

APPENDIX G - VOLUME 7 (Part 6 of 7)

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APPENDIX G

Section 30

March Outfall 004

AMEC Data Validation Reports

Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF36

Task Order 313150010

SDG No. Multiple

No. of Analyses 4

Laboratory Alta

Date: March 25, 2005

Reviewer K. Shadowlight

Reviewer's Signature


Analysis/Method Dioxins

ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were assigned for the following:
Holding Times	* EMPCs
GC/MS Tune/Inst. Performance	* Detects below the lower method calibration level
Calibration	
Method 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: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 4
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 25 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 001	IOC1042-01	25897-001	water	1613
Outfall 002	IOC0995-01	25899-001	water	1613
Outfall 004	IOC0450-01	25848-001	water	1613
Outfall 011	IOC0996-01	25898-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 1.2°C and 1.3°C ; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6613-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 (6613-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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." No further qualifications were required.



Sample ID: **IOC0450-01** Outfall 004 EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25848-001
Project:	IOC0450	Sample Size:	1,002 L	QC Batch No.:	6613
Date Collected:	4-Mar-05			Date Analyzed DB-5:	20-Mar-05
Time Collected:	1430			Date Analyzed DB-225:	NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCI ^d	Qualifiers
2,3,7,8-TCDD	ND	1.38			13C-2,3,7,8-TCDD	69.6	25 - 164	
1,2,3,7,8-PeCDD	ND	1.64			13C-1,2,3,7,8-PeCDD	62.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.56			13C-1,2,3,4,7,8-HxCDD	62.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.56			13C-1,2,3,6,7,8-HxCDD	67.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.55			13C-1,2,3,4,6,7,8-HpCDD	61.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	15.7			J	13C-OCDD	39.7	17 - 157	
OCDD	216				13C-2,3,7,8-TCDF	72.7	24 - 169	
2,3,7,8-TCDF	ND	1.54			13C-1,2,3,7,8-PeCDF	57.6	24 - 185	
1,2,3,7,8-PeCDF	ND	2.57			13C-2,3,4,7,8-PeCDF	61.0	21 - 178	
2,3,4,7,8-PeCDF	ND	2.28			13C-1,2,3,4,7,8-HxCDF	54.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.705			13C-1,2,3,6,7,8-HxCDF	59.9	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.692			13C-2,3,4,6,7,8-HxCDF	62.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.747			13C-1,2,3,7,8,9-HxCDF	60.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.13			13C-1,2,3,4,6,7,8-HpCDF	55.6	28 - 143	
1,2,3,4,6,7,8-HpCDF	2.98			J	13C-1,2,3,4,7,8,9-HpCDF	66.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.01			13C-OCDF	50.4	17 - 157	
OCDF	6.09			J	CRS 37Cl-2,3,7,8-TCDD	85.8	35 - 197	

Totals		Footnotes	
Total TCDD	ND	1.38	a. Sample specific estimated detection limit.
Total PeCDD	ND	1.64	b. Estimated maximum possible concentration.
Total HxCDD	ND	1.60	c. Method detection limit.
Total HpCDD	29.7		d. Lower control limit - upper control limit.
Total TCDF	ND	1.54	
Total PeCDF	ND	2.42	
Total HxCDF	5.57		
Total HpCDF	8.54	6.69	

Analyst: JMH
 Approved By: Martha M. Maier
 Date: 4/12/05
 Date: 22-Mar-2005 09:19
AMEC VALIDATED LEVEL IV
 Project 25848
 Page 6 of 12

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT47
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 5

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method Metals

Date: 03/29/05
 Reviewer's Signature
P. Meeks

ACTION ITEMS*

1. Case Narrative
 Deficiencies

2. Out of Scope
 Analyses

3. Analyses Not
 Conducted

4. Missing Hardcopy
 Deliverables

5. Incorrect Hardcopy
 Deliverables

6. Deviations from Analysis Protocol, e.g., Qualifications were applied for detects below the reporting limit.

Holding Times
 GC/MS Tune/Inst.

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

COMMENTS^b

* 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: METALS

SAMPLE DELIVERY GROUPS: IOC0449, IOC0450, IOC0451,
IOC0452 & IOC0453

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#: IOC0449, IOC0450, IOC0451, IOC0452 & IOC0453
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 29, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, and validation guidelines outlined in the *USEPA CLP 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 003	Outfall 003	IOC0449-01	water	ILM04
Outfall 004	Outfall 004	IOC0450-01	water	ILM04
Outfall 005	Outfall 005	IOC0451-01	water	ILM04
Outfall 006	Outfall 006	IOC0452-01	water	ILM04
Outfall 007	Outfall 007	IOC0453-01	water	ILM04

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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for all the samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

Lead was not detected in any of the blanks associated with these SDGs. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB standards were not analyzed in association with the samples in this SDG; therefore, no assessment can be made with respect to this criterion.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C08106-BS1 and the LCS result on the summary forms and in the raw data was within the laboratory-established ICP/MS control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Lead detected below the reporting limit was qualified as estimated, "J." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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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

Project ID: Routine Outfall 004
 Routine Outfall 004
 Report Number: IOC0450

Sampled: 03/04/05
 Received: 03/04/05

DRAFT: METALS

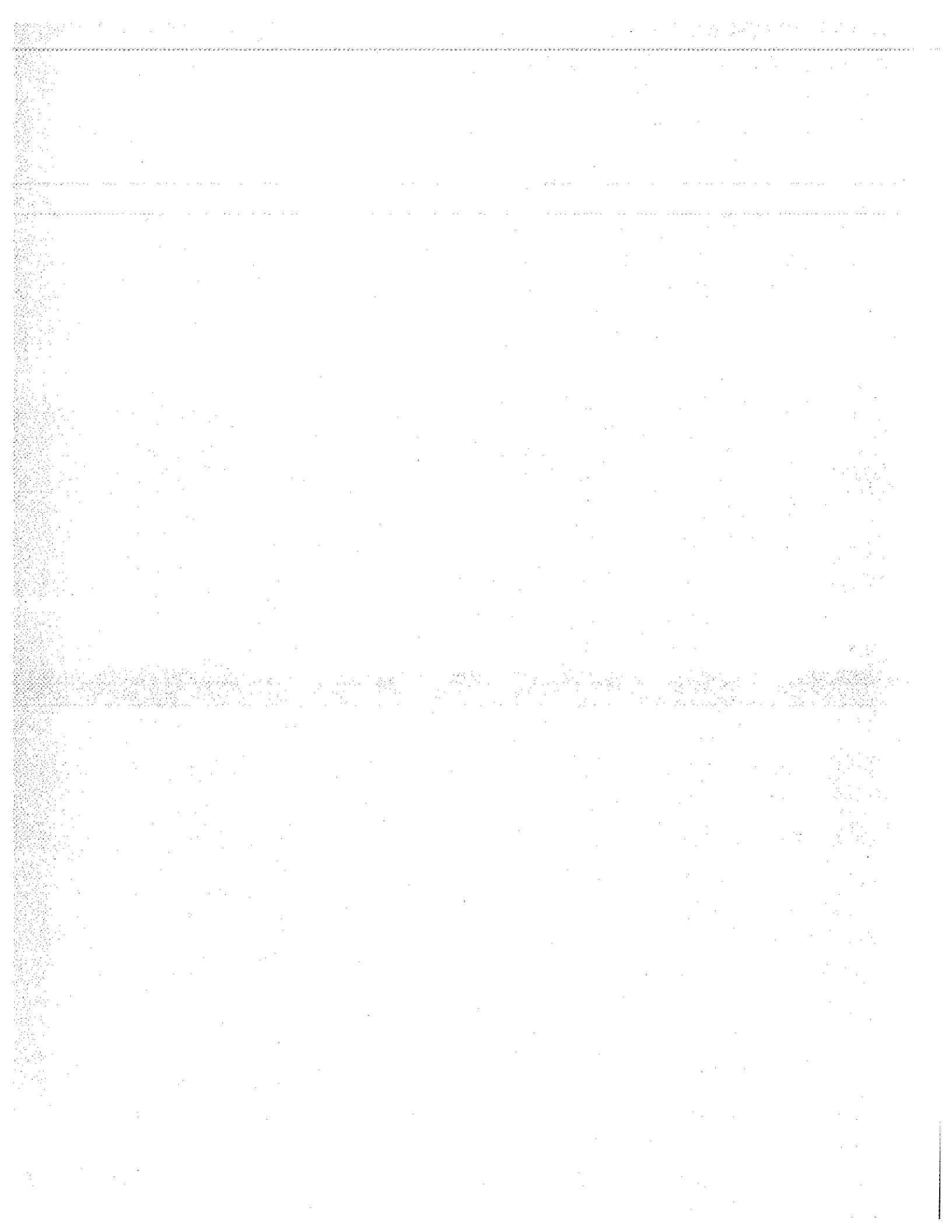
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOC0450-01 (DRAFT: Outfall 004 - Water)													
Reporting Units: ug/l													
Lead	EPA 200.8	5C08106	0.13	1.0	0.49	1	03/08/05	03/09/05	<table border="1"> <tr> <td>Res Qual</td> <td>Qual Code</td> </tr> <tr> <td>J J</td> <td>DNQ</td> </tr> </table>	Res Qual	Qual Code	J J	DNQ
Res Qual	Qual Code												
J J	DNQ												

RESULTS VALIDATED

L I V E L I V

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.





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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 004

Sampled: 03/04/05
 Received: 03/04/05
 Issued: 03/28/05 10:26

NELAP #01108CA California ELAP#1197 CSDLAC #10117

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.

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
 IOC0450-01

CLIENT ID
 Outfall 004

MATRIX
 Water

Reviewed By:

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 004

Report Number: IOC0450

Sampled: 03/04/05
 Received: 03/04/05

METALS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0450-01 (Outfall 004 - Water)								
Reporting Units: ug/l								
Antimony	EPA 200.8	5C08106	2.0	ND	1	3/8/2005	3/9/2005	
Cadmium	EPA 200.8	5C08106	1.0	0.040	1	3/8/2005	3/9/2005	J
Copper	EPA 200.8	5C08106	2.0	2.7	1	3/8/2005	3/9/2005	
Lead	EPA 200.8	5C08106	1.0	0.49	1	3/8/2005	3/9/2005	J
Mercury	EPA 245.1	5C09049	0.20	0.066	1	3/9/2005	3/9/2005	J

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 004

Report Number: IOC0450

Sampled: 03/04/05
 Received: 03/04/05

INORGANICS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0450-01 (Outfall 004 - Water)								
Reporting Units: mg/l								
Chloride	EPA 300.0	5C04107	0.50	3.5	1	3/4/2005	3/5/2005	
Nitrate/Nitrite-N	EPA 300.0	5C04107	0.11	1.1	1	3/4/2005	3/5/2005	
Oil & Grease	EPA 413.1	5C09091	5.0	1.0	1	3/9/2005	3/9/2005	B, J
Sulfate	EPA 300.0	5C04107	0.50	4.6	1	3/4/2005	3/5/2005	
Total Dissolved Solids	SM2540C	5C08110	10	110	1	3/8/2005	3/8/2005	
Total Suspended Solids	EPA 160.2	5C07073	10	ND	1	3/7/2005	3/7/2005	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 004

Report Number: IOC0450

Sampled: 03/04/05
 Received: 03/04/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 004 (IOC0450-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/04/2005 14:30	03/04/2005 17:50	03/04/2005 23:00	03/05/2005 01:16

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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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

Project ID: Routine Outfall 004

Report Number: IOC0450

Sampled: 03/04/05
 Received: 03/04/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C08106 Extracted: 03/08/05										
Blank Analyzed: 03/09/2005 (5C08106-BLK1)										
Antimony	ND	2.0	ug/l							
Cadmium	ND	1.0	ug/l							
Copper	ND	2.0	ug/l							
Lead	ND	1.0	ug/l							
LCS Analyzed: 03/09/2005 (5C08106-BS1)										
Antimony	90.7	2.0	ug/l	80.0		113	85-115			
Cadmium	86.3	1.0	ug/l	80.0		108	85-115			
Copper	78.1	2.0	ug/l	80.0		98	85-115			
Lead	84.0	1.0	ug/l	80.0		105	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C08106-MS1)										
					Source: IOC0448-01					
Antimony	92.4	2.0	ug/l	80.0	0.37	115	70-130			
Cadmium	81.1	1.0	ug/l	80.0	0.086	101	70-130			
Copper	79.4	2.0	ug/l	80.0	3.0	96	70-130			
Lead	79.6	1.0	ug/l	80.0	0.19	99	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C08106-MSD1)										
					Source: IOC0448-01					
Antimony	91.3	2.0	ug/l	80.0	0.37	114	70-130	1	20	
Cadmium	80.9	1.0	ug/l	80.0	0.086	101	70-130	0	20	
Copper	78.7	2.0	ug/l	80.0	3.0	95	70-130	1	20	
Lead	78.6	1.0	ug/l	80.0	0.19	98	70-130	1	20	
Batch: 5C09049 Extracted: 03/09/05										
Blank Analyzed: 03/09/2005 (5C09049-BLK1)										
Mercury	ND	0.20	ug/l							

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager



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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	Project ID: Routine Outfall 004 Report Number: IOC0450	Sampled: 03/04/05 Received: 03/04/05
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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limit Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C09049 Extracted: 03/09/05										
LCS Analyzed: 03/09/2005 (5C09049-BS1)										
Mercury	7.82	0.20	ug/l	8.00		98	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09049-MS1)										
Mercury	8.31	0.20	ug/l	8.00	ND	104	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09049-MSD1)										
Mercury	8.23	0.20	ug/l	8.00	ND	103	70-130	1	20	

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 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 004 Report Number: IOC0450	Sampled: 03/04/05 Received: 03/04/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C04107 Extracted: 03/04/05										
Blank Analyzed: 03/04/2005 (5C04107-BLK1)										
Chloride	ND	0.50	mg/l							
Nitrate/Nitrite-N	ND	0.11	mg/l							
Sulfate	ND	0.50	mg/l							
LCS Analyzed: 03/04/2005 (5C04107-BS1)										
Chloride	5.16	0.50	mg/l	5.00		103	90-110			M-3
Sulfate	10.4	0.50	mg/l	10.0		104	90-110			M-3
Batch: 5C07073 Extracted: 03/07/05										
Blank Analyzed: 03/07/2005 (5C07073-BLK1)										
Total Suspended Solids	ND	10	mg/l							
LCS Analyzed: 03/07/2005 (5C07073-BS1)										
Total Suspended Solids	980	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 03/07/2005 (5C07073-DUP1)										
Total Suspended Solids	ND	10	mg/l		Source: IOC0451-01				10	
Batch: 5C08110 Extracted: 03/08/05										
Blank Analyzed: 03/08/2005 (5C08110-BLK1)										
Total Dissolved Solids	ND	10	mg/l							
LCS Analyzed: 03/08/2005 (5C08110-BS1)										
Total Dissolved Solids	976	10	mg/l	1000		98	90-110			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 004 Report Number: IOC0450	Sampled: 03/04/05 Received: 03/04/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD	Limit	Data Qualifiers
Batch: 5C08110 Extracted: 03/08/05											
Duplicate Analyzed: 03/08/2005 (5C08110-DUP1)											
Total Dissolved Solids	187	10	mg/l		180			4		10	
Batch: 5C09091 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09091-BLK1)											
Oil & Grease	1.70	5.0	mg/l								J
LCS Analyzed: 03/09/2005 (5C09091-BS1)											
Oil & Grease	22.4	5.0	mg/l	20.0		112	65-120				M-NR1
LCS Dup Analyzed: 03/09/2005 (5C09091-BSD1)											
Oil & Grease	18.8	5.0	mg/l	20.0		94	65-120	17		20	

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 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 004

Report Number: IOC0450

Sampled: 03/04/05
 Received: 03/04/05

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
IOC0450-01	413.1 Oil and Grease	Oil & Grease	mg/l	1.00	5.0	15
IOC0450-01	Antimony-200.8	Antimony	ug/l	0	2.0	6.00
IOC0450-01	Cadmium-200.8	Cadmium	ug/l	0.040	1.0	4.00
IOC0450-01	Chloride - 300.0	Chloride	mg/l	3.50	0.50	150
IOC0450-01	Copper-200.8	Copper	ug/l	2.70	2.0	14
IOC0450-01	Mercury - 245.1	Mercury	ug/l	0.066	0.20	0.20
IOC0450-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	1.10	0.11	10.00
IOC0450-01	Sulfate-300.0	Sulfate	mg/l	4.60	0.50	250
IOC0450-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	110	10	850

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 004

Report Number: IOC0450

Sampled: 03/04/05
Received: 03/04/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- 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
Wendy Kirkeeng For Michele Harper
Project Manager

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IOC0450 <Page 10 of 11>



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

Project ID: Routine Outfall 004

Report Number: IOC0450

Sampled: 03/04/05

Received: 03/04/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC0450-01

Analysis Performed: EDD + Level 4

Samples: IOC0450-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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10002450

CHAIN OF CUSTODY FORM

Version 02/17/05

Del Mar Analytical

Client Name/Address: MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Project: Boeing-SSFL NPDES Routine Outfall 004 Stormwater at SRE	
Project Manager: Bronwyn Kelly		Phone Number: (626) 568-6691	
Sampler: <i>Palmer</i>		Fax Number: (626) 568-6515	

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED						Field readings:
							Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl ₂ , SO ₄ , NO ₃ +NO ₂ -N	TDS, TSS	Comments	
Outfall 004	W	Poly-1L	1	3-4-05 14:30	HNO3	1A	X					Temp = 56.7	
Outfall 004-Dup	W	Poly-1L	1		HNO3	1B	X					pH = 6.8	
Outfall 004	W	Glass-Amber	2		None	2A, 2B		X					
Outfall 004	W	Glass-Amber	2		HCl	3A, 3B		X					
Outfall 004	W	Poly-500 ml	2		None	4A, 4B			X				
Outfall 004	W	Poly-500 ml	2		None	5A, 5B				X			

Relinquished By: <i>[Signature]</i> Date/Time: 3-4-05 1500	Received By: <i>[Signature]</i> Date/Time: 3-4-05 1500
Relinquished By: <i>[Signature]</i> Date/Time: 3-4-05 1750	Received By: <i>[Signature]</i> Date/Time: 3-4-05 1750
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 On Ice 3°C



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March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 004
Sampled: 03/04/05
Del Mar Analytical Number: IOC0450

Dear Ms. Kelly:

Alta Analytical Laboratory performed the EPA Method 1613 Dioxin analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	Del Mar ID	Alta ID
Outfall 004	IOC0450-01	25848-001

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



March 22, 2005

Alta Project I.D.: 25848

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 March 08, 2005 under your Project Name "IOC0450". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 3/8/2005

Alta Lab. ID

Client Sample ID

25848-001

IOC0450-01

SECTION II



EPA Method 1613

Method Blank		EPA Method 1613				
Matrix:	Aqueous	QC Batch No.:	6613	Lab Sample:	0-MB001	
Sample Size:	1.000 L	Date Extracted:	18-Mar-05	Date Analyzed DB-5:	21-Mar-05	
				Date Analyzed DB-225:	NA	
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	1.09		13C-2,3,7,8-TCDD	74.6	25 - 164
1,2,3,7,8-PeCDD	ND	0.717		13C-1,2,3,7,8-PeCDD	72.8	25 - 181
1,2,3,4,7,8-HxCDD	ND	1.85		13C-1,2,3,4,7,8-HxCDD	76.8	32 - 141
1,2,3,6,7,8-HxCDD	ND	1.81		13C-1,2,3,6,7,8-HxCDD	82.6	28 - 130
1,2,3,7,8,9-HxCDD	ND	1.82		13C-1,2,3,4,6,7,8-HpCDD	74.6	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	1.44		13C-OCDD	50.4	17 - 157
OCDD	ND	3.04		13C-2,3,7,8-TCDF	78.4	24 - 169
2,3,7,8-TCDF	ND	1.01		13C-1,2,3,7,8-PeCDF	69.0	24 - 185
1,2,3,7,8-PeCDF	ND	2.09		13C-2,3,4,7,8-PeCDF	72.3	21 - 178
2,3,4,7,8-PeCDF	ND	1.80		13C-1,2,3,4,7,8-HxCDF	65.8	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.708		13C-1,2,3,6,7,8-HxCDF	73.8	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.669		13C-2,3,4,6,7,8-HxCDF	75.2	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.730		13C-1,2,3,7,8,9-HxCDF	74.9	29 - 147
1,2,3,7,8,9-HxCDF	ND	1.14		13C-1,2,3,4,6,7,8-HpCDF	70.1	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	1.12		13C-1,2,3,4,7,8,9-HpCDF	76.4	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	1.23		13C-OCDF	59.4	17 - 157
OCDF	ND	2.41		CRS 37Cl-2,3,7,8-TCDD	74.7	35 - 197
Totals				Footnotes		
Total TCDD	ND	1.09		a. Sample specific estimated detection limit.		
Total PeCDD	ND	0.717		b. Estimated maximum possible concentration.		
Total HxCDD	ND	1.83		c. Method detection limit.		
Total HpCDD	ND	1.44		d. Lower control limit - upper control limit.		
Total TCDF	ND	1.01				
Total PeCDF	ND	1.94				
Total HxCDF	ND	0.794				
Total HpCDF	ND	1.17				

Analyst: JMH

Approved By: Martha M. Maier 22-Mar-2005 09:19



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 21-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6613 <th>Sample Size:</th> <td>1.000 L <th>Date Analyzed DB-5:</th> <td>21-Mar-05 </td></td>	Sample Size:	1.000 L <th>Date Analyzed DB-5:</th> <td>21-Mar-05 </td>	Date Analyzed DB-5:	21-Mar-05
Date Extracted:	18-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA <th>Lab Sample:</th> <td>0-OPR001 <th>Date Analyzed DB-5:</th> <td>21-Mar-05 </td></td></td>	Date Analyzed DB-225:	NA <th>Lab Sample:</th> <td>0-OPR001 <th>Date Analyzed DB-5:</th> <td>21-Mar-05 </td></td>	Lab Sample:	0-OPR001 <th>Date Analyzed DB-5:</th> <td>21-Mar-05 </td>	Date Analyzed DB-5:	21-Mar-05
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL		
2,3,7,8-TCDD	10.0	6.7 - 15.8	<u>IS</u> 13C-2,3,7,8-TCDD	63.0	25 - 164		
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	54.1	25 - 181		
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	56.2	32 - 141		
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	60.8	28 - 130		
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	54.6	23 - 140		
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	38.2	17 - 157		
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	63.7	24 - 169		
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	51.3	24 - 185		
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	52.6	21 - 178		
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	49.8	26 - 152		
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	56.3	26 - 123		
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	56.1	28 - 136		
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	54.3	29 - 147		
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	52.5	28 - 143		
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	56.3	26 - 138		
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	46.1	17 - 157		
OCDF	100	63 - 170	<u>CRS</u> 37Cl-2,3,7,8-TCDD	82.8	35 - 197		

Analyst: JMH

Approved By: Martha M. Maier 22-Mar-2005 09:19



Sample ID: **IOC0450-01**

EPA Method 1613

Client Data		Laboratory Data	
Name: Del Mar Analytical, Irvine	Lab Sample: 25848-001	Date Received: 8-Mar-05	
Project: IOC0450	QC Batch No.: 6613	Date Extracted: 18-Mar-05	
Date Collected: 4-Mar-05	Date Analyzed DB-5: 20-Mar-05	Date Analyzed DB-225: NA	
Time Collected: 1430			

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.38			13C-2,3,7,8-TCDD	69.6	25 - 164	
1,2,3,7,8-PeCDD	ND	1.64			13C-1,2,3,7,8-PeCDD	62.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.56			13C-1,2,3,4,7,8-HxCDD	62.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.56			13C-1,2,3,6,7,8-HxCDD	67.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.55			13C-1,2,3,4,6,7,8-HpCDD	61.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	15.7			J	13C-OCDD	39.7	17 - 157	
OCDD	216				13C-2,3,7,8-TCDF	72.7	24 - 169	
2,3,7,8-TCDF	ND	1.54			13C-1,2,3,7,8-PeCDF	57.6	24 - 185	
1,2,3,7,8-PeCDF	ND	2.57			13C-2,3,4,7,8-PeCDF	61.0	21 - 178	
2,3,4,7,8-PeCDF	ND	2.28			13C-1,2,3,4,7,8-HxCDF	54.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.705			13C-1,2,3,6,7,8-HxCDF	59.9	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.692			13C-2,3,4,6,7,8-HxCDF	62.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.747			13C-1,2,3,7,8,9-HxCDF	60.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.13			13C-1,2,3,4,6,7,8-HpCDF	55.6	28 - 143	
1,2,3,4,6,7,8-HpCDF	2.98			J	13C-1,2,3,4,7,8,9-HpCDF	66.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.01			13C-OCDF	50.4	17 - 157	
OCDF	6.09			J	CRS 37Cl-2,3,7,8-TCDD	85.8	35 - 197	

Totals		Footnotes	
Total TCDD	ND	1.38	a. Sample specific estimated detection limit.
Total PeCDD	ND	1.64	b. Estimated maximum possible concentration.
Total HxCDD	ND	1.60	c. Method detection limit.
Total HpCDD	29.7		d. Lower control limit - upper control limit.
Total TCDF	ND	1.54	
Total PeCDF	ND	2.42	
Total HxCDF	5.57		
Total HpCDF	8.54	6.69	

Analyst: JMH

Approved By: Martha M. Maier 22-Mar-2005 09:19

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.
*	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 corresponds 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.



CURRENT CERTIFICATIONS

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)

09/28/04



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) 370-4867 Fax (909) 370-1046
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9288 Fax (619) 505-9289
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0854
 2820 E. Sunset Rd., Suite #8, Las Vegas, NV 89120 Ph (702) 790-3830 Fax (702) 790-3821

SUBCONTRACT ORDER - PROJECT # IOC0450

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone : (916) 933-1640 Fax: (916) 933-0940 <div style="text-align: right; font-size: 1.2em; font-family: cursive;"> 25848 1.3°C </div>

Standard TAT is requested unless specific due date is requested → Due Date: _____ Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC0450-01 Water	Sampled: 03/04/05 14:30	Instant Notification
1613-Dioxin-HR	03/11/05 14:30	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/01/05 14:30	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0450-01C)		
1 L Amber (IOC0450-01D)		

SAMPLE INTEGRITY:			
All containers intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly:	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Samples Received On Ice:	<input type="checkbox"/> Yes <input type="checkbox"/> No
		Samples Received at (temp):	_____

Released By: Stacy Shan ³⁻⁷⁻⁰⁵ Date: _____ Time: _____
 Received By: 1700 Bettina D. Benedict Date: 3/8/05 Time: 0939

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25848

1. Date Samples Arrived: <u>3/8/05 0939</u>	Initials: <u>BBB</u>	Location: <u>WR-2</u>	
2. Time / Date logged In: <u>1245 3/8/05</u>	Initials: <u>BBB</u>	Location: <u>WR-2</u>	
3. Samples Arrived By: (circle) <u>FedEx</u> <input type="checkbox"/> DPS <input type="checkbox"/> World Courier <input type="checkbox"/> Other: <input type="checkbox"/>			
4. Shipping Preservation: (circle) <u>Ice</u> <input type="checkbox"/> <u>Blue Ice</u> <input type="checkbox"/> Dry Ice <input type="checkbox"/> / None <input type="checkbox"/> Temp °C <u>1.3</u>			
5. Shipping Container(s) intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7928 6415 1912</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



17461 Dezan Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Center Dr., Suite A, Costa, CA 95026 Ph (909) 570-4087 Fax (909) 570-0048
 9404 Champania Drive, Suite 800, San Diego, CA 92123 Ph (619) 605-6000 Fax (619) 605-9000
 8820 South 21st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 795-0043 Fax (480) 795-0091
 7820 E. Sunset Rd., Suite 20, Las Vegas, NV 89120 Ph (702) 790-0000 Fax (702) 790-0001

SUBCONTRACT ORDER - PROJECT # IOC0450

SENDING LABORATORY:
 Del Mar Analytical, Irvine
 17461 Dezan 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) 933-0940
 25848 1.3°C

Standard TAT is requested unless specific due date is requested -> Due Date: QUICK Initials: MH

Analysis	Expiration	Comments
Sample ID: IOC0450-01 Water	Sampled: 03/04/05 14:30	Instant Notification
1613-Dioxin-ER	03/11/05 14:30	J flags, 17 congeners, no TBQ, sub to Alta
EDD + Level 4	04/01/05 14:30	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0450-01C)		
1 L Amber (IOC0450-01D)		

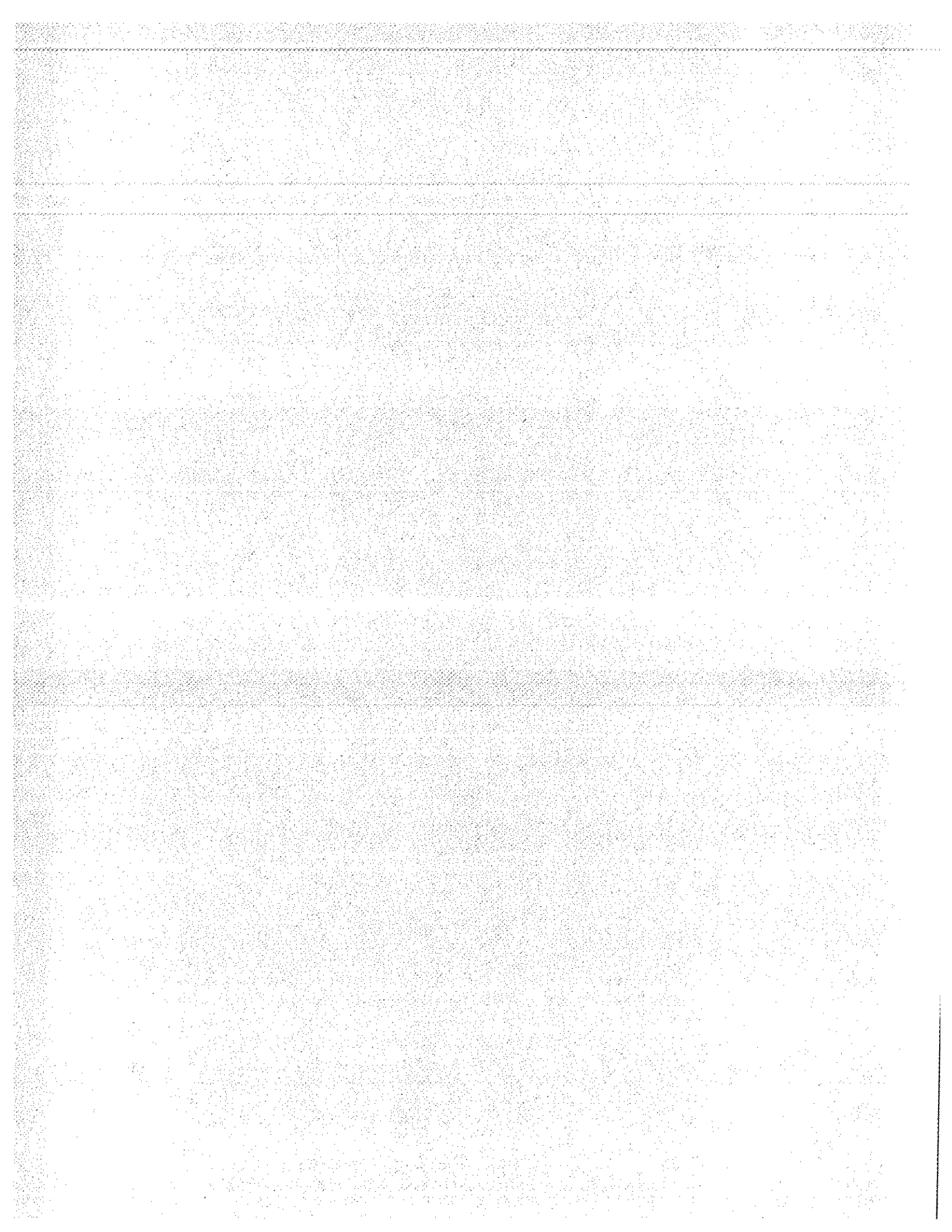
Sampler = P.P.
 MH
 04/10/05

SAMPLE INTEGRITY:

All containers intact: Yes No
 Sample labels/COC agree: Yes No
 Samples Received On Job: Yes No
 Custody Seals Present: Yes No
 Samples Preserved Properly: Yes No
 Samples Received at (temp): _____

Released By: Michele Harper Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF37

Task Order 313150010

SDG No. Multiple

No. of Analyses 10

Date: April 4, 2005

Reviewer's Signature
H. Chang

Laboratory Alta

Reviewer H. Chang

Analysis/Method Dioxin&Furans/1613

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	Detects below the calibration range were qualified "J."
Protocol, e.g.,	
Holding Times	
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and	
Quantitation	
System Performance	

COMMENTS^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: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 10
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 4, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 002	IOC1521-01	25935-001	water	1613
Outfall 011	IOC1523-01	25936-001	water	1613
Outfall 005	IOC1524-01	25940-001	water	1613
Outfall 006	IOC1525-01	25937-001	water	1613
Outfall 011 Composite	IOC1526-01	25938-001	water	1613
Outfall 001	IOC1561-01	25941-001	water	1613
Outfall 004	IOC1563-01	25939-001	water	1613
Outfall 008	IOC1564-01	25942-001	water	1613
Outfall 003	IOC1565-01	25943-001	water	1613
Outfall 009	IOC1566-01	25944-001	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

Samples Outfall 001, Outfall 004, and Outfall 008 were received at Del Mar Analytical outside the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Due to non-volatile nature of the target compounds, no qualifications were required. The other samples were received with cooler temperatures within the limits. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (0_6624_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 (0_6624_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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." No further qualifications were required.

Sample ID: IOC1563-01		Outfall box		EPA Method 1613		
Client Data		Sample Data		Laboratory Data		
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25939-001	
Project:	IOC1563	Sample Size:	0.947 L	QC Batch No.:	6624	
Date Collected:	19-Mar-05			Date Analyzed DB-5:	23-Mar-05	
Time Collected:	1102			Date Analyzed DB-225:	NA	
Date Received:	22-Mar-05					
Date Extracted:	22-Mar-05					
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.676		IS 13C-2,3,7,8-TCDD	83.9	25 - 164
1,2,3,7,8-PeCDD	ND	0.984		13C-1,2,3,7,8-PeCDD	80.5	25 - 181
1,2,3,4,7,8-HxCDD	ND	1.65		13C-1,2,3,4,7,8-HxCDD	84.4	32 - 141
1,2,3,6,7,8-HxCDD	ND	1.64		13C-1,2,3,6,7,8-HxCDD	92.3	28 - 130
1,2,3,7,8,9-HxCDD	ND	1.64		13C-1,2,3,4,6,7,8-HpCDD	86.2	23 - 140
1,2,3,4,6,7,8-HpCDD	14.8		J	13C-OCDD	63.9	17 - 157
OCDD	177			13C-2,3,7,8-TCDF	88.6	24 - 169
2,3,7,8-TCDF	ND	0.887		13C-1,2,3,7,8-PeCDF	81.9	24 - 185
1,2,3,7,8-PeCDF	ND	1.40		13C-2,3,4,7,8-PeCDF	83.0	21 - 178
2,3,4,7,8-PeCDF	ND	1.23		13C-1,2,3,4,7,8-HxCDF	69.7	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.522		13C-1,2,3,6,7,8-HxCDF	78.6	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.490		13C-2,3,4,6,7,8-HxCDF	77.5	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.583		13C-1,2,3,7,8,9-HxCDF	77.1	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.868		13C-1,2,3,4,6,7,8-HpCDF	80.6	28 - 143
1,2,3,4,6,7,8-HpCDF	2.03		J	13C-1,2,3,4,7,8,9-HpCDF	82.3	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.958		13C-OCDF	70.7	17 - 157
OCDF	4.63		J	CRS 37Cl-2,3,7,8-TCDD	83.5	35 - 197
Totals						
Total TCDD	ND	0.676				
Total PeCDD	ND	0.984				
Total HxCDD	4.10					
Total HpCDD	30.4					
Total TCDF	ND	0.887				
Total PeCDF	ND	1.31				
Total HxCDF	3.17					
Total HpCDF	6.85					

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: Martha M. Maier 24-Mar-2005 09:44

AMEC VALIDATED

LEVEL IV


CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT70
 Task Order 313150010
 SDG No. IOC1563

No. of Analyses 1

Laboratory Del Mar
 Reviewer P. Meeks
 Analysis/Method Metals

Date: 04/06/05
 Reviewer's Signature


ACTION ITEMS*

1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications applied for detects below the reporting limit, CCB detects and the antimony MDL was raised.
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

^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: METALS

SAMPLE DELIVERY GROUP: IOC1563

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#: IOC1563
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: April 06, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 6010B for Inductively Coupled Plasma*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOC1563
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 004	Outfall 004	IOC1563-01	water	ILM04

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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The date of collection recorded on the COC and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP/MS metals and 80-120% for mercury. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

Antimony was detected in every CCB in the analytical sequence in which Outfall 004 was analyzed. The detects ranged from 0.52 to 0.55 $\mu\text{g/L}$ and indicated that the laboratory could not detect antimony at the reported MDL. The reviewer raised the antimony MDL to the level of the highest CCB, 0.55 $\mu\text{g/L}$, and qualified the result as estimated, "UJ." There were no other reported detects in the CCBs or method blanks associated with the site sample. No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Aluminum was recovered below the control limit in all the ICSA and ICSAB analyses; however, as aluminum was found at a low level in the site sample, no qualifications were required. Copper, and cadmium were detected above the reporting limit in the ICSA. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix effects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP LCS sample was identified as 5C05038-BS1 and the mercury LCS sample was identified as 5C03115-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

2.8 MATRIX SPIKE

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Method accuracy was evaluated based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analysis of this sample; therefore, furnace atomic absorption QC is not applicable.

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample 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. Analytes detected below the reporting limit was qualified as estimated, "J." No further qualifications were required.

2.13 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 sample.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site sample.



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

Project ID: Routine Outfall 004

Report Number: IOC1563

Sampled: 03/19/05
 Received: 03/19/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1563-01 (DRAFT: Outfall 004 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C21088	0.55	2.0	0.68	1	03/21/05	03/21/05	U J J B, S
Cadmium	EPA 200.8	5C21088	0.015	1.0	0.094	1	03/21/05	03/21/05	J J DNG
Copper	EPA 200.8	5C21088	0.49	2.0	7.7	1	03/21/05	03/21/05	J J DNG
Lead	EPA 200.8	5C21088	0.13	1.0	0.83	1	03/21/05	03/21/05	J J DNG
Mercury	EPA 245.1	5C21082	0.063	0.20	ND	1	03/21/05	03/21/05	U

pm 4/6/05

AMEC VALIDATED

Level IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711WC117
 Task Order 313150010
 SDG No. IOC1563

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 04/07/05

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:
1) Detects below the reporting limit

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

^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: GENERAL MINERALS
SAMPLE DELIVERY GROUP: IOC1563

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 #: IOC1563
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 7, 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 413.1, 160.2, and 300.0, 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 004	Outfall 004	IOC1563-01	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 above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at 7°C ; however, as the sample had insufficient time to cool in transit to the laboratory, no qualifications were required. 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 present 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 chloride, sulfate, and oil and grease, the seven-day holding time for total suspended solids and total dissolved solids, and the 48-hour holding time for nitrate/nitrite were met. No qualifications were required.

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥ 0.995 . The initial and continuing calibration information was acceptable with recoveries within the control limits of 90-110%. Calibration is not applicable to oil and grease, total dissolved solids, or total suspended solids. No qualifications were required.

2.3 BLANKS

The 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. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample and laboratory control sample duplicate (oil and grease only) recoveries and RPD were within the laboratory-established control limits. No qualifications were required.

2.5 SURROGATES RECOVERY

Surrogate recovery is not applicable to the analyses presented in this SDG.

2.6 LABORATORY DUPLICATES

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Method accuracy was assessed based on LCS results.

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analyses of this sample; 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 sample 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. Oil and grease detected below the reporting limit was qualified as estimated, "J." No further qualifications were required.

2.11 FIELD QC SAMPLES

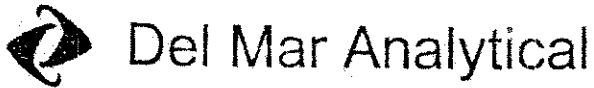
Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated sample. The following are findings associated with field QC samples:

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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MWH-Pasadena/Boeing Project ID: Routine Outfall 004
 300 North Lake Avenue, Suite 1200 Sampled: 03/19/05
 Pasadena, CA 91101 Report Number: IOC1563 Received: 03/19/05
 Attention: Bronwyn Kelly

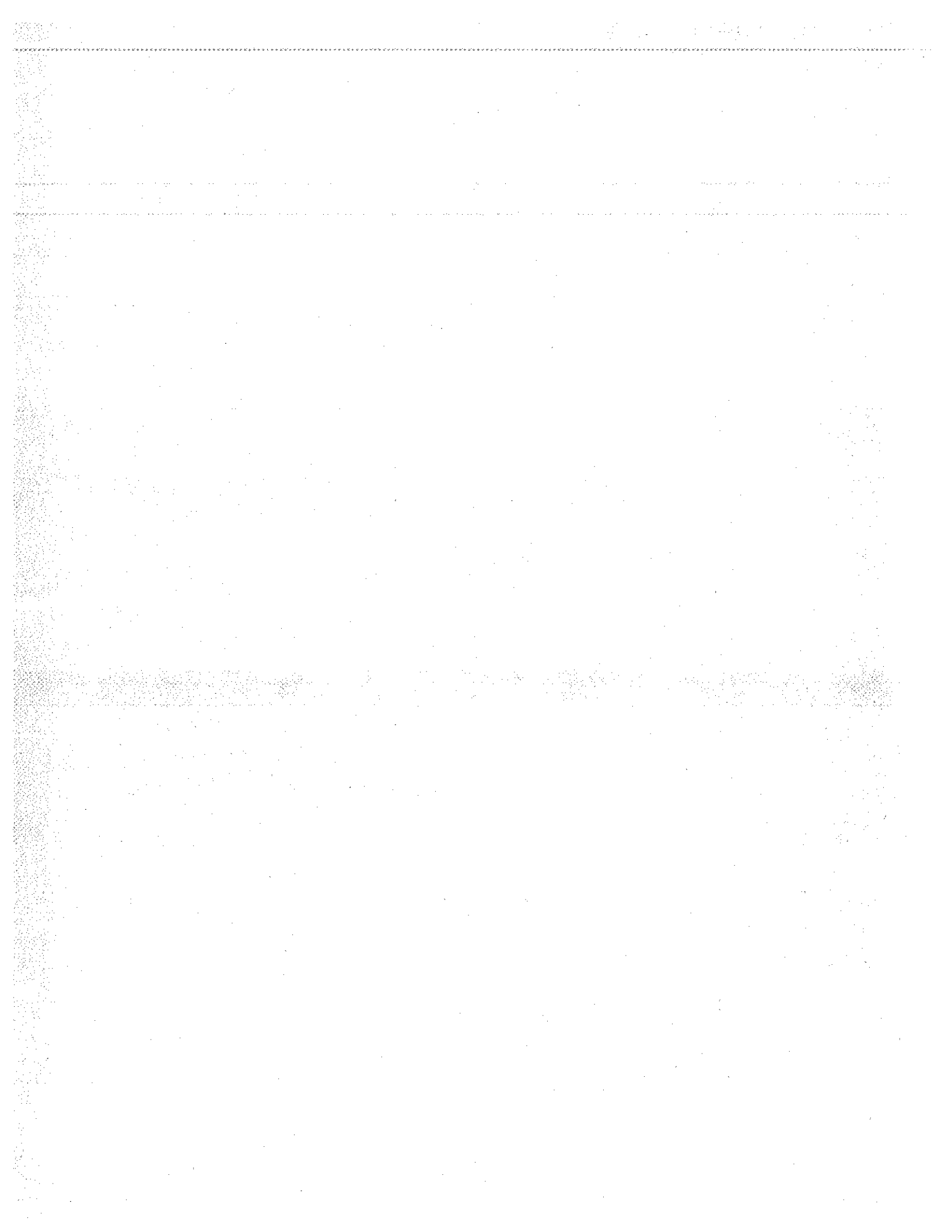
DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1563-01 (DRAFT: Outfall 004 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C20029	0.26	0.50	7.4	1	03/20/05	03/20/05	
Nitrate/Nitrite-N	EPA 300.0	5C20029	0.072	0.11	0.84	1	03/20/05	03/20/05	
Oil & Grease	EPA 413.1	5C21062	0.94	5.0	1.3	1	03/21/05	03/21/05	J J DNQ
Sulfate	EPA 300.0	5C20029	0.18	0.50	11	1	03/20/05	03/20/05	
Total Dissolved Solids	SM2540C	5C21073	10	10	160	1	03/21/05	03/21/05	
Total Suspended Solids	EPA 160.2	5C21068	10	10	ND	1	03/21/05	03/21/05	u

AMEC VALIDATED

LEVEL IV

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 004

Sampled: 03/19/05
 Received: 03/19/05
 Issued: 04/01/05 09:08

NELAP #01108CA California ELAP#1197 CSDLAC #10117

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.

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
 IOC1563-01

CLIENT ID
 Outfall 004

MATRIX
 Water

Reviewed By:

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 004

Report Number: IOC1563

Sampled: 03/19/05
 Received: 03/19/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1563-01 (Outfall 004 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C21088	0.18	2.0	0.68	1	03/21/05	03/21/05	J
Cadmium	EPA 200.8	5C21088	0.015	1.0	0.094	1	03/21/05	03/21/05	J
Copper	EPA 200.8	5C21088	0.49	2.0	7.7	1	03/21/05	03/21/05	
Lead	EPA 200.8	5C21088	0.13	1.0	0.83	1	03/21/05	03/21/05	J
Mercury	EPA 245.1	5C21082	0.063	0.20	ND	1	03/21/05	03/21/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 004

Report Number: IOC1563

Sampled: 03/19/05
 Received: 03/19/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1563-01 (Outfall 004 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C20029	0.26	0.50	7.4	1	03/20/05	03/20/05	
Nitrate/Nitrite-N	EPA 300.0	5C20029	0.072	0.11	0.84	1	03/20/05	03/20/05	
Oil & Grease	EPA 413.1	5C21062	0.94	5.0	1.3	1	03/21/05	03/21/05	J
Sulfate	EPA 300.0	5C20029	0.18	0.50	11	1	03/20/05	03/20/05	
Total Dissolved Solids	SM2540C	5C21073	10	10	160	1	03/21/05	03/21/05	
Total Suspended Solids	EPA 160.2	5C21068	10	10	ND	1	03/21/05	03/21/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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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	Project ID: Routine Outfall 004 Report Number: IOC1563	Sampled: 03/19/05 Received: 03/19/05
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SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 004 (IOC1563-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/19/2005 11:02	03/19/2005 17:30	03/20/2005 13:30	03/20/2005 14:21

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 004

Report Number: IOC1563

Sampled: 03/19/05
 Received: 03/19/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C21082 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21082-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 03/21/2005 (5C21082-BS1)											
Mercury	7.98	0.20	0.063	ug/l	8.00		100	85-115			
Matrix Spike Analyzed: 03/21/2005 (5C21082-MS1)											
						Source: IOC1561-01					
Mercury	7.93	0.20	0.063	ug/l	8.00	ND	99	70-130			
Matrix Spike Dup Analyzed: 03/21/2005 (5C21082-MSD1)											
						Source: IOC1561-01					
Mercury	8.07	0.20	0.063	ug/l	8.00	ND	101	70-130	2	20	
Batch: 5C21088 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21088-BLK1)											
Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 03/21/2005 (5C21088-BS1)											
Antimony	86.5	2.0	0.18	ug/l	80.0		108	85-115			
Cadmium	84.6	1.0	0.015	ug/l	80.0		106	85-115			
Copper	81.1	2.0	0.49	ug/l	80.0		101	85-115			
Lead	84.0	1.0	0.13	ug/l	80.0		105	85-115			
Matrix Spike Analyzed: 03/21/2005 (5C21088-MS1)											
						Source: IOC1561-01					
Antimony	94.5	2.0	0.18	ug/l	80.0	0.45	118	70-130			
Cadmium	86.9	1.0	0.015	ug/l	80.0	0.025	109	70-130			
Copper	78.5	2.0	0.49	ug/l	80.0	1.9	96	70-130			
Lead	83.6	1.0	0.13	ug/l	80.0	ND	104	70-130			

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 004

Report Number: IOC1563

Sampled: 03/19/05

Received: 03/19/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C21088 Extracted: 03/21/05											
Matrix Spike Analyzed: 03/21/2005 (5C21088-MS2)						Source: IOC1563-01					
Antimony	87.6	2.0	0.18	ug/l	80.0	0.68	109	70-130			
Cadmium	82.1	1.0	0.015	ug/l	80.0	0.094	103	70-130			
Copper	85.2	2.0	0.49	ug/l	80.0	7.7	97	70-130			
Lead	82.6	1.0	0.13	ug/l	80.0	0.83	102	70-130			
Matrix Spike Dup Analyzed: 03/21/2005 (5C21088-MSD1)						Source: IOC1561-01					
Antimony	88.8	2.0	0.18	ug/l	80.0	0.45	110	70-130	6	20	
Cadmium	83.0	1.0	0.015	ug/l	80.0	0.025	104	70-130	5	20	
Copper	77.9	2.0	0.49	ug/l	80.0	1.9	95	70-130	1	20	
Lead	81.3	1.0	0.13	ug/l	80.0	ND	102	70-130	3	20	

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

Project ID: Routine Outfall 004

Report Number: IOC1563

Sampled: 03/19/05

Received: 03/19/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C20029 Extracted: 03/20/05										
Blank Analyzed: 03/20/2005 (5C20029-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 03/20/2005 (5C20029-BS1)										
Chloride	4.65	0.50	0.26	mg/l	5.00		93 90-110			M-3
Sulfate	9.69	0.50	0.18	mg/l	10.0		97 90-110			M-3
Batch: 5C21062 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21062-BLK1)										
Oil & Grease	ND	5.0	0.94	mg/l						
LCS Analyzed: 03/21/2005 (5C21062-BS1)										
Oil & Grease	17.1	5.0	0.94	mg/l	20.0		86 65-120			M-NR1
LCS Dup Analyzed: 03/21/2005 (5C21062-BSD1)										
Oil & Grease	16.0	5.0	0.94	mg/l	20.0		80 65-120	7	20	
Batch: 5C21068 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21068-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21068-BS1)										
Total Suspended Solids	942	10	10	mg/l	1000		94 85-115			

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 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 004

Report Number: IOC1563

Sampled: 03/19/05
 Received: 03/19/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C21068 Extracted: 03/21/05										
Duplicate Analyzed: 03/21/2005 (5C21068-DUP1)										
Total Suspended Solids	ND	10	10	mg/l		ND			10	
Batch: 5C21073 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21073-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21073-BS1)										
Total Dissolved Solids	968	10	10	mg/l	1000		97	90-110		
Duplicate Analyzed: 03/21/2005 (5C21073-DUP1)										
Total Dissolved Solids	320	10	10	mg/l		300		6	10	

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 Wendy Kirkeeng For 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 004 Report Number: IOC1563	Sampled: 03/19/05 Received: 03/19/05
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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
IOC1563-01	413.1 Oil and Grease	Oil & Grease	mg/l	1.30	5.0	15
IOC1563-01	Antimony-200.8	Antimony	ug/l	0.68	2.0	6.00
IOC1563-01	Cadmium-200.8	Cadmium	ug/l	0.094	1.0	4.00
IOC1563-01	Chloride - 300.0	Chloride	mg/l	7.40	0.50	150
IOC1563-01	Copper-200.8	Copper	ug/l	7.70	2.0	14
IOC1563-01	Mercury - 245.1	Mercury	ug/l	0.028	0.20	0.20
IOC1563-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.84	0.11	10.00
IOC1563-01	Sulfate-300.0	Sulfate	mg/l	11	0.50	250
IOC1563-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	160	10	850

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 004

Report Number: IOC1563

Sampled: 03/19/05
Received: 03/19/05

DATA QUALIFIERS AND DEFINITIONS

- 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 unknown quality.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- 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
Wendy Kirkeeng For Michele Harper
Project Manager

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IOC1563 <Page 10 of 11>



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 004

Report Number: IOC1563

Sampled: 03/19/05
 Received: 03/19/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC1563-01

Analysis Performed: EDD + Level 4

Samples: IOC1563-01


Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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DL 1563

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:				Project:				ANALYSIS REQUIRED										Field readings:			
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>P. Collocy</i>				Boeing-SSFL NPDES Routine Outfall 004 Stormwater at SRE Phone Number: (626) 568-6691 Fax Number: (626) 568-6515				Total Recoverable Metals:		TCDD (and all congeners)		Oil & Grease (EPA 413.1)		Cl, SO4, NO3+NO2-N		TDS, TSS		Temp = 55.6 pH = 6.6		Comments <div style="border: 1px solid black; border-radius: 50%; width: 100px; height: 100px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">  </div>	
								Sb, Cd, Cu, Pb, Hg		X		X		X		X					
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #															
Outfall 004	W	Poly-1L	1	3-19-05 11:02	HNO3	1A															
Outfall 004-Dup	W	Poly-1L	1		HNO3	1B															
Outfall 004	W	Glass-Amber	2		None	2A, 2B															
Outfall 004	W	Glass-Amber	2		HCl	3A, 3B															
Outfall 004	W	Poly-500 ml	2		None	4A, 4B															
Outfall 004	W	Poly-500 ml	2		None	5A, 5B															
							Received By		Date/Time		Turn around Time: (check)										
							<i>[Signature]</i>		3-19-05 12:45		24 Hours		5 Days								
							<i>[Signature]</i>		3/19/05 15:20		48 Hours		10 Days								
							<i>[Signature]</i>		3/19/05 17:30		72 Hours		Normal								
							<i>[Signature]</i>		3/19/05 17:30		Perchlorate Only 72 Hours										
							<i>[Signature]</i>		3/19/05 17:30		Metals Only 72 Hours										
							<i>[Signature]</i>		3/19/05 17:30		Sample Integrity (Check) Intact		On Ice <input checked="" type="checkbox"/>								



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March 28, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 004
Sampled: 03/19/05
Del Mar Analytical Number: IOC1563

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	ALTA ID
Routine Outfall 004	IOC1563-01	25939-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL


Michele Harper
Project Manager



March 24, 2005

Alta Project I.D.: 25939

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 March 22, 2005 under your Project Name "IOC1563". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 3/22/2005

Alta Lab. ID

Client Sample ID

25939-001

IOC1563-01

SECTION II



Method Blank

EPA Method 1613

Matrix: Aqueous QC Batch No.: 6624 Lab Sample: 0-MB001
 Sample Size: 1.000 L Date Extracted: 22-Mar-05 Date Analyzed DB-5: 23-Mar-05 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.841			13C-2,3,7,8-TCDD	79.3	25 - 164
1,2,3,7,8-PeCDD	ND	0.749			13C-1,2,3,7,8-PeCDD	75.2	25 - 181
1,2,3,4,7,8-HxCDD	ND	1.49			13C-1,2,3,4,7,8-HxCDD	74.0	32 - 141
1,2,3,6,7,8-HxCDD	ND	1.52			13C-1,2,3,6,7,8-HxCDD	80.9	28 - 130
1,2,3,7,8,9-HxCDD	ND	1.50			13C-1,2,3,4,6,7,8-HpCDD	72.5	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	1.17			13C-OCDD	55.5	17 - 157
OCDD	ND	3.33			13C-2,3,7,8-TCDF	82.1	24 - 169
2,3,7,8-TCDF	ND	0.795			13C-1,2,3,7,8-PeCDF	74.6	24 - 185
1,2,3,7,8-PeCDF	ND	1.67			13C-2,3,4,7,8-PeCDF	77.9	21 - 178
2,3,4,7,8-PeCDF	ND	1.39			13C-1,2,3,4,7,8-HxCDF	62.7	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.474			13C-1,2,3,6,7,8-HxCDF	73.0	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.442			13C-2,3,4,6,7,8-HxCDF	71.1	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.510			13C-1,2,3,7,8,9-HxCDF	67.2	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.820			13C-1,2,3,4,6,7,8-HpCDF	67.8	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.929			13C-1,2,3,4,7,8,9-HpCDF	71.3	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	1.13			13C-OCDF	58.9	17 - 157
OCDF	ND	2.74			CRS 37Cl-2,3,7,8-TCDD	83.9	35 - 197

Totals							
Total TCDD	ND	0.841					
Total PeCDD	ND	0.749					
Total HxCDD	ND	1.51					
Total HpCDD	ND	1.17					
Total TCDF	ND	0.795					
Total PeCDF	ND	1.52					
Total HxCDF	ND	0.545					
Total HpCDF	ND	1.02					

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: Martha M. Maier 24-Mar-2005 09:44



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 23-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6624	Sample Size:	1,000 L	Date Analyzed DB-5:	23-Mar-05
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	Date Analyzed DB-225:	NA
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	86.2	25 - 164		
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	83.6	25 - 181		
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	83.1	32 - 141		
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	90.5	28 - 130		
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	80.1	23 - 140		
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	60.0	17 - 157		
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	89.6	24 - 169		
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	82.2	24 - 185		
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	86.0	21 - 178		
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	69.1	26 - 152		
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	83.1	26 - 123		
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	28 - 136		
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	77.1	29 - 147		
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	77.1	28 - 143		
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	78.6	26 - 138		
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	65.1	17 - 157		
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	89.8	35 - 197		

Analyst: JMH

Approved By: Martha M. Maier 24-Mar-2005 09:44



Sample ID: IOC1563-01

EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25939-001
Project:	IOC1563	Sample Size:	0.947 L	QC Batch No.:	6624
Date Collected:	19-Mar-05			Date Analyzed DB-5:	23-Mar-05
Time Collected:	1102			Date Analyzed DB-225:	NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.676			IS 13C-2,3,7,8-TCDD	83.9	25 - 164	
1,2,3,7,8-PeCDD	ND	0.984			13C-1,2,3,7,8-PeCDD	80.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.65			13C-1,2,3,4,7,8-HxCDD	84.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.64			13C-1,2,3,6,7,8-HxCDD	92.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.64			13C-1,2,3,4,6,7,8-HpCDD	86.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	14.8			J	13C-OCDD	63.9	17 - 157	
OCDD	177				13C-2,3,7,8-TCDF	88.6	24 - 169	
2,3,7,8-TCDF	ND	0.887			13C-1,2,3,7,8-PeCDF	81.9	24 - 185	
1,2,3,7,8-PeCDF	ND	1.40			13C-2,3,4,7,8-PeCDF	83.0	21 - 178	
2,3,4,7,8-PeCDF	ND	1.23			13C-1,2,3,4,7,8-HxCDF	69.7	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.522			13C-1,2,3,6,7,8-HxCDF	78.6	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.490			13C-2,3,4,6,7,8-HxCDF	77.5	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.583			13C-1,2,3,7,8,9-HxCDF	77.1	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.868			13C-1,2,3,4,6,7,8-HpCDF	80.6	28 - 143	
1,2,3,4,6,7,8-HpCDF	2.03			J	13C-1,2,3,4,7,8,9-HpCDF	82.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.958			13C-OCDF	70.7	17 - 157	
OCDF	4.63			J	CRS 37Cl-2,3,7,8-TCDD	83.5	35 - 197	

Totals	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers
Total TCDD	ND	0.676		
Total PeCDD	ND	0.984		
Total HxCDD	4.10			
Total HpCDD	30.4			
Total TCDF	ND	0.887		
Total PeCDF	ND	1.31		
Total HxCDF	3.17			
Total HpCDF	6.85			

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: Martha M. Maier 24-Mar-2005 09:44

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.

CURRENT CERTIFICATIONS



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)

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25939

1. Date Samples Arrived:	<u>3/22/05 0945</u>	Initials:	<u>CV</u>	Location:	<u>WR-2</u>
2. Time / Date logged in:	<u>3/22/05 1115</u>	Initials:	<u>CV</u>	Location:	<u>WR-2</u>
3. Samples Arrived By: (circle)	<u>FedEx</u>	UPS	World Courier	Other:	
4. Shipping Preservation: (circle)	<u>Ice</u>	Blue Ice	Dry Ice	None	Temp °C <u>3.2</u>
5. Shipping Container(s) Intact? If not, describe condition in comment section.		YES	NO	NA	
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.		✓			
7. Shipping Documentation Present? (circle) Shipping Label Tracking Number <u>915 786A 570C</u>	<u>Airbill</u>	✓			
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 <u>Client</u> Retain or <u>Return</u> 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:

IOC1521-01
 IOC1523-01
 IOC1525-01
 IOC1526-01
 IOC1563-01

ALTA Analytical Laboratory
 El Dorado Hills, CA 95762



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) 505-9598 Fax (619) 505-9689
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0801
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC1563

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone : (916) 933-1640 Fax: (916) 933-0940

Standard TAT is requested unless specific due date is requested => Due Date: 5 day TAT Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC1563-01 Water	Sampled: 03/19/05 11:02	Instant Notification
1613-Dioxin-HR	03/26/05 11:02	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/16/05 11:02	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC1563-01C)		
1 L Amber (IOC1563-01D)		

25939 3.2°

SAMPLE INTEGRITY:					
All containers intact:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Sample labels/COC agree:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Custody Seals Present:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Samples Preserved Properly:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received On Ice:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received at (temp):	_____	

	3-21-05	1700		3/22/05	0945
Released By	Date	Time	Received By	Date	Time

Released By	Date	Time	Received By	Date	Time
-------------	------	------	-------------	------	------

APPENDIX G

Section 31

March Outfall 005

AMEC Data Validation Reports

Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF35

Task Order 313150010

SDG No. Multiple

No. of Analyses 6

Laboratory Alta

Date: March 23, 2005

Reviewer K. Shadowlight

Reviewer's Signature

Analysis/Method Dioxins

K. Shadowlight

ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were assigned for the following:
Holding Times	* EMPCs
GC/MS Tune/Inst. Performance	* Detects below the lower method calibration level
Calibration	
Method 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: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 21, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 002	IOC0447-01	25853-001	water	1613
Outfall 003	IOC0449-01	25854-001	water	1613
Outfall 004	IOC0455-01	25855-001	water	1613
Outfall 005	IOC0451-01	25855-001	water	1613
Outfall 007	IOC0453-01	25856-001	water	1613
Outfall 011	IOC0448-01	25852-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 1.3°C and 1.4°C ; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6593-MB001) was extracted and analyzed with the samples in these SDGs. Total TCDF was reported at 1.4 pg/L and target compound 1,2,3,6,7,8-HxCDF was reported as an EMPC. The results for total TCDF in samples Outfall 003 and Outfall 011 were qualified as estimated nondetects "UJ," at the levels of interference. A review of the method blank raw data and chromatograms indicated no false negatives or false positives. No further qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6593-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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." The result for total TCDF in sample Outfall 003 was flagged by the laboratory with a "D" qualifier which indicated possible diphenylether interference; however, the result was qualified as a nondetect due to method blank contamination and no qualifications were required. No further qualifications were required.

Sample ID: **IOC0451-01** Outfall 005 **EPA Method 1613**

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC0451
 Date Collected: 4-Mar-05
 Time Collected: 1050

Sample Data
 Matrix: Aqueous
 Sample Size: 0.951 L

Laboratory Data
 Lab Sample: 25855-001
 QC Batch No.: 6593
 Date Analyzed DB-5: 15-Mar-05
 Date Analyzed DB-225: NA
 Date Received: 8-Mar-05
 Date Extracted: 11-Mar-05

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.853			13C-2,3,7,8-TCDD	69.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.611			13C-1,2,3,7,8-PeCDD	68.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.43			13C-1,2,3,4,7,8-HxCDD	80.3	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.38			13C-1,2,3,6,7,8-HxCDD	83.5	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.40			13C-1,2,3,4,6,7,8-HpCDD	70.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	1.31			J	13C-OCDD	39.3	17 - 157	
OCDD	14.7			J	13C-2,3,7,8-TCDF	71.4	24 - 169	
2,3,7,8-TCDF	ND	1.08			13C-1,2,3,7,8-PeCDF	62.9	24 - 185	
1,2,3,7,8-PeCDF	ND	1.53			13C-2,3,4,7,8-PeCDF	66.8	21 - 178	
2,3,4,7,8-PeCDF	ND	1.34			13C-1,2,3,4,7,8-HxCDF	65.4	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.457			13C-1,2,3,6,7,8-HxCDF	72.5	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.450			13C-2,3,4,6,7,8-HxCDF	72.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.524			13C-1,2,3,7,8,9-HxCDF	70.3	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.749			13C-1,2,3,4,6,7,8-HpCDF	63.6	28 - 143	
2,3,4,6,7,8-HpCDF	ND	0.974			13C-1,2,3,4,7,8,9-HpCDF	73.2	26 - 138	
1,2,3,4,6,7,8-HpCDF	ND	0.973			13C-OCDF	46.3	17 - 157	
OCDF	ND	4.10			CRS 37Cl-2,3,7,8-TCDD	73.6	35 - 197	

Totals

Total TCDD	ND	0.853		
Total PeCDD	ND	0.611		
Total HxCDD	ND	1.41		
Total HpCDD	1.31			
Total TCDF	ND	1.08		
Total PeCDF	ND	1.43		
Total HxCDF	ND	0.533		
Total HpCDF	ND	0.969		

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: Martha M. Maier 16-Mar-2005 14:39

Project 25855 *AW* **UNTESTED** **RECEIVED** **IV**



DATA VALIDATION REPORT

**NPDES
Monitoring**

ANALYSIS: METALS

**SAMPLE DELIVERY GROUPS: IOC0449, IOC0450, IOC0451,
IOC0452 & IOC0453**

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#: IOC0449, IOC0450, IOC0451, IOC0452 & IOC0453
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 29, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, and validation guidelines outlined in the *USEPA CLP 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 003	Outfall 003	IOC0449-01	water	ILM04
Outfall 004	Outfall 004	IOC0450-01	water	ILM04
Outfall 005	Outfall 005	IOC0451-01	water	ILM04
Outfall 006	Outfall 006	IOC0452-01	water	ILM04
Outfall 007	Outfall 007	IOC0453-01	water	ILM04

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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for all the samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

Lead was not detected in any of the blanks associated with these SDGs. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB standards were not analyzed in association with the samples in this SDG; therefore, no assessment can be made with respect to this criterion.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C08106-BS1 and the LCS result on the summary forms and in the raw data was within the laboratory-established ICP/MS control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Lead detected below the reporting limit was qualified as estimated, "J." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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

Project ID: Routine Outfall 005
 Routine Outfall 005
 Report Number: IOC0451

Sampled: 03/04/05
 Received: 03/04/05

DRAFT: METALS

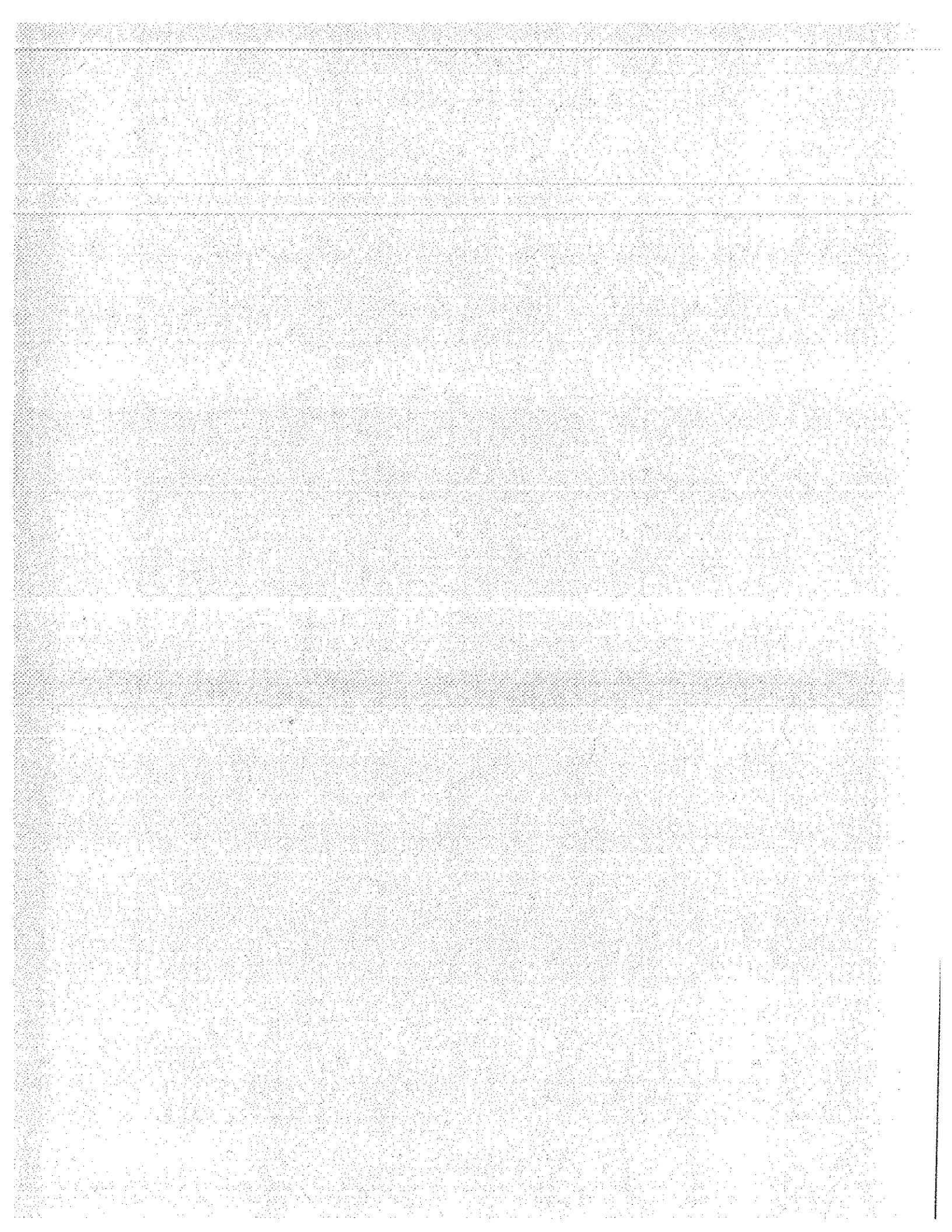
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOC0451-01 (DRAFT: Outfall 005 - Water)													
Reporting Units: ug/l													
Lead	EPA 200.8	5C08106	0.13	1.0	ND	1	03/08/05	03/09/05	<table border="1"> <tr> <td>Rev Qual</td> <td>Qual Code</td> </tr> <tr> <td>U</td> <td></td> </tr> </table>	Rev Qual	Qual Code	U	
Rev Qual	Qual Code												
U													

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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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 005

Sampled: 03/04/05
 Received: 03/04/05
 Issued: 03/25/05 11:15

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.
 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
 IOC0451-01

CLIENT ID
 Outfall 005

MATRIX
 Water

Reviewed By:

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 005

Report Number: IOC0451

Sampled: 03/04/05
 Received: 03/04/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0451-01 (Outfall 005 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C08106	0.18	2.0	ND	1	03/08/05	03/09/05	
Cadmium	EPA 200.8	5C08106	0.015	1.0	ND	1	03/08/05	03/09/05	
Copper	EPA 200.8	5C08106	0.49	2.0	0.96	1	03/08/05	03/09/05	J
Lead	EPA 200.8	5C08106	0.13	1.0	ND	1	03/08/05	03/09/05	
Mercury	EPA 245.1	5C09049	0.063	0.20	ND	1	03/09/05	03/09/05	

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 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 005

Report Number: IOC0451

Sampled: 03/04/05
 Received: 03/04/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0451-01 (Outfall 005 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C04107	0.26	0.50	1.3	1	03/04/05	03/05/05	
Nitrate/Nitrite-N	EPA 300.0	5C04107	0.11	0.11	1.5	1	03/04/05	03/05/05	
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	2.6	1	03/09/05	03/09/05	B, J
Sulfate	EPA 300.0	5C04107	0.18	0.50	2.0	1	03/04/05	03/05/05	
Total Dissolved Solids	SM2540C	5C08110	10	10	50	1	03/08/05	03/08/05	
Total Suspended Solids	EPA 160.2	5C07073	10	10	ND	1	03/07/05	03/07/05	

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

Project ID: Routine Outfall 005

Report Number: IOC0451

Sampled: 03/04/05
 Received: 03/04/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 005 (IOC0451-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/04/2005 10:50	03/04/2005 17:50	03/04/2005 23:00	03/05/2005 01:29

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 005

Report Number: IOC0451

Sampled: 03/04/05
 Received: 03/04/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD Limit	Data Qualifiers
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Batch: 5C08106 Extracted: 03/08/05

Blank Analyzed: 03/09/2005 (5C08106-BLK1)

Antimony	ND	2.0	0.18	ug/l						
Cadmium	ND	1.0	0.015	ug/l						
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						

LCS Analyzed: 03/09/2005 (5C08106-BS1)

Antimony	90.7	2.0	0.18	ug/l	80.0	113	85-115			
Cadmium	86.3	1.0	0.015	ug/l	80.0	108	85-115			
Copper	78.1	2.0	0.49	ug/l	80.0	98	85-115			
Lead	84.0	1.0	0.13	ug/l	80.0	105	85-115			

Matrix Spike Analyzed: 03/09/2005 (5C08106-MS1)

					Source: IOC0448-01					
Antimony	92.4	2.0	0.18	ug/l	80.0	0.37	115	70-130		
Cadmium	81.1	1.0	0.015	ug/l	80.0	0.086	101	70-130		
Copper	79.4	2.0	0.49	ug/l	80.0	3.0	96	70-130		
Lead	79.6	1.0	0.13	ug/l	80.0	0.19	99	70-130		

Matrix Spike Dup Analyzed: 03/09/2005 (5C08106-MSD1)

					Source: IOC0448-01					
Antimony	91.3	2.0	0.18	ug/l	80.0	0.37	114	70-130	1	20
Cadmium	80.9	1.0	0.015	ug/l	80.0	0.086	101	70-130	0	20
Copper	78.7	2.0	0.49	ug/l	80.0	3.0	95	70-130	1	20
Lead	78.6	1.0	0.13	ug/l	80.0	0.19	98	70-130	1	20

Batch: 5C09049 Extracted: 03/09/05

Blank Analyzed: 03/09/2005 (5C09049-BLK1)

Mercury	ND	0.20	0.063	ug/l						
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IOC0451 <Page 5 of 11>



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

Project ID: Routine Outfall 005

Report Number: IOC0451

Sampled: 03/04/05

Received: 03/04/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C09049 Extracted: 03/09/05											
LCS Analyzed: 03/09/2005 (5C09049-BS1)											
Mercury	7.82	0.20	0.063	ug/l	8.00		98	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09049-MS1) Source: IOC0451-01											
Mercury	8.31	0.20	0.063	ug/l	8.00	ND	104	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09049-MSD1) Source: IOC0451-01											
Mercury	8.23	0.20	0.063	ug/l	8.00	ND	103	70-130	1	20	

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

Project ID: Routine Outfall 005

Report Number: IOC0451

Sampled: 03/04/05
 Received: 03/04/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5C04107 Extracted: 03/04/05										
Blank Analyzed: 03/04/2005 (5C04107-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.11	0.11	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 03/04/2005 (5C04107-BS1)										
Chloride	5.16	0.50	0.26	mg/l	5.00		103 90-110			M-3
Sulfate	10.4	0.50	0.18	mg/l	10.0		104 90-110			M-3
Batch: 5C07073 Extracted: 03/07/05										
Blank Analyzed: 03/07/2005 (5C07073-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 03/07/2005 (5C07073-BS1)										
Total Suspended Solids	980	10	10	mg/l	1000		98 85-115			
Duplicate Analyzed: 03/07/2005 (5C07073-DUP1)										
Total Suspended Solids	ND	10	10	mg/l		Source: IOC0451-01			10	
Batch: 5C08110 Extracted: 03/08/05										
Blank Analyzed: 03/08/2005 (5C08110-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 03/08/2005 (5C08110-BS1)										
Total Dissolved Solids	976	10	10	mg/l	1000		98 90-110			

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 005

Report Number: IOC0451

Sampled: 03/04/05

Received: 03/04/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C08110 Extracted: 03/08/05											
Duplicate Analyzed: 03/08/2005 (5C08110-DUP1)						Source: IOC0454-01					
Total Dissolved Solids	187	10	10	mg/l		180			4	10	
Batch: 5C09091 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09091-BLK1)											
Oil & Grease	1.70	5.0	0.94	mg/l							J
LCS Analyzed: 03/09/2005 (5C09091-BS1)											
Oil & Grease	22.4	5.0	0.94	mg/l	20.0		112	65-120			M-NRI
LCS Dup Analyzed: 03/09/2005 (5C09091-BSD1)											
Oil & Grease	18.8	5.0	0.94	mg/l	20.0		94	65-120	17	20	

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

Project ID: Routine Outfall 005

Report Number: IOC0451

Sampled: 03/04/05
 Received: 03/04/05

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
IOC0451-01	413.1 Oil and Grease	Oil & Grease	mg/l	2.60	5.0	15
IOC0451-01	Antimony-200.8	Antimony	ug/l	0	2.0	6.00
IOC0451-01	Cadmium-200.8	Cadmium	ug/l	0.0060	1.0	4.00
IOC0451-01	Chloride - 300.0	Chloride	mg/l	1.30	0.50	150
IOC0451-01	Copper-200.8	Copper	ug/l	0.96	2.0	14
IOC0451-01	Mercury - 245.1	Mercury	ug/l	0.043	0.20	0.20
IOC0451-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	1.50	0.11	10.00
IOC0451-01	Sulfate-300.0	Sulfate	mg/l	2.00	0.50	250
IOC0451-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	50	10	850

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Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: Routine Outfall 005

Report Number: IOC0451

Sampled: 03/04/05
Received: 03/04/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- 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
Wendy Kirkeeng For Michele Harper
Project Manager

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IOC0451 <Page 10 of 11>



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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 005 Report Number: IOC0451	Sampled: 03/04/05 Received: 03/04/05
--	---	---

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC0451-01

Analysis Performed: EDD + Level 4

Samples: IOC0451-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/04

Client Name/Address:
 MWH-Pasadena
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101

Project:
 Boeing-SSFL NPDES
 Routine Outfall 005
 Stormwater at FSDF-1

Project Manager: Bronwyn Kelly
Phone Number:
 (626) 568-6891
Fax Number:
 (626) 568-6515

Sampler: *Pauloch*

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED						Field readings: Temp = 55.0 pH = 7.0 Comments
							Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl, SO4, NO3+NO2-N	TDS, TSS		
Outfall 005	W	Poly-1L	1	3-4-05 10:50	HNO3	1A	X						
Outfall 005-Dup	W	Poly-1L	1		HNO3	1B	X						
Outfall 005	W	Glass-Amber	2		None	2A, 2B		X					
Outfall 005	W	Glass-Amber	2		HCl	3A, 3B		X					
Outfall 005	W	Poly-500 ml	2		None	4A, 4B			X				
Outfall 005	W	Poly-500 ml	2		None	5A, 5B				X			

Relinquished By: <i>[Signature]</i>	Date/Time: 3-4-05 1500	Received By: <i>[Signature]</i>	Date/Time: 3-4-05 1500
Relinquished By: <i>[Signature]</i>	Date/Time: 3-4-05 1750	Received By: <i>[Signature]</i>	Date/Time: 3-4-05 17:50
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 On Ice 3C



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
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 (658) 505-8596 FAX (658) 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

March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 005
Sampled: 03/04/05
Del Mar Analytical Number: IOC0451

Dear Ms. Kelly:

Alta Analytical Laboratory performed the EPA Method 1613 Dioxin analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Alta ID
Outfall 005	IOC0451-01	25855-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL


Michele Harper
Project Manager



March 16, 2005

Alta Project I.D.: 25855

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 March 08, 2005 under your Project Name "IOC0451". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640



Section I: Sample Inventory Report

Date Received: 3/8/2005

Alta Lab. ID

Client Sample ID

25855-001

IOC0451-01

SECTION II



Method Blank		EPA Method 1613				
Matrix:	Aqueous	QC Batch No.:	6593	Lab Sample:	0-MB001	
Sample Size:	1.000 L	Date Extracted:	11-Mar-05	Date Analyzed DB-5:	14-Mar-05	
				Date Analyzed DB-225:	NA	
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	1.27		IS 13C-2,3,7,8-TCDD	61.5	25 - 164
1,2,3,7,8-PeCDD	ND	1.50		13C-1,2,3,7,8-PeCDD	57.2	25 - 181
1,2,3,4,7,8-HxCDD	ND	2.20		13C-1,2,3,4,7,8-HxCDD	67.8	32 - 141
1,2,3,6,7,8-HxCDD	ND	2.32		13C-1,2,3,6,7,8-HxCDD	76.7	28 - 130
1,2,3,7,8,9-HxCDD	ND	2.26		13C-1,2,3,4,6,7,8-HpCDD	56.6	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	3.00		13C-OCDD	26.9	17 - 157
OCDD	ND	11.1		13C-2,3,7,8-TCDF	63.1	24 - 169
2,3,7,8-TCDF	ND	1.37		13C-1,2,3,7,8-PeCDF	54.3	24 - 185
1,2,3,7,8-PeCDF	ND	2.09		13C-2,3,4,7,8-PeCDF	58.1	21 - 178
2,3,4,7,8-PeCDF	ND	1.73		13C-1,2,3,4,7,8-HxCDF	60.3	26 - 152
1,2,3,4,7,8-HxCDF	ND	1.16		13C-1,2,3,6,7,8-HxCDF	70.6	26 - 123
1,2,3,6,7,8-HxCDF	ND		0.905	13C-2,3,4,6,7,8-HxCDF	67.0	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.768		13C-1,2,3,7,8,9-HxCDF	62.8	29 - 147
1,2,3,7,8,9-HxCDF	ND	1.22		13C-1,2,3,4,6,7,8-HpCDF	53.2	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	1.96		13C-1,2,3,4,7,8,9-HpCDF	57.7	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	1.38		13C-OCDF	32.9	17 - 157
OCDF	ND	7.76		CRS 37Cl-2,3,7,8-TCDD	71.7	35 - 197
Totals						
Total TCDD	ND	1.27				
Total PeCDD	ND	1.50				
Total HxCDD	ND	2.26				
Total HpCDD	ND	3.00				
Total TCDF	1.40		2.79	D		
Total PeCDF	ND	3.06				
Total HxCDF	ND		0.905			
Total HpCDF	ND	2.12				

Footnotes

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

Analyst: MAS Approved By: Martha M. Maier 16-Mar-2005 14:39



EPA Method 1613

Lab Sample: 0-OPR001
 Date Analyzed DB-5: 14-Mar-05 Date Analyzed DB-225: NA

Matrix: Aqueous QC Batch No.: 6593
 Sample Size: 1.000 L Date Extracted: 11-Mar-05

Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.28	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	61.8	25 - 164
1,2,3,7,8-PeCDD	50.0	47.1	35 - 71	13C-1,2,3,7,8-PeCDD	62.9	25 - 181
1,2,3,4,7,8-HxCDD	50.0	49.1	35 - 82	13C-1,2,3,4,7,8-HxCDD	65.8	32 - 141
1,2,3,6,7,8-HxCDD	50.0	49.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	77.0	28 - 130
1,2,3,7,8,9-HxCDD	50.0	49.4	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	67.2	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	51.7	35 - 70	13C-OCDD	38.7	17 - 157
OCDD	100	104	78 - 144	13C-2,3,7,8-TCDF	63.1	24 - 169
2,3,7,8-TCDF	10.0	9.58	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.0	24 - 185
1,2,3,7,8-PeCDF	50.0	51.8	40 - 67	13C-2,3,4,7,8-PeCDF	63.2	21 - 178
2,3,4,7,8-PeCDF	50.0	51.2	34 - 80	13C-1,2,3,4,7,8-HxCDF	57.9	26 - 152
1,2,3,4,7,8-HxCDF	50.0	53.8	36 - 67	13C-1,2,3,6,7,8-HxCDF	68.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	53.7	42 - 65	13C-2,3,4,6,7,8-HxCDF	67.7	28 - 136
2,3,4,6,7,8-HxCDF	50.0	53.8	35 - 78	13C-1,2,3,7,8,9-HxCDF	65.7	29 - 147
1,2,3,7,8,9-HxCDF	50.0	51.8	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	63.1	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	54.5	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	65.7	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	56.0	39 - 69	13C-OCDF	44.9	17 - 157
OCDF	100	109	63 - 170	CRS 37Cl-2,3,7,8-TCDD	72.7	35 - 197

Analyst: MAS Approved By: Martha M. Maier 16-Mar-2005 14:39



Sample ID: **IOC0451-01**

EPA Method 1613

Client Data

Name: Del Mar Analytical, Irvine
 Project: IOC0451
 Date Collected: 4-Mar-05
 Time Collected: 1050

Sample Data

Matrix: Aqueous
 Sample Size: 0.951 L

Laboratory Data

Lab Sample: 25855-001 Date Received: 8-Mar-05
 QC Batch No.: 6593 Date Extracted: 11-Mar-05
 Date Analyzed DB-5: 15-Mar-05 Date Analyzed DB-225: NA

Analyte **Conc. (pg/L)** **DL^a** **EMPC^b** **Qualifiers**

Labeled Standard **%R** **LCL-UCL^d** **Qualifiers**

2,3,7,8-TCDD	ND	0.853			IS	13C-2,3,7,8-TCDD	69.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.611				13C-1,2,3,7,8-PeCDD	68.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.43				13C-1,2,3,4,7,8-HxCDD	80.3	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.38				13C-1,2,3,6,7,8-HxCDD	83.5	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.40				13C-1,2,3,4,6,7,8-HpCDD	70.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	1.31			J		13C-OCDD	39.3	17 - 157	
OCDD	14.7			J		13C-2,3,7,8-TCDF	71.4	24 - 169	
2,3,7,8-TCDF	ND	1.08				13C-1,2,3,7,8-PeCDF	62.9	24 - 185	
1,2,3,7,8-PeCDF	ND	1.53				13C-2,3,4,7,8-PeCDF	66.8	21 - 178	
2,3,4,7,8-PeCDF	ND	1.34				13C-1,2,3,4,7,8-HxCDF	65.4	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.457				13C-1,2,3,6,7,8-HxCDF	72.5	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.450				13C-2,3,4,6,7,8-HxCDF	72.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.524				13C-1,2,3,7,8,9-HxCDF	70.3	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.749				13C-1,2,3,4,6,7,8-HpCDF	63.6	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.974				13C-1,2,3,4,7,8,9-HpCDF	73.2	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.973				13C-OCDF	46.3	17 - 157	
OCDF	ND	4.10				CRS 37Cl-2,3,7,8-TCDD	73.6	35 - 197	

Totals

Total TCDD	ND	0.853			
Total PeCDD	ND	0.611			
Total HxCDD	ND	1.41			
Total HpCDD	1.31				
Total TCDF	ND	1.08			
Total PeCDF	ND	1.43			
Total HxCDF	ND	0.533			
Total HpCDF	ND	0.969			

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: Martha M. Maier 16-Mar-2005 14:39

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.
*	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 corresponds 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.

CURRENT CERTIFICATIONS

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)



17461 Derian Ave., Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228

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9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 796-0043 Fax (480) 796-0851

2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 796-3620 Fax (702) 796-3621

SUBCONTRACT ORDER - PROJECT # IOC0451

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940 <div style="text-align: right; font-size: 1.2em; font-family: cursive;"> 25855 1.4°C </div>

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

Analysis	Expiration	Sampled	Comments
Sample ID: IOC0451-01 Water		03/04/05 10:50	Instant Notification
1613-Dioxin-HR	03/11/05 10:50		J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/01/05 10:50		Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:			
1 L Amber (IOC0451-01C)			
1 L Amber (IOC0451-01D)			

SAMPLE INTEGRITY:

All containers intact: Yes No
 Sample labels/COC agree: Yes No
 Samples Received On Ice: Yes No
 Custody Seals Present: Yes No
 Samples Preserved Properly: Yes No
 Samples Received at (temp): _____

Released By: *Flay* Date: *3-7-05* Time: *1700*
 Received By: *Bottina P. Benedict* Date: *3/8/05* Time: *0939*

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____



17461 Decian Ave., Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Conlay Dr., Suite A, Colton, CA 92324 Ph (909) 379-4687 Fax (909) 379-1946
 3404 Chesapeake Drive, Suite 805, San Diego, CA 92138 Ph (619) 505-0896 Fax (619) 505-9888
 3630 South Gilet Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 788-0042 Fax (480) 788-0891
 2520 E. Sunset Rd., Suite 23, Las Vegas, NV 89129 Ph (702) 798-5820 Fax (702) 798-5821

SUBCONTRACT ORDER - PROJECT # IOC0451

<p align="center">SENDING LABORATORY:</p> <p>Del Mar Analytical, Irvine 17461 Decian Avenue, Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michele Harper</p>	<p align="center">RECEIVING LABORATORY:</p> <p>Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940</p> <p align="right" style="font-size: 1.5em;">25855 1.4°C</p>
---	---

Standard TAT is requested unless specific due date is requested => Due Date: 2 week Initials: MH

Analysis	Expiration	Comments
Sample ID: IOC0451-01 Water	Sampled: 03/04/05 10:50	Instant Notification
1613-Dioxin-HR	03/11/05 10:50	J flags, 17 congeners, no TEQ, sub to Alta
EDD # Level 4	04/01/05 10:50	Excel EDD email to pm, include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0451-01C)		
1 L Amber (IOC0451-01D)		

*Sampler = P.P.
MH 3/7/05*

SAMPLE INTEGRITY:

All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample label/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): _____

Released By: *Flav* Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

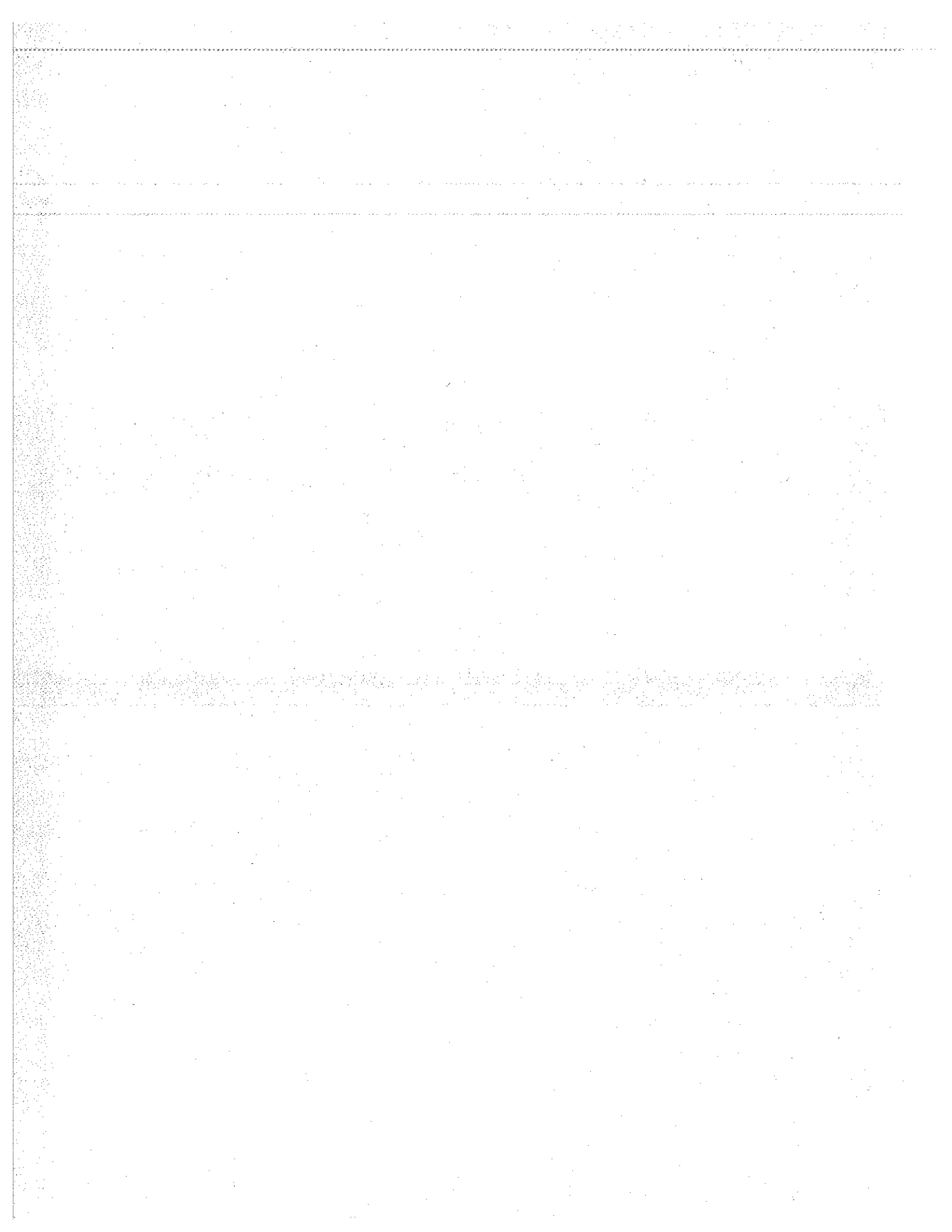
SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25855

1. Date Samples Arrived: <u>3/8/05</u> <u>0939</u> Initials: <u>BSB</u> Location: <u>WL-2</u>			
2. Time / Date logged in: <u>1418</u> <u>3/8/05</u> Initials: <u>BSB</u> Location: <u>WL-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> <u>Blue Ice</u> / Dry Ice / None Temp °C <u>1.4°C</u>			
5. Shipping Container(s) intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7928 6415 1923</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF37
Task Order 313150010
SDG No. Multiple
No. of Analyses 10

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

Date: April 4, 2005
Reviewer's Signature
H. Chang

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** Detects below the calibration range were qualified "J."
Protocol, e.g.,
Holding Times
GC/MS Tune/Inst. Perform
Calibrations
Blanks
Surrogates
Matrix Spike/Dup LCS
Field QC
Internal Standard Performance
Compound Identification and
Quantitation
System Performance

COMMENTS^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: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 10
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 4, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 002	IOC1521-01	25935-001	water	1613
Outfall 011	IOC1523-01	25936-001	water	1613
Outfall 005	IOC1524-01	25940-001	water	1613
Outfall 006	IOC1525-01	25937-001	water	1613
Outfall 011 Composite	IOC1526-01	25938-001	water	1613
Outfall 001	IOC1561-01	25941-001	water	1613
Outfall 004	IOC1563-01	25939-001	water	1613
Outfall 008	IOC1564-01	25942-001	water	1613
Outfall 003	IOC1565-01	25943-001	water	1613
Outfall 009	IOC1566-01	25944-001	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

Samples Outfall 001, Outfall 004, and Outfall 008 were received at Del Mar Analytical outside the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Due to non-volatile nature of the target compounds, no qualifications were required. The other samples were received with cooler temperatures within the limits. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (0_6624_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 (0_6624_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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." No further qualifications were required.

Sample ID: IOC1524-01 Outfall 005

EPA Method 1613

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC1524
 Date Collected: 18-Mar-05
 Time Collected: 1411

Sample Data
 Matrix: Aqueous
 Sample Size: 0.967 L

Laboratory Data
 Lab Sample: 25940-001
 QC Batch No.: 6624
 Date Analyzed DB-5: 23-Mar-05
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.687			13C-2,3,7,8-TCDD	91.5	25 - 164	
1,2,3,7,8-PeCDD	ND	0.774			13C-1,2,3,7,8-PeCDD	83.6	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.40			13C-1,2,3,4,7,8-HxCDD	81.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.42			13C-1,2,3,6,7,8-HxCDD	88.6	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.41			13C-1,2,3,4,6,7,8-HpCDD	76.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.87			13C-OCDD	57.8	17 - 157	
OCDD	11.6			J	13C-2,3,7,8-TCDF	95.2	24 - 169	
2,3,7,8-TCDF	ND	0.845			13C-1,2,3,7,8-PeCDF	83.9	24 - 185	
1,2,3,7,8-PeCDF	ND	1.25			13C-2,3,4,7,8-PeCDF	86.2	21 - 178	
2,3,4,7,8-PeCDF	ND	1.12			13C-1,2,3,4,7,8-HxCDF	66.1	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.695			13C-1,2,3,6,7,8-HxCDF	74.5	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.622			13C-2,3,4,6,7,8-HxCDF	75.5	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.723			13C-1,2,3,7,8,9-HxCDF	72.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.13			13C-1,2,3,4,6,7,8-HpCDF	74.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.893			J	13C-1,2,3,4,7,8,9-HpCDF	75.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.990			13C-OCDF	62.3	17 - 157	
OCDF	ND	3.23			CRS 37Cl-2,3,7,8-TCDD	84.4	35 - 197	

Totals

Total TCDD	ND	0.687		
Total PeCDD	ND	0.774		
Total HxCDD	ND	1.41		
Total HpCDD	ND	1.87		
Total TCDF	ND	0.845		
Total PeCDF	ND	1.18		
Total HxCDF	ND	0.773		
Total HpCDF	0.893			

Footnotes

- Sample specific estimated detection limit.
- Estimated maximum possible concentration.
- Method detection limit.
- Lower control limit - upper control limit.

Analyst: JMH

Approved By: Martha M. Maier 24-Mar-2005 09:48

AMEC VALIDATED LEVEL IV

Project 25940

Page 6 of 227

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT57
 Task Order 313150010
 SDG No. Multiple

No. of Analyses 5

Laboratory Del Mar

Date: 03/30/05

Reviewer P. Meeks

Reviewer's Signature


Analysis/Method Metals

ACTION ITEMS*

1. **Case Narrative
 Deficiencies**

2. **Out of Scope
 Analyses**

3. **Analyses Not
 Conducted**

4. **Missing Hardcopy
 Deliverables**

5. **Incorrect Hardcopy
 Deliverables**

6. **Deviations from
 Analysis Protocol, e.g.,**

Qualifications applied for detects below the reporting limit and antimony MDLs were raised and results estimated due to CCB detects.

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

^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: METALS

SAMPLE DELIVERY GROUPS: IOC1524, IOC1525, IOC1564,
IOC1565, & IOC1566

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#: IOC1524, IOC1525, IOC1564, IOC1565, & IOC1566
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 30, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: Multiple
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 005	Outfall 005	IOC1524-01	water	ILM04
Outfall 006	Outfall 006	IOC1525-01	water	ILM04
Outfall 008	Outfall 008	IOC1564-01	water	ILM04
Outfall 003	Outfall 003	IOC1565-01	water	ILM04
Outfall 009	Outfall 009	IOC1566-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

Outfall 008 was received above the temperature limit at 8°C ; however, as the sample had insufficient time to cool prior to receipt at the laboratory, no qualifications were required. The remaining samples in these SDGs were received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for the samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

Antimony was detected in every CCB in the analytical sequence in which Outfall 008 and Outfall 009 were analyzed. The detects ranged from 0.484 to 0.551 $\mu\text{g/L}$ and antimony was detected in Outfall 008 and Outfall 009 at concentrations below these values. The CCB detects indicated the laboratory could not detect antimony at the reported MDL. The reviewer raised the antimony MDL for Outfall 008 and Outfall 009 to the highest level of interference reported, 0.55 $\mu\text{g/L}$ and qualified the result as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper and cadmium were detected above the applicable reporting limit in the ICSA. Aluminum was recovered below the control limit in the all the ICSA and ICSAB analyses; however, as aluminum was not reported in the site samples, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix affects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS samples were identified as 5C21088-BS1 and 5C19038-BS1. The mercury LCS sample was identified as 5C21082-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed on Outfall 005 for lead only. The RPD was within the control limit of 20% and no qualifications were required.

2.8 MATRIX SPIKE

MS/MSD analyses were performed on Outfall 005 for lead only. Both recoveries were within the AMEC control limits of 75-125% and no qualifications were required. For the remaining analytes, method accuracy was evaluated based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Analytes detected below the reporting limit were qualified as estimated, "J." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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

Project ID: Routine Outfall 005

Report Number: IOC1524

Sampled: 03/18/05
 Received: 03/18/05

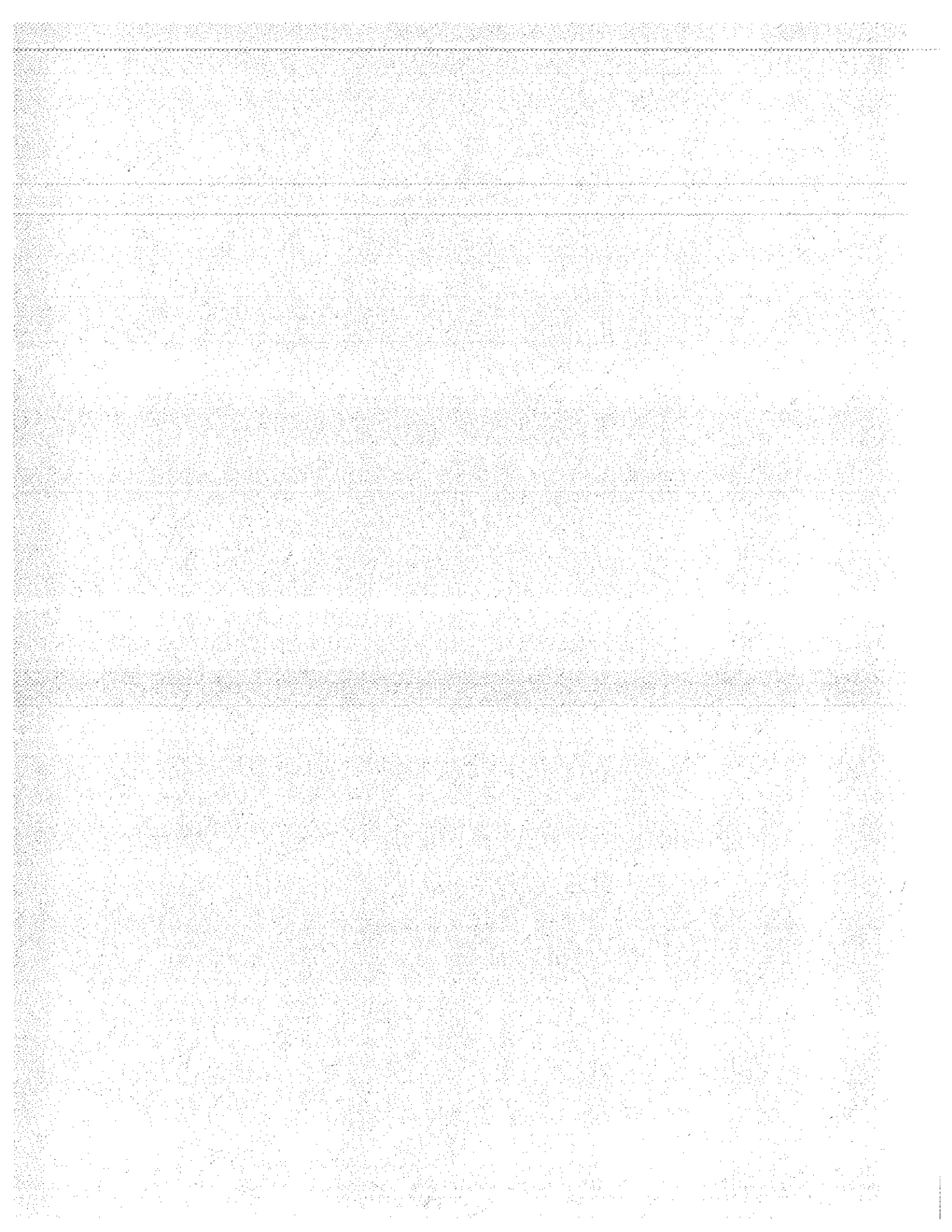
DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers						
Sample ID: IOC1524-01 (DRAFT: Outfall 005 - Water)															
Reporting Units: ug/l															
Lead	EPA 200.8	5C19038	0.13	1.0	0.50	1	03/19/05	03/21/05	<table border="1"> <tr> <td>Rev</td> <td>Qual</td> <td>Col</td> </tr> <tr> <td>J</td> <td>J</td> <td>DNQ</td> </tr> </table>	Rev	Qual	Col	J	J	DNQ
Rev	Qual	Col													
J	J	DNQ													

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





LABORATORY REPORT

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

Project: Routine Outfall 005

Sampled: 03/18/05
Received: 03/18/05
Issued: 03/31/05 09:25

NELAP #01108CA California ELAP#1197 CSDLAC #10117

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.

This entire report was reviewed and approved for release.

CASE NARRATIVE

- SAMPLE RECEIPT:** Samples were received intact, at 4°C, on ice and with chain of custody documentation.
- HOLDING TIMES:** All samples were analyzed within prescribed holding times and/or in accordance with the Del Mar Analytical Sample Acceptance Policy unless otherwise noted in the report.
- PRESERVATION:** Samples requiring preservation were verified prior to sample analysis.
- QA/QC CRITERIA:** All analyses met method criteria, except as noted in the report with data qualifiers.
- COMMENTS:** Results that fall between the MDL and RL are 'J' flagged.
- SUBCONTRACTED:** Refer to the last page for specific subcontract laboratory information included in this report.

LABORATORY ID
IOC1524-01

CLIENT ID
Outfall 005

MATRIX
Water

Reviewed By:

Del Mar Analytical, Irvine
Wendy Kirkeeng For Michele Harper
Project Manager



Del Mar Analytical

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

Project ID: Routine Outfall 005

Report Number: IOC1524

Sampled: 03/18/05
 Received: 03/18/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1524-01 (Outfall 005 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C19038	0.18	2.0	0.64	1	03/19/05	03/21/05	B, J
Cadmium	EPA 200.8	5C19038	0.015	1.0	0.034	1	03/19/05	03/21/05	B, J
Copper	EPA 200.8	5C19038	0.49	2.0	3.3	1	03/19/05	03/21/05	
Lead	EPA 200.8	5C19038	0.13	1.0	0.50	1	03/19/05	03/21/05	J
Mercury	EPA 245.1	5C19029	0.063	0.20	ND	1	03/19/05	03/19/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 005

Report Number: IOC1524

Sampled: 03/18/05

Received: 03/18/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1524-01 (Outfall 005 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C18104	0.26	0.50	2.2	1	03/18/05	03/19/05	
Nitrate/Nitrite-N	EPA 300.0	5C18104	0.072	0.11	3.1	1	03/18/05	03/19/05	
Oil & Grease	EPA 413.1	5C21062	0.94	5.0	ND	1	03/21/05	03/21/05	
Sulfate	EPA 300.0	5C18104	0.18	0.50	5.5	1	03/18/05	03/19/05	
Total Dissolved Solids	SM2540C	5C21073	10	10	51	1	03/21/05	03/21/05	
Total Suspended Solids	EPA 160.2	5C21068	10	10	ND	1	03/21/05	03/21/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 005

Report Number: IOC1524

Sampled: 03/18/05

Received: 03/18/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 005 (IOC1524-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/18/2005 14:11	03/18/2005 20:15	03/18/2005 23:00	03/19/2005 00:14

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 005

Report Number: IOC1524

Sampled: 03/18/05

Received: 03/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C19029 Extracted: 03/19/05											
Blank Analyzed: 03/19/2005 (5C19029-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 03/19/2005 (5C19029-BS1)											
Mercury	8.50	0.20	0.063	ug/l	8.00		106	85-115			
Matrix Spike Analyzed: 03/19/2005 (5C19029-MS1)											
						Source: IOC1454-01					
Mercury	8.46	0.20	0.063	ug/l	8.00	ND	106	70-130			
Matrix Spike Dup Analyzed: 03/19/2005 (5C19029-MSD1)											
						Source: IOC1454-01					
Mercury	8.44	0.20	0.063	ug/l	8.00	ND	106	70-130	0	20	
Batch: 5C19038 Extracted: 03/19/05											
Blank Analyzed: 03/21/2005 (5C19038-BLK1)											
Antimony	1.25	2.0	0.18	ug/l							J
Cadmium	0.0170	1.0	0.015	ug/l							J
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 03/21/2005 (5C19038-BS1)											
Antimony	81.3	2.0	0.18	ug/l	80.0		102	85-115			
Cadmium	78.9	1.0	0.015	ug/l	80.0		99	85-115			
Copper	80.6	2.0	0.49	ug/l	80.0		101	85-115			
Lead	81.1	1.0	0.13	ug/l	80.0		101	85-115			
Matrix Spike Analyzed: 03/21/2005 (5C19038-MS1)											
						Source: IOC1524-01					
Antimony	84.1	2.0	0.18	ug/l	80.0	0.64	104	70-130			
Cadmium	80.3	1.0	0.015	ug/l	80.0	0.034	100	70-130			
Copper	84.0	2.0	0.49	ug/l	80.0	3.3	101	70-130			
Lead	82.7	1.0	0.13	ug/l	80.0	0.50	103	70-130			

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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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	Project ID: Routine Outfall 005 Report Number: IOC1524	Sampled: 03/18/05 Received: 03/18/05
--	---	---

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19038 Extracted: 03/19/05											
Matrix Spike Dup Analyzed: 03/21/2005 (5C19038-MSD1)						Source: IOC1524-01					
Antimony	82.6	2.0	0.18	ug/l	80.0	0.64	102	70-130	2	20	
Cadmium	78.6	1.0	0.015	ug/l	80.0	0.034	98	70-130	2	20	
Copper	81.9	2.0	0.49	ug/l	80.0	3.3	98	70-130	3	20	
Lead	81.9	1.0	0.13	ug/l	80.0	0.50	102	70-130	1	20	

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

Project ID: Routine Outfall 005
 Report Number: IOC1524

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C18104 Extracted: 03/18/05										
Blank Analyzed: 03/18/2005 (5C18104-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 03/18/2005 (5C18104-BS1)										
Chloride	4.80	0.50	0.26	mg/l	5.00		96 90-110			
Sulfate	10.0	0.50	0.18	mg/l	10.0		100 90-110			
Matrix Spike Analyzed: 03/18/2005 (5C18104-MS1) Source: IOC1500-06										
Chloride	10.3	0.50	0.26	mg/l	5.00	6.1	84 80-120			
Sulfate	12.8	0.50	0.18	mg/l	10.0	3.8	90 80-120			
Matrix Spike Dup Analyzed: 03/18/2005 (5C18104-MSD1) Source: IOC1500-06										
Chloride	10.3	0.50	0.26	mg/l	5.00	6.1	84 80-120	0	20	
Sulfate	12.8	0.50	0.18	mg/l	10.0	3.8	90 80-120	0	20	
Batch: 5C21062 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21062-BLK1)										
Oil & Grease	ND	5.0	0.94	mg/l						
LCS Analyzed: 03/21/2005 (5C21062-BS1) M-NR1										
Oil & Grease	17.1	5.0	0.94	mg/l	20.0		86 65-120			
LCS Dup Analyzed: 03/21/2005 (5C21062-BSD1)										
Oil & Grease	16.0	5.0	0.94	mg/l	20.0		80 65-120	7	20	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 005 Report Number: IOC1524	Sampled: 03/18/05 Received: 03/18/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C21068 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21068-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/21/2005 (5C21068-BS1)											
Total Suspended Solids	942	10	10	mg/l	1000		94	85-115			
Duplicate Analyzed: 03/21/2005 (5C21068-DUP1)											
						Source: IOC1566-01					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Batch: 5C21073 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21073-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/21/2005 (5C21073-BS1)											
Total Dissolved Solids	968	10	10	mg/l	1000		97	90-110			
Duplicate Analyzed: 03/21/2005 (5C21073-DUP1)											
						Source: IOC1566-01					
Total Dissolved Solids	320	10	10	mg/l		300			6	10	

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 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 005 Report Number: IOC1524	Sampled: 03/18/05 Received: 03/18/05
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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
IOC1524-01	413.1 Oil and Grease	Oil & Grease	mg/l	0	5.0	15
IOC1524-01	Antimony-200.8	Antimony	ug/l	0.64	2.0	6.00
IOC1524-01	Cadmium-200.8	Cadmium	ug/l	0.034	1.0	4.00
IOC1524-01	Chloride - 300.0	Chloride	mg/l	2.20	0.50	150
IOC1524-01	Copper-200.8	Copper	ug/l	3.30	2.0	14
IOC1524-01	Mercury - 245.1	Mercury	ug/l	0.013	0.20	0.20
IOC1524-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	3.10	0.11	10.00
IOC1524-01	Sulfate-300.0	Sulfate	mg/l	5.50	0.50	250
IOC1524-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	51	10	850

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 005

Report Number: IOC1524

Sampled: 03/18/05

Received: 03/18/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- 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
Wendy Kirkeeng For Michele Harper
Project Manager



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	Project ID: Routine Outfall 005 Report Number: IOC1524	Sampled: 03/18/05 Received: 03/18/05
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Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
 Samples: IOC1524-01

Analysis Performed: EDD + Level 4
 Samples: IOC1524-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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1001524

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/04

Client Name/Address:		Project:		ANALYSIS REQUIRED		Field Readings:						
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>Ricky Andrade</i>		Boeing-SSFL NPDES Routine Outfall 005 Stormwater at FSDF-1 Phone Number: (626) 568-6891 Fax Number: (626) 568-6515		TCD (and all congeners) Oil & Grease (EPA 413.1) Cr, SO4, NO3+NO2-N TDS, TSS		Temp = 59.5 pH = 6.99						
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cr, SO4, NO3+NO2-N	TDS, TSS	Comments
Outfall 005	W	Poly-1L	1	3-18-15 11:05	HNO3	1A	X					
Outfall 005-Dup	W	Poly-1L	1		HNO3	1B	X					
Outfall 005	W	Glass- Amber	2		None	2A, 2B		X				
Outfall 005	W	Glass- Amber	2		HCl	3A, 3B		X				
Outfall 005	W	Poly-500 ml	2	3-18-15 14:11	None	4A, 4B			X			
Outfall 005	W	Poly-500 ml	2		None	5A, 5B				X		
Relinquished By	<i>Ricky Andrade</i>	Date/Time	3-18-15 11:05	Received By	<i>Ricky Andrade</i>	Date/Time	3/18/15 1020					
Relinquished By	<i>Ricky Andrade</i>	Date/Time	3/18/15 14:11	Received By	<i>Ricky Andrade</i>	Date/Time	3/18/15 2015					
Relinquished By	<i>Ricky Andrade</i>	Date/Time	3/18/15 14:11	Received By	<i>Ricky Andrade</i>	Date/Time	3/18/15 2015					

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) On Ice: 4°C

(Signature)



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March 28, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 005
Sampled: 03/18/05
Del Mar Analytical Number: IOC1524

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	ALTA ID
Routine Outfall 005	IOC1524-01	25940-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL


Michele Harper
Project Manager



March 24, 2005

Alta Project I.D.: 25940

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 March 22, 2005 under your Project Name "IOC1524". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 3/22/2005

Alta Lab. ID

Client Sample ID

25940-001

IOC1524-01

SECTION II



EPA Method 1613

Method Blank		Lab Sample: 0-MB001		Date Analyzed DB-5: 23-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6624 <th>Date Analyzed DB-5:</th> <td>23-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td></td>	Date Analyzed DB-5:	23-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td>	Date Analyzed DB-225:	NA
Sample Size:	1.000 L <th>Date Extracted:</th> <td>22-Mar-05 <th colspan="4"></th> </td>	Date Extracted:	22-Mar-05 <th colspan="4"></th>				
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.841			13C-2,3,7,8-TCDD	79.3	25 - 164
1,2,3,7,8-PeCDD	ND	0.749			13C-1,2,3,7,8-PeCDD	75.2	25 - 181
1,2,3,4,7,8-HxCDD	ND	1.49			13C-1,2,3,4,7,8-HxCDD	74.0	32 - 141
1,2,3,6,7,8-HxCDD	ND	1.52			13C-1,2,3,6,7,8-HxCDD	80.9	28 - 130
1,2,3,7,8,9-HxCDD	ND	1.50			13C-1,2,3,4,6,7,8-HpCDD	72.5	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	1.17			13C-OCDD	55.5	17 - 157
OCDD	ND	3.33			13C-2,3,7,8-TCDF	82.1	24 - 169
2,3,7,8-TCDF	ND	0.795			13C-1,2,3,7,8-PeCDF	74.6	24 - 185
1,2,3,7,8-PeCDF	ND	1.67			13C-2,3,4,7,8-PeCDF	77.9	21 - 178
2,3,4,7,8-PeCDF	ND	1.39			13C-1,2,3,4,7,8-HxCDF	62.7	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.474			13C-1,2,3,6,7,8-HxCDF	73.0	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.442			13C-2,3,4,6,7,8-HxCDF	71.1	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.510			13C-1,2,3,7,8,9-HxCDF	67.2	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.820			13C-1,2,3,4,6,7,8-HpCDF	67.8	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.929			13C-1,2,3,4,7,8,9-HpCDF	71.3	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	1.13			13C-OCDF	58.9	17 - 157
OCDF	ND	2.74			CRS 37Cl-2,3,7,8-TCDD	83.9	35 - 197
Totals							
Total TCDD	ND	0.841					
Total PeCDD	ND	0.749					
Total HxCDD	ND	1.51					
Total HpCDD	ND	1.17					
Total TCDF	ND	0.795					
Total PeCDF	ND	1.52					
Total HxCDF	ND	0.545					
Total HpCDF	ND	1.02					

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: Martha M. Maier 24-Mar-2005 09:48



EPA Method 1613

OPR Results

Matrix: Aqueous		QC Batch No.: 6624	Lab Sample: 0-OPR001			
Sample Size: 1.000 L		Date Extracted: 22-Mar-05	Date Analyzed DB-5: 23-Mar-05			
			Date Analyzed DB-225: NA			
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.02	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	86.2	25 - 164
1,2,3,7,8-PeCDD	50.0	44.9	35 - 71	13C-1,2,3,7,8-PeCDD	83.6	25 - 181
1,2,3,4,7,8-HxCDD	50.0	45.7	35 - 82	13C-1,2,3,4,7,8-HxCDD	83.1	32 - 141
1,2,3,6,7,8-HxCDD	50.0	47.1	38 - 67	13C-1,2,3,6,7,8-HxCDD	90.5	28 - 130
1,2,3,7,8,9-HxCDD	50.0	47.2	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	80.1	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	49.7	35 - 70	13C-OCDD	60.0	17 - 157
OCDD	100	102	78 - 144	13C-2,3,7,8-TCDF	89.6	24 - 169
2,3,7,8-TCDF	10.0	9.28	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	82.2	24 - 185
1,2,3,7,8-PeCDF	50.0	49.7	40 - 67	13C-2,3,4,7,8-PeCDF	86.0	21 - 178
2,3,4,7,8-PeCDF	50.0	48.9	34 - 80	13C-1,2,3,4,7,8-HxCDF	69.1	26 - 152
1,2,3,4,7,8-HxCDF	50.0	52.4	36 - 67	13C-1,2,3,6,7,8-HxCDF	83.1	26 - 123
1,2,3,6,7,8-HxCDF	50.0	51.4	42 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	28 - 136
2,3,4,6,7,8-HxCDF	50.0	51.3	35 - 78	13C-1,2,3,7,8,9-HxCDF	77.1	29 - 147
1,2,3,7,8,9-HxCDF	50.0	51.3	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	77.1	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	54.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	78.6	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	53.2	39 - 69	13C-OCDF	65.1	17 - 157
OCDF	100	103	63 - 170	CRS 37Cl-2,3,7,8-TCDD	89.8	35 - 197

Analyst: JMH

Approved By: Martha M. Maier 24-Mar-2005 09:48



Sample ID: IOC1524-01

EPA Method 1613

Client Data

Name: Del Mar Analytical, Irvine
 Project: IOC1524
 Date Collected: 18-Mar-05
 Time Collected: 1411

Sample Data

Matrix: Aqueous
 Sample Size: 0.967 L

Laboratory Data

Lab Sample: 25940-001 Date Received: 22-Mar-05
 QC Batch No.: 6624 Date Extracted: 22-Mar-05
 Date Analyzed DB-5: 23-Mar-05 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.687			13C-2,3,7,8-TCDD	91.5	25 - 164	
1,2,3,7,8-PeCDD	ND	0.774			13C-1,2,3,7,8-PeCDD	83.6	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.40			13C-1,2,3,4,7,8-HxCDD	81.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.42			13C-1,2,3,6,7,8-HxCDD	88.6	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.41			13C-1,2,3,4,6,7,8-HpCDD	76.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.87			13C-OCDD	57.8	17 - 157	
OCDD	11.6			J	13C-2,3,7,8-TCDF	95.2	24 - 169	
2,3,7,8-TCDF	ND	0.845			13C-1,2,3,7,8-PeCDF	83.9	24 - 185	
1,2,3,7,8-PeCDF	ND	1.25			13C-2,3,4,7,8-PeCDF	86.2	21 - 178	
2,3,4,7,8-PeCDF	ND	1.12			13C-1,2,3,4,7,8-HxCDF	66.1	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.695			13C-1,2,3,6,7,8-HxCDF	74.5	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.622			13C-2,3,4,6,7,8-HxCDF	75.5	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.723			13C-1,2,3,7,8,9-HxCDF	72.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.13			13C-1,2,3,4,6,7,8-HpCDF	74.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.893			J	13C-1,2,3,4,7,8,9-HpCDF	75.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.990			13C-OCDF	62.3	17 - 157	
OCDF	ND	3.23			CRS 37Cl-2,3,7,8-TCDD	84.4	35 - 197	

Totals

Total TCDD	ND	0.687						
Total PeCDD	ND	0.774						
Total HxCDD	ND	1.41						
Total HpCDD	ND	1.87						
Total TCDF	ND	0.845						
Total PeCDF	ND	1.18						
Total HxCDF	ND	0.773						
Total HpCDF	0.893							

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: Martha M. Maier 24-Mar-2005 09:48

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.

CURRENT CERTIFICATIONS



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)

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25940

1. Date Samples Arrived: <u>3/22/05 0945</u> Initials: <u>WJ</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>3/22/05 1115</u> Initials: <u>WJ</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> Blue Ice / Dry Ice / None Temp °C <u>2.9°</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7915 7864 2670</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

IOC1524-01
 IOC1561-01
 IOC1564-01
 IOC1565-01
 IOC1566-01

ALTA Analytical Laboratory
 El Dorado Hills, CA 95762



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
 9404 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 526-9388 Fax (619) 525-0689
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0051
 2820 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC1524

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) 933-0940

Standard TAT is requested unless specific due date is requested ⇒ Due Date: 5 DAY TAT Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC1524-01 Water 1613-Dioxin-HR EDD + Level 4	Sampled: 03/18/05 14:11 03/25/05 14:11 04/15/05 14:11	Instant Notification J flags, 17 congeners, no TEQ, sub to Alta Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied: 1 L Amber (IOC1524-01C) 1 L Amber (IOC1524-01D)		

25940 2.9°

SAMPLE INTEGRITY:

All containers intact: Yes No
 Sample labels/COC agree: Yes No
 Samples Received On Ice: Yes No
 Custody Seals Present: Yes No
 Samples Preserved Properly: Yes No
 Samples Received at (temp): _____

Released By: [Signature] Date: 3-21-05 Time: 1700 Received By: Christine Date: 3/22/05 Time: 0945

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

Project 25940 Page 1 of 1

APPENDIX G

Section 32

March Outfall 006

AMEC Data Validation Reports

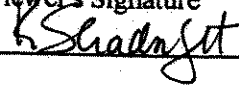
Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF34
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 4

Laboratory Alta
 Reviewer K. Shadowlight
 Analysis/Method Dioxins

Date: March 21, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were assigned for the following:
Holding Times	* EMPCs
GC/MS Tune/Inst. Performance	* Detects below the lower method calibration level
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS ^b	
<p>^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.</p>	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 4
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 21, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Alpha Outfall 012	IOC0195-01	25837-001	water	1613
Outfall 001	IOC0515-01	25849-001	water	1613
Outfall 006	IOC0452-01	25851-001	water	1613
Outfall 008	IOC0454-01	25850-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 1.3°C and 1.8°C ; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6593-MB001) was extracted and analyzed with the samples in these SDGs. Total TCDF was reported at 1.4 pg/L and target compound 1,2,3,6,7,8-HxCDF was reported as an EMPC. There were no other detects reported in the method blank and neither of the target compounds reported in the method blank was reported in the associated samples. A review of the method blank raw data and chromatograms indicated no false negatives or false positives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6593-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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J;" however, as Alta analyzed an additional calibration standard, not all results below the method calibration level were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. No further qualifications were required.

Sample ID: **IOC0452-01** Outfall 026 **EPA Method 1613**

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC0452
 Date Collected: 4-Mar-05
 Time Collected: 1030

Sample Data
 Matrix: Aqueous
 Sample Size: 0.967 L

Laboratory Data
 Lab Sample: 25851-001
 QC Batch No.: 6593
 Date Analyzed DB-5: 15-Mar-05
 Date Received: 8-Mar-05
 Date Extracted: 11-Mar-05
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.850			IS 13C-2,3,7,8-TCDD	76.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.496			13C-1,2,3,7,8-PeCDD	74.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.12			13C-1,2,3,4,7,8-HxCDD	76.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.15			13C-1,2,3,6,7,8-HxCDD	82.6	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.13			13C-1,2,3,4,6,7,8-HpCDD	73.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	6.94			J	13C-OCDD	51.9	17 - 157	
OCDD	74.9				13C-2,3,7,8-TCDF	79.1	24 - 169	
2,3,7,8-TCDF	ND	0.755			13C-1,2,3,7,8-PeCDF	69.1	24 - 185	
1,2,3,7,8-PeCDF	ND	1.20			13C-2,3,4,7,8-PeCDF	69.6	21 - 178	
2,3,4,7,8-PeCDF	ND	1.06			13C-1,2,3,4,7,8-HxCDF	66.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.391			13C-1,2,3,6,7,8-HxCDF	70.8	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.394			13C-2,3,4,6,7,8-HxCDF	72.7	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.423			13C-1,2,3,7,8,9-HxCDF	72.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.638			13C-1,2,3,4,6,7,8-HpCDF	68.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	1.38			J	13C-1,2,3,4,7,8,9-HpCDF	74.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.608			13C-OCDF	59.4	17 - 157	
OCDF	3.00			J	CRS 37Cl-2,3,7,8-TCDD	80.2	35 - 197	

Totals

Total TCDD	ND	0.850		
Total PeCDD	ND	0.496		
Total HxCDD	ND	1.14		
Total HpCDD	15.5			
Total TCDF	ND	0.755		
Total PeCDF	ND	1.13		
Total HxCDF	0.770			
Total HpCDF	1.38		3.14	

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: Martha M. Maier
 16-Mar-2005 12:14

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT47
Task Order 313150010
SDG No. Multiple

No. of Analyses 5

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method Metals

Date: 03/29/05

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.,**
 - Qualifications were applied for detects below the reporting limit.
 - Holding Times
 - GC/MS Tune/Inst.
 - Performance
 - Calibrations
 - Blanks
 - Surrogates
 - Matrix Spike/Dup LCS
 - Field QC
 - Internal Standard
 - Performance
 - Compound Identifica-
 - 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: METALS

SAMPLE DELIVERY GROUPS: IOC0449, IOC0450, IOC0451,
IOC0452 & IOC0453

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#: IOC0449, IOC0450, IOC0451, IOC0452 & IOC0453
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 29, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, and validation guidelines outlined in the *USEPA CLP 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 003	Outfall 003	IOC0449-01	water	ILM04
Outfall 004	Outfall 004	IOC0450-01	water	ILM04
Outfall 005	Outfall 005	IOC0451-01	water	ILM04
Outfall 006	Outfall 006	IOC0452-01	water	ILM04
Outfall 007	Outfall 007	IOC0453-01	water	ILM04

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 sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for all the samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

Lead was not detected in any of the blanks associated with these SDGs. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB standards were not analyzed in association with the samples in this SDG; therefore, no assessment can be made with respect to this criterion.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C08106-BS1 and the LCS result on the summary forms and in the raw data was within the laboratory-established ICP/MS control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Lead detected below the reporting limit was qualified as estimated, "J." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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

Project ID: Routine Outfall 006
 Routine Outfall 006
 Report Number: IOC0452

Sampled: 03/04/05
 Received: 03/04/05

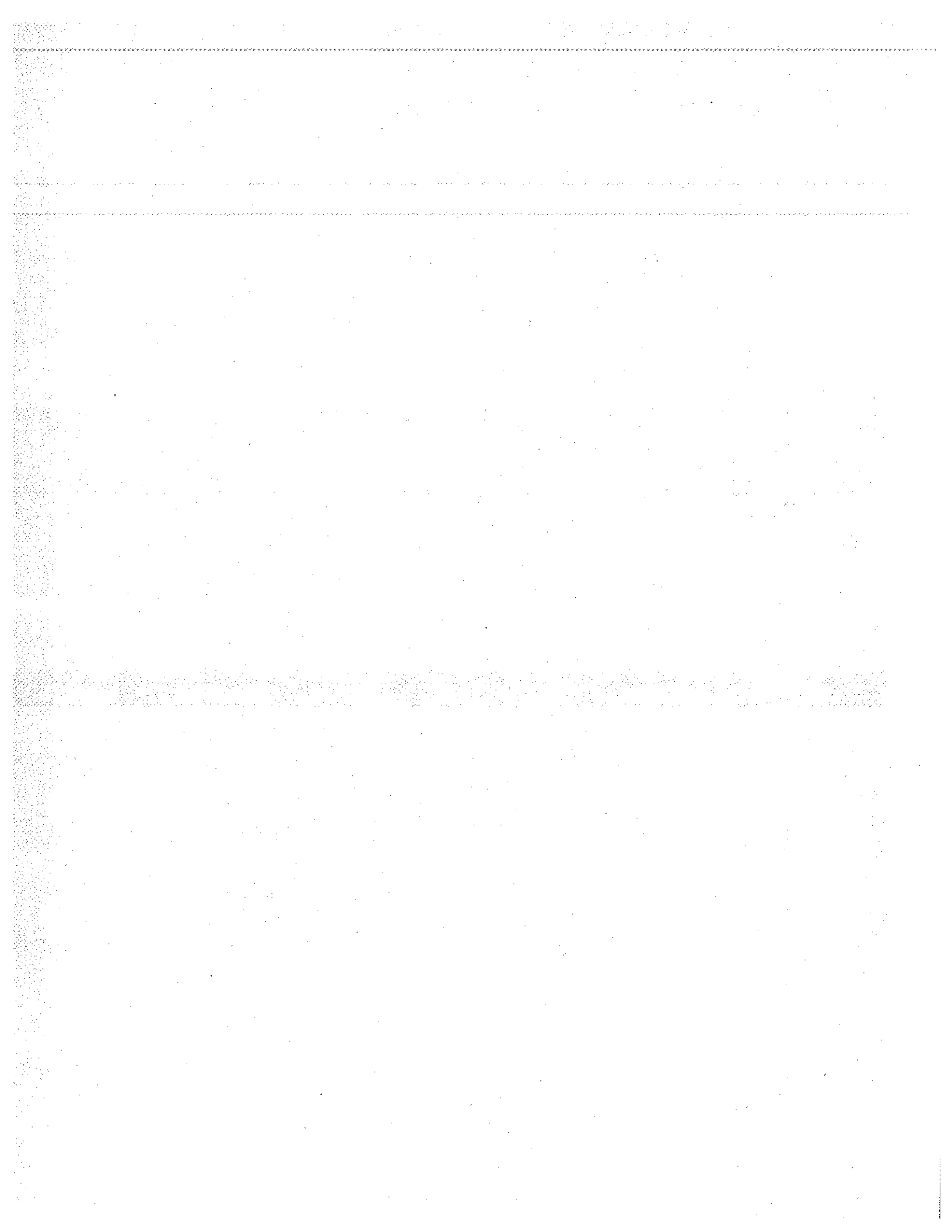
DRAFT: METALS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOC0452-01 (DRAFT: Outfall 006 - Water)												
Reporting Units: ug/l												
Lead	EPA 200.8	5C08106	1.0	1.7	1	3/8/2005	3/9/2005	<table border="1"> <tr> <td>Rev Qual</td> <td>Qual Code</td> </tr> <tr> <td></td> <td></td> </tr> </table>	Rev Qual	Qual Code		
Rev Qual	Qual Code											

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





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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 006

Sampled: 03/04/05
Received: 03/04/05
Issued: 03/25/05 11:10

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.
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
IOC0452-01

CLIENT ID
Outfall 006

MATRIX
Water

Reviewed By:

Del Mar Analytical, Irvine
Wendy Kirkeeng For 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 006 Report Number: IOC0452	Sampled: 03/04/05 Received: 03/04/05
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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0452-01 (Outfall 006 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C08106	0.18	2.0	0.27	1	03/08/05	03/09/05	J
Cadmium	EPA 200.8	5C08106	0.015	1.0	0.048	1	03/08/05	03/09/05	J
Copper	EPA 200.8	5C08106	0.49	2.0	4.6	1	03/08/05	03/09/05	
Lead	EPA 200.8	5C08106	0.13	1.0	1.7	1	03/08/05	03/09/05	
Mercury	EPA 245.1	5C09049	0.063	0.20	ND	1	03/09/05	03/09/05	

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 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 006 Report Number: IOC0452	Sampled: 03/04/05 Received: 03/04/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0452-01 (Outfall 006 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C04107	0.26	0.50	5.0	1	03/04/05	03/05/05	
Nitrate/Nitrite-N	EPA 300.0	5C04107	0.11	0.11	1.9	1	03/04/05	03/05/05	
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	0.96	1	03/09/05	03/09/05	B, J
Sulfate	EPA 300.0	5C04107	0.18	0.50	7.3	1	03/04/05	03/05/05	
Total Dissolved Solids	SM2540C	5C08110	10	10	170	1	03/08/05	03/08/05	
Total Suspended Solids	EPA 160.2	5C07073	10	10	48	1	03/07/05	03/07/05	

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 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 006

Report Number: IOC0452

Sampled: 03/04/05
 Received: 03/04/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 006 (IOC0452-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/04/2005 10:30	03/04/2005 17:50	03/04/2005 23:00	03/05/2005 01:42

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

Project ID: Routine Outfall 006

Report Number: IOC0452

Sampled: 03/04/05
 Received: 03/04/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
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Batch: 5C08106 Extracted: 03/08/05

Blank Analyzed: 03/09/2005 (5C08106-BLK1)

Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							

LCS Analyzed: 03/09/2005 (5C08106-BS1)

Antimony	90.7	2.0	0.18	ug/l	80.0		113	85-115			
Cadmium	86.3	1.0	0.015	ug/l	80.0		108	85-115			
Copper	78.1	2.0	0.49	ug/l	80.0		98	85-115			
Lead	84.0	1.0	0.13	ug/l	80.0		105	85-115			

Matrix Spike Analyzed: 03/09/2005 (5C08106-MS1)

					Source: IOC0448-01						
Antimony	92.4	2.0	0.18	ug/l	80.0	0.37	115	70-130			
Cadmium	81.1	1.0	0.015	ug/l	80.0	0.086	101	70-130			
Copper	79.4	2.0	0.49	ug/l	80.0	3.0	96	70-130			
Lead	79.6	1.0	0.13	ug/l	80.0	0.19	99	70-130			

Matrix Spike Dup Analyzed: 03/09/2005 (5C08106-MSD1)

					Source: IOC0448-01						
Antimony	91.3	2.0	0.18	ug/l	80.0	0.37	114	70-130	1	20	
Cadmium	80.9	1.0	0.015	ug/l	80.0	0.086	101	70-130	0	20	
Copper	78.7	2.0	0.49	ug/l	80.0	3.0	95	70-130	1	20	
Lead	78.6	1.0	0.13	ug/l	80.0	0.19	98	70-130	1	20	

Batch: 5C09049 Extracted: 03/09/05

Blank Analyzed: 03/09/2005 (5C09049-BLK1)

Mercury	ND	0.20	0.063	ug/l							
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 Wendy Kirkeeng For 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 006 Report Number: IOC0452	Sampled: 03/04/05 Received: 03/04/05
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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C09049 Extracted: 03/09/05											
LCS Analyzed: 03/09/2005 (5C09049-BS1)											
Mercury	7.82	0.20	0.063	ug/l	8.00		98	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09049-MS1) Source: IOC0451-01											
Mercury	8.31	0.20	0.063	ug/l	8.00	ND	104	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09049-MSD1) Source: IOC0451-01											
Mercury	8.23	0.20	0.063	ug/l	8.00	ND	103	70-130	1	20	

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

Project ID: Routine Outfall 006

Report Number: IOC0452

Sampled: 03/04/05

Received: 03/04/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C04107 Extracted: 03/04/05											
Blank Analyzed: 03/04/2005 (5C04107-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.11	0.11	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 03/04/2005 (5C04107-BS1)											
Chloride	5.16	0.50	0.26	mg/l	5.00		103	90-110			M-3
Sulfate	10.4	0.50	0.18	mg/l	10.0		104	90-110			M-3
Batch: 5C07073 Extracted: 03/07/05											
Blank Analyzed: 03/07/2005 (5C07073-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/07/2005 (5C07073-BS1)											
Total Suspended Solids	980	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 03/07/2005 (5C07073-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOC0451-01 ND				10	
Batch: 5C08110 Extracted: 03/08/05											
Blank Analyzed: 03/08/2005 (5C08110-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/08/2005 (5C08110-BS1)											
Total Dissolved Solids	976	10	10	mg/l	1000		98	90-110			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 006 Report Number: IOC0452	Sampled: 03/04/05 Received: 03/04/05
--	---	---

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C08110 Extracted: 03/08/05										
Duplicate Analyzed: 03/08/2005 (5C08110-DUP1)										
Total Dissolved Solids	187	10	10	mg/l		180		4	10	
Batch: 5C09091 Extracted: 03/09/05										
Blank Analyzed: 03/09/2005 (5C09091-BLK1)										
Oil & Grease	1.70	5.0	0.94	mg/l						J
LCS Analyzed: 03/09/2005 (5C09091-BS1)										
Oil & Grease	22.4	5.0	0.94	mg/l	20.0		112	65-120		M-NR1
LCS Dup Analyzed: 03/09/2005 (5C09091-BSD1)										
Oil & Grease	18.8	5.0	0.94	mg/l	20.0		94	65-120	17	20

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

Project ID: Routine Outfall 006

Report Number: IOC0452

Sampled: 03/04/05
 Received: 03/04/05

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
IOC0452-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.96	5.0	15
IOC0452-01	Antimony-200.8	Antimony	ug/l	0.27	2.0	6.00
IOC0452-01	Cadmium-200.8	Cadmium	ug/l	0.048	1.0	4.00
IOC0452-01	Chloride - 300.0	Chloride	mg/l	5.00	0.50	150
IOC0452-01	Copper-200.8	Copper	ug/l	4.60	2.0	14
IOC0452-01	Mercury - 245.1	Mercury	ug/l	0.041	0.20	0.20
IOC0452-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	1.90	0.11	10.00
IOC0452-01	Sulfate-300.0	Sulfate	mg/l	7.30	0.50	250
IOC0452-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	170	10	850

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

Project ID: Routine Outfall 006

Report Number: IOC0452

Sampled: 03/04/05

Received: 03/04/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- 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
Wendy Kirkeeng For Michele Harper
Project Manager

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IOC0452 <Page 10 of 11>



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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

Project ID: Routine Outfall 006

Report Number: IOC0452

Sampled: 03/04/05
 Received: 03/04/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
 Samples: IOC0452-01

Analysis Performed: EDD + Level 4
 Samples: IOC0452-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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.

1000452

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:
 MWH-Pasadena
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101

Project:
 Boeing-SSFL NPDES
 Routine Outfall 006
 Stormwater at FSDF-2

Project Manager: Bronwyn Kelly
Phone Number:
 (626) 568-6691
Fax Number:
 (626) 568-6515

Sampler: Fellocky

ANALYSIS REQUIRED	
Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg	X
TCDD (and all congeners)	
Oil & Grease (EPA 413.1)	
CH ₄ , SO ₄ , NO ₃ +NO ₂ -N	
TDS, TSS	

Field readings:
 Temp = 55.2
 pH = 6.9

Comments

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #
Outfall 006	W	Poly-1L	1	3-4-05 - 10:30	HNO3	1A
Outfall 006-Dup	W	Poly-1L	1		HNO3	1B
Outfall 006	W	Glass-Amber	2		None	2A, 2B
Outfall 006	W	Glass-Amber	2		HCl	3A, 3B
Outfall 006	W	Poly-500 ml	2		None	4A, 4B
Outfall 006	W	Poly-500 ml	2		None	5A, 5B

Relinquished By	Date/Time	Received By	Date/Time
<i>[Signature]</i>	3-4-05 1500	<i>[Signature]</i>	3-4-05 1500
<i>[Signature]</i>	3-4-05 1730	<i>[Signature]</i>	3-4-05 1730
<i>[Signature]</i>		<i>[Signature]</i>	

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 On Ice

[Signature]



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooloy 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

March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 006
Sampled: 03/04/05
Del Mar Analytical Number: IOC0452

Dear Ms. Kelly:

Alta Analytical Laboratory performed the EPA Method 1613 Dioxin analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Alta ID
Outfall 006	IOC0452-01	25851-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL

Michele Harper
Project Manager



March 16, 2005

Alta Project I.D.: 25851

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 March 08, 2005 under your Project Name "IOC0452". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640



Section I: Sample Inventory Report

Date Received: 3/8/2005

Alta Lab. ID

Client Sample ID

25851-001

IOC0452-01

SECTION II



Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	6593	Lab Sample:	0-MB001			
Sample Size:	1.000 L	Date Extracted:	11-Mar-05	Date Analyzed DB-5:	14-Mar-05			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.27			IS 13C-2,3,7,8-TCDD	61.5	25 - 164	
1,2,3,7,8-PeCDD	ND	1.50			13C-1,2,3,7,8-PeCDD	57.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.20			13C-1,2,3,4,7,8-HxCDD	67.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.32			13C-1,2,3,6,7,8-HxCDD	76.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.26			13C-1,2,3,4,6,7,8-HpCDD	56.6	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	3.00			13C-OCDD	26.9	17 - 157	
OCDD	ND	11.1			13C-2,3,7,8-TCDF	63.1	24 - 169	
2,3,7,8-TCDF	ND	1.37			13C-1,2,3,7,8-PeCDF	54.3	24 - 185	
1,2,3,7,8-PeCDF	ND	2.09			13C-2,3,4,7,8-PeCDF	58.1	21 - 178	
2,3,4,7,8-PeCDF	ND	1.73			13C-1,2,3,4,7,8-HxCDF	60.3	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.16	0.905		13C-1,2,3,6,7,8-HxCDF	70.6	26 - 123	
1,2,3,6,7,8-HxCDF	ND				13C-2,3,4,6,7,8-HxCDF	67.0	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.768			13C-1,2,3,7,8,9-HxCDF	62.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.22			13C-1,2,3,4,6,7,8-HpCDF	53.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	1.96			13C-1,2,3,4,7,8,9-HpCDF	57.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.38			13C-OCDF	32.9	17 - 157	
OCDF	ND	7.76			CRS 37Cl-2,3,7,8-TCDD	71.7	35 - 197	
Totals								
Total TCDD	ND	1.27						
Total PeCDD	ND	1.50						
Total HxCDD	ND	2.26						
Total HpCDD	ND	3.00						
Total TCDF	1.40		2.79	D				
Total PeCDF	ND	3.06						
Total HxCDF	ND		0.905					
Total HpCDF	ND	2.12						

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

Analyst: MAS
Approved By: Martha M. Maier
16-Mar-2005 12:14



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 14-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6593	Sample Size:	1.000 L	Date Extracted:	11-Mar-05
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.28	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	61.8	25 - 164	
1,2,3,7,8-PeCDD	50.0	47.1	35 - 71	13C-1,2,3,7,8-PeCDD	62.9	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	49.1	35 - 82	13C-1,2,3,4,7,8-HxCDD	65.8	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	49.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	77.0	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	49.4	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	67.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	51.7	35 - 70	13C-OCDD	38.7	17 - 157	
OCDD	100	104	78 - 144	13C-2,3,7,8-TCDF	63.1	24 - 169	
2,3,7,8-TCDF	10.0	9.58	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.0	24 - 185	
1,2,3,7,8-PeCDF	50.0	51.8	40 - 67	13C-2,3,4,7,8-PeCDF	63.2	21 - 178	
2,3,4,7,8-PeCDF	50.0	51.2	34 - 80	13C-1,2,3,4,7,8-HxCDF	57.9	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	53.8	36 - 67	13C-1,2,3,6,7,8-HxCDF	68.4	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	53.7	42 - 65	13C-2,3,4,6,7,8-HxCDF	67.7	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	53.8	35 - 78	13C-1,2,3,7,8,9-HxCDF	65.7	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	51.8	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	63.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	54.5	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	65.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	56.0	39 - 69	13C-OCDF	44.9	17 - 157	
OCDF	100	109	63 - 170	CRS 37Cl-2,3,7,8-TCDD	72.7	35 - 197	

Analyst: MAS

Approved By: Martha M. Maier 16-Mar-2005 12:14



Sample ID: IOC0452-01		EPA Method 1613			
Client Data		Sample Data		Laboratory Data	
Name: Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 25851-001	Date Received: 8-Mar-05		
Project: IOC0452	Sample Size: 0.967 L	QC Batch No.: 6593	Date Extracted: 11-Mar-05		
Date Collected: 4-Mar-05		Date Analyzed DB-5: 15-Mar-05	Date Analyzed DB-225: NA		
Time Collected: 1030					
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.850		76.2	25 - 164
1,2,3,7,8-PeCDD	ND	0.496		74.5	25 - 181
1,2,3,4,7,8-HxCDD	ND	1.12		76.7	32 - 141
1,2,3,6,7,8-HxCDD	ND	1.15		82.6	28 - 130
1,2,3,7,8,9-HxCDD	ND	1.13		73.7	23 - 140
1,2,3,4,6,7,8-HpCDD	6.94		J	51.9	17 - 157
OCDD	74.9			79.1	24 - 169
2,3,7,8-TCDF	ND	0.755		69.1	24 - 185
1,2,3,7,8-PeCDF	ND	1.20		69.6	21 - 178
2,3,4,7,8-PeCDF	ND	1.06		66.2	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.391		70.8	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.394		72.7	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.423		72.2	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.638		68.3	28 - 143
1,2,3,4,6,7,8-HpCDF	1.38		J	74.3	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.608		59.4	17 - 157
OCDF	3.00		J	80.2	35 - 197
Totals					
Total TCDD	ND	0.850			
Total PeCDD	ND	0.496			
Total HxCDD	ND	1.14			
Total HpCDD	15.5				
Total TCDF	ND	0.755			
Total PeCDF	ND	1.13			
Total HxCDF	0.770				
Total HpCDF	1.38		3.14		

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: Martha M. Maier 16-Mar-2005 12:14

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.
*	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 corresponds 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.

CURRENT CERTIFICATIONS

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)



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Conley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4867 Fax (909) 370-1046
 9484 Chappendale Drive, Suite 205, San Diego, CA 92123 Ph (619) 606-8888 Fax (619) 606-8880
 8830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 788-0043 Fax (480) 788-0061
 2820 E. Street Rd., Suite 85, Las Vegas, NV 89120 Ph (702) 788-3820 Fax (702) 788-3821

SUBCONTRACT ORDER - PROJECT # IOC0452

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 **25851**
 Phone: (916) 933-1640
 Fax: (916) 933-0940
1.3°C

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

Analysis	Expiration	Comments
Sample ID: IOC0452-01 Water 1613-Dioxin-HR EDD + Level 4	Sampled: 03/04/05 10:30 03/11/05 10:30 04/01/05 10:30	Instant Notification J flags, 17 congeners, no TEQ, sub to Alta Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied: 1 L Amber (IOC0452-01C) 1 L Amber (IOC0452-01D)		

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

[Signature] 3-7-05 1700 *[Signature]* 3/8/05 0939
 Released By _____ Date _____ Time _____ Received By _____ Date _____ Time _____

Released By _____ Date _____ Time _____ Received By _____ Date _____ Time _____
 Project 25851 Page 11 of 12

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25851

1. Date Samples Arrived: <u>3/8/05 0939</u>	Initials: <u>BBB</u>	Location: <u>WR-2</u>	
2. Time / Date logged in: <u>135 3/8/05</u>	Initials: <u>BBB</u>	Location: <u>WR-2</u>	
3. Samples Arrived By: (circle) <u>FedEx</u> <u>DPS</u> World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> <u>Blue Ice</u> Dry Ice / None Temp °C <u>1.3</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7928 6415 1912</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



17461 Dezan Ave, Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Cuskey Dr, Suite A, Colton, CA 92324 Ph (909) 370-4907 Fax (909) 370-1046
 9400 Chumashita Drive, Suite 205, San Diego, CA 92123 Ph (619) 305-9000 Fax (619) 500-0000
 8830 South 91st Street, Suite B-100, Phoenix, AZ 85044 Ph (480) 788-0048 Fax (480) 788-0091
 2889 E. Sunset Rd., Suite 100, Las Vegas, NV 89120 Ph (702) 788-0000 Fax (702) 788-0001

SUBCONTRACT ORDER - PROJECT # IOC0452

SENDING LABORATORY:
 Del Mar Analytical, Irvine
 17461 Dezan 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) 933-0940

1.3°C
2585/

Standard TAT is requested unless specific due date is requested -> Due Date: 2 week Initials: MH

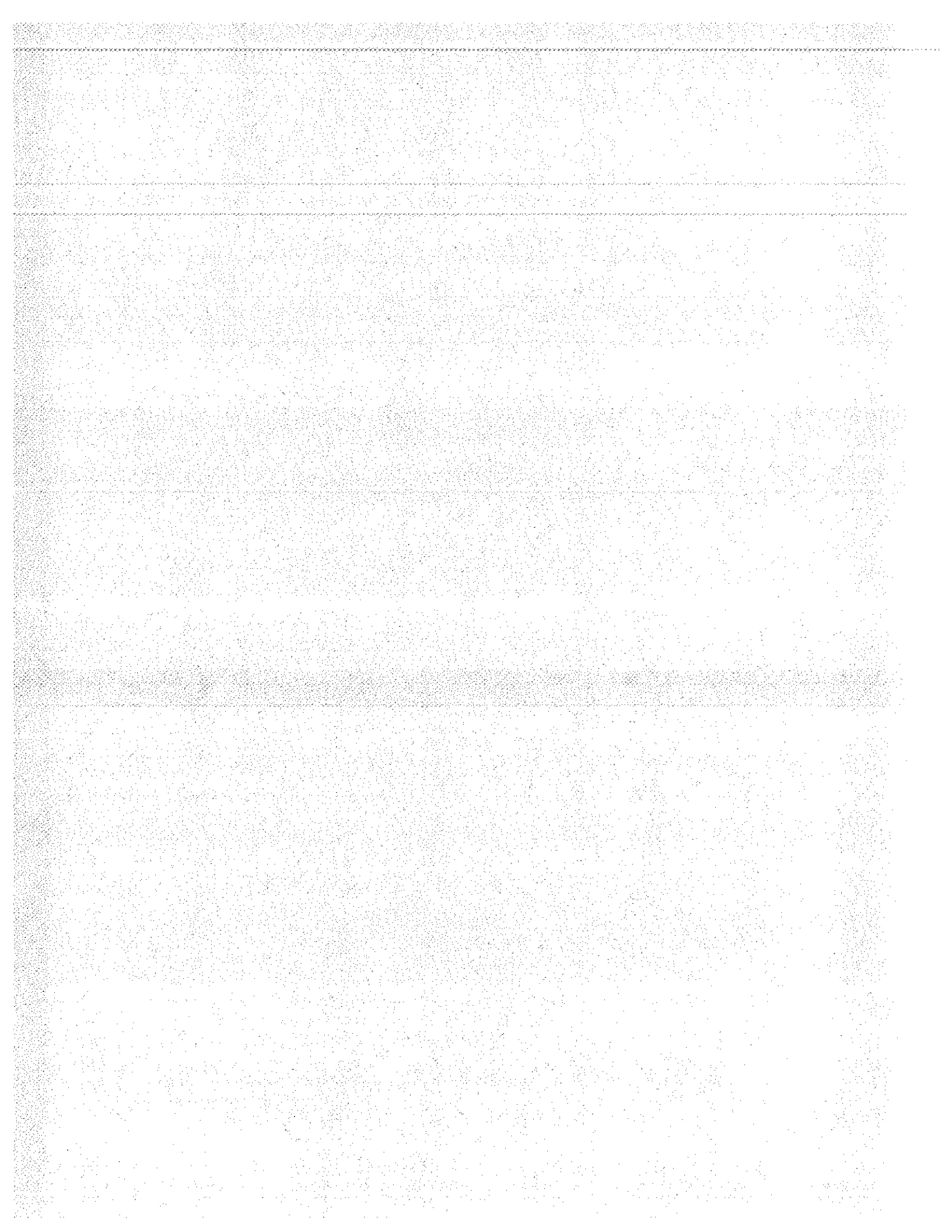
Analysis	Expiration	Comments
Sample ID: IOC0452-01 Water	Sampled: 03/04/05 10:30	Instant Notification
1613-Dioxin-HR	03/11/05 10:30	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/01/05 10:30	Excl EDD email to pm, include Std logs for Lvl IV
Containers Supplied: 1 L Amber (IOC0452-01C) 1 L Amber (IOC0452-01D)		

Sampler = P.P.
MH 3/7/05

SAMPLE INTEGRITY:

All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Received On Ice: <input type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Preserved Properly: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample Received at (temp): _____

Released By: [Signature] Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA


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

Package ID T711DF37
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 10

Laboratory Alta

Reviewer H. Chang

Analysis/Method Dioxin&Furans/1613

Date: April 4, 2005
 Reviewer's Signature


ACTION ITEMS^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Detects below the calibration range 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 GROUPS: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 10
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 4, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 002	IOC1521-01	25935-001	water	1613
Outfall 011	IOC1523-01	25936-001	water	1613
Outfall 005	IOC1524-01	25940-001	water	1613
Outfall 006	IOC1525-01	25937-001	water	1613
Outfall 011 Composite	IOC1526-01	25938-001	water	1613
Outfall 001	IOC1561-01	25941-001	water	1613
Outfall 004	IOC1563-01	25939-001	water	1613
Outfall 008	IOC1564-01	25942-001	water	1613
Outfall 003	IOC1565-01	25943-001	water	1613
Outfall 009	IOC1566-01	25944-001	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

Samples Outfall 001, Outfall 004, and Outfall 008 were received at Del Mar Analytical outside the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Due to non-volatile nature of the target compounds, no qualifications were required. The other samples were received with cooler temperatures within the limits. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (0_6624_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 (0_6624_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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." No further qualifications were required.

Sample ID: **IOC1525-01** *Durham 006* **EPA Method 1613**

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC1525
 Date Collected: 18-Mar-05
 Time Collected: 1421

Sample Data
 Matrix: Aqueous
 Sample Size: 0.940 L

Laboratory Data
 Lab Sample: 25937-001
 QC Batch No.: 6624
 Date Analyzed DB-5: 23-Mar-05
 Date Analyzed DB-225: NA

Date Received: 22-Mar-05
 Date Extracted: 22-Mar-05

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.713			IS 13C-2,3,7,8-TCDD	94.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.580			13C-1,2,3,7,8-PeCDD	89.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.25			13C-1,2,3,4,7,8-HxCDD	92.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.25			13C-1,2,3,6,7,8-HxCDD	96.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.24			13C-1,2,3,4,6,7,8-HpCDD	90.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	3.17			J	13C-OCDD	76.3	17 - 157	
OCDD	30.0			J				
2,3,7,8-TCDF	ND	0.929			13C-2,3,7,8-TCDF	98.6	24 - 169	
1,2,3,7,8-PeCDF	ND	1.27			13C-1,2,3,7,8-PeCDF	91.8	24 - 185	
2,3,4,7,8-PeCDF	ND	1.14			13C-2,3,4,7,8-PeCDF	93.9	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.635			13C-1,2,3,4,7,8-HxCDF	74.6	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.629			13C-2,3,4,6,7,8-HxCDF	84.7	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.702			13C-1,2,3,7,8,9-HxCDF	83.5	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.10			13C-1,2,3,4,6,7,8-HpCDF	86.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	1.22			J	13C-1,2,3,4,7,8,9-HpCDF	87.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.16			13C-OCDF	78.6	17 - 157	
OCDF	ND	1.87			CRS 37Cl-2,3,7,8-TCDD	88.8	35 - 197	

Totals

Total TCDD	ND	0.713		
Total PeCDD	ND	0.580		
Total HxCDD	ND	1.25		
Total HpCDD	3.17		6.23	
Total TCDF	ND	0.929		
Total PeCDF	ND	1.20		
Total HxCDF	ND	0.750		
Total HpCDF	1.22			

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: Martha M. Maier 24-Mar-2005 09:27

RECVALIDATED **LEVEL IV**



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOC1524, IOC1525, IOC1564,
IOC1565, & IOC1566

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#: IOC1524, IOC1525, IOC1564, IOC1565, & IOC1566
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 30, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: Multiple
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 005	Outfall 005	IOC1524-01	water	ILM04
Outfall 006	Outfall 006	IOC1525-01	water	ILM04
Outfall 008	Outfall 008	IOC1564-01	water	ILM04
Outfall 003	Outfall 003	IOC1565-01	water	ILM04
Outfall 009	Outfall 009	IOC1566-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

Outfall 008 was received above the temperature limit at 8°C ; however, as the sample had insufficient time to cool prior to receipt at the laboratory, no qualifications were required. The remaining samples in these SDGs were received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for the samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

Antimony was detected in every CCB in the analytical sequence in which Outfall 008 and Outfall 009 were analyzed. The detects ranged from 0.484 to 0.551 $\mu\text{g/L}$ and antimony was detected in Outfall 008 and Outfall 009 at concentrations below these values. The CCB detects indicated the laboratory could not detect antimony at the reported MDL. The reviewer raised the antimony MDL for Outfall 008 and Outfall 009 to the highest level of interference reported, 0.55 $\mu\text{g/L}$ and qualified the result as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper and cadmium were detected above the applicable reporting limit in the ICSA. Aluminum was recovered below the control limit in the all the ICSA and ICSAB analyses; however, as aluminum was not reported in the site samples, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix affects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS samples were identified as 5C21088-BS1 and 5C19038-BS1. The mercury LCS sample was identified as 5C21082-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed on Outfall 005 for lead only. The RPD was within the control limit of 20% and no qualifications were required.

2.8 MATRIX SPIKE

MS/MSD analyses were performed on Outfall 005 for lead only. Both recoveries were within the AMEC control limits of 75-125% and no qualifications were required. For the remaining analytes, method accuracy was evaluated based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Analytes detected below the reporting limit were qualified as estimated, "J." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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

Project ID: Routine Outfall 006

Report Number: IOC1525

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: METALS

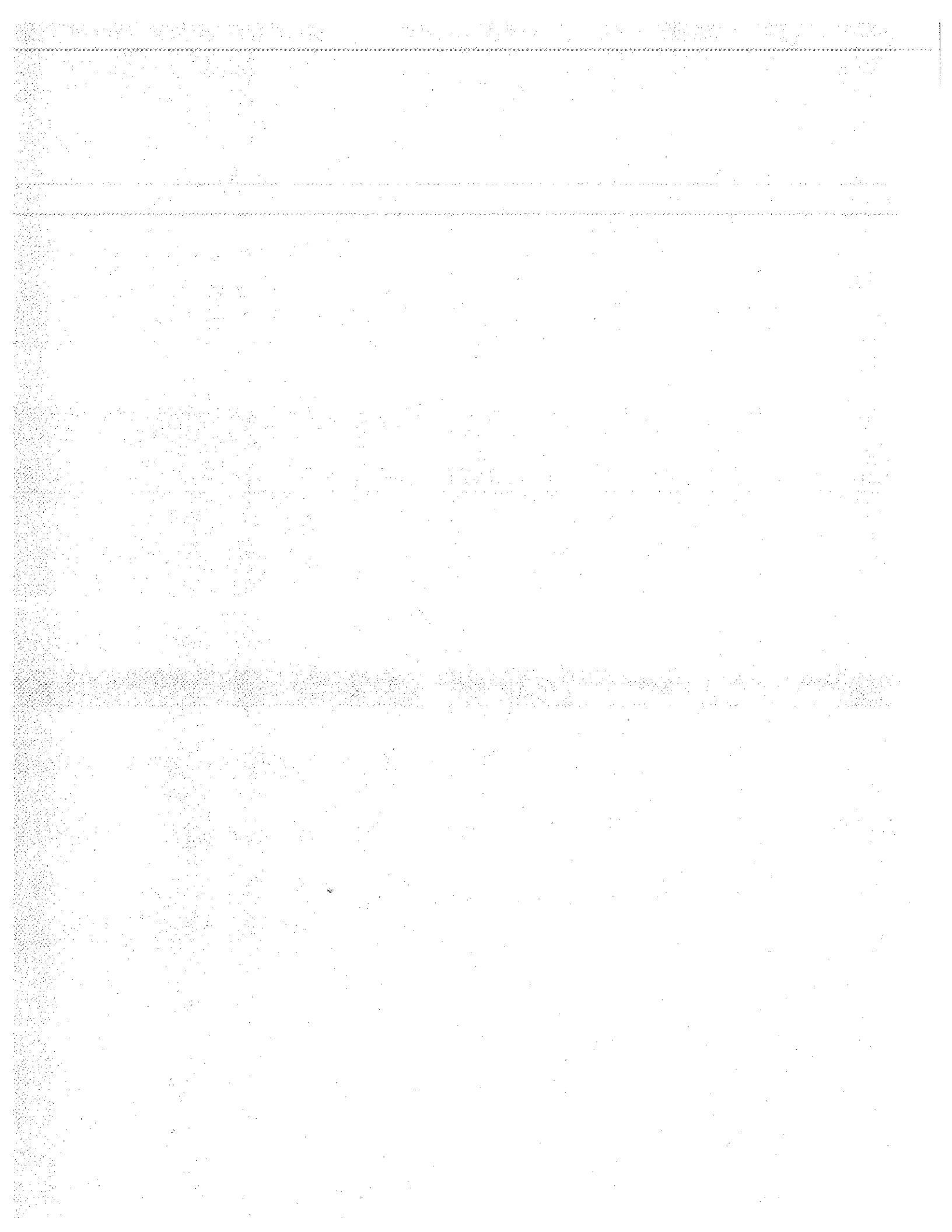
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers		
Sample ID: IOC1525-01 (DRAFT: Outfall 006 - Water)											
Reporting Units: ug/l											
Lead	EPA 200.8	5C19038	0.13	1.0	1.2	1	03/19/05	03/21/05	<table border="1"> <tr> <td>Low Qual</td> <td>Qual Code</td> </tr> </table>	Low Qual	Qual Code
Low Qual	Qual Code										

AMEC VALIDATED

LABORATORY

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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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 006

Sampled: 03/18/05
 Received: 03/18/05
 Issued: 03/31/05 09:26

NELAP #01108CA California ELAP#1197 CSDLAC #10117

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.

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
 IOC1525-01

CLIENT ID
 Outfall 006

MATRIX
 Water

Reviewed By:

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager



Del Mar Analytical

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 006

Report Number: IOC1525

Sampled: 03/18/05

Received: 03/18/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1525-01 (Outfall 006 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C19038	0.18	2.0	1.1	1	03/19/05	03/21/05	B, J
Cadmium	EPA 200.8	5C19038	0.015	1.0	0.055	1	03/19/05	03/21/05	B, J
Copper	EPA 200.8	5C19038	0.49	2.0	5.2	1	03/19/05	03/21/05	
Lead	EPA 200.8	5C19038	0.13	1.0	1.2	1	03/19/05	03/21/05	
Mercury	EPA 245.1	5C19029	0.063	0.20	ND	1	03/19/05	03/19/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 006

Report Number: IOC1525

Sampled: 03/18/05

Received: 03/18/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1525-01 (Outfall 006 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C18104	0.26	0.50	3.2	1	03/18/05	03/19/05	
Nitrate/Nitrite-N	EPA 300.0	5C18104	0.072	0.11	1.7	1	03/18/05	03/19/05	
Oil & Grease	EPA 413.1	5C21062	0.94	5.0	ND	1	03/21/05	03/21/05	
Sulfate	EPA 300.0	5C18104	0.18	0.50	6.8	1	03/18/05	03/19/05	
Total Dissolved Solids	SM2540C	5C21073	10	10	140	1	03/21/05	03/21/05	
Total Suspended Solids	EPA 160.2	5C21068	10	10	ND	1	03/21/05	03/21/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 006

Report Number: IOC1525

Sampled: 03/18/05

Received: 03/18/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 006 (IOC1525-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/18/2005 14:21	03/18/2005 20:15	03/18/2005 23:00	03/19/2005 00:40

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 006

Report Number: IOC1525

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19029 Extracted: 03/19/05											
Blank Analyzed: 03/19/2005 (5C19029-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 03/19/2005 (5C19029-BS1)											
Mercury	8.50	0.20	0.063	ug/l	8.00		106	85-115			
Matrix Spike Analyzed: 03/19/2005 (5C19029-MS1)											
						Source: IOC1454-01					
Mercury	8.46	0.20	0.063	ug/l	8.00	ND	106	70-130			
Matrix Spike Dup Analyzed: 03/19/2005 (5C19029-MSD1)											
						Source: IOC1454-01					
Mercury	8.44	0.20	0.063	ug/l	8.00	ND	106	70-130	0	20	
Batch: 5C19038 Extracted: 03/19/05											
Blank Analyzed: 03/21/2005 (5C19038-BLK1)											
Antimony	1.25	2.0	0.18	ug/l							J
Cadmium	0.0170	1.0	0.015	ug/l							J
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 03/21/2005 (5C19038-BS1)											
Antimony	81.3	2.0	0.18	ug/l	80.0		102	85-115			
Cadmium	78.9	1.0	0.015	ug/l	80.0		99	85-115			
Copper	80.6	2.0	0.49	ug/l	80.0		101	85-115			
Lead	81.1	1.0	0.13	ug/l	80.0		101	85-115			
Matrix Spike Analyzed: 03/21/2005 (5C19038-MS1)											
						Source: IOC1524-01					
Antimony	84.1	2.0	0.18	ug/l	80.0	0.64	104	70-130			
Cadmium	80.3	1.0	0.015	ug/l	80.0	0.034	100	70-130			
Copper	84.0	2.0	0.49	ug/l	80.0	3.3	101	70-130			
Lead	82.7	1.0	0.13	ug/l	80.0	0.50	103	70-130			

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 006

Report Number: IOC1525

Sampled: 03/18/05

Received: 03/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19038 Extracted: 03/19/05											
Matrix Spike Dup Analyzed: 03/21/2005 (5C19038-MSD1)						Source: IOC1524-01					
Antimony	82.6	2.0	0.18	ug/l	80.0	0.64	102	70-130	2	20	
Cadmium	78.6	1.0	0.015	ug/l	80.0	0.034	98	70-130	2	20	
Copper	81.9	2.0	0.49	ug/l	80.0	3.3	98	70-130	3	20	
Lead	81.9	1.0	0.13	ug/l	80.0	0.50	102	70-130	1	20	

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 Wendy Kirkeeng For 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 006

Report Number: IOC1525

Sampled: 03/18/05

Received: 03/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C18104 Extracted: 03/18/05											
Blank Analyzed: 03/18/2005 (5C18104-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 03/18/2005 (5C18104-BS1)											
Chloride	4.80	0.50	0.26	mg/l	5.00		96	90-110			
Sulfate	10.0	0.50	0.18	mg/l	10.0		100	90-110			
Matrix Spike Analyzed: 03/18/2005 (5C18104-MS1)											
						Source: IOC1500-06					
Chloride	10.3	0.50	0.26	mg/l	5.00	6.1	84	80-120			
Sulfate	12.8	0.50	0.18	mg/l	10.0	3.8	90	80-120			
Matrix Spike Dup Analyzed: 03/18/2005 (5C18104-MSD1)											
						Source: IOC1500-06					
Chloride	10.3	0.50	0.26	mg/l	5.00	6.1	84	80-120	0	20	
Sulfate	12.8	0.50	0.18	mg/l	10.0	3.8	90	80-120	0	20	
Batch: 5C21062 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21062-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 03/21/2005 (5C21062-BS1)											
Oil & Grease	17.1	5.0	0.94	mg/l	20.0		86	65-120			M-NR1
LCS Dup Analyzed: 03/21/2005 (5C21062-BSD1)											
Oil & Grease	16.0	5.0	0.94	mg/l	20.0		80	65-120	7	20	

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 Wendy Kirkeeng For 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 006

Report Number: IOC1525

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
Batch: 5C21068 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21068-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21068-BS1)										
Total Suspended Solids	942	10	10	mg/l	1000		94	85-115		
Duplicate Analyzed: 03/21/2005 (5C21068-DUP1)										
Total Suspended Solids	ND	10	10	mg/l		Source: IOC1566-01 ND			10	
Batch: 5C21073 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21073-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21073-BS1)										
Total Dissolved Solids	968	10	10	mg/l	1000		97	90-110		
Duplicate Analyzed: 03/21/2005 (5C21073-DUP1)										
Total Dissolved Solids	320	10	10	mg/l		Source: IOC1566-01 300			6	10

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 006

Report Number: IOC1525

Sampled: 03/18/05

Received: 03/18/05

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
IOC1525-01	413.1 Oil and Grease	Oil & Grease	mg/l	0	5.0	15
IOC1525-01	Antimony-200.8	Antimony	ug/l	1.10	2.0	6.00
IOC1525-01	Cadmium-200.8	Cadmium	ug/l	0.055	1.0	4.00
IOC1525-01	Chloride - 300.0	Chloride	mg/l	3.20	0.50	150
IOC1525-01	Copper-200.8	Copper	ug/l	5.20	2.0	14
IOC1525-01	Mercury - 245.1	Mercury	ug/l	0.0075	0.20	0.20
IOC1525-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	1.70	0.11	10.00
IOC1525-01	Sulfate-300.0	Sulfate	mg/l	6.80	0.50	250
IOC1525-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	140	10	850

Del Mar Analytical, Irvine
Wendy Kirkeeng For Michele Harper
Project Manager

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IOC1525 <Page 9 of 11>



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 006 Report Number: IOC1525	Sampled: 03/18/05 Received: 03/18/05
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DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- 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
Wendy Kirkeeng For 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 006

Report Number: IOC1525

Sampled: 03/18/05

Received: 03/18/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC1525-01

Analysis Performed: EDD + Level 4

Samples: IOC1525-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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IO(1525

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

Client Name/Address:
MWH-Pasadena
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101

Project:
**Boeing-SSFL NPDES
 Routine Outfall 006
 Stormwater at FSDf-2**

Project Manager: **Bronwyn Kelly**
 Phone Number:
 (626) 568-6691
 Fax Number:
 (626) 568-6515

Sampler: **Pick Bump**

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cr, SO4, NO3+NO2-N	TDS, TSS	Comments
Outfall 006	W	Poly-1L	1	3-18-05 14:21	HNO3	1A	X					Field readings: Temp = 57.9 °C pH = 7.18
Outfall 006-Dup	W	Poly-1L	1		HNO3	1B	X					
Outfall 006	W	Glass-Amber	2		None	2A, 2B		X				
Outfall 006	W	Glass-Amber	2		HCl	3A, 3B		X				
Outfall 006	W	Poly-500 ml	2		None	4A, 4B			X			
Outfall 006	W	Poly-500 ml	2	3-23-05 14:21	None	5A, 5B				X		

Relinquished By: *[Signature]* Date/Time: 3-18-05 1620

Received By: *[Signature]* Date/Time: 3/18/05 1620

Relinquished By: *[Signature]* Date/Time: 3/18/05 2015

Received By: *[Signature]* Date/Time: 3/18/05 2015

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 On Ice: X 4°C

[Handwritten Signature]

March 28, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 006
Sampled: 03/18/05
Del Mar Analytical Number: IOC1525

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	ALTA ID
Routine Outfall 006	IOC1525-01	25937-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL



Michele Harper
Project Manager

Section I: Sample Inventory Report

Date Received: 3/22/2005

Alta Lab. ID

Client Sample ID

25937-001

IOC1525-01

SECTION II



Method Blank		EPA Method 1613				
Matrix:	Aqueous	QC Batch No.:	6624	Lab Sample:	0-MB001	
Sample Size:	1.000 L	Date Extracted:	22-Mar-05	Date Analyzed DB-5:	23-Mar-05	
				Date Analyzed DB-225:	NA	
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.841		79.3	25 - 164	IS
1,2,3,7,8-PeCDD	ND	0.749		75.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.49		74.0	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.52		80.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.50		72.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.17		55.5	17 - 157	
OCDD	ND	3.33		82.1	24 - 169	
2,3,7,8-TCDF	ND	0.795		74.6	24 - 185	
1,2,3,7,8-PeCDF	ND	1.67		77.9	21 - 178	
2,3,4,7,8-PeCDF	ND	1.39		62.7	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.474		73.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.442		71.1	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.510		67.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.820		67.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.929		71.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.13		58.9	17 - 157	
OCDF	ND	2.74		83.9	35 - 197	
Totals						
Total TCDD	ND	0.841				
Total PeCDD	ND	0.749				
Total HxCDD	ND	1.51				
Total HpCDD	ND	1.17				
Total TCDF	ND	0.795				
Total PeCDF	ND	1.52				
Total HxCDF	ND	0.545				
Total HpCDF	ND	1.02				
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: Martha M. Maier 24-Mar-2005 09:27



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 23-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous <th>QC Batch No.:</th> <td>6624 <th>Sample Size:</th> <td>1.000 L <th>IS</th> <td></td> </td></td>	QC Batch No.:	6624 <th>Sample Size:</th> <td>1.000 L <th>IS</th> <td></td> </td>	Sample Size:	1.000 L <th>IS</th> <td></td>	IS	
Date Extracted:	22-Mar-05 <th>OPR Limits</th> <td></td> <th>Labeled Standard</th> <td></td> <th>%R</th> <td></td>	OPR Limits		Labeled Standard		%R	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.02	6.7 - 15.8	13C-2,3,7,8-TCDD	86.2	25 - 164	
1,2,3,7,8-PeCDD	50.0	44.9	35 - 71	13C-1,2,3,7,8-PeCDD	83.6	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	45.7	35 - 82	13C-1,2,3,4,7,8-HxCDD	83.1	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	47.1	38 - 67	13C-1,2,3,6,7,8-HxCDD	90.5	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	47.2	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	80.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	49.7	35 - 70	13C-OCDD	60.0	17 - 157	
OCDD	100	102	78 - 144	13C-2,3,7,8-TCDF	89.6	24 - 169	
2,3,7,8-TCDF	10.0	9.28	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	82.2	24 - 185	
1,2,3,7,8-PeCDF	50.0	49.7	40 - 67	13C-2,3,4,7,8-PeCDF	86.0	21 - 178	
2,3,4,7,8-PeCDF	50.0	48.9	34 - 80	13C-1,2,3,4,7,8-HxCDF	69.1	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	52.4	36 - 67	13C-1,2,3,6,7,8-HxCDF	83.1	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	51.4	42 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	51.3	35 - 78	13C-1,2,3,7,8,9-HxCDF	77.1	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	51.3	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	77.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	54.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	78.6	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	53.2	39 - 69	13C-OCDF	65.1	17 - 157	
OCDF	100	103	63 - 170	CRS 37Cl-2,3,7,8-TCDD	89.8	35 - 197	

Analyst: JMH

Approved By: Martha M. Maier 24-Mar-2005 09:27



Sample ID: **IOC1525-01**

EPA Method 1613

Client Data

Name: Del Mar Analytical, Irvine
 Project: IOC1525
 Date Collected: 18-Mar-05
 Time Collected: 1421

Sample Data

Matrix: Aqueous
 Sample Size: 0.940 L

Laboratory Data

Lab Sample: 25937-001
 QC Batch No.: 6624
 Date Analyzed DB-5: 23-Mar-05
 Date Received: 22-Mar-05
 Date Extracted: 22-Mar-05
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.713			IS 13C-2,3,7,8-TCDD	94.0	25 - 164	
1,2,3,7,8-PeCDD	ND	0.580			13C-1,2,3,7,8-PeCDD	89.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.25			13C-1,2,3,4,7,8-HxCDD	92.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.25			13C-1,2,3,6,7,8-HxCDD	96.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.24			13C-1,2,3,4,6,7,8-HpCDD	90.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	3.17			J	13C-OCDD	76.3	17 - 157	
OCDD	30.0			J	13C-2,3,7,8-TCDF	98.6	24 - 169	
2,3,7,8-TCDF	ND	0.929			13C-1,2,3,7,8-PeCDF	91.8	24 - 185	
1,2,3,7,8-PeCDF	ND	1.27			13C-2,3,4,7,8-PeCDF	93.9	21 - 178	
2,3,4,7,8-PeCDF	ND	1.14			13C-1,2,3,4,7,8-HxCDF	74.6	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.635			13C-1,2,3,6,7,8-HxCDF	85.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.629			13C-2,3,4,6,7,8-HxCDF	84.7	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.702			13C-1,2,3,7,8,9-HxCDF	83.5	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.10			13C-1,2,3,4,6,7,8-HpCDF	86.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	1.22			J	13C-1,2,3,4,7,8,9-HpCDF	87.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.16			13C-OCDF	78.6	17 - 157	
OCDF	ND	1.87			CRS 37Cl-2,3,7,8-TCDD	88.8	35 - 197	

Totals

Total TCDD	ND	0.713						
Total PeCDD	ND	0.580						
Total HxCDD	ND	1.25						
Total HpCDD	3.17		6.23					
Total TCDF	ND	0.929						
Total PeCDF	ND	1.20						
Total HxCDF	ND	0.750						
Total HpCDF	1.22							

- 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: Martha M. Maier 24-Mar-2005 09:27

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.

CURRENT CERTIFICATIONS



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)

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

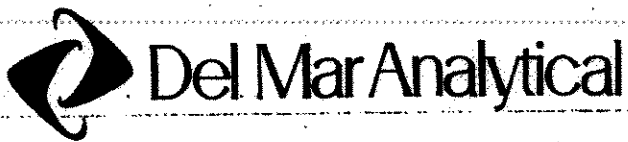
ALTA Project No.: 25937

1. Date Samples Arrived:	<u>3/22/05 0945</u>	Initials:	<u>W</u>	Location:	<u>WR-2</u>
2. Time / Date logged in:	<u>3/22/05 1115</u>	Initials:	<u>W</u>	Location:	<u>WR-2</u>
3. Samples Arrived By: (circle)	<u>FedEx</u>	UPS	World Courier	Other:	
4. Shipping Preservation: (circle)	<u>Ice</u>	Blue Ice	Dry Ice	None	Temp °C <u>3.2</u>
5. Shipping Container(s) intact? If not, describe condition in comment section.		YES	NO	NA	
6. Shipping Container(s) Custody Seals Present?		✓			
Intact? If not intact, describe condition in comment section.		✓			
7. Shipping Documentation Present? (circle) Shipping Label		✓			
Tracking Number	<u>RLS TBA 570L</u>				
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	<u>Client</u>	Retain	or	<u>Return</u>	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:

IOC1521-01
 IOC1523-01
 IOC1525-01
 IOC1526-01
 IOC1563-01

ALTA Analytical Laboratory
 El Dorado Hills, CA 95762



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) 370-4087 Fax (909) 370-1048
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-8586 Fax (619) 505-8689
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
 2520 E. Sunset Rd., Suite #9, Las Vegas, NV 89129 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC1525

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940

Standard TAT is requested unless specific due date is requested => Due Date: 5 DAY TAT Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC1525-01 Water	Sampled: 03/18/05 14:21	Instant Notification
1613-Dioxin-HR	03/25/05 14:21	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/15/05 14:21	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC1525-01C)		
1 L Amber (IOC1525-01D)		

25937 3.2°

SAMPLE INTEGRITY:

All containers intact: Yes No
 Sample labels/COC agree: Yes No
 Samples Received On Ice: Yes No
 Custody Seals Present: Yes No
 Samples Preserved Properly: Yes No
 Samples Received at (temp): _____

Released By: [Signature] Date: 3-21-05 Time: 1700
 Received By: Christine Vachere Date: 3/22/05 Time: 0945

Released By: _____ Date: _____ Time: _____
 Received By: _____ Date: _____ Time: _____

APPENDIX G

Section 33

March Outfall 007

AMEC Data Validation Reports


Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF35
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 6

Laboratory Alta
 Reviewer K. Shadowlight
 Analysis/Method Dioxins

Date: March 23, 2005
 Reviewer's Signature


ACTION ITEMS*	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were assigned for the following:
Holding Times	* EMPCs
GC/MS Tune/Inst. Performance	* Detects below the lower method calibration level
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS ^b	
<p>^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.</p> <p>^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</p>	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 21, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 002	IOC0447-01	25853-001	water	1613
Outfall 003	IOC0449-01	25854-001	water	1613
Outfall 004	IOC0455-01	25855-001	water	1613
Outfall 005	IOC0451-01	25855-001	water	1613
Outfall 007	IOC0453-01	25856-001	water	1613
Outfall 011	IOC0448-01	25852-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 1.3°C and 1.4°C ; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6593-MB001) was extracted and analyzed with the samples in these SDGs. Total TCDF was reported at 1.4 pg/L and target compound 1,2,3,6,7,8-HxCDF was reported as an EMPC. The results for total TCDF in samples Outfall 003 and Outfall 011 were qualified as estimated nondetects "UJ," at the levels of interference. A review of the method blank raw data and chromatograms indicated no false negatives or false positives. No further qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6593-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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." The result for total TCDF in sample Outfall 003 was flagged by the laboratory with a "D" qualifier which indicated possible diphenylether interference; however, the result was qualified as a nondetect due to method blank contamination and no qualifications were required. No further qualifications were required.

Sample ID: IOC0453-01 Outfall 007

EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25856-001
Project:	IOC0453	Sample Size:	0.963 L	QC Batch No.:	6593
Date Collected:	4-Mar-05			Date Analyzed DB-5:	15-Mar-05
Time Collected:	1118			Date Analyzed DB-225:	NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.873		13C-2,3,7,8-TCDD	68.3 25 - 164
1,2,3,7,8-PeCDD	ND	0.738		13C-1,2,3,7,8-PeCDD	66.1 25 - 181
1,2,3,4,7,8-HxCDD	ND	1.68		13C-1,2,3,4,7,8-HxCDD	74.6 32 - 141
1,2,3,6,7,8-HxCDD	ND	1.81		13C-1,2,3,6,7,8-HxCDD	76.0 28 - 130
1,2,3,7,8,9-HxCDD	ND	1.74		13C-1,2,3,4,6,7,8-HpCDD	66.8 23 - 140
1,2,3,4,6,7,8-HpCDD	3.57			13C-OCDD	46.0 17 - 157
OCDD	31.7		J	13C-2,3,7,8-TCDF	72.7 24 - 169
2,3,7,8-TCDF	ND	0.820		13C-1,2,3,7,8-PeCDF	60.8 24 - 185
1,2,3,7,8-PeCDF	ND	1.24		13C-2,3,4,7,8-PeCDF	65.0 21 - 178
2,3,4,7,8-PeCDF	ND	1.09		13C-1,2,3,4,7,8-HxCDF	60.3 26 - 152
1,2,3,4,7,8-HxCDF	ND	0.454		13C-1,2,3,6,7,8-HxCDF	67.2 26 - 123
1,2,3,6,7,8-HxCDF	ND	0.444		13C-2,3,4,6,7,8-HxCDF	67.6 28 - 136
2,3,4,6,7,8-HxCDF	ND	0.488		13C-1,2,3,7,8,9-HxCDF	65.7 29 - 147
1,2,3,7,8,9-HxCDF	ND	0.761		13C-1,2,3,4,6,7,8-HpCDF	59.9 28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.753		13C-1,2,3,4,7,8,9-HpCDF	66.7 26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.817		13C-OCDF	50.6 17 - 157
OCDF	ND	2.32		CRS 37Cl-2,3,7,8-TCDD	79.4 35 - 197
Totals					
Total TCDD	ND	0.873			
Total PeCDD	ND	0.738			
Total HxCDD	ND	1.74			
Total HpCDD	8.96				
Total TCDF	ND	0.820			
Total PeCDF	ND	1.16			
Total HxCDF	ND	0.524			
Total HpCDF	ND	0.780			

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: Martha M. Maier
 Date: 16-Mar-2005 14:32

MAILED
 12 MAR 2005

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT47
Task Order 313150010
SDG No. Multiple

No. of Analyses 5

Laboratory Del Mar

Date: 03/29/05

Reviewer P. Meeks

Reviewer's Signature

Analysis/Method Metals

P. Meeks

ACTION ITEMS*

1. Case Narrative
Deficiencies

2. Out of Scope
Analyses

3. Analyses Not
Conducted

4. Missing Hardcopy
Deliverables

5. Incorrect Hardcopy
Deliverables

6. Deviations from Analysis Protocol, e.g., Qualifications were applied for detects below the reporting limit.

Holding Times
GC/MS Tune/Inst.

Performance
Calibrations
Blanks
Surrogates
Matrix Spike/Dup LCS
Field QC
Internal Standard
Performance
Compound Identifica-

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: METALS

SAMPLE DELIVERY GROUPS: IOC0449, IOC0450, IOC0451,
IOC0452 & IOC0453

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#: IOC0449, IOC0450, IOC0451, IOC0452 & IOC0453
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 29, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, and validation guidelines outlined in the *USEPA CLP 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 003	Outfall 003	IOC0449-01	water	ILM04
Outfall 004	Outfall 004	IOC0450-01	water	ILM04
Outfall 005	Outfall 005	IOC0451-01	water	ILM04
Outfall 006	Outfall 006	IOC0452-01	water	ILM04
Outfall 007	Outfall 007	IOC0453-01	water	ILM04

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 sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for all the samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

Lead was not detected in any of the blanks associated with these SDGs. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB standards were not analyzed in association with the samples in this SDG; therefore, no assessment can be made with respect to this criterion.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C08106-BS1 and the LCS result on the summary forms and in the raw data was within the laboratory-established ICP/MS control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Lead detected below the reporting limit was qualified as estimated, "J." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



Del Mar Analytical

17461 Denan 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 007

Report Number: IOC0453

Sampled: 03/04/05

Received: 03/04/05

DRAFT: METALS

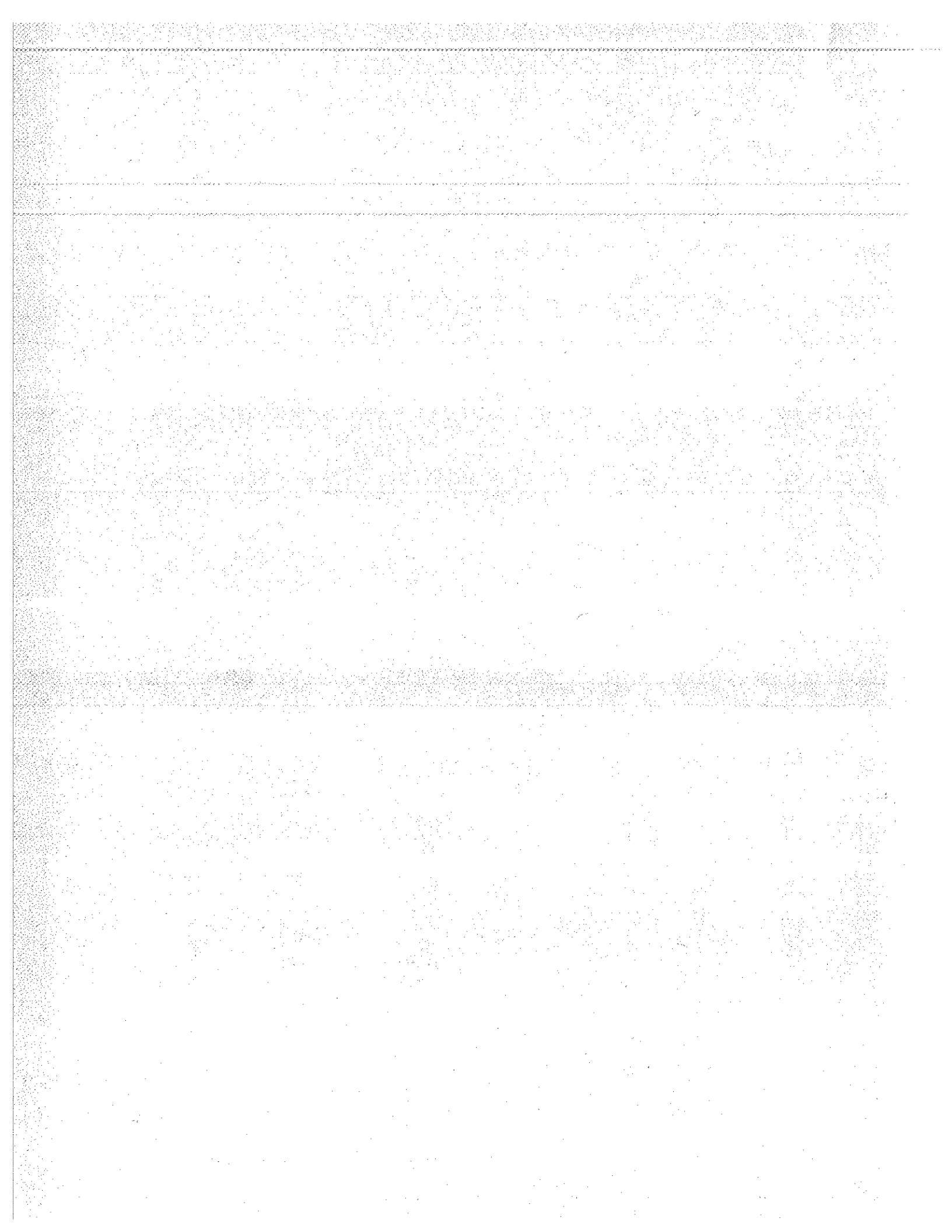
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOC0453-01 (DRAFT: Outfall 007 - Water)													
Reporting Units: ug/l													
Lead	EPA 200.8	5C08106	0.13	1.0	1.1	1	03/08/05	03/09/05	<table border="1"> <tr> <td>Rev</td> <td>Qual</td> </tr> <tr> <td></td> <td>Code</td> </tr> </table>	Rev	Qual		Code
Rev	Qual												
	Code												

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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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 007

Sampled: 03/04/05
 Received: 03/04/05
 Issued: 03/25/05 11:14

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.
 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
 IOC0453-01

CLIENT ID
 Outfall 007

MATRIX
 Water

Reviewed By:

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 007

Report Number: IOC0453

Sampled: 03/04/05

Received: 03/04/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0453-01 (Outfall 007 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C08106	0.18	2.0	ND	1	03/08/05	03/09/05	
Cadmium	EPA 200.8	5C08106	0.015	1.0	0.069	1	03/08/05	03/09/05	J
Copper	EPA 200.8	5C08106	0.49	2.0	3.0	1	03/08/05	03/09/05	
Lead	EPA 200.8	5C08106	0.13	1.0	1.1	1	03/08/05	03/09/05	
Mercury	EPA 245.1	5C09050	0.063	0.20	ND	1	03/09/05	03/09/05	

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 Wendy Kirkeeng For 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 007

Report Number: IOC0453

Sampled: 03/04/05

Received: 03/04/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0453-01 (Outfall 007 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C04107	0.15	0.50	5.7	1	03/04/05	03/05/05	
Nitrate/Nitrite-N	EPA 300.0	5C04107	0.11	0.11	ND	1	03/04/05	03/05/05	
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	1.2	1	03/09/05	03/09/05	B, J
Sulfate	EPA 300.0	5C04107	0.45	0.50	2.1	1	03/04/05	03/05/05	
Total Dissolved Solids	SM2540C	5C08110	10	10	180	1	03/08/05	03/08/05	
Total Suspended Solids	EPA 160.2	5C07073	10	10	17	1	03/07/05	03/07/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007 Report Number: IOC0453	Sampled: 03/04/05 Received: 03/04/05
--	---	---

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 007 (IOC0453-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/04/2005 11:18	03/04/2005 17:50	03/04/2005 23:00	03/05/2005 01:54

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007 Report Number: IOC0453	Sampled: 03/04/05 Received: 03/04/05
--	---	---

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C08106 Extracted: 03/08/05										
Blank Analyzed: 03/09/2005 (5C08106-BLK1)										
Antimony	ND	2.0	0.18	ug/l						
Cadmium	ND	1.0	0.015	ug/l						
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
LCS Analyzed: 03/09/2005 (5C08106-BS1)										
Antimony	90.7	2.0	0.18	ug/l	80.0		113 85-115			
Cadmium	86.3	1.0	0.015	ug/l	80.0		108 85-115			
Copper	78.1	2.0	0.49	ug/l	80.0		98 85-115			
Lead	84.0	1.0	0.13	ug/l	80.0		105 85-115			
Matrix Spike Analyzed: 03/09/2005 (5C08106-MS1) Source: IOC0448-01										
Antimony	92.4	2.0	0.18	ug/l	80.0	0.37	115 70-130			
Cadmium	81.1	1.0	0.015	ug/l	80.0	0.086	101 70-130			
Copper	79.4	2.0	0.49	ug/l	80.0	3.0	96 70-130			
Lead	79.6	1.0	0.13	ug/l	80.0	0.19	99 70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C08106-MSD1) Source: IOC0448-01										
Antimony	91.3	2.0	0.18	ug/l	80.0	0.37	114 70-130	1	20	
Cadmium	80.9	1.0	0.015	ug/l	80.0	0.086	101 70-130	0	20	
Copper	78.7	2.0	0.49	ug/l	80.0	3.0	95 70-130	1	20	
Lead	78.6	1.0	0.13	ug/l	80.0	0.19	98 70-130	1	20	
Batch: 5C09050 Extracted: 03/09/05										
Blank Analyzed: 03/09/2005 (5C09050-BLK1)										
Mercury	ND	0.20	0.063	ug/l						

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 Wendy Kirkeeng For 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 007 Report Number: IOC0453	Sampled: 03/04/05 Received: 03/04/05
--	---	---

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C09050 Extracted: 03/09/05											
LCS Analyzed: 03/09/2005 (5C09050-BS1)											
Mercury	8.21	0.20	0.063	ug/l	8.00		103	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09050-MS1)											
Mercury	8.33	0.20	0.063	ug/l	8.00	ND	104	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09050-MSD1)											
Mercury	8.17	0.20	0.063	ug/l	8.00	ND	102	70-130	2	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007 Report Number: IOC0453	Sampled: 03/04/05 Received: 03/04/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
Batch: 5C04107 Extracted: 03/04/05										
Blank Analyzed: 03/04/2005 (5C04107-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.11	0.11	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 03/04/2005 (5C04107-BS1)										
Chloride	5.16	0.50	0.26	mg/l	5.00		103	90-110		M-3
Sulfate	10.4	0.50	0.18	mg/l	10.0		104	90-110		M-3
Batch: 5C07073 Extracted: 03/07/05										
Blank Analyzed: 03/07/2005 (5C07073-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 03/07/2005 (5C07073-BS1)										
Total Suspended Solids	980	10	10	mg/l	1000		98	85-115		
Duplicate Analyzed: 03/07/2005 (5C07073-DUP1)										
Total Suspended Solids	ND	10	10	mg/l		Source: IOC0451-01 ND			10	
Batch: 5C08110 Extracted: 03/08/05										
Blank Analyzed: 03/08/2005 (5C08110-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 03/08/2005 (5C08110-BS1)										
Total Dissolved Solids	976	10	10	mg/l	1000		98	90-110		

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 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 007 Report Number: IOC0453	Sampled: 03/04/05 Received: 03/04/05
--	---	---

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C08110 Extracted: 03/08/05											
Duplicate Analyzed: 03/08/2005 (5C08110-DUP1)						Source: IOC0454-01					
Total Dissolved Solids	187	10	10	mg/l		180			4	10	
Batch: 5C09091 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09091-BLK1)											
Oil & Grease	1.70	5.0	0.94	mg/l							J
LCS Analyzed: 03/09/2005 (5C09091-BS1)											
Oil & Grease	22.4	5.0	0.94	mg/l	20.0		112	65-120			M-NR1
LCS Dup Analyzed: 03/09/2005 (5C09091-BSD1)											
Oil & Grease	18.8	5.0	0.94	mg/l	20.0		94	65-120	17	20	

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

Project ID: Routine Outfall 007

Report Number: IOC0453

Sampled: 03/04/05
 Received: 03/04/05

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
IOC0453-01	413.1 Oil and Grease	Oil & Grease	mg/l	1.20	5.0	15
IOC0453-01	Antimony-200.8	Antimony	ug/l	0.14	2.0	6.00
IOC0453-01	Cadmium-200.8	Cadmium	ug/l	0.069	1.0	4.00
IOC0453-01	Chloride - 300.0	Chloride	mg/l	5.70	0.50	150
IOC0453-01	Copper-200.8	Copper	ug/l	3.00	2.0	14
IOC0453-01	Mercury - 245.1	Mercury	ug/l	0.023	0.20	0.20
IOC0453-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.034	0.11	10.00
IOC0453-01	Sulfate-300.0	Sulfate	mg/l	2.10	0.50	250
IOC0453-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	180	10	850

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

Project ID: Routine Outfall 007

Report Number: IOC0453

Sampled: 03/04/05
Received: 03/04/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- 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

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Wendy Kirkeeng For Michele Harper
Project Manager

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IOC0453 <Page 10 of 11>



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

Project ID: Routine Outfall 007

Report Number: IOC0453

Sampled: 03/04/05

Received: 03/04/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC0453-01

Analysis Performed: EDD + Level 4

Samples: IOC0453-01

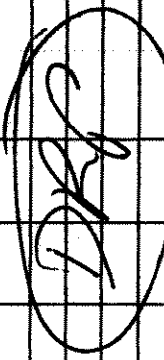
Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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1060453

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:				Project:				ANALYSIS REQUIRED										Field readings:			
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>P. Kelly</i>				Boeing-SSFL NPDES Routine Outfall 007 Stormwater at Building 100 Phone Number: (626) 568-6691 Fax Number: (626) 568-6515				Total Recoverable Metals:		Oil & Grease (EPA 413.1)		CF, SO4, NO3+NO2-N		TDS, TSS						Temp = 54.5 pH = 7.0	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	SP, Cd, Cu, Pb, Hg	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	CF, SO4, NO3+NO2-N	TDS, TSS										
Outfall 007	W	Poly-1L	1	3-4-05 11:18	HNO3	1A	X														
Outfall 007-Dup	W	Poly-1L	1		HNO3	1B	X														
Outfall 007	W	Glass-Amber	2		None	2A, 2B		X													
Outfall 007	W	Glass-Amber	2		HCl	3A, 3B			X												
Outfall 007	W	Poly-500 ml	2		None	4A, 4B				X											
Outfall 007	W	Poly-500 ml	2		None	5A, 5B					X										
																					
Relinquished By: <i>[Signature]</i>				Date/Time: 3-4-05 1500				Received By: <i>[Signature]</i>				Date/Time: 3-4-05 1500				Turn around Time: (check) 24 Hours _____ 5 Days _____					
Relinquished By: <i>[Signature]</i>				Date/Time: 3-4-05 1750				Received By: <i>[Signature]</i>				Date/Time: 3-4-05 1750				48 Hours _____ 10 Days _____					
Relinquished By: <i>[Signature]</i>				Date/Time: 3-4-05 1750				Received By: <i>[Signature]</i>				Date/Time: 3-4-05 1750				72 Hours _____ Normal _____					
Perchlorate Only 72 Hours _____ Metals Only 72 Hours _____ Sample Integrity: (Check) Intact <input checked="" type="checkbox"/> On Ice <input checked="" type="checkbox"/> 30C																					



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
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

March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 007
Sampled: 03/04/05
Del Mar Analytical Number: IOC0453

Dear Ms. Kelly:

Alta Analytical Laboratory performed the EPA Method 1613 Dioxin analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Alta ID
Outfall 007	IOC0453-01	25856-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL


Michele Harper
Project Manager



March 16, 2005

Alta Project I.D.: 25856

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 March 08, 2005 under your Project Name "IOC0453". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 3/8/2005

Alta Lab. ID

Client Sample ID

25856-001

IOC0453-01

SECTION II



Method Blank **EPA Method 1613**

Matrix: Aqueous		QC Batch No.: 6593	Lab Sample: 0-MB001				
Sample Size: 1.000 L		Date Extracted: 11-Mar-05	Date Analyzed DB-5: 14-Mar-05				
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.27			61.5	25 - 164	
1,2,3,7,8-PeCDD	ND	1.50			57.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.20			67.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.32			76.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.26			56.6	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	3.00			26.9	17 - 157	
OCDD	ND	11.1			63.1	24 - 169	
2,3,7,8-TCDF	ND	1.37			54.3	24 - 185	
1,2,3,7,8-PeCDF	ND	2.09			58.1	21 - 178	
2,3,4,7,8-PeCDF	ND	1.73			60.3	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.16	0.905		70.6	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.768			67.0	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.22			62.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.96			53.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	1.38			57.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	7.76			32.9	17 - 157	
OCDF	ND				71.7	35 - 197	
Totals							
Total TCDD	ND	1.27					
Total PeCDD	ND	1.50					
Total HxCDD	ND	2.26					
Total HpCDD	ND	3.00					
Total TCDF	1.40		2.79	D			
Total PeCDF	ND	3.06					
Total HxCDF	ND		0.905				
Total HpCDF	ND	2.12					

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

Analyst: MAS
Approved By: Martha M. Maier 16-Mar-2005 14:32



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 14-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous <th>QC Batch No.:</th> <td>6593 <th colspan="4"></th> </td>	QC Batch No.:	6593 <th colspan="4"></th>				
Sample Size:	1.000 L <th>Date Extracted:</th> <td>11-Mar-05 <th colspan="4"></th> </td>	Date Extracted:	11-Mar-05 <th colspan="4"></th>				
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.28	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	61.8	25 - 164	
1,2,3,7,8-PeCDD	50.0	47.1	35 - 71	13C-1,2,3,7,8-PeCDD	62.9	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	49.1	35 - 82	13C-1,2,3,4,7,8-HxCDD	65.8	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	49.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	77.0	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	49.4	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	67.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	51.7	35 - 70	13C-OCDD	38.7	17 - 157	
OCDD	100	104	78 - 144	13C-2,3,7,8-TCDF	63.1	24 - 169	
2,3,7,8-TCDF	10.0	9.58	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.0	24 - 185	
1,2,3,7,8-PeCDF	50.0	51.8	40 - 67	13C-2,3,4,7,8-PeCDF	63.2	21 - 178	
2,3,4,7,8-PeCDF	50.0	51.2	34 - 80	13C-1,2,3,4,7,8-HxCDF	57.9	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	53.8	36 - 67	13C-1,2,3,4,7,8-HxCDF	68.4	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	53.7	42 - 65	13C-1,2,3,6,7,8-HxCDF	67.7	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	53.8	35 - 78	13C-2,3,4,6,7,8-HxCDF	65.7	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	51.8	39 - 65	13C-1,2,3,7,8,9-HxCDF	63.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	54.5	41 - 61	13C-1,2,3,4,6,7,8-HpCDF	65.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	56.0	39 - 69	13C-OCDF	44.9	17 - 157	
OCDF	100	109	63 - 170	CRS 37Cl-2,3,7,8-TCDD	72.7	35 - 197	

Analyst: MAS

Approved By: Martha M. Maier 16-Mar-2005 14:32



Sample ID: IOC0453-01		EPA Method 1613					
Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25856-001		
Project:	IOC0453	Sample Size:	0.963 L	QC Batch No.:	6593		
Date Collected:	4-Mar-05			Date Analyzed DB-5:	15-Mar-05		
Time Collected:	1118			Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.873		13C-2,3,7,8-TCDD	68.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.738		13C-1,2,3,7,8-PeCDD	66.1	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.68		13C-1,2,3,4,7,8-HxCDD	74.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.81		13C-1,2,3,6,7,8-HxCDD	76.0	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.74		13C-1,2,3,4,6,7,8-HpCDD	66.8	23 - 140	
1,2,3,4,6,7,8-HpCDD	3.57			13C-OCDD	46.0	17 - 157	
OCDD	31.7		J				
2,3,7,8-TCDF	ND	0.820		13C-2,3,7,8-TCDF	72.7	24 - 169	
1,2,3,7,8-PeCDF	ND	1.24		13C-1,2,3,7,8-PeCDF	60.8	24 - 185	
2,3,4,7,8-PeCDF	ND	1.09		13C-2,3,4,7,8-PeCDF	65.0	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.454		13C-1,2,3,4,7,8-HxCDF	60.3	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.444		13C-1,2,3,6,7,8-HxCDF	67.2	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.488		13C-2,3,4,6,7,8-HxCDF	67.6	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.761		13C-1,2,3,7,8,9-HxCDF	65.7	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.753		13C-1,2,3,4,6,7,8-HpCDF	59.9	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.817		13C-1,2,3,4,7,8,9-HpCDF	66.7	26 - 138	
OCDF	ND	2.32		13C-OCDF	50.6	17 - 157	
				CRS 37Cl-2,3,7,8-TCDD	79.4	35 - 197	
Totals							
Total TCDD	ND	0.873					
Total PeCDD	ND	0.738					
Total HxCDD	ND	1.74					
Total HpCDD	8.96						
Total TCDF	ND	0.820					
Total PeCDF	ND	1.16					
Total HxCDF	ND	0.524					
Total HpCDF	ND	0.780					
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: Martha M. Majer 16-Mar-2005 14:32

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.
*	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 corresponds 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.

CURRENT CERTIFICATIONS



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)



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) 370-6887 Fax (909) 370-1048
 9484 Chesapeake Drive, Suite 808, San Diego, CA 92123 Ph (619) 606-9088 Fax (619) 606-9089
 9830 South Star Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 786-0043 Fax (480) 786-0851
 2629 E. Street Pl., Suite #9, Las Vegas, NV 89120 Ph (702) 796-3820 Fax (702) 796-3821

SUBCONTRACT ORDER - PROJECT # IOC0453

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) 933-0940

25856
1.4°C

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

Analysis	Expiration	Comments
Sample ID: IOC0453-01 Water	Sampled: 03/04/05 11:18	Instant Notification
1613-Dioxin-HR	03/11/05 11:18	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/01/05 11:18	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0453-01C)		
1 L Amber (IOC0453-01D)		

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

Released By: [Signature] Date: 3-7-05 Time: 1700 Received By: Bettina Almedit Date: 3/8/05 Time: 0939

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____
 Project 25856

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25856

1. Date Samples Arrived: <u>3/8/05</u> <u>0939</u> Initials: <u>CBB</u> Location: <u>WR-2</u>			
2. Time / Date logged In: <u>1425</u> <u>3/8/05</u> Initials: <u>CBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> <u>Blue Ice</u> / Dry Ice / None Temp °C <u>1.4°C</u>			
5. Shipping Container(s) intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7928 6415 1923</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



17461 Decker 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) 570-4057 Fax (909) 570-1000
 3494 Chapparral Drive, Suite 205, San Diego, CA 92123 Ph (619) 506-6000 Fax (619) 506-6000
 2820 Sany Street, Suite B-120, Phoenix, AZ 85004 Ph (480) 786-0043 Fax (480) 786-0071
 2820 E. Sunset Pl., Suite 40, Las Vegas, NV 89102 Ph (702) 796-8880 Fax (702) 796-3021

SUBCONTRACT ORDER - PROJECT # IOC0453

SENDING LABORATORY: Del Mar Analytical, Irvine 17461 Decker Avenue, Suite 100 Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Michole Harper	RECEIVING LABORATORY: Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940 <i>25856</i> <i>1.4°C</i>
---	--

Standard TAT is requested unless specific due date is requested -> Due Date: 2 week Initials: MH

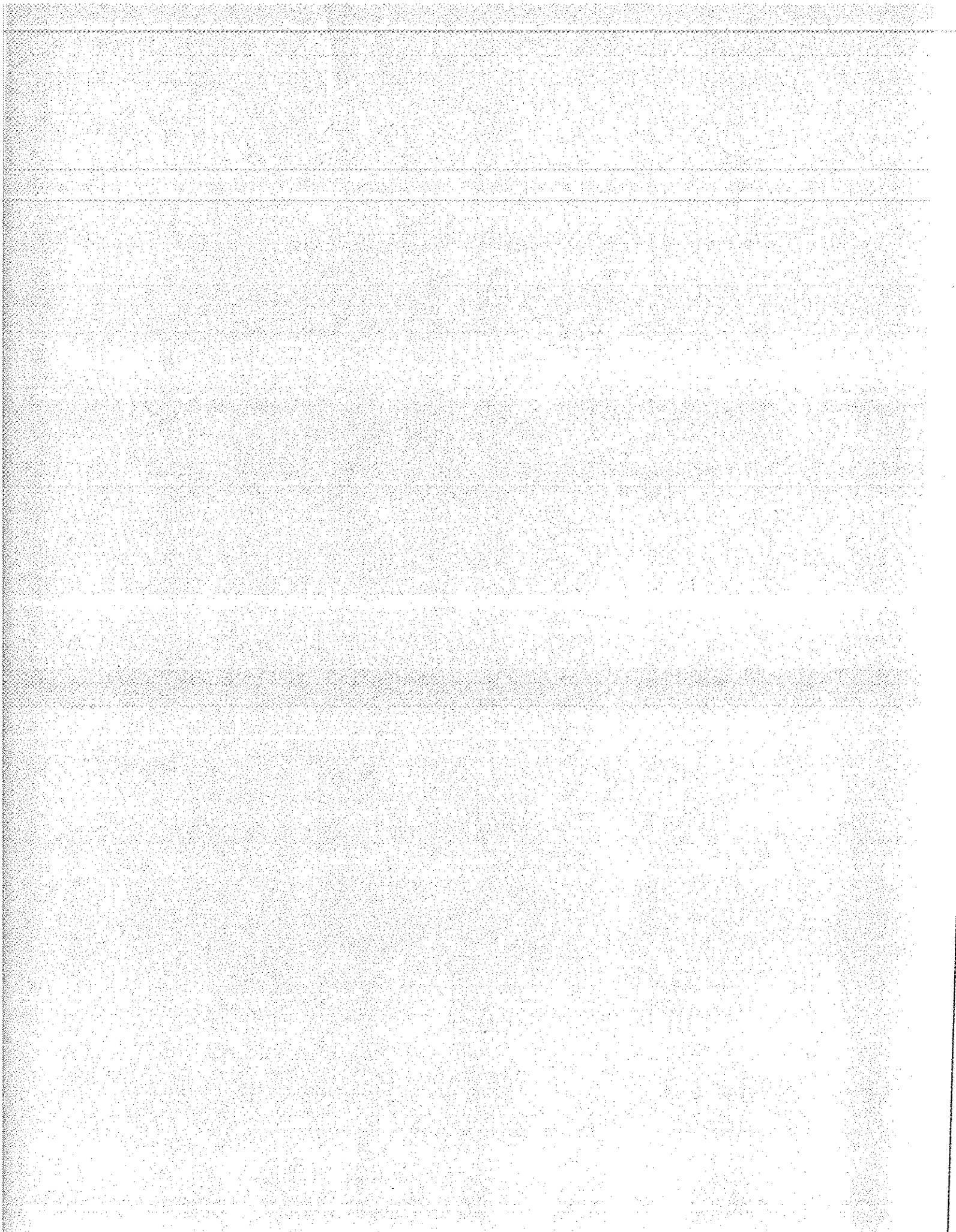
Analysis	Expiration	Comments
Sample ID: IOC0453-01 Water 1613-Dioxin-HR EDD + Level 4	Sampled: 03/04/05 11:18 03/11/05 11:18 04/01/05 11:18	Instant Notification J flags, 17 congeners, no TEQ, sub to Alta Excel EDD email to pm, include Std logs for Lvl IV
Containers Supplied: 1 L Amber (IOC0453-01C) 1 L Amber (IOC0453-01D)		

Sampler = P.P.
MH 3/7/05

SAMPLE INTEGRITY:		
All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): _____

Released By: [Signature] Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF38
 Task Order 313150010
 SDG No. Multiple

No. of Analyses 3

Laboratory Alta

Reviewer H. Chang

Analysis/Method Dioxin&Furans/1613

Date: April 6, 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."
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: IOC1817, IOC1818, IOC1819

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 6, 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 010	IOC1817-01C	25954-001	water	1613
Outfall 007	IOC1818-01	25955-001	water	1613
Outfall 018	IOC1819-01	25956-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All samples in these SDGs were received with cooler temperatures within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (0_6631_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 (0_6631_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. Any detects below the lower method calibration level (MCL) were qualified as estimated, "J," however, as Alta analyzed an additional calibration standard, not all results below the lower MCL were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. Total HpCDF in Outfall 010 was qualified as estimated since one of the total constituents was below the lower MCL even though total concentration was above the lower MCL. No further qualifications were required.

Sample ID: **IOC1818-01** *Overfall 007* **EPA Method 1613**

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC1818
 Date Collected: 23-Mar-05
 Time Collected: 0903

Sample Data
 Matrix: Aqueous
 Sample Size: 0.995 L

Laboratory Data
 Lab Sample: 25955-001
 QC Batch No.: 6631
 Date Analyzed DB-5: 27-Mar-05
 Date Received: 25-Mar-05
 Date Extracted: 25-Mar-05
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.795			13C-2,3,7,8-TCDD	74.5	25 - 164	
1,2,3,7,8-PeCDD	ND	1.42			13C-1,2,3,7,8-PeCDD	69.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.71			13C-1,2,3,4,7,8-HxCDD	77.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.75			13C-1,2,3,6,7,8-HxCDD	85.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.72			13C-1,2,3,4,6,7,8-HpCDD	72.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	15.7				13C-OCDD	50.1	17 - 157	
OCDD	110			J	13C-2,3,7,8-TCDF	75.9	24 - 169	
2,3,7,8-TCDF	ND	1.57			13C-1,2,3,7,8-PeCDF	70.0	24 - 185	
1,2,3,7,8-PeCDF	ND	1.98			13C-2,3,4,7,8-PeCDF	69.6	21 - 178	
2,3,4,7,8-PeCDF	ND	1.91			13C-1,2,3,4,7,8-HxCDF	81.1	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.573			13C-1,2,3,6,7,8-HxCDF	89.8	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.570			13C-2,3,4,6,7,8-HxCDF	84.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.693			13C-1,2,3,7,8,9-HxCDF	80.4	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.13			13C-1,2,3,4,6,7,8-HpCDF	75.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	1.36			13C-1,2,3,4,7,8,9-HpCDF	81.8	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.66			13C-OCDF	61.8	17 - 157	
OCDF	ND	5.16			CRS 37Cl-2,3,7,8-TCDD	85.8	35 - 197	

Totals

Total TCDD	ND	0.795		
Total PeCDD	ND	1.42		
Total HxCDD	ND	2.72		
Total HpCDD	29.5			
Total TCDF	ND	1.57		
Total PeCDF	ND	1.95		
Total HxCDF	ND	0.712		
Total HpCDF	ND	1.49		

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

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:01

**AMEC VALIDATED
 LEVEL IV**

Project 25955

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT64
 Task Order 313150010, 313150012
 SDG No. IOC1817, IOC1818

No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer K. Okonzak

Analysis/Method Metals

Date: 3/31/05

Reviewer's Signature



ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times	Qualifications applied for: Analytes detected below the reporting limit was qualified as estimated, "J." Nondetected antimony was qualified as estimated, "UJ," due to low recovery for the reporting limit check standard and for a negative method blank result.
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 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: METALS

SAMPLE DELIVERY GROUPS: IOC1817, IOC1818

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, 313150012
SDG#: IOC1817, IOC1818
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: K. Okonczak-Lowry
Date of Review: March 31, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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 010	Outfall 010	IOC1817-01	water	ILM04
Outfall 007	Outfall 007	IOC1818-01	water	ILM04

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 sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel and accounted for the samples and analyses presented in these SDGs. The COCs listed duplicate samples for both site samples; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. The laboratory performed the required tune solution analyses. The %RSDs for the tune were all within the 5% control limit. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP/MS and 80-120% for mercury. The applicable reporting limit check standards were recovered within the AMEC control limits of 70-130%, with the exception of the 0.2 µg/L standard for antimony, which was not detected by the instrument at the 0.18 µg/L antimony MDL. Therefore, the nondetected antimony result for sample Outfall 010 was qualified as estimated, "UJ." No further qualifications were required.

2.4 BLANKS

The method blanks and bracketing ICBs/CCBs associated with the samples in these SDGs were nondetected at the laboratory MDL, with the exception of antimony for the ICP/MS method blank, 5C23123-BLK1, which was reported at -0.43 µg/L. Therefore, the nondetected antimony for sample Outfall 010 was qualified as estimated, "UJ." No further sample qualifications were required.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. The result for potassium was above the calibration range of the instrument in all the ICSA analysis. The aluminum recoveries were low for the ICSA/AB analyses at 79.3% and 76.5%, respectively. The site sample matrix was low in aluminum; therefore, the low recovery for aluminum by the laboratory wouldn't have caused IEC miscalculations affecting the quantitation of the reported analytes. Copper and cadmium were detected at above the reporting limit in the ICSA analysis. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the level of reported interferents were not high enough to cause matrix effects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No sample qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C23123-BS1, and the mercury LCS sample was identified as 5C24056-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

The MS/MSD analyses were performed for the ICP/MS analysis only on sample Outfall 010, in association with the samples in these SDGs. The %RPDs for the reported analytes were within the 20% control limit, and no sample qualifications were required.

2.8 MATRIX SPIKE

The MS/MSD analyses were performed for the ICP/MS analysis only on sample Outfall 010, in association with the samples in these SDGs. The %Rs were within the AMEC 75-125% control limit, and no sample qualifications were required. The mercury method accuracy was evaluated based on the LCS result.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS SERIAL DILUTION

No serial dilution analysis was performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Analytes detected below the reporting limit were qualified as estimated, "J." No qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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

Project ID: Routine Outfall 007

Report Number: IOC1818

Sampled: 03/23/05

Received: 03/23/05

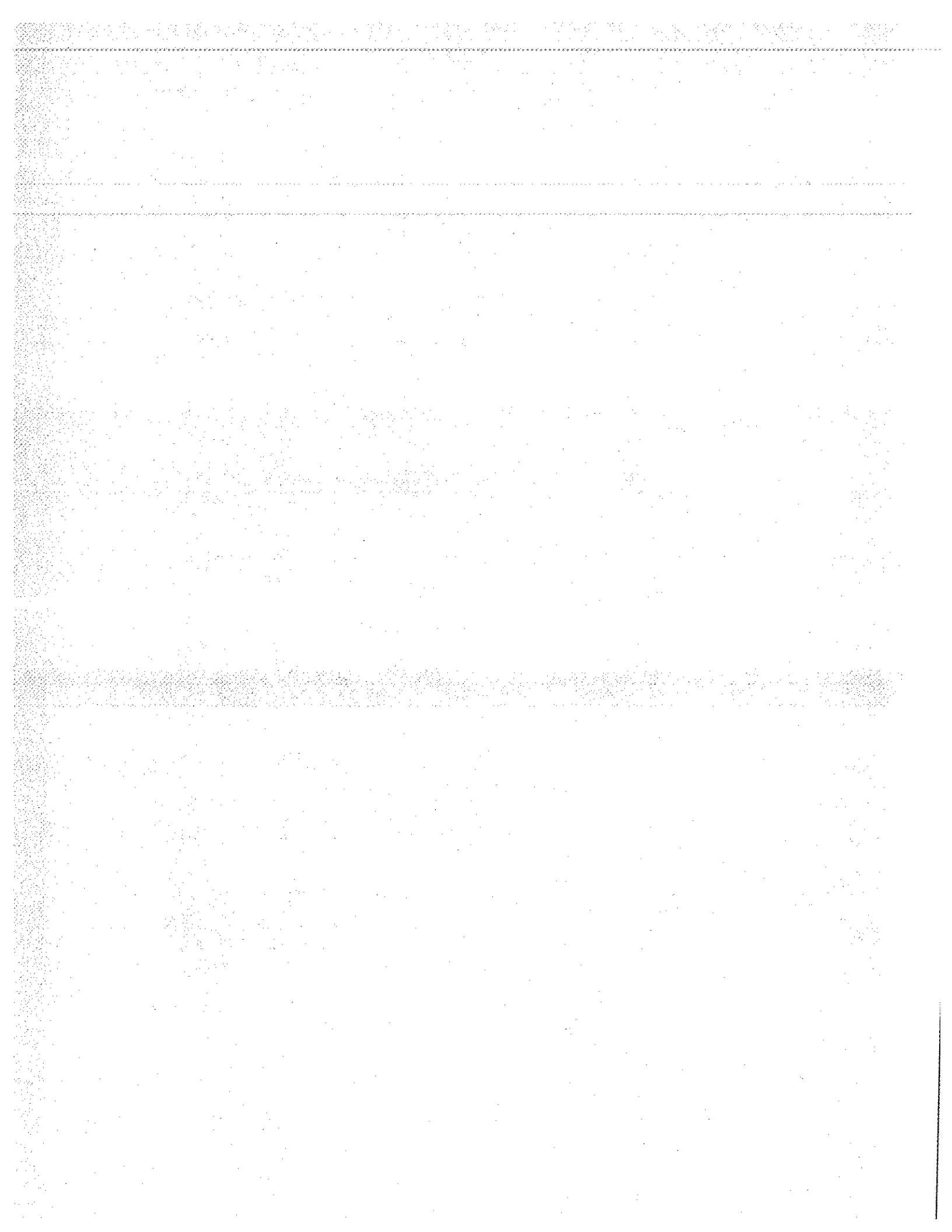
DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOC1818-01 (DRAFT: Outfall 007 - Water)													
Reporting Units: ug/l													
Lead	EPA 200.8	5C23123	0.13	1.0	2.5	1	03/23/05	03/24/05	<table border="1"> <tr> <td>Rev</td> <td>Qual</td> </tr> <tr> <td></td> <td>Code</td> </tr> </table>	Rev	Qual		Code
Rev	Qual												
	Code												

AMEC VALIDATED

Level IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





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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 007

Sampled: 03/23/05
 Received: 03/23/05
 Issued: 04/05/05 12:09

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.
 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
 IOC1818-01

CLIENT ID
 Outfall 007

MATRIX
 Water

Reviewed By:

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager



Del Mar Analytical

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

Project ID: Routine Outfall 007

Report Number: IOC1818

Sampled: 03/23/05

Received: 03/23/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1818-01 (Outfall 007 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C23123	0.18	2.0	1.2	1	03/23/05	03/24/05	J
Cadmium	EPA 200.8	5C23123	0.015	1.0	0.11	1	03/23/05	03/24/05	J
Copper	EPA 200.8	5C23123	0.49	2.0	6.0	1	03/23/05	03/24/05	
Lead	EPA 200.8	5C23123	0.13	1.0	2.5	1	03/23/05	03/24/05	
Mercury	EPA 245.1	5C24056	0.063	0.20	ND	1	03/24/05	03/24/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 007

Report Number: IOC1818

Sampled: 03/23/05
 Received: 03/23/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1818-01 (Outfall 007 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C23116	0.15	0.50	2.0	1	03/23/05	03/24/05	
Nitrate/Nitrite-N	EPA 300.0	5C23116	0.075	0.26	1.2	1	03/23/05	03/24/05	
Oil & Grease	EPA 413.1	5C25043	0.94	5.0	ND	1	03/25/05	03/25/05	
Sulfate	EPA 300.0	5C23116	0.45	0.50	2.7	1	03/23/05	03/24/05	
Total Dissolved Solids	SM2540C	5C23106	10	10	150	1	03/23/05	03/23/05	
Total Suspended Solids	EPA 160.2	5C24086	10	10	14	1	03/24/05	03/24/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 007

Report Number: IOC1818

Sampled: 03/23/05

Received: 03/23/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 007 (IOC1818-01) - Water EPA 300.0	Hold Time (In days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/23/2005 09:03	03/23/2005 18:36	03/23/2005 23:00	03/24/2005 01:15

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 007

Report Number: IOC1818

Sampled: 03/23/05
 Received: 03/23/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C23123 Extracted: 03/23/05										
Blank Analyzed: 03/24/2005 (5C23123-BLK1)										
Antimony	ND	2.0	0.18	ug/l						
Cadmium	ND	1.0	0.015	ug/l						
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
LCS Analyzed: 03/24/2005 (5C23123-BS1)										
Antimony	85.8	2.0	0.18	ug/l	80.0		107		85-115	
Cadmium	80.4	1.0	0.015	ug/l	80.0		100		85-115	
Copper	85.9	2.0	0.49	ug/l	80.0		107		85-115	
Lead	82.1	1.0	0.13	ug/l	80.0		103		85-115	
Matrix Spike Analyzed: 03/24/2005 (5C23123-MS1)										
Source: IOC1817-01										
Antimony	81.9	2.0	0.18	ug/l	80.0	ND	102		70-130	
Cadmium	78.9	1.0	0.015	ug/l	80.0	0.086	99		70-130	
Copper	85.0	2.0	0.49	ug/l	80.0	3.9	101		70-130	
Lead	84.0	1.0	0.13	ug/l	80.0	1.6	103		70-130	
Matrix Spike Dup Analyzed: 03/24/2005 (5C23123-MSD1)										
Source: IOC1817-01										
Antimony	83.5	2.0	0.18	ug/l	80.0	ND	104	2	70-130	20
Cadmium	80.5	1.0	0.015	ug/l	80.0	0.086	101	2	70-130	20
Copper	86.9	2.0	0.49	ug/l	80.0	3.9	104	2	70-130	20
Lead	86.4	1.0	0.13	ug/l	80.0	1.6	106	3	70-130	20
Batch: 5C24056 Extracted: 03/24/05										
Blank Analyzed: 03/24/2005 (5C24056-BLK1)										
Mercury	ND	0.20	0.063	ug/l						

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 007

Report Number: IOC1818

Sampled: 03/23/05

Received: 03/23/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C24056 Extracted: 03/24/05											
LCS Analyzed: 03/24/2005 (5C24056-BS1)											
Mercury	8.04	0.20	0.063	ug/l	8.00		100	85-115			
Matrix Spike Analyzed: 03/24/2005 (5C24056-MS1)											
						Source: IOC1762-01					
Mercury	7.85	0.20	0.063	ug/l	8.00	ND	98	70-130			
Matrix Spike Dup Analyzed: 03/24/2005 (5C24056-MSD1)											
						Source: IOC1762-01					
Mercury	8.07	0.20	0.063	ug/l	8.00	ND	101	70-130	3	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 007 Report Number: IOC1818	Sampled: 03/23/05 Received: 03/23/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Limit	Data Qualifiers
Batch: 5C23106 Extracted: 03/23/05										
Blank Analyzed: 03/23/2005 (5C23106-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 03/23/2005 (5C23106-BS1)										
Total Dissolved Solids	1040	10	10	mg/l	1000		104	90-110		
Duplicate Analyzed: 03/23/2005 (5C23106-DUP1)										
Total Dissolved Solids	487	10	10	mg/l		Source: IOC1606-03 480		1	10	
Batch: 5C23116 Extracted: 03/23/05										
Blank Analyzed: 03/23/2005 (5C23116-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.26	0.075	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 03/23/2005 (5C23116-BS1)										
Chloride	5.10	0.50	0.26	mg/l	5.00		102	90-110		
Sulfate	10.2	0.50	0.18	mg/l	10.0		102	90-110		
Matrix Spike Analyzed: 03/23/2005 (5C23116-MS1)										
Chloride	39.0	1.0	0.52	mg/l	5.00	34	100	80-120		
Sulfate	45.2	1.0	0.36	mg/l	10.0	35	102	80-120		
Matrix Spike Dup Analyzed: 03/23/2005 (5C23116-MSD1)										
Chloride	38.7	1.0	0.52	mg/l	5.00	34	94	80-120	1	20
Sulfate	44.8	1.0	0.36	mg/l	10.0	35	98	80-120	1	20

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 007 Report Number: IOC1818	Sampled: 03/23/05 Received: 03/23/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C24086 Extracted: 03/24/05											
Blank Analyzed: 03/24/2005 (5C24086-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/24/2005 (5C24086-BS1)											
Total Suspended Solids	967	10	10	mg/l	1000		97	85-115			
Duplicate Analyzed: 03/24/2005 (5C24086-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOC1873-01 ND				10	
Batch: 5C25043 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25043-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 03/25/2005 (5C25043-BS1)											
Oil & Grease	15.5	5.0	0.94	mg/l	20.0		78	65-120			M-NR1
LCS Dup Analyzed: 03/25/2005 (5C25043-BSD1)											
Oil & Grease	15.8	5.0	0.94	mg/l	20.0		79	65-120	2	20	

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 Wendy Kirkeeng For 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 007

Report Number: IOC1818

Sampled: 03/23/05
 Received: 03/23/05

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
IOC1818-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.69	5.0	15
IOC1818-01	Antimony-200.8	Antimony	ug/l	1.20	2.0	6.00
IOC1818-01	Cadmium-200.8	Cadmium	ug/l	0.11	1.0	4.00
IOC1818-01	Chloride - 300.0	Chloride	mg/l	2.00	0.50	150
IOC1818-01	Copper-200.8	Copper	ug/l	6.00	2.0	14
IOC1818-01	Mercury - 245.1	Mercury	ug/l	0.048	0.20	0.20
IOC1818-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	1.20	0.26	10.00
IOC1818-01	Sulfate-300.0	Sulfate	mg/l	2.70	0.50	250
IOC1818-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	150	10	850

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 Wendy Kirkeeng For 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 007

Report Number: IOC1818

Sampled: 03/23/05

Received: 03/23/05

DATA QUALIFIERS AND DEFINITIONS

- 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 unknown quality.
- 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
Wendy Kirkeeng For Michele Harper
Project Manager

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IOC1818 <Page 10 of 11>



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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	Project ID: Routine Outfall 007 Report Number: IOC1818	Sampled: 03/23/05 Received: 03/23/05
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Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
 Samples: IOC1818-01

Analysis Performed: EDD + Level 4
 Samples: IOC1818-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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422 1001818

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:		Project:		ANALYSIS REQUIRED		Field readings:			
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Routine Outfall 007 Stormwater at Building 100		Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg		Temp = 54.0 pH = 6.6			
Project Manager: Bronwyn Kelly		Phone Number: (626) 568-6891		TCDD (and all congeners)		Comments			
Sampler: <i>P. Pollock</i>		Fax Number: (626) 568-6515		Oil & Grease (EPA 413.1)					
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	CF, SO4, NO3+NO2-N	TDS, TSS	
Outfall 007	W	Poly-1L	1	3-23-05 07:00	HNO3	1A			
Outfall 007-Dup	W	Poly-1L	1		HNO3	1B			
Outfall 007	W	Glass-Amber	2		None	2A, 2B			
Outfall 007	W	Glass-Amber	2		HCl	3A, 3B	X		
Outfall 007	W	Poly-500 ml	2		None	4A, 4B	X		
Outfall 007	W	Poly-500 ml	2		None	5A, 5B	X		
Relinquished By: <i>[Signature]</i>	Date/Time: 3-23-05 1535	Received By: <i>[Signature]</i>	Date/Time: 3/23/05 1535	Oil & Grease (EPA 413.1)					
Relinquished By: <i>[Signature]</i>	Date/Time: 3/23/05 1836	Received By: <i>[Signature]</i>	Date/Time: 3/23/05 1836	TCDD (and all congeners)					
Relinquished By: <i>[Signature]</i>	Date/Time:	Received By:	Date/Time:	Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg					
				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		On Ice: 3°C	

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March 31, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 007
Sampled: 03/23/05
Del Mar Analytical Number: IOC1818

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	ALTA ID
Outfall 007	IOC1818-01	25955-001

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 (949) 261-1022, at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL

Michele Harper
Project Manager



March 28, 2005

Alta Project I.D.: 25955

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 March 25, 2005 under your Project Name "IOC1818". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 3/25/2005

Alta Lab. ID

Client Sample ID

25955-001

IOC1818-01

SECTION II



EPA Method 1613

Method Blank		Lab Sample: 0-MB001				Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6631 <th>Date Analyzed DB-5:</th> <td>27-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td></td>	Date Analyzed DB-5:	27-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td>	Date Analyzed DB-225:	NA
Sample Size:	1.000 L	Date Extracted:	25-Mar-05 <th colspan="4"></th>				
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	1.79			IS 13C-2,3,7,8-TCDD	74.3	25 - 164
1,2,3,7,8-PeCDD	ND	1.50			13C-1,2,3,7,8-PeCDD	69.3	25 - 181
1,2,3,4,7,8-HxCDD	ND	2.62			13C-1,2,3,4,7,8-HxCDD	77.5	32 - 141
1,2,3,6,7,8-HxCDD	ND	2.73			13C-1,2,3,6,7,8-HxCDD	83.3	28 - 130
1,2,3,7,8,9-HxCDD	ND	2.67			13C-1,2,3,4,6,7,8-HpCDD	72.5	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	1.65			13C-OCDD	51.2	17 - 157
OCDD	ND	5.70			13C-2,3,7,8-TCDF	74.8	24 - 169
2,3,7,8-TCDF	ND	1.57			13C-1,2,3,7,8-PeCDF	69.0	24 - 185
1,2,3,7,8-PeCDF	ND	2.33			13C-2,3,4,7,8-PeCDF	69.7	21 - 178
2,3,4,7,8-PeCDF	ND	2.07			13C-1,2,3,4,7,8-HxCDF	77.3	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.597			13C-1,2,3,6,7,8-HxCDF	87.1	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.599			13C-2,3,4,6,7,8-HxCDF	84.1	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.670			13C-1,2,3,7,8,9-HxCDF	78.8	29 - 147
1,2,3,7,8,9-HxCDF	ND	1.10			13C-1,2,3,4,6,7,8-HpCDF	74.4	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	1.23			13C-1,2,3,4,7,8,9-HpCDF	82.1	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	1.45			13C-OCDF	61.7	17 - 157
OCDF	ND	4.20			CRS 37Cl-2,3,7,8-TCDD	77.8	35 - 197
Totals					Footnotes		
Total TCDD	ND	1.79			a. Sample specific estimated detection limit.		
Total PeCDD	ND	1.51			b. Estimated maximum possible concentration.		
Total HxCDD	ND	2.68			c. Method detection limit.		
Total HpCDD	ND	1.65			d. Lower control limit - upper control limit.		
Total TCDF	ND	1.57					
Total PeCDF	ND	2.20					
Total HxCDF	ND	0.716					
Total HpCDF	ND	1.33					

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:01



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 27-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6631				
Sample Size:	1.000 L	Date Extracted:	25-Mar-05				
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL		
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	84.3	25 - 164		
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	83.7	25 - 181		
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	95.9	32 - 141		
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	105	28 - 130		
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	91.6	23 - 140		
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	62.5	17 - 157		
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	82.5	24 - 169		
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	79.8	24 - 185		
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	79.8	21 - 178		
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	95.8	26 - 152		
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	110	26 - 123		
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	106	28 - 136		
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	98.9	29 - 147		
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	94.9	28 - 143		
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	104	26 - 138		
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	76.9	17 - 157		
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	75.9	35 - 197		

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:01



Sample ID: **IOC1818-01**

EPA Method 1613

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC1818
 Date Collected: 23-Mar-05
 Time Collected: 0903

Sample Data
 Matrix: Aqueous
 Sample Size: 0.995 L

Laboratory Data
 Lab Sample: 25955-001
 QC Batch No.: 6631
 Date Analyzed DB-5: 27-Mar-05
 Date Analyzed DB-225: NA

Date Received: 25-Mar-05
 Date Extracted: 25-Mar-05

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.795			13C-2,3,7,8-TCDD	74.5	25 - 164	
1,2,3,7,8-PeCDD	ND	1.42			13C-1,2,3,7,8-PeCDD	69.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.71			13C-1,2,3,4,7,8-HxCDD	77.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.75			13C-1,2,3,6,7,8-HxCDD	85.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.72			13C-1,2,3,4,6,7,8-HpCDD	72.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	15.7				13C-OCDD	50.1	17 - 157	
OCDD	110				13C-2,3,7,8-TCDF	75.9	24 - 169	
2,3,7,8-TCDF	ND	1.57			13C-1,2,3,7,8-PeCDF	70.0	24 - 185	
1,2,3,7,8-PeCDF	ND	1.98			13C-2,3,4,7,8-PeCDF	69.6	21 - 178	
2,3,4,7,8-PeCDF	ND	1.91			13C-1,2,3,4,7,8-HxCDF	81.1	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.573			13C-1,2,3,6,7,8-HxCDF	89.8	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.570			13C-2,3,4,6,7,8-HxCDF	84.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.693			13C-1,2,3,7,8,9-HxCDF	80.4	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.13			13C-1,2,3,4,6,7,8-HpCDF	75.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	1.36			13C-1,2,3,4,7,8,9-HpCDF	81.8	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.66			13C-OCDF	61.8	17 - 157	
OCDF	ND	5.16			CRS 37Cl-2,3,7,8-TCDD	85.8	35 - 197	

Totals

Total TCDD	ND	0.795						
Total PeCDD	ND	1.42						
Total HxCDD	ND	2.72						
Total HpCDD	29.5							
Total TCDF	ND	1.57						
Total PeCDF	ND	1.95						
Total HxCDF	ND	0.712						
Total HpCDF	ND	1.49						

Footnotes

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

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:01

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.

CURRENT CERTIFICATIONS

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)



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 806, San Diego, CA 92123 Ph (619) 505-9688 Fax (619) 505-9689
 9630 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
 2820 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC1818

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) 933-0940

Standard TAT is requested unless specific due date is requested => Due Date: 5 day TAT Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC1818-01 Water	Sampled: 03/23/05 09:03	Instant Notification
1613-Dioxin-HR	03/30/05 09:03	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/20/05 09:03	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC1818-01C)		
1 L Amber (IOC1818-01D)		

25955 4.2°

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

Released By: [Signature] Date: 3-24-05 Time: 1700 Received By: [Signature] Date: 3/25/05 Time: 0900

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25955

1. Date Samples Arrived:	<u>3/25/05 0900</u>	Initials:	<u>GW</u>	Location:	<u>WR-2</u>
2. Time / Date logged in:	<u>3/25/05 1000</u>	Initials:	<u>GW</u>	Location:	<u>WR-2</u>
3. Samples Arrived By: (circle)	<u>FedEx</u>	UPS	World Courier	Other:	
4. Shipping Preservation: (circle)	<u>Ice</u>	Blue Ice	Dry Ice	None	Temp °C <u>4.2°</u>
5. Shipping Container(s) intact? If not, describe condition in comment section.		YES	NO	NA	
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.		✓	✓		
7. Shipping Documentation Present? (circle) Shipping Label Tracking Number <u>7928 8006 9252</u>	<u>Airbill</u>	✓			
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 <u>Client</u> Retain or <u>Return</u> 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:

initials of sampler on bottles

ALTA Analytical Laboratory
El Dorado Hills, CA 95762

APPENDIX G

Section 34

March Outfall 008

AMEC Data Validation Reports

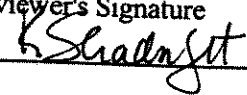
Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF34
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 4

Laboratory Alta
 Reviewer K. Shadowlight
 Analysis/Method Dioxins

Date: March 21, 2005
 Reviewer's Signature


ACTION ITEMS^a

1. **Case Narrative**
Deficiencies
2. **Out of Scope**
Analyses
3. **Analyses Not Conducted**
4. **Missing Hardcopy**
Deliverables
5. **Incorrect Hardcopy**
Deliverables
6. **Deviations from Analysis**
Protocol, e.g.,
 Holding Times
 GC/MS Tune/Inst. Performance
 Calibration
 Method blanks
 Surrogates
 Matrix Spike/Dup LCS
 Field QC
 Internal Standard Performance
 Compound Identification and
 Quantitation
 System Performance

Qualifications were assigned for the following:
 * EMPCs
 * Detects below the lower method calibration level

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 4
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 21, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Alpha Outfall 012	IOC0195-01	25837-001	water	1613
Outfall 001	IOC0515-01	25849-001	water	1613
Outfall 006	IOC0452-01	25851-001	water	1613
Outfall 008	IOC0454-01	25850-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 1.3°C and 1.8°C ; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6593-MB001) was extracted and analyzed with the samples in these SDGs. Total TCDF was reported at 1.4 pg/L and target compound 1,2,3,6,7,8-HxCDF was reported as an EMPC. There were no other detects reported in the method blank and neither of the target compounds reported in the method blank was reported in the associated samples. A review of the method blank raw data and chromatograms indicated no false negatives or false positives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6593-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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J," however, as Alta analyzed an additional calibration standard, not all results below the method calibration level were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. No further qualifications were required.

Sample ID: **IOC0454-01** *Outfall 008*

EPA Method 1613

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC0454
 Date Collected: 4-Mar-05
 Time Collected: 1400

Laboratory Data
 Lab Sample: 25850-001
 QC Batch No.: 6593
 Date Analyzed DB-5: 15-Mar-05
 Date Analyzed DB-225: NA

Sample Data
 Matrix: Aqueous
 Sample Size: 0.982 L

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UC ^d	Qualifiers
2,3,7,8-TCDD	ND	0.747			13C-2,3,7,8-TCDD	75.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.516			13C-1,2,3,7,8-PeCDD	75.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.18			13C-1,2,3,4,7,8-HxCDD	80.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.22			13C-1,2,3,6,7,8-HxCDD	85.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.20			13C-1,2,3,4,6,7,8-HpCDD	80.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	1.36				13C-OCDD	52.6	17 - 157	
OCDD	7.13			J	13C-2,3,7,8-TCDF	77.4	24 - 169	
2,3,7,8-TCDF	ND	0.775			13C-1,2,3,7,8-PeCDF	70.8	24 - 185	
1,2,3,7,8-PeCDF	ND	0.972			13C-2,3,4,7,8-PeCDF	72.2	21 - 178	
2,3,4,7,8-PeCDF	ND	0.836			13C-1,2,3,4,7,8-HxCDF	67.7	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.397			13C-1,2,3,6,7,8-HxCDF	74.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.366			13C-2,3,4,6,7,8-HxCDF	76.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.428			13C-1,2,3,7,8,9-HxCDF	76.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.629			13C-1,2,3,4,6,7,8-HpCDF	74.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.591			13C-1,2,3,4,7,8,9-HpCDF	82.6	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.625			13C-OCDF	61.4	17 - 157	
OCDF	ND	2.43			CRS 37Cl-2,3,7,8-TCDD	76.1	35 - 197	

Totals

Total TCDD	ND	0.747		
Total PeCDD	ND	0.516		
Total HxCDD	ND	1.20		
Total HpCDD	1.36		2.86	
Total TCDF	ND	0.775		
Total PeCDF	ND	0.902		
Total HxCDF	ND	0.447		
Total HpCDF	ND	0.605		

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

Jim Reel
 3/14/05

Approved By: Martha M. Maier 16-Mar-2005 11:25



Project 25850

UNCLASSIFIED

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT44
 Task Order 313150010
 SDG No. IOC0454, IOC0455
 No. of Analyses 2
 Date: 03/29/05
 Reviewer's Signature
P. Meeks

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method Metals

ACTION ITEMS*

1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not	
Conducted	
4. Missing Hardcopy	
Deliverables	
5. Incorrect Hardcopy	
Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualifications applied for:
	1. CCB detect
	2. Reporting limit check standard recovery outlier
	3. Detects below the reporting limit
	4. Antimony MDL raised and result estimated due to negative sample result

COMMENTS*

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOC0454 & IOC0455

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#: IOC0454, IOC0455
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 29, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOC0454, 0455
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 008	Outfall 008	IOC0454-01	water	ILM04
Outfall 009	Outfall 009	IOC0455-01	water	ILM04

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 sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for both samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. Antimony was not recovered in the 0.2 ppb reporting limit check standard and was recovered below the control limit in the 1.0 ppb reporting limit check standard; therefore, nondetected antimony in both site samples (see section 2.4) was qualified as estimated, "UJ." The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further sample qualifications were required.

2.4 BLANKS

Antimony was detected in a bracketing CCB at 0.309 $\mu\text{g/L}$; therefore, antimony detected in Outfall 009 was qualified as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were analyzed in association with the samples in this SDG; therefore, no assessment can be made with respect to this criterion.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C08106-BS1 and the mercury LCS sample was identified as 5C09050-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Analytes detected below the reporting limit were qualified as estimated, "J."

The laboratory reported antimony in Outfall 008 as nondetected at the reporting limit. The reviewer noted that the result in the raw data was $-0.309 \mu\text{g/L}$; therefore, the reviewer raised the antimony MDL for Outfall 008 to the level of interference in Outfall 008, $0.31 \mu\text{g/L}$, and qualified the result as estimated, "UJ." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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

Project ID: Routine Outfall 008
 Routine Outfall 008
 Report Number: IOC0454

Sampled: 03/04/05
 Received: 03/04/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0454-01 (DRAFT: Outfall 008 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C08106	0.31	2.0	ND	1	03/08/05	03/09/05	UJ
Cadmium	EPA 200.8	5C08106	0.18 0.015	1.0	0.032	1	03/08/05	03/09/05	J J
Copper	EPA 200.8	5C08106	0.49	2.0	3.2	1	03/08/05	03/09/05	
Lead	EPA 200.8	5C08106	0.13	1.0	1.4	1	03/08/05	03/09/05	
Mercury	EPA 245.1	5C09050	0.063	0.20	ND	1	03/09/05	03/09/05	U

Rev	Qual	Qual
	UJ	*3, \$
	J J	DNQ
	U	

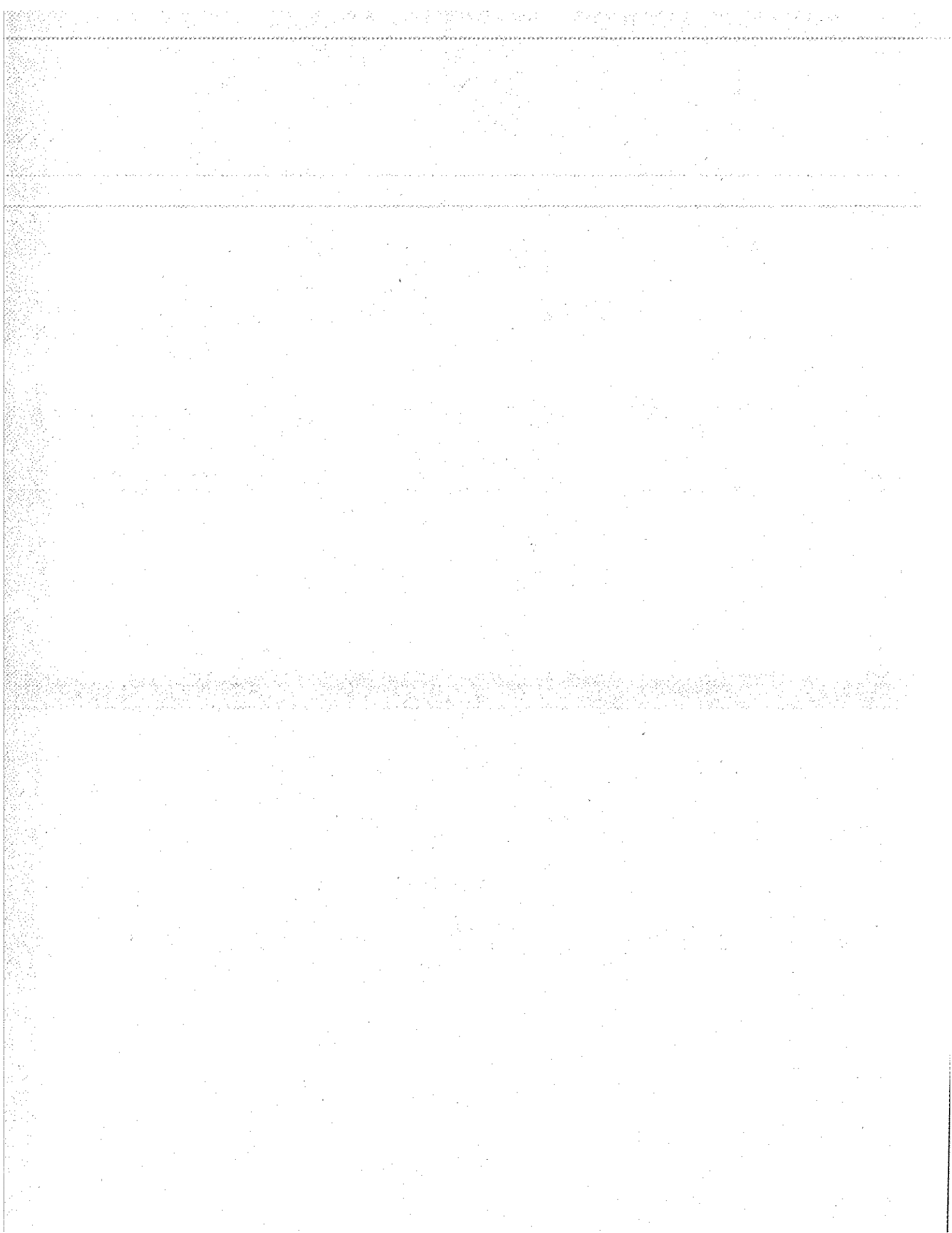
PM 3/29/05

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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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 008

Sampled: 03/04/05
Received: 03/04/05
Issued: 03/30/05 15:50

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.
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
IOC0454-01

CLIENT ID
Outfall 008

MATRIX
Water

Reviewed By:

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 008

Report Number: IOC0454

Sampled: 03/04/05
 Received: 03/04/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0454-01 (Outfall 008 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C08106	0.18	2.0	ND	1	03/08/05	03/09/05	
Cadmium	EPA 200.8	5C08106	0.015	1.0	0.032	1	03/08/05	03/09/05	J
Copper	EPA 200.8	5C08106	0.49	2.0	3.2	1	03/08/05	03/09/05	
Lead	EPA 200.8	5C08106	0.13	1.0	1.4	1	03/08/05	03/09/05	
Mercury	EPA 245.1	5C09050	0.063	0.20	ND	1	03/09/05	03/09/05	

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 008 Report Number: IOC0454	Sampled: 03/04/05 Received: 03/04/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0454-01 (Outfall 008 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C04107	0.15	0.50	9.1	1	03/04/05	03/05/05	
Nitrate/Nitrite-N	EPA 300.0	5C04107	0.11	0.11	0.49	1	03/04/05	03/05/05	
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	1.5	1	03/09/05	03/09/05	B, J
Sulfate	EPA 300.0	5C04107	0.45	0.50	7.3	1	03/04/05	03/05/05	
Total Dissolved Solids	SM2540C	5C08110	10	10	180	1	03/08/05	03/08/05	
Total Suspended Solids	EPA 160.2	5C07073	10	10	36	1	03/07/05	03/07/05	
Sample ID: IOC0454-01 (Outfall 008 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C08052	0.80	4.0	ND	1	03/08/05	03/08/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 008 Report Number: IOC0454	Sampled: 03/04/05 Received: 03/04/05
--	---	---

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 008 (IOC0454-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/04/2005 14:00	03/04/2005 17:50	03/04/2005 23:00	03/05/2005 02:07

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 008 Report Number: IOC0454	Sampled: 03/04/05 Received: 03/04/05
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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Limit	Qualifiers
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Batch: 5C08106 Extracted: 03/08/05

Blank Analyzed: 03/09/2005 (5C08106-BLK1)

Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							

LCS Analyzed: 03/09/2005 (5C08106-BS1)

Antimony	90.7	2.0	0.18	ug/l	80.0		113	85-115			
Cadmium	86.3	1.0	0.015	ug/l	80.0		108	85-115			
Copper	78.1	2.0	0.49	ug/l	80.0		98	85-115			
Lead	84.0	1.0	0.13	ug/l	80.0		105	85-115			

Matrix Spike Analyzed: 03/09/2005 (5C08106-MS1)

Source: IOC0448-01

Antimony	92.4	2.0	0.18	ug/l	80.0	0.37	115	70-130			
Cadmium	81.1	1.0	0.015	ug/l	80.0	0.086	101	70-130			
Copper	79.4	2.0	0.49	ug/l	80.0	3.0	96	70-130			
Lead	79.6	1.0	0.13	ug/l	80.0	0.19	99	70-130			

Matrix Spike Dup Analyzed: 03/09/2005 (5C08106-MSD1)

Source: IOC0448-01

Antimony	91.3	2.0	0.18	ug/l	80.0	0.37	114	70-130	1	20	
Cadmium	80.9	1.0	0.015	ug/l	80.0	0.086	101	70-130	0	20	
Copper	78.7	2.0	0.49	ug/l	80.0	3.0	95	70-130	1	20	
Lead	78.6	1.0	0.13	ug/l	80.0	0.19	98	70-130	1	20	

Batch: 5C09050 Extracted: 03/09/05

Blank Analyzed: 03/09/2005 (5C09050-BLK1)

Mercury	ND	0.20	0.063	ug/l							
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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 008 Report Number: IOC0454	Sampled: 03/04/05 Received: 03/04/05
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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C09050 Extracted: 03/09/05											
LCS Analyzed: 03/09/2005 (5C09050-BS1)											
Mercury	8.21	0.20	0.063	ug/l	8.00		103	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09050-MS1)											
						Source: IOC0456-01					
Mercury	8.33	0.20	0.063	ug/l	8.00	ND	104	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09050-MSD1)											
						Source: IOC0456-01					
Mercury	8.17	0.20	0.063	ug/l	8.00	ND	102	70-130	2	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 008 Report Number: IOC0454	Sampled: 03/04/05 Received: 03/04/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C04107 Extracted: 03/04/05											
Blank Analyzed: 03/04/2005 (5C04107-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.11	0.11	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 03/04/2005 (5C04107-BS1)											
Chloride	5.16	0.50	0.26	mg/l	5.00		103	90-110			M-3
Sulfate	10.4	0.50	0.18	mg/l	10.0		104	90-110			M-3
Batch: 5C07073 Extracted: 03/07/05											
Blank Analyzed: 03/07/2005 (5C07073-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/07/2005 (5C07073-BS1)											
Total Suspended Solids	980	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 03/07/2005 (5C07073-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOC0451-01				10	
Batch: 5C08052 Extracted: 03/08/05											
Blank Analyzed: 03/09/2005 (5C08052-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/08/2005 (5C08052-BS1)											
Perchlorate	50.0	4.0	0.80	ug/l	50.0		100	85-115			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 008 Report Number: IOC0454	Sampled: 03/04/05 Received: 03/04/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C08052 Extracted: 03/08/05											
Matrix Spike Analyzed: 03/08/2005 (5C08052-MS1)						Source: IOC0163-01					
Perchlorate	57.4	4.0	0.80	ug/l	50.0	ND	115	80-120			
Matrix Spike Dup Analyzed: 03/08/2005 (5C08052-MSD1)						Source: IOC0163-01					
Perchlorate	57.2	4.0	0.80	ug/l	50.0	ND	114	80-120	0	20	
Batch: 5C08110 Extracted: 03/08/05											
Blank Analyzed: 03/08/2005 (5C08110-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/08/2005 (5C08110-BS1)											
Total Dissolved Solids	976	10	10	mg/l	1000		98	90-110			
Duplicate Analyzed: 03/08/2005 (5C08110-DUP1)						Source: IOC0454-01					
Total Dissolved Solids	187	10	10	mg/l		180			4	10	
Batch: 5C09091 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09091-BLK1)											
Oil & Grease	1.70	5.0	0.94	mg/l							J
LCS Analyzed: 03/09/2005 (5C09091-BS1)											
Oil & Grease	22.4	5.0	0.94	mg/l	20.0		112	65-120			M-NR1
LCS Dup Analyzed: 03/09/2005 (5C09091-BSD1)											
Oil & Grease	18.8	5.0	0.94	mg/l	20.0		94	65-120	17	20	

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 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 008 Report Number: IOC0454	Sampled: 03/04/05 Received: 03/04/05
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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
IOC0454-01	413.1 Oil and Grease	Oil & Grease	mg/l	1.50	5.0	15
IOC0454-01	Chloride - 300.0	Chloride	mg/l	9.10	0.50	150
IOC0454-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.49	0.11	8.00
IOC0454-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IOC0454-01	Sulfate-300.0	Sulfate	mg/l	7.30	0.50	300
IOC0454-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	180	10	950

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



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

Project ID: Routine Outfall 008

Report Number: IOC0454

Sampled: 03/04/05
Received: 03/04/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- 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



Del Mar Analytical

17461 Derian 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 008

Report Number: IOC0454

Sampled: 03/04/05

Received: 03/04/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	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	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
 Samples: IOC0454-01

Analysis Performed: EDD + Level 4
 Samples: IOC0454-01

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:		Project:		ANALYSIS REQUIRED		Field readings:			
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Routine Outfall 008 Stormwater at Happy Valley		TCDD (and all congeners)		Temp = 57.0 pH = 7.31			
Project Manager: Bronwyn Kelly Phone Number: (626) 588-6691 Fax Number: (626) 588-6515		Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg		Oil & Grease (EPA 413.1)		Comments			
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	SP, SO ₄ , NO ₃ +NO ₂ -N, Perchlorate	TDS, TSS	TCDD (and all congeners)
Outfall 008	W	Poly-1L	1	3-4-05	HNO3	1A	X		
Outfall 008-Dup	W	Poly-1L	1		HNO3	1B	X		
Outfall 008	W	Glass-Amber	2		HCl	3A, 3B	X		
Outfall 008	W	Poly-500 ml	2		None	4A, 4B	X		
Outfall 008	W	Poly-500 ml	2		None	5A, 5B		X	
Outfall 008	W	Glass-Amber	2	3-4-05 14:00	None	6A, 6B			X
Relinquished By				Date/Time: 3-4-05 1500	Received By: <i>[Signature]</i>		Date/Time: 3-4-05 1500		
Relinquished By				Date/Time: 3-4-05 1750	Received By: <i>[Signature]</i>		Date/Time: 3-4-05 17:50		
Relinquished By				Date/Time:	Received By:		Date/Time:		

306

[Handwritten mark]



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
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

March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 008
Sampled: 03/04/05
Del Mar Analytical Number: IOC0454

Dear Ms. Kelly:

Alta Analytical Laboratory performed the EPA Method 1613 Dioxin analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Alta ID
Outfall 008	IOC0454-01	25850-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL

Michele Harper
Project Manager



March 16, 2005

Alta Project I.D.: 25850

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 March 08, 2005 under your Project Name "IOC0454". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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,

A handwritten signature in cursive script that reads "Martha M. Maier".

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640



Section I: Sample Inventory Report

Date Received: 3/8/2005

Alta Lab. ID

Client Sample ID

25850-001

IOC0454-01

SECTION II



Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	6593	Lab Sample:	0-MB001			
Sample Size:	1.000 L	Date Extracted:	11-Mar-05	Date Analyzed DB-5:	14-Mar-05			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.27			13C-2,3,7,8-TCDD	61.5	25 - 164	
1,2,3,7,8-PeCDD	ND	1.50			13C-1,2,3,7,8-PeCDD	57.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.20			13C-1,2,3,4,7,8-HxCDD	67.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.32			13C-1,2,3,6,7,8-HxCDD	76.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.26			13C-1,2,3,4,6,7,8-HpCDD	56.6	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	3.00			13C-OCDD	26.9	17 - 157	
OCDD	ND	11.1			13C-2,3,7,8-TCDF	63.1	24 - 169	
2,3,7,8-TCDF	ND	1.37			13C-1,2,3,7,8-PeCDF	54.3	24 - 185	
1,2,3,7,8-PeCDF	ND	2.09			13C-2,3,4,7,8-PeCDF	58.1	21 - 178	
2,3,4,7,8-PeCDF	ND	1.73			13C-1,2,3,4,7,8-HxCDF	60.3	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.16	0.905		13C-1,2,3,6,7,8-HxCDF	70.6	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.768			13C-2,3,4,6,7,8-HxCDF	67.0	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.22			13C-1,2,3,7,8,9-HxCDF	62.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.96			13C-1,2,3,4,6,7,8-HpCDF	53.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	1.38			13C-1,2,3,4,7,8,9-HpCDF	57.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	7.76			13C-OCDF	32.9	17 - 157	
OCDF	ND				CRS 37Cl-2,3,7,8-TCDD	71.7	35 - 197	
Totals								
Total TCDD	ND	1.27						
Total PeCDD	ND	1.50						
Total HxCDD	ND	2.26						
Total HpCDD	ND	3.00						
Total TCDF	1.40		2.79	D				
Total PeCDF	ND	3.06						
Total HxCDF	ND		0.905					
Total HpCDF	ND	2.12						

Footnotes

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

Analyst: MAS Approved By: Martha M. Maier 16-Mar-2005 11:25



EPA Method 1613

OPR Results

Matrix: Aqueous		QC Batch No.: 6593	Lab Sample: 0-OPR001		
Sample Size: 1.000 L		Date Extracted: 11-Mar-05	Date Analyzed DB-5: 14-Mar-05		
		Date Analyzed DB-225: NA	Date Analyzed DB-225: NA		
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard		
			%R		
			LCL-UCL		
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	61.8	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	62.9	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	65.8	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	77.0	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	67.2	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	38.7	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	63.1	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.0	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	63.2	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	57.9	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	68.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	67.7	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	65.7	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	63.1	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	65.7	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	44.9	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	72.7	35 - 197

Analyst: MAS

Approved By: Martha M. Maier 16-Mar-2005 11:25



Sample ID: IOC0454-01		EPA Method 1613						
Client Data		Laboratory Data						
Name: Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 25850-001	Date Received: 8-Mar-05					
Project: IOC0454	Sample Size: 0.982 L	QC Batch No.: 6593	Date Extracted: 11-Mar-05					
Date Collected: 4-Mar-05		Date Analyzed DB-5: 15-Mar-05	Date Analyzed DB-225: NA					
Time Collected: 1400								
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.747			IS 13C-2,3,7,8-TCDD	75.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.516			13C-1,2,3,7,8-PeCDD	75.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.18			13C-1,2,3,4,7,8-HxCDD	80.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.22			13C-1,2,3,6,7,8-HxCDD	85.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.20			13C-1,2,3,4,6,7,8-HpCDD	80.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	1.36			J	13C-OCDD	52.6	17 - 157	
OCDD	7.13			J	13C-2,3,7,8-TCDF	77.4	24 - 169	
2,3,7,8-TCDF	ND	0.775			13C-1,2,3,7,8-PeCDF	70.8	24 - 185	
1,2,3,7,8-PeCDF	ND	0.972			13C-2,3,4,7,8-PeCDF	72.2	21 - 178	
2,3,4,7,8-PeCDF	ND	0.836			13C-1,2,3,4,7,8-HxCDF	67.7	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.397			13C-1,2,3,6,7,8-HxCDF	74.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.366			13C-2,3,4,6,7,8-HxCDF	76.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.428			13C-1,2,3,7,8,9-HxCDF	76.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.629			13C-1,2,3,4,6,7,8-HpCDF	74.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.591			13C-1,2,3,4,7,8,9-HpCDF	82.6	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.625			13C-OCDF	61.4	17 - 157	
OCDF	ND	2.43			CRS 37Cl-2,3,7,8-TCDD	76.1	35 - 197	
Totals								
Total TCDD	ND	0.747						
Total PeCDD	ND	0.516						
Total HxCDD	ND	1.20						
Total HpCDD	1.36		2.86					
Total TCDF	ND	0.775						
Total PeCDF	ND	0.902						
Total HxCDF	ND	0.447						
Total HpCDF	ND	0.605						

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: Martha M. Maier 16-Mar-2005 11:25

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.
*	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 corresponds 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.



CURRENT CERTIFICATIONS

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)



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Conroy Dr., Suite A, Colton, CA 92324 Ph (909) 370-4867 Fax (909) 370-1048
 9484 Chesapeake Drive, Suite 806, San Diego, CA 92123 Ph (619) 505-9686 Fax (619) 505-9689
 9530 South 61st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0051
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC0454

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) 933-0940

25850
1.3°C

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

Analysis	Expiration	Comments
Sample ID: IOC0454-01 Water	Sampled: 03/04/05 14:00	Instant Notification
1613-Dioxin-HR	03/11/05 14:00	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/01/05 14:00	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0454-01C)		
1 L Amber (IOC0454-01D)		

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

Released By: Wayne [Signature] Date: 3-7-05 Time: 1700 Received By: Stefano J. Benedict Date: 3/8/05 Time: 0939

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25850

1. Date Samples Arrived: <u>3/8/05 0939</u>	Initials: <u>BBB</u>	Location: <u>WR-2</u>	
2. Time / Date logged in: <u>1305 3/8/05</u>	Initials: <u>BBB</u>	Location: <u>WR-2</u>	
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> <u>Blue Ice</u> / Dry Ice / None Temp °C <u>1.3</u>			
5. Shipping Container(s) intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7928 6415 1912</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



Del Mar Analytical

77871 Dallas Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1814 E. Oakley Dr., Suite A, Costa, CA 92324 Ph (909) 370-4887 Fax (909) 370-1888
 94940 Chesapeake Court, Suite 200, San Diego, CA 92123 Ph (619) 655-0388 Fax (619) 535-0880
 6635 South West Blvd, Suite B-120, Phoenix, AZ 85044 Ph (480) 788-0843 Fax (480) 788-0844
 2830 E. Sunset Pl., Suite 20, Las Vegas, NV 89120 Ph (702) 794-0880 Fax (702) 794-0881

SUBCONTRACT ORDER - PROJECT # IOC0454

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940 <i>24 258.50</i> <i>1.3°C</i>

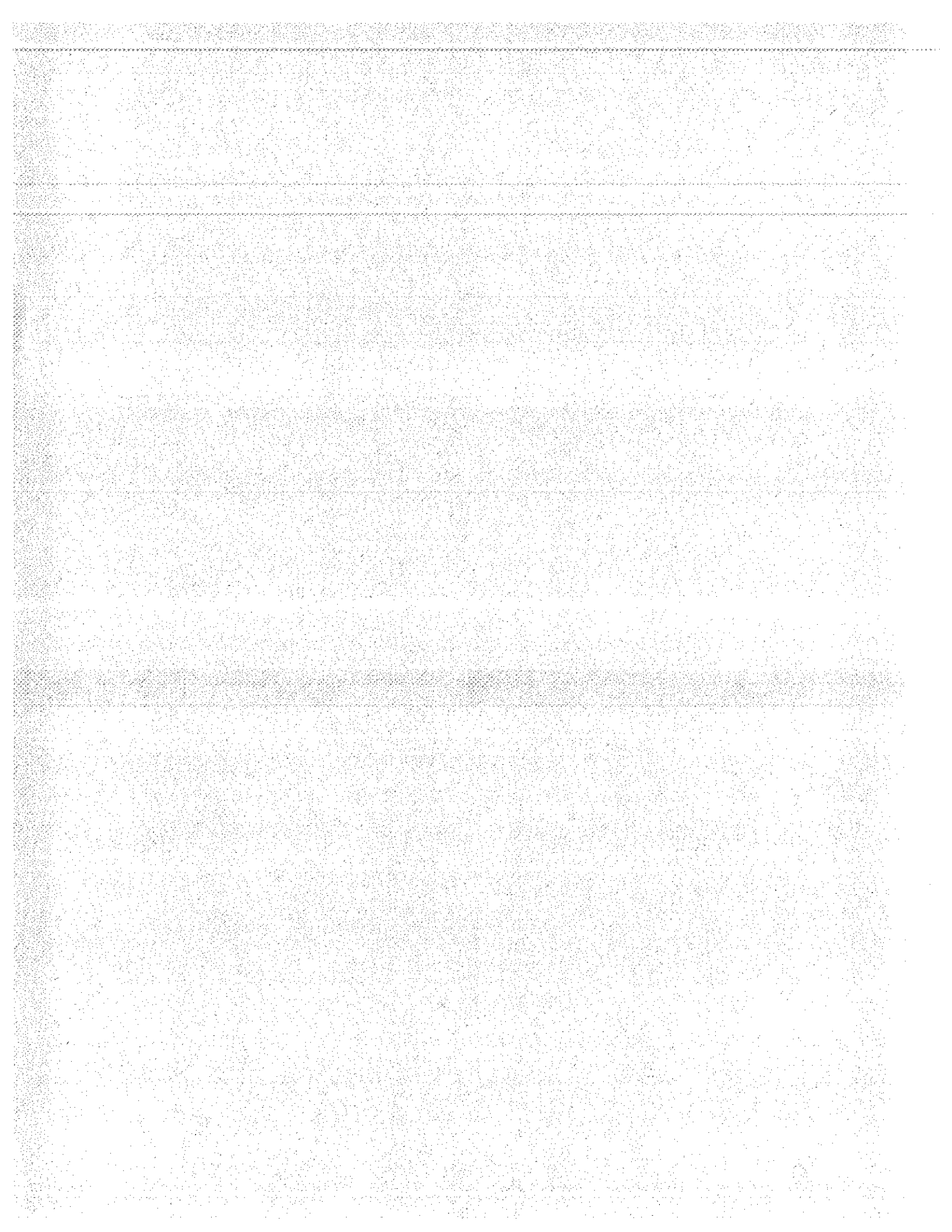
Standard TAT is requested unless specific due date is requested => Due Date: 2 WEEK Initials: MH

Analysis	Expiration	Comments
Sample ID: IOC0454-01 Water	Sampled: 03/04/03 14:00	Instant Notification
1613-Dioxin-HR	03/11/05 14:00	1 flag, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/01/05 14:00	Excel EDD email to pm, include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0454-01C)		
1 L Amber (IOC0454-01D)		

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Break Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

Released By: [Signature] Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____
 Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF37
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 10

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

Date: April 4, 2005
 Reviewer's Signature H. Chang

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."
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: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 10
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 4, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 002	IOC1521-01	25935-001	water	1613
Outfall 011	IOC1523-01	25936-001	water	1613
Outfall 005	IOC1524-01	25940-001	water	1613
Outfall 006	IOC1525-01	25937-001	water	1613
Outfall 011 Composite	IOC1526-01	25938-001	water	1613
Outfall 001	IOC1561-01	25941-001	water	1613
Outfall 004	IOC1563-01	25939-001	water	1613
Outfall 008	IOC1564-01	25942-001	water	1613
Outfall 003	IOC1565-01	25943-001	water	1613
Outfall 009	IOC1566-01	25944-001	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

Samples Outfall 001, Outfall 004, and Outfall 008 were received at Del Mar Analytical outside the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Due to non-volatile nature of the target compounds, no qualifications were required. The other samples were received with cooler temperatures within the limits. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (0_6624_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 (0_6624_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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." No further qualifications were required.

Sample ID: IOC1564-01 Outfall 098

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25942-001		
Project:	IOC1564	Sample Size:	0.936 L	QC Batch No.:	6624		
Date Collected:	19-Mar-05			Date Analyzed DB-5:	24-Mar-05		
Time Collected:	0948			Date Analyzed DB-225:	NA		
				Date Received:	22-Mar-05		
				Date Extracted:	22-Mar-05		
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.736		13C-2,3,7,8-TCDD	89.6	25 - 164	
1,2,3,7,8-PeCDD	ND	0.647		13C-1,2,3,7,8-PeCDD	84.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.08		13C-1,2,3,4,7,8-HxCDD	86.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.07		13C-1,2,3,6,7,8-HxCDD	91.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.07		13C-1,2,3,4,6,7,8-HpCDD	88.8	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.904		13C-OCDD	72.7	17 - 157	
OCDD	ND	4.03		13C-2,3,7,8-TCDF	93.0	24 - 169	
2,3,7,8-TCDF	ND	0.841		13C-1,2,3,7,8-PeCDF	84.7	24 - 185	
1,2,3,7,8-PeCDF	ND	1.52		13C-2,3,4,7,8-PeCDF	84.6	21 - 178	
2,3,4,7,8-PeCDF	ND	1.45		13C-1,2,3,4,7,8-HxCDF	68.7	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.405		13C-1,2,3,6,7,8-HxCDF	77.7	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.402		13C-2,3,4,6,7,8-HxCDF	78.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.447		13C-1,2,3,7,8,9-HxCDF	78.1	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.666		13C-1,2,3,4,6,7,8-HpCDF	83.7	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.787		13C-1,2,3,4,7,8,9-HpCDF	85.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.986		13C-OCDF	78.1	17 - 157	
OCDF	ND	2.32		CRS 37Cl-2,3,7,8-TCDD	87.6	35 - 197	
Totals							
Total TCDD	ND	0.736					
Total PeCDD	ND	0.647					
Total HxCDD	ND	1.07					
Total HpCDD	ND	0.904					
Total TCDF	ND	0.841					
Total PeCDF	ND	1.49					
Total HxCDF	ND	0.471					
Total HpCDF	ND	0.873					
Footnotes							
a. Sample specific estimated detection limit.							
b. Estimated maximum possible concentration.							
c. Method detection limit.							
d. Lower control limit - upper control limit.							

Qual Code

Analyst: JMH

Approved By: Martha M. Maier 24-Mar-2005 09:57

AMEC VALIDATED


LEVEL IV

Project 25942

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT57
 Task Order 313150010
 SDG No. Multiple

No. of Analyses 5
 Date: 03/30/05
 Reviewer's Signature


Laboratory Del Mar
 Reviewer P. Meeks
 Analysis/Method Metals

ACTION ITEMS*	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not	
Conducted	
4. Missing Hardcopy	
Deliverables	
5. Incorrect Hardcopy	
Deliverables	
6. Deviations from Analysis Protocol, e.g.,	<p>Qualifications applied for detects below the reporting limit and antimony MDLs were raised and results estimated due to CCB detects.</p> <p>Holding Times _____</p> <p>GC/MS Tune/Inst. _____</p> <p> Performance _____</p> <p>Calibrations _____</p> <p>Blanks _____</p> <p>Surrogates _____</p> <p>Matrix Spike/Dup LCS _____</p> <p>Field QC _____</p> <p>Internal Standard _____</p> <p> Performance _____</p> <p>Compound Identification and Quantitation _____</p> <p>System Performance _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
COMMENTS*	
<p>* Subcontracted analytical laboratory is not meeting contract and/or method requirements.</p> <p>† Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</p>	



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOC1524, IOC1525, IOC1564,
IOC1565, & IOC1566

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#: IOC1524, IOC1525, IOC1564, IOC1565, & IOC1566
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 30, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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 005	Outfall 005	IOC1524-01	water	ILM04
Outfall 006	Outfall 006	IOC1525-01	water	ILM04
Outfall 008	Outfall 008	IOC1564-01	water	ILM04
Outfall 003	Outfall 003	IOC1565-01	water	ILM04
Outfall 009	Outfall 009	IOC1566-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

Outfall 008 was received above the temperature limit at 8°C ; however, as the sample had insufficient time to cool prior to receipt at the laboratory, no qualifications were required. The remaining samples in these SDGs were received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for the samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

Antimony was detected in every CCB in the analytical sequence in which Outfall 008 and Outfall 009 were analyzed. The detects ranged from 0.484 to 0.551 $\mu\text{g/L}$ and antimony was detected in Outfall 008 and Outfall 009 at concentrations below these values. The CCB detects indicated the laboratory could not detect antimony at the reported MDL. The reviewer raised the antimony MDL for Outfall 008 and Outfall 009 to the highest level of interference reported, 0.55 $\mu\text{g/L}$ and qualified the result as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper and cadmium were detected above the applicable reporting limit in the ICSA. Aluminum was recovered below the control limit in the all the ICSA and ICSAB analyses; however, as aluminum was not reported in the site samples, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix effects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS samples were identified as 5C21088-BS1 and 5C19038-BS1. The mercury LCS sample was identified as 5C21082-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed on Outfall 005 for lead only. The RPD was within the control limit of 20% and no qualifications were required.

2.8 MATRIX SPIKE

MS/MSD analyses were performed on Outfall 005 for lead only. Both recoveries were within the AMEC control limits of 75-125% and no qualifications were required. For the remaining analytes, method accuracy was evaluated based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Analytes detected below the reporting limit were qualified as estimated, "J." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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

MWH-Pasadena Boeing Project ID: Routine Outfall 008
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101 Report Number: IOC1564
 Attention: Bronwyn Kelly
 Sampled: 03/19/05
 Received: 03/19/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1564-01 (DRAFT: Outfall 008 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C21088	0.55	2.0	6.55	1	03/21/05	03/21/05	U J J
Cadmium	EPA 200.3	5C21088	0.015	1.0	0.018	1	03/21/05	03/21/05	J J
Copper	EPA 200.8	5C21088	0.49	2.0	2.9	1	03/21/05	03/21/05	J J
Lead	EPA 200.8	5C21088	0.13	1.0	0.18	1	03/21/05	03/21/05	J J
Mercury	EPA 245.1	5C21082	0.063	0.20	ND	1	03/21/05	03/21/05	U

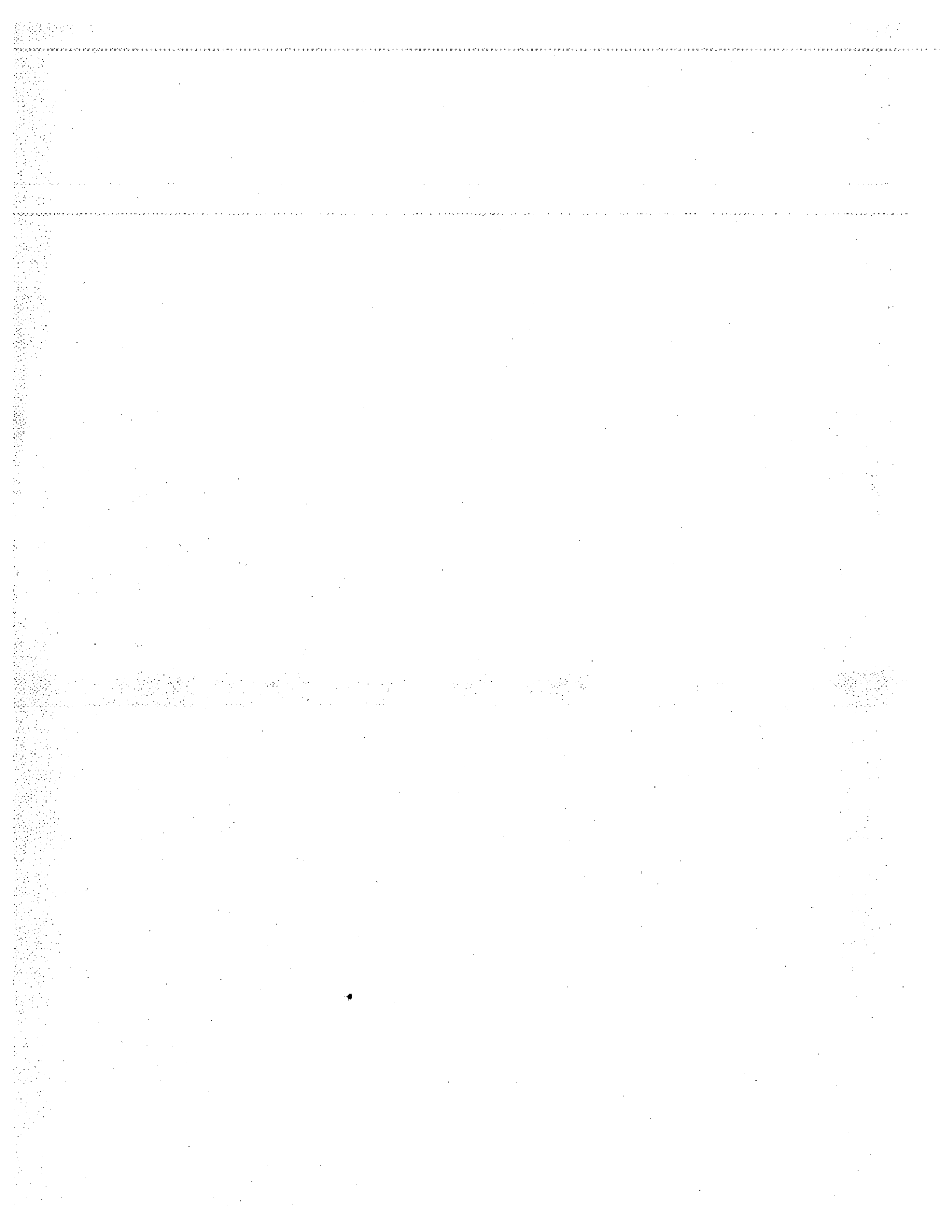
Rev Qual | Qual Code
 U J J | B, J
 J J | D N Q
 J J | D N Q
 U

pm 3/30/05

AMEC VALIDATED

[Handwritten signature]

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





Del Mar Analytical

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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 008

Sampled: 03/19/05
Received: 03/19/05
Issued: 03/31/05 09:22

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.
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
IOC1564-01

CLIENT ID
Outfall 008

MATRIX
Water

Reviewed By:

Del Mar Analytical, Irvine
Wendy Kirkeeng For 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 008 Report Number: IOC1564	Sampled: 03/19/05 Received: 03/19/05
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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1564-01 (Outfall 008 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C21088	0.18	2.0	0.42	1	03/21/05	03/21/05	J
Cadmium	EPA 200.8	5C21088	0.015	1.0	0.018	1	03/21/05	03/21/05	J
Copper	EPA 200.8	5C21088	0.49	2.0	2.9	1	03/21/05	03/21/05	
Lead	EPA 200.8	5C21088	0.13	1.0	0.18	1	03/21/05	03/21/05	J
Mercury	EPA 245.1	5C21082	0.063	0.20	ND	1	03/21/05	03/21/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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.



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	Project ID: Routine Outfall 008 Report Number: IOC1564	Sampled: 03/19/05 Received: 03/19/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1564-01 (Outfall 008 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C20029	0.15	0.50	11	1	03/20/05	03/20/05	
Nitrate/Nitrite-N	EPA 300.0	5C20029	0.072	0.11	0.28	1	03/20/05	03/20/05	
Oil & Grease	EPA 413.1	5C21062	0.94	5.0	ND	1	03/21/05	03/21/05	
Sulfate	EPA 300.0	5C20029	0.45	0.50	4.2	1	03/20/05	03/20/05	
Total Dissolved Solids	SM2540C	5C21073	10	10	130	1	03/21/05	03/21/05	
Total Suspended Solids	EPA 160.2	5C21068	10	10	ND	1	03/21/05	03/21/05	
Sample ID: IOC1564-01 (Outfall 008 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C21050	0.80	4.0	ND	1	03/21/05	03/21/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 008

Report Number: IOC1564

Sampled: 03/19/05

Received: 03/19/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 008 (IOC1564-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/19/2005 09:48	03/19/2005 17:30	03/20/2005 13:30	03/20/2005 14:58

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 008 Report Number: IOC1564	Sampled: 03/19/05 Received: 03/19/05
--	---	---

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5C21082 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21082-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 03/21/2005 (5C21082-BS1)											
Mercury	7.98	0.20	0.063	ug/l	8.00		100	85-115			
Matrix Spike Analyzed: 03/21/2005 (5C21082-MS1)											
						Source: IOC1561-01					
Mercury	7.93	0.20	0.063	ug/l	8.00	ND	99	70-130			
Matrix Spike Dup Analyzed: 03/21/2005 (5C21082-MSD1)											
						Source: IOC1561-01					
Mercury	8.07	0.20	0.063	ug/l	8.00	ND	101	70-130	2	20	
Batch: 5C21088 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21088-BLK1)											
Antimony	ND	2.0	0.18	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 03/21/2005 (5C21088-BS1)											
Antimony	86.5	2.0	0.18	ug/l	80.0		108	85-115			
Cadmium	84.6	1.0	0.015	ug/l	80.0		106	85-115			
Copper	81.1	2.0	0.49	ug/l	80.0		101	85-115			
Lead	84.0	1.0	0.13	ug/l	80.0		105	85-115			
Matrix Spike Analyzed: 03/21/2005 (5C21088-MS1)											
						Source: IOC1561-01					
Antimony	94.5	2.0	0.18	ug/l	80.0	0.45	118	70-130			
Cadmium	86.9	1.0	0.015	ug/l	80.0	0.025	109	70-130			
Copper	78.5	2.0	0.49	ug/l	80.0	1.9	96	70-130			
Lead	83.6	1.0	0.13	ug/l	80.0	ND	104	70-130			

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 Wendy Kirkeeng For 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 008

Report Number: IOC1564

Sampled: 03/19/05

Received: 03/19/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C21088 Extracted: 03/21/05											
Matrix Spike Analyzed: 03/21/2005 (5C21088-MS2)						Source: IOC1563-01					
Antimony	87.6	2.0	0.18	ug/l	80.0	0.68	109	70-130			
Cadmium	82.1	1.0	0.015	ug/l	80.0	0.094	103	70-130			
Copper	85.2	2.0	0.49	ug/l	80.0	7.7	97	70-130			
Lead	82.6	1.0	0.13	ug/l	80.0	0.83	102	70-130			
Matrix Spike Dup Analyzed: 03/21/2005 (5C21088-MSD1)						Source: IOC1561-01					
Antimony	88.8	2.0	0.18	ug/l	80.0	0.45	110	70-130	6	20	
Cadmium	83.0	1.0	0.015	ug/l	80.0	0.025	104	70-130	5	20	
Copper	77.9	2.0	0.49	ug/l	80.0	1.9	95	70-130	1	20	
Lead	81.3	1.0	0.13	ug/l	80.0	ND	102	70-130	3	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 008 Report Number: IOC1564	Sampled: 03/19/05 Received: 03/19/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C20029 Extracted: 03/20/05											
Blank Analyzed: 03/20/2005 (5C20029-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 03/20/2005 (5C20029-BS1)											
Chloride	4.65	0.50	0.26	mg/l	5.00		93	90-110			M-3
Sulfate	9.69	0.50	0.18	mg/l	10.0		97	90-110			M-3
Batch: 5C21050 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21050-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/21/2005 (5C21050-BS1)											
Perchlorate	48.9	4.0	0.80	ug/l	50.0		98	85-115			
Matrix Spike Analyzed: 03/21/2005 (5C21050-MS1)											
						Source: IOC1552-01					
Perchlorate	55.5	4.0	0.80	ug/l	50.0	1.7	108	80-120			
Matrix Spike Dup Analyzed: 03/21/2005 (5C21050-MSD1)											
						Source: IOC1552-01					
Perchlorate	58.7	4.0	0.80	ug/l	50.0	1.7	114	80-120	6	20	
Batch: 5C21062 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21062-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 008 Report Number: IOC1564	Sampled: 03/19/05 Received: 03/19/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C21062 Extracted: 03/21/05										
LCS Analyzed: 03/21/2005 (5C21062-BS1)										
Oil & Grease	17.1	5.0	0.94	mg/l	20.0		86 65-120			M-NR1
LCS Dup Analyzed: 03/21/2005 (5C21062-BSD1)										
Oil & Grease	16.0	5.0	0.94	mg/l	20.0		80 65-120	7	20	
Batch: 5C21068 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21068-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21068-BS1)										
Total Suspended Solids	942	10	10	mg/l	1000		94 85-115			
Duplicate Analyzed: 03/21/2005 (5C21068-DUP1)										
Total Suspended Solids	ND	10	10	mg/l		Source: IOC1566-01			10	
Batch: 5C21073 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21073-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21073-BS1)										
Total Dissolved Solids	968	10	10	mg/l	1000		97 90-110			
Duplicate Analyzed: 03/21/2005 (5C21073-DUP1)										
Total Dissolved Solids	320	10	10	mg/l		Source: IOC1566-01		6	10	

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

Project ID: Routine Outfall 008

Report Number: IOC1564

Sampled: 03/19/05

Received: 03/19/05

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
IOC1564-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.38	5.0	15
IOC1564-01	Chloride - 300.0	Chloride	mg/l	11	0.50	150
IOC1564-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.28	0.11	8.00
IOC1564-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IOC1564-01	Sulfate-300.0	Sulfate	mg/l	4.20	0.50	300
IOC1564-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	130	10	950

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 008

Report Number: IOC1564

Sampled: 03/19/05

Received: 03/19/05

DATA QUALIFIERS AND DEFINITIONS

- 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 unknown quality.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- 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
Wendy Kirkeeng For Michele Harper
Project Manager

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IOC1564 <Page 10 of 11>



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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 008 Report Number: IOC1564	Sampled: 03/19/05 Received: 03/19/05
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Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	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	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
 Samples: IOC1564-01

Analysis Performed: EDD + Level 4
 Samples: IOC1564-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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1061564

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:		Project:		ANALYSIS REQUIRED										Field readings:					
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Routine Outfall 008 Stormwater at Happy Valley		Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg		Oil & Grease (EPA 413.1)		Cl ⁻ , SO ₄ , NO ₃ +NO ₂ -N, Perchlorate		TDS, TSS		TCDD (and all congeners)		Temp = 54.9 pH = 6.8					
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #											Comments		
Outfall 008	W	Poly-1L	1	3-17-05 07:48	HNO3	1A	X												
Outfall 008-Dup	W	Poly-1L	1		HNO3	1B	X												
Outfall 008	W	Glass-Amber	2		HCl	3A, 3B	X												
Outfall 008	W	Poly-500 ml	2		None	4A, 4B		X											
Outfall 008	W	Poly-500 ml	2		None	5A, 5B			X										
Outfall 008	W	Glass-Amber	2	3-19-05 07:48	None	6A, 6B				X									
Relinquished By		Date/Time:		Received By		Date/Time:		Turn around Time: (check)		24 Hours		48 Hours		72 Hours		Perchlorate Only 72 Hours		Metals Only 72 Hours	
<i>[Signature]</i>		3/15/05 3:20		<i>[Signature]</i>		3/16/05 12:45		5 Days											
Relinquished By		Date/Time:		Received By		Date/Time:		Turn around Time: (check)		24 Hours		48 Hours		72 Hours		Perchlorate Only 72 Hours		Metals Only 72 Hours	
<i>[Signature]</i>		3/15/05 3:20		<i>[Signature]</i>		3/19/05 15:20		10 Days											
Relinquished By		Date/Time:		Received By		Date/Time:		Turn around Time: (check)		24 Hours		48 Hours		72 Hours		Perchlorate Only 72 Hours		Metals Only 72 Hours	
<i>[Signature]</i>		3/19/05 17:30		<i>[Signature]</i>		3/19/05 17:30		Normal										Sample Integrity: (Check) <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/>	





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March 28, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 008
Sampled: 03/19/05
Del Mar Analytical Number: IOC1564

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	ALTA ID
Routine Outfall 008	IOC1564-01	25942-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL

Michele Harper
Project Manager



March 24, 2005

Alta Project I.D.: 25942

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 March 22, 2005 under your Project Name "IOC1564". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report**Date Received: 3/22/2005****Alta Lab. ID****Client Sample ID**

25942-001

IOC1564-01

SECTION II



Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	6624	Lab Sample:	0-MB001			
Sample Size:	1.000 L	Date Extracted:	22-Mar-05	Date Analyzed DB-5:	23-Mar-05			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.841			IS 13C-2,3,7,8-TCDD	79.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.749			13C-1,2,3,7,8-PeCDD	75.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.49			13C-1,2,3,4,7,8-HxCDD	74.0	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.52			13C-1,2,3,6,7,8-HxCDD	80.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.50			13C-1,2,3,4,6,7,8-HpCDD	72.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.17			13C-OCDD	55.5	17 - 157	
OCDD	ND	3.33			13C-2,3,7,8-TCDF	82.1	24 - 169	
2,3,7,8-TCDF	ND	0.795			13C-1,2,3,7,8-PeCDF	74.6	24 - 185	
1,2,3,7,8-PeCDF	ND	1.67			13C-2,3,4,7,8-PeCDF	77.9	21 - 178	
2,3,4,7,8-PeCDF	ND	1.39			13C-1,2,3,4,7,8-HxCDF	62.7	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.474			13C-1,2,3,6,7,8-HxCDF	73.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.442			13C-2,3,4,6,7,8-HxCDF	71.1	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.510			13C-1,2,3,7,8,9-HxCDF	67.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.820			13C-1,2,3,4,6,7,8-HpCDF	67.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.929			13C-1,2,3,4,7,8,9-HpCDF	71.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.13			13C-OCDF	58.9	17 - 157	
OCDF	ND	2.74			CRS 37Cl-2,3,7,8-TCDD	83.9	35 - 197	
Totals					Footnotes			
Total TCDD	ND	0.841			a. Sample specific estimated detection limit.			
Total PeCDD	ND	0.749			b. Estimated maximum possible concentration.			
Total HxCDD	ND	1.51			c. Method detection limit.			
Total HpCDD	ND	1.17			d. Lower control limit - upper control limit.			
Total TCDF	ND	0.795						
Total PeCDF	ND	1.52						
Total HxCDF	ND	0.545						
Total HpCDF	ND	1.02						

Analyst: JMH

Approved By: Martha M. Maier 24-Mar-2005 09:57



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-225: NA		
Matrix:	Aqueous <th>QC Batch No.:</th> <td>6624 <th>Date Analyzed DB-5:</th> <td>23-Mar-05 </td></td>	QC Batch No.:	6624 <th>Date Analyzed DB-5:</th> <td>23-Mar-05 </td>	Date Analyzed DB-5:	23-Mar-05	
Sample Size:	1.000 L <th>Date Extracted:</th> <td>22-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td></td>	Date Extracted:	22-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td>	Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.02	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	86.2	25 - 164
1,2,3,7,8-PeCDD	50.0	44.9	35 - 71	13C-1,2,3,7,8-PeCDD	83.6	25 - 181
1,2,3,4,7,8-HxCDD	50.0	45.7	35 - 82	13C-1,2,3,4,7,8-HxCDD	83.1	32 - 141
1,2,3,6,7,8-HxCDD	50.0	47.1	38 - 67	13C-1,2,3,6,7,8-HxCDD	90.5	28 - 130
1,2,3,7,8,9-HxCDD	50.0	47.2	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	80.1	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	49.7	35 - 70	13C-OCDD	60.0	17 - 157
OCDD	100	102	78 - 144	13C-2,3,7,8-TCDF	89.6	24 - 169
2,3,7,8-TCDF	10.0	9.28	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	82.2	24 - 185
1,2,3,7,8-PeCDF	50.0	49.7	40 - 67	13C-2,3,4,7,8-PeCDF	86.0	21 - 178
2,3,4,7,8-PeCDF	50.0	48.9	34 - 80	13C-1,2,3,4,7,8-HxCDF	69.1	26 - 152
1,2,3,4,7,8-HxCDF	50.0	52.4	36 - 67	13C-1,2,3,6,7,8-HxCDF	83.1	26 - 123
1,2,3,6,7,8-HxCDF	50.0	51.4	42 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	28 - 136
2,3,4,6,7,8-HxCDF	50.0	51.3	35 - 78	13C-1,2,3,7,8,9-HxCDF	77.1	29 - 147
1,2,3,7,8,9-HxCDF	50.0	51.3	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	77.1	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	54.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	78.6	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	53.2	39 - 69	13C-OCDF	65.1	17 - 157
OCDF	100	103	63 - 170	CRS 37Cl-2,3,7,8-TCDD	89.8	35 - 197

Analyst: JMH

Approved By: Marthia M. Maier 24-Mar-2005 09:57



Sample ID: IOC1564-01

EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25942-001
Project:	IOC1564	Sample Size:	0.936 L	QC Batch No.:	6624
Date Collected:	19-Mar-05			Date Analyzed DB-5:	24-Mar-05
Time Collected:	0948			Date Analyzed DB-225:	NA
		DL ^a	EMPC ^b	%R	LCL-UCL ^d Qualifiers

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.736			IS 13C-2,3,7,8-TCDD	89.6	25 - 164
1,2,3,7,8-PeCDD	ND	0.647			13C-1,2,3,7,8-PeCDD	84.9	25 - 181
1,2,3,4,7,8-HxCDD	ND	1.08			13C-1,2,3,4,7,8-HxCDD	86.4	32 - 141
1,2,3,6,7,8-HxCDD	ND	1.07			13C-1,2,3,6,7,8-HxCDD	91.3	28 - 130
1,2,3,7,8,9-HxCDD	ND	1.07			13C-1,2,3,4,6,7,8-HpCDD	88.8	23 - 140
1,2,3,4,6,7,8-HpCDD	ND	0.904			13C-OCDD	72.7	17 - 157
OCDD	ND	4.03			13C-2,3,7,8-TCDF	93.0	24 - 169
2,3,7,8-TCDF	ND	0.841			13C-1,2,3,7,8-PeCDF	84.7	24 - 185
1,2,3,7,8-PeCDF	ND	1.52			13C-2,3,4,7,8-PeCDF	84.6	21 - 178
2,3,4,7,8-PeCDF	ND	1.45			13C-1,2,3,4,7,8-HxCDF	68.7	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.405			13C-1,2,3,6,7,8-HxCDF	77.7	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.402			13C-2,3,4,6,7,8-HxCDF	78.3	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.447			13C-1,2,3,7,8,9-HxCDF	78.1	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.666			13C-1,2,3,4,6,7,8-HpCDF	83.7	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.787			13C-1,2,3,4,7,8,9-HpCDF	85.0	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.986			13C-OCDF	78.1	17 - 157
OCDF	ND	2.32			CRS 37Cl-2,3,7,8-TCDD	87.6	35 - 197

Totals	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
Total TCDD	ND	0.736					
Total PeCDD	ND	0.647					
Total HxCDD	ND	1.07					
Total HpCDD	ND	0.904					
Total TCDF	ND	0.841					
Total PeCDF	ND	1.49					
Total HxCDF	ND	0.471					
Total HpCDF	ND	0.873					

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: Martha M. Maier 24-Mar-2005 09:57

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.

CURRENT CERTIFICATIONS



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)

09/28/04

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

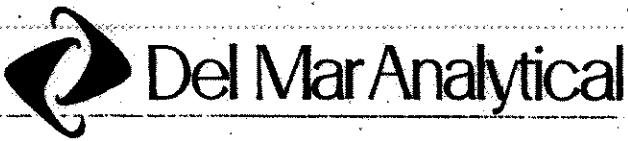
ALTA Project No.: 25942

1. Date Samples Arrived: <u>3/22/05 0945</u> Initials: <u>CV</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>3/22/05 1115</u> Initials: <u>CV</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> Blue Ice / Dry Ice / None Temp °C <u>2.9°</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7915 7864 5620</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

IOC1524-01
 IOC1561-01
 IOC1564-01
 IOC1565-01
 IOC1566-01

ALTA Analytical Laboratory
 El Dorado Hills, CA 95762



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) 370-4967 Fax (909) 370-1046
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-8586 Fax (619) 505-9889
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0891
 2528 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC1564

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940

Standard TAT is requested unless specific due date is requested => Due Date: 5 day TAT Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC1564-01 Water	Sampled: 03/19/05 09:48	Instant Notification
1613-Dioxin-HR	03/26/05 09:48	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/16/05 09:48	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC1564-01C)		
1 L Amber (IOC1564-01D)		

25942 2.9°

SAMPLE INTEGRITY:					
All containers intact:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Sample labels/COC agree:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Custody Seals Present:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Samples Preserved Properly:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received On Ice:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received at (temp):	_____	

	3-21-05	1700		3/21/05	0945
Released By	Date	Time	Received By	Date	Time
Released By	Date	Time	Received By	Date	Time

APPENDIX G

Section 35

March Outfall 009

AMEC Data Validation Reports

Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF35
 Task Order 313150010
 SDG No. Multiple

No. of Analyses 6

Laboratory Alta

Date: March 23, 2005

Reviewer K. Shadowlight

Reviewer's Signature


Analysis/Method Dioxins

ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications were assigned for the following:
Holding Times	* EMPCs
GC/MS Tune/Inst. Performance	* Detects below the lower method calibration level
Calibration	
Method 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: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 21, 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	IOC0447-01	25853-001	water	1613
Outfall 003	IOC0449-01	25854-001	water	1613
Outfall 004	IOC0455-01	25855-001	water	1613
Outfall 005	IOC0451-01	25855-001	water	1613
Outfall 007	IOC0453-01	25856-001	water	1613
Outfall 011	IOC0448-01	25852-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 1.3°C and 1.4°C ; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6593-MB001) was extracted and analyzed with the samples in these SDGs. Total TCDF was reported at 1.4 pg/L and target compound 1,2,3,6,7,8-HxCDF was reported as an EMPC. The results for total TCDF in samples Outfall 003 and Outfall 011 were qualified as estimated nondetects "UJ," at the levels of interference. A review of the method blank raw data and chromatograms indicated no false negatives or false positives. No further qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6593-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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." The result for total TCDF in sample Outfall 003 was flagged by the laboratory with a "D" qualifier which indicated possible diphenylether interference; however, the result was qualified as a nondetect due to method blank contamination and no qualifications were required. No further qualifications were required.

Sample ID: IOC0455-01 <i>Outfall 009</i>		EPA Method 1613						
Client Data		Sample Data		Laboratory Data				
Name: Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 25857-001	Date Received: 8-Mar-05					
Project: IOC0455	Sample Size: 0.986 L	QC Batch No.: 6593	Date Extracted: 11-Mar-05					
Date Collected: 4-Mar-05		Date Analyzed DB-5: 15-Mar-05	Date Analyzed DB-225: NA					
Time Collected: 1106								
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.611			IS 13C-2,3,7,8-TCDD	79.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.481			13C-1,2,3,7,8-PeCDD	79.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.930			13C-1,2,3,4,7,8-HxCDD	86.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.988			13C-1,2,3,6,7,8-HxCDD	89.6	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.958			13C-1,2,3,4,6,7,8-HpCDD	86.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	2.36				13C-OCDD	60.4	17 - 157	
OCDD	18.2			J				
2,3,7,8-TCDF	ND	0.776			13C-2,3,7,8-TCDF	80.7	24 - 169	
1,2,3,7,8-PeCDF	ND	0.934			13C-1,2,3,7,8-PeCDF	73.1	24 - 185	
2,3,4,7,8-PeCDF	ND	0.816			13C-2,3,4,7,8-PeCDF	76.5	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.376			13C-1,2,3,4,7,8-HxCDF	71.2	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.358			13C-1,2,3,6,7,8-HxCDF	78.7	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.418			13C-2,3,4,6,7,8-HxCDF	78.7	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.611			13C-1,2,3,7,8,9-HxCDF	80.2	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.734			13C-1,2,3,4,6,7,8-HpCDF	78.8	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.805			13C-1,2,3,4,7,8,9-HpCDF	86.5	26 - 138	
OCDF	ND	2.47			13C-OCDF	66.9	17 - 157	
Totals					CRS 37Cl-2,3,7,8-TCDD	81.5	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.								
Total TCDD	ND	0.611						
Total PeCDD	ND	0.481						
Total HxCDD	ND	0.959						
Total HpCDD	5.86							
Total TCDF	ND	0.776						
Total PeCDF	ND	0.873						
Total HxCDF	0.379							
Total HpCDF	ND	0.764						

Analyst: JMF
M 4/1/05
 Approved By: Martha M. Maier
 16-Mar-2005 13:33

ANALYSIS VALIDATED

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT44
Task Order 313150010
SDG No. IOC0454, IOC0455

No. of Analyses 2

Laboratory Del Mar

Date: 03/29/05

Reviewer P. Meeks

Reviewer's Signature
P. Meeks

Analysis/Method Metals

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

Qualifications applied for:

1. CCB detect
2. Reporting limit check standard recovery outlier
3. Detects below the reporting limit
4. Antimony MDL raised and result estimated due to negative sample result

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: METALS

SAMPLE DELIVERY GROUPS: IOC0454 & IOC0455

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#: IOC0454, IOC0455
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 29, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOC0454, 0455
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 008	Outfall 008	IOC0454-01	water	ILM04
Outfall 009	Outfall 009	IOC0455-01	water	ILM04

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 sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for both samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. Antimony was not recovered in the 0.2 ppb reporting limit check standard and was recovered below the control limit in the 1.0 ppb reporting limit check standard; therefore, nondetected antimony in both site samples (see section 2.4) was qualified as estimated, "UJ." The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further sample qualifications were required.

2.4 BLANKS

Antimony was detected in a bracketing CCB at 0.309 $\mu\text{g/L}$; therefore, antimony detected in Outfall 009 was qualified as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were analyzed in association with the samples in this SDG; therefore, no assessment can be made with respect to this criterion.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C08106-BS1 and the mercury LCS sample was identified as 5C09050-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Analytes detected below the reporting limit were qualified as estimated, "J."

The laboratory reported antimony in Outfall 008 as nondetected at the reporting limit. The reviewer noted that the result in the raw data was $-0.309 \mu\text{g/L}$; therefore, the reviewer raised the antimony MDL for Outfall 008 to the level of interference in Outfall 008, $0.31 \mu\text{g/L}$, and qualified the result as estimated, "UJ." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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

Project ID: Routine Outfall 009

Report Number: IOC0455

Sampled: 03/04/05
 Received: 03/04/05

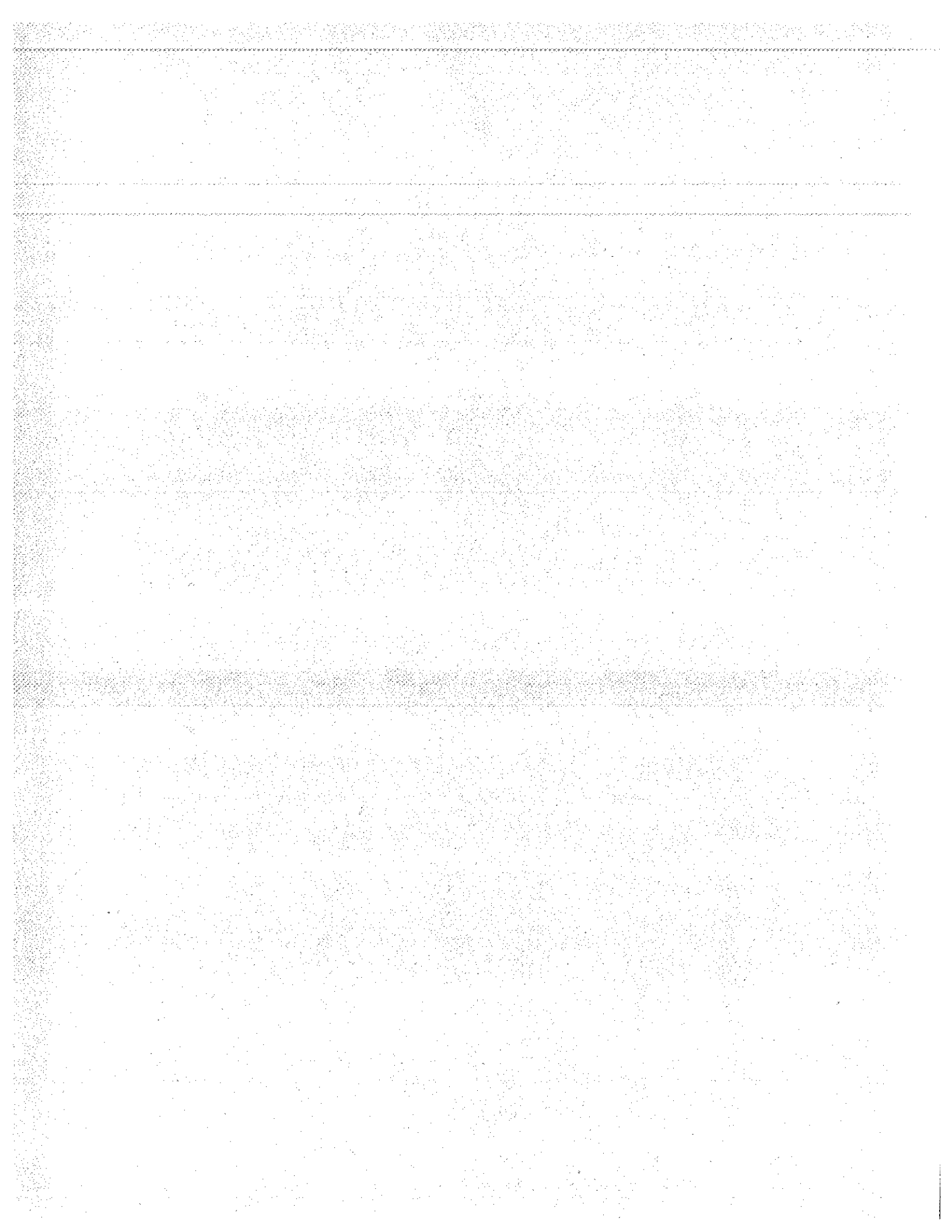
DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0455-01 (DRAFT: Outfall 009 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C08106	0.18	2.0	1.3	1	03/08/05	03/09/05	U J J B1*3
Cadmium	EPA 200.8	5C08106	0.015	1.0	0.041	1	03/08/05	03/09/05	J J DNG
Copper	EPA 200.8	5C08106	0.49	2.0	3.9	1	03/08/05	03/09/05	J J DNG
Lead	EPA 200.8	5C08106	0.13	1.0	0.62	1	03/08/05	03/09/05	J J DNG
Mercury	EPA 245.1	5C09050	0.063	0.20	ND	1	03/09/05	03/09/05	U

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





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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 009

Sampled: 03/04/05
Received: 03/04/05
Issued: 03/28/05 10:38

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.
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
IOC0455-01

CLIENT ID
Outfall 009

MATRIX
Water

Reviewed By:

Del Mar Analytical, Irvine
Wendy Kirkeeng For 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 009

Report Number: IOC0455

Sampled: 03/04/05

Received: 03/04/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0455-01 (Outfall 009 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C08106	0.18	2.0	1.3	1	03/08/05	03/09/05	J
Cadmium	EPA 200.8	5C08106	0.015	1.0	0.041	1	03/08/05	03/09/05	J
Copper	EPA 200.8	5C08106	0.49	2.0	3.9	1	03/08/05	03/09/05	
Lead	EPA 200.8	5C08106	0.13	1.0	0.62	1	03/08/05	03/09/05	J
Mercury	EPA 245.1	5C09050	0.063	0.20	ND	1	03/09/05	03/09/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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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	Project ID: Routine Outfall 009 Report Number: IOC0455	Sampled: 03/04/05 Received: 03/04/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0455-01 (Outfall 009 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C04107	0.15	0.50	8.0	1	03/04/05	03/05/05	
Nitrate/Nitrite-N	EPA 300.0	5C04107	0.11	0.11	0.45	1	03/04/05	03/05/05	
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	ND	1	03/09/05	03/09/05	
Sulfate	EPA 300.0	5C04107	0.45	0.50	18	1	03/04/05	03/05/05	
Total Dissolved Solids	SM2540C	5C08110	10	10	130	1	03/08/05	03/08/05	
Total Suspended Solids	EPA 160.2	5C07073	10	10	ND	1	03/07/05	03/07/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 009 Report Number: IOC0455	Sampled: 03/04/05 Received: 03/04/05
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SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 009 (IOC0455-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/04/2005 11:06	03/04/2005 17:50	03/04/2005 23:00	03/05/2005 02:20

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 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 009

Report Number: IOC0455

Sampled: 03/04/05
 Received: 03/04/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
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Batch: 5C08106 Extracted: 03/08/05

Blank Analyzed: 03/09/2005 (5C08106-BLK1)

Antimony	ND	2.0	0.18	ug/l						
Cadmium	ND	1.0	0.015	ug/l						
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						

LCS Analyzed: 03/09/2005 (5C08106-BS1)

Antimony	90.7	2.0	0.18	ug/l	80.0		113	85-115		
Cadmium	86.3	1.0	0.015	ug/l	80.0		108	85-115		
Copper	78.1	2.0	0.49	ug/l	80.0		98	85-115		
Lead	84.0	1.0	0.13	ug/l	80.0		105	85-115		

Matrix Spike Analyzed: 03/09/2005 (5C08106-MS1)

Source: IOC0448-01

Antimony	92.4	2.0	0.18	ug/l	80.0	0.37	115	70-130		
Cadmium	81.1	1.0	0.015	ug/l	80.0	0.086	101	70-130		
Copper	79.4	2.0	0.49	ug/l	80.0	3.0	96	70-130		
Lead	79.6	1.0	0.13	ug/l	80.0	0.19	99	70-130		

Matrix Spike Dup Analyzed: 03/09/2005 (5C08106-MSD1)

Source: IOC0448-01

Antimony	91.3	2.0	0.18	ug/l	80.0	0.37	114	70-130	1	20
Cadmium	80.9	1.0	0.015	ug/l	80.0	0.086	101	70-130	0	20
Copper	78.7	2.0	0.49	ug/l	80.0	3.0	95	70-130	1	20
Lead	78.6	1.0	0.13	ug/l	80.0	0.19	98	70-130	1	20

Batch: 5C09050 Extracted: 03/09/05

Blank Analyzed: 03/09/2005 (5C09050-BLK1)

Mercury	ND	0.20	0.063	ug/l						
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Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 009 Report Number: IOC0455	Sampled: 03/04/05 Received: 03/04/05
--	---	---

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C09050 Extracted: 03/09/05											
LCS Analyzed: 03/09/2005 (5C09050-BS1)											
Mercury	8.21	0.20	0.063	ug/l	8.00		103	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09050-MS1)											
						Source: IOC0456-01					
Mercury	8.33	0.20	0.063	ug/l	8.00	ND	104	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09050-MSD1)											
						Source: IOC0456-01					
Mercury	8.17	0.20	0.063	ug/l	8.00	ND	102	70-130	2	20	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 009

Report Number: IOC0455

Sampled: 03/04/05

Received: 03/04/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C04107 Extracted: 03/04/05											
Blank Analyzed: 03/04/2005 (5C04107-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.11	0.11	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 03/04/2005 (5C04107-BS1)											
Chloride	5.16	0.50	0.26	mg/l	5.00		103	90-110			M-3
Sulfate	10.4	0.50	0.18	mg/l	10.0		104	90-110			M-3
Batch: 5C07073 Extracted: 03/07/05											
Blank Analyzed: 03/07/2005 (5C07073-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/07/2005 (5C07073-BS1)											
Total Suspended Solids	980	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 03/07/2005 (5C07073-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOC0451-01 ND				10	
Batch: 5C08110 Extracted: 03/08/05											
Blank Analyzed: 03/08/2005 (5C08110-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/08/2005 (5C08110-BS1)											
Total Dissolved Solids	976	10	10	mg/l	1000		98	90-110			

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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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	Project ID: Routine Outfall 009 Report Number: IOC0455	Sampled: 03/04/05 Received: 03/04/05
--	---	---

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C08110 Extracted: 03/08/05											
Duplicate Analyzed: 03/08/2005 (5C08110-DUP1)						Source: IOC0454-01					
Total Dissolved Solids	187	10	10	mg/l		180			4	10	
Batch: 5C09091 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09091-BLK1)											
Oil & Grease	1.70	5.0	0.94	mg/l							J
LCS Analyzed: 03/09/2005 (5C09091-BS1)											
Oil & Grease	22.4	5.0	0.94	mg/l	20.0		112	65-120			M-NRI
LCS Dup Analyzed: 03/09/2005 (5C09091-BSD1)											
Oil & Grease	18.8	5.0	0.94	mg/l	20.0		94	65-120	17	20	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 009

Report Number: IOC0455

Sampled: 03/04/05
 Received: 03/04/05

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
IOC0455-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.57	5.0	15
IOC0455-01	Chloride - 300.0	Chloride	mg/l	8.00	0.50	150
IOC0455-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.45	0.11	10.00
IOC0455-01	Sulfate-300.0	Sulfate	mg/l	18	0.50	250
IOC0455-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	130	10	850

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 009

Report Number: IOC0455

Sampled: 03/04/05

Received: 03/04/05

DATA QUALIFIERS AND DEFINITIONS

- 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 unknown quality.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- 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
Wendy Kirkeeng For Michele Harper
Project Manager

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IOC0455 <Page 10 of 11>



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

Project ID: Routine Outfall 009

Report Number: IOC0455

Sampled: 03/04/05
 Received: 03/04/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC0455-01

Analysis Performed: EDD + Level 4

Samples: IOC0455-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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1000455

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:
MWH-Pasadena
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101

Project:
 Boeing-SSFL NPDES
 Routine Outfall 009
 Stormwater at WS-13

Project Manager: Bronwyn Kelly

Phone Number:
 (626) 568-6691
Fax Number:
 (626) 568-6515

Sampler:

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	ANALYSIS REQUIRED						Field readings: Temp = 59.5 ° pH = 7.04	Comments
							Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	CH, SO4, NO3+NO2-N	TDS, TSS			
Outfall 009	W	Poly-1L	1	3-4-05 11:06	HNO3	1A	X							
Outfall 009-Dup	W	Poly-1L	1		HNO3	1B	X							
Outfall 009	W	Glass-Amber	2		None	2A, 2B		X						
Outfall 009	W	Glass-Amber	2		HCl	3A, 3B			X					
Outfall 009	W	Poly-500 ml	2	3-4-05 11:06	None	4A, 4B				X				
Outfall 009	W	Poly-500 ml	2		None	5A, 5B					X			

[Handwritten Signature]

Relinquished By <i>Rachel Bury</i>	Date/Time: 3-4-05 15:00	Received By <i>Jay Phelps</i>	Date/Time: 3-4-05 15:00
Relinquished By <i>Jay Phelps</i>	Date/Time: 3-4-05 17:50	Received By <i>Jay Phelps</i>	Date/Time: 3-4-05 17:50
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 On Ice: 3°C



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
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2520 E. Sunser Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

March 23, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 009
Sampled: 03/04/05
Del Mar Analytical Number: IOC0455

Dear Ms. Kelly:

Alta Analytical Laboratory performed the EPA Method 1613 Dioxin analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Alta ID
Outfall 009	IOC0455-01	25857-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL

Michele Harper
Project Manager



March 16, 2005

Alta Project I.D.: 25857

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 March 08, 2005 under your Project Name "IOC0455". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640



Section I: Sample Inventory Report

Date Received: 3/8/2005

Alta Lab. ID

Client Sample ID

25857-001

IOC0455-01

SECTION II



Method Blank				EPA Method 1613			
Matrix:	Aqueous	QC Batch No.:	6593	Lab Sample:	0-MB001	Date Analyzed DB-225:	NA
Sample Size:	1.000 L	Date Extracted:	11-Mar-05	Date Analyzed DB-5:	14-Mar-05	Date Analyzed DB-225:	NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.27		IS 13C-2,3,7,8-TCDD	61.5	25 - 164	
1,2,3,7,8-PeCDD	ND	1.50		13C-1,2,3,7,8-PeCDD	57.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.20		13C-1,2,3,4,7,8-HxCDD	67.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.32		13C-1,2,3,6,7,8-HxCDD	76.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.26		13C-1,2,3,4,6,7,8-HpCDD	56.6	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	3.00		13C-OCDD	26.9	17 - 157	
OCDD	ND	11.1		13C-2,3,7,8-TCDF	63.1	24 - 169	
2,3,7,8-TCDF	ND	1.37		13C-1,2,3,7,8-PeCDF	54.3	24 - 185	
1,2,3,7,8-PeCDF	ND	2.09		13C-2,3,4,7,8-PeCDF	58.1	21 - 178	
2,3,4,7,8-PeCDF	ND	1.73		13C-1,2,3,4,7,8-HxCDF	60.3	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.16	0.905	13C-1,2,3,6,7,8-HxCDF	70.6	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.768		13C-2,3,4,6,7,8-HxCDF	67.0	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.22		13C-1,2,3,7,8,9-HxCDF	62.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.96		13C-1,2,3,4,6,7,8-HpCDF	53.2	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	1.38		13C-1,2,3,4,7,8,9-HpCDF	57.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	7.76		13C-OCDF	32.9	17 - 157	
OCDF	ND			CRS 37Cl-2,3,7,8-TCDD	71.7	35 - 197	
Totals							
Total TCDD	ND	1.27					
Total PeCDD	ND	1.50					
Total HxCDD	ND	2.26					
Total HpCDD	ND	3.00					
Total TCDF	1.40		2.79	D			
Total PeCDF	ND	3.06					
Total HxCDF	ND		0.905				
Total HpCDF	ND	2.12					

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

Analyst: MAS Approved By: Martha M. Maier 16-Mar-2005 13:33



EPA Method 1613

OPR Results

Matrix:		Lab Sample:			
Aqueous	0-OPR001	QC Batch No.: 6593	Date Analyzed DB-5: 14-Mar-05		
Sample Size: 1.000 L	Date Analyzed DB-5: 11-Mar-05	Date Analyzed DB-225: NA			
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	61.8	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	62.9	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	65.8	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	77.0	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	67.2	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	38.7	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	63.1	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.0	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	63.2	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	57.9	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	68.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	67.7	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	65.7	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	63.1	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	65.7	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	44.9	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	72.7	35 - 197

Analyst: MAS

Approved By: Martha M. Maier 16-Mar-2005 13:33



Sample ID: IOC0455-01

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name: Project: Date Collected: Time Collected:	Del Mar Analytical, Irvine IOC0455 4-Mar-05 1106	Matrix: Sample Size:	Aqueous 0.986 L	Lab Sample: QC Batch No.: Date Analyzed DB-5:	25857-001 6593 15-Mar-05	Date Received: Date Extracted: Date Analyzed DB-225:	8-Mar-05 11-Mar-05 NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.611			13C-2,3,7,8-TCDD	79.3	25 - 164
1,2,3,7,8-PeCDD	ND	0.481			13C-1,2,3,7,8-PeCDD	79.9	25 - 181
1,2,3,4,7,8-HxCDD	ND	0.930			13C-1,2,3,4,7,8-HxCDD	86.4	32 - 141
1,2,3,6,7,8-HxCDD	ND	0.988			13C-1,2,3,6,7,8-HxCDD	89.6	28 - 130
1,2,3,7,8,9-HxCDD	ND	0.958			13C-1,2,3,4,6,7,8-HpCDD	86.2	23 - 140
1,2,3,4,6,7,8-HpCDD	2.36			J	13C-OCDD	60.4	17 - 157
OCDD	18.2			J	13C-2,3,7,8-TCDF	80.7	24 - 169
2,3,7,8-TCDF	ND	0.776			13C-1,2,3,7,8-PeCDF	73.1	24 - 185
1,2,3,7,8-PeCDF	ND	0.934			13C-2,3,4,7,8-PeCDF	76.5	21 - 178
2,3,4,7,8-PeCDF	ND	0.816			13C-1,2,3,4,7,8-HxCDF	71.2	26 - 152
1,2,3,4,7,8-HxCDF	ND	0.376			13C-1,2,3,6,7,8-HxCDF	78.7	26 - 123
1,2,3,6,7,8-HxCDF	ND	0.358			13C-2,3,4,6,7,8-HxCDF	78.7	28 - 136
2,3,4,6,7,8-HxCDF	ND	0.418			13C-1,2,3,7,8,9-HxCDF	80.2	29 - 147
1,2,3,7,8,9-HxCDF	ND	0.611			13C-1,2,3,4,6,7,8-HpCDF	78.8	28 - 143
1,2,3,4,6,7,8-HpCDF	ND	0.734			13C-1,2,3,4,7,8,9-HpCDF	86.5	26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.805			13C-OCDF	66.9	17 - 157
OCDF	ND	2.47			CRS 37Cl-2,3,7,8-TCDD	81.5	35 - 197
Totals							
Total TCDD	ND	0.611					
Total PeCDD	ND	0.481					
Total HxCDD	ND	0.959					
Total HpCDD	5.86						
Total TCDF	ND	0.776					
Total PeCDF	ND	0.873					
Total HxCDF	0.379						
Total HpCDF	ND	0.764					

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: Martha M. Maier 16-Mar-2005 13:33

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.
*	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 corresponds 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.



CURRENT CERTIFICATIONS

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)

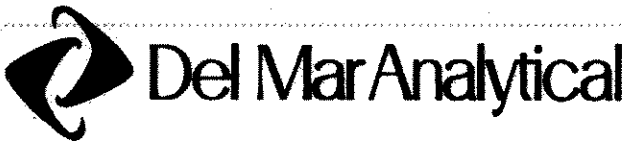
State of Texas — (Certificate No. TX247-1000A)

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)



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1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4887 Fax (909) 370-1048

9494 Chesapeake Drive, Suite 205, San Diego, CA 92123 Ph (619) 505-0506 Fax (619) 505-0629

3830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0651

2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89129 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC0455

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 **25857**
 El Dorado Hills, CA 95762
 Phone: (916) 933-1640
 Fax: (916) 933-0940 **1.4**

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

Analysis	Expiration	Comments
Sample ID: IOC0455-01 Water	Sampled: 03/04/05 11:06	Instant Notification
1613-Dioxin-HR	03/11/05 11:06	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/01/05 11:06	Excel EDD email to pm, include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0455-01C)		
1 L Amber (IOC0455-01D)		

SAMPLE INTEGRITY:

All containers intact: Yes No
 Sample labels/COC agree: Yes No
 Samples Received On Ice: Yes No
 Custody Seals Present: Yes No
 Samples Preserved Properly: Yes No
 Samples Received at (temp): _____

Released By: *[Signature]* Date: 3-7-05 Time: 1700 Received By: *[Signature]* Date: 3/8/05 Time: 0939

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____
 Project 25857 Page 10 of 12

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

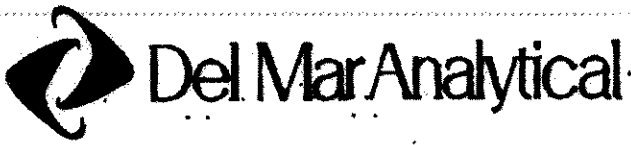
SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25857

1. Date Samples Arrived: <u>3/8/05</u> <u>0939</u> Initials: <u>BSB</u> Location: <u>WL-2</u>			
2. Time / Date logged in: <u>14:30</u> <u>3/8/05</u> Initials: <u>BSB</u> Location: <u>WL-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> <u>Blue Ice</u> / Dry Ice / None Temp °C <u>1.4°C</u>			
	YES	NO	NA
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) <u>Airbill</u> Tracking Number <u>7928 6415 1923</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Cooley Dr., Suite A, Culton, CA 92524 Ph (909) 370-4987 Fax (909) 370-1948
 8484 Chempointe Dr., Suite 202, San Diego, CA 92128 Ph (619) 550-0888 Fax (619) 550-0888
 8830 South 91st Street, Suite B-122, Phoenix, AZ 85044 Ph (480) 789-0003 Fax (480) 789-0851
 2530 E. Sunset Ave., Suite 201, Las Vegas, NV 89120 Ph (702) 798-9929 Fax (702) 798-9821

SUBCONTRACT ORDER - PROJECT # IOC0455

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) 933-0940

25857
1.4°C

Standard TAT is requested unless specific due date is requested → Due Date: 2 week Initials: MH

Analysis	Expiration	Comments
Sample ID: IOC0455-01 Water 1613-Dioxin-ER EED + Level 4	Sampled: 03/04/05 11:06 03/11/05 11:06 04/01/05 11:06	Instant Notification J flags, 17 congeners, no TEC, sub to Alta Excel EED email to pm, include Std logs for Lvl IV
Containers Supplied: 1 L Amber (IOC0455-01C) 1 L Amber (IOC0455-01D)		

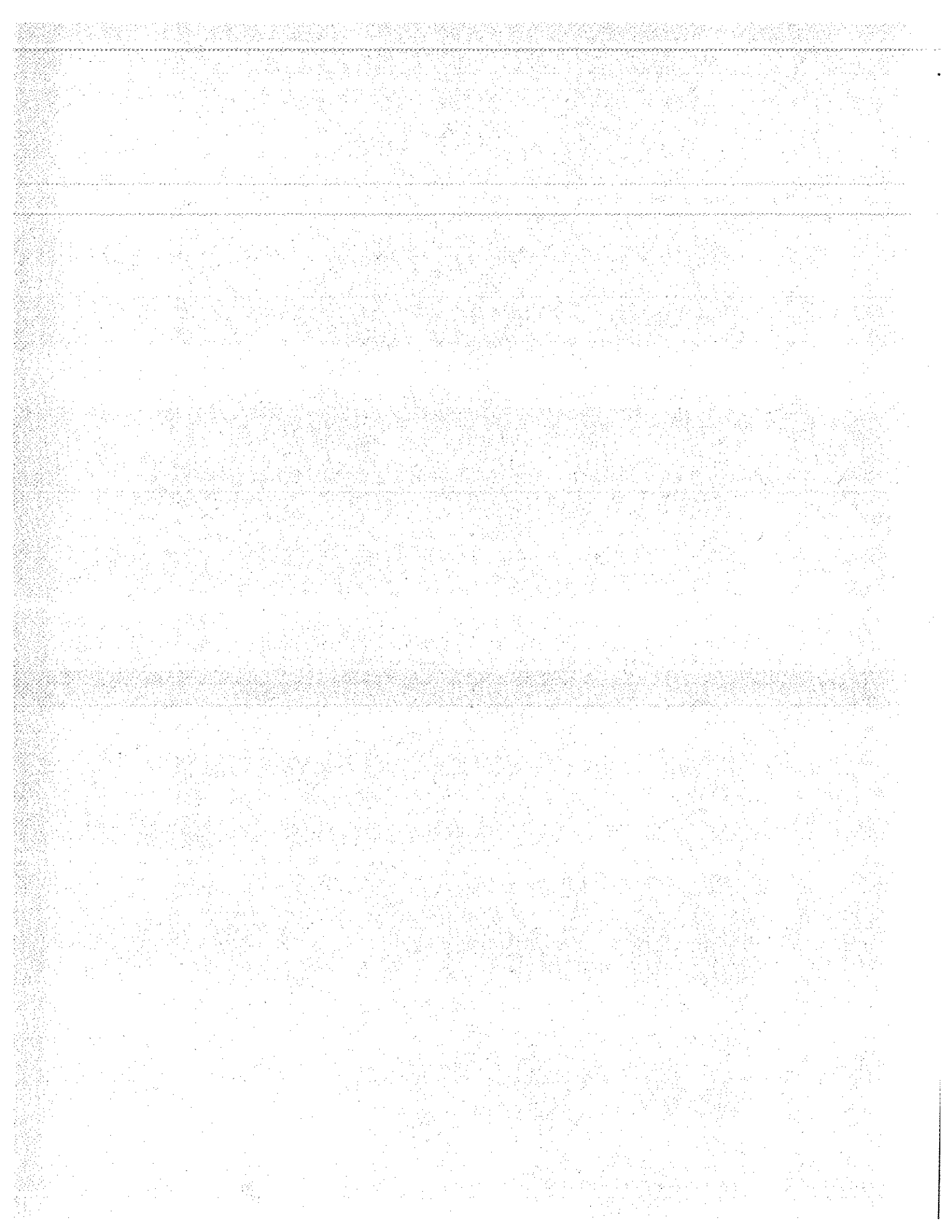
Sampler = R.B.

MH 3/7/05

SAMPLE INTEGRITY:

All containers intact: Yes No
 Sample labels/COC agree: Yes No
 Samples Received On Ice: Yes No
 Containment Seal Present: Yes No
 Samples Preserved Properly: Yes No
 Samples Received at (temp): _____

Released By: [Signature] Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____
 Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA


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

Package ID T711DF37
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 10

Laboratory Alta

Reviewer H. Chang

Analysis/Method Dioxin&Furans/1613

Date: April 4, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Detects below the calibration range were qualified "J."
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: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 10
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 4, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 002	IOC1521-01	25935-001	water	1613
Outfall 011	IOC1523-01	25936-001	water	1613
Outfall 005	IOC1524-01	25940-001	water	1613
Outfall 006	IOC1525-01	25937-001	water	1613
Outfall 011 Composite	IOC1526-01	25938-001	water	1613
Outfall 001	IOC1561-01	25941-001	water	1613
Outfall 004	IOC1563-01	25939-001	water	1613
Outfall 008	IOC1564-01	25942-001	water	1613
Outfall 003	IOC1565-01	25943-001	water	1613
Outfall 009	IOC1566-01	25944-001	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

Samples Outfall 001, Outfall 004, and Outfall 008 were received at Del Mar Analytical outside the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Due to non-volatile nature of the target compounds, no qualifications were required. The other samples were received with cooler temperatures within the limits. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (0_6624_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 (0_6624_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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." No further qualifications were required.

Sample ID: IOC1566-01 Outfall 009		EPA Method 1613					
Client Data		Laboratory Data					
Name: Del Mar Analytical, Irvine	Matrix: Aqueous	Lab Sample: 25944-001	Date Received: 22-Mar-05				
Project: IOC1566	Sample Size: 0.945 L	QC Batch No.: 6624	Date Extracted: 22-Mar-05				
Date Collected: 19-Mar-05		Date Analyzed DB-5: 24-Mar-05	Date Analyzed DB-225: NA				
Time Collected: 1116							
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.885		13C-2,3,7,8-TCDD	90.1	25 - 164	
1,2,3,7,8-PeCDD	ND	0.764		13C-1,2,3,7,8-PeCDD	84.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.27		13C-1,2,3,4,7,8-HxCDD	88.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.18		13C-1,2,3,6,7,8-HxCDD	93.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.21		13C-1,2,3,4,6,7,8-HpCDD	91.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	1.19		J	13C-OCDD	76.1	17 - 157	
OCDD	6.83		J	13C-2,3,7,8-TCDF	94.1	24 - 169	
2,3,7,8-TCDF	ND	1.01		13C-1,2,3,7,8-PeCDF	85.7	24 - 185	
1,2,3,7,8-PeCDF	ND	1.49		13C-2,3,4,7,8-PeCDF	87.5	21 - 178	
2,3,4,7,8-PeCDF	ND	1.37		13C-1,2,3,4,7,8-HxCDF	74.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.399		13C-1,2,3,6,7,8-HxCDF	82.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.403		13C-2,3,4,6,7,8-HxCDF	82.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.474		13C-1,2,3,7,8,9-HxCDF	80.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.720		13C-1,2,3,4,6,7,8-HpCDF	84.3	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.759		13C-1,2,3,4,7,8,9-HpCDF	88.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.925		13C-OCDF	81.8	17 - 157	
OCDF	ND	3.47		CRS 37Cl-2,3,7,8-TCDD	88.3	35 - 197	
Totals							
Total TCDD	ND	0.885					
Total PeCDD	ND	0.764					
Total HxCDD	ND	1.22					
Total HpCDD	1.19						
Total TCDF	ND	1.01					
Total PeCDF	ND	1.43					
Total HxCDF	ND	0.487					
Total HpCDF	ND	0.831					
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

AMEC VALIDATED

Approved By: Martha M. Maier 24-Mar-2005 10:06

LEVEL IV

Project 25944

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT57
 Task Order 313150010
 SDG No. Multiple

No. of Analyses 5

Laboratory Del Mar

Date: 03/30/05

Reviewer P. Meeks

Reviewer's Signature


Analysis/Method Metals

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.,	<p>Qualifications applied for detects below the reporting limit and antimony MDLs were raised and results estimated due to CCB detects.</p> <p>Holding Times _____</p> <p>GC/MS Tune/Inst. _____</p> <p>Performance _____</p> <p>Calibrations _____</p> <p>Blanks _____</p> <p>Surrogates _____</p> <p>Matrix Spike/Dup LCS _____</p> <p>Field QC _____</p> <p>Internal Standard Performance _____</p> <p>Compound Identification and Quantitation _____</p> <p>System Performance _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
COMMENTS ^b	
<p>^a Subcontracted analytical laboratory is not meeting contract and/or method requirements.</p> <p>^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</p>	



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOC1524, IOC1525, IOC1564,
IOC1565, & IOC1566

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#: IOC1524, IOC1525, IOC1564, IOC1565, & IOC1566
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 30, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: Multiple
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 005	Outfall 005	IOC1524-01	water	ILM04
Outfall 006	Outfall 006	IOC1525-01	water	ILM04
Outfall 008	Outfall 008	IOC1564-01	water	ILM04
Outfall 003	Outfall 003	IOC1565-01	water	ILM04
Outfall 009	Outfall 009	IOC1566-01	water	ILM04

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

Outfall 008 was received above the temperature limit at 8°C ; however, as the sample had insufficient time to cool prior to receipt at the laboratory, no qualifications were required. The remaining samples in these SDGs were received at the laboratory within the temperature limits of 4°C ±2°C. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for the samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

Antimony was detected in every CCB in the analytical sequence in which Outfall 008 and Outfall 009 were analyzed. The detects ranged from 0.484 to 0.551 $\mu\text{g/L}$ and antimony was detected in Outfall 008 and Outfall 009 at concentrations below these values. The CCB detects indicated the laboratory could not detect antimony at the reported MDL. The reviewer raised the antimony MDL for Outfall 008 and Outfall 009 to the highest level of interference reported, 0.55 $\mu\text{g/L}$ and qualified the result as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferences sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper and cadmium were detected above the applicable reporting limit in the ICSA. Aluminum was recovered below the control limit in all the ICSA and ICSAB analyses; however, as aluminum was not reported in the site samples, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferences, Al, Ca, Fe, and Mg, and determined that the levels of reported interferences were not high enough to cause matrix effects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS samples were identified as 5C21088-BS1 and 5C19038-BS1. The mercury LCS sample was identified as 5C21082-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed on Outfall 005 for lead only. The RPD was within the control limit of 20% and no qualifications were required.

2.8 MATRIX SPIKE

MS/MSD analyses were performed on Outfall 005 for lead only. Both recoveries were within the AMEC control limits of 75-125% and no qualifications were required. For the remaining analytes, method accuracy was evaluated based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Analytes detected below the reporting limit were qualified as estimated, "J." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-1667 FAX (949) 370-1048
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-3596 FAX (858) 505-9038
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0651
 2520 E. Sunrise Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Routine Outfall 009

Report Number: IOC1566

Sampled: 03/19/05
 Received: 03/19/05

DRAFT: METALS

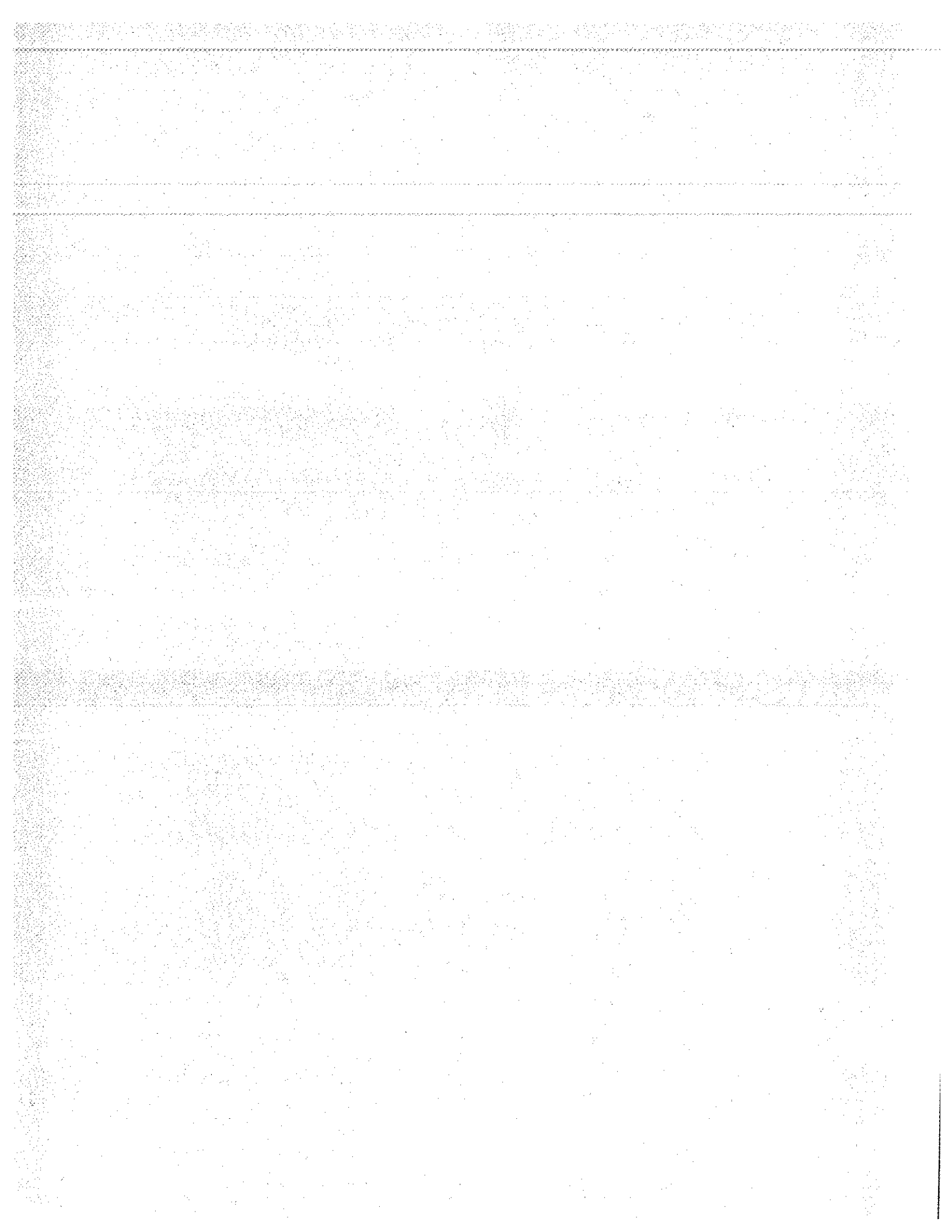
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1566-01 (DRAFT: Outfall 009 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C21088	0.18	2.0	0.55	1	03/21/05	03/21/05	RW Qual JJ J
Cadmium	EPA 200.8	5C21088	0.015	1.0	0.025	1	03/21/05	03/21/05	JJ J B, S DWG
Copper	EPA 200.8	5C21088	0.49	2.0	1.8	1	03/21/05	03/21/05	JJ J ↓
Lead	EPA 200.8	5C21088	0.13	1.0	ND	1	03/21/05	03/21/05	CC ↓
Mercury	EPA 245.1	5C21082	0.063	0.20	ND	1	03/21/05	03/21/05	CC ↓

AMEC VALIDATED

[Handwritten signatures and dates]

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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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 009

Sampled: 03/19/05
 Received: 03/19/05
 Issued: 03/31/05 09:28

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.
 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
 IOC1566-01

CLIENT ID
 Outfall 009

MATRIX
 Water

Reviewed By:

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 009 Report Number: IOC1566	Sampled: 03/19/05 Received: 03/19/05
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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1566-01 (Outfall 009 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C21088	0.18	2.0	0.27	1	03/21/05	03/21/05	J
Cadmium	EPA 200.8	5C21088	0.015	1.0	0.025	1	03/21/05	03/21/05	J
Copper	EPA 200.8	5C21088	0.49	2.0	1.8	1	03/21/05	03/21/05	J
Lead	EPA 200.8	5C21088	0.13	1.0	ND	1	03/21/05	03/21/05	
Mercury	EPA 245.1	5C21082	0.063	0.20	ND	1	03/21/05	03/21/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 009 Report Number: IOC1566	Sampled: 03/19/05 Received: 03/19/05
--	---	---

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1566-01 (Outfall 009 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C20029	0.15	0.50	18	1	03/20/05	03/20/05	
Nitrate/Nitrite-N	EPA 300.0	5C20029	0.075	0.11	0.14	1	03/20/05	03/20/05	
Oil & Grease	EPA 413.1	5C21062	0.94	5.0	ND	1	03/21/05	03/21/05	
Sulfate	EPA 300.0	5C20029	0.90	1.0	66	2	03/20/05	03/20/05	
Total Dissolved Solids	SM2540C	5C21073	10	10	300	1	03/21/05	03/21/05	
Total Suspended Solids	EPA 160.2	5C21068	10	10	ND	1	03/21/05	03/21/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IOC1566	Sampled: 03/19/05 Received: 03/19/05
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SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 009 (IOC1566-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/19/2005 11:16	03/19/2005 17:30	03/20/2005 13:30	03/20/2005 15:23

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 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 009 Report Number: IOC1566	Sampled: 03/19/05 Received: 03/19/05
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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C21082 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21082-BLK1)										
Mercury	ND	0.20	0.063	ug/l						
LCS Analyzed: 03/21/2005 (5C21082-BS1)										
Mercury	7.98	0.20	0.063	ug/l	8.00		100		85-115	
Matrix Spike Analyzed: 03/21/2005 (5C21082-MS1)										
						Source: IOC1561-01				
Mercury	7.93	0.20	0.063	ug/l	8.00	ND	99		70-130	
Matrix Spike Dup Analyzed: 03/21/2005 (5C21082-MSD1)										
						Source: IOC1561-01				
Mercury	8.07	0.20	0.063	ug/l	8.00	ND	101	2	70-130	20
Batch: 5C21088 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21088-BLK1)										
Antimony	ND	2.0	0.18	ug/l						
Cadmium	ND	1.0	0.015	ug/l						
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
LCS Analyzed: 03/21/2005 (5C21088-BS1)										
Antimony	86.5	2.0	0.18	ug/l	80.0		108		85-115	
Cadmium	84.6	1.0	0.015	ug/l	80.0		106		85-115	
Copper	81.1	2.0	0.49	ug/l	80.0		101		85-115	
Lead	84.0	1.0	0.13	ug/l	80.0		105		85-115	
Matrix Spike Analyzed: 03/21/2005 (5C21088-MS1)										
						Source: IOC1561-01				
Antimony	94.5	2.0	0.18	ug/l	80.0	0.45	118		70-130	
Cadmium	86.9	1.0	0.015	ug/l	80.0	0.025	109		70-130	
Copper	78.5	2.0	0.49	ug/l	80.0	1.9	96		70-130	
Lead	83.6	1.0	0.13	ug/l	80.0	ND	104		70-130	

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 Wendy Kirkeeng For 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 009 Report Number: IOC1566	Sampled: 03/19/05 Received: 03/19/05
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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: 5C21088 Extracted: 03/21/05											
Matrix Spike Analyzed: 03/21/2005 (5C21088-MS2)						Source: IOC1563-01					
Antimony	87.6	2.0	0.18	ug/l	80.0	0.68	109	70-130			
Cadmium	82.1	1.0	0.015	ug/l	80.0	0.094	103	70-130			
Copper	85.2	2.0	0.49	ug/l	80.0	7.7	97	70-130			
Lead	82.6	1.0	0.13	ug/l	80.0	0.83	102	70-130			
Matrix Spike Dup Analyzed: 03/21/2005 (5C21088-MSD1)						Source: IOC1561-01					
Antimony	88.8	2.0	0.18	ug/l	80.0	0.45	110	70-130	6	20	
Cadmium	83.0	1.0	0.015	ug/l	80.0	0.025	104	70-130	5	20	
Copper	77.9	2.0	0.49	ug/l	80.0	1.9	95	70-130	1	20	
Lead	81.3	1.0	0.13	ug/l	80.0	ND	102	70-130	3	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IOC1566	Sampled: 03/19/05 Received: 03/19/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C20029 Extracted: 03/20/05										
Blank Analyzed: 03/20/2005 (5C20029-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 03/20/2005 (5C20029-BS1)										
Chloride	4.65	0.50	0.26	mg/l	5.00		93 90-110			M-3
Sulfate	9.69	0.50	0.18	mg/l	10.0		97 90-110			M-3
Batch: 5C21062 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21062-BLK1)										
Oil & Grease	ND	5.0	0.94	mg/l						
LCS Analyzed: 03/21/2005 (5C21062-BS1)										
Oil & Grease	17.1	5.0	0.94	mg/l	20.0		86 65-120			M-NRI
LCS Dup Analyzed: 03/21/2005 (5C21062-BSD1)										
Oil & Grease	16.0	5.0	0.94	mg/l	20.0		80 65-120	7	20	
Batch: 5C21068 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21068-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21068-BS1)										
Total Suspended Solids	942	10	10	mg/l	1000		94 85-115			

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 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 009 Report Number: IOC1566	Sampled: 03/19/05 Received: 03/19/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C21068 Extracted: 03/21/05											
Duplicate Analyzed: 03/21/2005 (5C21068-DUP1)						Source: IOC1566-01					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Batch: 5C21073 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21073-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/21/2005 (5C21073-BS1)											
Total Dissolved Solids	968	10	10	mg/l	1000		97	90-110			
Duplicate Analyzed: 03/21/2005 (5C21073-DUP1)						Source: IOC1566-01					
Total Dissolved Solids	320	10	10	mg/l		300			6	10	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 009 Report Number: IOC1566	Sampled: 03/19/05 Received: 03/19/05
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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
IOC1566-01	413.1 Oil and Grease	Oil & Grease	mg/l	0	5.0	15
IOC1566-01	Chloride - 300.0	Chloride	mg/l	18	0.50	150
IOC1566-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.14	0.11	10.00
IOC1566-01	Sulfate-300.0	Sulfate	mg/l	66	1.0	250
IOC1566-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	300	10	850

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

Project ID: Routine Outfall 009

Report Number: IOC1566

Sampled: 03/19/05
Received: 03/19/05

DATA QUALIFIERS AND DEFINITIONS

- 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 unknown quality.
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- 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
Wendy Kirkeeng For 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 009

Report Number: IOC1566

Sampled: 03/19/05

Received: 03/19/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC1566-01

Analysis Performed: EDD + Level 4

Samples: IOC1566-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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IOC 1566

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:
 MWH-Pasadena
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101

Project:
 Boeing-SSFL NPDES
 Routine Outfall 009
 Stormwater at WS-13

Project Manager: Bronwyn Kelly
 Phone Number:
 (626) 568-6691

Sampler: *R. Ramirez*
 Fax Number:
 (626) 568-6515

Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	Sampling Date/Time	ANALYSIS REQUIRED							Field readings: Temp = 53.4 pH = 7.1	Comments
							Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cl ₂ , SO ₄ , NO ₃ +NO ₂ -N	TDS, TSS				
Outfall 009	W	Poly-1L	1	HNO3	1A	3-7-05 11:16	X								
Outfall 009-Dup	W	Poly-1L	1	HNO3	1B		X								
Outfall 009	W	Glass-Amber	2	None	2A, 2B			X							
Outfall 009	W	Glass-Amber	2	HCl	3A, 3B			X							
Outfall 009	W	Poly-500 ml	2	None	4A, 4B				X						
Outfall 009	W	Poly-500 ml	2	None	5A, 5B	3-19-05 11:16			X						

RR

Relinquished By: *Kelly Kelly* Date/Time: 3-19-05
Received By: *R. Ramirez* Date/Time: 3/18/05 12:45

Relinquished By: *R. Ramirez* Date/Time: 3/19/05 3:20
Received By: *Cherish Chen* Date/Time: 3/19/05 15:20 PM

Relinquished By: *R. Ramirez* Date/Time: 3/19/05 19:30
Received By: *R. Ramirez* Date/Time: 3/19/05 17:30

Turn around Time: (check)
 24 Hours _____ 6 Days _____
 48 Hours _____ 10 Days _____
 72 Hours _____ Normal _____
 Perchlorate Only 72 Hours _____
 Metals Only 72 Hours _____
 Sample Integrity: (Check)
 Insect _____ On Ice: 50C



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March 28, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 009
Sampled: 03/19/05
Del Mar Analytical Number: IOC1566

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	ALTA ID
Routine Outfall 009	IOC1566-01	25944-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL

Michele Harper
Project Manager



March 24, 2005

Alta Project I.D.: 25944

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 March 22, 2005 under your Project Name "IOC1566". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640



Section I: Sample Inventory Report

Date Received: 3/22/2005

Alta Lab. ID

25944-001

Client Sample ID

IOC1566-01

SECTION II



Method Blank

EPA Method 1613

Matrix:	Aqueous	QC Batch No.:	6624	Lab Sample:	0-MB001	Date Analyzed DB-5:	23-Mar-05	Date Analyzed DB-225:	NA
Sample Size:	1.000 L	Date Extracted:	22-Mar-05	Labeled Standard		%R		LCL-UCL ^d	
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers		
2,3,7,8-TCDD	ND	0.841			79.3	25 - 164			
1,2,3,7,8-PeCDD	ND	0.749			75.2	25 - 181			
1,2,3,4,7,8-HxCDD	ND	1.49			74.0	32 - 141			
1,2,3,6,7,8-HxCDD	ND	1.52			80.9	28 - 130			
1,2,3,7,8,9-HxCDD	ND	1.50			72.5	23 - 140			
1,2,3,4,6,7,8-HpCDD	ND	1.17			55.5	17 - 157			
OCDD	ND	3.33			82.1	24 - 169			
2,3,7,8-TCDF	ND	0.795			74.6	24 - 185			
1,2,3,7,8-PeCDF	ND	1.67			77.9	21 - 178			
2,3,4,7,8-PeCDF	ND	1.39			62.7	26 - 152			
1,2,3,4,7,8-HxCDF	ND	0.474			73.0	26 - 123			
1,2,3,6,7,8-HxCDF	ND	0.442			71.1	28 - 136			
2,3,4,6,7,8-HxCDF	ND	0.510			67.2	29 - 147			
1,2,3,7,8,9-HxCDF	ND	0.820			67.8	28 - 143			
1,2,3,4,6,7,8-HpCDF	ND	0.929			71.3	26 - 138			
1,2,3,4,7,8,9-HpCDF	ND	1.13			58.9	17 - 157			
OCDF	ND	2.74			83.9	35 - 197			
Totals									
Total TCDD	ND	0.841							
Total PeCDD	ND	0.749							
Total HxCDD	ND	1.51							
Total HpCDD	ND	1.17							
Total TCDF	ND	0.795							
Total PeCDF	ND	1.52							
Total HxCDF	ND	0.545							
Total HpCDF	ND	1.02							

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: Martha M. Maier 24-Mar-2005 10:06



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 23-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous <th>QC Batch No.:</th> <td>6624 <th>Date Analyzed DB-5:</th> <td>23-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td></td></td>	QC Batch No.:	6624 <th>Date Analyzed DB-5:</th> <td>23-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td></td>	Date Analyzed DB-5:	23-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td>	Date Analyzed DB-225:	NA
Sample Size:	1.000 L <th>Date Extracted:</th> <td>22-Mar-05 <th colspan="4"></th> </td>	Date Extracted:	22-Mar-05 <th colspan="4"></th>				
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.02	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	86.2	25 - 164	
1,2,3,7,8-PeCDD	50.0	44.9	35 - 71	13C-1,2,3,7,8-PeCDD	83.6	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	45.7	35 - 82	13C-1,2,3,4,7,8-HxCDD	83.1	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	47.1	38 - 67	13C-1,2,3,6,7,8-HxCDD	90.5	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	47.2	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	80.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	49.7	35 - 70	13C-OCDD	60.0	17 - 157	
OCDD	100	102	78 - 144	13C-2,3,7,8-TCDF	89.6	24 - 169	
2,3,7,8-TCDF	10.0	9.28	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	82.2	24 - 185	
1,2,3,7,8-PeCDF	50.0	49.7	40 - 67	13C-2,3,4,7,8-PeCDF	86.0	21 - 178	
2,3,4,7,8-PeCDF	50.0	48.9	34 - 80	13C-1,2,3,4,7,8-HxCDF	69.1	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	52.4	36 - 67	13C-1,2,3,6,7,8-HxCDF	83.1	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	51.4	42 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	51.3	35 - 78	13C-1,2,3,7,8,9-HxCDF	77.1	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	51.3	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	77.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	54.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	78.6	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	53.2	39 - 69	13C-OCDF	65.1	17 - 157	
OCDF	100	103	63 - 170	CRS 37Cl-2,3,7,8-TCDD	89.8	35 - 197	

Analyst: JMH

Approved By: Martha M. Maier 24-Mar-2005 10:06



Sample ID: **IOC1566-01**

EPA Method 1613

Client Data

Name: Del Mar Analytical, Irvine
 Project: IOC1566
 Date Collected: 19-Mar-05
 Time Collected: 1116

Sample Data

Matrix: Aqueous
 Sample Size: 0.945 L

Laboratory Data

Lab Sample: 25944-001 Date Received: 22-Mar-05
 QC Batch No.: 6624 Date Extracted: 22-Mar-05
 Date Analyzed DB-5: 24-Mar-05 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.885			13C-2,3,7,8-TCDD	90.1	25 - 164	
1,2,3,7,8-PeCDD	ND	0.764			13C-1,2,3,7,8-PeCDD	84.9	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.27			13C-1,2,3,4,7,8-HxCDD	88.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.18			13C-1,2,3,6,7,8-HxCDD	93.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.21			13C-1,2,3,4,6,7,8-HpCDD	91.4	23 - 140	
1,2,3,4,6,7,8-HpCDD	1.19			J	13C-OCDD	76.1	17 - 157	
OCDD	6.83							
2,3,7,8-TCDF	ND	1.01		J	13C-2,3,7,8-TCDF	94.1	24 - 169	
1,2,3,7,8-PeCDF	ND	1.49			13C-1,2,3,7,8-PeCDF	85.7	24 - 185	
2,3,4,7,8-PeCDF	ND	1.37			13C-2,3,4,7,8-PeCDF	87.5	21 - 178	
1,2,3,4,7,8-HxCDF	ND	0.399			13C-1,2,3,4,7,8-HxCDF	74.2	26 - 152	
1,2,3,6,7,8-HxCDF	ND	0.403			13C-1,2,3,6,7,8-HxCDF	82.2	26 - 123	
2,3,4,6,7,8-HxCDF	ND	0.474			13C-2,3,4,6,7,8-HxCDF	82.4	28 - 136	
1,2,3,7,8,9-HxCDF	ND	0.720			13C-1,2,3,7,8,9-HxCDF	80.2	29 - 147	
1,2,3,4,6,7,8-HpCDF	ND	0.759			13C-1,2,3,4,6,7,8-HpCDF	84.3	28 - 143	
1,2,3,4,7,8,9-HpCDF	ND	0.925			13C-1,2,3,4,7,8,9-HpCDF	88.7	26 - 138	
OCDF	ND	3.47			13C-OCDF	81.8	17 - 157	
Totals					CRS 37Cl-2,3,7,8-TCDD	88.3	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.

Analyst: JMH

Approved By: Martha M. Maier 24-Mar-2005 10:06

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.

CURRENT CERTIFICATIONS



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)

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25944

1. Date Samples Arrived: <u>3/22/05 0945</u> Initials: <u>CW</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>3/22/05 1115</u> Initials: <u>CW</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> Blue Ice / Dry Ice / None Temp °C <u>2.9°</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7915 786A 5670</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

IOC1524-01
 IOC1561-01
 IOC1564-01
 IOC1565-01
 IOC1566-01

ALTA Analytical Laboratory
 El Dorado Hills, CA 95762



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Cooley Dr., Suite A, Colton, CA 92334 Ph (909) 370-4867 Fax (909) 370-1048
 9404 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-8598 Fax (619) 505-9689
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
 2620 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC1566

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) 933-0940

Standard TAT is requested unless specific due date is requested => Due Date: 5 day FAT Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC1566-01 Water	Sampled: 03/19/05 11:16	Instant Notification
1613-Dioxin-HR	03/26/05 11:16	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/16/05 11:16	Excel EDD email to pm, include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC1566-01C)		
1 L Amber (IOC1566-01D)		

25944 2.9°

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

Released By: [Signature] Date: 3-21-05 Time: 1700 Received By: Christa Velasco Date: 3/22/05 Time: 0945

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

APPENDIX G

Section 36

March Outfall 010

AMEC Data Validation Reports

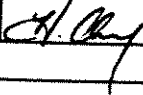
Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF38
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 3

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

Date: April 6, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Detects below the calibration range were qualified "J."
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: IOC1817, IOC1818, IOC1819

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 6, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 010	IOC1817-01C	25954-001	water	1613
Outfall 007	IOC1818-01	25955-001	water	1613
Outfall 018	IOC1819-01	25956-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All samples in these SDGs were received with cooler temperatures within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (0_6631_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 (0_6631_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. Any detects below the lower method calibration level (MCL) were qualified as estimated, "J," however, as Alta analyzed an additional calibration standard, not all results below the lower MCL were appropriately qualified by the laboratory. These results were qualified as estimated, "J," by the reviewer. Total HpCDF in Outfall 010 was qualified as estimated since one of the total constituents was below the lower MCL even though total concentration was above the lower MCL. No further qualifications were required.

Sample ID: **IOC1817-01C** *Outfall 010*

EPA Method 1613

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC1817
 Date Collected: 23-Mar-05
 Time Collected: 0928

Sample Data
 Matrix: Aqueous
 Sample Size: 1.013 L

Laboratory Data
 Lab Sample: 25954-001
 QC Batch No.: 6631
 Date Analyzed DB-5: 27-Mar-05
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.86			13C-2,3,7,8-TCDD	56.0	25 - 164	
1,2,3,7,8-PeCDD	ND	1.75			13C-1,2,3,7,8-PeCDD	48.6	25 - 181	
1,2,3,4,7,8-HxCDD	ND	3.83			13C-1,2,3,4,7,8-HxCDD	55.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	4.03			13C-1,2,3,6,7,8-HxCDD	60.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	3.93			13C-1,2,3,4,6,7,8-HpCDD	52.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	120				13C-OCDD	37.3	17 - 157	
OCDD	1320				13C-2,3,7,8-TCDF	55.7	24 - 169	
2,3,7,8-TCDF	ND	2.11			13C-1,2,3,7,8-PeCDF	47.7	24 - 185	
1,2,3,7,8-PeCDF	ND	2.89			13C-2,3,4,7,8-PeCDF	46.4	21 - 178	
2,3,4,7,8-PeCDF	ND	2.71			13C-1,2,3,4,7,8-HxCDF	56.0	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.03			13C-1,2,3,6,7,8-HxCDF	62.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	1.04			13C-2,3,4,6,7,8-HxCDF	58.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.31			13C-1,2,3,7,8,9-HxCDF	57.7	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.91			13C-1,2,3,4,6,7,8-HpCDF	53.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	25.9				13C-1,2,3,4,7,8,9-HpCDF	59.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	3.06			13C-OCDF	44.6	17 - 157	
OCDF	293				CRS 37Cl-2,3,7,8-TCDD	80.6	35 - 197	
Totals								
Total TCDD	ND	1.86						
Total PeCDD	ND	1.75						
Total HxCDD	4.35			10.6				
Total HpCDD	232							
Total TCDF	ND	2.11						
Total PeCDF	3.97							
Total HxCDF	27.2			30.1				
Total HpCDF	166							

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

Analyst: WJL
 Approved By: Martha M. Maier
 Project 25954
 28-Mar-2005 07:35
AMEC VALIDATED LEVEL IV
 Page 6 of 241

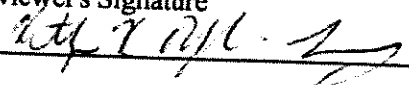
CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT64
 Task Order 313150010, 313150012
 SDG No. IOC1817, IOC1818

No. of Analyses 2

Laboratory Del Mar Analytical
 Reviewer K. Okonzak
 Analysis/Method Metals

Date: 3/31/05
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times	Qualifications applied for: Analytes detected below the reporting limit was qualified as estimated, "J." Nondetected antimony was qualified as estimated, "UJ," due to low recovery for the reporting limit check standard and for a negative method blank result.
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 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.	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: METALS

SAMPLE DELIVERY GROUPS: IOC1817, IOC1818

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, 313150012
SDG#: IOC1817, IOC1818
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: K. Okonzak-Lowry
Date of Review: March 31, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: multiple
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 010	Outfall 010	IOC1817-01	water	ILM04
Outfall 007	Outfall 007	IOC1818-01	water	ILM04

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 sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel and accounted for the samples and analyses presented in these SDGs. The COCs listed duplicate samples for both site samples; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. The laboratory performed the required tune solution analyses. The %RSDs for the tune were all within the 5% control limit. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP/MS and 80-120% for mercury. The applicable reporting limit check standards were recovered within the AMEC control limits of 70-130%, with the exception of the 0.2 µg/L standard for antimony, which was not detected by the instrument at the 0.18 µg/L antimony MDL. Therefore, the nondetected antimony result for sample Outfall 010 was qualified as estimated, "UJ." No further qualifications were required.

2.4 BLANKS

The method blanks and bracketing ICBs/CCBs associated with the samples in these SDGs were nondetected at the laboratory MDL, with the exception of antimony for the ICP/MS method blank, 5C23123-BLK1, which was reported at -0.43 µg/L. Therefore, the nondetected antimony for sample Outfall 010 was qualified as estimated, "UJ." No further sample qualifications were required.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. The result for potassium was above the calibration range of the instrument in all the ICSA analysis. The aluminum recoveries were low for the ICSA/AB analyses at 79.3% and 76.5%, respectively. The site sample matrix was low in aluminum; therefore, the low recovery for aluminum by the laboratory wouldn't have caused IEC miscalculations affecting the quantitation of the reported analytes. Copper and cadmium were detected at above the reporting limit in the ICSA analysis. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the level of reported interferents were not high enough to cause matrix affects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No sample qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C23123-BS1, and the mercury LCS sample was identified as 5C24056-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

The MS/MSD analyses were performed for the ICP/MS analysis only on sample Outfall 010, in association with the samples in these SDGs. The %RPDs for the reported analytes were within the 20% control limit, and no sample qualifications were required.

2.8 MATRIX SPIKE

The MS/MSD analyses were performed for the ICP/MS analysis only on sample Outfall 010, in association with the samples in these SDGs. The %Rs were within the AMEC 75-125% control limit, and no sample qualifications were required. The mercury method accuracy was evaluated based on the LCS result.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS SERIAL DILUTION

No serial dilution analysis was performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Analytes detected below the reporting limit were qualified as estimated, "J." No qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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

Project ID: Routine Outfall 010

Report Number: IOC1817

Sampled: 03/23/05
 Received: 03/23/05

DRAFT: METALS

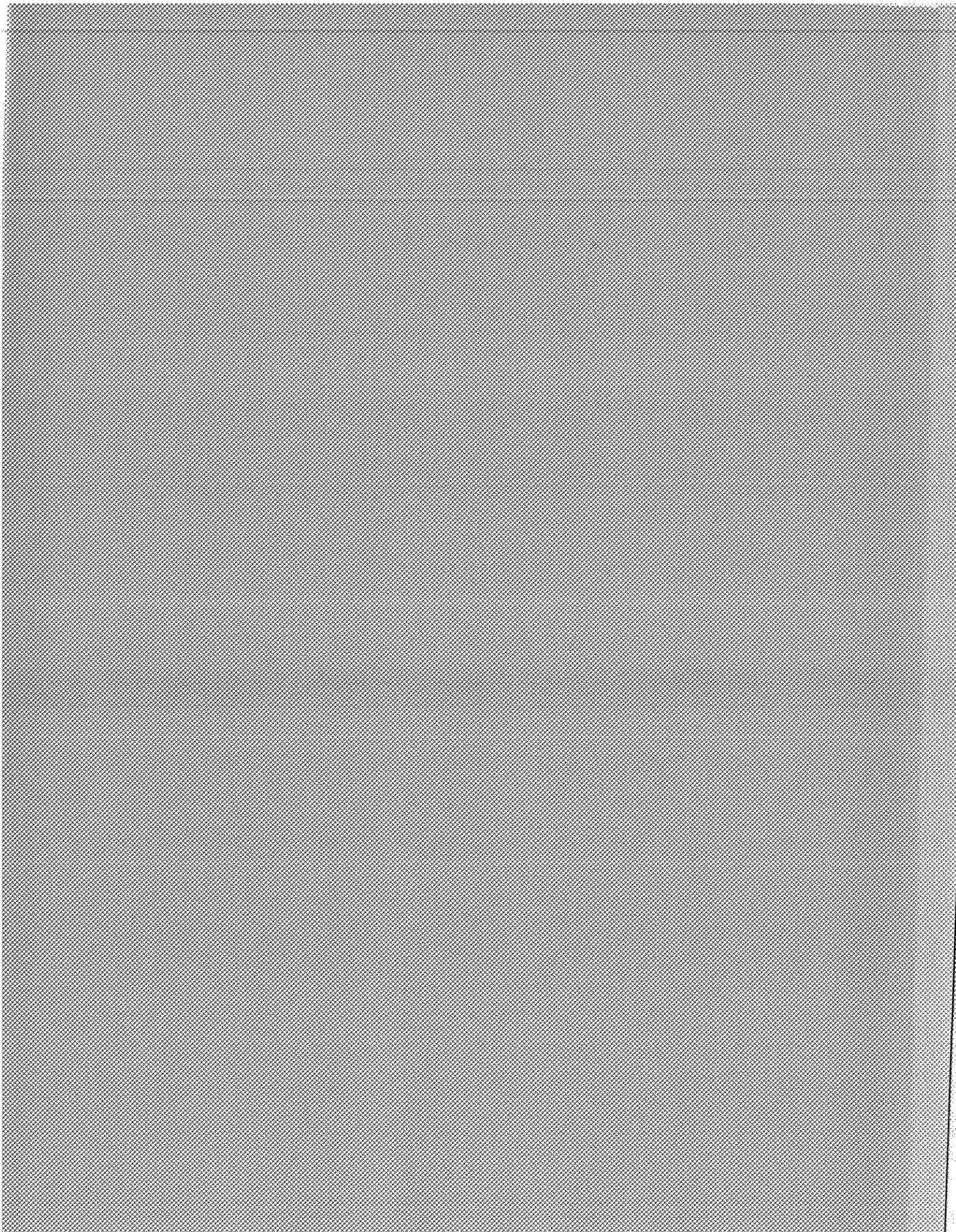
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1817-01 (DRAFT: Outfall 010 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C23125	0.18	2.0	ND	1	03/23/05	03/24/05	uJ
Cadmium	EPA 200.8	5C23123	0.015	1.0	0.086	1	03/23/05	03/24/05	J J
Copper	EPA 200.8	5C23123	0.49	2.0	3.9	1	03/23/05	03/24/05	
Lead	EPA 200.8	5C23123	0.13	1.0	1.6	1	03/23/05	03/24/05	
Mercury	EPA 245.1	5C24056	0.063	0.20	ND	1	03/24/05	03/24/05	u

AMEC VALIDATED

Level IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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

LABORATORY REPORT

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

Project: Routine Outfall 010

Sampled: 03/23/05
 Received: 03/23/05
 Issued: 04/05/05 12:08

NELAP #01108CA California ELAP#1197 CSDLAC #10117

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.

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
 IOC1817-01

CLIENT ID
 Outfall 010

MATRIX
 Water

Reviewed By:

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 010

Report Number: IOC1817

Sampled: 03/23/05
 Received: 03/23/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1817-01 (Outfall 010 - Water)									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C23123	0.18	2.0	ND	1	03/23/05	03/24/05	
Cadmium	EPA 200.8	5C23123	0.015	1.0	0.086	1	03/23/05	03/24/05	
Copper	EPA 200.8	5C23123	0.49	2.0	3.9	1	03/23/05	03/24/05	J
Lead	EPA 200.8	5C23123	0.13	1.0	1.6	1	03/23/05	03/24/05	
Mercury	EPA 245.1	5C24056	0.063	0.20	ND	1	03/24/05	03/24/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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

Project ID: Routine Outfall 010

Report Number: IOC1817

Sampled: 03/23/05
 Received: 03/23/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1817-01 (Outfall 010 - Water) - cont.									
Reporting Units: mg/l									
Chloride	EPA 300.0	5C23116	0.15	0.50	6.1	1	03/23/05	03/24/05	
Nitrate/Nitrite-N	EPA 300.0	5C23116	0.075	0.26	0.092	1	03/23/05	03/24/05	J
Oil & Grease	EPA 413.1	5C25043	0.94	5.0	ND	1	03/25/05	03/25/05	
Sulfate	EPA 300.0	5C23116	0.45	0.50	2.3	1	03/23/05	03/24/05	
Total Dissolved Solids	SM2540C	5C23106	10	10	79	1	03/23/05	03/23/05	
Total Suspended Solids	EPA 160.2	5C24086	10	10	17	1	03/24/05	03/24/05	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 010

Report Number: IOC1817

Sampled: 03/23/05
 Received: 03/23/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 010 (IOC1817-01) - Water EPA 300.0	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
	2	03/23/2005 09:28	03/23/2005 18:36	03/23/2005 23:00	03/24/2005 00:47

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 010

Report Number: IOC1817

Sampled: 03/23/05
 Received: 03/23/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C23123 Extracted: 03/23/05										
Blank Analyzed: 03/24/2005 (5C23123-BLK1)										
Antimony	ND	2.0	0.18	ug/l						
Cadmium	ND	1.0	0.015	ug/l						
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
LCS Analyzed: 03/24/2005 (5C23123-BS1)										
Antimony	85.8	2.0	0.18	ug/l	80.0		107 85-115			
Cadmium	80.4	1.0	0.015	ug/l	80.0		100 85-115			
Copper	85.9	2.0	0.49	ug/l	80.0		107 85-115			
Lead	82.1	1.0	0.13	ug/l	80.0		103 85-115			
Matrix Spike Analyzed: 03/24/2005 (5C23123-MS1)										
					Source: IOC1817-01					
Antimony	81.9	2.0	0.18	ug/l	80.0	ND	102 70-130			
Cadmium	78.9	1.0	0.015	ug/l	80.0	0.086	99 70-130			
Copper	85.0	2.0	0.49	ug/l	80.0	3.9	101 70-130			
Lead	84.0	1.0	0.13	ug/l	80.0	1.6	103 70-130			
Matrix Spike Dup Analyzed: 03/24/2005 (5C23123-MSD1)										
					Source: IOC1817-01					
Antimony	83.5	2.0	0.18	ug/l	80.0	ND	104 70-130	2	20	
Cadmium	80.5	1.0	0.015	ug/l	80.0	0.086	101 70-130	2	20	
Copper	86.9	2.0	0.49	ug/l	80.0	3.9	104 70-130	2	20	
Lead	86.4	1.0	0.13	ug/l	80.0	1.6	106 70-130	3	20	
Batch: 5C24056 Extracted: 03/24/05										
Blank Analyzed: 03/24/2005 (5C24056-BLK1)										
Mercury	ND	0.20	0.063	ug/l						

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 Wendy Kirkeeng For 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 010

Report Number: IOC1817

Sampled: 03/23/05
 Received: 03/23/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C24056 Extracted: 03/24/05											
LCS Analyzed: 03/24/2005 (5C24056-BS1)											
Mercury	8.04	0.20	0.063	ug/l	8.00		100	85-115			
Matrix Spike Analyzed: 03/24/2005 (5C24056-MS1)											
Mercury	7.85	0.20	0.063	ug/l	8.00	ND	98	70-130			
Matrix Spike Dup Analyzed: 03/24/2005 (5C24056-MSD1)											
Mercury	8.07	0.20	0.063	ug/l	8.00	ND	101	70-130	3	20	

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 010

Report Number: IOC1817

Sampled: 03/23/05
 Received: 03/23/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C23106 Extracted: 03/23/05											
Blank Analyzed: 03/23/2005 (5C23106-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/23/2005 (5C23106-BS1)											
Total Dissolved Solids	1040	10	10	mg/l	1000		104	90-110			
Duplicate Analyzed: 03/23/2005 (5C23106-DUP1)											
Total Dissolved Solids	487	10	10	mg/l		Source: IOC1606-03 480			1	10	
Batch: 5C23116 Extracted: 03/23/05											
Blank Analyzed: 03/23/2005 (5C23116-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.075	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 03/23/2005 (5C23116-BS1)											
Chloride	5.10	0.50	0.26	mg/l	5.00		102	90-110			
Sulfate	10.2	0.50	0.18	mg/l	10.0		102	90-110			
Matrix Spike Analyzed: 03/23/2005 (5C23116-MS1)											
Chloride	39.0	1.0	0.52	mg/l	5.00	34	100	80-120			
Sulfate	45.2	1.0	0.36	mg/l	10.0	35	102	80-120			
Matrix Spike Dup Analyzed: 03/23/2005 (5C23116-MSD1)											
Chloride	38.7	1.0	0.52	mg/l	5.00	34	94	80-120	1	20	
Sulfate	44.8	1.0	0.36	mg/l	10.0	35	98	80-120	1	20	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 010

Report Number: IOC1817

Sampled: 03/23/05
 Received: 03/23/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C24086 Extracted: 03/24/05											
Blank Analyzed: 03/24/2005 (5C24086-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/24/2005 (5C24086-BS1)											
Total Suspended Solids	967	10	10	mg/l	1000		97	85-115			
Duplicate Analyzed: 03/24/2005 (5C24086-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOC1873-01 ND				10	
Batch: 5C25043 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25043-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 03/25/2005 (5C25043-BS1)											
Oil & Grease	15.5	5.0	0.94	mg/l	20.0		78	65-120			M-NRI
LCS Dup Analyzed: 03/25/2005 (5C25043-BSD1)											
Oil & Grease	15.8	5.0	0.94	mg/l	20.0		79	65-120	2	20	

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 010

Report Number: IOC1817

Sampled: 03/23/05

Received: 03/23/05

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
IOC1817-01	413.1 Oil and Grease	Oil & Grease	mg/l	0.47	5.0	15
IOC1817-01	Chloride - 300.0	Chloride	mg/l	6.10	0.50	150
IOC1817-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.092	0.26	10.00
IOC1817-01	Sulfate-300.0	Sulfate	mg/l	2.30	0.50	250
IOC1817-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	79	10	850

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 Project Manager

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

Project ID: Routine Outfall 010

Report Number: IOC1817

Sampled: 03/23/05
Received: 03/23/05

DATA QUALIFIERS AND DEFINITIONS

- 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 unknown quality.
- 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
Wendy Kirkeeng For 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 010

Report Number: IOC1817

Sampled: 03/23/05
 Received: 03/23/05

Certification Summary

Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.8	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 413.1	Water	X	X
SM2540C	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
 Samples: IOC1817-01

Analysis Performed: EDD + Level 4
 Samples: IOC1817-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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IDC1817

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:		Project:		ANALYSIS REQUIRED		Field readings:	
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly Sampler: <i>Block</i>		Boeing-SSFL NPDES Routine Outfall 010 Stormwater at Building 203 Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg	TCDD (and all congeners) Oil & Grease (EPA 413.1)	CF, SO4, NO3+NO2-N TDS, TSS	Temp = 52.0 pH = 6.9
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	
Outfall 010	W	Poly-1L	1	3-23-05 09:25	HNO3	1A	X
Outfall 010-Dup	W	Poly-1L	1		HNO3	1B	X
Outfall 010	W	Glass- Amber	2		None	2A, 2B	X
Outfall 010	W	Glass- Amber	2		HCl	3A, 3B	X
Outfall 010	W	Poly-500 ml	2		None	4A, 4B	X
Outfall 010	W	Poly-500 ml	2		None	5A, 5B	X
Relinquished By				Date/Time: 3/23/05 1535			Turn around Time: (check) 24 Hours 48 Hours 72 Hours Perchlorate Only 72 Hours Metals Only 72 Hours
Relinquished By				Date/Time: 3/23/05 1836			Sample Integrity: (Check) Intact
Relinquished By				Date/Time:			On Ice: <i>BC</i>



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March 31, 2005

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

Attention: Bronwyn Kelly
Projects: Routine Outfall 010
Sampled: 03/23/05
Del Mar Analytical Number: IOC1817

Dear Ms. Kelly:

Alta Analytical 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 for reviewing your results.

MWH ID	DEL MAR ID	ALTA ID
Outfall 010	IOC1817-01	25954-001

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.

Sincerely yours,
DEL MAR ANALYTICAL

Michele Harper
Project Manager



March 28, 2005

Alta Project I.D.: 25954

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 March 25, 2005 under your Project Name "IOC1817". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640



Section I: Sample Inventory Report

Date Received: 3/25/2005

Alta Lab. ID

Client Sample ID

25954-001

IOC1817-01C

SECTION II



Method Blank		EPA Method 1613					
Matrix:	Aqueous	QC Batch No.:	6631	Lab Sample:	0-MB001		
Sample Size:	1.000 L	Date Extracted:	25-Mar-05	Date Analyzed DB-5:	27-Mar-05		
				Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.79		13C-2,3,7,8-TCDD	74.3	25 - 164	
1,2,3,7,8-PeCDD	ND	1.50		13C-1,2,3,7,8-PeCDD	69.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.62		13C-1,2,3,4,7,8-HxCDD	77.5	32 - 141	
1,2,3,6,7,8-HxCDD	ND	2.73		13C-1,2,3,6,7,8-HxCDD	83.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	2.67		13C-1,2,3,4,6,7,8-HpCDD	72.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.65		13C-OCDD	51.2	17 - 157	
OCDD	ND	5.70		13C-2,3,7,8-TCDF	74.8	24 - 169	
2,3,7,8-TCDF	ND	1.57		13C-1,2,3,7,8-PeCDF	69.0	24 - 185	
1,2,3,7,8-PeCDF	ND	2.33		13C-2,3,4,7,8-PeCDF	69.7	21 - 178	
2,3,4,7,8-PeCDF	ND	2.07		13C-1,2,3,4,7,8-HxCDF	77.3	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.597		13C-1,2,3,6,7,8-HxCDF	87.1	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.599		13C-2,3,4,6,7,8-HxCDF	84.1	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.670		13C-1,2,3,7,8,9-HxCDF	78.8	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.10		13C-1,2,3,4,6,7,8-HpCDF	74.4	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	1.23		13C-1,2,3,4,7,8,9-HpCDF	82.1	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.45		13C-OCDF	61.7	17 - 157	
OCDF	ND	4.20		CRS 37Cl-2,3,7,8-TCDD	77.8	35 - 197	
Totals				Footnotes			
Total TCDD	ND	1.79		a. Sample specific estimated detection limit.			
Total PeCDD	ND	1.51		b. Estimated maximum possible concentration.			
Total HxCDD	ND	2.68		c. Method detection limit.			
Total HpCDD	ND	1.65		d. Lower control limit - upper control limit.			
Total TCDF	ND	1.57					
Total PeCDF	ND	2.20					
Total HxCDF	ND	0.716					
Total HpCDF	ND	1.33					

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:35



EPA Method 1613

OPR Results

Matrix: Aqueous	QC Batch No.: 6631	Lab Sample: 0-OPR001			
Sample Size: 1.000 L	Date Extracted: 25-Mar-05	Date Analyzed DB-5: 27-Mar-05			
		Date Analyzed DB-225: NA			
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	84.3	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	83.7	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	95.9	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	105	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	91.6	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	62.5	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	82.5	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	79.8	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	79.8	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	95.8	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	110	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	106	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	98.9	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	94.9	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	104	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	76.9	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	75.9	35 - 197

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:35



Sample ID: **IOC1817-01C**

EPA Method 1613

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC1817
 Date Collected: 23-Mar-05
 Time Collected: 0928

Sample Data
 Matrix: Aqueous
 Sample Size: 1.013 L

Laboratory Data
 Lab Sample: 25954-001
 QC Batch No.: 6631
 Date Analyzed DB-5: 27-Mar-05
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.86			56.0	25 - 164	
1,2,3,7,8-PeCDD	ND	1.75			48.6	25 - 181	
1,2,3,4,7,8-HxCDD	ND	3.83			55.1	32 - 141	
1,2,3,6,7,8-HxCDD	ND	4.03			60.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	3.93			52.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	120				37.3	17 - 157	
OCDD	1320				55.7	24 - 169	
2,3,7,8-TCDF	ND	2.11			47.7	24 - 185	
1,2,3,7,8-PeCDF	ND	2.89			46.4	21 - 178	
2,3,4,7,8-PeCDF	ND	2.71			56.0	26 - 152	
1,2,3,4,7,8-HxCDF	ND	1.03			62.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	1.04			58.4	28 - 136	
2,3,4,6,7,8-HxCDF	ND	1.31			57.7	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.91			53.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	25.9				59.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND				44.6	17 - 157	
OCDF	293	3.06			80.6	35 - 197	

Totals

Total TCDD	ND	1.86					
Total PeCDD	ND	1.75					
Total HxCDD	4.35		10.6				
Total HpCDD	232						
Total TCDF	ND	2.11					
Total PeCDF	3.97						
Total HxCDF	27.2						
Total HpCDF	166		30.1				

Footnotes

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

Analyst: WJL

Approved By: Martha M. Maier 28-Mar-2005 07:35

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.

CURRENT CERTIFICATIONS



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)

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25954

1. Date Samples Arrived: <u>3/25/05 0900</u> Initials: <u>CW</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>3/25/05 1000</u> Initials: <u>CW</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> Blue Ice / Dry Ice / None Temp °C <u>4.2°</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓	✓	
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7928 8006 9252</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

initials of sampler on bottles

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



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
 9494 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 605-9596 Fax (619) 605-9689
 9630 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
 2820 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC1817

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940

Standard TAT is requested unless specific due date is requested ⇒ Due Date: 5 DAY TAT Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC1817-01 Water	Sampled: 03/23/05 09:28	Instant Notification
1613-Dioxin-HR	03/30/05 09:28	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/20/05 09:28	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC1817-01C)		
1 L Amber (IOC1817-01D)		

25954 4.2°

SAMPLE INTEGRITY:					
All containers intact:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Sample labels/COC agree:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Custody Seals Present:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Samples Preserved Properly:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received On Ice:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received at (temp):	_____	

Released By: [Signature] Date: 3-24-05 Time: 1700 Received By: Christen Velasco Date: 3/20/05 Time: 0900

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

APPENDIX G

Section 37

March Outfall 011

AMEC Data Validation Reports

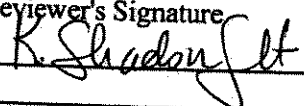
Del Mar Analytical Laboratory Reports

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF35
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 6

Laboratory Alta
 Reviewer K. Shadowlight
 Analysis/Method Dioxins

Date: March 23, 2005
 Reviewer's Signature


ACTION ITEMS*

1. **Case Narrative**
Deficiencies
2. **Out of Scope**
Analyses
3. **Analyses Not Conducted**
4. **Missing Hardcopy**
Deliverables
5. **Incorrect Hardcopy**
Deliverables
6. **Deviations from Analysis**
Protocol, e.g.,
 - Holding Times
 - GC/MS Tune/Inst. Performance
 - Calibration
 - Method blanks
 - Surrogates
 - Matrix Spike/Dup LCS
 - Field QC
 - Internal Standard Performance
 - Compound Identification and Quantitation
 - System Performance

Qualifications were assigned for the following:
 * EMPCs
 * Detects below the lower method calibration level

COMMENTS^b

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 6
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 21, 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	IOC0447-01	25853-001	water	1613
Outfall 003	IOC0449-01	25854-001	water	1613
Outfall 004	IOC0455-01	25855-001	water	1613
Outfall 005	IOC0451-01	25855-001	water	1613
Outfall 007	IOC0453-01	25856-001	water	1613
Outfall 011	IOC0448-01	25852-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 1.3°C and 1.4°C ; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6593-MB001) was extracted and analyzed with the samples in these SDGs. Total TCDF was reported at 1.4 pg/L and target compound 1,2,3,6,7,8-HxCDF was reported as an EMPC. The results for total TCDF in samples Outfall 003 and Outfall 011 were qualified as estimated nondetects "UJ," at the levels of interference. A review of the method blank raw data and chromatograms indicated no false negatives or false positives. No further qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One Ongoing Precision Recovery (OPR) sample (6593-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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." The result for total TCDF in sample Outfall 003 was flagged by the laboratory with a "D" qualifier which indicated possible diphenylether interference; however, the result was qualified as a nondetect due to method blank contamination and no qualifications were required. No further qualifications were required.

Sample ID: **IOC0448-01** Outfall 011

EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25852-001
Project:	IOC0448	Sample Size:	0.975 L	QC Batch No.:	6593
Date Collected:	4-Mar-05			Date Analyzed DB-5:	15-Mar-05
Time Collected:	1144			Date Analyzed DB-225:	NA
				Date Received:	8-Mar-05
				Date Extracted:	11-Mar-05

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.847			IS 13C-2,3,7,8-TCDD	74.7	25 - 164	
1,2,3,7,8-PeCDD	ND	0.698			13C-1,2,3,7,8-PeCDD	76.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.09			13C-1,2,3,4,7,8-HxCDD	83.4	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.14			13C-1,2,3,6,7,8-HxCDD	87.1	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.11			13C-1,2,3,4,6,7,8-HpCDD	83.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	2.64				13C-OCDD	55.1	17 - 157	
OCDD	25.1			J	13C-2,3,7,8-TCDF	76.6	24 - 169	
2,3,7,8-TCDF	ND	0.631			13C-1,2,3,7,8-PeCDF	70.5	24 - 185	
1,2,3,7,8-PeCDF	ND	1.07			13C-2,3,4,7,8-PeCDF	74.1	21 - 178	
2,3,4,7,8-PeCDF	ND	0.964			13C-1,2,3,4,7,8-HxCDF	71.9	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.266			13C-1,2,3,6,7,8-HxCDF	77.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.259			13C-2,3,4,6,7,8-HxCDF	79.3	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.293			13C-1,2,3,7,8,9-HxCDF	79.5	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.426			13C-1,2,3,4,6,7,8-HpCDF	76.5	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND		0.694		13C-1,2,3,4,7,8,9-HpCDF	83.5	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.598			13C-OCDF	63.3	17 - 157	
OCDF	ND	2.38			CRS 37Cl-2,3,7,8-TCDD	79.6	35 - 197	

Totals		Footnotes	
Total TCDD	ND	0.847	a. Sample specific estimated detection limit.
Total PeCDD	ND	0.698	b. Estimated maximum possible concentration.
Total HxCDD	ND	1.11	c. Method detection limit.
Total HpCDD	6.42		d. Lower control limit - upper control limit.
Total TCDF	0.847	1.55	
Total PeCDF	ND	0.908	
Total HxCDF	0.445		
Total HpCDF	ND	0.694	

Analyst: JMH
 Approved By: Martha M. Majer
 16-Mar-2005 12:54


CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT65
 Task Order 313150010
 SDG No. IOC0448

No. of Analyses 1

Laboratory Del Mar
 Reviewer P. Meeks
 Analysis/Method Metals

Date: 03/31/05
 Reviewer's Signature


ACTION ITEMS*	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	<p style="text-align: center;"><u>Qualifications applied for detects below the reporting limit.</u></p>
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	

* 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: METALS

SAMPLE DELIVERY GROUP: IOC0448

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#: IOC0448
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: March 31, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, *SW-846 Method 6010B for Inductively Coupled Plasma*, and validation guidelines outlined in the *USEPA CLP 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOC0448
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011	Outfall 011	IOC0448-01	water	ILM04

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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel and accounted for the sample and analyses presented in this SDG. A duplicate was submitted for Outfall 011; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The date of collection recorded on the COC and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP/MS metals and 80-120% for mercury. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

There were no reported detects in the CCBs or method blanks associated with the site sample. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and antimony and lead were not spiked into the ICSAB solution. Copper was detected above the reporting limit in the ICSA. The results for sodium was above the calibration range of the instrument in the ICSA and ICSAB analyses; however, as sodium was not reported in the site sample, no qualifications were required. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix effects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C08106-BS1 and the mercury LCS sample was identified as 5C09049-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed on Outfall 011 for the ICP/MS analytes only. The RPDs were within the control limit of 20% and no qualifications were required.

2.8 MATRIX SPIKE

MS/MSD analyses were performed on Outfall 011 for the ICP/MS analytes only. The recoveries were within the AMEC control limits of 75-125% and no qualifications were required. Mercury method accuracy was evaluated based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analysis of this sample; therefore, furnace atomic absorption QC is not applicable.

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site sample and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample 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. Lead detected below the reporting limit was qualified as estimated, "J." No further qualifications were required.

2.13 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 sample.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site sample.



Del Mar Analytical

17461 Dorian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
 1014 E. Cooley Dr., Suite A, Cotton, CA 92324 (909) 370-4667 FAX (949) 370-1046
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 595-8596 FAX (619) 595-9689
 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 011

Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 03/04/05				
Reporting Units: ug/l									
Copper	EPA 200.8	5C08106	0.49	2.0	3.0	1	03/08/05	03/09/05	Rev Qual
Lead	EPA 200.8	5C08106	0.13	1.0	0.19	1	03/08/05	03/09/05	J J
Mercury	EPA 245.1	5C09049	0.063	0.20	ND	1	03/09/05	03/09/05	U

Qual Code

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711PP26
 Task Order 313150010
 SDG No. IOB1014

No. of Analyses 1

Laboratory Del Mar Analytical

Date: April 6, 2005

Reviewer L. Calvin

Reviewer's Signature *L. Calvin*

Analysis/Method Pesticides (a-BHC) by Method 608

ACTION ITEMS^a	
1. Case Narrative Deficiencies	_____
2. Out of Scope Analyses	_____
3. Analyses Not Conducted	_____
4. Missing Hardcopy Deliverables	_____
5. Incorrect Hardcopy Deliverables	_____
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification 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 VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES

SAMPLE DELIVERY GROUP: IOB0448

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#: IOB0448
Project Manager: B. McIlvaine
Matrix: Water
Analysis: PCBs
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
Date of Review: April 6, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedures (DVP-4, Rev.2)*, *EPA Method 608*, 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 form 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	Method
Outfall 011	Outfall 011	IOB2066-01	water	608

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 sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample containers were received intact. 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 analysis presented in this SDG. As the sample was couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

The water sample was extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 608 for pesticides, and according to the raw data provided, a resolution check standard was not analyzed by the laboratory. The laboratory did analyze a breakdown check standard; however, as alpha-BHC was the only compound of interest, the breakdown check standard was not necessary. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

According to the laboratory SOP and the initial calibration raw data, the retention time windows are ±0.10 minutes for both surrogates and alpha-BHC calibration standards. A review of the raw data indicated that the laboratory retention time criteria were met for the surrogates and pesticide calibration standards. No qualifications were required.

2.3 CALIBRATION

2.3.1 Analytical Sequence

Based on the data provided, the analytical sequences were in accordance with the requirements of Method 608. No qualifications were required.

2.3.2 Initial Calibration

There was one initial calibration dated 03/02/05 associated with this SDG, which consisted of six-point calibrations for alpha-BHC on two analytical columns. The laboratory provided an overlay of the sample chromatogram and the pesticide standard for identification purposes. The %RSD was within the EPA Method 608 QC limit of $\leq 10\%$ on channel B, and the r^2 was ≥ 0.995 on channel A. An ICV was analyzed immediately following the initial calibration. The %D for alpha-BHC was within the QC limit of $\leq 15\%$ on both analytical columns. The %RSD, r^2 , and ICV %D for alpha-BHC were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

The sample analysis of this SDG was bracketed by the daily ICV and two closing continuing calibration standards. The applicable %Ds were within the Method QC limit of $\leq 15\%$ for all calibrations. A representative number of %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 BLANKS

2.4.1 Instrument Blanks

An instrument blank was analyzed at the beginning of the analytical sequence. Cross-contamination was not evident in the sample. No qualifications were necessary.

2.4.2 Method Blanks

One water method blank (5C07057-BLK1) was extracted and analyzed with this SDG. Target compound alpha-BHC was not detected in the method blank. Review of the chromatograms showed no false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/blank spike duplicate pair (5C07057-BS1/BSD1) was extracted and analyzed with this SDG. The recoveries for alpha-BHC were within the laboratory-established QC limits of 45-115% and the RPD was $\leq 30\%$. The recoveries were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The sample and all QC samples were fortified with the surrogate compounds decachlorobiphenyl and tetrachloro-m-xylene. Surrogate recoveries for all analyses were within the laboratory-established QC limits. The recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses associated with this SDG. Accuracy and precision were assessed based on the blank spike/blank spike duplicate results. No qualifications were required.

2.8 SAMPLE CLEANUP PERFORMANCE

According to the laboratory extraction benchsheet, no cleanups were performed on the water sample. No qualifications were required.

2.9 FIELD QC SAMPLES

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

2.9.1 Field Blanks and Equipment Rinsates

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

2.9.2 Field Duplicates

There were no field duplicate samples associated with the sample in this SDG.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for alpha-BHC by EPA Method 608. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for the sample in this SDG. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG; however, as there were no reported detects, quantitation was verified by recalculating blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and the laboratory MDL study. The reporting limit for alpha-BHC was not adjusted for sample amount on the result summary; however, the dilution factor listed on the summary reflected the sample volume extracted. Results were reported in ug/L (ppb). No qualifications were required.



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

Project ID: Routine Outfall 011

Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 03/04/05				
Reporting Units: ug/l									
alpha-BHC	EPA 608	5C07057	0.0010	0.010	ND	0.943	03/07/05	03/08/05	u
Surrogate: Decachlorobiphenyl (45-120%)					56 %				
Surrogate: Tetrachloro-m-xylene (35-120%)					41 %				

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code

AMEC VALIDATED
LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV43
 Task Order 313150010
 SDG No. IOC0448
 No. of Analyses 1

Laboratory Del Mar
 Reviewer M. Pokorny
 Analysis/Method Semivolatiles

Date: April 6, 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	Qualifications were required for calibration and LCS outliers and for blank contamination.
Protocol, e.g.,	
Holding Times	
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and	
Quantitation	
System Performance	
COMMENTS ^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: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOC0448

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#: IOC0448
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 6, 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 Semivolatile Organics (DVP-3, Rev. 2)*, *EPA Method 625*, 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 Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 011	Outfall 011	IOC0448-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The sample in this SDG was received at the laboratory within the temperature limits of 4°C ±2°C. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. 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 analysis presented in this SDG. As the sample was couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

The water sample was extracted within seven days of collection and analyzed within 40 days of collection. No qualifications were required.

2.2 GC/MS TUNING

The DFTPP tunes met the criteria specified in Method 625, and the sample was analyzed within 12 hours of the DFTPP injection time. No qualifications were required.

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 03/15/05. The average RRFs for were ≥0.05 and the %RSDs were ≤35% or $r^2 \geq 0.995$ for all target compounds. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 03/16/05. The RRFs for all target compounds were ≥0.05, and the %Ds were ≤20 except for the %D for bis(2-ethylhexyl)phthalate. Bis(2-ethylhexyl)phthalate was qualified as an estimated nondetect, "UJ," in the sample of this SDG. A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No further qualifications were required.

2.4 BLANKS

One method blank (5C05021-BLK1) was extracted and analyzed with this SDG. Bis(2-ethylhexyl)phthalate was reported in the method blank. The bis(2-ethylhexyl)phthalate detect for the sample was qualified as a nondetect, "U." Review of the raw data indicated no reportable false negatives or false positives. No further qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike (5C05021-BS1) was extracted and analyzed with this SDG. All percent recoveries were within the laboratory QC limits, except for the recovery below the QC limits for 2,4-dinitrotoluene. The sample of this SDG had 2,4-dinitrotoluene qualified as an estimated nondetect, "UJ." A representative number of recoveries were calculated from the raw data and no calculation or transcription errors were found. No further qualifications were required.

2.6 SURROGATE RECOVERY

The sample surrogate recoveries were within the laboratory QC limits. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with this SDG. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate 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 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and ± 30 seconds for retention times. A representative number of recoveries were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for five semivolatile target compounds by EPA Method 625. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low level of the initial and the method detection limit study. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.



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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

Project ID: Routine Outfall 011

Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

DRAFT: 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	REV QUAL	QUAL CODE
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water)					Sampled: 03/04/05						
Reporting Units: ug/l											
Bis(2-ethylhexyl)phthalate	EPA 625	5C05021	1.1	5.0	ND ¹⁵	0.957	03/05/05	03/17/05	UJB, J		B, C
2,4-Dinitrotoluene	EPA 625	5C05021	0.23	9.0	ND	0.957	03/05/05	03/17/05	UJL2		L
N-Nitrosodimethylamine	EPA 625	5C05021	0.22	8.0	ND	0.957	03/05/05	03/17/05	U		
Pentachlorophenol	EPA 625	5C05021	0.78	8.0	ND	0.957	03/05/05	03/17/05	U		
2,4,6-Trichlorophenol	EPA 625	5C05021	0.10	6.0	ND	0.957	03/05/05	03/17/05	U		
Surrogate: 2-Fluorophenol (30-120%)											53 %
Surrogate: Phenol-d6 (35-120%)											58 %
Surrogate: 2,4,6-Tribromophenol (45-120%)											72 %
Surrogate: Nitrobenzene-d5 (45-120%)											58 %
Surrogate: 2-Fluorobiphenyl (45-120%)											76 %
Surrogate: Terphenyl-d14 (45-120%)											71 %

AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

LEVEL III

04.06.05

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.

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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


Package ID T711VO75
 Task Order 313150010
 SDG No. IOC0448

No. of Analyses 2

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles

Date: April 6, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualifications were required for calibration outlier.
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: IOC0448

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#: IOC0448
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: April 6, 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 011	Outfall 011	IOB0448-01	water	624
Trip Blank	Trip Blank	IOB0448-02	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 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 this SDG. As the samples were couriered directly to the laboratory from the field, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

The samples were analyzed within seven 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 times. The Form Vs were verified from the raw data and no discrepancies between the summary forms and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

One initial calibration dated 02/19/05 was associated with this SDG. The average RRFs were ≥0.05 for all compounds listed on the sample result summaries. The %RSDs were ≤35% for all target compounds listed on the sample result summaries. There was one continuing calibration dated 03/07/05 associated with the sample analyses in these SDGs. The RRFs were ≥0.05 in the continuing calibration. The %D for trichlorofluoromethane exceeded 20% in the continuing calibration; therefore, the nondetect for trichlorofluoromethane was qualified as estimated, "UJ," in sample Outfall 011. No qualifications were required for the Trip Blank. The %Ds were ≤20% for the remaining target compounds listed on the result summaries. 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

One water method blank (5C07026-BLK1) was 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

One water blank spike (5C07026-BS1) was 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

There were no MS/MSD analyses associated with this SDG. Evaluation of method accuracy was 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 (IOC0448-02) was the trip blank associated with the site sample. 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. No qualifications were required.

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 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 standards and by the MDL study. Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike and surrogate recoveries from the raw data. Results were reported in $\mu\text{g/L}$ (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.



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

Project ID: Routine Outfall 011

Report Number: IOC0448

Sampled: 03/04/05

Received: 03/04/05

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: IOC0448-01 (DRAFT: Outfall 011 - Water)					Sampled: 03/04/05				
Reporting Units: ug/l					REV QUAL QUAL CODE				
Benzene	EPA 624	5C07026	0.28	2.0	ND	1	03/07/05	03/08/05	U
Carbon tetrachloride	EPA 624	5C07026	0.28	5.0	ND	1	03/07/05	03/08/05	U
Chloroform	EPA 624	5C07026	0.33	2.0	ND	1	03/07/05	03/08/05	U
1,1-Dichloroethane	EPA 624	5C07026	0.27	2.0	ND	1	03/07/05	03/08/05	U
1,2-Dichloroethane	EPA 624	5C07026	0.28	2.0	ND	1	03/07/05	03/08/05	U
1,1-Dichloroethene	EPA 624	5C07026	0.32	3.0	ND	1	03/07/05	03/08/05	U
Ethylbenzene	EPA 624	5C07026	0.25	2.0	ND	1	03/07/05	03/08/05	U
Tetrachloroethene	EPA 624	5C07026	0.32	2.0	ND	1	03/07/05	03/08/05	U
Toluene	EPA 624	5C07026	0.36	2.0	ND	1	03/07/05	03/08/05	U
1,1,1-Trichloroethane	EPA 624	5C07026	0.30	2.0	ND	1	03/07/05	03/08/05	U
1,1,2-Trichloroethane	EPA 624	5C07026	0.30	2.0	ND	1	03/07/05	03/08/05	U
Trichloroethene	EPA 624	5C07026	0.26	5.0	ND	1	03/07/05	03/08/05	U
Trichlorofluoromethane	EPA 624	5C07026	0.34	5.0	ND	1	03/07/05	03/08/05	U
Vinyl chloride	EPA 624	5C07026	0.26	5.0	ND	1	03/07/05	03/08/05	U
Xylenes, Total	EPA 624	5C07026	0.52	4.0	ND	1	03/07/05	03/08/05	U
Surrogate: Dibromofluoromethane (80-120%)					109 %				
Surrogate: Toluene-d8 (80-120%)					112 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					106 %				
Sample ID: IOC0448-02 (DRAFT: Trip Blank - Water)					Sampled: 03/04/05				
Reporting Units: ug/l									
Benzene	EPA 624	5C07026	0.28	2.0	ND	1	03/07/05	03/07/05	U
Carbon tetrachloride	EPA 624	5C07026	0.28	5.0	ND	1	03/07/05	03/07/05	U
Chloroform	EPA 624	5C07026	0.33	2.0	ND	1	03/07/05	03/07/05	U
1,1-Dichloroethane	EPA 624	5C07026	0.27	2.0	ND	1	03/07/05	03/07/05	U
1,2-Dichloroethane	EPA 624	5C07026	0.28	2.0	ND	1	03/07/05	03/07/05	U
1,1-Dichloroethene	EPA 624	5C07026	0.32	3.0	ND	1	03/07/05	03/07/05	U
Ethylbenzene	EPA 624	5C07026	0.25	2.0	ND	1	03/07/05	03/07/05	U
Tetrachloroethene	EPA 624	5C07026	0.32	2.0	ND	1	03/07/05	03/07/05	U
Toluene	EPA 624	5C07026	0.36	2.0	ND	1	03/07/05	03/07/05	U
1,1,1-Trichloroethane	EPA 624	5C07026	0.30	2.0	ND	1	03/07/05	03/07/05	U
1,1,2-Trichloroethane	EPA 624	5C07026	0.30	2.0	ND	1	03/07/05	03/07/05	U
Trichloroethene	EPA 624	5C07026	0.26	5.0	ND	1	03/07/05	03/07/05	U
Trichlorofluoromethane	EPA 624	5C07026	0.34	5.0	ND	1	03/07/05	03/07/05	U
Vinyl chloride	EPA 624	5C07026	0.26	5.0	ND	1	03/07/05	03/07/05	U
Xylenes, Total	EPA 624	5C07026	0.52	4.0	ND	1	03/07/05	03/07/05	U
Surrogate: Dibromofluoromethane (80-120%)					108 %				
Surrogate: Toluene-d8 (80-120%)					111 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					105 %				

AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

LEVEL IV

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711WC104
Task Order 313150010
SDG No. IOC0448

No. of Analyses 1

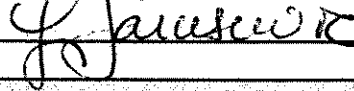
Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 04/04/05

Reviewer's Signature



ACTION ITEMS^a

1. Case Narrative
Deficiencies

2. Out of Scope
Analyses

3. Analyses Not
Conducted

4. Missing Hardcopy
Deliverables

5. Incorrect Hardcopy
Deliverables

6. Deviations from
Analysis Protocol, e.g.,

Qualifications applied for detects below the reporting limit.

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

^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: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOC0448

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 #: IOC0448
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 4, 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, 405.1, 300.0, 335.2, 413.1, 160.2, 160.5, 120.1, and 180.1, Standard Methods for the Examination of Water and Wastewater Method SM5540-C and 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOC0448
Analysis: General Minerals

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011	Outfall 011	IOC0448-01	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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. 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, chloride, sulfate, conductivity, and oil and grease, the 14-day holding time for cyanide, the seven-day holding time for total suspended solids and total dissolved solids, and the 48-hour holding time for turbidity, biological oxygen demand, nitrate/nitrite, surfactants, 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, as the LCS recovery was within the CCV control limits, no qualifications were required. For BOD, no information regarding the calibration of the oxygen meter was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. The total cyanide reporting limit check standard was recovered within the control limits of 70-130%. Calibration is not applicable to oil and grease, total dissolved solids, total suspended solids, or total settleable solids. No qualifications were required.

2.3 BLANKS

Turbidity was detected in method blank 5C05047-BLK1 at 0.050 NTU; however, the method blank result was insufficient to qualify the Outfall 011 result. Oil and grease was detected in method blank 5C09091-BLK1 at 1.70 mg/L; however, as oil and grease was not detected in Outfall 011, no qualifications were required. The remaining 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. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

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

2.5 SURROGATES RECOVERY

Surrogate recovery is not applicable to the analyses presented in this SDG.

2.6 LABORATORY DUPLICATES

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Method accuracy was assessed based on LCS results.

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analyses of this sample; 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 sample 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. BOD and surfactant detected below the reporting limit was qualified as estimated, "J." 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 sample. The following are findings associated with field QC samples:

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0831
 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 011
 Routine Outfall 011
 Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	
									REV	QUAL
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 03/04/05				QUAL	CODE
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5C07070	0.30	0.50	ND	1	03/07/05	03/07/05	U	
Biochemical Oxygen Demand	EPA 405.1	5C04095	0.59	2.0	0.76	1	03/04/05	03/09/05	J	INDNQ
Chloride	EPA 300.0	5C04107	0.26	0.50	8.8	1	03/04/05	03/05/05		
Nitrate/Nitrite-N	EPA 300.0	5C04107	0.075	0.15	0.21	1	03/04/05	03/05/05		
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	ND	1	03/09/05	03/09/05	U	
Sulfate	EPA 300.0	5C04107	0.18	0.50	24	1	03/04/05	03/05/05		
Surfactants (MBAS)	SM5540-C	5C04119	0.044	0.10	0.077	1	03/04/05	03/04/05	J	INDNQ
Total Dissolved Solids	SM2540C	5C09095	10	10	170	1	03/09/05	03/09/05		
Total Suspended Solids	EPA 160.2	5C07073	10	10	ND	1	03/07/05	03/07/05	U	
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water)					Sampled: 03/04/05					
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5C04096	0.10	0.10	ND	1	03/04/05	03/04/05	U	
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water)					Sampled: 03/04/05					
Reporting Units: NTU										
Turbidity	EPA 180.1	5C05047	0.040	1.0	4.5	1	03/05/05	03/05/05		
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water)					Sampled: 03/04/05					
Reporting Units: ug/l										
Total Cyanide	EPA 335.2	5C09062	2.2	5.0	ND	1	03/09/05	03/09/05	U	
Perchlorate	EPA 314.0	5C09056	0.80	4.0	ND	1	03/09/05	03/09/05	*	
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water)					Sampled: 03/04/05					
Reporting Units: umhos/cm										
Specific Conductance	EPA 120.1	5C09097	1.0	1.0	250	1	03/09/05	03/09/05		

AMEC VALIDATED

LEVEL IV

*Analysis Not 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.

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711WC106
 Task Order 313150010
 SDG No. IOC0448

No. of Analyses 1

Laboratory Del Mar Analytical
 Reviewer L. Jarusewic
 Analysis/Method Perchlorate

Date: 04/04/05
 Reviewer's Signature L. Jarusewic

ACTION ITEMS*	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not	
Conducted	
4. Missing Hardcopy	
Deliverables	
5. Incorrect Hardcopy	
Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualifications applied for CCV recovered below control limits.
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	
<p>* Subcontracted analytical laboratory is not meeting contract and/or method requirements.</p> <p>^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</p>	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOC0448

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 #: IOC0448
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 4, 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 314.0*, 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 011	Outfall 011	IOC0448-01	Water	Perchlorate

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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation and no preservation was noted in the field. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding time was assessed by comparing the date of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV and IPC recoveries were within the control limits of 90-110%. A bracketing CCV was recovered below the control limits of 90-110%; therefore, nondetected perchlorate was qualified as estimated, "UJ." No further qualifications were required.

2.3 BLANKS

The 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. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

Surrogate recovery is not applicable to the analysis presented in this SDG.

2.6 LABORATORY DUPLICATES

No MS/MSD or duplicate analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Method accuracy was assessed based on LCS results.

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analysis of this sample; therefore, furnace atomic absorption QC is not applicable.

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample results reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No 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 sample. The following are findings associated with field QC samples:

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Routine Outfall 011

Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

DRAFT: INORGANICS

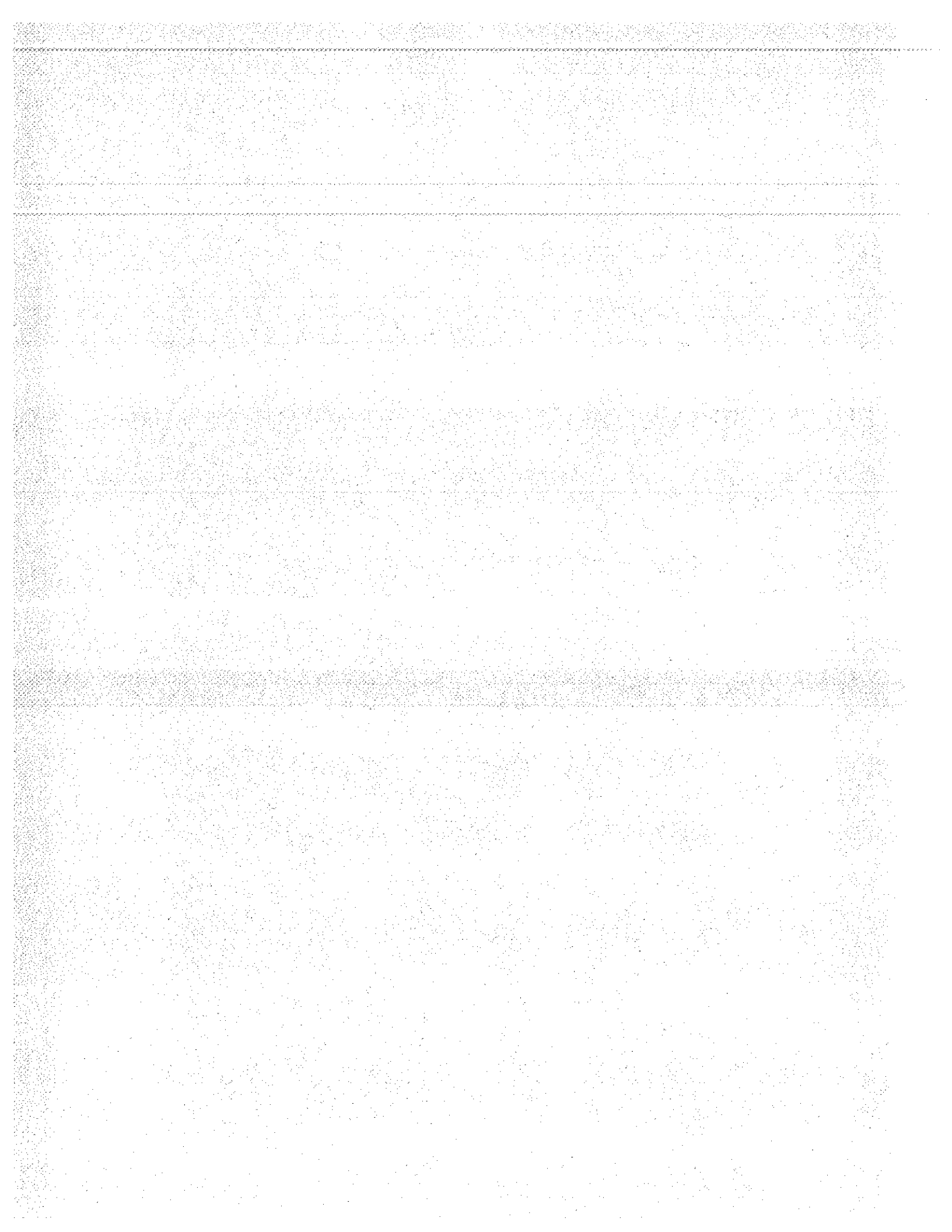
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 03/04/05					REV OUT CODE
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5C07070	0.30	0.50	ND	1	03/07/05	03/07/05	*	
Biochemical Oxygen Demand	EPA 405.1	5C04095	0.59	2.0	0.76	1	03/04/05	03/09/05	J	
Chloride	EPA 300.0	5C04107	0.26	0.50	8.8	1	03/04/05	03/05/05		
Nitrate/Nitrite-N	EPA 300.0	5C04107	0.11	0.11	0.21	1	03/04/05	03/05/05		
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	ND	1	03/09/05	03/09/05		
Sulfate	EPA 300.0	5C04107	0.18	0.50	24	1	03/04/05	03/05/05		
Surfactants (MBAS)	SM5540-C	5C04119	0.044	0.10	0.077	1	03/04/05	03/04/05	J	
Total Dissolved Solids	SM2540C	5C09095	10	10	170	1	03/09/05	03/09/05		
Total Suspended Solids	EPA 160.2	5C07073	10	10	ND	1	03/07/05	03/07/05		
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water)					Sampled: 03/04/05					
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5C04096	0.10	0.10	ND	1	03/04/05	03/04/05		
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water)					Sampled: 03/04/05					
Reporting Units: NTU										
Turbidity	EPA 180.1	5C05047	0.040	1.0	4.5	1	03/05/05	03/05/05		
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water)					Sampled: 03/04/05					
Reporting Units: ug/l										
Total Cyanide	EPA 335.2	5C09062	2.2	5.0	ND	1	03/09/05	03/09/05		
Perchlorate	EPA 314.0	5C09056	0.80	4.0	ND	1	03/09/05	03/09/05	UJ R	
Sample ID: IOC0448-01 (DRAFT: Outfall 011 - Water)					Sampled: 03/04/05					
Reporting Units: umhos/cm										
Specific Conductance	EPA 120.1	5C09097	1.0	1.0	250	1	03/09/05	03/09/05	*	

AMEC VALIDATED

LEVEL IV

*Analysis Not Validated

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





LABORATORY REPORT

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

Project: Routine Outfall 011

Sampled: 03/04/05
Received: 03/04/05
Issued: 04/07/05 19:22

NELAP #01108CA California ELAP#1197 CSDLAC #10117

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.

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
IOC0448-01	Outfall 011	Water
IOC0448-02	Trip Blank	Water

Reviewed By:

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 011

Report Number: IOC0448

Sampled: 03/04/05

Received: 03/04/05

CORRECTIVE ACTION REPORT

Department: Extractions

Method: EPA 625

QC Batch: 5C05021

Date: 03/17/2005

Matrix: Water

Identification and Definition of Problem:

Dimethylphalate, 2,4-dinitrotoluene, 2,6-dinitrotoluene, and 1,2-diphenylhydrazine/azobenzene recoveries were below acceptance limits in the Blank Spike.

Determination of the Cause of the Problem:

Less than optimal extraction technique is the likely cause for the failures.

Corrective Action Taken:

Samples could not be reextracted due to expiration of hold times. Samples were 'ND' for affected analytes. All samples and Blank Spike were flagged with 'L2' qualifier.

Quality Assurance Approval:

Rima Angkasa

Date: 03/21/2005 02:45 PM

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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 011

Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

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: IOC0448-01 (Outfall 011 - Water)					Sampled: 03/04/05				
Reporting Units: ug/l									
Benzene	EPA 624	5C07026	0.28	2.0	ND	1	03/07/05	03/08/05	
Carbon tetrachloride	EPA 624	5C07026	0.28	5.0	ND	1	03/07/05	03/08/05	
Chloroform	EPA 624	5C07026	0.33	2.0	ND	1	03/07/05	03/08/05	
1,1-Dichloroethane	EPA 624	5C07026	0.27	2.0	ND	1	03/07/05	03/08/05	
1,2-Dichloroethane	EPA 624	5C07026	0.28	2.0	ND	1	03/07/05	03/08/05	
1,1-Dichloroethene	EPA 624	5C07026	0.32	3.0	ND	1	03/07/05	03/08/05	
Ethylbenzene	EPA 624	5C07026	0.25	2.0	ND	1	03/07/05	03/08/05	
Tetrachloroethene	EPA 624	5C07026	0.32	2.0	ND	1	03/07/05	03/08/05	
Toluene	EPA 624	5C07026	0.36	2.0	ND	1	03/07/05	03/08/05	
1,1,1-Trichloroethane	EPA 624	5C07026	0.30	2.0	ND	1	03/07/05	03/08/05	
1,1,2-Trichloroethane	EPA 624	5C07026	0.30	2.0	ND	1	03/07/05	03/08/05	
Trichloroethene	EPA 624	5C07026	0.26	5.0	ND	1	03/07/05	03/08/05	
Trichlorofluoromethane	EPA 624	5C07026	0.34	5.0	ND	1	03/07/05	03/08/05	
Vinyl chloride	EPA 624	5C07026	0.26	5.0	ND	1	03/07/05	03/08/05	
Xylenes, Total	EPA 624	5C07026	0.52	4.0	ND	1	03/07/05	03/08/05	

Surrogate: Dibromofluoromethane (80-120%) 109 %
 Surrogate: Toluene-d8 (80-120%) 112 %
 Surrogate: 4-Bromofluorobenzene (80-120%) 106 %

Sample ID: IOC0448-02 (Trip Blank - Water)

Sampled: 03/04/05

Reporting Units: ug/l

Benzene	EPA 624	5C07026	0.28	2.0	ND	1	03/07/05	03/07/05	
Carbon tetrachloride	EPA 624	5C07026	0.28	5.0	ND	1	03/07/05	03/07/05	
Chloroform	EPA 624	5C07026	0.33	2.0	ND	1	03/07/05	03/07/05	
1,1-Dichloroethane	EPA 624	5C07026	0.27	2.0	ND	1	03/07/05	03/07/05	
1,2-Dichloroethane	EPA 624	5C07026	0.28	2.0	ND	1	03/07/05	03/07/05	
1,1-Dichloroethene	EPA 624	5C07026	0.32	3.0	ND	1	03/07/05	03/07/05	
Ethylbenzene	EPA 624	5C07026	0.25	2.0	ND	1	03/07/05	03/07/05	
Tetrachloroethene	EPA 624	5C07026	0.32	2.0	ND	1	03/07/05	03/07/05	
Toluene	EPA 624	5C07026	0.36	2.0	ND	1	03/07/05	03/07/05	
1,1,1-Trichloroethane	EPA 624	5C07026	0.30	2.0	ND	1	03/07/05	03/07/05	
1,1,2-Trichloroethane	EPA 624	5C07026	0.30	2.0	ND	1	03/07/05	03/07/05	
Trichloroethene	EPA 624	5C07026	0.26	5.0	ND	1	03/07/05	03/07/05	
Trichlorofluoromethane	EPA 624	5C07026	0.34	5.0	ND	1	03/07/05	03/07/05	
Vinyl chloride	EPA 624	5C07026	0.26	5.0	ND	1	03/07/05	03/07/05	
Xylenes, Total	EPA 624	5C07026	0.52	4.0	ND	1	03/07/05	03/07/05	

Surrogate: Dibromofluoromethane (80-120%) 108 %
 Surrogate: Toluene-d8 (80-120%) 111 %
 Surrogate: 4-Bromofluorobenzene (80-120%) 105 %

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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 011

Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

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: IOC0448-01 (Outfall 011 - Water)					Sampled: 03/04/05				
Reporting Units: ug/l									
Bis(2-ethylhexyl)phthalate	EPA 625	5C05021	1.1	5.0	1.9	0.957	03/05/05	03/17/05	B, J
2,4-Dinitrotoluene	EPA 625	5C05021	0.23	9.0	ND	0.957	03/05/05	03/17/05	L2
N-Nitrosodimethylamine	EPA 625	5C05021	0.22	8.0	ND	0.957	03/05/05	03/17/05	
Pentachlorophenol	EPA 625	5C05021	0.78	8.0	ND	0.957	03/05/05	03/17/05	
2,4,6-Trichlorophenol	EPA 625	5C05021	0.10	6.0	ND	0.957	03/05/05	03/17/05	
Surrogate: 2-Fluorophenol (30-120%)					53 %				
Surrogate: Phenol-d6 (35-120%)					58 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					72 %				
Surrogate: Nitrobenzene-d5 (45-120%)					58 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					76 %				
Surrogate: Terphenyl-d14 (45-120%)					71 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IOC0448	Sampled: 03/04/05 Received: 03/04/05
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ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0448-01 (Outfall 011 - Water) - cont.					Sampled: 03/04/05				
Reporting Units: ug/l									
alpha-BHC	EPA 608	5C07057	0.0010	0.010	ND	0.943	03/07/05	03/08/05	
Surrogate: Decachlorobiphenyl (45-120%)					56 %				
Surrogate: Tetrachloro-m-xylene (35-120%)					41 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IOC0448	Sampled: 03/04/05 Received: 03/04/05
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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0448-01 (Outfall 011 - Water) - cont.					Sampled: 03/04/05				
Reporting Units: ug/l									
Copper	EPA 200.8	5C08106	0.49	2.0	3.0	1	03/08/05	03/09/05	
Lead	EPA 200.8	5C08106	0.13	1.0	0.19	1	03/08/05	03/09/05	J
Mercury	EPA 245.1	5C09049	0.063	0.20	ND	1	03/09/05	03/09/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IOC0448	Sampled: 03/04/05 Received: 03/04/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0448-01 (Outfall 011 - Water) - cont.					Sampled: 03/04/05				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C07070	0.30	0.50	ND	1	03/07/05	03/07/05	
Biochemical Oxygen Demand	EPA 405.1	5C04095	0.59	2.0	0.76	1	03/04/05	03/09/05	J
Chloride	EPA 300.0	5C04107	0.26	0.50	8.8	1	03/04/05	03/05/05	
Nitrate/Nitrite-N	EPA 300.0	5C04107	0.075	0.15	0.21	1	03/04/05	03/05/05	
Oil & Grease	EPA 413.1	5C09091	0.94	5.0	ND	1	03/09/05	03/09/05	
Sulfate	EPA 300.0	5C04107	0.18	0.50	24	1	03/04/05	03/05/05	
Surfactants (MBAS)	SM5540-C	5C04119	0.044	0.10	0.077	1	03/04/05	03/04/05	J
Total Dissolved Solids	SM2540C	5C09095	10	10	170	1	03/09/05	03/09/05	
Total Suspended Solids	EPA 160.2	5C07073	10	10	ND	1	03/07/05	03/07/05	
Sample ID: IOC0448-01 (Outfall 011 - Water)					Sampled: 03/04/05				
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5C04096	0.10	0.10	ND	1	03/04/05	03/04/05	
Sample ID: IOC0448-01 (Outfall 011 - Water)					Sampled: 03/04/05				
Reporting Units: NTU									
Turbidity	EPA 180.1	5C05047	0.040	1.0	4.5	1	03/05/05	03/05/05	
Sample ID: IOC0448-01 (Outfall 011 - Water)					Sampled: 03/04/05				
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5C09062	2.2	5.0	ND	1	03/09/05	03/09/05	
Perchlorate	EPA 314.0	5C09056	0.80	4.0	ND	1	03/09/05	03/09/05	
Sample ID: IOC0448-01 (Outfall 011 - Water)					Sampled: 03/04/05				
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C09097	1.0	1.0	250	1	03/09/05	03/09/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IOC0448	Sampled: 03/04/05 Received: 03/04/05
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SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 011 (IOC0448-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/04/2005 11:44	03/04/2005 17:50	03/04/2005 18:30	03/04/2005 19:30
EPA 180.1	2	03/04/2005 11:44	03/04/2005 17:50	03/05/2005 15:30	03/05/2005 15:30
EPA 300.0	2	03/04/2005 11:44	03/04/2005 17:50	03/04/2005 23:00	03/05/2005 00:24
EPA 405.1	2	03/04/2005 11:44	03/04/2005 17:50	03/04/2005 20:31	03/09/2005 18:40
SM5540-C	2	03/04/2005 11:44	03/04/2005 17:50	03/04/2005 19:18	03/04/2005 22:51

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

Project ID: Routine Outfall 011

Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C07026 Extracted: 03/07/05										
Blank Analyzed: 03/07/2005 (5C07026-BLK1)										
Benzene	ND	2.0	0.28	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	27.2			ug/l	25.0		109		80-120	
Surrogate: Toluene-d8	27.7			ug/l	25.0		111		80-120	
Surrogate: 4-Bromofluorobenzene	27.0			ug/l	25.0		108		80-120	
LCS Analyzed: 03/07/2005 (5C07026-BS1)										
Benzene	27.0	2.0	0.28	ug/l	25.0		108		70-120	M-3
Carbon tetrachloride	28.7	5.0	0.28	ug/l	25.0		115		70-140	
Chloroform	28.2	2.0	0.33	ug/l	25.0		113		75-130	
1,1-Dichloroethane	28.3	2.0	0.27	ug/l	25.0		113		70-135	
1,2-Dichloroethane	26.6	2.0	0.28	ug/l	25.0		106		60-150	M-3
1,1-Dichloroethene	29.2	3.0	0.32	ug/l	25.0		117		75-135	
Ethylbenzene	28.2	2.0	0.25	ug/l	25.0		113		80-120	M-3
Tetrachloroethene	26.8	2.0	0.32	ug/l	25.0		107		75-125	
Toluene	27.4	2.0	0.36	ug/l	25.0		110		75-120	M-3
1,1,1-Trichloroethane	28.4	2.0	0.30	ug/l	25.0		114		75-140	
1,1,2-Trichloroethane	26.0	2.0	0.30	ug/l	25.0		104		70-125	
Trichloroethene	27.8	5.0	0.26	ug/l	25.0		111		80-120	
Trichlorofluoromethane	28.7	5.0	0.34	ug/l	25.0		115		65-145	
Vinyl chloride	31.8	5.0	0.26	ug/l	25.0		127		50-130	
Surrogate: Dibromofluoromethane	27.2			ug/l	25.0		109		80-120	
Surrogate: Toluene-d8	27.8			ug/l	25.0		111		80-120	

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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 011

Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

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: 5C07026 Extracted: 03/07/05											
LCS Analyzed: 03/07/2005 (5C07026-BS1)											
Surrogate: 4-Bromofluorobenzene	27.2			ug/l	25.0		109	80-120			
Matrix Spike Analyzed: 03/07/2005 (5C07026-MS1)											
Source: IOC0391-11											
Carbon tetrachloride	20.7	5.0	0.28	ug/l	25.0	ND	83	70-145			
Chloroform	26.2	2.0	0.33	ug/l	25.0	ND	105	70-135			
1,1-Dichloroethane	25.9	2.0	0.27	ug/l	25.0	ND	104	65-135			
1,1-Dichloroethene	27.6	3.0	0.32	ug/l	25.0	1.7	104	65-140			
Tetrachloroethene	30.9	2.0	0.32	ug/l	25.0	0.54	121	70-130			
1,1,1-Trichloroethane	25.0	2.0	0.30	ug/l	25.0	ND	100	75-140			
1,1,2-Trichloroethane	31.6	2.0	0.30	ug/l	25.0	2.1	118	60-135			
Trichloroethene	111	5.0	0.26	ug/l	25.0	94	68	70-125			M2
Trichlorofluoromethane	24.0	5.0	0.34	ug/l	25.0	ND	96	55-145			
Vinyl chloride	39.2	5.0	0.26	ug/l	25.0	14	101	40-135			
Surrogate: Dibromofluoromethane	26.5			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	27.1			ug/l	25.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	32.1			ug/l	25.0		128	80-120			ZX
Matrix Spike Dup Analyzed: 03/07/2005 (5C07026-MSD1)											
Source: IOC0391-11											
Carbon tetrachloride	19.4	5.0	0.28	ug/l	25.0	ND	78	70-145	6	25	
Chloroform	26.3	2.0	0.33	ug/l	25.0	ND	105	70-135	0	20	
1,1-Dichloroethane	25.3	2.0	0.27	ug/l	25.0	ND	101	65-135	2	20	
1,1-Dichloroethene	28.6	3.0	0.32	ug/l	25.0	1.7	108	65-140	4	20	
Tetrachloroethene	29.5	2.0	0.32	ug/l	25.0	0.54	116	70-130	5	20	
1,1,1-Trichloroethane	24.6	2.0	0.30	ug/l	25.0	ND	98	75-140	2	20	
1,1,2-Trichloroethane	30.3	2.0	0.30	ug/l	25.0	2.1	113	60-135	4	25	
Trichloroethene	113	5.0	0.26	ug/l	25.0	94	76	70-125	2	20	
Trichlorofluoromethane	23.5	5.0	0.34	ug/l	25.0	ND	94	55-145	2	25	
Vinyl chloride	41.2	5.0	0.26	ug/l	25.0	14	109	40-135	5	30	
Surrogate: Dibromofluoromethane	26.1			ug/l	25.0		104	80-120			
Surrogate: Toluene-d8	27.2			ug/l	25.0		109	80-120			
Surrogate: 4-Bromofluorobenzene	30.2			ug/l	25.0		121	80-120			ZX

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

Project ID: Routine Outfall 011

Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

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: 5C05021 Extracted: 03/05/05											
Blank Analyzed: 03/16/2005 (5C05021-BLK1)											
Bis(2-ethylhexyl)phthalate	1.56	5.0	1.1	ug/l							J
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	11.2			ug/l	20.0		56	30-120			
Surrogate: Phenol-d6	12.2			ug/l	20.0		61	35-120			
Surrogate: 2,4,6-Tribromophenol	12.5			ug/l	20.0		62	45-120			
Surrogate: Nitrobenzene-d5	6.22			ug/l	10.0		62	45-120			
Surrogate: 2-Fluorobiphenyl	9.30			ug/l	10.0		93	45-120			
Surrogate: Terphenyl-d14	6.90			ug/l	10.0		69	45-120			
LCS Analyzed: 03/16/2005 (5C05021-BS1)											
Bis(2-ethylhexyl)phthalate	8.28	5.0	1.1	ug/l	10.0		83	60-130			
2,4-Dinitrotoluene	5.18	9.0	0.23	ug/l	10.0		52	60-120			L2, J
N-Nitrosodimethylamine	6.50	8.0	0.22	ug/l	10.0		65	40-120			J
Pentachlorophenol	7.04	8.0	0.78	ug/l	10.0		70	50-120			J
2,4,6-Trichlorophenol	7.68	6.0	0.10	ug/l	10.0		77	60-120			
Surrogate: 2-Fluorophenol	11.6			ug/l	20.0		58	30-120			
Surrogate: Phenol-d6	12.2			ug/l	20.0		61	35-120			
Surrogate: 2,4,6-Tribromophenol	12.9			ug/l	20.0		64	45-120			
Surrogate: Nitrobenzene-d5	6.24			ug/l	10.0		62	45-120			
Surrogate: 2-Fluorobiphenyl	7.60			ug/l	10.0		76	45-120			
Surrogate: Terphenyl-d14	6.86			ug/l	10.0		69	45-120			
Matrix Spike Analyzed: 03/16/2005 (5C05021-MS1)											
Source: IOC0241-05											
Bis(2-ethylhexyl)phthalate	7.63	5.0	1.1	ug/l	9.66	2.9	49	60-130			M2
2,4-Dinitrotoluene	5.70	9.0	0.23	ug/l	9.66	ND	59	60-120			M2, J
N-Nitrosodimethylamine	5.74	8.0	0.22	ug/l	9.66	ND	59	40-120			J
Pentachlorophenol	7.42	8.0	0.78	ug/l	9.66	ND	77	45-130			J
2,4,6-Trichlorophenol	7.40	6.0	0.10	ug/l	9.66	ND	77	60-120			
Surrogate: 2-Fluorophenol	10.5			ug/l	19.3		54	30-120			
Surrogate: Phenol-d6	10.7			ug/l	19.3		55	35-120			
Surrogate: 2,4,6-Tribromophenol	12.3			ug/l	19.3		64	45-120			
Surrogate: Nitrobenzene-d5	5.60			ug/l	9.66		58	45-120			
Surrogate: 2-Fluorobiphenyl	5.49			ug/l	9.66		57	45-120			

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

Project ID: Routine Outfall 011

Report Number: IOC0448

Sampled: 03/04/05

Received: 03/04/05

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: SC05021 Extracted: 03/05/05											
Matrix Spike Analyzed: 03/16/2005 (SC05021-MS1)											
Source: IOC0241-05											
Surrogate: Terphenyl-d14	5.95			ug/l	9.66		62	45-120			
Matrix Spike Dup Analyzed: 03/16/2005 (SC05021-MSD1)											
Source: IOC0241-05											
Bis(2-ethylhexyl)phthalate	8.04	5.0	1.1	ug/l	9.71	2.9	53	60-130	5	20	M2
2,4-Dinitrotoluene	6.49	9.0	0.23	ug/l	9.71	ND	67	60-120	13	25	J
N-Nitrosodimethylamine	5.94	8.0	0.22	ug/l	9.71	ND	61	40-120	3	20	J
Pentachlorophenol	8.19	8.0	0.78	ug/l	9.71	ND	84	45-130	10	25	
2,4,6-Trichlorophenol	8.21	6.0	0.10	ug/l	9.71	ND	85	60-120	10	20	
Surrogate: 2-Fluorophenol	10.6			ug/l	19.4		55	30-120			
Surrogate: Phenol-d6	11.4			ug/l	19.4		59	35-120			
Surrogate: 2,4,6-Tribromophenol	13.4			ug/l	19.4		69	45-120			
Surrogate: Nitrobenzene-d5	5.84			ug/l	9.71		60	45-120			
Surrogate: 2-Fluorobiphenyl	5.77			ug/l	9.71		59	45-120			
Surrogate: Terphenyl-d14	6.52			ug/l	9.71		67	45-120			

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IOC0448

Sampled: 03/04/05
 Received: 03/04/05

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: 5C07057 Extracted: 03/07/05											
Blank Analyzed: 03/08/2005 (5C07057-BLK1)											
alpha-BHC	ND	0.010	0.0010	ug/l							
Surrogate: Decachlorobiphenyl	0.420			ug/l	0.500		84	45-120			
Surrogate: Tetrachloro-m-xylene	0.340			ug/l	0.500		68	35-120			
LCS Analyzed: 03/08/2005 (5C07057-BS1)											
alpha-BHC	0.392	0.010	0.0010	ug/l	0.500		78	45-115			M-NR1
Surrogate: Decachlorobiphenyl	0.415			ug/l	0.500		83	45-120			
Surrogate: Tetrachloro-m-xylene	0.334			ug/l	0.500		67	35-120			
LCS Dup Analyzed: 03/08/2005 (5C07057-BSD1)											
alpha-BHC	0.415	0.010	0.0010	ug/l	0.500		83	45-115	6	30	
Surrogate: Decachlorobiphenyl	0.418			ug/l	0.500		84	45-120			
Surrogate: Tetrachloro-m-xylene	0.351			ug/l	0.500		70	35-120			

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C08106 Extracted: 03/08/05											
Blank Analyzed: 03/09/2005 (5C08106-BLK1)											
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 03/09/2005 (5C08106-BS1)											
Copper	78.1	2.0	0.49	ug/l	80.0		98	85-115			
Lead	84.0	1.0	0.13	ug/l	80.0		105	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C08106-MS1) Source: IOC0448-01											
Copper	79.4	2.0	0.49	ug/l	80.0	3.0	96	70-130			
Lead	79.6	1.0	0.13	ug/l	80.0	0.19	99	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C08106-MSD1) Source: IOC0448-01											
Copper	78.7	2.0	0.49	ug/l	80.0	3.0	95	70-130	1	20	
Lead	78.6	1.0	0.13	ug/l	80.0	0.19	98	70-130	1	20	
Batch: 5C09049 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09049-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 03/09/2005 (5C09049-BS1)											
Mercury	7.82	0.20	0.063	ug/l	8.00		98	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09049-MS1) Source: IOC0451-01											
Mercury	8.31	0.20	0.063	ug/l	8.00	ND	104	70-130			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09049-MSD1) Source: IOC0451-01											
Mercury	8.23	0.20	0.063	ug/l	8.00	ND	103	70-130	1	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IOC0448	Sampled: 03/04/05 Received: 03/04/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C04095 Extracted: 03/04/05										
Blank Analyzed: 03/09/2005 (5C04095-BLK1)										
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l						
LCS Analyzed: 03/09/2005 (5C04095-BS1)										
Biochemical Oxygen Demand	210	100	30	mg/l	198		106 85-115			
LCS Dup Analyzed: 03/09/2005 (5C04095-BSD1)										
Biochemical Oxygen Demand	210	100	30	mg/l	198		106 85-115	0	20	
Batch: 5C04107 Extracted: 03/04/05										
Blank Analyzed: 03/04/2005 (5C04107-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.15	0.075	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
LCS Analyzed: 03/04/2005 (5C04107-BS1)										
Chloride	5.16	0.50	0.26	mg/l	5.00		103 90-110			M-3
Sulfate	10.4	0.50	0.18	mg/l	10.0		104 90-110			M-3
Batch: 5C04119 Extracted: 03/04/05										
Blank Analyzed: 03/04/2005 (5C04119-BLK1)										
Surfactants (MBAS)	ND	0.10	0.044	mg/l						
LCS Analyzed: 03/04/2005 (5C04119-BS1)										
Surfactants (MBAS)	0.259	0.10	0.044	mg/l	0.250		104 90-110			

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Report Number: IOC0448

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INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C04119 Extracted: 03/04/05											
Matrix Spike Analyzed: 03/04/2005 (5C04119-MS1)						Source: IOC0380-01					
Surfactants (MBAS)	0.293	0.10	0.044	mg/l	0.250	ND	117	50-125			
Matrix Spike Dup Analyzed: 03/04/2005 (5C04119-MSD1)						Source: IOC0380-01					
Surfactants (MBAS)	0.288	0.10	0.044	mg/l	0.250	ND	115	50-125	2	20	
Batch: 5C05047 Extracted: 03/05/05											
Blank Analyzed: 03/05/2005 (5C05047-BLK1)											
Turbidity	0.0500	1.0	0.040	NTU							J
Duplicate Analyzed: 03/05/2005 (5C05047-DUP1)						Source: IOC0468-01					
Turbidity	1.79	1.0	0.040	NTU		1.8			1	20	
Batch: 5C07070 Extracted: 03/07/05											
Blank Analyzed: 03/07/2005 (5C07070-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
LCS Analyzed: 03/07/2005 (5C07070-BS1)											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0		95	80-115			
Matrix Spike Analyzed: 03/07/2005 (5C07070-MS1)						Source: IOB2063-01					
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0	ND	98	70-120			
Matrix Spike Dup Analyzed: 03/07/2005 (5C07070-MSD1)						Source: IOB2063-01					
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	ND	95	70-120	3	15	

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IOC0448

Sampled: 03/04/05

Received: 03/04/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C07073 Extracted: 03/07/05											
Blank Analyzed: 03/07/2005 (5C07073-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/07/2005 (5C07073-BS1)											
Total Suspended Solids	980	10	10	mg/l	1000		98	85-115			
Duplicate Analyzed: 03/07/2005 (5C07073-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOC0451-01 ND				10	
Batch: 5C09056 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09056-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/09/2005 (5C09056-BS1)											
Perchlorate	49.5	4.0	0.80	ug/l	50.0		99	85-115			
Matrix Spike Analyzed: 03/09/2005 (5C09056-MS1)											
Perchlorate	52.4	4.0	0.80	ug/l	50.0	Source: IOC0638-01 2.5	100	80-120			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09056-MSD1)											
Perchlorate	51.6	4.0	0.80	ug/l	50.0	Source: IOC0638-01 2.5	98	80-120	2	20	
Batch: 5C09062 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09062-BLK1)											
Total Cyanide	ND	5.0	2.2	ug/l							

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C09062 Extracted: 03/09/05											
LCS Analyzed: 03/09/2005 (5C09062-BS1)											
Total Cyanide	184	5.0	2.2	ug/l	200		92	90-110			
Matrix Spike Analyzed: 03/09/2005 (5C09062-MS1)											
						Source: IOC0366-02					
Total Cyanide	178	5.0	2.2	ug/l	200	5.9	86	70-115			
Matrix Spike Dup Analyzed: 03/09/2005 (5C09062-MSD1)											
						Source: IOC0366-02					
Total Cyanide	191	5.0	2.2	ug/l	200	5.9	93	70-115	7	15	
Batch: 5C09091 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09091-BLK1)											
Oil & Grease	1.70	5.0	0.94	mg/l							J
LCS Analyzed: 03/09/2005 (5C09091-BS1)											
Oil & Grease	22.4	5.0	0.94	mg/l	20.0		112	65-120			M-NR1
LCS Dup Analyzed: 03/09/2005 (5C09091-BSD1)											
Oil & Grease	18.8	5.0	0.94	mg/l	20.0		94	65-120	17	20	
Batch: 5C09095 Extracted: 03/09/05											
Blank Analyzed: 03/09/2005 (5C09095-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/09/2005 (5C09095-BS1)											
Total Dissolved Solids	1000	10	10	mg/l	1000		100	90-110			

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



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 011 Report Number: IOC0448	Sampled: 03/04/05 Received: 03/04/05
--	---	---

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C09095 Extracted: 03/09/05										
Duplicate Analyzed: 03/09/2005 (5C09095-DUP1)										
Total Dissolved Solids	626	10	10	mg/l		630		1	10	
Batch: 5C09097 Extracted: 03/09/05										
Duplicate Analyzed: 03/09/2005 (5C09097-DUP1)										
Specific Conductance	636	1.0	1.0	umhos/cm		610		4	5	

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.



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

Project ID: Routine Outfall 011

Report Number: IOC0448

Sampled: 03/04/05
Received: 03/04/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- L2** Laboratory Control Sample recovery was below method control limits.
- M2** The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- ZX** Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.
- 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



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 011

Report Number: IOC0448

Sampled: 03/04/05

Received: 03/04/05

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	X	X
EPA 335.2	Water	X	X
EPA 350.2	Water	X	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC0448-01

Analysis Performed: EDD + Level 4

Samples: IOC0448-01

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

1000448

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:
 MWH-Pasadena
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
Project Manager: Bronwyn Kelly
Sampler:

Project:
 Boeing-SSFL NPDES
 Routine Outfall 011
 Perimeter Pond

Phone Number:
 (626) 568-6891
Fax Number:
 (626) 568-6515

ANALYSIS REQUIRED

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	2,4,6 Trichlorophenol, 2,4 Dinitrofluorene, Bis(2-ethylhexyl)phthalate, NDMA, pentachlorophenol (EPA 625)	Field readings: Temp = 58.8 pH = 6.87	Comments
Outfall 011	W	Poly-1L	1	3-11-05	HNO3	1A	X													
Outfall 011-Dup	W	Poly-1L	1		HNO3	1B	X													
Outfall 011	W	Poly-1L	1		None	2		X												
Outfall 011	W	VOAs	3		HCl	3A, 3B, 3C			X											
Outfall 011	W	1L Amber	2		None	4A, 4B			X											
Outfall 011	W	1L Amber	2		HCl	5A, 5B			X											
Outfall 011	W	Poly-500 ml	1		NaOH	6			X											
Outfall 011	W	Poly-1L	1		None	7			X											
Outfall 011	W	Poly-500 ml	2		None	8A, 8B				X										
Outfall 011	W	Poly-500 ml	2		None	9A, 9B								X						
Outfall 011	W	Poly-500 ml	2		None	10A, 10B										X				
Outfall 011	W	Poly-500 ml	1		H2SO4	11														
Outfall 011	W	1L Amber	2		None	12A, 12B														
Outfall 011	W	1L Amber	2		None	13A, 13B														
Trip Blank	W	VOAs	3		HCl	14A, 14B, 14C			X											

Relinquished By: [Signature] Date/Time: 3-7-05
Received By: [Signature] Date/Time: 3-4-05
Relinquished By: [Signature] Date/Time: 3-4-05
Received By: [Signature] Date/Time: 3/4/05
Relinquished By: [Signature] Date/Time: 3-4-05
Received By: [Signature] Date/Time: 3/4/05

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 _____ On Ice: X 4°C

March 31, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 011
Sampled: 03/04/05
Del Mar Analytical Number: IOC0448

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	ALTA ID
Routine Outfall 011	IOC0448-01	25852-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL



Michele Harper
Project Manager



March 16, 2005

Alta Project I.D.: 25852

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 March 08, 2005 under your Project Name "IOC0448". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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,

A handwritten signature in cursive script, appearing to read "Martha M. Maier".

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762
FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 3/8/2005

Alta Lab. ID

Client Sample ID

25852-001

IOC0448-01

SECTION II



Method Blank

EPA Method 1613

Matrix:	Aqueous	QC Batch No.:	6593	Lab Sample:	0-MB001	Date Analyzed DB-5:	14-Mar-05	Date Analyzed DB-225:	NA
Sample Size:	1.000 L	Date Extracted:	11-Mar-05	Labeled Standard		%R		LCL-UCL ^d	
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers		
2,3,7,8-TCDD	ND	1.27			61.5	25 - 164			
1,2,3,7,8-PeCDD	ND	1.50			57.2	25 - 181			
1,2,3,4,7,8-HxCDD	ND	2.20			67.8	32 - 141			
1,2,3,6,7,8-HxCDD	ND	2.32			76.7	28 - 130			
1,2,3,7,8,9-HxCDD	ND	2.26			56.6	23 - 140			
1,2,3,4,6,7,8-HpCDD	ND	3.00			26.9	17 - 157			
OCDD	ND	11.1			63.1	24 - 169			
2,3,7,8-TCDF	ND	1.37			54.3	24 - 185			
1,2,3,7,8-PeCDF	ND	2.09			58.1	21 - 178			
2,3,4,7,8-PeCDF	ND	1.73			60.3	26 - 152			
1,2,3,4,7,8-HxCDF	ND	1.16			70.6	26 - 123			
1,2,3,6,7,8-HxCDF	ND		0.905		67.0	28 - 136			
2,3,4,6,7,8-HxCDF	ND	0.768			62.8	29 - 147			
1,2,3,7,8,9-HxCDF	ND	1.22			53.2	28 - 143			
1,2,3,4,6,7,8-HpCDF	ND	1.96			57.7	26 - 138			
1,2,3,4,7,8,9-HpCDF	ND	1.38			32.9	17 - 157			
OCDF	ND	7.76			71.7	35 - 197			
Totals									
Total TCDD	ND	1.27							
Total PeCDD	ND	1.50							
Total HxCDD	ND	2.26							
Total HpCDD	ND	3.00							
Total TCDF	1.40		2.79	D					
Total PeCDF	ND	3.06							
Total HxCDF	ND		0.905						
Total HpCDF	ND	2.12							

Footnotes

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

Analyst: MAS

Approved By: Martha M. Maier 16-Mar-2005 12:54



EPA Method 1613

OPR Results

Matrix: Aqueous		QC Batch No.: 6593	Lab Sample: 0-OPR001		
Sample Size: 1.000 L		Date Extracted: 11-Mar-05	Date Analyzed DB-5: 14-Mar-05		
			Date Analyzed DB-225: NA		
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard		
			%R		
			LCL-UCL		
2,3,7,8-TCDD	10.0	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	61.8	25 - 164
1,2,3,7,8-PeCDD	50.0	35 - 71	13C-1,2,3,7,8-PeCDD	62.9	25 - 181
1,2,3,4,7,8-HxCDD	50.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	65.8	32 - 141
1,2,3,6,7,8-HxCDD	50.0	38 - 67	13C-1,2,3,6,7,8-HxCDD	77.0	28 - 130
1,2,3,7,8,9-HxCDD	50.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	67.2	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	35 - 70	13C-OCDD	38.7	17 - 157
OCDD	100	78 - 144	13C-2,3,7,8-TCDF	63.1	24 - 169
2,3,7,8-TCDF	10.0	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	59.0	24 - 185
1,2,3,7,8-PeCDF	50.0	40 - 67	13C-2,3,4,7,8-PeCDF	63.2	21 - 178
2,3,4,7,8-PeCDF	50.0	34 - 80	13C-1,2,3,4,7,8-HxCDF	57.9	26 - 152
1,2,3,4,7,8-HxCDF	50.0	36 - 67	13C-1,2,3,6,7,8-HxCDF	68.4	26 - 123
1,2,3,6,7,8-HxCDF	50.0	42 - 65	13C-2,3,4,6,7,8-HxCDF	67.7	28 - 136
2,3,4,6,7,8-HxCDF	50.0	35 - 78	13C-1,2,3,7,8,9-HxCDF	65.7	29 - 147
1,2,3,7,8,9-HxCDF	50.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	63.1	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	65.7	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	39 - 69	13C-OCDF	44.9	17 - 157
OCDF	100	63 - 170	CRS 37Cl-2,3,7,8-TCDD	72.7	35 - 197

Analyst: MAS

Approved By: Martha M. Maier 16-Mar-2005 12:54



Sample ID: **IOC0448-01** EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25852-001
Project:	IOC0448	Sample Size:	0.975 L	QC Batch No.:	6593
Date Collected:	4-Mar-05			Date Analyzed DB-5:	15-Mar-05
Time Collected:	1144			Date Analyzed DB-225:	NA
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.847		IS 13C-2,3,7,8-TCDD	74.7 25 - 164
1,2,3,7,8-PeCDD	ND	0.698		13C-1,2,3,7,8-PeCDD	76.3 25 - 181
1,2,3,4,7,8-HxCDD	ND	1.09		13C-1,2,3,4,7,8-HxCDD	83.4 32 - 141
1,2,3,6,7,8-HxCDD	ND	1.14		13C-1,2,3,6,7,8-HxCDD	87.1 28 - 130
1,2,3,7,8,9-HxCDD	ND	1.11		13C-1,2,3,4,6,7,8-HpCDD	83.1 23 - 140
1,2,3,4,6,7,8-HpCDD	2.64			13C-OCDD	55.1 17 - 157
OCDD	25.1				
2,3,7,8-TCDF	ND	0.631		13C-2,3,7,8-TCDF	76.6 24 - 169
1,2,3,7,8-PeCDF	ND	1.07		13C-1,2,3,7,8-PeCDF	70.5 24 - 185
2,3,4,7,8-PeCDF	ND	0.964		13C-2,3,4,7,8-PeCDF	74.1 21 - 178
1,2,3,4,7,8-HxCDF	ND	0.266		13C-1,2,3,4,7,8-HxCDF	71.9 26 - 152
1,2,3,6,7,8-HxCDF	ND	0.259		13C-1,2,3,6,7,8-HxCDF	77.0 26 - 123
2,3,4,6,7,8-HxCDF	ND	0.293		13C-2,3,4,6,7,8-HxCDF	79.3 28 - 136
1,2,3,7,8,9-HxCDF	ND	0.426		13C-1,2,3,7,8,9-HxCDF	79.5 29 - 147
1,2,3,4,6,7,8-HpCDF	ND		0.694	13C-1,2,3,4,6,7,8-HpCDF	76.5 28 - 143
1,2,3,4,7,8,9-HpCDF	ND	0.598		13C-1,2,3,4,7,8,9-HpCDF	83.5 26 - 138
OCDF	ND	2.38		13C-OCDF	63.3 17 - 157
Totals				CRS 37Cl-2,3,7,8-TCDD	79.6 35 - 197
Total TCDD	ND	0.847		Footnotes	
Total PeCDD	ND	0.698		a. Sample specific estimated detection limit.	
Total HxCDD	ND	1.11		b. Estimated maximum possible concentration.	
Total HpCDD	6.42			c. Method detection limit.	
Total TCDF	0.847			d. Lower control limit - upper control limit.	
Total PeCDF	ND		1.55		
Total HxCDF	0.445		0.908		
Total HpCDF	ND		0.694		

Analyst: JMH

Approved By: Martha M. Maier 16-Mar-2005 12:54

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.
*	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 corresponds 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.

CURRENT CERTIFICATIONS



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)



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

9630 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0651

2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3628 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOC0448

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) 933-0940

25952
1.3°C

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

Analysis	Expiration	Comments
Sample ID: IOC0448-01 Water	Sampled: 03/04/05 11:44	Instant Notification
1613-Dioxin-HR	03/11/05 11:44	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/01/05 11:44	Excel EDD email to pm, include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0448-01G)		
1 L Amber (IOC0448-01H)		

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

Released By: *[Signature]* Date: 3-7-05 Time: 1700 Received By: *[Signature]* Date: 3/8/05 Time: 0939

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____
 Project 25852 Page 10 of 12

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

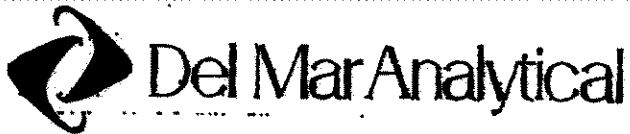
SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25852

1. Date Samples Arrived: <u>3/8/05 09:39</u>	Initials: <u>BSB</u>	Location: <u>WR-2</u>	
2. Time / Date logged In: <u>1325 3/8/05</u>	Initials: <u>BSB</u>	Location: <u>WR-2</u>	
3. Samples Arrived By: (circle) <u>FedEx</u> DPS World Courier Other:			
4. Shipping Preservation: (circle) Ice <u>Blue Ice</u> / Dry Ice / None Temp °C <u>1.3</u>			
5. Shipping Container(s) intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7928 6415 1912</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

ALTA Analytical Laboratory
EI Dorado Hills, CA 95762



17461 Dorian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 4014 E. Coolidge Dr., Suite A, Corona, CA 92724 Ph (909) 370-4867 Fax (909) 370-4046
 9494 Chippendale Drive, Suite 805, San Diego, CA 92123 Ph (619) 685-8388 Fax (619) 689-8888
 3830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0943 Fax (480) 787-0931
 2380 E. Sunset Rd., Suite 83, Las Vegas, NV 89130 Ph (702) 738-8828 Fax (702) 738-8821

SUBCONTRACT ORDER - PROJECT # IOC0448

SENDING LABORATORY:
 Del Mar Analytical, Irvine
 17461 Dorian 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) 933-0940

25852

1.3°C

Standard TAT is requested unless specific due date is requested => Due Date: 2 weeks Initials: MH

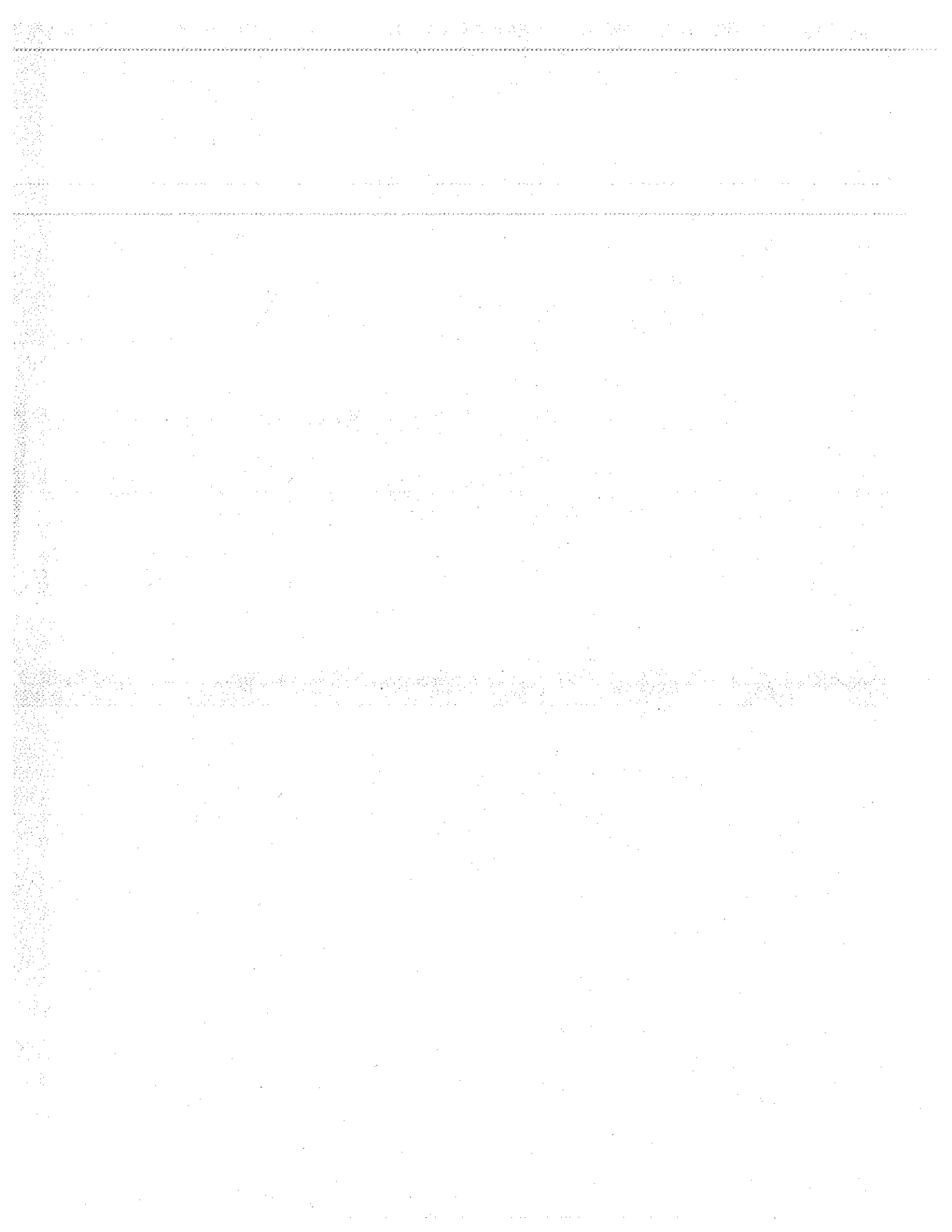
Analysis	Expiration	Comments
Sample ID: IOC0448-01 Water	Sampled: 03/04/05 11:44	Instant Notification
1613-Dioxin-ER	03/11/05 11:44	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/01/05 11:44	Excel EDD email to pm, include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0448-01G)		
1 L Amber (IOC0448-01H)		

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

Released By	Date	Time	Received By	Date	Time

Project 25852 P. NO. 3475

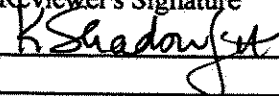


CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF36
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 4

Laboratory Alta
 Reviewer K. Shadowlight
 Analysis/Method Dioxins

Date: March 25, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualifications were assigned for the following: * EMPCs * Detects below the lower method calibration level
COMMENTS ^b	
^a Subcontracted analytical laboratory is not meeting contract and/or method requirements. ^b Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 4
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: March 25 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 001	IOC1042-01	25897-001	water	1613
Outfall 002	IOC0995-01	25899-001	water	1613
Outfall 004	IOC0450-01	25848-001	water	1613
Outfall 011	IOC0996-01	25898-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All of the samples in these SDGs were received at Del Mar Analytical within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were shipped to Alta for dioxin/furan analyses and were received below the temperature limits at 1.2°C and 1.3°C ; however, as the samples were not noted to have been frozen or damaged, no qualifications were required. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact; however, custody seals were not present on the sample containers. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 15 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the two native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (6613-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 (6613-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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." No further qualifications were required.



Sample ID: IOC0996 *Outfall 011* **EPA Method 1613**

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC0996
 Date Collected: 11-Mar-05
 Time Collected: 1325

Laboratory Data
 Lab Sample: 25898-001
 QC Batch No.: 6613
 Date Analyzed DB-5: 21-Mar-05
 Date Analyzed DB-225: NA

Sample Data
 Matrix: Aqueous
 Sample Size: 1.001 L

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.07			13C-2,3,7,8-TCDD	65.2	25 - 164	
1,2,3,7,8-PeCDD	ND	1.14			13C-1,2,3,7,8-PeCDD	59.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.02			13C-1,2,3,4,7,8-HxCDD	61.0	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.93			13C-1,2,3,6,7,8-HxCDD	67.5	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.96			13C-1,2,3,4,6,7,8-HpCDD	63.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	3.61				13C-OCDD	39.5	17 - 157	
OCDD	28.6			J	13C-2,3,7,8-TCDF	67.1	24 - 169	
2,3,7,8-TCDF	ND	1.17		J	13C-1,2,3,7,8-PeCDF	55.0	24 - 185	
1,2,3,7,8-PeCDF	ND	2.10			13C-2,3,4,7,8-PeCDF	57.9	21 - 178	
2,3,4,7,8-PeCDF	ND	1.85			13C-1,2,3,4,7,8-HxCDF	53.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.650			13C-1,2,3,6,7,8-HxCDF	60.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.629			13C-2,3,4,6,7,8-HxCDF	59.7	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.725			13C-1,2,3,7,8,9-HxCDF	58.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.08			13C-1,2,3,4,6,7,8-HpCDF	58.4	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.897			13C-1,2,3,4,7,8,9-HpCDF	64.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.989			13C-OCDF	48.6	17 - 157	
OCDF	ND	2.32			CRS 37Cl-2,3,7,8-TCDD	79.4	35 - 197	

Totals

Total TCDD	ND	1.07		
Total PeCDD	ND	1.14		
Total HxCDD	ND	1.97		
Total HpCDD	7.45			
Total TCDF	1.24			
Total PeCDF	ND	1.97		
Total HxCDF	ND	0.754		
Total HpCDF	ND	0.937		

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: Martha M. Maier 22-Mar-2005 09:36

RECEIVED IV

RECEIVED VALIDATED

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711MT66

Task Order 313150010

SDG No. IOC0996

No. of Analyses 1

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method Metals

Date: 04/01/05

Reviewer's Signature


ACTION ITEMS*

1. **Case Narrative Deficiencies**
2. **Out of Scope Analyses**
3. **Analyses Not Conducted**
4. **Missing Hardcopy Deliverables**
5. **Incorrect Hardcopy Deliverables**
6. **Deviations from Analysis Protocol, e.g.,**
 - Qualifications were applied for detects below the reporting limit.
 - 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

^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: METALS

SAMPLE DELIVERY GROUP: IOC0996

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#: IOC0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: April 01, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOC0996
Analysis: MET

Table 1. Sample identification

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011	Outfall 011	IOC0996-01	water	ILM04

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 above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$, at 7°C ; however, as the sample had insufficient time to cool prior to receipt at the laboratory, no qualifications were required. No sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COC was signed and dated by field and laboratory personnel and accounted for the sample and analyses presented in this SDG. A duplicate was submitted for Outfall 011; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The date of collection recorded on the COC and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP/MS metals and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for the ICP/MS metals and 80-120% for mercury. The reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

2.4 BLANKS

There were no reported detects in the CCBs or method blanks associated with the site sample. No qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

Results were not provided for spiked interferences sulfur, phosphorus, carbon, and chloride, and lead was not spiked into the ICSAB solution. Copper was detected above the reporting limit in the ICSA. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferences, Al, Ca, Fe, and Mg, and determined that the levels of reported interferences were not high enough to cause matrix effects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C16088-BS1 and the mercury LCS sample was identified as 5C14050-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD or laboratory duplicate analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

2.8 MATRIX SPIKE

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Method accuracy was evaluated based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analysis of this sample; therefore, furnace atomic absorption QC is not applicable.

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample 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. Lead detected below the reporting limit was qualified as estimated, "J." No further qualifications were required.

2.13 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 sample.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site sample.



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1622 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) 505-9639
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0651
 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 011
 Routine Outfall 011
 Report Number: IOC0996

Sampled: 03/11/05
 Received: 03/11/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Per Qual	Qual Code
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water) - cont.										
Reporting Units: ug/l										
Copper	EPA 200.8	5C16088	0.49	2.0	8.5	1	03/16/05	03/17/05	J	J
Lead	EPA 200.8	5C16088	0.13	1.0	0.74	1	03/16/05	03/17/05	J	J
Mercury	EPA 245.1	5C14050	0.063	0.20	ND	1	03/14/05	03/14/05	U	DNQ

AMEC VALIDATED

Level IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

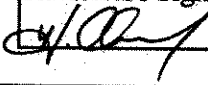
The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711PP27
 Task Order 313150010
 SDG No. IOC0996
 No. of Analyses 1

Laboratory Del Mar
 Reviewer H. Chang
 Analysis/Method Pesticides/608

Date: April 6, 2005
 Reviewer's Signature 

ACTION ITEMS^a	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy	
Deliverables	
5. Incorrect Hardcopy	
Deliverables	
6. Deviations from Analysis	
Protocol, e.g.,	
Holding Times	
GC/MS Tune/Inst. Perform	
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 VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: PESTICIDES

SAMPLE DELIVERY GROUP: IOC0996

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#: IOC0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 6, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedures (DVP-4, Rev.2)*, *EPA Method 608*, 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 form 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	Method
Outfall 011	Outfall 011	IOC996-01	water	608

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 sample in this SDG was received at the laboratory outside the temperature limits of 4°C \pm 2°C at 7°C; however, due to the nonvolatile nature of the analyte, no qualification was necessary. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. 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 analysis presented in this SDG. As the sample was couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

The water sample was extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 608 for pesticides, and according to the raw data provided, a resolution check standard was not analyzed by the laboratory. The laboratory did analyze a breakdown check standard; however, as alpha-BHC was the only compound of interest, the breakdown check standard was not necessary. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

According to the laboratory SOP and the initial calibration raw data, the retention time windows are \pm 0.10 minutes for both surrogates and alpha-BHC calibration standards. A review of the raw data indicated that the laboratory retention time criteria were met for the surrogates and pesticide calibration standards. No qualifications were required.

2.3 CALIBRATION

2.3.1 Analytical Sequence

Based on the data provided, the analytical sequences were in accordance with the requirements of Method 608. No qualifications were required.

2.3.2 Initial Calibration

There was one initial calibration dated 03/02/05 associated with this SDG, which consisted of six-point calibrations for alpha-BHC on two analytical columns. The laboratory provided an overlay of the sample chromatogram and the pesticide standard for identification purposes. The %RSD was within the EPA Method 608 QC limit of $\leq 10\%$ on channel B, and the r^2 was ≥ 0.995 on channel A. An ICV was analyzed immediately following the initial calibration. The %D for alpha-BHC was within the QC limit of $\leq 15\%$ on both analytical columns. The %RSD, r^2 , and ICV %D for alpha-BHC were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

The sample analysis in this SDG was bracketed by the daily ICV and two closing continuing calibration standards. The applicable %Ds were within the Method QC limit of $\pm 15\%$ for both calibrations. A representative number of %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 BLANKS

2.4.1 Instrument Blanks

An instrument blank was analyzed at the beginning of the analytical sequence. Cross-contamination was not evident in the sample. No qualifications were necessary.

2.4.2 Method Blanks

One water method blank (5C14049-BLK1) was extracted and analyzed with this SDG. Target compound alpha-BHC was not detected in the method blank. Review of the chromatograms showed no false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/blank spike duplicate pair (5C14049-BS1/5C14049-BSD1) was extracted and analyzed with this SDG. The recoveries for alpha-BHC were within the laboratory-established QC limits of 45-115% and the RPD was $\leq 30\%$. The recoveries were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The sample and all QC samples were fortified with the surrogate compounds decachlorobiphenyl and tetrachloro-m-xylene. Surrogate recoveries for both samples were within the laboratory-established QC limits. The recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses associated with this SDG. Accuracy and precision were assessed based on the blank spike/blank spike duplicate results. No qualifications were required.

2.8 SAMPLE CLEANUP PERFORMANCE

According to the laboratory extraction benchsheet, no cleanups were performed on the water samples. No qualifications were required.

2.9 FIELD QC SAMPLES

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

2.9.1 Field Blanks and Equipment Rinsates

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

2.9.2 Field Duplicates

There were no field duplicate samples associated with the samples in this SDG.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for alpha-BHC by EPA Method 608. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for the sample in this SDG. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG; however, as there were no reported detects, quantitation was verified by recalculating blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and the laboratory MDL study. The reporting limit for alpha-BHC was not adjusted for sample amount on the result summary; however, the dilution factor listed on the summary reflected the sample volume extracted. Results were reported in ug/L (ppb). No qualifications were required.



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

Project ID: Routine Outfall 011
 Routine Outfall 011
 Report Number: IOC0996

Sampled: 03/11/05
 Received: 03/11/05

DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water) - cont.									
Reporting Units: ug/l									
alpha-BHC	EPA 608	5C14049	0.0010	0.010	ND	0.98	03/14/05	03/14/05	u
Surrogate: Decachlorobiphenyl (45-120%)					49 %				
Surrogate: Tetrachloro-m-xylene (35-120%)					37 %				

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LEVEL IV

DRAFT REPORT
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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV44
Task Order 313150010
SDG No. IOC0996
No. of Analyses 1

Laboratory Del Mar
Reviewer M. Pokorny
Analysis/Method Semivolatiles

Date: April 8, 2005
Reviewer's Signature


ACTION ITEMS*

- 1. **Case Narrative**
Deficiencies
- 2. **Out of Scope**
Analyses
- 3. **Analyses Not Conducted**
- 4. **Missing Hardcopy**
Deliverables
- 5. **Incorrect Hardcopy**
Deliverables
- 6. **Deviations from Analysis**
Protocol, e.g.,
Holding Times
GC/MS Tune/Inst. Perform
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 VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOC0996

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#: IOC0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 1
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 8, 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 Semivolatile Organics (DVP-3, Rev. 2)*, *EPA Method 625*, 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 Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 011	Outfall 011	IOC0996-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The sample in this SDG was received at the laboratory above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at 7°C ; however, the elevated temperature was due to insufficient time to cool before reaching the laboratory. The analysis did not require preservation, and no preservation was noted in the field. The COC noted that the sample was received intact. 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 analysis presented in this SDG. As the sample was couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

The water sample was extracted within seven days of collection and analyzed within 40 days of collection. No qualifications were required.

2.2 GC/MS TUNING

The DFTPP tunes met the criteria specified in Method 625, and the sample was analyzed within 12 hours of the DFTPP injection time. No qualifications were required.

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 03/17/05. The average RRFs for were ≥ 0.05 and the %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ for all target compounds listed on the sample summary form. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 03/18/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$. A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.4 BLANKS

One method blank (5C13017-BLK1) was extracted and analyzed with this SDG. No target compounds were reported in the method blank. Review of the raw data indicated no reportable false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/blank spike duplicate pair (5C13017-BS1/5C13017-BSD1) was extracted and analyzed with this SDG. All percent recoveries and RPDs were within the laboratory QC limits. A representative number of recoveries and RPDs were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

The sample surrogate recoveries were within the laboratory QC limits. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with this SDG. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate 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 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and ± 30 seconds for retention times. A representative number of recoveries were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for five semivolatile target compounds by EPA Method 625. Review of the sample chromatogram, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low level of the initial calibration and the method detection limit study. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for this SDG. No qualifications were required.

2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.



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

Project ID: Routine Outfall 011
 Routine Outfall 011
 Report Number: IOC0996

Sampled: 03/11/05
 Received: 03/11/05

DRAFT: 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: IOC0996-01 (DRAFT: Outfall 011 - Water)									
Reporting Units: ug/l									
Bis(2-ethylhexyl)phthalate	EPA 625	5C13017	1.1	5.0	ND	0.98	03/13/05	03/18/05	REV QUAL
2,4-Dinitrotoluene	EPA 625	5C13017	0.23	9.0	ND	0.98	03/13/05	03/18/05	QUAL
N-Nitrosodimethylamine	EPA 625	5C13017	0.22	8.0	ND	0.98	03/13/05	03/18/05	↓
Pentachlorophenol	EPA 625	5C13017	0.78	8.0	ND	0.98	03/13/05	03/18/05	↓
2,4,6-Trichlorophenol	EPA 625	5C13017	0.10	6.0	ND	0.98	03/13/05	03/18/05	↓
Surrogate: 2-Fluorophenol (30-120%)					71 %				
Surrogate: Phenol-d6 (35-120%)					70 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					91 %				
Surrogate: Nitrobenzene-d5 (45-120%)					72 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					69 %				
Surrogate: Terphenyl-d14 (45-120%)					83 %				

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LEVEL IV

DRAFT REPORT
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 DATA SUBJECT TO CHANGE


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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711VO76
 Task Order 313150010
 SDG No. IOC0996
 No. of Analyses 2

Laboratory Del Mar
 Reviewer M. Pokorny
 Analysis/Method Volatiles

Date: April 8, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualification required for a detect below the reporting limits.
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: IOC0996

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#: IOC0996
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: April 8, 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*, *EPA SW-846 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 011	Outfall 011	IOC0996-01	water	624
Trip Blank	Trip Blank	IOC0996-02	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 above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at 7°C ; however, only four hours had elapsed between the time the samples were taken and when the samples were received at the laboratory. The samples did not have sufficient time to reach the required temperature, and were not qualified for the elevated sample receipt temperature. 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 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 Method 8260B, and all ion abundances were within the established windows. The samples and associated QC were analyzed within 12 hours of the BFB injection times. The Form Vs were verified from the raw data and no discrepancies between the summary forms and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

One initial calibration dated 02/01/05 was associated with this SDG. The average RRFs were ≥ 0.05 for all compounds listed on the sample result summaries. The %RSDs were $\leq 35\%$ for the target compounds analyzed by EPA Method 624. Two continuing calibrations associated with the sample analyses were analyzed 03/13/05 and 03/15/05. The RRFs were ≥ 0.05 in the continuing calibrations. The %Ds for the continuing calibrations associated with the samples were all $\leq 20\%$. 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 qualifications were required.

2.4 BLANKS

Two water method blanks (5C13007-BLK1 and 5C15015-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 (5C13007-BS1 and 5C15015-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 analyses were not performed with this SDG. Evaluation of method accuracy was based on the LCS 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 (IOC0996-02) was the trip blank associated with this SDG. No target compounds were reported 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. No qualifications were required.

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 the 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 standards and by the MDL study. Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike and surrogate recoveries from the raw data. Target compounds detected below the reporting limits were qualified as estimated, "J," by the laboratory. Results were reported in $\mu\text{g/L}$ (ppb). No calculation or transcription errors were noted. No further 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.



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

Project ID: Routine Outfall 011
 Routine Outfall 011
 Report Number: IOC0996

Sampled: 03/11/05
 Received: 03/11/05

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: IOC0996-01 (DRAFT: Outfall 011 - Water)											
Reporting Units: ug/l											
Benzene	EPA 624	5C15015	0.28	2.0	0.38	1	03/15/05	03/15/05	J	J	DNQ
Carbon tetrachloride	EPA 624	5C15015	0.28	5.0	ND	1	03/15/05	03/15/05	U		
Chloroform	EPA 624	5C15015	0.33	2.0	ND	1	03/15/05	03/15/05			
1,1-Dichloroethane	EPA 624	5C15015	0.27	2.0	ND	1	03/15/05	03/15/05			
1,2-Dichloroethane	EPA 624	5C15015	0.28	2.0	ND	1	03/15/05	03/15/05			
1,1-Dichloroethene	EPA 624	5C15015	0.32	3.0	ND	1	03/15/05	03/15/05			
Ethylbenzene	EPA 624	5C15015	0.25	2.0	ND	1	03/15/05	03/15/05			
Tetrachloroethene	EPA 624	5C15015	0.32	2.0	ND	1	03/15/05	03/15/05			
Toluene	EPA 624	5C15015	0.36	2.0	ND	1	03/15/05	03/15/05			
1,1,1-Trichloroethane	EPA 624	5C15015	0.30	2.0	ND	1	03/15/05	03/15/05			
1,1,2-Trichloroethane	EPA 624	5C15015	0.30	2.0	ND	1	03/15/05	03/15/05			
Trichloroethene	EPA 624	5C15015	0.26	5.0	ND	1	03/15/05	03/15/05			
Trichlorofluoromethane	EPA 624	5C15015	0.34	5.0	ND	1	03/15/05	03/15/05			
Vinyl chloride	EPA 624	5C15015	0.26	5.0	ND	1	03/15/05	03/15/05			
Xylenes, Total	EPA 624	5C15015	0.52	4.0	ND	1	03/15/05	03/15/05			
Surrogate: Dibromofluoromethane (80-120%)					97 %						
Surrogate: Toluene-d8 (80-120%)					99 %						
Surrogate: 4-Bromofluorobenzene (80-120%)					92 %						
Sample ID: IOC0996-02 (DRAFT: Trip Blank - Water)											
Reporting Units: ug/l											
Benzene	EPA 624	5C13007	0.28	2.0	ND	1	03/13/05	03/13/05	U		
Carbon tetrachloride	EPA 624	5C13007	0.28	5.0	ND	1	03/13/05	03/13/05			
Chloroform	EPA 624	5C13007	0.33	2.0	ND	1	03/13/05	03/13/05			
1,1-Dichloroethane	EPA 624	5C13007	0.27	2.0	ND	1	03/13/05	03/13/05			
1,2-Dichloroethane	EPA 624	5C13007	0.28	2.0	ND	1	03/13/05	03/13/05			
1,1-Dichloroethene	EPA 624	5C13007	0.32	3.0	ND	1	03/13/05	03/13/05			
Ethylbenzene	EPA 624	5C13007	0.25	2.0	ND	1	03/13/05	03/13/05			
Tetrachloroethene	EPA 624	5C13007	0.32	2.0	ND	1	03/13/05	03/13/05			
Toluene	EPA 624	5C13007	0.36	2.0	ND	1	03/13/05	03/13/05			
1,1,1-Trichloroethane	EPA 624	5C13007	0.30	2.0	ND	1	03/13/05	03/13/05			
1,1,2-Trichloroethane	EPA 624	5C13007	0.30	2.0	ND	1	03/13/05	03/13/05			
Trichloroethene	EPA 624	5C13007	0.26	5.0	ND	1	03/13/05	03/13/05			
Trichlorofluoromethane	EPA 624	5C13007	0.34	5.0	ND	1	03/13/05	03/13/05			
Vinyl chloride	EPA 624	5C13007	0.26	5.0	ND	1	03/13/05	03/13/05			
Xylenes, Total	EPA 624	5C13007	0.52	4.0	ND	1	03/13/05	03/13/05			
Surrogate: Dibromofluoromethane (80-120%)					106 %						
Surrogate: Toluene-d8 (80-120%)					100 %						
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %						

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 DRAFT REPORT
 DATA SUBJECT TO CHANGE

AMEC VALIDATED

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LEVEL IV

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 Suite 500
 Lakewood, CO 80226

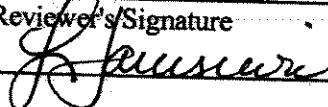
Package ID T711WC105
 Task Order 313150010
 SDG No. IOC0996

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 04/05/05
 Reviewer's Signature


ACTION ITEMS*

1. Case Narrative Deficiencies
2. Out of Scope Analyses
3. Analyses Not Conducted
4. Missing Hardcopy Deliverables
5. Incorrect Hardcopy Deliverables
6. Deviations from Analysis Protocol, e.g.,
 - Holding Times
 - GC/MS Tune/Inst. Performance
 - Calibrations
 - Blanks
 - Surrogates
 - Matrix Spike/Dup LCS
 - Field QC
 - Internal Standard Performance
 - Compound Identification and Quantitation
 - System Performance

Qualifications applied for:
 1) Detects below the reporting limit
 2) Method blank detects

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: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOC0996

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 #: IOC0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 5, 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 300.0, 350.2, 405.1, 335.2, 413.1, 160.2, 160.5, 120.1, and 180.1, Standard Methods for the Examination of Water and Wastewater Method SM5540-C and 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 011	Outfall 011	IOC0996-01	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 above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at 7°C ; however, as the sample had insufficient time to cool in transit to the laboratory, no qualifications were required. 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 present 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, conductivity, chloride, sulfate, and oil and grease, the 14-day holding time for cyanide, the seven-day holding time for total suspended solids and total dissolved solids, and the 48-hour holding time for turbidity, biological oxygen demand, nitrate/nitrite, surfactants, 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 . The 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, as the LCS recovery was within the CCV control limits, no qualifications were required. For BOD, no information regarding the calibration of the oxygen meter was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. The total cyanide reporting limit check standard was recovered above the control limits at 161.6%; however, as cyanide was not detected in Outfall 011, no qualifications were required. Calibration is not applicable to oil and grease, total dissolved solids, total suspended solids, or total settleable solids. No qualifications were required.

2.3 BLANKS

Oil and grease was detected in method blank 5C14065-BLK1 at 1.60 mg/L; therefore, oil and grease detected in Outfall 011 was qualified as estimated, "UJ." The remaining 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. No further qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

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

2.5 SURROGATES RECOVERY

Surrogate recovery is not applicable to the analyses presented in this SDG.

2.6 LABORATORY DUPLICATES

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Method accuracy was assessed based on LCS results.

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analyses of this sample; 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 sample in this data package. Calculations were verified, and the sample results reported on the Form I 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." 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 sample. The following are findings associated with field QC samples:

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Routine Outfall 011
 Routine Outfall 011
 Report Number: IOC0996

Sampled: 03/11/05
 Received: 03/11/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Date	Data
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water) - cont.										
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5C15088	0.30	0.50	ND	1	03/15/05	03/15/05		
Biochemical Oxygen Demand	EPA 405.1	5C11085	0.59	2.0	2.5	1	03/11/05	03/16/05		U
Chloride	EPA 300.0	5C11052	2.6	5.0	36	10	03/11/05	03/11/05		
Total Cyanide	EPA 335.2	5C11116	0.0022	0.0050	ND	1	03/11/05	03/11/05		
Nitrate/Nitrite-N	EPA 300.0	5C11052	0.072	0.11	ND	1	03/11/05	03/11/05		U
Oil & Grease	EPA 413.1	5C14065	0.94	5.0	1.2	1	03/14/05	03/14/05		U
Sulfate	EPA 300.0	5C11052	1.8	5.0	120	10	03/11/05	03/11/05		U
Surfactants (MBAS)	SM5540-C	5C11105	0.044	0.10	0.096	1	03/11/05	03/11/05		J
Total Dissolved Solids	SM2540C	5C14069	10	10	450	1	03/14/05	03/14/05		J
Total Suspended Solids	EPA 160.2	5C14073	10	10	ND	1	03/14/05	03/14/05		U
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water)										
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5C11087	0.10	0.10	ND	1	03/11/05	03/11/05		U
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water)										
Reporting Units: NTU										
Turbidity	EPA 180.1	5C12043	0.040	1.0	8.6	1	03/12/05	03/12/05		
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water)										
Reporting Units: ug/l										
Perchlorate	EPA 314.0	5C14052	0.80	4.0	ND	1	03/14/05	03/14/05		*
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water)										
Reporting Units: umhos/cm										
Specific Conductance	EPA 120.1	5C14070	1.0	1.0	690	1	03/14/05	03/14/05		

REV QUL
 QUL CODE

J B
 DNR

AMEC VALIDATED

LEVEL IV

*Analysis Not 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.

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711WCI07
 Task Order 313150010
 SDG No. IOC0996

Laboratory Del Mar Analytical

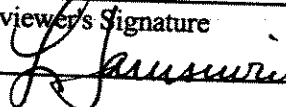
No. of Analyses 1

Reviewer L. Jarusewic

Date: 04/05/05

Analysis/Method Perchlorate

Reviewer's Signature



ACTION ITEMS*

1. **Case Narrative Deficiencies**
2. **Out of Scope Analyses**
3. **Analyses Not Conducted**
4. **Missing Hardcopy Deliverables**
5. **Incorrect Hardcopy Deliverables**
6. **Deviations from Analysis Protocol, e.g.,**
 - Holding Times
 - GC/MS Tune/Inst. Performance
 - Calibrations
 - Blanks
 - Surrogates
 - Matrix Spike/Dup LCS
 - Field QC
 - Internal Standard Performance
 - Compound Identification and Quantitation
 - System Performance

COMMENTS* Acceptable as reviewed.

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



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOC0996

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 #: IOC0996
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 1
Reviewer: L. Jarusewic
Date of Review: April 5, 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 314.0, and 120.1*, 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 011	Outfall 011	IOC0996-01	Water	Perchlorate

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 above the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at 7°C ; however, as the sample had insufficient time to cool in transit to the laboratory, no qualifications were required. The analysis did not require preservation and no preservation was noted in the field. No qualifications were required.

2.1.2 Chain of Custody

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

2.1.3 Holding Times

The holding time was assessed by comparing the date of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The 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. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

Surrogate recovery is not applicable to the analysis presented in this SDG.

2.6 LABORATORY DUPLICATES

No MS/MSD or duplicate analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. Method accuracy was assessed based on LCS results.

2.8 FURNACE ATOMIC ABSORPTION QC

Furnace atomic absorption was not utilized for the analysis of this sample; therefore, furnace atomic absorption QC is not applicable.

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the sample in this data package. Calculations were verified, and the sample result reported on the Form I was verified against the raw data. No transcription errors or calculation errors were noted. No qualifications were required.

2.11 FIELD QC SAMPLES

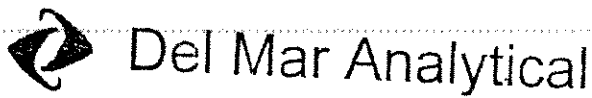
Field QC samples are evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated sample. The following are findings associated with field QC samples:

2.11.1 Field Blanks and Equipment Rinsates

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

2.11.2 Field Duplicates

There were no field duplicate pairs associated with this SDG.



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

Project ID: Routine Outfall 011
 Routine Outfall 011
 Report Number: IOC0996

Sampled: 03/11/05
 Received: 03/11/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water) - cont. Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C15088	0.30	0.50	ND	1	03/15/05	03/15/05	* B
Biochemical Oxygen Demand	EPA 405.1	5C11085	0.59	2.0	2.5	1	03/11/05	03/16/05	* J
Chloride	EPA 300.0	5C11052	2.6	5.0	36	10	03/11/05	03/11/05	
Total Cyanide	EPA 335.2	5C11116	0.0022	0.0050	ND	1	03/11/05	03/11/05	
Nitrate/Nitrite-N	EPA 300.0	5C11052	0.072	0.11	ND	1	03/11/05	03/11/05	
Oil & Grease	EPA 413.1	5C14065	0.94	5.0	1.2	1	03/14/05	03/14/05	
Sulfate	EPA 300.0	5C11052	1.8	5.0	120	10	03/11/05	03/11/05	
Surfactants (MBAS)	SM5540-C	5C11105	0.044	0.10	0.096	1	03/11/05	03/11/05	
Total Dissolved Solids	SM2540C	5C14069	10	10	450	1	03/14/05	03/14/05	
Total Suspended Solids	EPA 160.2	5C14073	10	10	ND	1	03/14/05	03/14/05	
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water) Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C11087	0.10	0.10	ND	1	03/11/05	03/11/05	
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water) Reporting Units: NTU									
Turbidity	EPA 180.1	5C12043	0.040	1.0	8.6	1	03/12/05	03/12/05	
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water) Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C14052	0.80	4.0	ND	1	03/14/05	03/14/05	
Sample ID: IOC0996-01 (DRAFT: Outfall 011 - Water) Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C14070	1.0	1.0	690	1	03/14/05	03/14/05	* U

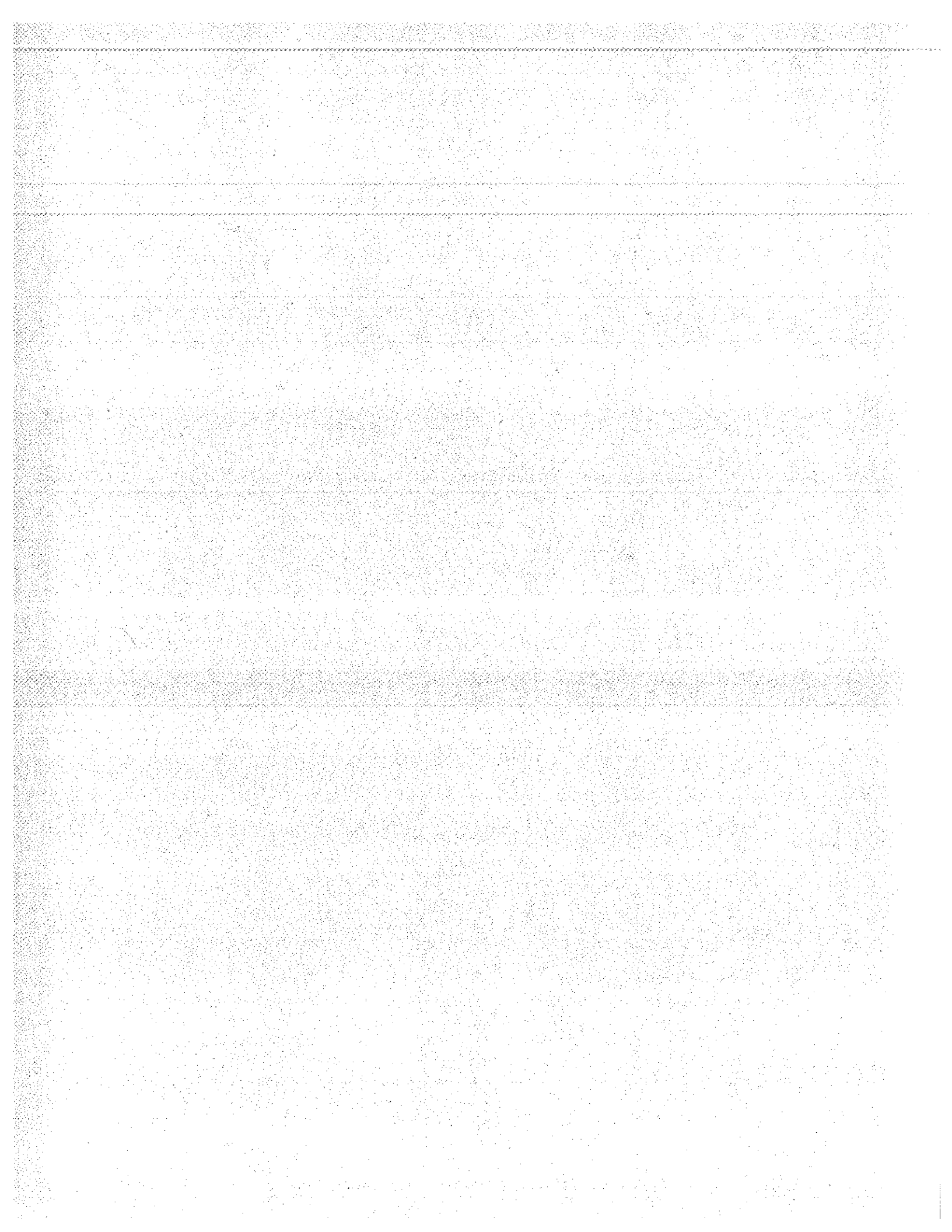
AMEC VALIDATED

LEVEL IV

Analysis Not Validated

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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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 011

Sampled: 03/11/05
Received: 03/11/05
Issued: 04/05/05 12:06

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain of Custody, 1 page, is included and is an integral part of this report.
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
IOC0996-01	Outfall 011	Water
IOC0996-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical, Irvine
Wendy Kirkeeng For Michele Harper
Project Manager



Del Mar Analytical

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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IOC0996

Sampled: 03/11/05
 Received: 03/11/05

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: IOC0996-01 (Outfall 011 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C15015	0.28	2.0	0.38	1	03/15/05	03/15/05	J
Carbon tetrachloride	EPA 624	5C15015	0.28	5.0	ND	1	03/15/05	03/15/05	
Chloroform	EPA 624	5C15015	0.33	2.0	ND	1	03/15/05	03/15/05	
1,1-Dichloroethane	EPA 624	5C15015	0.27	2.0	ND	1	03/15/05	03/15/05	
1,2-Dichloroethane	EPA 624	5C15015	0.28	2.0	ND	1	03/15/05	03/15/05	
1,1-Dichloroethene	EPA 624	5C15015	0.32	3.0	ND	1	03/15/05	03/15/05	
Ethylbenzene	EPA 624	5C15015	0.25	2.0	ND	1	03/15/05	03/15/05	
Tetrachloroethene	EPA 624	5C15015	0.32	2.0	ND	1	03/15/05	03/15/05	
Toluene	EPA 624	5C15015	0.36	2.0	ND	1	03/15/05	03/15/05	
1,1,1-Trichloroethane	EPA 624	5C15015	0.30	2.0	ND	1	03/15/05	03/15/05	
1,1,2-Trichloroethane	EPA 624	5C15015	0.30	2.0	ND	1	03/15/05	03/15/05	
Trichloroethene	EPA 624	5C15015	0.26	5.0	ND	1	03/15/05	03/15/05	
Trichlorofluoromethane	EPA 624	5C15015	0.34	5.0	ND	1	03/15/05	03/15/05	
Vinyl chloride	EPA 624	5C15015	0.26	5.0	ND	1	03/15/05	03/15/05	
Xylenes, Total	EPA 624	5C15015	0.52	4.0	ND	1	03/15/05	03/15/05	
Surrogate: Dibromofluoromethane (80-120%)					97 %				
Surrogate: Toluene-d8 (80-120%)					99 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					92 %				
Sample ID: IOC0996-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C13007	0.28	2.0	ND	1	03/13/05	03/13/05	
Carbon tetrachloride	EPA 624	5C13007	0.28	5.0	ND	1	03/13/05	03/13/05	
Chloroform	EPA 624	5C13007	0.33	2.0	ND	1	03/13/05	03/13/05	
1,1-Dichloroethane	EPA 624	5C13007	0.27	2.0	ND	1	03/13/05	03/13/05	
1,2-Dichloroethane	EPA 624	5C13007	0.28	2.0	ND	1	03/13/05	03/13/05	
1,1-Dichloroethene	EPA 624	5C13007	0.32	3.0	ND	1	03/13/05	03/13/05	
Ethylbenzene	EPA 624	5C13007	0.25	2.0	ND	1	03/13/05	03/13/05	
Tetrachloroethene	EPA 624	5C13007	0.32	2.0	ND	1	03/13/05	03/13/05	
Toluene	EPA 624	5C13007	0.36	2.0	ND	1	03/13/05	03/13/05	
1,1,1-Trichloroethane	EPA 624	5C13007	0.30	2.0	ND	1	03/13/05	03/13/05	
1,1,2-Trichloroethane	EPA 624	5C13007	0.30	2.0	ND	1	03/13/05	03/13/05	
Trichloroethene	EPA 624	5C13007	0.26	5.0	ND	1	03/13/05	03/13/05	
Trichlorofluoromethane	EPA 624	5C13007	0.34	5.0	ND	1	03/13/05	03/13/05	
Vinyl chloride	EPA 624	5C13007	0.26	5.0	ND	1	03/13/05	03/13/05	
Xylenes, Total	EPA 624	5C13007	0.52	4.0	ND	1	03/13/05	03/13/05	
Surrogate: Dibromofluoromethane (80-120%)					106 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 011 Report Number: IOC0996	Sampled: 03/11/05 Received: 03/11/05
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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: IOC0996-01 (Outfall 011 - Water)									
Reporting Units: ug/l									
Bis(2-ethylhexyl)phthalate	EPA 625	5C13017	1.1	5.0	ND	0.98	03/13/05	03/18/05	
2,4-Dinitrotoluene	EPA 625	5C13017	0.23	9.0	ND	0.98	03/13/05	03/18/05	
N-Nitrosodimethylamine	EPA 625	5C13017	0.22	8.0	ND	0.98	03/13/05	03/18/05	
Pentachlorophenol	EPA 625	5C13017	0.78	8.0	ND	0.98	03/13/05	03/18/05	
2,4,6-Trichlorophenol	EPA 625	5C13017	0.10	6.0	ND	0.98	03/13/05	03/18/05	
Surrogate: 2-Fluorophenol (30-120%)					71 %				
Surrogate: Phenol-d6 (35-120%)					70 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					91 %				
Surrogate: Nitrobenzene-d5 (45-120%)					72 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					69 %				
Surrogate: Terphenyl-d14 (45-120%)					83 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IOC0996	Sampled: 03/11/05 Received: 03/11/05
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ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0996-01 (Outfall 011 - Water) - cont.									
Reporting Units: ug/l									
alpha-BHC	EPA 608	5C14049	0.0010	0.010	ND	0.98	03/14/05	03/14/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					49 %				
<i>Surrogate: Tetrachloro-m-xylene (35-120%)</i>					37 %				

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

Project ID: Routine Outfall 011

Report Number: IOC0996

Sampled: 03/11/05

Received: 03/11/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0996-01 (Outfall 011 - Water) - cont.									
Reporting Units: ug/l									
Copper	EPA 200.8	5C16088	0.49	2.0	8.5	1	03/16/05	03/17/05	
Lead	EPA 200.8	5C16088	0.13	1.0	0.74	1	03/16/05	03/17/05	J
Mercury	EPA 245.1	5C14050	0.063	0.20	ND	1	03/14/05	03/14/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IOC0996	Sampled: 03/11/05 Received: 03/11/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC0996-01 (Outfall 011 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C15088	0.30	0.50	ND	1	03/15/05	03/15/05	
Biochemical Oxygen Demand	EPA 405.1	5C11085	0.59	2.0	2.5	1	03/11/05	03/16/05	
Chloride	EPA 300.0	5C11052	2.6	5.0	36	10	03/11/05	03/11/05	
Total Cyanide	EPA 335.2	5C11116	0.0022	0.0050	ND	1	03/11/05	03/11/05	
Nitrate/Nitrite-N	EPA 300.0	5C11052	0.072	0.11	ND	1	03/11/05	03/11/05	
Oil & Grease	EPA 413.1	5C14065	0.94	5.0	1.2	1	03/14/05	03/14/05	B, J
Sulfate	EPA 300.0	5C11052	1.8	5.0	120	10	03/11/05	03/11/05	
Surfactants (MBAS)	SM5540-C	5C11105	0.044	0.10	0.096	1	03/11/05	03/11/05	J
Total Dissolved Solids	SM2540C	5C14069	10	10	450	1	03/14/05	03/14/05	
Total Suspended Solids	EPA 160.2	5C14073	10	10	ND	1	03/14/05	03/14/05	
Sample ID: IOC0996-01 (Outfall 011 - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C11087	0.10	0.10	ND	1	03/11/05	03/11/05	
Sample ID: IOC0996-01 (Outfall 011 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C12043	0.040	1.0	8.6	1	03/12/05	03/12/05	
Sample ID: IOC0996-01 (Outfall 011 - Water)									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C14052	0.80	4.0	ND	1	03/14/05	03/14/05	
Sample ID: IOC0996-01 (Outfall 011 - Water)									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C14070	1.0	1.0	690	1	03/14/05	03/14/05	

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

Project ID: Routine Outfall 011

Report Number: IOC0996

Sampled: 03/11/05

Received: 03/11/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 011 (IOC0996-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/11/2005 13:25	03/11/2005 18:30	03/11/2005 20:00	03/11/2005 21:00
EPA 180.1	2	03/11/2005 13:25	03/11/2005 18:30	03/12/2005 13:30	03/12/2005 14:30
EPA 300.0	2	03/11/2005 13:25	03/11/2005 18:30	03/11/2005 19:30	03/11/2005 21:00
EPA 405.1	2	03/11/2005 13:25	03/11/2005 18:30	03/11/2005 20:00	03/16/2005 13:30
SM5540-C	2	03/11/2005 13:25	03/11/2005 18:30	03/11/2005 21:06	03/11/2005 21:20

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IOC0996

Sampled: 03/11/05

Received: 03/11/05

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: 5C13007 Extracted: 03/13/05											
Blank Analyzed: 03/13/2005 (5C13007-BLK1)											
Benzene	ND	2.0	0.28	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	26.3			ug/l	25.0		105	80-120			
Surrogate: Toluene-d8	24.8			ug/l	25.0		99	80-120			
Surrogate: 4-Bromofluorobenzene	24.1			ug/l	25.0		96	80-120			
LCS Analyzed: 03/13/2005 (5C13007-BS1)											
Benzene	25.4	2.0	0.28	ug/l	25.0		102	70-120			
Carbon tetrachloride	26.9	5.0	0.28	ug/l	25.0		108	70-140			
Chloroform	26.4	2.0	0.33	ug/l	25.0		106	75-130			
1,1-Dichloroethane	26.3	2.0	0.27	ug/l	25.0		105	70-135			
1,2-Dichloroethane	27.1	2.0	0.28	ug/l	25.0		108	60-150			
1,1-Dichloroethene	25.5	3.0	0.32	ug/l	25.0		102	75-135			
Ethylbenzene	26.1	2.0	0.25	ug/l	25.0		104	80-120			
Tetrachloroethene	23.3	2.0	0.32	ug/l	25.0		93	75-125			
Toluene	25.0	2.0	0.36	ug/l	25.0		100	75-120			
1,1,1-Trichloroethane	27.7	2.0	0.30	ug/l	25.0		111	75-140			
1,1,2-Trichloroethane	26.4	2.0	0.30	ug/l	25.0		106	70-125			
Trichloroethene	23.8	5.0	0.26	ug/l	25.0		95	80-120			
Trichlorofluoromethane	28.6	5.0	0.34	ug/l	25.0		114	65-145			
Vinyl chloride	29.5	5.0	0.26	ug/l	25.0		118	50-130			
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.2			ug/l	25.0		101	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 011

Report Number: IOC0996

Sampled: 03/11/05

Received: 03/11/05

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: 5C13007 Extracted: 03/13/05											
LCS Analyzed: 03/13/2005 (5C13007-BS1)											
Surrogate: 4-Bromofluorobenzene	25.9			ug/l	25.0		104	80-120			
Matrix Spike Analyzed: 03/13/2005 (5C13007-MS1) Source: IOC0855-01											
Benzene	28.2	2.0	0.28	ug/l	25.0	ND	113	70-120			
Carbon tetrachloride	28.4	5.0	0.28	ug/l	25.0	ND	114	70-145			
Chloroform	29.8	2.0	0.33	ug/l	25.0	ND	119	70-135			
1,1-Dichloroethane	29.8	2.0	0.27	ug/l	25.0	ND	119	65-135			
1,2-Dichloroethane	29.0	2.0	0.28	ug/l	25.0	ND	116	60-150			
1,1-Dichloroethene	28.8	3.0	0.32	ug/l	25.0	ND	115	65-140			
Ethylbenzene	28.2	2.0	0.25	ug/l	25.0	ND	113	70-130			
Tetrachloroethene	24.3	2.0	0.32	ug/l	25.0	ND	97	70-130			
Toluene	27.4	2.0	0.36	ug/l	25.0	ND	110	70-120			
1,1,1-Trichloroethane	30.5	2.0	0.30	ug/l	25.0	ND	122	75-140			
1,1,2-Trichloroethane	28.8	2.0	0.30	ug/l	25.0	ND	115	60-135			
Trichloroethene	25.4	5.0	0.26	ug/l	25.0	ND	102	70-125			
Trichlorofluoromethane	31.8	5.0	0.34	ug/l	25.0	ND	127	55-145			
Vinyl chloride	30.6	5.0	0.26	ug/l	25.0	ND	122	40-135			
Surrogate: Dibromofluoromethane	27.8			ug/l	25.0		111	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	26.6			ug/l	25.0		106	80-120			
Matrix Spike Dup Analyzed: 03/13/2005 (5C13007-MSD1) Source: IOC0855-01											
Benzene	27.2	2.0	0.28	ug/l	25.0	ND	109	70-120	4	20	
Carbon tetrachloride	27.2	5.0	0.28	ug/l	25.0	ND	109	70-145	4	25	
Chloroform	28.3	2.0	0.33	ug/l	25.0	ND	113	70-135	5	20	
1,1-Dichloroethane	28.4	2.0	0.27	ug/l	25.0	ND	114	65-135	5	20	
1,2-Dichloroethane	28.5	2.0	0.28	ug/l	25.0	ND	114	60-150	2	20	
1,1-Dichloroethene	28.4	3.0	0.32	ug/l	25.0	ND	114	65-140	1	20	
Ethylbenzene	27.1	2.0	0.25	ug/l	25.0	ND	108	70-130	4	20	
Tetrachloroethene	24.3	2.0	0.32	ug/l	25.0	ND	97	70-130	0	20	
Toluene	26.4	2.0	0.36	ug/l	25.0	ND	106	70-120	4	20	
1,1,1-Trichloroethane	29.0	2.0	0.30	ug/l	25.0	ND	116	75-140	5	20	
1,1,2-Trichloroethane	28.0	2.0	0.30	ug/l	25.0	ND	112	60-135	3	25	
Trichloroethene	24.5	5.0	0.26	ug/l	25.0	ND	98	70-125	4	20	
Trichlorofluoromethane	30.5	5.0	0.34	ug/l	25.0	ND	122	55-145	4	25	
Vinyl chloride	31.1	5.0	0.26	ug/l	25.0	ND	124	40-135	2	30	

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

Project ID: Routine Outfall 011

Report Number: IOC0996

Sampled: 03/11/05
 Received: 03/11/05

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
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Batch: 5C13007 Extracted: 03/13/05

Matrix Spike Dup Analyzed: 03/13/2005 (5C13007-MSD1)

Source: IOC0855-01

Surrogate: Dibromofluoromethane	27.4			ug/l	25.0		110	80-120			
Surrogate: Toluene-d8	24.8			ug/l	25.0		99	80-120			
Surrogate: 4-Bromofluorobenzene	26.1			ug/l	25.0		104	80-120			

Batch: 5C15015 Extracted: 03/15/05

Blank Analyzed: 03/15/2005 (5C15015-BLK1)

Benzene	ND	2.0	0.28	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	25.4			ug/l	25.0		102	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	23.6			ug/l	25.0		94	80-120			

LCS Analyzed: 03/15/2005 (5C15015-BS1)

Benzene	23.2	2.0	0.28	ug/l	25.0		93	70-120			
Carbon tetrachloride	23.6	5.0	0.28	ug/l	25.0		94	70-140			
Chloroform	23.1	2.0	0.33	ug/l	25.0		92	75-130			
1,1-Dichloroethane	23.2	2.0	0.27	ug/l	25.0		93	70-135			
1,2-Dichloroethane	23.9	2.0	0.28	ug/l	25.0		96	60-150			
1,1-Dichloroethene	22.9	3.0	0.32	ug/l	25.0		92	75-135			
Ethylbenzene	24.1	2.0	0.25	ug/l	25.0		96	80-120			
Tetrachloroethene	22.1	2.0	0.32	ug/l	25.0		88	75-125			
Toluene	22.9	2.0	0.36	ug/l	25.0		92	75-120			

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

Project ID: Routine Outfall 011

Report Number: IOC0996

Sampled: 03/11/05

Received: 03/11/05

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: 5C15015 Extracted: 03/15/05											
LCS Analyzed: 03/15/2005 (5C15015-BS1)											
1,1,1-Trichloroethane	23.5	2.0	0.30	ug/l	25.0		94	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	23.9	5.0	0.34	ug/l	25.0		96	65-145			
Vinyl chloride	24.2	5.0	0.26	ug/l	25.0		97	50-130			
Surrogate: Dibromofluoromethane	25.3			ug/l	25.0		101	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.0			ug/l	25.0		100	80-120			
Matrix Spike Analyzed: 03/15/2005 (5C15015-MS1)											
Source: IOC1002-05											
Benzene	24.7	2.0	0.28	ug/l	25.0	0.78	96	70-120			
Carbon tetrachloride	24.6	5.0	0.28	ug/l	25.0	ND	98	70-145			
Chloroform	23.7	2.0	0.33	ug/l	25.0	ND	95	70-135			
1,1-Dichloroethane	23.8	2.0	0.27	ug/l	25.0	ND	95	65-135			
1,2-Dichloroethane	24.2	2.0	0.28	ug/l	25.0	ND	97	60-150			
1,1-Dichloroethene	23.2	3.0	0.32	ug/l	25.0	ND	93	65-140			
Ethylbenzene	25.2	2.0	0.25	ug/l	25.0	ND	101	70-130			
Tetrachloroethene	23.0	2.0	0.32	ug/l	25.0	ND	92	70-130			
Toluene	26.7	2.0	0.36	ug/l	25.0	3.0	95	70-120			
1,1,1-Trichloroethane	24.3	2.0	0.30	ug/l	25.0	ND	97	75-140			
1,1,2-Trichloroethane	24.1	2.0	0.30	ug/l	25.0	ND	96	60-135			
Trichloroethene	22.9	5.0	0.26	ug/l	25.0	ND	92	70-125			
Trichlorofluoromethane	24.3	5.0	0.34	ug/l	25.0	ND	97	55-145			
Vinyl chloride	24.9	5.0	0.26	ug/l	25.0	ND	100	40-135			
Surrogate: Dibromofluoromethane	25.5			ug/l	25.0		102	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	25.0			ug/l	25.0		100	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 011

Report Number: IOC0996

Sampled: 03/11/05

Received: 03/11/05

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: 5C15015 Extracted: 03/15/05											
Matrix Spike Dup Analyzed: 03/15/2005 (5C15015-MSD1)						Source: IOC1002-05					
Benzene	24.7	2.0	0.28	ug/l	25.0	0.78	96	70-120	0	20	
Carbon tetrachloride	24.0	5.0	0.28	ug/l	25.0	ND	96	70-145	2	25	
Chloroform	23.5	2.0	0.33	ug/l	25.0	ND	94	70-135	1	20	
1,1-Dichloroethane	23.6	2.0	0.27	ug/l	25.0	ND	94	65-135	1	20	
1,2-Dichloroethane	24.4	2.0	0.28	ug/l	25.0	ND	98	60-150	1	20	
1,1-Dichloroethene	23.7	3.0	0.32	ug/l	25.0	ND	95	65-140	2	20	
Ethylbenzene	25.0	2.0	0.25	ug/l	25.0	ND	100	70-130	1	20	
Tetrachloroethene	22.5	2.0	0.32	ug/l	25.0	ND	90	70-130	2	20	
Toluene	26.5	2.0	0.36	ug/l	25.0	3.0	94	70-120	1	20	
1,1,1-Trichloroethane	24.3	2.0	0.30	ug/l	25.0	ND	97	75-140	0	20	
1,1,2-Trichloroethane	25.1	2.0	0.30	ug/l	25.0	ND	100	60-135	4	25	
Trichloroethene	22.9	5.0	0.26	ug/l	25.0	ND	92	70-125	0	20	
Trichlorofluoromethane	24.1	5.0	0.34	ug/l	25.0	ND	96	55-145	1	25	
Vinyl chloride	24.5	5.0	0.26	ug/l	25.0	ND	98	40-135	2	30	
Surrogate: Dibromofluoromethane	25.6			ug/l	25.0		102	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	25.2			ug/l	25.0		101	80-120			

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IOC0996

Sampled: 03/11/05
 Received: 03/11/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C13017 Extracted: 03/13/05										
Blank Analyzed: 03/18/2005 (5C13017-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	11.4			ug/l	20.0		57		30-120	
Surrogate: Phenol-d6	11.9			ug/l	20.0		60		35-120	
Surrogate: 2,4,6-Tribromophenol	13.8			ug/l	20.0		69		45-120	
Surrogate: Nitrobenzene-d5	6.08			ug/l	10.0		61		45-120	
Surrogate: 2-Fluorobiphenyl	6.92			ug/l	10.0		69		45-120	
Surrogate: Terphenyl-d14	6.62			ug/l	10.0		66		45-120	
LCS Analyzed: 03/18/2005 (5C13017-BS1)										
Bis(2-ethylhexyl)phthalate	8.90	5.0	1.1	ug/l	10.0		89		60-130	
2,4-Dinitrotoluene	8.00	9.0	0.23	ug/l	10.0		80		60-120	J
N-Nitrosodimethylamine	7.98	8.0	0.22	ug/l	10.0		80		40-120	J
Pentachlorophenol	8.64	8.0	0.78	ug/l	10.0		86		50-120	
2,4,6-Trichlorophenol	9.16	6.0	0.10	ug/l	10.0		92		60-120	
Surrogate: 2-Fluorophenol	14.4			ug/l	20.0		72		30-120	
Surrogate: Phenol-d6	14.7			ug/l	20.0		74		35-120	
Surrogate: 2,4,6-Tribromophenol	16.6			ug/l	20.0		83		45-120	
Surrogate: Nitrobenzene-d5	7.48			ug/l	10.0		75		45-120	
Surrogate: 2-Fluorobiphenyl	8.08			ug/l	10.0		81		45-120	
Surrogate: Terphenyl-d14	7.90			ug/l	10.0		79		45-120	
LCS Dup Analyzed: 03/18/2005 (5C13017-BSD1)										
Bis(2-ethylhexyl)phthalate	8.62	5.0	1.1	ug/l	10.0		86	3	20	
2,4-Dinitrotoluene	7.92	9.0	0.23	ug/l	10.0		79	1	20	J
N-Nitrosodimethylamine	7.66	8.0	0.22	ug/l	10.0		77	4	20	J
Pentachlorophenol	8.66	8.0	0.78	ug/l	10.0		87	0	25	
2,4,6-Trichlorophenol	8.76	6.0	0.10	ug/l	10.0		88	4	20	
Surrogate: 2-Fluorophenol	14.2			ug/l	20.0		71		30-120	
Surrogate: Phenol-d6	14.2			ug/l	20.0		71		35-120	
Surrogate: 2,4,6-Tribromophenol	16.6			ug/l	20.0		83		45-120	
Surrogate: Nitrobenzene-d5	7.52			ug/l	10.0		75		45-120	
Surrogate: 2-Fluorobiphenyl	7.60			ug/l	10.0		76		45-120	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 Report Number: IOC0996	Sampled: 03/11/05 Received: 03/11/05
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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: 5C13017 Extracted: 03/13/05											
LCS Dup Analyzed: 03/18/2005 (5C13017-BSD1)											
Surrogate: Terphenyl-d14	8.16			ug/l	10.0		82	45-120			

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

Project ID: Routine Outfall 011

Report Number: IOC0996

Sampled: 03/11/05

Received: 03/11/05

METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C14049 Extracted: 03/14/05										
Blank Analyzed: 03/14/2005 (5C14049-BLK1)										
alpha-BHC	ND	0.010	0.0010	ug/l						
Surrogate: Decachlorobiphenyl	0.381			ug/l	0.500		76 45-120			
Surrogate: Tetrachloro-m-xylene	0.267			ug/l	0.500		53 35-120			
LCS Analyzed: 03/14/2005 (5C14049-BS1)										
alpha-BHC	0.335	0.010	0.0010	ug/l	0.500		67 45-115			M-NR1
Surrogate: Decachlorobiphenyl	0.367			ug/l	0.500		73 45-120			
Surrogate: Tetrachloro-m-xylene	0.278			ug/l	0.500		56 35-120			
LCS Dup Analyzed: 03/14/2005 (5C14049-BSD1)										
alpha-BHC	0.353	0.010	0.0010	ug/l	0.500		71 45-115	5	30	
Surrogate: Decachlorobiphenyl	0.405			ug/l	0.500		81 45-120			
Surrogate: Tetrachloro-m-xylene	0.267			ug/l	0.500		53 35-120			

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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: 5C14050 Extracted: 03/14/05											
Blank Analyzed: 03/14/2005 (5C14050-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 03/14/2005 (5C14050-BS1)											
Mercury	8.04	0.20	0.063	ug/l	8.00		100	85-115			
Matrix Spike Analyzed: 03/14/2005 (5C14050-MS1)											
						Source: IOC0736-01					
Mercury	8.23	0.20	0.063	ug/l	8.00	ND	103	70-130			
Matrix Spike Dup Analyzed: 03/14/2005 (5C14050-MSD1)											
						Source: IOC0736-01					
Mercury	8.19	0.20	0.063	ug/l	8.00	ND	102	70-130	1	20	
Batch: 5C16088 Extracted: 03/16/05											
Blank Analyzed: 03/16/2005 (5C16088-BLK1)											
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
LCS Analyzed: 03/16/2005 (5C16088-BS1)											
Copper	85.2	2.0	0.49	ug/l	80.0		106	85-115			
Lead	84.9	1.0	0.13	ug/l	80.0		106	85-115			
Matrix Spike Analyzed: 03/16/2005 (5C16088-MS1)											
						Source: IOC0874-01					
Copper	125	2.0	0.49	ug/l	80.0	17	135	70-130			MI
Lead	83.3	1.0	0.13	ug/l	80.0	0.97	103	70-130			
Matrix Spike Analyzed: 03/16/2005 (5C16088-MS2)											
						Source: IOC1157-01					
Copper	74.3	2.0	0.49	ug/l	80.0	ND	93	70-130			
Lead	80.3	1.0	0.13	ug/l	80.0	ND	100	70-130			

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011

Report Number: IOC0996

Sampled: 03/11/05

Received: 03/11/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C16088 Extracted: 03/16/05											
Matrix Spike Dup Analyzed: 03/16/2005 (5C16088-MSD1)						Source: IOC0874-01					
Copper	87.4	2.0	0.49	ug/l	80.0	17	88	70-130	35	20	R-3
Lead	80.5	1.0	0.13	ug/l	80.0	0.97	99	70-130	3	20	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C11052 Extracted: 03/11/05											
Blank Analyzed: 03/11/2005 (5C11052-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 03/11/2005 (5C11052-BS1)											
Chloride	4.68	0.50	0.26	mg/l	5.00		94	90-110			
Sulfate	9.86	0.50	0.18	mg/l	10.0		99	90-110			
Matrix Spike Analyzed: 03/11/2005 (5C11052-MS1) Source: IOC0810-01											
Chloride	78.2	2.5	1.3	mg/l	5.00	71	144	80-120			MI
Sulfate	222	2.5	0.90	mg/l	10.0	210	120	80-120			
Matrix Spike Dup Analyzed: 03/11/2005 (5C11052-MSD1) Source: IOC0810-01											
Chloride	76.1	2.5	1.3	mg/l	5.00	71	102	80-120	3	20	
Sulfate	220	2.5	0.90	mg/l	10.0	210	100	80-120	1	20	
Batch: 5C11085 Extracted: 03/11/05											
Blank Analyzed: 03/16/2005 (5C11085-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 03/16/2005 (5C11085-BS1)											
Biochemical Oxygen Demand	218	100	30	mg/l	198		110	85-115			
LCS Dup Analyzed: 03/16/2005 (5C11085-BSD1)											
Biochemical Oxygen Demand	212	100	30	mg/l	198		107	85-115	3	20	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C11105 Extracted: 03/11/05											
Blank Analyzed: 03/11/2005 (5C11105-BLK1)											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
LCS Analyzed: 03/11/2005 (5C11105-BS1)											
Surfactants (MBAS)	0.248	0.10	0.044	mg/l	0.250		99	90-110			
Matrix Spike Analyzed: 03/11/2005 (5C11105-MS1)											
						Source: IOC0939-01					
Surfactants (MBAS)	0.272	0.10	0.044	mg/l	0.250	ND	109	50-125			
Matrix Spike Dup Analyzed: 03/11/2005 (5C11105-MSD1)											
						Source: IOC0939-01					
Surfactants (MBAS)	0.271	0.10	0.044	mg/l	0.250	ND	108	50-125	0	20	
Batch: 5C11116 Extracted: 03/11/05											
Blank Analyzed: 03/11/2005 (5C11116-BLK1)											
Total Cyanide	ND	0.0050	0.0022	mg/l							
LCS Analyzed: 03/11/2005 (5C11116-BS1)											
Total Cyanide	0.185	0.0050	0.0022	mg/l	0.200		92	90-110			
Matrix Spike Analyzed: 03/11/2005 (5C11116-MS1)											
						Source: IOC0241-05					
Total Cyanide	0.186	0.0050	0.0022	mg/l	0.200	ND	93	70-115			
Matrix Spike Dup Analyzed: 03/11/2005 (5C11116-MSD1)											
						Source: IOC0241-05					
Total Cyanide	0.190	0.0050	0.0022	mg/l	0.200	ND	95	70-115	2	15	
Batch: 5C12043 Extracted: 03/12/05											
Blank Analyzed: 03/12/2005 (5C12043-BLK1)											
Turbidity	ND	1.0	0.040	NTU							

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 Wendy Kirkeeng For Michele Harper
 Project Manager

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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	Project ID: Routine Outfall 011 Report Number: IOC0996	Sampled: 03/11/05 Received: 03/11/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C12043 Extracted: 03/12/05											
Duplicate Analyzed: 03/12/2005 (5C12043-DUP1)						Source: IOC0995-01					
Turbidity	0.590	1.0	0.040	NTU		0.59			0	20	J
Batch: 5C14052 Extracted: 03/14/05											
Blank Analyzed: 03/14/2005 (5C14052-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/14/2005 (5C14052-BS1)											
Perchlorate	45.1	4.0	0.80	ug/l	50.0		90	85-115			
Matrix Spike Analyzed: 03/14/2005 (5C14052-MS1)						Source: IOC0873-02					
Perchlorate	49.1	4.0	0.80	ug/l	50.0	ND	98	80-120			
Matrix Spike Dup Analyzed: 03/14/2005 (5C14052-MSD1)						Source: IOC0873-02					
Perchlorate	47.5	4.0	0.80	ug/l	50.0	ND	95	80-120	3	20	
Batch: 5C14065 Extracted: 03/14/05											
Blank Analyzed: 03/14/2005 (5C14065-BLK1)											
Oil & Grease	1.60	5.0	0.94	mg/l							J
LCS Analyzed: 03/14/2005 (5C14065-BS1)											
Oil & Grease	23.4	5.0	0.94	mg/l	20.0		117	65-120			M-NR1
LCS Dup Analyzed: 03/14/2005 (5C14065-BSD1)											
Oil & Grease	23.9	5.0	0.94	mg/l	20.0		120	65-120	2	20	

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 Wendy Kirkeeng For 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 011 Report Number: IOC0996	Sampled: 03/11/05 Received: 03/11/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C14069 Extracted: 03/14/05											
Blank Analyzed: 03/14/2005 (5C14069-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/14/2005 (5C14069-BS1)											
Total Dissolved Solids	970	10	10	mg/l	1000		97	90-110			
Duplicate Analyzed: 03/14/2005 (5C14069-DUP1)											
Total Dissolved Solids	271	10	10	mg/l		Source: IOC1042-01 280			3	10	
Batch: 5C14070 Extracted: 03/14/05											
Duplicate Analyzed: 03/14/2005 (5C14070-DUP1)											
Specific Conductance	432	1.0	1.0	umhos/cm		Source: IOC1042-01 420			3	5	
Batch: 5C14073 Extracted: 03/14/05											
Blank Analyzed: 03/14/2005 (5C14073-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/14/2005 (5C14073-BS1)											
Total Suspended Solids	941	10	10	mg/l	1000		94	85-115			
Duplicate Analyzed: 03/14/2005 (5C14073-DUP1)											
Total Suspended Solids	ND	10	10	mg/l		Source: IOC0941-01 ND				10	
Batch: 5C15088 Extracted: 03/15/05											
Blank Analyzed: 03/15/2005 (5C15088-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 011 Report Number: IOC0996	Sampled: 03/11/05 Received: 03/11/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C15088 Extracted: 03/15/05											
LCS Analyzed: 03/15/2005 (5C15088-BS1)											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0		95	80-115			
Matrix Spike Analyzed: 03/15/2005 (5C15088-MS1)											
						Source: IOC1063-01					
Ammonia-N (Distilled)	8.12	0.50	0.30	mg/l	10.0	ND	81	70-120			
Matrix Spike Dup Analyzed: 03/15/2005 (5C15088-MSD1)											
						Source: IOC1063-01					
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	ND	95	70-120	16	15	R

Del Mar Analytical, Irvine
 Wendy Kirkeeng For 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 011

Report Number: IOC0996

Sampled: 03/11/05

Received: 03/11/05

DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- M1** The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- R** The RPD exceeded the method control limit due to sample matrix effects. The individual analyte QA/QC recoveries, however, were within acceptance limits.
- R-3** The RPD exceeded the method control limit due to sample matrix effects.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

Del Mar Analytical, Irvine
Wendy Kirkeeng For 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 011

Report Number: IOC0996

Sampled: 03/11/05
 Received: 03/11/05

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	X	X
EPA 335.2	Water	X	X
EPA 350.2	Water	X	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR
 Samples: IOC0996-01

Analysis Performed: EDD + Level 4
 Samples: IOC0996-01

Del Mar Analytical, Irvine
 Wendy Kirkeeng For Michele Harper
 Project Manager

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925 100996

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/17/05

Client Name/Address:		Project:		Project Manager:		Sampler:	
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Routine Outfall 011 Perimeter Pond		Bronwyn Kelly		Palach	
Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		Sampling Date/Time: 3-11-05 13:30		Preservative:		Bottle #	
Sample Description	Sample Matrix	Container Type	# of Cont.				
Outfall 011	W	Poly-1L	1	HNO3	1A	X	
Outfall 011-Dup	W	Poly-1L	1	None	1B	X	
Outfall 011	W	Poly-1L	1	HCl	2		
Outfall 011	W	VOAs	3	None	3A, 3B, 3C		
Outfall 011	W	1L Amber	2	HCl	4A, 4B		
Outfall 011	W	1L Amber	2	None	5A, 5B		
Outfall 011	W	Poly-500 ml	1	HCl	6		
Outfall 011	W	Poly-1L	1	NaOH	7		
Outfall 011	W	Poly-500 ml	2	None	8A, 8B		
Outfall 011	W	Poly-500 ml	2	None	9A, 9B		
Outfall 011	W	Poly-500 ml	2	None	10A, 10B		
Outfall 011	W	Poly-500 ml	1	H2SO4	11		
Outfall 011	W	1L Amber	2	None	12A, 12B		
Outfall 011	W	1L Amber	2	None	13A, 13B		
Trip Blank	W	VOAs	3	HCl	14A, 14B, 14C		

Relinquished By	Date/Time	Received By	Date/Time
<i>[Signature]</i>	3-11-05 1400	<i>[Signature]</i>	3/11/05 1400
<i>[Signature]</i>	3/11/05 1830	<i>[Signature]</i>	3/11/05 1230
<i>[Signature]</i>		<i>[Signature]</i>	

ANALYSIS REQUIRED		Field readings:	
Turn around Time (check)	24 Hours	Temp =	65.3
	48 Hours	pH =	7.0
	72 Hours		
Perchlorate Only 72 Hours			
Metals Only 72 Hours			
Sample Integrity (Check)	Intact		
On Ice	X		



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April 1, 2005

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

Attention: Bronwyn Kelly
Project: Routine Outfall 011
Sampled: 03/11/05
Del Mar Analytical Number: IOC0996

Dear Ms. Kelly:

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

MWH ID	DEL MAR ID	ALTA ID
Routine Outfall 011	IOC0996-01	25898-001

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 at extension 215.

Sincerely yours,
DEL MAR ANALYTICAL


Michele Harper
Project Manager



March 22, 2005

Alta Project I.D.: 25898

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 March 15, 2005 under your Project Name "IOC0996". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640



Section I: Sample Inventory Report

Date Received: 3/15/2005

Alta Lab. ID

Client Sample ID

25898-001

IOC0996

SECTION II



Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	6613	Lab Sample:	0-MB001			
Sample Size:	1.000 L	Date Extracted:	18-Mar-05	Date Analyzed DB-5:	21-Mar-05			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.09			IS 13C-2,3,7,8-TCDD	74.6	25 - 164	
1,2,3,7,8-PeCDD	ND	0.717			13C-1,2,3,7,8-PeCDD	72.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.85			13C-1,2,3,4,7,8-HxCDD	76.8	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.81			13C-1,2,3,6,7,8-HxCDD	82.6	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.82			13C-1,2,3,4,6,7,8-HpCDD	74.6	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.44			13C-OCDD	50.4	17 - 157	
OCDD	ND	3.04			13C-2,3,7,8-TCDF	78.4	24 - 169	
2,3,7,8-TCDF	ND	1.01			13C-1,2,3,7,8-PeCDF	69.0	24 - 185	
1,2,3,7,8-PeCDF	ND	2.09			13C-2,3,4,7,8-PeCDF	72.3	21 - 178	
2,3,4,7,8-PeCDF	ND	1.80			13C-1,2,3,4,7,8-HxCDF	65.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.708			13C-1,2,3,6,7,8-HxCDF	73.8	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.669			13C-2,3,4,6,7,8-HxCDF	75.2	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.730			13C-1,2,3,7,8,9-HxCDF	74.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.14			13C-1,2,3,4,6,7,8-HpCDF	70.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	1.12			13C-1,2,3,4,7,8,9-HpCDF	76.4	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.23			13C-OCDF	59.4	17 - 157	
OCDF	ND	2.41			CRS 37Cl-2,3,7,8-TCDD	74.7	35 - 197	
Totals								
Total TCDD	ND	1.09						
Total PeCDD	ND	0.717						
Total HxCDD	ND	1.83						
Total HpCDD	ND	1.44						
Total TCDF	ND	1.01						
Total PeCDF	ND	1.94						
Total HxCDF	ND	0.794						
Total HpCDF	ND	1.17						

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: Martha M. Maier 22-Mar-2005 09:36



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 21-Mar-05		Date Analyzed DB-225: NA	
Matrix: Aqueous	QC Batch No.: 6613						
Sample Size: 1.000 L	Date Extracted: 18-Mar-05						
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	8.66	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	63.0	25 - 164	
1,2,3,7,8-PeCDD	50.0	45.3	35 - 71	13C-1,2,3,7,8-PeCDD	54.1	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	46.2	35 - 82	13C-1,2,3,4,7,8-HxCDD	56.2	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	47.9	38 - 67	13C-1,2,3,6,7,8-HxCDD	60.8	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	46.2	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	54.6	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	50.6	35 - 70	13C-OCDD	38.2	17 - 157	
OCDD	100	97.1	78 - 144	13C-2,3,7,8-TCDF	63.7	24 - 169	
2,3,7,8-TCDF	10.0	9.33	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	51.3	24 - 185	
1,2,3,7,8-PeCDF	50.0	50.5	40 - 67	13C-2,3,4,7,8-PeCDF	52.6	21 - 178	
2,3,4,7,8-PeCDF	50.0	50.7	34 - 80	13C-1,2,3,4,7,8-HxCDF	49.8	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	51.8	36 - 67	13C-1,2,3,6,7,8-HxCDF	56.3	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	51.5	42 - 65	13C-2,3,4,6,7,8-HxCDF	56.1	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	51.4	35 - 78	13C-1,2,3,7,8,9-HxCDF	54.3	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	51.0	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	52.5	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	53.2	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	56.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	53.2	39 - 69	13C-OCDF	46.1	17 - 157	
OCDF	100	102	63 - 170	CRS 37Cl-2,3,7,8-TCDD	82.8	35 - 197	

Analyst: JMH

Approved By: Martha M. Maier 22-Mar-2005 09:36



Sample ID: **IOC0996**

EPA Method 1613

Client Data

Name: Del Mar Analytical, Irvine
 Project: IOC0996
 Date Collected: 11-Mar-05
 Time Collected: 1325

Sample Data

Matrix: Aqueous
 Sample Size: 1.001 L

Laboratory Data

Lab Sample: 25898-001
 QC Batch No.: 6613
 Date Analyzed DB-5: 21-Mar-05
 Date Analyzed DB-225: NA
 Date Received: 15-Mar-05
 Date Extracted: 18-Mar-05

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.07			13C-2,3,7,8-TCDD	65.2	25 - 164	
1,2,3,7,8-PeCDD	ND	1.14			13C-1,2,3,7,8-PeCDD	59.0	25 - 181	
1,2,3,4,7,8-HxCDD	ND	2.02			13C-1,2,3,4,7,8-HxCDD	61.0	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.93			13C-1,2,3,6,7,8-HxCDD	67.5	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.96			13C-1,2,3,4,6,7,8-HpCDD	63.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	3.61				13C-OCDD	39.5	17 - 157	
OCDD	28.6			J	13C-2,3,7,8-TCDF	67.1	24 - 169	
2,3,7,8-TCDF	ND	1.17			13C-1,2,3,7,8-PeCDF	55.0	24 - 185	
1,2,3,7,8-PeCDF	ND	2.10			13C-2,3,4,7,8-PeCDF	57.9	21 - 178	
2,3,4,7,8-PeCDF	ND	1.85			13C-1,2,3,4,7,8-HxCDF	53.2	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.650			13C-1,2,3,6,7,8-HxCDF	60.2	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.629			13C-2,3,4,6,7,8-HxCDF	59.7	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.725			13C-1,2,3,7,8,9-HxCDF	58.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.08			13C-1,2,3,4,6,7,8-HpCDF	58.4	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.897			13C-1,2,3,4,7,8,9-HpCDF	64.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.989			13C-OCDF	48.6	17 - 157	
OCDF	ND	2.32			CRS 37Cl-2,3,7,8-TCDD	79.4	35 - 197	
Totals					Footnotes			
Total TCDD	ND	1.07			a. Sample specific estimated detection limit.			
Total PeCDD	ND	1.14			b. Estimated maximum possible concentration.			
Total HxCDD	ND	1.97			c. Method detection limit.			
Total HpCDD	7.45				d. Lower control limit - upper control limit.			
Total TCDF	1.24							
Total PeCDF	ND	1.97						
Total HxCDF	ND	0.754						
Total HpCDF	ND	0.937						

Analyst: JMH

Approved By: Martha M. Maier 22-Mar-2005 09:36

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.
*	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 corresponds 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.



CURRENT CERTIFICATIONS

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)



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Conley Dr., Suite A, Cotton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046
 9494 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689
 9630 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
 2820 E. Sunset Rd., Suite 88, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

SUBCONTRACT ORDER - PROJECT # IOC0996

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940 <div style="text-align: right; font-size: 1.5em; margin-top: 10px;"> 25898 1200 </div>

Standard TAT is requested unless specific due date is requested => Due Date: 2 Weeks Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC0996-01 Water	Sampled: 03/11/05 13:25	
1613-Dioxin-HR	03/18/05 13:25	J flags, 17 congeners, no TEQ, sub to Alta
EDD + Level 4	04/08/05 13:25	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC0996-01G)		
1 L Amber (IOC0996-01H)		

SAMPLE INTEGRITY:

All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): _____

<i>Atany Anwar</i> Released By	3-14-05 Date	1700 Time	<i>Bettina L Benedict</i> Received By	3/15/05 Date	0925 Time
-----------------------------------	-----------------	--------------	--	-----------------	--------------

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

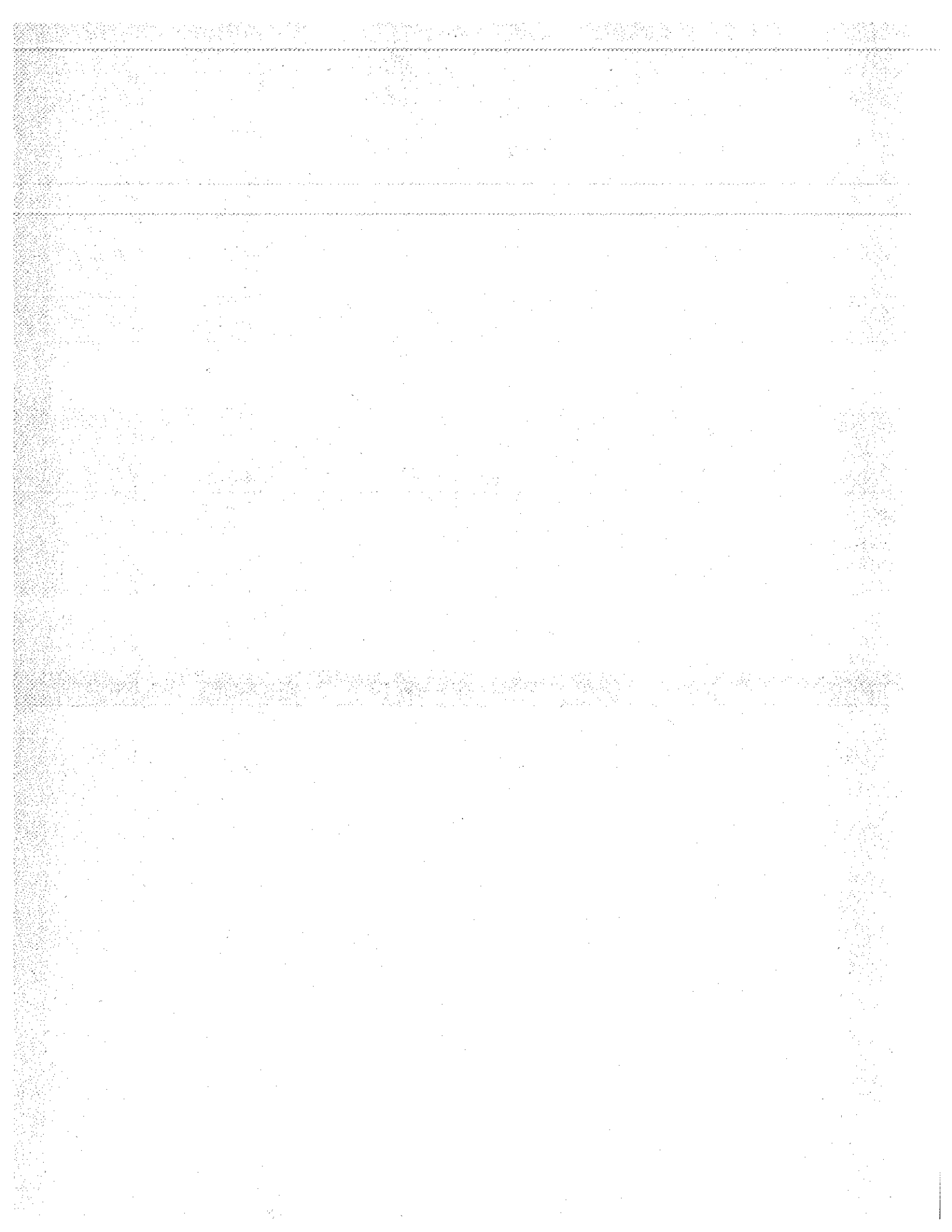
ALTA Project No.: 25898

1. Date Samples Arrived: <u>3/15/05</u> <u>0925</u> Initials: <u>AB</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>1035</u> <u>3/15/05</u> Initials: <u>AB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice / Blue Ice</u> Dry Ice / None Temp °C <u>1.2</u>			
	YES	NO	NA
5. Shipping Container(s) Intact? If not, describe condition in comment section.	<input checked="" type="checkbox"/>		
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	<input checked="" type="checkbox"/>		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7910 0653 3660</u>	<input checked="" type="checkbox"/>		
8. Sample Custody Seal(s) Present? No. of Seals _____ or Seal No. _____ Intact? If not intact, describe condition in comment section.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9. Sample Container Intact? If no, indicate sample condition in comment section.	<input checked="" type="checkbox"/>		
10. Chain of Custody (COC) or other Sample Documentation Present?	<input checked="" type="checkbox"/>		
11. COC/Documentation Acceptable? If no, complete COC Anomaly Form.	<input checked="" type="checkbox"/>		
12. Shipping Container (circle): ALTA <u>Client</u> Retain or <u>Return</u> or Disposed			
13. Container(s) and/or Bottle(s) Requested?		<input checked="" type="checkbox"/>	
14. Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N Preservation Info From? (circle) COC or Sample Container or None Noted			<input checked="" type="checkbox"/>

Comments:

Samplers initials found on sample labels

ALTA Analytical Laboratory
El Dorado Hills, CA 95762



CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA


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

Package ID T711DF37
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 10

Laboratory Alta

Reviewer H. Chang

Analysis/Method Dioxin&Furans/1613

Date: April 4, 2005
 Reviewer's Signature


ACTION ITEMS^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Detects below the calibration range 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 GROUPS: Multiple SDGs

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 #: Multiple
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 10
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 4, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 002	IOC1521-01	25935-001	water	1613
Outfall 011	IOC1523-01	25936-001	water	1613
Outfall 005	IOC1524-01	25940-001	water	1613
Outfall 006	IOC1525-01	25937-001	water	1613
Outfall 011 Composite	IOC1526-01	25938-001	water	1613
Outfall 001	IOC1561-01	25941-001	water	1613
Outfall 004	IOC1563-01	25939-001	water	1613
Outfall 008	IOC1564-01	25942-001	water	1613
Outfall 003	IOC1565-01	25943-001	water	1613
Outfall 009	IOC1566-01	25944-001	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

Samples Outfall 001, Outfall 004, and Outfall 008 were received at Del Mar Analytical outside the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. Due to non-volatile nature of the target compounds, no qualifications were required. The other samples were received with cooler temperatures within the limits. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 08/30/04. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

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

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

2.4 BLANKS

One method blank (0_6624_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 (0_6624_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. Any reported EMPC was qualified as an estimated nondetect, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." No further qualifications were required.

Sample ID: **IOC1523-01** **Duffell Oil** **EPA Method 1613**

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC1523
 Date Collected: 18-Mar-05
 Time Collected: 1110

Sample Data
 Matrix: Aqueous
 Sample Size: 0.896 L

Laboratory Data
 Lab Sample: 25936-001
 QC Batch No.: 6624
 Date Analyzed DB-5: 23-Mar-05
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.723			13C-2,3,7,8-TCDD	84.7	25 - 164	
1,2,3,7,8-PeCDD	ND	0.811			13C-1,2,3,7,8-PeCDD	81.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.40			13C-1,2,3,4,7,8-HxCDD	88.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.38			13C-1,2,3,6,7,8-HxCDD	95.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.39			13C-1,2,3,4,6,7,8-HpCDD	87.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	2.62				13C-OCDD	66.5	17 - 157	
OCDD	22.3			J	13C-2,3,7,8-TCDF	91.0	24 - 169	
2,3,7,8-TCDF	ND	1.14		J	13C-1,2,3,7,8-PeCDF	84.4	24 - 185	
1,2,3,7,8-PeCDF	ND	1.67			13C-2,3,4,7,8-PeCDF	85.8	21 - 178	
2,3,4,7,8-PeCDF	ND	1.48			13C-1,2,3,4,7,8-HxCDF	73.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.575			13C-1,2,3,6,7,8-HxCDF	85.9	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.535			13C-2,3,4,6,7,8-HxCDF	82.9	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.610			13C-1,2,3,7,8,9-HxCDF	80.5	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.976			13C-1,2,3,4,6,7,8-HpCDF	80.9	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.932			13C-1,2,3,4,7,8,9-HpCDF	85.4	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.07			13C-OCDF	72.6	17 - 157	
OCDF	ND	3.17			CRS 37Cl-2,3,7,8-TCDD	85.7	35 - 197	

Totals

Total TCDD	ND	0.723						
Total PeCDD	ND	0.811						
Total HxCDD	ND	1.39						
Total HpCDD	5.93							
Total TCDF	ND	1.14						
Total PeCDF	ND	1.57						
Total HxCDF	ND	0.655						
Total HpCDF	ND	0.992						

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: Martha M. Maier 24-Mar-2005 09:37

LEVEL IV

Sample ID: **IOC1526-01** **Difficult Oil Composite** **EPA Method 1613**

Client Data
 Name: Del Mar Analytical, Irvine
 Project: IOC1526
 Date Collected: 18-Mar-05
 Time Collected: 1440

Sample Data
 Matrix: Aqueous
 Sample Size: 0.925 L

Laboratory Data
 Lab Sample: 25938-001
 QC Batch No.: 6624
 Date Analyzed DB-5: 23-Mar-05
 Date Analyzed DB-225: NA
 Date Received: 22-Mar-05
 Date Extracted: 22-Mar-05

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.691			13C-2,3,7,8-TCDD	84.4	25 - 164	
1,2,3,7,8-PeCDD	ND	0.658			13C-1,2,3,7,8-PeCDD	81.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.61			13C-1,2,3,4,7,8-HxCDD	84.0	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.53			13C-1,2,3,6,7,8-HxCDD	91.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.56			13C-1,2,3,4,6,7,8-HpCDD	84.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.56			13C-OCDD	67.5	17 - 157	
OCDD	18.1			J	13C-2,3,7,8-TCDF	90.5	24 - 169	
2,3,7,8-TCDF	ND	0.979			13C-1,2,3,7,8-PeCDF	84.6	24 - 185	
1,2,3,7,8-PeCDF	ND	1.91			13C-2,3,4,7,8-PeCDF	85.0	21 - 178	
2,3,4,7,8-PeCDF	ND	1.78			13C-1,2,3,4,7,8-HxCDF	69.6	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.646			13C-1,2,3,6,7,8-HxCDF	80.7	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.612			13C-2,3,4,6,7,8-HxCDF	79.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.697			13C-1,2,3,7,8,9-HxCDF	77.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.12			13C-1,2,3,4,6,7,8-HpCDF	80.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.763			13C-1,2,3,4,7,8,9-HpCDF	82.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.923			13C-OCDF	71.4	17 - 157	
OCDF	ND	3.25			CRS 37Cl-2,3,7,8-TCDD	81.5	35 - 197	

Totals

Total TCDD	ND	0.691						
Total PeCDD	ND	0.658						
Total HxCDD	ND	1.57						
Total HpCDD	2.62		4.18					
Total TCDF	ND	0.979						
Total PeCDF	ND	1.84						
Total HxCDF	ND	0.749						
Total HpCDF	ND	0.832						

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

Analyst: JMIH

Approved By: Martha M. Maier 24-Mar-2005 09:41

INVALID

Project 25938

LEVEL IV



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOC1523 & IOC1526

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#: IOC1523, IOC1526
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: April 05, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma – Mass Spectrometry*, *SW-846 Method 6010B for Inductively Coupled Plasma*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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 011 Grab	Outfall 011 Grab	IOC1523-01	water	ILM04
Outfall 011 Composite	Outfall 011 Composite	IOC1526-01	water	ILM04

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 sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for the samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP and ICP/MS metals, and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. The 0.2 ppb reporting limit check standard for antimony was not recovered; therefore nondetected antimony in both site samples (see section 2.4) was qualified as estimated, "UJ." The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further sample qualifications were required.

2.4 BLANKS

Nickel were detected in method blank 5C19038 at 555 µg/L; therefore, nickel detected in both site samples was qualified as estimated, "UJ." Chromium was reported in a bracketing method blank at – 0.35 µg/L; therefore, chromium detected in both site samples was qualified as estimated, "J."

Due to the high level of antimony found in the method blank, 1.25 µg/L, the reviewer raised the antimony MDLs to the level of interference, 1.3 µg/L and qualified the results as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and boron, barium, beryllium, , selenium, thallium, vanadium, antimony and lead were not spiked into the ICSAB solution. Aluminum was recovered below the control limit in all the ICSA and ICSAB analyses; however, as aluminum was found at a low level in the site sample, no qualifications were required. Manganese, cobalt copper, and cadmium were detected above the reporting limit in the ICSA. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix affects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride.

ICSA and ICSAB analyses were included in the raw data for the boron ICP analyses, but were not run on the days the site samples were analyzed. The recoveries for the interferents and the other spiked analytes were within the control limits of 80-120%. No qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS samples were identified as 5C21088-BS1 and 5C19038-BS1 and the ICP LCS sample was identified as 5C19039-BS1. The mercury LCS sample was identified as 5C19029-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP, ICP/MS, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed on Outfall 011 Composite for boron only. The RPD was within the control limit of 20% and no qualifications were required.

2.8 MATRIX SPIKE

MS/MSD analyses were performed on Outfall 011 Composite for boron only. The recoveries were within the AMEC control limits of 75-125% and no qualifications were required. Method accuracy for the remaining analytes was evaluated based on LCS results.

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Analytes detected below the reporting limit were qualified as estimated, "J." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05

Received: 03/18/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: mg/l									
Barium	EPA 200.8	5C19038	0.00014	0.0010	0.036	1	03/19/05	03/21/05	
Boron	EPA 200.7	5C19039	0.0074	0.050	0.090	1	03/19/05	03/19/05	
Iron	EPA 200.8	5C19038	0.0032	0.010	0.29	1	03/19/05	03/21/05	B-1

Raw Qual	Qual Code
	B-1

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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

Project ID: Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C19038	0.18 1.3	2.0	0.34 1.3	1	03/19/05	03/21/05	UJ B, J B, #3
Arsenic	EPA 200.8	5C19038	0.49	1.0	2.4	1	03/19/05	03/21/05	
Beryllium	EPA 200.8	5C19038	0.037	0.50	ND	1	03/19/05	03/21/05	U
Cadmium	EPA 200.8	5C19038	0.015	1.0	0.085	1	03/19/05	03/21/05	J B, J DNQ
Chromium	EPA 200.8	5C19038	0.26	2.0	1.0	1	03/19/05	03/21/05	J J B, DNQ
Cobalt	EPA 200.8	5C19038	0.10	1.0	0.35	1	03/19/05	03/21/05	J J DNQ
Copper	EPA 200.8	5C19038	0.49	2.0	4.0	1	03/19/05	03/21/05	
Lead	EPA 200.8	5C19038	0.13	1.0	0.30	1	03/19/05	03/21/05	J J DNQ
Manganese	EPA 200.8	5C19038	0.44	1.0	65	1	03/19/05	03/21/05	B-1
Mercury	EPA 245.1	5C19029	0.063	0.20	ND	1	03/19/05	03/19/05	U
Nickel	EPA 200.8	5C19038	0.15	2.0	2.5	1	03/19/05	03/21/05	UJ B B
Selenium	EPA 200.8	5C19038	0.36	2.0	0.55	1	03/19/05	03/21/05	J J DNQ
Silver	EPA 200.8	5C19038	0.089	1.0	ND	1	03/19/05	03/21/05	U
Thallium	EPA 200.8	5C19038	0.075	1.0	ND	1	03/19/05	03/21/05	U
Vanadium	EPA 200.8	5C19038	0.86	2.0	2.0	1	03/19/05	03/21/05	
Zinc	EPA 200.8	5C19038	3.1	20	12	1	03/19/05	03/21/05	J J DNQ

pm 4/6/05

AMEC VALIDATED

LEVEL II

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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C19038	1.3	2.0	0.26	1	03/19/05	03/21/05	U B, J
Arsenic	EPA 200.8	5C19038	0.49	1.0	2.1	1	03/19/05	03/21/05	U B, J
Beryllium	EPA 200.8	5C19038	0.037	0.50	ND	1	03/19/05	03/21/05	U
Cadmium	EPA 200.8	5C19038	0.015	1.0	0.079	1	03/19/05	03/21/05	J B, J
Chromium	EPA 200.8	5C19038	0.26	2.0	0.93	1	03/19/05	03/21/05	J J
Cobalt	EPA 200.8	5C19038	0.10	1.0	0.33	1	03/19/05	03/21/05	J J
Copper	EPA 200.8	5C19038	0.49	2.0	3.0	1	03/19/05	03/21/05	J J
Lead	EPA 200.8	5C19038	0.13	1.0	0.39	1	03/19/05	03/21/05	J J
Manganese	EPA 200.8	5C21088	0.44	1.0	56	1	03/21/05	03/21/05	J J
Mercury	EPA 245.1	5C19029	0.063	0.20	ND	1	03/19/05	03/19/05	U
Nickel	EPA 200.8	5C19038	0.15	2.0	1.9	1	03/19/05	03/21/05	U B, J
Selenium	EPA 200.8	5C19038	0.36	2.0	0.43	1	03/19/05	03/21/05	J J
Silver	EPA 200.8	5C19038	0.089	1.0	ND	1	03/19/05	03/21/05	U
Thallium	EPA 200.8	5C19038	0.075	1.0	ND	1	03/19/05	03/21/05	U
Vanadium	EPA 200.8	5C19038	0.86	2.0	1.3	1	03/19/05	03/21/05	J J
Zinc	EPA 200.8	5C19038	3.1	20	9.8	1	03/19/05	03/21/05	J J

AM 4/6/05

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LEVEL IV

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 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.													
Reporting Units: mg/l													
Barium	EPA 200.8	5C19038	0.00014	0.0010	0.036	1	03/19/05	03/21/05	<table border="1"> <tr> <th>Raw Qual</th> <th>Qual Code</th> </tr> <tr> <td></td> <td>B-1</td> </tr> </table>	Raw Qual	Qual Code		B-1
Raw Qual	Qual Code												
	B-1												
Boron	EPA 200.7	5C19039	0.0074	0.050	0.090	1	03/19/05	03/19/05					
Iron	EPA 200.8	5C19038	0.0032	0.010	0.27	1	03/19/05	03/21/05					

AMEC VALIDATED

LEVEL II

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE


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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711PP32
 Task Order 313150010
 SDG No. IOC1523, IOC1526
 No. of Analyses 2

Laboratory Pacific Analytical
 Reviewer L. Calvin

Date: April 11, 2005
 Reviewer's Signature


Analysis/Method Pesticides/PCBs by Method 608

ACTION ITEMS^a	
1. Case Narrative Deficiencies	_____
2. Out of Scope Analyses	_____
3. Analyses Not Conducted	_____
4. Missing Hardcopy Deliverables	_____
5. Incorrect Hardcopy Deliverables	_____
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications assigned for surrogate recoveries below the QC limits. _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
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: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOB1523, IOB1526

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#: IOB1523, IOB1526
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides/PCBs
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
Date of Review: April 11, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedures (DVP-4, Rev.2)*, *EPA Method 608*, 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 form 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	Method
Outfall 011 Grab	Outfall 011 Grab	IOB1523-01	water	608
Outfall 011 Composite	Outfall 011 Composite	IOB1526-01	water	608

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 were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. 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 water samples were extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 608 for pesticides, and according to the raw data provided, a resolution check standard was not analyzed by the laboratory. The laboratory did analyze a breakdown check standard with a breakdown of $\leq 20\%$ for individual components (4,4-DDT and endrin) and $\leq 30\%$ for the total, as suggested in the National Functional Guidelines. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

According to the laboratory SOP and the initial calibration raw data, the retention time windows are ± 0.10 minutes for both surrogates and target compound calibration standards. A review of the raw data indicated that the laboratory retention time criteria were met for the surrogates and pesticide calibration standards. No qualifications were required.

2.3 CALIBRATION

2.3.1 Analytical Sequence

Based on the data provided, the analytical sequences were in accordance with the requirements of Method 608. No qualifications were required.

2.3.2 Initial Calibration

There was one initial calibration dated 03/02/05 associated with the pesticide analyses of the samples, which consisted of six point calibrations for all pesticide target compounds on two analytical columns. The %RSDs were within the EPA Method 608 QC limit of $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. There was one initial calibration dated 02/11/05 associated with the PCB analyses of the samples which consisted of five points for Aroclor 1016 and Aroclor 1260. Single point calibrations for Aroclor 1242, Aroclor 1248, and Aroclor 1254 were also analyzed. The average %RSDs for the individual peaks of Aroclor 1016 and Aroclor 1260 were $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. An ICV was analyzed immediately following each of the initial calibrations. The %Ds for all target compounds were within the QC limits of 15% on both analytical columns. A representative number of %RSDs and ICV %Ds were recalculated from the raw data and no calculation or transcription errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

In the continuing calibrations bracketing both the pesticide and PCB analyses of the samples, all %Ds were $\leq 15\%$. A representative number of %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 BLANKS

2.4.1 Instrument Blanks

An instrument blank was analyzed at the beginning of each analytical sequence. Cross-contamination was not evident in the samples. No qualifications were necessary.

2.4.2 Method Blanks

One water method blank (5C19034-BLK1) was extracted and analyzed with these SDGs. There were no pesticide target compounds or Aroclors detected in the method blank. Review of the chromatograms showed no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/blank spike duplicate pair (5C19034-BS1/BSD1 for pesticides, -BS2/BSD2 for PCBs) was extracted and analyzed with these SDGs. The recoveries for all spiked pesticide target compounds and Aroclors were within the laboratory-established QC limits and the RPDs were $\leq 30\%$. A representative number of recoveries were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The sample and all QC samples were fortified with the surrogate compounds decachlorobiphenyl and tetrachloro-m-xylene. Surrogate recoveries for the both pesticide and PCB analysis were below the QC limits but $\geq 10\%$ in sample Outfall 011 Composite. Notations on the laboratory extraction benchsheet and sample raw data indicated an emulsion in the extract of the

sample. Results were qualified as estimated, "UJ," for nondetects and "J," for detects. All surrogate recoveries for sample Outfall 011 Grab were within the laboratory-established QC limits. The recoveries were calculated from the raw data and no transcription or calculation errors were noted. No further qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses associated with these SDGs. Method accuracy and precision were assessed based on the blank spike/blank spike duplicate results. No qualifications were required.

2.8 SAMPLE CLEANUP PERFORMANCE

According to the laboratory extraction benchsheets, no cleanups were performed on the water samples. No qualifications were required.

2.9 FIELD QC SAMPLES

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

2.9.1 Field Blanks and Equipment Rinsates

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

2.9.2 Field Duplicates

There were no field duplicate samples associated with the sample in these SDGs.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for pesticide target compounds and PCBs by EPA Method 608. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for the samples in these SDGs. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for these SDGs by recalculating any sample detects and a representative number of blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and the laboratory MDL studies. The water reporting limits were not adjusted for sample amounts on the result summaries; however, the dilution factors listed on the summaries reflected the sample volume extracted. Results

DATA VALIDATION REPORT

Project: NPDES
SDG: IOB1523, 1526
Analysis: Pest/PCB

reported above the MDL but below the reporting limit were qualified as estimated, "J," by the laboratory. Results were reported in ug/L (ppb). No further qualifications were required.



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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5C19034	0.030	0.10	ND	0.952	03/19/05	03/19/05	<i>well qual</i> <i>qual code</i> ↓ J U ↓ JDNQ
alpha-BHC	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
beta-BHC	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
delta-BHC	EPA 608	5C19034	0.020	0.20	ND	0.952	03/19/05	03/19/05	
gamma-BHC (Lindane)	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Chlordane	EPA 608	5C19034	0.20	1.0	ND	0.952	03/19/05	03/19/05	
4,4'-DDD	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
4,4'-DDE	EPA 608	5C19034	0.025	0.10	ND	0.952	03/19/05	03/19/05	
4,4'-DDT	EPA 608	5C19034	0.030	0.10	0.039	0.952	03/19/05	03/19/05	
Dieldrin	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
Endosulfan I	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
Endosulfan II	EPA 608	5C19034	0.040	0.10	ND	0.952	03/19/05	03/19/05	
Endosulfan sulfate	EPA 608	5C19034	0.015	0.20	ND	0.952	03/19/05	03/19/05	
Endrin	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Endrin aldehyde	EPA 608	5C19034	0.045	0.10	ND	0.952	03/19/05	03/19/05	
Endrin ketone	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Heptachlor	EPA 608	5C19034	0.030	0.10	ND	0.952	03/19/05	03/19/05	
Heptachlor epoxide	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Methoxychlor	EPA 608	5C19034	0.035	0.10	ND	0.952	03/19/05	03/19/05	
Toxaphene	EPA 608	5C19034	1.5	5.0	ND	0.952	03/19/05	03/19/05	
Surrogate: Tetrachloro-m-xylene (35-115%)					57%				
Surrogate: Decachlorobiphenyl (45-120%)					66%				

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE



17451 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-2237
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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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5C19034	0.20	1.0	ND	0.952	03/19/05	03/20/05	<i>very good quality code</i> u ↓
Aroclor 1221	EPA 608	5C19034	0.10	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1232	EPA 608	5C19034	0.15	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1242	EPA 608	5C19034	0.15	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1248	EPA 608	5C19034	0.25	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1254	EPA 608	5C19034	0.25	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1260	EPA 608	5C19034	0.40	1.0	ND	0.952	03/19/05	03/20/05	
Surrogate: Decachlorobiphenyl (45-120%)					64 %				

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE



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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Date	Data Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.										
Reporting Units: ug/l										
Aldrin	EPA 608	5C19034	0.030	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
alpha-BHC	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
beta-BHC	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
delta-BHC	EPA 608	5C19034	0.020	0.20	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
gamma-BHC (Lindane)	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Chlordane	EPA 608	5C19034	0.20	1.0	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
4,4'-DDD	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
4,4'-DDE	EPA 608	5C19034	0.025	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
4,4'-DDT	EPA 608	5C19034	0.030	0.10	0.11	0.952	03/19/05	03/19/05	03/19/05	UJ S
Dieldrin	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Endosulfan I	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Endosulfan II	EPA 608	5C19034	0.040	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Endosulfan sulfate	EPA 608	5C19034	0.015	0.20	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Endrin	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Endrin aldehyde	EPA 608	5C19034	0.045	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Endrin ketone	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Heptachlor	EPA 608	5C19034	0.030	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Heptachlor epoxide	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Methoxychlor	EPA 608	5C19034	0.035	0.10	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Toxaphene	EPA 608	5C19034	1.5	5.0	ND	0.952	03/19/05	03/19/05	03/19/05	UJ S
Surrogate: Tetrachloro-m-xylene (35-115%)					31 %					ZX
Surrogate: Decachlorobiphenyl (45-120%)					39 %					ZX

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 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: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont. Reporting Units: ug/l									
Aroclor 1016	EPA 608	5C19034	0.20	1.0	ND	0.952	03/19/05	03/20/05	<i>rel qual</i> <i>qual code</i> WT S ↓ ↓ ZX
Aroclor 1221	EPA 608	5C19034	0.10	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1232	EPA 608	5C19034	0.15	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1242	EPA 608	5C19034	0.15	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1248	EPA 608	5C19034	0.25	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1254	EPA 608	5C19034	0.25	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1260	EPA 608	5C19034	0.40	1.0	ND	0.952	03/19/05	03/20/05	
Surrogate: Decachlorobiphenyl (45-120%)					37%				

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE


CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV50
 Task Order 313150010
 SDG No. IOC1523, 1526

No. of Analyses 2

Laboratory Del Mar
 Reviewer M. Pokorny
 Analysis/Method Semivolatiles

Date: April 10, 2005
 Reviewer's Signature 

ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Qualifications required for calibration and LCS outliers and for blank contamination.
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: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOC1523, IOC1526

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#: IOC1523, IOC1526
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 10, 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 Semivolatile Organics (DVP-3, Rev. 2)*, *EPA Method 625*, 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 Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 011-Grab	Outfall 011-Grab	IOC1523-01	water	625
Outfall 011-Composite	Outfall 011-Composite	IOC1526-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The samples in these SDGs were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. 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 analysis 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 water samples were extracted within seven days of collection and analyzed within 40 days of collection. No qualifications were required.

2.2 GC/MS TUNING

The DFTPP tunes met the criteria specified in Method 625, and the samples were analyzed within 12 hours of the DFTPP injection time. No qualifications were required.

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 03/17/05. The average RRFs for were ≥ 0.05 and the %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ for all target compounds listed on the sample summary form, except for the r^2 values for benzoic acid and 4,6-dinitro-2-methylphenol. Benzoic acid and 4,6-dinitro-2-methylphenol were qualified as estimated nondetects, "UJ," in the samples of these SDGs. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 03/22/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$ except for the %D for 3,3'-dichlorobenzidine. 3,3'-Dichlorobenzidine was qualified as an estimated nondetect, "UJ," in the samples of these SDGs. A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No further qualifications were required.

2.4 BLANKS

One method blank (5C20022-BLK1) was extracted and analyzed with this SDG. Butylbenzylphthalate and diethylphthalate were reported in the method blank and were qualified as nondetects, "U," in the samples of these SDGs. Review of the raw data indicated no reportable false negatives or false positives. No further qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/blank spike duplicate pair (5C20022-BS1/5C20022-BSD1) was extracted and analyzed with this SDG. All percent recoveries and RPDs were within the laboratory QC limits, except for benzidine which was not recovered in either the BS or BSD. Benzidine was rejected, "R," in the samples of these SDGs. A representative number of recoveries and RPDs were calculated from the raw data and no calculation or transcription errors were found. No further qualifications were required.

2.6 SURROGATE RECOVERY

The sample surrogate recoveries were within the laboratory QC limits. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with these SDGs. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate 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 samples. Following are findings associated with field QC samples:

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and ± 30 seconds for retention times. A representative number of recoveries were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for semivolatile target compounds by EPA Method 625. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low level of the initial calibration and the method detection limit study. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for these SDGs. No qualifications were required.

2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.



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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: 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	
									REL	QUAL
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water)										
Reporting Units: ug/l										
Acenaphthene	EPA 625	5C20022	0.20	1.0	ND	1.94	03/20/05	03/22/05	U	
Acenaphthylene	EPA 625	5C20022	0.20	1.0	ND	1.94	03/20/05	03/22/05	↓	
Aniline	EPA 625	5C20022	5.8	20	ND	1.94	03/20/05	03/22/05	↓	
Anthracene	EPA 625	5C20022	0.17	1.0	ND	1.94	03/20/05	03/22/05	↓	
Benzidine	EPA 625	5C20022	4.8	10	ND	1.94	03/20/05	03/22/05	R	L2 L
Benzoic acid	EPA 625	5C20022	7.4	40	ND	1.94	03/20/05	03/22/05	U	C
Benzo(a)anthracene	EPA 625	5C20022	0.076	10	ND	1.94	03/20/05	03/22/05	U	
Benzo(a)pyrene	EPA 625	5C20022	0.28	4.0	ND	1.94	03/20/05	03/22/05	↓	
Benzo(b)fluoranthene	EPA 625	5C20022	0.10	4.0	ND	1.94	03/20/05	03/22/05	↓	
Benzo(g,h,i)perylene	EPA 625	5C20022	0.12	10	ND	1.94	03/20/05	03/22/05	↓	
Benzo(k)fluoranthene	EPA 625	5C20022	0.11	1.0	ND	1.94	03/20/05	03/22/05	↓	
Benzyl alcohol	EPA 625	5C20022	0.42	10	ND	1.94	03/20/05	03/22/05	↓	
Bis(2-chloroethoxy)methane	EPA 625	5C20022	0.14	1.0	ND	1.94	03/20/05	03/22/05	↓	
Bis(2-chloroethyl)ether	EPA 625	5C20022	0.17	1.0	ND	1.94	03/20/05	03/22/05	↓	
Bis(2-chloroisopropyl)ether	EPA 625	5C20022	0.22	1.0	ND	1.94	03/20/05	03/22/05	↓	
Bis(2-ethylhexyl)phthalate	EPA 625	5C20022	2.2	10	ND	1.94	03/20/05	03/22/05	↓	
4-Bromophenyl phenyl ether	EPA 625	5C20022	0.24	2.0	ND	1.94	03/20/05	03/22/05	↓	
Butyl benzyl phthalate	EPA 625	5C20022	0.68	10	ND L	1.94	03/20/05	03/22/05	U	B, J B
4-Chloroaniline	EPA 625	5C20022	0.40	4.0	ND	1.94	03/20/05	03/22/05	U	
2-Chloronaphthalene	EPA 625	5C20022	0.12	1.0	ND	1.94	03/20/05	03/22/05	↓	
4-Chloro-3-methylphenol	EPA 625	5C20022	0.68	4.0	ND	1.94	03/20/05	03/22/05	↓	
4-Chlorophenyl phenyl ether	EPA 625	5C20022	0.11	1.0	ND	1.94	03/20/05	03/22/05	↓	
2-Chlorophenol	EPA 625	5C20022	0.24	2.0	ND	1.94	03/20/05	03/22/05	↓	
Chrysene	EPA 625	5C20022	0.14	1.0	ND	1.94	03/20/05	03/22/05	↓	
Dibenz(a,h)anthracene	EPA 625	5C20022	0.17	1.0	ND	1.94	03/20/05	03/22/05	↓	
Dibenzofuran	EPA 625	5C20022	0.15	1.0	ND	1.94	03/20/05	03/22/05	↓	
Di-n-butyl phthalate	EPA 625	5C20022	0.52	4.0	ND	1.94	03/20/05	03/22/05	↓	
1,2-Dichlorobenzene	EPA 625	5C20022	0.22	1.0	ND	1.94	03/20/05	03/22/05	↓	
1,3-Dichlorobenzene	EPA 625	5C20022	0.26	1.0	ND	1.94	03/20/05	03/22/05	↓	
1,4-Dichlorobenzene	EPA 625	5C20022	0.10	1.0	ND	1.94	03/20/05	03/22/05	↓	
3,3-Dichlorobenzidine	EPA 625	5C20022	1.9	10	ND	1.94	03/20/05	03/22/05	U	C
2,4-Dichlorophenol	EPA 625	5C20022	0.42	4.0	ND	1.94	03/20/05	03/22/05	U	
Diethyl phthalate	EPA 625	5C20022	0.24	2.0	ND L	1.94	03/20/05	03/22/05	↓	B, J B
2,4-Dimethylphenol	EPA 625	5C20022	0.62	4.0	ND	1.94	03/20/05	03/22/05	↓	
Dimethyl phthalate	EPA 625	5C20022	0.16	1.0	ND	1.94	03/20/05	03/22/05	↓	
4,6-Dinitro-2-methylphenol	EPA 625	5C20022	0.76	10	ND	1.94	03/20/05	03/22/05	U	C
2,4-Dinitrophenol	EPA 625	5C20022	5.4	10	ND	1.94	03/20/05	03/22/05	↓	
2,4-Dinitrotoluene	EPA 625	5C20022	0.46	10	ND	1.94	03/20/05	03/22/05	↓	
2,6-Dinitrotoluene	EPA 625	5C20022	0.48	10	ND	1.94	03/20/05	03/22/05	↓	
Di-n-octyl phthalate	EPA 625	5C20022	0.34	10	ND	1.94	03/20/05	03/22/05	↓	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5C20022	0.17	2.0	ND	1.94	03/20/05	03/22/05	↓	

DRAFT REPORT MP 4.10.05
 DRAFT REPORT
 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: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: 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: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Fluoranthene	EPA 625	5C20022	0.18	1.0	ND	1.94	03/20/05	03/22/05	U
Fluorene	EPA 625	5C20022	0.15	1.0	ND	1.94	03/20/05	03/22/05	
Hexachlorobenzene	EPA 625	5C20022	0.26	2.0	ND	1.94	03/20/05	03/22/05	
Hexachlorobutadiene	EPA 625	5C20022	0.76	4.0	ND	1.94	03/20/05	03/22/05	
Hexachlorocyclopentadiene	EPA 625	5C20022	3.6	10	ND	1.94	03/20/05	03/22/05	
Hexachloroethane	EPA 625	5C20022	1.0	6.0	ND	1.94	03/20/05	03/22/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5C20022	0.38	4.0	ND	1.94	03/20/05	03/22/05	
Isophorone	EPA 625	5C20022	0.12	2.0	ND	1.94	03/20/05	03/22/05	
2-Methylnaphthalene	EPA 625	5C20022	0.26	2.0	ND	1.94	03/20/05	03/22/05	
2-Methylphenol	EPA 625	5C20022	0.56	4.0	ND	1.94	03/20/05	03/22/05	
4-Methylphenol	EPA 625	5C20022	0.40	10	ND	1.94	03/20/05	03/22/05	
Naphthalene	EPA 625	5C20022	0.26	2.0	ND	1.94	03/20/05	03/22/05	
2-Nitroaniline	EPA 625	5C20022	0.36	10	ND	1.94	03/20/05	03/22/05	
3-Nitroaniline	EPA 625	5C20022	0.70	10	ND	1.94	03/20/05	03/22/05	
4-Nitroaniline	EPA 625	5C20022	0.98	10	ND	1.94	03/20/05	03/22/05	
Nitrobenzene	EPA 625	5C20022	0.20	2.0	ND	1.94	03/20/05	03/22/05	
2-Nitrophenol	EPA 625	5C20022	0.46	4.0	ND	1.94	03/20/05	03/22/05	
4-Nitrophenol	EPA 625	5C20022	1.5	10	ND	1.94	03/20/05	03/22/05	
N-Nitrosodimethylamine	EPA 625	5C20022	0.44	4.0	ND	1.94	03/20/05	03/22/05	
N-Nitroso-di-n-propylamine	EPA 625	5C20022	0.36	4.0	ND	1.94	03/20/05	03/22/05	
N-Nitrosodiphenylamine	EPA 625	5C20022	0.15	2.0	ND	1.94	03/20/05	03/22/05	
Pentachlorophenol	EPA 625	5C20022	1.6	4.0	ND	1.94	03/20/05	03/22/05	
Phenanthrene	EPA 625	5C20022	0.14	1.0	ND	1.94	03/20/05	03/22/05	
Phenol	EPA 625	5C20022	0.28	2.0	ND	1.94	03/20/05	03/22/05	
Pyrene	EPA 625	5C20022	0.12	1.0	ND	1.94	03/20/05	03/22/05	
1,2,4-Trichlorobenzene	EPA 625	5C20022	0.20	2.0	ND	1.94	03/20/05	03/22/05	
2,4,5-Trichlorophenol	EPA 625	5C20022	0.15	4.0	ND	1.94	03/20/05	03/22/05	
2,4,6-Trichlorophenol	EPA 625	5C20022	0.20	2.0	ND	1.94	03/20/05	03/22/05	
Surrogate: 2-Fluorophenol (30-120%)					71 %				
Surrogate: Phenol-d6 (35-120%)					72 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					87 %				
Surrogate: Nitrobenzene-d5 (45-120%)					71 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					76 %				
Surrogate: Terphenyl-d14 (45-120%)					82 %				

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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: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: 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	
									EW	QUAL
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water)										
Reporting Units: ug/l										
Acenaphthene	EPA 625	5C20022	0.20	1.0	ND	1.9	03/20/05	03/22/05	U	
Acenaphthylene	EPA 625	5C20022	0.20	1.0	ND	1.9	03/20/05	03/22/05	U	
Aniline	EPA 625	5C20022	5.8	20	ND	1.9	03/20/05	03/22/05	U	
Anthracene	EPA 625	5C20022	0.17	1.0	ND	1.9	03/20/05	03/22/05	U	
Benzidine	EPA 625	5C20022	4.8	10	ND	1.9	03/20/05	03/22/05	R	L2 L
Benzoic acid	EPA 625	5C20022	7.4	40	ND	1.9	03/20/05	03/22/05	U	C
Benzo(a)anthracene	EPA 625	5C20022	0.076	10	ND	1.9	03/20/05	03/22/05	U	
Benzo(a)pyrene	EPA 625	5C20022	0.28	4.0	ND	1.9	03/20/05	03/22/05	U	
Benzo(b)fluoranthene	EPA 625	5C20022	0.10	4.0	ND	1.9	03/20/05	03/22/05	U	
Benzo(g,h,i)perylene	EPA 625	5C20022	0.12	10	ND	1.9	03/20/05	03/22/05	U	
Benzo(k)fluoranthene	EPA 625	5C20022	0.11	1.0	ND	1.9	03/20/05	03/22/05	U	
Benzyl alcohol	EPA 625	5C20022	0.42	10	ND	1.9	03/20/05	03/22/05	U	
Bis(2-chloroethoxy)methane	EPA 625	5C20022	0.14	1.0	ND	1.9	03/20/05	03/22/05	U	
Bis(2-chloroethyl)ether	EPA 625	5C20022	0.17	1.0	ND	1.9	03/20/05	03/22/05	U	
Bis(2-chloroisopropyl)ether	EPA 625	5C20022	0.22	1.0	ND	1.9	03/20/05	03/22/05	U	
Bis(2-ethylhexyl)phthalate	EPA 625	5C20022	2.2	10	ND	1.9	03/20/05	03/22/05	U	
4-Bromophenyl phenyl ether	EPA 625	5C20022	0.24	2.0	ND	1.9	03/20/05	03/22/05	U	
Butyl benzyl phthalate	EPA 625	5C20022	0.68	10	ND	1.9	03/20/05	03/22/05	U	B, J, B
4-Chloroaniline	EPA 625	5C20022	0.40	4.0	ND	1.9	03/20/05	03/22/05	U	
2-Chloronaphthalene	EPA 625	5C20022	0.12	1.0	ND	1.9	03/20/05	03/22/05	U	
4-Chloro-3-methylphenol	EPA 625	5C20022	0.68	4.0	ND	1.9	03/20/05	03/22/05	U	
4-Chlorophenyl phenyl ether	EPA 625	5C20022	0.11	1.0	ND	1.9	03/20/05	03/22/05	U	
2-Chlorophenol	EPA 625	5C20022	0.24	2.0	ND	1.9	03/20/05	03/22/05	U	
Chrysene	EPA 625	5C20022	0.14	1.0	ND	1.9	03/20/05	03/22/05	U	
Dibenz(a,h)anthracene	EPA 625	5C20022	0.17	1.0	ND	1.9	03/20/05	03/22/05	U	
Dibenzofuran	EPA 625	5C20022	0.15	1.0	ND	1.9	03/20/05	03/22/05	U	
Di-n-butyl phthalate	EPA 625	5C20022	0.52	4.0	ND	1.9	03/20/05	03/22/05	U	
1,2-Dichlorobenzene	EPA 625	5C20022	0.22	1.0	ND	1.9	03/20/05	03/22/05	U	
1,3-Dichlorobenzene	EPA 625	5C20022	0.26	1.0	ND	1.9	03/20/05	03/22/05	U	
1,4-Dichlorobenzene	EPA 625	5C20022	0.10	1.0	ND	1.9	03/20/05	03/22/05	U	
3,3-Dichlorobenzidine	EPA 625	5C20022	1.9	10	ND	1.9	03/20/05	03/22/05	U	C
2,4-Dichlorophenol	EPA 625	5C20022	0.42	4.0	ND	1.9	03/20/05	03/22/05	U	
Diethyl phthalate	EPA 625	5C20022	0.24	2.0	ND	1.9	03/20/05	03/22/05	U	B, J, B
2,4-Dimethylphenol	EPA 625	5C20022	0.62	4.0	ND	1.9	03/20/05	03/22/05	U	
Dimethyl phthalate	EPA 625	5C20022	0.16	1.0	ND	1.9	03/20/05	03/22/05	U	
4,6-Dinitro-2-methylphenol	EPA 625	5C20022	0.76	10	ND	1.9	03/20/05	03/22/05	U	C
2,4-Dinitrophenol	EPA 625	5C20022	5.4	10	ND	1.9	03/20/05	03/22/05	U	N-1
2,4-Dinitrotoluene	EPA 625	5C20022	0.46	10	ND	1.9	03/20/05	03/22/05	U	
2,6-Dinitrotoluene	EPA 625	5C20022	0.48	10	ND	1.9	03/20/05	03/22/05	U	
Di-n-octyl phthalate	EPA 625	5C20022	0.34	10	ND	1.9	03/20/05	03/22/05	U	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5C20022	0.17	2.0	ND	1.9	03/20/05	03/22/05	U	

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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: 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	
									REV	QUAL
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.										
Reporting Units: ug/l										
Fluoranthene	EPA 625	5C20022	0.18	1.0	ND	1.9	03/20/05	03/22/05	U	
Fluorene	EPA 625	5C20022	0.15	1.0	ND	1.9	03/20/05	03/22/05		
Hexachlorobenzene	EPA 625	5C20022	0.26	2.0	ND	1.9	03/20/05	03/22/05		
Hexachlorobutadiene	EPA 625	5C20022	0.76	4.0	ND	1.9	03/20/05	03/22/05		
Hexachlorocyclopentadiene	EPA 625	5C20022	3.6	10	ND	1.9	03/20/05	03/22/05		
Hexachloroethane	EPA 625	5C20022	1.0	6.0	ND	1.9	03/20/05	03/22/05		
Indeno(1,2,3-cd)pyrene	EPA 625	5C20022	0.38	4.0	ND	1.9	03/20/05	03/22/05		
Isophorone	EPA 625	5C20022	0.12	2.0	ND	1.9	03/20/05	03/22/05		
2-Methylnaphthalene	EPA 625	5C20022	0.26	2.0	ND	1.9	03/20/05	03/22/05		
2-Methylphenol	EPA 625	5C20022	0.56	4.0	ND	1.9	03/20/05	03/22/05		
4-Methylphenol	EPA 625	5C20022	0.40	10	ND	1.9	03/20/05	03/22/05		
Naphthalene	EPA 625	5C20022	0.26	2.0	ND	1.9	03/20/05	03/22/05		
2-Nitroaniline	EPA 625	5C20022	0.36	10	ND	1.9	03/20/05	03/22/05		
3-Nitroaniline	EPA 625	5C20022	0.70	10	ND	1.9	03/20/05	03/22/05		
4-Nitroaniline	EPA 625	5C20022	0.98	10	ND	1.9	03/20/05	03/22/05		
Nitrobenzene	EPA 625	5C20022	0.20	2.0	ND	1.9	03/20/05	03/22/05		
2-Nitrophenol	EPA 625	5C20022	0.46	4.0	ND	1.9	03/20/05	03/22/05		
4-Nitrophenol	EPA 625	5C20022	1.5	10	ND	1.9	03/20/05	03/22/05		
N-Nitrosodimethylamine	EPA 625	5C20022	0.44	4.0	ND	1.9	03/20/05	03/22/05		
N-Nitroso-di-n-propylamine	EPA 625	5C20022	0.36	4.0	ND	1.9	03/20/05	03/22/05		
N-Nitrosodiphenylamine	EPA 625	5C20022	0.15	2.0	ND	1.9	03/20/05	03/22/05		
Pentachlorophenol	EPA 625	5C20022	1.6	4.0	ND	1.9	03/20/05	03/22/05		
Phenanthrene	EPA 625	5C20022	0.14	1.0	ND	1.9	03/20/05	03/22/05		
Phenol	EPA 625	5C20022	0.28	2.0	ND	1.9	03/20/05	03/22/05		
Pyrene	EPA 625	5C20022	0.12	1.0	ND	1.9	03/20/05	03/22/05		
1,2,4-Trichlorobenzene	EPA 625	5C20022	0.20	2.0	ND	1.9	03/20/05	03/22/05		
2,4,5-Trichlorophenol	EPA 625	5C20022	0.15	4.0	ND	1.9	03/20/05	03/22/05		
2,4,6-Trichlorophenol	EPA 625	5C20022	0.20	2.0	ND	1.9	03/20/05	03/22/05		
Surrogate: 2-Fluorophenol (30-120%)					68 %					
Surrogate: Phenol-d6 (35-120%)					67 %					
Surrogate: 2,4,6-Tribromophenol (45-120%)					79 %					
Surrogate: Nitrobenzene-d5 (45-120%)					68 %					
Surrogate: 2-Fluorobiphenyl (45-120%)					70 %					
Surrogate: Terphenyl-d14 (45-120%)					78 %					

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711TF55
Task Order 313150010
SDG No. IOC1523, IOC1526
No. of Analyses 2

Laboratory Pacific Analytical
Reviewer L. Calvin
Analysis/Method EFH by Method 8015B

Date: April 11, 2005
Reviewer's Signature L. Calvin

ACTION ITEMS^a	
1. Case Narrative Deficiencies	_____
2. Out of Scope Analyses	_____
3. Analyses Not Conducted	_____
4. Missing Hardcopy Deliverables	_____
5. Incorrect Hardcopy Deliverables	_____
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification 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 VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOC1523, IOC1526

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#: IOC1523, IOC1526
Project Manager: B. McIlvaine
Matrix: Water
Analysis: TPH-Extractable
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
Date of Review: April 11, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015M, and validation guidelines outlined in the *USEPA CLP 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 Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 011 Grab	Outfall 011 Grab	IOC1523-01	water	8015B/EFH
Outfall 011 Composite	Outfall 011 Composite	IOC1526-01	water	8015B/EFH

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 Del Mar Analytical laboratory on ice within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The Del Mar Analytical case narrative noted that the sample containers were received intact. No qualifications were required.

2.1.2 Chain of Custody

The COCs were signed and dated by both field and laboratory personnel, and 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 extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 CALIBRATION

The initial calibration associated with the sample analyses was analyzed on 03/11/05. The %RSD was within the QC limit of $\leq 20\%$. The %Ds for the initial calibration verification (ICV) and continuing calibrations associated with the sample analysis were $\leq 15\%$. The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 METHOD BLANKS

One method blank (5C21048-BLK1) was extracted and analyzed with the samples in these SDGs. EFH (C13-C22) was not present above the MDL in the method blank or in the instrument blank analyzed at the beginning of the analytical sequence. Review of the chromatograms showed no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One method blank spike/blank spike duplicate pair (5C21048-BS1/BSD1) was extracted and analyzed with the samples in these SDGs. The laboratory reported recoveries of alkane range C13-C28 from spiked diesel. The recoveries were within the laboratory-established QC limits of 40-120%, and the RPD was within the QC limit of $\leq 25\%$. The recoveries and RPD were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound n-octacosane. The sample surrogate recoveries were within the laboratory-established QC limits of 40-125%. The recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses performed on the samples of these SDGs. Evaluation of method accuracy and precision was based on the BS/BSD results. No qualifications were required.

2.8 FIELD QC SAMPLES

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

2.9.1 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinse samples associated with the site samples in these SDGs. No qualifications were required.

2.9.2 Field Duplicates

There were no field duplicate samples associated with these SDGs.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for EFH n-alkane range C13-C22 by Method 8015B. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for these SDGs. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for these SDGs by recalculating any sample detects, blank spike recoveries, and a representative number of surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and by the laboratory MDL. Results were reported in mg/L (ppm). No qualifications were required.



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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifier
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C21048	0.082	0.50	ND	0.957	03/21/05	03/21/05	U
Surrogate: n-Octacosane (40-125%)					91 %				

See Qual Code

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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05

Received: 03/18/05

DRAFT: EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C21048	0.082	0.50	ND	0.943	03/21/05	03/21/05	U
Surrogate: n-Octacosane (40-125%)					81 %				

vet qual
qual
code

AMEC VALIDATED
LEVEL IV


DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711TF57
 Task Order 313150010
 SDG No. IOC1523, IOC1526
 No. of Analyses 3

Laboratory Pacific Analytical
 Reviewer L. Calvin
 Analysis/Method GRO by Method 8015M

Date: April 11, 2005
 Reviewer's Signature


ACTION ITEMS^a	
1. Case Narrative Deficiencies	_____
2. Out of Scope Analyses	_____
3. Analyses Not Conducted	_____
4. Missing Hardcopy Deliverables	_____
5. Incorrect Hardcopy Deliverables	_____
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification 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 VALIDATION REPORT

NPDES Monitoring

ANALYSIS: Total Petroleum Hydrocarbons: Purgeable

SAMPLE DELIVERY GROUP: IOC1523, IOC1526

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#: IOC1523, IOC1526
Project Manager: B. McIlvaine
Matrix: Water
Analysis: TPH-Purgeable
QC Level: Level IV
No. of Samples: 3
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
Date of Review: April 11, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015M, and validation guidelines outlined in the *USEPA CLP 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 Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 011 Grab	Outfall 011 Grab	IOC1523-01	water	8015M/GRO
Outfall 011 Composite	Outfall 011 Composite	IOC1526-01	water	8015M/GRO
Trip Blank	Trip Blank	IOC1526-02	water	8015M/GRO

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 Del Mar Analytical on ice within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The Del Mar Analytical case narrative noted that the samples were received intact, and the COCs indicated the samples were properly preserved, with the exception of the trip blank, which was an unpreserved aliquot. Information regarding lack of headspace in the VOA vials 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. As the samples were couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

The water site samples were analyzed within 14 days of collection, and the unpreserved sample (Trip Blank) was analyzed within seven days of collection. No qualifications were required.

2.2 CALIBRATION

One gasoline standard initial calibration dated 08/26/04 was associated with the sample analyses. The %RSD for GRO (C4-C12) was within the QC limit of $\leq 20\%$. An initial calibration verification (ICV) was not provided in the data package. The %Ds for both CCVs bracketing the sample analyses were within the Method QC limit of $\leq 15\%$. The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 METHOD BLANKS

One water method blank (5C21006-BLK1) was associated with the sample analyses. GRO (C4-C12) was not detected above the MDL in the method blank. Review of the raw data indicated no false negative result. No qualifications were necessary.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water method blank spike (5C21006-BS1) was associated with the sample analyses. GRO (C4-C12) was recovered within the laboratory-established QC limits of 70-140% in the blank spike. The recovery was checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound 4-bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC of 65-140%. Recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were performed on site sample Outfall 011 Composite. Recoveries for GRO (C4-C12) were within the laboratory QC limits of 60-140%, and the RPD was within the QC limit of $\leq 20\%$. No qualifications were required.

2.8 FIELD QC SAMPLES

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

2.9.1 Trip Blanks, Field Blanks, and Equipment Rinsates

Sample Trip Blank was the trip blank associated with site sample Outfall 011 Composite. GRO (C4-C12) was not detected above the MDL in the trip blank. Review of the raw data indicated no false negative result. Sample Outfall 011 Grab had no associated trip blank analysis. There were no field blank or equipment rinsate samples associated with these SDGs. No qualifications were necessary.

2.9.2 Field Duplicates

There were no field duplicate samples in these SDGs.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for GRO (C4-C12) by EPA SW-846 Method 8015M. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for the samples in these SDGs. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for these SDGs by recalculating any sample detects, blank spike recoveries, and a representative number of surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and by the laboratory MDL. Results were reported in units of $\mu\text{g/L}$ (ppb). No qualifications were required.



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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05

Received: 03/18/05

DRAFT: VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C21006	50	100	ND	1	03/21/05	03/21/05	u
Surrogate: 4-BFB (FID) (65-140%)					80 %				

see qual code

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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.										
Reporting Units: ug/l										
GRO (C4 - C12)	EPA 8015 Mod.	5C21006	50	100	ND	1	03/21/05	03/21/05	u	
Surrogate: 4-BFB (FID) (65-140%)					81 %					
Sample ID: IOC1526-02 (DRAFT: Trip Blank - Water)										
Reporting Units: ug/l										
GRO (C4 - C12)	EPA 8015 Mod.	5C21006	50	100	ND	1	03/21/05	03/21/05	u	
Surrogate: 4-BFB (FID) (65-140%)					76 %					

Handwritten notes:
 new qual
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AMEC VALIDATED

LEVEL IV

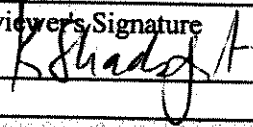
DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711VO85
 Task Order 313150010
 SDG No. IOC1523, IOC1526
 No. of Analyses 4

Laboratory Del Mar Analytical
 Reviewer K. Shadowlight
 Analysis/Method Volatiles by 624

Date April 8, 2005
 Reviewer's Signature


ACTION ITEMS*	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis	Qualifications were assigned for the following:
GC/MS Tune/Inst. Perform	* Average RRF <0.05 in the initial calibration
Calibrations	* RRF <0.05 in the continuing calibrations
Blanks	* Continuing calibration %D outliers
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS ^b	

* 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: IOC1523, IOC1526

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#: IOC1523, IOC1526
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles
QC Level: Level IV
No. of Samples: 4
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: April 8, 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 011 Grab	Outfall 011 Grab	IOC1523-01	water	624
Trip Blank	Trip Blank	IOC1523-02	water	624
Outfall 011 Composite	Outfall 011 Composite	IOC1526-01	water	624
Trip Blank	Trip Blank	IOC1526-02	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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. 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 times. The Form Vs were verified from the raw data and no discrepancies between the summary forms and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

Two initial calibrations dated 03/04/05 and 03/16/05 (trichlorotrifluoroethane, acrolein, and acrylonitrile only) were associated with these SDGs. The average RRF for acrolein was <0.05 in the initial calibration dated 03/16/05; therefore, the nondetect results for acrolein were rejected, "R," in all samples of these SDGs. The average RRFs were ≥ 0.05 for the remaining target compounds listed on the sample result summaries. The %RSDs were $\leq 35\%$ for all applicable target compounds. Two continuing calibrations dated 03/19/05 and 03/20/05 were associated with the sample analyses in these SDGs. The %Ds for bromomethane, chloromethane, chloroethane, 1,1-dichloroethane, 1,2-dichloroethane, and trichlorofluoromethane exceeded 20% in the continuing calibration dated 03/19/04; therefore, the nondetect results for the aforementioned target compounds were qualified as estimated, "UJ," in sample Outfall 011 Grab. No qualifications were required for the Trip Blank. The RRF for acrolein was <0.05 in the continuing calibration 03/20/05; therefore, the nondetect results for acrolein were rejected, "R," in all samples of these SDGs. The RRFs were ≥ 0.05 for the remaining target compounds listed on the sample result summaries. 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 blanks (5C20002-BLK1 and 5C19004-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 spike (5C20002-BS1 and 5C19004-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

MS/MSD analyses were not performed for these SDGs. Evaluation of method accuracy was 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 (IOC1523) and Trip Blank (IOC1526) were the trip blanks associated with this SDG. 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 the volatile target compounds by EPA Method 624. A TIC search was performed for requested target compounds 1,2-dichloro-1,1,2-trifluoroethane and cyclohexane. The laboratory was calibrated for target compound 1,2-dichloro-1,1,2-trifluoroethane; however, the calibration was not used for identification. Target compound cyclohexane was not included in the calibration (see section 2.11). Neither compound was detected as a TIC. 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 standards and by the MDL study. Calibration was not utilized for target compounds 1,2-dichloro-1,1,2-trifluoroethane and cyclohexane; therefore, the laboratory performed only a TIC search for these compounds. Nondetects for both compounds were qualified as estimated, "UJ," in sample Outfall 011 Grab and 011 Composite. Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike and surrogate recoveries from the raw data. Results were reported in $\mu\text{g/L}$ (ppb). No calculation or transcription errors were noted. No further 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.



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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C19004	N/A	2.5	ND	1	03/19/05	03/19/05	U S
Cyclohexane	EPA 624 (MOD.)	5C19004	N/A	2.5	ND	1	03/19/05	03/19/05	U S
Sample ID: IOC1523-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C19004	N/A	2.5	ND	1	03/19/05	03/19/05	U
Cyclohexane	EPA 624 (MOD.)	5C19004	N/A	2.5	ND	1	03/19/05	03/19/05	U

Raw Data | Final Data
 U S | * 11
 U S | * 11

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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: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

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: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont. Reporting Units: ug/l									
Acrolein	EPA 624	5C20002	4.6	50	ND	1	03/20/05	03/20/05	R
Acrylonitrile	EPA 624	5C20002	5.1	50	ND	1	03/20/05	03/20/05	U
2-Chloroethyl vinyl ether	EPA 624	5C20002	1.3	5.0	ND	1	03/20/05	03/20/05	U
Surrogate: Dibromofluoromethane (80-120%)					115 %				
Surrogate: Toluene-d8 (80-120%)					102 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					95 %				
Sample ID: IOC1523-02 (DRAFT: Trip Blank - Water) Reporting Units: ug/l									
Acrolein	EPA 624	5C20002	4.6	50	ND	1	03/20/05	03/20/05	R
Acrylonitrile	EPA 624	5C20002	5.1	50	ND	1	03/20/05	03/20/05	U
2-Chloroethyl vinyl ether	EPA 624	5C20002	1.3	5.0	ND	1	03/20/05	03/20/05	U
Surrogate: Dibromofluoromethane (80-120%)					114 %				
Surrogate: Toluene-d8 (80-120%)					102 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

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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: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05

Received: 03/18/05

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: IOC1523-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C19004	0.28	1.0	ND	1	03/19/05	03/19/05	u
Bromodichloromethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	
Bromoform	EPA 624	5C19004	0.32	5.0	ND	1	03/19/05	03/19/05	
Bromomethane	EPA 624	5C19004	0.34	5.0	ND	1	03/19/05	03/19/05	
Carbon tetrachloride	EPA 624	5C19004	0.28	0.50	ND	1	03/19/05	03/19/05	
Chlorobenzene	EPA 624	5C19004	0.36	2.0	ND	1	03/19/05	03/19/05	
Chloroethane	EPA 624	5C19004	0.33	5.0	ND	1	03/19/05	03/19/05	
Chloroform	EPA 624	5C19004	0.33	2.0	ND	1	03/19/05	03/19/05	
Chloromethane	EPA 624	5C19004	0.30	5.0	ND	1	03/19/05	03/19/05	
Dibromochloromethane	EPA 624	5C19004	0.28	2.0	ND	1	03/19/05	03/19/05	
1,2-Dichlorobenzene	EPA 624	5C19004	0.32	2.0	ND	1	03/19/05	03/19/05	
1,3-Dichlorobenzene	EPA 624	5C19004	0.35	2.0	ND	1	03/19/05	03/19/05	
1,4-Dichlorobenzene	EPA 624	5C19004	0.37	2.0	ND	1	03/19/05	03/19/05	
1,1-Dichloroethane	EPA 624	5C19004	0.27	2.0	ND	1	03/19/05	03/19/05	
1,2-Dichloroethane	EPA 624	5C19004	0.28	0.50	ND	1	03/19/05	03/19/05	
1,1-Dichloroethene	EPA 624	5C19004	0.32	5.0	ND	1	03/19/05	03/19/05	
trans-1,2-Dichloroethene	EPA 624	5C19004	0.27	2.0	ND	1	03/19/05	03/19/05	
1,2-Dichloropropane	EPA 624	5C19004	0.35	2.0	ND	1	03/19/05	03/19/05	
cis-1,3-Dichloropropene	EPA 624	5C19004	0.22	2.0	ND	1	03/19/05	03/19/05	
trans-1,3-Dichloropropene	EPA 624	5C19004	0.24	2.0	ND	1	03/19/05	03/19/05	
Ethylbenzene	EPA 624	5C19004	0.25	2.0	ND	1	03/19/05	03/19/05	
Methylene chloride	EPA 624	5C19004	0.48	5.0	ND	1	03/19/05	03/19/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C19004	0.24	2.0	ND	1	03/19/05	03/19/05	
Tetrachloroethene	EPA 624	5C19004	0.32	2.0	ND	1	03/19/05	03/19/05	
Toluene	EPA 624	5C19004	0.36	2.0	ND	1	03/19/05	03/19/05	
1,1,1-Trichloroethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	
1,1,2-Trichloroethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	
Trichloroethene	EPA 624	5C19004	0.26	2.0	ND	1	03/19/05	03/19/05	
Trichlorofluoromethane	EPA 624	5C19004	0.34	5.0	ND	1	03/19/05	03/19/05	
Vinyl chloride	EPA 624	5C19004	0.26	0.50	ND	1	03/19/05	03/19/05	
Xylenes, Total	EPA 624	5C19004	0.52	4.0	ND	1	03/19/05	03/19/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C19004	1.2	5.0	ND	1	03/19/05	03/19/05	
Surrogate: Dibromofluoromethane (80-120%)					111 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					95 %				

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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05

Received: 03/18/05

DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	
									Qualifiers	Qual
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water)										
Reporting Units: ug/l										
Benzene	EPA 624	5C19004	0.28	1.0	ND	1	03/19/05	03/19/05	U	
Bromodichloromethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	U	
Bromoform	EPA 624	5C19004	0.32	5.0	ND	1	03/19/05	03/19/05	U	
Bromomethane	EPA 624	5C19004	0.34	5.0	ND	1	03/19/05	03/19/05	U	C
Carbon tetrachloride	EPA 624	5C19004	0.28	0.50	ND	1	03/19/05	03/19/05	U	
Chlorobenzene	EPA 624	5C19004	0.36	2.0	ND	1	03/19/05	03/19/05	U	
Chloroethane	EPA 624	5C19004	0.33	5.0	ND	1	03/19/05	03/19/05	U	C
Chloroform	EPA 624	5C19004	0.33	2.0	ND	1	03/19/05	03/19/05	U	
Chloromethane	EPA 624	5C19004	0.30	5.0	ND	1	03/19/05	03/19/05	U	C
Dibromochloromethane	EPA 624	5C19004	0.28	2.0	ND	1	03/19/05	03/19/05	U	
1,2-Dichlorobenzene	EPA 624	5C19004	0.32	2.0	ND	1	03/19/05	03/19/05	U	
1,3-Dichlorobenzene	EPA 624	5C19004	0.35	2.0	ND	1	03/19/05	03/19/05	U	
1,4-Dichlorobenzene	EPA 624	5C19004	0.37	2.0	ND	1	03/19/05	03/19/05	U	
1,1-Dichloroethane	EPA 624	5C19004	0.27	2.0	ND	1	03/19/05	03/19/05	U	C
1,2-Dichloroethane	EPA 624	5C19004	0.28	0.50	ND	1	03/19/05	03/19/05	U	C
1,1-Dichloroethene	EPA 624	5C19004	0.32	5.0	ND	1	03/19/05	03/19/05	U	
trans-1,2-Dichloroethene	EPA 624	5C19004	0.27	2.0	ND	1	03/19/05	03/19/05	U	
1,2-Dichloropropane	EPA 624	5C19004	0.35	2.0	ND	1	03/19/05	03/19/05	U	
cis-1,3-Dichloropropene	EPA 624	5C19004	0.22	2.0	ND	1	03/19/05	03/19/05	U	
trans-1,3-Dichloropropene	EPA 624	5C19004	0.24	2.0	ND	1	03/19/05	03/19/05	U	
Ethylbenzene	EPA 624	5C19004	0.25	2.0	ND	1	03/19/05	03/19/05	U	
Methylene chloride	EPA 624	5C19004	0.48	5.0	ND	1	03/19/05	03/19/05	U	
1,1,2,2-Tetrachloroethane	EPA 624	5C19004	0.24	2.0	ND	1	03/19/05	03/19/05	U	
Tetrachloroethene	EPA 624	5C19004	0.32	2.0	ND	1	03/19/05	03/19/05	U	
Toluene	EPA 624	5C19004	0.36	2.0	ND	1	03/19/05	03/19/05	U	
1,1,1-Trichloroethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	U	
1,1,2-Trichloroethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	U	
Trichloroethene	EPA 624	5C19004	0.26	2.0	ND	1	03/19/05	03/19/05	U	
Trichlorofluoromethane	EPA 624	5C19004	0.34	5.0	ND	1	03/19/05	03/19/05	U	C
Vinyl chloride	EPA 624	5C19004	0.26	0.50	ND	1	03/19/05	03/19/05	U	
Xylenes, Total	EPA 624	5C19004	0.52	4.0	ND	1	03/19/05	03/19/05	U	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C19004	1.2	5.0	ND	1	03/19/05	03/19/05	U	
Surrogate: Dibromofluoromethane (80-120%)										114 %
Surrogate: Toluene-d8 (80-120%)										102 %
Surrogate: 4-Bromofluorobenzene (80-120%)										94 %

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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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

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: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Benzene	EPA 624	5C20002	0.28	1.0	ND	1	03/20/05	03/20/05	u
Bromodichloromethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
Bromoform	EPA 624	5C20002	0.32	5.0	ND	1	03/20/05	03/20/05	
Bromomethane	EPA 624	5C20002	0.34	5.0	ND	1	03/20/05	03/20/05	
Carbon tetrachloride	EPA 624	5C20002	0.28	0.50	ND	1	03/20/05	03/20/05	
Chlorobenzene	EPA 624	5C20002	0.36	2.0	ND	1	03/20/05	03/20/05	
Chloroethane	EPA 624	5C20002	0.33	5.0	ND	1	03/20/05	03/20/05	
Chloroform	EPA 624	5C20002	0.33	2.0	ND	1	03/20/05	03/20/05	
Chloromethane	EPA 624	5C20002	0.30	5.0	ND	1	03/20/05	03/20/05	
Dibromochloromethane	EPA 624	5C20002	0.28	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichlorobenzene	EPA 624	5C20002	0.32	2.0	ND	1	03/20/05	03/20/05	
1,3-Dichlorobenzene	EPA 624	5C20002	0.35	2.0	ND	1	03/20/05	03/20/05	
1,4-Dichlorobenzene	EPA 624	5C20002	0.37	2.0	ND	1	03/20/05	03/20/05	
1,1-Dichloroethane	EPA 624	5C20002	0.27	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichloroethane	EPA 624	5C20002	0.28	0.50	ND	1	03/20/05	03/20/05	
1,1-Dichloroethene	EPA 624	5C20002	0.32	5.0	ND	1	03/20/05	03/20/05	
trans-1,2-Dichloroethene	EPA 624	5C20002	0.27	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichloropropane	EPA 624	5C20002	0.35	2.0	ND	1	03/20/05	03/20/05	
cis-1,3-Dichloropropene	EPA 624	5C20002	0.22	2.0	ND	1	03/20/05	03/20/05	
trans-1,3-Dichloropropene	EPA 624	5C20002	0.24	2.0	ND	1	03/20/05	03/20/05	
Ethylbenzene	EPA 624	5C20002	0.25	2.0	ND	1	03/20/05	03/20/05	
Methylene chloride	EPA 624	5C20002	0.48	5.0	ND	1	03/20/05	03/20/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C20002	0.24	2.0	ND	1	03/20/05	03/20/05	
Tetrachloroethene	EPA 624	5C20002	0.32	2.0	ND	1	03/20/05	03/20/05	
Toluene	EPA 624	5C20002	0.36	2.0	ND	1	03/20/05	03/20/05	
1,1,1-Trichloroethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
1,1,2-Trichloroethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
Trichloroethene	EPA 624	5C20002	0.26	2.0	ND	1	03/20/05	03/20/05	
Trichlorofluoromethane	EPA 624	5C20002	0.34	5.0	ND	1	03/20/05	03/20/05	
Vinyl chloride	EPA 624	5C20002	0.26	0.50	ND	1	03/20/05	03/20/05	
Xylenes, Total	EPA 624	5C20002	0.52	4.0	ND	1	03/20/05	03/20/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C20002	1.2	5.0	ND	1	03/20/05	03/20/05	
Surrogate: Dibromofluoromethane (80-120%)					116 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					94 %				

Handwritten notes: "New Plus 1 Qual" and "u" with a vertical line extending downwards.

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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05

Received: 03/18/05

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: IOC1526-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C20002	0.28	1.0	ND	1	03/20/05	03/20/05	ll
Bromodichloromethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
Bromoform	EPA 624	5C20002	0.32	5.0	ND	1	03/20/05	03/20/05	
Bromomethane	EPA 624	5C20002	0.34	5.0	ND	1	03/20/05	03/20/05	
Carbon tetrachloride	EPA 624	5C20002	0.28	0.50	ND	1	03/20/05	03/20/05	
Chlorobenzene	EPA 624	5C20002	0.36	2.0	ND	1	03/20/05	03/20/05	
Chloroethane	EPA 624	5C20002	0.33	5.0	ND	1	03/20/05	03/20/05	
Chloroform	EPA 624	5C20002	0.33	2.0	ND	1	03/20/05	03/20/05	
Chloromethane	EPA 624	5C20002	0.30	5.0	ND	1	03/20/05	03/20/05	
Dibromochloromethane	EPA 624	5C20002	0.28	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichlorobenzene	EPA 624	5C20002	0.32	2.0	ND	1	03/20/05	03/20/05	
1,3-Dichlorobenzene	EPA 624	5C20002	0.35	2.0	ND	1	03/20/05	03/20/05	
1,4-Dichlorobenzene	EPA 624	5C20002	0.37	2.0	ND	1	03/20/05	03/20/05	
1,1-Dichloroethane	EPA 624	5C20002	0.27	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichloroethane	EPA 624	5C20002	0.28	0.50	ND	1	03/20/05	03/20/05	
1,1-Dichloroethene	EPA 624	5C20002	0.32	5.0	ND	1	03/20/05	03/20/05	
trans-1,2-Dichloroethene	EPA 624	5C20002	0.27	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichloropropane	EPA 624	5C20002	0.35	2.0	ND	1	03/20/05	03/20/05	
cis-1,3-Dichloropropene	EPA 624	5C20002	0.22	2.0	ND	1	03/20/05	03/20/05	
trans-1,3-Dichloropropene	EPA 624	5C20002	0.24	2.0	ND	1	03/20/05	03/20/05	
Ethylbenzene	EPA 624	5C20002	0.25	2.0	ND	1	03/20/05	03/20/05	
Methylene chloride	EPA 624	5C20002	0.48	5.0	ND	1	03/20/05	03/20/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C20002	0.24	2.0	ND	1	03/20/05	03/20/05	
Tetrachloroethene	EPA 624	5C20002	0.32	2.0	ND	1	03/20/05	03/20/05	
Toluene	EPA 624	5C20002	0.36	2.0	ND	1	03/20/05	03/20/05	
1,1,1-Trichloroethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
1,1,2-Trichloroethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
Trichloroethene	EPA 624	5C20002	0.26	2.0	ND	1	03/20/05	03/20/05	
Trichlorofluoromethane	EPA 624	5C20002	0.34	5.0	ND	1	03/20/05	03/20/05	
Vinyl chloride	EPA 624	5C20002	0.26	0.50	ND	1	03/20/05	03/20/05	
Xylenes, Total	EPA 624	5C20002	0.52	4.0	ND	1	03/20/05	03/20/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C20002	1.2	5.0	ND	1	03/20/05	03/20/05	
Surrogate: Dibromofluoromethane (80-120%)					112 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

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

MWH-Pasadena/Boeing Project ID: Outfall 011
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101 Report Number: IOC1526
 Attention: Bronwyn Kelly
 Sampled: 03/18/05
 Received: 03/18/05

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: IOC1526-01 (DRAFT: Outfall 011 Composite - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5C20002	4.6	50	ND	1	03/20/05	03/20/05	R
Acrylonitrile	EPA 624	5C20002	5.1	50	ND	1	03/20/05	03/20/05	U
2-Chloroethyl vinyl ether	EPA 624	5C20002	1.3	5.0	ND	1	03/20/05	03/20/05	U
Surrogate: Dibromofluoromethane (80-120%)					116 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					94 %				

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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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C20002	N/A	2.5	ND	1	03/20/05	03/20/05	Raw Qual US
Cyclohexane	EPA 624 (MOD.)	5C20002	N/A	2.5	ND	1	03/20/05	03/20/05	Ind US
Sample ID: IOC1526-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C20002	N/A	2.5	ND	1	03/20/05	03/20/05	U
Cyclohexane	EPA 624 (MOD.)	5C20002	N/A	2.5	ND	1	03/20/05	03/20/05	U

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711VO88
 Task Order 313150010
 SDG No. IOC1523, IOC1526

No. of Analyses 2

Laboratory Del Mar Analytical
 Reviewer K. Shadowlight
 Analysis/Method 1,4-Dioxane by 8260

Date April 8, 2005
 Reviewer's Signature


ACTION ITEMS*	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis	
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	Acceptable as reviewed
<p>* 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.</p>	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOC1523, IOC1526

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 #: IOC1523, IOC1526
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles (1,4-dioxane)
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: K. Shadowlight
Date of Review: April 8, 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 SW-846 8260B* and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in 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. Del Mar, CA	Lab No. Del Mar, AZ	Matrix	Method
Outfall 011 Grab	Outfall 011 Grab	IOC1523-01	POC0620-01	water	8260B
Outfall 011 Composite	Outfall 011 Composite	IOC1526-01	POC0614-01	water	8260B

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 Del Mar within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The samples were subcontracted to Del Mar (Phoenix) for 1,4-dioxane analysis. The samples were properly preserved. The COCs and transfer 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 and transfer COCs were signed by field and laboratory personnel. As the samples were couriered directly to the laboratory from the field, custody seals were not required. According to the transfer COCs, there were no custody seals present on the coolers received by Del Mar Analytical in Arizona. The EPA IDs were added to the sample result summary reports by the reviewer. 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 were consistent with those specified in EPA Method 8260B. All ion abundances were within the established windows, and the samples were analyzed within 12 hours of the BFB injection time. No qualifications were required.

2.3 CALIBRATION

One initial calibration, dated 03/19/05, was associated with these SDGs. The average RRF for 1,4-dioxane was ≥ 0.05 and the r^2 value was ≥ 0.995 . The laboratory reported the continuing calibration and the blank spike (P5C2203-BS1) from the same analysis. As the analysis cannot be reported as both a CCV and a blank spike, the reviewer reported P5C2203-BS1 as the continuing calibration. The RRF for 1,4-dioxane was ≥ 0.05 and the %D was $\leq 20\%$. The r^2 value and average RRF for 1,4-dioxane in the initial calibration, and the %D and RRF for 1,4-dioxane in the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

2.4 BLANKS

One water method blank (P5C2203-BLK1) was associated with these SDGs. Target compound 1,4-dioxane was not detected in the method blank. The method blank raw data showed no evidence of a false negative. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory analyzed a blank spike/blank spike duplicate pair (P5C2203-BS1/BS1D) with these SDGs; however, P5C2203-BS1 was reported as the CCV (see section 2.3); therefore, P5C2203-BS1D was evaluated as a single blank spike. The recovery for 1,4-dioxane was within the QC limits of 70-130%. The recovery was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples and QC were fortified with dibromofluoromethane. The surrogate was recovered within the laboratory QC limits of 80-125%. The surrogate recoveries for the samples 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

No MS/MSD analyses were associated with these SDGs. Evaluation of method accuracy was 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

The samples in these SDGs had no associated trip blank. No qualifications were required.

2.8.1.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

There were no field duplicate samples associated with these SDGs.

DATA VALIDATION REPORT

2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for the samples were within the control limits established by the continuing calibration standards: +100%/-50% for internal standard areas and ± 0.50 minutes for retention times. 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 1,4-dioxane by Method 8260B/SIM. 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 limit was supported by the lowest concentration of the initial calibration standards and by the undated MDL supplied by the laboratory. Compound quantitation was verified by recalculating blank spike and surrogate recoveries from the raw data. No calculation or transcription errors were noted. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs are not typically reported for SIM methods.

2.13 SYSTEM PERFORMANCE

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



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Del Mar Analytical - Irvine
 17461 Derian Ave. Suite 100
 Irvine, CA 92614
 Attention: Michele Harper

Project ID: IOC1523

Report Number: POC0620

Sampled: 03/18/05
 Received: 03/22/05

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: POC0620-01 (IOC1523-01 - Water)		Aut-fall 011 Grab							Key Qual / (Inc) Code
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5C2203	0.49	1.0	ND	1	03/22/05	03/22/05	LI
Surrogate: Dibromofluoromethane (80-125%)					112%				

AMEC VALIDATED
 Level III

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

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Del Mar Analytical - Irvine
 17461 Derian Ave. Suite 100
 Irvine, CA 92614
 Attention: Michele Harper

Project ID: IOC1526

Report Number: POC0614

Sampled: 03/18/05

Received: 03/22/05

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: POC0614-01 (IOC1526-01 - Water) <i>at fall oil composite</i>									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5C2203	0.49	1.0	ND	1	03/22/05	03/22/05	U
<i>Surrogate: Dibromofluoromethane (80-125%)</i>									

Rev 2/MSI
Final

AMEC VALIDATED

Level IV

Del Mar Analytical - Phoenix
 Karen Maxwell
 Project Manager

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

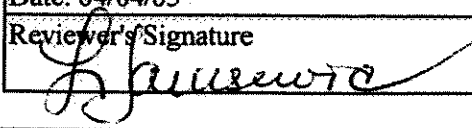
AMEC Earth & Environmental
 550 South Wadsworth Boulevard
 Suite 500
 Lakewood, CO 80226

Package ID T711WC120
 Task Order 313150010
 SDG No. IOC1523/1526
 No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 04/04/05
 Reviewer's Signature


ACTION ITEMS*

- | | |
|---|---|
| 1. Case Narrative Deficiencies | |
| 2. Out of Scope Analyses | |
| 3. Analyses Not Conducted | |
| 4. Missing Hardcopy Deliverables | |
| 5. Incorrect Hardcopy Deliverables | |
| 6. Deviations from Analysis Protocol, e.g.,
Holding Times
GC/MS Tune/Inst. Performance
Calibrations
Blanks
Surrogates
Matrix Spike/Dup LCS
Field QC
Internal Standard Performance
Compound Identification and Quantitation
System Performance | Qualifications applied for:
1) Detects below the reporting limit
2) Method blank detects and negative results
3) Irreproducible cyanide initial calibration curve
4) Change of MDL to level of interference by reviewer |

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: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOC1523 & IOC1526

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 #: IOC1523, IOB1526
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 2
Reviewer: L. Jarusewic
Date of Review: April 4, 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 300.0, 350.2, 330.5, 405.1, 335.2, 413.1, 415.1, 418.1, 218.6, 120.1, 160.2, 160.5, and 180.1, Standard Methods for the Examination of Water and Wastewater Method SM5540-C and 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 011-Grab	Outfall 011-Grab	IOC1523-01	Water	General Minerals
Outfall 011-Composite	Outfall 011-Composite	IOC1526-01	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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. 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 analyses present in these SDGs except fluoride for Outfall 011-Composite. The fluoride analysis was requested in a memo from MWH personnel dated 03/21/05 Outfall 011-Composite. No sample qualifications were required.

2.1.3 Holding Times

The holding times were assessed by comparing the dates of collection with the dates of analyses. The 28-day analytical holding time for ammonia, fluoride, chloride, sulfate, conductivity, total recoverable hydrocarbons, TOC, and oil and grease, the 14-day 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, and the 24-hour hexavalent chromium and residual chlorine holding times were met. No qualifications were required.

2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were ≥ 0.995 , except for cyanide. The reviewer could not reproduce the cyanide initial calibration curve. The r^2 obtained by the reviewer was marginally less than 0.995; therefore, nondetected cyanide in samples Outfall 011-Grab and Outfall 011-Composite were qualified as estimated, "UJ." 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, as the LCS recovery was within the CCV control limits, no qualifications were required. For BOD, no information regarding the calibration of the oxygen meter was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. Calibration is not applicable to residual chlorine, oil and grease, total dissolved solids, total suspended solids, or total settleable solids. The total cyanide reporting limit check standard was recovered within the control limits of 70-130%. No further qualifications were required.

2.3 BLANKS

Turbidity was detected in method blank 5C19032-BLK1 at 0.060 NTU; however, the method blank result was insufficient to qualify the Outfall 011-Grab and Outfall 011-Composite results. Fluoride was

detected in the method blank 5C18104-BLK1 at 0.103 mg/L; therefore, fluoride detected in Outfall 011-Grab and Outfall 011-Composite was qualified as estimated, "UJ." Cyanide was reported in method blank 5C21083-BLK1 at -0.0062 mg/L; therefore, nondetected cyanide in samples Outfall 011-Grab and Outfall 011-Composite was qualified as estimated, "UJ." 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 further qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

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

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

A laboratory duplicate analysis was performed on sample Outfall 011-Grab for residual chlorine. The RPD was within the control limits of $\leq 20\%$ and no qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

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 these data packages. 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. Cyanide in Outfall 011-Grab and Outfall 011-Composite was reported in the raw data at -0.0053 and -0.0064 mg/L, respectively, and the method blank associated with Outfall 011-Grab and Outfall 011-Composite was reported at -0.0062 mg/L. Due to these negative results, the reviewer raised the MDL and the reporting limit on the Form Is to the level of interference. BOD and surfactant in Outfall 011-Grab and surfactant in Outfall 011-Composite detected below the reporting limit were qualified as estimated, "J." 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: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05

Received: 03/18/05

DRAFT: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C22091	0.31	1.0	ND	1	03/22/05	03/22/05	U

REV QUAL
 QUAL CODE

AMEC VALIDATED

LEVEL IV

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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C19045	0.10	0.10	ND	1	03/19/05	03/19/05	U

REV
QUAL
CODE

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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C19032	0.040	1.0	3.1	1	03/19/05	03/19/05	REV QUAL QUAL CODE

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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05

Received: 03/18/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C21077	1.0	1.0	360	1	03/21/05	03/21/05	REV QUAL QUAL CODE

AMEC VALIDATED

LEVEL IV

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

Project ID: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	REV QUAL	Data QUAL CODE
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.										
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5C22089	0.30	0.50	ND	1	03/22/05	03/22/05	U	
Biochemical Oxygen Demand	EPA 405.1	5C18070	0.59	2.0	1.6	1	03/18/05	03/23/05	J	J DNR
Chloride	EPA 300.0	5C18104	0.26	0.50	15	1	03/18/05	03/18/05		
Chromium VI	EPA 218.6	5C18067	0.00010	0.0010	ND	1	03/18/05	03/18/05	U	
Total Cyanide	EPA 335.2	5C21083	0.0025	0.0050	ND	1	03/21/05	03/21/05	U UT	B, C, F
Fluoride	EPA 300.0	5C18104	0.10	0.50	0.36	1	03/18/05	03/18/05	U JT	B, J
Nitrate/Nitrite-N	EPA 300.0	5C18104	0.072	0.11	ND	1	03/18/05	03/18/05	U	
Oil & Grease	EPA 413.1	5C21062	0.94	5.0	ND	1	03/21/05	03/21/05	U	
Residual Chlorine	EPA 330.5	5C19030	0.10	0.10	ND	1	03/19/05	03/19/05	↓	
Sulfate	EPA 300.0	5C18104	0.18	0.50	42	1	03/18/05	03/18/05	↓	
Surfactants (MBAS)	SM5540-C	5C18107	0.044	0.10	0.080	1	03/18/05	03/18/05	J	J DNR
Total Dissolved Solids	SM2540C	5C21073	10	10	220	1	03/21/05	03/21/05		
Total Organic Carbon	EPA 415.1	5C22101	0.25	1.0	13	1	03/22/05	03/22/05		
Total Suspended Solids	EPA 160.2	5C21068	10	10	ND	1	03/21/05	03/21/05	U	

J 4/4/05

AMEC VALIDATED

LEVEL IV

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MWH-Pasadena/Boeing Project ID: Outfall 011
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101 Report Number: IOC1526
 Attention: Bronwyn Kelly
 Sampled: 03/18/05
 Received: 03/18/05

DRAFT: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C22091	0.31	1.0	ND	1	03/22/05	03/22/05	U

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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05

Received: 03/18/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Qualifiers	
									REV	QUAL CODE
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.										
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5C19045	0.10	0.10	ND	1	03/19/05	03/19/05	U	

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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05

Received: 03/18/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C19032	0.040	1.0	2.4	1	03/19/05	03/19/05	REV QUAL CODE

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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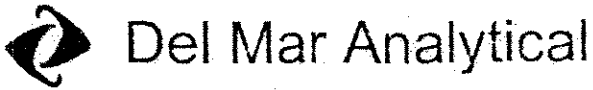
DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C21077	1.0	1.0	350	1	03/21/05	03/21/05	REV QUAL QUAL CODE

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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C22089	0.30	0.50	0.56	1	03/22/05	03/22/05	
Biochemical Oxygen Demand	EPA 405.1	5C18070	0.59	2.0	3.8	1	03/18/05	03/23/05	
Chloride	EPA 300.0	5C18104	0.26	0.50	15	1	03/18/05	03/19/05	
Chromium VI	EPA 218.6	5C18067	0.00010	0.0010	ND	1	03/18/05	03/18/05	u
Total Cyanide	EPA 335.2	5C21083	0.0021	0.0050	ND	1	03/21/05	03/21/05	u
Fluoride	EPA 300.0	5C18104	0.10	0.50	0.36	1	03/18/05	03/19/05	u
Nitrate/Nitrite-N	EPA 300.0	5C18104	0.072	0.11	ND	1	03/18/05	03/19/05	u
Oil & Grease	EPA 413.1	5C21062	0.94	5.0	ND	1	03/21/05	03/21/05	u
Residual Chlorine	EPA 330.5	5C19030	0.10	0.10	ND	1	03/19/05	03/19/05	u
Sulfate	EPA 300.0	5C18104	0.18	0.50	41	1	03/18/05	03/19/05	u
Surfactants (MBAS)	SM5540-C	5C18107	0.044	0.10	0.064	1	03/18/05	03/18/05	
Total Dissolved Solids	SM2540C	5C21073	10	10	230	1	03/21/05	03/21/05	
Total Organic Carbon	EPA 415.1	5C22101	0.25	1.0	13	1	03/22/05	03/22/05	
Total Suspended Solids	EPA 160.2	5C21068	10	10	ND	1	03/21/05	03/21/05	u

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711WC123

Task Order 313150010

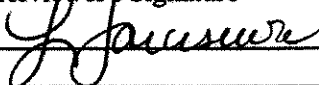
SDG No. IOC1523, IOC1526

No. of Analyses 2

Laboratory Del Mar Analytical

Date: 04/06/05

Reviewer L. Jarusewic

Reviewer's Signature 

Analysis/Method Perchlorate

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.
<small>* 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.</small>	



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUPS: IOC1523 & IOC1526

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 #: IOC1523, IOC1526
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 2
Reviewer: L. Jarusewic
Date of Review: April 6, 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 314.0, and 120.1*, 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 011-Grab	Outfall 011-Grab	IOC1523-01	Water	Perchlorate
Outfall 011-Composite	Outfall 011-Composite	IOC1526-01	Water	Perchlorate

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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation and no preservation was noted in the field. No qualifications were required.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel, and accounted for the samples and analysis presented in these SDGs. No qualifications were required.

2.1.3 Holding Times

The holding time was assessed by comparing the dates of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, ICCS, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The 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 recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

No MS/MSD or duplicate analyses were 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

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. No 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: Outfall 011

Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (DRAFT: Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C18121	0.80	4.0	ND	1	03/18/05	03/19/05	U

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

Project ID: Outfall 011

Report Number: IOC1526

Sampled: 03/18/05

Received: 03/18/05

DRAFT: INORGANICS

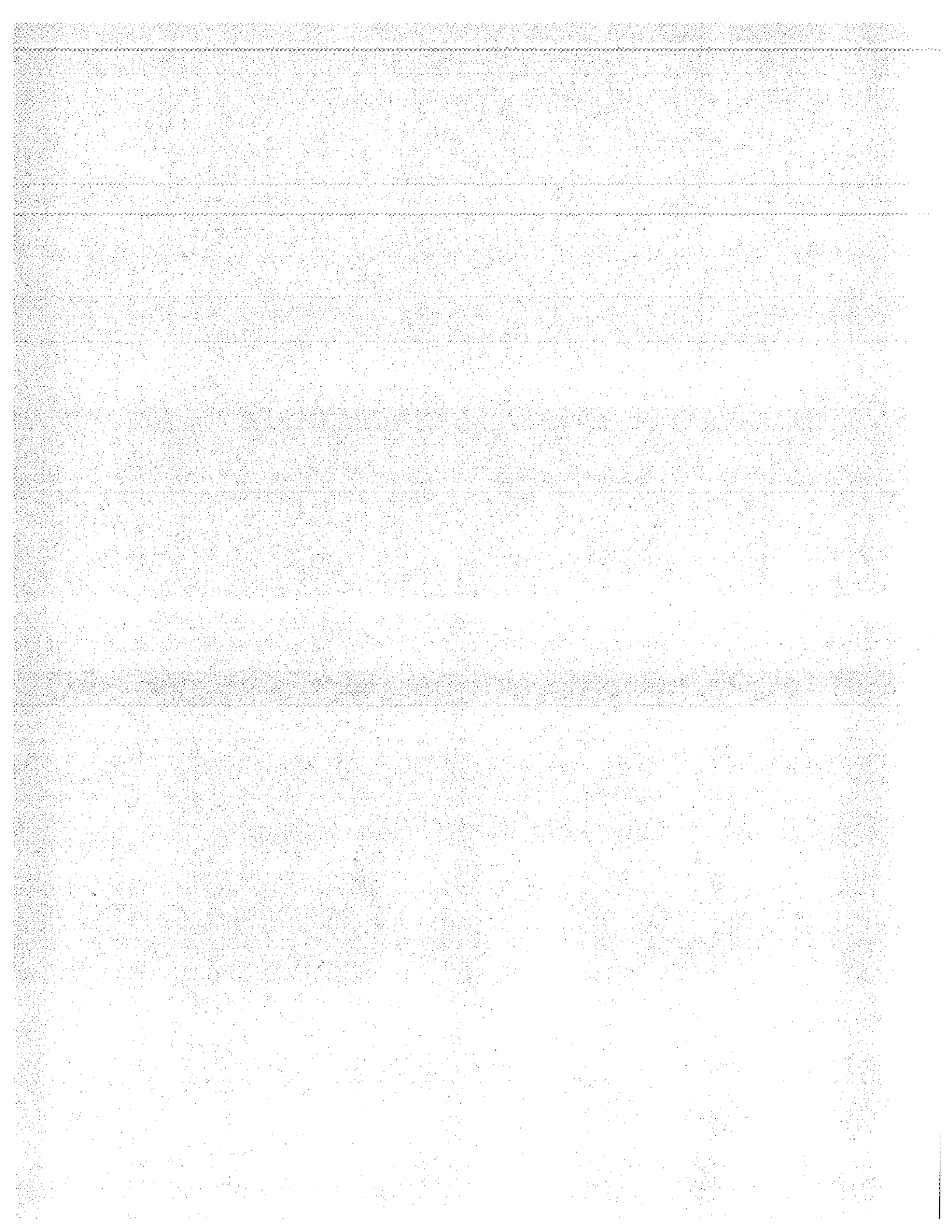
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5C18121	0.80	4.0	ND	1	03/18/05	03/19/05	U

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LABORATORY REPORT

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

Project: 13267 (Study 1)
Outfall 011

Sampled: 03/18/05
Received: 03/18/05
Issued: 04/12/05 19:10

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 8 pages, are included and are an integral part of this report.
This entire report was reviewed and approved for release.*

CASE NARRATIVE

- SAMPLE RECEIPT: Samples were received intact, at 6°C, on ice and with chain of custody documentation.
- HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Del Mar Analytical Sample Acceptance Policy unless otherwise noted in the report.
- PRESERVATION: Samples requiring preservation were verified prior to sample analysis.
- QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers. The ICAL %RSD failed the acceptance limit for 2,4-Dinitrophenol. Instrument sensitivity was acceptable based upon the response for 2,4-Dinitrophenol at the low ICAL level. The CCV and BS/BSD met acceptance limits for the analyte. Affected samples were 'ND' for this analyte, without J-flag detection. Therefore, since acceptable sensitivity is represented by the instrument and the extraction procedure, the analyte was flagged with 'N-1' and reported.
- COMMENTS: Results that fall between the MDL and RL are 'J' flagged.
- SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

LABORATORY ID	CLIENT ID	MATRIX
IOC1523-01	Outfall 011 GRAB	Water
IOC1523-02	Trip Blank	Water
IOC1523-03	Outfall 011 GRAB/filter	Water
IOC1523-04	Outfall 011 GRAB/Substrate	Water

Reviewed By:

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: 13267 (Study 1) Outfall 011 Report Number: IOC1523	Sampled: 03/18/05 Received: 03/18/05
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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C22091	0.31	1.0	ND	1	03/22/05	03/22/05	

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: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C21048	0.082	0.50	ND	0.957	03/21/05	03/21/05	
Surrogate: n-Octacosane (40-125%)					91 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing Project ID: 13267 (Study 1)
300 North Lake Avenue, Suite 1200 Outfall 011
Pasadena, CA 91101 Report Number: IOC1523
Attention: Bronwyn Kelly Sampled: 03/18/05
Received: 03/18/05

VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C21006	0.050	0.10	ND	1	03/21/05	03/21/05	
Surrogate: 4-BFB (FID) (65-140%)					81 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

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: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Acrolein	EPA 624	5C20002	4.6	50	ND	1	03/20/05	03/20/05	
Acrylonitrile	EPA 624	5C20002	5.1	50	ND	1	03/20/05	03/20/05	
2-Chloroethyl vinyl ether	EPA 624	5C20002	1.3	5.0	ND	1	03/20/05	03/20/05	
Surrogate: Dibromofluoromethane (80-120%)					115 %				
Surrogate: Toluene-d8 (80-120%)					102 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					95 %				
Sample ID: IOC1523-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5C20002	4.6	50	ND	1	03/20/05	03/20/05	
Acrylonitrile	EPA 624	5C20002	5.1	50	ND	1	03/20/05	03/20/05	
2-Chloroethyl vinyl ether	EPA 624	5C20002	1.3	5.0	ND	1	03/20/05	03/20/05	
Surrogate: Dibromofluoromethane (80-120%)					114 %				
Surrogate: Toluene-d8 (80-120%)					102 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

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: IOC1523-01 (Outfall 011 GRAB - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C19004	0.28	1.0	ND	1	03/19/05	03/19/05	
Bromodichloromethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	
Bromoform	EPA 624	5C19004	0.32	5.0	ND	1	03/19/05	03/19/05	
Bromomethane	EPA 624	5C19004	0.34	5.0	ND	1	03/19/05	03/19/05	
Carbon tetrachloride	EPA 624	5C19004	0.28	0.50	ND	1	03/19/05	03/19/05	
Chlorobenzene	EPA 624	5C19004	0.36	2.0	ND	1	03/19/05	03/19/05	
Chloroethane	EPA 624	5C19004	0.33	5.0	ND	1	03/19/05	03/19/05	
Chloroform	EPA 624	5C19004	0.33	2.0	ND	1	03/19/05	03/19/05	
Chloromethane	EPA 624	5C19004	0.30	5.0	ND	1	03/19/05	03/19/05	
Dibromochloromethane	EPA 624	5C19004	0.28	2.0	ND	1	03/19/05	03/19/05	
1,2-Dichlorobenzene	EPA 624	5C19004	0.32	2.0	ND	1	03/19/05	03/19/05	
1,3-Dichlorobenzene	EPA 624	5C19004	0.35	2.0	ND	1	03/19/05	03/19/05	
1,4-Dichlorobenzene	EPA 624	5C19004	0.37	2.0	ND	1	03/19/05	03/19/05	
1,1-Dichloroethane	EPA 624	5C19004	0.27	2.0	ND	1	03/19/05	03/19/05	
1,2-Dichloroethane	EPA 624	5C19004	0.28	0.50	ND	1	03/19/05	03/19/05	
1,1-Dichloroethene	EPA 624	5C19004	0.32	5.0	ND	1	03/19/05	03/19/05	
trans-1,2-Dichloroethene	EPA 624	5C19004	0.27	2.0	ND	1	03/19/05	03/19/05	
1,2-Dichloropropane	EPA 624	5C19004	0.35	2.0	ND	1	03/19/05	03/19/05	
cis-1,3-Dichloropropene	EPA 624	5C19004	0.22	2.0	ND	1	03/19/05	03/19/05	
trans-1,3-Dichloropropene	EPA 624	5C19004	0.24	2.0	ND	1	03/19/05	03/19/05	
Ethylbenzene	EPA 624	5C19004	0.25	2.0	ND	1	03/19/05	03/19/05	
Methylene chloride	EPA 624	5C19004	0.48	5.0	ND	1	03/19/05	03/19/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C19004	0.24	2.0	ND	1	03/19/05	03/19/05	
Tetrachloroethene	EPA 624	5C19004	0.32	2.0	ND	1	03/19/05	03/19/05	
Toluene	EPA 624	5C19004	0.36	2.0	ND	1	03/19/05	03/19/05	
1,1,1-Trichloroethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	
1,1,2-Trichloroethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	
Trichloroethene	EPA 624	5C19004	0.26	2.0	ND	1	03/19/05	03/19/05	
Trichlorofluoromethane	EPA 624	5C19004	0.34	5.0	ND	1	03/19/05	03/19/05	
Vinyl chloride	EPA 624	5C19004	0.26	0.50	ND	1	03/19/05	03/19/05	
Xylenes, Total	EPA 624	5C19004	0.52	4.0	ND	1	03/19/05	03/19/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C19004	1.2	5.0	ND	1	03/19/05	03/19/05	
Surrogate: Dibromofluoromethane (80-120%)									114 %
Surrogate: Toluene-d8 (80-120%)									102 %
Surrogate: 4-Bromofluorobenzene (80-120%)									94 %

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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

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: IOC1523-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C19004	0.28	1.0	ND	1	03/19/05	03/19/05	
Bromodichloromethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	
Bromoform	EPA 624	5C19004	0.32	5.0	ND	1	03/19/05	03/19/05	
Bromomethane	EPA 624	5C19004	0.34	5.0	ND	1	03/19/05	03/19/05	
Carbon tetrachloride	EPA 624	5C19004	0.28	0.50	ND	1	03/19/05	03/19/05	
Chlorobenzene	EPA 624	5C19004	0.36	2.0	ND	1	03/19/05	03/19/05	
Chloroethane	EPA 624	5C19004	0.33	5.0	ND	1	03/19/05	03/19/05	
Chloroform	EPA 624	5C19004	0.33	2.0	ND	1	03/19/05	03/19/05	
Chloromethane	EPA 624	5C19004	0.30	5.0	ND	1	03/19/05	03/19/05	
Dibromochloromethane	EPA 624	5C19004	0.28	2.0	ND	1	03/19/05	03/19/05	
1,2-Dichlorobenzene	EPA 624	5C19004	0.32	2.0	ND	1	03/19/05	03/19/05	
1,3-Dichlorobenzene	EPA 624	5C19004	0.35	2.0	ND	1	03/19/05	03/19/05	
1,4-Dichlorobenzene	EPA 624	5C19004	0.37	2.0	ND	1	03/19/05	03/19/05	
1,1-Dichloroethane	EPA 624	5C19004	0.27	2.0	ND	1	03/19/05	03/19/05	
1,2-Dichloroethane	EPA 624	5C19004	0.28	0.50	ND	1	03/19/05	03/19/05	
1,1-Dichloroethene	EPA 624	5C19004	0.32	5.0	ND	1	03/19/05	03/19/05	
trans-1,2-Dichloroethene	EPA 624	5C19004	0.27	2.0	ND	1	03/19/05	03/19/05	
1,2-Dichloropropane	EPA 624	5C19004	0.35	2.0	ND	1	03/19/05	03/19/05	
cis-1,3-Dichloropropene	EPA 624	5C19004	0.22	2.0	ND	1	03/19/05	03/19/05	
trans-1,3-Dichloropropene	EPA 624	5C19004	0.24	2.0	ND	1	03/19/05	03/19/05	
Ethylbenzene	EPA 624	5C19004	0.25	2.0	ND	1	03/19/05	03/19/05	
Methylene chloride	EPA 624	5C19004	0.48	5.0	ND	1	03/19/05	03/19/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C19004	0.24	2.0	ND	1	03/19/05	03/19/05	
Tetrachloroethene	EPA 624	5C19004	0.32	2.0	ND	1	03/19/05	03/19/05	
Toluene	EPA 624	5C19004	0.36	2.0	ND	1	03/19/05	03/19/05	
1,1,1-Trichloroethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	
1,1,2-Trichloroethane	EPA 624	5C19004	0.30	2.0	ND	1	03/19/05	03/19/05	
Trichloroethene	EPA 624	5C19004	0.26	2.0	ND	1	03/19/05	03/19/05	
Trichlorofluoromethane	EPA 624	5C19004	0.34	5.0	ND	1	03/19/05	03/19/05	
Vinyl chloride	EPA 624	5C19004	0.26	0.50	ND	1	03/19/05	03/19/05	
Xylenes, Total	EPA 624	5C19004	0.52	4.0	ND	1	03/19/05	03/19/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C19004	1.2	5.0	ND	1	03/19/05	03/19/05	
Surrogate: Dibromofluoromethane (80-120%)									111 %
Surrogate: Toluene-d8 (80-120%)									101 %
Surrogate: 4-Bromofluorobenzene (80-120%)									95 %

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



MWH-Pasadena/Boeing Project ID: 13267 (Study 1)
300 North Lake Avenue, Suite 1200 Outfall 011
Pasadena, CA 91101 Report Number: IOC1523
Attention: Bronwyn Kelly Sampled: 03/18/05
Received: 03/18/05

PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C19004	N/A	2.5	ND	1	03/19/05	03/19/05	
Cyclohexane	EPA 624 (MOD.)	5C19004	N/A	2.5	ND	1	03/19/05	03/19/05	
Sample ID: IOC1523-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C19004	N/A	2.5	ND	1	03/19/05	03/19/05	
Cyclohexane	EPA 624 (MOD.)	5C19004	N/A	2.5	ND	1	03/19/05	03/19/05	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

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: IOC1523-01 (Outfall 011 GRAB - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5C20022	0.20	1.0	ND	1.94	03/20/05	03/22/05	RL-3
Acenaphthylene	EPA 625	5C20022	0.20	1.0	ND	1.94	03/20/05	03/22/05	
Aniline	EPA 625	5C20022	5.8	20	ND	1.94	03/20/05	03/22/05	
Anthracene	EPA 625	5C20022	0.17	1.0	ND	1.94	03/20/05	03/22/05	
Benzidine	EPA 625	5C20022	4.8	10	ND	1.94	03/20/05	03/22/05	L2
Benzoic acid	EPA 625	5C20022	7.4	40	ND	1.94	03/20/05	03/22/05	
Benzo(a)anthracene	EPA 625	5C20022	0.076	10	ND	1.94	03/20/05	03/22/05	
Benzo(a)pyrene	EPA 625	5C20022	0.28	4.0	ND	1.94	03/20/05	03/22/05	
Benzo(b)fluoranthene	EPA 625	5C20022	0.10	4.0	ND	1.94	03/20/05	03/22/05	
Benzo(g,h,i)perylene	EPA 625	5C20022	0.12	10	ND	1.94	03/20/05	03/22/05	
Benzo(k)fluoranthene	EPA 625	5C20022	0.11	1.0	ND	1.94	03/20/05	03/22/05	
Benzyl alcohol	EPA 625	5C20022	0.42	10	ND	1.94	03/20/05	03/22/05	
Bis(2-chloroethoxy)methane	EPA 625	5C20022	0.14	1.0	ND	1.94	03/20/05	03/22/05	
Bis(2-chloroethyl)ether	EPA 625	5C20022	0.17	1.0	ND	1.94	03/20/05	03/22/05	
Bis(2-chloroisopropyl)ether	EPA 625	5C20022	0.22	1.0	ND	1.94	03/20/05	03/22/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5C20022	2.2	10	ND	1.94	03/20/05	03/22/05	
4-Bromophenyl phenyl ether	EPA 625	5C20022	0.24	2.0	ND	1.94	03/20/05	03/22/05	
Butyl benzyl phthalate	EPA 625	5C20022	0.68	10	1.1	1.94	03/20/05	03/22/05	B, J
4-Chloroaniline	EPA 625	5C20022	0.40	4.0	ND	1.94	03/20/05	03/22/05	
2-Chloronaphthalene	EPA 625	5C20022	0.12	1.0	ND	1.94	03/20/05	03/22/05	
4-Chloro-3-methylphenol	EPA 625	5C20022	0.68	4.0	ND	1.94	03/20/05	03/22/05	
4-Chlorophenyl phenyl ether	EPA 625	5C20022	0.11	1.0	ND	1.94	03/20/05	03/22/05	
2-Chlorophenol	EPA 625	5C20022	0.24	2.0	ND	1.94	03/20/05	03/22/05	
Chrysene	EPA 625	5C20022	0.14	1.0	ND	1.94	03/20/05	03/22/05	
Dibenz(a,h)anthracene	EPA 625	5C20022	0.17	1.0	ND	1.94	03/20/05	03/22/05	
Dibenzofuran	EPA 625	5C20022	0.15	1.0	ND	1.94	03/20/05	03/22/05	
Di-n-butyl phthalate	EPA 625	5C20022	0.52	4.0	ND	1.94	03/20/05	03/22/05	
1,2-Dichlorobenzene	EPA 625	5C20022	0.22	1.0	ND	1.94	03/20/05	03/22/05	
1,3-Dichlorobenzene	EPA 625	5C20022	0.26	1.0	ND	1.94	03/20/05	03/22/05	
1,4-Dichlorobenzene	EPA 625	5C20022	0.10	1.0	ND	1.94	03/20/05	03/22/05	
3,3-Dichlorobenzidine	EPA 625	5C20022	1.9	10	ND	1.94	03/20/05	03/22/05	
2,4-Dichlorophenol	EPA 625	5C20022	0.42	4.0	ND	1.94	03/20/05	03/22/05	
Diethyl phthalate	EPA 625	5C20022	0.24	2.0	0.43	1.94	03/20/05	03/22/05	B, J
2,4-Dimethylphenol	EPA 625	5C20022	0.62	4.0	ND	1.94	03/20/05	03/22/05	
Dimethyl phthalate	EPA 625	5C20022	0.16	1.0	ND	1.94	03/20/05	03/22/05	
4,6-Dinitro-2-methylphenol	EPA 625	5C20022	0.76	10	ND	1.94	03/20/05	03/22/05	
2,4-Dinitrophenol	EPA 625	5C20022	5.4	10	ND	1.94	03/20/05	03/22/05	
2,4-Dinitrotoluene	EPA 625	5C20022	0.46	10	ND	1.94	03/20/05	03/22/05	
2,6-Dinitrotoluene	EPA 625	5C20022	0.48	10	ND	1.94	03/20/05	03/22/05	
Di-n-octyl phthalate	EPA 625	5C20022	0.34	10	ND	1.94	03/20/05	03/22/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5C20022	0.17	2.0	ND	1.94	03/20/05	03/22/05	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

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: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Fluoranthene	EPA 625	5C20022	0.18	1.0	ND	1.94	03/20/05	03/22/05	RL-3
Fluorene	EPA 625	5C20022	0.15	1.0	ND	1.94	03/20/05	03/22/05	
Hexachlorobenzene	EPA 625	5C20022	0.26	2.0	ND	1.94	03/20/05	03/22/05	
Hexachlorobutadiene	EPA 625	5C20022	0.76	4.0	ND	1.94	03/20/05	03/22/05	
Hexachlorocyclopentadiene	EPA 625	5C20022	3.6	10	ND	1.94	03/20/05	03/22/05	
Hexachloroethane	EPA 625	5C20022	1.0	6.0	ND	1.94	03/20/05	03/22/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5C20022	0.38	4.0	ND	1.94	03/20/05	03/22/05	
Isophorone	EPA 625	5C20022	0.12	2.0	ND	1.94	03/20/05	03/22/05	
2-Methylnaphthalene	EPA 625	5C20022	0.26	2.0	ND	1.94	03/20/05	03/22/05	
2-Methylphenol	EPA 625	5C20022	0.56	4.0	ND	1.94	03/20/05	03/22/05	
4-Methylphenol	EPA 625	5C20022	0.40	10	ND	1.94	03/20/05	03/22/05	
Naphthalene	EPA 625	5C20022	0.26	2.0	ND	1.94	03/20/05	03/22/05	
2-Nitroaniline	EPA 625	5C20022	0.36	10	ND	1.94	03/20/05	03/22/05	
3-Nitroaniline	EPA 625	5C20022	0.70	10	ND	1.94	03/20/05	03/22/05	
4-Nitroaniline	EPA 625	5C20022	0.98	10	ND	1.94	03/20/05	03/22/05	
Nitrobenzene	EPA 625	5C20022	0.20	2.0	ND	1.94	03/20/05	03/22/05	
2-Nitrophenol	EPA 625	5C20022	0.46	4.0	ND	1.94	03/20/05	03/22/05	
4-Nitrophenol	EPA 625	5C20022	1.5	10	ND	1.94	03/20/05	03/22/05	
N-Nitrosodimethylamine	EPA 625	5C20022	0.44	4.0	ND	1.94	03/20/05	03/22/05	
N-Nitroso-di-n-propylamine	EPA 625	5C20022	0.36	4.0	ND	1.94	03/20/05	03/22/05	
N-Nitrosodiphenylamine	EPA 625	5C20022	0.15	2.0	ND	1.94	03/20/05	03/22/05	
Pentachlorophenol	EPA 625	5C20022	1.6	4.0	ND	1.94	03/20/05	03/22/05	
Phenanthrene	EPA 625	5C20022	0.14	1.0	ND	1.94	03/20/05	03/22/05	
Phenol	EPA 625	5C20022	0.28	2.0	ND	1.94	03/20/05	03/22/05	
Pyrene	EPA 625	5C20022	0.12	1.0	ND	1.94	03/20/05	03/22/05	
1,2,4-Trichlorobenzene	EPA 625	5C20022	0.20	2.0	ND	1.94	03/20/05	03/22/05	
2,4,5-Trichlorophenol	EPA 625	5C20022	0.15	4.0	ND	1.94	03/20/05	03/22/05	
2,4,6-Trichlorophenol	EPA 625	5C20022	0.20	2.0	ND	1.94	03/20/05	03/22/05	
Surrogate: 2-Fluorophenol (30-120%)					71 %				
Surrogate: Phenol-d6 (35-120%)					72 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					87 %				
Surrogate: Nitrobenzene-d5 (45-120%)					71 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					76 %				
Surrogate: Terphenyl-d14 (45-120%)					82 %				

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: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5C19034	0.030	0.10	ND	0.952	03/19/05	03/19/05	
alpha-BHC	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
beta-BHC	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
delta-BHC	EPA 608	5C19034	0.020	0.20	ND	0.952	03/19/05	03/19/05	
gamma-BHC (Lindane)	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Chlordane	EPA 608	5C19034	0.20	1.0	ND	0.952	03/19/05	03/19/05	
4,4'-DDD	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
4,4'-DDE	EPA 608	5C19034	0.025	0.10	ND	0.952	03/19/05	03/19/05	
4,4'-DDT	EPA 608	5C19034	0.030	0.10	0.039	0.952	03/19/05	03/19/05	J
Dieldrin	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
Endosulfan I	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
Endosulfan II	EPA 608	5C19034	0.040	0.10	ND	0.952	03/19/05	03/19/05	
Endosulfan sulfate	EPA 608	5C19034	0.015	0.20	ND	0.952	03/19/05	03/19/05	
Endrin	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Endrin aldehyde	EPA 608	5C19034	0.045	0.10	ND	0.952	03/19/05	03/19/05	
Endrin ketone	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Heptachlor	EPA 608	5C19034	0.030	0.10	ND	0.952	03/19/05	03/19/05	
Heptachlor epoxide	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Methoxychlor	EPA 608	5C19034	0.035	0.10	ND	0.952	03/19/05	03/19/05	
Toxaphene	EPA 608	5C19034	1.5	5.0	ND	0.952	03/19/05	03/19/05	
Surrogate: Tetrachloro-m-xylene (35-115%)					57 %				
Surrogate: Decachlorobiphenyl (45-120%)					66 %				

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

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TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5C19034	0.20	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1221	EPA 608	5C19034	0.10	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1232	EPA 608	5C19034	0.15	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1242	EPA 608	5C19034	0.15	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1248	EPA 608	5C19034	0.25	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1254	EPA 608	5C19034	0.25	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1260	EPA 608	5C19034	0.40	1.0	ND	0.952	03/19/05	03/20/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					64 %				

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 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: mg/l									
Barium	EPA 200.8	5C19038	0.00014	0.0010	0.036	1	03/19/05	03/21/05	
Boron	EPA 200.7	5C19039	0.0074	0.050	0.090	1	03/19/05	03/19/05	
Iron	EPA 200.8	5C19038	0.0032	0.010	0.29	1	03/19/05	03/21/05	B-1

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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C19038	0.18	2.0	0.34	1	03/19/05	03/21/05	B, J
Arsenic	EPA 200.8	5C19038	0.49	1.0	2.4	1	03/19/05	03/21/05	
Beryllium	EPA 200.8	5C19038	0.037	0.50	ND	1	03/19/05	03/21/05	
Cadmium	EPA 200.8	5C19038	0.015	1.0	0.085	1	03/19/05	03/21/05	B, J
Chromium	EPA 200.8	5C19038	0.26	2.0	1.0	1	03/19/05	03/21/05	J
Cobalt	EPA 200.8	5C19038	0.10	1.0	0.35	1	03/19/05	03/21/05	J
Copper	EPA 200.8	5C19038	0.49	2.0	4.0	1	03/19/05	03/21/05	
Lead	EPA 200.8	5C19038	0.13	1.0	0.30	1	03/19/05	03/21/05	J
Manganese	EPA 200.8	5C19038	0.44	1.0	65	1	03/19/05	03/21/05	B-1
Mercury	EPA 245.1	5C19029	0.063	0.20	ND	1	03/19/05	03/19/05	
Nickel	EPA 200.8	5C19038	0.15	2.0	2.5	1	03/19/05	03/21/05	B
Selenium	EPA 200.8	5C19038	0.36	2.0	0.55	1	03/19/05	03/21/05	J
Silver	EPA 200.8	5C19038	0.089	1.0	ND	1	03/19/05	03/21/05	
Thallium	EPA 200.8	5C19038	0.075	1.0	ND	1	03/19/05	03/21/05	
Vanadium	EPA 200.8	5C19038	0.86	2.0	2.0	1	03/19/05	03/21/05	
Zinc	EPA 200.8	5C19038	3.1	20	12	1	03/19/05	03/21/05	J

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C22089	0.30	0.50	ND	1	03/22/05	03/22/05	
Biochemical Oxygen Demand	EPA 405.1	5C18070	0.59	2.0	1.6	1	03/18/05	03/23/05	J
Chloride	EPA 300.0	5C18104	0.26	0.50	15	1	03/18/05	03/18/05	
Fluoride	EPA 300.0	5C18104	0.10	0.50	0.36	1	03/18/05	03/18/05	B, J
Nitrate/Nitrite-N	EPA 300.0	5C18104	0.072	0.11	ND	1	03/18/05	03/18/05	
Oil & Grease	EPA 413.1	5C21062	0.94	5.0	ND	1	03/21/05	03/21/05	
Residual Chlorine	EPA 330.5	5C19030	0.10	0.10	ND	1	03/19/05	03/19/05	
Sulfate	EPA 300.0	5C18104	0.18	0.50	42	1	03/18/05	03/18/05	
Surfactants (MBAS)	SM5540-C	5C18107	0.044	0.10	0.080	1	03/18/05	03/18/05	J
Total Dissolved Solids	SM2540C	5C21073	10	10	220	1	03/21/05	03/21/05	
Total Organic Carbon	EPA 415.1	5C22101	0.25	1.0	13	1	03/22/05	03/22/05	
Total Suspended Solids	EPA 160.2	5C21068	10	10	ND	1	03/21/05	03/21/05	

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C19045	0.10	0.10	ND	1	03/19/05	03/19/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C19032	0.040	1.0	3.1	1	03/19/05	03/19/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5C18067	0.10	1.0	ND	1	03/18/05	03/18/05	
Total Cyanide	EPA 335.2	5C21083	2.2	5.0	ND	1	03/21/05	03/21/05	
Perchlorate	EPA 314.0	5C18121	0.80	4.0	ND	1	03/18/05	03/19/05	

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Sampled: 03/18/05
Received: 03/18/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C21077	1.0	1.0	360	1	03/21/05	03/21/05	

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1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1523-01 (Outfall 011 GRAB - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5C2203	0.49	1.0	ND	1	03/22/05	03/22/05	
Surrogate: Dibromofluoromethane (80-125%)					112 %				

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Sampled: 03/18/05
Received: 03/18/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 011 GRAB (IOC1523-01) - Water					
EPA 160.5	2	03/18/2005 10:54	03/18/2005 20:10	03/19/2005 09:00	03/19/2005 10:00
EPA 180.1	2	03/18/2005 10:54	03/18/2005 20:10	03/19/2005 09:30	03/19/2005 10:30
EPA 218.6	1	03/18/2005 10:54	03/18/2005 20:10	03/18/2005 21:40	03/18/2005 21:44
EPA 300.0	2	03/18/2005 10:54	03/18/2005 20:10	03/18/2005 23:00	03/18/2005 23:48
EPA 330.5	1	03/18/2005 10:54	03/18/2005 20:10	03/19/2005 09:00	03/19/2005 10:00
EPA 405.1	2	03/18/2005 10:54	03/18/2005 20:10	03/18/2005 22:35	03/23/2005 12:30
EPA 624	3	03/18/2005 10:54	03/18/2005 20:10	03/20/2005 00:00	03/20/2005 16:38
SM5540-C	2	03/18/2005 10:54	03/18/2005 20:10	03/18/2005 22:01	03/18/2005 22:20
Sample ID: Trip Blank (IOC1523-02) - Water					
EPA 624	3	03/18/2005 16:20	03/18/2005 20:10	03/20/2005 00:00	03/20/2005 17:41

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METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C22091 Extracted: 03/22/05										
Blank Analyzed: 03/22/2005 (5C22091-BLK1)										
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l						
LCS Analyzed: 03/22/2005 (5C22091-BS1)										
Total Recoverable Hydrocarbons	4.49	1.0	0.31	mg/l	5.00		90 65-120			M-NR1
LCS Dup Analyzed: 03/22/2005 (5C22091-BSD1)										
Total Recoverable Hydrocarbons	4.59	1.0	0.31	mg/l	5.00		92 65-120	2	20	

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METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C21048 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21048-BLK1)										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.174			mg/l	0.200		87 40-125			
LCS Analyzed: 03/21/2005 (5C21048-BS1)										
EFH (C13 - C40)	0.738	0.50	0.082	mg/l	0.775		95 40-120			M-NR1
Surrogate: n-Octacosane	0.182			mg/l	0.200		91 40-125			
LCS Dup Analyzed: 03/21/2005 (5C21048-BSD1)										
EFH (C13 - C40)	0.688	0.50	0.082	mg/l	0.775		89 40-120	7	25	
Surrogate: n-Octacosane	0.177			mg/l	0.200		88 40-125			

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Outfall 011
Report Number: IOC1523

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Received: 03/18/05

METHOD BLANK/QC DATA

VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	Limit	Data Qualifiers
Batch: 5C21006 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21006-BLK1)										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00839			mg/l	0.0100		84	65-140		
LCS Analyzed: 03/21/2005 (5C21006-BS1)										
GRO (C4 - C12)	0.650	0.10	0.050	mg/l	0.800		81	70-140		
Surrogate: 4-BFB (FID)	0.0238			mg/l	0.0300		79	65-140		
Matrix Spike Analyzed: 03/21/2005 (5C21006-MS1) Source: IOC1526-01										
GRO (C4 - C12)	0.220	0.10	0.050	mg/l	0.220	ND	100	60-140		
Surrogate: 4-BFB (FID)	0.00955			mg/l	0.0100		96	65-140		
Matrix Spike Dup Analyzed: 03/21/2005 (5C21006-MSD1) Source: IOC1526-01										
GRO (C4 - C12)	0.221	0.10	0.050	mg/l	0.220	ND	100	60-140	1	20
Surrogate: 4-BFB (FID)	0.00960			mg/l	0.0100		96	65-140		

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 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C20002 Extracted: 03/20/05										
Blank Analyzed: 03/20/2005 (5C20002-BLK1)										
Acrolein	ND	50	4.6	ug/l						
Acrylonitrile	ND	50	5.1	ug/l						
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l						
Surrogate: Dibromofluoromethane	27.7			ug/l	25.0		111 80-120			
Surrogate: Toluene-d8	25.5			ug/l	25.0		102 80-120			
Surrogate: 4-Bromofluorobenzene	23.8			ug/l	25.0		95 80-120			
LCS Analyzed: 03/20/2005 (5C20002-BS1)										
2-Chloroethyl vinyl ether	26.5	5.0	1.3	ug/l	25.0		106 20-175			
Surrogate: Dibromofluoromethane	27.8			ug/l	25.0		111 80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103 80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101 80-120			

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19004 Extracted: 03/19/05										
Blank Analyzed: 03/19/2005 (5C19004-BLK1)										
Benzene	ND	1.0	0.28	ug/l						
Bromodichloromethane	ND	2.0	0.30	ug/l						
Bromoform	ND	5.0	0.32	ug/l						
Bromomethane	ND	5.0	0.34	ug/l						
Carbon tetrachloride	ND	0.50	0.28	ug/l						
Chlorobenzene	ND	2.0	0.36	ug/l						
Chloroethane	ND	5.0	0.33	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
Chloromethane	ND	5.0	0.30	ug/l						
Dibromochloromethane	ND	2.0	0.28	ug/l						
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l						
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l						
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	0.50	0.28	ug/l						
1,1-Dichloroethene	ND	5.0	0.32	ug/l						
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	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	2.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l						
Surrogate: Dibromofluoromethane	27.9			ug/l	25.0		112		80-120	
Surrogate: Toluene-d8	25.6			ug/l	25.0		102		80-120	
Surrogate: 4-Bromofluorobenzene	23.7			ug/l	25.0		95		80-120	

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Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19004 Extracted: 03/19/05										
LCS Analyzed: 03/19/2005 (5C19004-BS1)										
Benzene	23.6	1.0	0.28	ug/l	25.0		94		70-120	
Bromodichloromethane	23.8	2.0	0.30	ug/l	25.0		95		70-140	
Bromoform	23.2	5.0	0.32	ug/l	25.0		93		55-135	
Bromomethane	25.0	5.0	0.34	ug/l	25.0		100		60-140	
Carbon tetrachloride	23.1	0.50	0.28	ug/l	25.0		92		70-140	
Chlorobenzene	22.9	2.0	0.36	ug/l	25.0		92		80-125	
Chloroethane	23.6	5.0	0.33	ug/l	25.0		94		60-145	
Chloroform	26.0	2.0	0.33	ug/l	25.0		104		75-130	
Chloromethane	24.5	5.0	0.30	ug/l	25.0		98		40-145	
Dibromochloromethane	23.5	2.0	0.28	ug/l	25.0		94		65-145	
1,2-Dichlorobenzene	23.6	2.0	0.32	ug/l	25.0		94		80-120	
1,3-Dichlorobenzene	23.1	2.0	0.35	ug/l	25.0		92		80-120	
1,4-Dichlorobenzene	23.4	2.0	0.37	ug/l	25.0		94		80-120	
1,1-Dichloroethane	25.8	2.0	0.27	ug/l	25.0		103		70-135	
1,2-Dichloroethane	27.7	0.50	0.28	ug/l	25.0		111		60-150	
1,1-Dichloroethene	23.5	5.0	0.32	ug/l	25.0		94		75-135	
trans-1,2-Dichloroethene	24.4	2.0	0.27	ug/l	25.0		98		70-130	
1,2-Dichloropropane	24.6	2.0	0.35	ug/l	25.0		98		70-120	
cis-1,3-Dichloropropene	24.2	2.0	0.22	ug/l	25.0		97		75-130	
trans-1,3-Dichloropropene	24.7	2.0	0.24	ug/l	25.0		99		75-135	
Ethylbenzene	23.7	2.0	0.25	ug/l	25.0		95		80-120	
Methylene chloride	25.4	5.0	0.48	ug/l	25.0		102		60-135	
1,1,2,2-Tetrachloroethane	27.3	2.0	0.24	ug/l	25.0		109		60-135	
Tetrachloroethene	21.5	2.0	0.32	ug/l	25.0		86		75-125	
Toluene	23.3	2.0	0.36	ug/l	25.0		93		75-120	
1,1,1-Trichloroethane	25.0	2.0	0.30	ug/l	25.0		100		75-140	
1,1,2-Trichloroethane	24.7	2.0	0.30	ug/l	25.0		99		70-125	
Trichloroethene	22.4	2.0	0.26	ug/l	25.0		90		80-120	
Trichlorofluoromethane	25.2	5.0	0.34	ug/l	25.0		101		65-145	
Vinyl chloride	21.3	0.50	0.26	ug/l	25.0		85		50-130	
Surrogate: Dibromofluoromethane	28.0			ug/l	25.0		112		80-120	
Surrogate: Toluene-d8	25.6			ug/l	25.0		102		80-120	
Surrogate: 4-Bromofluorobenzene	25.0			ug/l	25.0		100		80-120	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD Limit	Data Qualifiers
Batch: 5C19004 Extracted: 03/19/05										
Matrix Spike Analyzed: 03/19/2005 (5C19004-MS1)					Source: IOC1509-02					A-01
Benzene	22.4	1.0	0.28	ug/l	25.0	ND	90	70-120		
Bromodichloromethane	22.8	2.0	0.30	ug/l	25.0	ND	91	70-140		
Bromoform	21.2	5.0	0.32	ug/l	25.0	ND	85	55-140		
Bromomethane	24.0	5.0	0.34	ug/l	25.0	ND	96	50-145		
Carbon tetrachloride	37.5	0.50	0.28	ug/l	25.0	16	86	70-145		
Chlorobenzene	21.9	2.0	0.36	ug/l	25.0	ND	88	80-125		
Chloroethane	23.0	5.0	0.33	ug/l	25.0	ND	92	50-145		
Chloroform	45.8	2.0	0.33	ug/l	25.0	22	95	70-135		
Chloromethane	22.6	5.0	0.30	ug/l	25.0	ND	90	35-145		
Dibromochloromethane	21.9	2.0	0.28	ug/l	25.0	ND	88	65-145		
1,2-Dichlorobenzene	22.5	2.0	0.32	ug/l	25.0	ND	90	75-130		
1,3-Dichlorobenzene	22.2	2.0	0.35	ug/l	25.0	ND	89	75-130		
1,4-Dichlorobenzene	22.6	2.0	0.37	ug/l	25.0	ND	90	80-120		
1,1-Dichloroethane	24.3	2.0	0.27	ug/l	25.0	ND	97	65-135		
1,2-Dichloroethane	26.0	0.50	0.28	ug/l	25.0	ND	104	60-150		
1,1-Dichloroethene	21.3	5.0	0.32	ug/l	25.0	ND	85	65-140		
trans-1,2-Dichloroethene	22.6	2.0	0.27	ug/l	25.0	ND	90	65-135		
1,2-Dichloropropane	23.2	2.0	0.35	ug/l	25.0	ND	93	65-130		
cis-1,3-Dichloropropene	22.8	2.0	0.22	ug/l	25.0	ND	91	70-140		
trans-1,3-Dichloropropene	23.2	2.0	0.24	ug/l	25.0	ND	93	70-140		
Ethylbenzene	22.4	2.0	0.25	ug/l	25.0	ND	90	70-130		
Methylene chloride	23.9	5.0	0.48	ug/l	25.0	ND	96	60-135		
1,1,2,2-Tetrachloroethane	25.2	2.0	0.24	ug/l	25.0	ND	101	60-145		
Tetrachloroethene	21.1	2.0	0.32	ug/l	25.0	0.79	81	70-130		
Toluene	22.0	2.0	0.36	ug/l	25.0	ND	88	70-120		
1,1,1-Trichloroethane	23.7	2.0	0.30	ug/l	25.0	ND	95	75-140		
1,1,2-Trichloroethane	22.9	2.0	0.30	ug/l	25.0	ND	92	60-135		
Trichloroethene	32.6	2.0	0.26	ug/l	25.0	12	82	70-125		
Trichlorofluoromethane	60.8	5.0	0.34	ug/l	25.0	39	87	55-145		
Vinyl chloride	19.8	0.50	0.26	ug/l	25.0	ND	79	40-135		
Surrogate: Dibromofluoromethane	28.0			ug/l	25.0		112	80-120		
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120		
Surrogate: 4-Bromofluorobenzene	24.9			ug/l	25.0		100	80-120		

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 Michele Harper
 Project Manager

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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19004 Extracted: 03/19/05										
Blank Analyzed: 03/19/2005 (5C19004-BLK1)										
1,2-Dichloro-1,1,2-trifluoroethane	ND	2.5	N/A	ug/l						
Cyclohexane	ND	2.5	N/A	ug/l						

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Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

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	Data Limit	Qualifiers
Batch: 5C20022 Extracted: 03/20/05										
Blank Analyzed: 03/22/2005 (5C20022-BLK1)										
Acenaphthene	ND	0.50	0.10	ug/l						
Acenaphthylene	ND	0.50	0.10	ug/l						
Aniline	ND	10	2.9	ug/l						
Anthracene	ND	0.50	0.083	ug/l						
Benzidine	ND	5.0	2.4	ug/l						
Benzoic acid	ND	20	3.7	ug/l						
Benzo(a)anthracene	ND	5.0	0.038	ug/l						
Benzo(a)pyrene	ND	2.0	0.14	ug/l						
Benzo(b)fluoranthene	ND	2.0	0.050	ug/l						
Benzo(g,h,i)perylene	ND	5.0	0.059	ug/l						
Benzo(k)fluoranthene	ND	0.50	0.053	ug/l						
Benzyl alcohol	ND	5.0	0.21	ug/l						
Bis(2-chloroethoxy)methane	ND	0.50	0.072	ug/l						
Bis(2-chloroethyl)ether	ND	0.50	0.084	ug/l						
Bis(2-chloroisopropyl)ether	ND	0.50	0.11	ug/l						
Bis(2-ethylhexyl)phthalate	ND	5.0	1.1	ug/l						
4-Bromophenyl phenyl ether	ND	1.0	0.12	ug/l						
Butyl benzyl phthalate	0.600	5.0	0.34	ug/l						J
4-Chloroaniline	ND	2.0	0.20	ug/l						
2-Chloronaphthalene	ND	0.50	0.059	ug/l						
4-Chloro-3-methylphenol	ND	2.0	0.34	ug/l						
4-Chlorophenyl phenyl ether	ND	0.50	0.056	ug/l						
2-Chlorophenol	ND	1.0	0.12	ug/l						
Chrysene	ND	0.50	0.072	ug/l						
Dibenz(a,h)anthracene	ND	0.50	0.083	ug/l						
Dibenzofuran	ND	0.50	0.075	ug/l						
Di-n-butyl phthalate	ND	2.0	0.26	ug/l						
1,2-Dichlorobenzene	ND	0.50	0.11	ug/l						
1,3-Dichlorobenzene	ND	0.50	0.13	ug/l						
1,4-Dichlorobenzene	ND	0.50	0.050	ug/l						
3,3-Dichlorobenzidine	ND	5.0	0.93	ug/l						
2,4-Dichlorophenol	ND	2.0	0.21	ug/l						
Diethyl phthalate	0.220	1.0	0.12	ug/l						J
2,4-Dimethylphenol	ND	2.0	0.31	ug/l						
Dimethyl phthalate	ND	0.50	0.081	ug/l						

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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: 5C20022 Extracted: 03/20/05										
Blank Analyzed: 03/22/2005 (5C20022-BLK1)										
4,6-Dinitro-2-methylphenol	ND	5.0	0.38	ug/l						
2,4-Dinitrophenol	ND	5.0	2.7	ug/l						N-1
2,4-Dinitrotoluene	ND	5.0	0.23	ug/l						
2,6-Dinitrotoluene	ND	5.0	0.24	ug/l						
Di-n-octyl phthalate	ND	5.0	0.17	ug/l						
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	0.087	ug/l						
Fluoranthene	ND	0.50	0.089	ug/l						
Fluorene	ND	0.50	0.075	ug/l						
Hexachlorobenzene	ND	1.0	0.13	ug/l						
Hexachlorobutadiene	ND	2.0	0.38	ug/l						
Hexachlorocyclopentadiene	ND	5.0	1.8	ug/l						
Hexachloroethane	ND	3.0	0.51	ug/l						
Indeno(1,2,3-cd)pyrene	ND	2.0	0.19	ug/l						
Isophorone	ND	1.0	0.059	ug/l						
2-Methylnaphthalene	ND	1.0	0.13	ug/l						
2-Methylphenol	ND	2.0	0.28	ug/l						
4-Methylphenol	ND	5.0	0.20	ug/l						
Naphthalene	ND	1.0	0.13	ug/l						
2-Nitroaniline	ND	5.0	0.18	ug/l						
3-Nitroaniline	ND	5.0	0.35	ug/l						
4-Nitroaniline	ND	5.0	0.49	ug/l						
Nitrobenzene	ND	1.0	0.10	ug/l						
2-Nitrophenol	ND	2.0	0.23	ug/l						
4-Nitrophenol	ND	5.0	0.73	ug/l						
N-Nitrosodimethylamine	ND	2.0	0.22	ug/l						
N-Nitroso-di-n-propylamine	ND	2.0	0.18	ug/l						
N-Nitrosodiphenylamine	ND	1.0	0.077	ug/l						
Pentachlorophenol	ND	2.0	0.78	ug/l						
Phenanthrene	ND	0.50	0.071	ug/l						
Phenol	ND	1.0	0.14	ug/l						
Pyrene	ND	0.50	0.059	ug/l						
1,2,4-Trichlorobenzene	ND	1.0	0.10	ug/l						
2,4,5-Trichlorophenol	ND	2.0	0.075	ug/l						
2,4,6-Trichlorophenol	ND	1.0	0.10	ug/l						
Surrogate: 2-Fluorophenol	12.3			ug/l	20.0		62		30-120	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1523	Sampled: 03/18/05 Received: 03/18/05
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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: 5C20022 Extracted: 03/20/05										
Blank Analyzed: 03/22/2005 (5C20022-BLK1)										
Surrogate: Phenol-d6	12.0			ug/l	20.0		60 35-120			
Surrogate: 2,4,6-Tribromophenol	15.4			ug/l	20.0		77 45-120			
Surrogate: Nitrobenzene-d5	6.34			ug/l	10.0		63 45-120			
Surrogate: 2-Fluorobiphenyl	7.02			ug/l	10.0		70 45-120			
Surrogate: Terphenyl-d14	7.70			ug/l	10.0		77 45-120			
LCS Analyzed: 03/22/2005 (5C20022-BS1)										
Acenaphthene	7.60	0.50	0.10	ug/l	10.0		76 55-120			M-NR1
Acenaphthylene	7.76	0.50	0.10	ug/l	10.0		78 55-120			
Aniline	7.02	10	2.9	ug/l	10.0		70 35-120			J
Anthracene	7.94	0.50	0.083	ug/l	10.0		79 55-120			
Benzidine	ND	5.0	2.4	ug/l	10.0		20-160			L2
Benzoic acid	7.08	20	3.7	ug/l	10.0		71 35-120			J
Benzo(a)anthracene	8.78	5.0	0.038	ug/l	10.0		88 60-120			
Benzo(a)pyrene	8.28	2.0	0.14	ug/l	10.0		83 55-120			
Benzo(b)fluoranthene	7.98	2.0	0.050	ug/l	10.0		80 50-120			
Benzo(g,h,i)perylene	7.68	5.0	0.059	ug/l	10.0		77 40-125			
Benzo(k)fluoranthene	8.24	0.50	0.053	ug/l	10.0		82 50-120			
Benzyl alcohol	7.48	5.0	0.21	ug/l	10.0		75 45-120			
Bis(2-chloroethoxy)methane	7.56	0.50	0.072	ug/l	10.0		76 55-120			
Bis(2-chloroethyl)ether	6.46	0.50	0.084	ug/l	10.0		65 50-120			
Bis(2-chloroisopropyl)ether	6.98	0.50	0.11	ug/l	10.0		70 45-120			
Bis(2-ethylhexyl)phthalate	8.18	5.0	1.1	ug/l	10.0		82 60-130			
4-Bromophenyl phenyl ether	7.30	1.0	0.12	ug/l	10.0		73 50-120			
Butyl benzyl phthalate	8.02	5.0	0.34	ug/l	10.0		80 55-125			
4-Chloroaniline	6.88	2.0	0.20	ug/l	10.0		69 50-120			
2-Chloronaphthalene	7.82	0.50	0.059	ug/l	10.0		78 55-120			
4-Chloro-3-methylphenol	7.16	2.0	0.34	ug/l	10.0		72 60-120			
4-Chlorophenyl phenyl ether	7.94	0.50	0.056	ug/l	10.0		79 55-120			
2-Chlorophenol	6.82	1.0	0.12	ug/l	10.0		68 45-120			
Chrysene	8.32	0.50	0.072	ug/l	10.0		83 60-120			
Dibenz(a,h)anthracene	8.64	0.50	0.083	ug/l	10.0		86 45-130			
Dibenzofuran	7.52	0.50	0.075	ug/l	10.0		75 60-120			
Di-n-butyl phthalate	8.02	2.0	0.26	ug/l	10.0		80 55-125			
1,2-Dichlorobenzene	6.12	0.50	0.11	ug/l	10.0		61 35-120			
1,3-Dichlorobenzene	6.00	0.50	0.13	ug/l	10.0		60 35-120			

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: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

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: 5C20022 Extracted: 03/20/05										
LCS Analyzed: 03/22/2005 (5C20022-BS1)										
1,4-Dichlorobenzene	5.96	0.50	0.050	ug/l	10.0	60	35-120			M-NR1
3,3-Dichlorobenzidine	7.18	5.0	0.93	ug/l	10.0	72	45-130			
2,4-Dichlorophenol	7.36	2.0	0.21	ug/l	10.0	74	55-120			
Diethyl phthalate	7.40	1.0	0.12	ug/l	10.0	74	55-120			
2,4-Dimethylphenol	6.64	2.0	0.31	ug/l	10.0	66	30-120			
Dimethyl phthalate	7.78	0.50	0.081	ug/l	10.0	78	60-120			
4,6-Dinitro-2-methylphenol	8.54	5.0	0.38	ug/l	10.0	85	50-120			
2,4-Dinitrophenol	7.42	5.0	2.7	ug/l	10.0	74	40-120			N-1
2,4-Dinitrotoluene	6.94	5.0	0.23	ug/l	10.0	69	60-120			
2,6-Dinitrotoluene	7.46	5.0	0.24	ug/l	10.0	75	60-120			
Di-n-octyl phthalate	9.76	5.0	0.17	ug/l	10.0	98	60-130			
1,2-Diphenylhydrazine/Azobenzene	7.98	1.0	0.087	ug/l	10.0	80	60-120			
Fluoranthene	8.32	0.50	0.089	ug/l	10.0	83	55-120			
Fluorene	8.12	0.50	0.075	ug/l	10.0	81	60-120			
Hexachlorobenzene	7.64	1.0	0.13	ug/l	10.0	76	50-120			
Hexachlorobutadiene	6.48	2.0	0.38	ug/l	10.0	65	40-120			
Hexachlorocyclopentadiene	6.58	5.0	1.8	ug/l	10.0	66	15-120			
Hexachloroethane	6.08	3.0	0.51	ug/l	10.0	61	35-120			
Indeno(1,2,3-cd)pyrene	8.12	2.0	0.19	ug/l	10.0	81	40-130			
Isophorone	6.94	1.0	0.059	ug/l	10.0	69	50-120			
2-Methylnaphthalene	7.42	1.0	0.13	ug/l	10.0	74	50-120			
2-Methylphenol	7.02	2.0	0.28	ug/l	10.0	70	45-120			
4-Methylphenol	7.14	5.0	0.20	ug/l	10.0	71	45-120			
Naphthalene	7.10	1.0	0.13	ug/l	10.0	71	50-120			
2-Nitroaniline	7.92	5.0	0.18	ug/l	10.0	79	60-120			
3-Nitroaniline	7.18	5.0	0.35	ug/l	10.0	72	55-120			
4-Nitroaniline	7.68	5.0	0.49	ug/l	10.0	77	50-125			
Nitrobenzene	6.56	1.0	0.10	ug/l	10.0	66	50-120			
2-Nitrophenol	7.28	2.0	0.23	ug/l	10.0	73	55-120			
4-Nitrophenol	8.18	5.0	0.73	ug/l	10.0	82	45-120			
N-Nitrosodimethylamine	6.94	2.0	0.22	ug/l	10.0	69	40-120			
N-Nitroso-di-n-propylamine	6.80	2.0	0.18	ug/l	10.0	68	45-120			
N-Nitrosodiphenylamine	7.34	1.0	0.077	ug/l	10.0	73	55-120			
Pentachlorophenol	8.06	2.0	0.78	ug/l	10.0	81	50-120			
Phenanthrene	7.82	0.50	0.071	ug/l	10.0	78	55-120			

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C20022 Extracted: 03/20/05										
LCS Analyzed: 03/22/2005 (5C20022-BS1)										
Phenol	7.76	1.0	0.14	ug/l	10.0	78	45-120			
Pyrene	8.14	0.50	0.059	ug/l	10.0	81	50-120			
1,2,4-Trichlorobenzene	6.40	1.0	0.10	ug/l	10.0	64	45-120			
2,4,5-Trichlorophenol	8.04	2.0	0.075	ug/l	10.0	80	60-120			
2,4,6-Trichlorophenol	8.04	1.0	0.10	ug/l	10.0	80	60-120			
Surrogate: 2-Fluorophenol	13.1			ug/l	20.0	66	30-120			
Surrogate: Phenol-d6	13.0			ug/l	20.0	65	35-120			
Surrogate: 2,4,6-Tribromophenol	16.1			ug/l	20.0	80	45-120			
Surrogate: Nitrobenzene-d5	6.72			ug/l	10.0	67	45-120			
Surrogate: 2-Fluorobiphenyl	7.48			ug/l	10.0	75	45-120			
Surrogate: Terphenyl-d14	7.66			ug/l	10.0	77	45-120			
LCS Dup Analyzed: 03/22/2005 (5C20022-BSD1)										
Acenaphthene	7.52	0.50	0.10	ug/l	10.0	75	55-120	1	20	
Acenaphthylene	7.54	0.50	0.10	ug/l	10.0	75	55-120	3	20	
Aniline	6.88	10	2.9	ug/l	10.0	69	35-120	2	25	J
Anthracene	7.78	0.50	0.083	ug/l	10.0	78	55-120	2	20	
Benzidine	ND	5.0	2.4	ug/l	10.0		20-160		35	L2
Benzoic acid	6.18	20	3.7	ug/l	10.0	62	35-120	14	30	J
Benzo(a)anthracene	8.48	5.0	0.038	ug/l	10.0	85	60-120	3	20	
Benzo(a)pyrene	8.12	2.0	0.14	ug/l	10.0	81	55-120	2	25	
Benzo(b)fluoranthene	7.90	2.0	0.050	ug/l	10.0	79	50-120	1	25	
Benzo(g,h,i)perylene	7.32	5.0	0.059	ug/l	10.0	73	40-125	5	25	
Benzo(k)fluoranthene	7.98	0.50	0.053	ug/l	10.0	80	50-120	3	20	
Benzyl alcohol	7.26	5.0	0.21	ug/l	10.0	73	45-120	3	20	
Bis(2-chloroethoxy)methane	7.42	0.50	0.072	ug/l	10.0	74	55-120	2	20	
Bis(2-chloroethyl)ether	6.10	0.50	0.084	ug/l	10.0	61	50-120	6	20	
Bis(2-chloroisopropyl)ether	6.98	0.50	0.11	ug/l	10.0	70	45-120	0	20	
Bis(2-ethylhexyl)phthalate	8.08	5.0	1.1	ug/l	10.0	81	60-130	1	20	
4-Bromophenyl phenyl ether	7.30	1.0	0.12	ug/l	10.0	73	50-120	0	25	
Butyl benzyl phthalate	8.02	5.0	0.34	ug/l	10.0	80	55-125	0	20	
4-Chloroaniline	6.62	2.0	0.20	ug/l	10.0	66	50-120	4	25	
2-Chloronaphthalene	7.54	0.50	0.059	ug/l	10.0	75	55-120	4	20	
4-Chloro-3-methylphenol	6.86	2.0	0.34	ug/l	10.0	69	60-120	4	25	
4-Chlorophenyl phenyl ether	8.16	0.50	0.056	ug/l	10.0	82	55-120	3	20	
2-Chlorophenol	6.74	1.0	0.12	ug/l	10.0	67	45-120	1	25	

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1523	Sampled: 03/18/05 Received: 03/18/05
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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	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C20022 Extracted: 03/20/05											
LCS Dup Analyzed: 03/22/2005 (5C20022-BSD1)											
Chrysene	8.10	0.50	0.072	ug/l	10.0	81	60-120	3	20		
Dibenz(a,h)anthracene	8.08	0.50	0.083	ug/l	10.0	81	45-130	7	25		
Dibenzofuran	7.54	0.50	0.075	ug/l	10.0	75	60-120	0	20		
Di-n-butyl phthalate	8.10	2.0	0.26	ug/l	10.0	81	55-125	1	20		
1,2-Dichlorobenzene	5.86	0.50	0.11	ug/l	10.0	59	35-120	4	25		
1,3-Dichlorobenzene	5.64	0.50	0.13	ug/l	10.0	56	35-120	6	25		
1,4-Dichlorobenzene	5.68	0.50	0.050	ug/l	10.0	57	35-120	5	25		
3,3-Dichlorobenzidine	6.88	5.0	0.93	ug/l	10.0	69	45-130	4	25		
2,4-Dichlorophenol	7.30	2.0	0.21	ug/l	10.0	73	55-120	1	20		
Diethyl phthalate	7.32	1.0	0.12	ug/l	10.0	73	55-120	1	20		
2,4-Dimethylphenol	6.42	2.0	0.31	ug/l	10.0	64	30-120	3	25		
Dimethyl phthalate	7.70	0.50	0.081	ug/l	10.0	77	60-120	1	20		
4,6-Dinitro-2-methylphenol	8.26	5.0	0.38	ug/l	10.0	83	50-120	3	25		
2,4-Dinitrophenol	7.02	5.0	2.7	ug/l	10.0	70	40-120	6	25		N-1
2,4-Dinitrotoluene	6.92	5.0	0.23	ug/l	10.0	69	60-120	0	20		
2,6-Dinitrotoluene	7.22	5.0	0.24	ug/l	10.0	72	60-120	3	20		
Di-n-octyl phthalate	9.76	5.0	0.17	ug/l	10.0	98	60-130	0	20		
1,2-Diphenylhydrazine/Azobenzene	8.02	1.0	0.087	ug/l	10.0	80	60-120	1	25		
Fluoranthene	8.28	0.50	0.089	ug/l	10.0	83	55-120	1	20		
Fluorene	8.34	0.50	0.075	ug/l	10.0	83	60-120	3	20		
Hexachlorobenzene	7.50	1.0	0.13	ug/l	10.0	75	50-120	2	20		
Hexachlorobutadiene	5.84	2.0	0.38	ug/l	10.0	58	40-120	10	25		
Hexachlorocyclopentadiene	6.76	5.0	1.8	ug/l	10.0	68	15-120	3	30		
Hexachloroethane	5.66	3.0	0.51	ug/l	10.0	57	35-120	7	25		
Indeno(1,2,3-cd)pyrene	7.86	2.0	0.19	ug/l	10.0	79	40-130	3	25		
Isophorone	6.12	1.0	0.059	ug/l	10.0	61	50-120	13	20		
2-Methylnaphthalene	7.12	1.0	0.13	ug/l	10.0	71	50-120	4	20		
2-Methylphenol	6.92	2.0	0.28	ug/l	10.0	69	45-120	1	20		
4-Methylphenol	7.06	5.0	0.20	ug/l	10.0	71	45-120	1	20		
Naphthalene	6.86	1.0	0.13	ug/l	10.0	69	50-120	3	20		
2-Nitroaniline	7.94	5.0	0.18	ug/l	10.0	79	60-120	0	20		
3-Nitroaniline	6.78	5.0	0.35	ug/l	10.0	68	55-120	6	25		
4-Nitroaniline	7.64	5.0	0.49	ug/l	10.0	76	50-125	1	20		
Nitrobenzene	6.62	1.0	0.10	ug/l	10.0	66	50-120	1	25		
2-Nitrophenol	7.20	2.0	0.23	ug/l	10.0	72	55-120	1	25		

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Michele Harper
Project Manager



MWH-Pasadena/Boeing
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Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C20022 Extracted: 03/20/05											
LCS Dup Analyzed: 03/22/2005 (5C20022-BSD1)											
4-Nitrophenol	7.96	5.0	0.73	ug/l	10.0	80	45-120	3	25		
N-Nitrosodimethylamine	6.82	2.0	0.22	ug/l	10.0	68	40-120	2	20		
N-Nitroso-di-n-propylamine	6.68	2.0	0.18	ug/l	10.0	67	45-120	2	20		
N-Nitrosodiphenylamine	7.28	1.0	0.077	ug/l	10.0	73	55-120	1	20		
Pentachlorophenol	7.92	2.0	0.78	ug/l	10.0	79	50-120	2	25		
Phenanthrene	7.68	0.50	0.071	ug/l	10.0	77	55-120	2	20		
Phenol	7.62	1.0	0.14	ug/l	10.0	76	45-120	2	25		
Pyrene	7.96	0.50	0.059	ug/l	10.0	80	50-120	2	25		
1,2,4-Trichlorobenzene	6.06	1.0	0.10	ug/l	10.0	61	45-120	5	20		
2,4,5-Trichlorophenol	7.66	2.0	0.075	ug/l	10.0	77	60-120	5	20		
2,4,6-Trichlorophenol	7.78	1.0	0.10	ug/l	10.0	78	60-120	3	20		
Surrogate: 2-Fluorophenol	12.8			ug/l	20.0	64	30-120				
Surrogate: Phenol-d6	12.9			ug/l	20.0	64	35-120				
Surrogate: 2,4,6-Tribromophenol	16.0			ug/l	20.0	80	45-120				
Surrogate: Nitrobenzene-d5	6.74			ug/l	10.0	67	45-120				
Surrogate: 2-Fluorobiphenyl	7.16			ug/l	10.0	72	45-120				
Surrogate: Terphenyl-d14	7.48			ug/l	10.0	75	45-120				

Del Mar Analytical, Irvine
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Project Manager



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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1523	Sampled: 03/18/05 Received: 03/18/05
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METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
Batch: 5C19034 Extracted: 03/19/05										
Blank Analyzed: 03/19/2005 (5C19034-BLK1)										
Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.020	ug/l						
Chlordane	ND	1.0	0.20	ug/l						
4,4'-DDD	ND	0.10	0.020	ug/l						
4,4'-DDE	ND	0.10	0.025	ug/l						
4,4'-DDT	ND	0.10	0.030	ug/l						
Dieldrin	ND	0.10	0.015	ug/l						
Endosulfan I	ND	0.10	0.015	ug/l						
Endosulfan II	ND	0.10	0.040	ug/l						
Endosulfan sulfate	ND	0.20	0.015	ug/l						
Endrin	ND	0.10	0.020	ug/l						
Endrin aldehyde	ND	0.10	0.045	ug/l						
Endrin ketone	ND	0.10	0.020	ug/l						
Heptachlor	ND	0.10	0.030	ug/l						
Heptachlor epoxide	ND	0.10	0.020	ug/l						
Methoxychlor	ND	0.10	0.035	ug/l						
Toxaphene	ND	5.0	1.5	ug/l						
Surrogate: Tetrachloro-m-xylene	0.320			ug/l	0.500		64	35-115		
Surrogate: Decachlorobiphenyl	0.403			ug/l	0.500		81	45-120		
LCS Analyzed: 03/19/2005 (5C19034-BS1)										
Aldrin	0.340	0.10	0.030	ug/l	0.500		68	40-115		M-NR1
alpha-BHC	0.351	0.10	0.015	ug/l	0.500		70	45-115		
beta-BHC	0.339	0.10	0.015	ug/l	0.500		68	50-115		
delta-BHC	0.351	0.20	0.020	ug/l	0.500		70	55-120		
gamma-BHC (Lindane)	0.357	0.10	0.020	ug/l	0.500		71	45-115		
4,4'-DDD	0.390	0.10	0.020	ug/l	0.500		78	60-120		
4,4'-DDE	0.380	0.10	0.025	ug/l	0.500		76	55-120		
4,4'-DDT	0.402	0.10	0.030	ug/l	0.500		80	60-120		
Dieldrin	0.380	0.10	0.015	ug/l	0.500		76	55-120		
Endosulfan I	0.359	0.10	0.015	ug/l	0.500		72	50-115		
Endosulfan II	0.377	0.10	0.040	ug/l	0.500		75	60-125		
Endosulfan sulfate	0.377	0.20	0.015	ug/l	0.500		75	60-120		

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 Michele Harper
 Project Manager

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
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 Received: 03/18/05

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: 5C19034 Extracted: 03/19/05										
LCS Analyzed: 03/19/2005 (5C19034-BS1)										
Endrin	0.378	0.10	0.020	ug/l	0.500		76 55-125			M-NR1
Endrin aldehyde	0.339	0.10	0.045	ug/l	0.500		68 55-115			
Endrin ketone	0.393	0.10	0.020	ug/l	0.500		79 60-115			
Heptachlor	0.357	0.10	0.030	ug/l	0.500		71 45-115			
Heptachlor epoxide	0.352	0.10	0.020	ug/l	0.500		70 50-115			
Methoxychlor	0.386	0.10	0.035	ug/l	0.500		77 60-120			
Surrogate: Tetrachloro-m-xylene	0.299			ug/l	0.500		60 35-115			
Surrogate: Decachlorobiphenyl	0.398			ug/l	0.500		80 45-120			
LCS Dup Analyzed: 03/19/2005 (5C19034-BS1)										
Aldrin	0.380	0.10	0.030	ug/l	0.500		76 40-115	11	30	
alpha-BHC	0.391	0.10	0.015	ug/l	0.500		78 45-115	11	30	
beta-BHC	0.375	0.10	0.015	ug/l	0.500		75 50-115	10	30	
delta-BHC	0.391	0.20	0.020	ug/l	0.500		78 55-120	11	30	
gamma-BHC (Lindane)	0.393	0.10	0.020	ug/l	0.500		79 45-115	10	30	
4,4'-DDD	0.427	0.10	0.020	ug/l	0.500		85 60-120	9	30	
4,4'-DDE	0.423	0.10	0.025	ug/l	0.500		85 55-120	11	30	
4,4'-DDT	0.447	0.10	0.030	ug/l	0.500		89 60-120	11	30	
Dieldrin	0.416	0.10	0.015	ug/l	0.500		83 55-120	9	30	
Endosulfan I	0.395	0.10	0.015	ug/l	0.500		79 50-115	10	30	
Endosulfan II	0.409	0.10	0.040	ug/l	0.500		82 60-125	8	30	
Endosulfan sulfate	0.410	0.20	0.015	ug/l	0.500		82 60-120	8	30	
Endrin	0.415	0.10	0.020	ug/l	0.500		83 55-125	9	30	
Endrin aldehyde	0.373	0.10	0.045	ug/l	0.500		75 55-115	10	30	
Endrin ketone	0.425	0.10	0.020	ug/l	0.500		85 60-115	8	30	
Heptachlor	0.398	0.10	0.030	ug/l	0.500		80 45-115	11	30	
Heptachlor epoxide	0.389	0.10	0.020	ug/l	0.500		78 50-115	10	30	
Methoxychlor	0.427	0.10	0.035	ug/l	0.500		85 60-120	10	30	
Surrogate: Tetrachloro-m-xylene	0.309			ug/l	0.500		62 35-115			
Surrogate: Decachlorobiphenyl	0.433			ug/l	0.500		87 45-120			

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19034 Extracted: 03/19/05										
Blank Analyzed: 03/19/2005 (5C19034-BLK1)										
Aroclor 1016	ND	1.0	0.20	ug/l						
Aroclor 1221	ND	1.0	0.10	ug/l						
Aroclor 1232	ND	1.0	0.15	ug/l						
Aroclor 1242	ND	1.0	0.15	ug/l						
Aroclor 1248	ND	1.0	0.25	ug/l						
Aroclor 1254	ND	1.0	0.25	ug/l						
Aroclor 1260	ND	1.0	0.40	ug/l						
Surrogate: Decachlorobiphenyl	0.356			ug/l	0.500		71 45-120			
LCS Analyzed: 03/19/2005 (5C19034-BS2)										
Aroclor 1016	2.73	1.0	0.20	ug/l	4.00		68 50-115			M-NRI
Aroclor 1260	2.92	1.0	0.40	ug/l	4.00		73 55-115			
Surrogate: Decachlorobiphenyl	0.373			ug/l	0.500		75 45-120			
LCS Dup Analyzed: 03/19/2005 (5C19034-BSD2)										
Aroclor 1016	2.54	1.0	0.20	ug/l	4.00		64 50-115	7	30	
Aroclor 1260	2.83	1.0	0.40	ug/l	4.00		71 55-115	3	25	
Surrogate: Decachlorobiphenyl	0.348			ug/l	0.500		70 45-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1523	Sampled: 03/18/05 Received: 03/18/05
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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C19029 Extracted: 03/19/05										
Blank Analyzed: 03/19/2005 (5C19029-BLK1)										
Mercury	ND	0.20	0.063	ug/l						
LCS Analyzed: 03/19/2005 (5C19029-BS1)										
Mercury	8.50	0.20	0.063	ug/l	8.00		106 85-115			
Matrix Spike Analyzed: 03/19/2005 (5C19029-MS1)										
					Source: IOC1454-01					
Mercury	8.46	0.20	0.063	ug/l	8.00	ND	106 70-130			
Matrix Spike Dup Analyzed: 03/19/2005 (5C19029-MSD1)										
					Source: IOC1454-01					
Mercury	8.44	0.20	0.063	ug/l	8.00	ND	106 70-130	0	20	
Batch: 5C19038 Extracted: 03/19/05										
Blank Analyzed: 03/21/2005 (5C19038-BLK1)										
Antimony	1.25	2.0	0.18	ug/l						J
Arsenic	ND	1.0	0.49	ug/l						
Barium	ND	0.0010	0.00014	mg/l						
Beryllium	ND	0.50	0.037	ug/l						
Cadmium	0.0170	1.0	0.015	ug/l						J
Chromium	ND	2.0	0.26	ug/l						
Cobalt	ND	1.0	0.10	ug/l						
Copper	ND	2.0	0.49	ug/l						
Iron	0.0190	0.010	0.0032	mg/l						B-1
Lead	ND	1.0	0.13	ug/l						
Manganese	6.36	1.0	0.44	ug/l						B-1
Nickel	0.555	2.0	0.15	ug/l						J
Selenium	ND	2.0	0.36	ug/l						
Silver	0.184	1.0	0.089	ug/l						J
Thallium	ND	1.0	0.075	ug/l						
Vanadium	ND	2.0	0.86	ug/l						
Zinc	ND	20	3.1	ug/l						

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19038 Extracted: 03/19/05										
LCS Analyzed: 03/21/2005 (5C19038-BS1)										
Antimony	81.3	2.0	0.18	ug/l	80.0		102		85-115	
Arsenic	86.3	1.0	0.49	ug/l	80.0		108		85-115	
Barium	0.0806	0.0010	0.00014	mg/l	0.0800		101		85-115	
Beryllium	74.7	0.50	0.037	ug/l	80.0		93		85-115	
Cadmium	78.9	1.0	0.015	ug/l	80.0		99		85-115	
Chromium	80.8	2.0	0.26	ug/l	80.0		101		85-115	
Cobalt	80.6	1.0	0.10	ug/l	80.0		101		85-115	
Copper	80.6	2.0	0.49	ug/l	80.0		101		85-115	
Iron	0.803	0.010	0.0032	mg/l	0.800		100		85-115	
Lead	81.1	1.0	0.13	ug/l	80.0		101		85-115	
Manganese	82.2	1.0	0.44	ug/l	80.0		103		85-115	
Nickel	81.5	2.0	0.15	ug/l	80.0		102		85-115	
Selenium	80.8	2.0	0.36	ug/l	80.0		101		85-115	
Silver	80.7	1.0	0.089	ug/l	80.0		101		85-115	
Thallium	80.8	1.0	0.075	ug/l	80.0		101		85-115	
Vanadium	79.6	2.0	0.86	ug/l	80.0		100		85-115	
Zinc	79.7	20	3.1	ug/l	80.0		100		85-115	

Matrix Spike Analyzed: 03/21/2005 (5C19038-MS1)

Source: IOC1524-01

Antimony	84.1	2.0	0.18	ug/l	80.0	0.64	104		70-130	
Arsenic	88.5	1.0	0.49	ug/l	80.0	1.2	109		70-130	
Barium	0.0958	0.0010	0.00014	mg/l	0.0800	0.013	104		70-130	
Beryllium	75.0	0.50	0.037	ug/l	80.0	ND	94		70-130	
Cadmium	80.3	1.0	0.015	ug/l	80.0	0.034	100		70-130	
Chromium	81.8	2.0	0.26	ug/l	80.0	1.2	101		70-130	
Cobalt	81.7	1.0	0.10	ug/l	80.0	0.25	102		70-130	
Copper	84.0	2.0	0.49	ug/l	80.0	3.3	101		70-130	
Iron	1.06	0.010	0.0032	mg/l	0.800	0.15	114		70-130	
Lead	82.7	1.0	0.13	ug/l	80.0	0.50	103		70-130	
Manganese	101	1.0	0.44	ug/l	80.0	19	102		70-130	
Nickel	82.5	2.0	0.15	ug/l	80.0	1.1	102		70-130	
Selenium	80.9	2.0	0.36	ug/l	80.0	0.39	101		70-130	
Silver	80.5	1.0	0.089	ug/l	80.0	ND	101		70-130	
Thallium	82.7	1.0	0.075	ug/l	80.0	0.13	103		70-130	
Vanadium	82.7	2.0	0.86	ug/l	80.0	2.7	100		70-130	
Zinc	89.8	20	3.1	ug/l	80.0	8.2	102		70-130	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1523	Sampled: 03/18/05 Received: 03/18/05
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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: 5C19038 Extracted: 03/19/05											
Matrix Spike Dup Analyzed: 03/21/2005 (5C19038-MSD1)						Source: IOC1524-01					
Antimony	82.6	2.0	0.18	ug/l	80.0	0.64	102	70-130	2	20	
Arsenic	85.5	1.0	0.49	ug/l	80.0	1.2	105	70-130	3	20	
Barium	0.0950	0.0010	0.00014	mg/l	0.0800	0.013	102	70-130	1	20	
Beryllium	73.6	0.50	0.037	ug/l	80.0	ND	92	70-130	2	20	
Cadmium	78.6	1.0	0.015	ug/l	80.0	0.034	98	70-130	2	20	
Chromium	79.9	2.0	0.26	ug/l	80.0	1.2	98	70-130	2	20	
Cobalt	79.3	1.0	0.10	ug/l	80.0	0.25	99	70-130	3	20	
Copper	81.9	2.0	0.49	ug/l	80.0	3.3	98	70-130	3	20	
Iron	0.905	0.010	0.0032	mg/l	0.800	0.15	94	70-130	16	20	
Lead	81.9	1.0	0.13	ug/l	80.0	0.50	102	70-130	1	20	
Manganese	98.6	1.0	0.44	ug/l	80.0	19	100	70-130	2	20	
Nickel	79.8	2.0	0.15	ug/l	80.0	1.1	98	70-130	3	20	
Selenium	80.4	2.0	0.36	ug/l	80.0	0.39	100	70-130	1	20	
Silver	79.2	1.0	0.089	ug/l	80.0	ND	99	70-130	2	20	
Thallium	81.2	1.0	0.075	ug/l	80.0	0.13	101	70-130	2	20	
Vanadium	81.6	2.0	0.86	ug/l	80.0	2.7	99	70-130	1	20	
Zinc	84.2	20	3.1	ug/l	80.0	8.2	95	70-130	6	20	

Batch: 5C19039 Extracted: 03/19/05

Blank Analyzed: 03/19/2005 (5C19039-BLK1)

Boron	ND	0.050	0.0074	mg/l
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LCS Analyzed: 03/19/2005 (5C19039-BS1)

Boron	0.473	0.050	0.0074	mg/l	0.500	95	85-115
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Matrix Spike Analyzed: 03/19/2005 (5C19039-MS1)

Boron	0.585	0.050	0.0074	mg/l	0.500	0.090	99	70-130
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19039 Extracted: 03/19/05											
Matrix Spike Dup Analyzed: 03/19/2005 (5C19039-MSD1)						Source: IOC1526-01					
Boron	0.588	0.050	0.0074	mg/l	0.500	0.090	100	70-130	1	20	

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C18067 Extracted: 03/18/05											
Blank Analyzed: 03/18/2005 (5C18067-BLK1)											
Chromium VI	ND	1.0	0.10	ug/l							
LCS Analyzed: 03/18/2005 (5C18067-BS1)											
Chromium VI	51.4	1.0	0.10	ug/l	50.0		103	90-110			
Matrix Spike Analyzed: 03/18/2005 (5C18067-MS1) Source: IOC1461-03											
Chromium VI	51.9	1.0	0.10	ug/l	50.0	ND	104	90-110			
Matrix Spike Dup Analyzed: 03/18/2005 (5C18067-MSD1) Source: IOC1461-03											
Chromium VI	53.8	1.0	0.10	ug/l	50.0	ND	108	90-110	4	10	
Batch: 5C18070 Extracted: 03/18/05											
Blank Analyzed: 03/23/2005 (5C18070-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 03/23/2005 (5C18070-BS1)											
Biochemical Oxygen Demand	202	100	30	mg/l	198		102	85-115			
LCS Dup Analyzed: 03/23/2005 (5C18070-BSD1)											
Biochemical Oxygen Demand	200	100	30	mg/l	198		101	85-115	1	20	
Batch: 5C18104 Extracted: 03/18/05											
Blank Analyzed: 03/18/2005 (5C18104-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Fluoride	0.103	0.50	0.10	mg/l							J
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1523	Sampled: 03/18/05 Received: 03/18/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C18104 Extracted: 03/18/05											
LCS Analyzed: 03/18/2005 (5C18104-BS1)											
Chloride	4.80	0.50	0.26	mg/l	5.00		96	90-110			
Fluoride	4.67	0.50	0.10	mg/l	5.00		93	90-110			
Sulfate	10.0	0.50	0.18	mg/l	10.0		100	90-110			
Matrix Spike Analyzed: 03/18/2005 (5C18104-MS1) Source: IOC1500-06											
Chloride	10.3	0.50	0.26	mg/l	5.00	6.1	84	80-120			
Fluoride	4.51	0.50	0.10	mg/l	5.00	0.39	82	80-120			
Sulfate	12.8	0.50	0.18	mg/l	10.0	3.8	90	80-120			
Matrix Spike Dup Analyzed: 03/18/2005 (5C18104-MSD1) Source: IOC1500-06											
Chloride	10.3	0.50	0.26	mg/l	5.00	6.1	84	80-120	0	20	
Fluoride	4.52	0.50	0.10	mg/l	5.00	0.39	83	80-120	0	20	
Sulfate	12.8	0.50	0.18	mg/l	10.0	3.8	90	80-120	0	20	
Batch: 5C18107 Extracted: 03/18/05											
Blank Analyzed: 03/18/2005 (5C18107-BLK1)											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
LCS Analyzed: 03/18/2005 (5C18107-BS1)											
Surfactants (MBAS)	0.237	0.10	0.044	mg/l	0.250		95	90-110			
Matrix Spike Analyzed: 03/18/2005 (5C18107-MS1) Source: IOC1443-01											
Surfactants (MBAS)	0.263	0.10	0.044	mg/l	0.250	ND	105	50-125			
Matrix Spike Dup Analyzed: 03/18/2005 (5C18107-MSD1) Source: IOC1443-01											
Surfactants (MBAS)	0.263	0.10	0.044	mg/l	0.250	ND	105	50-125	0	20	

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 Michele Harper
 Project Manager

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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	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1523	Sampled: 03/18/05 Received: 03/18/05
--	--	---

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C18121 Extracted: 03/18/05											
Blank Analyzed: 03/19/2005 (5C18121-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/19/2005 (5C18121-BS1)											
Perchlorate	52.7	4.0	0.80	ug/l	50.0		105	85-115			
Matrix Spike Analyzed: 03/19/2005 (5C18121-MS1)											
						Source: IOC1521-01					
Perchlorate	53.9	4.0	0.80	ug/l	50.0	ND	108	80-120			
Matrix Spike Dup Analyzed: 03/19/2005 (5C18121-MSD1)											
						Source: IOC1521-01					
Perchlorate	54.1	4.0	0.80	ug/l	50.0	ND	108	80-120	0	20	
Batch: 5C19030 Extracted: 03/19/05											
Duplicate Analyzed: 03/19/2005 (5C19030-DUP1)											
						Source: IOC1523-01					
Residual Chlorine	ND	0.10	0.10	mg/l		ND				20	
Batch: 5C19032 Extracted: 03/19/05											
Blank Analyzed: 03/19/2005 (5C19032-BLK1)											
Turbidity	0.0600	1.0	0.040	NTU							J
Duplicate Analyzed: 03/19/2005 (5C19032-DUP1)											
						Source: IOC1364-01					
Turbidity	0.110	1.0	0.040	NTU		0.12			9	20	J
Batch: 5C21062 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21062-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							

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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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C21062 Extracted: 03/21/05										
LCS Analyzed: 03/21/2005 (5C21062-BS1)										
Oil & Grease	17.1	5.0	0.94	mg/l	20.0		86 65-120			M-NRI
LCS Dup Analyzed: 03/21/2005 (5C21062-BSD1)										
Oil & Grease	16.0	5.0	0.94	mg/l	20.0		80 65-120	7	20	
Batch: 5C21068 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21068-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21068-BS1)										
Total Suspended Solids	942	10	10	mg/l	1000		94 85-115			
Duplicate Analyzed: 03/21/2005 (5C21068-DUP1)										
Total Suspended Solids	ND	10	10	mg/l		Source: IOC1566-01 ND			10	
Batch: 5C21073 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21073-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21073-BS1)										
Total Dissolved Solids	968	10	10	mg/l	1000		97 90-110			
Duplicate Analyzed: 03/21/2005 (5C21073-DUP1)										
Total Dissolved Solids	320	10	10	mg/l		Source: IOC1566-01 300		6	10	

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Pasadena, CA 91101
Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C21077 Extracted: 03/21/05										
Duplicate Analyzed: 03/21/2005 (5C21077-DUP1)										
Specific Conductance	244	1.0	1.0	umhos/cm		240		2	5	
Batch: 5C21083 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21083-BLK1)										
Total Cyanide	ND	5.0	2.2	ug/l						
LCS Analyzed: 03/21/2005 (5C21083-BS1)										
Total Cyanide	203	5.0	2.2	ug/l	200		102 90-110			
Matrix Spike Analyzed: 03/21/2005 (5C21083-MS1)										
Total Cyanide	152	5.0	2.2	ug/l	200	ND	76 70-115			
Matrix Spike Dup Analyzed: 03/21/2005 (5C21083-MSD1)										
Total Cyanide	172	5.0	2.2	ug/l	200	ND	86 70-115	12	15	
Batch: 5C22089 Extracted: 03/22/05										
Blank Analyzed: 03/22/2005 (5C22089-BLK1)										
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l						
LCS Analyzed: 03/22/2005 (5C22089-BS1)										
Ammonia-N (Distilled)	9.24	0.50	0.30	mg/l	10.0		92 80-115			
Matrix Spike Analyzed: 03/22/2005 (5C22089-MS1)										
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	1.1	84 70-120			

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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C22089 Extracted: 03/22/05											
Matrix Spike Dup Analyzed: 03/22/2005 (5C22089-MSD1)						Source: IOC1175-01					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	1.1	90	70-120	6	15	
Batch: 5C22101 Extracted: 03/22/05											
Blank Analyzed: 03/22/2005 (5C22101-BLK1)											
Total Organic Carbon	ND	1.0	0.25	mg/l							
LCS Analyzed: 03/22/2005 (5C22101-BS1)											
Total Organic Carbon	10.8	1.0	0.25	mg/l	10.0		108	90-110			
Matrix Spike Analyzed: 03/22/2005 (5C22101-MS1)						Source: IOC1062-02					
Total Organic Carbon	10.6	1.0	0.25	mg/l	5.00	5.8	96	80-120			
Matrix Spike Dup Analyzed: 03/22/2005 (5C22101-MSD1)						Source: IOC1062-02					
Total Organic Carbon	10.9	1.0	0.25	mg/l	5.00	5.8	102	80-120	3	20	

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Pasadena, CA 91101
Attention: Bronwyn Kelly
Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523
Sampled: 03/18/05
Received: 03/18/05

METHOD BLANK/QC DATA

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: P5C2203 Extracted: 03/22/05											
Blank Analyzed: 03/22/2005 (P5C2203-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.11			ug/l	1.00		111	80-125			
LCS Analyzed: 03/22/2005 (P5C2203-BS1)											
1,4-Dioxane	8.06	1.0	0.49	ug/l	10.0		81	70-130			
Surrogate: Dibromofluoromethane	1.12			ug/l	1.00		112	80-125			
LCS Dup Analyzed: 03/22/2005 (P5C2203-BSD1)											
1,4-Dioxane	10.2	1.0	0.49	ug/l	10.0		102	70-130	23	20	R-7
Surrogate: Dibromofluoromethane	1.09			ug/l	1.00		109	80-125			
Matrix Spike Analyzed: 03/22/2005 (P5C2203-MS1)											
						Source: POC0388-06					
1,4-Dioxane	32.8	1.0	0.49	ug/l	10.0	25	78	70-150			
Surrogate: Dibromofluoromethane	1.06			ug/l	1.00		106	80-125			
Matrix Spike Dup Analyzed: 03/22/2005 (P5C2203-MSD1)											
						Source: POC0388-06					
1,4-Dioxane	32.4	1.0	0.49	ug/l	10.0	25	74	70-150	1	25	
Surrogate: Dibromofluoromethane	1.07			ug/l	1.00		107	80-125			

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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1523

Sampled: 03/18/05
Received: 03/18/05

DATA QUALIFIERS AND DEFINITIONS

- A-01** No results were reported for MSD due to the port leaking. Samples accepted based on BS1 recoveries.
- B** Analyte was detected in the associated Method Blank.
- B-1** Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.
- 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 unknown quality.
- L2** Laboratory Control Sample recovery was below method control limits.
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- N-1** See case narrative.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- RL-3** Reporting limit raised due to high concentrations of non-target analytes.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

ADDITIONAL COMMENTS

For TICs:

All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA/NIH library.

For 1,2-Diphenylhydrazine:

The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product, Azobenzene.

For GRO (C4-C12):

GRO (C4-C12) is quantitated against a gasoline standard. Quantitation begins immediately following the methanol peak.

For Extractable Fuel Hydrocarbons (EFH, DRO, ORO) :

Unless otherwise noted, Extractable Fuel Hydrocarbons (EFH, DRO, ORO) are quantitated against a Diesel Fuel Standard.

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Michele Harper
Project Manager



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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1523

Sampled: 03/18/05
 Received: 03/18/05

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 200.7	Water	X	X
EPA 200.8	Water	X	X
EPA 218.6	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	X	X
EPA 330.5	Water	X	X
EPA 335.2	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 415.1	Water	X	X
EPA 418.1	Water	X	X
EPA 608	Water	X	X
EPA 624 (MOD.)	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC1523-01

Analysis Performed: EDD + Level 4

Samples: IOC1523-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrmic

Samples: IOC1523-01

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: 13267 (Study 1) Outfall 011 Report Number: IOC1523	Sampled: 03/18/05 Received: 03/18/05
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Aquatic Testing Laboratories-SUB *California Cert #1775*
 4350 Transport Street, Unit 107 - Ventura, CA 93003
 Analysis Performed: Bioassay-Acute 96hr
 Samples: IOC1523-01

Del Mar Analytical - Phoenix *NELAC Cert #01109CA, California Cert #2446*
 9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044
 Method Performed: EPA 8260B
 Samples: IOC1523-01

Eberline Services - SUB
 2030 Wright Avenue - Richmond, CA 94804
 Analysis Performed: EDD + Level 4
 Samples: IOC1523-01, IOC1523-03
 Analysis Performed: Gamma Scan
 Samples: IOC1523-04
 Analysis Performed: Gross Alpha
 Samples: IOC1523-01, IOC1523-03
 Analysis Performed: Gross Beta
 Samples: IOC1523-01, IOC1523-03
 Analysis Performed: Radium, Combined
 Samples: IOC1523-01, IOC1523-03
 Analysis Performed: Strontium 90
 Samples: IOC1523-01, IOC1523-03
 Analysis Performed: Tritium
 Samples: IOC1523-01, IOC1523-03

Truesdail Laboratories-SUB *California Cert #1237*
 14201 Franklin Avenue - Tustin, CA 92680
 Analysis Performed: Hydrazine
 Samples: IOC1523-01
 Analysis Performed: Level 4 Data Package
 Samples: IOC1523-01

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager

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CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/23/05

Client Name/Address: MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Project: Boeing-SSFL NPDES Outfall 011 - 13267 Perimeter Pond		ANALYSIS REQUIRED										
Project Manager: Bromwyn Kelly Phone Number: (626) 568-6691 Fax Number: (626) 568-6515 Sampler: <i>WOLLOCH</i>		Sample Matrix Container Type # of Containers Sampling Date/Time Preservative Bottle #		Residual Chlorine	TOC	Chromium VI (218.6)	Total Rec. Petroleum Hydrocarbons (EPA 418.1)	Diesel	8015 (GRO)	Monomethylhydrazine	624-Mod A+A+2C/E	Acute and Chronic toxicity-biossays	Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium	Comments
Outfall 011	W	150ml Brown Poly	1	None	15	X								
Outfall 011	W	VOA	3	HCl	16A, 16B, 16C	X								
Outfall 011	W	500ml Poly	1	None	17		X							
Outfall 011	W	1L Amber	2	HCl	18A, 18B		X							
Outfall 011	W	1L Amber	2	None	19A, 19B			X						
Outfall 011	W	VOA	3	HCl	20A, 20B			X						
Outfall 011	W	1L Amber	2	None	21A, 21B				X					
Outfall 011	W	VOA	3	None	22A, 22B, 22C					X				
Outfall 011	W	Poly-1Gal	2	None	23A, 23B						X			
Outfall 011	W	1L Amber VOA	4	None	24A, 24B, 24C, 24D, 24E, 24F, 24G, 24H, 24I, 24J, 24K, 24L							X		* ANALYZE FOR TOTAL COMBINED RA-226 & 228 ONLY IF GROSS ALPHA > 15pCi/L.
Trip Blanks	W	VOA	3	None	25A, 25B, 25C									
Trip Blanks	W	VOA	3	HCl	26A, 26B, 26C			X						
Relinquished By	<i>[Signature]</i> Date/Time: 3-18-05 1620		Received By <i>[Signature]</i> Date/Time: 3/18/05 1620											
Relinquished By	<i>[Signature]</i> Date/Time: 3/18/05 2015		Received By <i>[Signature]</i> Date/Time: 3/18/05 2015											
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 <input checked="" type="checkbox"/> On Ice <input checked="" type="checkbox"/>							

[Handwritten initials]

6c

F A X



300 N. Lake Ave., Suite 1200
Pasadena, California 91101
Tel: 626-568-6691
Fax: 626-568-6515

Date: 03/21/05

To: Michele Harper / Del Mar Analytical
Krisi McIlvenna / MWH

Fax No: 949-260-3297
925-975-3412

From: Bronwyn K. Kelly

Sign:

Subject: Chain-of-Custody Form Analytical Request Change

No. of Pages: 5
(including cover)

Per Request:
Please make the changes listed below to the chain-of-custody analytical request form. Include this form with the final deliverables for these samples.

Del Mar Work Order #	Sample ID	Date Collected	Change(s) Requested on COC	Change(s) or Method (s) New Requested
1001526	Outfall 011-13267 (Composite)	03/18/05	Metals: B and B; 8015-Gas; Monomethylhydrazine; Fluoride	B and Ba; Add 1,4-Dioxane analysis; 8015-Gas analysis for Trip Blank; Monomethylhydrazine; Fluoride
1001523	Outfall 011-13267 (Grab)	03/18/05	1,4-Dioxane for Trip Blank	1,4-Dioxane not required on TBs

MH 3/21/05
The reason for these changes:

Incorrectly marked on COC form

Lack of sample volume

MWH office personnel require this change

Other: Containers mislabeled

X

New COC's are attached for review.

Thank you

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/23/05

Client Name/Address:
 MWHPasadena
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
Project Manager: Bronwyn Kelly
Sampler:

Project:
 Boeing-SSFL NPDES
 Outfall 011 - 13267
 Perimeter Pond
Phone Number:
 (626) 568-6691
Fax Number:
 (626) 568-6515

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preserv. #	Bottle #	Total Recoverable Metals: B, Ba, Cu, Pb, B, Fe, Mn, Ag, As, Be, Cd, Ni, Se, Ag, Tl, Zn, Co, V, Cr, Hg	Settleable Solids	VOCs 624 + xylenes + Freon 113 + Freon 123 A + PP list	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cyanide (total recoverable)	BOD5(20 degrees C)	Surfactants (MBAS)	Ch, SO4, NO3+NO2-N, Perchlorate, Fluoride	Turbidity, TDS, TSS, Conductivity	Ammonia-N, Tr (350.2) w/dist	Alpha BHC (608) + PP list	2,4,6 Trichlorophenol, 2,4-Dinitrofluorene, Bis(2-ethylhexyl)phthalate, NDMA, perchlorophenol (EPA 625) + PP list	Field readings: Temp = pH =	Comments
Outfall 011	W	Poly-1L	1		HNO3	1A	X														
Outfall 011-Dup	W	Poly-1L	1		HNO3	1B	X														
Outfall 011	W	Poly-1L	1		None	2		X													
Outfall 011	W	VOAs	3		HCl	3A, 3B, 3C			X												
Outfall 011	W	1L Amber	2		None	4A, 4B				X											
Outfall 011	W	1L Amber	2		HCl	5A, 5B					X										
Outfall 011	W	Poly-500 ml	1		NaOH	6						X									
Outfall 011	W	Poly-1L	1		None	7							X								
Outfall 011	W	Poly-500 ml	2		None	8A, 8B								X							
Outfall 011	W	Poly-500 ml	2		None	9A, 9B									X						
Outfall 011	W	Poly-500 ml	2		None	10A, 10B										X					
Outfall 011	W	Poly-500 ml	1		H2SO4	11											X				
Outfall 011	W	1L Amber	2		None	12A, 12B															
Outfall 011	W	1L Amber	2		None	13A, 13B															
Outfall 011	W	1L Amber	2		None	14A, 14B, 14C															
Trip Blank	W	VOAs	3		HCl	14C			X												

ANALYSIS REQUIRED

Turn around Time: (check)
 24 Hours _____ 5 Days _____
 48 Hours _____ 10 Days _____
 72 Hours _____ Normal _____
 Pesticides Only 72 Hours _____
 Metals Only 72 Hours _____
 Sample integrity: (Check) _____
 Intact _____ On Ice _____

Relinquished By _____ **Date/Time:** _____ **Received By** _____

Relinquished By _____ **Date/Time:** _____ **Received By** _____

Relinquished By _____ **Date/Time:** _____ **Received By** _____

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/23/05

Client Name/Address:

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

Project:

Boeing-SSFL NPDES
Outfall 011 - 15267
Perimeter Pond

Project Manager: Bronwyn Kelly

Phone Number:
(626) 568-6691
Fax Number:
(626) 568-6515

Sampler:

ANALYSIS REQUIRED

Sample Description	Sample Matrix	Container Type	# of Co nt.	Preserva tive	Bottle #	Residual Chlorine	TOC, 1, 4 Dioxane	Chromium VI (218.9)	Total Rec. Petroleum Hydrocarbons (EPA 418.1)	Diesel	9015 (GRO)	Monomethylhydrazine	624-Med A+A+2CVE	Acute and Chronic toxicity-bioassays	Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (906.0), Total 228, Tritium	Comments
Outfall 011	W	150ml Brown Poly	1	None	15	X										
Outfall 011	W	VOA	6	HCl	16A, 16B, 16C, 16D, 16E, 16G		X									
Outfall 011	W	500ml Poly	1	None	17			X								
Outfall 011	W	1L Amber	2	HCl	18A, 18B				X							
Outfall 011	W	1L Amber	2	None	19A, 19B					X						
Outfall 011	W	VOA	3	HCl	20A, 20B						X					
Outfall 011	W	1L Amber	2	None	21A, 21B							X				
Outfall 011	W	VOA	3	None	22A, 22B, 22C								X			
Outfall 011	W	Poly-1Gal	2	None	23A, 23B											
Outfall 011	W	1L Amber VOA	4	None	24A, 24B, 24C, 24D, 24E, 24F, 24G, 24H, 24I, 24J, 24K, 24L										X	* ANALYZE FOR TOTAL COMBINED RA-228 & 228 ONLY IF GROSS ALPHA > 15pCi/L
Trip Blanks	W	VOA	3	None	25A, 25B, 25C											
Trip Blanks	W	VOA	3	HCl	26A, 26B, 26C											

Relinquished By	Date/Time:	Received By	Date/Time:
Relinquished By	Date/Time:	Received By	Date/Time:
Relinquished By	Date/Time:	Received By	Date/Time:

Turn around Time: (check)
 24 Hours _____ 5 Days _____
 48 Hours _____ 10 Days _____
 72 Hours _____ Normal _____
 Postbore Only 72 Hours _____
 Metals Only 72 Hours _____
 Sample Integrity: (Check)
 Intact _____ On Ice _____



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
 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

April 4, 2005

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

Attention: Bronwyn Kelly
 Project: 13267 (Study 1)/Outfall 011
 Sampled: 03/18/05
 Del Mar Analytical Number: IOC1523

Dear Ms. Kelly:

Aquatic Testing Laboratories performed Fathead Minnow 96 hr Percent Survival Bioassay (EPA Method 2000.0), *Ceriodaphnia dubia* Survival and Reproduction Test (EPA Method 1002), Truesdail Laboratories tested Hydrazines by EPA 8315 M, Alta Analytical performed EPA Method 1613 by Dioxin and Eberline Services performed Gross Alpha/Gross Beta (EPA 900.0), Tritium (H-3, EPA 906.0), Strontium-90 (Sr-90, EPA 905.0), Radium 226 (EPA 903.1), and Radium 228 (904.0) for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ATL ID	TRUESDAIL ID	ALTA ID	EBERLINE ID
Outfall 011 Grab	IOC1523-01	A-05031904-001/002	940883-1	25936-001	PENDING

Attached are the original reports from the subcontract laboratories. If you have any questions or require further assistance, please do not hesitate to contact me.

Sincerely yours,
 DEL MAR ANALYTICAL

Michele Harper
 Project Manager

LABORATORY REPORT

**Aquatic
Testing**



Laboratories

"dedicated to providing quality aquatic toxicity testing"

4350 Transport Street, Unit 107
Ventura, CA 93003

(805) 650-0546 FAX (805) 650-0756

CA DOHS ELAP Cert. No.: 1775

Date: March 25, 2005

Client: Del Mar Analytical, Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attn: Michele Harper

Laboratory No.: A-05031904-001/002
Sample I.D.: IOC1523-01

Sample Control: The sample was received by ATL chilled, with the chain of custody record attached.

Date Sampled: 03/18/05
Date Received: 03/19/05
Date Tested: 03/19/05 to 03/25/05

Sample Analysis: The following analyses were performed on your sample:

Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0),
Ceriodaphnia dubia Survival and Reproduction Test (EPA Method 1002).

Attached are the test data generated from the analysis of your sample.

Result Summary:

Acute:	<u>Survival</u>	<u>TUa</u>
Fathead Minnow:	100%	0.0
Chronic:	<u>NOEC</u>	<u>TUc</u>
<i>Ceriodaphnia</i> Survival:	100%	1.0
<i>Ceriodaphnia</i> Reproduction:	100%	1.0

Quality Control: Reviewed and approved by:


Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05031904-001
 Client/ID: Del Mar - IOC1523-01

Start Date: 03/19/2005

TEST SUMMARY

Species: *Pimephales promelas*.
 Age: 10 (1-14) days.
 Regulations: NPDES.
 Test solution volume: 250 ml.
 Feeding: prior to renewal at 48 hrs.
 Number of replicates: 2.
 Dilution water: Moderately hard reconstituted water.
 Photoperiod: 16/8 hrs light/dark.

Source: In-laboratory Culture.
 Test type: Static-Renewal.
 Test Protocol: EPA-821-R-02-012.
 Endpoints: Percent Survival at 96 hrs.
 Test chamber: 600 ml beakers.
 Temperature: 20 +/- 1°C.
 Number of fish per chamber: 10.
 QA/QC Batch No.: RT-050303.

TEST DATA

		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	19.3	9.3	8.2	0	0	RPM 1430
	100%	20.6	8.6	7.4	0	0	
24 Hr	Control	19.2	7.7	8.1	0	0	RPM 1400
	100%	19.2	7.4	8.1	0	0	
48 Hr	Control	20.1	7.1	8.0	0	0	RPM 1400
	100%	19.7	6.7	8.0	0	0	
Renewal	Control	19.9	8.4	8.2	0	0	RPM 1400
	100%	20.0	8.4	7.6	0	0	
72 Hr	Control	20.1	6.6	7.8	0	0	RPM 1200
	100%	20.0	6.5	7.9	0	0	
96 Hr	Control	19.9	6.9	7.9	0	0	RPM 1330
	100%	19.8	7.0	7.9	0	0	

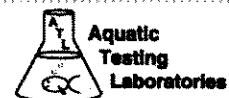
Comments:

Sample as received: Chlorine: 0 mg/l; pH: 7.4; Conductivity: 310 umho; Temp: 4°C;
 DO: 8.6 mg/l; Alkalinity: 96 mg/l; Hardness: 84 mg/l; NH₃-N: 0.4 mg/l.
 Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes / No.
 Control: Alkalinity: 54 mg/l; Hardness: 90 mg/l; Conductivity: 290 umho.
 Test solution aerated (not to exceed 100 bubbles/min) to maintain DO >4.0 mg/l? Yes / No.
 Sample used for renewal is the original sample kept at 0-6°C with minimal headspace.

RESULTS

Percent Survival In: Control: 100 % 100% Sample: 100 %

**CERIODAPHNIA CHRONIC BIOASSAY
EPA METHOD 1002.0**



Lab No.: A-05031904
Client/ID: Del Mar IOC1523-01

Date Tested: 03/19/05 to 03/25/05

TEST SUMMARY

Test type: Daily static-renewal.
Species: *Ceriodaphnia dubia*.
Age: < 24 hrs; all released within 8 hrs.
Test vessel size: 30 ml.
Number of test organisms per vessel: 1.
Temperature: 25 +/- 1°C.
Dilution water: Mod. hard reconstituted (MHRW).
QA/QC Batch No.: RT-050311.

Endpoints: Survival and Reproduction.
Source: In-laboratory culture.
Food: .1 ml YTC, algae per day.
Test solution volume: 15 ml.
Number of replicates: 10.
Photoperiod: 16/8 hrs. light/dark cycle.
Test duration: 7 days.
Statistics: ToxCalc computer program.

RESULTS SUMMARY

Sample Concentration	Percent Survival	Mean Number of Young Per Female
Control	100%	22.4
6.25%	100%	25.1
12.5%	100%	25.2
25%	100%	27.8
50%	100%	23.1
100%	100%	26.4

* Statistically significantly less than control at P = 0.05 level.
** Reproduction data from concentrations greater than survival NOEC are excluded from statistical analysis.

CHRONIC TOXICITY

Parameter	Survival	Growth
NOEC	100%	100%
TUc	1.0	1.0

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥ 80%	Pass (100% survival)
≥ 15 young per surviving control female average	Pass (22.4 young)
≥ 60% surviving controls had 3 broods	Pass (90% with 3 broods)
PMSD < 47% for reproduction; if > 47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 18.1%)
Statistically significantly different concentrations relative difference > 13%	NA - No stat. sig. diff. concentrations
Concentration response relationship acceptable	Pass (slight inverse response at conc. tested)



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228

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2520 E. Suncat Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3020 Fax (702) 798-3021

SUBCONTRACT ORDER - PROJECT # IOC1523

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:

Aquatic Testing Laboratories-SUB
4350 Transport Street, Unit 107
Ventura, CA 93003
Phone: (805) 650-0546
Fax: (805) 650-0756

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

Analysis	Expiration	Comments
Sample ID: IOC1523-01 Water	Sampled: 03/18/05 11:10	Instant Notification
Bioassay-7 dy Chronic	03/19/05 23:10	ceriodaphnia, 13267
Bioassay-Acute 96hr	03/19/05 23:10	fathead minnow, 13267
Containers Supplied:		
1 gal Poly (IOC1523-01AR)		
1 gal Poly (IOC1523-01AS)		

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): 7°C

Released By: [Signature] Date: 3/19/05 Time: 1145 Received By: [Signature] Date: 3/19/05 Time: 1145
 Released By: [Signature] Date: 3/19/05 Time: 1400 Received By: [Signature] Date: 3-19-05 Time: 1400

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

March 25, 2005

Client: Del Mar Analytical
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attention: Michele Harper

Project Name: IOC1523
Date Received: 03/21/05

Truesdail Project: 940883

Samples Cross-reference

<u>Truesdail ID</u>	<u>Client ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Time Sampled</u>	<u>Analysis Requested</u>
940883-1	IOC1523-01	Water	03/18/05	1110	Hydrazines by EPA 8315M

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


K.R.P. Iyer
Quality Control/Quality Assurance Officer


Xuan Huong Dang
Project Manager

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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March 25, 2005

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TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

Client: Del Mar Analytical
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attention: Michele Harper

Project Name: IOC1523
Date Received: 03/21/05

Truesdail Project: 940883

Case Narrative

Sample Receipt The sample was received in good condition and no anomalies were noted during check-in. The sample was kept in a locked refrigerator until analysis. Thereafter, it is being kept in ambient storage for an additional 2 months before disposal.

Analysis The analysis was performed as requested on the chain-of-custody.

Quality Control The analytical results for each batch of samples performed include a minimum of one set of laboratory control sample/laboratory control sample duplicate (LCS/LCSD), one matrix spike (MS) and a reagent blank (Method blank). Any exceptions or problems would be noted in the "comments" section.

Comments The test results in this report meet all quality assurance requirements set forth by the method specification and all quality control recoveries were within the laboratory acceptance limits. No anomalies or nonconformance events occurred during the course of analysis.

The analytes were quantitated down to the Method Detection Limit (J flags) per client's request.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


K.R.P. Iyer
Quality Control/Quality Assurance Officer


Xuan Huong Dang
Project Manager

TRUESDAIL LABORATORIES, INC.

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REPORT

Client: Del Mar Analytical
17461 Derian Ave., Suite 100
Irvine, CA 92614

Attention: Michele Harper
Sample: Liquid / 1 Sample
Project Name: IOC1523
P.O. Number: IOC1523
Method Number: 8315 (Modified)
Investigation: Hydrazines in Liquid

Laboratory No: 940883
Report Date: March 25, 2005
Sampling Date: March 18, 2005
Receiving Date: March 21, 2005
Extraction Date: March 21, 2005
Analysis Date: March 23, 2005
Units: µg/L
Dilution Factor: 1
Reported By: JS

Page 1 of 1

Analytical Results

Sample ID	Sample Description	Monomethyl		Unsymmetrical Dimethyl	
		Hydrazine	ND	Hydrazine	ND
704855-MB	Method Blank	ND	ND	ND	ND
940883	IOC1523-01	ND	ND	ND	ND
MDL		1.2	0.27	0.39	0.39
PQL		5.0	5.0	1.0	1.0

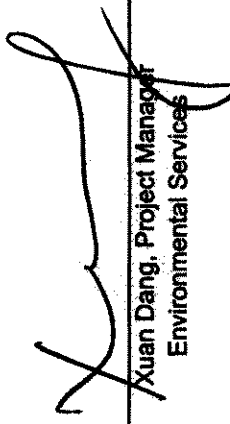
MDL: Method Detection Limit, ug/L

PQL: Practical Quantitation Limit, ug/L

ND: Not Detected at or above the MDL value.

N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.


Xuan Dang, Project Manager
Environmental Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these laboratories.

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: Del Mar Analytical
17461 Derian Ave., Suite 100
Irvine, CA 92614

Client Contact: Michele Harper
Sample: Liquid / 1 Sample
Sample ID: IOC1523
P.O. Number: IOC1523
Method Number: 8315 (Modified)
Run Batch No.: Extraction: 3017; Analysis: 378
Investigation: Hydrazines in Liquid

REPORT

QC Lab. No.: 704855
Project Lab. No.: 940883
Spiked Sample ID: 940884
Report Date: March 25, 2005
Sampling Date: March 18, 2005
Receiving Date: March 21, 2005
Extraction Date: March 21, 2005
Analysis Date: March 23, 2005
Units: µg/L
Reported By: JS

Quality Control/Quality Assurance Calibration Report

ICV

Parameter	Theoretical Value (ug/L)	Measured Value (ug/L)	% Rec.	Control Limits	Flag
Monomethyl Hydrazine	25.0	28.0	112	85-115	PASS
u-Dimethyl Hydrazine	25.0	24.1	96.3	85-115	PASS
Hydrazine	5.0	4.96	99.2	85-115	PASS

QCS

Parameter	Theoretical Value (ug/L)	Measured Value (ug/L)	% Rec.	Control Limits	Flag
Monomethyl Hydrazine	50.0	55.4	111	85-115	PASS
u-Dimethyl Hydrazine	50.0	49.3	98.5	85-115	PASS
Hydrazine	10.0	10.2	102	85-115	PASS

Quality Control/Quality Assurance Spikes Report

LCS/LCSD

Parameter	Spiked Conc. ug/L	Recovered Concentration LCS	MB	LCSD	Percent Recovery (%)	LCS %D	LCSD %D	Flag	Control Limits	
									%D	% Rec.
Monomethyl Hydrazine	50.0	52.7	54.8	0.0	105	110	3.92%	PASS	20	70-130
u-Dimethyl Hydrazine	50.0	47.9	48.0	0.0	95.8	96.0	0.27%	PASS	20	70-130
Hydrazine	10.0	10.2	10.2	0.0	102	102	0.60%	PASS	20	70-130

MS/MSD

Parameter	Spiked Conc. ug/L	Recovered Concentration MS	MSD	Percent Recovery (%)	MSD %D	Flag	Control Limits			
							%D	% Rec.		
Monomethyl Hydrazine	50.0	42.9	40.4	0.0	85.7	80.9	5.83%	PASS	20	0-150
u-Dimethyl Hydrazine	50.0	37.9	37.0	0.0	75.8	73.9	2.56%	PASS	20	0-150
Hydrazine	10.0	7.15	7.43	0.0	71.5	74.3	3.81%	PASS	20	0-150

ICV: Initial Calibration Verification

QCS: Quality Control Standard

LCS: Laboratory Control Spike

MS: Matrix Spike

%D: Percent Difference

Flag: "Pass" if within Control Limits; otherwise "Fail"

Note: Results based on detector #1 (UV=365nm) data.

Kuan Dang, Project Manager
Environmental Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these laboratories.



Del Mar Analytical
940 883

SUBCONTRACT ORDER - PROJECT # IOC1523

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

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:

Truesdail Laboratories-SUB
 14201 Franklin Avenue
 Tustin, CA 92680
 Phone : (714) 730-6239
 Fax: (714) 730-6462

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

Analysis	Expiration	Comments
Sample ID: IOC1523-01 Water	Sampled: 03/18/05 11:10	Instant Notification
Hydrazine-OUT	03/21/05 11:10	J flags, Sub Truesdail for Monomethylhydrazine
Level 4 Data Package	04/15/05 11:10	

Containers Supplied:
 1 L Amber (IOC1523-01AM)
 1 L Amber (IOC1523-01AN)

Rec'd 03/21/05
 s6c 940883

ALERT!!
Level IV QC

**For Sample Conditions
 See Form Attached**

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

Released By: *[Signature]* 3/21/05 0715 Received By: *[Signature]* 3/21/05 0715
 Date: _____ Time: _____ Date: _____ Time: _____
 Released By: *[Signature]* 3/21/05 0740 Received By: *[Signature]* 3/21/05 7:40
 Date: _____ Time: _____ Date: _____ Time: _____



Sample Integrity & Analysis Discrepancy Form

Client: Del Mar Analytical

Lab # 940883

Date Delivered: 3/21/05 Time: 7:10 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4°C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc.)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client
12. Were samples pH checked? pH = Level IV OC Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify the Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A

ALERT!!
Level IV OC

15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other water

16. Comments: _____

17. Sample Check-In completed by Truesdail Log-In/Receiving: J Brown

Internal Chain of Custody Logbook

Number: 940883
 Name: Del Mar

Storage Temperature: 4°C

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature
				3/21/05	8:00		J. Brown	<i>J. Brown</i>
	Hydrazine	3/21/05	8:30 AM	3/21/05	9: AM	100ML	J. Brown	<i>J. Brown</i>

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Initials

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Initials

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Initials

I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Initials

Signature



March 24, 2005

Alta Project I.D.: 25936

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 March 22, 2005 under your Project Name "IOC1523". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 3/22/2005

Alta Lab. ID

Client Sample ID

25936-001

IOC1523-01

SECTION II



Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	6624	Lab Sample:	0-MB001			
Sample Size:	1.000 L	Date Extracted:	22-Mar-05	Date Analyzed DB-5:	23-Mar-05			
Date Analyzed DB-225:	NA			Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.841			13C-2,3,7,8-TCDD	79.3	25 - 164	
1,2,3,7,8-PeCDD	ND	0.749			13C-1,2,3,7,8-PeCDD	75.2	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.49			13C-1,2,3,4,7,8-HxCDD	74.0	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.52			13C-1,2,3,6,7,8-HxCDD	80.9	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.50			13C-1,2,3,4,6,7,8-HpCDD	72.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	1.17			13C-OCDD	55.5	17 - 157	
OCDD	ND	3.33			13C-2,3,7,8-TCDF	82.1	24 - 169	
2,3,7,8-TCDF	ND	0.795			13C-1,2,3,7,8-PeCDF	74.6	24 - 185	
1,2,3,7,8-PeCDF	ND	1.67			13C-2,3,4,7,8-PeCDF	77.9	21 - 178	
2,3,4,7,8-PeCDF	ND	1.39			13C-1,2,3,4,7,8-HxCDF	62.7	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.474			13C-1,2,3,6,7,8-HxCDF	73.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.442			13C-2,3,4,6,7,8-HxCDF	71.1	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.510			13C-1,2,3,7,8,9-HxCDF	67.2	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.820			13C-1,2,3,4,6,7,8-HpCDF	67.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.929			13C-1,2,3,4,7,8,9-HpCDF	71.3	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.13			13C-OCDF	58.9	17 - 157	
OCDF	ND	2.74			CRS 37Cl-2,3,7,8-TCDD	83.9	35 - 197	
Totals								
Total TCDD	ND	0.841						
Total PeCDD	ND	0.749						
Total HxCDD	ND	1.51						
Total HpCDD	ND	1.17						
Total TCDF	ND	0.795						
Total PeCDF	ND	1.52						
Total HxCDF	ND	0.545						
Total HpCDF	ND	1.02						
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: Martha M. Maier 24-Mar-2005 09:37



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 23-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6624	Date Analyzed DB-5:	23-Mar-05	Date Analyzed DB-225:	NA
Sample Size:	1.000 L	Date Extracted:	22-Mar-05				
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.02	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	86.2	25 - 164	
1,2,3,7,8-PeCDD	50.0	44.9	35 - 71	13C-1,2,3,7,8-PeCDD	83.6	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	45.7	35 - 82	13C-1,2,3,4,7,8-HxCDD	83.1	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	47.1	38 - 67	13C-1,2,3,6,7,8-HxCDD	90.5	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	47.2	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	80.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	49.7	35 - 70	13C-OCDD	60.0	17 - 157	
OCDD	100	102	78 - 144	13C-2,3,7,8-TCDF	89.6	24 - 169	
2,3,7,8-TCDF	10.0	9.28	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	82.2	24 - 185	
1,2,3,7,8-PeCDF	50.0	49.7	40 - 67	13C-2,3,4,7,8-PeCDF	86.0	21 - 178	
2,3,4,7,8-PeCDF	50.0	48.9	34 - 80	13C-1,2,3,4,7,8-HxCDF	69.1	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	52.4	36 - 67	13C-1,2,3,6,7,8-HxCDF	83.1	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	51.4	42 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	51.3	35 - 78	13C-1,2,3,7,8,9-HxCDF	77.1	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	51.3	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	77.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	54.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	78.6	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	53.2	39 - 69	13C-OCDF	65.1	17 - 157	
OCDF	100	103	63 - 170	CRS 37Cl-2,3,7,8-TCDD	89.8	35 - 197	

Analysis: JMH

Approved By: Martha M. Maier 24-Mar-2005 09:37



Sample ID: IOC1523-01

EPA Method 1613

Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25936-001
Project:	IOC1523	Sample Size:	0.896 L	QC Batch No.:	6624
Date Collected:	18-Mar-05			Date Analyzed DB-5:	23-Mar-05
Time Collected:	1110			Date Analyzed DB-225: NA	

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.723			13C-2,3,7,8-TCDD	84.7	25 - 164	
1,2,3,7,8-PeCDD	ND	0.811			13C-1,2,3,7,8-PeCDD	81.8	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.40			13C-1,2,3,4,7,8-HxCDD	88.6	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.38			13C-1,2,3,6,7,8-HxCDD	95.7	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.39			13C-1,2,3,4,6,7,8-HpCDD	87.9	23 - 140	
1,2,3,4,6,7,8-HpCDD	2.62			J	13C-OCDD	66.5	17 - 157	
OCDD	22.3				13C-2,3,7,8-TCDF	91.0	24 - 169	
2,3,7,8-TCDF	ND	1.14		J	13C-1,2,3,7,8-PeCDF	84.4	24 - 185	
1,2,3,7,8-PeCDF	ND	1.67			13C-2,3,4,7,8-PeCDF	85.8	21 - 178	
2,3,4,7,8-PeCDF	ND	1.48			13C-1,2,3,4,7,8-HxCDF	73.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.575			13C-1,2,3,6,7,8-HxCDF	85.9	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.535			13C-2,3,4,6,7,8-HxCDF	82.9	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.610			13C-1,2,3,7,8,9-HxCDF	80.5	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.976			13C-1,2,3,4,6,7,8-HpCDF	80.9	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.932			13C-1,2,3,4,7,8,9-HpCDF	85.4	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	1.07			13C-OCDF	72.6	17 - 157	
OCDF	ND	3.17			CRS 37Cl-2,3,7,8-TCDD	85.7	35 - 197	

Totals		Footnotes	
Total TCDD	ND	a. Sample specific estimated detection limit.	
Total PeCDD	ND	b. Estimated maximum possible concentration.	
Total HxCDD	ND	c. Method detection limit.	
Total HpCDD	5.93	d. Lower control limit - upper control limit.	
Total TCDF	ND		
Total PeCDF	ND		
Total HxCDF	ND		
Total HpCDF	ND		

Analyst: JMH

Approved By: Martha M. Maier 24-Mar-2005 09:37

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.



CURRENT CERTIFICATIONS

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)

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25936

1. Date Samples Arrived: <u>3/20/05 0945</u> Initials: <u>W</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>3/20/05 1115</u> Initials: <u>W</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> Blue Ice / Dry Ice / None Temp °C <u>3.2</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>915 766 570</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

IOC1521-01
 IOC1523-01
 IOC1525-01
 IOC1526-01
 IOC1563-01

* Sampler initials missing on label

ALTA Analytical Laboratory
 El Dorado Hills, CA 95762



17461 Derian Ave, Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Conley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4987 Fax (909) 370-1046
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 605-8888 Fax (619) 605-8889
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 786-0040 Fax (480) 786-0051
 2529 E. Sunset Rd., Suite 80, Las Vegas, NV 89139 Ph (702) 796-3820 Fax (702) 796-3821

SUBCONTRACT ORDER - PROJECT # IOC1523

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone : (916) 933-1640 Fax: (916) 933-0940

Standard TAT is requested unless specific due date is requested → Due Date: 5 day TAT Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC1523-01 Water	Sampled: 03/18/05 11:10	Instant Notification
1613-Dioxin-HR	03/25/05 11:10	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	04/15/05 11:10	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC1523-01J)		
1 L Amber (IOC1523-01K)		

25936 32°

SAMPLE INTEGRITY:

All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): _____

[Signature] 3-21-05 1700
 [Signature] 3/22/05 0915
 Released By Date Time Received By Date Time

Released By Date Time Received By Date Time

STANDARD OPERATING PROCEDURE

Attachment 10.B.4

Client: Del Mar Analytical Chain of Custody Anomaly / Sample Acceptance Form
 Project Number: 25936
 Contact: Michele Harper Date Received: 3/22/05
 Fax Number: (949) 260-3297 Documented by/date: W 3/22/05

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis. Thank You. (Fax #916-673-0106)

The following information or item is needed to proceed with the analysis:

- Completed Chain-of-Custody
- Test Method Requested
- Analyte List Requested
- Preservative
- Sample Identification
- Sample Collection Date /Time
- Collector's Name
- Sample Type
- Sample Location

The following anomalies were noted. Authorization is needed to proceed with the analysis:

Temperature outside $\pm 2^{\circ}\text{C}$ range Samples Affected: _____

Temp _____ $^{\circ}\text{C}$ Ice Present? Yes No

Sample ID Discrepancy Samples Affected: _____

Sample holding time missed Samples Affected: _____

Custody seals broken Samples Affected: _____

Insufficient Sample Size Samples Affected: _____

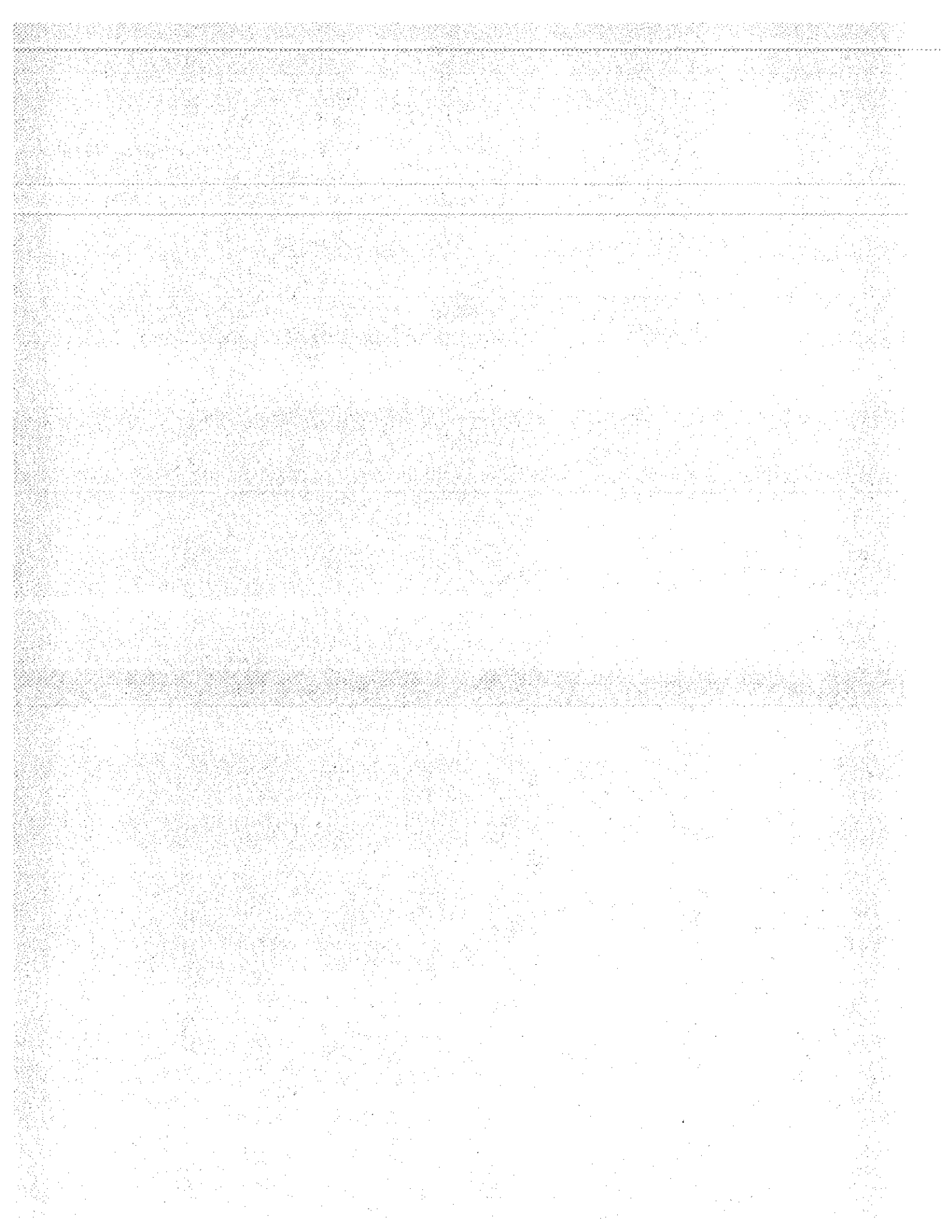
Sample Container(s) Broken Samples Affected: _____

Incorrect Container Type Samples Affected: _____

Other _____

Client Authorization:	
Proceed With Analysis: <u>YES</u>	NO Signature and Date: <u>W 3/22/05</u>
Client Comments/Instructions: <u>"P.P" per email from W Harper</u>	

ALTA Analytical Laboratory
 El Dorado Hills, CA 95762





LABORATORY REPORT

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

Project: 13267 (Study 1)
Outfall 011

Sampled: 03/18/05
Received: 03/18/05
Issued: 04/12/05 19:13

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 10 pages, are included and are an integral part of this report.
This entire report was reviewed and approved for release.*

CASE NARRATIVE

- SAMPLE RECEIPT:** Samples were received intact, at 3°C, on ice and with chain of custody documentation.
- HOLDING TIMES:** All samples were analyzed within prescribed holding times and/or in accordance with the Del Mar Analytical Sample Acceptance Policy unless otherwise noted in the report.
- PRESERVATION:** Samples requiring preservation were verified prior to sample analysis. Results were qualified where the sample container did not meet the method preservation requirements.
- QA/QC CRITERIA:** All analyses met method criteria, except as noted in the report with data qualifiers. The ICAL %RSD failed the acceptance limit for 2,4-Dinitrophenol. Instrument sensitivity was acceptable based upon the response for 2,4-Dinitrophenol at the low ICAL level. The CCV and BS/BSD met acceptance limits for the analyte. Affected samples were 'ND' for this analyte, without J-flag detection. Therefore, since acceptable sensitivity is represented by the instrument and the extraction procedure, the analyte was flagged with 'N-1' and reported.
- COMMENTS:** Results that fall between the MDL and RL are 'J' flagged.
- SUBCONTRACTED:** Refer to the last page for specific subcontract laboratory information included in this report.

LABORATORY ID	CLIENT ID	MATRIX
IOC1526-01	Outfall 011 Composite	Water
IOC1526-02	Trip Blank	Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



Del Mar Analytical

17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297
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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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C22091	0.31	1.0	ND	1	03/22/05	03/22/05	

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.



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C21048	0.082	0.50	ND	0.943	03/21/05	03/21/05	
Surrogate: n-Octacosane (40-125%)					81 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1526

Sampled: 03/18/05
Received: 03/18/05

VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C21006	0.050	0.10	ND	1	03/21/05	03/21/05	
Surrogate: 4-BFB (FID) (65-140%)					81 %				
Sample ID: IOC1526-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C21006	0.050	0.10	ND	1	03/21/05	03/21/05	P1
Surrogate: 4-BFB (FID) (65-140%)					76 %				

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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

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: IOC1526-01 (Outfall 011 Composite - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C20002	0.28	1.0	ND	1	03/20/05	03/20/05	
Bromodichloromethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
Bromoform	EPA 624	5C20002	0.32	5.0	ND	1	03/20/05	03/20/05	
Bromomethane	EPA 624	5C20002	0.34	5.0	ND	1	03/20/05	03/20/05	
Carbon tetrachloride	EPA 624	5C20002	0.28	0.50	ND	1	03/20/05	03/20/05	
Chlorobenzene	EPA 624	5C20002	0.36	2.0	ND	1	03/20/05	03/20/05	
Chloroethane	EPA 624	5C20002	0.33	5.0	ND	1	03/20/05	03/20/05	
Chloroform	EPA 624	5C20002	0.33	2.0	ND	1	03/20/05	03/20/05	
Chloromethane	EPA 624	5C20002	0.30	5.0	ND	1	03/20/05	03/20/05	
Dibromochloromethane	EPA 624	5C20002	0.28	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichlorobenzene	EPA 624	5C20002	0.32	2.0	ND	1	03/20/05	03/20/05	
1,3-Dichlorobenzene	EPA 624	5C20002	0.35	2.0	ND	1	03/20/05	03/20/05	
1,4-Dichlorobenzene	EPA 624	5C20002	0.37	2.0	ND	1	03/20/05	03/20/05	
1,1-Dichloroethane	EPA 624	5C20002	0.27	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichloroethane	EPA 624	5C20002	0.28	0.50	ND	1	03/20/05	03/20/05	
1,1-Dichloroethene	EPA 624	5C20002	0.32	5.0	ND	1	03/20/05	03/20/05	
trans-1,2-Dichloroethene	EPA 624	5C20002	0.27	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichloropropane	EPA 624	5C20002	0.35	2.0	ND	1	03/20/05	03/20/05	
cis-1,3-Dichloropropene	EPA 624	5C20002	0.22	2.0	ND	1	03/20/05	03/20/05	
trans-1,3-Dichloropropene	EPA 624	5C20002	0.24	2.0	ND	1	03/20/05	03/20/05	
Ethylbenzene	EPA 624	5C20002	0.25	2.0	ND	1	03/20/05	03/20/05	
Methylene chloride	EPA 624	5C20002	0.48	5.0	ND	1	03/20/05	03/20/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C20002	0.24	2.0	ND	1	03/20/05	03/20/05	
Tetrachloroethene	EPA 624	5C20002	0.32	2.0	ND	1	03/20/05	03/20/05	
Toluene	EPA 624	5C20002	0.36	2.0	ND	1	03/20/05	03/20/05	
1,1,1-Trichloroethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
1,1,2-Trichloroethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
Trichloroethene	EPA 624	5C20002	0.26	2.0	ND	1	03/20/05	03/20/05	
Trichlorofluoromethane	EPA 624	5C20002	0.34	5.0	ND	1	03/20/05	03/20/05	
Vinyl chloride	EPA 624	5C20002	0.26	0.50	ND	1	03/20/05	03/20/05	
Xylenes, Total	EPA 624	5C20002	0.52	4.0	ND	1	03/20/05	03/20/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C20002	1.2	5.0	ND	1	03/20/05	03/20/05	
Surrogate: Dibromofluoromethane (80-120%)					116 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					94 %				

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: 13267 (Study 1)
Outfall 011
Report Number: IOC1526

Sampled: 03/18/05
Received: 03/18/05

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: IOC1526-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C20002	0.28	1.0	ND	1	03/20/05	03/20/05	
Bromodichloromethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
Bromoform	EPA 624	5C20002	0.32	5.0	ND	1	03/20/05	03/20/05	
Bromomethane	EPA 624	5C20002	0.34	5.0	ND	1	03/20/05	03/20/05	
Carbon tetrachloride	EPA 624	5C20002	0.28	0.50	ND	1	03/20/05	03/20/05	
Chlorobenzene	EPA 624	5C20002	0.36	2.0	ND	1	03/20/05	03/20/05	
Chloroethane	EPA 624	5C20002	0.33	5.0	ND	1	03/20/05	03/20/05	
Chloroform	EPA 624	5C20002	0.33	2.0	ND	1	03/20/05	03/20/05	
Chloromethane	EPA 624	5C20002	0.30	5.0	ND	1	03/20/05	03/20/05	
Dibromochloromethane	EPA 624	5C20002	0.28	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichlorobenzene	EPA 624	5C20002	0.32	2.0	ND	1	03/20/05	03/20/05	
1,3-Dichlorobenzene	EPA 624	5C20002	0.35	2.0	ND	1	03/20/05	03/20/05	
1,4-Dichlorobenzene	EPA 624	5C20002	0.37	2.0	ND	1	03/20/05	03/20/05	
1,1-Dichloroethane	EPA 624	5C20002	0.27	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichloroethane	EPA 624	5C20002	0.28	0.50	ND	1	03/20/05	03/20/05	
1,1-Dichloroethene	EPA 624	5C20002	0.32	5.0	ND	1	03/20/05	03/20/05	
trans-1,2-Dichloroethene	EPA 624	5C20002	0.27	2.0	ND	1	03/20/05	03/20/05	
1,2-Dichloropropane	EPA 624	5C20002	0.35	2.0	ND	1	03/20/05	03/20/05	
cis-1,3-Dichloropropene	EPA 624	5C20002	0.22	2.0	ND	1	03/20/05	03/20/05	
trans-1,3-Dichloropropene	EPA 624	5C20002	0.24	2.0	ND	1	03/20/05	03/20/05	
Ethylbenzene	EPA 624	5C20002	0.25	2.0	ND	1	03/20/05	03/20/05	
Methylene chloride	EPA 624	5C20002	0.48	5.0	ND	1	03/20/05	03/20/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C20002	0.24	2.0	ND	1	03/20/05	03/20/05	
Tetrachloroethene	EPA 624	5C20002	0.32	2.0	ND	1	03/20/05	03/20/05	
Toluene	EPA 624	5C20002	0.36	2.0	ND	1	03/20/05	03/20/05	
1,1,1-Trichloroethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
1,1,2-Trichloroethane	EPA 624	5C20002	0.30	2.0	ND	1	03/20/05	03/20/05	
Trichloroethene	EPA 624	5C20002	0.26	2.0	ND	1	03/20/05	03/20/05	
Trichlorofluoromethane	EPA 624	5C20002	0.34	5.0	ND	1	03/20/05	03/20/05	
Vinyl chloride	EPA 624	5C20002	0.26	0.50	ND	1	03/20/05	03/20/05	
Xylenes, Total	EPA 624	5C20002	0.52	4.0	ND	1	03/20/05	03/20/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C20002	1.2	5.0	ND	1	03/20/05	03/20/05	
Surrogate: Dibromofluoromethane (80-120%)									112 %
Surrogate: Toluene-d8 (80-120%)									103 %
Surrogate: 4-Bromofluorobenzene (80-120%)									96 %

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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

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: IOC1526-01 (Outfall 011 Composite - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5C20002	4.6	50	ND	1	03/20/05	03/20/05	
Acrylonitrile	EPA 624	5C20002	5.1	50	ND	1	03/20/05	03/20/05	
2-Chloroethyl vinyl ether	EPA 624	5C20002	1.3	5.0	ND	1	03/20/05	03/20/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					116 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					103 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					94 %				

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: 13267 (Study 1)
Outfall 011
Report Number: IOC1526

Sampled: 03/18/05
Received: 03/18/05

PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C20002	N/A	2.5	ND	1	03/20/05	03/20/05	
Cyclohexane	EPA 624 (MOD.)	5C20002	N/A	2.5	ND	1	03/20/05	03/20/05	
Sample ID: IOC1526-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C20002	N/A	2.5	ND	1	03/20/05	03/20/05	
Cyclohexane	EPA 624 (MOD.)	5C20002	N/A	2.5	ND	1	03/20/05	03/20/05	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

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: IOC1526-01 (Outfall 011 Composite - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5C20022	0.20	1.0	ND	1.9	03/20/05	03/22/05	
Acenaphthylene	EPA 625	5C20022	0.20	1.0	ND	1.9	03/20/05	03/22/05	
Aniline	EPA 625	5C20022	5.8	20	ND	1.9	03/20/05	03/22/05	
Anthracene	EPA 625	5C20022	0.17	1.0	ND	1.9	03/20/05	03/22/05	
Benzidine	EPA 625	5C20022	4.8	10	ND	1.9	03/20/05	03/22/05	L2
Benzoic acid	EPA 625	5C20022	7.4	40	ND	1.9	03/20/05	03/22/05	
Benzo(a)anthracene	EPA 625	5C20022	0.076	10	ND	1.9	03/20/05	03/22/05	
Benzo(a)pyrene	EPA 625	5C20022	0.28	4.0	ND	1.9	03/20/05	03/22/05	
Benzo(b)fluoranthene	EPA 625	5C20022	0.10	4.0	ND	1.9	03/20/05	03/22/05	
Benzo(g,h,i)perylene	EPA 625	5C20022	0.12	10	ND	1.9	03/20/05	03/22/05	
Benzo(k)fluoranthene	EPA 625	5C20022	0.11	1.0	ND	1.9	03/20/05	03/22/05	
Benzyl alcohol	EPA 625	5C20022	0.42	10	ND	1.9	03/20/05	03/22/05	
Bis(2-chloroethoxy)methane	EPA 625	5C20022	0.14	1.0	ND	1.9	03/20/05	03/22/05	
Bis(2-chloroethyl)ether	EPA 625	5C20022	0.17	1.0	ND	1.9	03/20/05	03/22/05	
Bis(2-chloroisopropyl)ether	EPA 625	5C20022	0.22	1.0	ND	1.9	03/20/05	03/22/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5C20022	2.2	10	ND	1.9	03/20/05	03/22/05	
4-Bromophenyl phenyl ether	EPA 625	5C20022	0.24	2.0	ND	1.9	03/20/05	03/22/05	
Butyl benzyl phthalate	EPA 625	5C20022	0.68	10	1.1	1.9	03/20/05	03/22/05	B, J
4-Chloroaniline	EPA 625	5C20022	0.40	4.0	ND	1.9	03/20/05	03/22/05	
2-Chloronaphthalene	EPA 625	5C20022	0.12	1.0	ND	1.9	03/20/05	03/22/05	
4-Chloro-3-methylphenol	EPA 625	5C20022	0.68	4.0	ND	1.9	03/20/05	03/22/05	
4-Chlorophenyl phenyl ether	EPA 625	5C20022	0.11	1.0	ND	1.9	03/20/05	03/22/05	
2-Chlorophenol	EPA 625	5C20022	0.24	2.0	ND	1.9	03/20/05	03/22/05	
Chrysene	EPA 625	5C20022	0.14	1.0	ND	1.9	03/20/05	03/22/05	
Dibenz(a,h)anthracene	EPA 625	5C20022	0.17	1.0	ND	1.9	03/20/05	03/22/05	
Dibenzofuran	EPA 625	5C20022	0.15	1.0	ND	1.9	03/20/05	03/22/05	
Di-n-butyl phthalate	EPA 625	5C20022	0.52	4.0	ND	1.9	03/20/05	03/22/05	
1,2-Dichlorobenzene	EPA 625	5C20022	0.22	1.0	ND	1.9	03/20/05	03/22/05	
1,3-Dichlorobenzene	EPA 625	5C20022	0.26	1.0	ND	1.9	03/20/05	03/22/05	
1,4-Dichlorobenzene	EPA 625	5C20022	0.10	1.0	ND	1.9	03/20/05	03/22/05	
3,3-Dichlorobenzidine	EPA 625	5C20022	1.9	10	ND	1.9	03/20/05	03/22/05	
2,4-Dichlorophenol	EPA 625	5C20022	0.42	4.0	ND	1.9	03/20/05	03/22/05	
Diethyl phthalate	EPA 625	5C20022	0.24	2.0	0.42	1.9	03/20/05	03/22/05	B, J
2,4-Dimethylphenol	EPA 625	5C20022	0.62	4.0	ND	1.9	03/20/05	03/22/05	
Dimethyl phthalate	EPA 625	5C20022	0.16	1.0	ND	1.9	03/20/05	03/22/05	
4,6-Dinitro-2-methylphenol	EPA 625	5C20022	0.76	10	ND	1.9	03/20/05	03/22/05	
2,4-Dinitrophenol	EPA 625	5C20022	5.4	10	ND	1.9	03/20/05	03/22/05	N-1
2,4-Dinitrotoluene	EPA 625	5C20022	0.46	10	ND	1.9	03/20/05	03/22/05	
2,6-Dinitrotoluene	EPA 625	5C20022	0.48	10	ND	1.9	03/20/05	03/22/05	
Di-n-octyl phthalate	EPA 625	5C20022	0.34	10	ND	1.9	03/20/05	03/22/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5C20022	0.17	2.0	ND	1.9	03/20/05	03/22/05	

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager



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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1526

Sampled: 03/18/05
Received: 03/18/05

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: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Fluoranthene	EPA 625	5C20022	0.18	1.0	ND	1.9	03/20/05	03/22/05	RL-3
Fluorene	EPA 625	5C20022	0.15	1.0	ND	1.9	03/20/05	03/22/05	
Hexachlorobenzene	EPA 625	5C20022	0.26	2.0	ND	1.9	03/20/05	03/22/05	
Hexachlorobutadiene	EPA 625	5C20022	0.76	4.0	ND	1.9	03/20/05	03/22/05	
Hexachlorocyclopentadiene	EPA 625	5C20022	3.6	10	ND	1.9	03/20/05	03/22/05	
Hexachloroethane	EPA 625	5C20022	1.0	6.0	ND	1.9	03/20/05	03/22/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5C20022	0.38	4.0	ND	1.9	03/20/05	03/22/05	
Isophorone	EPA 625	5C20022	0.12	2.0	ND	1.9	03/20/05	03/22/05	
2-Methylnaphthalene	EPA 625	5C20022	0.26	2.0	ND	1.9	03/20/05	03/22/05	
2-Methylphenol	EPA 625	5C20022	0.56	4.0	ND	1.9	03/20/05	03/22/05	
4-Methylphenol	EPA 625	5C20022	0.40	10	ND	1.9	03/20/05	03/22/05	
Naphthalene	EPA 625	5C20022	0.26	2.0	ND	1.9	03/20/05	03/22/05	
2-Nitroaniline	EPA 625	5C20022	0.36	10	ND	1.9	03/20/05	03/22/05	
3-Nitroaniline	EPA 625	5C20022	0.70	10	ND	1.9	03/20/05	03/22/05	
4-Nitroaniline	EPA 625	5C20022	0.98	10	ND	1.9	03/20/05	03/22/05	
Nitrobenzene	EPA 625	5C20022	0.20	2.0	ND	1.9	03/20/05	03/22/05	
2-Nitrophenol	EPA 625	5C20022	0.46	4.0	ND	1.9	03/20/05	03/22/05	
4-Nitrophenol	EPA 625	5C20022	1.5	10	ND	1.9	03/20/05	03/22/05	
N-Nitrosodimethylamine	EPA 625	5C20022	0.44	4.0	ND	1.9	03/20/05	03/22/05	
N-Nitroso-di-n-propylamine	EPA 625	5C20022	0.36	4.0	ND	1.9	03/20/05	03/22/05	
N-Nitrosodiphenylamine	EPA 625	5C20022	0.15	2.0	ND	1.9	03/20/05	03/22/05	
Pentachlorophenol	EPA 625	5C20022	1.6	4.0	ND	1.9	03/20/05	03/22/05	
Phenanthrene	EPA 625	5C20022	0.14	1.0	ND	1.9	03/20/05	03/22/05	
Phenol	EPA 625	5C20022	0.28	2.0	ND	1.9	03/20/05	03/22/05	
Pyrene	EPA 625	5C20022	0.12	1.0	ND	1.9	03/20/05	03/22/05	
1,2,4-Trichlorobenzene	EPA 625	5C20022	0.20	2.0	ND	1.9	03/20/05	03/22/05	
2,4,5-Trichlorophenol	EPA 625	5C20022	0.15	4.0	ND	1.9	03/20/05	03/22/05	
2,4,6-Trichlorophenol	EPA 625	5C20022	0.20	2.0	ND	1.9	03/20/05	03/22/05	
Surrogate: 2-Fluorophenol (30-120%)					68 %				
Surrogate: Phenol-d6 (35-120%)					67 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					79 %				
Surrogate: Nitrobenzene-d5 (45-120%)					68 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					70 %				
Surrogate: Terphenyl-d14 (45-120%)					78 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1526

Sampled: 03/18/05
Received: 03/18/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5C19034	0.030	0.10	ND	0.952	03/19/05	03/19/05	
alpha-BHC	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
beta-BHC	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
delta-BHC	EPA 608	5C19034	0.020	0.20	ND	0.952	03/19/05	03/19/05	
gamma-BHC (Lindane)	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Chlordane	EPA 608	5C19034	0.20	1.0	ND	0.952	03/19/05	03/19/05	
4,4'-DDD	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
4,4'-DDE	EPA 608	5C19034	0.025	0.10	ND	0.952	03/19/05	03/19/05	
4,4'-DDT	EPA 608	5C19034	0.030	0.10	0.11	0.952	03/19/05	03/19/05	
Dieldrin	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
Endosulfan I	EPA 608	5C19034	0.015	0.10	ND	0.952	03/19/05	03/19/05	
Endosulfan II	EPA 608	5C19034	0.040	0.10	ND	0.952	03/19/05	03/19/05	
Endosulfan sulfate	EPA 608	5C19034	0.015	0.20	ND	0.952	03/19/05	03/19/05	
Endrin	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Endrin aldehyde	EPA 608	5C19034	0.045	0.10	ND	0.952	03/19/05	03/19/05	
Endrin ketone	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Heptachlor	EPA 608	5C19034	0.030	0.10	ND	0.952	03/19/05	03/19/05	
Heptachlor epoxide	EPA 608	5C19034	0.020	0.10	ND	0.952	03/19/05	03/19/05	
Methoxychlor	EPA 608	5C19034	0.035	0.10	ND	0.952	03/19/05	03/19/05	
Toxaphene	EPA 608	5C19034	1.5	5.0	ND	0.952	03/19/05	03/19/05	
Surrogate: Tetrachloro-m-xylene (35-115%)					31 %				ZX
Surrogate: Decachlorobiphenyl (45-120%)					39 %				ZX

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5C19034	0.20	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1221	EPA 608	5C19034	0.10	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1232	EPA 608	5C19034	0.15	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1242	EPA 608	5C19034	0.15	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1248	EPA 608	5C19034	0.25	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1254	EPA 608	5C19034	0.25	1.0	ND	0.952	03/19/05	03/20/05	
Aroclor 1260	EPA 608	5C19034	0.40	1.0	ND	0.952	03/19/05	03/20/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					37 %				ZX

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
Barium	EPA 200.8	5C19038	0.00014	0.0010	0.036	1	03/19/05	03/21/05	
Boron	EPA 200.7	5C19039	0.0074	0.050	0.090	1	03/19/05	03/19/05	
Iron	EPA 200.8	5C19038	0.0032	0.010	0.27	1	03/19/05	03/21/05	B-1

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 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C19038	0.18	2.0	0.26	1	03/19/05	03/21/05	B, J
Arsenic	EPA 200.8	5C19038	0.49	1.0	2.1	1	03/19/05	03/21/05	
Beryllium	EPA 200.8	5C19038	0.037	0.50	ND	1	03/19/05	03/21/05	
Cadmium	EPA 200.8	5C19038	0.015	1.0	0.079	1	03/19/05	03/21/05	B, J
Chromium	EPA 200.8	5C19038	0.26	2.0	0.93	1	03/19/05	03/21/05	J
Cobalt	EPA 200.8	5C19038	0.10	1.0	0.33	1	03/19/05	03/21/05	J
Copper	EPA 200.8	5C19038	0.49	2.0	3.0	1	03/19/05	03/21/05	
Lead	EPA 200.8	5C19038	0.13	1.0	0.39	1	03/19/05	03/21/05	J
Manganese	EPA 200.8	5C21088	0.44	1.0	56	1	03/21/05	03/21/05	
Mercury	EPA 245.1	5C19029	0.063	0.20	ND	1	03/19/05	03/19/05	
Nickel	EPA 200.8	5C19038	0.15	2.0	1.9	1	03/19/05	03/21/05	B, J
Selenium	EPA 200.8	5C19038	0.36	2.0	0.43	1	03/19/05	03/21/05	J
Silver	EPA 200.8	5C19038	0.089	1.0	ND	1	03/19/05	03/21/05	
Thallium	EPA 200.8	5C19038	0.075	1.0	ND	1	03/19/05	03/21/05	
Vanadium	EPA 200.8	5C19038	0.86	2.0	1.3	1	03/19/05	03/21/05	J
Zinc	EPA 200.8	5C19038	3.1	20	9.8	1	03/19/05	03/21/05	J

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C22089	0.30	0.50	0.56	1	03/22/05	03/22/05	
Biochemical Oxygen Demand	EPA 405.1	5C18070	0.59	2.0	3.8	1	03/18/05	03/23/05	
Chloride	EPA 300.0	5C18104	0.26	0.50	15	1	03/18/05	03/19/05	
Fluoride	EPA 300.0	5C18104	0.10	0.50	0.36	1	03/18/05	03/19/05	B, J
Nitrate/Nitrite-N	EPA 300.0	5C18104	0.072	0.11	ND	1	03/18/05	03/19/05	
Oil & Grease	EPA 413.1	5C21062	0.94	5.0	ND	1	03/21/05	03/21/05	
Residual Chlorine	EPA 330.5	5C19030	0.10	0.10	ND	1	03/19/05	03/19/05	
Sulfate	EPA 300.0	5C18104	0.18	0.50	41	1	03/18/05	03/19/05	
Surfactants (MBAS)	SM5540-C	5C18107	0.044	0.10	0.064	1	03/18/05	03/18/05	J
Total Dissolved Solids	SM2540C	5C21073	10	10	230	1	03/21/05	03/21/05	
Total Organic Carbon	EPA 415.1	5C22101	0.25	1.0	13	1	03/22/05	03/22/05	
Total Suspended Solids	EPA 160.2	5C21068	10	10	ND	1	03/21/05	03/21/05	

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 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5C19045	0.10	0.10	ND	1	03/19/05	03/19/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C19032	0.040	1.0	2.4	1	03/19/05	03/19/05	

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 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5C18067	0.10	1.0	ND	1	03/18/05	03/18/05	
Total Cyanide	EPA 335.2	5C21083	2.2	5.0	ND	1	03/21/05	03/21/05	
Perchlorate	EPA 314.0	5C18121	0.80	4.0	ND	1	03/18/05	03/19/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C21077	1.0	1.0	350	1	03/21/05	03/21/05	

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 Report Number: IOC1526

Sampled: 03/18/05
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1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC1526-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5C2203	0.49	1.0	ND	1	03/22/05	03/22/05	
<i>Surrogate: Dibromofluoromethane (80-125%)</i>					117 %				

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 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 011 Composite (IOC1526-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/18/2005 14:40	03/18/2005 20:15	03/19/2005 09:00	03/19/2005 10:00
EPA 180.1	2	03/18/2005 14:40	03/18/2005 20:15	03/19/2005 09:30	03/19/2005 10:30
EPA 218.6	1	03/18/2005 14:40	03/18/2005 20:15	03/18/2005 21:40	03/18/2005 22:04
EPA 300.0	2	03/18/2005 14:40	03/18/2005 20:15	03/18/2005 23:00	03/19/2005 01:05
EPA 330.5	1	03/18/2005 14:40	03/18/2005 20:15	03/19/2005 09:00	03/19/2005 10:00
EPA 405.1	2	03/18/2005 14:40	03/18/2005 20:15	03/18/2005 22:35	03/23/2005 10:30
EPA 624	3	03/18/2005 14:40	03/18/2005 20:15	03/20/2005 00:00	03/20/2005 12:57
SM5540-C	2	03/18/2005 14:40	03/18/2005 20:15	03/18/2005 22:01	03/18/2005 22:20

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METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C22091 Extracted: 03/22/05											
Blank Analyzed: 03/22/2005 (5C22091-BLK1)											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
LCS Analyzed: 03/22/2005 (5C22091-BS1)											
Total Recoverable Hydrocarbons	4.49	1.0	0.31	mg/l	5.00		90	65-120			M-NR1
LCS Dup Analyzed: 03/22/2005 (5C22091-BSD1)											
Total Recoverable Hydrocarbons	4.59	1.0	0.31	mg/l	5.00		92	65-120	2	20	

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METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C21048 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21048-BLK1)											
EFH (C13 - C22)	ND	0.50	0.082	mg/l							
EFH (C13 - C40)	ND	0.50	0.082	mg/l							
Surrogate: n-Octacosane	0.174			mg/l	0.200		87	40-125			
LCS Analyzed: 03/21/2005 (5C21048-BS1)											
EFH (C13 - C40)	0.738	0.50	0.082	mg/l	0.775		95	40-120			M-NR1
Surrogate: n-Octacosane	0.182			mg/l	0.200		91	40-125			
LCS Dup Analyzed: 03/21/2005 (5C21048-BSD1)											
EFH (C13 - C40)	0.688	0.50	0.082	mg/l	0.775		89	40-120	7	25	
Surrogate: n-Octacosane	0.177			mg/l	0.200		88	40-125			

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METHOD BLANK/QC DATA

VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	Data Limit	Qualifiers
Batch: 5C21006 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21006-BLK1)											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.00839			mg/l	0.0100		84	65-140			
LCS Analyzed: 03/21/2005 (5C21006-BS1)											
GRO (C4 - C12)	0.650	0.10	0.050	mg/l	0.800		81	70-140			
Surrogate: 4-BFB (FID)	0.0238			mg/l	0.0300		79	65-140			
Matrix Spike Analyzed: 03/21/2005 (5C21006-MS1)						Source: IOC1526-01					
GRO (C4 - C12)	0.220	0.10	0.050	mg/l	0.220	ND	100	60-140			
Surrogate: 4-BFB (FID)	0.00955			mg/l	0.0100		96	65-140			
Matrix Spike Dup Analyzed: 03/21/2005 (5C21006-MSD1)						Source: IOC1526-01					
GRO (C4 - C12)	0.221	0.10	0.050	mg/l	0.220	ND	100	60-140	1	20	
Surrogate: 4-BFB (FID)	0.00960			mg/l	0.0100		96	65-140			

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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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

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	Data Limit	Qualifiers
Batch: 5C20002 Extracted: 03/20/05										
Blank Analyzed: 03/20/2005 (5C20002-BLK1)										
Benzene	ND	1.0	0.28	ug/l						
Bromodichloromethane	ND	2.0	0.30	ug/l						
Bromoform	ND	5.0	0.32	ug/l						
Bromomethane	ND	5.0	0.34	ug/l						
Carbon tetrachloride	ND	0.50	0.28	ug/l						
Chlorobenzene	ND	2.0	0.36	ug/l						
Chloroethane	ND	5.0	0.33	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
Chloromethane	ND	5.0	0.30	ug/l						
Dibromochloromethane	ND	2.0	0.28	ug/l						
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l						
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l						
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	0.50	0.28	ug/l						
1,1-Dichloroethene	ND	5.0	0.32	ug/l						
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
1,1,1,2-Tetrachloroethane	ND	2.0	0.24	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	2.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l						
Surrogate: Dibromofluoromethane	27.7			ug/l	25.0	111	80-120			
Surrogate: Toluene-d8	25.5			ug/l	25.0	102	80-120			
Surrogate: 4-Bromofluorobenzene	23.8			ug/l	25.0	95	80-120			

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MWH-Pasadena/Boeing Project ID: 13267 (Study 1)
300 North Lake Avenue, Suite 1200 Outfall 011
Pasadena, CA 91101 Report Number: IOC1526
Attention: Bronwyn Kelly Sampled: 03/18/05
Received: 03/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Table with columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Data Qualifiers. Includes sub-headers for Batch: 5C20002 and LCS Analyzed: 03/20/2005.

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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1526

Sampled: 03/18/05
Received: 03/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C20002 Extracted: 03/20/05										
Matrix Spike Analyzed: 03/20/2005 (5C20002-MS1)					Source: IOC1175-01					
Benzene	26.4	1.0	0.28	ug/l	25.0	ND	106	70-120		
Bromodichloromethane	25.5	2.0	0.30	ug/l	25.0	ND	102	70-140		
Bromoform	22.3	5.0	0.32	ug/l	25.0	ND	89	55-140		
Bromomethane	29.7	5.0	0.34	ug/l	25.0	ND	119	50-145		
Carbon tetrachloride	25.0	0.50	0.28	ug/l	25.0	ND	100	70-145		
Chlorobenzene	24.6	2.0	0.36	ug/l	25.0	ND	98	80-125		
Chloroethane	28.1	5.0	0.33	ug/l	25.0	ND	112	50-145		
Chloroform	27.8	2.0	0.33	ug/l	25.0	ND	111	70-135		
Chloromethane	30.6	5.0	0.30	ug/l	25.0	ND	122	35-145		
Dibromochloromethane	23.8	2.0	0.28	ug/l	25.0	ND	95	65-145		
1,2-Dichlorobenzene	24.5	2.0	0.32	ug/l	25.0	ND	98	75-130		
1,3-Dichlorobenzene	24.5	2.0	0.35	ug/l	25.0	ND	98	75-130		
1,4-Dichlorobenzene	24.7	2.0	0.37	ug/l	25.0	ND	99	80-120		
1,1-Dichloroethane	27.3	2.0	0.27	ug/l	25.0	ND	109	65-135		
1,2-Dichloroethane	29.3	0.50	0.28	ug/l	25.0	ND	117	60-150		
1,1-Dichloroethene	27.7	5.0	0.32	ug/l	25.0	ND	111	65-140		
trans-1,2-Dichloroethene	25.5	2.0	0.27	ug/l	25.0	ND	102	65-135		
1,2-Dichloropropane	27.0	2.0	0.35	ug/l	25.0	ND	108	65-130		
cis-1,3-Dichloropropene	25.7	2.0	0.22	ug/l	25.0	ND	103	70-140		
trans-1,3-Dichloropropene	25.7	2.0	0.24	ug/l	25.0	ND	103	70-140		
Ethylbenzene	25.4	2.0	0.25	ug/l	25.0	ND	102	70-130		
Methylene chloride	27.8	5.0	0.48	ug/l	25.0	ND	111	60-135		
1,1,1,2-Tetrachloroethane	26.4	2.0	0.24	ug/l	25.0	ND	106	60-145		
Tetrachloroethene	23.6	2.0	0.32	ug/l	25.0	ND	94	70-130		
Toluene	25.3	2.0	0.36	ug/l	25.0	ND	101	70-120		
1,1,1-Trichloroethane	24.2	2.0	0.30	ug/l	25.0	ND	97	75-140		
1,1,2-Trichloroethane	25.3	2.0	0.30	ug/l	25.0	ND	101	60-135		
Trichloroethene	24.6	2.0	0.26	ug/l	25.0	ND	98	70-125		
Trichlorofluoromethane	28.3	5.0	0.34	ug/l	25.0	ND	113	55-145		
Vinyl chloride	25.8	0.50	0.26	ug/l	25.0	ND	103	40-135		
Surrogate: Dibromofluoromethane	27.4			ug/l	25.0		110	80-120		
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120		
Surrogate: 4-Bromofluorobenzene	24.4			ug/l	25.0		98	80-120		

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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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: 5C20002 Extracted: 03/20/05										
Matrix Spike Dup Analyzed: 03/20/2005 (5C20002-MSD1)					Source: IOC1175-01					
Benzene	25.8	1.0	0.28	ug/l	25.0	ND	103 70-120	2	20	
Bromodichloromethane	25.1	2.0	0.30	ug/l	25.0	ND	100 70-140	2	20	
Bromoform	24.1	5.0	0.32	ug/l	25.0	ND	96 55-140	8	25	
Bromomethane	28.4	5.0	0.34	ug/l	25.0	ND	114 50-145	4	25	
Carbon tetrachloride	24.7	0.50	0.28	ug/l	25.0	ND	99 70-145	1	25	
Chlorobenzene	24.4	2.0	0.36	ug/l	25.0	ND	98 80-125	1	20	
Chloroethane	26.7	5.0	0.33	ug/l	25.0	ND	107 50-145	5	25	
Chloroform	27.1	2.0	0.33	ug/l	25.0	ND	108 70-135	3	20	
Chloromethane	29.1	5.0	0.30	ug/l	25.0	ND	116 35-145	5	25	
Dibromochloromethane	24.6	2.0	0.28	ug/l	25.0	ND	98 65-145	3	25	
1,2-Dichlorobenzene	24.5	2.0	0.32	ug/l	25.0	ND	98 75-130	0	20	
1,3-Dichlorobenzene	24.0	2.0	0.35	ug/l	25.0	ND	96 75-130	2	20	
1,4-Dichlorobenzene	24.4	2.0	0.37	ug/l	25.0	ND	98 80-120	1	20	
1,1-Dichloroethane	26.3	2.0	0.27	ug/l	25.0	ND	105 65-135	4	20	
1,2-Dichloroethane	29.0	0.50	0.28	ug/l	25.0	ND	116 60-150	1	20	
1,1-Dichloroethene	27.1	5.0	0.32	ug/l	25.0	ND	108 65-140	2	20	
trans-1,2-Dichloroethene	25.2	2.0	0.27	ug/l	25.0	ND	101 65-135	1	20	
1,2-Dichloropropane	26.4	2.0	0.35	ug/l	25.0	ND	106 65-130	2	20	
cis-1,3-Dichloropropene	25.8	2.0	0.22	ug/l	25.0	ND	103 70-140	0	20	
trans-1,3-Dichloropropene	26.5	2.0	0.24	ug/l	25.0	ND	106 70-140	3	25	
Ethylbenzene	24.8	2.0	0.25	ug/l	25.0	ND	99 70-130	2	20	
Methylene chloride	27.1	5.0	0.48	ug/l	25.0	ND	108 60-135	3	20	
1,1,1,2-Tetrachloroethane	28.9	2.0	0.24	ug/l	25.0	ND	116 60-145	9	30	
Tetrachloroethene	23.4	2.0	0.32	ug/l	25.0	ND	94 70-130	1	20	
Toluene	24.9	2.0	0.36	ug/l	25.0	ND	100 70-120	2	20	
1,1,1-Trichloroethane	23.0	2.0	0.30	ug/l	25.0	ND	92 75-140	5	20	
1,1,2-Trichloroethane	26.1	2.0	0.30	ug/l	25.0	ND	104 60-135	3	25	
Trichloroethene	24.2	2.0	0.26	ug/l	25.0	ND	97 70-125	2	20	
Trichlorofluoromethane	27.4	5.0	0.34	ug/l	25.0	ND	110 55-145	3	25	
Vinyl chloride	22.4	0.50	0.26	ug/l	25.0	ND	90 40-135	14	30	
Surrogate: Dibromofluoromethane	27.0			ug/l	25.0		108 80-120			
Surrogate: Toluene-d8	25.6			ug/l	25.0		102 80-120			
Surrogate: 4-Bromofluorobenzene	24.4			ug/l	25.0		98 80-120			

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C20002 Extracted: 03/20/05										
Blank Analyzed: 03/20/2005 (5C20002-BLK1)										
Acrolein	ND	50	4.6	ug/l						
Acrylonitrile	ND	50	5.1	ug/l						
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l						
Surrogate: Dibromofluoromethane	27.7			ug/l	25.0		111 80-120			
Surrogate: Toluene-d8	25.5			ug/l	25.0		102 80-120			
Surrogate: 4-Bromofluorobenzene	23.8			ug/l	25.0		95 80-120			
LCS Analyzed: 03/20/2005 (5C20002-BS1)										
2-Chloroethyl vinyl ether	26.5	5.0	1.3	ug/l	25.0		106 20-175			
Surrogate: Dibromofluoromethane	27.8			ug/l	25.0		111 80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103 80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101 80-120			

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MWH-Pasadena/Boeing
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Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1526

Sampled: 03/18/05
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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C20002 Extracted: 03/20/05										
Blank Analyzed: 03/20/2005 (5C20002-BLK1)										
1,2-Dichloro-1,1,2-trifluoroethane	ND	2.5	N/A	ug/l						
Cyclohexane	ND	2.5	N/A	ug/l						

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 Outfall 011
 Report Number: IOC1526

 Sampled: 03/18/05
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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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C20022 Extracted: 03/20/05										
Blank Analyzed: 03/22/2005 (5C20022-BLK1)										
Acenaphthene	ND	0.50	0.10	ug/l						
Acenaphthylene	ND	0.50	0.10	ug/l						
Aniline	ND	10	2.9	ug/l						
Anthracene	ND	0.50	0.083	ug/l						
Benzidine	ND	5.0	2.4	ug/l						
Benzoic acid	ND	20	3.7	ug/l						
Benzo(a)anthracene	ND	5.0	0.038	ug/l						
Benzo(a)pyrene	ND	2.0	0.14	ug/l						
Benzo(b)fluoranthene	ND	2.0	0.050	ug/l						
Benzo(g,h,i)perylene	ND	5.0	0.059	ug/l						
Benzo(k)fluoranthene	ND	0.50	0.053	ug/l						
Benzyl alcohol	ND	5.0	0.21	ug/l						
Bis(2-chloroethoxy)methane	ND	0.50	0.072	ug/l						
Bis(2-chloroethyl)ether	ND	0.50	0.084	ug/l						
Bis(2-chloroisopropyl)ether	ND	0.50	0.11	ug/l						
Bis(2-ethylhexyl)phthalate	ND	5.0	1.1	ug/l						
4-Bromophenyl phenyl ether	ND	1.0	0.12	ug/l						
Butyl benzyl phthalate	0.600	5.0	0.34	ug/l						J
4-Chloroaniline	ND	2.0	0.20	ug/l						
2-Chloronaphthalene	ND	0.50	0.059	ug/l						
4-Chloro-3-methylphenol	ND	2.0	0.34	ug/l						
4-Chlorophenyl phenyl ether	ND	0.50	0.056	ug/l						
2-Chlorophenol	ND	1.0	0.12	ug/l						
Chrysene	ND	0.50	0.072	ug/l						
Dibenz(a,h)anthracene	ND	0.50	0.083	ug/l						
Dibenzofuran	ND	0.50	0.075	ug/l						
Di-n-butyl phthalate	ND	2.0	0.26	ug/l						
1,2-Dichlorobenzene	ND	0.50	0.11	ug/l						
1,3-Dichlorobenzene	ND	0.50	0.13	ug/l						
1,4-Dichlorobenzene	ND	0.50	0.050	ug/l						
3,3-Dichlorobenzidine	ND	5.0	0.93	ug/l						
2,4-Dichlorophenol	ND	2.0	0.21	ug/l						
Diethyl phthalate	0.220	1.0	0.12	ug/l						J
2,4-Dimethylphenol	ND	2.0	0.31	ug/l						
Dimethyl phthalate	ND	0.50	0.081	ug/l						

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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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	RPD Limit	Data Qualifiers
Batch: 5C20022 Extracted: 03/20/05										
Blank Analyzed: 03/22/2005 (5C20022-BLK1)										
4,6-Dinitro-2-methylphenol	ND	5.0	0.38	ug/l						
2,4-Dinitrophenol	ND	5.0	2.7	ug/l						N-1
2,4-Dinitrotoluene	ND	5.0	0.23	ug/l						
2,6-Dinitrotoluene	ND	5.0	0.24	ug/l						
Di-n-octyl phthalate	ND	5.0	0.17	ug/l						
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	0.087	ug/l						
Fluoranthene	ND	0.50	0.089	ug/l						
Fluorene	ND	0.50	0.075	ug/l						
Hexachlorobenzene	ND	1.0	0.13	ug/l						
Hexachlorobutadiene	ND	2.0	0.38	ug/l						
Hexachlorocyclopentadiene	ND	5.0	1.8	ug/l						
Hexachloroethane	ND	3.0	0.51	ug/l						
Indeno(1,2,3-cd)pyrene	ND	2.0	0.19	ug/l						
Isophorone	ND	1.0	0.059	ug/l						
2-Methylnaphthalene	ND	1.0	0.13	ug/l						
2-Methylphenol	ND	2.0	0.28	ug/l						
4-Methylphenol	ND	5.0	0.20	ug/l						
Naphthalene	ND	1.0	0.13	ug/l						
2-Nitroaniline	ND	5.0	0.18	ug/l						
3-Nitroaniline	ND	5.0	0.35	ug/l						
4-Nitroaniline	ND	5.0	0.49	ug/l						
Nitrobenzene	ND	1.0	0.10	ug/l						
2-Nitrophenol	ND	2.0	0.23	ug/l						
4-Nitrophenol	ND	5.0	0.73	ug/l						
N-Nitrosodimethylamine	ND	2.0	0.22	ug/l						
N-Nitroso-di-n-propylamine	ND	2.0	0.18	ug/l						
N-Nitrosodiphenylamine	ND	1.0	0.077	ug/l						
Pentachlorophenol	ND	2.0	0.78	ug/l						
Phenanthrene	ND	0.50	0.071	ug/l						
Phenol	ND	1.0	0.14	ug/l						
Pyrene	ND	0.50	0.059	ug/l						
1,2,4-Trichlorobenzene	ND	1.0	0.10	ug/l						
2,4,5-Trichlorophenol	ND	2.0	0.075	ug/l						
2,4,6-Trichlorophenol	ND	1.0	0.10	ug/l						
Surrogate: 2-Fluorophenol	12.3			ug/l	20.0		62		30-120	

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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: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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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 Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C20022 Extracted: 03/20/05										
Blank Analyzed: 03/22/2005 (5C20022-BLK1)										
Surrogate: Phenol-d6	12.0			ug/l	20.0		60 35-120			
Surrogate: 2,4,6-Tribromophenol	15.4			ug/l	20.0		77 45-120			
Surrogate: Nitrobenzene-d5	6.34			ug/l	10.0		63 45-120			
Surrogate: 2-Fluorobiphenyl	7.02			ug/l	10.0		70 45-120			
Surrogate: Terphenyl-d14	7.70			ug/l	10.0		77 45-120			
LCS Analyzed: 03/22/2005 (5C20022-BS1)										
Acenaphthene	7.60	0.50	0.10	ug/l	10.0		76 55-120			M-NR1
Acenaphthylene	7.76	0.50	0.10	ug/l	10.0		78 55-120			
Aniline	7.02	10	2.9	ug/l	10.0		70 35-120			J
Anthracene	7.94	0.50	0.083	ug/l	10.0		79 55-120			
Benzidine	ND	5.0	2.4	ug/l	10.0		20-160			L2
Benzoic acid	7.08	20	3.7	ug/l	10.0		71 35-120			J
Benzo(a)anthracene	8.78	5.0	0.038	ug/l	10.0		88 60-120			
Benzo(a)pyrene	8.28	2.0	0.14	ug/l	10.0		83 55-120			
Benzo(b)fluoranthene	7.98	2.0	0.050	ug/l	10.0		80 50-120			
Benzo(g,h,i)perylene	7.68	5.0	0.059	ug/l	10.0		77 40-125			
Benzo(k)fluoranthene	8.24	0.50	0.053	ug/l	10.0		82 50-120			
Benzyl alcohol	7.48	5.0	0.21	ug/l	10.0		75 45-120			
Bis(2-chloroethoxy)methane	7.56	0.50	0.072	ug/l	10.0		76 55-120			
Bis(2-chloroethyl)ether	6.46	0.50	0.084	ug/l	10.0		65 50-120			
Bis(2-chloroisopropyl)ether	6.98	0.50	0.11	ug/l	10.0		70 45-120			
Bis(2-ethylhexyl)phthalate	8.18	5.0	1.1	ug/l	10.0		82 60-130			
4-Bromophenyl phenyl ether	7.30	1.0	0.12	ug/l	10.0		73 50-120			
Butyl benzyl phthalate	8.02	5.0	0.34	ug/l	10.0		80 55-125			
4-Chloroaniline	6.88	2.0	0.20	ug/l	10.0		69 50-120			
2-Chloronaphthalene	7.82	0.50	0.059	ug/l	10.0		78 55-120			
4-Chloro-3-methylphenol	7.16	2.0	0.34	ug/l	10.0		72 60-120			
4-Chlorophenyl phenyl ether	7.94	0.50	0.056	ug/l	10.0		79 55-120			
2-Chlorophenol	6.82	1.0	0.12	ug/l	10.0		68 45-120			
Chrysene	8.32	0.50	0.072	ug/l	10.0		83 60-120			
Dibenz(a,h)anthracene	8.64	0.50	0.083	ug/l	10.0		86 45-130			
Dibenzofuran	7.52	0.50	0.075	ug/l	10.0		75 60-120			
Di-n-butyl phthalate	8.02	2.0	0.26	ug/l	10.0		80 55-125			
1,2-Dichlorobenzene	6.12	0.50	0.11	ug/l	10.0		61 35-120			
1,3-Dichlorobenzene	6.00	0.50	0.13	ug/l	10.0		60 35-120			

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C20022 Extracted: 03/20/05										
LCS Analyzed: 03/22/2005 (5C20022-BS1)										
1,4-Dichlorobenzene	5.96	0.50	0.050	ug/l	10.0	60	35-120			M-NR1
3,3-Dichlorobenzidine	7.18	5.0	0.93	ug/l	10.0	72	45-130			
2,4-Dichlorophenol	7.36	2.0	0.21	ug/l	10.0	74	55-120			
Diethyl phthalate	7.40	1.0	0.12	ug/l	10.0	74	55-120			
2,4-Dimethylphenol	6.64	2.0	0.31	ug/l	10.0	66	30-120			
Dimethyl phthalate	7.78	0.50	0.081	ug/l	10.0	78	60-120			
4,6-Dinitro-2-methylphenol	8.54	5.0	0.38	ug/l	10.0	85	50-120			
2,4-Dinitrophenol	7.42	5.0	2.7	ug/l	10.0	74	40-120			N-1
2,4-Dinitrotoluene	6.94	5.0	0.23	ug/l	10.0	69	60-120			
2,6-Dinitrotoluene	7.46	5.0	0.24	ug/l	10.0	75	60-120			
Di-n-octyl phthalate	9.76	5.0	0.17	ug/l	10.0	98	60-130			
1,2-Diphenylhydrazine/Azobenzene	7.98	1.0	0.087	ug/l	10.0	80	60-120			
Fluoranthene	8.32	0.50	0.089	ug/l	10.0	83	55-120			
Fluorene	8.12	0.50	0.075	ug/l	10.0	81	60-120			
Hexachlorobenzene	7.64	1.0	0.13	ug/l	10.0	76	50-120			
Hexachlorobutadiene	6.48	2.0	0.38	ug/l	10.0	65	40-120			
Hexachlorocyclopentadiene	6.58	5.0	1.8	ug/l	10.0	66	15-120			
Hexachloroethane	6.08	3.0	0.51	ug/l	10.0	61	35-120			
Indeno(1,2,3-cd)pyrene	8.12	2.0	0.19	ug/l	10.0	81	40-130			
Isophorone	6.94	1.0	0.059	ug/l	10.0	69	50-120			
2-Methylnaphthalene	7.42	1.0	0.13	ug/l	10.0	74	50-120			
2-Methylphenol	7.02	2.0	0.28	ug/l	10.0	70	45-120			
4-Methylphenol	7.14	5.0	0.20	ug/l	10.0	71	45-120			
Naphthalene	7.10	1.0	0.13	ug/l	10.0	71	50-120			
2-Nitroaniline	7.92	5.0	0.18	ug/l	10.0	79	60-120			
3-Nitroaniline	7.18	5.0	0.35	ug/l	10.0	72	55-120			
4-Nitroaniline	7.68	5.0	0.49	ug/l	10.0	77	50-125			
Nitrobenzene	6.56	1.0	0.10	ug/l	10.0	66	50-120			
2-Nitrophenol	7.28	2.0	0.23	ug/l	10.0	73	55-120			
4-Nitrophenol	8.18	5.0	0.73	ug/l	10.0	82	45-120			
N-Nitrosodimethylamine	6.94	2.0	0.22	ug/l	10.0	69	40-120			
N-Nitroso-di-n-propylamine	6.80	2.0	0.18	ug/l	10.0	68	45-120			
N-Nitrosodiphenylamine	7.34	1.0	0.077	ug/l	10.0	73	55-120			
Pentachlorophenol	8.06	2.0	0.78	ug/l	10.0	81	50-120			
Phenanthrene	7.82	0.50	0.071	ug/l	10.0	78	55-120			

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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: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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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: 5C20022 Extracted: 03/20/05										
LCS Analyzed: 03/22/2005 (5C20022-BS1)										
Phenol	7.76	1.0	0.14	ug/l	10.0	78	45-120			M-NR1
Pyrene	8.14	0.50	0.059	ug/l	10.0	81	50-120			
1,2,4-Trichlorobenzene	6.40	1.0	0.10	ug/l	10.0	64	45-120			
2,4,5-Trichlorophenol	8.04	2.0	0.075	ug/l	10.0	80	60-120			
2,4,6-Trichlorophenol	8.04	1.0	0.10	ug/l	10.0	80	60-120			
Surrogate: 2-Fluorophenol	13.1			ug/l	20.0	66	30-120			
Surrogate: Phenol-d6	13.0			ug/l	20.0	65	35-120			
Surrogate: 2,4,6-Tribromophenol	16.1			ug/l	20.0	80	45-120			
Surrogate: Nitrobenzene-d5	6.72			ug/l	10.0	67	45-120			
Surrogate: 2-Fluorobiphenyl	7.48			ug/l	10.0	75	45-120			
Surrogate: Terphenyl-d14	7.66			ug/l	10.0	77	45-120			
LCS Dup Analyzed: 03/22/2005 (5C20022-BSD1)										
Acenaphthene	7.52	0.50	0.10	ug/l	10.0	75	55-120	1	20	
Acenaphthylene	7.54	0.50	0.10	ug/l	10.0	75	55-120	3	20	
Aniline	6.88	10	2.9	ug/l	10.0	69	35-120	2	25	J
Anthracene	7.78	0.50	0.083	ug/l	10.0	78	55-120	2	20	
Benzidine	ND	5.0	2.4	ug/l	10.0		20-160		35	L2
Benzoic acid	6.18	20	3.7	ug/l	10.0	62	35-120	14	30	J
Benzo(a)anthracene	8.48	5.0	0.038	ug/l	10.0	85	60-120	3	20	
Benzo(a)pyrene	8.12	2.0	0.14	ug/l	10.0	81	55-120	2	25	
Benzo(b)fluoranthene	7.90	2.0	0.050	ug/l	10.0	79	50-120	1	25	
Benzo(g,h,i)perylene	7.32	5.0	0.059	ug/l	10.0	73	40-125	5	25	
Benzo(k)fluoranthene	7.98	0.50	0.053	ug/l	10.0	80	50-120	3	20	
Benzyl alcohol	7.26	5.0	0.21	ug/l	10.0	73	45-120	3	20	
Bis(2-chloroethoxy)methane	7.42	0.50	0.072	ug/l	10.0	74	55-120	2	20	
Bis(2-chloroethyl)ether	6.10	0.50	0.084	ug/l	10.0	61	50-120	6	20	
Bis(2-chloroisopropyl)ether	6.98	0.50	0.11	ug/l	10.0	70	45-120	0	20	
Bis(2-ethylhexyl)phthalate	8.08	5.0	1.1	ug/l	10.0	81	60-130	1	20	
4-Bromophenyl phenyl ether	7.30	1.0	0.12	ug/l	10.0	73	50-120	0	25	
Butyl benzyl phthalate	8.02	5.0	0.34	ug/l	10.0	80	55-125	0	20	
4-Chloroaniline	6.62	2.0	0.20	ug/l	10.0	66	50-120	4	25	
2-Chloronaphthalene	7.54	0.50	0.059	ug/l	10.0	75	55-120	4	20	
4-Chloro-3-methylphenol	6.86	2.0	0.34	ug/l	10.0	69	60-120	4	25	
4-Chlorophenyl phenyl ether	8.16	0.50	0.056	ug/l	10.0	82	55-120	3	20	
2-Chlorophenol	6.74	1.0	0.12	ug/l	10.0	67	45-120	1	25	

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

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: 5C20022 Extracted: 03/20/05										
LCS Dup Analyzed: 03/22/2005 (5C20022-BSD1)										
Chrysene	8.10	0.50	0.072	ug/l	10.0	81	60-120	3	20	
Dibenz(a,h)anthracene	8.08	0.50	0.083	ug/l	10.0	81	45-130	7	25	
Dibenzofuran	7.54	0.50	0.075	ug/l	10.0	75	60-120	0	20	
Di-n-butyl phthalate	8.10	2.0	0.26	ug/l	10.0	81	55-125	1	20	
1,2-Dichlorobenzene	5.86	0.50	0.11	ug/l	10.0	59	35-120	4	25	
1,3-Dichlorobenzene	5.64	0.50	0.13	ug/l	10.0	56	35-120	6	25	
1,4-Dichlorobenzene	5.68	0.50	0.050	ug/l	10.0	57	35-120	5	25	
3,3-Dichlorobenzidine	6.88	5.0	0.93	ug/l	10.0	69	45-130	4	25	
2,4-Dichlorophenol	7.30	2.0	0.21	ug/l	10.0	73	55-120	1	20	
Diethyl phthalate	7.32	1.0	0.12	ug/l	10.0	73	55-120	1	20	
2,4-Dimethylphenol	6.42	2.0	0.31	ug/l	10.0	64	30-120	3	25	
Dimethyl phthalate	7.70	0.50	0.081	ug/l	10.0	77	60-120	1	20	
4,6-Dinitro-2-methylphenol	8.26	5.0	0.38	ug/l	10.0	83	50-120	3	25	
2,4-Dinitrophenol	7.02	5.0	2.7	ug/l	10.0	70	40-120	6	25	N-1
2,4-Dinitrotoluene	6.92	5.0	0.23	ug/l	10.0	69	60-120	0	20	
2,6-Dinitrotoluene	7.22	5.0	0.24	ug/l	10.0	72	60-120	3	20	
Di-n-octyl phthalate	9.76	5.0	0.17	ug/l	10.0	98	60-130	0	20	
1,2-Diphenylhydrazine/Azobenzene	8.02	1.0	0.087	ug/l	10.0	80	60-120	1	25	
Fluoranthene	8.28	0.50	0.089	ug/l	10.0	83	55-120	1	20	
Fluorene	8.34	0.50	0.075	ug/l	10.0	83	60-120	3	20	
Hexachlorobenzene	7.50	1.0	0.13	ug/l	10.0	75	50-120	2	20	
Hexachlorobutadiene	5.84	2.0	0.38	ug/l	10.0	58	40-120	10	25	
Hexachlorocyclopentadiene	6.76	5.0	1.8	ug/l	10.0	68	15-120	3	30	
Hexachloroethane	5.66	3.0	0.51	ug/l	10.0	57	35-120	7	25	
Indeno(1,2,3-cd)pyrene	7.86	2.0	0.19	ug/l	10.0	79	40-130	3	25	
Isophorone	6.12	1.0	0.059	ug/l	10.0	61	50-120	13	20	
2-Methylnaphthalene	7.12	1.0	0.13	ug/l	10.0	71	50-120	4	20	
2-Methylphenol	6.92	2.0	0.28	ug/l	10.0	69	45-120	1	20	
4-Methylphenol	7.06	5.0	0.20	ug/l	10.0	71	45-120	1	20	
Naphthalene	6.86	1.0	0.13	ug/l	10.0	69	50-120	3	20	
2-Nitroaniline	7.94	5.0	0.18	ug/l	10.0	79	60-120	0	20	
3-Nitroaniline	6.78	5.0	0.35	ug/l	10.0	68	55-120	6	25	
4-Nitroaniline	7.64	5.0	0.49	ug/l	10.0	76	50-125	1	20	
Nitrobenzene	6.62	1.0	0.10	ug/l	10.0	66	50-120	1	25	
2-Nitrophenol	7.20	2.0	0.23	ug/l	10.0	72	55-120	1	25	

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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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

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: 5C20022 Extracted: 03/20/05										
LCS Dup Analyzed: 03/22/2005 (5C20022-BSD1)										
4-Nitrophenol	7.96	5.0	0.73	ug/l	10.0	80	45-120	3	25	
N-Nitrosodimethylamine	6.82	2.0	0.22	ug/l	10.0	68	40-120	2	20	
N-Nitroso-di-n-propylamine	6.68	2.0	0.18	ug/l	10.0	67	45-120	2	20	
N-Nitrosodiphenylamine	7.28	1.0	0.077	ug/l	10.0	73	55-120	1	20	
Pentachlorophenol	7.92	2.0	0.78	ug/l	10.0	79	50-120	2	25	
Phenanthrene	7.68	0.50	0.071	ug/l	10.0	77	55-120	2	20	
Phenol	7.62	1.0	0.14	ug/l	10.0	76	45-120	2	25	
Pyrene	7.96	0.50	0.059	ug/l	10.0	80	50-120	2	25	
1,2,4-Trichlorobenzene	6.06	1.0	0.10	ug/l	10.0	61	45-120	5	20	
2,4,5-Trichlorophenol	7.66	2.0	0.075	ug/l	10.0	77	60-120	5	20	
2,4,6-Trichlorophenol	7.78	1.0	0.10	ug/l	10.0	78	60-120	3	20	
Surrogate: 2-Fluorophenol	12.8			ug/l	20.0	64	30-120			
Surrogate: Phenol-d6	12.9			ug/l	20.0	64	35-120			
Surrogate: 2,4,6-Tribromophenol	16.0			ug/l	20.0	80	45-120			
Surrogate: Nitrobenzene-d5	6.74			ug/l	10.0	67	45-120			
Surrogate: 2-Fluorobiphenyl	7.16			ug/l	10.0	72	45-120			
Surrogate: Terphenyl-d14	7.48			ug/l	10.0	75	45-120			

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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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C19034 Extracted: 03/19/05										
Blank Analyzed: 03/19/2005 (5C19034-BLK1)										
Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.020	ug/l						
Chlordane	ND	1.0	0.20	ug/l						
4,4'-DDD	ND	0.10	0.020	ug/l						
4,4'-DDE	ND	0.10	0.025	ug/l						
4,4'-DDT	ND	0.10	0.030	ug/l						
Dieldrin	ND	0.10	0.015	ug/l						
Endosulfan I	ND	0.10	0.015	ug/l						
Endosulfan II	ND	0.10	0.040	ug/l						
Endosulfan sulfate	ND	0.20	0.015	ug/l						
Endrin	ND	0.10	0.020	ug/l						
Endrin aldehyde	ND	0.10	0.045	ug/l						
Endrin ketone	ND	0.10	0.020	ug/l						
Heptachlor	ND	0.10	0.030	ug/l						
Heptachlor epoxide	ND	0.10	0.020	ug/l						
Methoxychlor	ND	0.10	0.035	ug/l						
Toxaphene	ND	5.0	1.5	ug/l						
Surrogate: Tetrachloro-m-xylene	0.320			ug/l	0.500		64		35-115	
Surrogate: Decachlorobiphenyl	0.403			ug/l	0.500		81		45-120	
LCS Analyzed: 03/19/2005 (5C19034-BS1)										
Aldrin	0.340	0.10	0.030	ug/l	0.500		68		40-115	
alpha-BHC	0.351	0.10	0.015	ug/l	0.500		70		45-115	
beta-BHC	0.339	0.10	0.015	ug/l	0.500		68		50-115	
delta-BHC	0.351	0.20	0.020	ug/l	0.500		70		55-120	
gamma-BHC (Lindane)	0.357	0.10	0.020	ug/l	0.500		71		45-115	
4,4'-DDD	0.390	0.10	0.020	ug/l	0.500		78		60-120	
4,4'-DDE	0.380	0.10	0.025	ug/l	0.500		76		55-120	
4,4'-DDT	0.402	0.10	0.030	ug/l	0.500		80		60-120	
Dieldrin	0.380	0.10	0.015	ug/l	0.500		76		55-120	
Endosulfan I	0.359	0.10	0.015	ug/l	0.500		72		50-115	
Endosulfan II	0.377	0.10	0.040	ug/l	0.500		75		60-125	
Endosulfan sulfate	0.377	0.20	0.015	ug/l	0.500		75		60-120	

M-NR1

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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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: 5C19034 Extracted: 03/19/05										
LCS Analyzed: 03/19/2005 (5C19034-BS1)										
Endrin	0.378	0.10	0.020	ug/l	0.500		76 55-125			M-NRI
Endrin aldehyde	0.339	0.10	0.045	ug/l	0.500		68 55-115			
Endrin ketone	0.393	0.10	0.020	ug/l	0.500		79 60-115			
Heptachlor	0.357	0.10	0.030	ug/l	0.500		71 45-115			
Heptachlor epoxide	0.352	0.10	0.020	ug/l	0.500		70 50-115			
Methoxychlor	0.386	0.10	0.035	ug/l	0.500		77 60-120			
Surrogate: Tetrachloro-m-xylene	0.299			ug/l	0.500		60 35-115			
Surrogate: Decachlorobiphenyl	0.398			ug/l	0.500		80 45-120			
LCS Dup Analyzed: 03/19/2005 (5C19034-BSD1)										
Aldrin	0.380	0.10	0.030	ug/l	0.500		76 40-115	11	30	
alpha-BHC	0.391	0.10	0.015	ug/l	0.500		78 45-115	11	30	
beta-BHC	0.375	0.10	0.015	ug/l	0.500		75 50-115	10	30	
delta-BHC	0.391	0.20	0.020	ug/l	0.500		78 55-120	11	30	
gamma-BHC (Lindane)	0.393	0.10	0.020	ug/l	0.500		79 45-115	10	30	
4,4'-DDD	0.427	0.10	0.020	ug/l	0.500		85 60-120	9	30	
4,4'-DDE	0.423	0.10	0.025	ug/l	0.500		85 55-120	11	30	
4,4'-DDT	0.447	0.10	0.030	ug/l	0.500		89 60-120	11	30	
Dieldrin	0.416	0.10	0.015	ug/l	0.500		83 55-120	9	30	
Endosulfan I	0.395	0.10	0.015	ug/l	0.500		79 50-115	10	30	
Endosulfan II	0.409	0.10	0.040	ug/l	0.500		82 60-125	8	30	
Endosulfan sulfate	0.410	0.20	0.015	ug/l	0.500		82 60-120	8	30	
Endrin	0.415	0.10	0.020	ug/l	0.500		83 55-125	9	30	
Endrin aldehyde	0.373	0.10	0.045	ug/l	0.500		75 55-115	10	30	
Endrin ketone	0.425	0.10	0.020	ug/l	0.500		85 60-115	8	30	
Heptachlor	0.398	0.10	0.030	ug/l	0.500		80 45-115	11	30	
Heptachlor epoxide	0.389	0.10	0.020	ug/l	0.500		78 50-115	10	30	
Methoxychlor	0.427	0.10	0.035	ug/l	0.500		85 60-120	10	30	
Surrogate: Tetrachloro-m-xylene	0.309			ug/l	0.500		62 35-115			
Surrogate: Decachlorobiphenyl	0.433			ug/l	0.500		87 45-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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METHOD BLANK/QC DATA

TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19034 Extracted: 03/19/05											
Blank Analyzed: 03/19/2005 (5C19034-BLK1)											
Aroclor 1016	ND	1.0	0.20	ug/l							
Aroclor 1221	ND	1.0	0.10	ug/l							
Aroclor 1232	ND	1.0	0.15	ug/l							
Aroclor 1242	ND	1.0	0.15	ug/l							
Aroclor 1248	ND	1.0	0.25	ug/l							
Aroclor 1254	ND	1.0	0.25	ug/l							
Aroclor 1260	ND	1.0	0.40	ug/l							
Surrogate: Decachlorobiphenyl	0.356			ug/l	0.500		71	45-120			
LCS Analyzed: 03/19/2005 (5C19034-BS2)											
Aroclor 1016	2.73	1.0	0.20	ug/l	4.00		68	50-115			M-NR1
Aroclor 1260	2.92	1.0	0.40	ug/l	4.00		73	55-115			
Surrogate: Decachlorobiphenyl	0.373			ug/l	0.500		75	45-120			
LCS Dup Analyzed: 03/19/2005 (5C19034-BSD2)											
Aroclor 1016	2.54	1.0	0.20	ug/l	4.00		64	50-115	7	30	
Aroclor 1260	2.83	1.0	0.40	ug/l	4.00		71	55-115	3	25	
Surrogate: Decachlorobiphenyl	0.348			ug/l	0.500		70	45-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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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: 5C19029 Extracted: 03/19/05											
Blank Analyzed: 03/19/2005 (5C19029-BLK1)											
Mercury	ND	0.20	0.063	ug/l							
LCS Analyzed: 03/19/2005 (5C19029-BS1)											
Mercury	8.50	0.20	0.063	ug/l	8.00		106	85-115			
Matrix Spike Analyzed: 03/19/2005 (5C19029-MS1)											
						Source: IOC1454-01					
Mercury	8.46	0.20	0.063	ug/l	8.00	ND	106	70-130			
Matrix Spike Dup Analyzed: 03/19/2005 (5C19029-MSD1)											
						Source: IOC1454-01					
Mercury	8.44	0.20	0.063	ug/l	8.00	ND	106	70-130	0	20	
Batch: 5C19038 Extracted: 03/19/05											
Blank Analyzed: 03/21/2005 (5C19038-BLK1)											
Antimony	1.25	2.0	0.18	ug/l							J
Arsenic	ND	1.0	0.49	ug/l							
Barium	ND	0.0010	0.00014	mg/l							
Beryllium	ND	0.50	0.037	ug/l							
Cadmium	0.0170	1.0	0.015	ug/l							J
Chromium	ND	2.0	0.26	ug/l							
Cobalt	ND	1.0	0.10	ug/l							
Copper	ND	2.0	0.49	ug/l							
Iron	0.0190	0.010	0.0032	mg/l							B-1
Lead	ND	1.0	0.13	ug/l							
Nickel	0.555	2.0	0.15	ug/l							J
Selenium	ND	2.0	0.36	ug/l							
Silver	0.184	1.0	0.089	ug/l							J
Thallium	ND	1.0	0.075	ug/l							
Vanadium	ND	2.0	0.86	ug/l							
Zinc	ND	20	3.1	ug/l							

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19038 Extracted: 03/19/05										
LCS Analyzed: 03/21/2005 (5C19038-BS1)										
Antimony	81.3	2.0	0.18	ug/l	80.0		102		85-115	
Arsenic	86.3	1.0	0.49	ug/l	80.0		108		85-115	
Barium	0.0806	0.0010	0.00014	mg/l	0.0800		101		85-115	
Beryllium	74.7	0.50	0.037	ug/l	80.0		93		85-115	
Cadmium	78.9	1.0	0.015	ug/l	80.0		99		85-115	
Chromium	80.8	2.0	0.26	ug/l	80.0		101		85-115	
Cobalt	80.6	1.0	0.10	ug/l	80.0		101		85-115	
Copper	80.6	2.0	0.49	ug/l	80.0		101		85-115	
Iron	0.803	0.010	0.0032	mg/l	0.800		100		85-115	
Lead	81.1	1.0	0.13	ug/l	80.0		101		85-115	
Nickel	81.5	2.0	0.15	ug/l	80.0		102		85-115	
Selenium	80.8	2.0	0.36	ug/l	80.0		101		85-115	
Silver	80.7	1.0	0.089	ug/l	80.0		101		85-115	
Thallium	80.8	1.0	0.075	ug/l	80.0		101		85-115	
Vanadium	79.6	2.0	0.86	ug/l	80.0		100		85-115	
Zinc	79.7	20	3.1	ug/l	80.0		100		85-115	

Matrix Spike Analyzed: 03/21/2005 (5C19038-MS1)

Source: IOC1524-01

Antimony	84.1	2.0	0.18	ug/l	80.0	0.64	104		70-130	
Arsenic	88.5	1.0	0.49	ug/l	80.0	1.2	109		70-130	
Barium	0.0958	0.0010	0.00014	mg/l	0.0800	0.013	104		70-130	
Beryllium	75.0	0.50	0.037	ug/l	80.0	ND	94		70-130	
Cadmium	80.3	1.0	0.015	ug/l	80.0	0.034	100		70-130	
Chromium	81.8	2.0	0.26	ug/l	80.0	1.2	101		70-130	
Cobalt	81.7	1.0	0.10	ug/l	80.0	0.25	102		70-130	
Copper	84.0	2.0	0.49	ug/l	80.0	3.3	101		70-130	
Iron	1.06	0.010	0.0032	mg/l	0.800	0.15	114		70-130	
Lead	82.7	1.0	0.13	ug/l	80.0	0.50	103		70-130	
Nickel	82.5	2.0	0.15	ug/l	80.0	1.1	102		70-130	
Selenium	80.9	2.0	0.36	ug/l	80.0	0.39	101		70-130	
Silver	80.5	1.0	0.089	ug/l	80.0	ND	101		70-130	
Thallium	82.7	1.0	0.075	ug/l	80.0	0.13	103		70-130	
Vanadium	82.7	2.0	0.86	ug/l	80.0	2.7	100		70-130	
Zinc	89.8	20	3.1	ug/l	80.0	8.2	102		70-130	

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C19038 Extracted: 03/19/05											
Matrix Spike Dup Analyzed: 03/21/2005 (5C19038-MSD1)						Source: IOC1524-01					
Antimony	82.6	2.0	0.18	ug/l	80.0	0.64	102	70-130	2	20	
Arsenic	85.5	1.0	0.49	ug/l	80.0	1.2	105	70-130	3	20	
Barium	0.0950	0.0010	0.00014	mg/l	0.0800	0.013	102	70-130	1	20	
Beryllium	73.6	0.50	0.037	ug/l	80.0	ND	92	70-130	2	20	
Cadmium	78.6	1.0	0.015	ug/l	80.0	0.034	98	70-130	2	20	
Chromium	79.9	2.0	0.26	ug/l	80.0	1.2	98	70-130	2	20	
Cobalt	79.3	1.0	0.10	ug/l	80.0	0.25	99	70-130	3	20	
Copper	81.9	2.0	0.49	ug/l	80.0	3.3	98	70-130	3	20	
Iron	0.905	0.010	0.0032	mg/l	0.800	0.15	94	70-130	16	20	
Lead	81.9	1.0	0.13	ug/l	80.0	0.50	102	70-130	1	20	
Nickel	79.8	2.0	0.15	ug/l	80.0	1.1	98	70-130	3	20	
Selenium	80.4	2.0	0.36	ug/l	80.0	0.39	100	70-130	1	20	
Silver	79.2	1.0	0.089	ug/l	80.0	ND	99	70-130	2	20	
Thallium	81.2	1.0	0.075	ug/l	80.0	0.13	101	70-130	2	20	
Vanadium	81.6	2.0	0.86	ug/l	80.0	2.7	99	70-130	1	20	
Zinc	84.2	20	3.1	ug/l	80.0	8.2	95	70-130	6	20	

Batch: 5C19039 Extracted: 03/19/05

Blank Analyzed: 03/19/2005 (5C19039-BLK1)

Boron	ND	0.050	0.0074	mg/l							
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LCS Analyzed: 03/19/2005 (5C19039-BS1)

Boron	0.473	0.050	0.0074	mg/l	0.500		95	85-115			
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Matrix Spike Analyzed: 03/19/2005 (5C19039-MS1)

Boron	0.585	0.050	0.0074	mg/l	0.500	0.090	99	70-130			
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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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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: 5C19039 Extracted: 03/19/05											
Matrix Spike Dup Analyzed: 03/19/2005 (5C19039-MSD1)						Source: IOC1526-01					
Boron	0.588	0.050	0.0074	mg/l	0.500	0.090	100	70-130	1	20	
Batch: 5C21088 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21088-BLK1)											
Manganese	ND	1.0	0.44	ug/l							
LCS Analyzed: 03/21/2005 (5C21088-BS1)											
Manganese	80.1	1.0	0.44	ug/l	80.0		100	85-115			
Matrix Spike Analyzed: 03/21/2005 (5C21088-MS1)						Source: IOC1561-01					
Manganese	84.6	1.0	0.44	ug/l	80.0	6.3	98	70-130			
Matrix Spike Analyzed: 03/21/2005 (5C21088-MS2)						Source: IOC1563-01					
Manganese	170	1.0	0.44	ug/l	80.0	90	100	70-130			
Matrix Spike Dup Analyzed: 03/21/2005 (5C21088-MSD1)						Source: IOC1561-01					
Manganese	85.2	1.0	0.44	ug/l	80.0	6.3	99	70-130	1	20	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC1526

Sampled: 03/18/05
 Received: 03/18/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C18067 Extracted: 03/18/05										
Blank Analyzed: 03/18/2005 (5C18067-BLK1)										
Chromium VI	ND	1.0	0.10	ug/l						
LCS Analyzed: 03/18/2005 (5C18067-BS1)										
Chromium VI	51.4	1.0	0.10	ug/l	50.0		103 90-110			
Matrix Spike Analyzed: 03/18/2005 (5C18067-MS1) Source: IOC1461-03										
Chromium VI	51.9	1.0	0.10	ug/l	50.0	ND	104 90-110			
Matrix Spike Dup Analyzed: 03/18/2005 (5C18067-MSD1) Source: IOC1461-03										
Chromium VI	53.8	1.0	0.10	ug/l	50.0	ND	108 90-110	4	10	
Batch: 5C18070 Extracted: 03/18/05										
Blank Analyzed: 03/23/2005 (5C18070-BLK1)										
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l						
LCS Analyzed: 03/23/2005 (5C18070-BS1)										
Biochemical Oxygen Demand	202	100	30	mg/l	198		102 85-115			
LCS Dup Analyzed: 03/23/2005 (5C18070-BSD1)										
Biochemical Oxygen Demand	200	100	30	mg/l	198		101 85-115	1	20	
Batch: 5C18104 Extracted: 03/18/05										
Blank Analyzed: 03/18/2005 (5C18104-BLK1)										
Chloride	ND	0.50	0.26	mg/l						
Fluoride	0.103	0.50	0.10	mg/l						J
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C18104 Extracted: 03/18/05											
LCS Analyzed: 03/18/2005 (5C18104-BS1)											
Chloride	4.80	0.50	0.26	mg/l	5.00		96	90-110			
Fluoride	4.67	0.50	0.10	mg/l	5.00		93	90-110			
Sulfate	10.0	0.50	0.18	mg/l	10.0		100	90-110			
Matrix Spike Analyzed: 03/18/2005 (5C18104-MS1) Source: IOC1500-06											
Chloride	10.3	0.50	0.26	mg/l	5.00	6.1	84	80-120			
Fluoride	4.51	0.50	0.10	mg/l	5.00	0.39	82	80-120			
Sulfate	12.8	0.50	0.18	mg/l	10.0	3.8	90	80-120			
Matrix Spike Dup Analyzed: 03/18/2005 (5C18104-MSD1) Source: IOC1500-06											
Chloride	10.3	0.50	0.26	mg/l	5.00	6.1	84	80-120	0	20	
Fluoride	4.52	0.50	0.10	mg/l	5.00	0.39	83	80-120	0	20	
Sulfate	12.8	0.50	0.18	mg/l	10.0	3.8	90	80-120	0	20	
Batch: 5C18107 Extracted: 03/18/05											
Blank Analyzed: 03/18/2005 (5C18107-BLK1)											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
LCS Analyzed: 03/18/2005 (5C18107-BS1)											
Surfactants (MBAS)	0.237	0.10	0.044	mg/l	0.250		95	90-110			
Matrix Spike Analyzed: 03/18/2005 (5C18107-MS1) Source: IOC1443-01											
Surfactants (MBAS)	0.263	0.10	0.044	mg/l	0.250	ND	105	50-125			
Matrix Spike Dup Analyzed: 03/18/2005 (5C18107-MSD1) Source: IOC1443-01											
Surfactants (MBAS)	0.263	0.10	0.044	mg/l	0.250	ND	105	50-125	0	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C18121 Extracted: 03/18/05											
Blank Analyzed: 03/19/2005 (5C18121-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/19/2005 (5C18121-BS1)											
Perchlorate	52.7	4.0	0.80	ug/l	50.0		105	85-115			
Matrix Spike Analyzed: 03/19/2005 (5C18121-MS1)											
						Source: IOC1521-01					
Perchlorate	53.9	4.0	0.80	ug/l	50.0	ND	108	80-120			
Matrix Spike Dup Analyzed: 03/19/2005 (5C18121-MSD1)											
						Source: IOC1521-01					
Perchlorate	54.1	4.0	0.80	ug/l	50.0	ND	108	80-120	0	20	
Batch: 5C19030 Extracted: 03/19/05											
Duplicate Analyzed: 03/19/2005 (5C19030-DUP1)											
						Source: IOC1523-01					
Residual Chlorine	ND	0.10	0.10	mg/l		ND				20	
Batch: 5C19032 Extracted: 03/19/05											
Blank Analyzed: 03/19/2005 (5C19032-BLK1)											
Turbidity	0.0600	1.0	0.040	NTU							J
Duplicate Analyzed: 03/19/2005 (5C19032-DUP1)											
						Source: IOC1364-01					
Turbidity	0.110	1.0	0.040	NTU		0.12			9	20	J
Batch: 5C21062 Extracted: 03/21/05											
Blank Analyzed: 03/21/2005 (5C21062-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C21062 Extracted: 03/21/05										
LCS Analyzed: 03/21/2005 (5C21062-BS1)										
Oil & Grease	17.1	5.0	0.94	mg/l	20.0		86 65-120			M-NR1
LCS Dup Analyzed: 03/21/2005 (5C21062-BSD1)										
Oil & Grease	16.0	5.0	0.94	mg/l	20.0		80 65-120	7	20	
Batch: 5C21068 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21068-BLK1)										
Total Suspended Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21068-BS1)										
Total Suspended Solids	942	10	10	mg/l	1000		94 85-115			
Duplicate Analyzed: 03/21/2005 (5C21068-DUP1)										
Total Suspended Solids	ND	10	10	mg/l		Source: IOC1566-01 ND			10	
Batch: 5C21073 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21073-BLK1)										
Total Dissolved Solids	ND	10	10	mg/l						
LCS Analyzed: 03/21/2005 (5C21073-BS1)										
Total Dissolved Solids	968	10	10	mg/l	1000		97 90-110			
Duplicate Analyzed: 03/21/2005 (5C21073-DUP1)										
Total Dissolved Solids	320	10	10	mg/l		Source: IOC1566-01 300		6	10	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C21077 Extracted: 03/21/05										
Duplicate Analyzed: 03/21/2005 (5C21077-DUP1)					Source: IOC1480-01					
Specific Conductance	244	1.0	1.0	umhos/cm		240		2	5	
Batch: 5C21083 Extracted: 03/21/05										
Blank Analyzed: 03/21/2005 (5C21083-BLK1)										
Total Cyanide	ND	5.0	2.2	ug/l						
LCS Analyzed: 03/21/2005 (5C21083-BS1)										
Total Cyanide	203	5.0	2.2	ug/l	200		102 90-110			
Matrix Spike Analyzed: 03/21/2005 (5C21083-MS1)					Source: IOC1475-01					
Total Cyanide	152	5.0	2.2	ug/l	200	ND	76 70-115			
Matrix Spike Dup Analyzed: 03/21/2005 (5C21083-MSD1)					Source: IOC1475-01					
Total Cyanide	172	5.0	2.2	ug/l	200	ND	86 70-115	12	15	
Batch: 5C22089 Extracted: 03/22/05										
Blank Analyzed: 03/22/2005 (5C22089-BLK1)										
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l						
LCS Analyzed: 03/22/2005 (5C22089-BS1)										
Ammonia-N (Distilled)	9.24	0.50	0.30	mg/l	10.0		92 80-115			
Matrix Spike Analyzed: 03/22/2005 (5C22089-MS1)					Source: IOC1175-01					
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	1.1	84 70-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC1526	Sampled: 03/18/05 Received: 03/18/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C22089 Extracted: 03/22/05											
Matrix Spike Dup Analyzed: 03/22/2005 (5C22089-MSD1)						Source: IOC1175-01					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	1.1	90	70-120	6	15	
Batch: 5C22101 Extracted: 03/22/05											
Blank Analyzed: 03/22/2005 (5C22101-BLK1)											
Total Organic Carbon	ND	1.0	0.25	mg/l							
LCS Analyzed: 03/22/2005 (5C22101-BS1)											
Total Organic Carbon	10.8	1.0	0.25	mg/l	10.0		108	90-110			
Matrix Spike Analyzed: 03/22/2005 (5C22101-MS1)						Source: IOC1062-02					
Total Organic Carbon	10.6	1.0	0.25	mg/l	5.00	5.8	96	80-120			
Matrix Spike Dup Analyzed: 03/22/2005 (5C22101-MSD1)						Source: IOC1062-02					
Total Organic Carbon	10.9	1.0	0.25	mg/l	5.00	5.8	102	80-120	3	20	

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METHOD BLANK/QC DATA

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: P5C2203 Extracted: 03/22/05											
Blank Analyzed: 03/22/2005 (P5C2203-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.11			ug/l	1.00		111	80-125			
LCS Analyzed: 03/22/2005 (P5C2203-BS1)											
1,4-Dioxane	8.06	1.0	0.49	ug/l	10.0		81	70-130			
Surrogate: Dibromofluoromethane	1.12			ug/l	1.00		112	80-125			
LCS Dup Analyzed: 03/22/2005 (P5C2203-BSD1)											
1,4-Dioxane	10.2	1.0	0.49	ug/l	10.0		102	70-130	23	20	R-7
Surrogate: Dibromofluoromethane	1.09			ug/l	1.00		109	80-125			
Matrix Spike Analyzed: 03/22/2005 (P5C2203-MS1)											
						Source: POC0388-06					
1,4-Dioxane	32.8	1.0	0.49	ug/l	10.0	25	78	70-150			
Surrogate: Dibromofluoromethane	1.06			ug/l	1.00		106	80-125			
Matrix Spike Dup Analyzed: 03/22/2005 (P5C2203-MSD1)											
						Source: POC0388-06					
1,4-Dioxane	32.4	1.0	0.49	ug/l	10.0	25	74	70-150	1	25	
Surrogate: Dibromofluoromethane	1.07			ug/l	1.00		107	80-125			

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Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC1526

Sampled: 03/18/05
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DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- B-1** Analyte was detected in the associated method blank. Analyte concentration in the sample is greater than 10x the concentration found in the method blank.
- 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 unknown quality.
- L2** Laboratory Control Sample recovery was below method control limits.
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- N-1** See case narrative.
- P1** Sample received and analyzed without chemical preservation.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- RL-3** Reporting limit raised due to high concentrations of non-target analytes.
- ZX** Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

ADDITIONAL COMMENTS

For TICs:

All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA/NIH library.

For 1,2-Diphenylhydrazine:

The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product, Azobenzene.

For GRO (C4-C12):

GRO (C4-C12) is quantitated against a gasoline standard. Quantitation begins immediately following the methanol peak.

For Extractable Fuel Hydrocarbons (EFH, DRO, ORO) :

Unless otherwise noted, Extractable Fuel Hydrocarbons (EFH, DRO, ORO) are quantitated against a Diesel Fuel Standard.

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 Report Number: IOC1526

Sampled: 03/18/05
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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 200.7	Water	X	X
EPA 200.8	Water	X	X
EPA 218.6	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	X	X
EPA 330.5	Water	X	X
EPA 335.2	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 415.1	Water	X	X
EPA 418.1	Water	X	X
EPA 608	Water	X	X
EPA 624 (MOD.)	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	Water	X	X
SM2540C	Water	X	X
SM5540-C	Water	X	X

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Subcontracted Laboratories

Alta Analytical California Cert #1640

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC1526-01

Analysis Performed: EDD + Level 4

Samples: IOC1526-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrmic

Samples: IOC1526-01

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Outfall 011
Report Number: IOC1526

Sampled: 03/18/05
Received: 03/18/05

Aquatic Testing Laboratories-SUB *California Cert #1775*

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-Acute 96hr
Samples: IOC1526-01

Del Mar Analytical - Phoenix *NELAC Cert #01109CA, California Cert #2446*

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B
Samples: IOC1526-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4
Samples: IOC1526-01

Analysis Performed: Gross Alpha
Samples: IOC1526-01

Analysis Performed: Gross Beta
Samples: IOC1526-01

Analysis Performed: Radium, Combined
Samples: IOC1526-01

Analysis Performed: Strontium 90
Samples: IOC1526-01

Analysis Performed: Tritium
Samples: IOC1526-01

Truesdail Laboratories-SUB *California Cert #1237*

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Hydrazine
Samples: IOC1526-01

Analysis Performed: Level 4 Data Package
Samples: IOC1526-01

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Project Manager

1001526

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/23/05

Client Name/Address:		Project:		ANALYSIS REQUIRED													Field readings:								
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Outfall 011 - 13267 Perimeter Pond		Flow Weight Composite Phone Number: (626) 568-6691 Fax Number: (626) 568-6515	Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Settleable Solids	VOCs 624 + xylenes + Freon 113 + Freon 123 A + PP list	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cyanide (total recoverable)	Surfactants (MBAS)	Cl-, SO4, NO3+NO2-N, Perchlorate, Fluoride	Turbidity, TDS, TSS, Conductivity	Ammonia-N, Ttr (350.2) w/dist	Alpha BHC (608) + PP list + 608-PcBs	2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, Bis(2-ethylhexyl)phthalate, NDMA, pentachlorophenol (EPA 625) + PP list	Temp =	pH=	Comments *Continued Analysis required on Page 2 of 2		
Project Manager: Bronwyn Kelly Sampler: <i>P. Kelly</i>		Flow Weight Composite Phone Number: (626) 568-6691 Fax Number: (626) 568-6515																							
Outfall 011	W	1G Poly	2	None	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12200	Total Flow (gals) = 53 Flow (gpm) = 5.3
Outfall 011	W	1G Poly	2	None	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12716	Total Flow (gals) = 44 Flow (gpm) = 4.4
Outfall 011	W	1G Poly	2	None	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12728	Total Flow (gals) = 58 Flow (gpm) = 5.8
Outfall 011	W	1G Poly	2	None	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12736	Total Flow (gals) = 46 Flow (gpm) = 4.6
Outfall 011	W	1G Poly	2	None	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12744	Total Flow (gals) = 51 Flow (gpm) = 5.1
Outfall 011	W	1G Poly	2	None	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12755	Total Flow (gals) = 59 Flow (gpm) = 5.9
Outfall 011	W	1G Poly	2	None	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12767	Total Flow (gals) = 44 Flow (gpm) = 4.4
Outfall 011	W	1G Poly	2	None	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12777	Total Flow (gals) = 47 Flow (gpm) = 4.7
Trip Blank	W	VOAs	3	HCL																					
Relinquished By: <i>[Signature]</i>		Date/Time: 3-18-05 1620		Received By: <i>[Signature]</i>		Date/Time: 3/18/05 1620		Turn around Time: (check) 5 Days		24 Hours		48 Hours		72 Hours		Perchlorate Only 72 Hours		Metals Only 72 Hours		Sample Integrity: (Check) <input checked="" type="checkbox"/> On ice: <input checked="" type="checkbox"/>					
Relinquished By: <i>[Signature]</i>		Date/Time: 3/18/05 2015		Received By: <i>[Signature]</i>		Date/Time: 3/18/05 2015		Turn around Time: (check) 10 Days		24 Hours		48 Hours		72 Hours		Perchlorate Only 72 Hours		Metals Only 72 Hours		Sample Integrity: (Check) <input checked="" type="checkbox"/> On ice: <input checked="" type="checkbox"/>					
Relinquished By: <i>[Signature]</i>		Date/Time: 3/18/05 2015		Received By: <i>[Signature]</i>		Date/Time: 3/18/05 2015		Turn around Time: (check) Normal		24 Hours		48 Hours		72 Hours		Perchlorate Only 72 Hours		Metals Only 72 Hours		Sample Integrity: (Check) <input checked="" type="checkbox"/> On ice: <input checked="" type="checkbox"/>					

Received By: *[Signature]* Date/Time: 3/18/05 1620

Received By: *[Signature]* Date/Time: 3/18/05 2015

Received By: *[Signature]* Date/Time: 3/18/05 2015

Turn around Time: (check) 5 Days

24 Hours

48 Hours

72 Hours

Perchlorate Only 72 Hours

Metals Only 72 Hours

Sample Integrity: (Check) On ice:

Note: Composites by flow weighted averages and analyze according to 13267 Sampling protocol.

DRP

CHAIN OF CUSTODY FORM

Version 02/23/05

Del Mar Analytical

Client Name/Address:		Project:		ANALYSIS REQUIRED										Comments				
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Outfall 011 - 13267 Perimeter Pond		Flow-weight Composite		Total Rec. Petroleum Hydrocarbons (EPA 418.1)		8015 (GRO)		Monomethylhydrazine		624-Mod A+A+2CVE		Acute and Chronic toxicity-bioassays		Gross Alpha, Gross Beta, Tritium (90S.0), Sr-90 (90S.0), Radium 228, Tritium		**Required analysis continued from Page 1 of 2
Project Manager: Bronwyn Kelly		Phone Number: (626) 568-6691		Preservative		Chromium VI (218.6)		Diesel		Residual Chlorine		TOC, 1,4-Dioxane MK 3/21/05		Total Flow (gals)= Flow (gpm)=		Total Flow (gals)= Flow (gpm)=		
Sampler: <i>P. Kelly</i>		Fax Number: (626) 568-6515		None		None		None		None		None		None		None		
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Residual Chlorine	TOC, 1,4-Dioxane MK 3/21/05	Chromium VI (218.6)	Total Rec. Petroleum Hydrocarbons (EPA 418.1)	8015 (GRO)	Monomethylhydrazine	624-Mod A+A+2CVE	Acute and Chronic toxicity-bioassays	Gross Alpha, Gross Beta, Tritium (90S.0), Sr-90 (90S.0), Radium 228, Tritium	Total Flow (gals)= Flow (gpm)=	Total Flow (gals)= Flow (gpm)=	Total Flow (gals)= Flow (gpm)=	Total Flow (gals)= Flow (gpm)=	
Outfall 011	W	1G Poly	-		X	X	X	X	X	X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-		X	X	X	X	X	X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-		X	X	X	X	X	X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-		X	X	X	X	X	X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-		X	X	X	X	X	X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-		X	X	X	X	X	X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-		X	X	X	X	X	X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-		X	X	X	X	X	X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-		X	X	X	X	X	X	X	X	X	X	X	X	X	
Relinquished By	<i>[Signature]</i>		Date/Time:	3-18-05 1620	Received By	<i>[Signature]</i>		Date/Time:	3/18/05 1620	Turn around Time: (check)		24 Hours	5 Days	48 Hours	10 Days	72 Hours	Normal	
Relinquished By	<i>[Signature]</i>		Date/Time:	3/18/05 2015	Received By	<i>[Signature]</i>		Date/Time:	3/18/05 2015	Perchlorate Only 72 Hours		Metals Only 72 Hours		Sample Integrity: (Check) <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/>		X 39		

* ANALYZE FOR TOTAL COMBINED RA-226 & 228 ONLY IF GROSS ALPHA >15pCi/L

F A X



300 N. Lake Ave., Suite 1200
Pasadena, California 91101
Tel: 626-568-6691
Fax: 626-568-6515

Date: 03/21/05

To: Michele Harper / Del Mar Analytical
Krisi McIlvenna / MWH

Fax No: 949-260-3297
925-975-3412

From: Bronwyn B. Kelly

sign: *Bronwyn B. Kelly*

Subject: Chain-of-Custody Form Analytical Request Change

No. of Pages: 5
(including cover)

Per Request:
Please make the changes listed below to the chain-of-custody analytical request form. Include this form with the final deliverables for these samples.

Del Mar Work Order #	Sample ID	Date Collected	Change(s) Requested on COC	Change(s) or Method (s) Now Requested
10C1526	Outfall 011-13267 (Composite)	03/18/05	Metals: B and B; 8015-Gas; Monomethylhydrazine; Fluoride	B and B; Add 1,4-Dioxane analysis; 8015-Gas analysis for Trip Blanks; Monomethylhydrazine; Fluoride
10C1523	Outfall 011-13267 (Grab)	03/18/05	1,4-Dioxane for Trip Blank	1,4-Dioxane not required on TBs

MH 3/21/05
The reason for these changes:

- Incorrectly marked on COC form*
- Lack of sample volume*
- MWH office personnel require this change*
- Other: Containers mislabeled*

New COC's are attached for review.

Thank you

Bronwyn

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/23/05

Client Name/Address: MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Project: Boeing-SSFL NPDES Outfall 011 - 13267 Perimeter Pond		ANALYSIS REQUIRED											Field readings: Temp = _____ pH = _____					
Project Manager: Bronwyn Kelly		Flow Weight Composite Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		2,4,6 Trichlorophenol, 2,4 Dinitrochlorophenol, NDMA, ethoxybenzophenone (EPA 625) + PP list											Comments: *Continued Analysis required on Page 2 of 2					
Sampler:		Total Recoverable Metals: B, Cu, Pb, Ba, Fe, Mn, Sb, As, Bi, Cd, Ni, Se, Ag, Tl, Zn, Co, V, Cr, Hg		Alpha BHC (609) + PP list + Ammonia-N, TR (350.2) w/dist											Total Flow (gals)= Flow (gpm)= Total Flow (gals)= Flow (gpm)= Total Flow (gals)= Flow (gpm)= Total Flow (gals)= Flow (gpm)= Total Flow (gals)= Flow (gpm)= Total Flow (gals)= Flow (gpm)= Total Flow (gals)= Flow (gpm)= Total Flow (gals)= Flow (gpm)=					
Settling Solids		VOCs 624 + xylenes + Freon 113 + Freon 123 A + PP list		BOD5(20 degrees C) Surfactants (MBAS) Cl, SO4, NO3+NO2-N, Perchlorate, Fluoride Turbidity, TDS, TSS, Conductivity											Turn around Time: (clock) 24 Hours _____ 6 Days _____ 48 Hours _____ 10 Days _____ 72 Hours _____ Normal _____ Pesticides Only 72 Hours _____ Metals Only 72 Hours _____					
Cyanide (total recoverable)		Oil & Grease (EPA 413.1)		TCDD (end all congeners)											Sample Integrity: (Check) Intact _____ On lot _____					
Oil & Grease (EPA 413.1)		VOA 624 + xylenes + Freon 113 + Freon 123 A + PP list		BOD5(20 degrees C)											Date/Time:					
VOCs 624 + xylenes + Freon 113 + Freon 123 A + PP list		Settling Solids		Surfactants (MBAS)											Received By					
Total Recoverable Metals: B, Cu, Pb, Ba, Fe, Mn, Sb, As, Bi, Cd, Ni, Se, Ag, Tl, Zn, Co, V, Cr, Hg		Preservative		BOD5(20 degrees C)											Date/Time:					
Sample Description		Container Type		# of Cont.		Sampling Date/Time		Cyanide (total recoverable)											Received By	
Outfall 011		1G Poly		2		_____		Oil & Grease (EPA 413.1)											Date/Time:	
Outfall 011		1G Poly		2		_____		TCDD (end all congeners)											Received By	
Outfall 011		1G Poly		2		_____		VOCs 624 + xylenes + Freon 113 + Freon 123 A + PP list											Date/Time:	
Outfall 011		1G Poly		2		_____		Surfactants (MBAS)											Received By	
Outfall 011		1G Poly		2		_____		Cl, SO4, NO3+NO2-N, Perchlorate, Fluoride											Date/Time:	
Outfall 011		1G Poly		2		_____		Turbidity, TDS, TSS, Conductivity											Received By	
Outfall 011		1G Poly		2		_____		BOD5(20 degrees C)											Date/Time:	
Outfall 011		1G Poly		2		_____		Cyanide (total recoverable)											Received By	
Outfall 011		1G Poly		2		_____		Oil & Grease (EPA 413.1)											Date/Time:	
Outfall 011		1G Poly		2		_____		VOCs 624 + xylenes + Freon 113 + Freon 123 A + PP list											Received By	
Outfall 011		1G Poly		2		_____		Surfactants (MBAS)											Date/Time:	
Trip Blank		VOAs		3		_____		Cl, SO4, NO3+NO2-N, Perchlorate, Fluoride											Received By	
Requisitioned By		Date/Time:		Received By		Date/Time:		BOD5(20 degrees C)											Date/Time:	
Requisitioned By		Date/Time:		Received By		Date/Time:		Cyanide (total recoverable)											Date/Time:	
Requisitioned By		Date/Time:		Received By		Date/Time:		Oil & Grease (EPA 413.1)											Date/Time:	

Note: Composite by flow weighted averages and analyze according to 13267 Sampling protocol.

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/23/05

Project:

Boring-SSFL NPDES
Outfall 011 - 13267
Perimeter Pond

Client Name/Address:

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

Flow-weight Composite

Project Manager: Bronwyn Kelly

Phone Number:
(526) 568-8691
Fax Number:
(526) 568-8515

Sampler:

Sample Description	Sample Matrix	Container Type	# of Cont.	Preservation
Outfall 011	W	1G Poly	-	None
Outfall 011	W	1G Poly	-	None
Outfall 011	W	1G Poly	-	None
Outfall 011	W	1G Poly	-	None
Outfall 011	W	1G Poly	-	None
Outfall 011	W	1G Poly	-	None
Outfall 011	W	1G Poly	-	None
Outfall 011	W	1G Poly	-	None
Outfall 011	W	1G Poly	-	None
Trip Blank	W	VOAs	3	HCL

ANALYSIS REQUIRED		Residual Chlorine	TOC, 1, 4 Dioxane	Chromium VI (218.6)	Total Rec. Petroleum Hydrocarbons (EPA 418.1)	Diesel	8015 (GRO)	Monomethylhydrazine	624-Mod A+A+2CVE	Acute and Chronic toxicity-bioassays	Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (906.0), Total Combined Radium 226 & Radium 228, Tritium	Comments
Relinquished By	Date/Time:											
Relinquished By	Date/Time:											
Relinquished 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 _____ On Ice _____

* ANALYZE FOR TOTAL COMBINED RA-226 & 228 ONLY IF GROSS ALPHA > 15pCi/L



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
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) 796-3620 FAX (702) 796-3621

April 4, 2005

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

Attention: Bronwyn Kelly
Project: 13267 (Study 1)/Outfall 011
Sampled: 03/18/05
Del Mar Analytical Number: IOC1526

Dear Ms. Kelly:

Aquatic Testing Laboratories performed Fathead Minnow 96 hr Percent Survival Bioassay (EPA Method 2000.0), *Ceriodaphnia dubia* Survival and Reproduction Test (EPA Method 1002), Truesdail Laboratories tested Hydrazines by EPA 8315 M, Alta Analytical performed EPA Method 1613 by Dioxin and Eberline Services performed Gross Alpha/Gross Beta (EPA 900.0), Tritium (H-3, EPA 906.0), Strontium-90 (Sr-90, EPA 905.0), Radium 226 (EPA 903.1), and Radium 228 (904.0) for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ATL ID	TRUESDAIL ID	ALTA ID	EBERLINE ID
Outfall 011 Composite	IOC1526-01	A-05031905-001/002	940884-1	25938-001	PENDING

Attached are the original reports from the subcontract laboratories. If you have any questions or require further assistance, please do not hesitate to contact me.

Sincerely yours,
DEL MAR ANALYTICAL

Michele Harper
Project Manager

LABORATORY REPORT

**Aquatic
Testing**



Laboratories

"dedicated to providing quality aquatic toxicity testing"

4350 Transport Street, Unit 107
Ventura, CA 93003

(805) 650-0546 FAX (805) 650-0756

CA DOHS ELAP Cert. No.: 1775

Date: March 25, 2005
Client: Del Mar Analytical, Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attn: Michele Harper

Laboratory No.: A-05031905-001/002
Sample I.D.: IOC1526-01

Sample Control: The sample was received by ATL chilled, with the chain of custody record attached.

Date Sampled: 03/18/05
Date Received: 03/19/05
Date Tested: 03/19/05 to 03/25/05

Sample Analysis: The following analyses were performed on your sample:

Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0),
Ceriodaphnia dubia Survival and Reproduction Test (EPA Method 1002).

Attached are the test data generated from the analysis of your sample.

Result Summary:

Acute:	<u>Survival</u>	<u>TUa</u>
Fathead Minnow:	100%	0.0
Chronic:	<u>NOEC</u>	<u>TUc</u>
<i>Ceriodaphnia</i> Survival:	100%	1.0
<i>Ceriodaphnia</i> Reproduction:	100%	1.0

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05031905-001
 Client/ID: Del Mar - IOC1526-01

Start Date: 03/19/2005

TEST SUMMARY

Species: *Pimephales promelas*.
 Age: 10 (1-14) days.
 Regulations: NPDES.
 Test solution volume: 250 ml.
 Feeding: prior to renewal at 48 hrs.
 Number of replicates: 2.
 Dilution water: Moderately hard reconstituted water.
 Photoperiod: 16/8 hrs light/dark.

Source: In-laboratory Culture.
 Test type: Static-Renewal.
 Test Protocol: EPA-821-R-02-012.
 Endpoints: Percent Survival at 96 hrs.
 Test chamber: 600 ml beakers.
 Temperature: 20 +/- 1°C.
 Number of fish per chamber: 10.
 QA/QC Batch No.: RT-050303.

TEST DATA

		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	19.3	9.3	8.2	0	0	RW 1430
	100%	20.8	10.1	7.5	0	0	
24 Hr	Control	19.2	7.7	8.1	0	0	RW 1440
	100%	19.2	7.5	8.1	0	0	
48 Hr	Control	20.1	7.1	8.0	0	0	RW 1440
	100%	19.5	8.0	8.0	0	0	
Renewal	Control	19.9	8.4	8.2	0	0	RW 1440
	100%	20.0	9.9	7.7	0	0	
72 Hr	Control	20.1	6.6	7.8	0	0	RW 1500
	100%	20.0	6.5	8.0	0	0	
96 Hr	Control	19.9	6.9	7.9	0	0	RW 1530
	100%	19.8	7.0	7.9	0	0	

Comments:

Sample as received: Chlorine: 0 mg/l; pH: 7.5; Conductivity: 310 umho; Temp: 4°C;
 DO: 10.1 mg/l; Alkalinity: 95 mg/l; Hardness: 132 mg/l; NH₃-N: 0.4 mg/l.
 Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes / No
 Control: Alkalinity: 54 mg/l; Hardness: 90 mg/l; Conductivity: 290 umho.
 Test solution aerated (not to exceed 100 bubbles/min) to maintain DO > 4.0 mg/l? Yes / No
 Sample used for renewal is the original sample kept at 0-6°C with minimal headspace.

RESULTS

Percent Survival In: Control: 100 % 100% Sample: 100 %

**CERIODAPHNIA CHRONIC BIOASSAY
EPA METHOD 1002.0**



Lab No.: A-05031905
Client/ID: Del Mar IOC1526-01

Date Tested: 03/19/05 to 03/25/05

TEST SUMMARY

Test type: Daily static-renewal.
Species: *Ceriodaphnia dubia*.
Age: <24 hrs; all released within 8 hrs.
Test vessel size: 30 ml.
Number of test organisms per vessel: 1.
Temperature: 25 +/- 1°C.
Dilution water: Mod. hard reconstituted (MHRW).
QA/QC Batch No.: RT-050311.

Endpoints: Survival and Reproduction.
Source: In-laboratory culture.
Food: .1 ml YTC, algae per day.
Test solution volume: 15 ml.
Number of replicates: 10.
Photoperiod: 16/8 hrs. light/dark cycle.
Test duration: 7 days.
Statistics: ToxCalc computer program.

RESULTS SUMMARY

Sample Concentration	Percent Survival	Mean Number of Young Per Female
Control	100%	21.9
6.25%	100%	23.7
12.5%	100%	24.4
25%	100%	26.8
50%	100%	28.6
100%	100%	26.6

* Statistically significantly less than control at P = 0.05 level.
** Reproduction data from concentrations greater than survival NOEC are excluded from statistical analysis.

CHRONIC TOXICITY

Parameter	Survival	Growth
NOEC	100%	100%
TUc	1.0	1.0

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥ 80%	Pass (100% survival)
≥ 15 young per surviving control female average	Pass (21.9 young)
>60% surviving controls had 3 broods	Pass (90% with 3 broods)
PMSD < 47% for reproduction; if > 47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 20.6%)
Statistically significantly different concentrations relative difference > 13%	NA - No stat. sig. diff. concentrations
Concentration response relationship acceptable	Pass (slight inverse response at conc. tested)



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) 796-3620 Fax (702) 796-3621

SUBCONTRACT ORDER - PROJECT # IOC1526

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:

Aquatic Testing Laboratories-SUB
4350 Transport Street, Unit 107
Ventura, CA 93003
Phone : (805) 650-0546
Fax: (805) 650-0756

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

Analysis	Expiration	Comments
Sample ID: IOC1526-01 Water	Sampled: 03/18/05 14:40	Instant Notification
Bioassay-7 dy Chronic	03/20/05 02:40	ceriodaphnia, 13267
Bioassay-Acute 96hr	03/20/05 02:40	fathead minnow, 13267

Containers Supplied:
1 gal Poly (IOC1526-01AR)
1 gal Poly (IOC1526-01AS)

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): 4°C

Released By: [Signature] Date: 3/19/05 Time: 0145 Received By: [Signature] Date: 3/19/05 Time: 1145
 Released By: [Signature] Date: 3/19/05 Time: 1400 Received By: [Signature] Date: 3-19-05 Time: 1400

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

March 25, 2005

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

Client: Del Mar Analytical
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attention: Michele Harper

Project Name: IOC1526
Date Received: 03/21/05

Truesdail Project: 940884

Samples Cross-reference

<u>Truesdail ID</u>	<u>Client ID</u>	<u>Mutrix</u>	<u>Date Sampled</u>	<u>Time Sampled</u>	<u>Analysis Requested</u>
940884-1	IOC1526-01	Water	03/18/05	1440	Hydrazines by EPA 8315M

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

K. R. P. Iyer
K.R.P. Iyer
Quality Control/Quality Assurance Officer

Xuan Huong Dang
Xuan Huong Dang
Project Manager

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

March 25, 2005

Client: Del Mar Analytical
17461 Derian Avenue, Suite 100
Irvine, CA 92614

Attention: Michele Harper

Project Name: IOC1526
Date Received: 03/21/05

Truesdail Project: 940884

Case Narrative

Sample Receipt The sample was received in good condition and no anomalies were noted during check-in. The sample was kept in a locked refrigerator until analysis. Thereafter, it is being kept in ambient storage for an additional 2 months before disposal.

Analysis The analysis was performed as requested on the chain-of-custody.

Quality Control The analytical results for each batch of samples performed include a minimum of one set of laboratory control sample/laboratory control sample duplicate (LCS/LCSD), one matrix spike (MS) and a reagent blank (Method blank). Any exceptions or problems would be noted in the "comments" section.

Comments The test results in this report meet all quality assurance requirements set forth by the method specification and all quality control recoveries were within the laboratory acceptance limits. No anomalies or nonconformance events occurred during the course of analysis.

The analytes were quantitated down to the Method Detection Limit (J flags) per client's request.

Respectfully Submitted,
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REPORT

Client: Del Mar Analytical
17461 Derian Ave., Suite 100
Irvine, CA 92614

Attention: Michele Harper
Sample: Liquid / 1 Sample
Project Name: IOC1526
P.O. Number: IOC1526
Method Number: 8315 (Modified)
Investigation: Hydrazines in Liquid

Laboratory No: 940884
Report Date: March 25, 2005
Sampling Date: March 18, 2005
Receiving Date: March 21, 2005
Extraction Date: March 21, 2005
Analysis Date: March 23, 2005
Units: µg/L
Dilution Factor: 1
Reported By: JS

Page 1 of 1

Analytical Results

Sample ID	Sample Description	Monomethyl		Unsymmetrical Dimethyl	
		Hydrazine	ND	Hydrazine	ND
704855-MB	Method Blank	ND	ND	ND	ND
940884	IOC1526-01	ND	ND	ND	ND
MDL		1.2	0.27		0.39
PQL		5.0	5.0		1.0

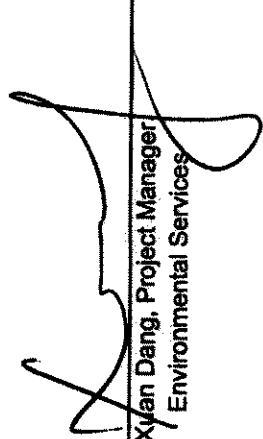
MDL: Method Detection Limit, ug/L

PQL: Practical Quantitation Limit, ug/L

ND: Not Detected at or above the MDL value.

N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.


Xylan Dang, Project Manager
Environmental Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these laboratories.

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1937

14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: Del Mar Analytical
17461 Derlan Ave., Suite 100
Irvine, CA 92614

Client Contact: Michele Harper
Sample: Liquid / 1 Sample
Sample ID: IOC1526
P.O. Number: IOC1526
Method Number: 8315 (Modified)
Run Batch No.: Extraction: 3017; Analysis: 378
Investigation: Hydrazines In Liquid

REPORT

QC Lab. No.: 704855
Project Lab. No.: 940884
Spiked Sample ID: 940884
Report Date: March 25, 2005
Sampling Date: March 18, 2005
Receiving Date: March 21, 2005
Extraction Date: March 21, 2005
Analysis Date: March 23, 2005
Units: µg/L
Reported By: JS

Quality Control/Quality Assurance Calibration Report

ICV

Parameter	Theoretical Value (µg/L)	Measured Value (µg/L)	% Rec.	Control Limits	Flag
Monomethyl Hydrazine	25.0	28.0	112	85-115	PASS
u-Dimethyl Hydrazine	25.0	24.1	96.3	85-115	PASS
Hydrazine	5.0	4.96	99.2	85-115	PASS

QCS

Parameter	Theoretical Value (µg/L)	Measured Value (µg/L)	% Rec.	Control Limits	Flag
Monomethyl Hydrazine	50.0	55.4	111	85-115	PASS
u-Dimethyl Hydrazine	50.0	49.3	98.5	85-115	PASS
Hydrazine	10.0	10.2	102	85-115	PASS

Quality Control/Quality Assurance Spikes Report MS/MSD

Parameter	Spiked Conc. µg/L	Recovered Conc. MS	Concentration MS	Percent Recovery (%) MS	MSD % D	Accuracy Control Limits %D	Flag			
								MSD	% D	
Monomethyl Hydrazine	50.0	42.9	40.4	0.0	85.7	80.9	5.83%	PASS	20	0-150
u-Dimethyl Hydrazine	50.0	37.9	37.0	0.0	75.8	73.9	2.56%	PASS	20	0-150
Hydrazine	10.0	7.15	7.43	0.0	71.5	74.3	3.81%	PASS	20	0-150

LCS/LCSD

Parameter	Spiked Conc. µg/L	Recovered Conc. LCS	Concentration MB	Percent Recovery (%) LCS	LCSD %D	Control Limits %D	Flag			
								LCSD	%D	
Monomethyl Hydrazine	50.0	52.7	54.8	0.0	105	110	3.92%	PASS	20	70-130
u-Dimethyl Hydrazine	50.0	47.9	48.0	0.0	95.8	96.0	0.27%	PASS	20	70-130
Hydrazine	10.0	10.2	10.2	0.0	102	102	0.60%	PASS	20	70-130

ICV: Initial Calibration Verification

QCS: Quality Control Standard

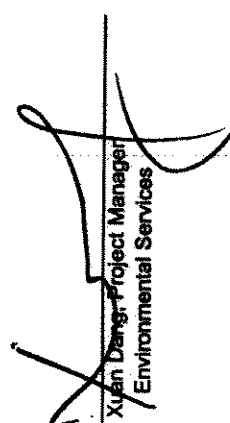
LCS: Laboratory Control Spike

MS: Matrix Spike

%D: Percent Difference

Flag: "Pass" If within Control Limits; otherwise "Fail"

Note: Results based on detector #1 (UV=365nm) data.


Xuan Deng, Project Manager
Environmental Services

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Del Mar Analytical
940 884

SUBCONTRACT ORDER - PROJECT # IOC1526

17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228

1014 E. Cooley Dr., Suite A, Cotton, 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) 796-3620 Fax (702) 796-3621

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:
Truesdail Laboratories-SUB
14201 Franklin Avenue
Tustin, CA 92680
Phone : (714) 730-6239
Fax: (714) 730-6462

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

Analysis	Expiration	Comments
Sample ID: IOC1526-01 Water	Sampled: 03/18/05 14:40	Instant Notification
Hydrazine-OUT	03/21/05 14:40	J flags, Sub Truesdail for Monomethylhydrazine
Level 4 Data Package	04/15/05 14:40	

Containers Supplied:
1 L Amber (IOC1526-01AM) **BB**
1 L Amber (IOC1526-01AM) **BC**

ALERT!!
Level I QC

Rec'd 03/21/05
s6c 940884

**For Sample Conditions
See Form Attached**

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

Released By: *[Signature]* 3/21/05 0715 Received By: *[Signature]* 3/21/05 0715
Released By: *[Signature]* 3/21/05 0740 Received By: *[Signature]* 3/21/05 7:40



Sample Integrity & Analysis Discrepancy Form

Client: Del Mar Analytical Lab # 940884

Date Delivered: 3/21/05 Time: 7:40 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4°C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc.)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client N/A
12. Were samples pH checked? pH = Level IV QC Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify the Project Manager. Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Std Yes No N/A
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other water
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: J Brown

ALERT!!
Level IV QC

Internal Chain of Custody Logbook

Storage Temperature: 4°C

Lab Number: 940884
 Client Name: Del Mar

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature
				3/21	8:00		J. Brown	<i>J. Brown</i>
	Hydrazine	3/21/05	8:30 AM	3/21/05	9: AM	300 ML	SEPTEMBER	<i>J. Hills</i>

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials



March 24, 2005

Alta Project I.D.: 25938

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 March 22, 2005 under your Project Name "IOC1526". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

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 M. Maier
Director of HRMS Services



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762
FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 3/22/2005

Alta Lab. ID

Client Sample ID

25938-001

IOC1526-01

SECTION II



EPA Method 1613

Method Blank		Matrix: Aqueous				QC Batch No.: 6624		Lab Sample: 0-MIB001	
Sample Size: 1.000 L		Date Extracted: 22-Mar-05		Date Analyzed DB-5: 23-Mar-05		Date Analyzed DB-225: NA			
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers	
2,3,7,8-TCDD	ND	0.841			13C-2,3,7,8-TCDD	79.3	25 - 164		
1,2,3,7,8-PeCDD	ND	0.749			13C-1,2,3,7,8-PeCDD	75.2	25 - 181		
1,2,3,4,7,8-HxCDD	ND	1.49			13C-1,2,3,4,7,8-HxCDD	74.0	32 - 141		
1,2,3,6,7,8-HxCDD	ND	1.52			13C-1,2,3,6,7,8-HxCDD	80.9	28 - 130		
1,2,3,7,8,9-HxCDD	ND	1.50			13C-1,2,3,4,6,7,8-HpCDD	72.5	23 - 140		
1,2,3,4,6,7,8-HpCDD	ND	1.17			13C-OCDD	55.5	17 - 157		
OCDD	ND	3.33			13C-2,3,7,8-TCDF	82.1	24 - 169		
2,3,7,8-TCDF	ND	0.795			13C-1,2,3,7,8-PeCDF	74.6	24 - 185		
1,2,3,7,8-PeCDF	ND	1.67			13C-2,3,4,7,8-PeCDF	77.9	21 - 178		
2,3,4,7,8-PeCDF	ND	1.39			13C-1,2,3,4,7,8-HxCDF	62.7	26 - 152		
1,2,3,4,7,8-HxCDF	ND	0.474			13C-1,2,3,6,7,8-HxCDF	73.0	26 - 123		
1,2,3,6,7,8-HxCDF	ND	0.442			13C-2,3,4,6,7,8-HxCDF	71.1	28 - 136		
2,3,4,6,7,8-HxCDF	ND	0.510			13C-1,2,3,7,8,9-HxCDF	67.2	29 - 147		
1,2,3,7,8,9-HxCDF	ND	0.820			13C-1,2,3,4,6,7,8-HpCDF	67.8	28 - 143		
1,2,3,4,6,7,8-HpCDF	ND	0.929			13C-1,2,3,4,7,8,9-HpCDF	71.3	26 - 138		
1,2,3,4,7,8,9-HpCDF	ND	1.13			13C-OCDF	58.9	17 - 157		
OCDF	ND	2.74			CRS 37Cl-2,3,7,8-TCDD	83.9	35 - 197		
Totals					Footnotes				
Total TCDD	ND	0.841			a. Sample specific estimated detection limit.				
Total PeCDD	ND	0.749			b. Estimated maximum possible concentration.				
Total HxCDD	ND	1.51			c. Method detection limit.				
Total HpCDD	ND	1.17			d. Lower control limit - upper control limit.				
Total TCDF	ND	0.795							
Total PeCDF	ND	1.52							
Total HxCDF	ND	0.545							
Total HpCDF	ND	1.02							

Analyst: JMH

Approved By: Martha M. Maier 24-Mar-2005 09:41



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 23-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous <th>QC Batch No.:</th> <td>6624 <th>Date Analyzed DB-5:</th> <td>23-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td></td></td>	QC Batch No.:	6624 <th>Date Analyzed DB-5:</th> <td>23-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td></td>	Date Analyzed DB-5:	23-Mar-05 <th>Date Analyzed DB-225:</th> <td>NA </td>	Date Analyzed DB-225:	NA
Sample Size:	1.000 L <th>Date Extracted:</th> <td>22-Mar-05 <th colspan="4"></th> </td>	Date Extracted:	22-Mar-05 <th colspan="4"></th>				
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.02	6.7 - 15.8	IS 13C-2,3,7,8-TCDD	86.2	25 - 164	
1,2,3,7,8-PeCDD	50.0	44.9	35 - 71	13C-1,2,3,7,8-PeCDD	83.6	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	45.7	35 - 82	13C-1,2,3,4,7,8-HxCDD	83.1	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	47.1	38 - 67	13C-1,2,3,6,7,8-HxCDD	90.5	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	47.2	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	80.1	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	49.7	35 - 70	13C-OCDD	60.0	17 - 157	
OCDD	100	102	78 - 144	13C-2,3,7,8-TCDF	89.6	24 - 169	
2,3,7,8-TCDF	10.0	9.28	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	82.2	24 - 185	
1,2,3,7,8-PeCDF	50.0	49.7	40 - 67	13C-2,3,4,7,8-PeCDF	86.0	21 - 178	
2,3,4,7,8-PeCDF	50.0	48.9	34 - 80	13C-1,2,3,4,7,8-HxCDF	69.1	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	52.4	36 - 67	13C-1,2,3,6,7,8-HxCDF	83.1	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	51.4	42 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	51.3	35 - 78	13C-1,2,3,7,8,9-HxCDF	77.1	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	51.3	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	77.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	54.0	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	78.6	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	53.2	39 - 69	13C-OCDF	65.1	17 - 157	
OCDF	100	103	63 - 170	CRS 37Cl-2,3,7,8-TCDD	89.8	35 - 197	

Analyst: JMH
 Approved By: Martha M. Maier
 Date: 24-Mar-2005 09:41



Sample ID: IOC1526-01

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25938-001		
Project:	IOC1526	Sample Size:	0.925 L	QC Batch No.:	6624		
Date Collected:	18-Mar-05			Date Analyzed DB-5:	23-Mar-05		
Time Collected:	1440			Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.691		IS 13C-2,3,7,8-TCDD	84.4	25 - 164	
1,2,3,7,8-PeCDD	ND	0.658		13C-1,2,3,7,8-PeCDD	81.5	25 - 181	
1,2,3,4,7,8-HxCDD	ND	1.61		13C-1,2,3,4,7,8-HxCDD	84.0	32 - 141	
1,2,3,6,7,8-HxCDD	ND	1.53		13C-1,2,3,6,7,8-HxCDD	91.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	1.56		13C-1,2,3,4,6,7,8-HpCDD	84.7	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND		1.56	13C-OCDD	67.5	17 - 157	
OCDD	18.1			13C-2,3,7,8-TCDF	90.5	24 - 169	
2,3,7,8-TCDF	ND	0.979		13C-1,2,3,7,8-PeCDF	84.6	24 - 185	
1,2,3,7,8-PeCDF	ND	1.91		13C-2,3,4,7,8-PeCDF	85.0	21 - 178	
2,3,4,7,8-PeCDF	ND	1.78		13C-1,2,3,4,7,8-HxCDF	69.6	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.646		13C-1,2,3,6,7,8-HxCDF	80.7	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.612		13C-2,3,4,6,7,8-HxCDF	79.6	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.697		13C-1,2,3,7,8,9-HxCDF	77.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	1.12		13C-1,2,3,4,6,7,8-HpCDF	80.8	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.763		13C-1,2,3,4,7,8,9-HpCDF	82.7	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.923		13C-OCDF	71.4	17 - 157	
OCDF	ND	3.25		CRS 37Cl-2,3,7,8-TCDD	81.5	35 - 197	
Totals							
Total TCDD	ND	0.691					
Total PeCDD	ND	0.658					
Total HxCDD	ND	1.57					
Total HpCDD	2.62		4.18				
Total TCDF	ND	0.979					
Total PeCDF	ND	1.84					
Total HxCDF	ND	0.749					
Total HpCDF	ND	0.832					

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:

Martha M. Maier

24-Mar-2005 09:41

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.

CURRENT CERTIFICATIONS



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)

09/28/04

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25938

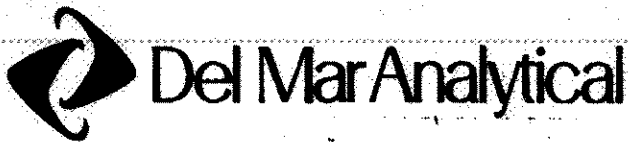
1. Date Samples Arrived: <u>3/22/05 0945</u> Initials: <u>CV</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>3/22/05 1115</u> Initials: <u>CV</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>ice</u> Blue Ice / Dry Ice / None Temp °C <u>3.2</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>915 766 570</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

IOC1321-01
 IOC1523-01
 IOC1525-01
 IOC1526-01
 IOC1563-01

* Sampler's initials missing from label

ALTA Analytical Laboratory
 El Dorado Hills, CA 95702



17461 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228
 1014 E. Coolay Dr., Suite A, Colton, CA 92324 Ph (909) 370-4887 Fax (909) 370-1048
 9484 Crosspointe Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-8588 Fax (619) 505-8888
 8830 South 51st Street, Suite D-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
 2530 E. Sunset Rd., Suite #2, Las Vegas, NV 89128 Ph (702) 788-3880 Fax (702) 788-3821

SUBCONTRACT ORDER - PROJECT # IOC1526

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) 933-0940

Standard TAT is requested unless specific due date is requested → Due Date: 1 week Initials: MH

Analysis	Expiration	Comments
Sample ID: IOC1526-01 Water	Sampled: 03/18/05 14:40	Instant Notification
1613-Dioxin-HR	03/25/05 14:40	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	04/15/05 14:40	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC1526-01) <u>EN</u>		
1 L Amber (IOC1526-01) <u>H</u>		

25938 3.2°

SAMPLE INTEGRITY:

All containers intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice: <input type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly: <input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp): _____

Released By: [Signature] Date: 3-21-05 Time: 1700 Received By: Christ Pedraza Date: 3/22/05 Time: 0945

Released By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____
 Project 25938 Page 11 of 12

STANDARD OPERATING PROCEDURE

Attachment 10.B.4

Client: Del Mar Analytical Chain of Custody Anomaly / Sample Acceptance Form
 Project Number: 25938
 Contact: Michele Harper Date Received: 3/24/05
 Fax Number: (949) 260-3297 Documented by/date: W 3/24/05

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis. Thank You. (Fax #916-673-0106)

The following information or item is needed to proceed with the analysis:

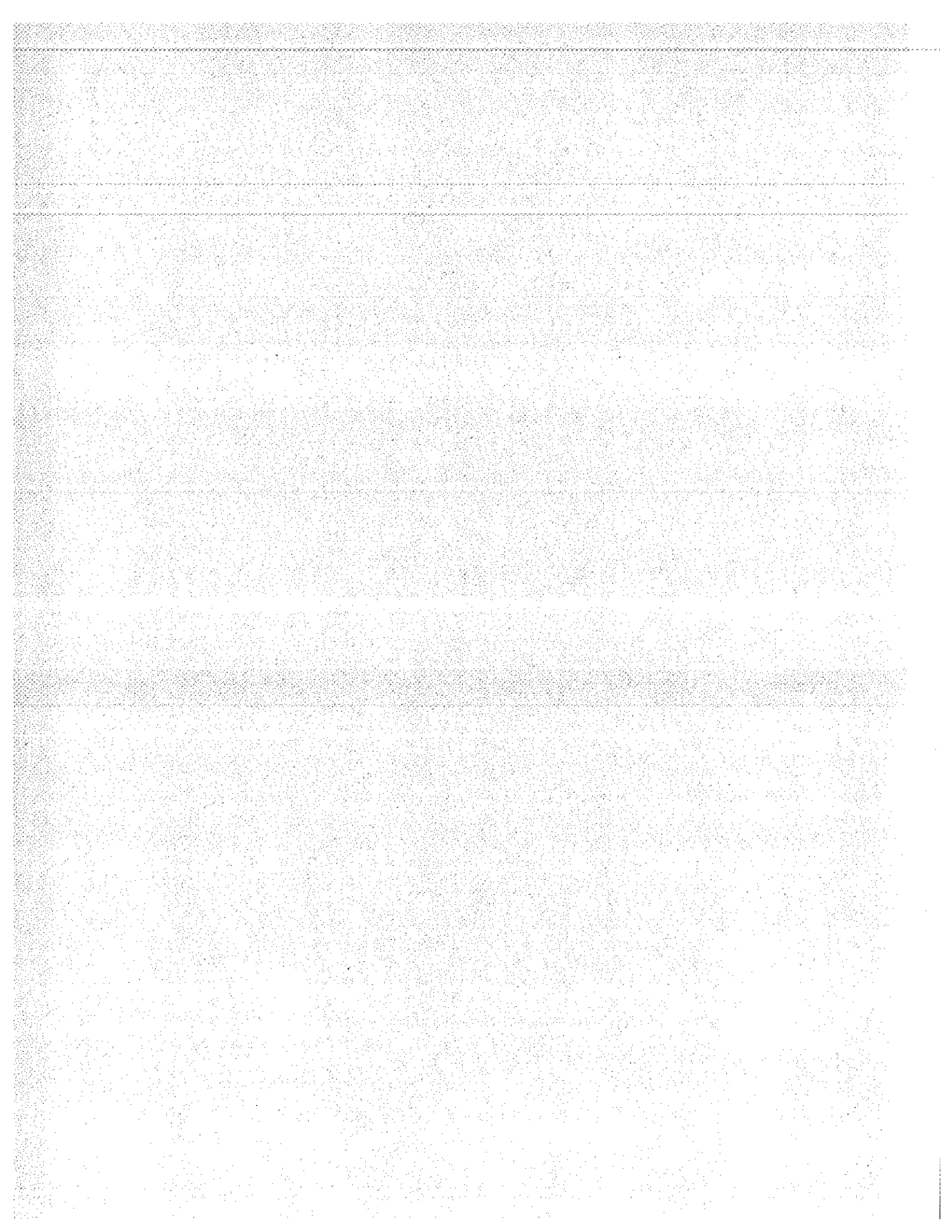
- Completed Chain-of-Custody
- Test Method Requested
- Analyte List Requested
- Preservative
- Sample Identification
- Sample Collection Date /Time
- Collector's Name
- Sample Type
- Sample Location

The following anomalies were noted. Authorization is needed to proceed with the analysis:

Temperature outside $\pm 2^{\circ}\text{C}$ range	Samples Affected: _____
Temp _____ $^{\circ}\text{C}$	Ice Present? Yes No
Sample ID Discrepancy	Samples Affected: _____
Sample holding time missed	Samples Affected: _____
Custody seals broken	Samples Affected: _____
Insufficient Sample Size	Samples Affected: _____
Sample Container(s) Broken	Samples Affected: _____
Incorrect Container Type	Samples Affected: _____
Other _____	

Client Authorization:
 Proceed With Analysis: YES NO Signature and Date: W 3/24/05
 Client Comments/Instructions: "P.P." per email from M. Harper

ALTA Analytical Laboratory
 El Dorado Hills, CA 95762

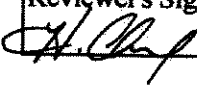


CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711DF40
 Task Order 313150010
 SDG No. Multiple
 No. of Analyses 5

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

Date: April 7, 2005
 Reviewer's Signature


ACTION ITEMS^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Detects below the method calibration level were qualified "J." EMPCs were qualified "UJ." Ether interference was qualified "UJ."
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: IOC0871, IOC2062, IOC2063,
IOC2064, IOC2093

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 #: IOC0871, IOC2062, IOC2063, IOC2064, IOC2093
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Dioxins/Furans
QC Level: Level IV
No. of Samples: 5
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 7, 2005

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

Table 1. Sample Identification

Client ID	Laboratory ID (Del Mar)	Laboratory ID (Alta)	Matrix	COC Method
Outfall 018	IOC0871-01	25975-001	water	1613
Outfall 002	IOC2062-01	25969-001	water	1613
Outfall 011	IOC2063-01	25967-001	water	1613
Outfall 011 Composite	IOC2064-01	25968-001	water	1613
Outfall 001	IOC2093-01	25970-001	water	1613

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

2.1.1 Sample Preservation, Handling, and Transport

All samples in these SDGs were received at Del Mar with cooler temperatures within the QC limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ with the exception of sample Outfall 002 which was received at 8°C . The samples were received at 0.4°C at Alta. According to the laboratory login sheets, all samples were received intact and in good condition at both laboratories. Due to non-volatile nature of the target compounds and since all samples were received intact, no qualifications were required.

2.1.2 Chain of Custody

The COCs and transfer COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to Del Mar Analytical, custody seals were not required. The coolers received by Alta had custody seals present and intact. The EPA IDs were added to the sample result summaries by the reviewer. No qualifications were required.

2.1.3 Holding Times

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

2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

2.2.1 GC Column Performance

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

2.2.2 Mass Spectrometer Performance

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

2.3 CALIBRATION

2.3.1 Initial Calibration

There was one initial calibration, analyzed 01/21/05. The calibration consisted of six concentration level standards (CS0 through CS5) analyzed to verify instrument linearity. The initial calibration was acceptable with %RSDs $\leq 20\%$ for the 16 native compounds (calibration by isotope dilution) and $\leq 35\%$ for the one native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning 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 standards instead of being analyzed separately, as noted in section 2.2.1 of this report. No adverse effect was observed with this practice.

2.4 BLANKS

One method blank (0_6653_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 (0_6653_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. Any results reported as Estimated Maximum Possible Concentration (EMPC) were qualified as estimated nondetects, "UJ." Any detects below the lower method calibration level (MCL) were qualified as estimated, "J," however, as Alta analyzed an additional calibration standard, the results below the lower MCL but above the lower calibration level were flagged with "A" laboratory qualifier. These results were qualified as estimated, "J," by the reviewer.

2,3,7,8-TCDF was detected in sample Outfall 018; however, no confirmation was performed since the level of the detect was below the calibration range. This compound was qualified as estimated, "J."

The Total TCDF result in sample Outfall 011 was reported with "D" laboratory qualifier due to the presence of ether. Total TCDF was qualified as "J" in this sample. No further qualifications were required.



Sample ID: **IOC2063-01 Outfall 011** EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25967-001		
Project:	IOC2063	Sample Size:	1.004 L	QC Batch No.:	6653		
Date Collected:	25-Mar-05			Date Analyzed DB-5:	31-Mar-05		
Time Collected:	1200			Date Analyzed DB-225:	NA		
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.000000460		IS 13C-2,3,7,8-TCDD	76.4	25 - 164	
1,2,3,7,8-PeCDD	ND	0.000000455		13C-1,2,3,7,8-PeCDD	78.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.000000622		13C-1,2,3,4,7,8-HxCDD	91.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.000000621		13C-1,2,3,6,7,8-HxCDD	102	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.000000615		13C-1,2,3,4,6,7,8-HpCDD	75.8	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.00000655			13C-OCDD	44.5	17 - 157	J
OCDD	0.0000599			13C-2,3,7,8-TCDF	84.2	24 - 169	A
2,3,7,8-TCDF	ND	0.000000565		13C-1,2,3,7,8-PeCDF	79.2	24 - 185	
1,2,3,7,8-PeCDF	ND	0.000000632		13C-2,3,4,7,8-PeCDF	83.7	21 - 178	
2,3,4,7,8-PeCDF	ND	0.000000534		13C-1,2,3,4,7,8-HxCDF	95.1	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000299		13C-1,2,3,6,7,8-HxCDF	102	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000299		13C-2,3,4,6,7,8-HxCDF	91.8	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000361		13C-1,2,3,7,8,9-HxCDF	87.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000543		13C-1,2,3,4,6,7,8-HpCDF	73.0	28 - 143	
1,2,3,4,6,7,8-HpCDF	0.00000185			13C-1,2,3,4,7,8,9-HpCDF	81.0	26 - 138	J
1,2,3,4,7,8,9-HpCDF	ND	0.000000606		13C-OCDF	50.4	17 - 157	
OCDF	0.00000290			CRS 37Cl-2,3,7,8-TCDD	80.8	35 - 197	J
Totals							
Total TCDD	ND	0.000000460					
Total PeCDD	ND	0.000000455					
Total HxCDD	ND	0.00000115					
Total HpCDD	0.0000159						
Total TCDF	0.00000161						
Total PeCDF	ND	0.000000896	D				
Total HxCDF	0.000000737	0.00000117					
Total HpCDF	0.00000328						

Footnotes

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

Analyst: RAS

Approved By: William J. Luksemburg 01-Apr-2005 14:54

AMEC VALIDATED
LEVEL IV



Sample ID: IOC2064-01 Outfall Oil Composite

EPA Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25968-001		
Project:	IOC2064	Sample Size:	1.021 L	QC Batch No.:	6653		
Date Collected:	25-Mar-05			Date Analyzed DB-5:	31-Mar-05		
Time Collected:	1440			Date Analyzed DB-225:	NA		
Date Received:	29-Mar-05			Date Analyzed DB-225:	NA		
				Date Extracted:	30-Mar-05		
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.00000545		13C-2,3,7,8-TCDD	80.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.00000449		13C-1,2,3,7,8-PeCDD	87.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.00000740		13C-1,2,3,4,7,8-HxCDD	73.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.00000754		13C-1,2,3,6,7,8-HxCDD	82.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.00000740		13C-1,2,3,4,6,7,8-HpCDD	75.8	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.00000734			13C-OCDD	53.0	17 - 157	J
OCDD	0.0000692			13C-2,3,7,8-TCDF	86.2	24 - 169	A
2,3,7,8-TCDF	ND	0.00000447		13C-1,2,3,7,8-PeCDF	88.1	24 - 185	
1,2,3,7,8-PeCDF	ND	0.00000850		13C-2,3,4,7,8-PeCDF	89.8	21 - 178	
2,3,4,7,8-PeCDF	ND	0.00000779		13C-1,2,3,4,7,8-HxCDF	75.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.00000247		13C-1,2,3,6,7,8-HxCDF	83.5	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.00000238		13C-2,3,4,6,7,8-HxCDF	81.2	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.00000255		13C-1,2,3,7,8,9-HxCDF	81.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.00000391		13C-1,2,3,4,6,7,8-HpCDF	73.7	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.00000531	0.00000989	13C-1,2,3,4,7,8,9-HpCDF	76.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.00000273		13C-OCDF	61.6	17 - 157	
OCDF	0.00000273			CRS 37Cl-2,3,7,8-TCDD	88.5	35 - 197	
Totals							
Total TCDD	ND	0.00000545					
Total PeCDD	ND	0.00000449					
Total HxCDD	0.00000761						
Total HpCDD	0.00000734		0.0000168				
Total TCDF	0.0000125						
Total PeCDF	ND	0.00000814					
Total HxCDF	0.00000716						
Total HpCDF	0.0000125		0.00000224				

Footnotes

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

Analyst: RAS

Approved By: William J. Luksemburg 01-Apr-2005 14:54

AMEC VALIDATED
LEVEL IV



DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: HYDRAZINES

SAMPLE DELIVERY GROUPS: IOC2063 & IOC2064

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 #: IOC2063, IOC2064
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Hydrazines
QC Level: Level IV
No. of Samples: 2
Reviewer: P. Meeks
Date of Review: April 11, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Organic Data Review (2/94)*, and USEPA SW-846 Method 8315. 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.

DATA VALIDATION REPORT

Project: NPDES
SDG No.: IOC2063, 2064
Analysis: Hydrazines

Table 1. Sample identification

EPA ID	Del Mar ID	Laboratory ID	Matrix	COC Method
Outfall 011 Grab	IOC2063-01	941100	water	Hydrazines by 8315
Outfall 011 Composite	IOC2064-01	941101	water	Hydrazines by 8315

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 and the subcontract laboratory, Truesdail Laboratories, within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The case narratives for these SDGs noted that the samples were received intact at both laboratories. No qualifications were required.

2.1.2 Chain of Custody

The COCs from the field to Del Mar were signed and dated by field and laboratory personnel, and the transfer COCs from Del Mar to Truesdail Laboratories were signed and dated by personnel from both laboratories. Both the original COCs and transfer COCs requested only monomethyl hydrazine analysis; however, unsymmetrical dimethyl hydrazine and hydrazine were also reported. As the samples were transported to Del Mar and then to Truesdail by courier, no custody seals were required. Truesdail Laboratories did not list the Outfall 011 IDs on the Form Is; therefore, the reviewer hand-corrected the Form Is to include this information. No qualifications were required.

2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analysis. The samples were extraction within the three-day holding time and analyzed within three days of extraction. No qualifications were required.

2.2 CALIBRATION

The five-point initial calibration were analyzed 03/29/05, with correlation coefficients of ≥ 0.995 for the hydrazines. The ICV and CCV bracketing the sample analyses had recoveries for the hydrazines within the QC limits of 85-115%. No qualifications were required.

2.3 BLANKS

One method blank was analyzed with these SDGs. The results reported on the method blank summary form and in the raw data for the instrument and method blank analyses associated with the samples were nondetects at the reporting limit. No qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One laboratory control sample/laboratory control sample duplicate was analyzed with these SDGs. The hydrazines were recovered within the laboratory-established control limits of 70%-130%, and the RPDs were within the control limit of $\leq 20\%$. No qualifications were required.

2.5 SURROGATES RECOVERY

Surrogates were not utilized in this analysis. No qualifications were required.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MSD/MSD analyses were performed on Outfall 011 Composite. The hydrazines were recovered within the laboratory-established control limits of 0%-150%; however, both recoveries were $\geq 10\%$. The RPDs were within the control limit of $\leq 20\%$. No qualifications were required.

2.7 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 samples. Following are findings associated with field QC samples:

2.7.1 Field Blanks and Equipment Rinsates

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

2.7.2 Field Duplicates

There were no field duplicate samples in these SDGs.

2.8 COMPOUND IDENTIFICATION

The samples were analyzed by HPLC for monomethyl hydrazine, unsymmetrical dimethyl hydrazine, and hydrazine by Method 8315. Compound identification was verified, and review of the raw data indicated no compound identification errors. No qualifications were required.

2.9 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified from the raw data at a Level IV data validation by recalculating LCS/LCSD and MS/MSD detects, as there were no sample detects. No compound quantitation problems were noted. The hydrazine reporting limits were supported by the lower levels of the initial calibration. No qualifications were required.

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INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

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REPORT

Client: Del Mar Analytical
17461 Derian Ave., Suite 100
Irvine, CA 92614

Attention: Michele Harper

Sample: Liquid / 1 Sample

Project Name: IOC2063

P.O. Number: IOC2063

Method Number: 8316 (Modified)

Investigation: Hydrazines in Liquid

Laboratory No: 941100

Report Date: March 30, 2005

Sampling Date: March 25, 2005

Receiving Date: March 28, 2005

Extraction Date: March 28, 2005

Analysis Date: March 29, 2005

Units: µg/L

Dilution Factor: 1

Reported By: JS

Page 1 of 1

Analytical Results


Sample ID	Sample Description	Monomethyl Hydrazine		Unsymmetrical Dimethyl Hydrazine		Hydrazine	
		Rev Qual	Qual Code	Rev Qual	Qual Code	Rev Qual	Qual Code
704871-MB	Method Blank	ND	*	ND	*	ND	*
941100 Outfall oil Grab	IOC2063-01	ND	U	ND	U	ND	U
MDL		1.2		0.27		0.39	
PQL		5.0		5.0		1.0	

PM 4/4/05

MDL: Method Detection Limit, µg/L
PQL: Practical Quantitation Limit, µg/L
ND: Not Detected at or above the MDL value.
N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.

LEVEL IV


Juan Dang, Project Manager
Environmental Services

Analytical Not Validated

AMEC VALIDATED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these laboratories.

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REPORT

Client: Del Mar Analytical
17461 Derian Ave., Suite 100
Irvine, CA 92614

Attention: Michele Harper
Sample: Liquid / 1 Sample
Project Name: IOC2064
P.O. Number: IOC2064
Method Number: 8315 (Modified)
Investigation: Hydrazines in Liquid

Laboratory No: 941101
Report Date: March 30, 2005
Sampling Date: March 25, 2005
Receiving Date: March 28, 2005
Extraction Date: March 28, 2005
Analysis Date: March 29, 2005
Units: µg/L
Dilution Factor: 1
Reported By: JS

Page 1 of 1

Analytical Results

Sample ID	Sample Description	Monomethyl Hydrazine		Unsymmetrical Dimethyl Hydrazine		Hydrazine	
		Rev Qual Code	Qual Code	Rev Qual Code	Qual Code	Rev Qual Code	Qual Code
704871-MB	Method Blank	*		*		*	
941101 Outfall Oil Composite	IOC2064-01	U		U		U	
MDL		1.2		0.27		0.39	
PQL		5.0		5.0		1.0	

pm 4/6/05

MDL: Method Detection Limit, ug/L
PQL: Practical Quantitation Limit, ug/L
ND: Not Detected at or above the MDL value.
N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.

Xuan Dang, Project Manager
Environmental Services

AMEC VALIDATED

Analytic Not Validated

LEVEL IV

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these laboratories.



DATA VALIDATION REPORT

NPDES
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOC2063 & IOC2064

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#: IOC2063, IOC2064
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Metals
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: P. Meeks
Date of Review: April 11, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels III and IV ICP-MS Metals, (DVP-5-A, Rev.0)*, *AMEC Data Validation Procedure for Levels III and IV ICP Metals (DVP-5, Rev. 0)*, *SW-846 Method 6020B for Inductively Coupled Plasma - Mass Spectrometry*, *SW-846 Method 6010B for Inductively Coupled Plasma*, *SW-846 Method 7471A for Mercury (Manual Cold-Vapor Technique)*, and validation guidelines outlined in the *USEPA CLP 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 011 Grab	Outfall 011 Grab	IOC2063-01	water	ILM04
Outfall 011 Composite	Outfall 011 Composite	IOC2064-01	water	ILM04

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 sample preservation, handling, or transport problems were noted, and no qualifications were necessary.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel. The COCs accounted for the samples and analyses presented in these SDGs. Duplicate samples were submitted for the samples in these SDGs; however, duplicate analyses were not required. No sample qualifications were required.

2.1.3 Holding Times

The dates of collection recorded on the COCs and the dates of analyses recorded in the raw data, documented that the sample analyses were performed within the specified holding times of six months for the ICP and ICP/MS metals, and 28 days for mercury. No qualifications were required.

2.2 ICP-MS TUNING

A precalibration routine must be completed prior to calibrating the instrument, which consists of analyzing a tuning solution to verify resolution, mass calibration, and thermal stability. The solution must be analyzed a minimum of five times and must contain isotopes representing all mass regions of interest. All %RSDs were less than 5%. The mass calibrations were within 0.1 amu of the true mass and the instrument resolutions were less than 0.75 amu at 5 percent peak height for all analytes in the tune solution. No site sample qualifications were required.

2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP/MS metals and 80-120% for mercury. Antimony and nickel were not recovered in the 0.2 ppb reporting limit check standard; therefore nondetected antimony in both site samples (see section 2.4) was qualified as estimated, "UJ." As nickel was detected in both samples above the 2.0 µg/L reporting limit and was recovered within the control limits in the 2.0 ppb reporting limit check standard, no qualifications were required. The remaining reporting limit check standards were recovered within the AMEC control limits of 70-130%. No further sample qualifications were required.

2.4 BLANKS

Antimony, boron and thallium were detected in bracketing CCBs at 0.422 µg/L, 0.0207 mg/L, and 0.0895 µg/L, respectively; therefore, antimony and boron detected in both site samples and thallium detected in Outfall 011 Grab were qualified as estimated, "UJ." Chromium was detected in method blank 5C25116-BLK1 at 0.516 µg/L; therefore, chromium detected in both site samples was qualified as estimated, "UJ." No further qualifications were required due to the method and calibration blank results.

2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

ICSA and ICSAB analyses were included in the raw data for the ICP-MS analyses. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride, and barium, beryllium, selenium, thallium, vanadium, antimony and lead were not spiked into the ICSAB solution. Arsenic was recovered below the control limit in the ICSAB, therefore, arsenic detected in both site samples was qualified as estimated, "J." Manganese, cobalt copper, zinc, and cadmium were detected above the reporting limit in the ICSA. The validator reviewed the raw data for the site sample ICP/MS analyses for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the levels of reported interferents were not high enough to cause matrix affects. No assessment could be made with respect to possible interference from sulfur, phosphorus, carbon, and chloride.

ICSA and ICSAB analyses were included in the raw data for the boron ICP analyses, but were not run on the days the site samples were analyzed. The recoveries for the interferents and the other spiked analytes were within the control limits of 80-120%. No further qualifications were required.

2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5C25116-BS1 and the ICP LCS sample was identified as 5C25111-BS1. The mercury LCS sample was identified as 5C26033-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP, ICP/MS, and mercury control limits of 85-115%. No qualifications were required.

2.7 LABORATORY DUPLICATES

No MS/MSD analyses were performed in association with the samples in these SDG; therefore, no assessment was made with respect to this criterion.

2.8 MATRIX SPIKE

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

2.9 FURNACE ATOMIC ABSORPTION QC

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

2.10 ICP/MS AND ICP SERIAL DILUTION

No serial dilution analyses were performed in association with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

2.11 INTERNAL STANDARDS PERFORMANCE

The ICP-MS internal standard recoveries for the site samples and associated QC sample analyses were within the 60-125% control limits and no qualifications were required.

2.12 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. Analytes detected below the reporting limit were qualified as estimated, "J." No further qualifications were required.

2.13 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.

2.13.1 Field Blanks and Equipment Rinsates

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

2.13.2 Field Duplicates

There were no field duplicate analyses performed in association with the site samples.



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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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.									
Reporting Units: mg/l									
Barium	EPA 200.8	5C25116	0.00014	0.0010	0.023	1	03/25/05	03/28/05	US B
Boron	EPA 200.7	5C25111	0.0074	0.050	0.092	1	03/25/05	03/27/05	US B
Iron	EPA 200.8	5C25116	0.0032	0.010	0.43	1	03/25/05	03/28/05	US B

AMEC VALIDATED

LEVEL IV

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 DATA SUBJECT TO CHANGE

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.											
Reporting Units: ug/l											
Antimony	EPA 200.8	5C25116	0.18	2.0	0.34	1	03/25/05	03/28/05	U J	J	#3, B
Arsenic	EPA 200.8	5C25116	0.49	1.0	2.7	1	03/25/05	03/28/05	J	J	I
Beryllium	EPA 200.8	5C25116	0.037	0.50	0.041	1	03/25/05	03/28/05	J	J	DNQ
Cadmium	EPA 200.8	5C25116	0.015	1.0	0.22	1	03/25/05	03/28/05	J	J	DNQ
Chromium	EPA 200.8	5C25116	0.26	2.0	1.2	1	03/25/05	03/28/05	U J	B, J	B
Cobalt	EPA 200.8	5C25116	0.10	1.0	0.29	1	03/25/05	03/28/05	J	J	DNQ
Copper	EPA 200.8	5C25116	0.49	2.0	3.9	1	03/25/05	03/28/05			
Lead	EPA 200.8	5C25116	0.13	1.0	0.46	1	03/25/05	03/28/05	J	J	DNQ
Manganese	EPA 200.8	5C25116	0.44	1.0	36	1	03/25/05	03/28/05			
Mercury	EPA 245.1	5C26033	0.063	0.20	ND	1	03/26/05	03/26/05	U		
Nickel	EPA 200.8	5C25116	0.15	2.0	3.4	1	03/25/05	03/28/05			
Selenium	EPA 200.8	5C25116	0.36	2.0	ND	1	03/25/05	03/28/05	U		
Silver	EPA 200.8	5C25116	0.089	1.0	ND	1	03/25/05	03/28/05	U		
Thallium	EPA 200.8	5C25116	0.075	1.0	0.21	1	03/25/05	03/28/05	U J	J	B
Vanadium	EPA 200.8	5C25116	0.86	2.0	ND	1	03/25/05	03/28/05	U		
Zinc	EPA 200.8	5C25116	3.1	20	13	1	03/25/05	03/28/05	J	J	DNQ

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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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
Barium	EPA 200.8	5C25116	0.00014	0.0010	0.024	1	03/25/05	03/28/05	Rev Qual Qual Code
Boron	EPA 200.7	5C25111	0.0074	0.050	0.095	1	03/25/05	03/27/05	UJ B
Iron	EPA 200.8	5C25116	0.0032	0.010	0.43	1	03/25/05	03/28/05	

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LEVEL IV

DRAFT REPORT
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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-9089
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0643 FAX (480) 785-0651
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3020 FAX (702) 798-3021

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.											
Reporting Units: ug/l											
Antimony	EPA 200.8	5C25116	0.18	2.0	0.29	1	03/25/05	03/28/05		U J	X3, B
Arsenic	EPA 200.8	5C25116	0.49	1.0	2.6	1	03/25/05	03/28/05		J	I
Beryllium	EPA 200.8	5C25116	0.037	0.50	ND	1	03/25/05	03/28/05		U	
Cadmium	EPA 200.8	5C25116	0.015	1.0	0.20	1	03/25/05	03/28/05		J J	DNQ
Chromium	EPA 200.8	5C25116	0.26	2.0	1.4	1	03/25/05	03/28/05		U J B, J	B
Cobalt	EPA 200.8	5C25116	0.10	1.0	0.29	1	03/25/05	03/28/05		J J	DNQ
Copper	EPA 200.8	5C25116	0.49	2.0	3.7	1	03/25/05	03/28/05			
Lead	EPA 200.8	5C25116	0.13	1.0	0.43	1	03/25/05	03/28/05		J J	DNQ
Manganese	EPA 200.8	5C25116	0.44	1.0	41	1	03/25/05	03/28/05			
Mercury	EPA 245.1	5C26033	0.063	0.20	ND	1	03/26/05	03/26/05		U	
Nickel	EPA 200.8	5C25116	0.15	2.0	3.5	1	03/25/05	03/28/05			
Selenium	EPA 200.8	5C25116	0.36	2.0	ND	1	03/25/05	03/28/05		U	
Silver	EPA 200.8	5C25116	0.089	1.0	ND	1	03/25/05	03/28/05			
Thallium	EPA 200.8	5C25116	0.075	1.0	ND	1	03/25/05	03/28/05		↓	
Vanadium	EPA 200.8	5C25116	0.86	2.0	1.2	1	03/25/05	03/28/05		J J	DNQ
Zinc	EPA 200.8	5C25116	3.1	20	13	1	03/25/05	03/28/05		J J	DNQ

AMEC VALIDATED

LEVEL IV

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.

CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711PP34
 Task Order 313150010
 SDG No. IOC2063, IOC2064
 No. of Analyses 2

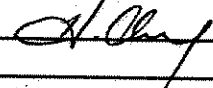
Laboratory Del Mar

Reviewer H. Chang

Analysis/Method Pesticides & PCBs/608

Date: April 10, 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.,** Samples were qualified "UJ" for low surrogate recoveries.
 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: PESTICIDES

SAMPLE DELIVERY GROUP: IOC2063, IOC2064

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#: IOC2063, IOC2064
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Pesticides/PCBs
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 10, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedures (DVP-4, Rev.2)*, *EPA Method 608*, 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 form 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	Method
Outfall 011 Grab	Outfall 011 Grab	IOC2063-01	water	608
Outfall 011 Composite	Outfall 011 Composite	IOC2064-01	water	608

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 were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. 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 sample was couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

The water samples were extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 PESTICIDES INSTRUMENT PERFORMANCE

No resolution check standards or breakdown check standards are required by Method 608 for pesticides, and according to the raw data provided, a resolution check standard was not analyzed by the laboratory. The laboratory did analyze a breakdown check standard with a breakdown of $\leq 20\%$ for individual components (4,4'-DDT and endrin) and $\leq 30\%$ for the total, as suggested in the National Functional Guidelines. A review of the raw data indicated that the analytical run time was of sufficient length to provide adequate standard separation. The two analytical columns used in the analyses were within the guidelines specified in the methods.

According to the laboratory SOP and the initial calibration raw data, the retention time windows are ± 0.10 minutes for both surrogates and target compound calibration standards. A review of the raw data indicated that the laboratory retention time criteria were met for the surrogates and pesticide calibration standards. No qualifications were required.

2.3 CALIBRATION

2.3.1 Analytical Sequence

Based on the data provided, the analytical sequences were in accordance with the requirements of Method 608. No qualifications were required.

2.3.2 Initial Calibration

There was one initial calibration dated 03/24/05 associated with the pesticide analysis of the sample, which consisted of six point calibrations for all pesticide target compounds on two analytical columns. The %RSDs were within the EPA Method 608 QC limit of $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. There was one initial calibration dated 03/28/05 associated with the PCB analysis of the samples which consisted of five points for Aroclor 1016 and Aroclor 1260. The average %RSDs for the individual peaks of Aroclor 1016 and Aroclor 1260 were $\leq 10\%$ or the r^2 values were ≥ 0.995 on both analytical columns. An ICV was analyzed immediately following each of the initial calibrations. The %Ds for all target compounds were within the QC limits of 15% on both analytical columns. A representative number of %RSDs and ICV %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.3.3 Continuing Calibration

In the continuing calibrations bracketing the pesticide analysis of the sample, all %Ds were $\leq 15\%$ with the exception of %Ds for alpha-BHC, gamma-chlordane, dieldrin, and 4,4'DDD on channel B for one of the closing CCVs. No qualifications were required since channel A was used as the primary column and there were no detects on the primary column. Of the continuing calibrations associated with the PCB analysis of the sample, all %Ds were $\leq 15\%$ for Aroclor 1016 and Aroclor 1260. A representative number of %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 BLANKS

2.4.1 Instrument Blanks

An instrument blank was analyzed at the beginning of each analytical sequence. Cross-contamination was not evident in the samples. No qualifications were necessary.

2.4.2 Method Blanks

Two water method blanks, one for pesticides (5C28048-BLK1) and one for PCBs (5C28048-BLK2) were extracted and analyzed with these SDG. There were no pesticide target compounds or Aroclors detected in the corresponding method blank. Review of the chromatograms showed no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Two pairs of blank spike and blank spike duplicate, one for pesticides (5C28048-BS1/BSD1) and one for PCBs (5C28048-BS2/BSD2) was extracted and analyzed with this SDG. The recoveries for all spiked pesticide target compounds and Aroclors were within the laboratory-established QC limits and the RPDs were $\leq 30\%$ for pesticides. RPDs for Aroclors 1016 and 1260 were above the QC limits of 30% and 25%, respectively. No qualifications were required since there were no detects for Aroclors in the samples.

The laboratory indicated that the PCB blank spike was double spiked and was reanalyzed at 2 \times dilution. The original analysis of the BS was not provided. The 2 \times dilution showed comparable

levels to the BSD analysis. A representative number of recoveries were checked from the raw data, and no calculation or transcription errors were noted.

2.6 SURROGATE RECOVERY

The sample and all QC samples were fortified with the surrogate compounds decachlorobiphenyl and tetrachloro-m-xylene. Surrogate recoveries for the pesticide and PCB analyses of both samples were below the laboratory-established QC limits. In sample Outfall 011 Composite, the surrogate recovery was reported as acceptable, however, the raw data indicated that it was slightly below the QC limits. All pesticides and PCBs were qualified as estimated nondetects, "UJ," in both samples. The recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses performed on the sample in this SDG. Method accuracy was assessed based on the blank spike results. No qualifications were required.

2.8 SAMPLE CLEANUP PERFORMANCE

According to the laboratory extraction benchsheets, no cleanups were performed on the extracts for pesticides. The extracts for PCBs were acid washed. No qualifications were required.

2.9 FIELD QC SAMPLES

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

2.9.1 Field Blanks and Equipment Rinsates

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

2.9.2 Field Duplicates

There were no field duplicate samples associated with the sample in this SDG.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for pesticides and PCBs by EPA Method 608. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for the sample in this SDG. No qualifications were required.

DATA VALIDATION REPORT

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for these SDGs by recalculating any sample detects, and a representative number of blank spike and surrogate recoveries. Reporting limits were supported by the low level standards of the initial calibrations and the laboratory MDL studies. The water reporting limits were not adjusted for sample amount on the result summaries; however, the dilution factor listed on the summaries reflected the sample volume extracted. No qualifications were required.



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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5C28048	0.030	0.10	ND	0.971	03/28/05	03/29/05	UJ S
alpha-BHC	EPA 608	5C28048	0.015	0.10	ND	0.971	03/28/05	03/29/05	
beta-BHC	EPA 608	5C28048	0.015	0.10	ND	0.971	03/28/05	03/29/05	
delta-BHC	EPA 608	5C28048	0.020	0.20	ND	0.971	03/28/05	03/29/05	
gamma-BHC (Lindane)	EPA 608	5C28048	0.020	0.10	ND	0.971	03/28/05	03/29/05	
Chlordane	EPA 608	5C28048	0.20	1.0	ND	0.971	03/28/05	03/29/05	
4,4'-DDD	EPA 608	5C28048	0.020	0.10	ND	0.971	03/28/05	03/29/05	
4,4'-DDE	EPA 608	5C28048	0.025	0.10	ND	0.971	03/28/05	03/29/05	
4,4'-DDT	EPA 608	5C28048	0.030	0.10	ND	0.971	03/28/05	03/29/05	
Dieldrin	EPA 608	5C28048	0.015	0.10	ND	0.971	03/28/05	03/29/05	
Endosulfan I	EPA 608	5C28048	0.015	0.10	ND	0.971	03/28/05	03/29/05	
Endosulfan II	EPA 608	5C28048	0.040	0.10	ND	0.971	03/28/05	03/29/05	
Endosulfan sulfate	EPA 608	5C28048	0.015	0.20	ND	0.971	03/28/05	03/29/05	
Endrin	EPA 608	5C28048	0.020	0.10	ND	0.971	03/28/05	03/29/05	
Endrin aldehyde	EPA 608	5C28048	0.045	0.10	ND	0.971	03/28/05	03/29/05	
Endrin ketone	EPA 608	5C28048	0.020	0.10	ND	0.971	03/28/05	03/29/05	
Heptachlor	EPA 608	5C28048	0.030	0.10	ND	0.971	03/28/05	03/29/05	
Heptachlor epoxide	EPA 608	5C28048	0.020	0.10	ND	0.971	03/28/05	03/29/05	
Methoxychlor	EPA 608	5C28048	0.035	0.10	ND	0.971	03/28/05	03/29/05	
Toxaphene	EPA 608	5C28048	1.5	5.0	ND	0.971	03/28/05	03/29/05	
Surrogate: Tetrachloro-m-xylene (35-115%)					31 %				ZX
Surrogate: Decachlorobiphenyl (45-120%)					36 %				ZX

AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Rev Qual	Qual Code
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.										
Reporting Units: ug/l										
Aroclor 1016	EPA 608	5C28048	0.20	1.0	ND	0.971	03/28/05	03/30/05	US	S
Aroclor 1221	EPA 608	5C28048	0.10	1.0	ND	0.971	03/28/05	03/30/05	↓ ↓ ↓ ↓ ↓ ↓ ↓	↓ ↓ ↓ ↓ ↓ ↓ ↓
Aroclor 1232	EPA 608	5C28048	0.15	1.0	ND	0.971	03/28/05	03/30/05		
Aroclor 1242	EPA 608	5C28048	0.15	1.0	ND	0.971	03/28/05	03/30/05		
Aroclor 1248	EPA 608	5C28048	0.25	1.0	ND	0.971	03/28/05	03/30/05		
Aroclor 1254	EPA 608	5C28048	0.25	1.0	ND	0.971	03/28/05	03/30/05		
Aroclor 1260	EPA 608	5C28048	0.40	1.0	ND	0.971	03/28/05	03/30/05		
Surrogate: Decachlorobiphenyl (45-120%)					40 %		ZX			

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 9464 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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Rev Qual	Qual Code
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.										
Reporting Units: ug/l										
Aldrin	EPA 608	5C28048	0.030	0.10	ND	0.952	03/28/05	03/29/05	UJ	S
alpha-BHC	EPA 608	5C28048	0.015	0.10	ND	0.952	03/28/05	03/29/05		
beta-BHC	EPA 608	5C28048	0.015	0.10	ND	0.952	03/28/05	03/29/05		
delta-BHC	EPA 608	5C28048	0.020	0.20	ND	0.952	03/28/05	03/29/05		
gamma-BHC (Lindane)	EPA 608	5C28048	0.020	0.10	ND	0.952	03/28/05	03/29/05		
Chlordane	EPA 608	5C28048	0.20	1.0	ND	0.952	03/28/05	03/29/05		
4,4'-DDD	EPA 608	5C28048	0.020	0.10	ND	0.952	03/28/05	03/29/05		
4,4'-DDE	EPA 608	5C28048	0.025	0.10	ND	0.952	03/28/05	03/29/05		
4,4'-DDT	EPA 608	5C28048	0.030	0.10	ND	0.952	03/28/05	03/29/05		
Dieldrin	EPA 608	5C28048	0.015	0.10	ND	0.952	03/28/05	03/29/05		
Endosulfan I	EPA 608	5C28048	0.015	0.10	ND	0.952	03/28/05	03/29/05		
Endosulfan II	EPA 608	5C28048	0.040	0.10	ND	0.952	03/28/05	03/29/05		
Endosulfan sulfate	EPA 608	5C28048	0.015	0.20	ND	0.952	03/28/05	03/29/05		
Endrin	EPA 608	5C28048	0.020	0.10	ND	0.952	03/28/05	03/29/05		
Endrin aldehyde	EPA 608	5C28048	0.045	0.10	ND	0.952	03/28/05	03/29/05		
Endrin ketone	EPA 608	5C28048	0.020	0.10	ND	0.952	03/28/05	03/29/05		
Heptachlor	EPA 608	5C28048	0.030	0.10	ND	0.952	03/28/05	03/29/05		
Heptachlor epoxide	EPA 608	5C28048	0.020	0.10	ND	0.952	03/28/05	03/29/05		
Methoxychlor	EPA 608	5C28048	0.035	0.10	ND	0.952	03/28/05	03/29/05		
Toxaphene	EPA 608	5C28048	1.5	5.0	ND	0.952	03/28/05	03/29/05		
Surrogate: Tetrachloro-m-xylene (35-115%)						35 %				
Surrogate: Decachlorobiphenyl (45-120%)						40 %				ZX

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: TOTAL PCBs (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Rev Qual	Qual Code
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.										
Reporting Units: ug/l										
Aroclor 1016	EPA 608	5C28048	0.20	1.0	ND	0.952	03/28/05	03/30/05	UT	S
Aroclor 1221	EPA 608	5C28048	0.10	1.0	ND	0.952	03/28/05	03/30/05	↓	↓
Aroclor 1232	EPA 608	5C28048	0.15	1.0	ND	0.952	03/28/05	03/30/05	↓	↓
Aroclor 1242	EPA 608	5C28048	0.15	1.0	ND	0.952	03/28/05	03/30/05	↓	↓
Aroclor 1248	EPA 608	5C28048	0.25	1.0	ND	0.952	03/28/05	03/30/05	↓	↓
Aroclor 1254	EPA 608	5C28048	0.25	1.0	ND	0.952	03/28/05	03/30/05	↓	↓
Aroclor 1260	EPA 608	5C28048	0.40	1.0	ND	0.952	03/28/05	03/30/05	↓	↓
Surrogate: Decachlorobiphenyl (45-120%)					45 %					

AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711SV53
 Task Order 313150010
 SDG No. IOC2063, IOC2064
 No. of Analyses 2

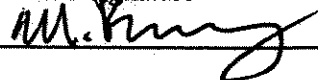
Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Semivolatiles

Date: April 11, 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	Qualifications were required for calibration and LCS outliers and for blank contamination.
Protocol, e.g.,	
Holding Times	
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and	
Quantitation	
System Performance	
COMMENTS ^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: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOC2063, IOC2064

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#: IOC2063, IOC2064
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Semivolatiles
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: M. Pokorny
Date of Review: April 11, 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 Semivolatile Organics (DVP-3, Rev. 2)*, *EPA Method 625*, 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 Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 011-Grab	Outfall 011-Grab	IOC2063-01	water	625
Outfall 011-Composite	Outfall 011-Composite	IOC2064-01	water	625

2. DATA VALIDATION FINDINGS

2.1 SAMPLE MANAGEMENT

The samples in these SDGs were received at the laboratory within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation, and no preservation was noted in the field. The COCs noted that the samples were received intact. 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 analysis 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 water samples were extracted within seven days of collection and analyzed within 40 days of collection. No qualifications were required.

2.2 GC/MS TUNING

The DFTPP tunes met the criteria specified in Method 625, and the samples were analyzed within 12 hours of the DFTPP injection time. No qualifications were required.

2.3 CALIBRATION

The initial calibration associated with this SDG was dated 03/17/05. The average RRFs for were ≥ 0.05 and the %RSDs were $\leq 35\%$ or $r^2 \geq 0.995$ for all target compounds listed on the sample summary form, except for the r^2 values for benzoic acid and 4,6-dinitro-2-methylphenol. Benzoic acid and 4,6-dinitro-2-methylphenol were qualified as estimated nondetects, "UJ," in the samples of these SDGs. The laboratory used more stringent %RSD criteria than required by Method 625, and provided reanalyses of both samples for 2,4-dinitrophenol only; however, as the original data met criteria, the reanalysis results, both nondetects, were rejected, "R," in favor of the original analysis results for 2,4-dinitrophenol. A representative number of average RRFs and %RSDs were checked from the raw data, and no calculation or transcription errors were noted. The continuing calibration associated with the sample analysis was analyzed 03/31/05. The RRFs for all target compounds were ≥ 0.05 , and the %Ds were $\leq 20\%$ except for the %Ds for hexachlorocyclopentadiene and benzidine. Hexachlorocyclopentadiene was qualified as an estimated nondetect, "UJ," in the samples of these SDGs. Benzidine was rejected for other reasons (see Section 2.5) and was not further qualified. A representative number of RRFs, r^2 values, and %Ds were checked from the raw data, and no calculation or transcription errors were noted. No further qualifications were required.

2.4 BLANKS

One method blank (5C28041-BLK1) was extracted and analyzed with this SDG. Butylbenzylphthalate, di-n-butylphthalate, and diethylphthalate were reported in the method blank and were qualified as nondetects, "U," in the samples of these SDGs. Review of the raw data indicated no reportable false negatives or false positives. No further qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/blank spike duplicate pair (5C28041-BS1/5C28041-BSD1) was extracted and analyzed with this SDG. All percent recoveries and RPDs were within the laboratory QC limits, except for benzidine which was not recovered in either the BS or BSD. Benzidine was rejected, "R," in the samples of these SDGs. A representative number of recoveries and RPDs were calculated from the raw data and no calculation or transcription errors were found. No further qualifications were required.

2.6 SURROGATE RECOVERY

The sample surrogate recoveries were within the laboratory QC limits. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with these SDGs. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate 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 samples. Following are findings associated with field QC samples:

2.8.1 Field Blanks and Equipment Rinsates

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

2.8.2 Field Duplicates

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

2.9 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts and retention times were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and ± 30 seconds for retention times. A representative number of recoveries were checked from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for semivolatile target compounds by EPA Method 625. Review of the sample chromatograms, retention times, and spectra indicated no problems with target compound identification. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification is verified at a Level IV data validation. No calculation or transcription errors were found. The reporting limits were supported by the low level of the initial calibration and the method detection limit study. No qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

TICs were not reported by the laboratory for these SDGs. No qualifications were required.

2.13 SYSTEM PERFORMANCE

Review of the raw data indicated no problems with system performance. No qualifications were required.



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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC2063

Sampled: 03/25/05
Received: 03/25/05

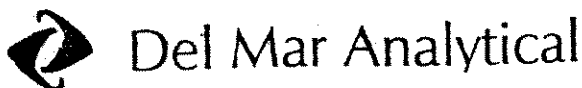
ACID & BASE/NEUTRALS BY GC/MS (EPA 625)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01RE1 (Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
2,4-Dinitrophenol	EPA 625	5C28041	2.7	5.0	ND	0.971	03/28/05	04/11/05	R D
Surrogate: 2-Fluorophenol (30-120%)					60 %				
Surrogate: Phenol-d6 (35-120%)					63 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					84 %				
Surrogate: Nitrobenzene-d5 (45-120%)					62 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					66 %				
Surrogate: Terphenyl-d14 (45-120%)					79 %				

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LEVEL IV

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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: 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	
									REV QUAL	QUAL CODE
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.										
Reporting Units: ug/l										
Fluoranthene	EPA 625	5C28041	0.089	0.50	ND	0.971	03/28/05	03/31/05	U	
Fluorene	EPA 625	5C28041	0.075	0.50	ND	0.971	03/28/05	03/31/05		
Hexachlorobenzene	EPA 625	5C28041	0.13	1.0	ND	0.971	03/28/05	03/31/05		
Hexachlorobutadiene	EPA 625	5C28041	0.38	2.0	ND	0.971	03/28/05	03/31/05		
Hexachlorocyclopentadiene	EPA 625	5C28041	1.8	5.0	ND	0.971	03/28/05	03/31/05	U	C
Hexachloroethane	EPA 625	5C28041	0.51	3.0	ND	0.971	03/28/05	03/31/05		
Indeno(1,2,3-cd)pyrene	EPA 625	5C28041	0.19	2.0	ND	0.971	03/28/05	03/31/05		
Isophorone	EPA 625	5C28041	0.059	1.0	ND	0.971	03/28/05	03/31/05		
2-Methylnaphthalene	EPA 625	5C28041	0.13	1.0	ND	0.971	03/28/05	03/31/05		
2-Methylphenol	EPA 625	5C28041	0.28	2.0	ND	0.971	03/28/05	03/31/05		
4-Methylphenol	EPA 625	5C28041	0.20	5.0	ND	0.971	03/28/05	03/31/05		
Naphthalene	EPA 625	5C28041	0.13	1.0	ND	0.971	03/28/05	03/31/05		
2-Nitroaniline	EPA 625	5C28041	0.18	5.0	ND	0.971	03/28/05	03/31/05		
3-Nitroaniline	EPA 625	5C28041	0.35	5.0	ND	0.971	03/28/05	03/31/05		
4-Nitroaniline	EPA 625	5C28041	0.49	5.0	ND	0.971	03/28/05	03/31/05		
Nitrobenzene	EPA 625	5C28041	0.10	1.0	ND	0.971	03/28/05	03/31/05		
2-Nitrophenol	EPA 625	5C28041	0.23	2.0	ND	0.971	03/28/05	03/31/05		
4-Nitrophenol	EPA 625	5C28041	0.73	5.0	ND	0.971	03/28/05	03/31/05		
N-Nitrosodimethylamine	EPA 625	5C28041	0.22	2.0	ND	0.971	03/28/05	03/31/05		
N-Nitroso-di-n-propylamine	EPA 625	5C28041	0.18	2.0	ND	0.971	03/28/05	03/31/05		
N-Nitrosodiphenylamine	EPA 625	5C28041	0.077	1.0	ND	0.971	03/28/05	03/31/05		
Pentachlorophenol	EPA 625	5C28041	0.78	2.0	ND	0.971	03/28/05	03/31/05		
Phenanthrene	EPA 625	5C28041	0.071	0.50	ND	0.971	03/28/05	03/31/05		
Phenol	EPA 625	5C28041	0.14	1.0	ND	0.971	03/28/05	05/31/05		
Pyrene	EPA 625	5C28041	0.059	0.50	ND	0.971	03/28/05	05/31/05		
1,2,4-Trichlorobenzene	EPA 625	5C28041	0.10	1.0	ND	0.971	03/28/05	05/31/05		
2,4,5-Trichlorophenol	EPA 625	5C28041	0.075	2.0	ND	0.971	03/28/05	05/31/05		
2,4,6-Trichlorophenol	EPA 625	5C28041	0.10	1.0	ND	0.971	03/28/05	05/31/05		
Surrogate: 2-Fluorophenol (30-120%)										64 %
Surrogate: Phenol-d6 (35-120%)										65 %
Surrogate: 2,4,6-Tribromophenol (45-120%)										85 %
Surrogate: Nitrobenzene-d5 (45-120%)										64 %
Surrogate: 2-Fluorobiphenyl (45-120%)										69 %
Surrogate: Terphenyl-d14 (45-120%)										84 %

AMEC VALIDATED

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

LEVEL IV

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

Project ID: 13267 (Study 1)

Outfall 011

Report Number: IOC2063

Sampled: 03/25/05

Received: 03/25/05

DRAFT: 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	REQUAL	QUAL CODE
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water)										REQUAL	QUAL CODE
Reporting Units: ug/l											
Acenaphthene	EPA 625	5C28041	0.10	0.50	ND	0.971	03/28/05	03/31/05	U		
Acenaphthylene	EPA 625	5C28041	0.10	0.50	ND	0.971	03/28/05	03/31/05	U		
Aniline	EPA 625	5C28041	2.9	10	ND	0.971	03/28/05	03/31/05	U		
Anthracene	EPA 625	5C28041	0.083	0.50	ND	0.971	03/28/05	03/31/05	U		
Benzidine	EPA 625	5C28041	2.4	5.0	ND	0.971	03/28/05	03/31/05	U	L2	L
Benzoic acid	EPA 625	5C28041	3.7	20	ND	0.971	03/28/05	03/31/05	U	J	C
Benzo(a)anthracene	EPA 625	5C28041	0.038	5.0	ND	0.971	03/28/05	03/31/05	U		
Benzo(a)pyrene	EPA 625	5C28041	0.14	2.0	ND	0.971	03/28/05	03/31/05	U		
Benzo(b)fluoranthene	EPA 625	5C28041	0.050	2.0	ND	0.971	03/28/05	03/31/05	U		
Benzo(g,h,i)perylene	EPA 625	5C28041	0.059	5.0	ND	0.971	03/28/05	03/31/05	U		
Benzo(k)fluoranthene	EPA 625	5C28041	0.053	0.50	ND	0.971	03/28/05	03/31/05	U		
Benzyl alcohol	EPA 625	5C28041	0.21	5.0	ND	0.971	03/28/05	03/31/05	U		
Bis(2-chloroethoxy)methane	EPA 625	5C28041	0.072	0.50	ND	0.971	03/28/05	03/31/05	U		
Bis(2-chloroethyl)ether	EPA 625	5C28041	0.084	0.50	ND	0.971	03/28/05	03/31/05	U		
Bis(2-chloroisopropyl)ether	EPA 625	5C28041	0.11	0.50	ND	0.971	03/28/05	03/31/05	U		
Bis(2-ethylhexyl)phthalate	EPA 625	5C28041	1.1	5.0	ND	0.971	03/28/05	03/31/05	U		
4-Bromophenyl phenyl ether	EPA 625	5C28041	0.12	1.0	ND	0.971	03/28/05	03/31/05	U		
Butyl benzyl phthalate	EPA 625	5C28041	0.34	5.0	ND 0.68	0.971	03/28/05	03/31/05	U	J	B
4-Chloroaniline	EPA 625	5C28041	0.20	2.0	ND	0.971	03/28/05	03/31/05	U		
2-Chloronaphthalene	EPA 625	5C28041	0.059	0.50	ND	0.971	03/28/05	03/31/05	U		
4-Chloro-3-methylphenol	EPA 625	5C28041	0.34	2.0	ND	0.971	03/28/05	03/31/05	U		
4-Chlorophenyl phenyl ether	EPA 625	5C28041	0.056	0.50	ND	0.971	03/28/05	03/31/05	U		
2-Chlorophenol	EPA 625	5C28041	0.12	1.0	ND	0.971	03/28/05	03/31/05	U		
Chrysene	EPA 625	5C28041	0.072	0.50	ND	0.971	03/28/05	03/31/05	U		
Dibenz(a,h)anthracene	EPA 625	5C28041	0.083	0.50	ND	0.971	03/28/05	03/31/05	U		
Dibenzofuran	EPA 625	5C28041	0.075	0.50	ND	0.971	03/28/05	03/31/05	U		
Di-n-butyl phthalate	EPA 625	5C28041	0.26	2.0	ND 0.87	0.971	03/28/05	03/31/05	U	J	B
1,2-Dichlorobenzene	EPA 625	5C28041	0.11	0.50	ND	0.971	03/28/05	03/31/05	U		
1,3-Dichlorobenzene	EPA 625	5C28041	0.13	0.50	ND	0.971	03/28/05	03/31/05	U		
1,4-Dichlorobenzene	EPA 625	5C28041	0.050	0.50	ND	0.971	03/28/05	03/31/05	U		
3,3-Dichlorobenzidine	EPA 625	5C28041	0.93	5.0	ND	0.971	03/28/05	03/31/05	U		
2,4-Dichlorophenol	EPA 625	5C28041	0.21	2.0	ND	0.971	03/28/05	03/31/05	U		
Diethyl phthalate	EPA 625	5C28041	0.12	1.0	ND 0.23	0.971	03/28/05	03/31/05	U	J	B
2,4-Dimethylphenol	EPA 625	5C28041	0.31	2.0	ND	0.971	03/28/05	03/31/05	U		
Dimethyl phthalate	EPA 625	5C28041	0.081	0.50	ND	0.971	03/28/05	03/31/05	U		
4,6-Dinitro-2-methylphenol	EPA 625	5C28041	0.38	5.0	ND	0.971	03/28/05	03/31/05	U	J	C
2,4-Dinitrophenol	EPA 625	5C28041	2.7	5.0	ND	0.971	03/28/05	03/31/05	U	N-1	
2,4-Dinitrotoluene	EPA 625	5C28041	0.23	5.0	ND	0.971	03/28/05	03/31/05	U		
2,6-Dinitrotoluene	EPA 625	5C28041	0.24	5.0	ND	0.971	03/28/05	03/31/05	U		
Di-n-octyl phthalate	EPA 625	5C28041	0.17	5.0	ND	0.971	03/28/05	03/31/05	U		
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5C28041	0.087	1.0	ND	0.971	03/28/05	03/31/05	U		

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MP 4.11.05



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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: 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	QUAL CODE
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water)										
Reporting Units: ug/l										
Acenaphthene	EPA 625	5C28041	0.10	0.50	ND	0.943	03/28/05	03/31/05	U	
Acenaphthylene	EPA 625	5C28041	0.10	0.50	ND	0.943	03/28/05	03/31/05	U	
Aniline	EPA 625	5C28041	2.9	10	ND	0.943	03/28/05	03/31/05	U	
Anthracene	EPA 625	5C28041	0.083	0.50	ND	0.943	03/28/05	03/31/05	U	
Benzidine	EPA 625	5C28041	2.4	5.0	ND	0.943	03/28/05	03/31/05	U	
Benzoic acid	EPA 625	5C28041	3.7	20	ND	0.943	03/28/05	03/31/05	U	
Benzo(a)anthracene	EPA 625	5C28041	0.038	5.0	ND	0.943	03/28/05	03/31/05	U	
Benzo(a)pyrene	EPA 625	5C28041	0.14	2.0	ND	0.943	03/28/05	03/31/05	U	
Benzo(b)fluoranthene	EPA 625	5C28041	0.050	2.0	ND	0.943	03/28/05	03/31/05	U	
Benzo(g,h,i)perylene	EPA 625	5C28041	0.059	5.0	ND	0.943	03/28/05	03/31/05	U	
Benzo(k)fluoranthene	EPA 625	5C28041	0.053	0.50	ND	0.943	03/28/05	03/31/05	U	
Benzyl alcohol	EPA 625	5C28041	0.21	5.0	ND	0.943	03/28/05	03/31/05	U	
Bis(2-chloroethoxy)methane	EPA 625	5C28041	0.072	0.50	ND	0.943	03/28/05	03/31/05	U	
Bis(2-chloroethyl)ether	EPA 625	5C28041	0.084	0.50	ND	0.943	03/28/05	03/31/05	U	
Bis(2-chloroisopropyl)ether	EPA 625	5C28041	0.11	0.50	ND	0.943	03/28/05	03/31/05	U	
Bis(2-ethylhexyl)phthalate	EPA 625	5C28041	1.1	5.0	ND	0.943	03/28/05	03/31/05	U	
4-Bromophenyl phenyl ether	EPA 625	5C28041	0.12	1.0	ND	0.943	03/28/05	03/31/05	U	
Butyl benzyl phthalate	EPA 625	5C28041	0.34	5.0	ND 0.70	0.943	03/28/05	03/31/05	U J	B
4-Chloroaniline	EPA 625	5C28041	0.20	2.0	ND	0.943	03/28/05	03/31/05	U	
2-Chloronaphthalene	EPA 625	5C28041	0.059	0.50	ND	0.943	03/28/05	03/31/05	U	
4-Chloro-3-methylphenol	EPA 625	5C28041	0.34	2.0	ND	0.943	03/28/05	03/31/05	U	
4-Chlorophenyl phenyl ether	EPA 625	5C28041	0.056	0.50	ND	0.943	03/28/05	03/31/05	U	
2-Chlorophenol	EPA 625	5C28041	0.12	1.0	ND	0.943	03/28/05	03/31/05	U	
Chrysene	EPA 625	5C28041	0.072	0.50	ND	0.943	03/28/05	03/31/05	U	
Dibenz(a,h)anthracene	EPA 625	5C28041	0.083	0.50	ND	0.943	03/28/05	03/31/05	U	
Dibenzofuran	EPA 625	5C28041	0.075	0.50	ND	0.943	03/28/05	03/31/05	U	
Di-n-butyl phthalate	EPA 625	5C28041	0.26	2.0	ND	0.943	03/28/05	03/31/05	U	
1,2-Dichlorobenzene	EPA 625	5C28041	0.11	0.50	ND	0.943	03/28/05	03/31/05	U	
1,3-Dichlorobenzene	EPA 625	5C28041	0.13	0.50	ND	0.943	03/28/05	03/31/05	U	
1,4-Dichlorobenzene	EPA 625	5C28041	0.050	0.50	ND	0.943	03/28/05	03/31/05	U	
3,3-Dichlorobenzidine	EPA 625	5C28041	0.93	5.0	ND	0.943	03/28/05	03/31/05	U	
2,4-Dichlorophenol	EPA 625	5C28041	0.21	2.0	ND	0.943	03/28/05	03/31/05	U	
Diethyl phthalate	EPA 625	5C28041	0.12	1.0	ND 0.26	0.943	03/28/05	03/31/05	U J	B
2,4-Dimethylphenol	EPA 625	5C28041	0.31	2.0	ND	0.943	03/28/05	03/31/05	U	
Dimethyl phthalate	EPA 625	5C28041	0.081	0.50	ND	0.943	03/28/05	03/31/05	U	
4,6-Dinitro-2-methylphenol	EPA 625	5C28041	0.38	5.0	ND	0.943	03/28/05	03/31/05	U J	C
2,4-Dinitrophenol	EPA 625	5C28041	2.7	5.0	ND	0.943	03/28/05	03/31/05	U	N-1
2,4-Dinitrotoluene	EPA 625	5C28041	0.23	5.0	ND	0.943	03/28/05	03/31/05	U	
2,6-Dinitrotoluene	EPA 625	5C28041	0.24	5.0	ND	0.943	03/28/05	03/31/05	U	
Di-n-octyl phthalate	EPA 625	5C28041	0.17	5.0	ND	0.943	03/28/05	03/31/05	U	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5C28041	0.087	1.0	ND	0.943	03/28/05	03/31/05	U	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: 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: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Fluoranthene	EPA 625	5C28041	0.089	0.50	ND	0.943	03/28/05	03/31/05	U
Fluorene	EPA 625	5C28041	0.075	0.50	ND	0.943	03/28/05	03/31/05	U
Hexachlorobenzene	EPA 625	5C28041	0.13	1.0	ND	0.943	03/28/05	03/31/05	U
Hexachlorobutadiene	EPA 625	5C28041	0.38	2.0	ND	0.943	03/28/05	03/31/05	U
Hexachlorocyclopentadiene	EPA 625	5C28041	1.8	5.0	ND	0.943	03/28/05	03/31/05	U J C
Hexachloroethane	EPA 625	5C28041	0.51	3.0	ND	0.943	03/28/05	03/31/05	U
Indeno(1,2,3-cd)pyrene	EPA 625	5C28041	0.19	2.0	ND	0.943	03/28/05	03/31/05	U
Isophorone	EPA 625	5C28041	0.059	1.0	ND	0.943	03/28/05	03/31/05	U
2-Methylnaphthalene	EPA 625	5C28041	0.13	1.0	ND	0.943	03/28/05	03/31/05	U
2-Methylphenol	EPA 625	5C28041	0.28	2.0	ND	0.943	03/28/05	03/31/05	U
4-Methylphenol	EPA 625	5C28041	0.20	5.0	ND	0.943	03/28/05	03/31/05	U
Naphthalene	EPA 625	5C28041	0.13	1.0	ND	0.943	03/28/05	03/31/05	U
2-Nitroaniline	EPA 625	5C28041	0.18	5.0	ND	0.943	03/28/05	03/31/05	U
3-Nitroaniline	EPA 625	5C28041	0.35	5.0	ND	0.943	03/28/05	03/31/05	U
4-Nitroaniline	EPA 625	5C28041	0.49	5.0	ND	0.943	03/28/05	03/31/05	U
Nitrobenzene	EPA 625	5C28041	0.10	1.0	ND	0.943	03/28/05	03/31/05	U
2-Nitrophenol	EPA 625	5C28041	0.23	2.0	ND	0.943	03/28/05	03/31/05	U
4-Nitrophenol	EPA 625	5C28041	0.73	5.0	ND	0.943	03/28/05	03/31/05	U
N-Nitrosodimethylamine	EPA 625	5C28041	0.22	2.0	ND	0.943	03/28/05	03/31/05	U
N-Nitroso-di-n-propylamine	EPA 625	5C28041	0.18	2.0	ND	0.943	03/28/05	03/31/05	U
N-Nitrosodiphenylamine	EPA 625	5C28041	0.077	1.0	ND	0.943	03/28/05	03/31/05	U
Pentachlorophenol	EPA 625	5C28041	0.78	2.0	ND	0.943	03/28/05	03/31/05	U
Phenanthrene	EPA 625	5C28041	0.071	0.50	ND	0.943	03/28/05	03/31/05	U
Phenol	EPA 625	5C28041	0.14	1.0	ND	0.943	03/28/05	03/31/05	U
Pyrene	EPA 625	5C28041	0.059	0.50	ND	0.943	03/28/05	03/31/05	U
1,2,4-Trichlorobenzene	EPA 625	5C28041	0.10	1.0	ND	0.943	03/28/05	03/31/05	U
2,4,5-Trichlorophenol	EPA 625	5C28041	0.075	2.0	ND	0.943	03/28/05	03/31/05	U
2,4,6-Trichlorophenol	EPA 625	5C28041	0.10	1.0	ND	0.943	03/28/05	03/31/05	U
Surrogate: 2-Fluorophenol (30-120%)									63 %
Surrogate: Phenol-d6 (35-120%)									66 %
Surrogate: 2,4,6-Tribromophenol (45-120%)									87 %
Surrogate: Nitrobenzene-d5 (45-120%)									67 %
Surrogate: 2-Fluorobiphenyl (45-120%)									70 %
Surrogate: Terphenyl-d14 (45-120%)									83 %

LEVEL IV

AMEC VALIDATED

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

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: IOC2064-01RE1 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
2,4-Dinitrophenol	EPA 625	5C28041	2.7	5.0	ND	0.943	03/28/05	04/11/05	R D
Surrogate: 2-Fluorophenol (30-120%)					61 %				
Surrogate: Phenol-d6 (35-120%)					66 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					89 %				
Surrogate: Nitrobenzene-d5 (45-120%)					66 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					71 %				
Surrogate: Terphenyl-d14 (45-120%)					81 %				

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 LEVEL IV**

Del Mar Analytical, Irvine
 Michele Harper
 Project Manager


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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711TF60
 Task Order 313150010
 SDG No. IOC2063, IOC2064
 No. of Analyses 2

Laboratory Pacific Analytical
 Reviewer L. Calvin
 Analysis/Method EFH by Method 8015B

Date: April 12, 2005
 Reviewer's Signature: 

ACTION ITEMS^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification 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 VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOC2063, IOC2064

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#: IOC2063, IOC2064
Project Manager: B. McIlvaine
Matrix: Water
Analysis: TPH-Extractable
QC Level: Level IV
No. of Samples: 2
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
Date of Review: April 12, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015M, and validation guidelines outlined in the *USEPA CLP 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 Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 011 Grab	Outfall 011 Grab	IOC2063-01	water	8015B/EFH
Outfall 011 Composite	Outfall 011 Composite	IOC2064-01	water	8015B/EFH

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 Del Mar Analytical laboratory on ice within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The Del Mar Analytical case narrative noted that the sample containers were received intact. No qualifications were required.

2.1.2 Chain of Custody

The COCs were signed and dated by both field and laboratory personnel, and 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 extracted within seven days of sample collection and analyzed within 40 days of extraction. No qualifications were required.

2.2 CALIBRATION

The initial calibration associated with the sample analyses was analyzed on 03/11/05. The %RSD was within the QC limit of $\leq 20\%$. The %Ds for the initial calibration verification (ICV) and continuing calibrations associated with the sample analysis were $\leq 15\%$. The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 METHOD BLANKS

One method blank (5C26001-BLK1) was extracted and analyzed with the samples in these SDGs. EFH (C13-C22) was not present above the MDL in the method blank or in the instrument blank analyzed at the beginning of the analytical sequence. Review of the chromatograms showed no false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One method blank spike/blank spike duplicate pair (5C26001-BS1/BSD1) was extracted and analyzed with the samples in these SDGs. The laboratory reported recoveries of alkane range C13-C28 from spiked diesel. The recoveries were within the laboratory-established QC limits of 40-120%, and the RPD was within the QC limit of $\leq 25\%$. The recoveries and RPD were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound n-octacosane. The sample surrogate recoveries were within the laboratory-established QC limits of 40-125%. The recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses performed on the samples of these SDGs. Evaluation of method accuracy and precision was based on the BS/BSD results. No qualifications were required.

2.8 FIELD QC SAMPLES

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

2.9.1 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinse samples associated with the site samples in these SDGs. No qualifications were required.

2.9.2 Field Duplicates

There were no field duplicate samples associated with these SDGs.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for EFH n-alkane range C13-C22 by Method 8015B. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for these SDGs. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for these SDGs by recalculating any sample detects, blank spike recoveries, and a representative number of surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and by the laboratory MDL. Results were reported in mg/L (ppm). No qualifications were required.



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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifier
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C26001	0.082	0.50	ND	0.952	03/26/05	03/29/05	U
Surrogate: n-Octacosane (40-125%)						95 %			

Very good quality code

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C26001	0.082	0.50	ND	0.943	03/26/05	03/28/05	u
Surrogate: n-Octacosane (40-125%)					65 %				

*red
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 good*

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711TF61
 Task Order 313150010
 SDG No. IOC2063, IOC2064

No. of Analyses 4

Laboratory Pacific Analytical
 Reviewer L. Calvin
 Analysis/Method GRO by Method 8015M

Date: April 12, 2005
 Reviewer's signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification 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 VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/Purgeable

SAMPLE DELIVERY GROUP: IOC2063, IOC2064

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#: IOC2063, IOC2064
Project Manager: B. McIlvaine
Matrix: Water
Analysis: TPH-Purgeable
QC Level: Level IV
No. of Samples: 4
No. of Reanalyses/Dilutions: 0
Reviewer: L. Calvin
Date of Review: April 12, 2005

The samples listed in Table 1 were validated based on the general guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Extractable Total Fuel Hydrocarbons by GC (DVP-8, Rev. 2)*, USEPA SW-846 Method 8015M, and validation guidelines outlined in the *USEPA CLP 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 Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

Table 1. Sample identification

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 011 Grab	Outfall 011 Grab	IOC2063-01	water	8015M/GRO
Trip Blank	Trip Blank	IOC2063-02	water	8015M/GRO
Outfall 011 Composite	Outfall 011 Composite	IOC2064-01	water	8015M/GRO
Trip Blank	Trip Blank	IOC2064-02	water	8015M/GRO

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 Del Mar Analytical on ice within the temperature limits of $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The Del Mar Analytical case narrative noted that the samples were received intact, and the COCs indicated the samples were properly preserved. Information regarding lack of headspace in the VOA vials 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. As the samples were couriered directly to the laboratory, custody seals were not required. No qualifications were required.

2.1.3 Holding Times

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

2.2 CALIBRATION

One gasoline standard initial calibration dated 08/15/04 was associated with the sample analyses. The %RSD for GRO (C4-C12) was within the QC limit of $\leq 20\%$. An initial calibration verification (ICV) was not provided in the data package. The %Ds for both CCVs bracketing the sample analyses were within the Method QC limit of $\leq 15\%$. The %RSD and %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.4 METHOD BLANKS

One water method blank (5C26026-BLK1) was associated with the sample analyses. GRO (C4-C12) was not detected above the MDL in the method blank. Review of the raw data indicated no false negative result. No qualifications were necessary.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water method blank spike (5C26026-BS1) was associated with the sample analyses. GRO (C4-C12) was recovered within the laboratory-established QC limits of 70-140% in the blank spike. The recovery was checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

2.6 SURROGATE RECOVERY

The samples were fortified with the surrogate compound 4-bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC limits of 65-140%. Recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on the site samples of these SDGs. Evaluation of method accuracy was based on the blank spike results. No qualifications were required.

2.8 FIELD QC SAMPLES

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

2.9.1 Trip Blanks, Field Blanks, and Equipment Rinsates

Samples Trip Blank (IOC2063-02) and Trip Blank (IOC2064-02) were the trip blanks associated with site samples Outfall 011 Grab and Outfall 011 Composite, respectively. GRO (C4-C12) was not detected above the MDL in either trip blank. Review of the raw data indicated no false negative results. There were no field blank or equipment rinsate samples associated with these SDGs. No qualifications were necessary.

2.9.2 Field Duplicates

There were no field duplicate samples in these SDGs.

2.10 COMPOUND IDENTIFICATION

The laboratory analyzed for GRO (C4-C12) by EPA SW-846 Method 8015M. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for the samples in these SDGs. No qualifications were required.

2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for these SDGs by recalculating any sample detects, blank spike recoveries, and a representative number of surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and by the laboratory MDL. Results were reported in units of mg/L (ppt). No qualifications were required.



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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C26026	0.050	0.10	ND	1	03/26/05	03/28/05	u
Surrogate: 4-BFB (FID) (65-140%)					104 %				
Sample ID: IOC2063-02 (DRAFT: Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C26026	0.050	0.10	ND	1	03/26/05	03/27/05	u
Surrogate: 4-BFB (FID) (65-140%)					103 %				

real qual
qual
code

AMEC VALIDATED

LEVEL IV

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 DRAFT REPORT
 DATA SUBJECT TO CHANGE



Del Mar Analytical

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 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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C26026	0.050	0.10	ND	1	03/26/05	03/28/05	u
Surrogate: 4-BFB (FID) (65-140%)					102 %				
Sample ID: IOC2064-02 (DRAFT: Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C26026	0.050	0.10	ND	1	03/26/05	03/27/05	u
Surrogate: 4-BFB (FID) (65-140%)					88 %				

ret qual
 qual code

AMEC VALIDATED

LEVEL IV

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

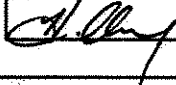
CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA

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

Package ID T711VO92
 Task Order 313150010
 SDG No. IOC2063, IOC2064

No. of Analyses 4

Laboratory Del Mar
 Reviewer H. Chang
 Analysis/Method Volatiles/624

Date: April 11, 2005
 Reviewer's Signature


ACTION ITEMS ^a	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Perform Calibrations Blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification and Quantitation System Performance	Acrolein was rejected in all samples due to low RRFs in initial and continuing calibrations.
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: IOC2063, IOC2064

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#: IOC2063, IOC2064
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Volatiles
QC Level: Level IV
No. of Samples: 4
No. of Reanalyses/Dilutions: 0
Reviewer: H. Chang
Date of Review: April 11, 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*, *EPA SW-846 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 011 Grab	Outfall 011 Grab	IOC2063-01	water	624
Trip Blank	Trip Blank	IOC2063-02	water	624
Outfall 011 Composite	Outfall 011 Composite	IOC2064-01	water	624
Trip Blank	Trip Blank	IOC2064-02	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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. 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 COCs were signed and dated by both field and laboratory personnel. The COCs accounted for the analysis 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

All ion abundances were within the limits specified in the EPA Method 624. The samples and associated QC were analyzed within 12 hours of the BFB injection times. The Form Vs were verified from the raw data and no discrepancies between the summary forms and the raw data were noted. No qualifications were required.

2.3 CALIBRATION

Two initial calibrations dated 03/04/05 and 03/16/05 (1,1,2-trichloro-1,2,2-trifluoroethane, acrolein, and acrylonitrile only) were associated with these SDGs. The average RRF for acrolein was <0.05 in the initial calibration dated 03/16/05; therefore, the nondetect results for acrolein were rejected, "R," in all samples of these SDGs. The average RRFs were ≥ 0.05 for the remaining target compounds listed on the sample result summaries. The %RSDs were $\leq 35\%$ for all applicable target compounds.

Two continuing calibrations dated 03/27/05 at 09:39 and at 10:11 (1,1,2-trichloro-1,2,2-trifluoroethane, acrolein, and acrylonitrile only) were associated with the sample analyses in these SDGs. The RRF for acrolein was <0.05 in the continuing calibration; therefore, the nondetect results for acrolein were rejected, "R," in all samples of these SDGs. All other RRFs were ≥ 0.05 for the remaining target compounds. All %Ds were within $\pm 20\%$ with the exception of acrolein which had a %D greater than 20%. No additional qualification was necessary since acrolein was already rejected due to low RRFs. 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

One water method blank (5C27003-BLK1) was associated with the sample analyses. There were no detects above the MDLs for the target compounds listed on the sample result summary. The method blank raw data showed no evidence of false negatives. No qualifications were required.

2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water blank spike (5C27003-BS1) was 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

MS/MSD analyses were performed on sample Outfall 011 Grab. All recoveries and RPDs were within the laboratory-established QC limits. A representative number of recoveries and RPDs were recalculated from the raw data and no calculation or transcription errors were found. 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 (IOC2063) and Trip Blank (IOC2064) 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. No qualifications were required.

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 volatile target compounds by EPA Method 624. A TIC search was performed for requested target compounds 1,2-dichloro-1,1,2-trifluoroethane and cyclohexane. The laboratory calibrated for target compound 1,2-dichloro-1,1,2-trifluoroethane; however, the calibration was not used for identification. Target compound cyclohexane was not included in the calibration (see section 2.11). TIC scan did not identify neither compound. 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 standards and by the MDL study. Calibration was not utilized for target compounds 1,2-dichloro-1,1,2-trifluoroethane and cyclohexane; therefore, the laboratory performed only a TIC search for these compounds. Nondetects for both compounds were qualified as estimated, "UJ," in the samples Outfall 011 Grab and Outfall 011 Composite. Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike and surrogate recoveries from the raw data. Results were reported in $\mu\text{g/L}$ (ppb). No calculation or transcription errors were noted. No further qualifications were required.

2.12 TENTATIVELY IDENTIFIED COMPOUNDS

The laboratory did not report TICs for these SDGs other than two target compounds reported using a TIC scan (see Section 2.10). Reporting of TICs is not required by EPA Method 624. 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.



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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

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: IOC2063-01 (DRAFT: Outfall 011 Grab - Water)											
Reporting Units: ug/l											
Benzene	EPA 624	5C27003	0.28	1.0	ND	1	03/27/05	03/27/05		u	
Bromodichloromethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05			
Bromoform	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05			
Bromomethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05			
Carbon tetrachloride	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05			
Chlorobenzene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05			
Chloroethane	EPA 624	5C27003	0.33	5.0	ND	1	03/27/05	03/27/05			
Chloroform	EPA 624	5C27003	0.33	2.0	ND	1	03/27/05	03/27/05			
Chloromethane	EPA 624	5C27003	0.30	5.0	ND	1	03/27/05	03/27/05			
Dibromochloromethane	EPA 624	5C27003	0.28	2.0	ND	1	03/27/05	03/27/05			
1,2-Dichlorobenzene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05			
1,3-Dichlorobenzene	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05			
1,4-Dichlorobenzene	EPA 624	5C27003	0.37	2.0	ND	1	03/27/05	03/27/05			
1,1-Dichloroethane	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05			
1,2-Dichloroethane	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05			
1,1-Dichloroethene	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05			
trans-1,2-Dichloroethene	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05			
1,2-Dichloropropane	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05			
cis-1,3-Dichloropropene	EPA 624	5C27003	0.22	2.0	ND	1	03/27/05	03/27/05			
trans-1,3-Dichloropropene	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05			
Ethylbenzene	EPA 624	5C27003	0.25	2.0	ND	1	03/27/05	03/27/05			
Methylene chloride	EPA 624	5C27003	0.48	5.0	ND	1	03/27/05	03/27/05			
1,1,2,2-Tetrachloroethane	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05			
Tetrachloroethene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05			
Toluene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05			
1,1,1-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05			
1,1,2-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05			
Trichloroethene	EPA 624	5C27003	0.26	2.0	ND	1	03/27/05	03/27/05			
Trichlorofluoromethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05			
Vinyl chloride	EPA 624	5C27003	0.26	0.50	ND	1	03/27/05	03/27/05			
Xylenes, Total	EPA 624	5C27003	0.52	4.0	ND	1	03/27/05	03/27/05			
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C27003	1.2	5.0	ND	1	03/27/05	03/27/05			
Surrogate: Dibromofluoromethane (80-120%)					108 %						
Surrogate: Toluene-d8 (80-120%)					101 %						
Surrogate: 4-Bromofluorobenzene (80-120%)					94 %						

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

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 Code
Sample ID: IOC2063-02 (DRAFT: Trip Blank - Water)										
Reporting Units: ug/l										
Benzene	EPA 624	5C27003	0.28	1.0	ND	1	03/27/05	03/27/05	u	
Bromodichloromethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05		
Bromoform	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05		
Bromomethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05		
Carbon tetrachloride	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05		
Chlorobenzene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05		
Chloroethane	EPA 624	5C27003	0.33	5.0	ND	1	03/27/05	03/27/05		
Chloroform	EPA 624	5C27003	0.33	2.0	ND	1	03/27/05	03/27/05		
Chloromethane	EPA 624	5C27003	0.30	5.0	ND	1	03/27/05	03/27/05		
Dibromochloromethane	EPA 624	5C27003	0.28	2.0	ND	1	03/27/05	03/27/05		
1,2-Dichlorobenzene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05		
1,3-Dichlorobenzene	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05		
1,4-Dichlorobenzene	EPA 624	5C27003	0.37	2.0	ND	1	03/27/05	03/27/05		
1,1-Dichloroethane	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05		
1,2-Dichloroethane	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05		
1,1-Dichloroethene	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05		
trans-1,2-Dichloroethene	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05		
1,2-Dichloropropane	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05		
cis-1,3-Dichloropropene	EPA 624	5C27003	0.22	2.0	ND	1	03/27/05	03/27/05		
trans-1,3-Dichloropropene	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05		
Ethylbenzene	EPA 624	5C27003	0.25	2.0	ND	1	03/27/05	03/27/05		
Methylene chloride	EPA 624	5C27003	0.48	5.0	ND	1	03/27/05	03/27/05		
1,1,2,2-Tetrachloroethane	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05		
Tetrachloroethene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05		
Toluene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05		
1,1,1-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05		
1,1,2-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05		
Trichloroethene	EPA 624	5C27003	0.26	2.0	ND	1	03/27/05	03/27/05		
Trichlorofluoromethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05		
Vinyl chloride	EPA 624	5C27003	0.26	0.50	ND	1	03/27/05	03/27/05		
Xylenes, Total	EPA 624	5C27003	0.52	4.0	ND	1	03/27/05	03/27/05		
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C27003	1.2	5.0	ND	1	03/27/05	03/27/05		
Surrogate: Dibromofluoromethane (80-120%)					108 %					
Surrogate: Toluene-d8 (80-120%)					100 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					92 %					

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

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: IOC2063-01 (DRAFT: Outfall 011 Grab - Water)										
Reporting Units: ug/l										
Acrolein	EPA 624	5C27003	4.6	50	ND	1	03/27/05	03/27/05	R	R
Acrylonitrile	EPA 624	5C27003	5.1	50	ND	1	03/27/05	03/27/05	u	
2-Chloroethyl vinyl ether	EPA 624	5C27003	1.3	5.0	ND	1	03/27/05	03/27/05	u	
Surrogate: Dibromofluoromethane (80-120%)					108 %					
Surrogate: Toluene-d8 (80-120%)					101 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					94 %					
Sample ID: IOC2063-02 (DRAFT: Trip Blank - Water)										
Reporting Units: ug/l										
Acrolein	EPA 624	5C27003	4.6	50	ND	1	03/27/05	05/27/05	R	R
Acrylonitrile	EPA 624	5C27003	5.1	50	ND	1	03/27/05	05/27/05	u	
2-Chloroethyl vinyl ether	EPA 624	5C27003	1.3	5.0	ND	1	03/27/05	05/27/05	u	
Surrogate: Dibromofluoromethane (80-120%)					108 %					
Surrogate: Toluene-d8 (80-120%)					100 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					92 %					

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									Raw Qual	Qual Code
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water)										
Reporting Units: ug/l										
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	UJ	*11
Cyclohexane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	UJ	*11
Sample ID: IOC2063-02 (DRAFT: Trip Blank - Water)										
Reporting Units: ug/l										
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	U	
Cyclohexane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	U	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

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: IOC2064-01 (DRAFT: Outfall 011 Composite - Water)											
Reporting Units: ug/l											
Benzene	EPA 624	5C27003	0.28	1.0	ND	1	03/27/05	03/27/05		U	
Bromodichloromethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05			
Bromoform	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05			
Bromomethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05			
Carbon tetrachloride	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05			
Chlorobenzene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05			
Chloroethane	EPA 624	5C27003	0.33	5.0	ND	1	03/27/05	03/27/05			
Chloroform	EPA 624	5C27003	0.33	2.0	ND	1	03/27/05	03/27/05			
Chloromethane	EPA 624	5C27003	0.30	5.0	ND	1	03/27/05	03/27/05			
Dibromochloromethane	EPA 624	5C27003	0.28	2.0	ND	1	03/27/05	03/27/05			
1,2-Dichlorobenzene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05			
1,3-Dichlorobenzene	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05			
1,4-Dichlorobenzene	EPA 624	5C27003	0.37	2.0	ND	1	03/27/05	03/27/05			
1,1-Dichloroethane	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05			
1,2-Dichloroethane	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05			
trans-1,2-Dichloroethene	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05			
1,2-Dichloropropane	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05			
cis-1,3-Dichloropropene	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05			
trans-1,3-Dichloropropene	EPA 624	5C27003	0.22	2.0	ND	1	03/27/05	03/27/05			
Ethylbenzene	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05			
Methylene chloride	EPA 624	5C27003	0.25	2.0	ND	1	03/27/05	03/27/05			
1,1,2,2-Tetrachloroethane	EPA 624	5C27003	0.48	5.0	ND	1	03/27/05	03/27/05			
Tetrachloroethene	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05			
Toluene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05			
1,1,1-Trichloroethane	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05			
1,1,2-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05			
Trichloroethene	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05			
Trichlorofluoromethane	EPA 624	5C27003	0.26	2.0	ND	1	03/27/05	03/27/05			
Vinyl chloride	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05			
Xylenes, Total	EPA 624	5C27003	0.26	0.50	ND	1	03/27/05	03/27/05			
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C27003	0.52	4.0	ND	1	03/27/05	03/27/05			
Surrogate: Dibromofluoromethane (80-120%)			1.2	5.0	ND	1	03/27/05	03/27/05			
Surrogate: Toluene-d8 (80-120%)											105 %
Surrogate: 4-Bromofluorobenzene (80-120%)											100 %
											94 %

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

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: IOC2064-02 (DRAFT: Trip Blank - Water)											
Reporting Units: ug/l											
Benzene	EPA 624	5C27003	0.28	1.0	ND	1	03/27/05	03/27/05		u	
Bromodichloromethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05			
Bromoform	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05			
Bromomethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05			
Carbon tetrachloride	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05			
Chlorobenzene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05			
Chloroethane	EPA 624	5C27003	0.33	5.0	ND	1	03/27/05	03/27/05			
Chloroform	EPA 624	5C27003	0.33	2.0	ND	1	03/27/05	03/27/05			
Chloromethane	EPA 624	5C27003	0.30	5.0	ND	1	03/27/05	03/27/05			
Dibromochloromethane	EPA 624	5C27003	0.28	2.0	ND	1	03/27/05	03/27/05			
1,2-Dichlorobenzene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05			
1,3-Dichlorobenzene	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05			
1,4-Dichlorobenzene	EPA 624	5C27003	0.37	2.0	ND	1	03/27/05	03/27/05			
1,1-Dichloroethane	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05			
1,2-Dichloroethane	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05			
1,1-Dichloroethene	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05			
trans-1,2-Dichloroethene	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05			
1,2-Dichloropropane	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05			
cis-1,3-Dichloropropene	EPA 624	5C27003	0.22	2.0	ND	1	03/27/05	03/27/05			
trans-1,3-Dichloropropene	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05			
Ethylbenzene	EPA 624	5C27003	0.25	2.0	ND	1	03/27/05	03/27/05			
Methylene chloride	EPA 624	5C27003	0.48	5.0	ND	1	03/27/05	03/27/05			
1,1,2,2-Tetrachloroethane	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05			
Tetrachloroethene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05			
Toluene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05			
1,1,1-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05			
1,1,2-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05			
Trichloroethene	EPA 624	5C27003	0.26	2.0	ND	1	03/27/05	03/27/05			
Trichlorofluoromethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05			
Vinyl chloride	EPA 624	5C27003	0.26	0.50	ND	1	03/27/05	03/27/05			
Xylenes, Total	EPA 624	5C27003	0.52	4.0	ND	1	03/27/05	03/27/05			
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C27003	1.2	5.0	ND	1	03/27/05	03/27/05			
Surrogate: Dibromofluoromethane (80-120%)					105 %						
Surrogate: Toluene-d8 (80-120%)					100 %						
Surrogate: 4-Bromofluorobenzene (80-120%)					93 %						

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

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: IOC2064-01 (DRAFT: Outfall 011 Composite - Water)											
Reporting Units: ug/l											
Acrolein	EPA 624	5C27003	4.6	50	ND	1	03/27/05	03/27/05	R		R
Acrylonitrile	EPA 624	5C27003	5.1	50	ND	1	03/27/05	03/27/05	u		
2-Chloroethyl vinyl ether	EPA 624	5C27003	1.3	5.0	ND	1	03/27/05	03/27/05	u		
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					105 %						
<i>Surrogate: Toluene-d8 (80-120%)</i>					100 %						
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					94 %						
Sample ID: IOC2064-02 (DRAFT: Trip Blank - Water)											
Reporting Units: ug/l											
Acrolein	EPA 624	5C27003	4.6	50	ND	1	03/27/05	03/27/05	R		R
Acrylonitrile	EPA 624	5C27003	5.1	50	ND	1	03/27/05	03/27/05	u		
2-Chloroethyl vinyl ether	EPA 624	5C27003	1.3	5.0	ND	1	03/27/05	03/27/05	u		
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					105 %						
<i>Surrogate: Toluene-d8 (80-120%)</i>					100 %						
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					93 %						

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	UJ #11
Cyclohexane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	UJ #11
Sample ID: IOC2064-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	u
Cyclohexane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	u

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DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOC2063 & IOC2064

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 #: IOC2063, IOC2064
Project Manager: B. McIlvaine
Matrix: Water
Analysis: General Minerals
QC Level: Level IV
No. of Samples: 2
Reviewer: L. Jarusewic
Date of Review: April 8, 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 300.0, 350.2, 330.5, 405.1, 335.2, 413.1, 415.1, 418.1, 425.1, 218.6, 120.1, 160.2, 160.5, 180.1, and 120.1, Standard Methods for the Examination of Water and Wastewater Method SM5540-C and 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 011-Grab	Outfall 011-Grab	IOC2063-01	Water	General Minerals
Outfall 011-Composite	Outfall 011-Composite	IOC2064-01	Water	General Minerals
Outfall 011-Grab	Outfall 011-Grab	IOC2063-01RE	Water	EPA 413.1
Outfall 011-Composite	Outfall 011-Composite	IOC2064-01RE	Water	EPA 413.1

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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. 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 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, fluoride, chloride, sulfate, conductivity, total recoverable hydrocarbons, TOC, 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, and the 24-hour hexavalent chromium and residual chlorine holding times 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, as the LCS recovery was within the CCV control limits, no qualifications were required. For BOD, no information regarding the calibration of the oxygen meter was provided; however, as the LCS recovery was within the CCV control limits, no qualifications were required. The total cyanide reporting limit check standard was recovered within the control limits of 70-130%. Calibration is not applicable to residual chlorine, oil and grease, total dissolved solids, total suspended solids, or total settleable solids. No qualifications were required.

2.3 BLANKS

Turbidity was detected in the method blank (5C26056-BLK1) associated with Outfall 011-Grab and Outfall 011-Composite; however, the method blank result was insufficient to qualify the Outfall 011-Grab or Outfall 011-Composite results. Cyanide was reported in the method blank (5C25119-BLK1) associated with Outfall 011-Grab and Outfall 011-Composite at $-3.8 \mu\text{g/L}$; therefore, nondetected cyanide in Outfall 011-Grab and Outfall 011-Composite was qualified as estimated, "UJ." 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 further qualifications were required.

2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The laboratory control sample and laboratory control sample duplicate (BOD, oil and grease, and total recoverable hydrocarbons only) recoveries and RPDs were within the laboratory-established control limits. The LCS is not applicable to turbidity, conductivity, residual chlorine, or settleable solids. The original LCS/LCSD results for oil and grease associated with Outfall 011-Grab and Outfall 011-Composite were recovered below laboratory-established QC limits. The laboratory re-extracted the samples and the LCS/LCSD and reported all oil and grease results from the reanalysis. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

Laboratory duplicate analyses were performed on Outfall 011-Grab for residual chlorine and total suspended solids. The RPDs were within the laboratory-established control limits and no qualifications were required.

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 assessed based on LCS results.

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 these data packages. 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. Cyanide was reported in the raw data for Outfall 011-Grab and Outfall 011-Composite at -5.2 and -5.6 µg/L, respectively, and the associated method blank was reported at -3.8 µg/L. Due to these negative results, the reviewer changed the MDL and the reporting limit on the Form Is to the level of interference. BOD and fluoride in Outfall 011-Grab and Outfall 011-Composite and oil and grease in Outfall 011-Grab detected below the reporting limit were qualified as estimated, "J." 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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C26002	0.31	1.0	ND	1	03/26/05	03/26/05	U

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Qualifiers
Sample ID: IOC2063-01RE1 (DRAFT: Outfall 011 Grab - Water) - cont. Reporting Units: mg/l									
Oil & Grease	EPA 413.1	5C28069	0.94	5.0	1.6	1	03/28/05	03/28/05	J J DNQ

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	SC25105	0.10	0.10	ND	1	03/25/05	03/25/05	U

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont. Reporting Units: NTU									
Turbidity	EPA 180.1	5C26056	0.040	1.0	4.4	1	03/26/05	03/26/05	REV QUAL CODE

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 300 North Lake Avenue, Suite 1200
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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Qualifiers
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5C25058	0.10	1.0	ND	1	03/25/05	03/25/05	U
Total Cyanide	EPA 335.2	5C25119	2.2 5.2	5.0 5.2	ND	1	03/25/05	03/25/05	U, J
Perchlorate	EPA 314.0	5C25061	0.80	4.0	ND	1	03/25/05	03/26/05	*

REV QUAL CODE

JH/11/05

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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 735-0043 FAX (480) 765-0811
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont. Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C28081	1.0	1.0	210	1	03/28/05	03/28/05	KEY QUAL SWAL CODE

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	Qualifiers
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.										
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5C28067	0.30	0.50	0.56	1	03/28/05	03/28/05		
Biochemical Oxygen Demand	EPA 405.1	5C25093	0.59	2.0	0.91	1	03/25/05	03/30/05	J	J DNR
Chloride	EPA 300.0	5C25048	0.26	0.50	8.4	1	03/25/05	03/25/05		
Fluoride	EPA 300.0	5C25048	0.10	0.50	0.25	1	03/25/05	03/25/05	J	J DNR
Nitrate/Nitrite-N	EPA 300.0	5C25048	0.072	0.11	0.14	1	03/25/05	03/25/05		
Residual Chlorine	EPA 330.5	5C25118	0.10	0.10	ND	1	03/25/05	03/25/05	U	
Sulfate	EPA 300.0	5C25048	0.18	0.50	20	1	03/25/05	03/25/05		
Surfactants (MBAS)	SM5540-C	5C25096	0.044	0.10	ND	1	03/25/05	03/25/05	U	
Total Dissolved Solids	SM2540C	5C28078	10	10	120	1	03/28/05	03/28/05		
Total Organic Carbon	EPA 415.1	5C29079	0.25	1.0	11	1	03/29/05	03/29/05		
Total Suspended Solids	EPA 160.2	5C25117	10	10	ND	1	03/25/05	03/25/05	U	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	Qualifiers
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water)										
Reporting Units: mg/l										
Total Recoverable Hydrocarbons	EPA 418.1	5C26002	0.31	1.0	ND	1	03/26/05	03/26/05	U	EEV Outfall Code

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01RE1 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
Oil & Grease	EPA 413.1	5C28069	0.94	5.0	ND	1	03/28/05	03/28/05	U

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	Qualifiers
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.										
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5C25105	0.10	0.10	ND	1	03/25/05	03/25/05	U	REV QUAL CODE

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C26056	0.040	1.0	4.2	1	03/26/05	03/26/05	REV SUITS SUN 002

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	Qualifiers
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.										
Reporting Units: ug/l										
Chromium VI	EPA 218.6	5C25058	0.10	1.0	ND	1	03/25/05	03/25/05	U	
Total Cyanide	EPA 335.2	5C25119	2.2 5.6	5.0 5.6	ND	1	03/25/05	03/25/05	UJ	B.S.
Perchlorate	EPA 314.0	5C25061	0.80	4.0	ND	1	03/25/05	03/26/05	*	

HJ 4/14/05

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C28081	1.0	1.0	220	1	03/28/05	03/28/05	REV. SUE SUE COO

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	REV	OUTL	CODE
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.												
Reporting Units: mg/l												
Ammonia-N (Distilled)	EPA 350.2	5C28067	0.30	0.50	ND	1	03/28/05	03/28/05	U			
Biochemical Oxygen Demand	EPA 405.1	5C25093	0.59	2.0	1.1	1	03/25/05	03/30/05	J			INQ
Chloride	EPA 300.0	5C25048	0.26	0.50	9.2	1	03/25/05	03/25/05	J			INQ
Fluoride	EPA 300.0	5C25048	0.10	0.50	0.25	1	03/25/05	03/25/05	J			INQ
Nitrate/Nitrite-N	EPA 300.0	5C25048	0.072	0.11	0.15	1	03/25/05	03/25/05	J			INQ
Residual Chlorine	EPA 330.5	5C25118	0.10	0.10	ND	1	03/25/05	03/25/05	U			
Sulfate	EPA 300.0	5C25048	0.18	0.50	22	1	03/25/05	03/25/05	U			
Surfactants (MBAS)	SM5540-C	5C25096	0.044	0.10	ND	1	03/25/05	03/25/05	U			
Total Dissolved Solids	SM2540C	5C28078	10	10	140	1	03/28/05	03/28/05	U			
Total Organic Carbon	EPA 415.1	5C28077	0.25	1.0	10	1	03/28/05	03/28/05	U			
Total Suspended Solids	EPA 160.2	5C25117	10	10	ND	1	03/25/05	03/25/05	U			

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

Package ID T711WC132
 Task Order 313150010
 SDG No. IOC2063, IOC2064
 No. of Analyses 2

Laboratory Del Mar Analytical
 Reviewer L. Jarusewic
 Analysis/Method Perchlorate

Date: 04/08/05
 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.,
 - 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 VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUPS: IOC2063 & IOC2064

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 #: IOC2063, IOC2064
Project Manager: B. McIlvaine
Matrix: Water
Analysis: Perchlorate
QC Level: Level IV
No. of Samples: 2
Reviewer: L. Jarusewic
Date of Review: April 8, 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 314.0*, 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 011-Grab	Outfall 011-Grab	IOC2063-01	Water	Perchlorate
Outfall 011-Composite	Outfall 011-Composite	IOC2064-01	Water	Perchlorate

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 $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. The analysis did not require preservation and no preservation was noted in the field. No qualifications were required.

2.1.2 Chain of Custody

The COCs were signed and dated by field and laboratory personnel, and accounted for the samples and analysis presented in these SDGs. No qualifications were required.

2.1.3 Holding Times

The holding time was assessed by comparing the dates of collection with the date of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

2.2 CALIBRATION

The initial calibration correlation coefficient was ≥ 0.995 . The IPC-MA recovery was within the control limits of 80-120%. The ICV, CCV, ICCS, and IPC recoveries were within the control limits of 90-110%. No qualifications were required.

2.3 BLANKS

The 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 recovery was within the method control limits of 85-115%. No qualifications were required.

2.5 SURROGATES RECOVERY

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

2.6 LABORATORY DUPLICATES

No MS/MSD or duplicate analyses were 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

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

2.8 FURNACE ATOMIC ABSORPTION QC

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

2.9 ICP SERIAL DILUTION

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

2.10 SAMPLE RESULT VERIFICATION

A Level IV review was performed for the samples in these data packages. 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. No 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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (DRAFT: Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5C25058	0.10	1.0	ND	1	03/25/05	03/25/05	* ↓ u
Total Cyanide	EPA 335.2	5C25119	2.2	5.0	ND	1	03/25/05	03/25/05	
Perchlorate	EPA 314.0	5C25061	0.80	4.0	ND	1	03/25/05	03/26/05	

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LEVEL IV

Analysis Not Validated

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE

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

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

DRAFT: INORGANICS

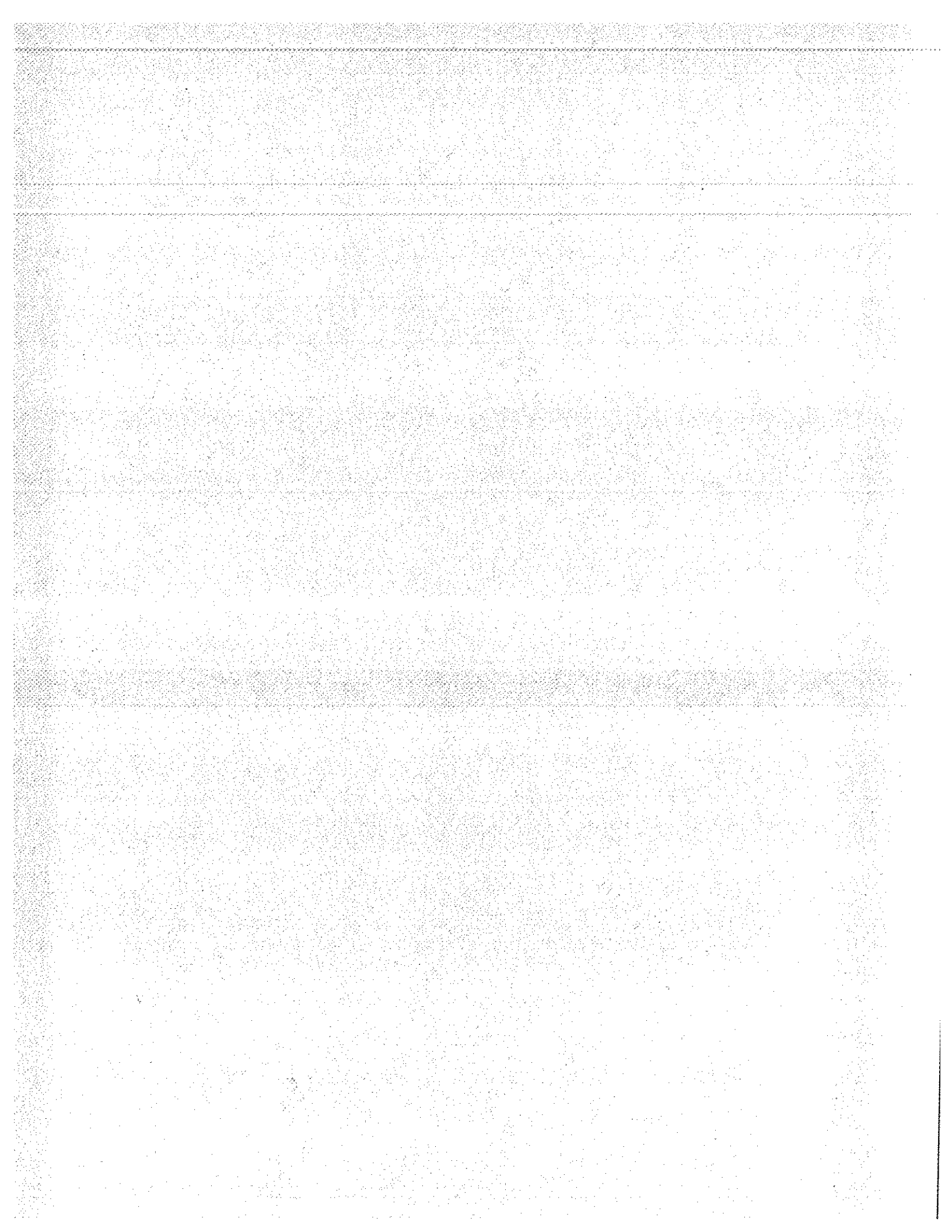
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (DRAFT: Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5C25058	0.10	1.0	ND	1	03/25/05	03/25/05	* ↓
Total Cyanide	EPA 335.2	5C25119	2.2	5.0	ND	1	03/25/05	03/25/05	↓
Perchlorate	EPA 314.0	5C25061	0.80	4.0	ND	1	03/25/05	03/26/05	u

AMEC VALIDATED

LEVEL IV

*Analysis Not Validated

DRAFT REPORT
 DRAFT REPORT
 DATA SUBJECT TO CHANGE





LABORATORY REPORT

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

Project: 13267 (Study 1)
Outfall 011

Sampled: 03/25/05
Received: 03/25/05
Issued: 04/13/05 16:23

NELAP #01108CA California ELAP#1197 CSDLAC #10117

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 4 pages, are included and are an integral part of this report. This entire report was reviewed and approved for release.

CASE NARRATIVE

- SAMPLE RECEIPT: Samples were received intact, at 2°C, on ice and with chain of custody documentation.
- HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the Del Mar Analytical Sample Acceptance Policy unless otherwise noted in the report.
- PRESERVATION: Samples requiring preservation were verified prior to sample analysis.
- QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers. The percent recovery for benzidine in the BS/BSD was below method acceptance limits. Benzidine is known to be a problematic compound and according to the EPA, it can be subject to oxidative losses during solvent extraction and its chromatographic behavior is poor. All results reported for benzidine are potentially biased low and can be considered estimates only. Results for benzidine are reported with 'L2' qualifier. The ICAL %RSD failed the acceptance limit for 2,4-Dinitrophenol. Instrument sensitivity was acceptable based upon the response for 2,4-Dinitrophenol at the low ICAL level. The CCV and BS/BSD met acceptance limits for the analyte. Affected samples were 'ND' for this analyte, without J-flag detection. Therefore, since acceptable sensitivity is represented by the instrument and the extraction procedure, the analyte was flagged with 'N-1' and reported. The sample was then reanalyzed for 2,4-Dinitrophenol and the results are reported as an RE1. Also, there was a low BSD recovery for the original batch for Oil & Grease and the lab re-extracted and re-analyzed the sample.
- COMMENTS: Results that fall between the MDL and RL are 'J' flagged.
- SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.



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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC2063

Sampled: 03/25/05
Received: 03/25/05

LABORATORY ID

IOC2063-01
IOC2063-02
IOC2063-03
IOC2063-04

CLIENT ID

Outfall 011 Grab
Trip Blank
Outfall 011 Grab/filter
Outfall 011-Grab/Substrate

MATRIX

Water
Water
Water
Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager

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IOC2063 <Page 2 of 59>



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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC2063

Sampled: 03/25/05
Received: 03/25/05

CORRECTIVE ACTION REPORT

Department: Extractions

Date: 03/31/2005

Method: EPA 625

Matrix: Water

QC Batch: 5C28041

Identification and Definition of Problem:

The percent recovery for benzidine in the LCS was below method acceptance limits.

Determination of the Cause of the Problem:

Benzidine is known to be a problematic compound. According to the EPA, it can be subject to oxidative losses during solvent extraction and its chromatographic behavior is poor.

Corrective Action Taken:

All results reported for benzidine are potentially biased low and can be considered estimates only.

Quality Assurance Approval:

Dave Dawes

Date: 04/08/2005 03:42 PM

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: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C26002	0.31	1.0	ND	1	03/26/05	03/26/05	

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: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C26001	0.082	0.50	ND	0.952	03/26/05	03/29/05	
<i>Surrogate: n-Octacosane (40-125%)</i>					95 %				

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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: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C26026	0.050	0.10	ND	1	03/26/05	03/28/05	
Surrogate: 4-BFB (FID) (65-140%)					104 %				
Sample ID: IOC2063-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C26026	0.050	0.10	ND	1	03/26/05	03/27/05	
Surrogate: 4-BFB (FID) (65-140%)					103 %				

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: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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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: IOC2063-01 (Outfall 011 Grab - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C27003	0.28	1.0	ND	1	03/27/05	03/27/05	
Bromodichloromethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
Bromoform	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05	
Bromomethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05	
Carbon tetrachloride	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05	
Chlorobenzene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05	
Chloroethane	EPA 624	5C27003	0.33	5.0	ND	1	03/27/05	03/27/05	
Chloroform	EPA 624	5C27003	0.33	2.0	ND	1	03/27/05	03/27/05	
Chloromethane	EPA 624	5C27003	0.30	5.0	ND	1	03/27/05	03/27/05	
Dibromochloromethane	EPA 624	5C27003	0.28	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichlorobenzene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05	
1,3-Dichlorobenzene	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05	
1,4-Dichlorobenzene	EPA 624	5C27003	0.37	2.0	ND	1	03/27/05	03/27/05	
1,1-Dichloroethane	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichloroethane	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05	
1,1-Dichloroethene	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05	
trans-1,2-Dichloroethene	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichloropropane	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05	
cis-1,3-Dichloropropene	EPA 624	5C27003	0.22	2.0	ND	1	03/27/05	03/27/05	
trans-1,3-Dichloropropene	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05	
Ethylbenzene	EPA 624	5C27003	0.25	2.0	ND	1	03/27/05	03/27/05	
Methylene chloride	EPA 624	5C27003	0.48	5.0	ND	1	03/27/05	03/27/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05	
Tetrachloroethene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05	
Toluene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05	
1,1,1-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
1,1,2-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
Trichloroethene	EPA 624	5C27003	0.26	2.0	ND	1	03/27/05	03/27/05	
Trichlorofluoromethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05	
Vinyl chloride	EPA 624	5C27003	0.26	0.50	ND	1	03/27/05	03/27/05	
Xylenes, Total	EPA 624	5C27003	0.52	4.0	ND	1	03/27/05	03/27/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C27003	1.2	5.0	ND	1	03/27/05	03/27/05	
Surrogate: Dibromofluoromethane (80-120%)					108 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					94 %				

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: 13267 (Study 1)
Outfall 011
Report Number: IOC2063

Sampled: 03/25/05
Received: 03/25/05

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: IOC2063-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C27003	0.28	1.0	ND	1	03/27/05	03/27/05	
Bromodichloromethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
Bromoform	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05	
Bromomethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05	
Carbon tetrachloride	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05	
Chlorobenzene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05	
Chloroethane	EPA 624	5C27003	0.33	5.0	ND	1	03/27/05	03/27/05	
Chloroform	EPA 624	5C27003	0.33	2.0	ND	1	03/27/05	03/27/05	
Chloromethane	EPA 624	5C27003	0.30	5.0	ND	1	03/27/05	03/27/05	
Dibromochloromethane	EPA 624	5C27003	0.28	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichlorobenzene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05	
1,3-Dichlorobenzene	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05	
1,4-Dichlorobenzene	EPA 624	5C27003	0.37	2.0	ND	1	03/27/05	03/27/05	
1,1-Dichloroethane	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichloroethane	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05	
1,1-Dichloroethene	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05	
trans-1,2-Dichloroethene	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichloropropane	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05	
cis-1,3-Dichloropropene	EPA 624	5C27003	0.22	2.0	ND	1	03/27/05	03/27/05	
trans-1,3-Dichloropropene	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05	
Ethylbenzene	EPA 624	5C27003	0.25	2.0	ND	1	03/27/05	03/27/05	
Methylene chloride	EPA 624	5C27003	0.48	5.0	ND	1	03/27/05	03/27/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05	
Tetrachloroethene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05	
Toluene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05	
1,1,1-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
1,1,2-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
Trichloroethene	EPA 624	5C27003	0.26	2.0	ND	1	03/27/05	03/27/05	
Trichlorofluoromethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05	
Vinyl chloride	EPA 624	5C27003	0.26	0.50	ND	1	03/27/05	03/27/05	
Xylenes, Total	EPA 624	5C27003	0.52	4.0	ND	1	03/27/05	03/27/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C27003	1.2	5.0	ND	1	03/27/05	03/27/05	
Surrogate: Dibromofluoromethane (80-120%)					108 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					92 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC2063

Sampled: 03/25/05
Received: 03/25/05

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: IOC2063-01 (Outfall 011 Grab - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5C27003	4.6	50	ND	1	03/27/05	03/27/05	
Acrylonitrile	EPA 624	5C27003	5.1	50	ND	1	03/27/05	03/27/05	
2-Chloroethyl vinyl ether	EPA 624	5C27003	1.3	5.0	ND	1	03/27/05	03/27/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					108 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					101 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					94 %				
Sample ID: IOC2063-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5C27003	4.6	50	ND	1	03/27/05	03/27/05	
Acrylonitrile	EPA 624	5C27003	5.1	50	ND	1	03/27/05	03/27/05	
2-Chloroethyl vinyl ether	EPA 624	5C27003	1.3	5.0	ND	1	03/27/05	03/27/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					108 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					100 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					92 %				

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	
Cyclohexane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	
Sample ID: IOC2063-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	
Cyclohexane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

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: IOC2063-01 (Outfall 011 Grab - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5C28041	0.10	0.50	ND	0.971	03/28/05	03/31/05	
Acenaphthylene	EPA 625	5C28041	0.10	0.50	ND	0.971	03/28/05	03/31/05	
Aniline	EPA 625	5C28041	2.9	10	ND	0.971	03/28/05	03/31/05	
Anthracene	EPA 625	5C28041	0.083	0.50	ND	0.971	03/28/05	03/31/05	
Benzidine	EPA 625	5C28041	2.4	5.0	ND	0.971	03/28/05	03/31/05	L2
Benzoic acid	EPA 625	5C28041	3.7	20	ND	0.971	03/28/05	03/31/05	
Benzo(a)anthracene	EPA 625	5C28041	0.038	5.0	ND	0.971	03/28/05	03/31/05	
Benzo(a)pyrene	EPA 625	5C28041	0.14	2.0	ND	0.971	03/28/05	03/31/05	
Benzo(b)fluoranthene	EPA 625	5C28041	0.050	2.0	ND	0.971	03/28/05	03/31/05	
Benzo(g,h,i)perylene	EPA 625	5C28041	0.059	5.0	ND	0.971	03/28/05	03/31/05	
Benzo(k)fluoranthene	EPA 625	5C28041	0.053	0.50	ND	0.971	03/28/05	03/31/05	
Benzyl alcohol	EPA 625	5C28041	0.21	5.0	ND	0.971	03/28/05	03/31/05	
Bis(2-chloroethoxy)methane	EPA 625	5C28041	0.072	0.50	ND	0.971	03/28/05	03/31/05	
Bis(2-chloroethyl)ether	EPA 625	5C28041	0.084	0.50	ND	0.971	03/28/05	03/31/05	
Bis(2-chloroisopropyl)ether	EPA 625	5C28041	0.11	0.50	ND	0.971	03/28/05	03/31/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5C28041	1.1	5.0	ND	0.971	03/28/05	03/31/05	
4-Bromophenyl phenyl ether	EPA 625	5C28041	0.12	1.0	ND	0.971	03/28/05	03/31/05	
Butyl benzyl phthalate	EPA 625	5C28041	0.34	5.0	0.68	0.971	03/28/05	03/31/05	J
4-Chloroaniline	EPA 625	5C28041	0.20	2.0	ND	0.971	03/28/05	03/31/05	
2-Chloronaphthalene	EPA 625	5C28041	0.059	0.50	ND	0.971	03/28/05	03/31/05	
4-Chloro-3-methylphenol	EPA 625	5C28041	0.34	2.0	ND	0.971	03/28/05	03/31/05	
4-Chlorophenyl phenyl ether	EPA 625	5C28041	0.056	0.50	ND	0.971	03/28/05	03/31/05	
2-Chlorophenol	EPA 625	5C28041	0.12	1.0	ND	0.971	03/28/05	03/31/05	
Chrysene	EPA 625	5C28041	0.072	0.50	ND	0.971	03/28/05	03/31/05	
Dibenz(a,h)anthracene	EPA 625	5C28041	0.083	0.50	ND	0.971	03/28/05	03/31/05	
Dibenzofuran	EPA 625	5C28041	0.075	0.50	ND	0.971	03/28/05	03/31/05	
Di-n-butyl phthalate	EPA 625	5C28041	0.26	2.0	0.87	0.971	03/28/05	03/31/05	J
1,2-Dichlorobenzene	EPA 625	5C28041	0.11	0.50	ND	0.971	03/28/05	03/31/05	
1,3-Dichlorobenzene	EPA 625	5C28041	0.13	0.50	ND	0.971	03/28/05	03/31/05	
1,4-Dichlorobenzene	EPA 625	5C28041	0.050	0.50	ND	0.971	03/28/05	03/31/05	
3,3-Dichlorobenzidine	EPA 625	5C28041	0.93	5.0	ND	0.971	03/28/05	03/31/05	
2,4-Dichlorophenol	EPA 625	5C28041	0.21	2.0	ND	0.971	03/28/05	03/31/05	
Diethyl phthalate	EPA 625	5C28041	0.12	1.0	0.23	0.971	03/28/05	03/31/05	J
2,4-Dimethylphenol	EPA 625	5C28041	0.31	2.0	ND	0.971	03/28/05	03/31/05	
Dimethyl phthalate	EPA 625	5C28041	0.081	0.50	ND	0.971	03/28/05	03/31/05	
4,6-Dinitro-2-methylphenol	EPA 625	5C28041	0.38	5.0	ND	0.971	03/28/05	03/31/05	
2,4-Dinitrophenol	EPA 625	5C28041	2.7	5.0	ND	0.971	03/28/05	03/31/05	
2,4-Dinitrotoluene	EPA 625	5C28041	0.23	5.0	ND	0.971	03/28/05	03/31/05	N-1
2,6-Dinitrotoluene	EPA 625	5C28041	0.24	5.0	ND	0.971	03/28/05	03/31/05	
Di-n-octyl phthalate	EPA 625	5C28041	0.17	5.0	ND	0.971	03/28/05	03/31/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5C28041	0.087	1.0	ND	0.971	03/28/05	03/31/05	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

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: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
Fluoranthene	EPA 625	5C28041	0.089	0.50	ND	0.971	03/28/05	03/31/05	
Fluorene	EPA 625	5C28041	0.075	0.50	ND	0.971	03/28/05	03/31/05	
Hexachlorobenzene	EPA 625	5C28041	0.13	1.0	ND	0.971	03/28/05	03/31/05	
Hexachlorobutadiene	EPA 625	5C28041	0.38	2.0	ND	0.971	03/28/05	03/31/05	
Hexachlorocyclopentadiene	EPA 625	5C28041	1.8	5.0	ND	0.971	03/28/05	03/31/05	
Hexachloroethane	EPA 625	5C28041	0.51	3.0	ND	0.971	03/28/05	03/31/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5C28041	0.19	2.0	ND	0.971	03/28/05	03/31/05	
Isophorone	EPA 625	5C28041	0.059	1.0	ND	0.971	03/28/05	03/31/05	
2-Methylnaphthalene	EPA 625	5C28041	0.13	1.0	ND	0.971	03/28/05	03/31/05	
2-Methylphenol	EPA 625	5C28041	0.28	2.0	ND	0.971	03/28/05	03/31/05	
4-Methylphenol	EPA 625	5C28041	0.20	5.0	ND	0.971	03/28/05	03/31/05	
Naphthalene	EPA 625	5C28041	0.13	1.0	ND	0.971	03/28/05	03/31/05	
2-Nitroaniline	EPA 625	5C28041	0.18	5.0	ND	0.971	03/28/05	03/31/05	
3-Nitroaniline	EPA 625	5C28041	0.35	5.0	ND	0.971	03/28/05	03/31/05	
4-Nitroaniline	EPA 625	5C28041	0.49	5.0	ND	0.971	03/28/05	03/31/05	
Nitrobenzene	EPA 625	5C28041	0.10	1.0	ND	0.971	03/28/05	03/31/05	
2-Nitrophenol	EPA 625	5C28041	0.23	2.0	ND	0.971	03/28/05	03/31/05	
4-Nitrophenol	EPA 625	5C28041	0.73	5.0	ND	0.971	03/28/05	03/31/05	
N-Nitrosodimethylamine	EPA 625	5C28041	0.22	2.0	ND	0.971	03/28/05	03/31/05	
N-Nitroso-di-n-propylamine	EPA 625	5C28041	0.18	2.0	ND	0.971	03/28/05	03/31/05	
N-Nitrosodiphenylamine	EPA 625	5C28041	0.077	1.0	ND	0.971	03/28/05	03/31/05	
Pentachlorophenol	EPA 625	5C28041	0.78	2.0	ND	0.971	03/28/05	03/31/05	
Phenanthrene	EPA 625	5C28041	0.071	0.50	ND	0.971	03/28/05	03/31/05	
Phenol	EPA 625	5C28041	0.14	1.0	ND	0.971	03/28/05	03/31/05	
Pyrene	EPA 625	5C28041	0.059	0.50	ND	0.971	03/28/05	03/31/05	
1,2,4-Trichlorobenzene	EPA 625	5C28041	0.10	1.0	ND	0.971	03/28/05	03/31/05	
2,4,5-Trichlorophenol	EPA 625	5C28041	0.075	2.0	ND	0.971	03/28/05	03/31/05	
2,4,6-Trichlorophenol	EPA 625	5C28041	0.10	1.0	ND	0.971	03/28/05	03/31/05	
Surrogate: 2-Fluorophenol (30-120%)									64 %
Surrogate: Phenol-d6 (35-120%)									65 %
Surrogate: 2,4,6-Tribromophenol (45-120%)									85 %
Surrogate: Nitrobenzene-d5 (45-120%)									64 %
Surrogate: 2-Fluorobiphenyl (45-120%)									69 %
Surrogate: Terphenyl-d14 (45-120%)									84 %

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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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: IOC2063-01RE1 (Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
2,4-Dinitrophenol	EPA 625	5C28041	2.7	5.0	ND	0.971	03/28/05	04/11/05	
Surrogate: 2-Fluorophenol (30-120%)					60 %				
Surrogate: Phenol-d6 (35-120%)					63 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					84 %				
Surrogate: Nitrobenzene-d5 (45-120%)					62 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					66 %				
Surrogate: Terphenyl-d14 (45-120%)					79 %				

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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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5C28048	0.030	0.10	ND	0.971	03/28/05	03/29/05	
alpha-BHC	EPA 608	5C28048	0.015	0.10	ND	0.971	03/28/05	03/29/05	
beta-BHC	EPA 608	5C28048	0.015	0.10	ND	0.971	03/28/05	03/29/05	
delta-BHC	EPA 608	5C28048	0.020	0.20	ND	0.971	03/28/05	03/29/05	
gamma-BHC (Lindane)	EPA 608	5C28048	0.020	0.10	ND	0.971	03/28/05	03/29/05	
Chlordane	EPA 608	5C28048	0.20	1.0	ND	0.971	03/28/05	03/29/05	
4,4'-DDD	EPA 608	5C28048	0.020	0.10	ND	0.971	03/28/05	03/29/05	
4,4'-DDE	EPA 608	5C28048	0.025	0.10	ND	0.971	03/28/05	03/29/05	
4,4'-DDT	EPA 608	5C28048	0.030	0.10	ND	0.971	03/28/05	03/29/05	
Dieldrin	EPA 608	5C28048	0.015	0.10	ND	0.971	03/28/05	03/29/05	
Endosulfan I	EPA 608	5C28048	0.015	0.10	ND	0.971	03/28/05	03/29/05	
Endosulfan II	EPA 608	5C28048	0.040	0.10	ND	0.971	03/28/05	03/29/05	
Endosulfan sulfate	EPA 608	5C28048	0.015	0.20	ND	0.971	03/28/05	03/29/05	
Endrin	EPA 608	5C28048	0.020	0.10	ND	0.971	03/28/05	03/29/05	
Endrin aldehyde	EPA 608	5C28048	0.045	0.10	ND	0.971	03/28/05	03/29/05	
Endrin ketone	EPA 608	5C28048	0.020	0.10	ND	0.971	03/28/05	03/29/05	
Heptachlor	EPA 608	5C28048	0.030	0.10	ND	0.971	03/28/05	03/29/05	
Heptachlor epoxide	EPA 608	5C28048	0.020	0.10	ND	0.971	03/28/05	03/29/05	
Methoxychlor	EPA 608	5C28048	0.035	0.10	ND	0.971	03/28/05	03/29/05	
Toxaphene	EPA 608	5C28048	1.5	5.0	ND	0.971	03/28/05	03/29/05	
Surrogate: Tetrachloro-m-xylene (35-115%)									ZX
Surrogate: Decachlorobiphenyl (45-120%)									ZX

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5C28048	0.20	1.0	ND	0.971	03/28/05	03/30/05	
Aroclor 1221	EPA 608	5C28048	0.10	1.0	ND	0.971	03/28/05	03/30/05	
Aroclor 1232	EPA 608	5C28048	0.15	1.0	ND	0.971	03/28/05	03/30/05	
Aroclor 1242	EPA 608	5C28048	0.15	1.0	ND	0.971	03/28/05	03/30/05	
Aroclor 1248	EPA 608	5C28048	0.25	1.0	ND	0.971	03/28/05	03/30/05	
Aroclor 1254	EPA 608	5C28048	0.25	1.0	ND	0.971	03/28/05	03/30/05	
Aroclor 1260	EPA 608	5C28048	0.40	1.0	ND	0.971	03/28/05	03/30/05	
Surrogate: Decachlorobiphenyl (45-120%)					40 %				ZX

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: mg/l									
Barium	EPA 200.8	5C25116	0.00014	0.0010	0.023	1	03/25/05	03/28/05	
Boron	EPA 200.7	5C25111	0.0074	0.050	0.092	1	03/25/05	03/27/05	
Iron	EPA 200.8	5C25116	0.0032	0.010	0.43	1	03/25/05	03/28/05	

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 300 North Lake Avenue, Suite 1200
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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C25116	0.18	2.0	0.34	1	03/25/05	03/28/05	J
Arsenic	EPA 200.8	5C25116	0.49	1.0	2.7	1	03/25/05	03/28/05	
Beryllium	EPA 200.8	5C25116	0.037	0.50	0.041	1	03/25/05	03/28/05	J
Cadmium	EPA 200.8	5C25116	0.015	1.0	0.22	1	03/25/05	03/28/05	J
Chromium	EPA 200.8	5C25116	0.26	2.0	1.2	1	03/25/05	03/28/05	B, J
Cobalt	EPA 200.8	5C25116	0.10	1.0	0.29	1	03/25/05	03/28/05	J
Copper	EPA 200.8	5C25116	0.49	2.0	3.9	1	03/25/05	03/28/05	
Lead	EPA 200.8	5C25116	0.13	1.0	0.46	1	03/25/05	03/28/05	J
Manganese	EPA 200.8	5C25116	0.44	1.0	36	1	03/25/05	03/28/05	
Mercury	EPA 245.1	5C26033	0.063	0.20	ND	1	03/26/05	03/26/05	
Nickel	EPA 200.8	5C25116	0.15	2.0	3.4	1	03/25/05	03/28/05	
Selenium	EPA 200.8	5C25116	0.36	2.0	ND	1	03/25/05	03/28/05	
Silver	EPA 200.8	5C25116	0.089	1.0	ND	1	03/25/05	03/28/05	
Thallium	EPA 200.8	5C25116	0.075	1.0	0.21	1	03/25/05	03/28/05	J
Vanadium	EPA 200.8	5C25116	0.86	2.0	ND	1	03/25/05	03/28/05	
Zinc	EPA 200.8	5C25116	3.1	20	13	1	03/25/05	03/28/05	J

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C28067	0.30	0.50	0.56	1	03/28/05	03/28/05	
Biochemical Oxygen Demand	EPA 405.1	5C25093	0.59	2.0	0.91	1	03/25/05	03/30/05	J
Chloride	EPA 300.0	5C25048	0.26	0.50	8.4	1	03/25/05	03/25/05	
Fluoride	EPA 300.0	5C25048	0.10	0.50	0.25	1	03/25/05	03/25/05	J
Nitrate/Nitrite-N	EPA 300.0	5C25048	0.072	0.11	0.14	1	03/25/05	03/25/05	
Residual Chlorine	EPA 330.5	5C25118	0.10	0.10	ND	1	03/25/05	03/25/05	
Sulfate	EPA 300.0	5C25048	0.18	0.50	20	1	03/25/05	03/25/05	
Surfactants (MBAS)	SM5540-C	5C25096	0.044	0.10	ND	1	03/25/05	03/25/05	
Total Dissolved Solids	SM2540C	5C28078	10	10	120	1	03/28/05	03/28/05	
Total Organic Carbon	EPA 415.1	5C29079	0.25	1.0	11	1	03/29/05	03/29/05	
Total Suspended Solids	EPA 160.2	5C25117	10	10	ND	1	03/25/05	03/25/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01RE1 (Outfall 011 Grab - Water) - cont.									
Reporting Units: mg/l									
Oil & Grease	EPA 413.1	5C28069	0.94	5.0	1.6	1	03/28/05	03/28/05	J

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5C25105	0.10	0.10	ND	1	03/25/05	03/25/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C26056	0.040	1.0	4.4	1	03/26/05	03/26/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5C25058	0.10	1.0	ND	1	03/25/05	03/25/05	
Total Cyanide	EPA 335.2	5C25119	2.2	5.0	ND	1	03/25/05	03/25/05	
Perchlorate	EPA 314.0	5C25061	0.80	4.0	ND	1	03/25/05	03/26/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C28081	1.0	1.0	210	1	03/28/05	03/28/05	

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2063-01 (Outfall 011 Grab - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	PSD0112	0.49	1.0	ND	1	04/01/05	04/01/05	
<i>Surrogate: Dibromofluoromethane (80-125%)</i>					118 %				

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: Outfall 011 Grab (IOC2063-01) - Water					
EPA 160.5	2	03/25/2005 12:00	03/25/2005 18:30	03/25/2005 21:10	03/25/2005 22:10
EPA 180.1	2	03/25/2005 12:00	03/25/2005 18:30	03/26/2005 13:00	03/26/2005 14:00
EPA 218.6	1	03/25/2005 12:00	03/25/2005 18:30	03/25/2005 21:05	03/25/2005 21:16
EPA 300.0	2	03/25/2005 12:00	03/25/2005 18:30	03/25/2005 20:00	03/25/2005 21:13
EPA 330.5	1	03/25/2005 12:00	03/25/2005 18:30	03/25/2005 21:00	03/25/2005 21:15
EPA 405.1	2	03/25/2005 12:00	03/25/2005 18:30	03/25/2005 21:30	03/30/2005 11:30
EPA 624	3	03/25/2005 12:00	03/25/2005 18:30	03/27/2005 00:00	03/27/2005 12:16
SM5540-C	2	03/25/2005 12:00	03/25/2005 18:30	03/25/2005 21:24	03/25/2005 22:05
Sample ID: Trip Blank (IOC2063-02) - Water					
EPA 624	3	03/25/2005 15:15	03/25/2005 18:30	03/27/2005 00:00	03/27/2005 11:45

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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC2063

Sampled: 03/25/05
Received: 03/25/05

METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C26002 Extracted: 03/26/05											
Blank Analyzed: 03/26/2005 (5C26002-BLK1)											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
LCS Analyzed: 03/26/2005 (5C26002-BS1)											
Total Recoverable Hydrocarbons	4.72	1.0	0.31	mg/l	5.00		94	65-120			M-NR1
LCS Dup Analyzed: 03/26/2005 (5C26002-BSD1)											
Total Recoverable Hydrocarbons	4.84	1.0	0.31	mg/l	5.00		97	65-120	3	20	

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 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C26001 Extracted: 03/26/05										
Blank Analyzed: 03/28/2005 (5C26001-BLK1)										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.123			mg/l	0.200		62 40-125			
LCS Analyzed: 03/28/2005 (5C26001-BS1)										
EFH (C13 - C40)	0.348	0.50	0.082	mg/l	0.775		45 40-120			M-NRI J
Surrogate: n-Octacosane	0.0990			mg/l	0.200		50 40-125			
LCS Dup Analyzed: 03/28/2005 (5C26001-BSD1)										
EFH (C13 - C40)	0.332	0.50	0.082	mg/l	0.775		43 40-120	5	25	J
Surrogate: n-Octacosane	0.0940			mg/l	0.200		47 40-125			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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METHOD BLANK/QC DATA

VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C26026 Extracted: 03/26/05											
Blank Analyzed: 03/26/2005 (5C26026-BLK1)											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.0103			mg/l	0.0100		103	65-140			
LCS Analyzed: 03/26/2005 (5C26026-BS1)											
GRO (C4 - C12)	0.742	0.10	0.050	mg/l	0.800		93	70-140			
Surrogate: 4-BFB (FID)	0.0301			mg/l	0.0300		100	65-140			
Matrix Spike Analyzed: 03/26/2005 (5C26026-MS1) Source: IOC1437-01											
GRO (C4 - C12)	101	20	10	mg/l	44.0	49	118	60-140			
Surrogate: 4-BFB (FID)	2.71			mg/l	2.00		136	65-140			
Matrix Spike Dup Analyzed: 03/26/2005 (5C26026-MSD1) Source: IOC1437-01											
GRO (C4 - C12)	100	20	10	mg/l	44.0	49	116	60-140	1	20	
Surrogate: 4-BFB (FID)	2.69			mg/l	2.00		134	65-140			

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Data Qualifiers
Batch: 5C27003 Extracted: 03/27/05									
Blank Analyzed: 03/27/2005 (5C27003-BLK1)									
Benzene	ND	1.0	0.28	ug/l					
Bromodichloromethane	ND	2.0	0.30	ug/l					
Bromoform	ND	5.0	0.32	ug/l					
Bromomethane	ND	5.0	0.34	ug/l					
Carbon tetrachloride	ND	0.50	0.28	ug/l					
Chlorobenzene	ND	2.0	0.36	ug/l					
Chloroethane	ND	5.0	0.33	ug/l					
Chloroform	ND	2.0	0.33	ug/l					
Chloromethane	ND	5.0	0.30	ug/l					
Dibromochloromethane	ND	2.0	0.28	ug/l					
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l					
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l					
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l					
1,1-Dichloroethane	ND	2.0	0.27	ug/l					
1,2-Dichloroethane	ND	0.50	0.28	ug/l					
1,1-Dichloroethene	ND	5.0	0.32	ug/l					
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l					
1,2-Dichloropropane	ND	2.0	0.35	ug/l					
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l					
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l					
Ethylbenzene	ND	2.0	0.25	ug/l					
Methylene chloride	ND	5.0	0.48	ug/l					
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	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	2.0	0.26	ug/l					
Trichlorofluoromethane	ND	5.0	0.34	ug/l					
Vinyl chloride	ND	0.50	0.26	ug/l					
Xylenes, Total	ND	4.0	0.52	ug/l					
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l					
Surrogate: Dibromofluoromethane	26.2			ug/l	25.0	105	80-120		
Surrogate: Toluene-d8	25.2			ug/l	25.0	101	80-120		
Surrogate: 4-Bromofluorobenzene	22.8			ug/l	25.0	91	80-120		

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting			Spike Level	Source Result	%REC		RPD	Data Qualifiers
		Limit	MDL	Units			%REC	Limits		
Batch: 5C27003 Extracted: 03/27/05										
LCS Analyzed: 03/27/2005 (5C27003-BS1)										
Benzene	24.0	1.0	0.28	ug/l	25.0	96	70-120			
Bromodichloromethane	23.4	2.0	0.30	ug/l	25.0	94	70-140			
Bromoform	22.6	5.0	0.32	ug/l	25.0	90	55-135			
Bromomethane	25.8	5.0	0.34	ug/l	25.0	103	60-140			
Carbon tetrachloride	24.2	0.50	0.28	ug/l	25.0	97	70-140			
Chlorobenzene	23.6	2.0	0.36	ug/l	25.0	94	80-125			
Chloroethane	24.1	5.0	0.33	ug/l	25.0	96	60-145			
Chloroform	25.1	2.0	0.33	ug/l	25.0	100	75-130			
Chloromethane	25.4	5.0	0.30	ug/l	25.0	102	40-145			
Dibromochloromethane	23.2	2.0	0.28	ug/l	25.0	93	65-145			
1,2-Dichlorobenzene	23.8	2.0	0.32	ug/l	25.0	95	80-120			
1,3-Dichlorobenzene	23.6	2.0	0.35	ug/l	25.0	94	80-120			
1,4-Dichlorobenzene	23.6	2.0	0.37	ug/l	25.0	94	80-120			
1,1-Dichloroethane	25.2	2.0	0.27	ug/l	25.0	101	70-135			
1,2-Dichloroethane	26.3	0.50	0.28	ug/l	25.0	105	60-150			
1,1-Dichloroethene	24.2	5.0	0.32	ug/l	25.0	97	75-135			
trans-1,2-Dichloroethene	24.8	2.0	0.27	ug/l	25.0	99	70-130			
1,2-Dichloropropane	24.4	2.0	0.35	ug/l	25.0	98	70-120			
cis-1,3-Dichloropropene	23.8	2.0	0.22	ug/l	25.0	95	75-130			
trans-1,3-Dichloropropene	23.5	2.0	0.24	ug/l	25.0	94	75-135			
Ethylbenzene	24.2	2.0	0.25	ug/l	25.0	97	80-120			
Methylene chloride	25.3	5.0	0.48	ug/l	25.0	101	60-135			
1,1,2,2-Tetrachloroethane	23.2	2.0	0.24	ug/l	25.0	93	60-135			
Tetrachloroethene	23.4	2.0	0.32	ug/l	25.0	94	75-125			
Toluene	23.8	2.0	0.36	ug/l	25.0	95	75-120			
1,1,1-Trichloroethane	24.6	2.0	0.30	ug/l	25.0	98	75-140			
1,1,2-Trichloroethane	23.4	2.0	0.30	ug/l	25.0	94	70-125			
Trichloroethene	23.9	2.0	0.26	ug/l	25.0	96	80-120			
Trichlorofluoromethane	25.9	5.0	0.34	ug/l	25.0	104	65-145			
Vinyl chloride	21.4	0.50	0.26	ug/l	25.0	86	50-130			
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0	106	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0	101	80-120			
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0	99	80-120			

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Outfall 011
Report Number: IOC2063

Sampled: 03/25/05
Received: 03/25/05

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: 5C27003 Extracted: 03/27/05											
Matrix Spike Analyzed: 03/27/2005 (5C27003-MS1)						Source: IOC2063-01					
Benzene	22.4	1.0	0.28	ug/l	25.0	ND	90	70-120			
Bromodichloromethane	22.6	2.0	0.30	ug/l	25.0	ND	90	70-140			
Bromoform	23.6	5.0	0.32	ug/l	25.0	ND	94	55-140			
Bromomethane	23.5	5.0	0.34	ug/l	25.0	ND	94	50-145			
Carbon tetrachloride	22.0	0.50	0.28	ug/l	25.0	ND	88	70-145			
Chlorobenzene	22.2	2.0	0.36	ug/l	25.0	ND	89	80-125			
Chloroethane	21.3	5.0	0.33	ug/l	25.0	ND	85	50-145			
Chloroform	23.4	2.0	0.33	ug/l	25.0	ND	94	70-135			
Chloromethane	22.6	5.0	0.30	ug/l	25.0	ND	90	35-145			
Dibromochloromethane	23.3	2.0	0.28	ug/l	25.0	ND	93	65-145			
1,2-Dichlorobenzene	22.9	2.0	0.32	ug/l	25.0	ND	92	75-130			
1,3-Dichlorobenzene	22.0	2.0	0.35	ug/l	25.0	ND	88	75-130			
1,4-Dichlorobenzene	22.4	2.0	0.37	ug/l	25.0	ND	90	80-120			
1,1-Dichloroethane	23.3	2.0	0.27	ug/l	25.0	ND	93	65-135			
1,2-Dichloroethane	25.8	0.50	0.28	ug/l	25.0	ND	103	60-150			
1,1-Dichloroethene	22.6	5.0	0.32	ug/l	25.0	ND	90	65-140			
trans-1,2-Dichloroethene	23.0	2.0	0.27	ug/l	25.0	ND	92	65-135			
1,2-Dichloropropane	23.5	2.0	0.35	ug/l	25.0	ND	94	65-130			
cis-1,3-Dichloropropene	23.2	2.0	0.22	ug/l	25.0	ND	93	70-140			
trans-1,3-Dichloropropene	23.6	2.0	0.24	ug/l	25.0	ND	94	70-140			
Ethylbenzene	21.8	2.0	0.25	ug/l	25.0	ND	87	70-130			
Methylene chloride	24.4	5.0	0.48	ug/l	25.0	ND	98	60-135			
1,1,2,2-Tetrachloroethane	25.4	2.0	0.24	ug/l	25.0	ND	102	60-145			
Tetrachloroethene	21.2	2.0	0.32	ug/l	25.0	ND	85	70-130			
Toluene	22.3	2.0	0.36	ug/l	25.0	ND	89	70-120			
1,1,1-Trichloroethane	22.1	2.0	0.30	ug/l	25.0	ND	88	75-140			
1,1,2-Trichloroethane	24.3	2.0	0.30	ug/l	25.0	ND	97	60-135			
Trichloroethene	22.2	2.0	0.26	ug/l	25.0	ND	89	70-125			
Trichlorofluoromethane	23.4	5.0	0.34	ug/l	25.0	ND	94	55-145			
Vinyl chloride	19.0	0.50	0.26	ug/l	25.0	ND	76	40-135			
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120			

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 Outfall 011
 Report Number: IOC2063

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C27003 Extracted: 03/27/05											
Matrix Spike Dup Analyzed: 03/27/2005 (5C27003-MSD1)											
						Source: IOC2063-01					
Benzene	23.1	1.0	0.28	ug/l	25.0	ND	92	70-120	3	20	
Bromodichloromethane	23.6	2.0	0.30	ug/l	25.0	ND	94	70-140	4	20	
Bromoform	25.2	5.0	0.32	ug/l	25.0	ND	101	55-140	7	25	
Bromomethane	23.9	5.0	0.34	ug/l	25.0	ND	96	50-145	2	25	
Carbon tetrachloride	23.0	0.50	0.28	ug/l	25.0	ND	92	70-145	4	25	
Chlorobenzene	23.0	2.0	0.36	ug/l	25.0	ND	92	80-125	4	20	
Chloroethane	22.3	5.0	0.33	ug/l	25.0	ND	89	50-145	5	25	
Chloroform	24.0	2.0	0.33	ug/l	25.0	ND	96	70-135	3	20	
Chloromethane	23.0	5.0	0.30	ug/l	25.0	ND	92	35-145	2	25	
Dibromochloromethane	24.4	2.0	0.28	ug/l	25.0	ND	98	65-145	5	25	
1,2-Dichlorobenzene	23.5	2.0	0.32	ug/l	25.0	ND	94	75-130	3	20	
1,3-Dichlorobenzene	22.7	2.0	0.35	ug/l	25.0	ND	91	75-130	3	20	
1,4-Dichlorobenzene	23.1	2.0	0.37	ug/l	25.0	ND	92	80-120	3	20	
1,1-Dichloroethane	23.9	2.0	0.27	ug/l	25.0	ND	96	65-135	3	20	
1,2-Dichloroethane	26.6	0.50	0.28	ug/l	25.0	ND	106	60-150	3	20	
1,1-Dichloroethene	23.4	5.0	0.32	ug/l	25.0	ND	94	65-140	3	20	
trans-1,2-Dichloroethene	23.7	2.0	0.27	ug/l	25.0	ND	95	65-135	3	20	
1,2-Dichloropropane	24.1	2.0	0.35	ug/l	25.0	ND	96	65-130	3	20	
cis-1,3-Dichloropropene	23.9	2.0	0.22	ug/l	25.0	ND	96	70-140	3	20	
trans-1,3-Dichloropropene	24.4	2.0	0.24	ug/l	25.0	ND	98	70-140	3	25	
Ethylbenzene	22.6	2.0	0.25	ug/l	25.0	ND	90	70-130	4	20	
Methylene chloride	25.4	5.0	0.48	ug/l	25.0	ND	102	60-135	4	20	
1,1,2,2-Tetrachloroethane	26.3	2.0	0.24	ug/l	25.0	ND	105	60-145	3	30	
Tetrachloroethene	22.2	2.0	0.32	ug/l	25.0	ND	89	70-130	5	20	
Toluene	22.9	2.0	0.36	ug/l	25.0	ND	92	70-120	3	20	
1,1,1-Trichloroethane	22.7	2.0	0.30	ug/l	25.0	ND	91	75-140	3	20	
1,1,2-Trichloroethane	24.9	2.0	0.30	ug/l	25.0	ND	100	60-135	2	25	
Trichloroethene	22.9	2.0	0.26	ug/l	25.0	ND	92	70-125	3	20	
Trichlorofluoromethane	23.9	5.0	0.34	ug/l	25.0	ND	96	55-145	2	25	
Vinyl chloride	19.2	0.50	0.26	ug/l	25.0	ND	77	40-135	1	30	
Surrogate: Dibromofluoromethane	26.7			ug/l	25.0		107	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.5			ug/l	25.0		98	80-120			

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
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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: 5C27003 Extracted: 03/27/05											
Blank Analyzed: 03/27/2005 (5C27003-BLK1)											
Acrolein	ND	50	4.6	ug/l							
Acrylonitrile	ND	50	5.1	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l							
Surrogate: Dibromofluoromethane	26.2			ug/l	25.0		105	80-120			
Surrogate: Toluene-d8	25.2			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	22.8			ug/l	25.0		91	80-120			
LCS Analyzed: 03/27/2005 (5C27003-BS1)											
2-Chloroethyl vinyl ether	24.8	5.0	1.3	ug/l	25.0		99	20-175			
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99	80-120			
Matrix Spike Analyzed: 03/27/2005 (5C27003-MS1) Source: IOC2063-01											
2-Chloroethyl vinyl ether	26.6	5.0	1.3	ug/l	25.0	ND	106	20-175			
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120			
Matrix Spike Dup Analyzed: 03/27/2005 (5C27003-MSD1) Source: IOC2063-01											
2-Chloroethyl vinyl ether	27.1	5.0	1.3	ug/l	25.0	ND	108	20-175	2	25	
Surrogate: Dibromofluoromethane	26.7			ug/l	25.0		107	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.5			ug/l	25.0		98	80-120			

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METHOD BLANK/QC DATA

PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
Batch: 5C27003 Extracted: 03/27/05										
Blank Analyzed: 03/27/2005 (5C27003-BLK1)										
Cyclohexane	ND	2.5	N/A	ug/l						
1,2-Dichloro-1,1,2-trifluoroethane	ND	2.5	N/A	ug/l						

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting			Spike Level	Source Result	%REC		RPD Limit	Data Qualifiers
		Limit	MDL	Units			%REC	RPD		
Batch: 5C28041 Extracted: 03/28/05										
Blank Analyzed: 03/31/2005 (5C28041-BLK1)										
Acenaphthene	ND	0.50	0.10	ug/l						
Acenaphthylene	ND	0.50	0.10	ug/l						
Aniline	ND	10	2.9	ug/l						
Anthracene	ND	0.50	0.083	ug/l						
Benzidine	ND	5.0	2.4	ug/l						
Benzoic acid	ND	20	3.7	ug/l						
Benzo(a)anthracene	ND	5.0	0.038	ug/l						
Benzo(a)pyrene	ND	2.0	0.14	ug/l						
Benzo(b)fluoranthene	ND	2.0	0.050	ug/l						
Benzo(g,h,i)perylene	ND	5.0	0.059	ug/l						
Benzo(k)fluoranthene	ND	0.50	0.053	ug/l						
Benzyl alcohol	ND	5.0	0.21	ug/l						
Bis(2-chloroethoxy)methane	ND	0.50	0.072	ug/l						
Bis(2-chloroethyl)ether	ND	0.50	0.084	ug/l						
Bis(2-chloroisopropyl)ether	ND	0.50	0.11	ug/l						
Bis(2-ethylhexyl)phthalate	ND	5.0	1.1	ug/l						
4-Bromophenyl phenyl ether	ND	1.0	0.12	ug/l						
Butyl benzyl phthalate	0.760	5.0	0.34	ug/l						J
4-Chloroaniline	ND	2.0	0.20	ug/l						
2-Chloronaphthalene	ND	0.50	0.059	ug/l						
4-Chloro-3-methylphenol	ND	2.0	0.34	ug/l						
4-Chlorophenyl phenyl ether	ND	0.50	0.056	ug/l						
2-Chlorophenol	ND	1.0	0.12	ug/l						
Chrysene	ND	0.50	0.072	ug/l						
Dibenz(a,h)anthracene	ND	0.50	0.083	ug/l						
Dibenzofuran	ND	0.50	0.075	ug/l						
Di-n-butyl phthalate	0.300	2.0	0.26	ug/l						J
1,2-Dichlorobenzene	ND	0.50	0.11	ug/l						
1,3-Dichlorobenzene	ND	0.50	0.13	ug/l						
1,4-Dichlorobenzene	ND	0.50	0.050	ug/l						
3,3-Dichlorobenzidine	ND	5.0	0.93	ug/l						
2,4-Dichlorophenol	ND	2.0	0.21	ug/l						
Diethyl phthalate	0.220	1.0	0.12	ug/l						J
2,4-Dimethylphenol	ND	2.0	0.31	ug/l						
Dimethyl phthalate	ND	0.50	0.081	ug/l						

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting			Spike Level	Source Result	%REC		RPD Limit	Data Qualifiers
		Limit	MDL	Units			%REC	RPD		
Batch: 5C28041 Extracted: 03/28/05										
Blank Analyzed: 03/31/2005 (5C28041-BLK1)										
4,6-Dinitro-2-methylphenol	ND	5.0	0.38	ug/l						
2,4-Dinitrophenol	ND	5.0	2.7	ug/l						N-1
2,4-Dinitrotoluene	ND	5.0	0.23	ug/l						
2,6-Dinitrotoluene	ND	5.0	0.24	ug/l						
Di-n-octyl phthalate	ND	5.0	0.17	ug/l						
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	0.087	ug/l						
Fluoranthene	ND	0.50	0.089	ug/l						
Fluorene	ND	0.50	0.075	ug/l						
Hexachlorobenzene	ND	1.0	0.13	ug/l						
Hexachlorobutadiene	ND	2.0	0.38	ug/l						
Hexachlorocyclopentadiene	ND	5.0	1.8	ug/l						
Hexachloroethane	ND	3.0	0.51	ug/l						
Indeno(1,2,3-cd)pyrene	ND	2.0	0.19	ug/l						
Isophorone	ND	1.0	0.059	ug/l						
2-Methylnaphthalene	ND	1.0	0.13	ug/l						
2-Methylphenol	ND	2.0	0.28	ug/l						
4-Methylphenol	ND	5.0	0.20	ug/l						
Naphthalene	ND	1.0	0.13	ug/l						
2-Nitroaniline	ND	5.0	0.18	ug/l						
3-Nitroaniline	ND	5.0	0.35	ug/l						
4-Nitroaniline	ND	5.0	0.49	ug/l						
Nitrobenzene	ND	1.0	0.10	ug/l						
2-Nitrophenol	ND	2.0	0.23	ug/l						
4-Nitrophenol	ND	5.0	0.73	ug/l						
N-Nitrosodimethylamine	ND	2.0	0.22	ug/l						
N-Nitroso-di-n-propylamine	ND	2.0	0.18	ug/l						
N-Nitrosodiphenylamine	ND	1.0	0.077	ug/l						
Pentachlorophenol	ND	2.0	0.78	ug/l						
Phenanthrene	ND	0.50	0.071	ug/l						
Phenol	ND	1.0	0.14	ug/l						
Pyrene	ND	0.50	0.059	ug/l						
1,2,4-Trichlorobenzene	ND	1.0	0.10	ug/l						
2,4,5-Trichlorophenol	ND	2.0	0.075	ug/l						
2,4,6-Trichlorophenol	ND	1.0	0.10	ug/l						
Surrogate: 2-Fluorophenol	13.6			ug/l	20.0	68	30-120			

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

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: 5C28041 Extracted: 03/28/05											
Blank Analyzed: 03/31/2005 (5C28041-BLK1)											
Surrogate: Phenol-d6	13.7			ug/l	20.0		68	35-120			
Surrogate: 2,4,6-Tribromophenol	16.5			ug/l	20.0		82	45-120			
Surrogate: Nitrobenzene-d5	6.94			ug/l	10.0		69	45-120			
Surrogate: 2-Fluorobiphenyl	7.28			ug/l	10.0		73	45-120			
Surrogate: Terphenyl-d14	8.40			ug/l	10.0		84	45-120			
Blank Analyzed: 04/11/2005 (5C28041-BLK2)											
2,4-Dinitrophenol	ND	5.0	2.7	ug/l							
Surrogate: 2-Fluorophenol	12.9			ug/l	20.0		64	30-120			
Surrogate: Phenol-d6	13.6			ug/l	20.0		68	35-120			
Surrogate: 2,4,6-Tribromophenol	17.1			ug/l	20.0		86	45-120			
Surrogate: Nitrobenzene-d5	6.98			ug/l	10.0		70	45-120			
Surrogate: 2-Fluorobiphenyl	7.68			ug/l	10.0		77	45-120			
Surrogate: Terphenyl-d14	8.10			ug/l	10.0		81	45-120			
LCS Analyzed: 03/31/2005 (5C28041-BS1)											
Acenaphthene	8.28	0.50	0.10	ug/l	10.0		83	55-120			M-NR1
Acenaphthylene	8.44	0.50	0.10	ug/l	10.0		84	55-120			
Aniline	7.32	10	2.9	ug/l	10.0		73	35-120			J
Anthracene	8.48	0.50	0.083	ug/l	10.0		85	55-120			
Benzidine	ND	5.0	2.4	ug/l	10.0			20-160			L2
Benzoic acid	6.74	20	3.7	ug/l	10.0		67	35-120			J
Benzo(a)anthracene	9.52	5.0	0.038	ug/l	10.0		95	60-120			
Benzo(a)pyrene	8.70	2.0	0.14	ug/l	10.0		87	55-120			
Benzo(b)fluoranthene	9.32	2.0	0.050	ug/l	10.0		93	50-120			
Benzo(g,h,i)perylene	8.16	5.0	0.059	ug/l	10.0		82	40-125			
Benzo(k)fluoranthene	9.24	0.50	0.053	ug/l	10.0		92	50-120			
Benzyl alcohol	7.62	5.0	0.21	ug/l	10.0		76	45-120			
Bis(2-chloroethoxy)methane	7.98	0.50	0.072	ug/l	10.0		80	55-120			
Bis(2-chloroethyl)ether	6.98	0.50	0.084	ug/l	10.0		70	50-120			
Bis(2-chloroisopropyl)ether	7.26	0.50	0.11	ug/l	10.0		73	45-120			
Bis(2-ethylhexyl)phthalate	9.16	5.0	1.1	ug/l	10.0		92	60-130			
4-Bromophenyl phenyl ether	8.10	1.0	0.12	ug/l	10.0		81	50-120			
Butyl benzyl phthalate	9.66	5.0	0.34	ug/l	10.0		97	55-125			
4-Chloroaniline	6.60	2.0	0.20	ug/l	10.0		66	50-120			
2-Chloronaphthalene	8.52	0.50	0.059	ug/l	10.0		85	55-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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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	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05											
LCS Analyzed: 03/31/2005 (5C28041-BS1)											
4-Chloro-3-methylphenol	7.18	2.0	0.34	ug/l	10.0	72	60-120				M-NR1
4-Chlorophenyl phenyl ether	8.88	0.50	0.056	ug/l	10.0	89	55-120				
2-Chlorophenol	7.12	1.0	0.12	ug/l	10.0	71	45-120				
Chrysene	9.14	0.50	0.072	ug/l	10.0	91	60-120				
Dibenz(a,h)anthracene	7.06	0.50	0.083	ug/l	10.0	71	45-130				
Dibenzofuran	8.18	0.50	0.075	ug/l	10.0	82	60-120				
Di-n-butyl phthalate	9.02	2.0	0.26	ug/l	10.0	90	55-125				
1,2-Dichlorobenzene	6.26	0.50	0.11	ug/l	10.0	63	35-120				
1,3-Dichlorobenzene	6.26	0.50	0.13	ug/l	10.0	63	35-120				
1,4-Dichlorobenzene	6.18	0.50	0.050	ug/l	10.0	62	35-120				
3,3-Dichlorobenzidine	6.98	5.0	0.93	ug/l	10.0	70	45-130				
2,4-Dichlorophenol	7.68	2.0	0.21	ug/l	10.0	77	55-120				
Diethyl phthalate	8.18	1.0	0.12	ug/l	10.0	82	55-120				
2,4-Dimethylphenol	5.28	2.0	0.31	ug/l	10.0	53	30-120				
Dimethyl phthalate	8.76	0.50	0.081	ug/l	10.0	88	60-120				
4,6-Dinitro-2-methylphenol	9.40	5.0	0.38	ug/l	10.0	94	50-120				
2,4-Dinitrophenol	8.70	5.0	2.7	ug/l	10.0	87	40-120				N-1
2,4-Dinitrotoluene	8.00	5.0	0.23	ug/l	10.0	80	60-120				
2,6-Dinitrotoluene	8.28	5.0	0.24	ug/l	10.0	83	60-120				
Di-n-octyl phthalate	9.46	5.0	0.17	ug/l	10.0	95	60-130				
1,2-Diphenylhydrazine/Azobenzene	8.78	1.0	0.087	ug/l	10.0	88	60-120				
Fluoranthene	9.26	0.50	0.089	ug/l	10.0	93	55-120				
Fluorene	9.18	0.50	0.075	ug/l	10.0	92	60-120				
Hexachlorobenzene	8.42	1.0	0.13	ug/l	10.0	84	50-120				
Hexachlorobutadiene	6.40	2.0	0.38	ug/l	10.0	64	40-120				
Hexachlorocyclopentadiene	7.30	5.0	1.8	ug/l	10.0	73	15-120				
Hexachloroethane	6.26	3.0	0.51	ug/l	10.0	63	35-120				
Indeno(1,2,3-cd)pyrene	7.72	2.0	0.19	ug/l	10.0	77	40-130				
Isophorone	7.42	1.0	0.059	ug/l	10.0	74	50-120				
2-Methylnaphthalene	7.88	1.0	0.13	ug/l	10.0	79	50-120				
2-Methylphenol	6.98	2.0	0.28	ug/l	10.0	70	45-120				
4-Methylphenol	7.12	5.0	0.20	ug/l	10.0	71	45-120				
Naphthalene	7.36	1.0	0.13	ug/l	10.0	74	50-120				
2-Nitroaniline	8.62	5.0	0.18	ug/l	10.0	86	60-120				
3-Nitroaniline	7.82	5.0	0.35	ug/l	10.0	78	55-120				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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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	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05											
LCS Analyzed: 03/31/2005 (5C28041-BS1)											
4-Nitroaniline	8.16	5.0	0.49	ug/l	10.0		82	50-125			M-NR1
Nitrobenzene	6.90	1.0	0.10	ug/l	10.0		69	50-120			
2-Nitrophenol	7.58	2.0	0.23	ug/l	10.0		76	55-120			
4-Nitrophenol	7.60	5.0	0.73	ug/l	10.0		76	45-120			
N-Nitrosodimethylamine	7.40	2.0	0.22	ug/l	10.0		74	40-120			
N-Nitroso-di-n-propylamine	7.22	2.0	0.18	ug/l	10.0		72	45-120			
N-Nitrosodiphenylamine	7.98	1.0	0.077	ug/l	10.0		80	55-120			
Pentachlorophenol	8.86	2.0	0.78	ug/l	10.0		89	50-120			
Phenanthrene	8.56	0.50	0.071	ug/l	10.0		86	55-120			
Phenol	8.12	1.0	0.14	ug/l	10.0		81	45-120			
Pyrene	9.44	0.50	0.059	ug/l	10.0		94	50-120			
1,2,4-Trichlorobenzene	6.52	1.0	0.10	ug/l	10.0		65	45-120			
2,4,5-Trichlorophenol	8.30	2.0	0.075	ug/l	10.0		83	60-120			
2,4,6-Trichlorophenol	8.76	1.0	0.10	ug/l	10.0		88	60-120			
Surrogate: 2-Fluorophenol	13.3			ug/l	20.0		66	30-120			
Surrogate: Phenol-d6	13.1			ug/l	20.0		66	35-120			
Surrogate: 2,4,6-Tribromophenol	16.0			ug/l	20.0		80	45-120			
Surrogate: Nitrobenzene-d5	6.70			ug/l	10.0		67	45-120			
Surrogate: 2-Fluorobiphenyl	7.58			ug/l	10.0		76	45-120			
Surrogate: Terphenyl-d14	8.10			ug/l	10.0		81	45-120			
LCS Analyzed: 04/11/2005 (5C28041-BS2)											
2,4-Dinitrophenol	8.72	5.0	2.7	ug/l	10.0		87	40-120			
Surrogate: 2-Fluorophenol	13.0			ug/l	20.0		65	30-120			
Surrogate: Phenol-d6	13.4			ug/l	20.0		67	35-120			
Surrogate: 2,4,6-Tribromophenol	16.7			ug/l	20.0		84	45-120			
Surrogate: Nitrobenzene-d5	6.72			ug/l	10.0		67	45-120			
Surrogate: 2-Fluorobiphenyl	7.14			ug/l	10.0		71	45-120			
Surrogate: Terphenyl-d14	7.92			ug/l	10.0		79	45-120			

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Project Manager



MWH-Pasadena/Boeing Project ID: 13267 (Study 1)
300 North Lake Avenue, Suite 1200 Outfall 011
Pasadena, CA 91101 Report Number: IOC2063
Attention: Bronwyn Kelly Sampled: 03/25/05
Received: 03/25/05

METHOD BLANK/QC DATA

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

Table with columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Data Qualifiers. Includes sub-headers for Batch: 5C28041 and LCS Dup Analyzed: 03/31/2005.

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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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD	RPD	RPD	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05											
LCS Dup Analyzed: 03/31/2005 (5C28041-BSD1)											
4,6-Dinitro-2-methylphenol	9.54	5.0	0.38	ug/l	10.0	95	50-120	1	25		
2,4-Dinitrophenol	8.94	5.0	2.7	ug/l	10.0	89	40-120	3	25		N-1
2,4-Dinitrotoluene	8.46	5.0	0.23	ug/l	10.0	85	60-120	6	20		
2,6-Dinitrotoluene	8.62	5.0	0.24	ug/l	10.0	86	60-120	4	20		
Di-n-octyl phthalate	10.0	5.0	0.17	ug/l	10.0	100	60-130	6	20		
1,2-Diphenylhydrazine/Azobenzene	9.68	1.0	0.087	ug/l	10.0	97	60-120	10	25		
Fluoranthene	9.68	0.50	0.089	ug/l	10.0	97	55-120	4	20		
Fluorene	9.80	0.50	0.075	ug/l	10.0	98	60-120	7	20		
Hexachlorobenzene	8.88	1.0	0.13	ug/l	10.0	89	50-120	5	20		
Hexachlorobutadiene	6.94	2.0	0.38	ug/l	10.0	69	40-120	8	25		
Hexachlorocyclopentadiene	8.62	5.0	1.8	ug/l	10.0	86	15-120	17	30		
Hexachloroethane	6.78	3.0	0.51	ug/l	10.0	68	35-120	8	25		
Indeno(1,2,3-cd)pyrene	8.56	2.0	0.19	ug/l	10.0	86	40-130	10	25		
Isophorone	7.52	1.0	0.059	ug/l	10.0	75	50-120	1	20		
2-Methylnaphthalene	8.46	1.0	0.13	ug/l	10.0	85	50-120	7	20		
2-Methylphenol	7.30	2.0	0.28	ug/l	10.0	73	45-120	4	20		
4-Methylphenol	7.48	5.0	0.20	ug/l	10.0	75	45-120	5	20		
Naphthalene	7.94	1.0	0.13	ug/l	10.0	79	50-120	8	20		
2-Nitroaniline	9.28	5.0	0.18	ug/l	10.0	93	60-120	7	20		
3-Nitroaniline	8.46	5.0	0.35	ug/l	10.0	85	55-120	8	25		
4-Nitroaniline	8.60	5.0	0.49	ug/l	10.0	86	50-125	5	20		
Nitrobenzene	7.28	1.0	0.10	ug/l	10.0	73	50-120	5	25		
2-Nitrophenol	7.92	2.0	0.23	ug/l	10.0	79	55-120	4	25		
4-Nitrophenol	8.70	5.0	0.73	ug/l	10.0	87	45-120	13	25		
N-Nitrosodimethylamine	7.56	2.0	0.22	ug/l	10.0	76	40-120	2	20		
N-Nitroso-di-n-propylamine	7.68	2.0	0.18	ug/l	10.0	77	45-120	6	20		
N-Nitrosodiphenylamine	8.36	1.0	0.077	ug/l	10.0	84	55-120	5	20		
Pentachlorophenol	9.04	2.0	0.78	ug/l	10.0	90	50-120	2	25		
Phenanthrene	9.06	0.50	0.071	ug/l	10.0	91	55-120	6	20		
Phenol	8.62	1.0	0.14	ug/l	10.0	86	45-120	6	25		
Pyrene	9.74	0.50	0.059	ug/l	10.0	97	50-120	3	25		
1,2,4-Trichlorobenzene	7.02	1.0	0.10	ug/l	10.0	70	45-120	7	20		
2,4,5-Trichlorophenol	8.36	2.0	0.075	ug/l	10.0	84	60-120	1	20		
2,4,6-Trichlorophenol	9.06	1.0	0.10	ug/l	10.0	91	60-120	3	20		
Surrogate: 2-Fluorophenol	13.5			ug/l	20.0	68	30-120				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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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	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05											
LCS Dup Analyzed: 03/31/2005 (5C28041-BSD1)											
Surrogate: Phenol-d6	13.7			ug/l	20.0		68	35-120			
Surrogate: 2,4,6-Tribromophenol	16.7			ug/l	20.0		84	45-120			
Surrogate: Nitrobenzene-d5	7.00			ug/l	10.0		70	45-120			
Surrogate: 2-Fluorobiphenyl	7.96			ug/l	10.0		80	45-120			
Surrogate: Terphenyl-d14	8.22			ug/l	10.0		82	45-120			
LCS Dup Analyzed: 04/11/2005 (5C28041-BSD2)											
2,4-Dinitrophenol	8.86	5.0	2.7	ug/l	10.0		89	40-120	2	25	
Surrogate: 2-Fluorophenol	13.2			ug/l	20.0		66	30-120			
Surrogate: Phenol-d6	14.3			ug/l	20.0		72	35-120			
Surrogate: 2,4,6-Tribromophenol	17.2			ug/l	20.0		86	45-120			
Surrogate: Nitrobenzene-d5	7.02			ug/l	10.0		70	45-120			
Surrogate: 2-Fluorobiphenyl	7.52			ug/l	10.0		75	45-120			
Surrogate: Terphenyl-d14	7.66			ug/l	10.0		77	45-120			

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

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METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
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Batch: 5C28048 Extracted: 03/28/05

Blank Analyzed: 03/29/2005-03/30/2005 (5C28048-BLK1)

Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.10	0.015	ug/l						
beta-BHC	ND	0.10	0.015	ug/l						
delta-BHC	ND	0.20	0.020	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.020	ug/l						
Chlordane	ND	1.0	0.20	ug/l						
4,4'-DDD	ND	0.10	0.020	ug/l						
4,4'-DDE	ND	0.10	0.025	ug/l						
4,4'-DDT	ND	0.10	0.030	ug/l						
Dieldrin	ND	0.10	0.015	ug/l						
Endosulfan I	ND	0.10	0.015	ug/l						
Endosulfan II	ND	0.10	0.040	ug/l						
Endosulfan sulfate	ND	0.20	0.015	ug/l						
Endrin	ND	0.10	0.020	ug/l						
Endrin aldehyde	ND	0.10	0.045	ug/l						
Endrin ketone	ND	0.10	0.020	ug/l						
Heptachlor	ND	0.10	0.030	ug/l						
Heptachlor epoxide	ND	0.10	0.020	ug/l						
Methoxychlor	ND	0.10	0.035	ug/l						
Toxaphene	ND	5.0	1.5	ug/l						
Surrogate: Tetrachloro-m-xylene	0.350			ug/l	0.500	70	35-115			
Surrogate: Decachlorobiphenyl	0.383			ug/l	0.500	77	45-120			

LCS Analyzed: 03/29/2005 (5C28048-BS1)

Aldrin	0.347	0.10	0.030	ug/l	0.500	69	40-115			
alpha-BHC	0.372	0.10	0.015	ug/l	0.500	74	45-115			
beta-BHC	0.377	0.10	0.015	ug/l	0.500	75	50-115			
delta-BHC	0.382	0.20	0.020	ug/l	0.500	76	55-120			
gamma-BHC (Lindane)	0.373	0.10	0.020	ug/l	0.500	75	45-115			
4,4'-DDD	0.420	0.10	0.020	ug/l	0.500	84	60-120			
4,4'-DDE	0.417	0.10	0.025	ug/l	0.500	83	55-120			
4,4'-DDT	0.437	0.10	0.030	ug/l	0.500	87	60-120			
Dieldrin	0.405	0.10	0.015	ug/l	0.500	81	55-120			
Endosulfan I	0.388	0.10	0.015	ug/l	0.500	78	50-115			
Endosulfan II	0.396	0.10	0.040	ug/l	0.500	79	60-125			
Endosulfan sulfate	0.396	0.20	0.015	ug/l	0.500	79	60-120			

M-NR1

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C28048 Extracted: 03/28/05											
LCS Analyzed: 03/29/2005 (5C28048-BS1)											
Endrin	0.420	0.10	0.020	ug/l	0.500		84	55-125			M-NR1
Endrin aldehyde	0.382	0.10	0.045	ug/l	0.500		76	55-115			
Endrin ketone	0.402	0.10	0.020	ug/l	0.500		80	60-115			
Heptachlor	0.371	0.10	0.030	ug/l	0.500		74	45-115			
Heptachlor epoxide	0.388	0.10	0.020	ug/l	0.500		78	50-115			
Methoxychlor	0.399	0.10	0.035	ug/l	0.500		80	60-120			
Surrogate: Tetrachloro-m-xylene	0.337			ug/l	0.500		67	35-115			
Surrogate: Decachlorobiphenyl	0.372			ug/l	0.500		74	45-120			
LCS Dup Analyzed: 03/29/2005 (5C28048-BSD1)											
Aldrin	0.291	0.10	0.030	ug/l	0.500		58	40-115	18	30	
alpha-BHC	0.322	0.10	0.015	ug/l	0.500		64	45-115	14	30	
beta-BHC	0.345	0.10	0.015	ug/l	0.500		69	50-115	9	30	
delta-BHC	0.352	0.20	0.020	ug/l	0.500		70	55-120	8	30	
gamma-BHC (Lindane)	0.328	0.10	0.020	ug/l	0.500		66	45-115	13	30	
4,4'-DDD	0.397	0.10	0.020	ug/l	0.500		79	60-120	6	30	
4,4'-DDE	0.378	0.10	0.025	ug/l	0.500		76	55-120	10	30	
4,4'-DDT	0.531	0.10	0.030	ug/l	0.500		106	60-120	19	30	
Dieldrin	0.368	0.10	0.015	ug/l	0.500		74	55-120	10	30	
Endosulfan I	0.351	0.10	0.015	ug/l	0.500		70	50-115	10	30	
Endosulfan II	0.368	0.10	0.040	ug/l	0.500		74	60-125	7	30	
Endosulfan sulfate	0.373	0.20	0.015	ug/l	0.500		75	60-120	6	30	
Endrin	0.383	0.10	0.020	ug/l	0.500		77	55-125	9	30	
Endrin aldehyde	0.369	0.10	0.045	ug/l	0.500		74	55-115	3	30	
Endrin ketone	0.377	0.10	0.020	ug/l	0.500		75	60-115	6	30	
Heptachlor	0.320	0.10	0.030	ug/l	0.500		64	45-115	15	30	
Heptachlor epoxide	0.349	0.10	0.020	ug/l	0.500		70	50-115	11	30	
Methoxychlor	0.375	0.10	0.035	ug/l	0.500		75	60-120	6	30	
Surrogate: Tetrachloro-m-xylene	0.289			ug/l	0.500		58	35-115			
Surrogate: Decachlorobiphenyl	0.344			ug/l	0.500		69	45-120			

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C28048 Extracted: 03/28/05										
Blank Analyzed: 03/29/2005-03/30/2005 (5C28048-BLK1)										
Aroclor 1016	ND	1.0	0.20	ug/l						
Aroclor 1221	ND	1.0	0.10	ug/l						
Aroclor 1232	ND	1.0	0.15	ug/l						
Aroclor 1242	ND	1.0	0.15	ug/l						
Aroclor 1248	ND	1.0	0.25	ug/l						
Aroclor 1254	ND	1.0	0.25	ug/l						
Aroclor 1260	ND	1.0	0.40	ug/l						
Surrogate: Decachlorobiphenyl	0.407			ug/l	0.500		81		45-120	
LCS Analyzed: 03/31/2005 (5C28048-BS2)										
Aroclor 1016	6.06	2.0	0.40	ug/l	8.00		76		50-115	M-NR1
Aroclor 1260	5.96	2.0	0.80	ug/l	8.00		74		55-115	
Surrogate: Decachlorobiphenyl	0.769			ug/l	1.00		77		45-120	
LCS Dup Analyzed: 03/30/2005 (5C28048-BS2)										
Aroclor 1016	3.08	1.0	0.20	ug/l	4.00		77	65	50-115	R-7
Aroclor 1260	3.30	1.0	0.40	ug/l	4.00		82	57	55-115	R-7
Surrogate: Decachlorobiphenyl	0.431			ug/l	0.500		86		45-120	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C25111 Extracted: 03/25/05											
Blank Analyzed: 03/26/2005 (5C25111-BLK1)											
Boron	ND	0.050	0.0074	mg/l							
LCS Analyzed: 03/26/2005 (5C25111-BS1)											
Boron	0.450	0.050	0.0074	mg/l	0.500		90	85-115			
Matrix Spike Analyzed: 03/26/2005 (5C25111-MS1) Source: IOC1861-01											
Boron	0.612	0.050	0.0074	mg/l	0.500	0.13	96	70-130			
Matrix Spike Dup Analyzed: 03/26/2005 (5C25111-MSD1) Source: IOC1861-01											
Boron	0.642	0.050	0.0074	mg/l	0.500	0.13	102	70-130	5	20	
Batch: 5C25116 Extracted: 03/25/05											
Blank Analyzed: 03/28/2005 (5C25116-BLK1)											
Antimony	ND	2.0	0.18	ug/l							
Arsenic	ND	1.0	0.49	ug/l							
Barium	ND	0.0010	0.00014	mg/l							
Beryllium	ND	0.50	0.037	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Chromium	0.507	2.0	0.26	ug/l							J
Cobalt	ND	1.0	0.10	ug/l							
Copper	ND	2.0	0.49	ug/l							
Iron	0.00735	0.010	0.0032	mg/l							J
Lead	ND	1.0	0.13	ug/l							
Manganese	ND	1.0	0.44	ug/l							
Nickel	ND	2.0	0.15	ug/l							
Selenium	ND	2.0	0.36	ug/l							
Silver	ND	1.0	0.089	ug/l							
Thallium	ND	1.0	0.075	ug/l							
Vanadium	ND	2.0	0.86	ug/l							
Zinc	ND	20	3.1	ug/l							

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
Batch: 5C25116 Extracted: 03/25/05											
LCS Analyzed: 03/28/2005 (5C25116-BS1)											
Antimony	80.9	2.0	0.18	ug/l	80.0		101	85-115			
Arsenic	84.0	1.0	0.49	ug/l	80.0		105	85-115			
Barium	0.0810	0.0010	0.00014	mg/l	0.0800		101	85-115			
Beryllium	82.8	0.50	0.037	ug/l	80.0		104	85-115			
Cadmium	78.6	1.0	0.015	ug/l	80.0		98	85-115			
Chromium	79.4	2.0	0.26	ug/l	80.0		99	85-115			
Cobalt	78.3	1.0	0.10	ug/l	80.0		98	85-115			
Copper	75.2	2.0	0.49	ug/l	80.0		94	85-115			
Iron	0.796	0.010	0.0032	mg/l	0.800		100	85-115			
Lead	88.6	1.0	0.13	ug/l	80.0		111	85-115			
Manganese	80.3	1.0	0.44	ug/l	80.0		100	85-115			
Nickel	78.1	2.0	0.15	ug/l	80.0		98	85-115			
Selenium	80.6	2.0	0.36	ug/l	80.0		101	85-115			
Silver	87.8	1.0	0.089	ug/l	80.0		110	85-115			
Thallium	79.3	1.0	0.075	ug/l	80.0		99	85-115			
Vanadium	79.1	2.0	0.86	ug/l	80.0		99	85-115			
Zinc	75.9	20	3.1	ug/l	80.0		95	85-115			

Matrix Spike Analyzed: 03/28/2005 (5C25116-MS1)

Source: IOC2062-01

Antimony	83.2	2.0	0.18	ug/l	80.0	0.29	104	70-130			
Arsenic	85.1	1.0	0.49	ug/l	80.0	1.2	105	70-130			
Barium	0.121	0.0010	0.00014	mg/l	0.0800	0.036	106	70-130			
Beryllium	85.1	0.50	0.037	ug/l	80.0	ND	106	70-130			
Cadmium	79.5	1.0	0.015	ug/l	80.0	0.072	99	70-130			
Chromium	81.2	2.0	0.26	ug/l	80.0	2.2	99	70-130			
Cobalt	79.4	1.0	0.10	ug/l	80.0	0.58	99	70-130			
Copper	77.2	2.0	0.49	ug/l	80.0	3.0	93	70-130			
Iron	1.44	0.010	0.0032	mg/l	0.800	0.67	96	70-130			
Lead	86.8	1.0	0.13	ug/l	80.0	0.55	108	70-130			
Manganese	208	1.0	0.44	ug/l	80.0	100	135	70-130			MI
Nickel	79.1	2.0	0.15	ug/l	80.0	2.8	95	70-130			
Selenium	80.4	2.0	0.36	ug/l	80.0	ND	100	70-130			
Silver	85.1	1.0	0.089	ug/l	80.0	0.10	106	70-130			
Thallium	81.9	1.0	0.075	ug/l	80.0	0.15	102	70-130			
Vanadium	81.3	2.0	0.86	ug/l	80.0	1.5	100	70-130			
Zinc	84.8	20	3.1	ug/l	80.0	14	88	70-130			

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MWH-Pasadena/Boeing
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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C25116 Extracted: 03/25/05											
Matrix Spike Dup Analyzed: 03/28/2005 (5C25116-MSD1)						Source: IOC2062-01					
Antimony	81.5	2.0	0.18	ug/l	80.0	0.29	102	70-130	2	20	
Arsenic	84.9	1.0	0.49	ug/l	80.0	1.2	105	70-130	0	20	
Barium	0.119	0.0010	0.00014	mg/l	0.0800	0.036	104	70-130	2	20	
Beryllium	81.9	0.50	0.037	ug/l	80.0	ND	102	70-130	4	20	
Cadmium	78.0	1.0	0.015	ug/l	80.0	0.072	97	70-130	2	20	
Chromium	79.8	2.0	0.26	ug/l	80.0	2.2	97	70-130	2	20	
Cobalt	78.3	1.0	0.10	ug/l	80.0	0.58	97	70-130	1	20	
Copper	75.6	2.0	0.49	ug/l	80.0	3.0	91	70-130	2	20	
Iron	1.40	0.010	0.0032	mg/l	0.800	0.67	91	70-130	3	20	
Lead	87.0	1.0	0.13	ug/l	80.0	0.55	108	70-130	0	20	
Manganese	203	1.0	0.44	ug/l	80.0	100	129	70-130	2	20	
Nickel	78.1	2.0	0.15	ug/l	80.0	2.8	94	70-130	1	20	
Selenium	79.7	2.0	0.36	ug/l	80.0	ND	100	70-130	1	20	
Silver	85.1	1.0	0.089	ug/l	80.0	0.10	106	70-130	0	20	
Thallium	80.9	1.0	0.075	ug/l	80.0	0.15	101	70-130	1	20	
Vanadium	81.2	2.0	0.86	ug/l	80.0	1.5	100	70-130	0	20	
Zinc	83.4	20	3.1	ug/l	80.0	14	87	70-130	2	20	

Batch: 5C26033 Extracted: 03/26/05

Blank Analyzed: 03/26/2005 (5C26033-BLK1)

Mercury	ND	0.20	0.063	ug/l
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LCS Analyzed: 03/26/2005 (5C26033-BS1)

Mercury	8.12	0.20	0.063	ug/l	8.00	102	85-115
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Matrix Spike Analyzed: 03/26/2005 (5C26033-MS1)

Mercury	7.56	0.20	0.063	ug/l	8.00	ND	94	70-130
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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C26033 Extracted: 03/26/05											
Matrix Spike Dup Analyzed: 03/26/2005 (5C26033-MSD1)						Source: IOC2062-01					
Mercury	7.61	0.20	0.063	ug/l	8.00	ND	95	70-130	1	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C25048 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25048-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Fluoride	ND	0.50	0.10	mg/l							
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 03/25/2005 (5C25048-BS1)											
Chloride	4.97	0.50	0.26	mg/l	5.00		99	90-110			M-3
Fluoride	4.81	0.50	0.10	mg/l	5.00		96	90-110			
Sulfate	10.3	0.50	0.18	mg/l	10.0		103	90-110			M-3
Matrix Spike Analyzed: 03/25/2005 (5C25048-MS1) Source: IOC2038-01											
Fluoride	5.70	0.50	0.10	mg/l	5.00	0.88	96	80-120			
Matrix Spike Dup Analyzed: 03/25/2005 (5C25048-MSD1) Source: IOC2038-01											
Fluoride	5.70	0.50	0.10	mg/l	5.00	0.88	96	80-120	0	20	
Batch: 5C25058 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25058-BLK1)											
Chromium VI	ND	1.0	0.10	ug/l							
LCS Analyzed: 03/25/2005 (5C25058-BS1)											
Chromium VI	52.4	1.0	0.10	ug/l	50.0		105	90-110			
Matrix Spike Analyzed: 03/25/2005 (5C25058-MS1) Source: IOC2023-03											
Chromium VI	45.3	1.0	0.10	ug/l	50.0	ND	91	90-110			

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
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Batch: 5C25058 Extracted: 03/25/05

Matrix Spike Dup Analyzed: 03/25/2005 (5C25058-MSD1)

Source: IOC2023-03

Chromium VI	44.3	1.0	0.10	ug/l	50.0	ND	89	90-110	2	10	M2
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Batch: 5C25061 Extracted: 03/25/05

Blank Analyzed: 03/25/2005 (5C25061-BLK1)

Perchlorate	ND	4.0	0.80	ug/l							
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LCS Analyzed: 03/25/2005 (5C25061-BS1)

Perchlorate	48.8	4.0	0.80	ug/l	50.0		98	85-115			
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Matrix Spike Analyzed: 03/25/2005 (5C25061-MS1)

Source: IOC2024-01

Perchlorate	49.6	4.0	0.80	ug/l	50.0	1.2	97	80-120			
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Matrix Spike Dup Analyzed: 03/25/2005 (5C25061-MSD1)

Source: IOC2024-01

Perchlorate	49.9	4.0	0.80	ug/l	50.0	1.2	97	80-120	1	20	
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Batch: 5C25093 Extracted: 03/25/05

Blank Analyzed: 03/30/2005 (5C25093-BLK1)

Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
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LCS Analyzed: 03/30/2005 (5C25093-BS1)

Biochemical Oxygen Demand	208	100	30	mg/l	198		105	85-115			
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LCS Dup Analyzed: 03/30/2005 (5C25093-BSD1)

Biochemical Oxygen Demand	208	100	30	mg/l	198		105	85-115	0	20	
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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Limit	Qualifiers
Batch: 5C25096 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25096-BLK1)											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
LCS Analyzed: 03/25/2005 (5C25096-BS1)											
Surfactants (MBAS)	0.266	0.10	0.044	mg/l	0.250		106	90-110			
Matrix Spike Analyzed: 03/25/2005 (5C25096-MS1)											
						Source: IOC1920-01					
Surfactants (MBAS)	0.245	0.10	0.044	mg/l	0.250	ND	98	50-125			
Matrix Spike Dup Analyzed: 03/25/2005 (5C25096-MSD1)											
						Source: IOC1920-01					
Surfactants (MBAS)	0.260	0.10	0.044	mg/l	0.250	ND	104	50-125	6	20	
Batch: 5C25117 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25117-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/25/2005 (5C25117-BS1)											
Total Suspended Solids	949	10	10	mg/l	1000		95	85-115			
Duplicate Analyzed: 03/25/2005 (5C25117-DUP1)											
						Source: IOC2063-01					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Batch: 5C25118 Extracted: 03/25/05											
Duplicate Analyzed: 03/25/2005 (5C25118-DUP1)											
						Source: IOC2063-01					
Residual Chlorine	ND	0.10	0.10	mg/l		ND				20	

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C25119 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25119-BLK1)											
Total Cyanide	ND	5.0	2.2	ug/l							
LCS Analyzed: 03/25/2005 (5C25119-BS1)											
Total Cyanide	194	5.0	2.2	ug/l	200		97	90-110			
Matrix Spike Analyzed: 03/25/2005 (5C25119-MS1)											
Total Cyanide	191	5.0	2.2	ug/l	200	ND	96	70-115			
Matrix Spike Dup Analyzed: 03/25/2005 (5C25119-MSD1)											
Total Cyanide	195	5.0	2.2	ug/l	200	ND	98	70-115	2	15	
Batch: 5C26056 Extracted: 03/26/05											
Blank Analyzed: 03/26/2005 (5C26056-BLK1)											
Turbidity	0.0500	1.0	0.040	NTU							J
Duplicate Analyzed: 03/26/2005 (5C26056-DUP1)											
Turbidity	11.9	1.0	0.040	NTU		12			1	20	
Batch: 5C28067 Extracted: 03/28/05											
Blank Analyzed: 03/28/2005 (5C28067-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
LCS Analyzed: 03/28/2005 (5C28067-BS1)											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0		98	80-115			

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C28067 Extracted: 03/28/05											
Matrix Spike Analyzed: 03/28/2005 (5C28067-MS1)						Source: IOC2120-01					
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0	ND	98	70-120			
Matrix Spike Dup Analyzed: 03/28/2005 (5C28067-MSD1)						Source: IOC2120-01					
Ammonia-N (Distilled)	8.96	0.50	0.30	mg/l	10.0	ND	90	70-120	9	15	
Batch: 5C28069 Extracted: 03/28/05											
Blank Analyzed: 03/28/2005 (5C28069-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 03/28/2005 (5C28069-BS1)											
Oil & Grease	19.7	5.0	0.94	mg/l	20.0		98	65-120			M-NR1
LCS Dup Analyzed: 03/28/2005 (5C28069-BSD1)											
Oil & Grease	19.1	5.0	0.94	mg/l	20.0		96	65-120	3	20	
Batch: 5C28078 Extracted: 03/28/05											
Blank Analyzed: 03/28/2005 (5C28078-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/28/2005 (5C28078-BS1)											
Total Dissolved Solids	956	10	10	mg/l	1000		96	90-110			
Duplicate Analyzed: 03/28/2005 (5C28078-DUP1)						Source: IOC1740-01					
Total Dissolved Solids	288	10	10	mg/l		280			3	10	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C28081 Extracted: 03/28/05											
Duplicate Analyzed: 03/28/2005 (5C28081-DUP1)						Source: IOC1740-01					
Specific Conductance	507	1.0	1.0	umhos/cm		500			1	5	
Batch: 5C29079 Extracted: 03/29/05											
Blank Analyzed: 03/29/2005 (5C29079-BLK1)											
Total Organic Carbon	ND	1.0	0.25	mg/l							
LCS Analyzed: 03/29/2005 (5C29079-BS1)											
Total Organic Carbon	10.4	1.0	0.25	mg/l	10.0		104	90-110			
Matrix Spike Analyzed: 03/29/2005 (5C29079-MS1)						Source: IOC2115-02					
Total Organic Carbon	9.84	1.0	0.25	mg/l	5.00	5.3	91	80-120			
Matrix Spike Dup Analyzed: 03/29/2005 (5C29079-MSD1)						Source: IOC2115-02					
Total Organic Carbon	10.0	1.0	0.25	mg/l	5.00	5.3	94	80-120	2	20	

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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC2063

Sampled: 03/25/05
Received: 03/25/05

METHOD BLANK/QC DATA

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: P5D0112 Extracted: 04/01/05											
Blank Analyzed: 04/01/2005 (P5D0112-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.18			ug/l	1.00		118	80-125			
LCS Analyzed: 04/01/2005 (P5D0112-BS1)											
1,4-Dioxane	9.20	1.0	0.49	ug/l	10.0		92	70-130			
Surrogate: Dibromofluoromethane	1.16			ug/l	1.00		116	80-125			
LCS Dup Analyzed: 04/01/2005 (P5D0112-BSD1)											
1,4-Dioxane	9.55	1.0	0.49	ug/l	10.0		96	70-130	4	20	
Surrogate: Dibromofluoromethane	1.17			ug/l	1.00		117	80-125			
Matrix Spike Analyzed: 04/01/2005 (P5D0112-MS1)											
						Source: POC0730-06					
1,4-Dioxane	12.6	1.0	0.49	ug/l	10.0	3.4	92	70-150			
Surrogate: Dibromofluoromethane	1.22			ug/l	1.00		122	80-125			
Matrix Spike Dup Analyzed: 04/01/2005 (P5D0112-MSD1)											
						Source: POC0730-06					
1,4-Dioxane	12.9	1.0	0.49	ug/l	10.0	3.4	95	70-150	2	25	
Surrogate: Dibromofluoromethane	1.18			ug/l	1.00		118	80-125			

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Michele Harper
Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2063	Sampled: 03/25/05 Received: 03/25/05
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DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- L2** Laboratory Control Sample recovery was below method control limits.
- M1** The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M2** The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- N-1** See case narrative.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- ZX** Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

ADDITIONAL COMMENTS

- For TICs:**
All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA/NIH library.
- For 1,2-Diphenylhydrazine:**
The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product, Azobenzene.
- For GRO (C4-C12):**
GRO (C4-C12) is quantitated against a gasoline standard. Quantitation begins immediately following the methanol peak.
- For Extractable Fuel Hydrocarbons (EFH, DRO, ORO):**
Unless otherwise noted, Extractable Fuel Hydrocarbons (EFH, DRO, ORO) are quantitated against a Diesel Fuel Standard.

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

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 200.7	Water	X	X
EPA 200.8	Water	X	X
EPA 218.6	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	X	X
EPA 330.5	Water	X	X
EPA 335.2	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 415.1	Water	X	X
EPA 418.1	Water	X	X
EPA 608	Water	X	X
EPA 624 (MOD.)	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC2063-01

Analysis Performed: EDD + Level 4

Samples: IOC2063-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrnrc

Samples: IOC2063-01

Del Mar Analytical, Irvine

Michele Harper

Project Manager

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 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2063

Sampled: 03/25/05
 Received: 03/25/05

Aquatic Testing Laboratories-SUB *California Cert #1775*

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-Acute 96hr
 Samples: IOC2063-01

Del Mar Analytical - Phoenix *NELAC Cert #01109CA, California Cert #2446*

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B
 Samples: IOC2063-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4
 Samples: IOC2063-01

Analysis Performed: Gamma Scan
 Samples: IOC2063-04

Analysis Performed: Gross Alpha
 Samples: IOC2063-01, IOC2063-03

Analysis Performed: Gross Beta
 Samples: IOC2063-01, IOC2063-03

Analysis Performed: Radium, Combined
 Samples: IOC2063-01, IOC2063-03

Analysis Performed: Strontium 90
 Samples: IOC2063-01, IOC2063-03

Analysis Performed: Tritium
 Samples: IOC2063-01, IOC2063-03

Truesdail Laboratories-SUB *California Cert #1237*

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Hydrazine
 Samples: IOC2063-01

Analysis Performed: Level 4 Data Package
 Samples: IOC2063-01

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 Michele Harper
 Project Manager

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/23/05

Client Name/Address: MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Project: Boeing-SSFL NPDES Outfall 011 - 13267 Perimeter Pond		ANALYSIS REQUIRED																											
Project Manager: Bronwyn Kelly Phone Number: (626) 568-6691 Fax Number: (626) 568-6515 Sampler: <i>B. Kelly</i>		# of Containers: 15 # of Coils: 15		Preservative: None Sampling Date/Time: 3/25/05 15:15		Residual Chlorine: X		TOC, 1, 4 Dioxane: X		Chromium VI (218.6)		Total Rec. Petroleum Hydrocarbons (EPA 418.1)		Diesel (GRO)		8015 (GRO)		Monomethylhydrazine		624 Mod A+A+2CVE		Acute and Chronic toxicity-bioassays		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium		Comments					
Sample Description: Outfall 011 W		Container Type: 150ml Brown Poly		# of Containers: 15		Preservative: None		Sampling Date/Time: 3/25/05 15:15		Residual Chlorine: X		TOC, 1, 4 Dioxane: X		Chromium VI (218.6)		Total Rec. Petroleum Hydrocarbons (EPA 418.1)		Diesel (GRO)		8015 (GRO)		Monomethylhydrazine		624 Mod A+A+2CVE		Acute and Chronic toxicity-bioassays		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium		Comments	
Sample Description: Outfall 011 W		Container Type: VOA		# of Containers: 16A, 16B, 16C, 16D, 16E, 16G		Preservative: HCl		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Sample Description: Outfall 011 W		Container Type: 500ml Poly		# of Containers: 17		Preservative: None		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Sample Description: Outfall 011 W		Container Type: 1L Amber		# of Containers: 18A, 18B		Preservative: HCl		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Sample Description: Outfall 011 W		Container Type: 1L Amber		# of Containers: 19A, 19B		Preservative: None		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Sample Description: Outfall 011 W		Container Type: VOA		# of Containers: 20A, 20B, 20C		Preservative: HCl		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Sample Description: Outfall 011 W		Container Type: 1L Amber		# of Containers: 21A, 21B		Preservative: None		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Sample Description: Outfall 011 W		Container Type: VOA		# of Containers: 22A, 22B, 22C		Preservative: None		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Sample Description: Outfall 011 W		Container Type: Poly-1Gal		# of Containers: 23A, 23B		Preservative: None		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Sample Description: Outfall 011 W		Container Type: 1L Amber VOA		# of Containers: 24A, 24B, 24C, 24D, 24E, 24F, 24G, 24H, 24I, 24J, 24K, 24L		Preservative: None		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Sample Description: Trip Blanks W		Container Type: VOA		# of Containers: 25A, 25B, 25C		Preservative: None		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Sample Description: Trip Blanks W		Container Type: VOA		# of Containers: 26A, 26B, 26C		Preservative: HCl		Sampling Date/Time:		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:	
Relinquished By: <i>Ronda Hayes</i>		Date/Time: 3/25/05 15:15		Received By: <i>Judy Kelly</i>		Date/Time: 3-25-05 15:15		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:			
Relinquished By: <i>Judy Kelly</i>		Date/Time: 3/25/05 18:30		Received By: <i>Ronda Hayes</i>		Date/Time: 3-25-05 18:30		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:			
Relinquished By: <i>Ronda Hayes</i>		Date/Time: 3/25/05 18:30		Received By: <i>Ronda Hayes</i>		Date/Time: 3/25/05 18:30		Residual Chlorine:		TOC, 1, 4 Dioxane:		Chromium VI (218.6):		Total Rec. Petroleum Hydrocarbons (EPA 418.1):		Diesel (GRO):		8015 (GRO):		Monomethylhydrazine:		624 Mod A+A+2CVE:		Acute and Chronic toxicity-bioassays:		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium:		Comments:			

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) On Ice:



2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228
 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

April 7, 2005

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

Attention: Bronwyn Kelly
 Project: 13267 (Study 1)/Outfall 011
 Sampled: 03/25/05
 Del Mar Analytical Number: IOC2063

Dear Ms. Kelly:

Aquatic Testing Laboratories performed Fathead Minnow 96 hr Percent Survival Bioassay (EPA Method 2000.0), *Ceriodaphnia dubia* Survival and Reproduction Test (EPA Method 1002), Truesdail Laboratories tested Hydrazines by EPA 8315 M, Alta Analytical performed EPA Method 1613 by Dioxin and Eberline Services performed Gross Alpha/Gross Beta (EPA 900.0), Tritium (H-3, EPA 906.0), Strontium-90 (Sr-90, EPA 905.0), Radium 226 (EPA 903.1), and Radium 228 (904.0) for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ATL ID	TRUESDAIL ID	ALTA ID	EBERLINE ID
Outfall 011 Grab	IOC2063-01	A-05032601-001/002	941100-1	25967-001	PENDING

Attached are the original reports from the subcontract laboratories. If you have any questions or require further assistance, please do not hesitate to contact me.

Sincerely yours,
 DEL MAR ANALYTICAL

Michele Harper
 Project Manager

LABORATORY REPORT

**Aquatic
Testing
Laboratories**



"dedicated to providing quality aquatic toxicity testing"

4350 Transport Street, Unit 107
Ventura, CA 93003

(805) 650-0546 FAX (805) 650-0756

CA DOHS ELAP Cert. No.: 1775

Date: April 2, 2005

Client: Del Mar Analytical, Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attn: Michele Harper

Laboratory No.: A-05032601-001/002
Sample I.D.: IOC2063-01

Sample Control: The sample was received by ATL chilled, with the chain of custody record attached.

Date Sampled: 03/25/05
Date Received: 03/26/05
Date Tested: 03/26/05 to 04/01/05

Sample Analysis: The following analyses were performed on your sample:

Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0),
Ceriodaphnia dubia Survival and Reproduction Test (EPA Method 1002).

Attached are the test data generated from the analysis of your sample.

Result Summary:

Acute:	<u>Survival</u>	<u>TU_a</u>
Fathead Minnow:	100%	0.0
Chronic:	<u>NOEC</u>	<u>TU_c</u>
<i>Ceriodaphnia</i> Survival:	100%	1.0
<i>Ceriodaphnia</i> Reproduction:	100%	1.0

Quality Control: Reviewed and approved by:


Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05032601-001

Client/ID: Del Mar - IOC2063-01

Start Date: 03/26/2005

TEST SUMMARY

Species: *Pimephales promelas*.

Age: 8 (1-14) days.

Regulations: NPDES.

Test solution volume: 250 ml.

Feeding: prior to renewal at 48 hrs.

Number of replicates: 2.

Dilution water: Moderately hard reconstituted water.

Photoperiod: 16/8 hrs light/dark.

Source: In-laboratory Culture.

Test type: Static-Renewal.

Test Protocol: EPA-821-R-02-012.

Endpoints: Percent Survival at 96 hrs.

Test chamber: 600 ml beakers.

Temperature: 20 +/- 1°C.

Number of fish per chamber: 10.

QA/QC Batch No.: RT-050303.

TEST DATA

		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	20.0	9.1	8.1	0	0	LM 1000
	100%	19.7	9.4	7.8	0	0	
24 Hr	Control	19.4	7.2	7.9	0	0	LM 1000
	100%	19.5	7.3	7.9	0	0	
48 Hr	Control	19.8	6.0	7.7	0	0	LM 1000
	100%	19.7	7.4	7.9	0	0	
Renewal	Control	20.1	8.4	7.7	0	0	LM 1000
	100%	20.1	9.5	7.6	0	0	
72 Hr	Control	19.6	7.0	7.8	0	0	LM 1030
	100%	19.6	8.4	8.0	0	0	
96 Hr	Control	19.8	7.4	7.8	0	0	LM 1030
	100%	19.9	7.7	7.9	0	0	

Comments:

Sample as received: Chlorine: 0 mg/l; pH: 7.8; Conductivity: 195 umho; Temp: 4°C;
DO: 9.4 mg/l; Alkalinity: 162 mg/l; Hardness: 79 mg/l; NH₃-N: 0.4 mg/l.

Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes / No

Control: Alkalinity: 57 mg/l; Hardness: 95 mg/l; Conductivity: 300 umho.

Test solution aerated (not to exceed 100 bubbles/min) to maintain DO > 4.0 mg/l? Yes / No

Sample used for renewal is the original sample kept at 0-6°C with minimal headspace.

RESULTS

Percent Survival In: Control: 100 % 100% Sample: 100 %

**CERIODAPHNIA CHRONIC BIOASSAY
EPA METHOD 1002.0**



Lab No.: A-05032601
Client/ID: Del Mar IOC2063-01

Date Tested: 03/26/05 to 04/01/05

TEST SUMMARY

Test type: Daily static-renewal.
Species: *Ceriodaphnia dubia*.
Age: < 24 hrs; all released within 8 hrs.
Test vessel size: 30 ml.
Number of test organisms per vessel: 1.
Temperature: 25 +/- 1°C.
Dilution water: Mod. hard reconstituted (MHRW).
QA/QC Batch No.: RT-050326.

Endpoints: Survival and Reproduction.
Source: In-laboratory culture.
Food: .1 ml YTC, algae per day.
Test solution volume: 15 ml.
Number of replicates: 10.
Photoperiod: 16/8 hrs. light/dark cycle.
Test duration: 7 days.
Statistics: ToxCalc computer program.

RESULTS SUMMARY

Sample Concentration	Percent Survival	Mean Number of Young Per Female
Control	100%	31.4
6.25%	100%	31.2
12.5%	100%	33.5
25%	100%	30.9
50%	100%	33.1
100%	100%	33.6

* Statistically significantly less than control at P = 0.05 level.
** Reproduction data from concentrations greater than survival NOEC are excluded from statistical analysis.

CHRONIC TOXICITY

Parameter	Survival	Growth
NOEC	100%	100%
TUc	1.0	1.0

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥80%	Pass (100% survival)
≥ 15 young per surviving control female average	Pass (31.4 young)
≥60% surviving controls had 3 broods	Pass (100% with 3 broods)
PMSD <47% for reproduction; if >47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 11.3%)
Statistically significantly different concentrations relative difference > 13%	NA - No stat. sig. diff. concentrations
Concentration response relationship acceptable	Pass (slight inverse response at conc. tested)



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 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) 505-9586 Fax (619) 505-9689
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851
 2520 E. Sureset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC2063

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:
 Aquatic Testing Laboratories-SUB
 4350 Transport Street, Unit 107
 Ventura, CA 93003
 Phone: (805) 650-0546
 Fax: (805) 650-0756

Standard TAT is requested unless specific due date is requested => Due Date: 5 day Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC2063-01 Water	Sampled: 03/25/05 12:00	Instant Notification
Bioassay-7 dy Chronic	03/27/05 00:00	ceriodaphnia, 13267
Bioassay-Acute 96hr	03/27/05 00:00	fathead minnow, 13267
Containers Supplied:		
1 gal Poly (IOC2063-01AR)		
1 gal Poly (IOC2063-01AS)		

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): 4°C

Released By: [Signature] Date: 3-26-05 Time: 742
 Received By: [Signature] Date: 3-26-05 Time: 5:00 AM
 Released By: [Signature] Date: 3-26-05 Time: 0742
 Received By: [Signature] Date: 3-26-05 Time: 0742

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

March 31, 2005

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

Client: Del Mar Analytical
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attention: Michele Harper

Project Name: IOC2063
Date Received: 03/28/05

Truesdail Project: 941100

Samples Cross-reference

<u>Truesdail ID</u>	<u>Client ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Time Sampled</u>	<u>Analysis Requested</u>
941100-1	IOC2063-01	Water	03/25/05	1200	Hydrazines by EPA 8315M

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.



K.R.P. Iyer
Quality Control/Quality Assurance Officer



Xuan Huong Dang
Project Manager

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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www.truesdail.com

Client: Del Mar Analytical
17461 Derian Avenue, Suite 100
Irvine, CA 92614

Attention: Michele Harper

Project Name: IOC2063
Date Received: 03/28/05

Truesdail Project: 941100

Case Narrative

Sample Receipt The sample was received in good condition and no anomalies were noted during check-in. The sample was kept in a locked refrigerator until analysis. Thereafter, it is being kept in ambient storage for an additional 2 months before disposal.

Analysis The analysis was performed as requested on the chain-of-custody.


Quality Control The analytical results for each batch of samples performed include a minimum of one set of laboratory control sample/laboratory control sample duplicate (LCS/LCSD), one matrix spike (MS) and a reagent blank (Method blank). Any exceptions or problems would be noted in the "comments" section.

Comments The test results in this report meet all quality assurance requirements set forth by the method specification and all quality control recoveries were within the laboratory acceptance limits. No anomalies or nonconformance events occurred during the course of analysis.

The analytes were quantitated down to the Method Detection Limit (J flags) per client's request.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


K.R.P. Iyer
Quality Control/Quality Assurance Officer


Xuan Huong Dang
Project Manager

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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REPORT

Client: Del Mar Analytical
17461 Derian Ave., Suite 100
Irvine, CA 92614

Attention: Michele Harper

Sample: Liquid / 1 Sample

Project Name: IOC2063

P.O. Number: IOC2063

Method Number: 8315 (Modified)

Investigation: Hydrazines in Liquid

Laboratory No: 941100

Report Date: March 30, 2005

Sampling Date: March 25, 2005

Receiving Date: March 28, 2005

Extraction Date: March 28, 2005

Analysis Date: March 29, 2005

Units: µg/L

Dilution Factor: 1

Reported By: JS

Page 1 of 1

Analytical Results

Sample ID	Sample Description	Monomethyl		Unsymmetrical Dimethyl		Hydrazine
		Hydrazine	ND	Hydrazine	ND	
704871-MB	Method Blank	ND	ND	ND	ND	ND
941100	IOC2063-01	ND	ND	ND	ND	ND
MDL		1.2		0.27		0.39
PQL		5.0		5.0		1.0

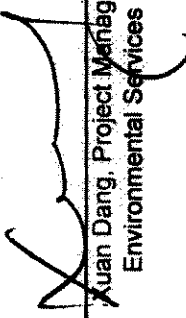
MDL: Method Detection Limit, ug/L

PQL: Practical Quantitation Limit, ug/L

ND: Not Detected at or above the MDL value.

N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.


Juan Dang, Project Manager
Environmental Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1937

14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: Del Mar Analytical
17461 Derian Ave., Suite 100
Irvine, CA 92614

Client Contact: Michele Harper
Sample: Liquid / 1 Sample
Sample ID: IOC2063
P.O. Number: IOC2063
Method Number: 8315 (Modified)
Run Batch No.: Extraction: 3024; Analysis: 380
Investigation: Hydrazines in Liquid

QC Lab. No.: 704871
Project Lab. No.: 941100
Spiked Sample ID: 941101
Report Date: March 30, 2005
Sampling Date: March 25, 2005
Receiving Date: March 28, 2005
Extraction Date: March 28, 2005
Analysis Date: March 29, 2005
Units: µg/L
Reported By: JS

REPORT

Quality Control/Quality Assurance Calibration Report

ICV

Parameter	Theoretical Value (ug/L)	Measured Value (ug/L)	% Rec.	Control Limits	Flag
Monomethyl Hydrazine	25.0	25.2	101	85-115	PASS
u-Dimethyl Hydrazine	25.0	22.5	89.9	85-115	PASS
Hydrazine	5.0	5.22	104	85-115	PASS

QCS

Parameter	Theoretical Value (ug/L)	Measured Value (ug/L)	% Rec.	Control Limits	Flag
Monomethyl Hydrazine	50.0	45.0	90.1	85-115	PASS
u-Dimethyl Hydrazine	50.0	42.9	85.7	85-115	PASS
Hydrazine	10.0	9.88	98.8	85-115	PASS

Quality Control/Quality Assurance Spikes Report

LCS/LCSD

Parameter	Spiked Conc. ug/L	Recovered Concentration		Percent Recovery (%)	LCS %D	LCSD %D	Flag	Control Limits
		LCS	LCSD					
Monomethyl Hydrazine	50.0	45.8	47.0	91.7	94.0	2.52%	PASS	20 70-130
u-Dimethyl Hydrazine	50.0	46.1	46.8	92.2	93.6	1.49%	PASS	20 70-130
Hydrazine	10.0	9.39	8.96	93.9	89.6	4.71%	PASS	20 70-130

MS/MSD

Parameter	Spiked Conc. ug/L	Recovered Concentration		Percent Recovery (%)	MSD %D	MSD %D	Flag	Control Limits
		MS	MSD					
Monomethyl Hydrazine	50.0	45.0	40.4	90.0	80.8	10.7%	PASS	20 0-150
u-Dimethyl Hydrazine	50.0	44.5	41.1	88.9	82.1	7.94%	PASS	20 0-150
Hydrazine	10.0	7.90	7.65	79.0	76.5	3.24%	PASS	20 0-150

ICV: Initial Calibration Verification

QCS: Quality Control Standard

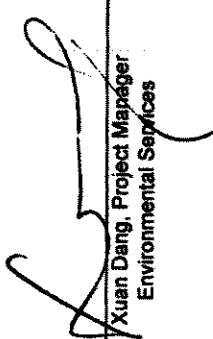
LCS: Laboratory Control Spike

MS: Matrix Spike

%D: Percent Difference

Flag: "Pass" if within Control Limits; otherwise "Fail"

Note: Results based on detector #1 (UV=365nm) data.


Xuan Dang, Project Manager
Environmental Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these laboratories.



341100
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) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC2063

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:
 Truesdail Laboratories-SUB
 14201 Franklin Avenue
 Tustin, CA 92680
 Phone: (714) 730-6239
 Fax: (714) 730-6462

*Rec'd 03/28/05
 s7d 941100*

Standard TAT is requested unless specific due date is requested => Due Date: 5 day Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC2063-01 Water	Sampled: 03/25/05 12:00	Instant Notification
Hydrazine-OUT	03/28/05 12:00	J flags, Sub Truesdail for Monomethylhydrazine
Level 4 Data Package	04/22/05 12:00	
Containers Supplied:		
1 L Amber (IOC2063-01AM)		
1 L Amber (IOC2063-01AN)		

RUSH

**ALERT !!
 Level IV QC**

**For Sample Conditions
 See Form Attached**

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

Released By: [Signature] Date: 3-29-05 Time: 805 Received By: Rip Herula Date: 3-28-05 Time: 8:05
 Released By: Rip Herula Date: 3-28-05 Time: 912 Received By: [Signature] Date: 3/28/05 Time: 9:12



Sample Integrity & Analysis Discrepancy Form

Client: Del Mar Analytical Lab # 941100

Date Delivered: 03/28/05 Time: 9:12 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4°C Yes No N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc..)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: Truesdail Client Yes No N/A
12. Were samples pH checked? pH = _____ Yes No N/A
13. Were all analyses within holding time at time of receipt?
If not, notify the Project Manager Yes No N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): RUSH Standard Yes No N/A
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other Water

**ALERT!!
Level IV QC**

RUSH

16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Shabunsky

Internal Chain of Custody Logbook

Number: 991 100
 Name: Del Mar

Storage Temperature: 4°C

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature
				8/28/05	9:30		L. Stabinski	[Signature]
	Hydrozine 3-2005	11:30		9-28-05	1430	100	MSR	[Signature]

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials



April 02, 2005

Alta Project I.D.: 25967

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 March 29, 2005 under your Project Name "IOC2063". These samples were extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

Results qualified with an "A" are lower than the EPA Method 1613 Minimum Level, and above the lower calibration limit.

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 M. Maier
Director of HRMS Services



By using this report, the recipient agrees to hold the report issuer, Alta Analytical Laboratory, harmless for any and all errors or omissions in the report. The recipient shall also be responsible for any and all errors or omissions in the recipient's report.



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640



Section I: Sample Inventory Report

Date Received: 3/29/2005

Alta Lab. ID

Client Sample ID

25967-001

IOC2063-01

SECTION II



Method Blank		EPA Method 1613					
Matrix:	Aqueous	QC Batch No.:	6653	Lab Sample:	0-MB001		
Sample Size:	1.000 L	Date Extracted:	30-Mar-05	Date Analyzed DB-5:	31-Mar-05		
				Date Analyzed DB-225:	NA		
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.000000554		IS 13C-2,3,7,8-TCDD	85.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.000000438		13C-1,2,3,7,8-PeCDD	89.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.000000693		13C-1,2,3,4,7,8-HxCDD	78.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.000000669		13C-1,2,3,6,7,8-HxCDD	92.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.000000673		13C-1,2,3,4,6,7,8-HpCDD	77.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.000000795		13C-OCDD	50.0	17 - 157	
OCDD	ND	0.00000232		13C-2,3,7,8-TCDF	91.1	24 - 169	
2,3,7,8-TCDF	ND	0.000000436		13C-1,2,3,7,8-PeCDF	89.9	24 - 185	
1,2,3,7,8-PeCDF	ND	0.000000695		13C-2,3,4,7,8-PeCDF	96.8	21 - 178	
2,3,4,7,8-PeCDF	ND	0.000000592		13C-1,2,3,4,7,8-HxCDF	77.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000264		13C-1,2,3,6,7,8-HxCDF	87.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000253		13C-2,3,4,6,7,8-HxCDF	84.8	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000263		13C-1,2,3,7,8,9-HxCDF	80.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000408		13C-1,2,3,4,6,7,8-HpCDF	72.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000381		13C-1,2,3,4,7,8,9-HpCDF	76.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000359		13C-OCDF	57.9	17 - 157	
OCDF	ND	0.00000147		CRS 37Cl-2,3,7,8-TCDD	90.5	35 - 197	
Totals							
Total TCDD	ND	0.000000554					
Total PeCDD	ND	0.000000438					
Total HxCDD	ND	0.000000677					
Total HpCDD	ND	0.000000795					
Total TCDF	ND	0.000000436					
Total PeCDF	ND	0.000000642					
Total HxCDF	ND	0.000000291					
Total HpCDF	ND	0.000000450					
Footnotes							
a. Sample specific estimated detection limit.							
b. Estimated maximum possible concentration.							
c. Method detection limit.							
d. Lower control limit - upper control limit.							

Analyst: RAS

Approved By: William J. Luksemburg 01-Apr-2005 14:54



EPA Method 1613

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 31-Mar-05		Date Analyzed DB-225: NA	
Matrix:	Aqueous	QC Batch No.:	6653	Lab Sample:	0-OPR001	Date Analyzed DB-5:	31-Mar-05
Sample Size:	1.000 L	Date Extracted:	30-Mar-05	Date Analyzed DB-225:	NA	Lab Sample:	0-OPR001
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	10.9	6.7 - 15.8	<u>IS</u> 13C-2,3,7,8-TCDD	68.5	25 - 164	
1,2,3,7,8-PeCDD	50.0	53.3	35 - 71	13C-1,2,3,7,8-PeCDD	68.2	25 - 181	
1,2,3,4,7,8-HxCDD	50.0	52.0	35 - 82	13C-1,2,3,4,7,8-HxCDD	88.5	32 - 141	
1,2,3,6,7,8-HxCDD	50.0	53.5	38 - 67	13C-1,2,3,6,7,8-HxCDD	101	28 - 130	
1,2,3,7,8,9-HxCDD	50.0	41.0	32 - 81	13C-1,2,3,4,6,7,8-HpCDD	70.5	23 - 140	
1,2,3,4,6,7,8-HpCDD	50.0	52.7	35 - 70	13C-OCDD	38.0	17 - 157	
OCDD	100	111	78 - 144	13C-2,3,7,8-TCDF	75.2	24 - 169	
2,3,7,8-TCDF	10.0	10.4	7.5 - 15.8	13C-1,2,3,7,8-PeCDF	66.3	24 - 185	
1,2,3,7,8-PeCDF	50.0	50.2	40 - 67	13C-2,3,4,7,8-PeCDF	72.3	21 - 178	
2,3,4,7,8-PeCDF	50.0	50.4	34 - 80	13C-1,2,3,4,7,8-HxCDF	88.8	26 - 152	
1,2,3,4,7,8-HxCDF	50.0	49.9	36 - 67	13C-1,2,3,6,7,8-HxCDF	97.3	26 - 123	
1,2,3,6,7,8-HxCDF	50.0	50.1	42 - 65	13C-2,3,4,6,7,8-HxCDF	86.3	28 - 136	
2,3,4,6,7,8-HxCDF	50.0	50.5	35 - 78	13C-1,2,3,7,8,9-HxCDF	84.2	29 - 147	
1,2,3,7,8,9-HxCDF	50.0	49.3	39 - 65	13C-1,2,3,4,6,7,8-HpCDF	69.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	50.0	50.3	41 - 61	13C-1,2,3,4,7,8,9-HpCDF	76.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	50.0	48.9	39 - 69	13C-OCDF	49.3	17 - 157	
OCDF	100	99.5	63 - 170	<u>CRS</u> 37Cl-2,3,7,8-TCDD	74.7	35 - 197	

Analyst: RAS
 Approved By: William J. Luksemburg 01-Apr-2005 13:47



Sample ID: IOC2063-01		EPA Method 1613			
Client Data		Sample Data		Laboratory Data	
Name:	Del Mar Analytical, Irvine	Matrix:	Aqueous	Lab Sample:	25967-001
Project:	IOC2063	Sample Size:	1.004 L	QC Batch No.:	6653
Date Collected:	25-Mar-05			Date Analyzed DB-5:	31-Mar-05
Time Collected:	1200			Date Analyzed DB-225:	NA
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.000000460		IS 13C-2,3,7,8-TCDD	76.4 25 - 164
1,2,3,7,8-PeCDD	ND	0.000000455		13C-1,2,3,7,8-PeCDD	78.4 25 - 181
1,2,3,4,7,8-HxCDD	ND	0.000000622		13C-1,2,3,4,7,8-HxCDD	91.7 32 - 141
1,2,3,6,7,8-HxCDD	ND	0.000000621		13C-1,2,3,6,7,8-HxCDD	102 28 - 130
1,2,3,7,8,9-HxCDD	ND	0.000000615	J	13C-1,2,3,4,6,7,8-HpCDD	75.8 23 - 140
1,2,3,4,6,7,8-HpCDD	0.00000655			13C-OCDD	44.5 17 - 157
OCDD	0.0000599		A	13C-2,3,7,8-TCDF	84.2 24 - 169
2,3,7,8-TCDF	ND	0.000000565		13C-1,2,3,7,8-PeCDF	79.2 24 - 185
1,2,3,7,8-PeCDF	ND	0.000000632		13C-2,3,4,7,8-PeCDF	83.7 21 - 178
2,3,4,7,8-PeCDF	ND	0.000000534		13C-1,2,3,4,7,8-HxCDF	95.1 26 - 152
1,2,3,4,7,8-HxCDF	ND	0.000000299		13C-1,2,3,6,7,8-HxCDF	102 26 - 123
1,2,3,6,7,8-HxCDF	ND	0.000000299		13C-2,3,4,6,7,8-HxCDF	91.8 28 - 136
2,3,4,6,7,8-HxCDF	ND	0.000000361		13C-1,2,3,7,8,9-HxCDF	87.9 29 - 147
1,2,3,7,8,9-HxCDF	ND	0.000000543		13C-1,2,3,4,6,7,8-HpCDF	73.0 28 - 143
1,2,3,4,6,7,8-HpCDF	0.00000185		J	13C-1,2,3,4,7,8,9-HpCDF	81.0 26 - 138
1,2,3,4,7,8,9-HpCDF	ND	0.000000606		13C-OCDF	50.4 17 - 157
OCDF	0.00000290		J	CRS 37Cl-2,3,7,8-TCDD	80.8 35 - 197
Totals					
Total TCDD	ND	0.000000460			
Total PeCDD	ND	0.000000455			
Total HxCDD	ND	0.00000115			
Total HpCDD	0.0000159				
Total TCDF	0.00000161				
Total PeCDF	ND		D		
Total HxCDF	0.000000737				
Total HpCDF	0.00000328				

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

Analyst: RAS
Approved By: William J. Luksemburg 01-Apr-2005 14:54

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.



CURRENT CERTIFICATIONS

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)



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
 8630 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) 798-3820 Fax (702) 798-3821

SUBCONTRACT ORDER - PROJECT # IOC2063

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone : (916) 933-1640 Fax: (916) 933-0940 <div style="text-align: right; font-size: 1.5em; margin-top: 10px;"> 25967 0.4°C </div>

Standard TAT is requested unless specific due date is requested => Due Date: 5 day Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC2063-01 Water	Sampled: 03/25/05 12:00	Instant Notification
1613-Dioxin-HR	04/01/05 12:00	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	04/22/05 12:00	Excel EDD email to pm, include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC2063-01G)		
1 L Amber (IOC2063-01H)		

SAMPLE INTEGRITY:					
All containers intact:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Sample labels/COC agree:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Custody Seals Present:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Samples Preserved Properly:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received On Ice:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received at (temp):	_____	

Released By: [Signature] Date: 3-28-05 Time: 1700 Received By: Bettina Benedict Date: 3/29/05 Time: 0910 0915

Released By _____ Date _____ Time _____ Received By _____ Date _____ Time _____

STANDARD OPERATING PROCEDURE

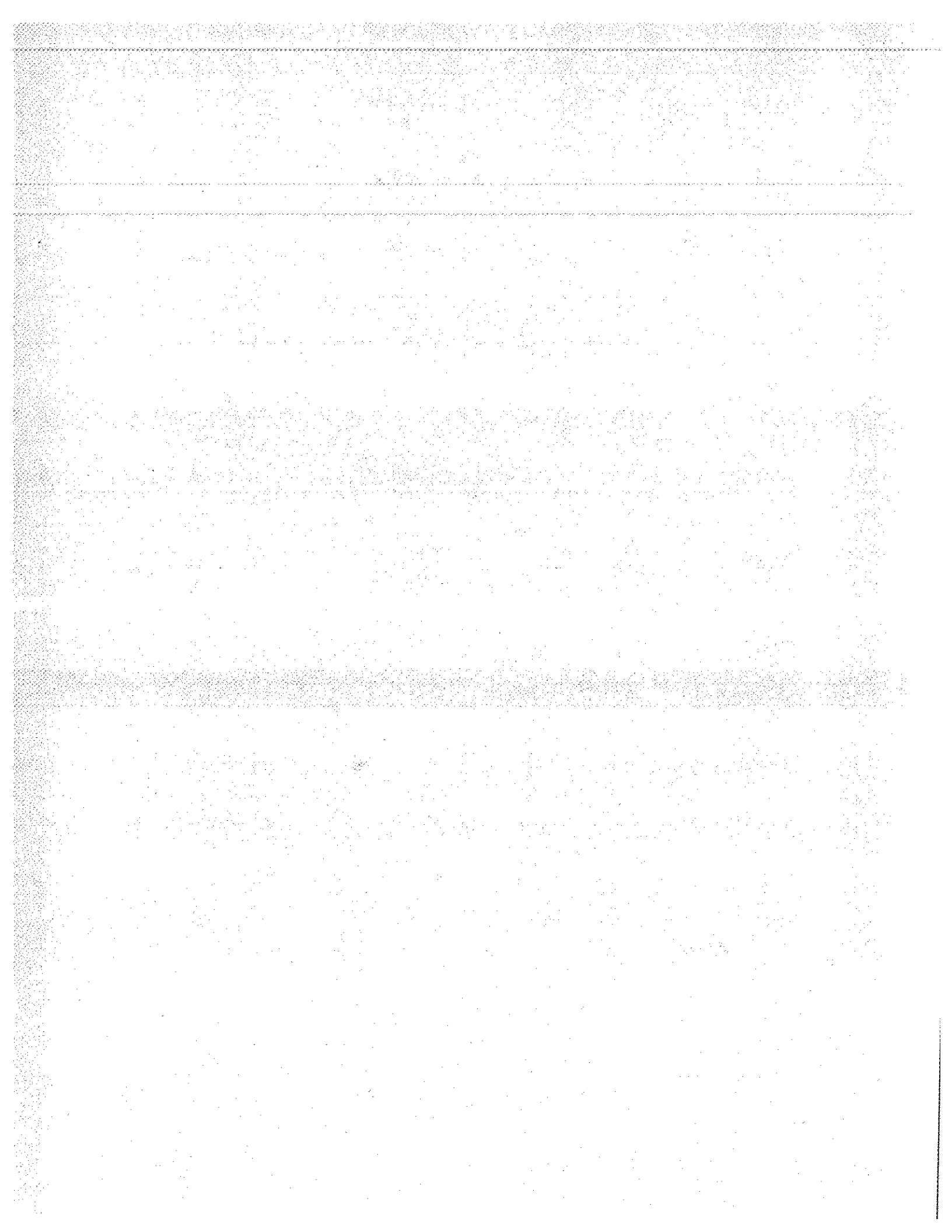
Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25967

1. Date Samples Arrived: <u>03/29/05 0915</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>1025 3/29/05</u> Initials: <u>BBB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> Blue Ice / Dry Ice / None Temp °C <u>0.4°C</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7904 7041 3782</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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: sampler's initials found on sample label





LABORATORY REPORT

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

Project: 13267 (Study 1)
Outfall 011

Sampled: 03/25/05
Received: 03/25/05
Issued: 04/13/05 17:34

NELAP #01108CA California ELAP#1197 CSDLAC #10117

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 5 pages, are included and are an integral part of this report.
This entire report was reviewed and approved for release.*

CASE NARRATIVE

- SAMPLE RECEIPT:** Samples were received intact, at 2°C, on ice and with chain of custody documentation.
- HOLDING TIMES:** All samples were analyzed within prescribed holding times and/or in accordance with the Del Mar Analytical Sample Acceptance Policy unless otherwise noted in the report.
- PRESERVATION:** Samples requiring preservation were verified prior to sample analysis.
- QA/QC CRITERIA:** All analyses met method criteria, except as noted in the report with data qualifiers. The percent recovery for benzidine in the BS/BSD was below method acceptance limits. Benzidine is known to be a problematic compound and according to the EPA, it can be subject to oxidative losses during solvent extraction and its chromatographic behavior is poor. All results reported for benzidine are potentially biased low and can be considered estimates only. Results for benzidine are reported with 'L2' qualifier. The ICAL %RSD failed the acceptance limit for 2,4-Dinitrophenol. Instrument sensitivity was acceptable based upon the response for 2,4-Dinitrophenol at the low ICAL level. The CCV and BS/BSD met acceptance limits for the analyte. Affected samples were 'ND' for this analyte, without J-flag detection. Therefore, since acceptable sensitivity is represented by the instrument and the extraction procedure, the analyte was flagged with 'N-1' and reported. The sample was then reanalyzed for 2,4-Dinitrophenol and the results are reported as an RE1. Also, there was a low BSD recovery for the original batch for Oil & Grease and the lab re-extracted and re-analyzed the sample.
- COMMENTS:** Results that fall between the MDL and RL are 'J' flagged.
- SUBCONTRACTED:** Refer to the last page for specific subcontract laboratory information included in this report.



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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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LABORATORY ID

IOC2064-01
IOC2064-02

CLIENT ID

Outfall 011 Composite
Trip Blank

MATRIX

Water
Water

Reviewed By:

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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CORRECTIVE ACTION REPORT

Department: Extractions

Date: 03/31/2005

Method: EPA 625

Matrix: Water

QC Batch: 5C28041

Identification and Definition of Problem:

The percent recovery for benzidine in the LCS was below method acceptance limits.

Determination of the Cause of the Problem:

Benzidine is known to be a problematic compound. According to the EPA, it can be subject to oxidative losses during solvent extraction and its chromatographic behavior is poor.

Corrective Action Taken:

All results reported for benzidine are potentially biased low and can be considered estimates only.

Quality Assurance Approval:

Dave Dawes

Date: 04/08/2005 03:42 PM

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Michele Harper
Project Manager



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TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5C26002	0.31	1.0	ND	1	03/26/05	03/26/05	

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 Michele Harper
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EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5C26001	0.082	0.50	ND	0.943	03/26/05	03/28/05	
Surrogate: n-Octacosane (40-125%)					65 %				

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VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C26026	0.050	0.10	ND	1	03/26/05	03/28/05	
<i>Surrogate: 4-BFB (FID) (65-140%)</i>					102 %				
Sample ID: IOC2064-02 (Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5C26026	0.050	0.10	ND	1	03/26/05	03/27/05	
<i>Surrogate: 4-BFB (FID) (65-140%)</i>					88 %				

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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: IOC2064-01 (Outfall 011 Composite - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C27003	0.28	1.0	ND	1	03/27/05	03/27/05	
Bromodichloromethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
Bromoform	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05	
Bromomethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05	
Carbon tetrachloride	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05	
Chlorobenzene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05	
Chloroethane	EPA 624	5C27003	0.33	5.0	ND	1	03/27/05	03/27/05	
Chloroform	EPA 624	5C27003	0.33	2.0	ND	1	03/27/05	03/27/05	
Chloromethane	EPA 624	5C27003	0.30	5.0	ND	1	03/27/05	03/27/05	
Dibromochloromethane	EPA 624	5C27003	0.28	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichlorobenzene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05	
1,3-Dichlorobenzene	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05	
1,4-Dichlorobenzene	EPA 624	5C27003	0.37	2.0	ND	1	03/27/05	03/27/05	
1,1-Dichloroethane	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichloroethane	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05	
1,1-Dichloroethene	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05	
trans-1,2-Dichloroethene	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichloropropane	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05	
cis-1,3-Dichloropropene	EPA 624	5C27003	0.22	2.0	ND	1	03/27/05	03/27/05	
trans-1,3-Dichloropropene	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05	
Ethylbenzene	EPA 624	5C27003	0.25	2.0	ND	1	03/27/05	03/27/05	
Methylene chloride	EPA 624	5C27003	0.48	5.0	ND	1	03/27/05	03/27/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05	
Tetrachloroethene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05	
Toluene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05	
1,1,1-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
1,1,2-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
Trichloroethene	EPA 624	5C27003	0.26	2.0	ND	1	03/27/05	03/27/05	
Trichlorofluoromethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05	
Vinyl chloride	EPA 624	5C27003	0.26	0.50	ND	1	03/27/05	03/27/05	
Xylenes, Total	EPA 624	5C27003	0.52	4.0	ND	1	03/27/05	03/27/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C27003	1.2	5.0	ND	1	03/27/05	03/27/05	
Surrogate: Dibromofluoromethane (80-120%)					105 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					94 %				

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

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: IOC2064-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5C27003	0.28	1.0	ND	1	03/27/05	03/27/05	
Bromodichloromethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
Bromoform	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05	
Bromomethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05	
Carbon tetrachloride	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05	
Chlorobenzene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05	
Chloroethane	EPA 624	5C27003	0.33	5.0	ND	1	03/27/05	03/27/05	
Chloroform	EPA 624	5C27003	0.33	2.0	ND	1	03/27/05	03/27/05	
Chloromethane	EPA 624	5C27003	0.30	5.0	ND	1	03/27/05	03/27/05	
Dibromochloromethane	EPA 624	5C27003	0.28	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichlorobenzene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05	
1,3-Dichlorobenzene	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05	
1,4-Dichlorobenzene	EPA 624	5C27003	0.37	2.0	ND	1	03/27/05	03/27/05	
1,1-Dichloroethane	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichloroethane	EPA 624	5C27003	0.28	0.50	ND	1	03/27/05	03/27/05	
1,1-Dichloroethene	EPA 624	5C27003	0.32	5.0	ND	1	03/27/05	03/27/05	
trans-1,2-Dichloroethene	EPA 624	5C27003	0.27	2.0	ND	1	03/27/05	03/27/05	
1,2-Dichloropropane	EPA 624	5C27003	0.35	2.0	ND	1	03/27/05	03/27/05	
cis-1,3-Dichloropropene	EPA 624	5C27003	0.22	2.0	ND	1	03/27/05	03/27/05	
trans-1,3-Dichloropropene	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05	
Ethylbenzene	EPA 624	5C27003	0.25	2.0	ND	1	03/27/05	03/27/05	
Methylene chloride	EPA 624	5C27003	0.48	5.0	ND	1	03/27/05	03/27/05	
1,1,2,2-Tetrachloroethane	EPA 624	5C27003	0.24	2.0	ND	1	03/27/05	03/27/05	
Tetrachloroethene	EPA 624	5C27003	0.32	2.0	ND	1	03/27/05	03/27/05	
Toluene	EPA 624	5C27003	0.36	2.0	ND	1	03/27/05	03/27/05	
1,1,1-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
1,1,2-Trichloroethane	EPA 624	5C27003	0.30	2.0	ND	1	03/27/05	03/27/05	
Trichloroethene	EPA 624	5C27003	0.26	2.0	ND	1	03/27/05	03/27/05	
Trichlorofluoromethane	EPA 624	5C27003	0.34	5.0	ND	1	03/27/05	03/27/05	
Vinyl chloride	EPA 624	5C27003	0.26	0.50	ND	1	03/27/05	03/27/05	
Xylenes, Total	EPA 624	5C27003	0.52	4.0	ND	1	03/27/05	03/27/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5C27003	1.2	5.0	ND	1	03/27/05	03/27/05	
Surrogate: Dibromofluoromethane (80-120%)					105 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					93 %				

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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: IOC2064-01 (Outfall 011 Composite - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5C27003	4.6	50	ND	1	03/27/05	03/27/05	
Acrylonitrile	EPA 624	5C27003	5.1	50	ND	1	03/27/05	03/27/05	
2-Chloroethyl vinyl ether	EPA 624	5C27003	1.3	5.0	ND	1	03/27/05	03/27/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					105 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					100 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					94 %				
Sample ID: IOC2064-02 (Trip Blank - Water)									
Reporting Units: ug/l									
Acrolein	EPA 624	5C27003	4.6	50	ND	1	03/27/05	03/27/05	
Acrylonitrile	EPA 624	5C27003	5.1	50	ND	1	03/27/05	03/27/05	
2-Chloroethyl vinyl ether	EPA 624	5C27003	1.3	5.0	ND	1	03/27/05	03/27/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					105 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					100 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					93 %				

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PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	
Cyclohexane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	
Sample ID: IOC2064-02 (Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	
Cyclohexane	EPA 624 (MOD.)	5C27003	N/A	2.5	ND	1	03/27/05	03/27/05	

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Sampled: 03/25/05
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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: IOC2064-01 (Outfall 011 Composite - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5C28041	0.10	0.50	ND	0.943	03/28/05	03/31/05	
Acenaphthylene	EPA 625	5C28041	0.10	0.50	ND	0.943	03/28/05	03/31/05	
Aniline	EPA 625	5C28041	2.9	10	ND	0.943	03/28/05	03/31/05	
Anthracene	EPA 625	5C28041	0.083	0.50	ND	0.943	03/28/05	03/31/05	
Benzidine	EPA 625	5C28041	2.4	5.0	ND	0.943	03/28/05	03/31/05	L2
Benzoic acid	EPA 625	5C28041	3.7	20	ND	0.943	03/28/05	03/31/05	
Benzo(a)anthracene	EPA 625	5C28041	0.038	5.0	ND	0.943	03/28/05	03/31/05	
Benzo(a)pyrene	EPA 625	5C28041	0.14	2.0	ND	0.943	03/28/05	03/31/05	
Benzo(b)fluoranthene	EPA 625	5C28041	0.050	2.0	ND	0.943	03/28/05	03/31/05	
Benzo(g,h,i)perylene	EPA 625	5C28041	0.059	5.0	ND	0.943	03/28/05	03/31/05	
Benzo(k)fluoranthene	EPA 625	5C28041	0.053	0.50	ND	0.943	03/28/05	03/31/05	
Benzyl alcohol	EPA 625	5C28041	0.21	5.0	ND	0.943	03/28/05	03/31/05	
Bis(2-chloroethoxy)methane	EPA 625	5C28041	0.072	0.50	ND	0.943	03/28/05	03/31/05	
Bis(2-chloroethyl)ether	EPA 625	5C28041	0.084	0.50	ND	0.943	03/28/05	03/31/05	
Bis(2-chloroisopropyl)ether	EPA 625	5C28041	0.11	0.50	ND	0.943	03/28/05	03/31/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5C28041	1.1	5.0	ND	0.943	03/28/05	03/31/05	
4-Bromophenyl phenyl ether	EPA 625	5C28041	0.12	1.0	ND	0.943	03/28/05	03/31/05	
Butyl benzyl phthalate	EPA 625	5C28041	0.34	5.0	0.70	0.943	03/28/05	03/31/05	J
4-Chloroaniline	EPA 625	5C28041	0.20	2.0	ND	0.943	03/28/05	03/31/05	
2-Chloronaphthalene	EPA 625	5C28041	0.059	0.50	ND	0.943	03/28/05	03/31/05	
4-Chloro-3-methylphenol	EPA 625	5C28041	0.34	2.0	ND	0.943	03/28/05	03/31/05	
4-Chlorophenyl phenyl ether	EPA 625	5C28041	0.056	0.50	ND	0.943	03/28/05	03/31/05	
2-Chlorophenol	EPA 625	5C28041	0.12	1.0	ND	0.943	03/28/05	03/31/05	
Chrysene	EPA 625	5C28041	0.072	0.50	ND	0.943	03/28/05	03/31/05	
Dibenz(a,h)anthracene	EPA 625	5C28041	0.083	0.50	ND	0.943	03/28/05	03/31/05	
Dibenzofuran	EPA 625	5C28041	0.075	0.50	ND	0.943	03/28/05	03/31/05	
Di-n-butyl phthalate	EPA 625	5C28041	0.26	2.0	ND	0.943	03/28/05	03/31/05	
1,2-Dichlorobenzene	EPA 625	5C28041	0.11	0.50	ND	0.943	03/28/05	03/31/05	
1,3-Dichlorobenzene	EPA 625	5C28041	0.13	0.50	ND	0.943	03/28/05	03/31/05	
1,4-Dichlorobenzene	EPA 625	5C28041	0.050	0.50	ND	0.943	03/28/05	03/31/05	
3,3-Dichlorobenzidine	EPA 625	5C28041	0.93	5.0	ND	0.943	03/28/05	03/31/05	
2,4-Dichlorophenol	EPA 625	5C28041	0.21	2.0	ND	0.943	03/28/05	03/31/05	
Diethyl phthalate	EPA 625	5C28041	0.12	1.0	0.26	0.943	03/28/05	03/31/05	J
2,4-Dimethylphenol	EPA 625	5C28041	0.31	2.0	ND	0.943	03/28/05	03/31/05	
Dimethyl phthalate	EPA 625	5C28041	0.081	0.50	ND	0.943	03/28/05	03/31/05	
4,6-Dinitro-2-methylphenol	EPA 625	5C28041	0.38	5.0	ND	0.943	03/28/05	03/31/05	
2,4-Dinitrophenol	EPA 625	5C28041	2.7	5.0	ND	0.943	03/28/05	03/31/05	
2,4-Dinitrotoluene	EPA 625	5C28041	0.23	5.0	ND	0.943	03/28/05	03/31/05	N-1
2,6-Dinitrotoluene	EPA 625	5C28041	0.24	5.0	ND	0.943	03/28/05	03/31/05	
Di-n-octyl phthalate	EPA 625	5C28041	0.17	5.0	ND	0.943	03/28/05	03/31/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5C28041	0.087	1.0	ND	0.943	03/28/05	03/31/05	

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

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: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Fluoranthene	EPA 625	5C28041	0.089	0.50	ND	0.943	03/28/05	03/31/05	
Fluorene	EPA 625	5C28041	0.075	0.50	ND	0.943	03/28/05	03/31/05	
Hexachlorobenzene	EPA 625	5C28041	0.13	1.0	ND	0.943	03/28/05	03/31/05	
Hexachlorobutadiene	EPA 625	5C28041	0.38	2.0	ND	0.943	03/28/05	03/31/05	
Hexachlorocyclopentadiene	EPA 625	5C28041	1.8	5.0	ND	0.943	03/28/05	03/31/05	
Hexachloroethane	EPA 625	5C28041	0.51	3.0	ND	0.943	03/28/05	03/31/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5C28041	0.19	2.0	ND	0.943	03/28/05	03/31/05	
Isophorone	EPA 625	5C28041	0.059	1.0	ND	0.943	03/28/05	03/31/05	
2-Methylnaphthalene	EPA 625	5C28041	0.13	1.0	ND	0.943	03/28/05	03/31/05	
2-Methylphenol	EPA 625	5C28041	0.28	2.0	ND	0.943	03/28/05	03/31/05	
4-Methylphenol	EPA 625	5C28041	0.20	5.0	ND	0.943	03/28/05	03/31/05	
Naphthalene	EPA 625	5C28041	0.13	1.0	ND	0.943	03/28/05	03/31/05	
2-Nitroaniline	EPA 625	5C28041	0.18	5.0	ND	0.943	03/28/05	03/31/05	
3-Nitroaniline	EPA 625	5C28041	0.35	5.0	ND	0.943	03/28/05	03/31/05	
4-Nitroaniline	EPA 625	5C28041	0.49	5.0	ND	0.943	03/28/05	03/31/05	
Nitrobenzene	EPA 625	5C28041	0.10	1.0	ND	0.943	03/28/05	03/31/05	
2-Nitrophenol	EPA 625	5C28041	0.23	2.0	ND	0.943	03/28/05	03/31/05	
4-Nitrophenol	EPA 625	5C28041	0.73	5.0	ND	0.943	03/28/05	03/31/05	
N-Nitrosodimethylamine	EPA 625	5C28041	0.22	2.0	ND	0.943	03/28/05	03/31/05	
N-Nitroso-di-n-propylamine	EPA 625	5C28041	0.18	2.0	ND	0.943	03/28/05	03/31/05	
N-Nitrosodiphenylamine	EPA 625	5C28041	0.077	1.0	ND	0.943	03/28/05	03/31/05	
Pentachlorophenol	EPA 625	5C28041	0.78	2.0	ND	0.943	03/28/05	03/31/05	
Phenanthrene	EPA 625	5C28041	0.071	0.50	ND	0.943	03/28/05	03/31/05	
Phenol	EPA 625	5C28041	0.14	1.0	ND	0.943	03/28/05	03/31/05	
Pyrene	EPA 625	5C28041	0.059	0.50	ND	0.943	03/28/05	03/31/05	
1,2,4-Trichlorobenzene	EPA 625	5C28041	0.10	1.0	ND	0.943	03/28/05	03/31/05	
2,4,5-Trichlorophenol	EPA 625	5C28041	0.075	2.0	ND	0.943	03/28/05	03/31/05	
2,4,6-Trichlorophenol	EPA 625	5C28041	0.10	1.0	ND	0.943	03/28/05	03/31/05	
Surrogate: 2-Fluorophenol (30-120%)					63 %				
Surrogate: Phenol-d6 (35-120%)					66 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					87 %				
Surrogate: Nitrobenzene-d5 (45-120%)					67 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					70 %				
Surrogate: Terphenyl-d14 (45-120%)					83 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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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: IOC2064-01RE1 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
2,4-Dinitrophenol	EPA 625	5C28041	2.7	5.0	ND	0.943	03/28/05	04/11/05	
Surrogate: 2-Fluorophenol (30-120%)					61 %				
Surrogate: Phenol-d6 (35-120%)					66 %				
Surrogate: 2,4,6-Tribromophenol (45-120%)					89 %				
Surrogate: Nitrobenzene-d5 (45-120%)					66 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					71 %				
Surrogate: Terphenyl-d14 (45-120%)					81 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5C28048	0.030	0.10	ND	0.952	03/28/05	03/29/05	
alpha-BHC	EPA 608	5C28048	0.015	0.10	ND	0.952	03/28/05	03/29/05	
beta-BHC	EPA 608	5C28048	0.015	0.10	ND	0.952	03/28/05	03/29/05	
delta-BHC	EPA 608	5C28048	0.020	0.20	ND	0.952	03/28/05	03/29/05	
gamma-BHC (Lindane)	EPA 608	5C28048	0.020	0.10	ND	0.952	03/28/05	03/29/05	
Chlordane	EPA 608	5C28048	0.20	1.0	ND	0.952	03/28/05	03/29/05	
4,4'-DDD	EPA 608	5C28048	0.020	0.10	ND	0.952	03/28/05	03/29/05	
4,4'-DDE	EPA 608	5C28048	0.025	0.10	ND	0.952	03/28/05	03/29/05	
4,4'-DDT	EPA 608	5C28048	0.030	0.10	ND	0.952	03/28/05	03/29/05	
Dieldrin	EPA 608	5C28048	0.015	0.10	ND	0.952	03/28/05	03/29/05	
Endosulfan I	EPA 608	5C28048	0.015	0.10	ND	0.952	03/28/05	03/29/05	
Endosulfan II	EPA 608	5C28048	0.040	0.10	ND	0.952	03/28/05	03/29/05	
Endosulfan sulfate	EPA 608	5C28048	0.015	0.20	ND	0.952	03/28/05	03/29/05	
Endrin	EPA 608	5C28048	0.020	0.10	ND	0.952	03/28/05	03/29/05	
Endrin aldehyde	EPA 608	5C28048	0.045	0.10	ND	0.952	03/28/05	03/29/05	
Endrin ketone	EPA 608	5C28048	0.020	0.10	ND	0.952	03/28/05	03/29/05	
Heptachlor	EPA 608	5C28048	0.030	0.10	ND	0.952	03/28/05	03/29/05	
Heptachlor epoxide	EPA 608	5C28048	0.020	0.10	ND	0.952	03/28/05	03/29/05	
Methoxychlor	EPA 608	5C28048	0.035	0.10	ND	0.952	03/28/05	03/29/05	
Toxaphene	EPA 608	5C28048	1.5	5.0	ND	0.952	03/28/05	03/29/05	
Surrogate: Tetrachloro-m-xylene (35-115%)					35 %				
Surrogate: Decachlorobiphenyl (45-120%)					40 %				ZX

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5C28048	0.20	1.0	ND	0.952	03/28/05	03/30/05	
Aroclor 1221	EPA 608	5C28048	0.10	1.0	ND	0.952	03/28/05	03/30/05	
Aroclor 1232	EPA 608	5C28048	0.15	1.0	ND	0.952	03/28/05	03/30/05	
Aroclor 1242	EPA 608	5C28048	0.15	1.0	ND	0.952	03/28/05	03/30/05	
Aroclor 1248	EPA 608	5C28048	0.25	1.0	ND	0.952	03/28/05	03/30/05	
Aroclor 1254	EPA 608	5C28048	0.25	1.0	ND	0.952	03/28/05	03/30/05	
Aroclor 1260	EPA 608	5C28048	0.40	1.0	ND	0.952	03/28/05	03/30/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					45 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
Barium	EPA 200.8	5C25116	0.00014	0.0010	0.024	1	03/25/05	03/28/05	
Boron	EPA 200.7	5C25111	0.0074	0.050	0.095	1	03/25/05	03/27/05	
Iron	EPA 200.8	5C25116	0.0032	0.010	0.43	1	03/25/05	03/28/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5C25116	0.18	2.0	0.29	1	03/25/05	03/28/05	J
Arsenic	EPA 200.8	5C25116	0.49	1.0	2.6	1	03/25/05	03/28/05	
Beryllium	EPA 200.8	5C25116	0.037	0.50	ND	1	03/25/05	03/28/05	
Cadmium	EPA 200.8	5C25116	0.015	1.0	0.20	1	03/25/05	03/28/05	J
Chromium	EPA 200.8	5C25116	0.26	2.0	1.4	1	03/25/05	03/28/05	B, J
Cobalt	EPA 200.8	5C25116	0.10	1.0	0.29	1	03/25/05	03/28/05	J
Copper	EPA 200.8	5C25116	0.49	2.0	3.7	1	03/25/05	03/28/05	
Lead	EPA 200.8	5C25116	0.13	1.0	0.43	1	03/25/05	03/28/05	J
Manganese	EPA 200.8	5C25116	0.44	1.0	41	1	03/25/05	03/28/05	
Mercury	EPA 245.1	5C26033	0.063	0.20	ND	1	03/26/05	03/26/05	
Nickel	EPA 200.8	5C25116	0.15	2.0	3.5	1	03/25/05	03/28/05	
Selenium	EPA 200.8	5C25116	0.36	2.0	ND	1	03/25/05	03/28/05	
Silver	EPA 200.8	5C25116	0.089	1.0	ND	1	03/25/05	03/28/05	
Thallium	EPA 200.8	5C25116	0.075	1.0	ND	1	03/25/05	03/28/05	
Vanadium	EPA 200.8	5C25116	0.86	2.0	1.2	1	03/25/05	03/28/05	J
Zinc	EPA 200.8	5C25116	3.1	20	13	1	03/25/05	03/28/05	J

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5C28067	0.30	0.50	ND	1	03/28/05	03/28/05	
Biochemical Oxygen Demand	EPA 405.1	5C25093	0.59	2.0	1.1	1	03/25/05	03/30/05	J
Chloride	EPA 300.0	5C25048	0.26	0.50	9.2	1	03/25/05	03/25/05	
Fluoride	EPA 300.0	5C25048	0.10	0.50	0.25	1	03/25/05	03/25/05	J
Nitrate/Nitrite-N	EPA 300.0	5C25048	0.072	0.11	0.15	1	03/25/05	03/25/05	
Residual Chlorine	EPA 330.5	5C25118	0.10	0.10	ND	1	03/25/05	03/25/05	
Sulfate	EPA 300.0	5C25048	0.18	0.50	22	1	03/25/05	03/25/05	
Surfactants (MBAS)	SM5540-C	5C25096	0.044	0.10	ND	1	03/25/05	03/25/05	
Total Dissolved Solids	SM2540C	5C28078	10	10	140	1	03/28/05	03/28/05	
Total Organic Carbon	EPA 415.1	5C28077	0.25	1.0	10	1	03/28/05	03/28/05	
Total Suspended Solids	EPA 160.2	5C25117	10	10	ND	1	03/25/05	03/25/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01RE1 (Outfall 011 Composite - Water) - cont.									
Reporting Units: mg/l									
Oil & Grease	EPA 413.1	5C28069	0.94	5.0	ND	1	03/28/05	03/28/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5C25105	0.10	0.10	ND	1	03/25/05	03/25/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5C26056	0.040	1.0	4.2	1	03/26/05	03/26/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5C25058	0.10	1.0	ND	1	03/25/05	03/25/05	
Total Cyanide	EPA 335.2	5C25119	2.2	5.0	ND	1	03/25/05	03/25/05	
Perchlorate	EPA 314.0	5C25061	0.80	4.0	ND	1	03/25/05	03/26/05	

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INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5C28081	1.0	1.0	220	1	03/28/05	03/28/05	

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1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOC2064-01 (Outfall 011 Composite - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5D0112	0.49	1.0	ND	1	04/01/05	04/01/05	
Surrogate: Dibromofluoromethane (80-125%)					117 %				

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SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 011 Composite (IOC2064-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	03/25/2005 14:40	03/25/2005 18:30	03/25/2005 20:50	03/25/2005 21:50
EPA 180.1	2	03/25/2005 14:40	03/25/2005 18:30	03/26/2005 13:00	03/26/2005 14:00
EPA 218.6	1	03/25/2005 14:40	03/25/2005 18:30	03/25/2005 21:25	03/25/2005 21:26
EPA 300.0	2	03/25/2005 14:40	03/25/2005 18:30	03/25/2005 20:00	03/25/2005 20:33
EPA 330.5	1	03/25/2005 14:40	03/25/2005 18:30	03/25/2005 21:00	03/25/2005 21:15
EPA 405.1	2	03/25/2005 14:40	03/25/2005 18:30	03/25/2005 21:30	03/30/2005 11:30
EPA 624	3	03/25/2005 14:40	03/25/2005 18:30	03/27/2005 00:00	03/27/2005 14:21
SM5540-C	2	03/25/2005 14:40	03/25/2005 18:30	03/25/2005 21:24	03/25/2005 22:05
Sample ID: Trip Blank (IOC2064-02) - Water					
EPA 624	3	03/25/2005 15:20	03/25/2005 18:30	03/27/2005 00:00	03/27/2005 14:52

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METHOD BLANK/QC DATA

TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	Data Qualifiers
Batch: 5C26002 Extracted: 03/26/05										
Blank Analyzed: 03/26/2005 (5C26002-BLK1)										
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l						
LCS Analyzed: 03/26/2005 (5C26002-BS1)										
Total Recoverable Hydrocarbons	4.72	1.0	0.31	mg/l	5.00		94	65-120		M-NR1
LCS Dup Analyzed: 03/26/2005 (5C26002-BSD1)										
Total Recoverable Hydrocarbons	4.84	1.0	0.31	mg/l	5.00		97	65-120	3	20

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C26001 Extracted: 03/26/05										
Blank Analyzed: 03/28/2005 (5C26001-BLK1)										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.123			mg/l	0.200		62		40-125	
LCS Analyzed: 03/28/2005 (5C26001-BS1)										
EFH (C13 - C40)	0.348	0.50	0.082	mg/l	0.775		45		40-120	M-NR1
Surrogate: n-Octacosane	0.0990			mg/l	0.200		50		40-125	J
LCS Dup Analyzed: 03/28/2005 (5C26001-BSD1)										
EFH (C13 - C40)	0.332	0.50	0.082	mg/l	0.775		43	5	40-120	25 J
Surrogate: n-Octacosane	0.0940			mg/l	0.200		47		40-125	

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 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C26026 Extracted: 03/26/05											
Blank Analyzed: 03/26/2005 (5C26026-BLK1)											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.0103			mg/l	0.0100		103	65-140			
LCS Analyzed: 03/26/2005 (5C26026-BS1)											
GRO (C4 - C12)	0.742	0.10	0.050	mg/l	0.800		93	70-140			
Surrogate: 4-BFB (FID)	0.0301			mg/l	0.0300		100	65-140			
Matrix Spike Analyzed: 03/26/2005 (5C26026-MS1)											
						Source: IOC1437-01					
GRO (C4 - C12)	101	20	10	mg/l	44.0	49	118	60-140			
Surrogate: 4-BFB (FID)	2.71			mg/l	2.00		136	65-140			
Matrix Spike Dup Analyzed: 03/26/2005 (5C26026-MSD1)											
						Source: IOC1437-01					
GRO (C4 - C12)	100	20	10	mg/l	44.0	49	116	60-140	1	20	
Surrogate: 4-BFB (FID)	2.69			mg/l	2.00		134	65-140			

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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	RPD Limit	Data Qualifiers
Batch: 5C27003 Extracted: 03/27/05										
Blank Analyzed: 03/27/2005 (5C27003-BLK1)										
Benzene	ND	1.0	0.28	ug/l						
Bromodichloromethane	ND	2.0	0.30	ug/l						
Bromoform	ND	5.0	0.32	ug/l						
Bromomethane	ND	5.0	0.34	ug/l						
Carbon tetrachloride	ND	0.50	0.28	ug/l						
Chlorobenzene	ND	2.0	0.36	ug/l						
Chloroethane	ND	5.0	0.33	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
Chloromethane	ND	5.0	0.30	ug/l						
Dibromochloromethane	ND	2.0	0.28	ug/l						
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l						
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l						
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	0.50	0.28	ug/l						
1,1-Dichloroethene	ND	5.0	0.32	ug/l						
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	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	2.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l						
Surrogate: Dibromofluoromethane	26.2			ug/l	25.0		105	80-120		
Surrogate: Toluene-d8	25.2			ug/l	25.0		101	80-120		
Surrogate: 4-Bromofluorobenzene	22.8			ug/l	25.0		91	80-120		

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

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: 5C27003 Extracted: 03/27/05											
LCS Analyzed: 03/27/2005 (5C27003-BS1)											
Benzene	24.0	1.0	0.28	ug/l	25.0		96	70-120			
Bromodichloromethane	23.4	2.0	0.30	ug/l	25.0		94	70-140			
Bromoform	22.6	5.0	0.32	ug/l	25.0		90	55-135			
Bromomethane	25.8	5.0	0.34	ug/l	25.0		103	60-140			
Carbon tetrachloride	24.2	0.50	0.28	ug/l	25.0		97	70-140			
Chlorobenzene	23.6	2.0	0.36	ug/l	25.0		94	80-125			
Chloroethane	24.1	5.0	0.33	ug/l	25.0		96	60-145			
Chloroform	25.1	2.0	0.33	ug/l	25.0		100	75-130			
Chloromethane	25.4	5.0	0.30	ug/l	25.0		102	40-145			
Dibromochloromethane	23.2	2.0	0.28	ug/l	25.0		93	65-145			
1,2-Dichlorobenzene	23.8	2.0	0.32	ug/l	25.0		95	80-120			
1,3-Dichlorobenzene	23.6	2.0	0.35	ug/l	25.0		94	80-120			
1,4-Dichlorobenzene	23.6	2.0	0.37	ug/l	25.0		94	80-120			
1,1-Dichloroethane	25.2	2.0	0.27	ug/l	25.0		101	70-135			
1,2-Dichloroethane	26.3	0.50	0.28	ug/l	25.0		105	60-150			
1,1-Dichloroethene	24.2	5.0	0.32	ug/l	25.0		97	75-135			
trans-1,2-Dichloroethene	24.8	2.0	0.27	ug/l	25.0		99	70-130			
1,2-Dichloropropane	24.4	2.0	0.35	ug/l	25.0		98	70-120			
cis-1,3-Dichloropropene	23.8	2.0	0.22	ug/l	25.0		95	75-130			
trans-1,3-Dichloropropene	23.5	2.0	0.24	ug/l	25.0		94	75-135			
Ethylbenzene	24.2	2.0	0.25	ug/l	25.0		97	80-120			
Methylene chloride	25.3	5.0	0.48	ug/l	25.0		101	60-135			
1,1,2,2-Tetrachloroethane	23.2	2.0	0.24	ug/l	25.0		93	60-135			
Tetrachloroethene	23.4	2.0	0.32	ug/l	25.0		94	75-125			
Toluene	23.8	2.0	0.36	ug/l	25.0		95	75-120			
1,1,1-Trichloroethane	24.6	2.0	0.30	ug/l	25.0		98	75-140			
1,1,2-Trichloroethane	23.4	2.0	0.30	ug/l	25.0		94	70-125			
Trichloroethene	23.9	2.0	0.26	ug/l	25.0		96	80-120			
Trichlorofluoromethane	25.9	5.0	0.34	ug/l	25.0		104	65-145			
Vinyl chloride	21.4	0.50	0.26	ug/l	25.0		86	50-130			
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99	80-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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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: 5C27003 Extracted: 03/27/05											
Matrix Spike Analyzed: 03/27/2005 (5C27003-MS1)						Source: IOC2063-01					
Benzene	22.4	1.0	0.28	ug/l	25.0	ND	90	70-120			
Bromodichloromethane	22.6	2.0	0.30	ug/l	25.0	ND	90	70-140			
Bromoform	23.6	5.0	0.32	ug/l	25.0	ND	94	55-140			
Bromomethane	23.5	5.0	0.34	ug/l	25.0	ND	94	50-145			
Carbon tetrachloride	22.0	0.50	0.28	ug/l	25.0	ND	88	70-145			
Chlorobenzene	22.2	2.0	0.36	ug/l	25.0	ND	89	80-125			
Chloroethane	21.3	5.0	0.33	ug/l	25.0	ND	85	50-145			
Chloroform	23.4	2.0	0.33	ug/l	25.0	ND	94	70-135			
Chloromethane	22.6	5.0	0.30	ug/l	25.0	ND	90	35-145			
Dibromochloromethane	23.3	2.0	0.28	ug/l	25.0	ND	93	65-145			
1,2-Dichlorobenzene	22.9	2.0	0.32	ug/l	25.0	ND	92	75-130			
1,3-Dichlorobenzene	22.0	2.0	0.35	ug/l	25.0	ND	88	75-130			
1,4-Dichlorobenzene	22.4	2.0	0.37	ug/l	25.0	ND	90	80-120			
1,1-Dichloroethane	23.3	2.0	0.27	ug/l	25.0	ND	93	65-135			
1,2-Dichloroethane	25.8	0.50	0.28	ug/l	25.0	ND	103	60-150			
1,1-Dichloroethene	22.6	5.0	0.32	ug/l	25.0	ND	90	65-140			
trans-1,2-Dichloroethene	23.0	2.0	0.27	ug/l	25.0	ND	92	65-135			
1,2-Dichloropropane	23.5	2.0	0.35	ug/l	25.0	ND	94	65-130			
cis-1,3-Dichloropropene	23.2	2.0	0.22	ug/l	25.0	ND	93	70-140			
trans-1,3-Dichloropropene	23.6	2.0	0.24	ug/l	25.0	ND	94	70-140			
Ethylbenzene	21.8	2.0	0.25	ug/l	25.0	ND	87	70-130			
Methylene chloride	24.4	5.0	0.48	ug/l	25.0	ND	98	60-135			
1,1,2,2-Tetrachloroethane	25.4	2.0	0.24	ug/l	25.0	ND	102	60-145			
Tetrachloroethene	21.2	2.0	0.32	ug/l	25.0	ND	85	70-130			
Toluene	22.3	2.0	0.36	ug/l	25.0	ND	89	70-120			
1,1,1-Trichloroethane	22.1	2.0	0.30	ug/l	25.0	ND	88	75-140			
1,1,2-Trichloroethane	24.3	2.0	0.30	ug/l	25.0	ND	97	60-135			
Trichloroethene	22.2	2.0	0.26	ug/l	25.0	ND	89	70-125			
Trichlorofluoromethane	23.4	5.0	0.34	ug/l	25.0	ND	94	55-145			
Vinyl chloride	19.0	0.50	0.26	ug/l	25.0	ND	76	40-135			
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120			

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

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
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Batch: 5C27003 Extracted: 03/27/05

Matrix Spike Dup Analyzed: 03/27/2005 (5C27003-MSD1)

Source: IOC2063-01

Benzene	23.1	1.0	0.28	ug/l	25.0	ND	92	70-120	3	20	
Bromodichloromethane	23.6	2.0	0.30	ug/l	25.0	ND	94	70-140	4	20	
Bromoform	25.2	5.0	0.32	ug/l	25.0	ND	101	55-140	7	25	
Bromomethane	23.9	5.0	0.34	ug/l	25.0	ND	96	50-145	2	25	
Carbon tetrachloride	23.0	0.50	0.28	ug/l	25.0	ND	92	70-145	4	25	
Chlorobenzene	23.0	2.0	0.36	ug/l	25.0	ND	92	80-125	4	20	
Chloroethane	22.3	5.0	0.33	ug/l	25.0	ND	89	50-145	5	25	
Chloroform	24.0	2.0	0.33	ug/l	25.0	ND	96	70-135	3	20	
Chloromethane	23.0	5.0	0.30	ug/l	25.0	ND	92	35-145	2	25	
Dibromochloromethane	24.4	2.0	0.28	ug/l	25.0	ND	98	65-145	5	25	
1,2-Dichlorobenzene	23.5	2.0	0.32	ug/l	25.0	ND	94	75-130	3	20	
1,3-Dichlorobenzene	22.7	2.0	0.35	ug/l	25.0	ND	91	75-130	3	20	
1,4-Dichlorobenzene	23.1	2.0	0.37	ug/l	25.0	ND	92	80-120	3	20	
1,1-Dichloroethane	23.9	2.0	0.27	ug/l	25.0	ND	96	65-135	3	20	
1,2-Dichloroethane	26.6	0.50	0.28	ug/l	25.0	ND	106	60-150	3	20	
1,1-Dichloroethene	23.4	5.0	0.32	ug/l	25.0	ND	94	65-140	3	20	
trans-1,2-Dichloroethene	23.7	2.0	0.27	ug/l	25.0	ND	95	65-135	3	20	
1,2-Dichloropropane	24.1	2.0	0.35	ug/l	25.0	ND	96	65-130	3	20	
cis-1,3-Dichloropropene	23.9	2.0	0.22	ug/l	25.0	ND	96	70-140	3	20	
trans-1,3-Dichloropropene	24.4	2.0	0.24	ug/l	25.0	ND	98	70-140	3	25	
Ethylbenzene	22.6	2.0	0.25	ug/l	25.0	ND	90	70-130	4	20	
Methylene chloride	25.4	5.0	0.48	ug/l	25.0	ND	102	60-135	4	20	
1,1,2,2-Tetrachloroethane	26.3	2.0	0.24	ug/l	25.0	ND	105	60-145	3	30	
Tetrachloroethene	22.2	2.0	0.32	ug/l	25.0	ND	89	70-130	5	20	
Toluene	22.9	2.0	0.36	ug/l	25.0	ND	92	70-120	3	20	
1,1,1-Trichloroethane	22.7	2.0	0.30	ug/l	25.0	ND	91	75-140	3	20	
1,1,2-Trichloroethane	24.9	2.0	0.30	ug/l	25.0	ND	100	60-135	2	25	
Trichloroethene	22.9	2.0	0.26	ug/l	25.0	ND	92	70-125	3	20	
Trichlorofluoromethane	23.9	5.0	0.34	ug/l	25.0	ND	96	55-145	2	25	
Vinyl chloride	19.2	0.50	0.26	ug/l	25.0	ND	77	40-135	1	30	
Surrogate: Dibromofluoromethane	26.7			ug/l	25.0		107	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.5			ug/l	25.0		98	80-120			

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 Project Manager

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

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
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Batch: 5C27003 Extracted: 03/27/05

Blank Analyzed: 03/27/2005 (5C27003-BLK1)

Acrolein	ND	50	4.6	ug/l							
Acrylonitrile	ND	50	5.1	ug/l							
2-Chloroethyl vinyl ether	ND	5.0	1.3	ug/l							
Surrogate: Dibromofluoromethane	26.2			ug/l	25.0		105	80-120			
Surrogate: Toluene-d8	25.2			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	22.8			ug/l	25.0		91	80-120			

LCS Analyzed: 03/27/2005 (5C27003-BS1)

2-Chloroethyl vinyl ether	24.8	5.0	1.3	ug/l	25.0		99	20-175			
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99	80-120			

Matrix Spike Analyzed: 03/27/2005 (5C27003-MS1)

					Source: IOC2063-01						
2-Chloroethyl vinyl ether	26.6	5.0	1.3	ug/l	25.0	ND	106	20-175			
Surrogate: Dibromofluoromethane	26.6			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.2			ug/l	25.0		97	80-120			

Matrix Spike Dup Analyzed: 03/27/2005 (5C27003-MSD1)

					Source: IOC2063-01						
2-Chloroethyl vinyl ether	27.1	5.0	1.3	ug/l	25.0	ND	108	20-175	2	25	
Surrogate: Dibromofluoromethane	26.7			ug/l	25.0		107	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.5			ug/l	25.0		98	80-120			

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	Data Qualifiers
Batch: 5C27003 Extracted: 03/27/05									
Blank Analyzed: 03/27/2005 (5C27003-BLK1)									
Cyclohexane	ND	2.5	N/A	ug/l					
1,2-Dichloro-1,1,2-trifluoroethane	ND	2.5	N/A	ug/l					

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 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Limit	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05										
Blank Analyzed: 03/31/2005 (5C28041-BLK1)										
Acenaphthene	ND	0.50	0.10	ug/l						
Acenaphthylene	ND	0.50	0.10	ug/l						
Aniline	ND	10	2.9	ug/l						
Anthracene	ND	0.50	0.083	ug/l						
Benzidine	ND	5.0	2.4	ug/l						
Benzoic acid	ND	20	3.7	ug/l						
Benzo(a)anthracene	ND	5.0	0.038	ug/l						
Benzo(a)pyrene	ND	2.0	0.14	ug/l						
Benzo(b)fluoranthene	ND	2.0	0.050	ug/l						
Benzo(g,h,i)perylene	ND	5.0	0.059	ug/l						
Benzo(k)fluoranthene	ND	0.50	0.053	ug/l						
Benzyl alcohol	ND	5.0	0.21	ug/l						
Bis(2-chloroethoxy)methane	ND	0.50	0.072	ug/l						
Bis(2-chloroethyl)ether	ND	0.50	0.084	ug/l						
Bis(2-chloroisopropyl)ether	ND	0.50	0.11	ug/l						
Bis(2-ethylhexyl)phthalate	ND	5.0	1.1	ug/l						
4-Bromophenyl phenyl ether	ND	1.0	0.12	ug/l						
Butyl benzyl phthalate	0.760	5.0	0.34	ug/l						J
4-Chloroaniline	ND	2.0	0.20	ug/l						
2-Chloronaphthalene	ND	0.50	0.059	ug/l						
4-Chloro-3-methylphenol	ND	2.0	0.34	ug/l						
4-Chlorophenyl phenyl ether	ND	0.50	0.056	ug/l						
2-Chlorophenol	ND	1.0	0.12	ug/l						
Chrysene	ND	0.50	0.072	ug/l						
Dibenz(a,h)anthracene	ND	0.50	0.083	ug/l						
Dibenzofuran	ND	0.50	0.075	ug/l						
Di-n-butyl phthalate	0.300	2.0	0.26	ug/l						J
1,2-Dichlorobenzene	ND	0.50	0.11	ug/l						
1,3-Dichlorobenzene	ND	0.50	0.13	ug/l						
1,4-Dichlorobenzene	ND	0.50	0.050	ug/l						
3,3-Dichlorobenzidine	ND	5.0	0.93	ug/l						
2,4-Dichlorophenol	ND	2.0	0.21	ug/l						
Diethyl phthalate	0.220	1.0	0.12	ug/l						J
2,4-Dimethylphenol	ND	2.0	0.31	ug/l						
Dimethyl phthalate	ND	0.50	0.081	ug/l						

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Sampled: 03/25/05
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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	RPD Limits	RPD RPD	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05										
Blank Analyzed: 03/31/2005 (5C28041-BLK1)										
4,6-Dinitro-2-methylphenol	ND	5.0	0.38	ug/l						
2,4-Dinitrophenol	ND	5.0	2.7	ug/l						N-I
2,4-Dinitrotoluene	ND	5.0	0.23	ug/l						
2,6-Dinitrotoluene	ND	5.0	0.24	ug/l						
Di-n-octyl phthalate	ND	5.0	0.17	ug/l						
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	0.087	ug/l						
Fluoranthene	ND	0.50	0.089	ug/l						
Fluorene	ND	0.50	0.075	ug/l						
Hexachlorobenzene	ND	1.0	0.13	ug/l						
Hexachlorobutadiene	ND	2.0	0.38	ug/l						
Hexachlorocyclopentadiene	ND	5.0	1.8	ug/l						
Hexachloroethane	ND	3.0	0.51	ug/l						
Indeno(1,2,3-cd)pyrene	ND	2.0	0.19	ug/l						
Isophorone	ND	1.0	0.059	ug/l						
2-Methylnaphthalene	ND	1.0	0.13	ug/l						
2-Methylphenol	ND	2.0	0.28	ug/l						
4-Methylphenol	ND	5.0	0.20	ug/l						
Naphthalene	ND	1.0	0.13	ug/l						
2-Nitroaniline	ND	5.0	0.18	ug/l						
3-Nitroaniline	ND	5.0	0.35	ug/l						
4-Nitroaniline	ND	5.0	0.49	ug/l						
Nitrobenzene	ND	1.0	0.10	ug/l						
2-Nitrophenol	ND	2.0	0.23	ug/l						
4-Nitrophenol	ND	5.0	0.73	ug/l						
N-Nitrosodimethylamine	ND	2.0	0.22	ug/l						
N-Nitroso-di-n-propylamine	ND	2.0	0.18	ug/l						
N-Nitrosodiphenylamine	ND	1.0	0.077	ug/l						
Pentachlorophenol	ND	2.0	0.78	ug/l						
Phenanthrene	ND	0.50	0.071	ug/l						
Phenol	ND	1.0	0.14	ug/l						
Pyrene	ND	0.50	0.059	ug/l						
1,2,4-Trichlorobenzene	ND	1.0	0.10	ug/l						
2,4,5-Trichlorophenol	ND	2.0	0.075	ug/l						
2,4,6-Trichlorophenol	ND	1.0	0.10	ug/l						
Surrogate: 2-Fluorophenol	13.6			ug/l	20.0	68	30-120			

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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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05										
Blank Analyzed: 03/31/2005 (5C28041-BLK1)										
Surrogate: Phenol-d6	13.7			ug/l	20.0		68	35-120		
Surrogate: 2,4,6-Tribromophenol	16.5			ug/l	20.0		82	45-120		
Surrogate: Nitrobenzene-d5	6.94			ug/l	10.0		69	45-120		
Surrogate: 2-Fluorobiphenyl	7.28			ug/l	10.0		73	45-120		
Surrogate: Terphenyl-d14	8.40			ug/l	10.0		84	45-120		
Blank Analyzed: 04/11/2005 (5C28041-BLK2)										
2,4-Dinitrophenol	ND	5.0	2.7	ug/l						
Surrogate: 2-Fluorophenol	12.9			ug/l	20.0		64	30-120		
Surrogate: Phenol-d6	13.6			ug/l	20.0		68	35-120		
Surrogate: 2,4,6-Tribromophenol	17.1			ug/l	20.0		86	45-120		
Surrogate: Nitrobenzene-d5	6.98			ug/l	10.0		70	45-120		
Surrogate: 2-Fluorobiphenyl	7.68			ug/l	10.0		77	45-120		
Surrogate: Terphenyl-d14	8.10			ug/l	10.0		81	45-120		
LCS Analyzed: 03/31/2005 (5C28041-BS1)										
Acenaphthene	8.28	0.50	0.10	ug/l	10.0		83	55-120		M-NR1
Acenaphthylene	8.44	0.50	0.10	ug/l	10.0		84	55-120		
Aniline	7.32	10	2.9	ug/l	10.0		73	35-120		J
Anthracene	8.48	0.50	0.083	ug/l	10.0		85	55-120		
Benzidine	ND	5.0	2.4	ug/l	10.0			20-160		L2
Benzoic acid	6.74	20	3.7	ug/l	10.0		67	35-120		J
Benzo(a)anthracene	9.52	5.0	0.038	ug/l	10.0		95	60-120		
Benzo(a)pyrene	8.70	2.0	0.14	ug/l	10.0		87	55-120		
Benzo(b)fluoranthene	9.32	2.0	0.050	ug/l	10.0		93	50-120		
Benzo(g,h,i)perylene	8.16	5.0	0.059	ug/l	10.0		82	40-125		
Benzo(k)fluoranthene	9.24	0.50	0.053	ug/l	10.0		92	50-120		
Benzyl alcohol	7.62	5.0	0.21	ug/l	10.0		76	45-120		
Bis(2-chloroethoxy)methane	7.98	0.50	0.072	ug/l	10.0		80	55-120		
Bis(2-chloroethyl)ether	6.98	0.50	0.084	ug/l	10.0		70	50-120		
Bis(2-chloroisopropyl)ether	7.26	0.50	0.11	ug/l	10.0		73	45-120		
Bis(2-ethylhexyl)phthalate	9.16	5.0	1.1	ug/l	10.0		92	60-130		
4-Bromophenyl phenyl ether	8.10	1.0	0.12	ug/l	10.0		81	50-120		
Butyl benzyl phthalate	9.66	5.0	0.34	ug/l	10.0		97	55-125		
4-Chloroaniline	6.60	2.0	0.20	ug/l	10.0		66	50-120		
2-Chloronaphthalene	8.52	0.50	0.059	ug/l	10.0		85	55-120		

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 Project Manager

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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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	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05										
LCS Analyzed: 03/31/2005 (5C28041-BS1)										
4-Chloro-3-methylphenol	7.18	2.0	0.34	ug/l	10.0		72	60-120		M-NR1
4-Chlorophenyl phenyl ether	8.88	0.50	0.056	ug/l	10.0		89	55-120		
2-Chlorophenol	7.12	1.0	0.12	ug/l	10.0		71	45-120		
Chrysene	9.14	0.50	0.072	ug/l	10.0		91	60-120		
Dibenz(a,h)anthracene	7.06	0.50	0.083	ug/l	10.0		71	45-130		
Dibenzofuran	8.18	0.50	0.075	ug/l	10.0		82	60-120		
Di-n-butyl phthalate	9.02	2.0	0.26	ug/l	10.0		90	55-125		
1,2-Dichlorobenzene	6.26	0.50	0.11	ug/l	10.0		63	35-120		
1,3-Dichlorobenzene	6.26	0.50	0.13	ug/l	10.0		63	35-120		
1,4-Dichlorobenzene	6.18	0.50	0.050	ug/l	10.0		62	35-120		
3,3-Dichlorobenzidine	6.98	5.0	0.93	ug/l	10.0		70	45-130		
2,4-Dichlorophenol	7.68	2.0	0.21	ug/l	10.0		77	55-120		
Diethyl phthalate	8.18	1.0	0.12	ug/l	10.0		82	55-120		
2,4-Dimethylphenol	5.28	2.0	0.31	ug/l	10.0		53	30-120		
Dimethyl phthalate	8.76	0.50	0.081	ug/l	10.0		88	60-120		
4,6-Dinitro-2-methylphenol	9.40	5.0	0.38	ug/l	10.0		94	50-120		
2,4-Dinitrophenol	8.70	5.0	2.7	ug/l	10.0		87	40-120		N-1
2,4-Dinitrotoluene	8.00	5.0	0.23	ug/l	10.0		80	60-120		
2,6-Dinitrotoluene	8.28	5.0	0.24	ug/l	10.0		83	60-120		
Di-n-octyl phthalate	9.46	5.0	0.17	ug/l	10.0		95	60-130		
1,2-Diphenylhydrazine/Azobenzene	8.78	1.0	0.087	ug/l	10.0		88	60-120		
Fluoranthene	9.26	0.50	0.089	ug/l	10.0		93	55-120		
Fluorene	9.18	0.50	0.075	ug/l	10.0		92	60-120		
Hexachlorobenzene	8.42	1.0	0.13	ug/l	10.0		84	50-120		
Hexachlorobutadiene	6.40	2.0	0.38	ug/l	10.0		64	40-120		
Hexachlorocyclopentadiene	7.30	5.0	1.8	ug/l	10.0		73	15-120		
Hexachloroethane	6.26	3.0	0.51	ug/l	10.0		63	35-120		
Indeno(1,2,3-cd)pyrene	7.72	2.0	0.19	ug/l	10.0		77	40-130		
Isophorone	7.42	1.0	0.059	ug/l	10.0		74	50-120		
2-Methylnaphthalene	7.88	1.0	0.13	ug/l	10.0		79	50-120		
2-Methylphenol	6.98	2.0	0.28	ug/l	10.0		70	45-120		
4-Methylphenol	7.12	5.0	0.20	ug/l	10.0		71	45-120		
Naphthalene	7.36	1.0	0.13	ug/l	10.0		74	50-120		
2-Nitroaniline	8.62	5.0	0.18	ug/l	10.0		86	60-120		
3-Nitroaniline	7.82	5.0	0.35	ug/l	10.0		78	55-120		

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: 13267 (Study 1) Outfall 011 Report Number: IOC2064	Sampled: 03/25/05 Received: 03/25/05
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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	RPD Limit	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05										
LCS Analyzed: 03/31/2005 (5C28041-BS1)										
4-Nitroaniline	8.16	5.0	0.49	ug/l	10.0		82 50-125			M-NR1
Nitrobenzene	6.90	1.0	0.10	ug/l	10.0		69 50-120			
2-Nitrophenol	7.58	2.0	0.23	ug/l	10.0		76 55-120			
4-Nitrophenol	7.60	5.0	0.73	ug/l	10.0		76 45-120			
N-Nitrosodimethylamine	7.40	2.0	0.22	ug/l	10.0		74 40-120			
N-Nitroso-di-n-propylamine	7.22	2.0	0.18	ug/l	10.0		72 45-120			
N-Nitrosodiphenylamine	7.98	1.0	0.077	ug/l	10.0		80 55-120			
Pentachlorophenol	8.86	2.0	0.78	ug/l	10.0		89 50-120			
Phenanthrene	8.56	0.50	0.071	ug/l	10.0		86 55-120			
Phenol	8.12	1.0	0.14	ug/l	10.0		81 45-120			
Pyrene	9.44	0.50	0.059	ug/l	10.0		94 50-120			
1,2,4-Trichlorobenzene	6.52	1.0	0.10	ug/l	10.0		65 45-120			
2,4,5-Trichlorophenol	8.30	2.0	0.075	ug/l	10.0		83 60-120			
2,4,6-Trichlorophenol	8.76	1.0	0.10	ug/l	10.0		88 60-120			
Surrogate: 2-Fluorophenol	13.3			ug/l	20.0		66 30-120			
Surrogate: Phenol-d6	13.1			ug/l	20.0		66 35-120			
Surrogate: 2,4,6-Tribromophenol	16.0			ug/l	20.0		80 45-120			
Surrogate: Nitrobenzene-d5	6.70			ug/l	10.0		67 45-120			
Surrogate: 2-Fluorobiphenyl	7.58			ug/l	10.0		76 45-120			
Surrogate: Terphenyl-d14	8.10			ug/l	10.0		81 45-120			
LCS Analyzed: 04/11/2005 (5C28041-BS2)										
2,4-Dinitrophenol	8.72	5.0	2.7	ug/l	10.0		87 40-120			
Surrogate: 2-Fluorophenol	13.0			ug/l	20.0		65 30-120			
Surrogate: Phenol-d6	13.4			ug/l	20.0		67 35-120			
Surrogate: 2,4,6-Tribromophenol	16.7			ug/l	20.0		84 45-120			
Surrogate: Nitrobenzene-d5	6.72			ug/l	10.0		67 45-120			
Surrogate: 2-Fluorobiphenyl	7.14			ug/l	10.0		71 45-120			
Surrogate: Terphenyl-d14	7.92			ug/l	10.0		79 45-120			

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05											
LCS Dup Analyzed: 03/31/2005 (5C28041-BSD1)											
Acenaphthene	8.72	0.50	0.10	ug/l	10.0	87	55-120	5	20		
Acenaphthylene	8.94	0.50	0.10	ug/l	10.0	89	55-120	6	20		
Aniline	7.42	10	2.9	ug/l	10.0	74	35-120	1	25		J
Anthracene	9.00	0.50	0.083	ug/l	10.0	90	55-120	6	20		
Benzidine	ND	5.0	2.4	ug/l	10.0		20-160		35		L2
Benzoic acid	7.72	20	3.7	ug/l	10.0	77	35-120	14	30		J
Benzo(a)anthracene	10.0	5.0	0.038	ug/l	10.0	100	60-120	5	20		
Benzo(a)pyrene	9.12	2.0	0.14	ug/l	10.0	91	55-120	5	25		
Benzo(b)fluoranthene	9.82	2.0	0.050	ug/l	10.0	98	50-120	5	25		
Benzo(g,h,i)perylene	8.40	5.0	0.059	ug/l	10.0	84	40-125	3	25		
Benzo(k)fluoranthene	9.86	0.50	0.053	ug/l	10.0	99	50-120	6	20		
Benzyl alcohol	8.10	5.0	0.21	ug/l	10.0	81	45-120	6	20		
Bis(2-chloroethoxy)methane	8.56	0.50	0.072	ug/l	10.0	86	55-120	7	20		
Bis(2-chloroethyl)ether	7.40	0.50	0.084	ug/l	10.0	74	50-120	6	20		
Bis(2-chloroisopropyl)ether	7.66	0.50	0.11	ug/l	10.0	77	45-120	5	20		
Bis(2-ethylhexyl)phthalate	9.30	5.0	1.1	ug/l	10.0	93	60-130	2	20		
4-Bromophenyl phenyl ether	8.54	1.0	0.12	ug/l	10.0	85	50-120	5	25		
Butyl benzyl phthalate	9.60	5.0	0.34	ug/l	10.0	96	55-125	1	20		
4-Chloroaniline	7.20	2.0	0.20	ug/l	10.0	72	50-120	9	25		
2-Chloronaphthalene	8.94	0.50	0.059	ug/l	10.0	89	55-120	5	20		
4-Chloro-3-methylphenol	7.48	2.0	0.34	ug/l	10.0	75	60-120	4	25		
4-Chlorophenyl phenyl ether	9.62	0.50	0.056	ug/l	10.0	96	55-120	8	20		
2-Chlorophenol	7.62	1.0	0.12	ug/l	10.0	76	45-120	7	25		
Chrysene	9.44	0.50	0.072	ug/l	10.0	94	60-120	3	20		
Dibenz(a,h)anthracene	8.20	0.50	0.083	ug/l	10.0	82	45-130	15	25		
Dibenzofuran	8.70	0.50	0.075	ug/l	10.0	87	60-120	6	20		
Di-n-butyl phthalate	9.38	2.0	0.26	ug/l	10.0	94	55-125	4	20		
1,2-Dichlorobenzene	6.86	0.50	0.11	ug/l	10.0	69	35-120	9	25		
1,3-Dichlorobenzene	6.68	0.50	0.13	ug/l	10.0	67	35-120	6	25		
1,4-Dichlorobenzene	6.62	0.50	0.050	ug/l	10.0	66	35-120	7	25		
3,3-Dichlorobenzidine	8.16	5.0	0.93	ug/l	10.0	82	45-130	16	25		
2,4-Dichlorophenol	7.94	2.0	0.21	ug/l	10.0	79	55-120	3	20		
Diethyl phthalate	8.76	1.0	0.12	ug/l	10.0	88	55-120	7	20		
2,4-Dimethylphenol	5.42	2.0	0.31	ug/l	10.0	54	30-120	3	25		
Dimethyl phthalate	9.26	0.50	0.081	ug/l	10.0	93	60-120	6	20		

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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: 13267 (Study 1)
Outfall 011
Report Number: IOC2064

Sampled: 03/25/05
Received: 03/25/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05											
LCS Dup Analyzed: 03/31/2005 (5C28041-BSD1)											
4,6-Dinitro-2-methylphenol	9.54	5.0	0.38	ug/l	10.0		95	50-120	1	25	
2,4-Dinitrophenol	8.94	5.0	2.7	ug/l	10.0		89	40-120	3	25	N-1
2,4-Dinitrotoluene	8.46	5.0	0.23	ug/l	10.0		85	60-120	6	20	
2,6-Dinitrotoluene	8.62	5.0	0.24	ug/l	10.0		86	60-120	4	20	
Di-n-octyl phthalate	10.0	5.0	0.17	ug/l	10.0		100	60-130	6	20	
1,2-Diphenylhydrazine/Azobenzene	9.68	1.0	0.087	ug/l	10.0		97	60-120	10	25	
Fluoranthene	9.68	0.50	0.089	ug/l	10.0		97	55-120	4	20	
Fluorene	9.80	0.50	0.075	ug/l	10.0		98	60-120	7	20	
Hexachlorobenzene	8.88	1.0	0.13	ug/l	10.0		89	50-120	5	20	
Hexachlorobutadiene	6.94	2.0	0.38	ug/l	10.0		69	40-120	8	25	
Hexachlorocyclopentadiene	8.62	5.0	1.8	ug/l	10.0		86	15-120	17	30	
Hexachloroethane	6.78	3.0	0.51	ug/l	10.0		68	35-120	8	25	
Indeno(1,2,3-cd)pyrene	8.56	2.0	0.19	ug/l	10.0		86	40-130	10	25	
Isophorone	7.52	1.0	0.059	ug/l	10.0		75	50-120	1	20	
2-Methylnaphthalene	8.46	1.0	0.13	ug/l	10.0		85	50-120	7	20	
2-Methylphenol	7.30	2.0	0.28	ug/l	10.0		73	45-120	4	20	
4-Methylphenol	7.48	5.0	0.20	ug/l	10.0		75	45-120	5	20	
Naphthalene	7.94	1.0	0.13	ug/l	10.0		79	50-120	8	20	
2-Nitroaniline	9.28	5.0	0.18	ug/l	10.0		93	60-120	7	20	
3-Nitroaniline	8.46	5.0	0.35	ug/l	10.0		85	55-120	8	25	
4-Nitroaniline	8.60	5.0	0.49	ug/l	10.0		86	50-125	5	20	
Nitrobenzene	7.28	1.0	0.10	ug/l	10.0		73	50-120	5	25	
2-Nitrophenol	7.92	2.0	0.23	ug/l	10.0		79	55-120	4	25	
4-Nitrophenol	8.70	5.0	0.73	ug/l	10.0		87	45-120	13	25	
N-Nitrosodimethylamine	7.56	2.0	0.22	ug/l	10.0		76	40-120	2	20	
N-Nitroso-di-n-propylamine	7.68	2.0	0.18	ug/l	10.0		77	45-120	6	20	
N-Nitrosodiphenylamine	8.36	1.0	0.077	ug/l	10.0		84	55-120	5	20	
Pentachlorophenol	9.04	2.0	0.78	ug/l	10.0		90	50-120	2	25	
Phenanthrene	9.06	0.50	0.071	ug/l	10.0		91	55-120	6	20	
Phenol	8.62	1.0	0.14	ug/l	10.0		86	45-120	6	25	
Pyrene	9.74	0.50	0.059	ug/l	10.0		97	50-120	3	25	
1,2,4-Trichlorobenzene	7.02	1.0	0.10	ug/l	10.0		70	45-120	7	20	
2,4,5-Trichlorophenol	8.36	2.0	0.075	ug/l	10.0		84	60-120	1	20	
2,4,6-Trichlorophenol	9.06	1.0	0.10	ug/l	10.0		91	60-120	3	20	
Surrogate: 2-Fluorophenol	13.5			ug/l	20.0		68	30-120			

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

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD	Limit	Data Qualifiers
Batch: 5C28041 Extracted: 03/28/05												
LCS Dup Analyzed: 03/31/2005 (5C28041-BSD1)												
Surrogate: Phenol-d6	13.7			ug/l	20.0		68	35-120				
Surrogate: 2,4,6-Tribromophenol	16.7			ug/l	20.0		84	45-120				
Surrogate: Nitrobenzene-d5	7.00			ug/l	10.0		70	45-120				
Surrogate: 2-Fluorobiphenyl	7.96			ug/l	10.0		80	45-120				
Surrogate: Terphenyl-d14	8.22			ug/l	10.0		82	45-120				
LCS Dup Analyzed: 04/11/2005 (5C28041-BSD2)												
2,4-Dinitrophenol	8.86	5.0	2.7	ug/l	10.0		89	40-120	2		25	
Surrogate: 2-Fluorophenol	13.2			ug/l	20.0		66	30-120				
Surrogate: Phenol-d6	14.3			ug/l	20.0		72	35-120				
Surrogate: 2,4,6-Tribromophenol	17.2			ug/l	20.0		86	45-120				
Surrogate: Nitrobenzene-d5	7.02			ug/l	10.0		70	45-120				
Surrogate: 2-Fluorobiphenyl	7.52			ug/l	10.0		75	45-120				
Surrogate: Terphenyl-d14	7.66			ug/l	10.0		77	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
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Batch: 5C28048 Extracted: 03/28/05

Blank Analyzed: 03/29/2005-03/30/2005 (5C28048-BLK1)

Aldrin	ND	0.10	0.030	ug/l							
alpha-BHC	ND	0.10	0.015	ug/l							
beta-BHC	ND	0.10	0.015	ug/l							
delta-BHC	ND	0.20	0.020	ug/l							
gamma-BHC (Lindane)	ND	0.10	0.020	ug/l							
Chlordane	ND	1.0	0.20	ug/l							
4,4'-DDD	ND	0.10	0.020	ug/l							
4,4'-DDE	ND	0.10	0.025	ug/l							
4,4'-DDT	ND	0.10	0.030	ug/l							
Dieldrin	ND	0.10	0.015	ug/l							
Endosulfan I	ND	0.10	0.015	ug/l							
Endosulfan II	ND	0.10	0.040	ug/l							
Endosulfan sulfate	ND	0.20	0.015	ug/l							
Endrin	ND	0.10	0.020	ug/l							
Endrin aldehyde	ND	0.10	0.045	ug/l							
Endrin ketone	ND	0.10	0.020	ug/l							
Heptachlor	ND	0.10	0.030	ug/l							
Heptachlor epoxide	ND	0.10	0.020	ug/l							
Methoxychlor	ND	0.10	0.035	ug/l							
Toxaphene	ND	5.0	1.5	ug/l							
Surrogate: Tetrachloro-m-xylene	0.350			ug/l	0.500		70	35-115			
Surrogate: Decachlorobiphenyl	0.383			ug/l	0.500		77	45-120			

M-NR1

LCS Analyzed: 03/29/2005 (5C28048-BS1)

Aldrin	0.347	0.10	0.030	ug/l	0.500		69	40-115			
alpha-BHC	0.372	0.10	0.015	ug/l	0.500		74	45-115			
beta-BHC	0.377	0.10	0.015	ug/l	0.500		75	50-115			
delta-BHC	0.382	0.20	0.020	ug/l	0.500		76	55-120			
gamma-BHC (Lindane)	0.373	0.10	0.020	ug/l	0.500		75	45-115			
4,4'-DDD	0.420	0.10	0.020	ug/l	0.500		84	60-120			
4,4'-DDE	0.417	0.10	0.025	ug/l	0.500		83	55-120			
4,4'-DDT	0.437	0.10	0.030	ug/l	0.500		87	60-120			
Dieldrin	0.405	0.10	0.015	ug/l	0.500		81	55-120			
Endosulfan I	0.388	0.10	0.015	ug/l	0.500		78	50-115			
Endosulfan II	0.396	0.10	0.040	ug/l	0.500		79	60-125			
Endosulfan sulfate	0.396	0.20	0.015	ug/l	0.500		79	60-120			

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C28048 Extracted: 03/28/05											
LCS Analyzed: 03/29/2005 (5C28048-BS1)											
Endrin	0.420	0.10	0.020	ug/l	0.500		84	55-125			M-NR1
Endrin aldehyde	0.382	0.10	0.045	ug/l	0.500		76	55-115			
Endrin ketone	0.402	0.10	0.020	ug/l	0.500		80	60-115			
Heptachlor	0.371	0.10	0.030	ug/l	0.500		74	45-115			
Heptachlor epoxide	0.388	0.10	0.020	ug/l	0.500		78	50-115			
Methoxychlor	0.399	0.10	0.035	ug/l	0.500		80	60-120			
Surrogate: Tetrachloro-m-xylene	0.337			ug/l	0.500		67	35-115			
Surrogate: Decachlorobiphenyl	0.372			ug/l	0.500		74	45-120			
LCS Dup Analyzed: 03/29/2005 (5C28048-BS1)											
Aldrin	0.291	0.10	0.030	ug/l	0.500		58	40-115	18	30	
alpha-BHC	0.322	0.10	0.015	ug/l	0.500		64	45-115	14	30	
beta-BHC	0.345	0.10	0.015	ug/l	0.500		69	50-115	9	30	
delta-BHC	0.352	0.20	0.020	ug/l	0.500		70	55-120	8	30	
gamma-BHC (Lindane)	0.328	0.10	0.020	ug/l	0.500		66	45-115	13	30	
4,4'-DDD	0.397	0.10	0.020	ug/l	0.500		79	60-120	6	30	
4,4'-DDE	0.378	0.10	0.025	ug/l	0.500		76	55-120	10	30	
4,4'-DDT	0.531	0.10	0.030	ug/l	0.500		106	60-120	19	30	
Dieldrin	0.368	0.10	0.015	ug/l	0.500		74	55-120	10	30	
Endosulfan I	0.351	0.10	0.015	ug/l	0.500		70	50-115	10	30	
Endosulfan II	0.368	0.10	0.040	ug/l	0.500		74	60-125	7	30	
Endosulfan sulfate	0.373	0.20	0.015	ug/l	0.500		75	60-120	6	30	
Endrin	0.383	0.10	0.020	ug/l	0.500		77	55-125	9	30	
Endrin aldehyde	0.369	0.10	0.045	ug/l	0.500		74	55-115	3	30	
Endrin ketone	0.377	0.10	0.020	ug/l	0.500		75	60-115	6	30	
Heptachlor	0.320	0.10	0.030	ug/l	0.500		64	45-115	15	30	
Heptachlor epoxide	0.349	0.10	0.020	ug/l	0.500		70	50-115	11	30	
Methoxychlor	0.375	0.10	0.035	ug/l	0.500		75	60-120	6	30	
Surrogate: Tetrachloro-m-xylene	0.289			ug/l	0.500		58	35-115			
Surrogate: Decachlorobiphenyl	0.344			ug/l	0.500		69	45-120			

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Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD RPD	Limit	Data Qualifiers
Batch: 5C28048 Extracted: 03/28/05											
Blank Analyzed: 03/29/2005-03/30/2005 (5C28048-BLK1)											
Aroclor 1016	ND	1.0	0.20	ug/l							
Aroclor 1221	ND	1.0	0.10	ug/l							
Aroclor 1232	ND	1.0	0.15	ug/l							
Aroclor 1242	ND	1.0	0.15	ug/l							
Aroclor 1248	ND	1.0	0.25	ug/l							
Aroclor 1254	ND	1.0	0.25	ug/l							
Aroclor 1260	ND	1.0	0.40	ug/l							
Surrogate: Decachlorobiphenyl	0.407			ug/l	0.500		81	45-120			
LCS Analyzed: 03/31/2005 (5C28048-BS2)											
Aroclor 1016	6.06	2.0	0.40	ug/l	8.00		76	50-115			M-NR1
Aroclor 1260	5.96	2.0	0.80	ug/l	8.00		74	55-115			
Surrogate: Decachlorobiphenyl	0.769			ug/l	1.00		77	45-120			
LCS Dup Analyzed: 03/30/2005 (5C28048-BSD2)											
Aroclor 1016	3.08	1.0	0.20	ug/l	4.00		77	50-115	65	30	R-7
Aroclor 1260	3.30	1.0	0.40	ug/l	4.00		82	55-115	57	25	R-7
Surrogate: Decachlorobiphenyl	0.431			ug/l	0.500		86	45-120			

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD RPD	Limit	Data Qualifiers
Batch: 5C25111 Extracted: 03/25/05											
Blank Analyzed: 03/26/2005 (5C25111-BLK1)											
Boron	ND	0.050	0.0074	mg/l							
LCS Analyzed: 03/26/2005 (5C25111-BS1)											
Boron	0.450	0.050	0.0074	mg/l	0.500		90	85-115			
Matrix Spike Analyzed: 03/26/2005 (5C25111-MS1)											
						Source: IOC1861-01					
Boron	0.612	0.050	0.0074	mg/l	0.500	0.13	96	70-130			
Matrix Spike Dup Analyzed: 03/26/2005 (5C25111-MSD1)											
						Source: IOC1861-01					
Boron	0.642	0.050	0.0074	mg/l	0.500	0.13	102	70-130	5	20	
Batch: 5C25116 Extracted: 03/25/05											
Blank Analyzed: 03/28/2005 (5C25116-BLK1)											
Antimony	ND	2.0	0.18	ug/l							
Arsenic	ND	1.0	0.49	ug/l							
Barium	ND	0.0010	0.00014	mg/l							
Beryllium	ND	0.50	0.037	ug/l							
Cadmium	ND	1.0	0.015	ug/l							
Chromium	0.507	2.0	0.26	ug/l							
Cobalt	ND	1.0	0.10	ug/l							J
Copper	ND	2.0	0.49	ug/l							
Iron	0.00735	0.010	0.0032	mg/l							J
Lead	ND	1.0	0.13	ug/l							
Manganese	ND	1.0	0.44	ug/l							
Nickel	ND	2.0	0.15	ug/l							
Selenium	ND	2.0	0.36	ug/l							
Silver	ND	1.0	0.089	ug/l							
Thallium	ND	1.0	0.075	ug/l							
Vanadium	ND	2.0	0.86	ug/l							
Zinc	ND	20	3.1	ug/l							

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METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C25116 Extracted: 03/25/05										
LCS Analyzed: 03/28/2005 (5C25116-BS1)										
Antimony	80.9	2.0	0.18	ug/l	80.0		101		85-115	
Arsenic	84.0	1.0	0.49	ug/l	80.0		105		85-115	
Barium	0.0810	0.0010	0.00014	mg/l	0.0800		101		85-115	
Beryllium	82.8	0.50	0.037	ug/l	80.0		104		85-115	
Cadmium	78.6	1.0	0.015	ug/l	80.0		98		85-115	
Chromium	79.4	2.0	0.26	ug/l	80.0		99		85-115	
Cobalt	78.3	1.0	0.10	ug/l	80.0		98		85-115	
Copper	75.2	2.0	0.49	ug/l	80.0		94		85-115	
Iron	0.796	0.010	0.0032	mg/l	0.800		100		85-115	
Lead	88.6	1.0	0.13	ug/l	80.0		111		85-115	
Manganese	80.3	1.0	0.44	ug/l	80.0		100		85-115	
Nickel	78.1	2.0	0.15	ug/l	80.0		98		85-115	
Selenium	80.6	2.0	0.36	ug/l	80.0		101		85-115	
Silver	87.8	1.0	0.089	ug/l	80.0		110		85-115	
Thallium	79.3	1.0	0.075	ug/l	80.0		99		85-115	
Vanadium	79.1	2.0	0.86	ug/l	80.0		99		85-115	
Zinc	75.9	20	3.1	ug/l	80.0		95		85-115	

Matrix Spike Analyzed: 03/28/2005 (5C25116-MS1)

Source: IOC2062-01

Antimony	83.2	2.0	0.18	ug/l	80.0	0.29	104		70-130	
Arsenic	85.1	1.0	0.49	ug/l	80.0	1.2	105		70-130	
Barium	0.121	0.0010	0.00014	mg/l	0.0800	0.036	106		70-130	
Beryllium	85.1	0.50	0.037	ug/l	80.0	ND	106		70-130	
Cadmium	79.5	1.0	0.015	ug/l	80.0	0.072	99		70-130	
Chromium	81.2	2.0	0.26	ug/l	80.0	2.2	99		70-130	
Cobalt	79.4	1.0	0.10	ug/l	80.0	0.58	99		70-130	
Copper	77.2	2.0	0.49	ug/l	80.0	3.0	93		70-130	
Iron	1.44	0.010	0.0032	mg/l	0.800	0.67	96		70-130	
Lead	86.8	1.0	0.13	ug/l	80.0	0.55	108		70-130	
Manganese	208	1.0	0.44	ug/l	80.0	100	135		70-130	
Nickel	79.1	2.0	0.15	ug/l	80.0	2.8	95		70-130	MI
Selenium	80.4	2.0	0.36	ug/l	80.0	ND	100		70-130	
Silver	85.1	1.0	0.089	ug/l	80.0	0.10	106		70-130	
Thallium	81.9	1.0	0.075	ug/l	80.0	0.15	102		70-130	
Vanadium	81.3	2.0	0.86	ug/l	80.0	1.5	100		70-130	
Zinc	84.8	20	3.1	ug/l	80.0	14	88		70-130	

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 Outfall 011
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 Received: 03/25/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C25116 Extracted: 03/25/05											
Matrix Spike Dup Analyzed: 03/28/2005 (5C25116-MSD1)						Source: IOC2062-01					
Antimony	81.5	2.0	0.18	ug/l	80.0	0.29	102	70-130	2	20	
Arsenic	84.9	1.0	0.49	ug/l	80.0	1.2	105	70-130	0	20	
Barium	0.119	0.0010	0.00014	mg/l	0.0800	0.036	104	70-130	2	20	
Beryllium	81.9	0.50	0.037	ug/l	80.0	ND	102	70-130	4	20	
Cadmium	78.0	1.0	0.015	ug/l	80.0	0.072	97	70-130	2	20	
Chromium	79.8	2.0	0.26	ug/l	80.0	2.2	97	70-130	2	20	
Cobalt	78.3	1.0	0.10	ug/l	80.0	0.58	97	70-130	1	20	
Copper	75.6	2.0	0.49	ug/l	80.0	3.0	91	70-130	2	20	
Iron	1.40	0.010	0.0032	mg/l	0.800	0.67	91	70-130	3	20	
Lead	87.0	1.0	0.13	ug/l	80.0	0.55	108	70-130	0	20	
Manganese	203	1.0	0.44	ug/l	80.0	100	129	70-130	2	20	
Nickel	78.1	2.0	0.15	ug/l	80.0	2.8	94	70-130	1	20	
Selenium	79.7	2.0	0.36	ug/l	80.0	ND	100	70-130	1	20	
Silver	85.1	1.0	0.089	ug/l	80.0	0.10	106	70-130	0	20	
Thallium	80.9	1.0	0.075	ug/l	80.0	0.15	101	70-130	1	20	
Vanadium	81.2	2.0	0.86	ug/l	80.0	1.5	100	70-130	0	20	
Zinc	83.4	20	3.1	ug/l	80.0	14	87	70-130	2	20	

Batch: 5C26033 Extracted: 03/26/05

Blank Analyzed: 03/26/2005 (5C26033-BLK1)

Mercury	ND	0.20	0.063	ug/l
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LCS Analyzed: 03/26/2005 (5C26033-BS1)

Mercury	8.12	0.20	0.063	ug/l	8.00	102	85-115
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Matrix Spike Analyzed: 03/26/2005 (5C26033-MS1)

Mercury	7.56	0.20	0.063	ug/l	8.00	ND	94	70-130
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MWH-Pasadena/Boeing
 300 North Lake Avenue, Suite 1200
 Pasadena, CA 91101
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C26033 Extracted: 03/26/05											
Matrix Spike Dup Analyzed: 03/26/2005 (5C26033-MSD1)											
Source: IOC2062-01											
Mercury	7.61	0.20	0.063	ug/l	8.00	ND	95	70-130	1	20	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C25048 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25048-BLK1)											
Chloride	ND	0.50	0.26	mg/l							
Fluoride	ND	0.50	0.10	mg/l							
Nitrate/Nitrite-N	ND	0.11	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
LCS Analyzed: 03/25/2005 (5C25048-BS1)											
Chloride	4.97	0.50	0.26	mg/l	5.00		99	90-110			M-3
Fluoride	4.81	0.50	0.10	mg/l	5.00		96	90-110			
Sulfate	10.3	0.50	0.18	mg/l	10.0		103	90-110			M-3
Matrix Spike Analyzed: 03/25/2005 (5C25048-MS1)											
						Source: IOC2038-01					
Fluoride	5.70	0.50	0.10	mg/l	5.00	0.88	96	80-120			
Matrix Spike Dup Analyzed: 03/25/2005 (5C25048-MSD1)											
						Source: IOC2038-01					
Fluoride	5.70	0.50	0.10	mg/l	5.00	0.88	96	80-120	0	20	
Batch: 5C25058 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25058-BLK1)											
Chromium VI	ND	1.0	0.10	ug/l							
LCS Analyzed: 03/25/2005 (5C25058-BS1)											
Chromium VI	52.4	1.0	0.10	ug/l	50.0		105	90-110			
Matrix Spike Analyzed: 03/25/2005 (5C25058-MS1)											
						Source: IOC2023-03					
Chromium VI	45.3	1.0	0.10	ug/l	50.0	ND	91	90-110			

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C25058 Extracted: 03/25/05											
Matrix Spike Dup Analyzed: 03/25/2005 (5C25058-MSD1)						Source: IOC2023-03					
Chromium VI	44.3	1.0	0.10	ug/l	50.0	ND	89	90-110	2	10	M2
Batch: 5C25061 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25061-BLK1)											
Perchlorate	ND	4.0	0.80	ug/l							
LCS Analyzed: 03/25/2005 (5C25061-BS1)											
Perchlorate	48.8	4.0	0.80	ug/l	50.0		98	85-115			
Matrix Spike Analyzed: 03/25/2005 (5C25061-MS1)						Source: IOC2024-01					
Perchlorate	49.6	4.0	0.80	ug/l	50.0	1.2	97	80-120			
Matrix Spike Dup Analyzed: 03/25/2005 (5C25061-MSD1)						Source: IOC2024-01					
Perchlorate	49.9	4.0	0.80	ug/l	50.0	1.2	97	80-120	1	20	
Batch: 5C25093 Extracted: 03/25/05											
Blank Analyzed: 03/30/2005 (5C25093-BLK1)											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
LCS Analyzed: 03/30/2005 (5C25093-BS1)											
Biochemical Oxygen Demand	208	100	30	mg/l	198		105	85-115			
LCS Dup Analyzed: 03/30/2005 (5C25093-BSD1)											
Biochemical Oxygen Demand	208	100	30	mg/l	198		105	85-115	0	20	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C25096 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25096-BLK1)											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
LCS Analyzed: 03/25/2005 (5C25096-BS1)											
Surfactants (MBAS)	0.266	0.10	0.044	mg/l	0.250		106	90-110			
Matrix Spike Analyzed: 03/25/2005 (5C25096-MS1)											
						Source: IOC1920-01					
Surfactants (MBAS)	0.245	0.10	0.044	mg/l	0.250	ND	98	50-125			
Matrix Spike Dup Analyzed: 03/25/2005 (5C25096-MSD1)											
						Source: IOC1920-01					
Surfactants (MBAS)	0.260	0.10	0.044	mg/l	0.250	ND	104	50-125	6	20	
Batch: 5C25117 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25117-BLK1)											
Total Suspended Solids	ND	10	10	mg/l							
LCS Analyzed: 03/25/2005 (5C25117-BS1)											
Total Suspended Solids	949	10	10	mg/l	1000		95	85-115			
Duplicate Analyzed: 03/25/2005 (5C25117-DUP1)											
						Source: IOC2063-01					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
Batch: 5C25118 Extracted: 03/25/05											
Duplicate Analyzed: 03/25/2005 (5C25118-DUP1)											
						Source: IOC2063-01					
Residual Chlorine	ND	0.10	0.10	mg/l		ND				20	

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 5C25119 Extracted: 03/25/05											
Blank Analyzed: 03/25/2005 (5C25119-BLK1)											
Total Cyanide	ND	5.0	2.2	ug/l							
LCS Analyzed: 03/25/2005 (5C25119-BS1)											
Total Cyanide	194	5.0	2.2	ug/l	200		97	90-110			
Matrix Spike Analyzed: 03/25/2005 (5C25119-MS1)											
Total Cyanide	191	5.0	2.2	ug/l	200	ND	96	70-115			
Matrix Spike Dup Analyzed: 03/25/2005 (5C25119-MSD1)											
Total Cyanide	195	5.0	2.2	ug/l	200	ND	98	70-115	2	15	
Batch: 5C26056 Extracted: 03/26/05											
Blank Analyzed: 03/26/2005 (5C26056-BLK1)											
Turbidity	0.0500	1.0	0.040	NTU							
Duplicate Analyzed: 03/26/2005 (5C26056-DUP1)											
Turbidity	11.9	1.0	0.040	NTU					1	20	
Batch: 5C28067 Extracted: 03/28/05											
Blank Analyzed: 03/28/2005 (5C28067-BLK1)											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
LCS Analyzed: 03/28/2005 (5C28067-BS1)											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0		98	80-115			

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 Report Number: IOC2064

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C28067 Extracted: 03/28/05											
Matrix Spike Analyzed: 03/28/2005 (5C28067-MS1)											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0	ND	98	70-120			
Source: IOC2120-01											
Matrix Spike Dup Analyzed: 03/28/2005 (5C28067-MSD1)											
Ammonia-N (Distilled)	8.96	0.50	0.30	mg/l	10.0	ND	90	70-120	9	15	
Source: IOC2120-01											
Batch: 5C28069 Extracted: 03/28/05											
Blank Analyzed: 03/28/2005 (5C28069-BLK1)											
Oil & Grease	ND	5.0	0.94	mg/l							
LCS Analyzed: 03/28/2005 (5C28069-BS1)											
Oil & Grease	19.7	5.0	0.94	mg/l	20.0		98	65-120			M-NRI
LCS Dup Analyzed: 03/28/2005 (5C28069-BSD1)											
Oil & Grease	19.1	5.0	0.94	mg/l	20.0		96	65-120	3	20	
Batch: 5C28077 Extracted: 03/28/05											
Blank Analyzed: 03/28/2005 (5C28077-BLK1)											
Total Organic Carbon	ND	1.0	0.25	mg/l							
LCS Analyzed: 03/28/2005 (5C28077-BS1)											
Total Organic Carbon	10.6	1.0	0.25	mg/l	10.0		106	90-110			
Matrix Spike Analyzed: 03/28/2005 (5C28077-MS1)											
Total Organic Carbon	10.0	1.0	0.25	mg/l	5.00	4.8	104	80-120			
Source: IOC2045-02											

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5C28077 Extracted: 03/28/05											
Matrix Spike Dup Analyzed: 03/28/2005 (5C28077-MSD1)											
Total Organic Carbon	10.1	1.0	0.25	mg/l	5.00	4.8	106	80-120	1	20	
Source: IOC2045-02											
Batch: 5C28078 Extracted: 03/28/05											
Blank Analyzed: 03/28/2005 (5C28078-BLK1)											
Total Dissolved Solids	ND	10	10	mg/l							
LCS Analyzed: 03/28/2005 (5C28078-BS1)											
Total Dissolved Solids	956	10	10	mg/l	1000		96	90-110			
Duplicate Analyzed: 03/28/2005 (5C28078-DUP1)											
Total Dissolved Solids	288	10	10	mg/l		280			3	10	
Source: IOC1740-01											
Batch: 5C28081 Extracted: 03/28/05											
Duplicate Analyzed: 03/28/2005 (5C28081-DUP1)											
Specific Conductance	507	1.0	1.0	umhos/cm		500			1	5	
Source: IOC1740-01											

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METHOD BLANK/QC DATA

1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
Batch: P5D0112 Extracted: 04/01/05											
Blank Analyzed: 04/01/2005 (P5D0112-BLK1)											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.18			ug/l	1.00		118	80-125			
LCS Analyzed: 04/01/2005 (P5D0112-BS1)											
1,4-Dioxane	9.20	1.0	0.49	ug/l	10.0		92	70-130			
Surrogate: Dibromofluoromethane	1.16			ug/l	1.00		116	80-125			
LCS Dup Analyzed: 04/01/2005 (P5D0112-BSD1)											
1,4-Dioxane	9.55	1.0	0.49	ug/l	10.0		96	70-130	4	20	
Surrogate: Dibromofluoromethane	1.17			ug/l	1.00		117	80-125			
Matrix Spike Analyzed: 04/01/2005 (P5D0112-MS1)											
						Source: POC0730-06					
1,4-Dioxane	12.6	1.0	0.49	ug/l	10.0	3.4	92	70-150			
Surrogate: Dibromofluoromethane	1.22			ug/l	1.00		122	80-125			
Matrix Spike Dup Analyzed: 04/01/2005 (P5D0112-MSD1)											
						Source: POC0730-06					
1,4-Dioxane	12.9	1.0	0.49	ug/l	10.0	3.4	95	70-150	2	25	
Surrogate: Dibromofluoromethane	1.18			ug/l	1.00		118	80-125			

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DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- 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 unknown quality.
- L2** Laboratory Control Sample recovery was below method control limits.
- M1** The MS and/or MSD were above the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M2** The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M-3** Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was accepted based on acceptable recovery in the Blank Spike (LCS).
- M-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- N-1** See case narrative.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- ZX** Due to sample matrix effects, the surrogate recovery was outside the acceptance limits.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

ADDITIONAL COMMENTS

For TICs:

All identifications are tentative and concentrations are estimates based upon spectral comparison to the EPA/NIH library.

For 1,2-Diphenylhydrazine:

The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product, Azobenzene.

For GRO (C4-C12):

GRO (C4-C12) is quantitated against a gasoline standard. Quantitation begins immediately following the methanol peak.

For Extractable Fuel Hydrocarbons (EFH, DRO, ORO) :

Unless otherwise noted, Extractable Fuel Hydrocarbons (EFH, DRO, ORO) are quantitated against a Diesel Fuel Standard.



Del Mar Analytical

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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: 13267 (Study 1)
 Outfall 011
 Report Number: IOC2064

Sampled: 03/25/05
 Received: 03/25/05

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 200.7	Water	X	X
EPA 200.8	Water	X	X
EPA 218.6	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 314.0	Water	X	X
EPA 330.5	Water	X	X
EPA 335.2	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 413.1	Water	X	X
EPA 415.1	Water	X	X
EPA 418.1	Water	X	X
EPA 608	Water	X	X
EPA 624 (MOD.)	Water	X	X
EPA 624	Water	X	X
EPA 625	Water	X	X
EPA 8015 Mod.	Water	X	X
EPA 8015B	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

1104 Windfield Way - El Dorado Hills, CA 95762

Analysis Performed: 1613-Dioxin-HR

Samples: IOC2064-01

Analysis Performed: EDD + Level 4

Samples: IOC2064-01

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrmic

Samples: IOC2064-01

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.



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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

Project ID: 13267 (Study 1)
Outfall 011
Report Number: IOC2064

Sampled: 03/25/05
Received: 03/25/05

Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-Acute 96hr
Samples: IOC2064-01

Del Mar Analytical - Phoenix NELAC Cert #01109CA, California Cert #2446

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B
Samples: IOC2064-01

Eberline Services - SUB

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4
Samples: IOC2064-01

Analysis Performed: Gross Alpha
Samples: IOC2064-01

Analysis Performed: Gross Beta
Samples: IOC2064-01

Analysis Performed: Radium, Combined
Samples: IOC2064-01

Analysis Performed: Strontium 90
Samples: IOC2064-01

Analysis Performed: Tritium
Samples: IOC2064-01

Truesdail Laboratories-SUB California Cert #1237

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Hydrazine
Samples: IOC2064-01

Analysis Performed: Level 4 Data Package
Samples: IOC2064-01

Del Mar Analytical, Irvine
Michele Harper
Project Manager

IO(2064

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 02/23/05

Client Name/Address:		Project:		ANALYSIS REQUIRED										Field readings:										
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Outfall 011 - 13267 Perimeter Pond		Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Total Recoverable Metals: B, Cu, Pb, Ba, Fe, Mn, Sb, As, Be, Cd, Ni, Se, Ag, Tl, Zn, Co, V, Cr, Hg	Settleable Solids	VOCs 624 + xylenes + Freon 113 + Freon 123 A + PP list	TCDD (and all congeners)	Oil & Grease (EPA 413.1)	Cyanide (total recoverable)	BOD5(20 degrees C)	Surfactants (MBAS)	CF, SO4, NO3+NO2-N, Perchlorate, Fluoride	Turbidity, TDS, TSS, Conductivity	Ammonia-N, Ttr (350.2) w/dist	Alpha BHC (608) + PP list + 608 PCBs	2,4,6 Trichlorophenol, 2,4 Dinitrofluorene, Bk(2- ethylhexyl)phthalate, NDMA, pentachlorophenol (EPA 825) + PP list	Temp = 59.7 pH = 6.7	
Outfall 011	W	1G Poly	2	3/25/05 12:00	None				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gas) = 374200 Flow (gpm) = 111	
Outfall 011	W	1G Poly	2	3/25/05 12:20	None				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gas) = 3746300 Flow (gpm) = 103	
Outfall 011	W	1G Poly	2	3/25/05 12:40	None				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gas) = 3798400 Flow (gpm) = 96	
Outfall 011	W	1G Poly	2	3/25/05 1:00	None				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gas) = 3790700 Flow (gpm) = 103	
Outfall 011	W	1G Poly	2	3/25/05 1:20	None				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gas) = 3753100 Flow (gpm) = 134	
Outfall 011	W	1G Poly	2	3/25/05 1:40	None				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gas) = 3755500 Flow (gpm) = 110	
Outfall 011	W	1G Poly	2	3/25/05 2:00	None				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gas) = 3757600 Flow (gpm) = 93	
Outfall 011	W	1G Poly	2	3/25/05 2:20	None				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gas) = 3713000 Flow (gpm) = 103	
Outfall 011	W	1G Poly	2	3/25/05 2:40	None				X	X	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gas) = 3761500 Flow (gpm) = 102	
Trip Blank	W	VOAs	3		HCL																			
TRIP	W	VOAs	3		NONE																			
Relinquished By	Date/Time:		Received By		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Date/Time:		Turn around Time: (check) 24 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 48 Hours <input checked="" type="checkbox"/> 10 Days <input type="checkbox"/> 72 Hours <input type="checkbox"/> Normal <input type="checkbox"/> Perchlorate Only 72 Hours <input type="checkbox"/> Metals Only 72 Hours <input type="checkbox"/>	
Relinquished By	3/25/05 19:25		Judy Lopez		3-25-05 15:20																			
Relinquished By	3-25-05 18:30		Judy Lopez		3-25-05 18:30																			

Note: Composite by flow weighted averages and analyze according to 13267 Sampling protocol.

Client Name/Address: MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Project: Boeing-SSFL NPDES Outfall 011 - 13267 Perimeter Pond		ANALYSIS REQUIRED										Comments **Required analysis continued from Page 1 of 2
Project Manager: Bronwyn Kelly		Flow-weight Composite Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		Residual Chlorine	TOC, 1, 4 Dioxane	Chromium VI (218.6)	Total Rec. Petroleum Hydrocarbons (EPA 418.1)	Diesel	8015 (GRO)	Monomethylhydrazine	624-Mod A+A+2CVE	Acute and Chronic toxicity- bioassays	Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Total Combined Radium 226 & Radium 228, Tritium	
Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Sampling Date/Time									
Outfall 011	W	1G Poly	-	None	3/25/05 12:00	X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-	None		X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-	None		X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-	None		X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-	None		X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-	None		X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-	None		X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-	None		X	X	X	X	X	X	X	X	
Outfall 011	W	1G Poly	-	None		X	X	X	X	X	X	X	X	
Trip Blank	W	VOAs	3	HCL					X					
Relinquished By Linda Hays				Date/Time: 3/25/05 15:15		Received By Gurbal				Date/Time: 3-25-05 1520		Turn around Time: (check) 24 Hours _____ 48 Hours _____ 72 Hours _____ Perchlorate Only 72 Hours _____ Metals Only 72 Hours _____		
Relinquished By Aaylmer				Date/Time: 3-25-05 18:30		Received By [Signature]				Date/Time: 3/25/05 18:30		Sample Integrity: (Check) Intact _____ On Ice: _____		
Relinquished By				Date/Time:		Received By				Date/Time:				

* ANALYZE FOR TOTAL COMBINED RA-226 & 228 ONLY IF GROSS ALPHA > 15pCi/L



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

April 7, 2005

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

Attention: Bronwyn Kelly
 Project: 13267 (Study 1)/Outfall 011
 Sampled: 03/25/05
 Del Mar Analytical Number: IOC2064

Dear Ms. Kelly:

Aquatic Testing Laboratories performed Fathead Minnow 96 hr Percent Survival Bioassay (EPA Method 2000.0), *Ceriodaphnia dubia* Survival and Reproduction Test (EPA Method 1002), Truesdail Laboratories tested Hydrazines by EPA 8315 M, Alta Analytical performed EPA Method 1613 by Dioxin and Eberline Services performed Gross Alpha/Gross Beta (EPA 900.0), Tritium (H-3, EPA 906.0), Strontium-90 (Sr-90, EPA 905.0), Radium 226 (EPA 903.1), and Radium 228 (904.0) for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ATL ID	TRUESDAIL ID	ALTA ID	EBERLINE ID
Outfall 011 Composite	IOC2064-01	A-05032602-001/002	941101-1	25968-001	PENDING

Attached are the original reports from the subcontract laboratories. If you have any questions or require further assistance, please do not hesitate to contact me.

Sincerely yours,
 DEL MAR ANALYTICAL

Michele Harper
 Project Manager

LABORATORY REPORT

**Aquatic
Testing
Laboratories**



"dedicated to providing quality aquatic toxicity testing"

Date: April 2, 2005
Client: Del Mar Analytical, Irvine
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attn: Michele Harper

4350 Transport Street, Unit 107
Ventura, CA 93003
(805) 650-0546 FAX (805) 650-0756
CA DOHS ELAP Cert. No.: 1775

Laboratory No.: A-05032602-001/002
Sample I.D.: IOC2064-01

Sample Control: The sample was received by ATL chilled, with the chain of custody record attached.

Date Sampled: 03/25/05
Date Received: 03/26/05
Date Tested: 03/26/05 to 04/01/05

Sample Analysis: The following analyses were performed on your sample:

Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0),
Ceriodaphnia dubia Survival and Reproduction Test (EPA Method 1002).

Attached are the test data generated from the analysis of your sample.

Result Summary:

Acute:	<u>Survival</u>	<u>TUa</u>
Fathead Minnow:	100%	0.0
Chronic:	<u>NOEC</u>	<u>TUc</u>
<i>Ceriodaphnia</i> Survival:	100%	1.0
<i>Ceriodaphnia</i> Reproduction:	100%	1.0

Quality Control: Reviewed and approved by:

Joseph A. LeMay
Laboratory Director

FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05032602-001

Client/ID: Del Mar - IOC2064-01

Start Date: 03/26/2005

TEST SUMMARY

Species: *Pimephales promelas*.

Age: 8 (1-14) days.

Regulations: NPDES.

Test solution volume: 250 ml.

Feeding: prior to renewal at 48 hrs.

Number of replicates: 2.

Dilution water: Moderately hard reconstituted water.

Photoperiod: 16/8 hrs light/dark.

Source: In-laboratory Culture.

Test type: Static-Renewal.

Test Protocol: EPA-821-R-02-012.

Endpoints: Percent Survival at 96 hrs.

Test chamber: 600 ml beakers.

Temperature: 20 +/- 1°C.

Number of fish per chamber: 10.

QA/QC Batch No.: RT-050303.

TEST DATA

		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	20.0	9.1	8.1	0	0	JW 1000
	100%	19.4	10.1	7.7	0	0	
24 Hr	Control	19.4	7.2	7.9	0	0	JW 1000
	100%	19.4	7.4	7.9	0	0	
48 Hr	Control	19.8	6.0	7.7	0	0	JW 1000
	100%	19.7	7.0	7.9	0	0	
Renewal	Control	20.1	8.4	7.7	0	0	JW 1000
	100%	20.0	9.3	7.7	0	0	
72 Hr	Control	19.6	7.0	7.8	0	0	JW 1030
	100%	19.7	8.5	8.0	0	0	
96 Hr	Control	19.8	7.4	7.8	0	0	JW 1030
	100%	19.9	7.9	7.9	0	0	

Comments:

Sample as received: Chlorine: 0 mg/l; pH: 7.7; Conductivity: 200 umho; Temp: 4°C;

DO: 10.1 mg/l; Alkalinity: 67 mg/l; Hardness: 85 mg/l; NH₃-N: 0.4 mg/l.

Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes / No

Control: Alkalinity: 57 mg/l; Hardness: 95 mg/l; Conductivity: 300 umho.

Test solution aerated (not to exceed 100 bubbles/min) to maintain DO > 4.0 mg/l? Yes / No.

Sample used for renewal is the original sample kept at 0-6°C with minimal headspace.

RESULTS

Percent Survival In: Control: 100 % 100% Sample: 100 %

**CERIODAPHNIA CHRONIC BIOASSAY
EPA METHOD 1002.0**



Lab No.: A-05032602
Client/ID: Del Mar IOC2064-01

Date Tested: 03/26/05 to 04/01/05

TEST SUMMARY

Test type: Daily static-renewal.
Species: *Ceriodaphnia dubia*.
Age: < 24 hrs; all released within 8 hrs.
Test vessel size: 30 ml.
Number of test organisms per vessel: 1.
Temperature: 25 +/- 1°C.
Dilution water: Mod. hard reconstituted (MHRW).
QA/QC Batch No.: RT-050326.

Endpoints: Survival and Reproduction.
Source: In-laboratory culture.
Food: .1 ml YTC, algae per day.
Test solution volume: 15 ml.
Number of replicates: 10.
Photoperiod: 16/8 hrs. light/dark cycle.
Test duration: 7 days.
Statistics: ToxCalc computer program.

RESULTS SUMMARY

Sample Concentration	Percent Survival	Mean Number of Young Per Female
Control	100%	30.8
6.25%	100%	33.7
12.5%	100%	33.8
25%	100%	33.3
50%	100%	35.1
100%	100%	33.2

* Statistically significantly less than control at P = 0.05 level.
** Reproduction data from concentrations greater than survival NOEC are excluded from statistical analysis.

CHRONIC TOXICITY

Parameter	Survival	Growth
NOEC	100%	100%
TUc	1.0	1.0

QA/QC TEST ACCEPTABILITY

Parameter	Result
Control survival ≥80%	Pass (100% survival)
≥ 15 young per surviving control female average	Pass (30.8 young)
≥60% surviving controls had 3 broods	Pass (100% with 3 broods)
PMSD < 47% for reproduction; if > 47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 10.9%)
Statistically significantly different concentrations relative difference > 13%	NA - No stat. sig. diff. concentrations
Concentration response relationship acceptable	Pass (slight inverse response at conc. tested)



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

SUBCONTRACT ORDER - PROJECT # IOC2064

SENDING LABORATORY:	RECEIVING 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	Aquatic Testing Laboratories-SUB 4350 Transport Street, Unit 107 Ventura, CA 93003 Phone : (805) 650-0546 Fax: (805) 650-0756

Standard TAT is requested unless specific due date is requested => Due Date: 5 day Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC2064-01 Water	Sampled: 03/25/05 14:40	Instant Notification
Bioassay-7 dy Chrn	03/27/05 02:40	ceriodaphnia, 13267
Bioassay-Acute 96hr	03/27/05 02:40	fathead minnow, 13267
Containers Supplied:		
1 gal Poly (IOC2064-01AR)		
1 gal Poly (IOC2064-01AS)		

SAMPLE INTEGRITY:					
All containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sample labels/COC agree:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received On Ice::	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Custody Seals Present:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Samples Preserved Properly:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (temp):	<u>4°C</u>

Released By		Date	Time	Received By	Date	Time
					3-26-05	5:00 PM
Released By		Date	Time	Received By	Date	Time
		3-26-05	742		3-26-05	02:42

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

March 31, 2005

Client: Del Mar Analytical
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attention: Michele Harper

Project Name: IOC2064
Date Received: 03/28/05

Truesdail Project: 941101

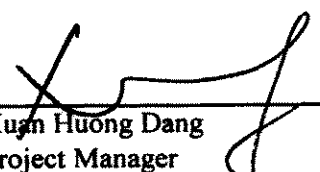
Samples Cross-reference

<u>Truesdail ID</u>	<u>Client ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Time Sampled</u>	<u>Analysis Requested</u>
941101-1	IOC2064-01	Water	03/25/05	1440	Hydrazines by EPA 8315M

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.



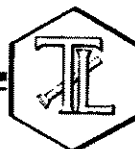
K.R.P. Iyer
Quality Control/Quality Assurance Officer



Xuan Huong Dang
Project Manager

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

March 31, 2005

Client: Del Mar Analytical
17461 Derian Avenue, Suite 100
Irvine, CA 92614
Attention: Michele Harper

Project Name: IOC2064
Date Received: 03/28/05

Truesdail Project: 941101

Case Narrative

Sample Receipt The sample was received in good condition and no anomalies were noted during check-in. The sample was kept in a locked refrigerator until analysis. Thereafter, it is being kept in ambient storage for an additional 2 months before disposal.

Analysis The analysis was performed as requested on the chain-of-custody.

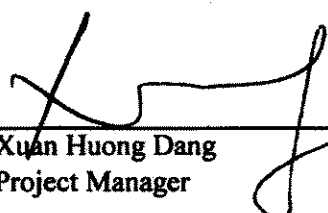
Quality Control The analytical results for each batch of samples performed include a minimum of one set of laboratory control sample/laboratory control sample duplicate (LCS/LCSD), one matrix spike (MS) and a reagent blank (Method blank). Any exceptions or problems would be noted in the "comments" section.

Comments The test results in this report meet all quality assurance requirements set forth by the method specification and all quality control recoveries were within the laboratory acceptance limits. No anomalies or nonconformance events occurred during the course of analysis.

The analytes were quantitated down to the Method Detection Limit (J flags) per client's request.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


K.R.P. Iyer
Quality Control/Quality Assurance Officer


Xuan Huong Dang
Project Manager

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established, 1931

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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

REPORT

Client: Del Mar Analytical
17461 Derian Ave., Suite 100
Irvine, CA 92614

Attention: Michele Harper
Sample: Liquid / 1 Sample
Project Name: IOC2064
P.O. Number: IOC2064
Method Number: 8315 (Modified)
Investigation: Hydrazines in Liquid

Laboratory No: 941101
Report Date: March 30, 2005
Sampling Date: March 25, 2005
Receiving Date: March 28, 2005
Extraction Date: March 28, 2005
Analysis Date: March 29, 2005
Units: µg/L
Dilution Factor: 1
Reported By: JS

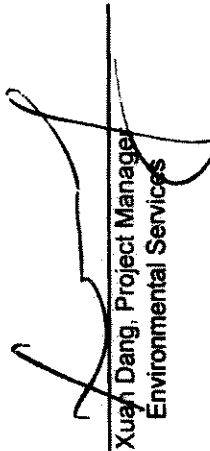
Analytical Results

Sample ID	Sample Description	Monomethyl		Unsymmetrical Dimethyl		Hydrazine
		Hydrazine	Hydrazine	Hydrazine	Hydrazine	
704871-MB	Method Blank	ND	ND	ND	ND	ND
941101	IOC2064-01	ND	ND	ND	ND	ND
MDL		1.2		0.27		0.39
PQL		5.0		5.0		1.0

Page 1 of 1

MDL: Method Detection Limit, ug/L
PQL: Practical Quantitation Limit, ug/L
ND: Not Detected at or above the MDL value.
N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.


Xueh Dang, Project Manager
Environmental Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these laboratories.

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1937

14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: Del Mar Analytical
17461 Derian Ave., Suite 100
Irvine, CA 92614

Client Contact: Michele Harper
Sample: Liquid / 1 Sample
Sample ID: IOC2064
P.O. Number: IOC2064
Method Number: 8315 (Modified)
Run Batch No.: Extraction: 3024; Analysis: 380
Investigation: Hydrazines in Liquid

QC Lab. No.: 704871
Project Lab. No.: 941101
Spiked Sample ID: 941101
Report Date: March 30, 2005
Sampling Date: March 25, 2005
Receiving Date: March 28, 2005
Extraction Date: March 28, 2005
Analysis Date: March 29, 2005
Units: µg/L
Reported By: JS

REPORT

Quality Control/Quality Assurance Calibration Report

Parameter	Theoretical Value (ug/L)	Measured Value (ug/L)	% Rec.	Control Limits	Flag
Monomethyl Hydrazine	25.0	25.2	101	85-115	PASS
u-Dimethyl Hydrazine	25.0	22.5	89.9	85-115	PASS
Hydrazine	5.0	5.22	104	85-115	PASS

Parameter	Theoretical Value (ug/L)	Measured Value (ug/L)	% Rec.	Control Limits	Flag
Monomethyl Hydrazine	50.0	45.0	90.1	85-115	PASS
u-Dimethyl Hydrazine	50.0	42.9	85.7	85-115	PASS
Hydrazine	10.0	9.88	98.8	85-115	PASS

Quality Control/Quality Assurance Spikes Report MS/MSD

Parameter	Spiked Conc. ug/L	Recovered Concentration MS	Percent Recovery (%) MS	LCS/MSD %D	LCS/MSD %D	Flag	Control Limits	Accuracy %D
Monomethyl Hydrazine	50.0	45.0	90.0	10.7%	10.7%	PASS	20	0-150
u-Dimethyl Hydrazine	50.0	44.5	88.9	82.1	7.94%	PASS	20	0-150
Hydrazine	10.0	7.90	79.0	76.5	3.24%	PASS	20	0-150

ICV: Initial Calibration Verification

QCS: Quality Control Standard

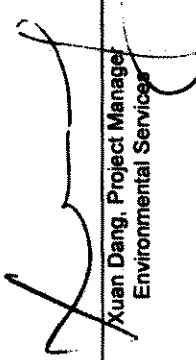
LCS: Laboratory Control Spike

MS: Matrix Spike

%D: Percent Difference

Flag: "Pass" if within Control Limits; otherwise "Fail"

Note: Results based on detector #1 (UV=365nm) data.


Xuan Dang, Project Manager
Environmental Services

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these laboratories.



Del Mar Analytical

941101

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) 370-4067 Fax (909) 370-1046
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9589
 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 # IOC2064

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: Truesdail Laboratories-SUB 14201 Franklin Avenue Tustin, CA 92680 Phone: (714) 730-6239 Fax: (714) 730-6462
---	---

Standard TAT is requested unless specific due date is requested => Due Date: 5 day Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC2064-01 Water	Sampled: 03/25/05 14:40	Instant Notification
Hydrazine-OUT	03/28/05 14:40	J flags, Sub Truesdail for Monomethylhydrazine
Level 4 Data Package	04/22/05 14:40	

Containers Supplied:
 1 L Amber (IOC2064-01AM)
 1 L Amber (IOC2064-01AN)

Rec'd 03/28/05
 s7d 941101

RUSH

ALERT !!
Level IV QC

For Sample Conditions
See Form Attached

SAMPLE INTEGRITY:

All containers intact: Yes No
 Sample labels/COC agree: Yes No
 Samples Received On Ice: Yes No
 Custody Seals Present: Yes No
 Samples Preserved Properly: Yes No
 Samples Received at (temp): _____

Released By: [Signature] Date: 3-28-05 Time: 8:05
 Received By: [Signature] Date: 3-28-05 Time: 8:05
 Released By: [Signature] Date: 3-28-05 Time: 9:12
 Received By: [Signature] Date: 3/28/05 Time: 9:12



Sample Integrity & Analysis Discrepancy Form

Client: Del Mar

Lab # 941101

Date Delivered: 03/28/05 Time: 9:12 By: Mail Field Service Client

1. Was a Chain of Custody received and signed? Yes No N/A
2. Does Customer require an acknowledgement of the COC? Yes No N/A
3. Are there any special requirements or notes on the COC? Yes No N/A
4. If a letter was sent with the COC, does it match the COC? Yes No N/A
5. Were all requested analyses understood and acceptable? Yes No N/A
6. Were samples received in a chilled condition? Yes No N/A
Temperature (if yes)? 4°C
7. Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc.)? Yes No N/A
8. Were sample custody seals intact? Yes No N/A
9. Does the number of samples received agree with COC? Yes No N/A
10. Did sample labels correspond with the client ID's? Yes No N/A
11. Did sample labels indicate proper preservation? Yes No N/A
Preserved (if yes) by: Truesdail Client
12. Were samples pH checked? pH = _____ Yes No N/A
13. Were all analyses within holding time at time of receipt? Yes No N/A
If not, notify the Project Manager.
14. Have Project due dates been checked and accepted? Yes No N/A
Turn Around Time (TAT): RUSH Std
15. **Sample Matrix:** Liquid Drinking Water Ground Water Waste Water
 Sludge Soil Wipe Paint Solid Other Water

**ALERT!!
Level IV QC**

RUSH

16. Comments: _____

17. Sample Check-In completed by Truesdail Log-In/Receiving: L. Stuber



Internal Chain of Custody Logbook

Lab Number: 941101
Client Name: Del Mar

Storage Temperature: 4.0°C

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature
				8/28/05	9:30		L. Stokunco	<i>[Signature]</i>
	Hydrazine	8-28-05	11:00	8-28-05	14:00	200	Robert	<i>[Signature]</i>

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials



April 02, 2005

Alta Project I.D.: 25968

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 March 29, 2005 under your Project Name "IOC2064". This sample was extracted and analyzed using EPA Method 1613 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

Results qualified with an "A" are lower than the EPA Method 1613 Minimum Level, and above the lower calibration limit.

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 M. Maier
Director of HRMS Services



Not a certified laboratory. This is not a report of a certified laboratory. The laboratory is not a NELAP member and therefore does not have the same level of accreditation as a certified laboratory. This report is for informational purposes only and does not constitute an approval of the data.



Alta Analytical Laboratory Inc.

1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 3/29/2005

Alta Lab. ID

Client Sample ID

25968-001

IOC2064-01

SECTION II



Method Blank		EPA Method 1613						
Matrix:	Aqueous	QC Batch No.:	6653	Lab Sample:	0-MB001			
Sample Size:	1.000 L	Date Extracted:	30-Mar-05	Date Analyzed DB-5:	31-Mar-05			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.000000554			IS 13C-2,3,7,8-TCDD	85.8	25 - 164	
1,2,3,7,8-PeCDD	ND	0.000000438			13C-1,2,3,7,8-PeCDD	89.3	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.000000693			13C-1,2,3,4,7,8-HxCDD	78.7	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.000000669			13C-1,2,3,6,7,8-HxCDD	92.3	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.000000673			13C-1,2,3,4,6,7,8-HpCDD	77.2	23 - 140	
1,2,3,4,6,7,8-HpCDD	ND	0.000000795			13C-OCDD	50.0	17 - 157	
OCDD	ND	0.00000232			13C-2,3,7,8-TCDF	91.1	24 - 169	
2,3,7,8-TCDF	ND	0.000000436			13C-1,2,3,7,8-PeCDF	89.9	24 - 185	
1,2,3,7,8-PeCDF	ND	0.000000695			13C-2,3,4,7,8-PeCDF	96.8	21 - 178	
2,3,4,7,8-PeCDF	ND	0.000000592			13C-1,2,3,4,7,8-HxCDF	77.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000264			13C-1,2,3,6,7,8-HxCDF	87.0	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000253			13C-2,3,4,6,7,8-HxCDF	84.8	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000263			13C-1,2,3,7,8,9-HxCDF	80.9	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000408			13C-1,2,3,4,6,7,8-HpCDF	72.1	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000381			13C-1,2,3,4,7,8,9-HpCDF	76.9	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000359			13C-OCDF	57.9	17 - 157	
OCDF	ND	0.00000147			CRS 37Cl-2,3,7,8-TCDD	90.5	35 - 197	
Totals								
Total TCDD	ND	0.000000554						
Total PeCDD	ND	0.000000438						
Total HxCDD	ND	0.000000677						
Total HpCDD	ND	0.000000795						
Total TCDF	ND	0.000000436						
Total PeCDF	ND	0.000000642						
Total HxCDF	ND	0.000000291						
Total HpCDF	ND	0.000000450						
Footnotes								
a. Sample specific estimated detection limit.								
b. Estimated maximum possible concentration.								
c. Method detection limit.								
d. Lower control limit - upper control limit.								

Analyst: RAS

Approved By: William J. Luksemburg 01-Apr-2005 14:54



EPA Method 1613

OPR Results

Matrix: Aqueous		QC Batch No.: 6653	Lab Sample: 0-OPR001		
Sample Size: 1.000 L		Date Extracted: 30-Mar-05	Date Analyzed DB-5: 31-Mar-05		
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits		
			Labeled Standard		
			%R		
			LCL-UCL		
2,3,7,8-TCDD	10.0	10.9	IS 13C-2,3,7,8-TCDD	68.5	25 - 164
1,2,3,7,8-PeCDD	50.0	53.3	13C-1,2,3,7,8-PeCDD	68.2	25 - 181
1,2,3,4,7,8-HxCDD	50.0	52.0	13C-1,2,3,4,7,8-HxCDD	88.5	32 - 141
1,2,3,6,7,8-HxCDD	50.0	53.5	13C-1,2,3,6,7,8-HxCDD	101	28 - 130
1,2,3,7,8,9-HxCDD	50.0	41.0	13C-1,2,3,4,6,7,8-HpCDD	70.5	23 - 140
1,2,3,4,6,7,8-HpCDD	50.0	52.7	13C-OCDD	38.0	17 - 157
OCDD	100	111	13C-2,3,7,8-TCDF	75.2	24 - 169
2,3,7,8-TCDF	10.0	10.4	13C-1,2,3,7,8-PeCDF	66.3	24 - 185
1,2,3,7,8-PeCDF	50.0	50.2	13C-2,3,4,7,8-PeCDF	72.3	21 - 178
2,3,4,7,8-PeCDF	50.0	50.4	13C-1,2,3,4,7,8-HxCDF	88.8	26 - 152
1,2,3,4,7,8-HxCDF	50.0	49.9	13C-1,2,3,6,7,8-HxCDF	97.3	26 - 123
1,2,3,6,7,8-HxCDF	50.0	50.1	13C-2,3,4,6,7,8-HxCDF	86.3	28 - 136
2,3,4,6,7,8-HxCDF	50.0	50.5	13C-1,2,3,7,8,9-HxCDF	84.2	29 - 147
1,2,3,7,8,9-HxCDF	50.0	49.3	13C-1,2,3,4,6,7,8-HpCDF	69.1	28 - 143
1,2,3,4,6,7,8-HpCDF	50.0	50.3	13C-1,2,3,4,7,8,9-HpCDF	76.9	26 - 138
1,2,3,4,7,8,9-HpCDF	50.0	48.9	13C-OCDF	49.3	17 - 157
OCDF	100	99.5	CRS 37Cl-2,3,7,8-TCDD	74.7	35 - 197

Analyst: RAS

Approved By:

William J. Luksemburg 01-Apr-2005 13:51



Sample ID: **IOC2064-01**

EPA Method **1613**

Client Data		Laboratory Data	
Name: Del Mar Analytical, Irvine	Lab Sample: 25968-001	Date Received: 29-Mar-05	
Project: IOC2064	QC Batch No.: 6653	Date Extracted: 30-Mar-05	
Date Collected: 25-Mar-05	Date Analyzed DB-5: 31-Mar-05	Date Analyzed DB-225: NA	
Time Collected: 1440			

Analyte	Conc. (ug/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.000000545			13C-2,3,7,8-TCDD	80.2	25 - 164	
1,2,3,7,8-PeCDD	ND	0.000000449			13C-1,2,3,7,8-PeCDD	87.4	25 - 181	
1,2,3,4,7,8-HxCDD	ND	0.000000740			13C-1,2,3,4,7,8-HxCDD	73.9	32 - 141	
1,2,3,6,7,8-HxCDD	ND	0.000000754			13C-1,2,3,6,7,8-HxCDD	82.8	28 - 130	
1,2,3,7,8,9-HxCDD	ND	0.000000740		J	13C-1,2,3,4,6,7,8-HpCDD	75.8	23 - 140	
1,2,3,4,6,7,8-HpCDD	0.00000734				13C-OCDD	53.0	17 - 157	
OCDD	0.0000692			A	13C-2,3,7,8-TCDF	86.2	24 - 169	
2,3,7,8-TCDF	ND	0.000000447			13C-1,2,3,7,8-PeCDF	88.1	24 - 185	
1,2,3,7,8-PeCDF	ND	0.000000850			13C-2,3,4,7,8-PeCDF	89.8	21 - 178	
2,3,4,7,8-PeCDF	ND	0.000000779			13C-1,2,3,4,7,8-HxCDF	75.8	26 - 152	
1,2,3,4,7,8-HxCDF	ND	0.000000247			13C-1,2,3,6,7,8-HxCDF	83.5	26 - 123	
1,2,3,6,7,8-HxCDF	ND	0.000000238			13C-2,3,4,6,7,8-HxCDF	81.2	28 - 136	
2,3,4,6,7,8-HxCDF	ND	0.000000255			13C-1,2,3,7,8,9-HxCDF	81.6	29 - 147	
1,2,3,7,8,9-HxCDF	ND	0.000000391			13C-1,2,3,4,6,7,8-HpCDF	73.7	28 - 143	
1,2,3,4,6,7,8-HpCDF	ND	0.000000989			13C-1,2,3,4,7,8,9-HpCDF	76.0	26 - 138	
1,2,3,4,7,8,9-HpCDF	ND	0.000000531			13C-OCDF	61.6	17 - 157	
OCDF	0.00000273			J	CRS 37Cl-2,3,7,8-TCDD	88.5	35 - 197	

Totals			Footnotes
Total TCDD	ND	0.000000545	
Total PeCDD	ND	0.000000449	
Total HxCDD	0.000000761		a. Sample specific estimated detection limit.
Total HpCDD	0.00000734	0.0000168	b. Estimated maximum possible concentration.
Total TCDF	0.00000125		c. Method detection limit.
Total PeCDF	ND	0.000000814	d. Lower control limit - upper control limit.
Total HxCDF	0.000000716		
Total HpCDF	0.00000125	0.00000224	

Analyst: RAS

Approved By: William J. Luksemburg 01-Apr-2005 14:54

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.

CURRENT CERTIFICATIONS

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)



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
 8830 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 # IOC2064

SENDING LABORATORY:	RECEIVING 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	Alta Analytical 1104 Windfield Way El Dorado Hills, CA 95762 Phone: (916) 933-1640 Fax: (916) 933-0940 <div style="text-align: right; font-size: 1.2em; margin-top: 10px;"> 25968 0.4°C </div>

Standard TAT is requested unless specific due date is requested => Due Date: 5 day Initials: _____

Analysis	Expiration	Comments
Sample ID: IOC2064-01 Water	Sampled: 03/25/05 14:40	Instant Notification
1613-Dioxin-HR	04/01/05 14:40	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	04/22/05 14:40	Excel EDD email to pm, Include Std logs for Lvl IV
Containers Supplied:		
1 L Amber (IOC2064-01G)		
1 L Amber (IOC2064-01H)		

SAMPLE INTEGRITY:

All containers intact: Yes No Sample labels/COC agree: Yes No Samples Received On Ice: Yes No
 Custody Seals Present: Yes No Samples Preserved Properly: Yes No Samples Received at (temp): _____

[Signature] 3-28-04 17:00 [Signature] 03/29/05 0915
 Released By Date Time Received By Date Time

Released By Date Time Received By Date Time

STANDARD OPERATING PROCEDURE

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 25968

1. Date Samples Arrived: <u>03/29/05 0915</u> Initials: <u>BSB</u> Location: <u>WR-2</u>			
2. Time / Date logged in: <u>1040 3/29/05</u> Initials: <u>BSB</u> Location: <u>WR-2</u>			
3. Samples Arrived By: (circle) <u>FedEx</u> UPS World Courier Other:			
4. Shipping Preservation: (circle) <u>Ice</u> <u>Blue Ice</u> / Dry Ice / None Temp °C <u>0.4°C</u>			
5. Shipping Container(s) Intact? If not, describe condition in comment section.	YES	NO	NA
6. Shipping Container(s) Custody Seals Present? Intact? If not intact, describe condition in comment section.	✓		
7. Shipping Documentation Present? (circle) Shipping Label <u>Airbill</u> Tracking Number <u>7904 7641 3782</u>	✓		
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 <u>Client</u> Retain or <u>Return</u> 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:

STANDARD OPERATING PROCEDURE

Attachment 10.B.4

Chain of Custody Anomaly / Sample Acceptance Form

Client: Del Mar Project Number: 25968

Contact: Michele Harper Date Received: 3/29/05

Fax Number: 949 260 3297 Documented by/date: CBB 3/29/05

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis. Thank You. (Fax #916-673-0106)

The following information or item is needed to proceed with the analysis:

- | | | |
|---|---|--|
| <input type="checkbox"/> Completed Chain-of-Custody | <input type="checkbox"/> Preservative | <input checked="" type="checkbox"/> Collector's Name |
| <input type="checkbox"/> Test Method Requested | <input type="checkbox"/> Sample Identification | <input type="checkbox"/> Sample Type |
| <input type="checkbox"/> Analyte List Requested | <input type="checkbox"/> Sample Collection Date /Time | <input type="checkbox"/> Sample Location |

The following anomalies were noted. Authorization is needed to proceed with the analysis:

Temperature outside $\pm 2^{\circ}\text{C}$ range Samples Affected: _____

Temp _____ $^{\circ}\text{C}$ Ice Present? Yes No

Sample ID Discrepancy Samples Affected: _____

Sample holding time missed Samples Affected: _____

Custody seals broken Samples Affected: _____

Insufficient Sample Size Samples Affected: _____

Sample Container(s) Broken Samples Affected: _____

Incorrect Container Type Samples Affected: _____

Other _____

Client Authorization:

Proceed With Analysis: YES NO Signature and Date: llll 4/1/05

Client Comments/Instructions: "L.H." per email