CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF48
Task Order 313150010
SDG No. Multiple
No. of Analyses 6

Laboratory Alta
Reviewer H. Chang
Analysis/Method Dioxin&Furans/1613

Date: June 1, 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.,**	Detects below the calibration range were qualified "J."
	EMPCs were qualified "UJ."
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[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

NPDES
Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: IOD2043, IOD2044, IOD2049, IOD2053, IOD2056 & IOD2058

Prepared by

AMEC—Denver Operations
550 South Wadsworth Boulevard, Suite 500
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1. INTRODUCTION

Task Order Title:	NPDES Monitoring
Contract Task Order #:	313150010
Sample Delivery Group #:	IOD2043, IOD2044, IOD2049, IOD2053, IOD2056 & IOD2058
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Dioxins/Furans
QC Level:	Level IV
No. of Samples:	6
No. of Reanalyses/Dilutions:	0
Reviewer:	H. Chang
Date of Review:	June 1, 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 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
Outfall 001	IOD2043-01	26117-001	water	1613
Outfall 002	IOD2044-01	26112-001	water	1613
Outfall 018	IOD2049-01	26118-001	water	1613
Outfall 004	IOD2053-01	26120-001	water	1613
Outfall 010	IOD2056-01	26116-001	water	1613
Outfall 009	IOD2058-01	26115-001	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

The samples in these SDGs 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 0°C and 1.1°C; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, 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 these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The cooler 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

The initial calibration was analyzed 05/09/05. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was 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 and end 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 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 (6789-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 (6789-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. In five of the six SDGs, the laboratory noted that detects above the low point of the calibration curve but below the EPA Method 1613 minimum level were denoted by an "A" laboratory qualifier. However, all results with "A" qualifier were actually below the low point of the calibration curve and should have been flagged as "J." Also, one of the detects which should have been flagged as "A" was incorrectly flagged as "J" by the laboratory. Any detects below the method minimum level were qualified as estimated, "J." If the concentration of any component of the total was below the lower method calibration level (MCL), the total detect was qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." The results and reporting limits were reported in µg/L except for the results in sample Outfall 010 which were reported in ng/L. No further qualifications were required.

ALTA

Sample ID: **IOD2043-01** Outfall 001

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26117-001	Date Received:	30-Apr-05
Project:	IOD2043	Sample Size:	0.957 L	QC Batch No.:	6789	Date Extracted:	17-May-05
Date Collected:	28-Apr-05			Date Analyzed DB-5:	19-May-05	Date Analyzed DB-225:	NA
Time Collected:	1116						

Rev Qual	Qual Code	Analyte	Conc. (ug/L)	DL [a]	EMPC [b]	Qualifiers
U		2,3,7,8-TCDD	ND	0.00000132		
		1,2,3,7,8-PeCDD	ND	0.00000179		
		1,2,3,4,7,8-HxCDD	ND	0.00000375		
		1,2,3,6,7,8-HxCDD	ND	0.00000354		
		1,2,3,7,8,9-HxCDD	ND	0.00000372		
J	DNQ	1,2,3,4,6,7,8-HpCDD	0.0000517			
		OCDD	0.000373			J
U		2,3,7,8-TCDF	ND	0.00000133		
		1,2,3,7,8-PeCDF	ND	0.00000165		
		2,3,4,7,8-PeCDF	ND	0.00000139		
		1,2,3,4,7,8-HxCDF	ND	0.000000862		
		1,2,3,6,7,8-HxCDF	ND	0.000000782		
		2,3,4,6,7,8-HxCDF	ND	0.000000881		
		1,2,3,7,8,9-HxCDF	ND	0.00000157		
J	DNQ	1,2,3,4,6,7,8-HpCDF	0.00000903			
U		1,2,3,4,7,8,9-HpCDF	ND	0.00000132		A
J	DNQ	OCDF	0.0000390			
		Totals				A
U		Total TCDD	ND	0.00000132		
U		Total PeCDD	ND	0.00000179		
J	DNQ	Total HxCDD	0.0000114			
		Total HpCDD	0.000124			
U		Total TCDF	ND	0.00000133		
U		Total PeCDF	ND	0.00000151		
J	DNQ	Total HxCDF	0.00000540			
J	DNQ	Total HpCDF	0.0000268			

		Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS		13C-2,3,7,8-TCDD	60.8	25 - 164	
		13C-1,2,3,7,8-PeCDD	63.1	25 - 181	
		13C-1,2,3,4,7,8-HxCDD	61.3	32 - 141	
		13C-1,2,3,6,7,8-HxCDD	60.9	28 - 130	
		13C-1,2,3,4,6,7,8-HpCDD	53.8	23 - 140	
		13C-OCDD	34.9	17 - 157	
		13C-2,3,7,8-TCDF	65.0	24 - 169	
		13C-1,2,3,7,8-PeCDF	66.4	24 - 185	
		13C-2,3,4,7,8-PeCDF	66.3	21 - 178	
		13C-1,2,3,4,7,8-HxCDF	57.6	26 - 152	
		13C-1,2,3,6,7,8-HxCDF	60.4	26 - 123	
		13C-2,3,4,6,7,8-HxCDF	63.2	28 - 136	
		13C-1,2,3,7,8,9-HxCDF	55.9	29 - 147	
		13C-1,2,3,4,6,7,8-HpCDF	44.4	28 - 143	
		13C-1,2,3,4,7,8,9-HpCDF	43.0	26 - 138	
		13C-OCDF	33.6	17 - 157	
CRS		37Cl-2,3,7,8-TCDD	81.7	35 - 197	

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

AMEC VALIDATED

LEVEL IV

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:09

Project 26117

ALTA

Sample ID: **IOD2044-01** Outfall 002

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26112-001	Date Received:	30-Apr-05
Project:	IOD2044	Sample Size:	0.950 L	QC Batch No.:	6789	Date Extracted:	17-May-05
Date Collected:	28-Apr-05			Date Analyzed DB-5:	19-May-05	Date Analyzed DB-225:	NA
Time Collected:	1406						

Rev Qual	Qual Code	Analyte	Conc. (ug/L)	DL [a]	EMPC [b]	Qualifiers
u		2,3,7,8-TCDD	ND	0.00000199		
		1,2,3,7,8-PeCDD	ND	0.00000294		
		1,2,3,4,7,8-HxCDD	ND	0.00000400		
		1,2,3,6,7,8-HxCDD	ND	0.00000399		
		1,2,3,7,8,9-HxCDD	ND	0.00000409		
		1,2,3,4,6,7,8-HpCDD	0.0000557			
		OCDD	0.000706			
u		2,3,7,8-TCDF	ND	0.00000200		
		1,2,3,7,8-PeCDF	ND	0.00000362		
		2,3,4,7,8-PeCDF	ND	0.00000288		
		1,2,3,4,7,8-HxCDF	ND	0.00000117		
		1,2,3,6,7,8-HxCDF	ND	0.00000165		
		2,3,4,6,7,8-HxCDF	ND	0.00000118		
u		1,2,3,7,8,9-HxCDF	ND	0.00000214		
4	DNQ	1,2,3,4,6,7,8-HpCDF	0.00000968			
u		1,2,3,4,7,8,9-HpCDF	ND	0.00000252		A
4	DNQ	OCDF	0.0000306			A
		Totals				
u		Total TCDD	ND	0.00000199		
u		Total PeCDD	ND	0.00000294		
4	DNQ	Total HxCDD	0.00000660		0.0000135	
		Total HpCDD	0.000114			
4	DNQ	Total TCDF	0.00000366			
u		Total PeCDF	ND	0.00000322		
4	DNQ	Total HxCDF	0.00000666		0.00000980	
4	DNQ	Total HpCDF	0.0000253			

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	61.2	25 - 164	
	13C-1,2,3,7,8-PeCDD	65.5	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	63.8	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	65.8	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	61.5	23 - 140	
	13C-OCDD	45.0	17 - 157	
	13C-2,3,7,8-TCDF	66.5	24 - 169	
	13C-1,2,3,7,8-PeCDF	63.6	24 - 185	
	13C-2,3,4,7,8-PeCDF	66.3	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	65.2	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	69.0	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	70.5	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	62.6	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	58.0	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	49.7	26 - 138	
	13C-OCDF	43.8	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	78.7	35 - 197	

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c Method detection limit.

d. Lower control limit - upper control limit.

AMEC VALIDATED

LEVEL IV

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 10:57

Project 26112

ALTA

Sample ID: IOD2049 Outfall 018

EPA Method 1613

Client Data
Name: Del Mar Analytical, Irvine
Project: IOD2049
Date Collected: 28-Apr-05
Time Collected: 1516

Sample Data
Matrix: Aqueous
Sample Size: 0.910 L

Laboratory Data
Lab Sample: 26118-001
QC Batch No.: 6789
Date Received: 30-Apr-05
Date Extracted: 17-May-05
Date Analyzed DB-5: 19-May-05
Date Analyzed DB-225: NA

Rev Qual	Qual Code	Analyte	Conc. (ug/L)	DL [a]	EMPC [b]	Qualifiers
U		2,3,7,8-TCDD	ND	0.00000162		
		1,2,3,7,8-PeCDD	ND	0.00000180		
		1,2,3,4,7,8-HxCDD	ND	0.00000269		
		1,2,3,6,7,8-HxCDD	ND	0.00000265		
		1,2,3,7,8,9-HxCDD	ND	0.00000273		
J	DNQ	1,2,3,4,6,7,8-HpCDD	0.0000445			
		OCDD	0.000477			J
U		2,3,7,8-TCDF	ND	0.00000164		
		1,2,3,7,8-PeCDF	ND	0.00000218		
		2,3,4,7,8-PeCDF	ND	0.00000195		
		1,2,3,4,7,8-HxCDF	ND	0.00000105		
		1,2,3,6,7,8-HxCDF	ND	0.000000992		
		2,3,4,6,7,8-HxCDF	ND	0.00000107		
		1,2,3,7,8,9-HxCDF	ND	0.00000207		
J	DNQ	1,2,3,4,6,7,8-HpCDF	0.00000505			
U		1,2,3,4,7,8,9-HpCDF	ND	0.00000211		A
U		OCDF	ND	0.0000145		
		Totals				
U		Total TCDD	ND	0.00000162		
U		Total PeCDD	ND	0.00000180		
J	DNQ	Total HxCDD	0.00000896			
J	DNQ	Total HpCDD	0.0000879			
J	DNQ	Total TCDF	0.00000379			
U		Total PeCDF	ND	0.00000206		
J	DNQ	Total HxCDF	0.00000262		0.00000434	
J	DNQ	Total HpCDF	0.0000122			

		Labeled Standard	%R	LCL-UCL [d]	Qualifiers
	IS	13C-2,3,7,8-TCDD	65.5	25 - 164	
		13C-1,2,3,7,8-PeCDD	66.7	25 - 181	
		13C-1,2,3,4,7,8-HxCDD	64.4	32 - 141	
		13C-1,2,3,6,7,8-HxCDD	63.7	28 - 130	
		13C-1,2,3,4,6,7,8-HpCDD	60.1	23 - 140	
		13C-OCDD	44.7	17 - 157	
		13C-2,3,7,8-TCDF	70.2	24 - 169	
		13C-1,2,3,7,8-PeCDF	66.1	24 - 185	
		13C-2,3,4,7,8-PeCDF	67.0	21 - 178	
		13C-1,2,3,4,7,8-HxCDF	65.1	26 - 152	
		13C-1,2,3,6,7,8-HxCDF	64.8	26 - 123	
		13C-2,3,4,6,7,8-HxCDF	69.4	28 - 136	
		13C-1,2,3,7,8,9-HxCDF	59.2	29 - 147	
		13C-1,2,3,4,6,7,8-HpCDF	55.7	28 - 143	
		13C-1,2,3,4,7,8,9-HpCDF	49.5	26 - 138	
		13C-OCDF	44.8	17 - 157	
	CRS	37Cl-2,3,7,8-TCDD	87.0	35 - 197	

Footnotes

a. Sample specific estimated detection limit.
b. Estimated maximum possible concentration.
c. Method detection limit.
d. Lower control limit - upper control limit.

AMEC VALIDATED
LEVEL IV

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:10

ALTA

Sample ID: **IOD2053-01** Outfall 004

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26120-001	Date Received:	30-Apr-05
Project:	IOD2053	Sample Size:	0.968 L	QC Batch No.:	6789	Date Extracted:	17-May-05
Date Collected:	28-Apr-05			Date Analyzed DB-5:	19-May-05	Date Analyzed DB-225:	NA
Time Collected:	1140						

Rev Qual	Qual Code	Analyte	Conc. (ug/L)	DL [a]	EMPC [b]	Qualifiers
U		2,3,7,8-TCDD	ND	0.00000131		
		1,2,3,7,8-PeCDD	ND	0.00000171		
		1,2,3,4,7,8-HxCDD	ND	0.00000161		
		1,2,3,6,7,8-HxCDD	ND	0.00000164		
		1,2,3,7,8,9-HxCDD	ND	0.00000166		
UJ	*ID	1,2,3,4,6,7,8-HpCDD	ND		0.0000163	
		OCDD	0.000234			
U		2,3,7,8-TCDF	ND	0.00000135		
		1,2,3,7,8-PeCDF	ND	0.00000133		
		2,3,4,7,8-PeCDF	ND	0.00000119		
		1,2,3,4,7,8-HxCDF	ND	0.000000591		
		1,2,3,6,7,8-HxCDF	ND	0.000000518		
		2,3,4,6,7,8-HxCDF	ND	0.000000586		
		1,2,3,7,8,9-HxCDF	ND	0.00000105		
J	DNQ	1,2,3,4,6,7,8-HpCDF	0.00000258			A
U		1,2,3,4,7,8,9-HpCDF	ND	0.00000180		
U		OCDF	ND	0.00000877		
		Totals				
U		Total TCDD	ND	0.00000131		
U		Total PeCDD	ND	0.00000171		
J	DNQ	Total HxCDD	0.00000183			
J	DNQ	Total HpCDD	0.0000189		0.0000352	
U		Total TCDF	ND	0.00000135		
U		Total PeCDF	ND	0.00000126		
J	DNQ	Total HxCDF	0.00000229			
J	DNQ	Total HpCDF	0.00000723			

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	70.3	25 - 164	
	13C-1,2,3,7,8-PeCDD	71.3	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	69.9	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	75.4	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	66.2	23 - 140	
	13C-OCDD	45.9	17 - 157	
	13C-2,3,7,8-TCDF	72.7	24 - 169	
	13C-1,2,3,7,8-PeCDF	70.7	24 - 185	
	13C-2,3,4,7,8-PeCDF	71.8	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	73.2	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	74.6	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	75.6	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	70.0	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	62.5	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	53.9	26 - 138	
	13C-OCDF	47.5	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	87.8	35 - 197	

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

AMEC VALIDATED
LEVEL IV

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:13

Project 26120

ALTA

Sample ID: IOD2056-01 Outfall 009

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26115-001	Date Received:	30-Apr-05
Project:	IOD2056	Sample Size:	0.960 L	QC Batch No.:	6789	Date Extracted:	17-May-05
Date Collected:	28-Apr-05			Date Analyzed DB-5:	19-May-05	Date Analyzed DB-225:	NA
Time Collected:	1213						

Rev Qual	Qual Code	Analyte	Conc. (ug/L)	DL [a]	EMPC [b]	Qualifiers
U		2,3,7,8-TCDD	ND	0.00000140		
		1,2,3,7,8-PeCDD	ND	0.00000144		
		1,2,3,4,7,8-HxCDD	ND	0.00000241		
		1,2,3,6,7,8-HxCDD	ND	0.00000237		
		1,2,3,7,8,9-HxCDD	ND	0.00000244		
J	DNQ	1,2,3,4,6,7,8-HpCDD	0.0000129			
		OCDD	0.000119			A
U		2,3,7,8-TCDF	ND	0.000000942		
		1,2,3,7,8-PeCDF	ND	0.00000149		
		2,3,4,7,8-PeCDF	ND	0.00000125		
		1,2,3,4,7,8-HxCDF	ND	0.000000643		
		1,2,3,6,7,8-HxCDF	ND	0.000000572		
		2,3,4,6,7,8-HxCDF	ND	0.000000654		
		1,2,3,7,8,9-HxCDF	ND	0.00000115		
		1,2,3,4,6,7,8-HpCDF	ND	0.00000154		
		1,2,3,4,7,8,9-HpCDF	ND	0.00000136		
		OCDF	ND	0.00000672		
		Totals				
U		Total TCDD	ND	0.00000140		
		Total PeCDD	ND	0.00000144		
		Total HxCDD	ND	0.00000240		
J	DNQ	Total HpCDD	0.0000303			
U		Total TCDF	ND	0.000000942		
		Total PeCDF	ND	0.00000136		
J	DNQ	Total HxCDF	0.000000890			
U		Total HpCDF	ND	0.00000194		

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	66.6	25 - 164	
	13C-1,2,3,7,8-PeCDD	70.0	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	71.1	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	71.9	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	63.5	23 - 140	
	13C-OCDD	36.0	17 - 157	
	13C-2,3,7,8-TCDF	70.2	24 - 169	
	13C-1,2,3,7,8-PeCDF	71.7	24 - 185	
	13C-2,3,4,7,8-PeCDF	72.7	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	76.1	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	75.9	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	78.8	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	74.7	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	63.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	66.9	26 - 138	
	13C-OCDF	45.5	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	80.5	35 - 197	

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

AMEC VALIDATED

LEVEL IV

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:05

Project 26115

ALTA

Sample ID: **IOD2058-01** Outfall 010

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26116-001	Date Received:	30-Apr-05
Project:	IOD2058	Sample Size:	0.957 L	QC Batch No.:	6789	Date Extracted:	17-May-05
Date Collected:	28-Apr-05			Date Analyzed DB-5:	19-May-05	Date Analyzed DB-225:	NA
Time Collected:	1205						

Rev Qual	Qual Code	Analyte	Conc. (ng/L)	DL [a]	EMPC [b]	Qualifiers
U		2,3,7,8-TCDD	ND	0.00139		
		1,2,3,7,8-PeCDD	ND	0.00165		
		1,2,3,4,7,8-HxCDD	ND	0.00301		
		1,2,3,6,7,8-HxCDD	ND	0.00283		
		1,2,3,7,8,9-HxCDD	ND	0.00298		
		1,2,3,4,6,7,8-HpCDD	ND	0.00774		
J	DNQ	OCDD	0.0584			J
U		2,3,7,8-TCDF	ND	0.00166		
		1,2,3,7,8-PeCDF	ND	0.00262		
		2,3,4,7,8-PeCDF	ND	0.00218		
		1,2,3,4,7,8-HxCDF	ND	0.000772		
		1,2,3,6,7,8-HxCDF	ND	0.000738		
		2,3,4,6,7,8-HxCDF	ND	0.000842		
		1,2,3,7,8,9-HxCDF	ND	0.00149		
		1,2,3,4,6,7,8-HpCDF	ND	0.00231		
		1,2,3,4,7,8,9-HpCDF	ND	0.00224		
		OCDF	ND	0.00980		
		Totals				
U		Total TCDD	ND	0.00139		
		Total PeCDD	ND	0.00165		
		Total HxCDD	ND	0.00293		
		Total HpCDD	ND	0.0137		
		Total TCDF	ND	0.00166		
		Total PeCDF	ND	0.00239		
		Total HxCDF	ND	0.000911		
		Total HpCDF	ND	0.00309		

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	53.3	25 - 164	
	13C-1,2,3,7,8-PeCDD	53.1	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	62.6	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	63.9	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	52.7	23 - 140	
	13C-OCDD	29.8	17 - 157	
	13C-2,3,7,8-TCDF	57.5	24 - 169	
	13C-1,2,3,7,8-PeCDF	53.6	24 - 185	
	13C-2,3,4,7,8-PeCDF	55.9	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	66.9	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	67.2	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	67.3	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	59.7	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	51.2	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	52.1	26 - 138	
	13C-OCDF	36.1	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	76.1	35 - 197	

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

AMEC VALIDATED

LEVEL IV

Analyst: RAS

Approved By: William J. Luksemburg 20-May-2005 11:07

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environmental
550 South Wadsworth Boulevard
Suite 500

Lakewood, CO 80226

Laboratory Del Mar
Reviewer M. Pokorny
Analysis/Method Volatiles

Package ID T711VO105
Task Order 313150010
SDG No. IOD2043, 2045, 2047, 2049
No. of Analyses 8

Date: June 13, 2005
Reviewer's Signature M. Pokorny

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 required for calibration outliers.
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[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

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUPs: IOD2043, IOD2044, IOD2047, IOD2049

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
SDG#:	IOD2043, IOD2044, IOD2047, IOD2049
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Volatiles
QC Level:	Level IV
No. of Samples:	8
No. of Reanalyses/Dilutions:	0
Reviewer:	M. Pokorny
Date of Review:	June 13, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2), EPA Method 624, SW846 Method 8260B,* and the *National Functional Guidelines For Organic Data Review* (2/94). Any deviations from these procedures 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 summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 001	Outfall 001	IOD2043-01	water	624
Trip Blank	Trip Blank	IOD2043-02	water	624
Outfall 002	Outfall 002	IOD2044-01	water	624
Trip Blank	Trip Blank	IOD2044-02	water	624
Outfall 012	Outfall 012	IOD2047-01	water	624
Trip Blank	Trip Blank	IOD2047-02	water	624
Outfall 018	Outfall 018	IOD2049-01	water	624
Trip Blank	Trip Blank	IOD2049-02	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at the laboratory within the temperature limits of 4°C ±2°C. The samples were properly preserved. The COCs noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

The COCs were signed and dated by both field and laboratory personnel. The COCs accounted for the analyses presented in these SDGs. As the samples were couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

The samples were analyzed within 14 days of collection. No qualifications were required.

2.2 GC/MS TUNING

The ion abundance windows shown on the quantitation reports were consistent with those specified in EPA Method 624, and all ion abundances were within the established windows. The samples and associated QC were analyzed within 12 hours of the BFB injection time. The BFB summary report was verified from the raw data and no discrepancies between the summary report and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

Four initial calibrations dated 03/31/05, 04/20/05, 04/29/05, and 04/30/05 were associated with these SDGs. The average RRFs were ≥0.05 for the target compounds listed on the sample result summaries. The %RSDs were ≤35% for all applicable target compounds. Five continuing calibrations were associated with the sample analyses in these SDGs. The %D for trichlorofluoromethane exceeded 20% in the continuing calibration associated with samples Outfall 001 and Outfall 002; therefore, the nondetect results for trichlorofluoromethane were qualified as estimated, "UJ," in samples Outfall 001 and Outfall 002. No qualifications were required for the Trip Blanks. All remaining %Ds were ≤20%. The RRFs were ≥0.05 for the target compounds listed on the sample result summaries. A representative number of %RSDs and average RRFs from the initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

Three water method blanks (5E04019-BLK1, 5E05024-BLK1, and 5E10003-BLK1) were associated with the sample analyses. There were no detects above the MDLs for the target compounds listed on the sample result summaries. The method blank raw data showed no evidence of false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Three water blank spikes (5E04019-BS1, 5E05024-BS1, and 5E10003-BS1) were associated with the sample analyses. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

The surrogates were recovered within the QC limits of 80-120% in the samples and associated QC. A representative number of surrogate recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample Outfall 001 was the MS/MSD analyses performed with these SDGs. All percent recoveries and RPDs were within the QC limits. No qualifications were required.

2.8 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site sample. Following are findings associated with field QC samples:

2.8.1 Trip Blanks

Samples Trip Blank (IOD2043-02), Trip Blank (IOD2044-02), Trip Blank (IOD2047-02), and Trip Blank (IOD2049-02) were the trip blanks associated with these SDGs. There were no target compounds detected above the MDLs in the trip blanks. No qualifications were required.

2.8.2 Field Blanks and Equipment Rinsates

There were no field QC samples associated with these SDGs. No qualifications were required.

2.8.3 Field Duplicates

There were no field duplicate samples associated with these SDGs.

2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for the samples in these SDGs were within the control limits established by the continuing calibration standards: +100%/-50% for internal standard areas and ±0.50 minutes for retention times. A representative number of internal standard areas and retention times were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed for volatile target compounds by EPA Method 624. Chromatograms, retention times, and spectra for the samples and QC were examined and no target compound identification problems were noted. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limits were supported by the lowest concentrations of the initial calibration standard and by the MDL study. Compound quantitation was verified by recalculating a representative number of target compound detects, blank spike, and surrogate recoveries from the raw data. Results were reported in µg/L (ppb). No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not provide TICs for these SDGs. No qualifications were required.

2.13 SYSTEM PERFORMANCE

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

Del Mar Analytical

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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Projec: ID: Routine Outfall 001

Report Number: IOD2043

Sampled: 04/28/05
Received: 04/28/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2043-01 (DRAFT: Outfall 001 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5E04019	0.28	2.0	ND	1	05/04/05	05/05/05	U
Carbon tetrachloride	EPA 624	5E04019	0.28	5.0	ND	1	05/04/05	05/05/05	
Chloroform	EPA 624	5E04019	0.33	2.0	ND	1	05/04/05	05/05/05	
1,1-Dichloroethane	EPA 624	5E04019	0.27	2.0	ND	1	05/04/05	05/05/05	
1,2-Dichloroethane	EPA 624	5E04019	0.28	2.0	ND	1	05/04/05	05/05/05	
1,1-Dichloroethene	EPA 624	5E04019	0.32	3.0	ND	1	05/04/05	05/05/05	
Ethylbenzene	EPA 624	5E04019	0.25	2.0	ND	1	05/04/05	05/05/05	
Tetrachloroethene	EPA 624	5E04019	0.32	2.0	ND	1	05/04/05	05/05/05	
Toluene	EPA 624	5E04019	0.36	2.0	ND	1	05/04/05	05/05/05	
1,1,1-Trichloroethane	EPA 624	5E04019	0.30	2.0	ND	1	05/04/05	05/05/05	
1,1,2-Trichloroethane	EPA 624	5E04019	0.30	2.0	ND	1	05/04/05	05/05/05	
Trichloroethene	EPA 624	5E04019	0.26	5.0	ND	1	05/04/05	05/05/05	
Trichlorofluoromethane	EPA 624	5E04019	0.34	5.0	ND	1	05/04/05	05/05/05	U
Vinyl chloride	EPA 624	5E04019	0.26	5.0	ND	1	05/04/05	05/05/05	U
Xylenes, Total	EPA 624	5E04019	0.52	4.0	ND	1	05/04/05	05/05/05	U
Surrogate: Dibromofluoromethane (80-120%)					*107 %*				
Surrogate: Toluene-d8 (80-120%)					*109 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*99 %*				
Sample ID: IOD2043-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5E04019	0.28	2.0	ND	1	05/04/05	05/04/05	U
Carbon tetrachloride	EPA 624	5E04019	0.28	5.0	ND	1	05/04/05	05/04/05	
Chloroform	EPA 624	5E04019	0.33	2.0	ND	1	05/04/05	05/04/05	
1,1-Dichloroethane	EPA 624	5E04019	0.27	2.0	ND	1	05/04/05	05/04/05	
1,2-Dichloroethane	EPA 624	5E04019	0.28	2.0	ND	1	05/04/05	05/04/05	
1,1-Dichloroethene	EPA 624	5E04019	0.32	3.0	ND	1	05/04/05	05/04/05	
Ethylbenzene	EPA 624	5E04019	0.25	2.0	ND	1	05/04/05	05/04/05	
Tetrachloroethene	EPA 624	5E04019	0.32	2.0	ND	1	05/04/05	05/04/05	
Toluene	EPA 624	5E04019	0.36	2.0	ND	1	05/04/05	05/04/05	
1,1,1-Trichloroethane	EPA 624	5E04019	0.30	2.0	ND	1	05/04/05	05/04/05	
1,1,2-Trichloroethane	EPA 624	5E04019	0.30	2.0	ND	1	05/04/05	05/04/05	
Trichloroethene	EPA 624	5E04019	0.26	5.0	ND	1	05/04/05	05/04/05	
Trichlorofluoromethane	EPA 624	5E04019	0.34	5.0	ND	1	05/04/05	05/04/05	
Vinyl chloride	EPA 624	5E04019	0.26	5.0	ND	1	05/04/05	05/04/05	
Xylenes, Total	EPA 624	5E04019	0.52	4.0	ND	1	05/04/05	05/04/05	
Surrogate: Dibromofluoromethane (80-120%)					*101 %*				
Surrogate: Toluene-d8 (80-120%)					*108 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*98 %*				

AMEC VALIDATED

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

LEVEL IV

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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2320 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOD2044

Sampled: 04/28/05
Received: 04/28/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2044-01 (DRAFT: Outfall 002 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5E04019	0.28	2.0	ND	1	05/04/05	05/05/05	U
Carbon tetrachloride	EPA 624	5E04019	0.28	5.0	ND	1	05/04/05	05/05/05	
Chloroform	EPA 624	5E04019	0.33	2.0	ND	1	05/04/05	05/05/05	
1,1-Dichloroethane	EPA 624	5E04019	0.27	2.0	ND	1	05/04/05	05/05/05	
1,2-Dichloroethane	EPA 624	5E04019	0.28	2.0	ND	1	05/04/05	05/05/05	
1,1-Dichloroethene	EPA 624	5E04019	0.32	3.0	ND	1	05/04/05	05/05/05	
Ethylbenzene	EPA 624	5E04019	0.25	2.0	ND	1	05/04/05	05/05/05	
Tetrachloroethene	EPA 624	5E04019	0.32	2.0	ND	1	05/04/05	05/05/05	
Toluene	EPA 624	5E04019	0.36	2.0	ND	1	05/04/05	05/05/05	
1,1,1-Trichloroethane	EPA 624	5E04019	0.30	2.0	ND	1	05/04/05	05/05/05	
1,1,2-Trichloroethane	EPA 624	5E04019	0.30	2.0	ND	1	05/04/05	05/05/05	
Trichloroethene	EPA 624	5E04019	0.26	5.0	**0.27**	1	05/04/05	05/05/05	J
Trichlorofluoromethane	EPA 624	5E04019	0.34	5.0	ND	1	05/04/05	05/05/05	UJ
Vinyl chloride	EPA 624	5E04019	0.26	5.0	ND	1	05/04/05	05/05/05	U
Xylenes, Total	EPA 624	5E04019	0.52	4.0	ND	1	05/04/05	05/05/05	U
Surrogate: Dibromofluoromethane (80-120%)					*106 %*				
Surrogate: Toluene-d8 (80-120%)					*106 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*100 %*				
Sample ID: IOD2044-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5E04019	0.28	2.0	ND	1	05/04/05	05/05/05	U
Carbon tetrachloride	EPA 624	5E04019	0.28	5.0	ND	1	05/04/05	05/05/05	
Chloroform	EPA 624	5E04019	0.33	2.0	ND	1	05/04/05	05/05/05	
1,1-Dichloroethane	EPA 624	5E04019	0.27	2.0	ND	1	05/04/05	05/05/05	
1,2-Dichloroethane	EPA 624	5E04019	0.28	2.0	ND	1	05/04/05	05/05/05	
1,1-Dichloroethene	EPA 624	5E04019	0.32	3.0	ND	1	05/04/05	05/05/05	
Ethylbenzene	EPA 624	5E04019	0.25	2.0	ND	1	05/04/05	05/05/05	
Tetrachloroethene	EPA 624	5E04019	0.32	2.0	ND	1	05/04/05	05/05/05	
Toluene	EPA 624	5E04019	0.36	2.0	ND	1	05/04/05	05/05/05	
1,1,1-Trichloroethane	EPA 624	5E04019	0.30	2.0	ND	1	05/04/05	05/05/05	
1,1,2-Trichloroethane	EPA 624	5E04019	0.30	2.0	ND	1	05/04/05	05/05/05	
Trichloroethene	EPA 624	5E04019	0.26	5.0	ND	1	05/04/05	05/05/05	
Trichlorofluoromethane	EPA 624	5E04019	0.34	5.0	ND	1	05/04/05	05/05/05	
Vinyl chloride	EPA 624	5E04019	0.26	5.0	ND	1	05/04/05	05/05/05	
Xylenes, Total	EPA 624	5E04019	0.52	4.0	ND	1	05/04/05	05/05/05	
Surrogate: Dibromofluoromethane (80-120%)					*101 %*				
Surrogate: Toluene-d8 (80-120%)					*108 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*95 %*				

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LEVEL IV

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD2047

Sampled: 04/28/05
Received: 04/28/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers REV QUAL	QUAL CODE
Sample ID: IOD2047-01 (DRAFT: Outfall 012 - Water)										
Reporting Units: ug/l										
1,2-Dibromoethane (EDB)	EPA 624	5E05024	0.32	2.0	ND	1	05/05/05	05/05/05	U	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E05024	0.32	5.0	ND	1	05/05/05	05/05/05		
1,2,3-Trichloropropane	EPA 624	5E05024	0.85	10	ND	1	05/05/05	05/05/05		
Di-isopropyl Ether (DIPE)	EPA 624	5E05024	0.25	5.0	ND	1	05/05/05	05/05/05		
tert-Butanol (TBA)	EPA 624	5E05024	3.1	25	ND	1	05/05/05	05/05/05		
Surrogate: Dibromofluoromethane (80-120%)					*114 %*					
Surrogate: Toluene-d8 (80-120%)					*112 %*					
Surrogate: 4-Bromofluorobenzene (80-120%)					*110 %*					
Sample ID: IOD2047-02 (DRAFT: Trip Blank - Water)										
Reporting Units: ug/l										
1,2-Dibromoethane (EDB)	EPA 624	5E05024	0.32	2.0	ND	1	05/05/05	05/05/05	U	
Methyl-tert-butyl Ether (MTBE)	EPA 624	5E05024	0.32	5.0	ND	1	05/05/05	05/05/05		
1,2,3-Trichloropropane	EPA 624	5E05024	0.85	10	ND	1	05/05/05	05/05/05		
Di-isopropyl Ether (DIPE)	EPA 624	5E05024	0.25	5.0	ND	1	05/05/05	05/05/05		
tert-Butanol (TBA)	EPA 624	5E05024	3.1	25	ND	1	05/05/05	05/05/05		
Surrogate: Dibromofluoromethane (80-120%)					*111 %*					
Surrogate: Toluene-d8 (80-120%)					*112 %*					
Surrogate: 4-Bromofluorobenzene (80-120%)					*107 %*					

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2763 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Quarterly Outfall 018

Repor. Number: IOD2049

Sampled: 04/28/05
Received: 04/28/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	REV QUAL	QUAL CODE
Sample ID: IOD2049-01 (DRAFT: Outfall 018 - Water)										
Reporting Units: ug/l										
Benzene	EPA 624	5E10003	0.28	2.0	ND	1	05/10/05	05/10/05	U	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5E10003	1.2	5.0	ND	1	05/10/05	05/10/05		
Carbon tetrachloride	EPA 624	5E10003	0.28	5.0	ND	1	05/10/05	05/10/05		
Chloroform	EPA 624	5E10003	0.33	2.0	ND	1	05/10/05	05/10/05		
1,1-Dichloroethane	EPA 624	5E10003	0.27	2.0	ND	1	05/10/05	05/10/05		
1,2-Dichloroethane	EPA 624	5E10003	0.28	2.0	ND	1	05/10/05	05/10/05		
1,1-Dichloroethene	EPA 624	5E10003	0.42	3.0	ND	1	05/10/05	05/10/05		
Ethylbenzene	EPA 624	5E10003	0.25	2.0	ND	1	05/10/05	05/10/05		
Tetrachloroethene	EPA 624	5E10003	0.32	2.0	ND	1	05/10/05	05/10/05		
Toluene	EPA 624	5E10003	0.36	2.0	ND	1	05/10/05	05/10/05		
1,1,1-Trichloroethane	EPA 624	5E10003	0.30	2.0	ND	1	05/10/05	05/10/05		
1,1,2-Trichloroethane	EPA 624	5E10003	0.30	2.0	ND	1	05/10/05	05/10/05		
Trichloroethene	EPA 624	5E10003	0.26	5.0	**1.0**	1	05/10/05	05/10/05	J	DNQ
Trichlorofluoromethane	EPA 624	5E10003	0.34	5.0	ND	1	05/10/05	05/10/05		
Vinyl chloride	EPA 624	5E10003	0.26	5.0	ND	1	05/10/05	05/10/05		
Xylenes, Total	EPA 624	5E10003	0.52	4.0	ND	1	05/10/05	05/10/05		
Surrogate: Dibromofluoromethane (80-120%)					*108 %*					
Surrogate: Toluene-d8 (80-120%)					*104 %*					
Surrogate: 4-Bromofluorobenzene (80-120%)					*104 %*					
Sample ID: IOD2049-02 (DRAFT: Trip Blank - Water)										
Reporting Units: ug/l										
Benzene	EPA 624	5E10003	0.28	2.0	ND	1	05/10/05	05/10/05	U	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5E10003	1.2	5.0	ND	1	05/10/05	05/10/05		
Carbon tetrachloride	EPA 624	5E10003	0.28	5.0	ND	1	05/10/05	05/10/05		
Chloroform	EPA 624	5E10003	0.33	2.0	ND	1	05/10/05	05/10/05		
1,1-Dichloroethane	EPA 624	5E10003	0.27	2.0	ND	1	05/10/05	05/10/05		
1,2-Dichloroethane	EPA 624	5E10003	0.28	2.0	ND	1	05/10/05	05/10/05		
1,1-Dichloroethene	EPA 624	5E10003	0.42	3.0	ND	1	05/10/05	05/10/05		
Ethylbenzene	EPA 624	5E10003	0.25	2.0	ND	1	05/10/05	05/10/05		
Tetrachloroethene	EPA 624	5E10003	0.32	2.0	ND	1	05/10/05	05/10/05		
Toluene	EPA 624	5E10003	0.36	2.0	ND	1	05/10/05	05/10/05		
1,1,1-Trichloroethane	EPA 624	5E10003	0.30	2.0	ND	1	05/10/05	05/10/05		
1,1,2-Trichloroethane	EPA 624	5E10003	0.30	2.0	ND	1	05/10/05	05/10/05		
Trichloroethene	EPA 624	5E10003	0.26	5.0	ND	1	05/10/05	05/10/05		
Trichlorofluoromethane	EPA 624	5E10003	0.34	5.0	ND	1	05/10/05	05/10/05		
Vinyl chloride	EPA 624	5E10003	0.26	5.0	ND	1	05/10/05	05/10/05		
Xylenes, Total	EPA 624	5E10003	0.52	4.0	ND	1	05/10/05	05/10/05		
Surrogate: Dibromofluoromethane (80-120%)					*105 %*					
Surrogate: Toluene-d8 (80-120%)					*102 %*					
Surrogate: 4-Bromofluorobenzene (80-120%)					*103 %*					

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

AMEC Earth & Environmental
550 South Wadsworth Boulevard
Suite 500

Lakewood, CO 80226

Laboratory Del Mar Analytical
Reviewer L. Jarusewic
Analysis/Method General Minerals

Package ID T711WC151
Task Order 313150010
SDG No. IOD2043, IOD2044, IOD2047, IOD2049
No. of Analyses 4

Date: 06/03/05
Reviewer's Signature L. Jarusewic

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 applied for:
Holding Times	1) Detects below the reporting limit
GC/MS Tune/Inst. Performance	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and 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 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.
S	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: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOD2043, IOD2044, IOD2047, IOD2049

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 #:	IOD2043, IOD2044, IOD2047, IOD2049
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	General Minerals
QC Level:	Level IV
No. of Samples:	4
Reviewer:	L. Jarusewic
Date of Review:	June 3, 2005

The samples listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures* SOP DVP-6, Rev. 2, *USEPA Methods for Chemical Analysis of Water and Wastes Method 350.2, 180.1, 120.1, 405.1, 413.1, 160.2, 160.5, 418.1, 300.0, 425.1, 160.1, and 335.2, Standard Methods for the Examination of Water and Wastewater Method SM2540C*, and validation guidelines outlined in the USEPA *Contract Laboratory Program 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 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	Laboratory ID	Matrix	COC Method
Outfall 001	Outfall 001	IOD2043-01	Water	General Minerals
Outfall 002	Outfall 002	IOD2044-01	Water	General Minerals
Outfall 012	Outfall 012	IOD2047-01	Water	General Minerals
Outfall 018	Outfall 018	IOD2049-01	Water	General Minerals

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 these SDGs were received at the laboratory within the temperature limits of 4°C ± 2°C. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for all samples and analyses presented in these SDGs. No sample qualifications were required.

2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analyses. The 28-day analytical holding time for ammonia, chloride, sulfate, conductivity, total recoverable hydrocarbons, and oil and grease, the 14-day analytical holding time for cyanide, the seven-day holding time for total suspended solids and total dissolved solids, the 48-hour holding time for surfactants, turbidity, nitrate/nitrite, biological oxygen demand, and total settleable solids were met. No qualifications were required.

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥ 0.995. Initial and continuing calibration information was acceptable with recoveries within the control limits of 90-110%. For ammonia, no information regarding the standardization of the titrant was provided; however, the LCS recovery was within the CCV control limits. For BOD, no information regarding the calibration of the oxygen meter was provided; however, the LCS recovery was within the CCV control limits. The total cyanide reporting limit check standard was recovered within the control limits of 70-130%. Calibration is not applicable to total suspended solids, total dissolved solids, and total settleable solids. No qualifications were required.

2.3 BLANKS

Turbidity was detected in a bracketing CCB at 0.040 NTU; however, the turbidity CCB results were insufficient to qualify the site sample turbidity results. The remaining method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the samples were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample and laboratory control sample duplicate (total recoverable hydrocarbons, oil and grease, and BOD) recoveries and RPDs were within the laboratory-established control limits. The LCS is not applicable to turbidity, total settleable solids, or conductivity. No qualifications were required.

2.5 SURROGATES RECOVERY

Surrogate recovery is not applicable to the analyses presented in these SDGs.

2.6 LABORATORY DUPLICATES

MS/MSD analyses were not performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion. Method accuracy was based on LCS results. No qualifications were required.

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analyses of these samples; therefore, furnace atomic absorption QC is not applicable.

2.9 ICP SERIAL DILUTION

ICP serial dilution is not applicable to the analyses presented in this data validation report.

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. Surfactant detected below the reporting limit was qualified as estimated, "J," in sample Outfall 018. No further qualifications were required.

2.11 FIELD QC SAMPLES

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

2.11.1 Field Blanks and Equipment Rinsates

The samples in these SDGs had no associated field QC samples. No qualifications were required.

2.11.2 Field Duplicates

There were no field duplicate pairs associated with these SDGs.

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 001

Report Number: IOD2043

Sampled: 04/28/05
Received: 04/28/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2043-01 (DRAFT: Outfall 001 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5E02067	0.30	0.50	**0.84**	1	05/02/05	05/02/05	
Sample ID: IOD2043-01 (DRAFT: Outfall 001 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5D29110	0.040	1.0	**7.6**	1	04/29/05	04/29/05	
Sample ID: IOD2043-01 (DRAFT: Outfall 001 - Water)									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5D29130	1.0	1.0	**620**	1	04/29/05	04/29/05	

REV QUAL CODE

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOD2044

Sampled: 04/28/05
Received: 04/28/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers REV QUAL | QUAL CODE
Sample ID: IOD2044-01 (DRAFT: Outfall 002 - Water)									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5E02067	0.30	0.50	**0.84**	1	05/02/05	05/02/05	
Sample ID: IOD2044-01 (DRAFT: Outfall 002 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5D29110	0.080	2.0	**79**	2	04/29/05	04/29/05	
Sample ID: IOD2044-01 (DRAFT: Outfall 002 - Water)									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5D29130	1.0	1.0	**590**	1	04/29/05	04/29/05	

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD2047

Sampled: 04/28/05
Received: 04/28/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers REV QUAL	Data Qualifiers QUAL CODE
Sample ID: IOD2047-01 (DRAFT: Outfall 012 - Water) - cont.										
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5E02067	0.30	0.50	ND	1	05/02/05	05/02/05	u	
Biochemical Oxygen Demand	EPA 405.1	5D29091	0.59	2.0	**3.2**	1	04/29/05	05/04/05		
Oil & Grease	EPA 413.1	5E04036	0.94	5.0	ND	1	05/04/05	05/04/05	u	
Total Dissolved Solids	SM2540C	5D29129	10	10	**250**	1	04/29/05	04/29/05		
Total Suspended Solids	EPA 160.2	5E04071	10	10	**21**	1	05/04/05	05/04/05		
Sample ID: IOD2047-01 (DRAFT: Outfall 012 - Water)										
Reporting Units: ml/l/hr										
Total Settleable Solids	EPA 160.5	5D29094	0.10	0.10	**0.10**	1	04/29/05	04/29/05		
Sample ID: IOD2047-01 (DRAFT: Outfall 012 - Water)										
Reporting Units: NTU										
Turbidity	EPA 180.1	5D29110	0.040	1.0	**23**	1	04/29/05	04/29/05		
Sample ID: IOD2047-01 (DRAFT: Outfall 012 - Water)										
Reporting Units: ug/l										
Perchlorate	EPA 314.0	5D29065	0.80	4.0	ND	1	04/29/05	04/30/05	*	

AMEC VALIDATED

LEVEL IV

*Analysis Not Valid

DRAFT REPORT
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DATA SUBJECT TO CHANGE

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Alfa Outfall 012 - During Test

Report Number: IOD2047

Sampled: 04/28/05
Received: 04/28/05

DRAFT: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOD2047-01 (DRAFT: Outfall 012 - Water)									REV QUAL / QUAL CODE
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5D30026	0.31	1.0	**5.6**	1	04/30/05	04/30/05	

AMEC VALIDATED

LEVEL IV

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Quarterly Outfall 018

Report Number: IOD2049

Sampled: 04/28/05
Received: 04/28/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers REV QUAL	Data Qualifiers QUA CODE
Sample ID: IOD2049-01 (DRAFT: Outfall 018 - Water) - cont.										
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5E02067	0.30	0.50	ND	1	05/02/05	05/02/05	U	
Biochemical Oxygen Demand	EPA 405.1	5D29091	0.59	2.0	**9.7**	1	04/29/05	05/04/05		
Chloride	EPA 300.0	5D28116	0.26	0.50	**30**	1	04/28/05	04/29/05		
Nitrate/Nitrite-N	EPA 300.0	5D28116	0.075	0.15	**0.17**	1	04/28/05	04/29/05		
Oil & Grease	EPA 413.1	5E04036	0.94	5.0	ND	1	05/04/05	05/04/05	U	
Sulfate	EPA 300.0	5D28116	0.90	2.5	**85**	5	04/28/05	04/29/05		
Surfactants (MBAS)	EPA 425.1	5D28122	0.044	0.10	**0.059**	1	04/28/05	04/28/05	J	DNQ
Total Dissolved Solids	EPA 160.1	5D29129	10	10	**320**	1	04/29/05	04/29/05		
Total Suspended Solids	EPA 160.2	5E04071	10	10	**48**	1	05/04/05	05/04/05		
Sample ID: IOD2049-01 (DRAFT: Outfall 018 - Water)										
Reporting Units: ml/l/hr										
Total Settleable Solids	EPA 160.5	5D29094	0.10	0.10	ND	1	04/29/05	04/29/05	U	
Sample ID: IOD2049-01 (DRAFT: Outfall 018 - Water)										
Reporting Units: NTU										
Turbidity	EPA 180.1	5D29110	0.080	2.0	**42**	2	04/29/05	04/29/05		
Sample ID: IOD2049-01 (DRAFT: Outfall 018 - Water)										
Reporting Units: ug/l										
Total Cyanide	EPA 335.2	5D29078	2.2	5.0	ND	1	04/29/05	04/29/05	U	
Perchlorate	EPA 314.0	5D29065	0.80	4.0	ND	1	04/29/05	04/30/05	*	
Sample ID: IOD2049-01 (DRAFT: Outfall 018 - Water)										
Reporting Units: umhos/cm										
Specific Conductance	EPA 120.1	5D29130	1.0	1.0	**450**	1	04/29/05	04/29/05		

AMEC VALIDATED

LEVEL IV

*Analysis Not Validated

DRAFT REPORT
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LABORATORY REPORT

Prepared For: MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project: Routine Outfall 002

Sampled: 05/05/05
Received: 05/05/05
Issued: 07/01/05 16:21

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

LABORATORY ID	CLIENT ID	MATRIX
IOE0358-01	Outfall 002	Water
IOE0358-02	Trip Blank	Water

Reviewed By:

Michele Harper

Del Mar Analytical, Irvine
Michele Harper
Project Manager

Del Mar Analytical

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE0358-01 (Outfall 002 - Water)					**Sampled: 05/05/05**				
Reporting Units: ug/l									
Benzene	EPA 624	5E10014	0.28	2.0	ND	1	05/10/05	05/10/05	
Carbon tetrachloride	EPA 624	5E10014	0.28	5.0	ND	1	05/10/05	05/10/05	
Chloroform	EPA 624	5E10014	0.33	2.0	ND	1	05/10/05	05/10/05	
1,1-Dichloroethane	EPA 624	5E10014	0.27	2.0	ND	1	05/10/05	05/10/05	
1,2-Dichloroethane	EPA 624	5E10014	0.28	2.0	ND	1	05/10/05	05/10/05	
1,1-Dichloroethene	EPA 624	5E10014	0.32	3.0	ND	1	05/10/05	05/10/05	
Ethylbenzene	EPA 624	5E10014	0.25	2.0	ND	1	05/10/05	05/10/05	
Tetrachloroethene	EPA 624	5E10014	0.32	2.0	ND	1	05/10/05	05/10/05	
Toluene	EPA 624	5E10014	0.36	2.0	ND	1	05/10/05	05/10/05	
1,1,1-Trichloroethane	EPA 624	5E10014	0.30	2.0	ND	1	05/10/05	05/10/05	
1,1,2-Trichloroethane	EPA 624	5E10014	0.30	2.0	ND	1	05/10/05	05/10/05	
Trichloroethene	EPA 624	5E10014	0.26	5.0	ND	1	05/10/05	05/10/05	
Trichlorofluoromethane	EPA 624	5E10014	0.34	5.0	ND	1	05/10/05	05/10/05	
Vinyl chloride	EPA 624	5E10014	0.26	5.0	ND	1	05/10/05	05/10/05	
Xylenes, Total	EPA 624	5E10014	0.52	4.0	ND	1	05/10/05	05/10/05	
Surrogate: Dibromofluoromethane (80-120%)					*114 %*				
Surrogate: Toluene-d8 (80-120%)					*103 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*103 %*				
Sample ID: IOE0358-02 (Trip Blank - Water)					**Sampled: 05/05/05**				
Reporting Units: ug/l									
Benzene	EPA 624	5E11004	0.28	2.0	ND	1	05/11/05	05/11/05	
Carbon tetrachloride	EPA 624	5E11004	0.28	5.0	ND	1	05/11/05	05/11/05	
Chloroform	EPA 624	5E11004	0.33	2.0	ND	1	05/11/05	05/11/05	
1,1-Dichloroethane	EPA 624	5E11004	0.27	2.0	ND	1	05/11/05	05/11/05	
1,2-Dichloroethane	EPA 624	5E11004	0.28	2.0	ND	1	05/11/05	05/11/05	
1,1-Dichloroethene	EPA 624	5E11004	0.32	3.0	ND	1	05/11/05	05/11/05	
Ethylbenzene	EPA 624	5E11004	0.25	2.0	ND	1	05/11/05	05/11/05	
Tetrachloroethene	EPA 624	5E11004	0.32	2.0	ND	1	05/11/05	05/11/05	
Toluene	EPA 624	5E11004	0.36	2.0	ND	1	05/11/05	05/11/05	
1,1,1-Trichloroethane	EPA 624	5E11004	0.30	2.0	ND	1	05/11/05	05/11/05	
1,1,2-Trichloroethane	EPA 624	5E11004	0.30	2.0	ND	1	05/11/05	05/11/05	
Trichloroethene	EPA 624	5E11004	0.26	5.0	ND	1	05/11/05	05/11/05	
Trichlorofluoromethane	EPA 624	5E11004	0.34	5.0	ND	1	05/11/05	05/11/05	
Vinyl chloride	EPA 624	5E11004	0.26	5.0	ND	1	05/11/05	05/11/05	
Xylenes, Total	EPA 624	5E11004	0.52	4.0	ND	1	05/11/05	05/11/05	
Surrogate: Dibromofluoromethane (80-120%)					*100 %*				
Surrogate: Toluene-d8 (80-120%)					*104 %*				
Surrogate: 4-Bromofluorobenzene (80-120%)					*98 %*				

Del Mar Analytical, Irvine
Michele Harper
Project Manager

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

ACID & BASE/NEUTRALS BY GC/MS (EPA 625)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE0358-01 (Outfall 002 - Water)					**Sampled: 05/05/05**				
Reporting Units: ug/l									
Bis(2-ethylhexyl)phthalate	EPA 625	5E09040	1.1	5.0	ND	0.957	05/09/05	05/12/05	
2,4-Dinitrotoluene	EPA 625	5E09040	0.23	9.0	ND	0.957	05/09/05	05/12/05	
N-Nitrosodimethylamine	EPA 625	5E09040	0.22	8.0	ND	0.957	05/09/05	05/12/05	
Pentachlorophenol	EPA 625	5E09040	0.78	8.0	ND	0.957	05/09/05	05/12/05	
2,4,6-Trichlorophenol	EPA 625	5E09040	0.10	6.0	ND	0.957	05/09/05	05/12/05	
Surrogate: 2-Fluorophenol (30-120%)					*64 %*				
Surrogate: Phenol-d6 (35-120%)					*64 %*				
Surrogate: 2,4,6-Tribromophenol (45-120%)					*81 %*				
Surrogate: Nitrobenzene-d5 (45-120%)					*68 %*				
Surrogate: 2-Fluorobiphenyl (45-120%)					*71 %*				
Surrogate: Terphenyl-d14 (45-120%)					*76 %*				

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Michele Harper
Project Manager

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE0358-01 (Outfall 002 - Water) - cont.					**Sampled: 05/05/05**				
Reporting Units: ug/l									
alpha-BHC	EPA 608	5E06083	0.0010	0.010	ND	0.98	05/06/05	05/10/05	
Surrogate: Decachlorobiphenyl (45-120%)					*71 %*				
Surrogate: Tetrachloro-m-xylene (35-115%)					*48 %*				

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002
Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

METALS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE0358-01 (Outfall 002 - Water) - cont.					**Sampled: 05/05/05**				
Reporting Units: ug/l									
Copper	EPA 200.8	5E05129	0.49	2.0	**2.0**	1	05/05/05	05/06/05	
Lead	EPA 200.8	5E05129	0.13	1.0	**0.54**	1	05/05/05	05/06/05	B, L, J
Mercury	EPA 245.1	5E06058	0.063	0.20	ND	1	05/06/05	05/06/05	

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

INORGANICS

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOE0358-01 (Outfall 002 - Water) - cont.					**Sampled: 05/05/05**				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5E10082	0.30	0.50	ND	1	05/10/05	05/10/05	
Biochemical Oxygen Demand	EPA 405.1	5E05069	0.59	2.0	**1.0**	1	05/05/05	05/10/05	J
Chloride	EPA 300.0	5E05126	2.6	5.0	**39**	10	05/05/05	05/06/05	
Nitrate/Nitrite-N	EPA 300.0	5E05126	0.072	0.26	ND	1	05/05/05	05/06/05	
Oil & Grease	EPA 413.1	5E06041	0.94	5.0	ND	1	05/06/05	05/06/05	
Sulfate	EPA 300.0	5E05126	1.8	5.0	**230**	10	05/05/05	05/06/05	
Surfactants (MBAS)	SM5540-C	5E05131	0.044	0.10	ND	1	05/05/05	05/05/05	
Total Dissolved Solids	SM2540C	5E05110	10	10	**640**	1	05/05/05	05/05/05	
Total Suspended Solids	EPA 160.2	5E11092	10	10	ND	1	05/11/05	05/11/05	
Sample ID: IOE0358-01 (Outfall 002 - Water)					**Sampled: 05/05/05**				
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5E06104	0.10	0.10	ND	1	05/06/05	05/06/05	
Sample ID: IOE0358-01 (Outfall 002 - Water)					**Sampled: 05/05/05**				
Reporting Units: NTU									
Turbidity	EPA 180.1	5E06087	0.040	1.0	**1.7**	1	05/06/05	05/06/05	
Sample ID: IOE0358-01 (Outfall 002 - Water)					**Sampled: 05/05/05**				
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5E06064	2.2	5.0	ND	1	05/06/05	05/06/05	
Perchlorate	EPA 314.0	5E10060	0.80	4.0	ND	1	05/10/05	05/10/05	C
Sample ID: IOE0358-01 (Outfall 002 - Water)					**Sampled: 05/05/05**				
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5E09096	1.0	1.0	**960**	1	05/09/05	05/09/05	

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Michele Harper
Project Manager

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 002 (IOE0358-01) - Water					
EPA 160.5	2	05/05/2005 13:05	05/05/2005 18:15	05/06/2005 20:05	05/06/2005 21:05
EPA 180.1	2	05/05/2005 13:05	05/05/2005 18:15	05/06/2005 13:00	05/06/2005 14:00
EPA 300.0	2	05/05/2005 13:05	05/05/2005 18:15	05/05/2005 23:30	05/06/2005 02:32
EPA 405.1	2	05/05/2005 13:05	05/05/2005 18:15	05/05/2005 20:00	05/10/2005 14:40
SM5540-C	2	05/05/2005 13:05	05/05/2005 18:15	05/05/2005 22:00	05/05/2005 23:18

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E10014 Extracted: 05/10/05											
Blank Analyzed: 05/10/2005 (5E10014-BLK1)											
Benzene	ND	2.0	0.28	ug/l							
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l							
Carbon tetrachloride	ND	5.0	0.28	ug/l							
Chloroform	ND	2.0	0.33	ug/l							
1,1-Dichloroethane	ND	2.0	0.27	ug/l							
1,2-Dichloroethane	ND	2.0	0.28	ug/l							
1,1-Dichloroethene	ND	3.0	0.32	ug/l							
Ethylbenzene	ND	2.0	0.25	ug/l							
Tetrachloroethene	ND	2.0	0.32	ug/l							
Toluene	ND	2.0	0.36	ug/l							
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l							
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l							
Trichloroethene	ND	5.0	0.26	ug/l							
Trichlorofluoromethane	ND	5.0	0.34	ug/l							
Vinyl chloride	ND	5.0	0.26	ug/l							
Xylenes, Total	ND	4.0	0.52	ug/l							
Surrogate: Dibromofluoromethane	*26.2*			*ug/l*	*25.0*		*105*	*80-120*			
Surrogate: Toluene-d8	*25.9*			*ug/l*	*25.0*		*104*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*25.3*			*ug/l*	*25.0*		*101*	*80-120*			
LCS Analyzed: 05/10/2005 (5E10014-BS1)											
Benzene	23.8	2.0	0.28	ug/l	25.0		95	70-120			
Carbon tetrachloride	28.7	5.0	0.28	ug/l	25.0		115	70-140			
Chloroform	24.6	2.0	0.33	ug/l	25.0		98	75-130			
1,1-Dichloroethane	23.8	2.0	0.27	ug/l	25.0		95	70-135			
1,2-Dichloroethane	25.4	2.0	0.28	ug/l	25.0		102	60-150			
1,1-Dichloroethene	23.3	3.0	0.32	ug/l	25.0		93	75-135			
Ethylbenzene	22.3	2.0	0.25	ug/l	25.0		89	80-120			
Tetrachloroethene	22.0	2.0	0.32	ug/l	25.0		88	75-125			
Toluene	23.4	2.0	0.36	ug/l	25.0		94	75-120			
1,1,1-Trichloroethane	25.4	2.0	0.30	ug/l	25.0		102	75-140			
1,1,2-Trichloroethane	24.4	2.0	0.30	ug/l	25.0		98	70-125			
Trichloroethene	23.1	5.0	0.26	ug/l	25.0		92	80-120			
Trichlorofluoromethane	24.4	5.0	0.34	ug/l	25.0		98	65-145			
Vinyl chloride	20.0	5.0	0.26	ug/l	25.0		80	50-130			
Surrogate: Dibromofluoromethane	*27.8*			*ug/l*	*25.0*		*111*	*80-120*			

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E10014 Extracted: 05/10/05											
LCS Analyzed: 05/10/2005 (5E10014-BS1)											
Surrogate: Toluene-d8	*26.4*			*ug/l*	*25.0*		*106*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*26.2*			*ug/l*	*25.0*		*105*	*80-120*			
Matrix Spike Analyzed: 05/10/2005 (5E10014-MS1)						**Source: IOE0452-02**					
Benzene	23.7	2.0	0.28	ug/l	25.0	ND	95	70-120			
Carbon tetrachloride	28.4	5.0	0.28	ug/l	25.0	ND	114	70-145			
Chloroform	24.6	2.0	0.33	ug/l	25.0	ND	98	70-135			
1,1-Dichloroethane	24.0	2.0	0.27	ug/l	25.0	0.41	94	65-135			
1,2-Dichloroethane	24.9	2.0	0.28	ug/l	25.0	ND	100	60-150			
1,1-Dichloroethene	22.9	3.0	0.32	ug/l	25.0	ND	92	65-140			
Ethylbenzene	21.7	2.0	0.25	ug/l	25.0	ND	87	70-130			
Tetrachloroethene	21.8	2.0	0.32	ug/l	25.0	ND	87	70-130			
Toluene	23.3	2.0	0.36	ug/l	25.0	ND	93	70-120			
1,1,1-Trichloroethane	25.4	2.0	0.30	ug/l	25.0	ND	102	75-140			
1,1,2-Trichloroethane	24.0	2.0	0.30	ug/l	25.0	ND	96	60-135			
Trichloroethene	22.7	5.0	0.26	ug/l	25.0	ND	91	70-125			
Trichlorofluoromethane	25.0	5.0	0.34	ug/l	25.0	ND	100	55-145			
Vinyl chloride	24.0	5.0	0.26	ug/l	25.0	4.5	78	40-135			
Surrogate: Dibromofluoromethane	*28.2*			*ug/l*	*25.0*		*113*	*80-120*			
Surrogate: Toluene-d8	*26.7*			*ug/l*	*25.0*		*107*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*26.2*			*ug/l*	*25.0*		*105*	*80-120*			
Matrix Spike Dup Analyzed: 05/10/2005 (5E10014-MSD1)						**Source: IOE0452-02**					
Benzene	23.5	2.0	0.28	ug/l	25.0	ND	94	70-120	1	20	
Carbon tetrachloride	28.3	5.0	0.28	ug/l	25.0	ND	113	70-145	0	25	
Chloroform	24.2	2.0	0.33	ug/l	25.0	ND	97	70-135	2	20	
1,1-Dichloroethane	23.8	2.0	0.27	ug/l	25.0	0.41	94	65-135	1	20	
1,2-Dichloroethane	24.3	2.0	0.28	ug/l	25.0	ND	97	60-150	2	20	
1,1-Dichloroethene	22.5	3.0	0.32	ug/l	25.0	ND	90	65-140	2	20	
Ethylbenzene	21.7	2.0	0.25	ug/l	25.0	ND	87	70-130	0	20	
Tetrachloroethene	21.3	2.0	0.32	ug/l	25.0	ND	85	70-130	2	20	
Toluene	23.0	2.0	0.36	ug/l	25.0	ND	92	70-120	1	20	
1,1,1-Trichloroethane	25.2	2.0	0.30	ug/l	25.0	ND	101	75-140	1	20	
1,1,2-Trichloroethane	23.5	2.0	0.30	ug/l	25.0	ND	94	60-135	2	25	
Trichloroethene	22.3	5.0	0.26	ug/l	25.0	ND	89	70-125	2	20	
Trichlorofluoromethane	24.9	5.0	0.34	ug/l	25.0	ND	100	55-145	0	25	

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MWH-Pasadena/Boeing
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Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E10014 Extracted: 05/10/05											
Matrix Spike Dup Analyzed: 05/10/2005 (5E10014-MSD1)						**Source: IOE0452-02**					
Vinyl chloride	24.6	5.0	0.26	ug/l	25.0	4.5	80	40-135	2	30	
Surrogate: Dibromofluoromethane	*27.9*			*ug/l*	*25.0*		*112*	*80-120*			
Surrogate: Toluene-d8	*26.4*			*ug/l*	*25.0*		*106*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*26.5*			*ug/l*	*25.0*		*106*	*80-120*			
Batch: 5E11004 Extracted: 05/11/05											
Blank Analyzed: 05/11/2005 (5E11004-BLK1)											
Benzene	ND	2.0	0.28	ug/l							
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l							
Carbon tetrachloride	ND	5.0	0.28	ug/l							
Chloroform	ND	2.0	0.33	ug/l							
1,1-Dichloroethane	ND	2.0	0.27	ug/l							
1,2-Dichloroethane	ND	2.0	0.28	ug/l							
1,1-Dichloroethene	ND	3.0	0.32	ug/l							
Ethylbenzene	ND	2.0	0.25	ug/l							
Tetrachloroethene	ND	2.0	0.32	ug/l							
Toluene	ND	2.0	0.36	ug/l							
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l							
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l							
Trichloroethene	ND	5.0	0.26	ug/l							
Trichlorofluoromethane	ND	5.0	0.34	ug/l							
Vinyl chloride	ND	5.0	0.26	ug/l							
Xylenes, Total	ND	4.0	0.52	ug/l							
Surrogate: Dibromofluoromethane	*24.7*			*ug/l*	*25.0*		*99*	*80-120*			
Surrogate: Toluene-d8	*26.0*			*ug/l*	*25.0*		*104*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*24.6*			*ug/l*	*25.0*		*98*	*80-120*			

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Received: 05/05/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E11004 Extracted: 05/11/05											
LCS Analyzed: 05/11/2005 (5E11004-BS1)											
Benzene	23.4	2.0	0.28	ug/l	25.0		94	70-120			
Carbon tetrachloride	20.6	5.0	0.28	ug/l	25.0		82	70-140			
Chloroform	22.1	2.0	0.33	ug/l	25.0		88	75-130			
1,1-Dichloroethane	22.3	2.0	0.27	ug/l	25.0		89	70-135			
1,2-Dichloroethane	20.2	2.0	0.28	ug/l	25.0		81	60-150			
1,1-Dichloroethene	23.3	3.0	0.32	ug/l	25.0		93	75-135			
Ethylbenzene	22.7	2.0	0.25	ug/l	25.0		91	80-120			
Tetrachloroethene	21.9	2.0	0.32	ug/l	25.0		88	75-125			
Toluene	22.4	2.0	0.36	ug/l	25.0		90	75-120			
1,1,1-Trichloroethane	20.4	2.0	0.30	ug/l	25.0		82	75-140			
1,1,2-Trichloroethane	23.0	2.0	0.30	ug/l	25.0		92	70-125			
Trichloroethene	22.3	5.0	0.26	ug/l	25.0		89	80-120			
Trichlorofluoromethane	18.0	5.0	0.34	ug/l	25.0		72	65-145			
Vinyl chloride	13.8	5.0	0.26	ug/l	25.0		55	50-130			
Surrogate: Dibromofluoromethane	*24.8*			*ug/l*	*25.0*		*99*	*80-120*			
Surrogate: Toluene-d8	*25.9*			*ug/l*	*25.0*		*104*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*24.5*			*ug/l*	*25.0*		*98*	*80-120*			
Matrix Spike Analyzed: 05/11/2005 (5E11004-MS1)						**Source: IOE0121-07**					
Benzene	22.1	2.0	0.28	ug/l	25.0	ND	88	70-120			
Carbon tetrachloride	21.6	5.0	0.28	ug/l	25.0	ND	86	70-145			
Chloroform	22.4	2.0	0.33	ug/l	25.0	ND	90	70-135			
1,1-Dichloroethane	21.9	2.0	0.27	ug/l	25.0	ND	88	65-135			
1,2-Dichloroethane	20.8	2.0	0.28	ug/l	25.0	ND	83	60-150			
1,1-Dichloroethene	21.9	3.0	0.32	ug/l	25.0	ND	88	65-140			
Ethylbenzene	22.4	2.0	0.25	ug/l	25.0	ND	90	70-130			
Tetrachloroethene	21.7	2.0	0.32	ug/l	25.0	ND	87	70-130			
Toluene	21.5	2.0	0.36	ug/l	25.0	ND	86	70-120			
1,1,1-Trichloroethane	21.1	2.0	0.30	ug/l	25.0	ND	84	75-140			
1,1,2-Trichloroethane	21.6	2.0	0.30	ug/l	25.0	ND	86	60-135			
Trichloroethene	22.4	5.0	0.26	ug/l	25.0	0.88	86	70-125			
Trichlorofluoromethane	19.7	5.0	0.34	ug/l	25.0	ND	79	55-145			
Vinyl chloride	15.9	5.0	0.26	ug/l	25.0	ND	64	40-135			
Surrogate: Dibromofluoromethane	*25.6*			*ug/l*	*25.0*		*102*	*80-120*			
Surrogate: Toluene-d8	*25.8*			*ug/l*	*25.0*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*25.1*			*ug/l*	*25.0*		*100*	*80-120*			

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Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E11004 Extracted: 05/11/05											
Matrix Spike Dup Analyzed: 05/11/2005 (5E11004-MSD1)						**Source: IOE0121-07**					
Benzene	20.2	2.0	0.28	ug/l	25.0	ND	81	70-120	9	20	
Carbon tetrachloride	19.4	5.0	0.28	ug/l	25.0	ND	78	70-145	11	25	
Chloroform	19.5	2.0	0.33	ug/l	25.0	ND	78	70-135	14	20	
1,1-Dichloroethane	19.3	2.0	0.27	ug/l	25.0	ND	77	65-135	13	20	
1,2-Dichloroethane	19.0	2.0	0.28	ug/l	25.0	ND	76	60-150	9	20	
1,1-Dichloroethene	19.6	3.0	0.32	ug/l	25.0	ND	78	65-140	11	20	
Ethylbenzene	19.8	2.0	0.25	ug/l	25.0	ND	79	70-130	12	20	
Tetrachloroethene	19.2	2.0	0.32	ug/l	25.0	ND	77	70-130	12	20	
Toluene	19.6	2.0	0.36	ug/l	25.0	ND	78	70-120	9	20	
1,1,1-Trichloroethane	19.0	2.0	0.30	ug/l	25.0	ND	76	75-140	10	20	
1,1,2-Trichloroethane	20.4	2.0	0.30	ug/l	25.0	ND	82	60-135	6	25	
Trichloroethene	20.0	5.0	0.26	ug/l	25.0	0.88	76	70-125	11	20	
Trichlorofluoromethane	17.1	5.0	0.34	ug/l	25.0	ND	68	55-145	14	25	
Vinyl chloride	13.2	5.0	0.26	ug/l	25.0	ND	53	40-135	19	30	
Surrogate: Dibromofluoromethane	*25.3*			*ug/l*	*25.0*		*101*	*80-120*			
Surrogate: Toluene-d8	*26.0*			*ug/l*	*25.0*		*104*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*25.3*			*ug/l*	*25.0*		*101*	*80-120*			

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Project ID: Routine Outfall 002
Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

METHOD BLANK/QC DATA

ACID & BASE/NEUTRALS BY GC/MS (EPA 625)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E09040 Extracted: 05/09/05											
Blank Analyzed: 05/12/2005 (5E09040-BLK1)											
Bis(2-ethylhexyl)phthalate	ND	5.0	1.1	ug/l							
2,4-Dinitrotoluene	ND	9.0	0.23	ug/l							
N-Nitrosodimethylamine	ND	8.0	0.22	ug/l							
Pentachlorophenol	ND	8.0	0.78	ug/l							
2,4,6-Trichlorophenol	ND	6.0	0.10	ug/l							
Surrogate: 2-Fluorophenol	*12.9*			*ug/l*	*20.0*		*64*	*30-120*			
Surrogate: Phenol-d6	*12.6*			*ug/l*	*20.0*		*63*	*35-120*			
Surrogate: 2,4,6-Tribromophenol	*15.1*			*ug/l*	*20.0*		*76*	*45-120*			
Surrogate: Nitrobenzene-d5	*6.48*			*ug/l*	*10.0*		*65*	*45-120*			
Surrogate: 2-Fluorobiphenyl	*7.14*			*ug/l*	*10.0*		*71*	*45-120*			
Surrogate: Terphenyl-d14	*8.12*			*ug/l*	*10.0*		*81*	*45-120*			
LCS Analyzed: 05/12/2005 (5E09040-BS1)											**M-NR1**
Bis(2-ethylhexyl)phthalate	8.04	5.0	1.1	ug/l	10.0		80	60-130			
2,4-Dinitrotoluene	7.38	9.0	0.23	ug/l	10.0		74	60-120			*J*
N-Nitrosodimethylamine	6.86	8.0	0.22	ug/l	10.0		69	40-120			*J*
Pentachlorophenol	8.06	8.0	0.78	ug/l	10.0		81	50-120			
2,4,6-Trichlorophenol	8.18	6.0	0.10	ug/l	10.0		82	60-120			
Surrogate: 2-Fluorophenol	*12.0*			*ug/l*	*20.0*		*60*	*30-120*			
Surrogate: Phenol-d6	*12.4*			*ug/l*	*20.0*		*62*	*35-120*			
Surrogate: 2,4,6-Tribromophenol	*15.7*			*ug/l*	*20.0*		*78*	*45-120*			
Surrogate: Nitrobenzene-d5	*6.46*			*ug/l*	*10.0*		*65*	*45-120*			
Surrogate: 2-Fluorobiphenyl	*7.20*			*ug/l*	*10.0*		*72*	*45-120*			
Surrogate: Terphenyl-d14	*7.42*			*ug/l*	*10.0*		*74*	*45-120*			
LCS Dup Analyzed: 05/12/2005 (5E09040-BSD1)											
Bis(2-ethylhexyl)phthalate	8.90	5.0	1.1	ug/l	10.0		89	60-130	10	20	
2,4-Dinitrotoluene	8.04	9.0	0.23	ug/l	10.0		80	60-120	9	20	*J*
N-Nitrosodimethylamine	7.42	8.0	0.22	ug/l	10.0		74	40-120	8	20	*J*
Pentachlorophenol	8.54	8.0	0.78	ug/l	10.0		85	50-120	6	25	
2,4,6-Trichlorophenol	8.98	6.0	0.10	ug/l	10.0		90	60-120	9	20	
Surrogate: 2-Fluorophenol	*13.9*			*ug/l*	*20.0*		*70*	*30-120*			
Surrogate: Phenol-d6	*14.1*			*ug/l*	*20.0*		*70*	*35-120*			
Surrogate: 2,4,6-Tribromophenol	*17.0*			*ug/l*	*20.0*		*85*	*45-120*			
Surrogate: Nitrobenzene-d5	*7.26*			*ug/l*	*10.0*		*73*	*45-120*			
Surrogate: 2-Fluorobiphenyl	*8.18*			*ug/l*	*10.0*		*82*	*45-120*			

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METHOD BLANK/QC DATA

ACID & BASE/NEUTRALS BY GC/MS (EPA 625)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E09040 Extracted: 05/09/05											
LCS Dup Analyzed: 05/12/2005 (5E09040-BSD1)											
Surrogate: Terphenyl-d14	*7.86*			*ug/l*	*10.0*		*79*	*45-120*			

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METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E06083 Extracted: 05/06/05											
Blank Analyzed: 05/10/2005 (5E06083-BLK1)											
alpha-BHC	ND	0.010	0.0010	ug/l							
Surrogate: Decachlorobiphenyl	*0.378*			*ug/l*	*0.500*		*76*	*45-120*			
Surrogate: Tetrachloro-m-xylene	*0.294*			*ug/l*	*0.500*		*59*	*35-115*			
LCS Analyzed: 05/10/2005 (5E06083-BS1)											
alpha-BHC	0.302	0.010	0.0010	ug/l	0.500		60	45-115			
Surrogate: Decachlorobiphenyl	*0.356*			*ug/l*	*0.500*		*71*	*45-120*			
Surrogate: Tetrachloro-m-xylene	*0.291*			*ug/l*	*0.500*		*58*	*35-115*			
LCS Dup Analyzed: 05/10/2005 (5E06083-BSD1)											
alpha-BHC	0.343	0.010	0.0010	ug/l	0.500		69	45-115	13	30	
Surrogate: Decachlorobiphenyl	*0.394*			*ug/l*	*0.500*		*79*	*45-120*			
Surrogate: Tetrachloro-m-xylene	*0.301*			*ug/l*	*0.500*		*60*	*35-115*			

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E05129 Extracted: 05/05/05											
Blank Analyzed: 05/06/2005 (5E05129-BLK1)											
Copper	ND	2.0	0.49	ug/l							
Lead	0.306	1.0	0.13	ug/l							J
LCS Analyzed: 05/06/2005 (5E05129-BS1)											
Copper	86.9	2.0	0.49	ug/l	80.0		109	85-115			
Lead	92.5	1.0	0.13	ug/l	80.0		116	85-115			L
Matrix Spike Analyzed: 05/06/2005 (5E05129-MS1)						**Source: IOE0358-01**					
Copper	76.0	2.0	0.49	ug/l	80.0	2.0	92	70-130			
Lead	83.0	1.0	0.13	ug/l	80.0	0.54	103	70-130			
Matrix Spike Dup Analyzed: 05/06/2005 (5E05129-MSD1)						**Source: IOE0358-01**					
Copper	75.6	2.0	0.49	ug/l	80.0	2.0	92	70-130	1	20	
Lead	80.9	1.0	0.13	ug/l	80.0	0.54	100	70-130	3	20	
Batch: 5E06058 Extracted: 05/06/05											
Blank Analyzed: 05/06/2005 (5E06058-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 05/06/2005 (5E06058-BS1)											
Mercury	7.99	0.20	0.063	ug/l	8.00		100	85-115			
Matrix Spike Analyzed: 05/06/2005 (5E06058-MS1)						**Source: IOE0336-01**					
Mercury	7.74	0.20	0.063	ug/l	8.00	ND	97	70-130			
Matrix Spike Dup Analyzed: 05/06/2005 (5E06058-MSD1)						**Source: IOE0336-01**					
Mercury	7.67	0.20	0.063	ug/l	8.00	ND	96	70-130	1	20	

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E05069 Extracted: 05/05/05											
Blank Analyzed: 05/10/2005 (5E05069-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 05/10/2005 (5E05069-BS1)											
Biochemical Oxygen Demand	201	100	30	mg/l	198		102	85-115			
LCS Dup Analyzed: 05/10/2005 (5E05069-BSD1)											
Biochemical Oxygen Demand	198	100	30	mg/l	198		100	85-115	2	20	
Batch: 5E05110 Extracted: 05/05/05											
Blank Analyzed: 05/05/2005 (5E05110-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 05/05/2005 (5E05110-BS1)											
Total Dissolved Solids	962	10	10	mg/l	1000		96	90-110			
Duplicate Analyzed: 05/05/2005 (5E05110-DUP1)						**Source: IOE0233-01**					
Total Dissolved Solids	1610	10	10	mg/l		1600			1	10	
Batch: 5E05126 Extracted: 05/05/05											
Blank Analyzed: 05/05/2005 (5E05126-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E05126 Extracted: 05/05/05											
LCS Analyzed: 05/05/2005 (5E05126-BS1)											
Chloride	4.80	0.50	0.26	mg/l	5.00		96	90-110			
Sulfate	9.64	0.50	0.18	mg/l	10.0		96	90-110			
Matrix Spike Analyzed: 05/06/2005 (5E05126-MS1)						**Source: IOE0373-01**					
Chloride	37.5	1.0	0.52	mg/l	5.00	32	110	80-120			
Sulfate	42.9	1.0	0.36	mg/l	10.0	33	99	80-120			
Matrix Spike Dup Analyzed: 05/06/2005 (5E05126-MSD1)						**Source: IOE0373-01**					
Chloride	37.9	1.0	0.52	mg/l	5.00	32	118	80-120	1	20	
Sulfate	43.5	1.0	0.36	mg/l	10.0	33	105	80-120	1	20	
Batch: 5E05131 Extracted: 05/05/05											
Blank Analyzed: 05/05/2005 (5E05131-BLK1)											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
LCS Analyzed: 05/05/2005 (5E05131-BS1)											
Surfactants (MBAS)	0.253	0.10	0.044	mg/l	0.250		101	90-110			
Matrix Spike Analyzed: 05/05/2005 (5E05131-MS1)						**Source: IOE0278-01**					
Surfactants (MBAS)	0.257	0.10	0.044	mg/l	0.250	0.047	84	50-125			
Matrix Spike Dup Analyzed: 05/05/2005 (5E05131-MSD1)						**Source: IOE0278-01**					
Surfactants (MBAS)	0.263	0.10	0.044	mg/l	0.250	0.047	86	50-125	2	20	
Batch: 5E06041 Extracted: 05/06/05											
Blank Analyzed: 05/06/2005 (5E06041-BLK1)											
Oil & Grease	1.10	5.0	0.94	mg/l							J

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E06041 Extracted: 05/06/05											
LCS Analyzed: 05/06/2005 (5E06041-BS1)											**M-NR1**
Oil & Grease	22.0	5.0	0.94	mg/l	20.0		110	65-120			
LCS Dup Analyzed: 05/06/2005 (5E06041-BSD1)											
Oil & Grease	18.3	5.0	0.94	mg/l	20.0		92	65-120	18	20	
Batch: 5E06064 Extracted: 05/06/05											
Blank Analyzed: 05/06/2005 (5E06064-BLK1)											
Total Cyanide	ND	5.0	2.2	ug/l							
LCS Analyzed: 05/06/2005 (5E06064-BS1)											
Total Cyanide	183	5.0	2.2	ug/l	200		92	90-110			
Matrix Spike Analyzed: 05/06/2005 (5E06064-MS1)						**Source: IOE0287-06**					
Total Cyanide	178	5.0	2.2	ug/l	200	ND	89	70-115			
Matrix Spike Dup Analyzed: 05/06/2005 (5E06064-MSD1)						**Source: IOE0287-06**					
Total Cyanide	179	5.0	2.2	ug/l	200	ND	90	70-115	1	15	
Batch: 5E06087 Extracted: 05/06/05											
Blank Analyzed: 05/06/2005 (5E06087-BLK1)											
Turbidity	0.0400	1.0	0.040	NTU							*J*
Duplicate Analyzed: 05/06/2005 (5E06087-DUP1)						**Source: IOE0336-01**					
Turbidity	4.29	1.0	0.040	NTU		4.3			0	20	

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Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E09096 Extracted: 05/09/05											
Duplicate Analyzed: 05/09/2005 (5E09096-DUP1)						**Source: IOE0358-01**					
Specific Conductance	953	1.0	1.0	umhos/cm		960			1	5	
Batch: 5E10060 Extracted: 05/10/05											
Blank Analyzed: 05/10/2005 (5E10060-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 05/10/2005 (5E10060-BS1)											
Perchlorate	48.9	4.0	0.80	ug/l	50.0		98	85-115			
Matrix Spike Analyzed: 05/10/2005 (5E10060-MS1)						**Source: IOE0554-03**					
Perchlorate	52.9	4.0	0.80	ug/l	50.0	ND	106	80-120			
Matrix Spike Dup Analyzed: 05/10/2005 (5E10060-MSD1)						**Source: IOE0554-03**					
Perchlorate	51.3	4.0	0.80	ug/l	50.0	ND	103	80-120	3	20	
Batch: 5E10082 Extracted: 05/10/05											
Blank Analyzed: 05/10/2005 (5E10082-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
LCS Analyzed: 05/10/2005 (5E10082-BS1)											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0		95	80-115			
Matrix Spike Analyzed: 05/10/2005 (5E10082-MS1)						**Source: IOE0529-04**					
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	ND	95	70-120			

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5E10082 Extracted: 05/10/05											
Matrix Spike Dup Analyzed: 05/10/2005 (5E10082-MSD1)						**Source: IOE0529-04**					
Ammonia-N (Distilled)	9.24	0.50	0.30	mg/l	10.0	ND	92	70-120	3	15	
Batch: 5E11092 Extracted: 05/11/05											
Blank Analyzed: 05/11/2005 (5E11092-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 05/11/2005 (5E11092-BS1)											
Total Suspended Solids	991	10	10	mg/l	1000		99	85-115			
Duplicate Analyzed: 05/11/2005 (5E11092-DUP1)						**Source: IOE0441-01**					
Total Suspended Solids	ND	10	10	mg/l		ND				10	

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300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits appear in bold on this page.

LabNumber	Analysis	Analyte	Units	Result	MRL	Compliance Limit
IOE0358-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.67	5.0	10.00
IOE0358-01	608-Pest Boeing 001/002 Q (LL)	alpha-BHC	ug/l	0	0.010	0.0100
IOE0358-01	624-Boeing 001/002 Q (Fr113+X)	1,1-Dichloroethene	ug/l	0	3.0	3.20
IOE0358-01	624-Boeing 001/002 Q (Fr113+X)	Trichloroethene	ug/l	0	5.0	5.00
IOE0358-01	625-Boeing 001/002 Q-LL	2,4,6-Trichlorophenol	ug/l	0	6.0	6.50
IOE0358-01	625-Boeing 001/002 Q-LL	2,4-Dinitrotoluene	ug/l	0	9.0	9.10
IOE0358-01	625-Boeing 001/002 Q-LL	Bis(2-ethylhexyl)phthalate	ug/l	0.27	5.0	4.00
IOE0358-01	625-Boeing 001/002 Q-LL	N-Nitrosodimethylamine	ug/l	0	8.0	8.10
IOE0358-01	625-Boeing 001/002 Q-LL	Pentachlorophenol	ug/l	0	8.0	8.20
IOE0358-01	BOD	Biochemical Oxygen Demand	mg/l	1.00	2.0	20
IOE0358-01	Chloride - 300.0	Chloride	mg/l	39	5.0	150
IOE0358-01	Copper-200.8	Copper	ug/l	2.00	2.0	7.10
IOE0358-01	Cyanide-335.2 5ppb	Total Cyanide	ug/l	-4	5.0	4.30
IOE0358-01	Lead-200.8	Lead	ug/l	0.54	1.0	2.60
IOE0358-01	MBAS - SM5540-C	Surfactants (MBAS)	mg/l	0.0095	0.10	0.50
IOE0358-01	Mercury - 245.1	Mercury	ug/l	0	0.20	0.20
IOE0358-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.0091	0.26	8.00
IOE0358-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IOE0358-01	Sulfate-300.0	Sulfate	mg/l	230	5.0	300
IOE0358-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	640	10	950
IOE0358-02	624-Boeing 001/002 Q (Fr113+X)	1,1-Dichloroethene	ug/l	0	3.0	3.20
IOE0358-02	624-Boeing 001/002 Q (Fr113+X)	Trichloroethene	ug/l	0	5.0	5.00

Del Mar Analytical, Irvine
Michele Harper
Project Manager

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Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002
Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

DATA QUALIFIERS AND DEFINITIONS

B	Analyte was detected in the associated Method Blank.
C	Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
J	Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.
L	Laboratory Control Sample recovery was above the method control limits. Analyte not detected, data not impacted.
M-NR1	There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
ND	Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
RPD	Relative Percent Difference

Del Mar Analytical, Irvine
Michele Harper
Project Manager

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MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 120.1	Water	X	X
EPA 160.2	Water	X	X
EPA 160.5	Water	X	X
EPA 180.1	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	N/A	X
EPA 335.2	Water	X	X
EPA 350.2	Water		X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 608	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
SM2540C	Water	X	X
SM5540-C	Water	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laboratory or visiting our website at www.dmalabs.com.

Subcontracted Laboratories

Alta Analytical *California Cert #1640, Nevada Cert #CA-413*
1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
Samples: IOE0358-01

Analysis Performed: EDD + Level 4
Samples: IOE0358-01

Del Mar Analytical, Irvine
Michele Harper
Project Manager

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

424-1 IOE0358

Del Mar Analytical Version 02/17/05 — CHAIN OF CUSTODY FORM

Client Name/Address:	Project:
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101	Boeing-SSFL NPDES **Routine Outfall 002**
Project Manager: Bronwyn Kelly Sampler: Bonnga Pollock	Phone Number: (626) 568-6691 Fax Number: (626) 568-6515

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle * #	Total Recoverable Metals: Cu, Pb, Hg,	Settleable Solids	VOCs 624 + xylenes	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cyanide (total recoverable)	BOD5(20 degrees C)	Surfactants (MBAS)	Cl-, SO4, NO3+NO2-N, Perchlorate	Turbidity,TDS, TSS, Conductivity	Ammonia-N	Alpha BHC (608)	2,4,6 Trichlorophenol, 2,4 Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, pentachlorophenol (EPA 625)		Comments
Outfall 002	W	Poly-1 liter	1	5-5-05 13:05	HNO3	1A	X														24 TAT
Outfall 002-Dup	W	Poly-1 liter	1		HNO3	1B	X														24 TAT
Outfall 002	W	Poly-1 liter	1		None	2		X													
Outfall 002	W	VOAs	3		HCl	3A, 3B, 3C			X												
Outfall 002	W	Glass-Amber	2		None	4A, 4B				X											
Outfall 002	W	1L Amber	2		HCl	5A, 5B					X										24 TAT
Outfall 002	W	Poly-500 ml	1		NaOH	6						X									24 TAT
Outfall 002	W	Poly-1 liter	1		None	7							X								
Outfall 002	W	Poly-500 ml	2		None	8A, 8B								X							
Outfall 002	W	Poly-500 ml	2		None	9A, 9B									X						
Outfall 002	W	Poly-500 ml	2		None	10A, 10B										X					
Outfall 002	W	Poly-500 ml	1		H2SO4	11											X				
Outfall 002	W	1L Amber	2		None	12A, 12B												X			
Outfall 002	W	1L Amber	2		None	13A, 13B													X		
Trip Blank	W	VOAs	3		HCl	14A, 14B, 14C			X												

ANALYSIS REQUIRED

Field readings: Temp = 64.2 pH = 7.9

Relinquished By	Date/Time:	Received By	Date/Time:
[signature]	5-5-05 1535	[signature]	5/5/05 1535
[signature]	5/5/05 1815	[signature]	5/5/05 1815
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
24 Hours ____ 5 Days ____
48 Hours ____ 10 Days ____
72 Hours ____ Normal ____
Perchlorate Only 72 Hours ____
Metals Only 72 Hours ____
Sample Integrity: (Check)
Intact X On Ice: 1C

Del Mar Analytical

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June 20, 2005

MWH- Pasadena / Boeing
300 North Lake Avenue, Suite 1200
Pasadena , CA 91101

Attention: Bronwyn Kelly

Project: Routine Outfall 002
Sampled: 05/05/05
Del Mar Analytical Number: IOE0358

Dear Ms. Kelly:

Alta Analytical Laboratories performed the EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	Del Mar ID	Alta ID
Outfall 002	IOE0358-01	26144-001

Attached is the original report from the subcontract laboratory. If you have any questions or require further assistance, please do not hesitate to contact me at (949) 261-1022, extension 215.

Sincerely yours,

DEL MAR ANALYTICAL

Michele Harper
Project Manager

Enclosure

ALTA

May 27, 2005

Alta Project I.D.: 26144

Ms. Michele Harper
Del Mar Analytical, Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614

Dear Ms. Harper,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on May 07, 2005 under your Project Name "IOE0358". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

An "A" qualifier indicates that the result is greater than the low point in the calibration curve, but lower than the EPA Method 1613 Minimum Level.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha Maier

Martha M. Maier
Director of HRMS Services

ACCREDITED IN ACCORDANCE WITH NELAC
The laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.
nelap

Alta Analytical Laboratory Inc.
1104 Windfield Way
El Dorado Hills, CA 95762
FAX (916) 673-0106
(916) 933-1640

ALTA

Section I: Sample Inventory Report

Date Received: **5/7/2005**

Alta Lab. ID	Client Sample ID
26144-001	IOE0358-01

SECTION II

ALTA

Method Blank

EPA Method 1613

Matrix: Aqueous | QC Batch No.: 6796 | Lab Sample: 0-MB001

Sample Size: 1.000 L | Date Extracted: 19-May-05 | Date Analyzed DB-5: 20-May-05 | Date Analyzed DB-225: NA

Analyte	Conc. (ug/L)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.00000109		
1,2,3,7,8-PeCDD	ND	0.00000115		
1,2,3,4,7,8-HxCDD	ND	0.00000207		
1,2,3,6,7,8-HxCDD	ND	0.00000201		
1,2,3,7,8,9-HxCDD	ND	0.00000193		
1,2,3,4,6,7,8-HpCDD	ND	0.00000181		
OCDD	ND	0.00000550		
2,3,7,8-TCDF	ND	0.00000127		
1,2,3,7,8-PeCDF	ND	0.00000131		
2,3,4,7,8-PeCDF	ND	0.00000113		
1,2,3,4,7,8-HxCDF	ND	0.000000482		
1,2,3,6,7,8-HxCDF	ND	0.000000469		
2,3,4,6,7,8-HxCDF	ND	0.000000487		
1,2,3,7,8,9-HxCDF	ND	0.000000733		
1,2,3,4,6,7,8-HpCDF	ND	0.00000102		
1,2,3,4,7,8,9-HpCDF	ND	0.00000117		
OCDF	ND	0.00000302		

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	75.1	25 - 164	
	13C-1,2,3,7,8-PeCDD	79.1	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	83.7	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	83.3	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	85.9	23 - 140	
	13C-OCDD	66.6	17 - 157	
	13C-2,3,7,8-TCDF	76.1	24 - 169	
	13C-1,2,3,7,8-PeCDF	73.9	24 - 185	
	13C-2,3,4,7,8-PeCDF	75.3	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	76.6	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	80.9	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	84.6	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	79.6	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	80.9	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	83.6	26 - 138	
	13C-OCDF	71.4	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	86.5	35 - 197	

Totals

Total TCDD	ND	0.00000109
Total PeCDD	ND	0.00000115
Total HxCDD	ND	0.00000200
Total HpCDD	ND	0.00000181
Total TCDF	ND	0.00000127
Total PeCDF	ND	0.00000122
Total HxCDF	ND	0.000000532
Total HpCDF	ND	0.00000109

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

Analyst: JMH

Approved By: William J. Luksemburg 27-May-2005 12:10

ALTA

OPR Results — **EPA Method 1613**

Matrix:	Aqueous	QC Batch No.:	6796	Lab Sample:	0-OPR001		
Sample Size:	1.000 L	Date Extracted:	19-May-05	Date Analyzed DB-5:	20-May-05	Date Analyzed DB-225:	NA

Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits
2,3,7,8-TCDD	10.0	10.5	6.7 - 15.8
1,2,3,7,8-PeCDD	50.0	50.8	35 - 71
1,2,3,4,7,8-HxCDD	50.0	48.7	35 - 82
1,2,3,6,7,8-HxCDD	50.0	50.9	38 - 67
1,2,3,7,8,9-HxCDD	50.0	46.2	32 - 81
1,2,3,4,6,7,8-HpCDD	50.0	48.9	35 - 70
OCDD	100	100	78 - 144
2,3,7,8-TCDF	10.0	11.1	7.5 - 15.8
1,2,3,7,8-PeCDF	50.0	51.3	40 - 67
2,3,4,7,8-PeCDF	50.0	51.7	34 - 80
1,2,3,4,7,8-HxCDF	50.0	50.2	36 - 67
1,2,3,6,7,8-HxCDF	50.0	51.2	42 - 65
2,3,4,6,7,8-HxCDF	50.0	49.9	35 - 78
1,2,3,7,8,9-HxCDF	50.0	51.7	39 - 65
1,2,3,4,6,7,8-HpCDF	50.0	51.1	41 - 61
1,2,3,4,7,8,9-HpCDF	50.0	51.0	39 - 69
OCDF	100	99.4	63 - 170

	Labeled Standard	%R	LCL-UCL
IS	13C-2,3,7,8-TCDD	70.6	25 - 164
	13C-1,2,3,7,8-PeCDD	68.2	25 - 181
	13C-1,2,3,4,7,8-HxCDD	82.5	32 - 141
	13C-1,2,3,6,7,8-HxCDD	81.4	28 - 130
	13C-1,2,3,4,6,7,8-HpCDD	74.7	23 - 140
	13C-OCDD	54.1	17 - 157
	13C-2,3,7,8-TCDF	72.6	24 - 169
	13C-1,2,3,7,8-PeCDF	66.0	24 - 185
	13C-2,3,4,7,8-PeCDF	67.0	21 - 178
	13C-1,2,3,4,7,8-HxCDF	76.6	26 - 152
	13C-1,2,3,6,7,8-HxCDF	80.1	26 - 123
	13C-2,3,4,6,7,8-HxCDF	80.9	28 - 136
	13C-1,2,3,7,8,9-HxCDF	76.3	29 - 147
	13C-1,2,3,4,6,7,8-HpCDF	72.2	28 - 143
	13C-1,2,3,4,7,8,9-HpCDF	73.4	26 - 138
	13C-OCDF	58.0	17 - 157
CRS	37Cl-2,3,7,8-TCDD	88.5	35 - 197

Analyst: JMH

Approved By: William J. Luksemburg 27-May-2005 12:10

ALTA

Sample ID: IOE0358-01 **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26144-001	Date Received:	7-May-05
Project:	IOE0358	Sample Size:	1.006 L	QC Batch No.:	6796	Date Extracted:	19-May-05
Date Collected:	5-May-05			Date Analyzed DB-5:	21-May-05	Date Analyzed DB-225:	NA
Time Collected:	1305						

Analyte	Conc. (ug/L)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.00000124		
1,2,3,7,8-PeCDD	ND	0.000000985		
1,2,3,4,7,8-HxCDD	ND	0.00000141		
1,2,3,6,7,8-HxCDD	ND	0.00000138		
1,2,3,7,8,9-HxCDD	ND	0.00000132		
1,2,3,4,6,7,8-HpCDD	0.00000203			A
OCDD	0.0000115			A
2,3,7,8-TCDF	ND	0.00000134		
1,2,3,7,8-PeCDF	ND	0.00000114		
2,3,4,7,8-PeCDF	ND	0.000000978		
1,2,3,4,7,8-HxCDF	ND	0.000000464		
1,2,3,6,7,8-HxCDF	ND	0.000000444		
2,3,4,6,7,8-HxCDF	ND	0.000000501		
1,2,3,7,8,9-HxCDF	ND	0.000000705		
1,2,3,4,6,7,8-HpCDF	ND	0.000000742		
1,2,3,4,7,8,9-HpCDF	ND	0.000000789		
OCDF	ND	0.00000238		

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	81.1	25 - 164	
	13C-1,2,3,7,8-PeCDD	83.5	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	89.6	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	87.1	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	90.8	23 - 140	
	13C-OCDD	74.6	17 - 157	
	13C-2,3,7,8-TCDF	80.4	24 - 169	
	13C-1,2,3,7,8-PeCDF	80.1	24 - 185	
	13C-2,3,4,7,8-PeCDF	81.3	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	81.1	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	83.7	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	86.6	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	84.5	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	85.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	89.1	26 - 138	
	13C-OCDF	80.1	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	89.6	35 - 197	

Totals

Total TCDD	ND	0.00000124
Total PeCDD	ND	0.000000985
Total HxCDD	ND	0.00000137
Total HpCDD	0.00000203	
Total TCDF	ND	0.00000134
Total PeCDF	ND	0.00000105
Total HxCDF	ND	0.000000519
Total HpCDF	ND	0.000000762

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

Analyst: JMH

Approved By: William J. Luksemburg 27-May-2005 12:10

APPENDIX

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical Interference
J	The amount detected is below the Lower Calibration Limit of the instrument.
P	Homologue totals include any coplanar PCBs detected at concentrations less than the reporting limit.
*	See Cover Letter
Conc.	Concentration
DL	Sample-specific estimated detection limit
MDL	The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero in the matrix tested.
EMPC	Estimated Maximum Possible Concentration
NA	Not applicable
RL	Reporting Limit – concentrations that correspond to low calibration point
ND	Not Detected
TEQ	Toxic Equivalency

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

The control limits are "interim limits only" until in-house limits are utilized.

NELAP — (Primary AA: California, Certificate No. 02102CA)

Department of the Navy

U.S. Army Corps of Engineers

U.S. EPA Region 5

Bureau of Reclamation — Mid-Pacific Region — (MP-470, Res-1.10)

Commonwealth of Kentucky — (Certificate No. 90063)

Commonwealth of Virginia — (Certificate No. 00013)

State of Alaska, Department of Environmental Conservation — (Certificate No. OS-00197)

State of Arizona — (Certificate No. AZ0639)

State of Arkansas, Department of Health — (Approval granted through CA certification)

State of Arkansas, Department of Environmental Quality

State of California — (Certificate No. 1640)

State of Colorado

State of Connecticut — (Certificate No. PH-0182)

State of Florida — (Certificate No. 87456)

State of Louisiana, Department of Health and Hospitals — (Certificate No. LA000014)

State of Louisiana, Department of Environmental Quality

State of Maine

State of Michigan (Certificate No. 81178087)

State of Mississippi — (Approval granted through CA certification)

State of Nevada — (Certificate No. CA413)

State of New Jersey — (Certificate No. CA003)

State of New York, Department of Health — (Certificate No. 11411)

State of North Carolina — (Certification No. 06700)

State of North Dakota, Department of Health — (Certificate No. R-078)

State of New Mexico

State of Oklahoma – (D9919)

State of Oregon – (Certificate No. CA413)

State of Pennsylvania — (Certificate No. 68-490)

State of South Carolina — (Certificate No. 87002001)

State of Tennessee — (Certificate No. 02996)

State of Texas — (Certificate No. TX247-1000A

State of Utah — (Certificate No. E-201)

State of Washington – (Certification No. C091)

State of Wisconsin — (Certificate No. 998036160)

State of Wyoming — (USEPA Region 8 Ref: 8TMS-Q)

Del Mar Analytical

17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046
9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689
9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOE0358

SENDING LABORATORY:

Del Mar Analytical, Irvine
17461 Derian Avenue. Suite 100
Irvine, CA 92614
Phone: (949) 261-1022
Fax: (949) 261-1228
Project Manager: Michele Harper

RECEIVING LABORATORY:

Alta Analytical
1104 Windfield Way
El Dorado Hills, CA 95762
Phone :(916) 933-1640
Fax: (916) 673-0106

26144
2.5°C

Standard TAT is requested unless specific due date is requested => Due Date: _____ **Initials:** _____

Analysis	Expiration	Comments
Sample ID: IOE0358-01 Water	**Sampled: 05/05/05 13:05**	**Instant Nofication**
1613-Dioxin-HR	05/12/05 13:05	J flags,17 congeners,no TEQ,sub=Alta, DP to AMEC
EDD + Level 4	06/02/05 13:05	Excel EDD email to pm,Include Std logs for Lvl IV

Containers Supplied:
1 L Amber (IOE0358-01G)
1 L Amber (IOE0358-01H)

SAMPLE INTEGRITY:

All containers Intact: ☒ Yes ☐ No
Custody Seals Present: ☐ Yes ☒ No
Sample labels/COC agree: ☒ Yes ☐ No
Samples Preserved Properly: ☒ Yes ☐ No
Samples Received On Ice:: ☒ Yes ☐ No
Samples Received at (temp): 2.5°C

Released By	Date	Time	Received By	Date	Time
	5.6.05	17:00	Christine Vreeburg	5/7/05	1100

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 26144

		YES	NO	NA
1.	Date Samples Arrived: 5/7/05 1100 Initials: CW Location: WR-2			
2.	Time / Date logged in: 1420 5/12/05 Initials: BAB Location: WR-2			
3.	Samples Arrived By: (circle) (FedEx) UPS World Courier Other:			
4.	Shipping Preservation: (circle) (Ice) / Blue Ice / Dry Ice / None Temp °C 2.5°			
5.	Shipping Container(s) Intact? If not, describe condition in comment section.	✓		
6.	Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓ ✓		
7.	Shipping Documentation Present? (circle) Shipping Label (Airbill) Tracking Number 7900 1391 3388			
8.	Sample Custody Seal(s) Present? No. of Seals_____ or Seal No. Intact? If not intact, describe condition in comment section.		✓	✓
9.	Sample Container Intact? If no, indicate sample condition in comment section.	✓		
10.	Chain of Custody (COC) or other Sample Documentation Present?	✓		
11.	COC/Documentation Acceptable? If no, complete COC Anomaly Form.	✓		
12.	Shipping Container (circle): ALTA (Client) Retain or (Return) or Disposed			
13.	Container(s) and/or Bottle(s) Requested?		✓	✓
14.	Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted			✓ ✓

Comments:

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Laboratory Alta
Reviewer H. Chang
Analysis/Method Dioxin & Furans/1613

Package ID T711DF49
Task Order 313150010
SDG No. IOE0358
No. of Analyses 1

Date: June 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.,**	Detects below the method minimum level were qualified "J."
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[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

NPDES
Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUP: IOE0358

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 #:	IOE0358
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Dioxins/Furans
QC Level:	Level IV
No. of Samples:	1
No. of Reanalyses/Dilutions:	0
Reviewer:	H. Chang
Date of Review:	June 15, 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 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
Outfall 002	IOE0358-01	26144-001	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

The sample in this SDG was received at Del Mar Analytical below the temperature limits of 4°C ±2°C at 1°C; however, as the sample was not noted to have been damaged, no qualifications were required. The sample was shipped to Alta for dioxin/furan analysis and was received within the temperature limits of 4°C ±2°C. According to the laboratory login sheets, 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 sample was couriered directly to Del Mar Analytical, a custody seal was not required. The cooler received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA ID was added to the sample result summary by the reviewer. No qualifications were required.

2.1.3 Holding Times

The sample was 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 04/23/05. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was 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 and end 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 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 (6796-MB001) was extracted and analyzed with the sample in this SDG. 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 (6796-OPR001) was extracted and analyzed with the sample in this SDG. 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 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 sample in this SDG had no associated 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 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. The laboratory noted that detects above the low point of the calibration curve but below the EPA Method 1613 minimum level were denoted by an "A" laboratory qualifier. However, all results with "A" qualifier were actually below the low point of the calibration curve. Any detects below the method minimum level were qualified as estimated, "J." If the concentration of any component of the total was below the lower method calibration level (MCL), the total detect was qualified as estimated, "J." The results and reporting limits were reported in µg/L. No further qualifications were required.

ALTA

Sample ID: IOE0358-01 Outfall 002

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	26144-001	Date Received:	7-May-05
Project:	IOE0358	Sample Size:	1.006 L	QC Batch No.:	6796	Date Extracted:	19-May-05
Date Collected:	5-May-05			Date Analyzed DB-5:	21-May-05	Date Analyzed DB-225:	NA
Time Collected:	1305						

Rev Qual	Qual Code	Analyte	Conc. (ug/L)	DL [a]	EMPC [b]	Qualifiers
U		2,3,7,8-TCDD	ND	0.00000124		
		1,2,3,7,8-PeCDD	ND	0.000000985		
		1,2,3,4,7,8-HxCDD	ND	0.00000141		
		1,2,3,6,7,8-HxCDD	ND	0.00000138		
		1,2,3,7,8,9-HxCDD	ND	0.00000132		
J	DNQ	1,2,3,4,6,7,8-HpCDD	0.00000203			A
J	DNQ	OCDD	0.0000115			A
U		2,3,7,8-TCDF	ND	0.00000134		
		1,2,3,7,8-PeCDF	ND	0.00000114		
		2,3,4,7,8-PeCDF	ND	0.000000978		
		1,2,3,4,7,8-HxCDF	ND	0.000000464		
		1,2,3,6,7,8-HxCDF	ND	0.000000444		
		2,3,4,6,7,8-HxCDF	ND	0.000000501		
		1,2,3,7,8,9-HxCDF	ND	0.000000705		
		1,2,3,4,6,7,8-HpCDF	ND	0.000000742		
		1,2,3,4,7,8,9-HpCDF	ND	0.000000789		
		OCDF	ND	0.00000238		
		Totals				
U		Total TCDD	ND	0.00000124		
		Total PeCDD	ND	0.000000985		
		Total HxCDD	ND	0.00000137		
J	DNQ	Total HpCDD	0.00000203			
U		Total TCDF	ND	0.00000134		
		Total PeCDF	ND	0.00000105		
		Total HxCDF	ND	0.000000519		
		Total HpCDF	ND	0.000000762		

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	81.1	25 - 164	
	13C-1,2,3,7,8-PeCDD	83.5	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	89.6	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	87.1	28 - 130	
	13C-1,2,3,4,6,7,8-HpCDD	90.8	23 - 140	
	13C-OCDD	74.6	17 - 157	
	13C-2,3,7,8-TCDF	80.4	24 - 169	
	13C-1,2,3,7,8-PeCDF	80.1	24 - 185	
	13C-2,3,4,7,8-PeCDF	81.3	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	81.1	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	83.7	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	86.6	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	84.5	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	85.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	89.1	26 - 138	
	13C-OCDF	80.1	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	89.6	35 - 197	

Footnotes

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

AMEC VALIDATED

LEVEL IV

Analyst: JMH

Approved By: William J. Luksemburg 27-May-2005 12:10

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Laboratory Del Mar
Reviewer M. Pokorny
Analysis/Method Volatiles

Package ID T711VO108
Task Order 313150010
SDG No. IOE0358
No. of Analyses 2

Date: June 29, 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.,**	Qualification required for calibration outlier.
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[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

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOE0358

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
SDG#:	IOE0358
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	Volatiles
QC Level:	Level IV
No. of Samples:	2
No. of Reanalyses/Dilutions:	0
Reviewer:	M. Pokorny
Date of Review:	June 29, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2), EPA Method 624,* and the *National Functional Guidelines For Organic Data Review* (2/94). Any deviations from these procedures 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 summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 002	Outfall 002	IOE0358-01	water	624
Trip Blank	Trip Blank	IOE0358-02	water	624

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C. The samples were properly preserved. The COC noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel. The COC accounted for the analyses presented in this SDG. As the samples were couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

The samples were analyzed within 14 days of collection. No qualifications were required.

2.2 GC/MS TUNING

The ion abundance windows shown on the quantitation reports were consistent with those specified in EPA Method 624, and all ion abundances were within the established windows. The samples and associated QC were analyzed within 12 hours of the BFB injection time. The BFB summary report was verified from the raw data and no discrepancies between the summary report and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

Two initial calibrations dated 04/29/05 and 05/04/05 were associated with this SDG. The average RRFs were ≥0.05 for the target compounds listed on the sample result summaries. The %RSDs were ≤35% for all applicable target compounds. Two continuing calibrations dated 05/10/05 and 05/11/05 were associated with the sample analyses in this SDG. For the continuing calibration dated 05/10/05, the %Ds for all target compounds were ≤20% in the continuing calibration except for the %D for carbon tetrachloride. Carbon tetrachloride was qualified as an estimated nondetect, "UJ," in the site sample of this SDG. For the continuing calibration dated 05/11/05, the %Ds for all target compounds were ≤20%. The RRFs were ≥0.05 for the target compounds listed on the sample result summaries in both calibrations. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibrations were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

2.4 BLANKS

Two water method blank (5E10014-BLK1 and 5E11004-BLK1) were associated with the sample analyses. There were no detects above the MDLs for the target compounds listed on the sample result summaries. The method blank raw data showed no evidence of false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Two water blank spikes (5E10014-BS1 and 5E11004-BS1) were associated with the sample analyses. All recoveries were within the laboratory-established QC limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

The surrogates were recovered within the QC limits of 80-120% in the samples and associated QC. A representative number of surrogate recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

An MS/MSD was not analyzed with this SDG. Method accuracy was evaluated based on blank spike results. No qualifications were required.

2.8 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site sample. Following are findings associated with field QC samples:

2.8.1 Trip Blanks

Sample Trip Blank was the trip blank associated with this SDG. There were no target compounds detected above the MDLs in the trip blank. No qualifications were required.

2.8.2 Field Blanks and Equipment Rinsates

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

2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.

2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for the samples in this SDG were within the control limits established by the continuing calibration standards: +100%/-50% for internal standard areas and ±0.50 minutes for retention times. A representative number of internal standard areas and retention times were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed for 5 volatile target compounds by EPA Method 624. Chromatograms, retention times, and spectra for the samples and QC were examined and no target compound identification problems were noted. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. The reporting limits were supported by the lowest concentrations of the initial calibration standard and by the MDL study. As there were no sample detects in this SDG, compound quantitation was verified by recalculating a representative number of blank spike and surrogate recoveries from the raw data. Results were reported in µg/L (ppb). No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not provide TICs for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

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

Del Mar Analytical

7461 Dehlin Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

MWH-Pasadena/Boeing
300 North Lake Avenue, Suite 1200
Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 002

Report Number: IOE0358

Sampled: 05/05/05
Received: 05/05/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	REV QUAL	QUAL CODE
Sample ID: IOE0358-01 (DRAFT: Outfall 002 - Water)											
Reporting Units: ug/l					**Sampled: 05/05/05**						
Benzene	EPA 624	5E10014	0.28	2.0	ND	1	05/10/05	05/10/05		U	
Carbon tetrachloride	EPA 624	5E10014	0.28	5.0	ND	1	05/10/05	05/10/05		UJ	C
Chloroform	EPA 624	5E10014	0.33	2.0	ND	1	05/10/05	05/10/05		U	
1,1-Dichloroethane	EPA 624	5E10014	0.27	2.0	ND	1	05/10/05	05/10/05			
1,2-Dichloroethane	EPA 624	5E10014	0.28	2.0	ND	1	05/10/05	05/10/05			
1,1-Dichloroethene	EPA 624	5E10014	0.32	3.0	ND	1	05/10/05	05/10/05			
Ethylbenzene	EPA 624	5E10014	0.25	2.0	ND	1	05/10/05	05/10/05			
Tetrachloroethene	EPA 624	5E10014	0.32	2.0	ND	1	05/10/05	05/10/05			
Toluene	EPA 624	5E10014	0.36	2.0	ND	1	05/10/05	05/10/05			
1,1,1-Trichloroethane	EPA 624	5E10014	0.30	2.0	ND	1	05/10/05	05/10/05			
1,1,2-Trichloroethane	EPA 624	5E10014	0.30	2.0	ND	1	05/10/05	05/10/05			
Trichloroethene	EPA 624	5E10014	0.26	5.0	ND	1	05/10/05	05/10/05			
Trichlorofluoromethane	EPA 624	5E10014	0.34	5.0	ND	1	05/10/05	05/10/05			
Vinyl chloride	EPA 624	5E10014	0.26	5.0	ND	1	05/10/05	05/10/05			
Xylenes, Total	EPA 624	5E10014	0.52	4.0	ND	1	05/10/05	05/10/05			
Surrogate: Dibromofluoromethane (80-120%)					*114 %*						
Surrogate: Toluene-d8 (80-120%)					*103 %*						
Surrogate: 4-Bromofluorobenzene (80-120%)					*103 %*						
Sample ID: IOE0358-02 (DRAFT: Trip Blank - Water)											
Reporting Units: ug/l					**Sampled: 05/05/05**						
Benzene	EPA 624	5E11004	0.28	2.0	ND	1	05/11/05	05/11/05		U	
Carbon tetrachloride	EPA 624	5E11004	0.28	5.0	ND	1	05/11/05	05/11/05			
Chloroform	EPA 624	5E11004	0.33	2.0	ND	1	05/11/05	05/11/05			
1,1-Dichloroethane	EPA 624	5E11004	0.27	2.0	ND	1	05/11/05	05/11/05			
1,2-Dichloroethane	EPA 624	5E11004	0.28	2.0	ND	1	05/11/05	05/11/05			
1,1-Dichloroethene	EPA 624	5E11004	0.32	3.0	ND	1	05/11/05	05/11/05			
Ethylbenzene	EPA 624	5E11004	0.25	2.0	ND	1	05/11/05	05/11/05			
Tetrachloroethene	EPA 624	5E11004	0.32	2.0	ND	1	05/11/05	05/11/05			
Toluene	EPA 624	5E11004	0.36	2.0	ND	1	05/11/05	05/11/05			
1,1,1-Trichloroethane	EPA 624	5E11004	0.30	2.0	ND	1	05/11/05	05/11/05			
1,1,2-Trichloroethane	EPA 624	5E11004	0.30	2.0	ND	1	05/11/05	05/11/05			
Trichloroethene	EPA 624	5E11004	0.26	5.0	ND	1	05/11/05	05/11/05			
Trichlorofluoromethane	EPA 624	5E11004	0.34	5.0	ND	1	05/11/05	05/11/05			
Vinyl chloride	EPA 624	5E11004	0.26	5.0	ND	1	05/11/05	05/11/05			
Xylenes, Total	EPA 624	5E11004	0.52	4.0	ND	1	05/11/05	05/11/05			
Surrogate: Dibromofluoromethane (80-120%)					*100 %*						
Surrogate: Toluene-d8 (80-120%)					*104 %*						
Surrogate: 4-Bromofluorobenzene (80-120%)					*98 %*						

AMEC VALIDATED

DRAFT REPORT
DRAFT REPORT
DATA SUBJECT TO CHANGE

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

LEVEL IV

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Laboratory Del Mar
Reviewer P. Meeks
Analysis/Method General Minerals

Package ID T711WC154
Task Order 313150010
SDG No. IOE0358
No. of Analyses 1

Date: 06/15/05
Reviewer's Signature P. Meeks

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	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

COMMENTS[b]	Acceptable as reviewed.

[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: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOE0358

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 #:	IOE0358
Project Manager:	B. McIlvaine
Matrix:	Water
Analysis:	General Minerals
QC Level:	Level IV
No. of Samples:	1
Reviewer:	P. Meeks
Date of Review:	June 15, 2005

The sample listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures* SOP DVP-6, Rev. 2, *USEPA Methods for Chemical Analysis of Water and Wastes Method 350.2, 120.1, and 180.1*, and validation guidelines outlined in the USEPA *Contract Laboratory Program 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 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	Laboratory ID	Matrix	COC Method
Outfall 002	Outfall 002	IOE0358-01	Water	General Minerals

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ± 2°C. No preservation problems were noted by the laboratory. No qualifications were required.

2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel. The COC accounted for all analyses presented in this SDG. No sample qualifications were required.

2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analyses. The 28-day analytical holding time for ammonia and conductivity, and the 48-hour holding time for turbidity were met. No qualifications were required.

2.2 CALIBRATION

For turbidity, the initial calibration correlation coefficient was ≥0.995. All continuing calibration information was acceptable with recoveries within the control limits of 90-110%. For ammonia, no information regarding the standardization of the titrant was provided; however, the LCS recovery was within the CCV control limits. Calibration is not applicable to conductivity analysis. No qualifications were required.

2.3 BLANKS

Turbidity was detected in method blank 5E06087-BLK1, but not at sufficient concentration to qualify the site sample. The ammonia method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the sample were nondetects at the reporting limit. Blank analyses are not applicable to conductivity. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ammonia laboratory control sample recovery was within the laboratory-established control limits of 80-115%. The LCS is not applicable to turbidity or conductivity. No qualifications were required.