

# CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T713DF3

Task Order 313150010

SDG No. IOJ0411

No. of Analyses 5

Laboratory Alta

Reviewer E. Wessling

Analysis/Method Dioxins by 1613

Date: December 20, 2005

Reviewer's Signature 

## ACTION ITEMS\*

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.,

Holding Times

GC/MS Tune/Inst. Performance

Calibration

Method blanks

Surrogates

Matrix Spike/Dup LCS

Field QC

Internal Standard Performance

Compound Identification

Quantitation

System Performance

Qualifications were assigned for the following:

--Blank contamination

--estimated maximum possible concentration interferences

## COMMENTS<sup>b</sup>

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

<sup>b</sup> 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: IOJ0411

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 #: IOJ0411  
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
WL001	Upstream001 Ash	IOJ0411-01	26782-001	Ash	1613
WL002	Upstream001 Soil	IOJ0411-02	26782-002	Soil	1613
WL004	Upstream002	IOJ0411-04	26782-003	Soil	1613
WL005	Upstream002	IOJ0411-05	26782-004	Ash	1613
WL006	RP-1	IOJ0411-06	26782-005	Soil	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 below the temperature limits of 4°C ±2°C at 1.6°C. The samples were not qualified as solid dioxin samples may be frozen for up to one year prior to analysis. 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  $\leq 20\%$  for the 16 native compounds (calibration by isotope dilution) and  $\leq 35\%$  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 7234-0-MB001) was extracted and analyzed with the samples in this SDG. Two compounds, 1,2,3,4,7,8-HxCDF and total HxCDF were reported in the method blank. Detects for target compounds  $\leq$  five times the concentration reported in the method blank were qualified as estimated, "UJ," in the site samples of this SDG. Detects for total dioxin and furan isomers at concentrations  $\leq$  five times the concentration reported in the method blank were qualified as estimated, "UJ," in the associated samples. In instances where the total concentration included peaks not present in the method blank as well as the method blank contamination, the total concentration was considered estimated, "J," as a portion of the total concentration was considered blank contamination. A review of the method blank raw data and chromatograms indicated no false negatives or false positives. No further qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (7234-0-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." No further qualifications were required.



Sample ID: IOJ0411-01				EPA Method 1613			
Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Solid	Lab Sample:	26782-001	Date Received:	8-Oct-05
Project:	IOJ0411	Sample Size:	9.89 g	QC Batch No.:	7324	Date Extracted:	14-Oct-05
Date Collected:	6-Oct-05	%Solids:	100	Date Analyzed DB-5:	17-Oct-05	Date Analyzed DB-225:	NA
Time Collected:	1125						
Analyte	Conc. (pp/g)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup> Qualifiers
2,3,7,8-TCDD	ND	0.155			IS 13C-2,3,7,8-TCDD	74.3	25 - 164
1,2,3,7,8-PeCDD	0.235			J	13C-1,2,3,7,8-PeCDD	91.6	25 - 181
1,2,3,4,7,8-HxCDD	0.129			J	13C-1,2,3,4,7,8-HxCDD	80.4	32 - 141
1,2,3,6,7,8-HxCDD	0.264			J	13C-1,2,3,6,7,8-HxCDD	81.5	28 - 130
1,2,3,7,8,9-HxCDD	0.262			J	13C-1,2,3,4,6,7,8-HpCDD	77.3	23 - 140
1,2,3,4,6,7,8-HpCDD	2.33			J	13C-OCDD	54.7	17 - 157
OCDD	10.4				13C-2,3,7,8-TCDF	71.0	24 - 169
2,3,7,8-TCDF	0.361			J	13C-1,2,3,7,8-PeCDF	98.1	24 - 185
1,2,3,7,8-PeCDF	ND		0.0948		13C-2,3,4,7,8-PeCDF	100	21 - 178
2,3,4,7,8-PeCDF	0.173			J	13C-1,2,3,4,7,8-HxCDF	73.2	26 - 152
1,2,3,4,7,8-HxCDF	0.101			J,B	13C-1,2,3,6,7,8-HxCDF	81.6	26 - 123
1,2,3,6,7,8-HxCDF	ND		0.0777		13C-2,3,4,6,7,8-HxCDF	80.3	28 - 136
2,3,4,6,7,8-HxCDF	0.0883			J	13C-1,2,3,7,8,9-HxCDF	84.6	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.0707			13C-1,2,3,4,6,7,8-HpCDF	70.2	28 - 143
1,2,3,4,6,7,8-HpCDF	0.365			J	13C-1,2,3,4,7,8,9-HpCDF	80.5	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.118			13C-OCDF	62.3	17 - 157
OCDF	ND		0.499		CRS 37Cl-2,3,7,8-TCDD	78.8	35 - 197
Totals				Toxic Equivalent Quotient (TEQ) Data <sup>e</sup>			
Total TCDD	1.04		1.57	TEQ (Min): 0.362			
Total PeCDD	2.72		2.92				
Total HxCDD	4.84						
Total HpCDD	5.73						
Total TCDF	1.69		1.99				
Total PeCDF	0.727		0.897				
Total HxCDF	0.281		0.775				
Total HpCDF	0.629						

Analyst: MAS

Approved By: William J. Luksenburg 18-Oct-2005 08:40





Sample ID: IOJ0411-02				EPA Method 1613			
Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Solid	Lab Sample:	26782-002	Date Received:	8-Oct-05
Project:	IOJ0411	Sample Size:	10.09 g	QC Batch No.:	7324	Date Extracted:	14-Oct-05
Date Collected:	6-Oct-05	%Solids:	99.3	Date Analyzed DB-5:	17-Oct-05	Date Analyzed DB-225:	NA
Time Collected:	1125						
Analyte	Conc. (pp/g)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>
2,3,7,8-TCDD	ND	0.133			IS 13C-2,3,7,8-TCDD	77.7	25 - 164
1,2,3,7,8-PeCDD	ND	0.149			13C-1,2,3,7,8-PeCDD	91.0	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.138			13C-1,2,3,4,7,8-HxCDD	82.3	32 - 141
1,2,3,6,7,8-HxCDD	0.159			J	13C-1,2,3,6,7,8-HxCDD	82.4	28 - 130
1,2,3,7,8,9-HxCDD	ND		0.133		13C-1,2,3,4,6,7,8-HpCDD	78.3	23 - 140
1,2,3,4,6,7,8-HpCDD	2.71				13C-OCDD	62.0	17 - 157
OCDD	18.9				13C-2,3,7,8-TCDF	72.7	24 - 169
2,3,7,8-TCDF	ND	0.112			13C-1,2,3,7,8-PeCDF	105	24 - 185
1,2,3,7,8-PeCDF	ND	0.0886			13C-2,3,4,7,8-PeCDF	104	21 - 178
2,3,4,7,8-PeCDF	ND	0.0805			13C-1,2,3,4,7,8-HxCDF	74.2	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.126			13C-1,2,3,6,7,8-HxCDF	88.2	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.0945			13C-2,3,4,6,7,8-HxCDF	83.1	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.126			13C-1,2,3,7,8,9-HxCDF	84.3	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.0694			13C-1,2,3,4,6,7,8-HpCDF	70.2	28 - 143
1,2,3,4,6,7,8-HpCDF	0.431				13C-1,2,3,4,7,8,9-HpCDF	82.2	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.123			13C-OCDF	68.4	17 - 157
OCDF	0.980				CRS 37Cl-2,3,7,8-TCDD	79.4	35 - 197
Totals				Toxic Equivalent Quotient (TEQ) Data <sup>e</sup>			
Total TCDD	ND		0.123	TEQ (Mn): 0.0672			
Total PeCDD	1.00		1.35				
Total HxCDD	2.67		2.94				
Total HpCDD	8.14						
Total TCDF	0.211						
Total PeCDF	0.188		0.302				
Total HxCDF	0.651						
Total HpCDF	1.34			B			

Analyst: MAS

Approved By: William J. Luksemburg 18-Oct-2005 08:40

Sample ID: IOJ0411-04				EPA Method 1613			
Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Solid	Lab Sample:	26782-003	Date Received:	8-Oct-05
Project:	IOJ0411	Sample Size:	10.31 g	QC Batch No.:	7324	Date Extracted:	14-Oct-05
Date Collected:	6-Oct-05	%Solids:	97.5	Date Analyzed DB-5:	17-Oct-05	Date Analyzed DB-25:	NA
Time Collected:	1220						
Analyte	Conc. (pg/g)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCI-UCL <sup>d</sup> Qualifiers
2,3,7,8-TCDD	ND	0.151			13C-2,3,7,8-TCDD	76.4	25 - 164
1,2,3,7,8-PeCDD	ND		0.0947		13C-1,2,3,7,8-PeCDD	97.7	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.158			13C-1,2,3,4,7,8-HxCDD	88.4	32 - 141
1,2,3,6,7,8-HxCDD	0.207			J	13C-1,2,3,6,7,8-HxCDD	82.5	28 - 130
1,2,3,7,8,9-HxCDD	0.245			J	13C-1,2,3,7,8,9-HxCDD	80.1	23 - 140
1,2,3,4,6,7,8-HpCDD	2.46			J	13C-OCDD	60.0	17 - 157
OCDD	18.3				13C-2,3,7,8-TCDF	72.9	24 - 169
2,3,7,8-TCDF	ND	0.109			13C-1,2,3,7,8-PeCDF	103	24 - 185
1,2,3,7,8-PeCDF	ND	0.0709			13C-2,3,4,7,8-PeCDF	107	21 - 178
2,3,4,7,8-PeCDF	0.0852			J	13C-1,2,3,4,7,8-HxCDF	76.8	26 - 152
1,2,3,4,7,8-HxCDF	ND		0.0823		13C-1,2,3,6,7,8-HxCDF	85.1	26 - 123
1,2,3,6,7,8-HxCDF	ND		0.0719		13C-2,3,4,6,7,8-HxCDF	83.0	28 - 136
2,3,4,6,7,8-HxCDF	0.0752			J	13C-1,2,3,7,8,9-HxCDF	85.0	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.0790			13C-1,2,3,4,6,7,8-HpCDF	68.5	28 - 143
1,2,3,4,6,7,8-HpCDF	0.324			J	13C-1,2,3,4,7,8,9-HpCDF	84.1	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.0838			13C-OCDF	68.1	17 - 157
OCDF	0.590				GRS 37Cl-2,3,7,8-TCDD	78.3	35 - 197
Totals				Toxic Equivalent Quotient (TEQ) Data <sup>c</sup>			
Total TCDD	0.107		0.286	TEQ (Min): 0.142			
Total PeCDD	1.45		1.85				
Total HxCDD	3.55		3.69				
Total HpCDD	6.59						
Total TCDF	0.375						
Total PeCDF	0.462						
Total HxCDF	0.566		0.720				
Total HpCDF	0.727						

Analyst: MAS

Approved By: William J. Luksenburg 18-Oct-2005 08:40

a. Sample specific estimated detection limit.  
b. Estimated maximum possible concentration.  
c. Method detection limit.  
d. Lower control limit - upper control limit.  
e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF).



Sample ID: IOJ0411-05				EPA Method 1613				
Client Data		Sample Data		Laboratory Data				
Name:	Del Mar Analytical, Irvine	Matrix:	Solid	Lab Sample:	26782-004	Date Received:	8-Oct-05	
Project:	IOJ0411	Sample Size:	10.08 g	QC Batch No.:	7324	Date Extracted:	14-Oct-05	
Date Collected:	6-Oct-05	%Solids:	99.2	Date Analyzed DB-5:	17-Oct-05	Date Analyzed DB-225:	NA	
Time Collected:	1228							
Analyte	Conc. (pg/g)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R	LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	0.303			J	IS 13C-2,3,7,8-TCDD	76.0	25 - 164	
1,2,3,7,8-PeCDD	1.02			J	13C-1,2,3,7,8-PeCDD	94.1	25 - 181	
1,2,3,4,7,8-HxCDD	0.846			J	13C-1,2,3,4,7,8-HxCDD	84.0	32 - 141	
1,2,3,6,7,8-HxCDD	2.11			J	13C-1,2,3,6,7,8-HxCDD	80.8	28 - 130	
1,2,3,7,8,9-HxCDD	1.60			J	13C-1,2,3,4,6,7,8-HpCDD	80.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	48.5			J	13C-OCDD	63.2	17 - 157	
OCDD	230				13C-2,3,7,8-TCDF	73.9	24 - 169	
2,3,7,8-TCDF	ND		0.165		13C-1,2,3,7,8-PeCDF	106	24 - 185	
1,2,3,7,8-PeCDF	0.209			J	13C-2,3,4,7,8-PeCDF	109	21 - 178	
2,3,4,7,8-PeCDF	ND		0.231		13C-1,2,3,4,7,8-HxCDF	77.1	26 - 152	
1,2,3,4,7,8-HxCDF	0.286			J,B	13C-1,2,3,6,7,8-HxCDF	87.0	26 - 123	
1,2,3,6,7,8-HxCDF	0.243			J	13C-2,3,4,6,7,8-HxCDF	82.7	28 - 136	
2,3,4,6,7,8-HxCDF	ND		0.265		13C-1,2,3,7,8,9-HxCDF	83.8	29 - 147	
1,2,3,7,8,9-HxCDF	0.125			J	13C-1,2,3,4,6,7,8-HpCDF	73.9	28 - 143	
1,2,3,4,6,7,8-HpCDF	1.65			J	13C-1,2,3,4,7,8,9-HpCDF	86.1	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND		0.167		13C-OCDF	69.8	17 - 157	
OCDF	4.63			J	GRS 37Cl-2,3,7,8-TCDD	76.6	35 - 197	
Totals				Toxic Equivalent Quotient (TEQ) Data <sup>e</sup>				
Total TCDD	10.7		10.8	TEQ (Min): 2.08				
Total PeCDD	18.1							
Total HxCDD	33.7							
Total HpCDD	98.2							
Total TCDF	3.99		4.49					
Total PeCDF	3.40		3.79					
Total HxCDF	3.13		3.39	B				
Total HpCDF	4.25		4.42					
				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 (ITTF).				

Analyst: MAS

Approved By: William J. Luksenburg 18-Oct-2005 10:25

- 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).



Sample ID: IOJ0411-06				EPA Method 1613			
Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Solid	Lab Sample:	26782-005	Date Received:	8-Oct-05
Project:	IOJ0411	Sample Size:	10.11 g	QC Batch No.:	7324	Date Extracted:	14-Oct-05
Date Collected:	6-Oct-05	%Solids:	99.6	Date Analyzed DB-5:	17-Oct-05	Date Analyzed DB-225:	NA
Time Collected:	1554						
Analyte	Conc. (pg/g)	DL <sup>a</sup>	EMPC <sup>b</sup>	Qualifiers	Labeled Standard	%R LCL-UCL <sup>d</sup>	Qualifiers
2,3,7,8-TCDD	ND	0.0609			13C-2,3,7,8-TCDD	81.2 25 - 164	
1,2,3,7,8-PeCDD	ND	0.0869			13C-1,2,3,7,8-PeCDD	99.7 25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.0826			13C-1,2,3,4,7,8-HxCDD	86.7 32 - 141	
1,2,3,6,7,8-HxCDD	0.221			J	13C-1,2,3,6,7,8-HxCDD	79.9 28 - 130	
1,2,3,7,8,9-HxCDD	0.232			J	13C-1,2,3,4,6,7,8-HpCDD	81.9 23 - 140	
1,2,3,4,6,7,8-HpCDD	0.694			J	13C-OCDD	61.1 17 - 157	
OCDD	4.81			J	13C-2,3,7,8-TCDF	74.3 24 - 169	
2,3,7,8-TCDF	ND	0.0791			13C-1,2,3,7,8-PeCDF	96.1 24 - 185	
1,2,3,7,8-PeCDF	ND	0.0942			13C-2,3,4,7,8-PeCDF	100 21 - 178	
2,3,4,7,8-PeCDF	ND	0.0830			13C-1,2,3,4,7,8-HxCDF	80.3 26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.0492			13C-1,2,3,6,7,8-HxCDF	85.8 26 - 123	
1,2,3,6,7,8-HxCDF	0.0668			J	13C-2,3,4,6,7,8-HxCDF	85.2 28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.0516			13C-1,2,3,7,8,9-HpCDF	88.0 29 - 147	
1,2,3,7,8,9-HpCDF	ND	0.0433			13C-1,2,3,4,6,7,8-HpCDF	73.1 28 - 143	
1,2,3,4,6,7,8-HpCDF	ND				13C-1,2,3,4,7,8,9-HpCDF	87.4 26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.0614			13C-OCDF	68.1 17 - 157	
OCDF	ND	0.595			CRS 37Cl-2,3,7,8-TCDD	85.1 35 - 197	
Totals				Toxic Equivalent Quotient (TEQ) Data <sup>c</sup>			
Total TCDD	ND	0.0609		TEQ (Mtn): 0.0637			
Total PeCDD	ND	0.0869					
Total HxCDD	0.602		0.795				
Total HpCDD	1.50						
Total TCDF	ND	0.0791					
Total PeCDF	0.0916						
Total HxCDF	0.176						
Total HpCDF	ND		0.182				
Totals				B			

Analyst: MAS

Approved By: William J. Luksemburg 18-Oct-2005 08:40