CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environmental
550 South Wadsworth Boulevard
Suite 500
Lakewood, CO 80226

Laboratory Alta
Reviewer E. Wessling
Analysis/Method Dioxins by 1613

Package ID T713DF4
Task Order 313150010
SDG No. IOJ1122
No. of Analyses 5

Date: December 20, 2005
Reviewer's Signature

ACTION ITEMS[a]	
1. **Case Narrative Deficiencies**	
2. **Out of Scope Analyses**	
3. **Analyses Not Conducted**	
4. **Missing Hardcopy Deliverables**	
5. **Incorrect Hardcopy Deliverables**	
6. **Deviations from Analysis Protocol, e.g.,**	Qualifications were assigned for the following:
Holding Times	-- estimated maximum possible concentration interferences
GC/MS Tune/Inst. Performance	
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification	
Quantitation	
System Performance	

COMMENTS[b]	

[a] Subcontracted analytical laboratory is not meeting contract and/or method requirements.
[b] Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.

DATA VALIDATION REPORT

Topanga Fire Surface Samples

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUP: IOJ1122

Prepared by

AMEC—Denver Operations
355 South Teller Street Suite 300
Lakewood, Colorado 80226

1. INTRODUCTION

Task Order Title:	Topanga Fire Ash Samples
Contract Task Order #:	313150010
Sample Delivery Group #:	IOJ1122
Project Manager:	A. Lenox
Matrix:	Solid
Analysis:	Dioxins/Furans
QC Level:	Level IV
No. of Samples:	5
No. of Reanalyses/Dilutions:	0
Reviewer:	E. Wessling
Date of Review:	December 20, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Dioxins and Furans (DVP-19, Rev. 1), EPA Method 1613, and the National Functional Guidelines For Chlorinated Dioxin/Furan Data Review* (8/02). Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample Identification

EPA ID	MWH ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
WL024	BCSS09S01	IOJ1122-01	26821-001	Ash	1613
WL025	BCSS09S01	IOJ1122-02	26821-002	Soil	1613
WL026	BZSS05S01	IOJ1122-03	26821-003	Soil	1613
WL027	BZSS06S01	IOJ1122-04	26821-004	Soil	1613
WL028	BZSS05S01	IOJ1122-05	26821-005	Ash	1613

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 Del Mar Analytical within the temperature limits of 4°C ±2°C. The samples were shipped to Alta for dioxin/furan analysis and were received within temperature limits of 4°C ±2°C. No qualifications were required. According to the case narrative and laboratory login sheet, the samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COC and transfer COC were legible and signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the samples were couriered directly to Del Mar Analytical-Irvine, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

The samples were extracted and analyzed within a year of collection. No qualifications were required.

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

A Windows Defining Mix (WDM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was not analyzed prior to the initial calibration sequence or at the beginning of each analytical sequence; however, the first and last eluting congeners and isomer specificity compounds were added to the midpoint of the initial calibration and to the continuing calibration standards (see section 2.3.2). The GC column performance in the calibrations was acceptable, with the height of the valley between the closely eluting isomers and 2,3,7,8-TCDD reported as less than 25%. No qualifications were required.

2.2.2 Mass Spectrometer Performance

The mass spectrometer performance was acceptable with the static resolving power greater than 10,000. No qualifications were required.

2.3 CALIBRATION

2.3.1 Initial Calibration

The initial calibration was analyzed 6/06/2005. The calibration consisted of six concentration level standards (CS1 through CS6) analyzed to verify instrument linearity. The initial calibrations were acceptable with %RSDs ≤20% for the 16 native compounds (calibration by isotope dilution) and ≤35% for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in Table 6 of EPA Method 1613. The ion abundance ratios and relative retention times were within the method QC limits. A representative number of %Ds were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

WDM and isomer specificity compounds were added to the VER standard instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

2.4 BLANKS

One method blank (Blank 7352-0-MB001) was extracted and analyzed with the samples in this SDG. No target or total compounds were reported in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives or false positives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (7352-0-OPR001) was extracted and analyzed with the samples in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. A review of the raw data and chromatograms indicated no transcription or calculation errors. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in this SDG. Evaluation of method accuracy was based on the OPR results. No qualifications were required.

2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

2.7.1 Field Blanks and Equipment Rinsates

The samples in this SDG had no identified field QC samples. No qualifications were required.

2.7.2 Field Duplicates

No field duplicate samples were identified for this SDG.

2.8 INTERNAL STANDARDS

The labeled standard recoveries were within the acceptance criteria listed in Table 7 of Method 1613. No qualifications were required.

2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for polychlorinated dioxins/furans by EPA Method 1613. The compound identifications were verified from the raw data and no false negatives or positives were noted. No further qualifications were required.

2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the laboratory lower calibration level were qualified as estimated, "J," by the laboratory. Any reported EMPC was qualified as an estimated nondetect, "UJ." Confirmation for 2,3,7,8-TCDF detected in samples WL024 and WL028 was not performed; therefore, 2,3,7,8-TCDF was qualified as estimated, "J." No further qualifications were required.

ALTA

Sample ID: IOJ1122-01 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Solid	Lab Sample:	26821-001	Date Received:	19-Oct-05
Project:	IOJ1122	Sample Size:	10.53 g	QC Batch No.:	7352	Date Extracted:	26-Oct-05
Date Collected:	14-Oct-05	%Solids:	95.4	Date Analyzed DB-5:	30-Oct-05	Date Analyzed DB-225:	NA
Time Collected:	1015						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	0.134			J
1,2,3,7,8-PeCDD	0.289			J
1,2,3,4,7,8-HxCDD	ND	0.328		
1,2,3,6,7,8-HxCDD	ND	0.303		
1,2,3,7,8,9-HxCDD	0.378			J
1,2,3,4,6,7,8-HpCDD	3.27			
OCDD	9.35			
2,3,7,8-TCDF	0.389			J
1,2,3,7,8-PeCDF	0.206			J
2,3,4,7,8-PeCDF	ND		0.174	
1,2,3,4,7,8-HxCDF	0.167			J
1,2,3,6,7,8-HxCDF	0.148			J
2,3,4,6,7,8-HxCDF	0.115			J
1,2,3,7,8,9-HxCDF	ND	0.0797		
1,2,3,4,6,7,8-HpCDF	0.320			J
1,2,3,4,7,8,9-HpCDF	ND	0.152		
OCDF	ND	0.469		

Labeled Standard		%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	83.8	25 - 164	
	13C-1,2,3,7,8-PeCDD	84.6	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	89.1	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	87.2	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	91.3	23 - 140	
	13C-OCDD	60.6	17 - 157	
	13C-2,3,7,8-TCDF	81.2	24 - 169	
	13C-1,2,3,7,8-PeCDF	83.2	24 - 185	
	13C-2,3,4,7,8-PeCDF	81.0	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	84.0	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	82.4	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	87.1	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	88.0	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	79.2	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	79.4	26 - 138	
	13C-OCDF	61.1	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	89.5	35 - 197	

Totals		
Total TCDD	2.72	3.27
Total PeCDD	4.15	4.33
Total HxCDD	5.54	
Total HpCDD	7.28	
Total TCDF	4.37	4.60
Total PeCDF	1.20	1.84
Total HxCDF	0.661	0.989
Total HpCDF	0.320	

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 0.453

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

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

Analyst: DMS

Approved By: Martha M. Maier 02-Nov-2005 14:42

ALTA

Sample ID: IOJ1122-02 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	26821-002	Date Received:	19-Oct-05
Project:	IOJ1122	Sample Size:	9.85 g	QC Batch No.:	7352	Date Extracted:	26-Oct-05
Date Collected:	14-Oct-05	%Solids:	99.4	Date Analyzed DB-5:	30-Oct-05	Date Analyzed DB-225:	NA
Time Collected:	0958						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.109		
1,2,3,7,8-PeCDD	ND	0.0826		
1,2,3,4,7,8-HxCDD	ND	0.118		
1,2,3,6,7,8-HxCDD	ND	0.115		
1,2,3,7,8,9-HxCDD	ND	0.117		
1,2,3,4,6,7,8-HpCDD	ND		0.686	
OCDD	4.23			J
2,3,7,8-TCDF	0.279			J
1,2,3,7,8-PeCDF	ND		0.291	
2,3,4,7,8-PeCDF	0.197			J
1,2,3,4,7,8-HxCDF	0.154			J
1,2,3,6,7,8-HxCDF	0.133			J
2,3,4,6,7,8-HxCDF	ND	0.0588		
1,2,3,7,8,9-HxCDF	ND	0.0905		
1,2,3,4,6,7,8-HpCDF	ND		0.147	
1,2,3,4,7,8,9-HpCDF	ND	0.0864		
OCDF	ND	0.325		

Labeled Standard		%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	97.8	25 - 164	
	13C-1,2,3,7,8-PeCDD	97.1	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	96.9	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	92.5	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	96.6	23 - 140	
	13C-OCDD	74.8	17 - 157	
	13C-2,3,7,8-TCDF	95.6	24 - 169	
	13C-1,2,3,7,8-PeCDF	96.7	24 - 185	
	13C-2,3,4,7,8-PeCDF	93.8	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	89.8	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	85.9	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	94.4	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	95.5	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	84.2	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	88.7	26 - 138	
	13C-OCDF	75.9	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	87.8	35 - 197	

Totals		
Total TCDD	ND	0.109
Total PeCDD	ND	0.0826
Total HxCDD	0.279	
Total HpCDD	1.02	1.71
Total TCDF	2.53	
Total PeCDF	2.20	2.78
Total HxCDF	0.689	
Total HpCDF	ND	0.147

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 0.159

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

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

Analyst: DMS

Approved By: Martha M. Maier 02-Nov-2005 14:42

ALTA

Sample ID: IOJ1122-03 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	26821-003	Date Received:	19-Oct-05
Project:	IOJ1122	Sample Size:	10.16 g	QC Batch No.:	7352	Date Extracted:	26-Oct-05
Date Collected:	14-Oct-05	%Solids:	100	Date Analyzed DB-5:	30-Oct-05	Date Analyzed DB-225:	NA
Time Collected:	1020						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.113		
1,2,3,7,8-PeCDD	0.0958			J
1,2,3,4,7,8-HxCDD	ND	0.309		
1,2,3,6,7,8-HxCDD	ND	0.316		
1,2,3,7,8,9-HxCDD	ND	0.314		
1,2,3,4,6,7,8-HpCDD	2.47			
OCDD	19.0			
2,3,7,8-TCDF	0.159			J
1,2,3,7,8-PeCDF	ND		0.125	
2,3,4,7,8-PeCDF	0.249			J
1,2,3,4,7,8-HxCDF	0.234			J
1,2,3,6,7,8-HxCDF	0.177			J
2,3,4,6,7,8-HxCDF	0.200			J
1,2,3,7,8,9-HxCDF	0.216			J
1,2,3,4,6,7,8-HpCDF	0.804			J
1,2,3,4,7,8,9-HpCDF	ND	0.116		
OCDF	ND	0.830		

Labeled Standard		%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	93.8	25 - 164	
	13C-1,2,3,7,8-PeCDD	94.7	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	92.1	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	92.5	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	94.2	23 - 140	
	13C-OCDD	64.4	17 - 157	
	13C-2,3,7,8-TCDF	90.8	24 - 169	
	13C-1,2,3,7,8-PeCDF	92.6	24 - 185	
	13C-2,3,4,7,8-PeCDF	90.3	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	87.3	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	87.7	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	92.1	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	98.6	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	84.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	96.6	26 - 138	
	13C-OCDF	76.9	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	94.5	35 - 197	

Totals		
Total TCDD	0.232	0.418
Total PeCDD	0.751	1.15
Total HxCDD	1.35	
Total HpCDD	5.80	
Total TCDF	1.31	
Total PeCDF	2.57	2.78
Total HxCDF	2.12	2.27
Total HpCDF	1.47	

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 0.322

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

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

Analyst: DMS

Approved By: Martha M. Maier 02-Nov-2005 14:42

ALTA

Sample ID: IOJ1122-04 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Soil	Lab Sample:	26821-004	Date Received:	19-Oct-05
Project:	IOJ1122	Sample Size:	10.17 g	QC Batch No.:	7352	Date Extracted:	26-Oct-05
Date Collected:	14-Oct-05	%Solids:	98.7	Date Analyzed DB-5:	30-Oct-05	Date Analyzed DB-225:	NA
Time Collected:	1215						

Rev Qual	Qual code	Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
U		2,3,7,8-TCDD	ND	0.106		
UJ	*10	1,2,3,7,8-PeCDD	ND		0.118	
U		1,2,3,4,7,8-HxCDD	ND	0.169		
J		1,2,3,6,7,8-HxCDD	0.275			J
J		1,2,3,7,8,9-HxCDD	0.284			J
		1,2,3,4,6,7,8-HpCDD	2.53			
		OCDD	18.7			
U		2,3,7,8-TCDF	ND	0.0831		
J		1,2,3,7,8-PeCDF	0.118			J
		2,3,4,7,8-PeCDF	0.226			J
		1,2,3,4,7,8-HxCDF	0.177			J
		1,2,3,6,7,8-HxCDF	0.144			J
		2,3,4,6,7,8-HxCDF	0.201			J
		1,2,3,7,8,9-HxCDF	0.175			J
		1,2,3,4,6,7,8-HpCDF	0.738			J
U		1,2,3,4,7,8,9-HpCDF	ND	0.168		
J		OCDF	1.16			J

Totals			
Total TCDD	ND	0.106	
Total PeCDD	0.604		1.24
Total HxCDD	1.86		2.53
Total HpCDD	6.04		
Total TCDF	1.18		
Total PeCDF	2.40		2.58
Total HxCDF	2.01		2.11
Total HpCDF	1.35		

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	92.2	25 - 164	
	13C-1,2,3,7,8-PeCDD	95.4	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	94.8	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	90.5	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	93.8	23 - 140	
	13C-OCDD	76.0	17 - 157	
	13C-2,3,7,8-TCDF	89.6	24 - 169	
	13C-1,2,3,7,8-PeCDF	92.9	24 - 185	
	13C-2,3,4,7,8-PeCDF	91.7	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	88.9	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	86.0	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	93.7	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	95.7	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	83.8	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	91.8	26 - 138	
	13C-OCDF	77.9	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	85.7	35 - 197	

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 0.297

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

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

Analyst: DMS

Approved By: Martha M. Maier 02-Nov-2005 14:42

ALTA

Sample ID: IOJ1122-05 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Solid	Lab Sample:	26821-005	Date Received:	19-Oct-05
Project:	IOJ1122	Sample Size:	9.68 g	QC Batch No.:	7352	Date Extracted:	26-Oct-05
Date Collected:	14-Oct-05	%Solids:	99.5	Date Analyzed DB-5:	30-Oct-05	Date Analyzed DB-225:	NA
Time Collected:	1125						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	0.230			J
1,2,3,7,8-PeCDD	0.424			J
1,2,3,4,7,8-HxCDD	ND	0.233		
1,2,3,6,7,8-HxCDD	0.622			J
1,2,3,7,8,9-HxCDD	0.519			J
1,2,3,4,6,7,8-HpCDD	2.55			J
OCDD	10.2			
2,3,7,8-TCDF	0.727			
1,2,3,7,8-PeCDF	1.07			J
2,3,4,7,8-PeCDF	1.08			J
1,2,3,4,7,8-HxCDF	1.40			J
1,2,3,6,7,8-HxCDF	0.964			J
2,3,4,6,7,8-HxCDF	0.835			J
1,2,3,7,8,9-HxCDF	ND	0.377		
1,2,3,4,6,7,8-HpCDF	3.06			
1,2,3,4,7,8,9-HpCDF	ND	0.537		
OCDF	1.67			J

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	87.2	25 - 164	
	13C-1,2,3,7,8-PeCDD	87.7	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	86.3	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	85.7	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	90.3	23 - 140	
	13C-OCDD	60.4	17 - 157	
	13C-2,3,7,8-TCDF	80.2	24 - 169	
	13C-1,2,3,7,8-PeCDF	86.3	24 - 185	
	13C-2,3,4,7,8-PeCDF	85.8	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	81.0	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	79.4	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	85.9	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	90.2	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	77.1	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	86.3	26 - 138	
	13C-OCDF	67.2	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	85.7	35 - 197	

Totals		
Total TCDD	47.6	47.9
Total PeCDD	12.7	13.0
Total HxCDD	7.18	
Total HpCDD	5.60	
Total TCDF	18.6	19.0
Total PeCDF	16.3	
Total HxCDF	10.0	
Total HpCDF	4.17	

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 1.61

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

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

Analyst: DMS

Approved By: Martha M. Maier 02-Nov-2005 14:42