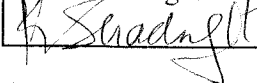


CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATAAMEC Earth & Environmental
550 South Wadsworth BoulevardSuite 500
Lakewood, CO 80226Laboratory AltaReviewer K. ShadowlightAnalysis/Method DioxinsPackage ID T711DF43Task Order 313150010SDG No. IOC2192, IOD0037No. of Analyses 2Date: May 4, 2005

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.,**

Holding Times

GC/MS Tune/Inst. Performance

Calibration

Method blanks

Surrogates

Matrix Spike/Dup LCS

Field QC

Internal Standard Performance

Compound Identification and

Quantitation

System Performance

Qualifications were assigned for the following:

* Detects below the EPA 1613 Minimum level

* Detects below the lower method calibration level

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 Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The associated value is an estimated quantity.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. (Note: Analyte may or may not be present).

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D were noncompliant.	Correlation coefficient is <0.995.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination from preparation (method) blank.	Presumed contamination from preparation (method) or calibration blank.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
Q	MS/MSD recovery was poor or RPD high.	MS recovery was poor.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	Not applicable.
T	Presumed contamination from trip blank.	Not applicable.
+	False positive – reported compound was not present. Not applicable.	
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination from FB, or ER.	Presumed contamination from FB or ER.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
DNQ	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.	The compound was detected between the MDL and the RL and, by definition, is considered an estimated value.
#	Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk () will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).	Unusual problems found with the data that have been described in Section 2.#, "Data Validation Findings." The number following the asterisk (*) will indicate the subsection where a description of the problem can be found (eg. *1 would indicate a sample was not within temperature limits).



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: IOC2192, IOD0037

Prepared by

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

1. INTRODUCTION

Task Order Title: NPDES Monitoring
Contract Task Order #: 313150010
Sample Delivery Group #: IOC2192, IOD0037
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: May 4, 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

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Ambient Stormwater	IOC2192-01	25997-001	water	1613
Upstream 001	IOD0037-01	25999-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. The samples in these SDGs were received on HOLD status. According to the case narrative for these SDGs, the dioxin analysis was requested on 04/01/05. As the samples were couriered directly to Del Mar Analytical from the field, custody seals were not required. The coolers received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA IDs were added to the sample result summaries by the reviewer. 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

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was 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 VERs were 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 standards 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 (6707-MB001) was extracted and analyzed with the samples in these SDGs. There were no target compound detects reported in the method blank. A review of the method blank raw data and chromatograms indicated no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6707-OPR001) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of Method 1613. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. 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 these SDGs had no associated field QC samples. No qualifications were required.

2.7.2 Field Duplicates

No field duplicate samples were identified for these SDGs.

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 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. Detects above the low point of the calibration curve but below the EPA Method 1613 minimum level were denoted by the laboratory with an "A," flag and were qualified as estimated, "J." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." The results and detection limits were reported in ug/L. No further qualifications were required.

Sample ID: IOC2192-01 <i>Ambient Stormwater</i>					EPA Method 1613			
Client Data			Sample Data		Laboratory Data			
Name: Del Mar Analytical, Irvine			Matrix: Aqueous		Lab Sample: 25997-001			
Project: IOC2192			Sample Size: 0.987 L		Date Received: 2-Apr-05			
Date Collected: 23-Mar-05					Date Extracted: 16-Apr-05			
Time Collected: 1304					Date Analyzed DB-5: 17-Apr-05			
					Date Analyzed DB-225: NA			
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.00000178			IS 13C-2,3,7,8-TCDD	50.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000132			13C-1,2,3,7,8-PeCDD	52.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000360			13C-1,2,3,4,7,8-HxCDD	48.5	32 - 141	
1,2,3,6,7,8-HxCDD	0.00000660			J	13C-1,2,3,6,7,8-HxCDD	54.9	28 - 130	
1,2,3,7,8,9-HxCDD	0.00000572			J	13C-1,2,3,4,6,7,8-HpCDD	38.3	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.000239				13C-OCDD	30.7	17 - 157	
OCDD	0.00342				13C-2,3,7,8-TCDF	51.5	24 - 169	
2,3,7,8-TCDF	ND	0.00000157			13C-1,2,3,7,8-PeCDF	48.3	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000208			13C-2,3,4,7,8-PeCDF	49.3	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000189			13C-1,2,3,4,7,8-HxCDF	49.7	26 - 152	
1,2,3,4,7,8-HxCDF	0.00000238			J	13C-1,2,3,6,7,8-HxCDF	55.3	26 - 123	
1,2,3,6,7,8-HxCDF	0.00000228			J	13C-2,3,4,6,7,8-HxCDF	51.5	28 - 136	
2,3,4,6,7,8-HxCDF	0.00000224			J	13C-1,2,3,7,8,9-HxCDF	45.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000187			13C-1,2,3,4,6,7,8-HpCDF	38.0	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.0000345			A	13C-1,2,3,4,7,8,9-HpCDF	33.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000413			13C-OCDF	32.4	17 - 157	
OCDF	0.0000449			J	CRS 37Cl-2,3,7,8-TCDD	79.2	35 - 197	
Totals					Footnotes			
Total TCDD	ND	0.00000178			a. Sample specific estimated detection limit. b. Estimated maximum possible concentration. c. Method detection limit. d. Lower control limit - upper control limit.			
Total PeCDD	ND	0.00000132						
Total HxCDD	0.0000551							
Total HpCDD	0.000836							
Total TCDF	ND	0.00000157						
Total PeCDF	0.00000917							
Total HxCDF	0.0000690							
Total HpCDF	0.0000858							

Analyst: JMH

Approved By: Martha M. Maier 18-Apr-2005 14:57