDG: IJI0055 Analysis: PP

	Findings	Qualifications
8. Field QC Samples  ER: None FB: None Duplicates: CBC-97SW/CBC-97SWD	Neither of the field duplicate samples had any target compound detects.	No qualifications were required.
9. Other	Reporting limits and results were reported on a wet-weight basis.	No qualifications were required.
Comments	None	No qualifications were required.

 $<sup>^{1}</sup>$  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.

2952 Alton Ave., Irvine, CA 92608 (949) 261-1022 FAX (949) 261-1228 1814 E. Cooley Dr., Suite A. Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 16525 Sherman Way, Suite C-11, Van Nuys, CA 92406 (818) 779-1844 FAX (818) 779-1843 9464 Chesapeske Dr., Suite 805, San Diego, CA 92123 (858) 505-9596 FAX (858) 505-9689 9830 South 51st St., Suite B-120, Phoenix, AZ 85044

(480) 785-0043 FAX (480) 785-0851

F.04/13

IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: 1J10055

Sampled: 09/01/00 Received: 09/01/00

12 COT TEED

# POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample	Dilution	Date	Date	Data	
	1.Actilou	Datell	Diling	Result	ractor	Extracted	Analyzed	Qualific	ers , Qui
			ug/kg	ug/kg				QUAL	201
Sample ID: IJ10055-04 (CBC-98S -	Soil)						***************************************		
Aroclor 1016	EPA 3550/8082	I0I0523	50	ND	1	9/5/.00	9/6/00	$\cup$	
Aroclor 1221	EPA 3550/8082		50	ND	1	9/5/00	9/6/00	Ĭ	
Aroclor 1232	EPA 3550/8082		50	ND	1	9/5/00	9/6/00		
Aroclor 1242	EPA 3550/8082		50	ND	1	9/5/00	9/6/00		
Aroclor 1248	EPA 3550/8082		50	ND	1	9/5/00	9/6/00	]	
Aroclor 1254	EPA 3550/8082		50	ND	1	9/5/00	9/6/00	1 1	}
Aroclor 1260	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00	V 1	
Surrogate: Decachlorobiphenyl (45-1	(45%)			82.0 %	•	<i>313</i> /00	3/0/00	•	
Sample ID: IJI0055-05 (CBC-99SW	' - Soil)			<b>44</b> ,					
Aroclor 1016	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00	$\cup$	
Aroclor 1221	EPA 3550/8082		50	ND	1	9/5/00	9/6/00	$\sim$	
Aroclor 1232	EPA 3550/8082		50	ND	1	9/5/00	9/6/00		
Aroclor 1242	EPA 3550/8082	1010523	50	ND	,	9/5/00	9/6/00		
Aroclor 1248	EPA 3550/8082		50	ND	î	9/5/00	9/6/00		
Aroclor 1254	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00		
Aroclor 1260	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00	1	
Surrogate: Decachlorobiphenyl (45-1	45%)			79.0%	•	2/3/00	210100	W	
Sample ID: IJ10055-06 (CBC-97SW	'D - Soil)			, , , , , ,					
Aroclor 1016	EPA 3550/8082	I0I0523	50	ND	. 1	9/5/00	9/6/00	1)	
Aroclor 1221	EPA 3550/8082		50	ND	1	9/5/00	9/6/00	9 1	
Aroclor 1232	EPA 3550/8082		50	ND	1	9/5/00	9/6/00		
Aroclor 1242	EPA 3550/8082		50	ND	1	9/5/00	9/6/00		
Aroclor 1248	EPA 3550/8082		50	ND	1	9/5/00	9/6/00		
Aroclor 1254	EPA 3550/8082		50	ND	1	9/5/00	9/6/00	[ [	
Aroclor 1260	EPA 3550/8082		50	ND	1	9/5/00	9/6/00		
Surrogate: Decachlorobiphenyl (45-1	45%)			75.4 %	•	JUUU	9/0/00	4	

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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0055

Sampled: 09/01/00

Received: 09/01/00

# POLYCHLORINATED BIPHENYLS (EPA 8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		iters
			ug/kg	ug/kg				REV QUAL	QUA
Sample ID: IJI0055-01 (CAC-95B	· Soil)		_					COAL	CODA
Aroclor 1016	EPA 3550/8082	I0I0523	50	ND	1	9/5/00	9/6/00	$\upsilon$	
Aroclor 1221	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00	)	
Aroclor 1232	EPA 3550/8082	1010523	50	ND	i	9/5/00	9/6/00	1	
Aroclor 1242	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00		
Aroclor 1248	EPA 3550/8082	I0I0523	50	ND	ī	9/5/00	9/6/00	1	
Aroclor 1254	EPA 3550/8082	1010523	50	98	i	9/5/00	9/6/00		
Aroclor 1260	EPA 3550/8082	I0I0523	50	ND	l	9/5/00	9/6/00	U	
Surrogate: Decachlorobiphenyl (45-)				68.3 %	-	,	<i>y,</i> <b>u</b> , <b>u</b> u		
Sample ID: IJI0055-02 (CBC-96SV	V - Soil)								
Aroclor 1016	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00	$\cup$	
Aroclor 1221	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00	Ĩ	
Aroclor 1232	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00		
Aroclor 1242	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00		
Aroclor 1248	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00		
Aroclor 1254	EPA 3550/8082	1010523	50	ND	ì	9/5/00	9/6/00		
Aroclor 1260	EPA 3550/8082	I0I0523	50	ND	1	9/5/00	9/6/00		
Surrogate: Decachlorobiphenyl (45-)	45%)			92.2 %	_	2.0,00	3, 0, 00	•	
Sample ID: IJ10055-03 (CBC-97SW	/ - Soil)								
Aroclor 1016	EPA 3550/8082	I0I0523	50	ND	1	9/5/00	9/6/00	()	
Aroclor 1221	EPA 3550/8082	I0I0523	50	ND	1	9/5/00	9/6/00	Ĭ	
Aroclor 1232	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00		
Aroclor 1242	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00		
Aroclor 1248	EPA 3550/8082	1010523	50	ND	1	9/5/00	9/6/00	[	
Aroclor 1254	EPA 3550/8082		50	ND	1	9/5/00	9/6/00		
Aroclor 1260	EPA 3550/8082		50	ND	1	9/5/00	9/6/00	$\downarrow$	
Surrogate: Decachlorobiphenyl (45-1	45%)			82.6%	•	215100	<i>51</i> <b>0</b> 1 <b>0 0</b>	*	

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Del Mar Analytical, Irvine Pat Abe

Project Manager



# **DATA VALIDATION REPORT**

# Rocketdyne Former Sodium Disposal Facility Site Sampling Program

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IJI0547

Prepared by

AMEC—Denver Operations 550 South Wadsworth Boulevard, Suite 500 Lakewood, Colorado 80226 DATA VALIDATION REPORT

Rocketdyı

D.: IJI0547
S: SVOC

# 1. INTRODUCTION

Task Order Title: Rocketdyne

Former Sodium Disposal Facility Site Sampling Program

Contract Task Order #: 313150008

SDG#: IJI0547

Project Manager: D. Hambrick

Matrix: Soil

Analysis: Semivolatiles

QC Level: IV

No. of Samples: 2

No. of Reanalyses/Dilutions: 0

Reviewer: D. Buckheister Date of Review: March 6, 2002

The samples listed in Table 1 were validated based on the guidelines outlined in the AMEC *Project Procedures Manual* data validation procedure for semivolatile organics (DVP-3, Rev. 2), (*USEPA SW-846 Method 8270*, and data validation guidelines outlined in 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 estimated value were not denoted by a qualification code since the data had already been rejected.

T703SV1 1 Revision 1

**Table 1. Sample identification** 

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
PCS-29	PCS-29	IJI0547-01	soil	8270C
PCS-31	PCS-31	IJI0547-04	soil	8270C

Rocketdyr IJI0547 SVOC

#### 2. DATA VALIDATION FINDINGS

#### 2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

### 2.1.1Sample Preservation, Handling, and Transport

The COC noted that the samples in this SDG were received intact and within the temperature limits of 4°C "2°C. No qualifications were required.

# 2.1.2Chain of Custody

The COC was legible and was signed by field and laboratory personnel. The case narrative noted that the cooler was received with custody seals. The COC accounted for the samples in the SDG. No qualifications were required based on sample receipt information.

# 2.1.3 Holding Times

The samples were extracted within 14 days of sample collection and analyzed within forty days of extraction. No qualifications were required.

### 2.2 GC/MS TUNING

The DFTPP tunes associated with this SDG met the SW-846 Method 8270C ion abundance criteria. The sample analyses were performed within 12 hours of the DFTPP injection time. DFTPP calculations were checked from the raw data for a representative number of ion ratios and no calculation errors were found. No qualifications were required.

# 2.3 CALIBRATION

For the evaluation of initial calibrations, the SW-846 Method 8270C QC limit of 15%RSD was used for target compounds which were quantitated using average fit. When linear or quadratic fit was used, the AMEC Data Validation Procedure criteria of 0.995 was used as a minimum r² value, rather than the less stringent SW-846 Method requirement of 0.990. For the evaluation of continuing calibrations, the QC limit of 20%D was used for all target compounds. A minimum 0.05 average RRF for initial calibrations, and 0.05 RRF for continuing calibrations was used for the evaluation of all target compounds.

#### 2.3.1 Initial Calibration

There was one initial calibration associated with this SDG, dated 08/24/00. All %RSD values were less than 15%, with the exception of the %RSD values for benzoic acid, 4-chloro-3-methylphenol, 2,4-dichlorophenol, 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol, di-n-octylphthalate, 4-nitroaniline, 4-nitrophenol, N-nitrosodiphenylamine, pentachlorophenol, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol. 2,4-Dinitrophenol was reprocessed using quadratic fit. Benzoic acid, 4,6-dinitro-2-methylphenol, 4-T703SV1

Rocketdyi
: IJI0547
SVOC

DATA VALIDATION REPORT

nitrophenol, and 2,4,5-trichlorophenol were reprocessed using a linear regression calculation. The r² value for 4,6-dinitro-2-methylphenol was \$ 0.995. The r² values for benzoic acid and 2,4,5-trichlorophenol were not presented with the raw data and were calculated by the reviewer. The r² values for benzoic acid, 4,6-dinitro-2-methylphenol, 2,4-dinitrophenol 4-nitrophenol, and 2,4,5-trichlorophenol were all < 0.995. Nondetect results for benzoic acid, 4-chloro-3-methylphenol, 2,4-dichlorophenol, 2,4-dinitrophenol, dinoctylphthalate, 4-nitroaniline, 4-nitrophenol, N-nitrosodiphenylamine, pentachlorophenol, 2,4,5-trichlorophenol, and 2,4,6-trichlorophenol were qualified as estimated, "UJ," in both of the samples in this SDG. Calculations of average RRFs and %RSDs were checked from the raw data for a representative number of compounds and no calculation errors were found. No further qualifications were required.

# 2.3.2 Continuing Calibration

There was one continuing calibration analyzed 09/19/00 associated with the samples of this SDG. All RRFs were greater than or equal to 0.05, and all %Ds were less than 20% with the exception of the %Ds for benzoic acid, 4-nitrophenol, and pyrene. Nondetect results for the aforementioned compounds were qualified as estimated, "UJ," in both of the samples in this SDG. Calculations of RRFs and %Ds were checked from the raw data for a representative number of compounds and no calculation errors were found. No further qualifications were required.

#### 2.4 BLANKS

There was one method blank (I0I1929-BLK1) associated with this SDG. No target compounds were reported in the method blank. TICs were not reported in the data package (see section 2.12). The raw data was reviewed for false negatives and none were found. No qualifications were required.

#### 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

There was one blank spike (I0I1929-BS1) associated with the sample in this SDG. Recoveries for all spiked target compounds were within the laboratory-established QC limits. A representative number of percent recoveries were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

#### 2.6 SURROGATE RECOVERY

All sample surrogate recoveries were within the laboratory-established QC limits. A representative number of percent recoveries were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

#### 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Although a sample was analyzed as the MS/MSD with this extraction batch, it was not associated with one of the site samples in this SDG. All recoveries were within the laboratory QC limits of 20-140% in both the MS and MSD, and all RPDs were less than QC limit of 40%. Although batch accuracy and precision

DATA VALIDATION REPORT

Rocketdyi
: IJI0547
: SVOC

were demonstrated, the MS/MSD results are not necessarily representative of this client's samples. 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:

# 2.8.1Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples analyzed by Method 8270C associated with the samples in this SDG. No qualifications were required.

# 2.8.2Field 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. No qualifications were required.

#### 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standards area counts and retention times for all site samples were within the SW-846 Method 8270C control limits of +100%/-50% and " 30 seconds established by the continuing calibration standards. Internal standard areas and retention times were checked from the raw data, and no problems were noted. No qualifications were required.

#### 2.10 TARGET COMPOUND IDENTIFICATION

The laboratory analyzed for a semivolatile target compound list of 68 compounds listed in Method 8270C as compounds which can be analyzed by that method. Chromatograms, retention times, and spectra were examined, and no problems were noted. No qualifications were required.

# 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

The reporting limits were consistent with the SW-846 Method 8270C quantitation limits. Reporting limits were not adjusted for sample percent moisture. As there were no reported detects in the samples in this SDG, compound quantification was verified by recalculating a representative number of surrogate and blank spike concentrations. No calculation errors were noted. No qualifications were required.

#### 2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported with the samples of this SDG. No qualifications were required.

Rocketdyr IJI0547 SVOC

DATA VALIDATION REPORT

# 2.13 SYSTEM PERFORMANCE

A review of the chromatograms and other raw data showed no identifiable problems with system performance. No qualifications were required.



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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0547

Sampled:09/15/00 Received:09/15/00

# SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270C)

		F	Reporting	Sample	Dilution	Date	Date	Data	
Analyte	Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifie	ers
			ug/kg					D,	8 n
Sample ID: IJI0547-01 (PCS-29 - Soil)			ug/kg	ug/kg			5	Jual	Tual
·	top Loomes	*v=si_noveptivityso			til in meglem fråm år efter synskyssesterepsenserjar av en	**************************************	CONTRACTOR CONTRACTOR	_	L
Acenaphthene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	u	de <sup>i</sup>
Acenaphthylene Aniline	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	1	1
Anthracene	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00		
Azobenzene	EPA 8270C	. IOI1929	100	ND	1	9/19/00	9/19/00		
Benzidine	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00		
Benzoic acid	EPA 8270C	1011929	1000	ND	1	9/19/00	9/19/00	¥	
Benzo(a)anthracene	EPA 8270C	1011929	500	ND	L	9/19/00	9/19/00	UJ	c
	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	u	
Benzo(b)fluoranthene	EPA 8270C	I0I1929	200	ND	1	9/19/00	9/19/00	1	
Benzo(k)fluoranthene	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00		
Benzo(g,h,i)perylene	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00		
Benzo(a)pyrene	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00		
Benzyl alcohol	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00		
Bis(2-chloroethoxy)methane	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		-
Bis(2-chloroethyl)ether	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		1
Bis(2-chloroisopropyl)ether	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
Bis(2-ethylhexyl)phthalate	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00		
4-Bromophenyl phenyl ether	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00		
Butyl benzyl phthalate	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00		
4-Chloroaniline	EPA 8270C	I0I1929	100	ND	1	9/19/00	9/19/00		
2-Chloronaphthalene	EPA 8270C	J0I1929	100	ND	1	9/19/00	9/19/00	$\mathbf{V}$	
4-Chloro-3-methylphenol	EPA 8270C	I011929	100	ND	<u></u>	9/19/00	9/19/00	UJ	$\mathcal{C}$
2-Chlorophenol	EPA 8270C	I0I1929	250	ND	1	9/19/00	9/19/00	W	
4-Chlorophenyl phenyl ether	EPA 8270C	I0I1929	100	ND .	1	9/19/00	9/19/00	ì	j. jr
Chrysene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	İ	# 7   100
Dibenz(a,h)anthracene	EPA 8270C	1011929	250	ND	1	9/19/00	9/19/00		
Dibenzofuran	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
Di-n-butyl phthalate	EPA 8270C	1011929	250	ND	1	9/19/00	9/19/00		
1,3-Dichlorobenzene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
1,4-Dichlorobenzene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
1,2-Dichlorobenzene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
3,3-Dichlorobenzidine	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00	<b>V</b> /	
2,4-Dichlorophenol	EPA 8270C	10[1929	100	ND	1	9/19/00	9/19/00	us	0
Diethyl phthalate	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	W	
2,4-Dimethylphenol	EPA 8270C	1011929	250	ND	1	9/19/00	9/19/00	~	
Dimethyl phthalate	EPA 8270C	I011929	100	ND	1	9/19/00	9/19/00		
4,6-Dinitro-2-methylphenol	EPA 8270C	1011929	250	ND	1	9/19/00	9/19/00		
2,4-Dinitrophenol	EPA 8270C	1011929	250	ND	1	9/19/00		V	
2,4-Dinitrotoluene	EPA 8270C	I0I1929	100	ND		9/19/00	9/19/00 9/19/00	UJ	<u> </u>
		1011/2/	100	ND	1	2/19/00	9/19/00	u	

Del Mar Analytical, Irvine

Pat Abe

Project Manager



< Page 2 of 30>



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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0547

Sampled:09/15/00

Received:09/15/00

# SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270C)

Analyte	Mathad		Reporting	Sample	Dilution	Date	Date	Data		
analy te	Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifie	ers	_
			ug/kg	ug/kg			(	Kev	(	$\mathcal{Q}$
Sample ID: IJ10547-01 (PCS-29 - Soil)							(	Jual	~>	ode
2,6-Dinitrotoluene	EPA 8270C	I0I1929	100	ND	1	9/19/00	9/19/00			
Di-n-octyl phthalate	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00	W	C	
Fluoranthene	EPA 8270C	1011929		ND	1	9/19/00	9/19/00		<u> </u>	***************************************
Fluorene	EPA 8270C	. 1011929	100	ND	1	9/19/00	9/19/00	u		
Hexachlorobenzene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00			
Hexachlorobutadiene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00			
Hexachlorocyclopentadiene	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00			
Hexachloroethane	EPA 8270C	I0I1929	200	ND	1	9/19/00	9/19/00			
Indeno(1,2,3-cd)pyrene	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00			
Isophorone	EPA 8270C	1011929	100	ND	i	9/19/00	9/19/00			
2-Methylnaphthalene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00			
2-Methylphenol	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00			
4-Methylphenol	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00			
Naphthalene	EPA 8270C	I0I1929	150	ND	1	9/19/00	9/19/00			
2-Nitroaniline	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00			
3-Nitroaniline	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00			
4-Nitroaniline	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00	UT		
Nitrobenzene	EPA 8270C	I0I1929	500	ND	1	9/19/00	9/19/00	us		
2-Nitrophenol	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	q		
4-Nitrophenol	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00	W.S	_	
n-Nitrosodiphenylamine	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00		0	-
n-Nitroso-di-n-propylamine	EPA 8270C	I0I1929	150	ND	1	9/19/00	9/19/00	UJ.		
Pentachlorophenol	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00	u	0	
Phenanthrene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	us_		7
Phenol	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00	u		
Pyrene	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00	LU Z	C	
1,2,4-Trichlorobenzene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	<u> </u>		
2,4,5-Trichlorophenol	EPA 8270C	I0I1929	150	ND ON	1	9/19/00	9/19/00	W	С	·
2,4,6-Trichlorophenol	EPA 8270C	I0I1929	150	ND	1	9/19/00	9/19/00	مار	1	
Surrogate: 2-Fluorophenol (25-110%)				61.0 %		27.227.00	2/12/00	V	V	
Surrogate: Phenol-d6 (30-110%)				56.0 %					i	
Surrogate: 2,4,6-Tribromophenol (45-130%)				79.5 %					`	
Surrogate: Nitrobenzene-d5 (30-110%)				61.9 %						
Surrogate: 2-Fluorobiphenyl (30-110%)				62.1 %						
Surrogate: Terphenyl-d14 (45-145%)				86.9 %						

Del Mar Analytical, Irvine Pat Abe

Project Manager

LEVELIV





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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: 1J10547

Sampled:09/15/00 Received:09/15/00

# SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270C)

		F	Reporting	Sample	Dilution	Date	Date	Data	
Analyte	Method	Batch	Limit	Result	Factor	Extracted		Qualifier	rs
			ug/kg	ug/kg			· ·	Rev	0 0
Sample ID: IJ10547-04 (PCS-31 - Soil)			ug/Ng	ug/kg			5	Dual	Quar
Acenaphthene	ED + 02706	TOTA O O O		appropriate and a second a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a	STOREGOESS AND MADERIA STOREGOESS AND AND STOREGOES	the contract of the first of the contract of t			<u> aaa</u>
Acenaphthylene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	· W	
Aniline	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		\$1.50 14.50
	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00		
Anthracene	EPA 8270C	. 1011929	100	ND	1	9/19/00	9/19/00		
Azobenzene Benzidine	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00		
	EPA 8270C	1011929	1000	ND	1	9/19/00	9/19/00	$\mathbf{V}$	
Benzoic acid	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00	UJ	C
Benzo(a)anthracene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	W	
Benzo(b)fluoranthene	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00	~	
Benzo(k)fluoranthene	EPA 8270C	1011929	200	ND	l	9/19/00	9/19/00		
Benzo(g,h,i)perylene	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00		
Benzo(a)pyrene	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00		
Benzyl alcohol	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00		
Bis(2-chloroethoxy)methane	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
Bis(2-chloroethyl)ether	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
Bis(2-chloroisopropyl)ether	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
Bis(2-ethylhexyl)phthalate	EPA 8270C	I0I1929	500	ND	1	9/19/00	9/19/00		
4-Bromophenyl phenyl ether	EPA 8270C	I0I1929	150	ND	1	9/19/00	9/19/00		
Butyl benzyl phthalate	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00		
4-Chloroaniline	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
2-Chloronaphthalene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	V	
4-Chloro-3-methylphenol	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	US	C.
2-Chlorophenol	EPA 8270C	1011929	250	ND	1	9/19/00	9/19/00	W	
4-Chlorophenyl phenyl ether	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	Ņ	1
Chrysene	EPA 8270C	I0I1929	100	ND	1	9/19/00	9/19/00	1	
Dibenz(a,h)anthracene	EPA 8270C	1011929	250	ND	1	9/19/00	9/19/00	ļ	
Dibenzofuran	EPA 8270C	1011929	100	ND	1	9/19/00*	9/19/00		
Di-n-butyl phthalate	EPA 8270C	1011929	250	ND	1	9/19/00	9/19/00	İ	
1,3-Dichlorobenzene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
1,4-Dichlorobenzene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
1,2-Dichlorobenzene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		
3,3-Dichlorobenzidine	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00		
2,4-Dichlorophenol	EPA 8270C	1011929	100	ND	1 ,	9/19/00	9/19/00	us	
Diethyl phthalate	EPA 8270C	I0I1929	100	ND	1	9/19/00	9/19/00		<u> </u>
2,4-Dimethylphenol	EPA 8270C	1011929	250	ND	1	9/19/00	9/19/00	ņ	l
Dimethyl phthalate	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	1	1
4,6-Dinitro-2-methylphenol	EPA 8270C	1011929	250	ND ND	1	9/19/00		1/	
2,4-Dinitrophenol	EPA 8270C	1011929	250	ND ND	1		9/19/00	WT	1
2,4-Dinitrotoluene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00	UJ.	C
•	JI I I U 2 / U C	1011242	100	MD	1	9/19/00	9/19/00	u	

Del Mar Analytical, Irvine

Pat Abe

Project Manager





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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0547

Sampled:09/15/00

Received:09/15/00

# SEMI-VOLATILE ORGANICS BY GC/MS (EPA 8270C)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifi		
Sample ID: IJI0547-04 (PCS-31 - Soil)	SECTION SECTIO	TV TV TV TV TV TV TV TV TV TV TV TV TV T	ug/kg	ug/kg		Siliphing grown accionate by the deligible delimentation on account on a second	₹	ev jual		ما (ب
2,6-Dinitrotoluene	EPA 8270C	I0I1929	100	ND	1	9/19/00	9/19/00	u.	`	
Di-n-octyl phthalate	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00	W	C	
Fluoranthene	EPA 8270C	J0I1929	100	ND	1	9/19/00	9/19/00		$+$ $\smile$	
Fluorene	EPA 8270C	. 1011929	100	ND	1	9/19/00	9/19/00	W	1	
Hexachlorobenzene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00			
Hexachlorobutadiene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00			
Hexachlorocyclopentadiene	EPA 8270C	1011929	500	ND	i	9/19/00	9/19/00			
Hexachloroethane	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00			
Indeno(1,2,3-cd)pyrene	EPA 8270C	I0I1929	200	ND	1	9/19/00	9/19/00			
Isophorone	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00			
2-Methylnaphthalene	EPA 8270C	1011929	100	ND	1	9/19/00	9/19/00		ļ	
2-Methylphenol	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00		ĺ	
4-Methylphenol	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00			
Naphthalene	EPA 8270C	1011929	150	ND	1	9/19/00	9/19/00			in a
2-Nitroaniline	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00			
3-Nitroaniline	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00			
4-Nitroaniline	EPA 8270C	1011929	500	ND	1	9/19/00	9/19/00	115		
Nitrobenzene	EPA 8270C	I0I1929	500	ND	1	9/19/00	9/19/00	ü		
2-Nitrophenol	EPA 8270C	I0I1929	100	ND	1	9/19/00	9/19/00	1		
4-Nitrophenol	EPA 8270C	I0I1929	500	ND	1	9/19/00	9/19/00	W	_	
n-Nitrosodiphenylamine	EPA 8270C	1011929	200	ND	1	9/19/00	9/19/00	115	$\frac{c}{c}$	
n-Nitroso-di-n-propylamine	EPA 8270C	I011929	150	ND	1	9/19/00	9/19/00	u		***************************************
Pentachlorophenol	EPA 8270C	_1011929"	500	ND	1	9/19/00	9/19/00	us	ر ،	
Phenanthrene	EPA 8270C	Î011929	100	ND	1	9/19/00	9/19/00	i		
Phenol	EPA 8270C	I0I1929	150	ND	1	9/19/00	9/19/00	¥		100
Pyrene	EPA 8270C	I0I1929	150	ND	1	9/19/00	9/19/00	US	С	
1,2,4-Trichlorobenzene	EPA 8270C	I0I1929	100	ND	1	9/19/00	9/19/00			Military and the same
2,4,5-Trichlorophenol	EPA 8270C	I0I1929	150	ND	1	9/19/00	9/19/00	ho	C	
2,4,6-Trichlorophenol	EPA 8270C	I0I1929	150	ND	1	9/19/00	9/19/00	10	<u> </u>	
Surrogate: 2-Fluorophenol (25-110%)				72.5 %		27.127.00	2/12/00	<b>V</b>	V	
Surrogate: Phenol-d6 (30-110%)				68.0 %						
Surrogate: 2,4,6-Tribromophenol (45-130%)				83.5 %				l		
Surrogate: Nitrobenzene-d5 (30-110%)				72.2 %						
Surrogate: 2-Fluorobiphenyl (30-110%)				73.3 %						
Surrogate: Terphenyl-d14 (45-145%)				101 %						

Del Mar Analytical, Irvine

Pat Abe

Project Manager

LEVELTY





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# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

QC Level: V<sup>1</sup>
SDG: IJJ0179
Matrix: Soil
No. of Samples: 2

<u>Date Reviewed</u>: March 08, 2002 <u>Reviewer</u>: P. Meeks

Reference: USEPA Contract Laboratory Program National Functional Guidelines For

*Inorganic Data Review* (2/94)

Samples Reviewed: PCS-46B, PCS-47B

# **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the samples and accounted for the analyses. No custody seals information was provided. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the samples in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One LCS was analyzed with the samples in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> Performed for PCS-46B	The RPD was less than the QC limit of 20%.	No qualifications were required.
7. MS/MSDs Performed for PCS-46B	The %Rs were within the laboratory-established control limits of 80-120%.	No qualifications were required.

	Findings	Qualifications
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: none	None	No qualifications were required.
Comments	None	None

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJJ0179

Sampled: 10/04/00 Received: 10/05/00

# **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Quali	
Sample ID: IJJ0179-01 (PCS-46B - Soi	3)		mg/kg	mg/kg				Rev Qual	aval Code
``		1010053	0.040	NIEN		10/0/00	10/0/00		Colle
Sample ID: IJJ0179-02 (PCS-47B - Soi	EPA 300.0 MOD. il)	1010932	0.040	ND	i	10/9/00	10/9/00	U	
	EPA 300.0 MOD.	I0J0952	0.040	ND	1	10/9/00	10/9/00	U	
Sample ID: IJJ0179-03 (BR-35 - Soil)									
Perchlorate	EPA 300.0 MOD.	10Ј0952	0.040	ND	1	10/9/00	10/9/00	*	

\* Amalysis Not Validated



Del Mar Analytical, Irvine

Pat Abe Project Manager



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# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

QC Level: V¹
SDG: IJH0606
Matrix: Soil
No. of Samples: 1

<u>Date Reviewed</u>: March 08, 2002 <u>Reviewer</u>: P. Meeks

<u>Reference</u>: USEPA Contract Laboratory Program National Functional Guidelines For

*Inorganic Data Review* (2/94)

Samples Reviewed: CBC-80S

# **Data Validation Findings**

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the sample and accounted for the analysis. No custody seal information was provided, but the COC noted that sample was received intact. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the sample in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One LCS was analyzed with the sample in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> None	None	No qualifications were required.
7. MS/MSDs None	None	No qualifications were required.

	Findings	Qualifications
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: none	None	No qualifications were required.
Comments	None	None

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0606

Sampled: 08/17/00 Received: 08/17/00

# **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	-	)ata alifiers
C. I ID IIII0/0/ 02 /CDC WOCK			mg/kg	mg/kg			Î	Rev Nal	Qual Code
Sample ID: IJH0606-02 (CBC-79SW	- Soil)								COUR
Perchlorate	EPA 300.0 MOD.	I0H2015	5 0.040	ND	1	8/20/00	8/20/00	$\star$	
Sample ID: IJH0606-03 (CBC-79SW)	D - Soil)							•	
Perchlorate	EPA 300.0 MOD.	I0H2015	5 0.040	ND	1	8/20/00	8/20/00	<del>-X</del>	
Sample ID: IJH0606-04 (CBC-80S - S	Soil)					0, 20, 00	0.20.00	^	
Perchlorate	EPA 300.0 MOD.	I0H2015	5 0.040	ND	1	8/20/00	8/20/00	U	

\*Analysis Not Validated

# AMEC VALIDATED



Del Mar Analytical, Irvine

Pat Abe Project Manager

# **DATA VALIDATION REPORT**

# ROCKETDYNE Former Sodium Disposal Facility Site Sampling

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IJF0961

Prepared by

AMEC—Denver Operations 550 South Wadsworth Boulevard, Suite 500 Lakewood, Colorado 80226 Project: Rocketdyne SDG No.: IJF0961

DATA VALIDATION REPORT Analysis: Gen. Min.

# 1. INTRODUCTION

Project: Rocketdyne Former Sodium Disposal Facility Site Sampling

Contract Task Order #: 313150008

SDG#: IJF0961

Project Manager: D. Hambrick

Matrix: Soil

Analysis: General Minerals

QC Level: IV

No. of Samples: 23

No. of Reanalyses/Dilutions: 0

Reviewer: P. Meeks

Date of Review: March 06, 2002

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedures* SOP DVP-6, Rev. 2, Wet Chemistry Analysis 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.

T703WC3 1 Revision 1

**Table 1. Sample identification** 

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
PC-1	PC-1	IJF0961-01	soil	perchlorate
PC-3	PC-3	IJF0961-03	soil	perchlorate
PC-4	PC-4	IJF0961-04	soil	perchlorate
PC-5	PC-5	IJF0961-05	soil	perchlorate
PC-6	PC-6	IJF0961-06	soil	perchlorate
PC-7	PC-7	IJF0961-07	soil	perchlorate
PC-8	PC-8	IJF0961-08	soil	perchlorate
PC-9	PC-9	IJF0961-09	soil	perchlorate
PC-10	PC-10	IJF0961-10	soil	perchlorate
PC-11	PC-11	IJF0961-11	soil	perchlorate
PC-12	PC-12	IJF0961-12	soil	perchlorate
PC-13B	PC-13B	IJF0961-13	soil	perchlorate
PC-14B	PC-14B	IJF0961-14	soil	perchlorate
PC-13T	PC-13T	IJF0961-15	soil	perchlorate
PC-14T	PC-14T	IJF0961-16	soil	perchlorate
PC-15T	PC-15T	IJF0961-17	soil	perchlorate
PC-15B	PC-15B	IJF0961-18	soil	perchlorate
PC-16T	PC-16T	IJF0961-19	soil	perchlorate
PC-16B	PC-16B	IJF0961-20	soil	perchlorate
PC-16BD	PC-16BD	IJF0961-21	soil	perchlorate
PC-17B	PC-17B	IJF0961-22	soil	perchlorate
PC-17T	PC-17T	IJF0961-23	soil	perchlorate
PC-19	PC-19	IJF0961-25	soil	perchlorate

Project: Rocketdyne SDG No.: IJF0961 Analysis: Gen. Min.

DATA VALIDATION REPORT

# 2. DATA VALIDATION FINDINGS

#### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1Sample Preservation, Handling, and Transport

The samples arrived within the temperature limit of 4EC"2EC. No sample preservation, handling, or transport problems were noted, and no qualifications were required.

# 2.1.2Chain 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. There were no sample condition questions on the COCs, and no sample receiving checklist was included. No cooler or sample container custody seal information was provided. The case narrative, however, stated that the samples were received intact. No qualifications were required.

# 2.1.3 Holding Times

Holding times were assessed by comparing the dates of collection with the dates of analysis. The 28 day holding time for the perchlorate analyses was met. No qualifications were necessary.

#### 2.2 CALIBRATION

All perchlorate IPC, ICV, and CCV results in the raw data showed acceptable %Rs, 90-110%. The ICV was also reported as the laboratory control sample (LCS) for analytical batch IJG0537, which was associated with most of the samples in this SDG. This is permissible, according to the laboratory SOP. Additionally, a low-end calibration curve check standard was run prior to the ICV. According to the laboratory SOP, this standard may be reprepared and reanalyzed, once, if the %R falls outside the control limits of 75-125%. For the samples in this SDG, this calibration check standard was run twice with recoveries of 74.4% and 81.5%, respectively. No qualifications were required based on the calibration information.

#### 2.3 BLANKS

The perchlorate results reported on the summary form and in the raw data for blank analyses associated with these samples were nondetects at the reporting limit. The ICB was also reported as the method blank for analytical batch I0G0537, which was associated with most of the samples in this SDG. This is permissible, according to the laboratory SOP, and no qualifications were necessary.

Project: SDG No.: Analysis: Rocketdyne IJF0961 Gen. Min.

#### DATA VALIDATION REPORT

#### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The perchlorate laboratory control samples (LCS) %Rs for these analyses were within laboratory-established control limits of 90 - 110%. The LCS for analytical batch I0G0537, which was associated with most of the samples in this SDG, was also reported as the ICV (see section 2.2). No qualifications were required.

#### 2.5 LABORATORY DUPLICATES

The MS/MSD analyses were performed on samples PC-1 and PC-16BD in association with the site soil samples in this SDG. The RPD was within the established limits of "20%. No qualifications were required.

#### 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The MS/MSD analyses were performed on samples PC-1 and PC-16BD in association with the site soil samples in this SDG. The %Rs were within the laboratory-established control limits of 80-120%. No qualifications were required.

#### 2.8 SAMPLE RESULT VERIFICATION

An EPA Level IV review was performed for all samples in this data package. Calculations were verified, sample results reported on the Form Is were verified against the raw data, and no transcription errors or calculations errors were noted. The samples in this SDG were reported on a wet weight basis. No qualifications were necessary.

# 2.9 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.

# 2.9.1 Field Blanks and Equipment Rinsates

The samples in this SDG had no associated field QC samples. No qualifications were necessary.

# 2.9.2 Field Duplicates

Samples PC-16B/PC-16BD were identified as the field duplicate pair for the samples in this SDG. Qualifications are not assigned to sample results on the basis of field duplicate pairs; however, RPDs are calculated between results for these samples. If RPDs are greater than 50% for soils, the RPDs and affected analytes are noted in the data validation report. Control limits of "4H the reporting limit is used for soil sample values <5H the reporting limit. Perchlorate was not detected in either sample.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071 Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

# **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat Quali	
County ID AIF00(1 01 (DC 1 0 II)			mg/kg	mg/kg				Rev	Code
Sample ID: IJF0961-01 (PC-1 - Soil) Perchlorate Sample ID: IJF0961-02 (PC-2 - Soil)	EPA 300.0 MOD.	I0G053	7 0.040	ND	1	7/5/00	7/5/00	U	
Perchlorate Sample ID: IJF0961-03 (PC-3 - Soil)	EPA 300.0 MOD.	I0G0537	7 0.040	ND	1	7/5/00	7/5/00	*	
Perchlorate Sample ID: IJF0961-04 (PC-4 - Soil)	EPA 300.0 MOD.	I0G0537	7 0.040	ND	1	7/5/00	7/5/00	U	
Perchlorate Sample ID: IJF0961-05 (PC-5 - Soil)	EPA 300.0 MOD.	I0G0537	7 0.040	ND	1	7/5/00	7/5/00		
Perchlorate Sample ID: 1JF0961-06 (PC-6 - Soil)	EPA 300.0 MOD.	10G0537	0.040	ND	1	7/5/00	7/5/00		
Perchlorate Sample ID: IJF0961-07 (PC-7 - Soil)	EPA 300.0 MOD.	I0G0537	0.040	ND	, 1	7/5/00	7/5/00		
Perchlorate Sample ID: IJF0961-08 (PC-8 - Soil)	EPA 300.0 MOD.	I0G0537	0.040	ND	1	7/5/00	7/5/00		
Perchlorate	EPA 300.0 MOD.	I0G0537	0.040	ND	1	7/5/00	7/5/00	$\downarrow$	

\*Analysis Not Validated

# AMEC VALIDATED LEVEL IV

**Del Mar Analytical, Irvine** Pat Abe

Pat Abe Project Manager



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

# **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat Quali	
			mg/kg	mg/kg				Rev Qual	Qual
Sample ID: IJF0961-09 (PC-9 - Soil)							-	<del></del>	
Perchlorate Sample ID: IJF0961-10 (PC-10 - Soil)	EPA 300.0 MOD.	I0G0537	7 0.040	ND	1	7/5/00	7/5/00	U	
Perchlorate Sample ID: IJF0961-11 (PC-11 - Soil)	EPA 300.0 MOD.	I0G0537	7 0.040	ND	1	7/5/00	7/5/00		
Perchlorate Sample ID: IJF0961-12 (PC-12 - Soil)	EPA 300.0 MOD.	10G0537	7 0.040	ND '	1	7/5/00	7/5/00		
Perchlorate Sample ID: IJF0961-13 (PC-13B - Soi	EPA 300.0 MOD.	10G0537	7 0.040	ND	1	7/5/00	7/5/00	'   	
Perchlorate Sample ID: IJF0961-14 (PC-14B - Soil	EPA 300.0 MOD.	10G0537	7 0.040	ND	1	7/5/00	7/5/00		
Perchlorate Sample ID: IJF0961-15 (PC-13T - Soil	EPA 300.0 MOD.	I0G0537	7 0.040	ND	1	7/5/00	7/5/00		
Perchlorate	EPA 300.0 MOD.	I0G0537	0.040	ND	1	7/5/00	7/5/00		
Sample ID: IJF0961-16 (PC-14T - Soil	1)								
Perchlorate	EPA 300.0 MOD.	10G0537	0.040	ND	1	7/5/00	7/5/00	$\downarrow$	

\*Analysis Not Validated



Del Mar Analytical, Irvine

Pat Abe Project Manager



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071 Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

# **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
County ID 11E00(1.15 (DC 15T) C			mg/kg	mg/kg			- physical and a second a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a second and a second and a second and a second and a second and a second and a second a second and a second and a second and a	Rev Qual	Code
Sample ID: IJF0961-17 (PC-15T - Soi	1)								
Perchlorate	EPA 300.0 MOD.	10G053	7 0.040	ND	1	7/5/00	7/5/00	U	
Sample ID: IJF0961-18 (PC-15B - Soi	1)							Ĭ	
Perchlorate	EPA 300.0 MOD.	10G053	7 0.040	ND	1	7/5/00	7/5/00		
Sample ID: IJF0961-19 (PC-16T - Soi	1)				•	773.00	775700		
Perchlorate	EPA 300.0 MOD.	10G053	7 0.040	ND	1	7/5/00	7/5/00		
Sample ID: IJF0961-20 (PC-16B - Soi		10000	. 0.010	ND	ı	775700	773700		
Perchlorate	EPA 300.0 MOD.	I0G053	7 0.040	ND	1	7/5/00	7/5/00		
Sample ID: IJF0961-21 (PC-16BD - S		100033	0.040	ND	1	7/3/00	7/5/00		
Perchlorate	EPA 300.0 MOD.	1000551	2 0.040	ND	,	7/5/00	7/7/00		
Sample ID: IJF0961-22 (PC-17B - Soi		10000552	2 0.040	ND	I	7/5/00	7/5/00		
Perchlorate	,	100055	0.040	NID					
Sample ID: IJF0961-23 (PC-17T - Soi	EPA 300.0 MOD.	1000552	2 0.040	ND	l	7/5/00	7/5/00		
Perchlorate									
	EPA 300.0 MOD.	10G0552	2 0.040	ND	1	7/5/00	7/5/00	$\downarrow$	
Sample ID: IJF0961-24 (PC-18 - Soil)								1	
Perchlorate	EPA 300.0 MOD.	I0G0552	2 0.040	ND	1	7/5/00	7/5/00	*	
								ļ	

\*Analysis Not Validated



Del Mar Analytical, Irvine Pat Abe

Project Manager



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

Report Number: IJF0961

Sampled: 06/28/00 Received: 06/28/00

# **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyze		ata lifiers
Sample ID: IJF0961-25 (PC-19 - Soil) Perchlorate			mg/kg	mg/kg			Antonia	Rev Qual	Qual Code
	EPA 300.0 MOD.	10G0552	2 0.040	ND	1	7/5/00	7/5/00	U	



**Del Mar Analytical, Irvine** Pat Abe Project Manager



# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

 $\begin{array}{c} \underline{\text{QC Level}}\colon & V^1 \\ \underline{\text{SDG}}\colon & \text{IJI0547} \\ \underline{\text{Matrix}}\colon & \text{Soil} \\ \text{No. of Samples}\colon & 2 \end{array}$ 

Date Reviewed: March 08, 2002
Reviewer: P. Meeks

Reference: USEPA Contract Laboratory Program National Functional Guidelines For

*Inorganic Data Review* (2/94)

Samples Reviewed: PCS-29, PCS-31

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the samples and accounted for the analyses. No custody seal information was provided, but the COC noted that samples were received intact. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the samples in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One LCS was analyzed with the samples in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> Performed for PCS-29	The RPD was less than the control limit of 20%.	No qualifications were required.

	Findings	Qualifications
7. MS/MSDs Performed for PCS-29	The MS recovery was within the laboratory- established control limits of 80-120%, but the MSD was recovered above the upper control limit.	As perchlorate was not detected in the associated site samples, no qualifications were required.
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: none	None	No qualifications were required.
<u>Comments</u>	None	None

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0547

Sampled:09/15/00 Received:09/15/00

#### **INORGANICS**

Analyte	Method	l Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Samuel ID, HUSSAS OF (DCC 40 C II)			mg/kg	mg/kg				Rev   Qual
Sample ID: IJI0547-01 (PCS-29 - Soil)								Qual Code
Perchlorate	EPA 300.0 MOD.	. I0I1622	0.040	ND	1	9/16/00	9/16/00	UM
Sample ID: IJI0547-02 (PCS-30 - Soil)								1
Perchlorate	EPA 300.0 MOD.	1011622	0.040	0.44	1	9/16/00	9/16/00	*
Sample ID: IJI0547-03 (PCS-32 - Soil)				••••	•	<i>&gt;</i> /10/00	<i>3/10/00</i>	^
Perchlorate	EPA 300.0 MOD.	1011622	0.040	0.75	1	9/16/00	9/16/00	*
Sample ID: IJI0547-04 (PCS-31 - Soil)			0.0.0	0.,2	•	3/10/00	2/10/00	^
Perchlorate	EPA 300.0 MOD.	1011622	0.040	ND	1	9/16/00	9/16/00	U
Sample ID: IJI0547-05 (PCS-33B - Soil)		1011011	0.010	ND	1	9/10/00	9/10/00	V
Perchlorate	EPA 300.0 MOD.	1011622	0.040	0.46	1	9/16/00	9/16/00	*
				3,10	1	2/10/00	J/10/00	^

pm 03/08/02

\*Amalysis Not Validated





Del Mar Analytical, Irvine



# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

 $\begin{array}{c} \underline{\text{QC Level}}\colon & V^1 \\ \underline{\text{SDG}}\colon & \text{IJI0778} \\ \underline{\text{Matrix}}\colon & \text{Soil} \\ \text{No. of Samples}\colon & 1 \end{array}$ 

<u>Date Reviewed</u>: March 08, 2002 <u>Reviewer</u>: P. Meeks

Reference: USEPA Contract Laboratory Program National Functional Guidelines For

*Inorganic Data Review* (2/94)

Samples Reviewed: PCS-34

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the sample and accounted for the analysis. No custody seal information was provided, but the COC noted that the sample was received intact. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the samples in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One LCS was analyzed with the samples in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> Performed for PCS-34	The RPD was less than the control limit of 20%.	No qualifications were required.

	Findings	Qualifications
7. MS/MSDs Performed for PCS-34	The MS recovery was within the laboratory-established control limits of 80-120%, but the MSD was recovered above the upper control limit.	As perchlorate was not detected in the associated site samples, no qualifications were required.
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: none	None	No qualifications were required.
<u>Comments</u>	None	None

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0778

Sampled:09/22/00 Received:09/22/00

#### **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IJI0778-01 (PCS-34 - Soil)			mg/kg	mg/kg				Per Oval Qual Code
Perchlorate Sample ID: IJI0778-02 (PCS-35 - Soil)	EPA 300.0 MOD.	1012258	0.040	ND	1	9/22/00	9/22/00	U
Perchlorate	EPA 300.0 MOD.	1012258	0.080	1.3	2	9/22/00	9/23/00	*

\* Amalysis Not Validated



Del Mar Analytical, Irvine



# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

 $\begin{array}{c} \underline{\text{QC Level}}\colon & V^1 \\ \underline{\text{SDG}}\colon & \text{IJI0915} \\ \underline{\text{Matrix}}\colon & \text{Soil} \\ \text{No. of Samples}\colon & 3 \end{array}$ 

Date Reviewed: March 08, 2002 Reviewer: P. Meeks

<u>Reference</u>: USEPA Contract Laboratory Program National Functional Guidelines For

Inorganic Data Review (2/94)

Samples Reviewed: PCS-39, PCS-40, PCS-41

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the samples and accounted for the analyses. No custody seal information was provided, but the COC noted that the samples were received intact. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the samples in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One LCS was analyzed with the samples in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> Performed for PCS-39	The RPD was less than the control limit of 20%.	No qualifications were required.

	Findings	Qualifications
7. MS/MSDs Performed for PCS-39	The MS/MSD recoveries were within the laboratory-established control limits of 80-120%.	No qualifications were required.
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: none	None	No qualifications were required.
<u>Comments</u>	None	None

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0915

Sampled:09/26/00 Received:09/27/00

#### **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		ata lifiers
Sample ID: IJI0915-01 (PCS-39 - Soil)			mg/kg	mg/kg				Rev Îval	Qual
Perchlorate Sample ID: IJI0915-02 (PCS-40 - Soil)	EPA 300.0 MOD	. 1012831	0.040	ND	1	9/28/00	9/28/00	U	
Perchlorate Sample ID: IJI0915-03 (PCS-41 - Soil)	EPA 300.0 MOD	. 1012831	0.040	ND	1	9/28/00	9/28/00	U	
Perchlorate	EPA 300.0 MOD.	1012831	0.040	ND	1	9/28/00	9/28/00	U	





Del Mar Analytical, Irvine



# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

QC Level: V<sup>1</sup>
SDG: IJF1026
Matrix: Soil
No. of Samples: 3

<u>Date Reviewed</u>: March 08, 2002 <u>Reviewer</u>: P. Meeks

Reference: USEPA Contract Laboratory Program National Functional Guidelines For

*Inorganic Data Review* (2/94)

Samples Reviewed: PC-20, PC-21, PS-22

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the samples and accounted for the analyses. No custody seal information was provided, but the COC noted that the samples were received intact. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the samples in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One LCS was analyzed with the samples in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> None	None	No qualifications were required.
7. MS/MSDs	None	No qualifications were required.

Project: Rocketdyne SDG: IJF1026 Analysis: Gen. Min.

	Findings	Qualifications
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: none	None	No qualifications were required.
Comments	None	None

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF1026

Sampled: 06/29/00 Received: 06/29/00

#### **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IJF1026-01 (PC-20 - Soil)			mg/kg	mg/kg				Rev Qual Qual Code
Perchlorate Sample ID: IJF1026-02 (PC-21 - Soil)	EPA 300.0 MOD.	10G055	2 0.040	ND	1	7/5/00	7/5/00	U
Perchlorate Sample ID: IJF1026-03 (PC-22 - Soil)		10G055	2 0.040	ND	1	7/5/00	7/5/00	
Perchlorate	EPA 300.0 MOD.	I0G055	2 0.040	ND	1	7/5/00	7/5/00	<b>V</b>





Del Mar Analytical, Irvine



#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

QC Level: V<sup>1</sup>
SDG: IJF0277
Matrix: Soil
No. of Samples: 2

<u>Date Reviewed</u>: March 08, 2002 <u>Reviewer</u>: P. Meeks

<u>Reference</u>: USEPA Contract Laboratory Program National Functional Guidelines For

Inorganic Data Review (2/94)

Samples Reviewed: CAC-31SW, CAC-32SW

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the samples and accounted for the analyses. No custody seal information was provided, but the COC noted that the samples were received intact. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the samples in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One LCS was analyzed with the samples in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> Performed for CAC-32SW	The RPD was within the control limit of 20%.	No qualifications were required.
7. MS/MSDs Performed for CAC-32SW	The %Rs were within the laboratory- established control limits of 80-120%	No qualifications were required.

	Findings	Qualifications
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: none	None	No qualifications were required.
Comments	None	None

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne 870071

Report Number: IJF0277

Sampled: 06/07/00 Received: 06/08/00

#### **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Qual	
Sample ID: IJF0277-06 (CAC-32SW -	· Soil)		mg/kg	mg/kg				Qual	Qual
Perchlorate Sample ID: IJF0277-07 (CAC-31SW -	EPA 300.0 MOD. <b>Soil)</b>	I0F1632	2 0.040	ND	1	06/16/00	06/16/00	V	
Perchlorate	EPA 300.0 MOD.	I0F1632	2 0.040	ND	1	06/16/00	06/16/00	U	





Del Mar Analytical, Irvine



#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

QC Level: V¹
SDG: IJH0950
Matrix: Soil
No. of Samples: 12

Date Reviewed: March 08, 2002
Reviewer: P. Meeks

<u>Reference</u>: USEPA Contract Laboratory Program National Functional Guidelines For

*Inorganic Data Review* (2/94)

Samples Reviewed: CBC-91S, CBC-92S, PC-26, PC-27, PC-28, CBC-93S, CBC-94SW, PC-28D,

CAC-90BE, CAC-89BW, PC-24, PC-25

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the samples and accounted for the analyses. No custody seal information was provided, but the COC noted that the samples were received intact. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the samples in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. LCS/BS	One LCS was analyzed with the samples in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> Performed for CAC-90BE	The RPD was within the control limit of 20%.	No qualifications were required.

	Findings	Qualifications
7. MS/MSDs Performed for CAC-90BE	The %Rs were within the laboratory- established control limits of 80-120%	No qualifications were required.
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: none	None	No qualifications were required.
<u>Comments</u>	None	None

 $<sup>^{1}</sup>$  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.



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(949) 261-1022 FAX (949) 261-1228 (909) 370-4667 FAX (909) 370-1046 (818) 779-1844 FAX (818) 779-1843 (858) 505-9596 FAX (858) 505-9689 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0950

Sampled: 08/28/00 Received: 08/28/00

#### **INORGANICS**

	111	ONGAINE						
Analyte	Method Batc	Reporting h Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		iers
		mg/kg	mg/kg					Ode Code
Sample ID: IJH0950-01 (CBC-	-91S - Soil)						4000	cour
Perchlorate	EPA 300.0 MOD.I0H29	49 0.040	ND	1	8/29/00	8/29/00	U	
Sample ID: IJH0950-02 (CBC-	-92S - Soil)				0,23,00	0,20,00	ī	
Perchlorate	EPA 300.0 MOD.I0H29	49 0.040	ND	1	8/29/00	8/29/00		
Sample ID: IJH0950-03 (PC-26	6 - Soil)					5, 25, 00		
Perchlorate	EPA 300.0 MOD.I0H29	49 0.040	ND	1	8/29/00	8/29/00		
Sample ID: IJH0950-04 (PC-2'	7 - Soil)					5, 2, , , ,		
Perchlorate	EPA 300.0 MOD.I0H29	49 0.040	ND	1	8/29/00	8/29/00		
Sample ID: IJH0950-05 (PC-28	8 - Soil)					3.25,00		
Perchlorate	EPA 300.0 MOD.I0H29	49 0.040	ND	1	8/29/00	8/29/00		
Sample ID: IJH0950-06 (CBC-	·93S - Soil)							
Perchlorate	EPA 300.0 MOD.I0H29	49 0.040	ND	1	8/29/00	8/29/00		
Sample ID: IJH0950-07 (CBC-	94SW - Soil)							
Perchlorate	EPA 300.0 MOD.10H29	49 0.040	ND	1	8/29/00	8/29/00	↓	
Sample ID: IJH0950-08 (CBC-	51SW - Soil)						•	
Perchlorate	EPA 300.0 MOD.I0H29	49 0.040	ND	1	8/29/00	8/29/00	*	
							•	•

\* Analysis Not Validated



Del Mar Analytical, Irvine



2852 Alton Ave., Irvine, CA 92606 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 16525 Sherman Way, Suite C-11, Van Nuys, CA 92406 (818) 779-1844 FAX (818) 779-1843 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123

(949) 261-1022 FAX (949) 261-1228 (858) 505-9596 FAX (858) 505-9689 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0950

Sampled: 08/28/00

Received: 08/28/00

#### **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Dat Qualif	
Sample ID: IJH0950-16 (PC-28D - 5	Soil)		mg/kg	mg/kg					Qual Code
Perchlorate	EPA 300.0 MOD.I	0H2949	0.040	ND	1	8/29/00	8/29/00	U	





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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJH0919

Sampled: 08/25/00

Received: 08/25/00

#### **INORGANICS**

				-					
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Da Quali	
Sample ID: IJH0919-08 (CAC-90BE	- Soil)		mg/kg	mg/kg				Bu Qual	Qual
Perchlorate Sample ID: IJH0919-09 (CAC-90BW	EPA 300.0 MOD.	I0H294	9 0.040	ND	1	8/29/00	8/29/00	U	
Perchlorate Sample ID: IJH0919-14 (CAC-89BE)	EPA 300.0 MOD.:	I0H294	9 0.040	ND	1	8/29/00	8/29/00	<del>-X</del>	
Perchlorate Sample ID: IJH0919-15 (CAC-89BW	EPA 300.0 MOD.	I0H294	9 0.040	ND	1	8/29/00	8/29/00	*	
Perchlorate Sample ID: IJH0919-18 (PC-24 - Soil	EPA 300.0 MOD.	I0H294	9 0.040	ND	1	8/29/00	8/29/00	U	
Perchlorate Sample ID: IJH0919-19 (PC-25 - Soil	EPA 300.0 MOD.	I0H294	9 0.040	ND	1	8/29/00	8/29/00	U	
Perchlorate	EPA 300.0 MOD.1	I0H294	9 0.040	ND	1	8/29/00	8/29/00	U	

\*Analysis Not Validated





Del Mar Analytical, Irvine



# **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

QC Level: V<sup>1</sup>
SDG: IJI0967
Matrix: Soil
No. of Samples: 3

<u>Date Reviewed</u>: March 08, 2002 <u>Reviewer</u>: P. Meeks

Reference: USEPA Contract Laboratory Program National Functional Guidelines For

Inorganic Data Review (2/94)

Samples Reviewed: PCS-43, PCS-44, PCS-45

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the samples and accounted for the analyses. No custody seal information was provided, but the COC noted that the samples were received intact. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the samples in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. LCS/BS	One LCS was analyzed with the samples in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> None	None	No qualifications were required.
7. MS/MSDs None	None	No qualifications were required.

Project: Rocketdyne SDG: IJI0967 Analysis: Gen. Min.

	Findings	Qualifications
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: None	None	No qualifications were required.
Comments	None	None

 $<sup>^{1}</sup>$  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.



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2892 Alton Ave., trvine, CA 92606 (949) 261-1022 FAX (849) 261-1228 (909) 370-4667 FAX (909) 370-1046 (460) 785-0043 FAX (480) 785-0851

IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0967

Sampled:09/28/00 Received:09/28/00

#### **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		ata lifiers
Sample ID: IJI0967-03 (PCS-43 - Soil)			mg/kg	mg/kg				Bev Qual	Qual Co de
Perchlorate Sample ID: IJI0967-04 (PCS-44 - Soil)	EPA 300.0 MOD.	1012831	0.040	ND	1	9/28/00	9/28/00	U	
Perchlorate Sample ID: IJI0967-05 (PCS-45 - Soil)	EPA 300.0 MOD.	1012831	0.040	ND	1	9/28/00	9/29/00	U	
Perchlorate	EPA 300.0 MOD.	1012831	0.040	ND	1	9/28/00	9/29/00	U	ļ





Del Mar Analytical, Irvine



#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

QC Level: V¹
SDG: IJG0192
Matrix: Soil
No. of Samples: 6

Date Reviewed: March 08, 2002 Reviewer: P. Meeks

<u>Reference</u>: USEPA Contract Laboratory Program National Functional Guidelines For

*Inorganic Data Review* (2/94)

Samples Reviewed: CBC-49S, CBC-50S, CBC-52SW, CBC-55S, CBC-56SW, CBC-57SW

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the samples and accounted for the analyses. No custody seal information was provided, but the COC noted that the samples were received intact. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the samples in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. <u>LCS/BS</u>	One LCS was analyzed with the samples in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> None	None	No qualifications were required.
7. MS/MSDs None	None	No qualifications were required.

	Findings	Qualifications
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: None	None	No qualifications were required.
Comments	None	None

 $<sup>^{1}</sup>$  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.



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502 Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne

870071 Report Number: IJG0192

Sampled: 07/10/00 Received: 07/10/00

#### **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzee		)ata alifiers
Sample ID: IJG0192-01 (CBC-48S - Soil)			mg/kg	mg/kg				Rev Qual	(ode
Perchlorate EF Sample ID: IJG0192-02 (CBC-49S - Soil)	PA 300.0 MOD.	I0G144	7 0.040	ND	1	7/14/00	7/15/00	*	
Perchlorate EF Sample ID: IJG0192-03 (CBC-50S - Soil)	PA 300.0 MOD.	10G144	7 0.040	ND	1	7/14/00	7/15/00	U	
Perchlorate EF Sample ID: IJG0192-04 (CBC-52SW - So	A 300.0 MOD.	10G1447	7 0.040	ND	1	7/14/00	7/15/00	U	
Perchlorate EF Sample ID: IJG0192-05 (CBC-54SW - So	A 300.0 MOD.	10G1447	7 0.040	ND	1	7/14/00	7/15/00	U	•
Perchlorate EF Sample ID: IJG0192-06 (CBC-56SW - So	A 300.0 MOD.	I0G1447	7 0.040	ND	1	7/14/00	7/15/00	*	
· · · · · · · · · · · · · · · · · · ·	A 300.0 MOD.	I0G1447	7 0.040	ND	, 1	7/14/00	7/15/00	U	
,	A 300.0 MOD.	I0G1447	7 0.040	ND	1	7/14/00	7/15/00	U	
									1

\*Amalysis Not Validated

# AMEC VALIDATED



Del Mar Analytical, Irvine



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IT Corporation/Emcon - Burbank 601 S. Glenoaks Boulevard, Suite 314 Burbank, CA 91502

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071 Report Number: IJG0104

Sampled: 07/06/00 Received: 07/06/00

#### **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		ata lifiers
Sample ID. 11C0104 02 (CDC 526 C	- 20		mg/kg	mg/kg				Qual	Qual Code
Sample ID: IJG0104-03 (CBC-53S - S Perchlorate Sample ID: IJG0104-05 (CBC-55S - S	EPA 300.0 MOD.	10G144	7 0.040	ND	1	7/14/00	7/15/00	*	
Perchlorate Sample ID: IJG0104-08 (CBC-58SW -	EPA 300.0 MOD. <b>Soil)</b>	10G144	7 0.040	ND	1	7/14/00	7/15/00	U	9
Perchlorate	EPA 300.0 MOD.	I0G144	7 0.040	ND	1	7/14/00	7/15/00	*	

\*Analysis Not Validated





**Del Mar Analytical, Irvine**Pat Abe
Project Manager



#### **DATA ASSESSMENT FORM**

Project Title: Rocketdyne Former Sodium Disposal Facility Site Sampling

Project Manager: D. Hambrick

Analysis/Method: General Minerals by 300.0

 $\begin{array}{c} \underline{\text{QC Level}}\colon & V^1 \\ \underline{\text{SDG}}\colon & \text{IJI0055} \\ \underline{\text{Matrix}}\colon & \text{Soil} \\ \underline{\text{No. of Samples}}\colon & 5 \end{array}$ 

<u>Date Reviewed</u>: March 08, 2002 <u>Reviewer</u>: P. Meeks

<u>Reference</u>: USEPA Contract Laboratory Program National Functional Guidelines For

Inorganic Data Review (2/94)

Samples Reviewed: CBC-96SW, CBC-97SW, CBC-98S, CBC-99SW, CBC-97SWD

	Findings	Qualifications
1. Sample Management	Temperatures were within the temperature limits of 4°±2°C. The COC matched the samples and accounted for the analyses. No custody seal information was provided. The 28 day holding time for perchlorate was met.	No qualifications were required.
3. Method Blanks	One method blank was analyzed with the samples in this SDG. Perchlorate was not detected in the method blank.	No qualifications were required.
5. LCS/BS	One LCS was analyzed with the samples in this SDG. The perchlorate recovery was within the laboratory-established control limits of 90-110%.	No qualifications were required.
6. <u>Duplicates</u> None	None	No qualifications were required.
7. MS/MSDs None	None	No qualifications were required.

Project: Rocketdyne SDG: IJI0055 Analysis: Gen. Min.

	Findings	Qualifications
10. Other	The results were reported on a wet weight basis.	No qualifications were required.
11. Field QC Samples Field duplicates: CBC-97SW/CBC-97SWD	There were no field QC samples associated with the samples in this SDG. Perchlorate was not detected in either field duplicate sample.	No qualifications were required.
<u>Comments</u>	None	None

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.



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IT Corporation/Emcon - Burbank

601 S. Glenoaks Boulevard, Suite 314

Burbank, CA 91502 Attention: Sally Bilodeau Client Project ID: Boeing/Rocketdyne

870071

Report Number: IJI0055

Sampled: 09/01/00

Received: 09/01/00

#### **INORGANICS**

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed		ata lifiers
			mg/kg	mg/kg			eris .	ew 1	Qual
Sample ID: IJI0055-02 (CBC-96SW	- Soil)						a	Ivel	Code
Perchlorate	EPA 300.0 MOD.	1010540	0.040	ND	1	9/5/00	9/5/00	U	
Sample ID: IJ10055-03 (CBC-97SW	- Soil)								
Perchlorate	EPA 300.0 MOD.	1010540	0.040	ND	1	9/5/00	9/5/00		
Sample ID: IJI0055-04 (CBC-98S - S	oil)								
Perchlorate	EPA 300.0 MOD.	1010540	0.040	ND	1	9/5/00	9/5/00		
Sample ID: IJI0055-05 (CBC-99SW	- Soil)					3.3.00	3,0,00		
Perchlorate	EPA 300.0 MOD.	1010540	0.040	ND	1	9/5/00	9/5/00		
Sample ID: IJI0055-06 (CBC-97SW)					•	2.0.00	2, 2, 00		
Th. 11	EPA 300.0 MOD.	1010540	0.040	ND	1	9/5/00	9/5/00	J	



Del Mar Analytical, Irvine Pat Abe

Project Manager



**WORK ORDER NO: 4276** 



Quanterra Incorporated 5815 Middlebrook Pike Knoxville, Tennessee 37921

615 588-6401 Telephone 615 584-4315 Fax

ICF Kaiser Environment and Energy Group 10 Universal City Plaza, Suite 2400 Universal City, CA 91608-1097 Attn: Tom Watson

October 3, 1995

Job Numbers: 4276 (Corrected Certificate)

This is the Certificate of Analysis for the following samples:

Client Project ID:

Rocketdyne FSDF / 66280-002-00

Date Received by Lab:

July 26, 1995

Number of Samples:

Twenty (20)

Sample Type:

Soil - seventeen (17); Water - three (3)

#### I. Introduction

On July 26, 1995, seventeen (17) soil samples and three (3) water samples arrived at Quanterra Environmental Services, Knoxville, Tennessee, from ICF Kaiser Environment and Energy Group, Universal City, California. The list of analytical tests performed, as well as date of receipt and analysis, can be found in the attached report.

# II. Analytical Results/Methodology

The analytical results for this report are presented by analytical test. Each set of data will include sample identification information and the analytical results.

The samples were analyzed for volatile and semivolatile organic compounds by gas chromatography/mass spectroscopy (GC/MS) based on EPA SW-846 3rd edition methods 8260 and 8270, respectively.

Reviewed and Approved:

roject Manager

ICF Kaiser Environment and Energy Group October 3, 1995



Client Project ID: Rocketdyne FSDF / 66280-002-00

Job Number: 4276 (Corrected Certificate)

# II. Analytical Results/Methodology (Continued)

The samples were analyzed for requested metals by cold vapor atomic absorption spectroscopy (CVAA) and supertrace by inductively coupled argon plasma spectroscopy (ICP) based on EPA methods 7470, 7471 and 6010.

The samples were analyzed for PCBs by gas chromatography/electron capture detection (GC/ECD) based on EPA SW-846 3rd edition method 8080.

The samples were analyzed for total high boiling petroleum hydrocarbons as diesel fuel by gas chromatography/flame ionization detection (GC/FID) using California LUFT method 8015.

The samples were analyzed for total low boiling petroleum hydrocarbons as gasoline by gas chromatography/flame ionization detection (GC/FID) based on California LUFT method 8015.

The samples were analyzed for dioxins by Quanterra Environmental Services, Knoxville, Tennessee, and will be reported separately.

### III. Quality Control

### **Volatiles**

Samples 20246220SVL0, 20230331SVL0, 20546500SVL0, 20846220SVL0, 21513070SVL0, 40206390SVL2, and 40206390SVL0 exhibited matrix interferences with the surrogate standards and/or the internal standards. Re-analyses were performed to confirm the matrix affects; both sets of data were submitted.

### **Semivolatiles**

Samples 20246220SOC0 and 20330281SOC0 had high percent reocveries for surrogate terphenyl-d14; however, since no targets were detected above the reporting limits for these samples, this anomaly does not affect the data.

# Total Low Boiling Petroleum Hydrocarbons

No problems were encountered during the analysis of these samples.

# Total High Boiling Petroleum Hydrocarbons

Samples 21431330SOC0, 20546500SOC0, 20846220SOC0, 21516170SOC0, 21513070SOC0, 40206390SOC0 and 22046220SOC0 had surrogates outside of laboratory control limits. This is due to coelution of the surrogate with hydrocarbons present in the sample. This is to be expected with samples containing hydrocarbons. The data should be unaffected.

No# 42 +6

2-01

COC NO.

Z 0557

Laboratory Project No.: Storage Refrigerator ID: FOR LABORATORY USE ONLY

CHAIN OF CUSTODY RECORD	ECORD	Nº 0557 Lab	Laboratory Project No.: Storage Refrigerator ID:	Secured:
Idyms FSDF	- Project #: 66280 - 002 - 00 Sampler:		Civiago Francos	No
Relinquished by: steprine or Print Hand	Received by: dispraise and Fried Haves	Printed Name)	Date: JA. K.T	Signature) Time: 000
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RUAN TERRA  Method of Shipment  TENT	Circle or Add Analysis(es) Requested		Karar	a=Identify enecitic metals
ç	Service Colleg		Salvisor	requested under Special Instructions
615 1538 -6401 000000	1000 000 1 00 00 00 00 00 00 00 00 00 00	Self Self Self Train	<b>₹</b> ः	
Sample ID Sample Description		TOURS SOUTH OF CONTROL	95	FOR LAB USE ONLY
Date	CATO CONTRAINT OF THE SE	[[48] 28] (28] (28] (28] (28] (28] (28] (28	TAT # Type	Lab ID
1 SYLO 7/M 105 SD)	189	X	3wk 1	
	X	XX	3.,47	Part & you
3 5014 8200 V /055 U		X	3, 1/1	with a state sale
1 203% 310 Alby 1429 5010	X	·		Card Carlon 1.11.
20 16 7/m/		×		BEA Harles
727		× •	3 W / B	
\$ 0 C 0 7/LN 453	×	××	34/10	
		×		
5MMD 7/24/42 501		X	-	
02204CIN 7/H 400	X			
Notal professional Comments: Hotal professional CEKE	Sample Archive/Disposal: TA	TAT (Analytical Turn-Around Times) Container Types: B=Brass Tube V=VO O=Other	es) 1=24 hours 2=48 hours V=VOA Vial A=1-Liter Amber C	3=1 week 4=2 weeks G=Glass Jar C=Cassette
OR LABORATORY USE ONLY, Sample Condition I have Because		SEND DOCUMENTATION AND RESULTS TO:	AND RESULTS TO:	
The continuous obtained the co	celpt:	ICF KAISER ENGINEERS 10 UNIVERSAL CITY PLAZA	NGINEERS L CITY PLAZA	
		UNIVERSAL CI (818) 509-3100	UNIVERSAL CITY, CALIFORNIA 91608 (818) 509-3100 FAX (818) 509-3137	

W8#4276

CHEM 2-02

		シャイフ・ナ	17:7	2-0
ENGINEERS "0004849"		× 1	FOR LABORATORY USE ONLY	
CHAIN OF CUSTODY RECORD	ORD	Nº 0558	Laboratory Project No.: Storage Refrigerator ID:	Secured:
Project Name: Rocheldyne FSDE Project #: 1	-co 2-00	Mark 1 75-	Storage Freezer ID:	No
Relinquished by: suprawa are principled	Received by: Surveys and Par	Prints		Autro
Relinquished by: Operans and France Young		The Arelian	79/26/4 sara	Time: 06:30
Relinquished by: Bayreans and Pristal Hamel	Received by: (sugrature and Printed Atana)		Date:	Time:
Relinquished by: degrate and Proted Hamaj	Received by: depreture and friend hamel	- Atomatic	Date	Time:
ı			Date:	Time:
Method of Shipment:	Circle or Add Analysis(es) Requested	1	1 Strate   S	=Identify specific motols
615/588-640) Shipment ID:	Service SC POST SC PR		GINT ES STORY	requested under Special Instructions
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1/4/37		>	) 3	with astach sints
3/20 13/2		×	2 /	Intect.
7/11/1/2		×	)	BEA 9/24/95
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1	X	X		
10 - WERD HIM 75 WORK		×		
Special Instructions/Comments/ Helah, ier litan medito from ICFKEHO Rugaterra duted 12/28/94	Sample Archive/Disposal:  Laboratory Standard  Other	TAT (Analytical Turn-Around Times) Container Types: B=Brass Tube V= O=Other	1=24 hours 2=48 hours VOA Vial A=1-Liter Amber	3=1 week 4=2 weeks G=Glass Jar C=Cassette
FOR LABORATORY USE ONLY. Sample Condition Upon Receipt:		SEND DOCUMENTATION AND RES	SEND DOCUMENTATION AND RESULTS TO:  ATTENTION: The wasen engineers	

ICF KAISER ENGINEERS
10 UNIVERSAL CITY PLAZA
SUITE 2400
UNIVERSAL CITY, CALIFORNIA 91608
(818) 509-3100 FAX (818) 509-3137

## ICF KAISER ENGINEERS

## COC NO.

	7,	6, #4209	7227 10/MI
Laboratory Project No.: Ser Storage Refrigerator ID: Yes Storage Freezer ID: No	FOR LABORATORY USE ONLY		

CHAIN	OF C	CHAIN OF CUSTODY RECORD	ECORD	Storage Refrigerator ID:	Secured:
Project Name: 125(45707/05	CHELD		Project #: 66280-002-20 Sampler: March 17	Signature Francis ID.	No
Relinquished by: serving and principly	ARE	Lenne -	Received by: Expuss and Promotions (by Anderson)	Date: 0/2//c-	Mare /2-3
resinquished by: payabre and Private Na	711	0	Received by: represe and Privad Hand		Time:
Relinquished by: papers and head rund	Printed Plants		Received by: Depress and Printed Hamas	Date:	Time:
Relinquished by: payment and Private Name	I		Received by: depense and Printed Hands	Date:	Time:
X WASTERS	<b>.</b>	Method of Shipment	Circle or Add Analysis(es)	11/1/20	
tus x vILLX To	せる	Shipment ID: 6882338001			requested under Special instructions
Sample ID		Sample Description		Container(s)	FOR LAB USE ONLY
_	Date Time	ne Description	" (S) (S) (S) (S) (S) (S) (S) (S) (S) (S)	BOYT # INT / NOB	Lab IO
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pecial Instructions/Comments:	comments:		Sample Archive/Disposat:  Container Types: B=Brass Tube V=	1=24 hours 2=48 hours VOA Vial A=1-Liter Amber	3=1 week 4=2 weeks G=Glass Jar C=Cassette
			SEND	DOCUMENTATION AND RESULTS TO:	
	SE ONLY.	Cri Endors on ose ONLY, Sample Condition Upon Receipt		ICF KAISER ENGINEERS 10 UNIVERSAL CITY PLAZA	
			UNIVERSAL (818) 509-31	UNIVERSAL CITY, CALIFORNIA 91608 (818) 509-3100 FAX (818) 509-3137	
(					

## ICF KAISER ENGINEERS

RL#4209	113#4276

FOR LABORATORY USE ONLY

## COC NO.

TON EXECUTE USE ONLY. Sample Condition Upon Receipt	FOB LABORATORY OF THE PROPERTY		Special instructions/Comments:	10	18207640 117	oreshla	1 029/1800 1100		7			20040507	1 (05 Th) hate darks 50)	Number Date Time Description	Sample ID Sample Description	1 <b>0</b> C85 <u>2</u> C887 inemodits	The Method of Shipment		Reinquished by: Bysano and Presid Hamp	21	Relinquished by appear of Principles	ojns	OIS
		☐ Laboratory Standard Container Types: B=Brass Tube ☐ Other	Sample Archive/Disposal: TAT (Analytical Turn-Around Times)			\times \t	X		X	X	XXXX	\(\times\)		0 (				PROCESSED DY, SERVICES and France Island				Her. Manta	CORD
ICF KAISER ENGINEERS 10 UNIVERSAL CITY PLAZA SUITE 2400 UNIVERSAL CITY, CALIFORNIA 91608 (818) 509-3100 FAX (818) 509-3137	SEND DOCUMENTATION AND RESULTS TO:	V=VOA Viel A=1-Liter Amber G=Glass Jar	mes) 1=24 hours 2=48 hours 3=1 week 4=2 weeks		X V V			1) 0 SEA 7/36/43	Sails Inket.	2 with custody	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10 Port 1 300	3.1.1.3	TAT # Type leb in	Container(a) FOR LAB USE ONLY	requested under Special Instructions	Esta Pist	Date: Time:	Date: Time:	Time:	Date: 4/2/65 Time: 0530	1	Laboratory Project No: Secured: Storage Refrigerator ID: Yes Storage Freezer ID: No

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R LABORATORY USE ONLY. Sample Condition Upon Receipt:	ecial instructions/Comments: Sample Archive/Disposat	2 1 1 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	20/2 1 M 63, 20) X	12/ 1/2/ 10:70	The state of the s	2003/700 L L V V T		Date Time Description	4	(CO1) A STAN AND AND AND AND AND AND AND AND AND A	~/~ ,	Received by: expense and frame hand			John Dings	$H_{\widehat{\mathbf{a}}}$	CHAIN OF CUSTODY RECORD	MNGINMRS ************************************	
SEND DOCUMENTATION AND RESULTS TO:  ATTENTION: 12 × 12 × 12 × 12 × 12 × 12 × 12 × 12	TAT (Analylical Turn-Around Times) Container Types: B=Brass Tube V=VQ O=Olher	*	X X X	*		**************************************		1 8 1 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1			1	shas and Princed Hamed	Received by: Copyains and Printed Hamil	Reprinted and Printed Human	7	Sampler: Som Priger	Sto		D#4/1
ND RESULTS TO: 2 july   Valveters CITY PLAZA	ours 2=48 hours A=1-Liter Amber	0	\ \alpha \	1		22 ×	32	121	Container(s)			Date:	Detex	77/26/4	١L١	Storage Freezer ID:	Laboratory Project No.: Storage Refrigerator ID:	FOR LABORATORY USE ONLY	
	3=1 week 4=2 weeks G=Glass Jar C=Cassette			35/9K/E 138	with custody seals intact.	Raid at 60C			FOR LAB USE ONLY	a=identity specific metals requested under Special Instructions		Time:	Time:	1 OS:30	11	No	Secured:	17	

### ICF KAISER ENGINEERS KAISER

COC NO.

WO#4276 RL#4211

FOR LABORATORY USE ONLY

# CHAIN OF CIRTODY PECCED

CHAIN	QF		CHAIN OF CUSTODY RECORD	ÚR D			S F	Laboratory Project No.: Storage Refrigerator ID:	\$ N	Secured:
	/42				<u> </u>		Ste	Storage Freezer ID:	, , , , , , , , , , , , , , , , , , ,	No No
Project Name: 14 CAS/V/MS	2 7 2	1/0/		- Project #: 66 280-202-00	Sampler.	Thou was	7		7	7
Relinquished by: dispuse and resad type	Mari press	1	15- Milde		Received by: payable and Parad Hund	To Andrew	\ 180 Market	Date: (2)	72,27	Depart 10.5
Relinquished by: payable and Plant hand	and Preside Payment			- 1	Received by: payment and Friend Hung	k		Oate	(1/00/1)	70.30
Relinquished by: Styreuro and France Hund	-			Received	Received by: (Squaure and Pease) lung			Date		Tione:
Relinquished by: styrano and frame Hand	and Parents Haved			Received	Received by: (Pyratus and Passed Hame)			Pale		er integ
SHIP TO LAB:								Date		Time:
Quistan	2003	5	Method of Shipment:	18				R. S. S. S. S. S. S. S. S. S. S. S. S. S.		Eldentik, ensolde metale
			Shipment ID: 6363953934	PRINTING TO SERVICE STATE OF THE SERVICE STATE OF T	CO POR SECURAL SECURAD SECURAL SECURAL SECURAL SECURAL SECURAL SECURAL SECURAL SECURAD SECURAL SECURAL SECURAL SECURAL SECURAL SECURAL SECURAL SECURADA SECURAL SECURAL SECURAL SECURAL SECURAL SECURAL SECURAL SECURADA SECURAL SECURAL SECURAL SECURAD SECURAL SECURADA SECURADA SECURAD SECURAD SECURAD SECURAD SECURAD SECURAD SECURAD SECURAD SEC					requested under Special Instructions
Sample ID		Sam	Sample Description	XA.		1			Container(s)	FOR LAB USE ONLY
Number	Date	Time	Description	NO.		87 ( <b>38</b>   38   38   38		11/1	# Туре	Lab ID
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3 2/8/6/70		13		ベ	メストン		X		3	18:0:21 7 (
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1 8 21404 2 0		अप			1		1		1/2	seals intact.
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7 31236270 Smr b		31/1				X	>		2 7	
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Special Instructions/Comments:	/Commen	<b>.</b>		Sample Archive/Disposal:	sel:	TAT (Analytical Turn-Around Times) 1=24 hours 2=48 hours Container Types: B=Brass Tube V=VOA Vial A=1-1 lier Amher	Turn-Around Times) s: B≖Brass Tube V=V(	1=24 hours (	- 1	[
				Other		0=0	O=Olher	7.1.5		G-GIBSS JAF C-Cassene

< 0

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt:

SEND DOCUMENTATION AND RESULTS TO:

ATTENTION:

ICF KAISER ENGINEERS
10 UNIVERSAL CITY PLAZA
SUITE 2400
UNIVERSAL CITY, CALIFORNIA 91608
(818) 509-3100 FAX (818) 509-3137

□ Other

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# 「CF KAISITA | 整理機構を 「COC NO. COC NO

WO#4276

FOR LABORATORY USE ONLY

Laboratory Project No.:

**Y89** Secured:

CHAIN OF CUSTODY RECORD

CHAIN	9	C	CHAIN OF CUSTODY RECORD	ORD		Stora	Storage Refrigerator ID: Storage Freezer ID:		Yes -	
Project Name: PX LES PHIZ	RV	405	Project #:	Project #をなえのーめえるい	Sampler: Mar 187	San San San San San San San San San San	19		Ŋ	1
Relinquished by: servine and recognitively	The second	1	九八八人	Man esting The Received by: separate or remaining	- Sen Arber	ξ	Date: 9/	26/36	Time 08:30	
Relinquished by: pyrane and remarken	7	1		Received by: paymer and Printed Hand			Date:		Time:	
Relinquished by: payment and Printed Hund	7	1		Received by: sharans and Finish Hand	And Rong		Date:		Timux	
Palinquished by: payable and Press turns	7	-		Received by: pryruing and Plaine Hame	tend Hamaj		Date:		Timec	
SHIP TO LAB:	18	ζ	Method of Shipment	Circle or Add Analysis(es)			Edage;	<u>.</u>	a-identify specific metals	etals
			Shipment ID: \$3953734	No. SO. SO. SO. SO. SO. SO. SO. SO. SO. SO	6 10 00		**************************************		requested under Special Instructions	Special
Semple ID		8	Sample Description	VIO RO AT PRO   VIO RO AT NO   VIO			\       	Container(s)	FOR LAB USE ONLY	AT.A
Number	Date	Time	Description	1 8 3 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	MET 27 27 29 29 29 25		/ TAT #	Туре	Lab ID	
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3 2) 513040		515		メメン	\(\frac{\chi}{\chi}\)	メペカ		3	with cusho	120
1 4020631	_	1525		メメ	X A	XIKK/		0	seals intact.	10
5 4-205350		105				X		9	BEA 4/36/95	145
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7 33921670		وحدي/				X		15		
8 3092/670 5/1/m 5		1430			×			26		
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Special instructions/Comments:	8/Com	nents:		Sample Archive/Disposal:	TAT (Analytical	Turn-Around Times) s: B=Brass Tube V=VO	1es) 1=24 hours 2=48 hours V=VOA Vial A=1-Liler Amber	-	3=1 week 4=2 G=Glass Jar C=Cs	4=2 weeks C=Cassette
				☐ Laboratory Standard	:					

FOR LABORATORY USE ONLY. Sample Condition Upon Receipt:

ATTENTION: TO WAS TO

ICF KAISER ENGINEERS
10 UNIVERSAL CITY PLAZA
SUITE 2400
UNIVERSAL CITY, CALIFORNIA 91608
(818) 509-3100 FAX (818) 509-3137

### ICF KAISER ENGINEERS COC NO.

FOR LABORATORY USE ONLY

CHAIN OF CUSTODY RECORD Project Name: 12-562570/1/32 Project #: 6-6250-2	ODY REC	Y RECORD Project #: 6ゼスタンーの2ーの)	yer.	av 177 /m	Storage Refrigerator ID:	ot No:	Yes No
Relinquished by: Byours or Providing	m I	Mar 127 77 - Received by: Styrace and France income	more har	holeson	Date:	19/26/65	1 Ime 68:30
Relinquished by: supervised Printed Name		Received by: dispraise and hasse have	re and Printed Harrid		Date:		Time:
		Received by: payment and Francisco	re and Printed Harvey		Date:	7	Time:
remiquened by: Byrane on Press stand		Received by: payor	Ave and Private Haway		Date:		Time:
COMPACE OF S	Method of Shipment	Circle or Add Analysis(es)					a-identify specific metals
	Shipment ID: 6363753734	SPRINT SOLUTION OF	RECIPE SOLUTION OF THE PROPERTY OF THE PROPERT		27/60		requested under Special Instructions
Sample ID Sample Description	scription	LEW N		SOLO OF THE SOLO O		Container(s)	FOR LAB USE ONLY
1 4020 13 th 1/45 50)	7				1 C   N	2 2 m	
2 90206390 1443	}		Ž			7	Raid at 200
3 Mar De 200 1 / MAR	D	X	XX	2	<b>A</b>	7 3	2
							Souls intect
5							22/36/4 128
6							1001
7							
00							
9							
10							
Special instructions/Comments:		Sample Archive/Disposal:	posal: TAT (Analytical Container Types	lylical Turn-Around Times) r Types: B=Brass Tube V='	nes) 1=24 h V=VOA Visi	ours 2=48 hours A=1-Liter Amber (	3=1 week 4=2 weeks G=Glass Jar C=Cassette
		Olher		O=Other			
				SEND DOCUMENTA	SEND DOCUMENTATION AND RESULTS TO:	\$10:	
FOR LABORATORY USE ONLY. Sample Condition Upon Receipt	ondition Upon Receipt			ICF KA 10 UNI SUITE	ICF KAISER ENGÍNEERS 10 UNIVERSAL CITY PLAZA SUITE 2400		
				UNIVE (818) 5	UNIVERSAL CITY, CALIFORNIA 91608 (818) 509-3100 FAX (818) 509-3137	INIA 91608 09-3137	



### **ROCKETDYNE**

Page 4 B of 320 B

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20246220SMM0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204305

Retest:

Prep Date: 08/01/95 Prep Batch: 18796 Lab Sample: AG2020/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 176

Lab Method Blank: AG2785

Analysis Date: 08/01/95 13:04

Dilution: 1

### MERCURY (HG) BY CVAAS-SOLID EPA 7471 Primary Result

<u>Cas Number</u>	Analyte	<u>Result</u>	<u>Qualifier</u>	Report Limit	<u>Units</u>	% Rec	<u>Туре</u>
7439-97-6	MERCURY	.11	U	.11	MG/KG		TARG



### Environmental

### **CERTIFICATE OF ANALYSIS**

### **ROCKETDYNE**

Page 7 B of 320 B

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20146220SMM0 Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204407

Retest:

Prep Date: 08/01/95 Prep Batch: 18796

Lab Sample: AG2035/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 176

Lab Method Blank: AG2785

Analysis Date: 08/01/95 13:16

Dilution: 1

### MERCURY (HG) BY CVAAS-SOLID **EPA 7471** Primary Result

<u>Cas Number</u>	Analyte	<u>Result</u>	<u>Qualifier</u>	Report Limit	<u>Units</u>	% Rec	Туре
7439-97-6	MERCURY	.11	υ	.11	MG/KG		TARG



### **ROCKETDYNE**

Page 8 B of 320 B

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20130331SMM0

Client Matrix: SOIL

Collection Date: 07/24/95

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Sample: AG2041/ORIGINAL

Test: 204444

Retest:

Prep Date: 08/01/95 Prep Batch: 18796

Lab Method: 176

Lab Method Blank: AG2785

Analysis Date: 08/01/95 13:18

Dilution: 1

### MERCURY (HG) BY CVAAS-SOLID **EPA 7471** Primary Result

Cas Number <u>Analyte</u> Result Qualifier Report Limit Units % Rec <u>Type</u> 7439-97-6 MERCURY .25 .10 MG/KG TARG



### **ROCKETDYNE**

Page 9 B of 320 B

August 17, 1995

Sample Delivery Group: 4276

Report Batch:

19358

Client Sample: 20346310SMM0

Client Matrix: SOIL

Collection Date: 07/24/95

Lab Method: 176

Lab Matrix: SOIL

Retest:

Test: 204450

Lab Method Blank: AG2785

Received Date: 07/26/95

Prep Date: 08/01/95 Prep Batch: 18796

Analysis Date: 08/01/95 13:20

Lab Sample: AG2042/ORIGINAL

Dilution: 1

### MERCURY (HG) BY CVAAS-SOLID EPA 7471 Primary Result

Cas Number **Analyte** Result Qualifier Report Limit Units % Rec <u>Type</u> 7439-97-6 MERCURY .16 .10 MG/KG TARG



Page 10 B of 320 B

### ROCKETDYNE

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20446370SMM0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204478

Retest:

Prep Date: 08/01/95

Prep Batch: 18796

Lab Sample: AG2051/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 176

Lab Method Blank: AG2785

Analysis Date: 08/01/95 13:22

Dilution: 1

### MERCURY (HG) BY CVAAS-SOLID EPA 7471 Primary Result

Cas Number

<u>Analyte</u>

<u>Result</u>

Qualifier Report Limit Units % Rec

<u>Type</u>

7439-97-6

MERCURY

. 14

.10

MG/KG

TARG



Page 67 B of 320 B

### ROCKETDYNE

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20246220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204270

Retest:

Prep Date: 07/31/95

Prep Batch: 18899

Lab Sample: AG2011/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2922

Lab Method Blank: AG3145

Analysis Date: 07/31/95 11:49

Dilution: 1

Cas Number	Analyte	<u>Result</u>	<u>Qualifier</u> Report Limi	t <u>Units</u>	% Rec	Туре
1715-52-3	LOW BOILING PETROLEUM HYDROCAR A,A,A-TRIFLUOROTOLUENE	5.6	U 5.6	MG/KG	90	TARG



Page 70 B of 320 B

### **ROCKETDYNE**

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20146220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204382

Retest:

Prep Date: 07/31/95 Prep Batch: 18899 Lab Sample: AG2033/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2922

Lab Method Blank: AG3145

Analysis Date: 07/31/95 13:26

Dilution: 1

Cas Number	Analyte	Result	Qualifier Report Limit Units 2 Rec T	ype
1115-52-3	LOW BOILING PETROLEUM HYDROCAR A,A,A-TRIFLUOROTOLUENE	5.7		ARG Jirr



Page 71 B of 320 E

### **ROCKETDYNE**

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20346310SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204418

Retest:

Prep Date: 07/31/95

Prep Batch: 18899 Lab Sample: AG2036/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2922

Lab Method Blank: AG3145

Analysis Date: 07/31/95 13:59

Dilution: 1

Cas Number	Analyte	Result	Qualifier Report Lin	nit <u>Units</u> % Re	<u>Type</u>
IT15-52-3	LOW BOILING PETROLEUM HYDROCAR	5.4	υ 5.4	MG/KG	TARG
ე8-8	A,A,A-TRIFLUOROTOLUENE			110	SURR



Page 72 B of 320 B

### ROCKETDYNE

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20130331SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204434

Retest:

Prep Date: 07/31/95

Prep Batch: 18899

Lab Sample: AG2039/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2922

Lab Method Blank: AG3145

Analysis Date: 07/31/95 14:31

Dilution: 1

<u>Cas Number</u>	Analyte	<u>Result</u>	Qualifier Report Li	mit Units	% Rec <u>Type</u>
1115-52-3	LOW BOILING PETROLEUM HYDROCAR	6.0	U 6.0	MG/KG	TARG
78-8	A,A,A-TRIFLUOROTOLUENE				100 SURR



Page 74 B of 320 B

### ROCKETDYNE

August 17, 1995

Sample Delivery Group: 4276

Report Batch:

19358

Client Sample: 20446370SOCO

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204492

Retest:

Prep Date: 07/31/95 Prep Batch: 18899 Lab Sample: AG2053/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2922

Lab Method Blank: AG3145

Analysis Date: 07/31/95 15:04

Dilution: 1

<u>Cas Number</u>	Analyte	<u>Result</u>	Qualifier Report Limit	<u>Units</u>	% Rec	Type
1715-52-3 18-8	LOW BOILING PETROLEUM HYDROCAR A,A,A-TRIFLUOROTOLUENE	5.2	<b>U 5.2</b>	MG/KG	107	TARG SURR



Page 94 B of 320 B

### **ROCKETDYNE**

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20246220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204275

Retest:

Prep Date: 07/27/95 Prep Batch: 18620 Lab Sample: AG2011/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2924

Lab Method Blank: AG2129

Analysis Date: 08/01/95 00:54

Dilution: 1

### NONHALOG.VOA MOD.FOR H.BOIL PET.HYD EPA 8015M Primary Result

Cas Number	Analyte	<u>Result</u>	Qualifie	r Report L	imit <u>Units</u>	% Rec	<u>Type</u>
1T15-47-3	HIGH BOILING PETROLEUM HYDROCA TRICOSANE	5.6	<b>U</b>	5.6	MG/KG	106	TARG SURR



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### **ROCKETDYNE**

August 17, 1995

Sample Delivery Group: 45

4276

Report Batch:

19358

Client Sample: 20146220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204384

Retest:

Prep Date: 07/27/95 Prep Batch: 18620 Lab Sample: AG2033/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2924

Lab Method Blank: AG2129

Analysis Date: 08/01/95 07:12

Dilution: 1

### NONHALOG.VOA MOD.FOR H.BOIL PET.HYD EPA 8015M Primary Result

Cas Number	Analyte	<u>Result</u>	Qualifier Report Limit Units	% Rec	Type
IT15-47-3	HIGH BOILING PETROLEUM HYDROCA TRICOSANE	6.0	B 5.7 MG/KG	113	TARG



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### ROCKETDYNE

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20346310SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204420

Retest:

Prep Date: 07/27/95 Prep Batch: 18620 Lab Sample: AG2036/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2924

Lab Method Blank: AG2129

Analysis Date: 08/03/95 03:34

Dilution: 1

### NONHALOG. VOA MOD. FOR H. BOIL PET. HYD EPA 8015M Primary Result

<u>Cas Number</u>	Analyte	<u>Result</u>	Qualifie	r Report L	imit <u>Units</u>	% Rec	<u>Type</u>
IT15-47-3	HIGH BOILING PETROLEUM HYDROCA TRICOSANE	75.		27	MG/KG	74	TARG SURR



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### **ROCKETDYNE**

August 17, 1995

Sample Delivery Group: 4276

Report Batch:

19358

Client Sample: 20130331SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204436

Retest:

Prep Date: 07/27/95 Prep Batch: 18620 Lab Sample: AG2039/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2924

Lab Method Blank: AG2129

Analysis Date: 08/01/95 04:34

Dilution: 1

### NONHALOG.VOA MOD.FOR H.BOIL PET.HYD EPA 8015M Primary Result

Cas Number	Analyte	<u>Result</u>	Qualifier Report Limit Units	% Rec	<u>Type</u>
IT15-47-3	HIGH BOILING PETROLEUM HYDROCA TRICOSANE	6.0	U 6.0 MG/KG	106	TARG SURR



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### **ROCKETDYNE**

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20446370SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204494

Retest:

Prep Date: 07/27/95 Prep Batch: 18620 Lab Sample: AG2053/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2924

Lab Method Blank: AG2129

Analysis Date: 08/01/95 07:43

Dilution: 1

### NONHALOG. VOA MOD. FOR H. BOIL PET. HYD EPA 8015M Primary Result

Cas Number	Analyte	<u>Result</u>	Qualifier Report Limit	<u>Units</u>	% Rec	<u>Туре</u>
IT15-47-3 67-5	HIGH BOILING PETROLEUM HYDROCA TRICOSANE	5.4	B 5.2	MG/KG	125	TARG



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### **ROCKETDYNE**

August 17, 1995

Sample Delivery Group: 4276

Report Batch:

19358

Client Sample: 20246220SVL0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 209262 Retest: 1

Prep Date: 08/03/95 Prep Batch: 18952 Lab Sample: AG2010/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2932

Lab Method Blank: AG3482

Analysis Date: 08/03/95 23:09

Dilution: 1

Cas Number	Analyte	Result	Qualifier Report Li	mit Units % Rec	<u>Type</u>
<u>003                                   </u>	<del></del>			UG/KG	TARG
74-87-3	CHLOROMETHANE	6.	U 6.	UG/KG	TARG
<b>21-8</b>	DICHLORODIFLUOROMETHANE	6.	U 6.	UG/KG	TARG
3-9	BROMOMETHANE	6.	U 6.	UG/KG	TARG
75-01-4	VINYL CHLORIDE	6.	ບ 6.	UG/KG	TARG
75-00-3	CHLOROETHANE	6.	U 6.	UG/KG	TARG
75-09-2	METHYLENE CHLORIDE	1.	J 6.	UG/KG	TARG
75-69-4	TRICHLOROFLUOROMETHANE	6.	U 6.	UG/KG	TARG
75-35-4	1,1-DICHLOROETHENE	6.	υ 6.°	UG/KG	TARG
75-34-3	1,1-DICHLOROETHANE	6.	U 6.	UG/KG	TARG
156-59-2	CIS-1,2-DICHLOROETHENE	<b>6.</b>	U 116.777 1 14	UG/KG	TARG
156-60-5	TRANS-1,2-DICHLOROETHENE	6.	U 6.	UG/KG	TARG
594-20-7	SEC-DICHLOROPROPANE	6.	U 6.		TARG
67-66-3	CHLOROFORM	6.	U 6.	UG/KG	TARG
563-58-6	1,1-DICHLOROPROPENE	6.	U 6.	UG/KG UG/KG	TARG
107-06-2	1,2-DICHLOROETHANE	6.	U 6.		TARG
71-55-6	1,1,1-TRICHLOROETHANE	6.	U 6.	UG/KG	TARG
56-23-5	CARBON TETRACHLORIDE	6.	u 6.	UG/KG	TARG
75-27-4	BROMOD I CHLOROMETHANE	6.	U 6.	NG/KG	TARG
74-97-5	BROMOCHLOROMETHANE	6.	u 6.	UG/KG	TARG
74-95-3	DIBROMOMETHANE	6.	u 6.	UG/KG	TARG
142-28-9	1,3-DICHLOROPROPANE	6.	U 6.	UG/KG	TARG
106-93-4	1,2-DIBROMOETHANE	6.	U 6.	UG/KG	TARG
630-20-6	1,1,1,2-TETRACHLOROETHANE	6.	u 6.	UG/KG	TARG
98-82-8	CUMENE	6.	u 6.	UG/KG	
108-86-1	BROMOBENZENE	6.	υ 6 <b>.</b>	UG/KG	TARG
96-18-4	1,2,3-TRICHLOROPROPANE	6.	U 6.	UG/KG	TARG
103-65-1	N-PROPYLBENZENE	6.	u 6.	UG/KG	TARG
7-5	1,2-DICHLOROPROPANE	6.	u 6.	UG/KG	TARG
17-01-6	TRICHLOROETHENE	6.	u 6.	UG/KG	TARG
124-48-1	DIBROMOCHLOROMETHANE	6.	υ 6.	UG/KG	TARG
79-00-5	1,1,2-TRICHLOROETHANE	6.	u 6.	UG/KG	TARG



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### **ROCKETDYNE**

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20246220SVL0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 209262 Retest: 1

Prep Date: 08/03/95 Prep Batch: 18952 Lab Sample: AG2010/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2932

Lab Method Blank: AG3482

Analysis Date: 08/03/95 23:09

Dilution: 1

Cas Number	Anal <u>yte</u>	<u>Result</u>	Qualifier	Report	<u>imit Մո</u>	<u>its</u>	% Rec	Туре
000					uc.	/KG		TARG
71-43-2	BENZENE	·6.·····		6.		/KG	•	TARG
61-01-5	CIS-1,3-DICHLOROPROPENE	6.	U The second	6.	100	/KG		TARG
1-02-6	TRANS-1,3-DICHLOROPROPENE	6.	U	6.		/KG		TARG
75-25-2	BROMOFORM	6.	U	6.		/KG		TARG
127-18-4	TETRACHLOROETHENE	6.	-	6.		/KG		TARG
79-34-5	1,1,2,2-TETRACHLOROETHANE	6.	U	6.	, r viiii	/KG		TARG
108-88-3	TOLUENE	6.	U	6.		/KG		TARG
108-90-7	CHLOROBENZENE	6.	U	6.		i/KG		TARG
100-41-4	ETHYLBENZENE	6.	U	6.		/KG		TARG
100-42-5	STYRENE	6.	U 	6.		/KG		TARG
95-47-6	Q-XYLENE	6.	U 	6. 11		s/KG		TARG
108-88-3	M/P-XYLENE	11.	U			3/KG		TARG
541- <i>7</i> 3-1	1,3-DICHLOROBENZENE	6.	U 	6. 6.		G/KG		TARG
106-46-7	1,4-DICHLOROBENZENE	6.	U 	- 7		G/KG		TARG
95-50-1	1,2-DICHLOROBENZENE	6.	U	6. 6.		G/KG		TARG
95-49-8	O-CHLOROTOLUENE	6.	บ	** ;		G/KG		TARG
106-43-4	P-CHLOROTOLUENE	6.	ນ 	6.		G/KG		TARG
108-67-8	1,3,5-TRIMETHYLBENZENE	6.	U	6.		G/KG		TARG
98-06-6	TERT-BUTYLBENZENE	6.	U.	6.		G/KG		TARG
95-63-6	1,2,4-TRIMETHYLBENZENE	6.	U	6.		ig/kg		TARG
135-98-8	SEC-BUTYLBENZENE	6.	U	6.		IG/KG		TARG
99-87-6	P-CYMENE	6.	U	6.				TARG
104-51-8	N-BUTYLBENZENE	6.	U	.6.		IG/KG		TARG
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	6.	U	6.		IG/KG		TARG
120-82-1	1,2,4-TRICHLOROBENZENE	6.	U	6.		JG/KG		TARG
87-68-3	HEXACHLOROBUTAD I ENE	6.	U	6.		JG/KG		TARG
01-20-3	NAPHTHALENE	6.	·U	6.		JG/KG		TARG
1-6	1,2,3-TRICHLOROBENZENE	6.	U	6.	1	JG/KG	401	SURR
5-27-26-5	TOLUENE-D8						101.	SURR
460-00-4	P-BROMOFLUOROBENZENE						88.0 107.	SURR
1868-53-7	DIBROMOFLUOROMETHANE						101.	JURK



Services
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### **ROCKETDYNE**

August 17, 1995

Sample Delivery Group: 4276

Report Batch:

19358

Client Sample: 20246220SVL0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204262

Retest:

Prep Date: 08/03/95 Prep Batch: 18952 Lab Sample: AG2010/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2932

Lab Method Blank: AG3482

Analysis Date: 08/03/95 21:16

Dilution: 1

Cas Number	Analyte	<u>Result</u>	<u>Qualifier</u> <u>i</u>	Report Limit	<u>Units</u> %	Rec Type
74-87-3	CHLOROMETHANE	6.	U (	<b>6.</b> 	UG/KG	TARG
71-8	DICHLORODIFLUOROMETHANE	6.	U	<b>6.</b>	ne/ke	TARG TARG
3-9	BRONOMETHANE	6.		6.	UG/KG	
75-01-4	VINYL CHLORIDE	6.	5 <b>.U</b> ≥ 5. In	6.	UG/KG	TARG
75-00-3	CHLOROETHANE	6.	υ	6.	UG/KG	TARG TARG
75-09-2	METHYLENE CHLORIDE	2.	J Æ	6.	UG/KG	TARG
75-69-4	TRICHLOROFLUOROMETHANE	6.		6.	UG/KG	TARG
75-35-4	1,1-DICHLOROETHENE	6.	_	6.	UG/KG	TARG
75-34-3	1,1-DICHLOROETHANE	6.		6.	UG/KG	TARG
156-59-2	CIS-1,2-DICHLOROETHENE	<b>6.</b>	_	6.	UG/KG	TARG
156-60-5	TRANS-1,2-DICHLOROETHENE	6.	_	6.	UG/KG	TARG
594-20-7	SEC-DICHLOROPROPANE	6.	•	·· <b>6.</b>	UG/KG	TARG
67-66-3	CHLOROFORM	6.	U	6.	UG/KG	TARG
563-58-6	1,1-DICHLOROPROPENE	6.	บ	6.	UG/KG	TARG
107-06-2	1,2-DICHLOROETHANE	6.	U	6.	UG/KG	TARG
71-55-6	1,1,1-TRICHLOROETHANE	6.	υ -	6.	UG/KG	TARG
56-23-5	CARBON TETRACHLORIDE	6.	U	6.	UG/KG	TARG
75-27-4	BROMOD I CHLOROMETHANE	6.	บ	6.	UG/KG	TARG
74-97-5	BROMOCHLOROMETHANE	1.	7	6.	UG/KG	TARG
74-95-3	DIBROMOMETHANE	6.	U	6.	UG/KG	•
142-28-9	1,3-DICHLOROPROPANE	6.	บ	6.	UG/KG	TARG
106-93-4	1,2-DIBROMOETHANE	6.	U	6.	UG/KG	TARG
630-20-6	1,1,1,2-TETRACHLOROETHANE	6.	U	6.	UG/KG	TARG
98-82-8	CUMENE	6.	U .	6.	UG/KG	TARG
108-86-1	BROMOBENZENE	6.	U	6.	UG/KG	TARG
96-18-4	1,2,3-TRICHLOROPROPANE	6.	ប	6.	UG/KG	TARG
103-65-1	N-PROPYLBENZENE	6.	U	6.	UG/KG	TARG
7-5	1.2-DICHLOROPROPANE	6.	บ	6.	UG/KG	TARG
01-6	TRICHLOROETHENE	6.	U	6.	UG/KG	TARG
124-48-1	DIBROMOCHLOROMETHANE	6.	U	6.	UG/KG	TARG
79-00-5	1,1,2-TRICHLOROETHANE	6.	U	6.	UG/KG	TARG



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### ROCKETDYNE

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20246220SVL0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204262

Retest:

Prep Date: 08/03/95 Prep Batch: 18952 Lab Sample: AG2010/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2932

Lab Method Blank: AG3482

Analysis Date: 08/03/95 21:16

Dilution: 1

Cas Number	Analyte	Result	Qualifier Report Limit	t Units % Rec	<u>Type</u>
		6.	v 6.	UG/KG	TARG
71-43-2	BENZENE	6.	U 6.	UG/KG	TARG
61-01-5	CIS-1,3-DICHLOROPROPENE	6.	u 6.	UG/KG	TARG
1-02-6	TRANS-1,3-DICHLOROPROPENE	6.	U 6.	UG/KG	TARG
75-25-2	BROMOFORM	6.	υ 6.	UG/KG	TARG
127-18-4	TETRACHLOROETHENE	6.	υ 6.	UG/KG	TARG
79-34 <b>-</b> 5	1,1,2,2-TETRACHLOROETHANE	6.	U 6.	UG/KG	TARG
108-88-3	TOLUENE	6.	U 6.	UG/KG	TARG
108-90-7	CHLOROBENZENE	6.	บ 6.	UG/KG	TARG
100-41-4	ETHYLBENZENE	6.	U 6.	UG/KG	TARG
100-42-5	STYRENE	6.	υ 6.	UG/KG	TARG
95-47-6	O-XYLENE	11.	U 11	UG/KG	TARG
108-88-3	M/P-XYLENE	6.	υ 6.	UG/KG	TARG
541-73-1	1,3-DICHLOROBENZENE		υ 6.	UG/KG	TARG
106-46-7	1,4-DICHLOROBENZENE	6.	ນ 6.	UG/KG	TARG
95-50-1	1,2-DICHLOROBENZENE	6.	U 6.	UG/KG	TARG
95-49-8	O-CHLOROTOLUENE	6.	u 6.	UG/KG	TARG
106-43-4	P-CHLOROTOLUENE	6.	• • • • • • • • • • • • • • • • • • • •	UG/KG	TARG
108-67-8	1,3,5-TRIMETHYLBENZENE	6.		UG/KG	TARG
98-06-6	TERT-BUTYLBENZENE	6.	_	UG/KG	TARG
95-63-6	1,2,4-TRIMETHYLBENZENE	6.	บ 6. บ 6.	UG/KG	TARG
135-98-8	SEC-BUTYLBENZENE	6.	•	UG/KG	TARG
99-87 <del>-</del> 6	P-CYMENE	6.	U 6.	UG/KG	TARG
104-51-8	N-BUTYLBENZENE	6.	u 6.	UG/KG	TARG
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	6.	U 6.	UG/KG	TARG
120-82-1	1,2,4-TRICHLOROBENZENE	6.	u 6.	UG/KG	TARG
87-68-3	HEXACHLOROBUTAD I ENE	6.	U 6.	and the state of t	TARG
21-20-3	NAPHTHALENE	6.	υ 6.	UG/KG	TARG
61-6	1,2,3-TRICHLOROBENZENE	6.	U 6.	UG/KG 97.0	SURR
-037-26-5	TOLUENE-D8			70.0	SURR
460-00-4	P-BROMOFLUOROBENZENE		*	109.	SURR
1868-53-7	DIBROMOFLUOROMETHANE			· · · · 109.	JUKK



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### ROCKETDYNE

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20146220SVL0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 208636 Retest: 1

Prep Date: 08/07/95 Prep Batch: 18998 Lab Sample: AG2031/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2932

Lab Method Blank: AG3622

Analysis Date: 08/07/95 16:55

Dilution: 1

Cas Number	<u>Analyte</u>	Result	Qualifier Report Limit	Units % Rec	Type
	CHLOROMETHANE	6.	U 6.	UG/KG	TARG
74-87-3	DICHLORODIFLUOROMETHANE	6.	U 6.	UG/KG	TARG
71-8	BROMOMETHANE	6.	U 6.	UG/KG	TARG
3-9	VINYL CHLORIDE	6.	U 6.	UG/KG	TARG
75-01-4	CHLOROETHANE	6.	U. 6.	UG/KG	TARG
75-00-3	METHYLENE CHLORIDE	2.	J 6.	UG/KG	TARG
75-09-2	TRICHLOROFLUOROMETHANE	6.	U 6.	UG/KG	TARG
75-69-4	1,1-DICHLOROETHENE	6.	u 6.	UG/KG	TARG
75-35-4	1,1-DICHLOROETHANE	6.	u 6.	UG/KG	TARG
75-34-3	CIS-1,2-DICHLOROETHENE	6.	u 6.	UG/KG	TARG
156-59-2	TRANS-1,2-DICHLOROETHENE	6.	u 6.	UG/KG	TARG
156-60-5		6.	υ 6 <b>.</b>	UG/KG	TARG
594-20-7	SEC-DICHLOROPROPANE	6.	u 6.	UG/KG	TARG
67-66-3	CHLOROFORM	6.	u 6.	UG/KG	TARG
563-58-6	1,1-DICHLOROPROPENE	6.	u 6.	UG/KG	TARG
107-06-2	1,2-DICHLOROETHANE	6.	υ 6-	UG/KG	TARG
71-55-6	1,1,1-TRICHLOROETHANE	6.	u 6.	UG/KG	TARG
56-23-5	CARBON TETRACHLORIDE	6.	v 6.	UG/KG	TARG
75-27-4	BROMOD I CHLOROMETHANE	6.	υ 6 <b>.</b>	UG/KG	TARG
74-97-5	BROMOCHLOROMETHANE	6.	υ 6 <b>.</b>	UG/KG	TARG
74-95-3	DIBROMOMETHANE	6.	u 6.	UG/KG	TARG
142-28-9	1,3-DICHLOROPROPANE	6.	ս 6.	UG/KG	TARG
106-93-4	1,2-DIBROMOETHANE	6.	υ 6 <b>.</b>	UG/KG	TARG
630-20-6	1,1,1,2-TETRACHLOROETHANE	6.	y 6.	UG/KG	TARG
98-82-8	CUMENE	6.	U 6.	UG/KG	TARG
108-86-1	BROMOBENZENE	6.	υ 6.	UG/KG	TARG
96-18-4	1,2,3-TRICHLOROPROPANE	6.	U 6.	UG/KG	TARG
103-65-1	N-PROPYLBENZENE	6.	U 6.	UG/KG	TARG
7-5	1,2-DICHLOROPROPANE		υ 6.	UG/KG	TARG
7-01-6	TRICHLOROETHENE	6. 6.	u 6.	UG/KG	TARG
124-48-1	DIBROMOCHLOROMETHANE		U 6.	UG/KG	TARG
79-00-5	1,1,2-TRICHLOROETHANE	6.	<b>.</b>	<b>32,</b>	•



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### ROCKETDYNE

August 1

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20146220SVL0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 208636 Retest: 1

Prep Date: 08/07/95 Prep Batch: 18998 Lab Sample: AG2031/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2932

Lab Method Blank: AG3622

Analysis Date: 08/07/95 16:55

Dilution: 1

Cas Number	Ana <u>lyte</u>	<u>Result</u>	Qualifier Report L	imit <u>Units</u> % Rec	Type
-		er en en generalen.		UG/KG	TARG
71-43-2	BENZENE	6.		UG/KG	TARG
1-01-5	CIS-1,3-DICHLOROPROPENE	6.	U 6.	UG/KG	TARG
1-02-6	TRANS-1,3-DICHLOROPROPENE	6.	U 6.	UG/KG	TARG
75-25-2	BROMOFORM	6.	U 6.	UG/KG	TARG
127-18-4	TETRACHLOROETHENE	6.	υ 6.	UG/KG	TARG
79-34-5	1,1,2,2-TETRACHLOROETHANE	6.	U 6.	UG/KG	TARG
108-88-3	TOLUENE	6.	<b></b>	UG/KG	TARG
108-90-7	CHLOROBENZENE	6.	U 6.	UG/KG	TARG
100-41-4	ETHYLBENZENE	6.	υ 6.	UG/KG	TARG
100-42-5	STYRENE	6.	U 6.	UG/KG	TARG
95-47-6	O-XYLENE	6.	U .6.	UG/KG	TARG
108-88-3	M/P-XYLENE	11.	U 11	UG/KG	TARG
541-73-1	1,3-DICHLOROBENZENE	6.	U 6.	UG/KG	TARG
106-46-7	1,4-DICHLOROBENZENE	6.	U 6.	UG/KG	TARG
95-50-1	1,2-DICHLOROBENZENE	6.	u 6.	UG/KG	TARG
95-49-8	O-CHLOROTOLUENE	6.	U 6.	UG/KG	TARG
106-43-4	P-CHLOROTOLUENE	6.	U - 6.	UG/KG	TARG
108-67-8	1,3,5-TRIMETHYLBENZENE	6.	U 6.	UG/KG	TARG
98-06-6	TERT-BUTYLBENZENE	6.	U ::6.		TARG
95-63-6	1,2,4-TRIMETHYLBENZENE	6.	U 6.	UG/KG	TARG
135-98-8	SEC-BUTYLBENZENE	6.	U 6.	UG/KG	TARG
99-87-6	P-CYMENE	6.	u 6.	UG/KG	TARG
104-51-8	N-BUTYLBENZENE	6.	u 6.	UG/KG	TARG
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	6.	U 6.	UG/KG	TARG
120-82-1	1,2,4-TRICHLOROBENZENE	6.	U 6.	UG/KG	TARG
87-68-3	HEXACHLOROBUTADIENE	6.	υ <b>6.</b>	UG/KG	TARG
01-20-3	NAPHTHALENE	6.	u 6.	UG/KG	TARG
1-6	1,2,3-TRICHLOROBENZENE	6.	u 6.	UG/KG	SURR
2007-26-5	TOLUENE-D8			98 91	SURR
460-00-4	P-BROMOFLUOROBENZENE			91 99	SURR
1868-53-7	DIBROMOFLUOROMETHANE			<del>99</del>	JUKK



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### **ROCKETDYNE**

17, 1995 August

19358 Report Batch: Sample Delivery Group: 4276

Lab Sample: AG2037/ORIGINAL Client Sample: 20346310SVL0

Lab Matrix: SOIL Client Matrix: SOIL

Received Date: 07/26/95 Collection Date: 07/24/95

Lab Method: 2932 Test: 204424

Prep Batch: 18953

Lab Method Blank: AG3484 Retest:

Analysis Date: 08/03/95 23:39 Prep Date: 08/03/95

Dilution: 1

Cas Number	Analyte	Result	Qualifier Report Limit	Units % Rec	<u>Туре</u>
7/ 07 7	CHLOROMETHANE	5.	J U 5.	UG/KG	TARG
74-87-3	DICHLORODIFLUOROMETHANE	5.	. บ ี 5.	UG/KG	TARG
71-8	BROMOMETHANE	5.	U 5.	UG/KG	TARG
3-9	VINYL CHLORIDE	5.	U 5.	UG/KG	TARG
75-01-4	CHLOROETHANE	5.	U 5.	UG/KG	TARG
75-00-3	METHYLENE CHLORIDE	5.	U 5.	UG/KG	TARG
75-09-2	TRICHLOROFLUOROMETHANE	5.	u 5.	UG/KG	TARG
75-69-4	1,1-DICHLOROETHENE	5.	บ 5	UG/KG	TARG
75-35-4	-	5.	u 5.	UG/KG	TARG
75-34-3	1,1-DICHLOROETHANE	5.	u 5.	UG/KG	TARG
156-59-2	CIS-1,2-DICHLOROETHENE	5.	u 5.	UG/KG	TARG
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	υ 5.	UG/KG	TARG
594-20-7	SEC-DICHLOROPROPANE	5.	u 5.	UG/KG	TARG
67-66-3	CHLOROFORM	5.	υ <b>5</b> .	UG/KG	TARG
563-58-6	1,1-DICHLOROPROPENE	5.	υ 5.	UG/KG	TARG
107-06-2	1,2-DICHLOROETHANE	5.	บ 5.	UG/KG	TARG
71-55-6	1,1,1-TRICHLOROETHANE	5.	υ 5.	UG/KG	TARG
56-23-5	CARBON TETRACHLORIDE	5.	U 5.	UG/KG	TARG
<b>7</b> 5-27-4	BROMODICHLOROMETHANE	5.	υ 5.	UG/KG	TARG
74-97-5	BROMOCHLOROMETHANE		υ 5.	UG/KG	TARG
74-95-3	DIBROMOMETHANE	5.	υ 5.	UG/KG	TARG
142-28-9	1,3-DICHLOROPROPANE	5.	υ 5.	UG/KG	TARG
106-93-4	1,2-DIBROMOETHANE	5.		UG/KG	TARG
630-20-6	1,1,1,2-TETRACHLOROETHANE	5.		UG/KG	TARG
98-82-8	CUMENE	5.		UG/KG	TARG
108-86-1	BROMOBENZENE	5.		UG/KG	TARG
96-18-4	1,2,3-TRICHLOROPROPANE	5.	u 5.	UG/KG	TARG
103-65-1	N-PROPYLBENZENE	5.	U 5.		TARG
7-5	1,2-DICHLOROPROPANE	5.	υ 5.	UG/KG	TARG
-01-6	TRICHLOROETHENE	5.	U 5.	UG/KG	TARG
124-48-1	DIBROMOCHLOROMETHANE	5.	u 5.	UG/KG	TARG
79-00-5	1,1,2-TRICHLOROETHANE	5.	u 5.	UG/KG	IARU



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### **ROCKETDYNE**

17, 1995 August

19358

Report Batch: Sample Delivery Group: 4276

Client Sample: 20346310SVL0 Lab Matrix: SOIL

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204424

Retest:

Prep Date: 08/03/95 Prep Batch: 18953

Lab Sample: AG2037/ORIGINAL

Received Date: 07/26/95

Lab Method: 2932 Lab Method Blank: AG3484

Analysis Date: 08/03/95 23:39

Dilution: 1

Cas <u>Number</u>	<u>Analyte</u>	Result	Qualifier Report Limit	<u>Units</u>	% Rec	Туре
		<b>5.</b>	<b>u</b> 5.	UG/KG		TARG
71-43-2	BENZENE	5.	υ 5 <b>.</b>	UG/KG		TARG
61-01-5	CIS-1,3-DICHLOROPROPENE	5.	ប 5.	UG/KG	Sag Pari	TARG
1-02-6	TRANS-1,3-DICHLOROPROPENE	5.	u 5.	UG/KG		TARG
75-25-2	BROMOFORM	· 5.	U 5.	UG/KG	er er Light Segri	TARG
127-18-4	TETRACHLOROETHENE	5.	U 5.	UG/KG		TARG
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	u 5.	UG/KG		TARG
108-88-3	TOLUENE		υ 5.	UG/KG		TARG
108-90-7	CHLOROBENZENE	5. 5.	y 5.	UG/KG	r te William	TARG
100-41-4	ETHYLBENZENE	5.	U 5.	UG/KG		TARG
100-42-5	STYRENE	= -	u 5.	UG/KG		TARG
95-47-6	O-XYLENE	5.	ບ 11	UG/KG		TARG
108-88-3	M/P-XYLENE	11.	U 5.	UG/KG		TARG
541-73-1	1,3-DICHLOROBENZENE	5.	U 5.	UG/KG		TARG
106-46-7	1,4-DICHLOROBENZENE	5.	y 5.	UG/KG		TARG
95-50-1	1,2-DICHLOROBENZENE	5.	υ 5.	UG/KG		TARG
95-49-8	O-CHLOROTOLUENE	5.	บ 5.	UG/KG		TARG
106-43-4	P-CHLOROTOLUENE	5.	U 5.	UG/KG		TARG
108-67-8	1,3,5-TRIMETHYLBENZENE	5.	U 5.	UG/KG		TARG
98-06-6	TERT-BUTYLBENZENE	5.	u 5.	UG/KG		TARG
95-63-6	1,2,4-TRIMETHYLBENZENE	5.	U 5.	UG/KG		TARG
135-98-8	SEC-BUTYLBENZENE	5.		UG/KG		TARG
99-87-6	P-CYMENE	5.	u 5. u 5.	UG/KG		TARG
104-51-8	N-BUTYLBENZENE	5.	U 5.	UG/KG		TARG
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	5.	U 5.	UG/KG		TARG
120-82-1	1,2,4-TRICHLOROBENZENE	5.	U 5.	UG/KG		TARG
87-68 <b>-</b> 3	HEXACHLOROBUTAD I ENE	5.	• -	UG/KG		TARG
<u>01</u> -20-3	NAPHTHALENE	5.		UG/KG		TARG
51-6	1,2,3-TRICHLOROBENZENE	5.	u 5.	00,00	101	SURR
2007-26-5	TOLUENE-D8			•	89	SURR
460-00-4	P-BROMOFLUOROBENZENE				105	SURR
1868-53-7	DIBROMOFLUOROMETHANE				**-	



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### ROCKETDYNE

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20130331SVL0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204426

Retest:

Prep Date: 08/02/95 Prep Batch: 18871 Lab Sample: AG2038/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2932

Lab Method Blank: AG3079

Analysis Date: 08/02/95 21:59

Dilution: 1

<u>Cas Number</u>	<u>Analyte</u>	Result	Qualifier	Report	<u>Limit</u>	<u>Units</u>	% Rec	<u>Type</u>
74-87-3	CHLOROMETHANE	6.	and the second second	6.		UG/KG		TARG TARG
71-8	DICHLORODIFLUOROMETHANE	6.		6.		UG/KG	:	TARG
3-9	BROMOMETHANE	6.	U	6.		UG/KG	25.1	TARG
75-01-4	VINYL CHLORIDE	6.	U	6.		UG/KG		TARG
75-00-3	CHLOROETHANE	6.	<b>U</b>	6.		UG/KG		TARG
75-09-2	METHYLENE CHLORIDE	1.	J	6.		UG/KG		TARG
75-69-4	TRICHLOROFLUOROMETHANE	6.	U	6.		UG/KG		TARG
75-35-4	1,1-DICHLOROETHENE	6.	·U	6.		UG/KG	**	TARG
75-34-3	1,1-DICHLOROETHANE	6.	U	6.		UG/KG		TARG
156-59-2	CIS-1,2-DICHLOROETHENE	6.	U	6.		UG/KG		TARG
156-60-5	TRANS-1,2-DICHLOROETHENE	6.	U	6.		UG/KG		TARG
594-20-7	SEC-DICHLOROPROPANE	6.	U	6.		UG/KG		TARG
67-66-3	CHLOROFORM	6.	U	6.		UG/KG		TARG
563-58-6	1,1-DICHLOROPROPENE	6.	· u	6.		UG/KG		TARG
107-06-2	1,2-DICHLOROETHANE	6.	U	6.		UG/KG		TARG
71-55-6	1,1,1-TRICHLOROETHANE	6.	υ	6.		UG/KG		TARG
56-23-5	CARBON TETRACHLORIDE	6.	U	6.		UG/KG		TARG
75-27-4	BROHOD I CHLOROMETHANE	6.	U	6.		UG/KG		TARG
74-97-5	BROMOCHLOROMETHANE	6.	U	6.		UG/KG		TARG
74-95-3	DIBROMOMETHANE	6.	U	6.		UG/KG		TARG
142-28-9	1,3-DICHLOROPROPANE	6.	U	6.		UG/KG		TARG
106-93-4	1,2-DIBROMOETHANE	6.	U	6.		UG/KG		TARG
630-20-6	1,1,1,2-TETRACHLOROETHANE	6.	U	6.		UG/KG		TARG
98-82-8	CUMENE	6.	บ	6.		UG/KG		TARG
108-86-1	BROMOBENZENE	6.	U	6.		UG/KG		TARG
96-18-4	1,2,3-TRICHLOROPROPANE	6.	υ	6.		UG/KG		TARG
±03-65-1	N-PROPYLBENZENE	6.	U	6.		UG/KG		TARG
7-5	1,2-DICHLOROPROPANE	6.	บ	6.		UG/KG		
79-01-6	TRICHLOROETHENE	6.	ប	6.		UG/KG		TARG
124-48-1	DIBROMOCHLOROMETHANE	6.	U	6.		UG/KG		TARG
79-00-5	1,1,2-TRICHLOROETHANE	6.	υ	6.		UG/KG	i	TARG



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19358

### **ROCKETDYNE**

August 17, 1995

Sample Delivery Group: 4276

-

Client Sample: 20130331SVL0

Lab Sample: AG2038/ORIGINAL Lab Matrix: SOIL

Report Batch:

Client Matrix: SOIL

Received Date: 07/26/95

Collection Date: 07/24/95

Lab Method: 2932

Retest:

Test: 204426

Lab Method Blank: AG3079

Prep Date: 08/02/95 Prep Batch: 18871 Analysis Date: 08/02/95 21:59

Dilution: 1

Cas Number	<u>Analyte</u>	Result	<u>Qualifier</u>	Report Limit	<u>Units</u>	% Rec	<u>Type</u>
		6.		<b>6.</b>	UG/KG		TARG
71-43-2	BENZENE	6.	_	6.	UG/KG		TARG
61-01-5	CIS-1,3-DICHLOROPROPENE	6.	T 4.44	6.	UG/KG		TARG
1-02-6	TRANS-1,3-DICHLOROPROPENE	6.		6.	UG/KG		TARG
75-25-2	BROMOFORM	6.		6.	UG/KG	7-2-1	TARG
127-18-4	TETRACHLOROETHENE	6.		6.	UG/KG		TARG
79-34-5	1,1,2,2-TETRACHLOROETHANE	6.		6.	UG/KG		TARG
108-88-3	TOLUENE		_	6.	UG/KG		TARG
108-90-7	CHLOROBENZENE	6.			UG/KG		TARG
100-41-4	ETHYLBENZENE	6.	_	6.	UG/KG		TARG
100-42-5	STYRENE	6.		6.	UG/KG		TARG
95-47-6	O-XYLENE	6.	U	12	UG/KG		TARG
108- <b>88-</b> 3	M/P-XYLENE	12.	U ·	6.	UG/KG		TARG
541- <b>7</b> 3-1	1,3-DICHLOROBENZENE	6.	U	6.	UG/KG		TARG
106-46-7	1,4-DICHLOROBENZENE	6.	_	6.	UG/KG	14.12.	TARG
95-50-1	1,2-DICHLOROBENZENE	6.	U U	6.	UG/KG		TARG
95-49-8	O-CHLOROTOLUENE	6.	_	-	UG/KG		TARG
106-43-4	P-CHLOROTOLUENE	6.	=	6.	UG/KG		TARG
108-67-8	1,3,5-TRIMETHYLBENZENE	6.	U .	6.	UG/KG		TARG
98-06-6	TERT-BUTYLBENZENE	6.	. บ	6.	UG/KG	k for	TARG
95-6 <b>3-</b> 6	1,2,4-TRIMETHYLBENZENE	6.	U	6.	UG/KG		TARG
135-98-8	SEC-BUTYLBENZENE	6.	U	6.	UG/KG		TARG
99-87-6	P-CYMENE	6.	U	6.			TARG
104-51-8	N-BUTYLBENZENE	6.	บ	6.	UG/KG		TARG
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	6.	U	6.	UG/KG		TARG
120-82-1	1,2,4-TRICHLOROBENZENE	6.	U	6.	UG/KG	-	TARG
87-68-3	HEXACHLOROBUTAD I ENE	6.	U	6.	UG/KG		TARG
01-20-3	NAPHTHALENE	6.	U	6.	UG/KG		TARG
1-6	1,2,3-TRICHLOROBENZENE	6.	U	6.	UG/KG	404	SURR
2007-26-5	TOLUENE-D8					101	
460-00-4	P-BROMOFLUOROBENZENE					88	SURR
1868-53-7	DIBROMOFLUOROMETHANE				•	101	SURR



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### ROCKETDYNE

August 17, 1995

Sample Delivery Group: 4276 Report Batch:

19358

Client Sample: 20446370SVL0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204472

Retest:

Prep Date: 08/02/95 Prep Batch: 18871 Lab Sample: AG2049/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2932

Lab Method Blank: AG3079

Analysis Date: 08/02/95 22:27

Dilution: 1

Cas Number	Analyte	<u>Result</u>	Qualifier Report Limit	Units % Rec	<u>Туре</u>
Cas Naiber		_	u 5	UG/KG	TARG
74-87-3	CHLOROMETHANE	5.	ປ 5. ປ່ີ 5.	UG/KG	TARG
71-8	DICHLORODIFLUOROMETHANE	5.		UG/KG	TARG
3-9	BROMOMETHANE	5.	υ 5. υ 5.	UG/KG	TARG
75-01-4	VINYL CHLORIDE	5.	· · · · · · · · · · · · · · · · · · ·	UG/KG	TARG
75-00-3	CHLOROETHANE	5.	U 5.	UG/KG	TARG
75-09-2	METHYLENE CHLORIDE	1.	υ 5.	UG/KG	TARG
75-69-4	TRICHLOROFLUOROMETHANE	5.	U 5.	UG/KG	TARG
75-35-4	1,1-DICHLORGETHENE	5.	υ 5.	UG/KG	TARG
75-34-3	1,1-DICHLOROETHANE	5.	ບ 5. ປ :::5.	UG/KG	TARG
156-59-2	CIS-1,2-DICHLOROETHENE	5.	_	UG/KG	TARG
156-60-5	TRANS-1,2-DICHLOROETHENE	5.		UG/KG	TARG
594-20-7	SEC-DICHLOROPROPANE	5.		UG/KG	TARG
67-66-3	CHLOROFORM	<b>5.</b>		UG/KG	TARG
563-58-6	1,1-DICHLOROPROPENE	5.	ປ 5. ປ 5.	UG/KG	TARG
107-06-2	1,2-DICHLOROETHANE	5.	the state of the s	UG/KG	TARG
71-55-6	1,1,1-TRICHLOROETHANE	5.	υ 5. ε	UG/KG	TARG
56-23-5	CARBON TETRACHLORIDE	5.	U 5.	UG/KG	TARG
75-27-4	BROMODICHLOROMETHANE	5.	υ 5.	UG/KG	TARG
74-97-5	BROMOCHLOROMETHANE	5.	υ 5.	UG/KG	TARG
74-95-3	DIBROMOMETHANE	5.	υ 5.	UG/KG	TARG
142-28-9	1,3-DICHLOROPROPANE	5.	U 5.	UG/KG	TARG
106-93-4	1,2-DIBROMOETHANE	5.	U :5.	UG/KG	TARG
630-20-6	1,1,1,2-TETRACHLOROETHANE	5.	u 5.		TARG
98-82-8	CUMENE	5.	υ 5. -	UG/KG UG/KG	TARG
108-86-1	BROMOBENZENE	5.	υ <b>5</b> .	UG/KG	TARG
96-18-4	1,2,3-TRICHLOROPROPANE	5.	υ 5.	UG/KG	TARG
103-65-1	N-PROPYLBENZENE	5.	U 5.	and the second of the second	TARG
7-5	1,2-DICHLOROPROPANE	5.	U 5.	UG/KG	TARG
01-6	TRICHLOROETHENE	5.	υ 5.	UG/KG	TARG
124-48-1	DIBROMOCHLOROMETHANE	5.	u 5.	UG/KG	TARG
79-00-5	1,1,2-TRICHLOROETHANE	5.	u 5.	UG/KG	IANG



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### **ROCKETDYNE**

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20446370SVL0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204472

Retest:

Prep Date: 08/02/95 Prep Batch: 18871 Lab Sample: AG2049/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2932

Lab Method Blank: AG3079

Analysis Date: 08/02/95 22:27

Dilution: 1

Cas Number	Anal <u>yte</u>		Result	<u>Qualifier</u>	Report Limit	<u>Units</u>	% Rec	<u>Type</u>
003 11015		100	_	Ü	5	UG/KG		TARG
71-43-2	BENZENE	**	5.		5.	UG/KG	•	TARG
1-01-5	CIS-1,3-DICHLOROPROPENE		5.	U	5.	UG/KG		TARG
-02-6	TRANS-1,3-DICHLOROPROPENE		5.	· <del>-</del> .	5.	UG/KG		TARG
75-25-2	BROMOFORM		5.	υ 		UG/KG		TARG
127-18-4	TETRACHLOROETHENE		5.	· U	5.	UG/KG		TARG
79-34-5	1,1,2,2-TETRACHLOROETHANE		5.	U	5. 5.	UG/KG	i Page North	TARG
108-88-3	TOLUENE		5.	U 		UG/KG		TARG
108-90-7	CHLOROBENZENE		5.	U	5. 5.	UG/KG		TARG
100-41-4	ETHYLBENZENE		5.	.บ	5.	UG/KG		TARG
100-42-5	STYRENE		5.	U	5.	UG/KG		TARG
95-47-6	O-XYLENE		5.	U	10	UG/KG		TARG
108-88 <b>-</b> 3	M/P-XYLENE		10.	U	5.	UG/KG		TARG
541-73-1	1,3-DICHLOROBENZENE		5.	U	5.	UG/KG		TARG
106-46-7	1,4-DICHLOROBENZENE		5.	U	5. 5.	UG/KG		TARG
95-50-1	1,2-DICHLOROBENZENE		5.	บ 		UG/KG		TARG
95-49-8	O-CHLOROTOLUENE		5.	U	5.	UG/KG		TARG
106-43-4	P-CHLOROTOLUENE		5.	U	5.	UG/KG		TARG
108-67-8	1,3,5-TRIMETHYLBENZENE		5.	U	5.	UG/KG		TARG
98-06-6	TERT-BUTYLBENZENE		5.	.U	5. 5.	UG/KG		TARG
95-63-6	1,2,4-TRIMETHYLBENZENE		5.	U U	5.	UG/KG		TARG
135-98-8	SEC-BUTYLBENZENE		5.	•	5.	UG/KG		TARG
99-87-6	P-CYMENE		5.	U	5. 5.	UG/KG		TARG
104-51-8	N-BUTYLBENZENE		5.	U	5.	UG/KG		TARG
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		5.	U	5.	UG/KG		TARG
120-82-1	1,2,4-TRICHLOROBENZENE		5.	ນ 	5.	UG/KG		TARG
87-68-3	HEXACHLOROBUTAD I ENE		5.	U	5.	UG/KG		TARG
01-20-3	NAPHTHALENE		5.	U 	-	UG/KG		TARG
-6	1,2,3-TRICHLOROBENZENE		5.	U	5.	00/ KG	95	SURR
2001-26-5	TOLUENE-D8						75	SURR
460-00-4	P-BROMOFLUOROBENZENE						106	SURR
1868-53-7	DIBROMOFLUOROMETHANE							•••••



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### **ROCKETDYNE**

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

Lab Matrix: SOIL

Lab Sample: AG2011/ORIGINAL

Received Date: 07/26/95

19358

Client Sample: 20246220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204269

Retest:

Prep Date: 07/27/95 Prep Batch: 18623

Lab Method: 2935 Lab Method Blank: AG2132 Analysis Date: 08/11/95 18:19

Dilution: 1

### SEMIVOLATILES-GCMS-CAPIL.COLUMN EPA 8270A Primary Result

Cas Number	Analyte	Result	<u>Qualifier</u>	Report Limit	<u>Units</u>	% Rec	Туре
108-95-2	PHENOL	370	U	370	UG/KG		TARG
1-44-4	BIS(2-CHLOROETHYL)ETHER	370	U	370	UG/KG		TARG
57-8	2-CHLOROPHENOL	370	υ	370	UG/KG		TARG
541-73-1	1,3-DICHLOROBENZENE	370	ย	370	UG/KG		TARG
106-46-7	1,4-DICHLOROBENZENE	370	U	370	UG/KG		TARG
100-51-6	BENZYL ALCOHOL	370	· <b>U</b>	370	UG/KG		TARG
95-50-1	1,2-DICHLOROBENZENE	370	U	370	UG/KG	and the second	TARG
95-48-7	2-METHYLPHENOL	370	U	370	UG/KG		TARG
108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	370	U	370	UG/KG		TARG
106-44-5	4-METHYLPHENOL	370	U	370	NG\KG	en vett e	TARG
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	370	U	370	UG/KG		TARG
67- <b>7</b> 2-1	HEXACHLOROETHANE	370	U	370	UG/KG		TARG
98-95-3	NITROBENZENE	370	U	370	UG/KG		TARG
78-59-1	ISOPHORONE	<b>37</b> 0	ប	370	UG/KG		TARG
88-75-5	2-NITROPHENOL	370	U	370	UG/KG		TARG
105-67-9	2,4-DIMETHYLPHENOL	370	U	370	UG/KG		TARG
65-85-0	BENZOIC ACID	890	U	890	UG/KG	sama an na	TARG
111-91-1	BIS(2-CHLOROETHOXY)METHANE	370	ប	370	UG/KG		TARG
120-83-2	2,4-DICHLOROPHENOL	370	U	370	UG/KG		TARG
120-82-1	1,2,4-TRICHLOROBENZENE	370	U	370	UG/KG		TARG
91-20-3	NAPHTHALENE	73.	U	73.	UG/KG		TARG
106-47-8	4-CHLOROANILINE	370	U	370	UG/KG		TARG
87-68-3	HEXACHLOROBUTAD I ENE	370	U	370	UG/KG		TARG
59-50-7	4-CHLORO-3-METHYLPHENOL	370	υ	370	UG/KG		TARG
91-57-6	2-METHYLNAPHTHALENE	370	U	370	UG/KG		TARG
77-47-4	HEXACHLOROCYCLOPENTADIENE	370	U	370	UG/KG		TARG
<u>98</u> -06-2	2,4,6-TRICHLOROPHENOL	370	U	370	UG/KG		TARG
95-4	2,4,5-TRICHLOROPHENOL	890	U	890	UG/KG		TARG
51-58-7	2-CHLORONAPHTHALENE	370	U	370	UG/KG		TARG
88-74-4	2-NITROANILINE	890	·U	890	UG/KG		TARG
131-11-3	DIMETHYL PHTHALATE	370	U	370	UG/KG		TARG



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### **ROCKETDYNE**

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20246220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204269

Retest:

Prep Date: 07/27/95 Prep Batch: 18623 Lab Sample: AG2011/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/11/95 18:19

Dilution: 1

### SEMIVOLATILES-GCMS-CAPIL.COLUMN EPA 8270A Primary Result

Cas Number	<u>Analyte</u>	Result	Qualifier	Report Limit	<u>Units</u>	% Rec	Type
208-96-8	ACENAPHTHYLENE SECTION OF THE SECTIO	73.		73.	UG/KG		TARG
20-2	2,6-DINITROTOLUENE	370	υ	370	UG/KG	are to the contract of	TARG
19-2	3-NITROANILINE	890	ייט	890	UG/KG		TARG
83-32-9	ACENAPHTHENE	73.	U	73.	UG/KG		TARG
51-28-5	2,4-DINITROPHENOL	890	U	890	UG/KG	Maria di S	TARG
100-02-7	4-NITROPHENOL	890	U <sub></sub>	890	UG/KG	esa estados	TARG
132-64-9	DIBENZOFURAN	370	U	370	UG/KG		TARG
121-14-2	2,4-DINITROTOLUENE	370	U	370	UG/KG		TARG
84-66-2	DIETHYL PHTHALATE	370	υ	370	UG/KG		TARG
7005-72-3	4-CHLOROPHENYLPHENYL ETHER	370	U	370	UG/KG		TARG
86-73-7	FLUORENE	73.	U	73.	UG/KG		TARG
100-01-6	4-NITROANILINE	890	Ų	890	UG/KG	12.	TARG
534-52-1	4,6-DINITRO-2-METHYLPHENOL	890	Ú	890	UG/KG		TARG
86-30-6	N-NITROSODIPHENYLAMINE	370	U	370	UG/KG		TARG
101-55-3	4-BROMOPHENYL PHENYL ETHER	370	U ·	370	UG/KG		TARG
118-74-1	HEXACHLOROBENZENE	370	υ	370	UG/KG		TARG
87-86-5	PENTACHLOROPHENOL	890	υ	<b>890</b>	UG/KG		TARG
85-01-8	PHENANTHRENE	<i>7</i> 3.	U	73.	UG/KG		TARG
120-12-7	ANTHRACENE	<i>7</i> 3.	U	73.	UG/KG	die i	TARG
86-74-8	CARBAZOLE	370	U	370	UG/KG		TARG
84-74-2	DI-N-BUTYL PHTHALATE	41.	J	370	UG/KG		TARG
206-44-0	FLUORANTHENE	<i>7</i> 3.	U	<i>7</i> 3.	UG/KG		TARG
129-00-0	PYRENE	73.	.u	<b>73.</b>	UG/KG	su ti uitu	TARG
85-68-7	BUTYL BENZYL PHTHALATE	370	U	370	UG/KG		TARG
91-94-1	3,3'-DICHLOROBENZIDINE	730	ប	730	UG/KG		TARG
56-55-3	BENZO(A)ANTHRACENE	<i>7</i> 3.	U	<i>7</i> 3.	UG/KG		TARG
218-01-9	CHRYSENE	73.	Ü	73.	UG/KG		TARG
81-7	BIS(2-ETHYLHEXYL) PHTHALATE	55.	j	370	UG/KG		TARG
	DI-N-OCTYL PHTHALATE	370	U	370	UG/KG		TARG
205-99-2	BENZO(B)FLUORANTHENE	<i>7</i> 3.	U	73.	UG/KG		TARG
207-08-9	BENZO(K)FLUORANTHENE	73.	U	73.	UG/KG		TARG



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### ROCKETDYNE

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20246220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204269

Retest:

Prep Date: 07/27/95 Prep Batch: 18623 Lab Sample: AG2011/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/11/95 18:19

Dilution: 1

### SEMIVOLATILES-GCMS-CAPIL.COLUMN EPA 8270A Primary Result

<u>Cas Number</u>	Analyte	<u>Result</u>	Qualifier Report Limi	t <u>Units</u>	& Rec	Туре
50-32-8	BENZO(A)PYRENE	73.	U 73.	UG/KG		TARG
39-5	INDENO(1,2,3-CD)PYRENE	<i>7</i> 3.	U 73.	UG/KG	1.	TARG
-3	DIBENZO(A, H) ANTHRACENE	73.	u 73.	UG/KG		TARG
191-24-2	BENZO(G,H,I)PERYLENE	73.	u 73.	UG/KG		TARG
4165-60-0	NITROBENZENE-D5			the state of the state of	90	SURR
321-60-8	2-FLUOROBIPHENYL			11 The Lord	85	SURR
1718-51-0	P-TERPHENYL-D14		*		149	SURR
4165-62-2	PHENOL-D5				90	SURR
367-12-4	2-FLUOROPHENOL				98	SURR
118-79-6	2.4.6-TRIBROMOPHENOL				90	SURR



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#### ROCKETDYNE

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20146220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204381

Retest:

Prep Date: 07/27/95 Prep Batch: 18623 Lab Sample: AG2033/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/12/95 00:40

Dilution: 1

Cas Number	Analyte	<u>Result</u>	Qualifier Report Lin	nit <u>Units</u>	% Rec Ty	<u>/pe</u>
108-95-2	PHENOL	370	u <b>370</b>	UG/KG		ARG
-44-4	BIS(2-CHLOROETHYL)ETHER	370	บ 370	UG/KG		ARG
7-8	2-CHLOROPHENOL	370	u 370	UG/KG		ARG
541-73-1	1,3-DICHLOROBENZENE	370	U 370	UG/KG		ARG
106-46-7	1,4-DICHLOROBENZENE	370	u 370	UG/KG		ARG
100-51-6	BENZYL ALCOHOL	370	U 370	UG/KG		ARG
95-50-1	1,2-DICHLOROBENZENE	370	U 370	UG/KG		ARG
95-48-7	2-METHYLPHENOL	370	U 370	UG/KG	**	ARG
108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	370	u 370	UG/KG		ARG
106-44-5	4-METHYLPHENOL	370	U 370	UG/KG		ARG
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	370	U 370	UG/KG		ARG
67-72-1	HEXACHLOROETHANE	370	U 370	UG/KG		ARG
98-95-3	NITROBENZENE	370	u 370	UG/KG	The second second	ARG
78-59-1	ISOPHORONE	370	u 370	UG/KG		ARG
88-75-5	2-NITROPHENOL	370	u 370	UG/KG	and the second	ARG
105-67-9	2,4-DIMETHYLPHENOL	370	บ 370	UG/KG		ARG
65-85 <b>-</b> 0	BENZOIC ACID	900	U 900	UG/KG	1.5	ARG
111-91-1	BIS(2-CHLOROETHOXY)METHANE	370	u 370	UG/KG		ARG.
120-83-2	2,4-DICHLOROPHENOL	370	u 370	UG/KG		ARG
120-82-1	1,2,4-TRICHLOROBENZENE	370	u 370	UG/KG		ARG
91-20-3	NAPHTHALENE	74.	U 74.	UG/KG	100	ARG
106-47-8	4-CHLOROANILINE	370	u 370	UG/KG		ARG
87-68-3	HEXACHLOROBUTAD I ENE	370	บ 370	UG/KG		ARG
59-50-7	4-CHLORO-3-METHYLPHENOL	370	u 370	UG/KG		ARG
91-57-6	2-METHYLNAPHTHALENE	370	U 370	UG/KG		TARG
77-47-4	HEXACHLOROCYCLOPENTAD I ENE	370	บ 370	UG/KG		ARG
<u>28-</u> 06-2	2,4,6-TRICHLOROPHENOL	370	U 370	UG/KG		TARG
5-4	2,4,5-TRICHLOROPHENOL	900	U 900	UG/KG		FARG
-1-58-7	2-CHLORONAPHTHALENE	370	u 370	UG/KG		TARG
88-74-4	2-NITROANILINE	900	u 900	UG/KG		TARG
131-11-3	DIMETHYL PHTHALATE	370	u 370	UG/KG	•	TARG



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#### ROCKETDYNE

August 17, 1995

Sample Delivery Group: 4276

Report Batch:

19358

Client Sample: 20146220SOCO

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204381

Retest:

Prep Date: 07/27/95 Prep Batch: 18623 Lab Sample: AG2033/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/12/95 00:40

Dilution: 1

Cas Number	Analyte	<u>Result</u>	Qualifier	Report Limit	<u>Units</u>	% Rec	<u>Туре</u>
208-96-8	ACENAPHTHYLENE	74.	· · · · · · · · · · · · · · · · · · ·	74.	UG/KG		TARG
20-2	2,6-DINITROTOLUENE	370	<u>ں</u> ں	370	UG/KG	2002	TARG
)-2	3-NITROANILINE	900	U	900	UG/KG		TARG
83-32-9	ACENAPHTHENE	74.	U	74.	UG/KG		TARG
51-28-5	2,4-DINITROPHENOL	900	U	900	UG/KG		TARG
100-02-7	4-NITROPHENOL	900	U	900	UG/KG		TARG
132-64-9	DIBENZOFURAN	370	U	370	UG/KG	44	TARG
121-14-2	2,4-DINITROTOLUENE	370	U	370	UG/KG		TARG
84-66-2	DIETHYL PHTHALATE	370	·U ·	370	UG/KG		TARG
7005-72-3	4-CHLOROPHENYLPHENYL ETHER	370	U	370	UG/KG		TARG
86-73-7	FLUORENE	74.	บ	74.	UG/KG	Artii Artii	TARG
100-01-6	4-NITROANILINE	900	u	900	UG/KG		TARG
534-52-1	4,6-DINITRO-2-METHYLPHENOL	900	U	900	UG/KG		TARG
86-30-6	N-NITROSODIPHENYLAMINE	370	U	370	UG/KG		TARG
101-55-3	4-BROMOPHENYL PHENYL ETHER	370	. U	370	UG/KG		TARG
118-74-1	HEXACHLOROBENZENE	370	U	370	UG/KG		TARG
87-86-5	PENTACHLOROPHENOL	900	ប	900	UG/KG		TARG
85-01-8	PHENANTHRENE	74.	U	74.	UG/KG		TARG
120-12-7	ANTHRACENE	74.	U	74.	UG/KG		TARG
86-74-8	CARBAZOLE	370	U	370	UG/KG		TARG
84-74-2	DI-N-BUTYL PHTHALATE	370	U	370	UG/KG		TARG
206-44-0	FLUORANTHENE	74.	Ų	74.	UG/KG		TARG
129-00-0	PYRENE	74.	ับ	74.	UG/KG		TARG
85-68-7	BUTYL BENZYL PHTHALATE	370	U	370	UG/KG		TARG
91-94-1	3,3'-DICHLOROBENZIDINE	740	ປ	740	UG/KG		TARG
56-55 <b>-3</b>	BENZO(A)ANTHRACENE	74.	U	74.	UG/KG		TARG
218-01-9	CHRYSENE	74.	:U	74.	UG/KG		TARG
31-7	BIS(2-ETHYLHEXYL) PHTHALATE	370	U	370	UG/KG		TARG
111-84-0	DI-N-OCTYL PHTHALATE	370	U	370	UG/KG		TARG
205-99-2	BENZO(B)FLUORANTHENE	74.	U	74.	UG/KG		TARG
207-08-9	BENZO(K) FLUORANTHENE	74.	U	74.	UG/KG		TARG



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## **ROCKETDYNE**

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20146220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204381

Retest:

Prep Date: 07/27/95 Prep Batch: 18623 Lab Sample: AG2033/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/12/95 00:40

Dilution: 1

Cas Number	Analyte	Result	Qualifier Report Limit Units % Rec T	<u>ype</u>
F0 72 9	BENZO(A)PYRENE	74.	U 74. UG/KG T.	ARG
50-32-8		74.	U 74. UG/KG T	ARG
39-5	INDENO(1,2,3-CD)PYRENE	74.	U 74. UG/KG T	ARG
0-3	DIBENZO(A, H)ANTHRACENE	74.		ARG
191-24-2	BENZO(G,H,I)PERYLENE	74.		SURR
4165- <b>6</b> 0-0	NITROBENZENE-D5			SURR
321-60-8	2-FLUOROBIPHENYL			SURR
1718-51-0	P-TERPHENYL-D14			
4165-62-2	PHENOL-D5		and the second of the second o	SURR
367-12-4	2-FLUOROPHENOL			SURR
118-79-6	2,4,6-TRIBROMOPHENOL			SURR



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#### ROCKETDYNE

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20346310SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204417

Retest:

Prep Date: 07/27/95 Prep Batch: 18623 Lab Sample: AG2036/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/12/95 01:17

Dilution: 5

Cas Number	Analyte	<u>Result</u>	Qualifier Report Limi	t <u>Units</u> %	Rec Type
108-95-2	PHENOL	1700	u 1700	UG/KG	TARG
-44-4	BIS(2-CHLOROETHYL)ETHER	1700	U 1700	UG/KG	TARG
57-8	2-CHLOROPHENOL	1700	U 1700	UG/KG	TARG
541-73-1	1,3-DICHLOROBENZENE	1700	u 1700	UG/KG	TARG
106-46-7	1,4-DICHLOROBENZENE	1700	U 1700	UG/KG	TARG
100-51-6	BENZYL ALCOHOL	1700	u 1700	UG/KG	TARG
95-50-1	1,2-DICHLOROBENZENE	1700	บ 1700	UG/KG	TARG
95-48-7	2-METHYLPHENOL	1700	บ 1700	UG/KG	TARG
108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	1700	U 1700	UG/KG	TARG
106-44-5	4-METHYLPHENOL	1700	U 1700	UG/KG	TARG
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	1700	บ 1700	UG/KG	TARG
67- <i>7</i> 2-1	HEXACHLOROETHANE	1700	u 1700	UG/KG	TARG
98-95-3	NITROBENZENE	1700	u 1700	UG/KG	TARG
78-59-1	ISOPHORONE	1700	u 1700	UG/KG	TARG
88-75-5	2-NITROPHENOL	1700	ບ 1 <u>7</u> 00	UG/KG	TARG
105-67-9	2,4-DIMETHYLPHENOL	1700	u 1700	UG/KG	TARG
65-85-0	BENZOIC ACID	4200	U 4200	UG/KG	TARG
111-91-1	BIS(2-CHLOROETHOXY)METHANE	1700	u 1700	UG/KG	TARG
120-83-2	2,4-DICHLOROPHENOL	1700	บ 1700	UG/KG	TARG
120-82-1	1,2,4-TRICHLOROBENZENE	1700	U 1700	UG/KG	TARG
91-20-3	NAPHTHALENE	350	u 350	UG/KG	TARG
106-47-8	4-CHLOROANILINE	1700	บ 1700	UG/KG	TARG
87-68-3	HEXACHLOROBUTAD I ENE	1700	u 1700	UG/KG	TARG
59-50-7	4-CHLORO-3-METHYLPHENOL	1700	u 1700	UG/KG	TARG
91-57-6	2-METHYLNAPHTHALENE	1700	U 1700	UG/KG	TARG
77-47-4	HEXACHLOROCYCLOPENTAD I ENE	1700	บ 1 <b>70</b> 0	UG/KG	TARG
29-06-2	2,4,6-TRICHLOROPHENOL	1700	u 1700	UG/KG	TARG
25-4	2,4,5-TRICHLOROPHENOL	4200	U 4200	UG/KG	TARG
	2-CHLORONAPHTHALENE	1700	U 1700	UG/KG	TARG
88-74-4	2-HITROANILINE	4200	u 4200	UG/KG	TARG
131-11-3	DIMETHYL PHTHALATE	1700	ບ 1700	UG/KG	TARG



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## **ROCKETDYNE**

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20346310SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204417

Retest:

Prep Date: 07/27/95 Prep Batch: 18623 Lab Sample: AG2036/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/12/95 01:17

Dilution: 5

Cas Number	Analyte	Result	Qualifier Report Lim	nit <u>Units</u>	% Rec	<u>Type</u>
208-96-8	ACENAPHTHYLENE	350	U 350	UG/KG		TARG
20-2	2,6-DINITROTOLUENE	1700	U 1700	UG/KG		TARG
9-2	3-NITROANILINE	4200	U 4200	UG/KG	1 -	TARG
83-32-9	ACENAPHTHENE	350	U 350	UG/KG		TARG
51-28-5	2,4-DINITROPHENOL	4200	U 4200	UG/KG	1.1 1	TARG
100-02-7	4-NITROPHENOL	4200	U 4200	UG/KG		TARG
132-64-9	DIBENZOFURAN	1700	u 1700	UG/KG		TARG
121-14-2	2,4-DINITROTOLUENE	1700	u 1700	UG/KG		TARG
84-66-2	DIETHYL PHTHALATE	1700	บ 1700	UG/KG	reig e s	TARG
7005-72-3	4-CHLOROPHENYLPHENYL ETHER	1700	ບ <b>1700</b>	UG/KG		TARG
86-73-7	FLUORENE	350	U 350	UG/KG		TARG
100-01-6	4-NITROANILINE	4200	U 4200	UG/KG		TARG
534-52-1	4,6-DINITRO-2-METHYLPHENOL	4200	U 4200	UG/KG		TARG
86-30-6	N-NITROSODIPHENYLAMINE	1700	U 1700	UG/KG		TARG
101-55-3	4-BROMOPHENYL PHENYL ETHER	1700	u 1700	UG/KG		TARG
118-74-1	HEXACHLOROBENZENE	1700	U 1700	UG/KG		TARG
87-86-5	PENTACHLOROPHENOL	4200	U 4200	UG/KG		TARG
85-01-8	PHENANTHRENE	350	U 350	UG/KG		TARG
120-12-7	ANTHRACENE	350	u <b>35</b> 0	UG/KG		TARG
86-74-8	CARBAZOLE	1700	u 1700	UG/KG		TARG
84-74-2	DI-N-BUTYL PHTHALATE	1700	U 1700	UG/KG		TARG
206-44-0	FLUORANTHENE	350	u <b>350</b>	UG/KG		TARG
129-00-0	PYRENE	350	u 350	UG/KG		TARG
85-68-7	BUTYL BENZYL PHTHALATE	1700	u 1 <b>70</b> 0	UG/KG		TARG
91-94-1	3,3'-DICHLOROBENZIDINE	3500	น 3500	UG/KG		TARG
56-55-3	BENZO(A)ANTHRACENE	350	u <b>350</b>	UG/KG		TARG
<del>-48-</del> 01-9	CHRYSENE	350	u <b>3</b> 50	UG/KG		TARG
81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1700	u <b>1700</b>	UG/KG		TARG
117-84-0	DI-N-OCTYL PHTHALATE	1700	U 1700	UG/KG		TARG
205-99-2	BENZO(B)FLUORANTHENE	350	U 350	UG/KG		TARG
207-08-9	BENZO(K) FLUORANTHENE	350	บ 350	UG/KG		TARG



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#### **ROCKETDYNE**

17, 1995 August

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20346310SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204417

Retest:

Prep Date: 07/27/95

Prep Batch: 18623

Lab Sample: AG2036/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/12/95 01:17

Dilution: 5

Cas Number	Analyte	Result	Qualifier	Report Limit	Units % Rec	Type
	DENIZO/ANDYBENE	350	U	350	UG/KG	TARG
50-32-8	BENZO(A)PYRENE	350	U	350	UG/KG	TARG
39-5	INDENO(1,2,3-CD)PYRENE	350	U	350	UG/KG	TARG
0-3	DIBENZO(A, H)ANTHRACENE	350	U	350	UG/KG	TARG
191-24-2	BENZO(G,H,I)PERYLENE	.350	.0	3,00	86	SURR
4165-60-0	NITROBENZENE-D5				A 15th Share Care	SURR
321-60-8	2-FLUOROBIPHENYL					
1718-51-0	P-TERPHENYL-D14				117	SURR
4165-62-2	PHENOL-D5			e e e e	94	SURR
367-12-4	2-FLUOROPHENOL				120	SURR
118-79-6	2,4,6-TRIBROMOPHENOL				112	SURR



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#### ROCKETDYNE

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20130331SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204433

Retest:

Prep Date: 07/27/95 Prep Batch: 18623 Lab Sample: AG2039/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/11/95 22:46

Dilution: 1

Cas Number	Analyte	<u>Result</u>	Qualifier Report Limit	t Units % Rec	<u>Type</u>
108-95-2	PHENOL	380	U 380	UG/KG	TARG
-44-4	BIS(2-CHLOROETHYL)ETHER	380	U 380	UG/KG	TARG
7-8	2-CHLOROPHENOL	380	U 380	UG/KG	TARG
541-73-1	1,3-DICHLOROBENZENE	380	U 380	UG/KG	TARG
106-46-7	1,4-DICHLOROBENZENE	380	u <b>380</b>	UG/KG	TARG
100-51-6	BENZYL ALCOHOL	<b>38</b> 0	u 11 ( <b>38</b> 0 (111 (11)	UG/KG	TARG
95-50-1	1,2-DICHLOROBENZENE	380	U 380	UG/KG	TARG
95-48-7	2-METHYLPHENOL	380	υ <b>380</b>	UG/KG	TARG
108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	380	U 380	UG/KG	TARG
106-44-5	4-METHYLPHENOL	380	U . 380	UG/KG	TARG
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	380	U 380	UG/KG	TARG
67-72-1	HEXACHLOROETHANE	380	U 380	UG/KG	TARG
98-95-3	NITROBENZENE	380	U <b>38</b> 0	UG/KG	TARG
78-59-1	ISOPHORONE	380	u 380	UG/KG	TARG
88-75-5	2-NITROPHENOL	380	U 380	UG/KG	TARG
105-67-9	2,4-DIMETHYLPHENOL	380	ນ 380	UG/KG	TARG
65-85-0	BENZOIC ACID	930	u 930	UG/KG	TARG
111-91-1	BIS(2-CHLOROETHOXY)METHANE	380	บ 380	UG/KG	TARG
120-83-2	2,4-DICHLOROPHENOL	380	U 380	UG/KG	TARG
120-82-1	1,2,4-TRICHLOROBENZENE	380	ບ <b>38</b> 0	UG/KG	TARG
91-20-3	NAPHTHALENE	77.	u 77.	UG/KG	TARG
106-47-8	4-CHLOROANILINE	380	u 380	UG/KG	TARG
87-68-3	HEXACHLOROBUTADIENE	380	ປ <b>38</b> 0	UG/KG	TARG
59-50-7	4-CHLORO-3-METHYLPHENOL	380	ນ <b>380</b>	UG/KG	TARG
91-57-6	2-METHYLNAPHTHALENE	380	u <b>38</b> 0	UG/KG	TARG
77-47-4	HEXACHLOROCYCLOPENTAD I ENE	380	u 380	UG/KG	TARG
99-06-2	2,4,6-TRICHLOROPHENOL	380	U 380	UG/KG	TARG
5-4	2,4,5-TRICHLOROPHENOL	930	u <b>93</b> 0	UG/KG	TARG
<del>71-</del> 58-7	2-CHLORONAPHTHALENE	380	บ 380	UG/KG	TARG
88-74-4	2-NITROANILINE	930	U 930 ··	UG/KG	TARG
131-11 <b>-</b> 3	DIMETHYL PHTHALATE	380	ບ <b>38</b> 0	UG/KG	TARG



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## **ROCKETDYNE**

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20130331SOCO

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204433

Retest:

Prep Date: 07/27/95 Prep Batch: 18623 Lab Sample: AG2039/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/11/95 22:46

Dilution: 1

Cas Number	<u>Analyte</u>	Result	Qualifier	Report Limit	<u>Units</u>	% Rec	<u>Type</u>
200 0/ 8	ACENAPHTHYLENE	77.	U	77.	UG/KG		TARG
208-96-8	2.6-DINITROTOLUENE	380	υ	380	UG/KG		TARG
-2	3-NITROANILINE	-930	U	930	UG/KG		TARG
83-32-9	ACENAPHTHENE	77.	U	77.	UG/KG		TARG
51-28-5	2,4-DINITROPHENOL	930	· U	930	UG/KG	•	TARG
100-02-7	4-NITROPHENOL	930	U	930	UG/KG		TARG
132-64-9	DIBENZOFURAN	380	. <b>u</b> :	380	UG/KG		TARG
121-14-2	2.4-DINITROTOLUENE	380	U	380	UG/KG		TARG
84-66-2	DIETHYL PHTHALATE	380	ນໍ້	380	UG/KG		TARG
7005-72-3	4-CHLOROPHENYLPHENYL ETHER	380	υ	380	UG/KG		TARG
86-73-7	FLUORENE	77.	.U	77.	UG/KG		TARG
100-01-6	4-NITROANILINE	930	U	930	UG/KG		TARG
534-52-1	4.6-DINITRO-2-METHYLPHENOL	930	U .	930	UG/KG		TARG
86-30-6	N-NITROSODIPHENYLAMINE	<b>38</b> 0	U	380	UG/KG		TARG
101-55-3	4-BROMOPHENYL PHENYL ETHER	380	บ	380	UG/KG		TARG
118-74-1	HEXACHLOROBENZENE	380	U	380	UG/KG		TARG
87-86-5	PENTACHLOROPHENOL	930	U	930	UG/KG		TARG
85-01-8	PHENANTHRENE	77.	U	77.	UG/KG		TARG
120-12-7	ANTHRACENE	77.	U	77.	UG/KG		TARG
86-74-8	CARBAZOLE	380	` U	380	UG/KG		TARG
84-74-2	DI-N-BUTYL PHTHALATE	380	U -	380	UG/KG		TARG
206-44-0	FLUORANTHENE	77.	υ	77.	UG/KG		TARG
129-00-0	PYRENE	77.	ប	77.	UG/KG		TARG
85-68-7	BUTYL BENZYL PHTHALATE	380	U	380	UG/KG		TARG
91-94-1	3.3'-DICHLOROBENZIDINE	770	U	770	UG/KG		TARG
56-55-3	BENZO(A)ANTHRACENE	77.	U	77.	UG/KG		TARG
7.18-01-9	CHRYSENE	77.	:U	77.	UG/KG		TARG
B1-7	BIS(2-ETHYLHEXYL) PHTHALATE	380	U	380	UG/KG		TARG
117-84-0	DI-N-OCTYL PHTHALATE	380	U	380	UG/KG		TARG
205-99-2	BENZO(B)FLUORANTHENE	77.	U	77.	UG/KG		TARG
207-08-9	BENZO(K)FLUORANTHENE	77.	U	77.	UG/KG		TARG



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#### **ROCKETDYNE**

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20130331SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204433

Retest:

Prep Date: 07/27/95

Prep Batch: 18623

Lab Sample: AG2039/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/11/95 22:46

Dilution: 1

Cas + er	inalyte	<u>Result</u>	Qualifier Report	<u>mit Units</u>	% Rec	Туре
0-32-8ر	BENZO(A)PYRENE	77.	υ 77 <b>.</b>	UG/AL		TARG
7-39-5	INDENO(1,2,3-CD)PYRENE	77.	υ 77 <b>.</b>	UG/KG		130
/0-3	DIBENZO(A, H)ANTHRACENE	77.	u 77.	UG/KG		TARL
191-24-2	BENZO(G,H,I)PERYLENE	77.	ບ <i>7</i> 7.	UG/KG		TARG
4165-60-0	NITROBENZENE-D5				82	SURR
321-60-8	2-FLUOROBIPHENYL				80	SURR
1718-51-0	P-TERPHENYL-D14				121	SURR
4165-62-2	PHENOL-D5				82	SURR
367-12-4	2-FLUOROPHENOL				95	SURR
118-79-6	2.4.6-TRIBROMOPHENOL		1 1		77	SURR



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#### ROCKETDYNE

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20446370SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204491

Retest:

Prep Date: 07/27/95 Prep Batch: 18623 Lab Sample: AG2053/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/11/95 23:23

Dilution: 1

Cas Number	Analyte	<u>Result</u>	Qualifier	Report Limit	<u>Units</u>	% Rec	<u>Type</u>
8-95-2	PHENOL	340	U	340	UG/KG		TARG
44-4	BIS(2-CHLOROETHYL)ETHER	340	U	340	UG/KG		₹ ¢RG
7-8	2-CHLOROPHENOL	340	U	340	UG/KG		TARG
541-73-1	1,3-DICHLOROBENZENE	340	U	340	UG/KG		TARG
106-46-7	1,4-DICHLOROBENZENE	340	U	340	UG/KG		TARG
100-51-6	BENZYL ALCOHOL	340	·U	340	UG/KG		TARG
95-50-1	1,2-DICHLOROBENZENE	340	U	340	UG/KG		TARG
95-48-7	2-METHYLPHENOL	340	U	340	UG/KG		TARG
108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	340	U	340	UG/KG		TARG
106-44-5	4-METHYLPHENOL	340	บ	340	UG/KG		TARG
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	340	U	340	UG/KG		TARG
67-72-1	HEXACHLOROETHANE	340	U	340	UG/KG		TARG
98-95-3	NITROBENZENE	340	U	340	UG/KG		TARG
78-59-1	ISOPHORONE	340	U	340	UG/KG		TARG
88-75-5	2-NITROPHENOL	340	U	340	UG/KG		TARG
105-67-9	2,4-DIMETHYLPHENOL	340	U	340	UG/KG		TARG
65-85-0	BENZOIC ACID	820	U	820	UG/KG		TARG
111-91-1	BIS(2-CHLOROETHOXY)METHANE	340	U	340	UG/KG		TARG
120-83-2	2,4-DICHLOROPHENOL	340	U	340	UG/KG		TARG
120-82-1	1,2,4-TRICHLOROBENZENE	340	บ	340	UG/KG		TARG
91-20-3	NAPHTHALENE	68.	U	68.	UG/KG		TARG
106-47-8	4-CHLOROANILINE	340	U	340	UG/KG		TARG
87-68-3	HEXACHLOROBUTADIENE	340	U	340	UG/KG		TARG
59-50-7	4-CHLORO-3-METHYLPHENOL	340	บ	340	UG/KG		TARG
91-57-6	2-METHYLNAPHTHALENE	340	U	340	UG/KG		TARG
77-47-4	HEXACHLOROCYCLOPENTAD I ENE	340	U	340	UG/KG		TARG
<u>22</u> -06-2	2,4,6-TRICHLOROPHENOL	340	U	340	UG/KG		TARG
V5-4	2,4,5-TRICHLOROPHENOL	820	U	820	UG/KG		TARG
58-7	2-CHLORONAPHTHALENE	340	υ	340	UG/KG		TARG
88-74-4	2-NITROANILINE	820	U	820	UG/KG		TARG
131-11-3	DIMETHYL PHTHALATE	340	U	340	UG/KG		TARG



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#### ROCKETDYNE

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20446370SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204491

Retest:

Prep Date: 07/27/95

Prep Batch: 18623

Lab Sample: AG2053/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/11/95 23:23

Dilution: 1

Cas Number	Analyte	<u>Result</u>	Qualifier	Report Limit	<u>Units</u>	% Rec	Type
208-96-8	ACENAPHTHYLENE	68.	. U	68.	UG/KG	· · .	TARG
20-2	2,6-DINITROTOLUENE	340	บ	340	UG/KG		TARG
9-2	3-NITROANILINE	820	U	820	UG/KG		TARG
83-32-9	ACENAPHTHENE	68.	U	68.	UG/KG		TARG
51-28-5	2,4-DINITROPHENOL	820	U	820	UG/KG		TARG
100-02-7	4-NITROPHENOL	820	U	820	UG/KG		TARG
132-64-9	DIBENZOFURAN	340	U+.	340	UG/KG		TARG
121-14-2	2,4-DINITROTOLUENE	340	U	340	UG/KG		TARG
84-66-2	DIETHYL PHTHALATE	340	U	340	UG/KG		TARG
7005-72-3	4-CHLOROPHENYLPHENYL ETHER	340	U	340	UG/KG		TARG
86-73-7	FLUORENE	68.	U	68.	UG/KG		TARG
100-01-6	4-NITROANILINE	820	U	820	UG/KG		TARG
534-52-1	4,6-DINITRO-2-METHYLPHENOL	820	U	820	UG/KG		TARG
<b>8</b> 6-30-6	N-NITROSODIPHENYLAMINE	340	υ	340	UG/KG		TARG
101-55-3	4-BROMOPHENYL PHENYL ETHER	340	ប	340	UG/KG		TARG
118-74-1	HEXACHLOROBENZENE	340	U	340	UG/KG		TARG
87-86-5	PENTACHLOROPHENOL	820	U	820	UG/KG		TARG
<b>8</b> 5-01 <b>-</b> 8	PHENANTHRENE	68.	U	68.	UG/KG		TARG
120-12-7	ANTHRACENE	68.	U	68.	UG/KG		TARG
86-74-8	CARBAZOLE	340	U	340	UG/KG		TARG
84-74-2	DI-N-BUTYL PHTHALATE	37.	J	340	UG/KG		TARG
206-44-0	FLUORANTHENE	68.	U	68.	UG/KG		TARG
129-00-0	PYRENE	68.	U	68.	UG/KG		TARG
85-68-7	BUTYL BENZYL PHTHALATE	340	U	340	UG/KG		TARG
91-94-1	3,3'-DICHLOROBENZIDINE	680	U	680	UG/KG		TARG
56-55-3	BENZO(A)ANTHRACENE	68.	U	68.	UG/KG		TARG
<u>71</u> 8-01-9	CHRYSENE	68.	U	.68.	UG/KG		TARG
81-7	BIS(2-ETHYLHEXYL) PHTHALATE	540		340	UG/KG		TARG
-84-0	DI-N-OCTYL PHYHALATE	340	U	340	UG/KG		TARG
205-99-2	BENZO(B)FLUORANTHENE	68.	U	68.	UG/KG		TARG
207-08-9	BENZO(K)FLUORANTHENE	68.	U	68.	-UG/KG		TARG



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#### ROCKETDYNE

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20446370SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204491

Retest:

Prep Date: 07/27/95

Prep Batch: 18623

Lab Sample: AG2053/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 2935

Lab Method Blank: AG2132

Analysis Date: 08/11/95 23:23

Dilution: 1

<u>Cas Number</u>	Analyte	Result	Qualifier	Report Limit	<u>Units</u>	% Rec	<u>Type</u>	
50-32-8	BENZO(A)PYRENE	68.	U	68.	UG/KG		TARG	
39-5	INDENO(1,2,3-CD)PYRENE	68.	U	68.	UG/KG		TARG	
-3	DIBENZO(A, H)ANTHRACENE	68.	U	68.	UG/KG		TARG	
191-24-2	BENZO(G,H,I)PERYLENE	68.	·U	68.	UG/KG	s i destrolare	TARG	
4165-60-0	NITROBENZENE-D5					78	SURR	
321-60-8	2-FLUOROBIPHENYL					91	SURR	
1718-51-0	P-TERPHENYL-D14					128	SURR	
4165-62-2	PHENOL-D5				jir dir.	84	SURR	4.
367-12-4	2-FLUOROPHENOL					98	SURR	
118-79-6	2,4,6-TRIBROMOPHENOL					86	SURR	



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## **ROCKETDYNE**

17, 1995 August

Sample Delivery Group: 4276 Report Batch:

19358

Client Sample: 20246220SOC0 Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204266

Retest:

Prep Date: 07/27/95 Prep Batch: 18626

Lab Sample: AG2011/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 3170

Lab Method Blank: AG2143

Analysis Date: 08/02/95 18:23

Dilution: 1

#### ORGANOCHLOR.PCB-GC/EC, CAP&PACK **EPA** 8080 Primary Result

Cas Number	Analyte	Result	Qualifier Report	imit <u>Units % Rec</u>	<u>Type</u>
4440/ 39 3	AROCLOR-1221	22.	υ 22.	UG/KG	TARG
11104-28-2	AROCLOR-1016	22.	υ 22.	UG/KG	TARG
74-11-2		22.	U 22.	UG/KG	TARG
1-16-5	AROCLOR-1232	22.	U 22.	UG/KG	TARG
53469-21-9	AROCLOR-1242				TARG
12672-29-6	AROCLOR-1248	22.	U 22.	UG/KG	
11097-69-1	AROCLOR-1254	44.	U 44.	UG/KG	TARG
11096-82-5	AROCLOR-1260	44.	u 44.	UG/KG	TARG
	2,4,5,6-TETRACHLORO-M-XYLENE			107	SURR
877-09-8				77	SURR
1770-80-5	DIBUTYL CHLORENDATE			• •	50



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#### ROCKETDYNE

August 17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20146220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204378

Retest:

Prep Date: 07/27/95 Prep Batch: 18626 Lab Sample: AG2033/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 3170

Lab Method Blank: AG2143

Analysis Date: 08/02/95 19:14

Dilution: 1

#### ORGANOCHLOR.PCB-GC/EC,CAP&PACK EPA 8080 Primary Result

Cas Number	Analyte	<u>Result</u>	Qualifier	Report Limit	Units % Rec	<u>Туре</u>
11104-28-2	AROCLOR-1221 AROCLOR-1016	23. 23.	U	23. 23.	UG/KG	TARG
1-16-5	AROCLOR-1232	23. 23.	U U	23. 23.	UG/KG UG/KG	TARG
53469-21-9 12672-29-6	AROCLOR-1242 AROCLOR-1248	23. 71.	U	23. 45.	UG/KG UG/KG	TARG TARG
11097-69-1 11096-82-5	AROCLOR-1254 AROCLOR-1260	45.	υ	45.	UG/KG	TARG SURR
877-09-8 1770-80-5	2,4,5,6-TETRACHLORO-M-XYLENE DIBUTYL CHLORENDATE				80	SURR



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## **ROCKETDYNE**

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20346310SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204414

Retest:

Prep Date: 07/27/95 Prep Batch: 18626

Lab Sample: AG2036/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 3170

Lab Method Blank: AG2143

Analysis Date: 08/10/95 12:48

Dilution: 2

#### ORGANOCHLOR.PCB-GC/EC, CAP&PACK **EPA** 8080 Primary Result

<u>Cas Number</u>	Analyte	Result	Qualifier	Report Limit	Units % Rec	Type
11104-28-2	AROCLOR-1221	43.	U	43.	UG/KG	TARG
74-11-2	AROCLOR-1016	43.	U	43.	UG/KG	TARG
1-16-5	AROCLOR - 1232	43.	U	43.	UG/KG	TARG
53469-21-9	AROCLOR-1242	43.	ָט	43.	UG/KG	TARG
12672-29-6	AROCLOR - 1248	43.	U	43.	UG/KG	TARG
11097-69-1	AROCLOR - 1254	88.		86.	UG/KG	TARG
11096-82-5	AROCLOR - 1260	86.	U	86.	UG/KG	TARG
877-09 <b>-</b> 8	2,4,5,6-TETRACHLORO-M-XYLENE				81	SURR
1770-80-5	DIBUTYL CHLORENDATE				53	SURR



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#### ROCKETDYNE

17, 1995 August

Sample Delivery Group: 4276 Report Batch:

19358

Client Sample: 20130331SOC0 Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204430

Retest:

Prep Date: 07/27/95 Prep Batch: 18626

Lab Sample: AG2039/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 3170

Lab Method Blank: AG2143

Analysis Date: 08/02/95 20:05

Dilution: 1

#### ORGANOCHLOR. PCB-GC/EC, CAP&PACK **EPA** 8080 Primary Result

<u>Cas Number</u>	Analyte	<u>Result</u>	Qualifier	Report Lim	it <u>Units</u>	% Rec	Type
11104-28-2	AROCLOR-1221	23.	Ü	23.	UG/KG		TARG
74-11-2	AROCLOR-1016	 23.	U	23.	UG/KG		TARG
-16-5	AROCLOR-1232	23.	U	23.	UG/KG		TARG
53469-21-9	AROCLOR-1242	23.	U	23.	UG/KG		TARG
12672-29-6	AROCLOR-1248	23.	U	23.	UG/KG		TARG
11097-69-1	AROCLOR-1254	47.	. <b></b>	47.	UG/KG		TARG
11096-82-5	AROCLOR - 1260	47.	U	47.	UG/KG		TARG
877-09-8	2,4,5,6-TETRACHLORO-M-XYLENE					101	SURR
1770-80-5	DIBUTYL CHLORENDATE					69	SURR



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#### ROCKETDYNE

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20446370SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204488

Retest:

Prep Date: 07/27/95 Prep Batch: 18626 Lab Sample: AG2053/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 3170

Lab Method Blank: AG2143

Analysis Date: 08/02/95 20:30

Dilution: 5

# ORGANOCHLOR.PCB-GC/EC,CAP&PACK EPA 8080 Primary Result

<u>Cas Number</u>	<u>Analyte</u>	<u>Result</u>	Qualifier	Report Limit	Units % Rec	Type
11104-28-2	AROCLOR-1221	100	U	100	UG/KG	TARG
→574-11-2	AROCLOR-1016	100	U	100	UG/KG	TARG
1-16-5	AROCLOR-1232	100	U	100	UG/KG	TARG
	AROCLOR-1242	100	U	100	UG/KG	TARG
53469-21-9	AROCLOR-1248	100	U	100	UG/KG	TARG
12672-29-6	AROCLOR - 1254	360		210	UG/KG	TARG
11097-69-1		210	U	210	UG/KG	TARG
11096-82-5	AROCLOR-1260	210	<u> </u>	e Tili alama	95	SURR
877-09-8	2,4,5,6-TETRACHLORO-M-XYLENE				66	SURR
1770-80-5	DIBUTYL CHLORENDATE				•	JOKK



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## **ROCKETDYNE**

17, 1995 August

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20246220SMM0 Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204396

Retest:

Prep Date: 07/28/95 Prep Batch: 18682

Lab Sample: AG2020/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 3276

Lab Method Blank: AG2426

Analysis Date: 08/01/95 13:35

Dilution: 1

Cas Number	Analyte	Result Qualifier Report Limit Units % Rec	<u>Type</u>
T/10 TO D	ADCENTC	4.40 1.05 MG/KG	TARG
7440-38-2	ARSENIC	16.1 .0526 MG/KG	TARG
0-47-3	CHROMIUM	10.1	TARG
-50-8	COPPER	10.0	
7-09-92-1	LEAD	28.6316HG/KG	TARG
· -		10.4 .316 MG/KG	TARG
<b>7</b> 440-02-0	NICKEL		TARG
7440-66-6	ZINC	61.4 2.41 11 2.41 11 11 11 11 11 11 11 11 11 11 11 11 1	17014



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## **ROCKETDYNE**

August 17, 1995

Sample Delivery Group: 4276

Report Batch:

19358

Client Sample: 20146220SMM0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204411

Retest:

Prep Date: 07/28/95 Prep Batch: 18682 Lab Sample: AG2035/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 3276

Lab Method Blank: AG2426

Analysis Date: 08/01/95 13:50

Dilution: 1

Cas Number	Analyte	Result	Qualifier Report Limit	Units % Rec	<u>Type</u>
		4.70	1.18	MG/KG	TARG
7440-38-2	ARSENIC			MG/KG	TARG
<u></u> 0-47-3	CHROMIUM	25.8	.0588	• •	
		17.5	. 176	MG/KG	TARG
50-8	COPPER	9.10	.353	NG/KG	TARG
7439-92-1	LEAD			MG/KG	TARG
7440-02-0	NICKEL	18.1	.353	grifted and see	
7440-66-6	ZINC	63.2	2.35	NG/KG	TARG



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## **ROCKETDYNE**

August 17, 1995

Sample Delivery Group: 4276 Report Batch:

19358

Client Sample: 20130331SMM0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204448

Retest:

Prep Date: 07/28/95 Prep Batch: 18682 Lab Sample: AG2041/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 3276

Lab Method Blank: AG2426

Analysis Date: 08/01/95 13:55

Dilution: 1

Cas Number	<u>Analyte</u>	Result	Qualifier Report Limit Units % Rec	Туре
		4.90	1.03 MG/KG	TARG
7440-38-2	ARSENIC		.0515 MG/KG	TARG
<u>-1-47-3</u>	CHROMIUM	27.4		TARG
50-8	COPPER	19.5	.155 MG/KG	
		11.2	.309 NG/KG	TARG
7459-92-1	LEAD	19.1	_309 MG/KG	TARG
7440-02-0	NICKEL		a or welle	TARG
7440-66-6	ZINC	61.5	2.00 Marka	



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#### ROCKETDYNE

August 17, 1995

4276 Sample Delivery Group:

Report Batch:

19358

Client Sample: 20346310SMM0 Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204454

Retest:

Prep Date: 07/28/95

Prep Batch: 18682

Lab Sample: AG2042/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 3276

Lab Method Blank: AG2426

Analysis Date: 08/01/95 14:05

Dilution: 1

Cas Number	Analyte	<u>Result</u>	ualifier Report Limit	Units % Rec	<u>Туре</u>
	ADCENTE	4.20	1.03	MG/KG	TARG
7440-38-2	ARSENIC	20.4	.0515	MG/KG	TARG
10-47-3	CHROMIUM	24.9	.155	MG/KG	TARG
50-8	COPPER	10.9	.309	MG/KG	TARG
-92-1	LEAD	14.6	.309	MG/KG	TARG
7440-02-0	NICKEL		2.06	MG/KG	TARG
7440-66-6	ZINC	68.2	2.00		



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## ROCKETDYNE

August

17, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20446370SMM0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204485

Retest:

Prep Date: 07/28/95 Prep Batch: 18682 Lab Sample: AG2051/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 3276

Lab Method Blank: AG2426

Analysis Date: 08/01/95 14:09

Dilution: 1

Cas Number	<u>Analyte</u>	Result	Qualifier Report Limit Units	% Rec Type
7440-38-2	ARSENIC	4.40	1.03 MG/KG	TARG
	CHROMIUM	22.3	.0515 MG/KG	TARG
0-47-3		16.1	.155 MG/KG	TARG
-50-8	COPPER	10.7	309 MG/KG	TARG
7439-92-1	LEAD	15.0	.309 MG/KG	TARG
7440-02-0	NICKEL		2.06 MG/KG	TARG
7440-66-6	ZINC	64.2	2.00 Hb/ KG	



Quanterra Incorporated 5815 Middlebrook Pike Knoxville, Tennessee 37921

615 588-6401 Telephone 615 584-4315 Fax

24-Aug-95 Revised 31-Aug-95

Ruth Custance ICF Kaiser Environment and Energy Group 10 Universal City Plaza Suite 2400 Universal City, CA 91608-1097

RE: Dioxin/Furan Report Work Order No: 2328

Dear Ms. Custance:

pclosed please find one copy of our final Dioxin/Furan report for twenty soil samples and one water sample received 26-Jul-95.

Quanterra Environmental Services appreciates your business and looks forward to working with you in the future. Please call if you have any questions about our report or services.

Sincerely,

Porticia M. Parsly

Project Manager





Quanterra Incorporated 5815 Middlebrook Pike Knoxville, Tennessee 37921

615 588-6401 Telephone 615 584-4315 Fax

#### CERTIFICATE OF ANALYSIS

Ruth Custance ICF Kaiser Environment and Energy Group 10 Universal City Plaza Suite 2400 Universal City, CA 91608-1097 24-Aug-95 Revised 31-Aug-95

**WORK ORDER NUMBER: 2328** 

This is the Certificate of Analysis for the following samples:

Client Project ID:

Rocketdyne

Date Received by Lab:

26-Jul-95

Number of Samples:

Twenty-One (21)

Sample Matrix:

Soil and Water



#### Introduction/Case Narrative

Twenty (20) soil samples and one (1) water sample were received 26-Jul-95 for the analysis of 2,3,7,8-TCDD/TCDF and total tetra through octa (Cl<sub>4</sub>-Cl<sub>8</sub>) dioxin and furan homologs (See Appendix A, Cross Reference List and Appendix E, Chain-of-Custody and Request for Analysis records). An estimation of all 2,3,7,8-substituted isomers was also requested. The samples and the blanks were spiked with an internal standard mixture containing 1.0 ng each of <sup>13</sup>C-TCDD, <sup>13</sup>C-TCDF, <sup>13</sup>C-PeCDD, <sup>13</sup>C-HxCDD, <sup>13</sup>C-HxCDF, <sup>13</sup>C-HpCDD, <sup>13</sup>C-HpCDF and 2.0 ng of <sup>13</sup>C-OCDD. The samples and the blanks were analyzed using the EPA reference method described in RCRA SW-846, Method 8290. Extracts were analyzed by GC/MS operating in the selected ion monitoring mode for enhanced sensitivity. The results reported herein are applicable to the samples submitted for analysis only. It is recommended that if this report is reproduced, it is reproduced in its entirety.

The soil samples are reported on a dry weight basis.

Reviewed and Approved:

Patricia M. Parsly

pject Manager

.460/dl



### I. <u>Introduction/Case Narrative</u> (Continued)

This report was originally issued on 24-Aug-95 without the results from the confirmation analysis for the 2,3,7,8-TCDF. This report includes the previously reported results and the results from the 2,3,7,8-TCDF confirmation analysis.

Many of the 2,3,7,8-TCDF results from the DB-225 column were higher than the results from the DB-5 column. Most of the samples exhibited a possible polychlorinated diphenyl interference.

Due to matrix interferences which caused ion suppression, the specified results for the samples listed below were obtained from a dilution:

<b>Dilution Factor</b>	Results obtained from dilution
1:10	All
1:5	All
1:10	<sup>13</sup> C-HpCDD, HpCDD
1:10	<sup>13</sup> C-HpCDD- <sup>13</sup> -OCDD, HxCDD-OCDD
1:10	<sup>13</sup> C-HpCDF, <sup>13</sup> HxCDF, HxCDF-OCDF
1:10	HpCDD, <sup>13</sup> C-HpCDF
1:10	All
1:10	All
1:10	<sup>13</sup> C-HpCDD, HpCDF
1:10	All
1:10	<sup>13</sup> C-HpCDD, HpCDF
	1:10 1:5 1:10 1:10 1:10 1:10 1:10 1:10

### II. Analytical Results/Methodology

#### SAMPLE PREPARATION

**Soil** - A 10 gram (wet weight) aliquot of each sample and 10 grams of quartz sand (for the blanks) were weighed into separate Soxhlet thimbles. The samples and the blanks were spiked with the internal standard mixture, followed by a Soxhlet extraction with toluene for sixteen hours. The resulting extracts were filtered into a KD flask and the volume reduced to approximately 1 ml.

Water - Approximately 1000 ml of the sample and 1000 ml distilled water (for the blank) were transferred into individual separatory funnels. The sample and the blank were spiked with the internal standard mixture, and then triple-extracted with methylene chloride. The resulting extracts were filtered into a KD flask and the volume reduced to approximately 1 ml.



## II. Analytical Results/Methodology (Continued)

#### SAMPLE CLEANUP

The sample and blank extracts were washed with 20% KOH and distilled water followed by three concentrated  $\rm H_2SO_4$  washes. Further cleanup consisted of a dual column system utilizing acid-modified silica gel followed by neutral alumina. Final extracts were concentrated to near dryness and raised to 20  $\mu$ l with 2.0 ng  $^{13}$ C-1,2,3,4-TCDD and 2.0 ng  $^{13}$ C-1,2,3,7,8,9-HxCDD which were used as recovery standards.

#### GC/MS ANALYSIS

Total Dioxin and Furan - The samples and the blanks were analyzed for total dioxin and furan homologs from  $\text{Cl}_4\text{-Cl}_8$ . The standard analyzed each shift consisted of:

<u>Dioxins</u>	<u>Dibenzofurans</u>
Dioxins  13C-2,3,7,8-TCDD 13C-1,2,3,4-TCDD 13C-1,2,3,7,8-PeCDD 13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-0CDD 2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDD 1,2,3,4,6,7,8-HxCDD 1,2,3,4,6,7,8-HpCDD	Dibenzofurans  13C-2,3,7,8-TCDF 13C-1,2,3,7,8-PeCDF 13C-1,2,3,4,7,8-HxCDF 13C-1,2,3,4,6,7,8-HpCDF 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF
OCDD	OCDF

Response factors were calculated for each compound in the standard relative to its <sup>13</sup>C labeled homolog. Native OCDF is calculated against <sup>13</sup>C-OCDD. A five-point calibration plot was analyzed. The mean response factors obtained from this five-point calibration were used for all subsequent calculations. The daily calibration standards, analyzed on the same day as the samples, met the method criteria for all native analytes.

The extracts were analyzed using HRGC/HRMS scanning in the selected ion monitoring mode for enhanced sensitivity. The column used for the analysis was a 60 m DB-5 type fused silica capillary polumn.





#### **GC/MS RESULTS**

**Totals** - The results for the totals analysis, shown in Appendix C, are reported in pg/g for the soil samples and pg/L for the water sample with the total amount of each homologous group calculated. For any homologous series of dioxins or furans that contain more than one 2,3,7,8-substituted isomer, the total result for that series is the sum of the individual 2,3,7,8-substituted isomers (calculated using their specific Response Factors) and all other non-2,3,7,8-substituted isomers (calculated using the average Response Factor of the individual 2,3,7,8-substituted isomers in that homologous series).

The results from the confirmation analysis are in Appendix D.

Detection Limits - When an analyte is not detected, a sample specific detection limit is calculated for that analyte. This is done by first determining the GC/MS peak height of the noise or interferent in the expected region of the analyte signal. This value is multiplied by the number 2.5 which serves as a safety factor. The 2.5 safety factor is disregarded if the noise present in the analyte region is a result of chemical interferences. The resulting signal response value is then used to estimate the inimum detectable analyte amount. The result is the estimated sample detection limit.

When an analyte is not detected, a "U" is reported in the qualifier column. The value in the result column is the estimated detection limit for the analyte in that particular sample.

## III. Quality Control

Routine laboratory QA/QC was followed. Appendix B lists the results of the QC samples run in the same quality assurance batch as the client samples. Recoveries for the internal standards for each sample are presented with the sample analysis data.



ICF KAISER ENVIRONMENTAL ENERGY AND GROUP

Date: 24-Aug-95 Vork Order No.: 2328



## **CROSS REFERENCE LIST**

QUANTERRA SAMPLE NO.	CLIENT SAMPLE NO.	MATRIX
^ ^ E 7 7 E	202462205000	Cail
AA5775	20246220SOC0	Soil
AA5776	20203310SOC0	Soil
AA5777	20330281SOC0	Soil
AA5778	20146220SOC0	Soil
AA5779	20346310SOC0	Soil
AA5780	20130331SOC0	Soil
AA5781	20446370SOC0	Soil
AA5782	21431330SOC0	Soil
AA5783	20530491SOC0	Soil
AA5784	20546500SOC0	Soil
AA5785	21446220SOC0	Soil
AA5786	20846220SOC0	Soil
AA5787	21516170SOC0	Soil
AA5788	21404240SOC0	Soil
AA5789	31235290SOC0	Soil
AA5790	21513070SOC0	Soil
AA5791	40206390SOC0	Soil
AA5792	30921670SOC0	Soil
AA5793	40206390SOC0	Soil
AA5795	22046220SOC0	Soil
AA5794	21431330WOC1	Water

APPENDIX B



## LABORATORY CONTROL SAMPLE

## QA/QC REPORT HRMS

LCS Number:

**BLCS528** 

Extraction Method: SOXHLET

Matrix: SOLID

**Extraction Date:** 

8/4/95

**Totals Analysis Date:** 

8/13/95

	Amt.	Conc.	%	EPA %	
COMPOUND	Added	LCS	Recovery	Recovery	
	pg/g	pg/g	LCS	Range	
Totals Analysis					
2,3.7,8-TCDD	20.0	19.5	98	а	
1,2.3,7,8-PeCDD	100.	105	105	а	
1,2,3,6,7,8-HxCDD	100.	99.6	100	a	
1,2,3,4,6,7,8-HpCDD	100.	96.2	96	а	
OCDD	200.	181	91	а	
2,3,7,8-TCDF	20.0	21.5	108	a	
1,2,3,7,8-PeCDF	100.	94.4	94	a	
1,2,3,4,7,8-HxCDF	100.	96.4	96	а	
1,2,3,4,6,7,8-HpCDF	100.	98.8	99	а	
OCDF	200.	183	92	а	

<sup>%</sup> Recovery = (Conc. LCS) / Amt. Added) x 100

<sup>(</sup>a) No EPA Range has been established for these analytes. ITAS-TDL QA/QC limits are 60% - 140%.



## LABORATORY CONTROL SAMPLE

## QA/QC REPORT **HRMS**

LCS Number:

**BLCS525** 

**Extraction Date:** 

8/9/95

**Extraction Method: SOXHLET** Matrix: SOLID

**Totals Analysis Date:** 

8/18/95

	Amt.	Conc.	%	EPA %	
COMPOUND	Added	LCS	Recovery	Recovery Range	
	pg/g	pg/g	LCS		
Totals Analysis	·				
2,3,7,8-TCDD	20.0	20.3	102	a	
1,2,3,7,8-PeCDD	100.	107	107	a	
1,2,3,6,7,8-HxCDD	100.	102	102	а	
1,2,3,4,6,7,8-HpCDD	100.	100	100	a	
OCDD	200.	198	99	a	
2.3.7,8-TCDF	20.0	22.1	111	a	
1,2,3,7,8-PeCDF	100.	95.1	95	а	
1,2,3,4,7,8-HxCDF	100.	98.6	99	а	
1,2,3,4,6,7,8-HpCDF	100.	102	102	а	
OCDF	200.	174	87	а	

<sup>%</sup> Recovery = (Conc. LCS) / Amt. Added) x 100

LCS.XLS/pbc/2-25-92 rev. 0

<sup>(</sup>a) No EPA Range has been established for these analytes. ITAS-TDL QA/QC limits are 60% - 140%.



## LABORATORY CONTROL SAMPLE

## QA/QC REPORT HRMS

LCS Number:

BLCS522

Extraction Date: 7/31/95

Sample Matrix:

Water

Totals Analysis Date: 8/3/95

Extraction Method: Liquid/Liquid

	Amt.	Conc.	%	EPA %	
COMPOUND	Added	LCS	Recovery	Recovery Range	
	pg/L	pg/L	LCS		
Totals Analysis					
2,3,7,8-TCDD	200	215	108	a	
1,2,3,7,8-PeCDD	1000	1070	107	а	
1,2,3,6,7,8-HxCDD	1000	1030	103	а	
1,2,3,4,6,7,8-HpCDD	1000	1020	102	а	
OCDD	2000	1800	90	а	
2,3,7,8-TCDF	200	226	113	а	
1,2,3,7,8-PeCDF	1000	925	93	а	
1,2,3,4,7,8-HxCDF	1000	958	96	a	
1,2,3,4,6,7,8-HpCDF	1000	966	97	a	
OCDF	2000	1680	84	а	

<sup>%</sup> Recovery = (Conc. LCS) / Amt. Added) x 100

<sup>(</sup>a) No EPA Range has been established for these analytes. ITAS-TDL QA/QC advisory limits are 60% - 140%.

.

APPENDIX C



# CERTIFICATE OF ANALYSIS ROCKETDYNE

Page 1 C of 51 C

August 24, 1995

Sample Delivery Group: 4276

Report Batch:

19358

Client Sample: 20246220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204277

Retest:

Prep Date: 08/04/95

Prep Batch: 3254

Lab Sample: AA5775 /ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254

Analysis Date: 08/15/95 10:19

Dilution: 1

#### PCDD/F, HRMS EPA 8290 Primary Result

Cas Number	Analyte	Result	Qualifier	Report Limit	<u>Units</u>	% Rec	<u>Type</u>
1746-01-6	2,3,7,8-TCDD	.57	U	.57	PG/G		TARG
3-57-5	TOTAL TCDD	.23	j	1.1	PG/G		TARG
-76-4	1,2,3,7,8-PECDD	.35	U	.35	PG/G		TARG
36088-22-9	TOTAL PECDD	.36	J	5.6	PG/G		TARG
39227-28-6	1,2,3,4,7,8-HXCDD	.11	U	.11	PG/G		TARG
57653-85-7	1,2,3,6,7,8-HXCDD	.46	J	5.6	PG/G		TARG
19408-74-3	1,2,3,7,8,9-HXCDD	.74	j	5.6	PG/G		TARG
34465-46-8	TOTAL HXCDD	1.9	JQ	5.6	PG/G		TARG
35822-46-9	1,2,3,4,6,7,8-HPCDD	1.6	J	5.6	PG/G		TARG
37871-00-4	TOTAL HPCDD	3.3	J	5.6	PG/G		TARG
3268-87-9	TOTAL OCDD	20.8		11.	PG/G		TARG
51207-31-9	2,3,7,8-TCDF	<b>.3</b> 5	JCG	1.1	PG/G		TARG
55722-27-5	TOTAL TCDF	4.2	JIQ	1.1	PG/G		TARG
57117-41-6	1,2,3,7,8-PECDF	.23	U	.23	PG/G		TARG
57117-31-4	2,3,4,7,8-PECDF	.19	U	.19	PG/G		TARG
30402-15-4	TOTAL PECDF	1.9	JIQ	5.6	PG/G	and a triple	TARG
70648-26-9	1,2,3,4,7,8-HXCDF	.10	U	.10	PG/G		TARG
57117-44-9	1,2,3,6,7,8-HXCDF	.12	U F	.12	PG/G		TARG
60851-34-5	2,3,4,6,7,8-HXCDF	.18	J	5.6	PG/G		TARG
72918-21-9	1,2,3,7,8,9-HXCDF	.54	J .	5.6	PG/G		TARG
55684-94-1	TOTAL HXCDF	2.0	JI	5.6	PG/G		TARG
67562-39-4	1,2,3,4,6,7,8-HPCDF	.21	U	.21	PG/G	*	TARG
55673-89-7	1,2,3,4,7,8,9-HPCDF	.11	U	.11	PG/G		TARG
38998-75-3	TOTAL HPCDF	.41	J	5.6	PG/G		TARG
39001-02-0	TOTAL OCDF	.79	JQ	11.	PG/G		TARG
76523-40-5	13C-2,3,7,8-TCDD					55	SURR
719-79-1	13C-1,2,3,7,8-PECDD					61	SURR
9-81-5	13C-1,2,3,6,7,8-HXCDD					51	SURR
109/19-83-7	13C-1,2,3,4,6,7,8-HPCDD					62	SURR
114423-97-1	13C-OCDD			5.		45	SURR
89059-46-1	13C-2,3,7,8-TCDF					47	SURR



#### **ROCKETDYNE**

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August 24, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20246220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204277

Retest:

Prep Date: 08/04/95

Prep Batch:

3254

Lab Sample: AA5775 /ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254

Analysis Date: 08/15/95 10:19

Dilution: 1

Cas Number	Analyte	<u>Result</u>	Qualifier Report Limit Units	% Rec	<u>Туре</u>
109719-77-9	13C-1,2,3,7,8-PECDF			62	SURR
23-98-2	13C-1,2,3,4,7,8-HXCDF			54	SURR
19-84-8	13C-1,2,3,4,6,7,8-HPCDF			47.	SURR



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August 24, 1995

Sample Delivery Group: 4276

Report Batch:

19358

Client Sample: 20146220SOCO

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204386

Retest:

Prep Date: 08/04/95

Prep Batch: 3254

Lab Sample: AA5778 /ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254

Analysis Date: 08/16/95 10:41

Dilution: 10

<u>Cas Number</u>	Analyte	Result	Qualifier	Report Limit	<u>Units</u>	% Rec	<u>Туре</u>
1746-01-6	2,3,7,8-TCDD	2.4	U	2.4	PG/G		TARG
3-57-5	TOTAL TCDD	3.0	U	3.0	PG/G		TARG
-76-4	1,2,3,7,8-PECDD	1.6	υ	1.6	PG/G		TARG
36088-22-9	TOTAL PECDD	1.6	U	1.6	PG/G		TARG
39227-28-6	1,2,3,4,7,8-HXCDD	1.7	υ	1.7	PG/G		TARG
57653-85-7	1,2,3,6,7,8-HXCDD	1.5	J	57.	PG/G		TARG
19408-74-3	1,2,3,7,8,9-HXCDD	1.5	J	57.	PG/G		TARG
34465-46-8	TOTAL HXCDD	10.3		57.	PG/G		TARG
35822-46-9	1,2,3,4,6,7,8-HPCDD	17.2	J	57.	PG/G		TARG
37871-00-4	TOTAL HPCDD	56.3		57.	PG/G		TARG
3268-87-9	TOTAL OCDD	128.		110	PG/G		TARG
51207-31-9	2,3,7,8-TCDF	2.8	J	11.	PG/G		TARG
55722-27-5	TOTAL TCDF	27.9	1	11.	PG/G		TARG
57117-41-6	1,2,3,7,8-PECDF	.94	U	.94	PG/G		TARG
57117-31-4	2,3,4,7,8-PECDF	1.6	υ	1.6	PG/G		TARG
30402-15-4	TOTAL PECDF	15.2	JIQ	57.	PG/G		TARG
70648-26-9	1,2,3,4,7,8-HXCDF	1.8	U	1.8	PG/G		TARG
57117-44-9	1,2,3,6,7,8-HXCDF	.95	U	.95	PG/G		TARG
60851-34-5	2,3,4,6,7,8-HXCDF	1.2	บ	1.2	PG/G		TARG
72918-21-9	1,2,3,7,8,9-HXCDF	1.4	U	1.4	PG/G		TARG
55684-94-1	TOTAL HXCDF	7.0	JIQ	57.	PG/G		TARG
67562-39-4	1,2,3,4,6,7,8-HPCDF	3.9	J	57.	PG/G		TARG
55673-89-7	1,2,3,4,7,8,9-HPCDF	2.3	U	2.3	PG/G		TARG
38998-75-3	TOTAL HPCDF	8.7	J	57.	PG/G		TARG
39001-02-0	TOTAL OCDF	4.5	JQ	110	PG/G		TARG
76523-40-5	13C-2,3,7,8-TCDD				•	71	SURR
719-79-1	13C-1,2,3,7,8-PECDD				•	71	SURR
9-81-5	13C-1,2,3,6,7,8-HXCDD				- F	65	SURR
109719-83-7	13C-1,2,3,4,6,7,8-HPCDD					45	SURR
114423-97-1	13C-OCDD			•		41	SURR
89059-46-1	13C-2,3,7,8-TCDF					64	SURR



### Services

### **CERTIFICATE OF ANALYSIS**

#### **ROCKETDYNE**

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August 24, 1995

Sample Delivery Group: 4276

Report Batch:

19358

/ORIGINAL

Client Sample: 20146220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Lab Matrix: SOIL
Received Date: 07/26/95

Lab Sample: AA5778

Test: 204386

Retest:

Prep Date: 08/04/95 Prep Batch: 3254 Lab Method: 1012

Lab Method Blank: BLK3254 Analysis Date: 08/16/95 10:41

Dilution: 10

<u>Cas Number</u>	Analyte	Result	Qualifier Report Limit Units	% Rec	Type
109719-77-9	13C-1,2,3,7,8-PECDF			88	SURR
23-98-2	13C-1,2,3,4,7,8-HXCDF			<i>7</i> 5	SURR
9-84-8	13C-1,2,3,4,6,7,8-HPCDF			43	SURR



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August 24, 1995

Sample Delivery Group: 4276 Report Batch: 19358

Client Sample: 20346310SOCO

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204422

Retest:

Prep Date: 08/04/95

Prep Batch: 3254

Lab Sample: AA5779 /ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254

Analysis Date: 08/17/95 06:58

Dilution: 5

Cas Number	Analyte	<u>Result</u>	<u>Qualifie</u>	Report Limit	Units % Rec	<u>Type</u>
1746-01-6	2,3,7,8-TCDD	3.4	U	3.4	PG/G	TARG
3-57-5	TOTAL TCDD	4.2	U	4.2	PG/G	TARG
-76-4	1,2,3,7,8-PECDD	2.2	υ	2.2	PG/G	TARG
36088-22-9	TOTAL PECDD	2.2	ប	2.2	PG/G	TARG
39227-28-6	1,2,3,4,7,8-HXCDD	1.3	U	1.3	PG/G	TARG
57653-85-7	1,2,3,6,7,8-HXCDD	3.1	J	27.	PG/G	TARG
19408-74-3	1,2,3,7,8,9-HXCDD	2.2	J	27.	PG/G	TARG
34465-46-8	TOTAL HXCDD	18.6	Jū	27.	PG/G	TARG
35822-46-9	1,2,3,4,6,7,8-HPCDD	20.5		27.	PG/G	TARG
37871-00-4	TOTAL HPCDD	38.3		27.	PG/G	TARG
3268-87-9	TOTAL OCDD	106.		54.	PG/G	TARG
51207-31-9	2,3,7,8-TCDF	65.4	C	5.4	PG/G	TARG
55722-27-5	TOTAL TCDF	172.	IQ	5.4	PG/G	TARG
57117-41-6	1,2,3,7,8-PECDF	1.7	U	1.7	PG/G	TARG
57117-31-4	2,3,4,7,8-PECDF	1.2	JQ	27.	PG/G	TARG
30402-15-4	TOTAL PECDF	74.5	10	27.	PG/G	TARG
70648-26-9	1,2,3,4,7,8-HXCDF	2.4	U	2.4	PG/G	TARG
57117-44-9	1,2,3,6,7,8-HXCDF	1.9	ט	1.9	PG/G	TARG
60851-34-5	2,3,4,6,7,8-HXCDF	1.7	บ	1.7	PG/G	TARG
72918-21-9	1,2,3,7,8,9-HXCDF	2.0	U	2.0	PG/G	TARG
55684-94-1	TOTAL HXCDF	14.2	IQ	27.	PG/G	TARG
67562-39-4	1,2,3,4,6,7,8-HPCDF	6.0	J	2.1	PG/G	TARG
55673-89-7	1,2,3,4,7,8,9-HPCDF	2.1	υ	27.	PG/G	TARG
38998-75-3	TOTAL HPCDF	20.6	J	27.	PG/G	TARG
39001-02-0	TOTAL OCDF	7.9	J	54.	PG/G	TARG
76523-40-5	13C-2,3,7,8-TCDD				85	SURR
<u></u> 19-79-1	13C-1,2,3,7,8-PECDD				80	SURR
9-81-5	13C-1,2,3,6,7,8-HXCDD				72	SURR
109719-83-7	13C-1,2,3,4,6,7,8-HPCDD				77	SURR
114423-97-1	13C-OCDD				63	SURR
89059-46-1	13C-2,3,7,8-TCDF				77	SURR



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#### **ROCKETDYNE**

August 24, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20346310SOCO

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204422

Retest:

Prep Date: 08/04/95

Prep Batch:

/ORIGINAL Lab Sample: AA5779

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254

Analysis Date: 08/17/95 06:58

Dilution: 5

<u>Cas Number</u>	Analyte	Result	Qualifier Report Limit Units	% Rec	<u>Type</u>
109719-77-9	13C-1,2,3,7,8-PECDF		gw e e e e e e e e e e e e e e e e e e e	102	SURR
23-98-2	13C-1,2,3,4,7,8-HXCDF			81	SURR
19-84-8	13C-1,2,3,4,6,7,8-HPCDF			68	SURR



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#### **ROCKETDYNE**

August 24, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20130331SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204438

Retest:

Prep Date: 08/04/95

Prep Batch:

3254

Lab Sample: AA5780

/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254

Analysis Date: 08/15/95 21:05

Dilution: 1

Cas Number	Analyte	Result	<u>Qualifier</u>	Report Limit	<u>Units</u>	% Rec	<u>Type</u>
1746-01-6	2,3,7,8-TCDD	1.1	U	1.1	PG/G		TARG
3-57-5	TOTAL TCDD	1.1	U	1.1	PG/G		TARG
-76-4	1,2,3,7,8-PECDD	.34	U	.34	PG/G		TARG
36088-22-9	TOTAL PECDD	.34	"U	.34	PG/G		TARG
39227-28-6	1,2,3,4,7,8-HXCDD	.18	U	.18	PG/G		TARG
57653-85-7	1,2,3,6,7,8-HXCDD	.51	U	.51	PG/G		TARG
19408-74-3	1,2,3,7,8,9-HXCDD	.22	j	6.0	PG/G		TARG
34465-46-8	TOTAL HXCDD	-22	J	6.0	PG/G	•	TARG
35822-46-9	1,2,3,4,6,7,8-HPCDD	1.2	J	6.0	PG/G		TARG
37871-00-4	TOTAL HPCDD	2.3	j	6.0	PG/G		TARG
3268-87-9	TOTAL OCDD	10.	J	12.	PG/G		TARG
51207-31-9	2,3,7,8-TCDF	1.0	ย	1.0	PG/G	•	TARG
55722-27-5	TOTAL TCDF	1.0	U	1.0	PG/G		TARG
57117-41-6	1,2,3,7,8-PECDF	.31	U	<b>.</b> 31	PG/G		TARG
57117-31-4	2,3,4,7,8-PECDF	.29	U	.29	PG/G		TARG
30402-15-4	TOTAL PECDF	.30	U	.30	PG/G		TARG
70648-26-9	1,2,3,4,7,8-HXCDF	. 18	U	.18	PG/G		TARG
57117-44-9	1,2,3,6,7,8-HXCDF	.15	υ	: 15	PG/G		TARG
60851-34-5	2,3,4,6,7,8-HXCDF	.22	J	6.0	PG/G		TARG
72918-21-9	1,2,3,7,8,9-HXCDF	.13	JQ	6.0	PG/G		TARG
55684-94-1	TOTAL HXCDF	.47	JQ	6.0	PG/G		TARG
67562-39-4	1,2,3,4,6,7,8-HPCDF	.27	U	.27	PG/G		TARG
55673-89-7	1,2,3,4,7,8,9-HPCDF	.25	U	.25	PG/G		TARG
38998-75-3	TOTAL HPCDF	.40	J	6.0	PG/G		TARG
39001-02-0	TOTAL OCDF	.50	J	12.	PG/G		TARG
76523-40-5	13C-2,3,7,8-TCDD				142	34	SURR
19-79-1	13C-1,2,3,7,8-PECDD					64	SURR
9-81-5	13C-1,2,3,6,7,8-HXCDD			an an ang ing		54	SURR
19-83-7	13C-1,2,3,4,6,7,8-HPCDD					50	SURR
114423-97-1	13C-OCDD					37	SURR
89059-46-1	13C-2,3,7,8-TCDF					26	SURR



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#### **ROCKETDYNE**

August 24, 1995

Sample Delivery Group:

4276

Report Batch:

19358

/ORIGINAL

Client Sample: 20130331SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204438

Retest:

Prep Date: 08/04/95

Prep Batch:

Lab Sample: AA5780

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254

Analysis Date: 08/15/95 21:05

Dilution: 1

<u>Cas Number</u>	<u>Analyte</u>	<u>Result</u>	Qualifier Report Limit Units	% Rec	Type
1n9719-77-9 23-98-2 9-84-8	13C-1,2,3,7,8-PECDF 13C-1,2,3,4,7,8-HXCDF 13C-1,2,3,4,6,7,8-HPCDF			56 54 47	SURR SURR SURR



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#### ROCKETDYNE

August 24, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20446370SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 214973

Retest: 1

Prep Date: 08/04/95 Prep Batch: 3254 Lab Sample: AA5781 /ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254 Analysis Date: 08/17/95 08:01

Dilution: 10

<u>Cas Number</u>	Analyte	Result	Qualific	er Report L	<u>imit</u> <u>Units</u>	% Rec	<u>Туре</u>
35822-46-9	1,2,3,4,6,7,8-HPCDD	29.5	s	5.2	PG/G		TARG
71-00-4	TOTAL HPCDD	78.1	S	5.2	PG/G		TARG
19-83-7	13C-1,2,3,4,6,7,8-HPCDD				·	67	SURR



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#### ROCKETDYNE

August

24, 1995

Sample Delivery Group:

4276

Report Batch:

19358

Client Sample: 20446370SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 204496

Retest:

Prep Date: 08/04/95

Prep Batch:

Lab Sample: AA5781

/ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254

Analysis Date: 08/15/95 22:07 Dilution: 1

Cas Number	Analyte	<u>Result</u>	Qualifier	Report Limit	Units % Rec	Туре
1746-01-6	2,3,7,8-TCDD	.81	U	.81	PG/G	TARG
<b>2-57-5</b>	TOTAL TCDD	1.1	υĊ	1.1	PG/G	TARG
-76-4	1,2,3,7,8-PECDD	.66	U	.66	PG/G	TARG
36088-22-9	TOTAL PECDD	15.4	JQ	5.2	PG/G	TARG
39227-28-6	1,2,3,4,7,8-HXCDD	.35	JQ	5.2	PG/G	TARG
57653-85-7	1,2,3,6,7,8-HXCDD	1.6	J	5.2	PG/G	TARG
19408-74-3	1,2,3,7,8,9-HXCDD	1.5	JQ	5.2	PG/G	TARG
34465-46-8	TOTAL HXCDD	13.0	JQ	5.2	PG/G	TARG
3268-87-9	TOTAL OCDD	202.		10.	PG/G	TARG
51207-31-9	2,3,7,8-TCDF	41.9	С	1.0	PG/G	TARG
55722-27-5	TOTAL TCDF	218.	IQ	1.0	PG/G	TARG
57117-41-6	1,2,3,7,8-PECDF	.79	J	5.2	PG/G	TARG
57117-31-4	2,3,4,7,8-PECDF	3.4	J	5.2	PG/G	TARG
30402-15-4	TOTAL PECDF	106.	19	5.2	PG/G	TARG
70648-26-9	1,2,3,4,7,8-HXCDF	3.7	J	5.2	PG/G	TARG
57117-44-9	1,2,3,6,7,8-HXCDF	2.0		5.2	PG/G	TARG
60851-34-5	2,3,4,6,7,8-HXCDF	.73	J	5.2	PG/G	TARG
72918-21-9	1,2,3,7,8,9-HXCDF	.21	ز	5.2	PG/G	TARG
55684-94-1	TOTAL HXCDF	29.3	I	5.2	PG/G	TARG
67562- <b>3</b> 9-4	1,2,3,4,6,7,8-HPCDF	5.6	J	5.2	PG/G	TARG
55673-89-7	1,2,3,4,7,8,9-HPCDF	.72	JQ	5.2	PG/G	TARG
38998-75-3	TOTAL HPCDF	16.2	IQ	5.2	PG/G	TARG
39001-02-0	TOTAL OCDF	7.3	J	10.	PG/G	TARG
76523-40-5	13C-2,3,7,8-TCDD				95	SURR
109719-79-1	13C-1,2,3,7,8-PECDD				100	SURR
109719-81-5	13C-1,2,3,6,7,8-HXCDD				76	SURR
23-97-1	13C-OCDD				52	SURR
-46-1	13C-2,3,7,8-TCDF			e de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	79	SURR
109/19-77-9	13C-1,2,3,7,8-PECDF				100	SURR
114423-98-2	13C-1,2,3,4,7,8-HXCDF			100	<b>77</b>	SURR
109719-84-8	13C-1,2,3,4,6,7,8-HPCDF				67	SURR



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#### ROCKETDYNE

August 31, 1995

Sample Delivery Group:

4276

Report Batch:

19358

/ORIGINAL

Client Sample: 20246220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Lab Sample: AA5775 Lab Matrix: SOIL

Received Date: 07/26/95

Test: 217435

Retest:

Prep Date: 08/04/95

Prep Batch:

3254

Lab Method: 1012

Lab Method Blank: BLK3254

Analysis Date: 08/29/95 02:39

Dilution: 1

<u>Cas Number</u>	<u>Analyte</u>	<u>Result</u>	Qualifier	Report Limit	<u>Units</u>	% Rec	<u>Type</u>
51207-31-9	2,3,7,8-TCDF	1.1	J	1.1	PG/G		TARG



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August 31, 1995

Sample Delivery Group: 4276 Report Batch: 19358

Client Sample: 20146220SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 217438

Retest:

Prep Date: 08/04/95

Prep Batch:

2254

Lab Sample: AA5778 /ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254 Analysis Date: 08/29/95 03:12

Analysis Date. 00

Dilution: 1

<u>Cas Number</u>	Analyte	<u>Result</u>	Qualifie	Report Limi	t <u>Units</u>	% Rec	<u>Туре</u>
51207-31-9	2,3,7,8-TCDF	5.1	U	5.1	PG/G		TARG



#### **ROCKETDYNE**

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August 31, 1995

Sample Delivery Group: 4276 Report Batch: 19358

Client Sample: 20346310SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 218212

Retest:

Prep Date: 08/04/95

Prep Batch: 3254

Lab Sample: AA5779 /ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254 Analysis Date: 08/29/95 03:46

Dilution: 1

Cas Number	<u>Analyte</u>	Result	Qualifier Report Limit	<u>Units</u>	% Rec	Type
51207-31-9	2,3,7,8-TCDF	13.	1.1	PG/G		TARG



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August 31, 1995

Sample Delivery Group: Report Batch: 4276 19358

Client Sample: 20446370SOC0

Client Matrix: SOIL

Collection Date: 07/24/95

Test: 218213

Retest:

Prep Date: 08/04/95 3254

Prep Batch:

Lab Sample: AA5781 /ORIGINAL

Lab Matrix: SOIL

Received Date: 07/26/95

Lab Method: 1012

Lab Method Blank: BLK3254

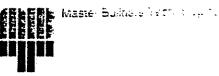
Analysis Date: 08/29/95 04:22

Dilution: 1

Cas Number	Analyte	Result	Qualifie	Report Limi	t <u>Units</u>	% Rec	<u>Type</u>
51207-31-9	2,3,7,8-TCDF	15.1	I	1.0	PG/G		TARG

## MBT Environmental Laboratories

3083 Gold Canal Drive Rancho Cordova CA 95670 Phone 916/852-6600 Fax 916/852-7292



Date: July 20, 1995

LP #: 12124

Eric Smith
McLaren/Hart Environmental Engineering
16755 Von Karman Avenue
Irvine, CA 92714

Dear Mr. Smith:

Enclosed are the laboratory results for the 20 samples submitted to MBT Environmental Laboratories on June 29, 1995, for the project FSDF Off-Site Drainage Invest.

The analyses requested are:

EPA 8080 PCB (20 - Soil)

The report consists of the following sections:

- 1. Cover Page
- 2. Copy of Chain-of-Custody
- 3. General Narrative
- 4. Quality Control Summary
- 5. Analytical and Quality Control Results

Unless otherwise instructed by you, samples will be disposed of two weeks from the date of this letter.

Thank you for choosing MBT Environmental Laboratories. We are looking forward to serving you in the future. Should you have any questions concerning this analytical report or the analytical methods employed, please do not hesitate to call.

Sincerely,

Shakoora Azimi

Laboratory Director, Principal Scientist