

**APPENDIX G - VOLUME 3 (Part 2 of 7)**  
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Laboratory Reports

## **APPENDIX G**

### **Section 11**

January Outfall 011

AMEC Data Validation Report

Del Mar Analytical Laboratory Report





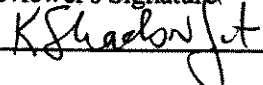
**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711DF23  
 Task Order 313150010  
 SDG No. IOA0121

No. of Analyses 1

Laboratory Pace  
 Reviewer K. Shadowlight  
 Analysis/Method Dioxins

Date: March 14, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
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: * Method blank contamination * Detects below the lower method calibration level * <i>Re-extraction analysis rejected due to laboratory cross-contamination</i>
COMMENTS <sup>b</sup>	Revision of original report dated 02/18/05
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: DIOXINS/FURANS

SAMPLE DELIVERY GROUPS: IOA0121

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 #: IOA0121  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Dioxins/Furans  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 1  
Reviewer: K. Shadowlight  
Date of Review: February 18, 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 (Pace)	Matrix	COC Method
Outfall 011	IOA0121-01	105776001	water	1613
Outfall 011	IOA0121-01RE	105776001R1	water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The sample in this SDG was received at Del Mar Analytical within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The sample was subcontracted to Pace Analytical for dioxin/furan analysis. The sample was received at Pace Analytical Services below the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ; however, as the sample was not noted to have been frozen or damaged, no qualifications were required. The sample was received in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were signed by the appropriate field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to the laboratory (Del Mar Analytical), custody seals were not required. There was no information regarding custody seals upon receipt at Pace. No qualifications were required.

#### 2.1.3 Holding Times

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

### 2.2 INSTRUMENT PERFORMANCE

Following are findings associated with instrument performance:

#### 2.2.1 GC Column Performance

A column performance standard was combined with the daily calibration verification and analyzed at the beginning of each analytical sequence. The GC column performance was acceptable with the chromatographic separation of 2,3,7,8-TCDD and other TCDD isomers resolved with a valley of  $\leq 25\%$ . No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance could not be evaluated as the laboratory did not provide selected ion current profiles for the lock-mass ions. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

There was one initial calibration associated with the retained analysis of this SDG. The initial calibration was analyzed 11/29/04 on Instrument 10MSHR06. The calibration consisted of five concentration level standards (CS1 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 2 native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in the Table 6 of the 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.

## 2.4 BLANKS

There was one method blank (Blank-6159) extracted and analyzed with the retained analysis of this SDG. Target compounds 1,2,3,4,6,7,8-HpCDF, total HpCDF, 1,2,3,4,6,7,8-HpCDD, and total HpCDD were reported at trace levels; however, OCDF and OCDD were reported above the detection limits at 180pg/L and 220pg/L, respectively. Sample Outfall 011 was re-extracted and reanalyzed with a new method blank (Blank-6241). Dioxin/furan compounds were reported at trace levels in Blank-6241; however, trace amounts of PeCDF, PeCDD, HxCDF, and HxCDD were reported in the re-extraction analysis of Outfall 011, which was not characteristic of the sample. According to a memo from the laboratory, dated March 11, 2005, the trace concentrations of PeCDF, PeCDD, HxCDF, and HxCDD were considered to be cross-contamination from a laboratory spike. The reextraction analysis of Outfall 011 was therefore, rejected, "R," in favor of the original analysis. Any detects for the aforementioned target compounds reported at concentrations  $< 5\times$  the concentrations reported in the method blank were qualified as estimated nondetects "UJ," at the levels of interference in sample Outfall 011. The detect for total HpCDF was qualified as estimated, "J," in Outfall 011, as a portion of the total concentration was attributed to method blank contamination. Target compound 1,2,3,6,7,8-HxCDD was reported as an EMPC in the method blank. 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 LCS/LCSD pair (LCS-6160/LCSD-6161) was extracted and analyzed with the retained analysis of the sample in this SDG. All recoveries were within the acceptance criteria listed in Table 6 of the Method 1613. There are no method QC limits established for RPDs. The reported RPDs were within  $\pm 20\%$ . No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

## 2.7 FIELD QC SAMPLES

Following are findings associated with field QC:

### 2.7.1 Field Blanks and Equipment Rinsates

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

### 2.7.2 Field Duplicates

No field duplicate samples were identified for this SDG.

## 2.8 INTERNAL STANDARDS

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

## 2.9 COMPOUND IDENTIFICATION

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

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the lower method calibration limit (MCL) were qualified as estimated, "J." No further qualifications were required.





## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID IOA0121-01 RE  
Lab Sample ID 105776001 E1  
Filename U50201A\_11  
Injected By SMT  
Total Amount Extracted 1040 mL  
% Moisture NA  
Dry Weight Extracted NA  
ICAL Date 01/26/2005  
CCal Filename(s) U50201A\_06  
Method Blank ID BLANK-6241

Matrix Water  
Dilution NA  
Collected 01/04/2005  
Received 01/06/2005  
Extracted 01/31/2005  
Analyzed 02/01/2005 17:06

*outfall 011*

Rev Qual  
Qual code  
R  
D

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.20	2,3,7,8-TCDF-13C	2.00	54
Total TCDF	ND	----	1.20	2,3,7,8-TCDD-13C	2.00	49
2,3,7,8-TCDD	ND	----	2.50	1,2,3,7,8-PeCDF-13C	2.00	66
Total TCDD	ND	----	2.50	2,3,4,7,8-PeCDF-13C	2.00	68
1,2,3,7,8-PeCDF	1.5	----	0.83 J	1,2,3,7,8-PeCDD-13C	2.00	71
2,3,4,7,8-PeCDF	1.9	----	0.78 J	1,2,3,4,7,8-HxCDF-13C	2.00	55
Total PeCDF	4.9	----	0.80 J	1,2,3,6,7,8-HxCDF-13C	2.00	54
1,2,3,7,8-PeCDD	1.7	----	1.40 J	2,3,4,6,7,8-HxCDF-13C	2.00	55
Total PeCDD	1.7	----	1.40 J	1,2,3,7,8,9-HxCDF-13C	2.00	56
1,2,3,4,7,8-HxCDF	1.8	----	0.67 J	1,2,3,4,7,8-HxCDD-13C	2.00	52
1,2,3,6,7,8-HxCDF	1.8	----	0.79 BJ	1,2,3,6,7,8-HxCDD-13C	2.00	48
2,3,4,6,7,8-HxCDF	1.4	----	0.69 J	1,2,3,4,6,7,8-HpCDF-13C	2.00	54
1,2,3,7,8,9-HxCDF	1.2	----	0.65 J	1,2,3,4,7,8,9-HpCDF-13C	2.00	49
Total HxCDF	7.2	----	0.70 BJ	1,2,3,4,6,7,8-HpCDD-13C	2.00	53
1,2,3,4,7,8-HxCDD	----	1.4	0.87 I	OCDD-13C	4.00	56
1,2,3,6,7,8-HxCDD	----	1.5	0.89 I	1,2,3,4-TCDD-13C	2.00	NA
1,2,3,7,8,9-HxCDD	1.9	----	0.81 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
Total HxCDD	1.9	----	0.86 J	2,3,7,8-TCDD-37Cl4	0.20	69
1,2,3,4,6,7,8-HpCDF	----	2.9	1.40 I			
1,2,3,4,7,8,9-HpCDF	ND	----	1.30			
Total HpCDF	5.7	----	1.40 BJ			
1,2,3,4,6,7,8-HpCDD	5.6	----	1.10 BJ			
Total HpCDD	12.0	----	1.10 BJ			
OCDF	8.2	----	2.10 BJ			
OCDD	----	44.0	2.30 I			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
D = Result obtained from analysis of diluted sample  
B = Less than 10 times higher than method blank level  
P = Recovery outside of method 1613 control limits  
J = Concentration detected is below the calibration range  
Nn = Value obtained from additional analysis

I = Interference  
E = PCDE Interference  
ND = Not Detected  
NA = Not Applicable  
NC = Not Calculated  
\* = See Discussion

Report No.....105776

## REPORT OF LABORATORY ANALYSIS

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MEC VALIDATED

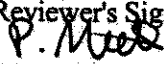
**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711HZ2  
 Task Order 313150010  
 SDG No. IOA0121, IOA0131

No. of Analyses 2

Laboratory Truesdail  
 Reviewer P. Meeks  
 Analysis/Method Hydrazine

Date: 02/14/05  
 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

**COMMENTS\***      Acceptable as reviewed.

\* 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: HYDRAZINES

SAMPLE DELIVERY GROUP: IOA0121 & IOA0131

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 #: IOA0121 & IOA0131  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Hydrazines  
QC Level: Level IV  
No. of Samples: 2  
Reviewer: P. Meeks  
Date of Review: February 10, 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.

**Table 1. Sample identification**

EPA ID	Del Mar ID	Laboratory ID	Matrix	COC Method
Outfall 011	IOA0121-01	938344	water	Hydrazines by 8315
Outfall 011	IOA0131-01	938345	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. 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. The transfer COCs accounted for the samples. The original COC for the Outfall 011 grab sample in SDG IOA0121 did not request hydrazine analyses while the original COC for the Outfall 011 composite sample in SDG IOA0131 did request monomethyl hydrazine analysis. Both transfer COCs requested only monomethyl hydrazine; however, unsymmetrical dimethyl hydrazine and hydrazine were also reported. A memo from MWH personnel dated 02/15/05 requested monomethyl hydrazine analysis for the Outfall 011 grab sample in SDG IOA0121.

The case narratives for these SDGs noted that the samples were received intact. As the samples were transported to Del Mar by courier, no custody seals were required. No custody seals were present upon arrival at Truesdail Laboratories. 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 time was assessed by comparing the dates of collection with the date of analysis. The three-day extraction holding time for the hydrazine analysis was met and the samples were analyzed within three days of extraction. No qualifications were required.

### 2.2 CALIBRATION

The five-point initial calibrations were analyzed 01/07/05, with correlation coefficients of  $\geq 0.995$  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 RPD was 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 the Outfall 011 composite sample in SDG IOA0131. The recoveries for the hydrazines were within the laboratory QC limits of 0-150%; however, both recoveries were  $\geq 10\%$ . The RPDs were within the QC 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.



**REPORT**

Established 1931

14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008  
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**Client:** Del Mar Analytical - Alt.  
 17461 Derlian Ave.  
 Irvine, CA 92614

**Attention:** Michele Harper  
**Sample:** Liquid / 1 Sample  
**Project Name:** IOA0131  
**P.O. Number:** IOA0131  
**Method Number:** 8315 (Modified)  
**Investigation:** Hydrazines in Liquid

**Laboratory No:** 938345  
**Report Date:** January 10, 2005  
**Sampling Date:** January 5, 2005  
**Receiving Date:** January 5, 2005  
**Extraction Date:** January 6, 2005  
**Analysis Date:** January 7, 2005  
**Units:** µg/L  
**Dilution Factor:** 1  
**Reported By:** RC

Page 1 of 1

**Analytical Results**

Sample ID	Sample Description	Monomethyl		Unsymmetrical Dimethyl		Hydrazine	
		Hydrazine	Qual Code	Hydrazine	Qual Code	Hydrazine	Qual Code
704641-MB	Method Blank	ND	*	ND	*	ND	*
938345	IOA0131-01 Outfall Oil	ND	U	ND	U	ND	U
PQL		5.0		5.0		1.0	
Sample Report Limits		5.0		5.0		1.0	

\*Analysis not validated

pm 2/17/05

PQL: Practical Quantitation Limit, ug/L  
 ND: Not Detected  
 N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.

Xuan Pang, Project Manager  
 Environmental Services

**AMEC 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.

# 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

## REPORT

**Client:** Del Mar Analytical - Alt.  
17461 Derian Ave.  
Irvine, CA 92614

**Attention:** Michele Harper  
**Sample:** Liquid / 1 Sample  
**Project Name:** IOA0121  
**P.O. Number:** IOA0121  
**Method Number:** 8315 (Modified)  
**Investigation:** Hydrazines in Liquid

**Laboratory No:** 938344  
**Report Date:** January 10, 2005  
**Sampling Date:** January 4, 2005  
**Receiving Date:** January 5, 2005  
**Extraction Date:** January 6, 2005  
**Analysis Date:** January 7, 2005  
**Units:** µg/L  
**Dilution Factor:** 1  
**Reported By:** RC

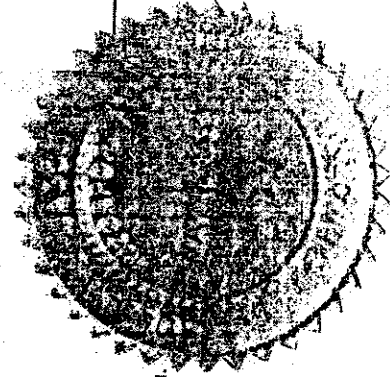
### Analytical Results

Sample ID	Sample Description	Monomethyl		Unsymmetrical Dimethyl		Hydrazine	
		Hydrazine	Rev Qual	Hydrazine	Rev Qual	Hydrazine	Rev Qual
704641-MB	Method Blank	ND	*	ND	*	ND	*
938344	IOA0121-01	ND	U	ND	U	ND	U
PQL	Outfall 011	5.0		5.0		5.0	
Sample Report Limits		5.0		5.0		1.0	
						1.0	

Page 1 of 1

PQL: Practical Quantitation Limit, ug/L  
ND: Not Detected  
N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.



*Xuan Dang*  
Xuan Dang, Project Manager  
Environmental Services

# AMEC 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.

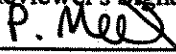
**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711MT28  
 Task Order 313150010  
 SDG No. IOA0121

No. of Analyses 1

Laboratory Del Mar  
 Reviewer P. Meeks  
 Analysis/Method Metals

Date: 02/09/05  
 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:
Holding Times	1. Reporting limit check standard %R outliers
GC/MS Tune/Inst. Performance	2. Detects in the CCBs
Calibrations	3. Detects below the RL
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

**COMMENTS<sup>b</sup>**

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



# DATA VALIDATION REPORT

NPDES  
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOA0121

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#: IOA0121  
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: February 18, 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.: IOA0121  
Analysis: MET

**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011	Outfall 011	IOA0121-01	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. The COC requested only a few of the presented analytes. The remaining analytes were requested in a memo from MWH personnel dated 02/16/05. 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 and ICP 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 but did not report %RSDs. The laboratory SOP states that to be acceptable, the %RSD must be 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 and ICP/MS and 80-120% for mercury. The chromium and iron reporting limit check standard recoveries were below the control limit; therefore, chromium and iron detected in Outfall 011 were qualified as estimated, "J." 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

There were detects and negative results reported for the method blanks and bracketing ICBs/CCBs associated with the sample in this SDG. Arsenic and antimony were detected in a bracketing CCB at 0.633 and 0.415  $\mu\text{g/L}$ , respectively; therefore, arsenic and antimony detected in Outfall 011 were 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)

No ICPMS interference check samples were analyzed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

An ICSA analysis was included in the raw data for the ICP boron analysis. The recoveries for the interferents were within the control limits of 80-120%. No sample qualifications were required due to the ICP ICS analysis.

## 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5A05092-BS1, the ICP LCS sample was identified as 5A05093-BS1, and the Hg LCS sample was identified as 5A06051-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS, ICP, and Hg control limits of 85-115%. No qualifications were required.

## 2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed on Outfall 011. The RPDs were less than the control limit of 20% and no qualifications were required.

## 2.8 MATRIX SPIKE

MS/MSD analyses were performed on Outfall 011. The recoveries for iron were below the control limit; therefore, iron detected in Outfall 011 was qualified as estimated, "J." The remaining recoveries were within the AMEC control limits of 75-125 and no further qualifications were required.

## 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 and 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. 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 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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05						
Reporting Units: mg/l											
Barium	EPA 200.8	5A05092	0.00014	0.0010	0.025	1	01/05/05	01/06/05			
Boron	EPA 200.7	5A05093	0.0074	0.050	0.060	1	01/05/05	01/05/05			
Iron	EPA 200.8	5A05092	0.0032	0.010	1.5	1	01/05/05	01/06/05	J M2		*3, Q

# AMEC VALIDATED

# LEVEL IV

DRAFT REPORT  
 DRAFT REPORT  
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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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

**DRAFT: METALS**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Date	Data	Qualifiers
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05					Rev	Qual
Reporting Units: ug/l										Qual	Code
Antimony	EPA 200.8	5A05092	0.18	2.0	0.87	1	01/05/05	01/06/05	J	J	B
Arsenic	EPA 200.8	5A05092	0.49	1.0	0.80	1	01/05/05	01/06/05	J	J	B
Beryllium	EPA 200.8	5A05092	0.037	0.50	0.14	1	01/05/05	01/06/05		J	DNQ
Cadmium	EPA 200.8	5A05092	0.015	1.0	0.25	1	01/05/05	01/06/05		J	DNQ
Chromium	EPA 200.8	5A05092	0.26	1.0	3.5	1	01/05/05	01/06/05		J	*3
Cobalt	EPA 200.8	5A05092	0.10	1.0	0.59	1	01/05/05	01/06/05		J	DNQ
Copper	EPA 200.8	5A05092	0.49	2.0	6.3	1	01/05/05	01/06/05		J	DNQ
Lead	EPA 200.8	5A05092	0.13	1.0	1.4	1	01/05/05	01/06/05			
Manganese	EPA 200.8	5A05092	0.44	1.0	26	1	01/05/05	01/06/05			
Mercury	EPA 245.1	5A06051	0.063	0.20	0.25	1	01/06/05	01/06/05			
Nickel	EPA 200.8	5A05092	0.15	1.0	3.5	1	01/05/05	01/06/05			
Selenium	EPA 200.8	5A05092	0.36	2.0	0.63	1	01/05/05	01/06/05		J	DNQ
Silver	EPA 200.8	5A05092	0.089	1.0	ND	1	01/05/05	01/06/05		J	
Thallium	EPA 200.8	5A05092	0.075	1.0	ND	1	01/05/05	01/06/05		J	
Vanadium	EPA 200.8	5A05092	0.86	1.0	2.4	1	01/05/05	01/06/05		J	
Zinc	EPA 200.8	5A05092	3.1	20	22	1	01/05/05	01/06/05		J	

**AMEC VALIDATED**

**LEVEL IV**

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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  
 Suite 500  
 Lakewood, CO 80226

Package ID T711PP10  
 Task Order 313150010  
 SDG No. IOA0121

No. of Analyses 1

Laboratory Del Mar Analytical

Date: February 14, 2005

Reviewer L. Calvin

Reviewer's Signature  


Analysis/Method Pest/PCBs by Method 608

ACTION ITEMS <sup>a</sup>	
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 <sup>b</sup>	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOA0121

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#: IOA0121  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Pesticides/PCBs  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: February 16, 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**

<b>Client ID</b>	<b>EPA ID</b>	<b>Laboratory ID</b>	<b>Matrix</b>	<b>Method</b>
Outfall 011	Outfall 011	IOA0121-01	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 on ice within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , at  $4^{\circ}$ . The analysis did not require preservation, and no preservation was noted in the field. The case narrative 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 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  $\pm 0.10$  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 10/26/04 associated with pesticide analysis of sample Outfall 011, 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  $r^2 \geq 0.995$  on both analytical columns. There was one initial calibration dated 01/04/05 associated with the PCB analysis of the sample. The PCB calibration consisted of five points for Arochlor 1016 and Arochlor 1260. Single point calibrations for Arochlor 1242, Arochlor 1248, and Arochlor 1254 were analyzed but were not provided in the data package. The average %RSDs for the individual peaks of Arochlor 1016 and Arochlor 1260 were  $\leq 10\%$  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

The pesticide sample analysis of this SDG was bracketed by four continuing calibrations. In one of the bracketing calibrations following the sample analysis several %Ds exceeded 15% on channel A with high responses; however, as all results in this SDG were reported from channel B, no qualifications were assigned. The %Ds were within the Method QC limit of  $\pm 15\%$  for the remaining calibrations. The PCB analysis of this sample was bracketed by two CCVs and the %Ds for Arochlor 1016 and Arochlor 1260 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 the analytical sequence. Cross-contamination was not evident in the sample. No qualifications were necessary.

### 2.4.2 Method Blanks

One water method blank (5A05041-BLK1) was extracted and analyzed with this SDG. 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 (5A05041-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  $\leq 30\%$ . 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 this SDG 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. 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 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 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 sample 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 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 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 detects reported in this SDG, quantitation was verified by recalculating a representative number of blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the

**DATA VALIDATION REPORT**

initial calibration and the laboratory MDL study. The water reporting limits were not adjusted for sample amount on the result summary; however, the dilution listed on the summary reflected the sample volume extracted. Results were reported in  $\mu\text{g/L}$  (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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: ug/l									
Aldrin	EPA 608	5A05041	0.029	0.10	ND	0.962	01/05/05	01/05/05	<i>new</i> <i>Qual</i> <i>code</i> ↓
alpha-BHC	EPA 608	5A05041	0.010	0.10	ND	0.962	01/05/05	01/05/05	
beta-BHC	EPA 608	5A05041	0.011	0.10	ND	0.962	01/05/05	01/05/05	
delta-BHC	EPA 608	5A05041	0.010	0.20	ND	0.962	01/05/05	01/05/05	
gamma-BHC (Lindane)	EPA 608	5A05041	0.0097	0.10	ND	0.962	01/05/05	01/05/05	
Chlordane	EPA 608	5A05041	0.18	1.0	ND	0.962	01/05/05	01/05/05	
4,4'-DDD	EPA 608	5A05041	0.011	0.10	ND	0.962	01/05/05	01/05/05	
4,4'-DDE	EPA 608	5A05041	0.017	0.10	ND	0.962	01/05/05	01/05/05	
4,4'-DDT	EPA 608	5A05041	0.015	0.10	ND	0.962	01/05/05	01/05/05	
Dieldrin	EPA 608	5A05041	0.010	0.10	ND	0.962	01/05/05	01/05/05	
Endosulfan I	EPA 608	5A05041	0.015	0.10	ND	0.962	01/05/05	01/05/05	
Endosulfan II	EPA 608	5A05041	0.037	0.10	ND	0.962	01/05/05	01/05/05	
Endosulfan sulfate	EPA 608	5A05041	0.013	0.20	ND	0.962	01/05/05	01/05/05	
Endrin	EPA 608	5A05041	0.0082	0.10	ND	0.962	01/05/05	01/05/05	
Endrin aldehyde	EPA 608	5A05041	0.045	0.10	ND	0.962	01/05/05	01/05/05	
Endrin ketone	EPA 608	5A05041	0.020	0.10	ND	0.962	01/05/05	01/05/05	
Heptachlor	EPA 608	5A05041	0.030	0.10	ND	0.962	01/05/05	01/05/05	
Heptachlor epoxide	EPA 608	5A05041	0.012	0.10	ND	0.962	01/05/05	01/05/05	
Methoxychlor	EPA 608	5A05041	0.034	0.10	ND	0.962	01/05/05	01/05/05	
Toxaphene	EPA 608	5A05041	0.77	5.0	ND	0.962	01/05/05	01/05/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					43 %				
Surrogate: Decachlorobiphenyl (45-120%)					66 %				

# AMEC VALIDATED LEVEL IV

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 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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Date	Data Qualifier
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05					
Reporting Units: ug/l										
Aroclor 1016	EPA 608	5A05041	0.067	1.0	ND	0.962	01/05/05	01/05/05	01/05/05	see final report code u ↓
Aroclor 1221	EPA 608	5A05041	0.057	1.0	ND	0.962	01/05/05	01/05/05	01/05/05	
Aroclor 1232	EPA 608	5A05041	0.13	1.0	ND	0.962	01/05/05	01/05/05	01/05/05	
Aroclor 1242	EPA 608	5A05041	0.12	1.0	ND	0.962	01/05/05	01/05/05	01/05/05	
Aroclor 1248	EPA 608	5A05041	0.21	1.0	ND	0.962	01/05/05	01/05/05	01/05/05	
Aroclor 1254	EPA 608	5A05041	0.16	1.0	ND	0.962	01/05/05	01/05/05	01/05/05	
Aroclor 1260	EPA 608	5A05041	0.17	1.0	ND	0.962	01/05/05	01/05/05	01/05/05	
Surrogate: Decachlorobiphenyl (45-120%)					86 %					

### AMEC VALIDATED

# LEVEL IV

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 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

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**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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Package ID T711RA2  
 Task Order 313150010  
 SDG No. IOA0115, 0121, 0131

No. of Analyses 1

Laboratory Del Mar  
 Reviewer P. Meeks  
 Analysis/Method Radionuclides

Date: 03/03/05  
 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:
Holding Times	1. Exceeded holding time
GC/MS Tune/Inst. Performance	2. Lack of preservation
Calibrations	3. Incorrect sample container
Blanks	4. Detector efficiencies less than 20%
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

**COMMENTS<sup>b</sup>**

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



# DATA VALIDATION REPORT

## NPDES Monitoring

**ANALYSIS: RADIONUCLIDES**

**SAMPLE DELIVERY GROUPS:  
IOA0115, IOA0121, IOA0131**

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#: IOA0115, IOA0121, IOA0131  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Radionuclides  
QC Level: Level IV  
No. of Samples: 4  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: March 03, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *EPA Prescribed Procedures for Measurements of Radioactivity in Drinking Water, Methods 900.0, 905.0, and 906.0*, and validation procedures 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 <sup>a</sup>	Del Mar ID	Eberline ID	Matrix	COC Method
Outfall 003 Unfiltered	IOA0115-01	8149-01	water	900.0, 905.0, 906.0
Outfall 003 Filtered	IOA0115-02	8149-02	water	900.0, 905.0, 906.0
Outfall 011	IOA0121-01	8148-01	water	900.0, 905.0, 906.0
Outfall 011 - Composite	IOA0131-01	8147-01	water	900.0, 905.0, 906.0

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of  $4\pm 2^{\circ}\text{C}$ . No temperature information was provided by Eberline, the subcontract laboratory; however, as it is not necessary to chill radiological samples, no qualifications were required. All samples were intact and in good condition.

According to the Eberline login sheet, none of the samples were received preserved. It was confirmed in correspondence with Eberline dated 01/31/05, that the gross alpha, gross beta, and strontium samples were not preserved upon receipt. According to the Los Angeles Water Quality Control Board (LARWQCB) guidance letter dated 01/12/05, unfiltered samples should not be preserved and filtered aliquots should be preserved after filtration. As the strontium aliquot for Outfall 003 Filtered was not preserved; the nondetect strontium result was qualified as estimated, "UJ." Additionally, according to the 01/12/05 LARWQCB guidance letter, samples collected for tritium analysis should be submitted in glass containers to avoid potential loss of tritium by sorption onto the plastic container. As none of the tritium samples were submitted on glass containers, all nondetect tritium results were qualified as estimated, "UJ." No further qualifications were required.

#### 2.1.2 Chain of Custody

The original COCs were signed and dated by field and laboratory personnel and the transfer COCs were signed by personnel from both laboratories. The original COCs for Outfall 003 did not request that an aliquot of each sample be filtered; however, the Del Mar project manager confirmed in a telephone conversation dated 1/31/05, that this was required by MWH. The original COC for Outfall 011 (SDG IOA0121) did not request that the sample containers received be analyzed for radionuclides. A memo from MWH personnel dated 2/17/05 requested these analyses. The transfer COCs accounted for all samples. Eberline did not list the MWH IDs on the Form Is; therefore, the reviewer edited the Form Is to reflect these IDs. No qualifications were required.

#### 2.1.3 Holding Times

The tritium and strontium samples were analyzed within 180 days of collection. The gross alpha and gross beta samples were analyzed beyond the five day holding time for unpreserved samples; therefore, the gross alpha and gross beta results were qualified as estimated, "J," for detects and, "UJ," for nondetects. No qualifications were necessary.

### 2.2 CALIBRATION

The laboratory calibration information included the standard certificates and applicable preparation/dilutions logs for NIST-traceability.

### Gross Alpha

The initial calibration included with the data was performed in February 2003. All detector efficiencies were below 20%; therefore, the nondetected alpha results were qualified as estimated, "UJ," for nondetects and "J," for detects.

### Tritium

No calibration standards were analyzed for this method. According to the laboratory, every sample was spiked for efficiency determination; therefore, no calibration is necessary. All detector efficiencies in the samples were at least 20% and were considered acceptable.

### Gross Beta and Strontium-90

The initial calibrations were performed in June 1997. All detector efficiencies were at least 20% and were considered acceptable. All continuing calibration results were within the laboratory control limits; therefore, no qualifications were necessary.

## **2.3 BLANKS**

No measurable activities were detected in the method blanks; therefore, no qualifications were necessary.

## **2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

One blank spike (8147-002) was analyzed in association with the samples in these SDGs. All recoveries were within both 3-sigma limits and the laboratory control limits. No qualifications were necessary.

## **2.5 LABORATORY DUPLICATES**

The laboratory performed a duplicate analysis on Outfall 011 Composite. The RPDs for gross beta, tritium, and strontium were  $\leq 20\%$ . The RPD for gross alpha was  $>20\%$ ; however, as the results were within the 3 sigma limit, no qualifications were necessary.

## **2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

The laboratory performed matrix spike analyses on Outfall 011 Composite for gross alpha, gross beta and tritium. The recoveries were within both 3-sigma limits and the laboratory control limits. No qualifications were necessary.

## **2.7 SAMPLE RESULT VERIFICATION**

An EPA Level IV review was performed for the samples in these data packages. Sample results and MDAs reported on the sample result forms were verified against the raw data and no calculation or transcription errors were noted. No qualifications were necessary.

## 2.8 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

### 2.8.1 Field Blanks and Equipment Rinsates

The 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 in these SDGs:

Eberline Services

ANALYSIS RESULTS

SDG <u>8148</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R501014-01</u>	Contract <u>PROJECT# 10A0121</u>
Received Date <u>01/06/05</u>	Matrix <u>WATER</u>

Client	Lab	Sample ID	Collected	Analyzed	Nuclide	Results ± 2σ	Units	MDA	Rev Qual	Qual Code
Client <u>Sample ID</u> Outfall 011 10A0121-01  pm 3/4/05	8148-001		01/04/05	01/26/05	GrossAlpha	1.64 ± 0.96	pCi/L	0.839	J	H, *2
				01/26/05	Gross Beta	2.65 ± 1.2	pCi/L	1.74	J	H
				01/27/05	H3	-93.0 ± 170	pCi/L	303	UJ	*1
				01/14/05	Sr90	0.188 ± 0.25	pCi/L	0.456	U	

**AMEC VALIDATED  
LEVEL IV**

Certified by <u>[Signature]</u>
Report Date <u>02/13/05</u>
Page 1

Eberline Services

ANALYSIS RESULTS

SDG 8147	Client <u>DEL MAR ANAL</u>
Work Order <u>R501013-01</u>	Contract <u>PROJECT# IOA0131</u>
Received Date <u>01/06/05</u>	Matrix <u>WATER</u>

Client	Lab	Collected	Analyzed	Nuclide	Results ± 2σ	Units	MDA	Raw Qual	Qual Code
<u>Sample ID</u> outfall oil Composite	<u>Sample ID</u> 8147-001								
IOA0131-01	8147-001	01/05/05	01/22/05	GrossAlpha	-0.671 ± 1.0	pCi/L	1.99	UJ	H,*2
			01/22/05	Gross Beta	2.37 ± 1.2	pCi/L	1.80	J	H
			01/26/05	H3	-125 ± 170	pCi/L	300	UJ	*1
			01/14/05	Sr90	0.002 ± 0.22	pCi/L	0.446	U	

PM 3/4/05

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LEVEL IV

Certified by <u>[Signature]</u>
Report Date <u>02/13/05</u>
Page 1

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

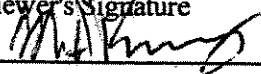
AMEC Earth & Environmental  
 550 South Wadsworth Boulevard  
 Suite 500  
 Lakewood, CO 80226

Package ID T711SV24  
 Task Order 313150010  
 SDG No. IOA0121  
 No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Semivolatiles

Date: February 14, 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<sup>b</sup>** \_\_\_\_\_

\* 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: IOA0121

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#: IOA0121  
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: February 14, 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	IOA0121-01	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, at 5°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 01/12/05. The average RRFs for were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  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 01/13/05. The RRFs for all target compounds were  $\geq 0.05$ , and the %Ds were  $\leq 20$ . A representative number of RRFs 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 (5A03039-BLK1) was extracted and analyzed with this SDG. There were no reportable detects for the target compounds listed on the summary form. 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 (5A03039-BS1/BSD1) was extracted and analyzed with this SDG. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary,

to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ" for nondetects and "J" for detects, in the associated samples. All percent recoveries and RPDs were within the laboratory QC limits except for the recoveries of less than 10% for benzidine in both the LCS and LCSD and the recovery above the QC limit for 2,4-dinitrophenol in the LCSD only. Benzidine was rejected, "R," in the sample of this SDG. The RPD for hexachlorocyclopentadiene was above the QC limit and was qualified as an estimated nondetect, "UJ," in the sample of this SDG. 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 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 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 this SDG. No qualifications were required.

### **2.8.2 Field Duplicates**

There were no field duplicate samples associated with this SDG.

## **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  $\pm 30$  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. Detects below the reporting limit were qualified as estimated, "J," by the laboratory. No further 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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

**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	
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water)					Sampled: 01/04/05					REV QUAL
Reporting Units: ug/l										QUAL CODE
Acenaphthene	EPA 625	5A05039	0.10	0.50	ND	0.962	01/05/05	01/14/05	U	
Acenaphthylene	EPA 625	5A05039	0.10	0.50	ND	0.962	01/05/05	01/14/05	U	
Aniline	EPA 625	5A05039	2.9	10	ND	0.962	01/05/05	01/14/05	U	
Anthracene	EPA 625	5A05039	0.083	0.50	ND	0.962	01/05/05	01/14/05	U	
Benzidine	EPA 625	5A05039	2.4	5.0	ND	0.962	01/05/05	01/14/05	U L2	
Benzoic acid	EPA 625	5A05039	3.7	20	ND	0.962	01/05/05	01/14/05	U	
Benzo(a)anthracene	EPA 625	5A05039	0.038	5.0	ND	0.962	01/05/05	01/14/05	U	
Benzo(a)pyrene	EPA 625	5A05039	0.14	2.0	ND	0.962	01/05/05	01/14/05	U	
Benzo(b)fluoranthene	EPA 625	5A05039	0.050	2.0	ND	0.962	01/05/05	01/14/05	U	
Benzo(g,h,i)perylene	EPA 625	5A05039	0.059	5.0	ND	0.962	01/05/05	01/14/05	U	
Benzo(k)fluoranthene	EPA 625	5A05039	0.053	0.50	ND	0.962	01/05/05	01/14/05	U	
Benzyl alcohol	EPA 625	5A05039	0.21	5.0	0.27	0.962	01/05/05	01/14/05	J J DNG	
Bis(2-chloroethoxy)methane	EPA 625	5A05039	0.072	0.50	ND	0.962	01/05/05	01/14/05	U	
Bis(2-chloroethyl)ether	EPA 625	5A05039	0.084	0.50	ND	0.962	01/05/05	01/14/05	U	
Bis(2-chloroisopropyl)ether	EPA 625	5A05039	0.11	0.50	ND	0.962	01/05/05	01/14/05	U	
Bis(2-ethylhexyl)phthalate	EPA 625	5A05039	1.1	5.0	ND	0.962	01/05/05	01/14/05	U	
4-Bromophenyl phenyl ether	EPA 625	5A05039	0.12	1.0	ND	0.962	01/05/05	01/14/05	U	
Butyl benzyl phthalate	EPA 625	5A05039	0.34	5.0	ND	0.962	01/05/05	01/14/05	U	
4-Chloroaniline	EPA 625	5A05039	0.20	2.0	ND	0.962	01/05/05	01/14/05	U	
2-Chloronaphthalene	EPA 625	5A05039	0.059	0.50	ND	0.962	01/05/05	01/14/05	U	
4-Chloro-3-methylphenol	EPA 625	5A05039	0.34	2.0	ND	0.962	01/05/05	01/14/05	U	
4-Chlorophenyl phenyl ether	EPA 625	5A05039	0.056	0.50	ND	0.962	01/05/05	01/14/05	U	
2-Chlorophenol	EPA 625	5A05039	0.12	1.0	ND	0.962	01/05/05	01/14/05	U	
Chrysene	EPA 625	5A05039	0.072	0.50	ND	0.962	01/05/05	01/14/05	U	
Dibenz(a,h)anthracene	EPA 625	5A05039	0.083	0.50	ND	0.962	01/05/05	01/14/05	U	
Dibenzofuran	EPA 625	5A05039	0.075	0.50	ND	0.962	01/05/05	01/14/05	U	
Di-n-butyl phthalate	EPA 625	5A05039	0.26	2.0	ND	0.962	01/05/05	01/14/05	U	
1,2-Dichlorobenzene	EPA 625	5A05039	0.11	0.50	ND	0.962	01/05/05	01/14/05	U	
1,3-Dichlorobenzene	EPA 625	5A05039	0.13	0.50	ND	0.962	01/05/05	01/14/05	U	
1,4-Dichlorobenzene	EPA 625	5A05039	0.050	0.50	ND	0.962	01/05/05	01/14/05	U	
3,3-Dichlorobenzidine	EPA 625	5A05039	0.93	5.0	ND	0.962	01/05/05	01/14/05	U	
2,4-Dichlorophenol	EPA 625	5A05039	0.21	2.0	ND	0.962	01/05/05	01/14/05	U	
Diethyl phthalate	EPA 625	5A05039	0.12	1.0	ND	0.962	01/05/05	01/14/05	U	
2,4-Dimethylphenol	EPA 625	5A05039	0.31	2.0	ND	0.962	01/05/05	01/14/05	U	
Dimethyl phthalate	EPA 625	5A05039	0.081	0.50	ND	0.962	01/05/05	01/14/05	U	
4,6-Dinitro-2-methylphenol	EPA 625	5A05039	0.38	5.0	ND	0.962	01/05/05	01/14/05	U	
2,4-Dinitrophenol	EPA 625	5A05039	2.7	5.0	ND	0.962	01/05/05	01/14/05	U	
2,4-Dinitrotoluene	EPA 625	5A05039	0.23	5.0	ND	0.962	01/05/05	01/14/05	U	
2,6-Dinitrotoluene	EPA 625	5A05039	0.24	5.0	ND	0.962	01/05/05	01/14/05	U	
Di-n-octyl phthalate	EPA 625	5A05039	0.17	5.0	ND	0.962	01/05/05	01/14/05	U	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A05039	0.087	1.0	ND	0.962	01/05/05	01/14/05	U	

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

**AMEC VALIDATED**

MP 2.14.05

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LEVEL IV



# 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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: ug/l					REV QUAL Q012 CODE				
Fluoranthene	EPA 625	5A05039	0.089	0.50	ND	0.962	01/05/05	01/14/05	U
Fluorene	EPA 625	5A05039	0.075	0.50	ND	0.962	01/05/05	01/14/05	U
Hexachlorobenzene	EPA 625	5A05039	0.13	1.0	ND	0.962	01/05/05	01/14/05	U
Hexachlorobutadiene	EPA 625	5A05039	0.38	2.0	ND	0.962	01/05/05	01/14/05	U
Hexachlorocyclopentadiene	EPA 625	5A05039	1.8	5.0	ND	0.962	01/05/05	01/14/05	U J *5
Hexachloroethane	EPA 625	5A05039	0.51	3.0	ND	0.962	01/05/05	01/14/05	U
Indeno(1,2,3-cd)pyrene	EPA 625	5A05039	0.19	2.0	ND	0.962	01/05/05	01/14/05	U
Isophorone	EPA 625	5A05039	0.059	1.0	0.12	0.962	01/05/05	01/14/05	J J DNQ
2-Methylnaphthalene	EPA 625	5A05039	0.13	1.0	ND	0.962	01/05/05	01/14/05	U
2-Methylphenol	EPA 625	5A05039	0.28	2.0	ND	0.962	01/05/05	01/14/05	U
4-Methylphenol	EPA 625	5A05039	0.20	5.0	ND	0.962	01/05/05	01/14/05	U
Naphthalene	EPA 625	5A05039	0.13	1.0	ND	0.962	01/05/05	01/14/05	U
2-Nitroaniline	EPA 625	5A05039	0.18	5.0	ND	0.962	01/05/05	01/14/05	U
3-Nitroaniline	EPA 625	5A05039	0.35	5.0	ND	0.962	01/05/05	01/14/05	U
4-Nitroaniline	EPA 625	5A05039	0.49	5.0	ND	0.962	01/05/05	01/14/05	U
Nitrobenzene	EPA 625	5A05039	0.10	1.0	ND	0.962	01/05/05	01/14/05	U
2-Nitrophenol	EPA 625	5A05039	0.23	2.0	ND	0.962	01/05/05	01/14/05	U
4-Nitrophenol	EPA 625	5A05039	0.73	5.0	ND	0.962	01/05/05	01/14/05	U
N-Nitrosodimethylamine	EPA 625	5A05039	0.22	2.0	ND	0.962	01/05/05	01/14/05	U
N-Nitroso-di-n-propylamine	EPA 625	5A05039	0.18	2.0	ND	0.962	01/05/05	01/14/05	U
N-Nitrosodiphenylamine	EPA 625	5A05039	0.077	1.0	ND	0.962	01/05/05	01/14/05	U
Pentachlorophenol	EPA 625	5A05039	0.78	2.0	ND	0.962	01/05/05	01/14/05	U
Phenanthrene	EPA 625	5A05039	0.071	0.50	ND	0.962	01/05/05	01/14/05	U
Phenol	EPA 625	5A05039	0.14	1.0	ND	0.962	01/05/05	01/14/05	U
Pyrene	EPA 625	5A05039	0.059	0.50	ND	0.962	01/05/05	01/14/05	U
1,2,4-Trichlorobenzene	EPA 625	5A05039	0.10	1.0	ND	0.962	01/05/05	01/14/05	U
2,4,5-Trichlorophenol	EPA 625	5A05039	0.075	2.0	ND	0.962	01/05/05	01/14/05	U
2,4,6-Trichlorophenol	EPA 625	5A05039	0.10	1.0	ND	0.962	01/05/05	01/14/05	U
Surrogate: 2-Fluorophenol (35-120%)					78 %				
Surrogate: Phenol-d6 (45-120%)					86 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					91 %				
Surrogate: Nitrobenzene-d5 (45-120%)					78 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					80 %				
Surrogate: Terphenyl-d14 (45-135%)					83 %				

**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 T711TF32  
 Task Order 313150010  
 SDG No. IOA0121

No. of Analyses 1

Laboratory Del Mar Analytical  
 Reviewer L. Calvin  
 Analysis/Method EFH by 8015M

Date: February 14, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
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 <sup>b</sup>	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: Total Petroleum Hydrocarbons: Extractable

SAMPLE DELIVERY GROUP: IOA0121

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#: IOA0121  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Extractable  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: February 14, 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	Outfall 011	IOA0121-01	water	8015M/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 sample in this SDG was received at Del Mar Analytical laboratory on ice within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , at  $4^{\circ}\text{C}$ . 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 COC was signed and dated by both field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to the laboratory, custody seals were not required. The TPH-Extractable analysis was not requested on the COC; however, a COC analytical request change form dated 02/16/05 clarified the requested analyses. No qualifications were required.

#### 2.1.3 Holding Times

The sample was 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 analysis was analyzed on 12/22/04. 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 (5A06045-BLK1) was extracted and analyzed with the sample in this SDG. 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 (5A06045-BS1/BSD1) was extracted and analyzed with the sample in this SDG. The recoveries of alkane range C13-C40 from spiked diesel 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 sample was fortified with the surrogate compound n-octacosane. The sample surrogate recovery was within the laboratory-established QC of 40-125%. The recovery was 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 the sample of this SDG. 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 rinsate samples associated with the site sample 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 EFH n-alkane range C13-C22 by EPA SW846 Method 8015M. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for this SDG. No qualifications were required.

## **2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS**

Compound quantification was verified for this SDG by recalculating any sample detect, 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. No qualifications were required.



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 9484 Chesapeake Dr., Suite 805 San Diego, CA 92123 (619) 503-8596 FAX (619) 503-9629  
 9810 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0041 FAX (480) 785-0851  
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-1621

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

**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: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5A06045	0.082	0.50	ND	0.962	01/06/05	01/07/05	u
Surrogate: n-Octacosane (40-125%)									

*Handwritten signature: u*

**ALL INFORMATION CONTAINED  
 HEREIN IS UNCLASSIFIED**

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 T711TF33  
 Task Order 313150010  
 SDG No. IOA0121

No. of Analyses 2

Laboratory Del Mar Analytical

Date: February 14, 2005

Reviewer L. Calvin

Reviewer's Signature *L. Calvin*

Analysis/Method GRO by 8015M

ACTION ITEMS*	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	
COMMENTS <sup>b</sup>	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: Total Petroleum Hydrocarbons: Purgeable

SAMPLE DELIVERY GROUP: IOA0121

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#: IOA0121  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Purgeable  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: February 14, 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	Outfall 011	IOA0121-01	water	8015M/GRO
Trip Blank	Trip Blank	IOA0121-02	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 this SDG were received at Del Mar Analytical laboratory on ice within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , at  $4^{\circ}\text{C}$ . The Del Mar Analytical case narrative noted that the samples were received intact, and the COC indicated the samples were properly preserved. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel. As the samples were couriered directly to the laboratory, custody seals were not required. The TPH-GRO analysis was not requested on the COC; however, a COC analytical request change form dated 02/16/05 clarified the requested analyses. 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 08/26/04 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 (5A06001-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 (5A06001-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 bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC of 65-140% for both samples. 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 sample in this SDG; therefore, 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

Sample Trip Blank was the trip blank associated with site sample Outfall 011. GRO (C4-C12) was not detected above the MDL in the trip blank. Review of the raw data indicated no false negative result. There were no field blank or equipment rinsate samples associated with this SDG. No qualifications were necessary.

### 2.9.2 Field Duplicates

There were no field duplicate samples in this SDG.

## 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 this SDG. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG 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 calibrations and by the laboratory MDL. No qualifications were required.



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297  
 1014 E. Cowley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046  
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8396 FAX (619) 505-0189  
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 783-0043 FAX (480) 783-0851  
 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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

**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: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5A06001	0.050	0.10	ND	1	01/06/05	01/06/05	u
Surrogate: 4-BFB (FID) (65-140%)									
Sample ID: IOA0121-02 (DRAFT: Trip Blank - Water)					Sampled: 01/04/05				
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5A06001	0.050	0.10	ND	1	01/06/05	01/06/05	u
Surrogate: 4-BFB (FID) (65-140%)									

*rel qual*  
*qual*  
*Code*

**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 T711VO43  
 Task Order 313150010  
 SDG No. IOA0121

No. of Analyses 1

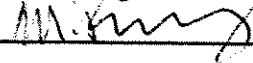
Laboratory Del Mar

Date: February 11, 2005

Reviewer M. Pokorny

Reviewer's Signature

Analysis/Method Volatiles (1,4-dioxane)



**ACTION ITEMS\***

<b>1. Case Narrative</b>	
<b>Deficiencies</b>	  
<b>2. Out of Scope</b>	
<b>Analyses</b>	  
<b>3. Analyses Not Conducted</b>	  
<b>4. Missing Hardcopy</b>	
<b>Deliverables</b>	  
<b>5. Incorrect Hardcopy</b>	
<b>Deliverables</b>	  
<b>6. Deviations from Analysis</b>	
<b>Protocol, e.g.,</b>	
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\***      Acceptable as reviewed.

\* 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: IOA0121

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 #: IOA0121  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Volatiles (1,4-dioxane)  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: M. Pokorny  
Date of Review: February 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 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.	Matrix	Method
Outfall 011	Outfall 011	IOA0121-01	water	624

## 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 Del Mar within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The sample was properly preserved. The COC noted that the sample was received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed by field and laboratory personnel. The COCs accounted for the analysis presented in this SDG. According to the sample login sheet, custody seals were not present on the cooler. No qualifications were required.

#### 2.1.3 Holding Times

The sample was 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 sample was analyzed within 12 hours of the BFB injection time. No qualifications were required.

### 2.3 CALIBRATION

One initial calibration, dated 01/07/04, was associated with this SDG. The average RRF for 1,4-dioxane was  $\geq 0.05$  and the %RSD was  $\leq 15\%$ . One continuing calibration, dated 01/07/05 was associated with this SDG. The RRF for 1,4-dioxane was  $\geq 0.05$  and the %D was  $\leq 20\%$ . The %RSD 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 (P5A1203-BLK1) was associated with this SDG. 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 (P5A1203-BS1/BS1D) with this SDG. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative recovery was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.6 SURROGATE RECOVERY

The sample and QC were fortified with dibromofluoromethane. The surrogate was recovered within the laboratory QC limits of 80-125%. The surrogate recovery for this sample was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample Outfall 011 was the MS/MSD analyses performed with this SDG. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative recovery was 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

The sample in this SDG had no associated trip blank. No qualifications were required.

### 2.8.1 Field Blanks and Equipment Rinsates

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

### 2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for the sample were within the control limits established by the continuing calibration standards, of +100%/-50% for internal standard areas and  $\pm 0.50$  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 sample 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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MWH-Pasadena/Bocing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

## DRAFT: 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: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				REV QUAL
Reporting Units: ug/l									CODE
1,4-Dioxane	EPA 8260B	P5A1203	0.49	1.0	ND	1	01/12/05	01/12/05	U
Surrogate: Dibromofluoromethane (80-125%)						93 %			

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LEVEL TV

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 T711VO46  
 Task Order 313150010  
 SDG No. IOA0121

No. of Analyses 2

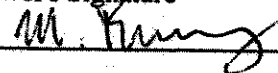
Laboratory Del Mar

Date: February 11, 2005

Reviewer M. Pokorny

Reviewer's Signature

Analysis/Method Volatiles



**ACTION ITEMS\***

- |                                    |  |
|------------------------------------|--|
| <b>1. Case Narrative</b>           |  |
| <b>Deficiencies</b>                |  |
| <b>2. Out of Scope</b>             |  |
| <b>Analyses</b>                    |  |
| <b>3. Analyses Not Conducted</b>   |  |
| <b>4. Missing Hardcopy</b>         |  |
| <b>Deliverables</b>                |  |
| <b>5. Incorrect Hardcopy</b>       |  |
| <b>Deliverables</b>                |  |
| <b>6. Deviations from Analysis</b> | <b>Qualifications required for calibration outliers.</b> |
| <b>Protocol, e.g.,</b>             |  |
| 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<sup>b</sup>**

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0121

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#: IOA0121  
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: February 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*, 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	IOA0121-01	water	624
Trip Blank	Trip Blank	IOA0121-02	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. According to the COC, the samples were received intact, without headspace, and in good condition. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed by field and laboratory personnel and accounted for the analyses presented in this SDG. As the samples were couriered directly to the laboratory, custody seals are 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 report were consistent with those specified in the EPA Method 624. All ion abundances were within the established windows and were therefore acceptable. 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 10/24/04 and 11/10/04, were associated with this SDG. The average RRFs were ≥0.05 and the %RSDs were ≤35% for the target compounds listed on the sample summary forms. Two continuing calibrations, dated 01/05/05 (16:00 and 16:33), were associated with this SDG. The RRFs for all target compounds were ≥0.05 and the %Ds were ≤20% except for the %Ds for methylene chloride, 2-chloroethylvinyl ether, bromoform, acrolein, and acrylonitrile. The aforementioned compounds were qualified as estimated nondetects, "UJ," in the site sample of this SDG. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibrations were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

## 2.4 BLANKS

Two water method blank (5A05017-BLK1 and 5A05012) were associated with this SDG. There were no detects for the target compounds listed on the summary forms. 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 (5A05017-BS1 and 5A05012) were associated with this SDG. All spike 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 within the QC limits of 80-120%. 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 was 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 (IOA0121-02) was the trip blank associated with the site sample of this SDG. Methylene chloride was detected in the trip blank; however, the sample of this SDG did not have any target compounds detected. No qualifications were required.

### 2.8.2 Field Blanks and Equipment Rinsates

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

### 2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for this SDG were within the control limits established by the continuing calibration standards, of +100%/-50% for internal standard areas and  $\pm 0.50$  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 a subset of 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.

The laboratory analyzed for 1,2-dichloro-1,1,2-trifluorethane and cyclohexane as TICs for this SDG. 1,2-dichloro-1,1,2-trifluorethane was present in the calibration standards. Neither compound was reported either as a TIC or as a target compound in the samples of this SDG and were reported as estimated nondetects, "UJ."

No further 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 MDL study. Compound quantitation was verified by recalculating any sample detect, and/or a representative number of 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

The laboratory analyzed for 1,2-dichloro-1,1,2-trifluorethane and cyclohexane as TICs for this SDG. 1,2-dichloro-1,1,2-trifluorethane was present in the calibration standards. Neither compound was reported either as a TIC or as a target compound in the samples of 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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

**DRAFT: PURGEABLES BY GC/MS (EPA 624)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	REV QUAL	QUAL CODE
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water)											
Reporting Units: ug/l											
Sampled: 01/04/05											
Benzene	EPA 624	5A05017	0.28	1.0	ND	1	01/05/05	01/05/05	U		
Bromodichloromethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	U		
Bromoform	EPA 624	5A05017	0.32	5.0	ND	1	01/05/05	01/05/05	U		
Bromomethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05	U		C
Carbon tetrachloride	EPA 624	5A05017	0.28	0.50	ND	1	01/05/05	01/05/05	U		
Chlorobenzene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05	U		
Chloroethane	EPA 624	5A05017	0.33	5.0	ND	1	01/05/05	01/05/05	U		
Chloroform	EPA 624	5A05017	0.33	2.0	ND	1	01/05/05	01/05/05	U		
Chloromethane	EPA 624	5A05017	0.30	5.0	ND	1	01/05/05	01/05/05	U		
Dibromochloromethane	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05	U		
1,2-Dichlorobenzene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05	U		
1,3-Dichlorobenzene	EPA 624	5A05017	0.35	2.0	ND	1	01/05/05	01/05/05	U		
1,4-Dichlorobenzene	EPA 624	5A05017	0.37	2.0	ND	1	01/05/05	01/05/05	U		
1,1-Dichloroethane	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05	U		
1,2-Dichloroethane	EPA 624	5A05017	0.28	0.50	ND	1	01/05/05	01/05/05	U		
1,1-Dichloroethene	EPA 624	5A05017	0.32	5.0	ND	1	01/05/05	01/05/05	U		
trans-1,2-Dichloroethene	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05	U		
1,2-Dichloropropane	EPA 624	5A05017	0.35	2.0	ND	1	01/05/05	01/05/05	U		
cis-1,3-Dichloropropene	EPA 624	5A05017	0.22	2.0	ND	1	01/05/05	01/05/05	U		
trans-1,3-Dichloropropene	EPA 624	5A05017	0.24	2.0	ND	1	01/05/05	01/05/05	U		
Ethylbenzene	EPA 624	5A05017	0.25	2.0	ND	1	01/05/05	01/05/05	U		
Methylene chloride	EPA 624	5A05017	0.48	5.0	ND	1	01/05/05	01/05/05	U		C
1,1,2,2-Tetrachloroethane	EPA 624	5A05017	0.24	2.0	ND	1	01/05/05	01/05/05	U		
Tetrachloroethene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05	U		
Toluene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05	U		
1,1,1-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	U		
1,1,2-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	U		
Trichloroethene	EPA 624	5A05017	0.26	2.0	ND	1	01/05/05	01/05/05	U		
Trichlorofluoromethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05	U		
Vinyl chloride	EPA 624	5A05017	0.26	0.50	ND	1	01/05/05	01/05/05	U		
Xylenes, Total	EPA 624	5A05017	0.52	4.0	ND	1	01/05/05	01/05/05	U		
Surrogate: Dibromofluoromethane (80-120%)											100%
Surrogate: Toluene-d8 (80-120%)											101%
Surrogate: 4-Bromofluorobenzene (80-120%)											97%

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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: IOA0121-01 (DRAFT: Outfall 011 - grab - Water)					Sampled: 01/04/05					REV QUAL
Reporting Units: ug/l										QUAL CODE
Acrolein	EPA 624	5A05012	4.6	50	ND	1	01/05/05	01/05/05	UJ C	
Acrylonitrile	EPA 624	5A05012	5.1	50	ND	1	01/05/05	01/05/05	UJ C	
2-Chloroethyl vinyl ether	EPA 624	5A05012	1.3	5.0	ND	1	01/05/05	01/05/05	UJ C	
Surrogate: Dibromofluoromethane (80-120%)					103 %					
Surrogate: Toluene-d8 (80-120%)					102 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					99 %					

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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: IOA0121-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Sampled: 01/04/05									
Benzene	EPA 624	5A05017	0.28	1.0	ND	1	01/05/05	01/05/05	U
Bromodichloromethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
Bromoform	EPA 624	5A05017	0.32	5.0	ND	1	01/05/05	01/05/05	
Bromomethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05	
Carbon tetrachloride	EPA 624	5A05017	0.28	0.50	ND	1	01/05/05	01/05/05	
Chlorobenzene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05	
Chloroethane	EPA 624	5A05017	0.33	5.0	ND	1	01/05/05	01/05/05	
Chloroform	EPA 624	5A05017	0.33	2.0	ND	1	01/05/05	01/05/05	
Chloromethane	EPA 624	5A05017	0.30	5.0	ND	1	01/05/05	01/05/05	
Dibromochloromethane	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichlorobenzene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05	
1,3-Dichlorobenzene	EPA 624	5A05017	0.35	2.0	ND	1	01/05/05	01/05/05	
1,4-Dichlorobenzene	EPA 624	5A05017	0.37	2.0	ND	1	01/05/05	01/05/05	
1,1-Dichloroethane	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichloroethane	EPA 624	5A05017	0.28	0.50	ND	1	01/05/05	01/05/05	
1,1-Dichloroethene	EPA 624	5A05017	0.32	5.0	ND	1	01/05/05	01/05/05	
trans-1,2-Dichloroethene	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichloropropane	EPA 624	5A05017	0.35	2.0	ND	1	01/05/05	01/05/05	
cis-1,3-Dichloropropene	EPA 624	5A05017	0.22	2.0	ND	1	01/05/05	01/05/05	
trans-1,3-Dichloropropene	EPA 624	5A05017	0.24	2.0	ND	1	01/05/05	01/05/05	
Ethylbenzene	EPA 624	5A05017	0.25	2.0	ND	1	01/05/05	01/05/05	
Methylene chloride	EPA 624	5A05017	0.48	5.0	0.50	1	01/05/05	01/05/05	J J DNR
1,1,2,2-Tetrachloroethane	EPA 624	5A05017	0.24	2.0	ND	1	01/05/05	01/05/05	U
Tetrachloroethene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05	
Toluene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05	
1,1,1-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
1,1,2-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
Trichloroethene	EPA 624	5A05017	0.26	2.0	ND	1	01/05/05	01/05/05	
Trichlorofluoromethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05	
Vinyl chloride	EPA 624	5A05017	0.26	0.50	ND	1	01/05/05	01/05/05	
Xylenes, Total	EPA 624	5A05017	0.52	4.0	ND	1	01/05/05	01/05/05	
Surrogate: Dibromofluoromethane (80-120%)									98%
Surrogate: Toluene-d8 (80-120%)									98%
Surrogate: 4-Bromofluorobenzene (80-120%)									97%

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A05017	N/A	2.5	ND	1	01/05/05	01/05/05	UJ #10
Cyclohexane	EPA 624 (MOD.)	5A05017	N/A	2.5	ND	1	01/05/05	01/05/05	UJ #10
Sample ID: IOA0121-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A05017	N/A	2.5	ND	1	01/05/05	01/05/05	UJ #10
Cyclohexane	EPA 624 (MOD.)	5A05017	N/A	2.5	ND	1	01/05/05	01/05/05	UJ #10

AMEC VALIDATED

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

LEVEL IV

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-0396 FAX (619) 505-0689  
 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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ug/l									REV QUAL
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A05017	1.2	5.0	ND	1	01/05/05	01/05/05	U
Surrogate: Dibromofluoromethane (80-120%)					100 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				
<b>Sample ID: IOA0121-02 (DRAFT: Trip Blank - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ug/l									QUAL CODE
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A05017	1.2	5.0	ND	1	01/05/05	01/05/05	U
Surrogate: Dibromofluoromethane (80-120%)					98 %				
Surrogate: Toluene-d8 (80-120%)					98 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

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 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

LEVEL IV

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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 T711WC59  
 Task Order 313150010  
 SDG No. IOA0121  
 No. of Analyses 1

Laboratory Del Mar

Date: 02/14/05

Reviewer P. Meeks

Reviewer's Signature  
*P. Meeks*

Analysis/Method General Minerals

**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	Qualifications applied for hexavalent chromium detected in the method blank, exceeded hexavalent chromium holding time, and detects below the reporting limits.
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\***

\* 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: IOA0121

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 #: IOA0121  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: February 14, 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, 150.1, 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	Outfall 011 Grab	IOA0121-01	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 requested only a few of the presented analyses. The remaining analyses were requested in a memo from MWH personnel dated 02/16/05. 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 biological oxygen demand, surfactants, turbidity, nitrate/nitrite, and total settleable solids, and the 24-hour residual chlorine holding time were met. The 24-hour hexavalent chromium holding time was exceeded; therefore, nondetected hexavalent chromium in Outfall 011 Grab was qualified as estimated, "UJ." No further qualifications were required.

### 2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were  $\geq 0.995$ . All ICV and continuing calibration information was acceptable with %Rs 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 or total settleable solids. No qualifications were required.

### 2.3 BLANKS

Hexavalent chromium was detected in the method blank at 0.15 mg/L and in the bracketing CCB at 0.20 mg/L; therefore, hexavalent chromium detected in Outfall 011 Grab was qualified as an estimated nondetect, "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 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 this SDG.

#### **2.6 LABORATORY DUPLICATES**

A duplicate analysis was performed on Outfall 011 Grab for residual chlorine and MS/MSD analyses were performed for hexavalent chromium. Both RPDs were within the laboratory-established control limits. No qualifications were required.

#### **2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses were performed on Outfall 011 Grab hexavalent chromium only. Both recoveries were within the laboratory-established control limits of 90-110% and no qualifications were required.

#### **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 Is were verified against the raw data. No transcription errors or calculation errors were noted. MBAS was analyzed at a 100× dilution, as the sample had formed an



DATA VALIDATION REPORT

Project: NPDES  
SDG No.: IOA0121  
Analysis: Gen. Min.

emulsion. Analytes 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 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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 9810 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-4043 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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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: IOA0121-01 (DRAFT: Outfall 011 - grab - Water)					Sampled: 01/04/05								
Reporting Units: mg/l													
Total Recoverable Hydrocarbons	EPA 418.1	5A06070	0.31	1.0	ND	1	01/06/05	01/06/05	<table border="1"> <tr> <td>Res Qual</td> <td>Qual Code</td> </tr> <tr> <td>U</td> <td></td> </tr> </table>	Res Qual	Qual Code	U	
Res Qual	Qual Code												
U													

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# LEVEL IV

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 DATA SUBJECT TO CHANGE

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

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Per Qual	Qual Code
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05						
Reporting Units: mg/l											
Ammonia-N (Distilled)	EPA 350.2	5A05067	0.30	0.50	ND	1	01/05/05	01/05/05	U		
Biochemical Oxygen Demand	EPA 405.1	5A05054	0.59	2.0	1.1	1	01/05/05	01/10/05	J J		DNQ
Chloride	EPA 300.0	5A04042	0.26	0.50	4.2	1	01/04/05	01/04/05	J J		DNQ
Fluoride	EPA 300.0	5A04042	0.074	0.50	0.25	1	01/04/05	01/04/05	J J		DNQ
Nitrate/Nitrite-N	EPA 300.0	5A04042	0.072	0.26	2.1	1	01/04/05	01/04/05			
Oil & Grease	EPA 413.1	5A05068	0.94	5.0	ND	1	01/05/05	01/05/05	U		
Residual Chlorine	EPA 330.5	5A05066	0.10	0.10	ND	1	01/05/05	01/05/05	U		
Sulfate	EPA 300.0	5A04042	0.18	0.50	5.9	1	01/04/05	01/04/05			
Surfactants (MBAS)	SM5540-C	5A04104	4.4	10	ND	100	01/04/05	01/04/05	RL-U		
Total Dissolved Solids	SM2540C	5A06082	10	10	120	1	01/06/05	01/06/05			
Total Organic Carbon	EPA 415.1	5A05058	0.56	1.0	12	1	01/05/05	01/05/05			
Total Suspended Solids	EPA 160.2	5A07077	10	10	ND	1	01/07/05	01/07/05	U		

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# LEVEL IV

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 2520 E. Sunset Rd. #1, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				See Qual Code
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5A05055	0.10	0.10	ND	1	01/05/05	01/05/05	V

# AMEC VALIDATED

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 9830 Swath 51st St., Suite B-120, Phoenix, AZ 85044 (480) 783-0043 FAX (480) 783-0951  
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-1621

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers		
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05						
Reporting Units: NTU											
Turbidity	EPA 180.1	5A05079	0.040	1.0	30	1	01/05/05	01/05/05	<table border="1"> <tr> <td>Per Qual</td> <td>Qual Code</td> </tr> </table>	Per Qual	Qual Code
Per Qual	Qual Code										

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LEVEL IV

DRAFT REPORT  
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 9830 South 51st St., Suite 8-120, 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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.										
Reporting Units: ug/l										
Chromium VI	EPA 218.6	5A05064	0.041	1.0	0.17	1	01/05/05	01/05/05	B, H-1, J	H, P
Total Cyanide	EPA 335.2	5A05078	2.2	5.0	ND	1	01/05/05	01/05/05	U	
Perchlorate	EPA 314.0	5A06055	0.80	4.0	ND	1	01/06/05	01/06/05	*	

\* Analysis not validated

AMEC VALIDATED

LEVEL IV

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 DATA SUBJECT TO CHANGE

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8590 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) 798-1620 FAX (702) 798-1621

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.													
Reporting Units: umhos/cm													
Specific Conductance	EPA 120.1	5A06081	1.0	1.0	100	1	01/06/05	01/06/05	<table border="1"> <tr> <td>Per Qual</td> <td>Qual Code</td> </tr> <tr> <td></td> <td></td> </tr> </table>	Per Qual	Qual Code		
Per Qual	Qual Code												

# 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 T711WC60  
 Task Order 313150010  
 SDG No. IOA0121

No. of Analyses 1

Laboratory Del Mar Analytical

Date: 02/11/05

Reviewer L. Jarusewic

Reviewer's Signature

Analysis/Method Perchlorate



**ACTION ITEMS<sup>a</sup>**

- 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<sup>b</sup>**      Acceptable as reviewed.

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





# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOA0121

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 #: IOA0121  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Perchlorate  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: L. Jarusewic  
Date of Review: February 11, 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 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	IOA0121-01	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . 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, 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  $\geq 0.995$ . 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%. The CCV recovery was above the control limits of 90-110%; however, as perchlorate was not detected in the site sample, 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.

## **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 calculations 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 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 package.



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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	Qualifiers
Sample ID: IOA0121-01 (DRAFT: Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05					REV QUAL QUAL CODE
Reporting Units: ug/l										
Chromium VI	EPA 218.6	5A05064	0.041	1.0	0.17	1	01/05/05	01/05/05		*B, H-1 J
Total Cyanide	EPA 335.2	5A05078	2.2	5.0	ND	1	01/05/05	01/05/05		↓
Perchlorate	EPA 314.0	5A06055	0.80	4.0	ND	1	01/06/05	01/06/05		U

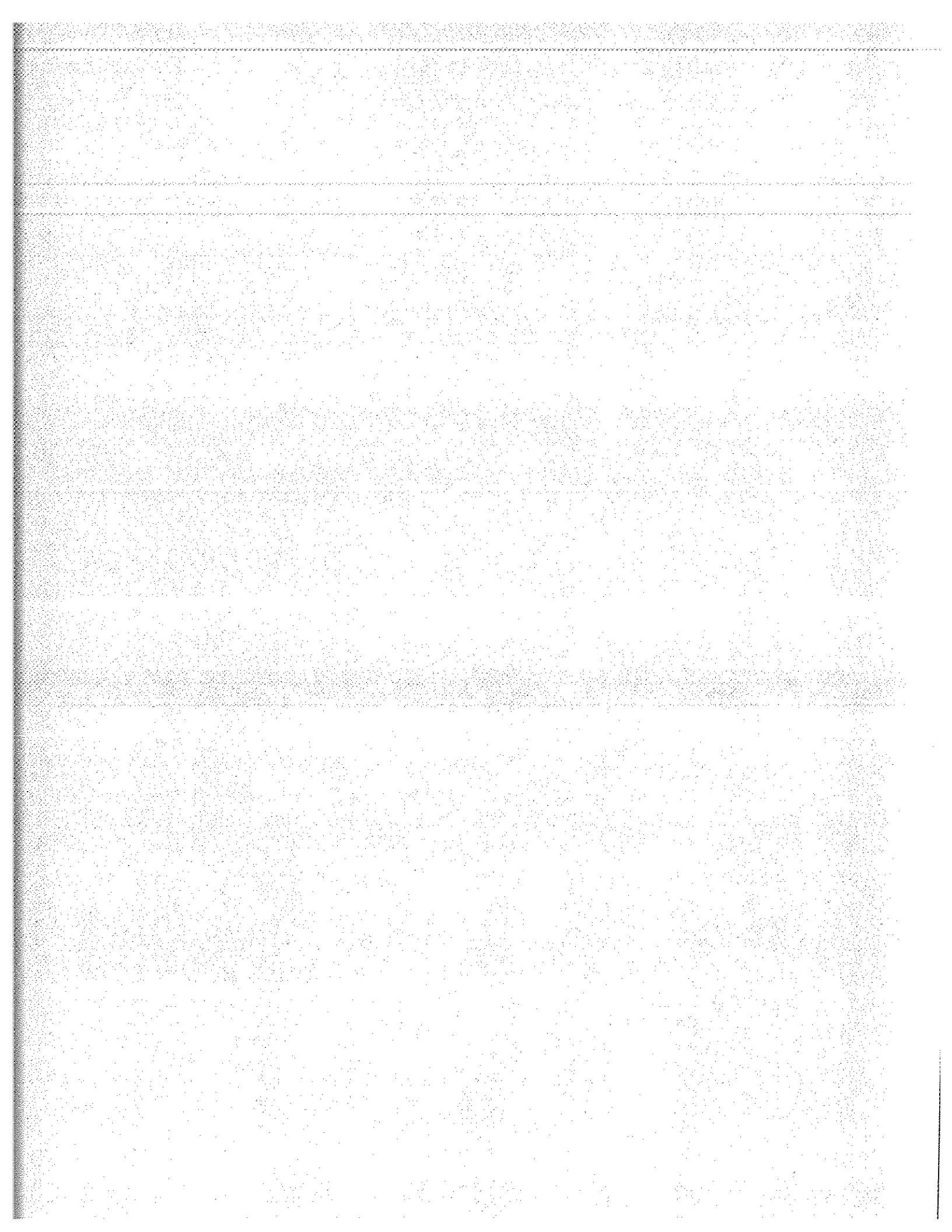
\*Analysis Not Validated

**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: Quarterly Outfall 011 + 13267

Sampled: 01/04/05  
Received: 01/04/05  
Issued: 03/08/05 16:13

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, 3 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 4°C, on ice and with chain of custody documentation.
- HOLDING TIMES: Not all holding times were met. Results were qualified where the sample analysis did not occur within method specified holding time requirements.
- 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. There was a dilution for the MBAS analysis due to emulsion.
- SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

LABORATORY ID	CLIENT ID	MATRIX
IOA0121-01	Outfall 011 - grab	Water
IOA0121-02	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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

## CORRECTIVE ACTION REPORT

Department: Extractions

Date: 01/14/2005

Method: EPA 625

Matrix: Water

QC Batch: 5A05039

### Identification and Definition of Problem:

The percent recoveries for benzidine in the LCS and LCSD were 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: 01/18/2005 09:20 AM

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: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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: IOA0121-01 (Outfall 011 - grab - Water)					Sampled: 01/04/05				
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5A06070	0.31	1.0	ND	1	01/06/05	01/06/05	

**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: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5A06045	0.082	0.50	ND	0.962	01/06/05	01/07/05	
Surrogate: n-Octacosane (40-125%)					59 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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
<b>Sample ID: IOA0121-01 (Outfall 011 - grab - Water) - cont.</b>					<b>Sampled: 01/04/05</b>				
<b>Reporting Units: mg/l</b>									
GRO (C4 - C12)	EPA 8015 Mod.	5A06001	0.050	0.10	ND	1	01/06/05	01/06/05	
<i>Surrogate: 4-BFB (FID) (65-140%)</i>					84 %				
<b>Sample ID: IOA0121-02 (Trip Blank - Water)</b>					<b>Sampled: 01/04/05</b>				
<b>Reporting Units: mg/l</b>									
GRO (C4 - C12)	EPA 8015 Mod.	5A06001	0.050	0.10	ND	1	01/06/05	01/06/05	
<i>Surrogate: 4-BFB (FID) (65-140%)</i>					85 %				

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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: Quarterly Outfall 011 + 13267 Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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## FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0121-01 (Outfall 011 - grab - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ug/l									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A05017	1.2	5.0	ND	1	01/05/05	01/05/05	
Surrogate: Dibromofluoromethane (80-120%)					100 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				
<b>Sample ID: IOA0121-02 (Trip Blank - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ug/l									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A05017	1.2	5.0	ND	1	01/05/05	01/05/05	
Surrogate: Dibromofluoromethane (80-120%)					98 %				
Surrogate: Toluene-d8 (80-120%)					98 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

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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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
Received: 01/04/05

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: IOA0121-01 (Outfall 011 - grab - Water)					Sampled: 01/04/05				
Reporting Units: ug/l									
Benzene	EPA 624	5A05017	0.28	1.0	ND	1	01/05/05	01/05/05	
Bromodichloromethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
Bromoform	EPA 624	5A05017	0.32	5.0	ND	1	01/05/05	01/05/05	
Bromomethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05	
Carbon tetrachloride	EPA 624	5A05017	0.28	0.50	ND	1	01/05/05	01/05/05	
Chlorobenzene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05	
Chloroethane	EPA 624	5A05017	0.33	5.0	ND	1	01/05/05	01/05/05	
Chloroform	EPA 624	5A05017	0.33	2.0	ND	1	01/05/05	01/05/05	
Chloromethane	EPA 624	5A05017	0.30	5.0	ND	1	01/05/05	01/05/05	
Dibromochloromethane	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichlorobenzene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05	
1,3-Dichlorobenzene	EPA 624	5A05017	0.35	2.0	ND	1	01/05/05	01/05/05	
1,4-Dichlorobenzene	EPA 624	5A05017	0.37	2.0	ND	1	01/05/05	01/05/05	
1,1-Dichloroethane	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichloroethane	EPA 624	5A05017	0.28	0.50	ND	1	01/05/05	01/05/05	
1,1-Dichloroethene	EPA 624	5A05017	0.32	5.0	ND	1	01/05/05	01/05/05	
trans-1,2-Dichloroethene	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichloropropane	EPA 624	5A05017	0.35	2.0	ND	1	01/05/05	01/05/05	
cis-1,3-Dichloropropene	EPA 624	5A05017	0.22	2.0	ND	1	01/05/05	01/05/05	
trans-1,3-Dichloropropene	EPA 624	5A05017	0.24	2.0	ND	1	01/05/05	01/05/05	
Ethylbenzene	EPA 624	5A05017	0.25	2.0	ND	1	01/05/05	01/05/05	
Methylene chloride	EPA 624	5A05017	0.48	5.0	ND	1	01/05/05	01/05/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A05017	0.24	2.0	ND	1	01/05/05	01/05/05	
Tetrachloroethene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05	
Toluene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05	
1,1,1-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
1,1,2-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
Trichloroethene	EPA 624	5A05017	0.26	2.0	ND	1	01/05/05	01/05/05	
Trichlorofluoromethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05	
Vinyl chloride	EPA 624	5A05017	0.26	0.50	ND	1	01/05/05	01/05/05	
Xylenes, Total	EPA 624	5A05017	0.52	4.0	ND	1	01/05/05	01/05/05	
Surrogate: Dibromofluoromethane (80-120%)					100 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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: IOA0121-02 (Trip Blank - Water)					Sampled: 01/04/05				
Reporting Units: ug/l									
Benzene	EPA 624	5A05017	0.28	1.0	ND	1	01/05/05	01/05/05	
Bromodichloromethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
Bromoform	EPA 624	5A05017	0.32	5.0	ND	1	01/05/05	01/05/05	
Bromomethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05	
Carbon tetrachloride	EPA 624	5A05017	0.28	0.50	ND	1	01/05/05	01/05/05	
Chlorobenzene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05	
Chloroethane	EPA 624	5A05017	0.33	5.0	ND	1	01/05/05	01/05/05	
Chloroform	EPA 624	5A05017	0.33	2.0	ND	1	01/05/05	01/05/05	
Chloromethane	EPA 624	5A05017	0.30	5.0	ND	1	01/05/05	01/05/05	
Dibromochloromethane	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichlorobenzene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05	
1,3-Dichlorobenzene	EPA 624	5A05017	0.35	2.0	ND	1	01/05/05	01/05/05	
1,4-Dichlorobenzene	EPA 624	5A05017	0.37	2.0	ND	1	01/05/05	01/05/05	
1,1-Dichloroethane	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichloroethane	EPA 624	5A05017	0.28	0.50	ND	1	01/05/05	01/05/05	
1,1-Dichloroethene	EPA 624	5A05017	0.32	5.0	ND	1	01/05/05	01/05/05	
trans-1,2-Dichloroethene	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichloropropane	EPA 624	5A05017	0.35	2.0	ND	1	01/05/05	01/05/05	
cis-1,3-Dichloropropene	EPA 624	5A05017	0.22	2.0	ND	1	01/05/05	01/05/05	
trans-1,3-Dichloropropene	EPA 624	5A05017	0.24	2.0	ND	1	01/05/05	01/05/05	
Ethylbenzene	EPA 624	5A05017	0.25	2.0	ND	1	01/05/05	01/05/05	
Methylene chloride	EPA 624	5A05017	0.48	5.0	0.50	1	01/05/05	01/05/05	J
1,1,2,2-Tetrachloroethane	EPA 624	5A05017	0.24	2.0	ND	1	01/05/05	01/05/05	
Tetrachloroethene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05	
Toluene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05	
1,1,1-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
1,1,2-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
Trichloroethene	EPA 624	5A05017	0.26	2.0	ND	1	01/05/05	01/05/05	
Trichlorofluoromethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05	
Vinyl chloride	EPA 624	5A05017	0.26	0.50	ND	1	01/05/05	01/05/05	
Xylenes, Total	EPA 624	5A05017	0.52	4.0	ND	1	01/05/05	01/05/05	
Surrogate: Dibromofluoromethane (80-120%)					98 %				
Surrogate: Toluene-d8 (80-120%)					98 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

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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: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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
<b>Sample ID: IOA0121-01 (Outfall 011 - grab - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ug/l									
Acrolein	EPA 624	5A05012	4.6	50	ND	1	01/05/05	01/05/05	
Acrylonitrile	EPA 624	5A05012	5.1	50	ND	1	01/05/05	01/05/05	
2-Chloroethyl vinyl ether	EPA 624	5A05012	1.3	5.0	ND	1	01/05/05	01/05/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					103 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					102 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					99 %				

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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: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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
<b>Sample ID: IOA0121-01 (Outfall 011 - grab - Water) - cont.</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A05017	N/A	2.5	ND	1	01/05/05	01/05/05	
Cyclohexane	EPA 624 (MOD.)	5A05017	N/A	2.5	ND	1	01/05/05	01/05/05	
<b>Sample ID: IOA0121-02 (Trip Blank - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A05017	N/A	2.5	ND	1	01/05/05	01/05/05	
Cyclohexane	EPA 624 (MOD.)	5A05017	N/A	2.5	ND	1	01/05/05	01/05/05	

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

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: IOA0121-01 (Outfall 011 - grab - Water)					Sampled: 01/04/05				
Reporting Units: ug/l									
Acenaphthene	EPA 625	5A05039	0.10	0.50	ND	0.962	01/05/05	01/14/05	
Acenaphthylene	EPA 625	5A05039	0.10	0.50	ND	0.962	01/05/05	01/14/05	
Aniline	EPA 625	5A05039	2.9	10	ND	0.962	01/05/05	01/14/05	
Anthracene	EPA 625	5A05039	0.083	0.50	ND	0.962	01/05/05	01/14/05	
Benzidine	EPA 625	5A05039	2.4	5.0	ND	0.962	01/05/05	01/14/05	L2
Benzoic acid	EPA 625	5A05039	3.7	20	ND	0.962	01/05/05	01/14/05	
Benzo(a)anthracene	EPA 625	5A05039	0.038	5.0	ND	0.962	01/05/05	01/14/05	
Benzo(a)pyrene	EPA 625	5A05039	0.14	2.0	ND	0.962	01/05/05	01/14/05	
Benzo(b)fluoranthene	EPA 625	5A05039	0.050	2.0	ND	0.962	01/05/05	01/14/05	
Benzo(g,h,i)perylene	EPA 625	5A05039	0.059	5.0	ND	0.962	01/05/05	01/14/05	
Benzo(k)fluoranthene	EPA 625	5A05039	0.053	0.50	ND	0.962	01/05/05	01/14/05	
Benzyl alcohol	EPA 625	5A05039	0.21	5.0	0.27	0.962	01/05/05	01/14/05	J
Bis(2-chloroethoxy)methane	EPA 625	5A05039	0.072	0.50	ND	0.962	01/05/05	01/14/05	
Bis(2-chloroethyl)ether	EPA 625	5A05039	0.084	0.50	ND	0.962	01/05/05	01/14/05	
Bis(2-chloroisopropyl)ether	EPA 625	5A05039	0.11	0.50	ND	0.962	01/05/05	01/14/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5A05039	1.1	5.0	ND	0.962	01/05/05	01/14/05	
4-Bromophenyl phenyl ether	EPA 625	5A05039	0.12	1.0	ND	0.962	01/05/05	01/14/05	
Butyl benzyl phthalate	EPA 625	5A05039	0.34	5.0	ND	0.962	01/05/05	01/14/05	
4-Chloroaniline	EPA 625	5A05039	0.20	2.0	ND	0.962	01/05/05	01/14/05	
2-Chloronaphthalene	EPA 625	5A05039	0.059	0.50	ND	0.962	01/05/05	01/14/05	
4-Chloro-3-methylphenol	EPA 625	5A05039	0.34	2.0	ND	0.962	01/05/05	01/14/05	
4-Chlorophenyl phenyl ether	EPA 625	5A05039	0.056	0.50	ND	0.962	01/05/05	01/14/05	
2-Chlorophenol	EPA 625	5A05039	0.12	1.0	ND	0.962	01/05/05	01/14/05	
Chrysene	EPA 625	5A05039	0.072	0.50	ND	0.962	01/05/05	01/14/05	
Dibenz(a,h)anthracene	EPA 625	5A05039	0.083	0.50	ND	0.962	01/05/05	01/14/05	
Dibenzofuran	EPA 625	5A05039	0.075	0.50	ND	0.962	01/05/05	01/14/05	
Di-n-butyl phthalate	EPA 625	5A05039	0.26	2.0	ND	0.962	01/05/05	01/14/05	
1,2-Dichlorobenzene	EPA 625	5A05039	0.11	0.50	ND	0.962	01/05/05	01/14/05	
1,3-Dichlorobenzene	EPA 625	5A05039	0.13	0.50	ND	0.962	01/05/05	01/14/05	
1,4-Dichlorobenzene	EPA 625	5A05039	0.050	0.50	ND	0.962	01/05/05	01/14/05	
3,3-Dichlorobenzidine	EPA 625	5A05039	0.93	5.0	ND	0.962	01/05/05	01/14/05	
2,4-Dichlorophenol	EPA 625	5A05039	0.21	2.0	ND	0.962	01/05/05	01/14/05	
Diethyl phthalate	EPA 625	5A05039	0.12	1.0	ND	0.962	01/05/05	01/14/05	
2,4-Dimethylphenol	EPA 625	5A05039	0.31	2.0	ND	0.962	01/05/05	01/14/05	
Dimethyl phthalate	EPA 625	5A05039	0.081	0.50	ND	0.962	01/05/05	01/14/05	
4,6-Dinitro-2-methylphenol	EPA 625	5A05039	0.38	5.0	ND	0.962	01/05/05	01/14/05	
2,4-Dinitrophenol	EPA 625	5A05039	2.7	5.0	ND	0.962	01/05/05	01/14/05	L
2,4-Dinitrotoluene	EPA 625	5A05039	0.23	5.0	ND	0.962	01/05/05	01/14/05	
2,6-Dinitrotoluene	EPA 625	5A05039	0.24	5.0	ND	0.962	01/05/05	01/14/05	
Di-n-octyl phthalate	EPA 625	5A05039	0.17	5.0	ND	0.962	01/05/05	01/14/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A05039	0.087	1.0	ND	0.962	01/05/05	01/14/05	

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: ug/l									
Fluoranthene	EPA 625	5A05039	0.089	0.50	ND	0.962	01/05/05	01/14/05	
Fluorene	EPA 625	5A05039	0.075	0.50	ND	0.962	01/05/05	01/14/05	
Hexachlorobenzene	EPA 625	5A05039	0.13	1.0	ND	0.962	01/05/05	01/14/05	
Hexachlorobutadiene	EPA 625	5A05039	0.38	2.0	ND	0.962	01/05/05	01/14/05	
Hexachlorocyclopentadiene	EPA 625	5A05039	1.8	5.0	ND	0.962	01/05/05	01/14/05	
Hexachloroethane	EPA 625	5A05039	0.51	3.0	ND	0.962	01/05/05	01/14/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5A05039	0.19	2.0	ND	0.962	01/05/05	01/14/05	
Isophorone	EPA 625	5A05039	0.059	1.0	0.12	0.962	01/05/05	01/14/05	J
2-Methylnaphthalene	EPA 625	5A05039	0.13	1.0	ND	0.962	01/05/05	01/14/05	
2-Methylphenol	EPA 625	5A05039	0.28	2.0	ND	0.962	01/05/05	01/14/05	
4-Methylphenol	EPA 625	5A05039	0.20	5.0	ND	0.962	01/05/05	01/14/05	
Naphthalene	EPA 625	5A05039	0.13	1.0	ND	0.962	01/05/05	01/14/05	
2-Nitroaniline	EPA 625	5A05039	0.18	5.0	ND	0.962	01/05/05	01/14/05	
3-Nitroaniline	EPA 625	5A05039	0.35	5.0	ND	0.962	01/05/05	01/14/05	
4-Nitroaniline	EPA 625	5A05039	0.49	5.0	ND	0.962	01/05/05	01/14/05	
Nitrobenzene	EPA 625	5A05039	0.10	1.0	ND	0.962	01/05/05	01/14/05	
2-Nitrophenol	EPA 625	5A05039	0.23	2.0	ND	0.962	01/05/05	01/14/05	
4-Nitrophenol	EPA 625	5A05039	0.73	5.0	ND	0.962	01/05/05	01/14/05	
N-Nitrosodimethylamine	EPA 625	5A05039	0.22	2.0	ND	0.962	01/05/05	01/14/05	
N-Nitroso-di-n-propylamine	EPA 625	5A05039	0.18	2.0	ND	0.962	01/05/05	01/14/05	
N-Nitrosodiphenylamine	EPA 625	5A05039	0.077	1.0	ND	0.962	01/05/05	01/14/05	
Pentachlorophenol	EPA 625	5A05039	0.78	2.0	ND	0.962	01/05/05	01/14/05	
Phenanthrene	EPA 625	5A05039	0.071	0.50	ND	0.962	01/05/05	01/14/05	
Phenol	EPA 625	5A05039	0.14	1.0	ND	0.962	01/05/05	01/14/05	
Pyrene	EPA 625	5A05039	0.059	0.50	ND	0.962	01/05/05	01/14/05	
1,2,4-Trichlorobenzene	EPA 625	5A05039	0.10	1.0	ND	0.962	01/05/05	01/14/05	
2,4,5-Trichlorophenol	EPA 625	5A05039	0.075	2.0	ND	0.962	01/05/05	01/14/05	
2,4,6-Trichlorophenol	EPA 625	5A05039	0.10	1.0	ND	0.962	01/05/05	01/14/05	
Surrogate: 2-Fluorophenol (35-120%)									78 %
Surrogate: Phenol-d6 (45-120%)									86 %
Surrogate: 2,4,6-Tribromophenol (50-125%)									91 %
Surrogate: Nitrobenzene-d5 (45-120%)									78 %
Surrogate: 2-Fluorobiphenyl (45-120%)									80 %
Surrogate: Terphenyl-d14 (45-135%)									83 %

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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: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: ug/l									
Aldrin	EPA 608	5A05041	0.029	0.10	ND	0.962	01/05/05	01/05/05	
alpha-BHC	EPA 608	5A05041	0.010	0.10	ND	0.962	01/05/05	01/05/05	
beta-BHC	EPA 608	5A05041	0.011	0.10	ND	0.962	01/05/05	01/05/05	
delta-BHC	EPA 608	5A05041	0.010	0.20	ND	0.962	01/05/05	01/05/05	
gamma-BHC (Lindane)	EPA 608	5A05041	0.0097	0.10	ND	0.962	01/05/05	01/05/05	
Chlordane	EPA 608	5A05041	0.18	1.0	ND	0.962	01/05/05	01/05/05	
4,4'-DDD	EPA 608	5A05041	0.011	0.10	ND	0.962	01/05/05	01/05/05	
4,4'-DDE	EPA 608	5A05041	0.017	0.10	ND	0.962	01/05/05	01/05/05	
4,4'-DDT	EPA 608	5A05041	0.015	0.10	ND	0.962	01/05/05	01/05/05	
Dieldrin	EPA 608	5A05041	0.010	0.10	ND	0.962	01/05/05	01/05/05	
Endosulfan I	EPA 608	5A05041	0.015	0.10	ND	0.962	01/05/05	01/05/05	
Endosulfan II	EPA 608	5A05041	0.037	0.10	ND	0.962	01/05/05	01/05/05	
Endosulfan sulfate	EPA 608	5A05041	0.013	0.20	ND	0.962	01/05/05	01/05/05	
Endrin	EPA 608	5A05041	0.0082	0.10	ND	0.962	01/05/05	01/05/05	
Endrin aldehyde	EPA 608	5A05041	0.045	0.10	ND	0.962	01/05/05	01/05/05	
Endrin ketone	EPA 608	5A05041	0.020	0.10	ND	0.962	01/05/05	01/05/05	
Heptachlor	EPA 608	5A05041	0.030	0.10	ND	0.962	01/05/05	01/05/05	
Heptachlor epoxide	EPA 608	5A05041	0.012	0.10	ND	0.962	01/05/05	01/05/05	
Methoxychlor	EPA 608	5A05041	0.034	0.10	ND	0.962	01/05/05	01/05/05	
Toxaphene	EPA 608	5A05041	0.77	5.0	ND	0.962	01/05/05	01/05/05	
Surrogate: Tetrachloro-m-xylene (35-120%)									43 %
Surrogate: Decachlorobiphenyl (45-120%)									66 %

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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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

## TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0121-01 (Outfall 011 - grab - Water) - cont.</b>					<b>Sampled: 01/04/05</b>				
<b>Reporting Units: ug/l</b>									
Aroclor 1016	EPA 608	5A05041	0.067	1.0	ND	0.962	01/05/05	01/05/05	
Aroclor 1221	EPA 608	5A05041	0.057	1.0	ND	0.962	01/05/05	01/05/05	
Aroclor 1232	EPA 608	5A05041	0.13	1.0	ND	0.962	01/05/05	01/05/05	
Aroclor 1242	EPA 608	5A05041	0.12	1.0	ND	0.962	01/05/05	01/05/05	
Aroclor 1248	EPA 608	5A05041	0.21	1.0	ND	0.962	01/05/05	01/05/05	
Aroclor 1254	EPA 608	5A05041	0.16	1.0	ND	0.962	01/05/05	01/05/05	
Aroclor 1260	EPA 608	5A05041	0.17	1.0	ND	0.962	01/05/05	01/05/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					86 %				

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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: Quarterly Outfall 011 + 13267 Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: mg/l									
Barium	EPA 200.8	5A05092	0.00014	0.0010	0.025	1	01/05/05	01/06/05	
Boron	EPA 200.7	5A05093	0.0074	0.050	0.060	1	01/05/05	01/05/05	
Iron	EPA 200.8	5A05092	0.0032	0.010	1.5	1	01/05/05	01/06/05	M2

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: ug/l									
Antimony	EPA 200.8	5A05092	0.18	2.0	0.87	1	01/05/05	01/06/05	J
Arsenic	EPA 200.8	5A05092	0.49	1.0	0.80	1	01/05/05	01/06/05	J
Beryllium	EPA 200.8	5A05092	0.037	0.50	0.14	1	01/05/05	01/06/05	J
Cadmium	EPA 200.8	5A05092	0.015	1.0	0.25	1	01/05/05	01/06/05	J
Chromium	EPA 200.8	5A05092	0.26	1.0	3.5	1	01/05/05	01/06/05	
Cobalt	EPA 200.8	5A05092	0.10	1.0	0.59	1	01/05/05	01/06/05	J
Copper	EPA 200.8	5A05092	0.49	2.0	6.3	1	01/05/05	01/06/05	
Lead	EPA 200.8	5A05092	0.13	1.0	1.4	1	01/05/05	01/06/05	
Manganese	EPA 200.8	5A05092	0.44	1.0	26	1	01/05/05	01/06/05	
Mercury	EPA 245.1	5A06051	0.063	0.20	0.25	1	01/06/05	01/06/05	
Nickel	EPA 200.8	5A05092	0.15	1.0	3.5	1	01/05/05	01/06/05	
Selenium	EPA 200.8	5A05092	0.36	2.0	0.63	1	01/05/05	01/06/05	J
Silver	EPA 200.8	5A05092	0.089	1.0	ND	1	01/05/05	01/06/05	
Thallium	EPA 200.8	5A05092	0.075	1.0	ND	1	01/05/05	01/06/05	
Vanadium	EPA 200.8	5A05092	0.86	1.0	2.4	1	01/05/05	01/06/05	
Zinc	EPA 200.8	5A05092	3.1	20	22	1	01/05/05	01/06/05	

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5A05067	0.30	0.50	ND	1	01/05/05	01/05/05	
Biochemical Oxygen Demand	EPA 405.1	5A05054	0.59	2.0	1.1	1	01/05/05	01/10/05	J
Chloride	EPA 300.0	5A04042	0.26	0.50	4.2	1	01/04/05	01/04/05	
Fluoride	EPA 300.0	5A04042	0.074	0.50	0.25	1	01/04/05	01/04/05	J
Nitrate/Nitrite-N	EPA 300.0	5A04042	0.072	0.26	2.1	1	01/04/05	01/04/05	
Oil & Grease	EPA 413.1	5A05068	0.94	5.0	ND	1	01/05/05	01/05/05	
Residual Chlorine	EPA 330.5	5A05066	0.10	0.10	ND	1	01/05/05	01/05/05	
Sulfate	EPA 300.0	5A04042	0.18	0.50	5.9	1	01/04/05	01/04/05	
Surfactants (MBAS)	SM5540-C	5A04104	4.4	10	ND	100	01/04/05	01/04/05	RL-1
Total Dissolved Solids	SM2540C	5A06082	10	10	120	1	01/06/05	01/06/05	
Total Organic Carbon	EPA 415.1	5A05058	0.56	1.0	12	1	01/05/05	01/05/05	
Total Suspended Solids	EPA 160.2	5A07077	10	10	ND	1	01/07/05	01/07/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267 Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: ml/l/hr									
Total Settleable Solids	EPA 160.5	5A05055	0.10	0.10	ND	1	01/05/05	01/05/05	

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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: NTU									
Turbidity	EPA 180.1	5A05079	0.040	1.0	30	1	01/05/05	01/05/05	

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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5A05064	0.041	1.0	0.17	1	01/05/05	01/05/05	B, H-1, J
Total Cyanide	EPA 335.2	5A05078	2.2	5.0	ND	1	01/05/05	01/05/05	
Perchlorate	EPA 314.0	5A06055	0.80	4.0	ND	1	01/06/05	01/06/05	

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Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5A06081	1.0	1.0	100	1	01/06/05	01/06/05	

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Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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: IOA0121-01 (Outfall 011 - grab - Water) - cont.					Sampled: 01/04/05				
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5A1203	0.49	1.0	ND	1	01/12/05	01/12/05	
Surrogate: Dibromofluoromethane (80-125%)					93 %				

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## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 011 - grab (IOA0121-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	01/04/2005 10:15	01/04/2005 18:30	01/05/2005 09:28	01/05/2005 10:00
EPA 180.1	2	01/04/2005 10:15	01/04/2005 18:30	01/05/2005 14:00	01/05/2005 15:00
EPA 218.6	1	01/04/2005 10:15	01/04/2005 18:30	01/05/2005 11:15	01/05/2005 12:03
EPA 300.0	2	01/04/2005 10:15	01/04/2005 18:30	01/04/2005 22:30	01/04/2005 23:22
EPA 330.5	1	01/04/2005 10:15	01/04/2005 18:30	01/05/2005 09:20	01/05/2005 10:00
EPA 405.1	2	01/04/2005 10:15	01/04/2005 18:30	01/05/2005 14:00	01/10/2005 19:00
EPA 624	3	01/04/2005 10:15	01/04/2005 18:30	01/05/2005 00:00	01/05/2005 17:00
SM5540-C	2	01/04/2005 10:15	01/04/2005 18:30	01/04/2005 21:33	01/04/2005 22:04

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267 Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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 Limit	Data Qualifiers
<b>Batch: 5A06070 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06070-BLK1)</b>											
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l							
<b>LCS Analyzed: 01/06/2005 (5A06070-BS1)</b>											
Total Recoverable Hydrocarbons	4.83	1.0	0.31	mg/l	5.00		97	65-120			M-NR1
<b>LCS Dup Analyzed: 01/06/2005 (5A06070-BSD1)</b>											
Total Recoverable Hydrocarbons	4.65	1.0	0.31	mg/l	5.00		93	65-120	4	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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	RPD Limit	Data Qualifiers
<b>Batch: 5A06045 Extracted: 01/06/05</b>										
<b>Blank Analyzed: 01/06/2005 (5A06045-BLK1)</b>										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.131			mg/l	0.200		66 40-125			
<b>LCS Analyzed: 01/06/2005 (5A06045-BS1)</b>										
EFH (C13 - C40)	0.671	0.50	0.082	mg/l	0.775		87 40-120			M-NR1
Surrogate: n-Octacosane	0.136			mg/l	0.200		68 40-125			
<b>LCS Dup Analyzed: 01/06/2005 (5A06045-BSD1)</b>										
EFH (C13 - C40)	0.682	0.50	0.082	mg/l	0.775		88 40-120	2	25	
Surrogate: n-Octacosane	0.149			mg/l	0.200		74 40-125			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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	RPD Limits	RPD	Data Limit	Qualifiers
<b>Batch: 5A06001 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06001-BLK1)</b>											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.00910			mg/l	0.0100		91	65-140			
<b>LCS Analyzed: 01/06/2005 (5A06001-BS1)</b>											
GRO (C4 - C12)	0.222	0.10	0.050	mg/l	0.220		101	70-140			
Surrogate: 4-BFB (FID)	0.0108			mg/l	0.0100		108	65-140			
<b>Matrix Spike Analyzed: 01/06/2005 (5A06001-MS1) Source: INL1858-04</b>											
GRO (C4 - C12)	0.233	0.10	0.050	mg/l	0.220	ND	106	60-140			
Surrogate: 4-BFB (FID)	0.0110			mg/l	0.0100		110	65-140			
<b>Matrix Spike Dup Analyzed: 01/06/2005 (5A06001-MSD1) Source: INL1858-04</b>											
GRO (C4 - C12)	0.224	0.10	0.050	mg/l	0.220	ND	102	60-140	4	20	
Surrogate: 4-BFB (FID)	0.0107			mg/l	0.0100		107	65-140			

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300 North Lake Avenue, Suite 1200 Report Number: IOA0121  
Pasadena, CA 91101 Sampled: 01/04/05  
Attention: Bronwyn Kelly Received: 01/04/05

METHOD BLANK/QC DATA

FREON 113 (EPA 8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05017 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05017-BLK1)</b>											
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l							
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0		101	80-120			
Surrogate: Toluene-d8	25.2			ug/l	25.0		101	80-120			
Surrogate: 4-Bromofluorobenzene	24.3			ug/l	25.0		97	80-120			

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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	Data Limit	Qualifiers
<b>Batch: 5A05017 Extracted: 01/05/05</b>										
<b>Blank Analyzed: 01/05/2005 (5A05017-BLK1)</b>										
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	0.700	5.0	0.48	ug/l						J
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						
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0	101	80-120			
Surrogate: Toluene-d8	25.2			ug/l	25.0	101	80-120			
Surrogate: 4-Bromofluorobenzene	24.3			ug/l	25.0	97	80-120			

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Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05017 Extracted: 01/05/05</b>											
<b>LCS Analyzed: 01/05/2005 (5A05017-BS1)</b>											
Benzene	21.5	1.0	0.28	ug/l	25.0		86	70-120			
Bromodichloromethane	27.4	2.0	0.30	ug/l	25.0		110	70-140			
Bromoform	26.8	5.0	0.32	ug/l	25.0		107	55-135			
Bromomethane	26.2	5.0	0.34	ug/l	25.0		105	60-140			
Carbon tetrachloride	29.0	0.50	0.28	ug/l	25.0		116	70-140			
Chlorobenzene	23.2	2.0	0.36	ug/l	25.0		93	80-125			
Chloroethane	22.8	5.0	0.33	ug/l	25.0		91	60-145			
Chloroform	25.3	2.0	0.33	ug/l	25.0		101	75-130			
Chloromethane	19.5	5.0	0.30	ug/l	25.0		78	40-145			
Dibromochloromethane	25.3	2.0	0.28	ug/l	25.0		101	65-145			
1,2-Dichlorobenzene	24.6	2.0	0.32	ug/l	25.0		98	80-120			
1,3-Dichlorobenzene	24.1	2.0	0.35	ug/l	25.0		96	80-120			
1,4-Dichlorobenzene	23.7	2.0	0.37	ug/l	25.0		95	80-120			
1,1-Dichloroethane	21.9	2.0	0.27	ug/l	25.0		88	70-135			
1,2-Dichloroethane	27.6	0.50	0.28	ug/l	25.0		110	60-150			
1,1-Dichloroethene	21.4	5.0	0.32	ug/l	25.0		86	75-135			
trans-1,2-Dichloroethene	23.2	2.0	0.27	ug/l	25.0		93	70-130			
1,2-Dichloropropane	20.8	2.0	0.35	ug/l	25.0		83	70-120			
cis-1,3-Dichloropropene	23.4	2.0	0.22	ug/l	25.0		94	75-130			
trans-1,3-Dichloropropene	25.6	2.0	0.24	ug/l	25.0		102	75-135			
Ethylbenzene	23.6	2.0	0.25	ug/l	25.0		94	80-120			
Methylene chloride	20.9	5.0	0.48	ug/l	25.0		84	60-135			
1,1,2,2-Tetrachloroethane	24.6	2.0	0.24	ug/l	25.0		98	60-135			
Tetrachloroethene	24.6	2.0	0.32	ug/l	25.0		98	75-125			
Toluene	23.4	2.0	0.36	ug/l	25.0		94	75-120			
1,1,1-Trichloroethane	27.2	2.0	0.30	ug/l	25.0		109	75-140			
1,1,2-Trichloroethane	23.4	2.0	0.30	ug/l	25.0		94	70-125			
Trichloroethene	24.1	2.0	0.26	ug/l	25.0		96	80-120			
Trichlorofluoromethane	27.7	5.0	0.34	ug/l	25.0		111	65-145			
Vinyl chloride	23.2	0.50	0.26	ug/l	25.0		93	50-130			
Surrogate: Dibromofluoromethane	25.5			ug/l	25.0		102	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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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
<b>Batch: 5A05017 Extracted: 01/05/05</b>											
<b>Matrix Spike Analyzed: 01/05/2005 (5A05017-MS1)</b>						<b>Source: IOA0112-01</b>					
Benzene	21.0	1.0	0.28	ug/l	25.0	ND	84	70-120			
Bromodichloromethane	26.7	2.0	0.30	ug/l	25.0	ND	107	70-140			
Bromoform	23.8	5.0	0.32	ug/l	25.0	ND	95	55-140			
Bromomethane	24.6	5.0	0.34	ug/l	25.0	ND	98	50-145			
Carbon tetrachloride	28.8	0.50	0.28	ug/l	25.0	ND	115	70-145			
Chlorobenzene	22.8	2.0	0.36	ug/l	25.0	ND	91	80-125			
Chloroethane	21.5	5.0	0.33	ug/l	25.0	ND	86	50-145			
Chloroform	24.7	2.0	0.33	ug/l	25.0	ND	99	70-135			
Chloromethane	18.0	5.0	0.30	ug/l	25.0	ND	72	35-145			
Dibromochloromethane	23.9	2.0	0.28	ug/l	25.0	ND	96	65-145			
1,2-Dichlorobenzene	24.0	2.0	0.32	ug/l	25.0	ND	96	75-130			
1,3-Dichlorobenzene	23.9	2.0	0.35	ug/l	25.0	ND	96	75-130			
1,4-Dichlorobenzene	23.7	2.0	0.37	ug/l	25.0	ND	95	80-120			
1,1-Dichloroethane	21.2	2.0	0.27	ug/l	25.0	ND	85	65-135			
1,2-Dichloroethane	27.2	0.50	0.28	ug/l	25.0	ND	109	60-150			
1,1-Dichloroethene	21.1	5.0	0.32	ug/l	25.0	ND	84	65-140			
trans-1,2-Dichloroethene	22.2	2.0	0.27	ug/l	25.0	ND	89	65-135			
1,2-Dichloropropane	20.1	2.0	0.35	ug/l	25.0	ND	80	65-130			
cis-1,3-Dichloropropene	22.4	2.0	0.22	ug/l	25.0	ND	90	70-140			
trans-1,3-Dichloropropene	24.7	2.0	0.24	ug/l	25.0	ND	99	70-140			
Ethylbenzene	23.3	2.0	0.25	ug/l	25.0	ND	93	70-130			
Methylene chloride	19.6	5.0	0.48	ug/l	25.0	ND	78	60-135			
1,1,2,2-Tetrachloroethane	22.4	2.0	0.24	ug/l	25.0	ND	90	60-145			
Tetrachloroethene	24.5	2.0	0.32	ug/l	25.0	ND	98	70-130			
Toluene	23.2	2.0	0.36	ug/l	25.0	ND	93	70-120			
1,1,1-Trichloroethane	26.8	2.0	0.30	ug/l	25.0	ND	107	75-140			
1,1,2-Trichloroethane	21.9	2.0	0.30	ug/l	25.0	ND	88	60-135			
Trichloroethene	23.3	2.0	0.26	ug/l	25.0	ND	93	70-125			
Trichlorofluoromethane	27.1	5.0	0.34	ug/l	25.0	ND	108	55-145			
Vinyl chloride	21.8	0.50	0.26	ug/l	25.0	ND	87	40-135			
Surrogate: Dibromofluoromethane	25.5			ug/l	25.0		102	80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	25.5			ug/l	25.0		102	80-120			

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

## 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
<b>Batch: 5A05017 Extracted: 01/05/05</b>											
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05017-MSD1)</b>						<b>Source: IOA0112-01</b>					
Benzene	22.3	1.0	0.28	ug/l	25.0	ND	89	70-120	6	20	
Bromodichloromethane	28.0	2.0	0.30	ug/l	25.0	ND	112	70-140	5	20	
Bromoform	25.6	5.0	0.32	ug/l	25.0	ND	102	55-140	7	25	
Bromomethane	26.4	5.0	0.34	ug/l	25.0	ND	106	50-145	7	25	
Carbon tetrachloride	30.1	0.50	0.28	ug/l	25.0	ND	120	70-145	4	25	
Chlorobenzene	24.1	2.0	0.36	ug/l	25.0	ND	96	80-125	6	20	
Chloroethane	23.7	5.0	0.33	ug/l	25.0	ND	95	50-145	10	25	
Chloroform	25.6	2.0	0.33	ug/l	25.0	ND	102	70-135	4	20	
Chloromethane	19.5	5.0	0.30	ug/l	25.0	ND	78	35-145	8	25	
Dibromochloromethane	25.4	2.0	0.28	ug/l	25.0	ND	102	65-145	6	25	
1,2-Dichlorobenzene	25.5	2.0	0.32	ug/l	25.0	ND	102	75-130	6	20	
1,3-Dichlorobenzene	25.0	2.0	0.35	ug/l	25.0	ND	100	75-130	4	20	
1,4-Dichlorobenzene	24.7	2.0	0.37	ug/l	25.0	ND	99	80-120	4	20	
1,1-Dichloroethane	22.4	2.0	0.27	ug/l	25.0	ND	90	65-135	6	20	
1,2-Dichloroethane	28.1	0.50	0.28	ug/l	25.0	ND	112	60-150	3	20	
1,1-Dichloroethene	22.3	5.0	0.32	ug/l	25.0	ND	89	65-140	6	20	
trans-1,2-Dichloroethene	23.5	2.0	0.27	ug/l	25.0	ND	94	65-135	6	20	
1,2-Dichloropropane	21.5	2.0	0.35	ug/l	25.0	ND	86	65-130	7	20	
cis-1,3-Dichloropropene	24.2	2.0	0.22	ug/l	25.0	ND	97	70-140	8	20	
trans-1,3-Dichloropropene	26.0	2.0	0.24	ug/l	25.0	ND	104	70-140	5	25	
Ethylbenzene	24.3	2.0	0.25	ug/l	25.0	ND	97	70-130	4	20	
Methylene chloride	20.9	5.0	0.48	ug/l	25.0	ND	84	60-135	6	20	
1,1,2,2-Tetrachloroethane	24.7	2.0	0.24	ug/l	25.0	ND	99	60-145	10	30	
Tetrachloroethene	25.3	2.0	0.32	ug/l	25.0	ND	101	70-130	3	20	
Toluene	24.5	2.0	0.36	ug/l	25.0	ND	98	70-120	5	20	
1,1,1-Trichloroethane	27.5	2.0	0.30	ug/l	25.0	ND	110	75-140	3	20	
1,1,2-Trichloroethane	23.5	2.0	0.30	ug/l	25.0	ND	94	60-135	7	25	
Trichloroethene	24.3	2.0	0.26	ug/l	25.0	ND	97	70-125	4	20	
Trichlorofluoromethane	27.8	5.0	0.34	ug/l	25.0	ND	111	55-145	3	25	
Vinyl chloride	23.3	0.50	0.26	ug/l	25.0	ND	93	40-135	7	30	
Surrogate: Dibromofluoromethane	25.5			ug/l	25.0		102	80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	25.5			ug/l	25.0		102	80-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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 Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05012 Extracted: 01/05/05</b>										
<b>Blank Analyzed: 01/05/2005 (5A05012-BLK1)</b>										
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	25.2			ug/l	25.0		101	80-120		
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	24.1			ug/l	25.0		96	80-120		
<b>LCS Analyzed: 01/05/2005 (5A05012-BS1)</b>										
2-Chloroethyl vinyl ether	24.3	5.0	1.3	ug/l	25.0		97	20-175		
Surrogate: Dibromofluoromethane	26.1			ug/l	25.0		104	80-120		
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102	80-120		

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

## 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 Limit	Data Qualifiers
<b>Batch: 5A05017 Extracted: 01/05/05</b>										
<b>Blank Analyzed: 01/05/2005 (5A05017-BLK1)</b>										
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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300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
Received: 01/04/05

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	Data Limit	Qualifiers
<b>Batch: 5A05039 Extracted: 01/05/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A05039-BLK1)</b>										
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	ND	5.0	0.34	ug/l						
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	ND	1.0	0.12	ug/l						
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: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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	Data Limit	Qualifiers
<b>Batch: 5A05039 Extracted: 01/05/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A05039-BLK1)</b>										
4,6-Dinitro-2-methylphenol	ND	5.0	0.38	ug/l						
2,4-Dinitrophenol	ND	5.0	2.7	ug/l						
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	15.2			ug/l	20.0		76	35-120		

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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
Received: 01/04/05

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	RPD Limit	Data Qualifiers
<b>Batch: 5A05039 Extracted: 01/05/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A05039-BLK1)</b>										
Surrogate: Phenol-d6	15.8			ug/l	20.0		79 45-120			
Surrogate: 2,4,6-Tribromophenol	16.1			ug/l	20.0		80 50-125			
Surrogate: Nitrobenzene-d5	7.68			ug/l	10.0		77 45-120			
Surrogate: 2-Fluorobiphenyl	7.72			ug/l	10.0		77 45-120			
Surrogate: Terphenyl-d14	8.24			ug/l	10.0		82 45-135			
<b>LCS Analyzed: 01/13/2005 (5A05039-BS1)</b>										
Acenaphthene	8.04	0.50	0.10	ug/l	10.0		80 55-120			M-NR1
Acenaphthylene	8.10	0.50	0.10	ug/l	10.0		81 55-120			
Aniline	8.58	10	2.9	ug/l	10.0		86 30-120			J
Anthracene	8.44	0.50	0.083	ug/l	10.0		84 60-120			
Benzidine	ND	5.0	2.4	ug/l	10.0		20-180			L2
Benzoic acid	7.32	20	3.7	ug/l	10.0		73 30-125			J
Benzo(a)anthracene	8.98	5.0	0.038	ug/l	10.0		90 65-120			
Benzo(a)pyrene	9.20	2.0	0.14	ug/l	10.0		92 55-125			
Benzo(b)fluoranthene	8.46	2.0	0.050	ug/l	10.0		85 50-125			
Benzo(g,h,i)perylene	9.04	5.0	0.059	ug/l	10.0		90 35-160			
Benzo(k)fluoranthene	7.08	0.50	0.053	ug/l	10.0		71 50-125			
Benzyl alcohol	9.78	5.0	0.21	ug/l	10.0		98 40-130			
Bis(2-chloroethoxy)methane	8.88	0.50	0.072	ug/l	10.0		89 55-120			
Bis(2-chloroethyl)ether	8.22	0.50	0.084	ug/l	10.0		82 50-120			
Bis(2-chloroisopropyl)ether	8.22	0.50	0.11	ug/l	10.0		82 50-120			
Bis(2-ethylhexyl)phthalate	9.64	5.0	1.1	ug/l	10.0		96 65-125			
4-Bromophenyl phenyl ether	8.70	1.0	0.12	ug/l	10.0		87 55-125			
Butyl benzyl phthalate	9.66	5.0	0.34	ug/l	10.0		97 60-125			
4-Chloroaniline	9.02	2.0	0.20	ug/l	10.0		90 55-120			
2-Chloronaphthalene	7.50	0.50	0.059	ug/l	10.0		75 60-120			
4-Chloro-3-methylphenol	10.0	2.0	0.34	ug/l	10.0		100 60-120			
4-Chlorophenyl phenyl ether	8.56	0.50	0.056	ug/l	10.0		86 55-120			
2-Chlorophenol	8.06	1.0	0.12	ug/l	10.0		81 45-120			
Chrysene	8.56	0.50	0.072	ug/l	10.0		86 65-120			
Dibenz(a,h)anthracene	9.22	0.50	0.083	ug/l	10.0		92 40-160			
Dibenzofuran	8.28	0.50	0.075	ug/l	10.0		83 60-120			
Di-n-butyl phthalate	9.90	2.0	0.26	ug/l	10.0		99 65-125			
1,2-Dichlorobenzene	5.94	0.50	0.11	ug/l	10.0		59 40-120			
1,3-Dichlorobenzene	5.26	0.50	0.13	ug/l	10.0		53 40-120			

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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## 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	RPD Limit	Data Qualifiers
<b>Batch: 5A05039 Extracted: 01/05/05</b>										
<b>LCS Analyzed: 01/13/2005 (5A05039-BS1)</b>										
1,4-Dichlorobenzene	5.56	0.50	0.050	ug/l	10.0	56	40-120			M-NR1
3,3-Dichlorobenzidine	8.32	5.0	0.93	ug/l	10.0	83	50-170			
2,4-Dichlorophenol	9.42	2.0	0.21	ug/l	10.0	94	55-120			
Diethyl phthalate	9.50	1.0	0.12	ug/l	10.0	95	60-120			
2,4-Dimethylphenol	6.64	2.0	0.31	ug/l	10.0	66	35-120			
Dimethyl phthalate	9.00	0.50	0.081	ug/l	10.0	90	60-120			
4,6-Dinitro-2-methylphenol	7.48	5.0	0.38	ug/l	10.0	75	55-120			
2,4-Dinitrophenol	13.3	5.0	2.7	ug/l	10.0	133	40-140			
2,4-Dinitrotoluene	9.12	5.0	0.23	ug/l	10.0	91	60-140			
2,6-Dinitrotoluene	8.94	5.0	0.24	ug/l	10.0	89	65-125			
Di-n-octyl phthalate	10.0	5.0	0.17	ug/l	10.0	100	60-130			
1,2-Diphenylhydrazine/Azobenzene	10.0	1.0	0.087	ug/l	10.0	100	60-120			
Fluoranthene	8.74	0.50	0.089	ug/l	10.0	87	55-125			
Fluorene	8.68	0.50	0.075	ug/l	10.0	87	60-120			
Hexachlorobenzene	8.50	1.0	0.13	ug/l	10.0	85	50-120			
Hexachlorobutadiene	5.00	2.0	0.38	ug/l	10.0	50	45-120			
Hexachlorocyclopentadiene	5.06	5.0	1.8	ug/l	10.0	51	10-130			
Hexachloroethane	4.82	3.0	0.51	ug/l	10.0	48	40-120			
Indeno(1,2,3-cd)pyrene	9.04	2.0	0.19	ug/l	10.0	90	35-150			
Isophorone	9.58	1.0	0.059	ug/l	10.0	96	55-120			
2-Methylnaphthalene	7.52	1.0	0.13	ug/l	10.0	75	50-120			
2-Methylphenol	8.78	2.0	0.28	ug/l	10.0	88	45-120			
4-Methylphenol	8.94	5.0	0.20	ug/l	10.0	89	45-120			
Naphthalene	7.36	1.0	0.13	ug/l	10.0	74	50-120			
2-Nitroaniline	9.10	5.0	0.18	ug/l	10.0	91	60-130			
3-Nitroaniline	9.40	5.0	0.35	ug/l	10.0	94	50-140			
4-Nitroaniline	9.96	5.0	0.49	ug/l	10.0	100	45-160			
Nitrobenzene	8.44	1.0	0.10	ug/l	10.0	84	50-120			
2-Nitrophenol	8.76	2.0	0.23	ug/l	10.0	88	55-120			
4-Nitrophenol	9.36	5.0	0.73	ug/l	10.0	94	50-135			
N-Nitrosodimethylamine	8.98	2.0	0.22	ug/l	10.0	90	40-120			
N-Nitroso-di-n-propylamine	9.28	2.0	0.18	ug/l	10.0	93	50-120			
N-Nitrosodiphenylamine	8.98	1.0	0.077	ug/l	10.0	90	60-120			
Pentachlorophenol	8.90	2.0	0.78	ug/l	10.0	89	50-125			
Phenanthrene	8.20	0.50	0.071	ug/l	10.0	82	55-120			

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: Quarterly Outfall 011 + 13267	Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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
<b>Batch: 5A05039 Extracted: 01/05/05</b>											
<b>LCS Analyzed: 01/13/2005 (5A05039-BS1)</b>											
Phenol	8.30	1.0	0.14	ug/l	10.0		83	45-120			M-NR1
Pyrene	8.84	0.50	0.059	ug/l	10.0		88	50-120			
1,2,4-Trichlorobenzene	6.16	1.0	0.10	ug/l	10.0		62	50-120			
2,4,5-Trichlorophenol	9.28	2.0	0.075	ug/l	10.0		93	60-120			
2,4,6-Trichlorophenol	9.40	1.0	0.10	ug/l	10.0		94	60-120			
Surrogate: 2-Fluorophenol	14.2			ug/l	20.0		71	35-120			
Surrogate: Phenol-d6	15.6			ug/l	20.0		78	45-120			
Surrogate: 2,4,6-Tribromophenol	16.0			ug/l	20.0		80	50-125			
Surrogate: Nitrobenzene-d5	7.74			ug/l	10.0		77	45-120			
Surrogate: 2-Fluorobiphenyl	7.48			ug/l	10.0		75	45-120			
Surrogate: Terphenyl-d14	7.84			ug/l	10.0		78	45-135			
<b>LCS Dup Analyzed: 01/13/2005 (5A05039-BSD1)</b>											
Acenaphthene	9.26	0.50	0.10	ug/l	10.0		93	55-120	14	20	
Acenaphthylene	9.22	0.50	0.10	ug/l	10.0		92	55-120	13	20	
Aniline	8.80	10	2.9	ug/l	10.0		88	30-120	3	25	J
Anthracene	9.46	0.50	0.083	ug/l	10.0		95	60-120	11	20	
Benzidine	ND	5.0	2.4	ug/l	10.0			20-180		35	L2
Benzoic acid	8.04	20	3.7	ug/l	10.0		80	30-125	9	30	J
Benzo(a)anthracene	9.68	5.0	0.038	ug/l	10.0		97	65-120	8	20	
Benzo(a)pyrene	10.4	2.0	0.14	ug/l	10.0		104	55-125	12	25	
Benzo(b)fluoranthene	10.8	2.0	0.050	ug/l	10.0		108	50-125	24	25	
Benzo(g,h,i)perylene	9.96	5.0	0.059	ug/l	10.0		100	35-160	10	25	
Benzo(k)fluoranthene	8.28	0.50	0.053	ug/l	10.0		83	50-125	16	20	
Benzyl alcohol	10.9	5.0	0.21	ug/l	10.0		109	40-130	11	20	
Bis(2-chloroethoxy)methane	10.0	0.50	0.072	ug/l	10.0		100	55-120	12	20	
Bis(2-chloroethyl)ether	9.20	0.50	0.084	ug/l	10.0		92	50-120	11	20	
Bis(2-chloroisopropyl)ether	9.20	0.50	0.11	ug/l	10.0		92	50-120	11	20	
Bis(2-ethylhexyl)phthalate	10.7	5.0	1.1	ug/l	10.0		107	65-125	10	20	
4-Bromophenyl phenyl ether	9.66	1.0	0.12	ug/l	10.0		97	55-125	10	25	
Butyl benzyl phthalate	10.7	5.0	0.34	ug/l	10.0		107	60-125	10	20	
4-Chloroaniline	9.86	2.0	0.20	ug/l	10.0		99	55-120	9	25	
2-Chloronaphthalene	8.88	0.50	0.059	ug/l	10.0		89	60-120	17	20	
4-Chloro-3-methylphenol	10.7	2.0	0.34	ug/l	10.0		107	60-120	7	25	
4-Chlorophenyl phenyl ether	9.56	0.50	0.056	ug/l	10.0		96	55-120	11	20	
2-Chlorophenol	9.18	1.0	0.12	ug/l	10.0		92	45-120	13	25	

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
Received: 01/04/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05039 Extracted: 01/05/05</b>											
<b>LCS Dup Analyzed: 01/13/2005 (5A05039-BSD1)</b>											
Chrysene	9.20	0.50	0.072	ug/l	10.0	92	65-120	7	20		
Dibenz(a,h)anthracene	10.5	0.50	0.083	ug/l	10.0	105	40-160	13	25		
Dibenzofuran	9.46	0.50	0.075	ug/l	10.0	95	60-120	13	20		
Di-n-butyl phthalate	10.9	2.0	0.26	ug/l	10.0	109	65-125	10	20		
1,2-Dichlorobenzene	6.42	0.50	0.11	ug/l	10.0	64	40-120	8	25		
1,3-Dichlorobenzene	6.00	0.50	0.13	ug/l	10.0	60	40-120	13	25		
1,4-Dichlorobenzene	6.08	0.50	0.050	ug/l	10.0	61	40-120	9	25		
3,3-Dichlorobenzidine	9.06	5.0	0.93	ug/l	10.0	91	50-170	9	25		
2,4-Dichlorophenol	10.3	2.0	0.21	ug/l	10.0	103	55-120	9	20		
Diethyl phthalate	10.3	1.0	0.12	ug/l	10.0	103	60-120	8	20		
2,4-Dimethylphenol	8.38	2.0	0.31	ug/l	10.0	84	35-120	23	25		
Dimethyl phthalate	10.1	0.50	0.081	ug/l	10.0	101	60-120	12	20		
4,6-Dinitro-2-methylphenol	8.26	5.0	0.38	ug/l	10.0	83	55-120	10	25		
2,4-Dinitrophenol	14.5	5.0	2.7	ug/l	10.0	145	40-140	9	25		L
2,4-Dinitrotoluene	10.3	5.0	0.23	ug/l	10.0	103	60-140	12	20		
2,6-Dinitrotoluene	10.0	5.0	0.24	ug/l	10.0	100	65-125	11	20		
Di-n-octyl phthalate	11.4	5.0	0.17	ug/l	10.0	114	60-130	13	20		
1,2-Diphenylhydrazine/Azobenzene	11.3	1.0	0.087	ug/l	10.0	113	60-120	12	25		
Fluoranthene	10.1	0.50	0.089	ug/l	10.0	101	55-125	14	20		
Fluorene	9.80	0.50	0.075	ug/l	10.0	98	60-120	12	20		
Hexachlorobenzene	9.06	1.0	0.13	ug/l	10.0	91	50-120	6	20		
Hexachlorobutadiene	6.10	2.0	0.38	ug/l	10.0	61	45-120	20	25		
Hexachlorocyclopentadiene	6.92	5.0	1.8	ug/l	10.0	69	10-130	31	30		R-7
Hexachloroethane	5.42	3.0	0.51	ug/l	10.0	54	40-120	12	25		
Indeno(1,2,3-cd)pyrene	10.8	2.0	0.19	ug/l	10.0	108	35-150	18	25		
Isophorone	10.1	1.0	0.059	ug/l	10.0	101	55-120	5	20		
2-Methylnaphthalene	8.18	1.0	0.13	ug/l	10.0	82	50-120	8	20		
2-Methylphenol	10.0	2.0	0.28	ug/l	10.0	100	45-120	13	20		
4-Methylphenol	9.94	5.0	0.20	ug/l	10.0	99	45-120	11	20		
Naphthalene	7.96	1.0	0.13	ug/l	10.0	80	50-120	8	20		
2-Nitroaniline	10.2	5.0	0.18	ug/l	10.0	102	60-130	11	20		
3-Nitroaniline	10.4	5.0	0.35	ug/l	10.0	104	50-140	10	25		
4-Nitroaniline	11.5	5.0	0.49	ug/l	10.0	115	45-160	14	20		
Nitrobenzene	9.34	1.0	0.10	ug/l	10.0	93	50-120	10	25		
2-Nitrophenol	9.82	2.0	0.23	ug/l	10.0	98	55-120	11	25		

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Project Manager



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 Attention: Bronwyn Kelly

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05039 Extracted: 01/05/05</b>											
<b>LCS Dup Analyzed: 01/13/2005 (5A05039-BSD1)</b>											
4-Nitrophenol	10.9	5.0	0.73	ug/l	10.0	109	50-135	15	25		
N-Nitrosodimethylamine	10.6	2.0	0.22	ug/l	10.0	106	40-120	17	20		
N-Nitroso-di-n-propylamine	10.2	2.0	0.18	ug/l	10.0	102	50-120	9	20		
N-Nitrosodiphenylamine	9.94	1.0	0.077	ug/l	10.0	99	60-120	10	20		
Pentachlorophenol	10.0	2.0	0.78	ug/l	10.0	100	50-125	12	25		
Phenanthrene	9.12	0.50	0.071	ug/l	10.0	91	55-120	11	20		
Phenol	9.54	1.0	0.14	ug/l	10.0	95	45-120	14	25		
Pyrene	9.74	0.50	0.059	ug/l	10.0	97	50-120	10	25		
1,2,4-Trichlorobenzene	6.84	1.0	0.10	ug/l	10.0	68	50-120	10	20		
2,4,5-Trichlorophenol	10.2	2.0	0.075	ug/l	10.0	102	60-120	9	20		
2,4,6-Trichlorophenol	10.9	1.0	0.10	ug/l	10.0	109	60-120	15	20		
Surrogate: 2-Fluorophenol	16.5			ug/l	20.0	82	35-120				
Surrogate: Phenol-d6	17.4			ug/l	20.0	87	45-120				
Surrogate: 2,4,6-Tribromophenol	17.8			ug/l	20.0	89	50-125				
Surrogate: Nitrobenzene-d5	8.50			ug/l	10.0	85	45-120				
Surrogate: 2-Fluorobiphenyl	8.54			ug/l	10.0	85	45-120				
Surrogate: Terphenyl-d14	8.36			ug/l	10.0	84	45-135				

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 Michele Harper  
 Project Manager

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Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## METHOD BLANK/QC DATA

### ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
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**Batch: 5A05041 Extracted: 01/05/05**

**Blank Analyzed: 01/05/2005 (5A05041-BLK1)**

Aldrin	ND	0.10	0.029	ug/l						
alpha-BHC	ND	0.10	0.010	ug/l						
beta-BHC	ND	0.10	0.011	ug/l						
delta-BHC	ND	0.20	0.010	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.0097	ug/l						
Chlordane	ND	1.0	0.18	ug/l						
4,4'-DDD	ND	0.10	0.011	ug/l						
4,4'-DDE	ND	0.10	0.017	ug/l						
4,4'-DDT	ND	0.10	0.015	ug/l						
Dieldrin	ND	0.10	0.010	ug/l						
Endosulfan I	ND	0.10	0.015	ug/l						
Endosulfan II	ND	0.10	0.037	ug/l						
Endosulfan sulfate	ND	0.20	0.013	ug/l						
Endrin	ND	0.10	0.0082	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	0.012	ug/l						
Methoxychlor	ND	0.10	0.034	ug/l						
Toxaphene	ND	5.0	0.77	ug/l						
Surrogate: Tetrachloro-m-xylene	0.374			ug/l	0.500		75	35-120		
Surrogate: Decachlorobiphenyl	0.437			ug/l	0.500		87	45-120		

**LCS Analyzed: 01/05/2005 (5A05041-BS1)**

M-NR1

Aldrin	0.428	0.10	0.029	ug/l	0.500		86	45-115		
alpha-BHC	0.463	0.10	0.010	ug/l	0.500		93	45-115		
beta-BHC	0.456	0.10	0.011	ug/l	0.500		91	50-115		
delta-BHC	0.463	0.20	0.010	ug/l	0.500		93	55-120		
gamma-BHC (Lindane)	0.459	0.10	0.0097	ug/l	0.500		92	45-115		
4,4'-DDD	0.469	0.10	0.011	ug/l	0.500		94	60-120		
4,4'-DDE	0.477	0.10	0.017	ug/l	0.500		95	55-120		
4,4'-DDT	0.495	0.10	0.015	ug/l	0.500		99	60-130		
Dieldrin	0.469	0.10	0.010	ug/l	0.500		94	55-120		
Endosulfan I	0.441	0.10	0.015	ug/l	0.500		88	50-115		
Endosulfan II	0.456	0.10	0.037	ug/l	0.500		91	60-125		
Endosulfan sulfate	0.455	0.20	0.013	ug/l	0.500		91	60-120		

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 Michele Harper  
 Project Manager





MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0121  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/04/05  
Received: 01/04/05

METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Table with columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Data Qualifiers. Includes sections for Batch: 5A05041 and LCS Analyzed/Dup Analyzed.

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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: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05  
 Received: 01/04/05

## METHOD BLANK/QC DATA

### TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05041 Extracted: 01/05/05</b>										
<b>Blank Analyzed: 01/05/2005 (5A05041-BLK1)</b>										
Aroclor 1016	ND	1.0	0.067	ug/l						
Aroclor 1221	ND	1.0	0.057	ug/l						
Aroclor 1232	ND	1.0	0.13	ug/l						
Aroclor 1242	ND	1.0	0.12	ug/l						
Aroclor 1248	ND	1.0	0.21	ug/l						
Aroclor 1254	ND	1.0	0.16	ug/l						
Aroclor 1260	ND	1.0	0.17	ug/l						
Surrogate: Decachlorobiphenyl	0.459			ug/l	0.500		92 45-120			
<b>LCS Analyzed: 01/05/2005 (5A05041-BS2)</b>										
Aroclor 1016	3.16	1.0	0.067	ug/l	4.00		79 50-115			M-NR1
Aroclor 1260	3.52	1.0	0.17	ug/l	4.00		88 60-115			
Surrogate: Decachlorobiphenyl	0.468			ug/l	0.500		94 45-120			
<b>LCS Dup Analyzed: 01/05/2005 (5A05041-BSD2)</b>										
Aroclor 1016	2.42	1.0	0.067	ug/l	4.00		60 50-115	27	30	
Aroclor 1260	3.53	1.0	0.17	ug/l	4.00		88 60-115	0	25	
Surrogate: Decachlorobiphenyl	0.475			ug/l	0.500		95 45-120			

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MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0121  
Pasadena, CA 91101 Sampled: 01/04/05  
Attention: Bronwyn Kelly Received: 01/04/05

METHOD BLANK/QC DATA

METALS

Analyte Result Reporting Limit MDL Units Spike Level Source Result %REC Limits RPD Limit Data Qualifiers

Batch: 5A05092 Extracted: 01/05/05

Blank Analyzed: 01/06/2005 (5A05092-BLK1)

Table with 12 columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC Limits, RPD Limit, Data Qualifiers. Rows include Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc.

LCS Analyzed: 01/06/2005 (5A05092-BS1)

Table with 12 columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC Limits, RPD Limit, Data Qualifiers. Rows include Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc.

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267	Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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
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Batch: 5A05092 Extracted: 01/05/05

Matrix Spike Analyzed: 01/06/2005 (5A05092-MS1)

Source: IOA0121-01

Antimony	98.6	2.0	0.18	ug/l	80.0	0.87	122	70-130			
Arsenic	99.7	1.0	0.49	ug/l	80.0	0.80	124	70-130			
Barium	0.118	0.0010	0.00014	mg/l	0.0800	0.025	116	70-130			
Beryllium	97.1	0.50	0.037	ug/l	80.0	0.14	121	70-130			
Cadmium	92.2	1.0	0.015	ug/l	80.0	0.25	115	70-130			
Chromium	93.9	1.0	0.26	ug/l	80.0	3.5	113	70-130			
Cobalt	90.1	1.0	0.10	ug/l	80.0	0.59	112	70-130			
Copper	92.5	2.0	0.49	ug/l	80.0	6.3	108	70-130			
Iron	1.96	0.010	0.0032	mg/l	0.800	1.5	58	70-130			M2
Lead	97.3	1.0	0.13	ug/l	80.0	1.4	120	70-130			
Manganese	113	1.0	0.44	ug/l	80.0	26	109	70-130			
Nickel	92.4	1.0	0.15	ug/l	80.0	3.5	111	70-130			
Selenium	91.6	2.0	0.36	ug/l	80.0	0.63	114	70-130			
Silver	93.3	1.0	0.089	ug/l	80.0	ND	117	70-130			
Thallium	97.9	1.0	0.075	ug/l	80.0	ND	122	70-130			
Vanadium	92.5	1.0	0.86	ug/l	80.0	2.4	113	70-130			
Zinc	101	20	3.1	ug/l	80.0	22	99	70-130			

Matrix Spike Dup Analyzed: 01/06/2005 (5A05092-MSD1)

Source: IOA0121-01

Antimony	97.7	2.0	0.18	ug/l	80.0	0.87	121	70-130	1	20	
Arsenic	97.2	1.0	0.49	ug/l	80.0	0.80	120	70-130	3	20	
Barium	0.118	0.0010	0.00014	mg/l	0.0800	0.025	116	70-130	0	20	
Beryllium	94.3	0.50	0.037	ug/l	80.0	0.14	118	70-130	3	20	
Cadmium	91.3	1.0	0.015	ug/l	80.0	0.25	114	70-130	1	20	
Chromium	93.3	1.0	0.26	ug/l	80.0	3.5	112	70-130	1	20	
Cobalt	89.8	1.0	0.10	ug/l	80.0	0.59	112	70-130	0	20	
Copper	92.4	2.0	0.49	ug/l	80.0	6.3	108	70-130	0	20	
Iron	1.99	0.010	0.0032	mg/l	0.800	1.5	61	70-130	2	20	M2
Lead	97.1	1.0	0.13	ug/l	80.0	1.4	120	70-130	0	20	
Manganese	113	1.0	0.44	ug/l	80.0	26	109	70-130	0	20	
Nickel	92.2	1.0	0.15	ug/l	80.0	3.5	111	70-130	0	20	
Selenium	89.6	2.0	0.36	ug/l	80.0	0.63	111	70-130	2	20	
Silver	92.4	1.0	0.089	ug/l	80.0	ND	116	70-130	1	20	
Thallium	98.3	1.0	0.075	ug/l	80.0	ND	123	70-130	0	20	
Vanadium	92.3	1.0	0.86	ug/l	80.0	2.4	112	70-130	0	20	
Zinc	100	20	3.1	ug/l	80.0	22	98	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: Quarterly Outfall 011 + 13267  Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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
<b>Batch: 5A05093 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05093-BLK1)</b>											
Boron	ND	0.050	0.0074	mg/l							
<b>LCS Analyzed: 01/05/2005 (5A05093-BS1)</b>											
Boron	0.485	0.050	0.0074	mg/l	0.500		97	85-115			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05093-MS1)</b>											
						<b>Source: IOA0153-01</b>					
Boron	0.862	0.050	0.0074	mg/l	0.500	0.35	102	70-130			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05093-MSD1)</b>											
						<b>Source: IOA0153-01</b>					
Boron	0.874	0.050	0.0074	mg/l	0.500	0.35	105	70-130	1	20	
<b>Batch: 5A06051 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06051-BLK1)</b>											
Mercury	ND	0.20	0.063	ug/l							
<b>LCS Analyzed: 01/06/2005 (5A06051-BS1)</b>											
Mercury	8.28	0.20	0.063	ug/l	8.00		104	85-115			
<b>Matrix Spike Analyzed: 01/06/2005 (5A06051-MS1)</b>											
						<b>Source: IOA0128-01</b>					
Mercury	8.23	0.20	0.063	ug/l	8.00	0.26	100	70-130			
<b>Matrix Spike Dup Analyzed: 01/06/2005 (5A06051-MSD1)</b>											
						<b>Source: IOA0128-01</b>					
Mercury	8.19	0.20	0.063	ug/l	8.00	0.26	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: Quarterly Outfall 011 + 13267 Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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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
<b>Batch: 5A04042 Extracted: 01/04/05</b>											
<b>Blank Analyzed: 01/04/2005 (5A04042-BLK1)</b>											
Chloride	ND	0.50	0.26	mg/l							
Fluoride	ND	0.50	0.074	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
<b>LCS Analyzed: 01/04/2005 (5A04042-BS1)</b>											
Chloride	4.97	0.50	0.26	mg/l	5.00		99	90-110			
Fluoride	4.73	0.50	0.074	mg/l	5.00		95	90-110			
Sulfate	9.93	0.50	0.18	mg/l	10.0		99	90-110			
<b>Matrix Spike Analyzed: 01/04/2005 (5A04042-MS1) Source: IOA0049-01</b>											
Chloride	5.60	0.50	0.26	mg/l	5.00	0.51	102	80-120			
Fluoride	4.78	0.50	0.074	mg/l	5.00	0.16	92	80-120			
Sulfate	10.4	0.50	0.18	mg/l	10.0	0.63	98	80-120			
<b>Matrix Spike Dup Analyzed: 01/04/2005 (5A04042-MSD1) Source: IOA0049-01</b>											
Chloride	5.72	0.50	0.26	mg/l	5.00	0.51	104	80-120	2	20	
Fluoride	4.79	0.50	0.074	mg/l	5.00	0.16	93	80-120	0	20	
Sulfate	10.6	0.50	0.18	mg/l	10.0	0.63	100	80-120	2	20	

### Batch: 5A04104 Extracted: 01/04/05

#### Blank Analyzed: 01/04/2005 (5A04104-BLK1)

Surfactants (MBAS)	ND	0.10	0.044	mg/l
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#### LCS Analyzed: 01/04/2005 (5A04104-BS1)

Surfactants (MBAS)	0.236	0.10	0.044	mg/l	0.250	94	90-110
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MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0121  
Pasadena, CA 91101  
Attention: Bronwyn Kelly Sampled: 01/04/05  
Received: 01/04/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A04104 Extracted: 01/04/05</b>											
<b>Matrix Spike Analyzed: 01/04/2005 (5A04104-MS1)</b>						<b>Source: IOA0069-02</b>					
Surfactants (MBAS)	0.199	0.10	0.044	mg/l	0.250	ND	80	50-125			
<b>Matrix Spike Dup Analyzed: 01/04/2005 (5A04104-MSD1)</b>						<b>Source: IOA0069-02</b>					
Surfactants (MBAS)	0.172	0.10	0.044	mg/l	0.250	ND	69	50-125	15	20	
<b>Batch: 5A05054 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/10/2005 (5A05054-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
<b>LCS Analyzed: 01/10/2005 (5A05054-BS1)</b>											
Biochemical Oxygen Demand	208	100	30	mg/l	198		105	85-115			
<b>LCS Dup Analyzed: 01/10/2005 (5A05054-BSD1)</b>											
Biochemical Oxygen Demand	200	100	30	mg/l	198		101	85-115	4	20	
<b>Batch: 5A05058 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05058-BLK1)</b>											
Total Organic Carbon	ND	1.0	0.56	mg/l							
<b>LCS Analyzed: 01/05/2005 (5A05058-BS1)</b>											
Total Organic Carbon	11.0	1.0	0.56	mg/l	10.0		110	90-110			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05058-MS1)</b>						<b>Source: IOA0113-06</b>					
Total Organic Carbon	5.62	1.0	0.56	mg/l	5.00	ND	112	80-120			

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MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0121  
Pasadena, CA 91101 Sampled: 01/04/05  
Attention: Bronwyn Kelly Received: 01/04/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05058 Extracted: 01/05/05</b>											
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05058-MSD1)</b>						<b>Source: IOA0113-06</b>					
Total Organic Carbon	5.39	1.0	0.56	mg/l	5.00	ND	108	80-120	4	20	
<b>Batch: 5A05064 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05064-BLK1)</b>											
Chromium VI	0.150	1.0	0.041	ug/l							J
<b>LCS Analyzed: 01/05/2005 (5A05064-BS1)</b>											
Chromium VI	51.9	1.0	0.041	ug/l	50.0		104	90-110			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05064-MS1)</b>						<b>Source: IOA0121-01</b>					
Chromium VI	49.3	1.0	0.041	ug/l	50.0	0.17	98	90-110			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05064-MSD1)</b>						<b>Source: IOA0121-01</b>					
Chromium VI	52.2	1.0	0.041	ug/l	50.0	0.17	104	90-110	6	10	
<b>Batch: 5A05066 Extracted: 01/05/05</b>											
<b>Duplicate Analyzed: 01/05/2005 (5A05066-DUP1)</b>						<b>Source: IOA0121-01</b>					
Residual Chlorine	ND	0.10	0.10	mg/l		ND				20	
<b>Batch: 5A05067 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05067-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267	Sampled: 01/04/05 Received: 01/04/05
Report Number: IOA0121		

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05067 Extracted: 01/05/05</b>											
<b>LCS Analyzed: 01/05/2005 (5A05067-BS1)</b>											
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0		101	80-115			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05067-MS1)</b>											
Ammonia-N (Distilled)	10.4	0.50	0.30	mg/l	10.0	0.56	98	70-120			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05067-MSD1)</b>											
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	0.56	95	70-120	3	15	
<b>Batch: 5A05068 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05068-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 01/05/2005 (5A05068-BS1)</b>											
Oil & Grease	20.1	5.0	0.94	mg/l	20.0		100	65-120			M-NR1
<b>LCS Dup Analyzed: 01/05/2005 (5A05068-BSD1)</b>											
Oil & Grease	21.1	5.0	0.94	mg/l	20.0		106	65-120	5	20	
<b>Batch: 5A05078 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05078-BLK1)</b>											
Total Cyanide	ND	5.0	2.2	ug/l							
<b>LCS Analyzed: 01/05/2005 (5A05078-BS1)</b>											
Total Cyanide	191	5.0	2.2	ug/l	200		96	90-110			

Del Mar Analytical, Irvine  
 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: Quarterly Outfall 011 + 13267 Report Number: IOA0121	Sampled: 01/04/05 Received: 01/04/05
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## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05078 Extracted: 01/05/05</b>											
<b>Matrix Spike Analyzed: 01/05/2005 (5A05078-MS1)</b>						<b>Source: IOA0112-01</b>					
Total Cyanide	153	5.0	2.2	ug/l	200	ND	76	70-115			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05078-MSD1)</b>						<b>Source: IOA0112-01</b>					
Total Cyanide	157	5.0	2.2	ug/l	200	ND	78	70-115	3	15	
<b>Batch: 5A05079 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05079-BLK1)</b>											
Turbidity	ND	1.0	0.040	NTU							
<b>Duplicate Analyzed: 01/05/2005 (5A05079-DUP1)</b>						<b>Source: IOA0069-02</b>					
Turbidity	0.0900	1.0	0.040	NTU		0.10			11	20	J
<b>Batch: 5A06055 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06055-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							
<b>LCS Analyzed: 01/06/2005 (5A06055-BS1)</b>											
Perchlorate	51.3	4.0	0.80	ug/l	50.0		103	85-115			
<b>Matrix Spike Analyzed: 01/06/2005 (5A06055-MS1)</b>						<b>Source: IOA0122-01</b>					
Perchlorate	54.1	4.0	0.80	ug/l	50.0	5.8	97	80-120			
<b>Matrix Spike Dup Analyzed: 01/06/2005 (5A06055-MSD1)</b>						<b>Source: IOA0122-01</b>					
Perchlorate	53.2	4.0	0.80	ug/l	50.0	5.8	95	80-120	2	20	

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MWH-Pasadena/Boeing  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
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Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

**METHOD BLANK/QC DATA**

**INORGANICS**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A06081 Extracted: 01/06/05</b>											
<b>Duplicate Analyzed: 01/06/2005 (5A06081-DUP1)</b>						<b>Source: IOA0117-11</b>					
Specific Conductance	865	1.0	1.0	umhos/cm		880			2	5	
<b>Batch: 5A06082 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06082-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 01/06/2005 (5A06082-BS1)</b>											
Total Dissolved Solids	904	10	10	mg/l	1000		90	90-110			
<b>Duplicate Analyzed: 01/06/2005 (5A06082-DUP1)</b>						<b>Source: IOA0119-01</b>					
Total Dissolved Solids	198	10	10	mg/l		200			1	10	
<b>Batch: 5A07077 Extracted: 01/07/05</b>											
<b>Blank Analyzed: 01/07/2005 (5A07077-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 01/07/2005 (5A07077-BS1)</b>											
Total Suspended Solids	989	10	10	mg/l	1000		99	85-115			
<b>Duplicate Analyzed: 01/07/2005 (5A07077-DUP1)</b>						<b>Source: IOA0210-01</b>					
Total Suspended Solids	ND	10	10	mg/l		ND				10	

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

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 Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: P5A1203 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (P5A1203-BLK1)</b>											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.02			ug/l	1.00		102	80-125			
<b>LCS Analyzed: 01/12/2005 (P5A1203-BS1)</b>											
1,4-Dioxane	11.6	1.0	0.49	ug/l	10.0		116	70-130			
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	80-125			
<b>LCS Dup Analyzed: 01/12/2005 (P5A1203-BSD1)</b>											
1,4-Dioxane	10.3	1.0	0.49	ug/l	10.0		103	70-130	12	20	
Surrogate: Dibromofluoromethane	0.960			ug/l	1.00		96	80-125			
<b>Matrix Spike Analyzed: 01/12/2005 (P5A1203-MS1)</b>											
						<b>Source: IOA0121-01</b>					
1,4-Dioxane	9.50	1.0	0.49	ug/l	10.0	ND	95	70-150			
Surrogate: Dibromofluoromethane	1.05			ug/l	1.00		105	80-125			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (P5A1203-MSD1)</b>											
						<b>Source: IOA0121-01</b>					
1,4-Dioxane	7.48	1.0	0.49	ug/l	10.0	ND	75	70-150	24	25	
Surrogate: Dibromofluoromethane	1.05			ug/l	1.00		105	80-125			

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

### DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- H-1** Sample analysis performed past the method-specified holding time per client's approval.
- 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.
- L** Laboratory Control Sample recovery was above the method control limits. Analyte not detected, data not impacted.
- 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-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- RL-1** Reporting limit raised 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

### 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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## 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 425.1	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
EPA 8260B	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](http://www.dmalabs.com).

### Subcontracted Laboratories

#### Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrmc

Samples: IOA0121-01

Analysis Performed: Bioassay-Acute 96hr

Samples: IOA0121-01

#### Del Mar Analytical - Phoenix NELAC Cert #01109CA, California Cert #2446

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0121

Sampled: 01/04/05

Received: 01/04/05

**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: IOA0121-01

**Eberline Services - SUB**

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: Gross Alpha

Samples: IOA0121-01

Analysis Performed: Gross Beta

Samples: IOA0121-01

Analysis Performed: Level 3 Data Package

Samples: IOA0121-01

Analysis Performed: Strontium 90

Samples: IOA0121-01

Analysis Performed: Tritium

Samples: IOA0121-01

**Pace Analytical, MN- SUB**

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR

Samples: IOA0121-01

Analysis Performed: EDD + Level 4

Samples: IOA0121-01

**Truesdail Laboratories-SUB** *California Cert #1237*

14201 Franklin Avenue - Tustin, CA 92680

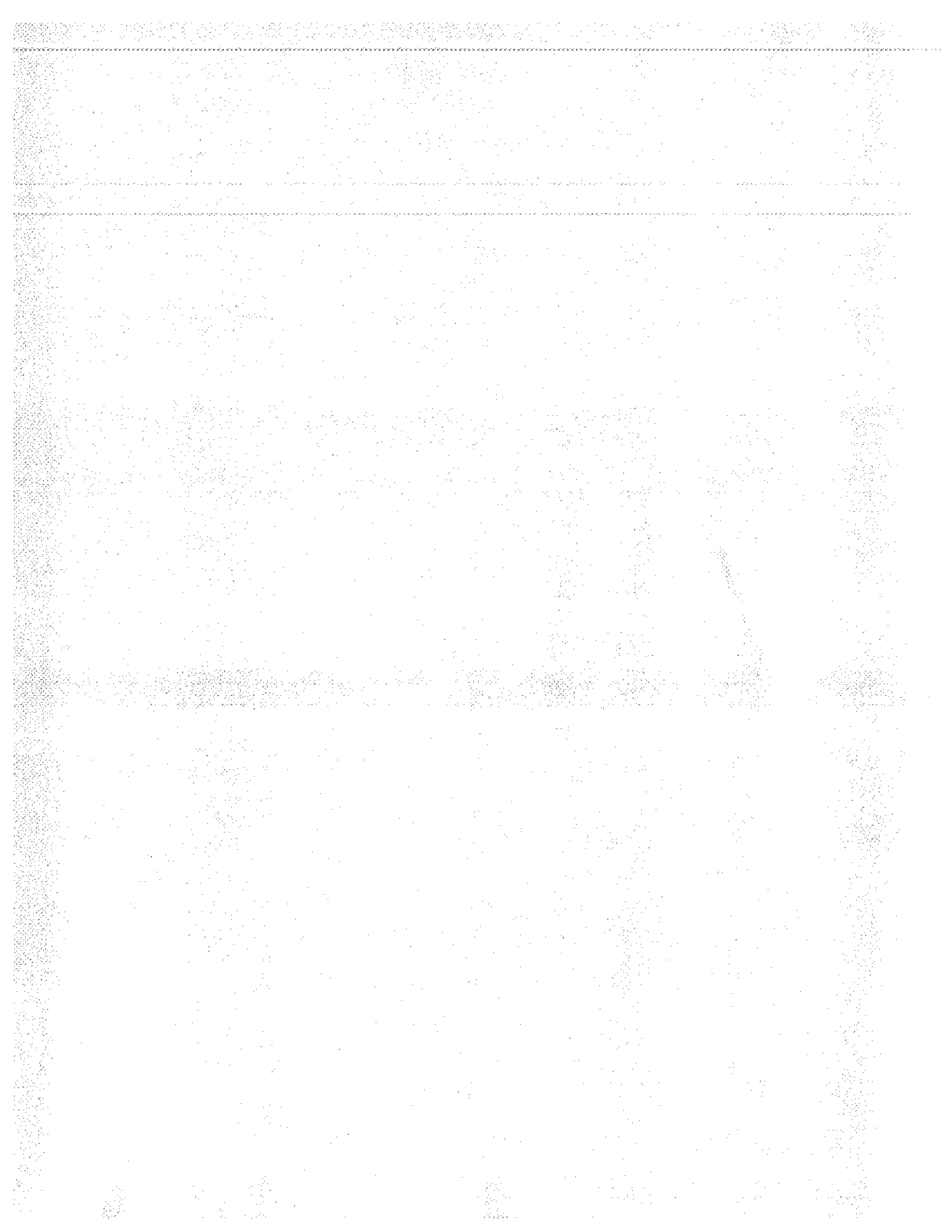
Analysis Performed: Hydrazine

Samples: IOA0121-01

Analysis Performed: Level 4 Data Package

Samples: IOA0121-01

**Del Mar Analytical, Irvine**  
Michele Harper  
Project Manager



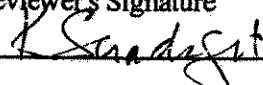


**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711DF20  
 Task Order 313150010  
 SDG No. Multiple  
 No. of Analyses 15

Laboratory Alta  
 Reviewer K. Shadowlight  
 Analysis/Method Dioxins

Date: February 11, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
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	* Method blank contamination
GC/MS Tune/Inst. Performance	* EMPCs
Calibration	* Detects below the lower method calibration level
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS <sup>b</sup>	Rev. 1
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

## 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: 15  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: February 11, 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 (Pace)	Matrix	COC Method
Outfall 003	IOA0026-01	105648001	water	1613
Outfall 004	IOA0027-01	105646001	water	1613
Outfall 005	IOA0028-01	105645001	water	1613
Outfall 007	IOA0108-01	105774001	water	1613
Outfall 008	IOA0109-01	105775001	water	1613
Outfall 009	IOA0110-01	105770001	water	1613
Outfall 010	IOA0111-01	105758001	water	1613
Outfall 001	IOA0112-01	105778001	water	1613
Outfall 002	IOA0119-01	105772001	water	1613
Outfall 018	IOA0122-01	105779001	water	1613
Outfall 011	IOA0131-01	105773001	water	1613
Outfall 006	IOA0458-01	106048001	water	1613
Outfall 004	IOA0460-01	106050001	water	1613
Outfall 005	IOA0464-01	106052001	water	1613
Outfall 003	IOA0466-01	106051001	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . Several of the samples in these SDGs were received at Pace Analytical Services below the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ; however, as none of the samples were noted to have been damaged, no qualifications were required. The samples were received in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to the laboratory (Del Mar Analytical), custody seals were not required. There was no information regarding custody seals upon receipt at Pace. 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 column performance standard was combined with the daily calibration verification and analyzed at the beginning of each analytical sequence. The GC column performance was acceptable with the chromatographic separation of 2,3,7,8-TCDD and other TCDD isomers resolved with a valley of  $\leq 25\%$ . No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance could not be evaluated as the laboratory did not provide selected ion current profiles for the lock-mass ions. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

There was one initial calibration, analyzed 11/29/04 on Instrument 10MSHR05. The calibration consisted of five concentration level standards (CS1 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 2 native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in the Table 6 of the 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.

## 2.4 BLANKS

One method blank (Blank-6202) was extracted and analyzed with the samples in these SDGs. Target compounds 1,2,3,4,6,7,8-HpCDD, total HpCDD, OCDF, and OCDD were reported in the method blank. Any detects for the aforementioned target compounds reported at concentrations  $< 5\times$  the concentrations reported in the method blank were qualified as estimated nondetects "UJ," at the levels of interference in the samples of these SDGs. 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 LCS/LCSD pair (LCS-6203/LCSD-6204) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of the Method 1613. There were no QC limits established for RPDs. The reported RPDs were within  $\pm 20\%$ . No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy and precision was based on the LCS/LCSD 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 limit (MCL) were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." No further qualifications were required.

## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0131-01	out-fall oil
Lab Sample ID	105773001	
Filename	F50127B_03	
Injected By	MRO	
Total Amount Extracted	1040 mL	
% Moisture	NA	Matrix Water
Dry Weight Extracted	NA	Dilution NA
ICAL Date	11/29/2004	Collected 01/05/2005
CCal Filename(s)	F50127A_13	Received 01/06/2005
Method Blank ID	BLANK-6202	Extracted 01/24/2005
		Analyzed 01/27/2005 22:36

Qual	Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
u	2,3,7,8-TCDF	ND	---	2.30	2,3,7,8-TCDF-13C	2.00	59
u	Total TCDF	ND	---	2.30	2,3,7,8-TCDD-13C	2.00	68
u	2,3,7,8-TCDD	ND	---	3.10	1,2,3,7,8-PeCDF-13C	2.00	81
u	Total TCDD	ND	---	3.10	2,3,4,7,8-PeCDF-13C	2.00	77
u	1,2,3,7,8-PeCDF	ND	---	2.60	1,2,3,7,8-PeCDD-13C	2.00	89
u	2,3,4,7,8-PeCDF	ND	---	1.20	1,2,3,4,7,8-HxCDF-13C	2.00	76
u	Total PeCDF	ND	---	1.90	1,2,3,6,7,8-HxCDF-13C	2.00	103
u	1,2,3,7,8-PeCDD	ND	---	1.50	2,3,4,6,7,8-HxCDF-13C	2.00	95
u	Total PeCDD	ND	---	1.50	1,2,3,7,8,9-HxCDF-13C	2.00	83
u	1,2,3,4,7,8-HxCDF	ND	---	1.30	1,2,3,4,7,8-HxCDD-13C	2.00	74
u	1,2,3,6,7,8-HxCDF	ND	---	1.10	1,2,3,6,7,8-HxCDD-13C	2.00	97
u	2,3,4,6,7,8-HxCDF	ND	---	0.87	1,2,3,4,6,7,8-HpCDF-13C	2.00	83
u	1,2,3,7,8,9-HxCDF	ND	---	1.50	1,2,3,4,7,8,9-HpCDF-13C	2.00	73
u	Total HxCDF	ND	---	1.20	1,2,3,4,6,7,8-HpCDD-13C	2.00	96
u	1,2,3,4,7,8-HxCDD	ND	---	1.50	OCDD-13C	4.00	92
u	1,2,3,6,7,8-HxCDD	ND	---	1.20	1,2,3,4-TCDD-13C	2.00	NA
u	1,2,3,7,8,9-HxCDD	ND	---	1.70	1,2,3,7,8,9-HxCDD-13C	2.00	NA
u	Total HxCDD	ND	---	1.50	2,3,7,8-TCDD-37Cl4	0.20	64
J	1,2,3,4,6,7,8-HpCDF	2.1	---	1.90			J
u	1,2,3,4,7,8,9-HpCDF	ND	---	2.90			
J	Total HpCDF	7.4	---	2.40			J
US	1,2,3,4,6,7,8-HpCDD	7.1	---	2.20			BJ
J	Total HpCDD	17.0	---	2.20			BJ
US	OCDF	---	6.3	2.10			I
US	OCDD	83.0	---	2.70			BJ

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....105773

## AMEC VALIDATED REPORT OF LABORATORY ANALYSIS

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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 T711MT29  
 Task Order 313150010  
 SDG No. IOA0131  
 No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer K. Okonzak

Analysis/Method metals

Date: 2/15/05

Reviewer's Signature  
P. Meeks for K. Okonzak

ACTION ITEMS <sup>a</sup>	
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 in the bracketing ICP/MS CCB analyses.
Holding Times	Qualifications were applied to analytes detected below the laboratory reporting limit.
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS <sup>b</sup>	

<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.

<sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



# DATA VALIDATION REPORT

**NPDES  
Monitoring**

**ANALYSIS: METALS**

**SAMPLE DELIVERY GROUPS: IOA0131**

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#: IOA0131  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Metals  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Okonzak-Lowry  
Date of Review: February 15, 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.: IOA0131  
Analysis: MET

**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011	Outfall 011	IOA0131-01	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. The COC requested only a few of the presented analytes. The remaining analytes were requested in a memo from MWH personnel dated 02/16/05. 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 and ICP 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 but did not report %RSDs. The laboratory SOP states that to be acceptable, the %RSD must be 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 and ICP/MS and 80-120% for mercury. The applicable reporting limit check standards were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.

## 2.4 BLANKS

There were detects and negative results reported for the method blanks and bracketing ICBs/CCBs associated with the sample in this SDG. Arsenic and silver were detected in a bracketing CCB at 0.63305 and 0.36341  $\mu\text{g/L}$ , respectively; therefore, the arsenic and silver detected in sample Outfall 011 were qualified "UJ." Selenium was detected in both bracketing CCBs at 0.90784 and 0.80914  $\mu\text{g/L}$ , respectively; therefore, the selenium detected in sample Outfall 011 was qualified "UJ." No further qualifications were required due to the method and calibration blank results.

## 2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)

No ICPMS interference check samples were analyzed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

An ICSA analysis was included in the raw data for the ICP boron analysis. This ICSA analysis was performed two days before the site sample analysis and was not associated with the initial calibration performed for sample Outfall 011. The laboratory's ICP SOP No. MET-200.7/6010B, Revision 8, states that the ICSA and ICSAB samples need to be run consecutively at the beginning and end of each analytical run. Due to the low level of matrix interferences in the site sample matrix, no sample qualifications were required due to the ICP ICS analysis.

## 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5A05092-BS1, the ICP LCS sample was identified as 5A06063-BS1, and the Hg LCS sample was identified as 5A06051-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS, ICP, and Hg control limits of 85-115%. No qualifications were required.

## 2.7 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.

## 2.8 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.

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 and 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 samples in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculation errors were noted. 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 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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05					
Reporting Units: ug/l									Rev Qual	Qual Code
Antimony	EPA 200.8	5A05092	0.18	2.0	0.42	1	01/05/05	01/06/05	J J	DNQ
Arsenic	EPA 200.8	5A05092	0.49	1.0	0.97	1	01/05/05	01/06/05	UJ J	B
Beryllium	EPA 200.8	5A05092	0.037	0.50	0.072	1	01/05/05	01/06/05	J J	R DNQ
Cadmium	EPA 200.8	5A05092	0.015	1.0	0.12	1	01/05/05	01/06/05	J J	DNQ
Chromium	EPA 200.8	5A05092	0.26	1.0	1.9	1	01/05/05	01/06/05	J J	DNQ
Cobalt	EPA 200.8	5A05092	0.10	1.0	0.34	1	01/05/05	01/06/05	J J	DNQ
Copper	EPA 200.8	5A05092	0.49	2.0	4.4	1	01/05/05	01/06/05	J J	DNQ
Lead	EPA 200.8	5A05092	0.13	1.0	0.82	1	01/05/05	01/06/05	J J	DNQ
Manganese	EPA 200.8	5A05092	0.44	1.0	14	1	01/05/05	01/06/05	J J	DNQ
Mercury	EPA 245.1	5A06051	0.063	0.20	0.17	1	01/06/05	01/06/05	J J	DNQ
Nickel	EPA 200.8	5A05092	0.15	1.0	2.1	1	01/05/05	01/06/05	J J	DNQ
Selenium	EPA 200.8	5A05092	0.36	2.0	0.66	1	01/05/05	01/06/05	UJ J	B
Silver	EPA 200.8	5A05092	0.089	1.0	0.13	1	01/05/05	01/06/05	UJ J	B
Thallium	EPA 200.8	5A05092	0.075	1.0	ND	1	01/05/05	01/06/05	U	
Vanadium	EPA 200.8	5A05092	0.86	1.0	1.1	1	01/05/05	01/06/05	J J	DNQ
Zinc	EPA 200.8	5A05092	3.1	20	15	1	01/05/05	01/06/05	J J	DNQ

*Handwritten:* 2/15/05

**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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: mg/l									Rev Qual Anal Code
Barium	EPA 200.8	5A05092	0.00014	0.0010	0.015	1	01/05/05	01/06/05	
Boron	EPA 200.7	5A06063	0.0074	0.050	0.051	1	01/06/05	01/06/05	
Iron	EPA 200.8	5A05092	0.0032	0.010	0.81	1	01/05/05	01/06/05	

# 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 T711PP11  
 Task Order 313150010  
 SDG No. IOA0131

No. of Analyses 1

Laboratory Del Mar Analytical

Date: February 17, 2005

Reviewer L. Calvin

Reviewer's Signature  


Analysis/Method Pesticides/PCBs by Method 608

ACTION ITEMS <sup>a</sup>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g., Holding Times GC/MS Tune/Inst. Performance Calibration Method blanks Surrogates Matrix Spike/Dup LCS Field QC Internal Standard Performance Compound Identification Quantitation System Performance	Qualifications were assigned for continuing calibration %Ds >15%

**COMMENTS<sup>b</sup>**

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



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOA0131

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#: IOA0131  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Pesticides/PCBs  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: February 16, 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	IOA0131-01	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 on ice within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , at  $4^{\circ}$ . The analysis did not require preservation, and no preservation was noted in the field. The case narrative 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 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  $\pm 0.10$  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 12/29/04 associated with pesticide analysis of sample Outfall 011, 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  $\leq 10\%$  on both analytical columns. There was one initial calibration dated 01/04/05 associated with the PCB analysis of the sample. The PCB calibration consisted of five points for Arochlor 1016 and Arochlor 1260. Single point calibrations for Arochlor 1242, Arochlor 1248, and Arochlor 1254 were analyzed but were not provided in the data package. The average %RSDs for the individual peaks of Arochlor 1016 and Arochlor 1260 were  $\leq 10\%$  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

The pesticide sample analysis of this SDG was bracketed by four continuing calibrations. In one of the bracketing calibrations following the sample analysis %Ds exceeded 15% on channel A for 4,4'-DDT and methoxychlor. As all results in this SDG were reported from channel A, nondetect results for both compounds were qualified as estimated, "UJ," in sample Outfall 011. The %Ds were within the Method QC limit of  $\pm 15\%$  for the remaining calibrations. The PCB analysis of this sample was bracketed by two CCVs and the %Ds for Arochlor 1016 and Arochlor 1260 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 the analytical sequence. Cross-contamination was not evident in the sample. No qualifications were necessary.

### 2.4.2 Method Blanks

One water method blank (5A07033-BLK1) was extracted and analyzed with this SDG. 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 (5A07033-BS1/BSD1) 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  $\leq 30\%$ . 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 this SDG 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. 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 benchesheets, 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 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 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 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 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 detects reported in this SDG, quantitation was verified by recalculating a representative number of blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the



***DATA VALIDATION REPORT***

Project: NPDES  
SDG: IOA0131  
Analysis: Pest/PCB

initial calibration and the laboratory MDL study. The water reporting limits were not adjusted for sample amount on the result summary; however, the dilution listed on the summary reflected the sample volume extracted. Results were reported in  $\mu\text{g/L}$  (ppb). 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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

**DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifier
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: ug/l									
Aldrin	EPA 608	5A07033	0.029	0.10	ND	0.98	01/07/05	01/07/05	u
alpha-BHC	EPA 608	5A07033	0.010	0.10	ND	0.98	01/07/05	01/07/05	u
beta-BHC	EPA 608	5A07033	0.011	0.10	ND	0.98	01/07/05	01/07/05	u
delta-BHC	EPA 608	5A07033	0.010	0.20	ND	0.98	01/07/05	01/07/05	u
gamma-BHC (Lindane)	EPA 608	5A07033	0.0097	0.10	ND	0.98	01/07/05	01/07/05	u
Chlordane	EPA 608	5A07033	0.18	1.0	ND	0.98	01/07/05	01/07/05	u
4,4'-DDD	EPA 608	5A07033	0.011	0.10	ND	0.98	01/07/05	01/07/05	u
4,4'-DDE	EPA 608	5A07033	0.017	0.10	ND	0.98	01/07/05	01/07/05	u
4,4'-DDT	EPA 608	5A07033	0.015	0.10	ND	0.98	01/07/05	01/07/05	u
Dieldrin	EPA 608	5A07033	0.010	0.10	ND	0.98	01/07/05	01/07/05	u
Endosulfan I	EPA 608	5A07033	0.015	0.10	ND	0.98	01/07/05	01/07/05	u
Endosulfan II	EPA 608	5A07033	0.037	0.10	ND	0.98	01/07/05	01/07/05	u
Endosulfan sulfate	EPA 608	5A07033	0.013	0.20	ND	0.98	01/07/05	01/07/05	u
Endrin	EPA 608	5A07033	0.0082	0.10	ND	0.98	01/07/05	01/07/05	u
Endrin aldehyde	EPA 608	5A07033	0.045	0.10	ND	0.98	01/07/05	01/07/05	u
Endrin ketone	EPA 608	5A07033	0.020	0.10	ND	0.98	01/07/05	01/07/05	u
Heptachlor	EPA 608	5A07033	0.030	0.10	ND	0.98	01/07/05	01/07/05	u
Heptachlor epoxide	EPA 608	5A07033	0.012	0.10	ND	0.98	01/07/05	01/07/05	u
Methoxychlor	EPA 608	5A07033	0.034	0.10	ND	0.98	01/07/05	01/07/05	u
Toxaphene	EPA 608	5A07033	0.77	5.0	ND	0.98	01/07/05	01/07/05	u
Surrogate: Tetrachloro-m-xylene (35-120%)					58 %				
Surrogate: Decachlorobiphenyl (45-120%)					82 %				

*Handwritten:* u/c 02.15.05

**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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

**DRAFT: TOTAL PCBS (EPA 608)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifier
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5A07033	0.067	1.0	ND	0.98	01/07/05	01/07/05	see qual code u ↓
Aroclor 1221	EPA 608	5A07033	0.057	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1232	EPA 608	5A07033	0.13	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1242	EPA 608	5A07033	0.12	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1248	EPA 608	5A07033	0.21	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1254	EPA 608	5A07033	0.16	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1260	EPA 608	5A07033	0.17	1.0	ND	0.98	01/07/05	01/07/05	
Surrogate: Decachlorobiphenyl (45-120%)					71 %				

**AMEC VALIDATED**  
**LEVEL IV**

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

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# DATA VALIDATION REPORT

NPDES  
Monitoring

ANALYSIS: RADIONUCLIDES

SAMPLE DELIVERY GROUPS:  
IOA0115, IOA0121, IOA0131

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#: IOA0115, IOA0121, IOA0131  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Radionuclides  
QC Level: Level IV  
No. of Samples: 4  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: March 03, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *EPA Prescribed Procedures for Measurements of Radioactivity in Drinking Water, Methods 900.0, 905.0, and 906.0*, and validation procedures 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 <sup>a</sup>	Del Mar ID	Eberline ID	Matrix	COC Method
Outfall 003 Unfiltered	IOA0115-01	8149-01	water	900.0, 905.0, 906.0
Outfall 003 Filtered	IOA0115-02	8149-02	water	900.0, 905.0, 906.0
Outfall 011	IOA0121-01	8148-01	water	900.0, 905.0, 906.0
Outfall 011 - Composite	IOA0131-01	8147-01	water	900.0, 905.0, 906.0

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of  $4\pm 2^{\circ}\text{C}$ . No temperature information was provided by Eberline, the subcontract laboratory; however, as it is not necessary to chill radiological samples, no qualifications were required. All samples were intact and in good condition.

According to the Eberline login sheet, none of the samples were received preserved. It was confirmed in correspondence with Eberline dated 01/31/05, that the gross alpha, gross beta, and strontium samples were not preserved upon receipt. According to the Los Angeles Water Quality Control Board (LARWQCB) guidance letter dated 01/12/05, unfiltered samples should not be preserved and filtered aliquots should be preserved after filtration. As the strontium aliquot for Outfall 003 Filtered was not preserved; the nondetect strontium result was qualified as estimated, "UJ." Additionally, according to the 01/12/05 LARWQCB guidance letter, samples collected for tritium analysis should be submitted in glass containers to avoid potential loss of tritium by sorption onto the plastic container. As none of the tritium samples were submitted on glass containers, all nondetect tritium results were qualified as estimated, "UJ." No further qualifications were required.

#### 2.1.2 Chain of Custody

The original COCs were signed and dated by field and laboratory personnel and the transfer COCs were signed by personnel from both laboratories. The original COCs for Outfall 003 did not request that an aliquot of each sample be filtered; however, the Del Mar project manager confirmed in a telephone conversation dated 1/31/05, that this was required by MWH. The original COC for Outfall 011 (SDG IOA0121) did not request that the sample containers received be analyzed for radionuclides. A memo from MWH personnel dated 2/17/05 requested these analyses. The transfer COCs accounted for all samples. Eberline did not list the MWH IDs on the Form Is; therefore, the reviewer edited the Form Is to reflect these IDs. No qualifications were required.

#### 2.1.3 Holding Times

The tritium and strontium samples were analyzed within 180 days of collection. The gross alpha and gross beta samples were analyzed beyond the five day holding time for unpreserved samples; therefore, the gross alpha and gross beta results were qualified as estimated, "J," for detects and, "UJ," for nondetects. No qualifications were necessary.

### 2.2 CALIBRATION

The laboratory calibration information included the standard certificates and applicable preparation/dilutions logs for NIST-traceability.



### Gross Alpha

The initial calibration included with the data was performed in February 2003. All detector efficiencies were below 20%; therefore, the nondetected alpha results were qualified as estimated, "UJ," for nondetects and "J," for detects.

### Tritium

No calibration standards were analyzed for this method. According to the laboratory, every sample was spiked for efficiency determination; therefore, no calibration is necessary. All detector efficiencies in the samples were at least 20% and were considered acceptable.

### Gross Beta and Strontium-90

The initial calibrations were performed in June 1997. All detector efficiencies were at least 20% and were considered acceptable. All continuing calibration results were within the laboratory control limits; therefore, no qualifications were necessary.

## **2.3 BLANKS**

No measurable activities were detected in the method blanks; therefore, no qualifications were necessary.

## **2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

One blank spike (8147-002) was analyzed in association with the samples in these SDGs. All recoveries were within both 3-sigma limits and the laboratory control limits. No qualifications were necessary.

## **2.5 LABORATORY DUPLICATES**

The laboratory performed a duplicate analysis on Outfall 011 Composite. The RPDs for gross beta, tritium, and strontium were  $\leq 20\%$ . The RPD for gross alpha was  $>20\%$ ; however, as the results were within the 3 sigma limit, no qualifications were necessary.

## **2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

The laboratory performed matrix spike analyses on Outfall 011 Composite for gross alpha, gross beta and tritium. The recoveries were within both 3-sigma limits and the laboratory control limits. No qualifications were necessary.

## **2.7 SAMPLE RESULT VERIFICATION**

An EPA Level IV review was performed for the samples in these data packages. Sample results and MDAs reported on the sample result forms were verified against the raw data and no calculation or transcription errors were noted. No qualifications were necessary.

## 2.8 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

### 2.8.1 Field Blanks and Equipment Rinsates

The 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 in these SDGs:

Eberline Services

ANALYSIS RESULTS

SDG <u>8147</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R501013-01</u>	Contract <u>PROJECT# IOA0131</u>
Received Date <u>01/06/05</u>	Matrix <u>WATER</u>

Client	Lab	Collected	Analyzed	Nuclide	Results ± 2σ	Units	MDA	Rev Qual	Qual Code
<u>Sample ID</u> outfall oil Composite	<u>Sample ID</u> 8147-001								
IOA0131-01	8147-001	01/05/05	01/22/05	GrossAlpha	-0.671 ± 1.0	pCi/L	1.99	US	H,*Z
			01/22/05	Gross Beta	2.37 ± 1.2	pCi/L	1.80	J	H
			01/26/05	H3	-125 ± 170	pCi/L	300	US	*!
			01/14/05	Sr90	0.002 ± 0.22	pCi/L	0.446	U	

pm 3/4/05

AMEC VALIDATED

LEVEL IV

Certified by <u>[Signature]</u>
Report Date <u>02/13/05</u>
Page 1

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711SV25  
 Task Order 313150010  
 SDG No. IOA0131  
 No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Semivolatiles

Date: February 14, 2005
Reviewer's Signature <i>M. Pokorny</i>

ACTION ITEMS <sup>a</sup>	
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 LCS outliers.
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOA0131

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#: IOA0131  
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: February 14, 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	IOA0131-01	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, at 4°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 01/12/05. The average RRFs for were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  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 01/13/05. The RRFs for all target compounds were  $\geq 0.05$ , and the %Ds were  $\leq 20$ . A representative number of RRFs 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 (5A10039-BLK1) was extracted and analyzed with this SDG. There were no reportable detects for the target compounds listed on the summary form. 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 (5A10039-BS1/BSD1) was extracted and analyzed with this SDG. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary,



to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ" for nondetects and "J" for detects, in the associated samples. All percent recoveries and RPDs were within the laboratory QC limits except for the recoveries of less than 10% for benzidine in both the LCS and LCSD. Benzidine was rejected, "R," in the sample of this SDG. 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 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 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 this SDG. No qualifications were required.

### **2.8.2 Field Duplicates**

There were no field duplicate samples associated with this SDG.

## **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  $\pm 30$  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 the 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. Detects below the reporting limit were qualified as estimated, "J," by the laboratory. No further 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.



# Del Mar Analytical

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## 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: IOA0131-01 (DRAFT: Outfall 011 - composite - Water)					Sampled: 01/05/05						
Reporting Units: ug/l											
Acenaphthene	EPA 625	5A10039	0.10	0.50	ND	0.98	01/10/05	01/14/05		U	
Acenaphthylene	EPA 625	5A10039	0.10	0.50	ND	0.98	01/10/05	01/14/05			
Aniline	EPA 625	5A10039	2.9	10	ND	0.98	01/10/05	01/14/05			
Anthracene	EPA 625	5A10039	0.083	0.50	ND	0.98	01/10/05	01/14/05			
Benzidine	EPA 625	5A10039	2.4	5.0	ND	0.98	01/10/05	01/14/05		R 12	L
Benzoic acid	EPA 625	5A10039	3.7	20	ND	0.98	01/10/05	01/14/05		U	
Benzo(a)anthracene	EPA 625	5A10039	0.038	5.0	ND	0.98	01/10/05	01/14/05			
Benzo(a)pyrene	EPA 625	5A10039	0.14	2.0	ND	0.98	01/10/05	01/14/05			
Benzo(b)fluoranthene	EPA 625	5A10039	0.050	2.0	ND	0.98	01/10/05	01/14/05			
Benzo(g,h,i)perylene	EPA 625	5A10039	0.059	5.0	ND	0.98	01/10/05	01/14/05			
Benzo(k)fluoranthene	EPA 625	5A10039	0.053	0.50	ND	0.98	01/10/05	01/14/05			
Benzyl alcohol	EPA 625	5A10039	0.21	5.0	ND	0.98	01/10/05	01/14/05			
Bis(2-chloroethoxy)methane	EPA 625	5A10039	0.072	0.50	ND	0.98	01/10/05	01/14/05			
Bis(2-chloroethyl)ether	EPA 625	5A10039	0.084	0.50	ND	0.98	01/10/05	01/14/05			
Bis(2-chloroisopropyl)ether	EPA 625	5A10039	0.11	0.50	ND	0.98	01/10/05	01/14/05			
Bis(2-ethylhexyl)phthalate	EPA 625	5A10039	1.1	5.0	1.2	0.98	01/10/05	01/14/05		J I	DNQ
4-Bromophenyl phenyl ether	EPA 625	5A10039	0.12	1.0	ND	0.98	01/10/05	01/14/05		U	
Butyl benzyl phthalate	EPA 625	5A10039	0.34	5.0	ND	0.98	01/10/05	01/14/05			
4-Chloroaniline	EPA 625	5A10039	0.20	2.0	ND	0.98	01/10/05	01/14/05			
2-Chloronaphthalene	EPA 625	5A10039	0.059	0.50	ND	0.98	01/10/05	01/14/05			
4-Chloro-3-methylphenol	EPA 625	5A10039	0.34	2.0	ND	0.98	01/10/05	01/14/05			
4-Chlorophenyl phenyl ether	EPA 625	5A10039	0.056	0.50	ND	0.98	01/10/05	01/14/05			
2-Chlorophenol	EPA 625	5A10039	0.12	1.0	ND	0.98	01/10/05	01/14/05			
Chrysene	EPA 625	5A10039	0.072	0.50	ND	0.98	01/10/05	01/14/05			
Dibenz(a,h)anthracene	EPA 625	5A10039	0.083	0.50	ND	0.98	01/10/05	01/14/05			
Dibenzofuran	EPA 625	5A10039	0.075	0.50	ND	0.98	01/10/05	01/14/05			
Di-n-butyl phthalate	EPA 625	5A10039	0.26	2.0	ND	0.98	01/10/05	01/14/05			
1,2-Dichlorobenzene	EPA 625	5A10039	0.11	0.50	ND	0.98	01/10/05	01/14/05			
1,3-Dichlorobenzene	EPA 625	5A10039	0.13	0.50	ND	0.98	01/10/05	01/14/05			
1,4-Dichlorobenzene	EPA 625	5A10039	0.050	0.50	ND	0.98	01/10/05	01/14/05			
3,3-Dichlorobenzidine	EPA 625	5A10039	0.93	5.0	ND	0.98	01/10/05	01/14/05			
2,4-Dichlorophenol	EPA 625	5A10039	0.21	2.0	ND	0.98	01/10/05	01/14/05			
Diethyl phthalate	EPA 625	5A10039	0.12	1.0	ND	0.98	01/10/05	01/14/05			
2,4-Dimethylphenol	EPA 625	5A10039	0.31	2.0	ND	0.98	01/10/05	01/14/05			
Dimethyl phthalate	EPA 625	5A10039	0.081	0.50	ND	0.98	01/10/05	01/14/05			
4,6-Dinitro-2-methylphenol	EPA 625	5A10039	0.38	5.0	ND	0.98	01/10/05	01/14/05			
2,4-Dinitrophenol	EPA 625	5A10039	2.7	5.0	ND	0.98	01/10/05	01/14/05			
2,4-Dinitrotoluene	EPA 625	5A10039	0.23	5.0	ND	0.98	01/10/05	01/14/05			
2,6-Dinitrotoluene	EPA 625	5A10039	0.24	5.0	ND	0.98	01/10/05	01/14/05			
Di-n-octyl phthalate	EPA 625	5A10039	0.17	5.0	ND	0.98	01/10/05	01/14/05			
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A10039	0.087	1.0	ND	0.98	01/10/05	01/14/05			

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

**AMEC VALIDATED**

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# 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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## 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: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.											
Reporting Units: ug/l											
Sampled: 01/05/05											
Fluoranthene	EPA 625	5A10039	0.089	0.50	ND	0.98	01/10/05	01/14/05		U	
Fluorene	EPA 625	5A10039	0.075	0.50	ND	0.98	01/10/05	01/14/05		U	
Hexachlorobenzene	EPA 625	5A10039	0.13	1.0	ND	0.98	01/10/05	01/14/05		U	
Hexachlorobutadiene	EPA 625	5A10039	0.38	2.0	ND	0.98	01/10/05	01/14/05		U	
Hexachlorocyclopentadiene	EPA 625	5A10039	1.8	5.0	ND	0.98	01/10/05	01/14/05		U	
Hexachloroethane	EPA 625	5A10039	0.51	3.0	ND	0.98	01/10/05	01/14/05		U	
Indeno(1,2,3-cd)pyrene	EPA 625	5A10039	0.19	2.0	ND	0.98	01/10/05	01/14/05		U	
Isophorone	EPA 625	5A10039	0.059	1.0	0.098	0.98	01/10/05	01/14/05		J	NDQ
2-Methylnaphthalene	EPA 625	5A10039	0.13	1.0	ND	0.98	01/10/05	01/14/05		U	
2-Methylphenol	EPA 625	5A10039	0.28	2.0	ND	0.98	01/10/05	01/14/05		U	
4-Methylphenol	EPA 625	5A10039	0.20	5.0	ND	0.98	01/10/05	01/14/05		U	
Naphthalene	EPA 625	5A10039	0.13	1.0	ND	0.98	01/10/05	01/14/05		U	
2-Nitroaniline	EPA 625	5A10039	0.18	5.0	ND	0.98	01/10/05	01/14/05		U	
3-Nitroaniline	EPA 625	5A10039	0.35	5.0	ND	0.98	01/10/05	01/14/05		U	
4-Nitroaniline	EPA 625	5A10039	0.49	5.0	ND	0.98	01/10/05	01/14/05		U	
Nitrobenzene	EPA 625	5A10039	0.10	1.0	ND	0.98	01/10/05	01/14/05		U	
2-Nitrophenol	EPA 625	5A10039	0.23	2.0	ND	0.98	01/10/05	01/14/05		U	
4-Nitrophenol	EPA 625	5A10039	0.73	5.0	ND	0.98	01/10/05	01/14/05		U	
N-Nitrosodimethylamine	EPA 625	5A10039	0.22	2.0	ND	0.98	01/10/05	01/14/05		U	
N-Nitroso-di-n-propylamine	EPA 625	5A10039	0.18	2.0	ND	0.98	01/10/05	01/14/05		U	
N-Nitrosodiphenylamine	EPA 625	5A10039	0.077	1.0	ND	0.98	01/10/05	01/14/05		U	
Pentachlorophenol	EPA 625	5A10039	0.78	2.0	ND	0.98	01/10/05	01/14/05		U	
Phenanthrene	EPA 625	5A10039	0.071	0.50	ND	0.98	01/10/05	01/14/05		U	
Phenol	EPA 625	5A10039	0.14	1.0	ND	0.98	01/10/05	01/14/05		U	
Pyrene	EPA 625	5A10039	0.059	0.50	ND	0.98	01/10/05	01/14/05		U	
1,2,4-Trichlorobenzene	EPA 625	5A10039	0.10	1.0	ND	0.98	01/10/05	01/14/05		U	
2,4,5-Trichlorophenol	EPA 625	5A10039	0.075	2.0	ND	0.98	01/10/05	01/14/05		U	
2,4,6-Trichlorophenol	EPA 625	5A10039	0.10	1.0	ND	0.98	01/10/05	01/14/05		U	
Surrogate: 2-Fluorophenol (35-120%)						74 %					
Surrogate: Phenol-d6 (45-120%)						80 %					
Surrogate: 2,4,6-Tribromophenol (50-125%)						89 %					
Surrogate: Nitrobenzene-d5 (45-120%)						77 %					
Surrogate: 2-Fluorobiphenyl (45-120%)						82 %					
Surrogate: Terphenyl-d14 (45-135%)						83 %					

**AMEC VALIDATED**

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

LEVEL IV

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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 T711TF34  
 Task Order 313150010  
 SDG No. IOA0131

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Calvin

Analysis/Method TPH/Extractable by Method 8015M

Date: February 17, 2005

Reviewer's Signature L. Calvin

ACTION ITEMS <sup>a</sup>	
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 <sup>b</sup>	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOA0131

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#: IOA0121  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Extractable  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: February 17, 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	Outfall 011	IOA0131-01	water	8015M/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 sample in this SDG was received at Del Mar Analytical laboratory on ice within the temperature limits of 4°C ±2°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 COC was signed and dated by both field and laboratory personnel, and 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 sample was 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 analysis was analyzed on 12/21/04. The %RSD was within the QC limit of ≤20%. The %Ds for the initial calibration verification (ICV) and continuing calibrations associated with the sample analysis were ≤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 (5A06045-BLK1) was extracted and analyzed with the sample in this SDG. 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 (5A06045-BS1/BSD1) was extracted and analyzed with the sample in this SDG. The recoveries of alkane range C13-C40 from spiked diesel were within the laboratory-established QC limits of 40-120%, and the RPD was within the QC limit of ≤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 sample was fortified with the surrogate compound n-octacosane. The sample surrogate recovery was within the laboratory-established QC of 40-125%. The recovery was 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 the sample of this SDG. 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 rinsate samples associated with the site sample 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 EFH n-alkane range C13-C22 by EPA SW846 Method 8015M. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for this SDG. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG by recalculating any sample detect, 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. The reporting limit was not adjusted for sample amount; however, the dilution factor on the sample result summary reflected the sample amount extracted. 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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Analyzed	Data Qualifiers	
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05					
Reporting Units: mg/l										
EFH (C13 - C22)	EPA 8015B	5A06045	0.082	0.50	ND	0.962	01/06/05	01/06/05	U	
Surrogate: n-Octacosane (40-125%)					58 %					

*very good quality*  
*Decade*

**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 T711TF35  
 Task Order 313150010  
 SDG No. IOA0131

No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer L. Calvin

Analysis/Method TPH/GRO by Method 8015M

Date: February 17, 2005

Reviewer's Signature

*L. Calvin*

ACTION ITEMS <sup>a</sup>	
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 <sup>b</sup>	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/PURGEABLE

SAMPLE DELIVERY GROUP: IOA0131

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#: IOA0131  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Purgeable  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: February 17, 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	Outfall 011	IOA0131-01	water	8015M/GRO
Trip Blank	Trip Blank	IOA0131-02	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 this SDG 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 samples were received intact, and the COC indicated the samples were properly preserved, without headspace in the VOA vials. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was 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 08/26/04 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 (5A06001-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 (5A06001-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 bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC of 65-140% for both samples. 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 sample in this SDG; therefore, 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

Sample Trip Blank was the trip blank associated with site sample Outfall 011. GRO (C4-C12) was not detected above the MDL in the trip blank. Review of the raw data indicated no false negative result. There were no field blank or equipment rinsate samples associated with this SDG. No qualifications were necessary.

### 2.9.2 Field Duplicates

There were no field duplicate samples in this SDG.

## 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 this SDG. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG 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 calibrations and by the laboratory MDL. No qualifications were required.



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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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## 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: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont. Reporting Units: mg/l					Sampled: 01/05/05					
GRO (C4 - C12) Surrogate: 4-BFB (FID) (65-140%)	EPA 8015 Mod.	5A06001	0.050	0.10	ND 86 %	1	01/06/05	01/06/05	u	
Sample ID: IOA0131-02 (DRAFT: Trip Blank - Water) Reporting Units: mg/l					Sampled: 01/04/05					
GRO (C4 - C12) Surrogate: 4-BFB (FID) (65-140%)	EPA 8015 Mod.	5A06001	0.050	0.10	ND 84 %	1	01/06/05	01/06/05	u	

**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 T711VO44  
 Task Order 313150010  
 SDG No. IOA0131  
 No. of Analyses 2

Laboratory Del Mar  
 Reviewer M. Pokorny  
 Analysis/Method Volatiles

Date: February 15, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
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 outliers.
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0131

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#: IOA0131  
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: February 15, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample identification**

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 011	Outfall 011	IOA0131-01	water	624
Trip Blank	Trip Blank	IOA0131-02	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . According to the COC, the samples were received intact, without headspace, and in good condition. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed by field and laboratory personnel and accounted for the analyses presented in this SDG. As the samples were couriered directly to the laboratory, custody seals are 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 report were consistent with those specified in the EPA Method 624. All ion abundances were within the established windows and were therefore acceptable. 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 11/03/04 and 01/04/05, were associated with this SDG. The average RRFs were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  for the target compounds listed on the sample summary forms. Two continuing calibrations, dated 01/07/05 (10:03 and 11:16), were associated with this SDG. The RRFs for all target compounds were  $\geq 0.05$  and the %Ds were  $\leq 20\%$  except for the %Ds for chloromethane, bromomethane, Freon 113, and chloroethane. The aforementioned compounds were qualified as estimated nondetects, "UJ," in the site sample of this SDG. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibrations were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

## 2.4 BLANKS

Two water method blank (5A06024-BLK1 and 5A07016-BLK1) were associated with this SDG. There were no detects for the target compounds listed on the summary forms. 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 (5A06024-BS1 and 5A07016-BS1) were associated with this SDG. All spike 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 within the QC limits of 80-120%. A representative number of surrogate recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample Outfall 011 was the MS/MSD analyses performed with this SDG. All spike recoveries and RPDs were within the laboratory-established QC limits. No qualifications were required.

## 2.8 FIELD QC SAMPLES

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

### 2.8.1 Trip Blanks

Sample Trip Blank (IOA0131-02) was the trip blank associated with the site sample of this SDG. Methylene chloride was detected in the trip blank; however, methylene chloride was not reported in the sample of this SDG. No qualifications were required.

### 2.8.2 Field Blanks and Equipment Rinsates

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

### 2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.



## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for this SDG were within the control limits established by the continuing calibration standards, of +100%/-50% for internal standard areas and  $\pm 0.50$  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 a subset of 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.

The laboratory analyzed for 1,2-dichloro-1,1,2-trifluorethane and cyclohexane as TICs for this SDG. 1,2-dichloro-1,1,2-trifluorethane was present in the calibration standards. Neither compound was reported either as a TIC or as a target compound in the samples of this SDG and were reported as estimated nondetects, "UJ."

No further 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 MDL study. Compound quantitation was verified by recalculating any sample detect, and/or a representative number of 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

The laboratory searched for 1,2-dichloro-1,1,2-trifluorethane and cyclohexane as TICs for this SDG. Neither compound was detected as a TIC in the samples of 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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	REV QUAL	QUAL CODE
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water)											
Reporting Units: ug/l											
Sampled: 01/05/05											
Benzene	EPA 624	5A06024	0.28	1.0	ND	1	01/06/05	01/06/05	U		
Bromodichloromethane	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	U		
Bromoform	EPA 624	5A06024	0.32	5.0	ND	1	01/06/05	01/06/05	U		
Bromomethane	EPA 624	5A06024	0.34	5.0	ND	1	01/06/05	01/06/05	U		
Carbon tetrachloride	EPA 624	5A06024	0.28	0.50	ND	1	01/06/05	01/06/05	U		C
Chlorobenzene	EPA 624	5A06024	0.36	2.0	ND	1	01/06/05	01/06/05	U		
Chloroethane	EPA 624	5A06024	0.33	5.0	ND	1	01/06/05	01/06/05	U		
Chloroform	EPA 624	5A06024	0.33	2.0	ND	1	01/06/05	01/06/05	U		C
Chloromethane	EPA 624	5A06024	0.30	5.0	ND	1	01/06/05	01/06/05	U		C
Dibromochloromethane	EPA 624	5A06024	0.28	2.0	ND	1	01/06/05	01/06/05	U		C
1,2-Dichlorobenzene	EPA 624	5A06024	0.32	2.0	ND	1	01/06/05	01/06/05	U		
1,3-Dichlorobenzene	EPA 624	5A06024	0.35	2.0	ND	1	01/06/05	01/06/05	U		
1,4-Dichlorobenzene	EPA 624	5A06024	0.37	2.0	ND	1	01/06/05	01/06/05	U		
1,1-Dichloroethane	EPA 624	5A06024	0.27	2.0	ND	1	01/06/05	01/06/05	U		
1,2-Dichloroethane	EPA 624	5A06024	0.28	0.50	ND	1	01/06/05	01/06/05	U		
1,1-Dichloroethene	EPA 624	5A06024	0.32	5.0	ND	1	01/06/05	01/06/05	U		
trans-1,2-Dichloroethene	EPA 624	5A06024	0.27	2.0	ND	1	01/06/05	01/06/05	U		
1,2-Dichloropropane	EPA 624	5A06024	0.35	2.0	ND	1	01/06/05	01/06/05	U		
cis-1,3-Dichloropropene	EPA 624	5A06024	0.22	2.0	ND	1	01/06/05	01/06/05	U		
trans-1,3-Dichloropropene	EPA 624	5A06024	0.24	2.0	ND	1	01/06/05	01/06/05	U		
Ethylbenzene	EPA 624	5A06024	0.25	2.0	ND	1	01/06/05	01/06/05	U		
Methylene chloride	EPA 624	5A06024	0.48	5.0	ND	1	01/06/05	01/06/05	U		
1,1,2,2-Tetrachloroethane	EPA 624	5A06024	0.24	2.0	ND	1	01/06/05	01/06/05	U		
Tetrachloroethene	EPA 624	5A06024	0.32	2.0	ND	1	01/06/05	01/06/05	U		
Toluene	EPA 624	5A06024	0.36	2.0	ND	1	01/06/05	01/06/05	U		
1,1,1-Trichloroethane	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	U		
1,1,2-Trichloroethane	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	U		
Trichloroethene	EPA 624	5A06024	0.26	2.0	ND	1	01/06/05	01/06/05	U		
Trichlorofluoromethane	EPA 624	5A06024	0.34	5.0	ND	1	01/06/05	01/06/05	U		
Vinyl chloride	EPA 624	5A06024	0.26	0.50	ND	1	01/06/05	01/06/05	U		
Xylenes, Total	EPA 624	5A06024	0.52	4.0	ND	1	01/06/05	01/06/05	U		
Surrogate: Dibromofluoromethane (80-120%)											104 %
Surrogate: Toluene-d8 (80-120%)											102 %
Surrogate: 4-Bromofluorobenzene (80-120%)											94 %

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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## 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: IOA0131-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Sampled: 01/04/05									
Benzene	EPA 624	5A06024	0.23	2.0	ND	1	01/06/05	01/06/05	REV QUAL
Bromodichloromethane	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	QUAL CODE
Bromoform	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	U
Bromomethane	EPA 624	5A06024	0.46	5.0	ND	1	01/06/05	01/06/05	
Carbon tetrachloride	EPA 624	5A06024	0.29	5.0	ND	1	01/06/05	01/06/05	
Chlorobenzene	EPA 624	5A06024	0.32	2.0	ND	1	01/06/05	01/06/05	
Chloroethane	EPA 624	5A06024	0.86	5.0	ND	1	01/06/05	01/06/05	
Chloroform	EPA 624	5A06024	0.23	2.0	ND	1	01/06/05	01/06/05	
Chloromethane	EPA 624	5A06024	0.44	5.0	ND	1	01/06/05	01/06/05	
Dibromochloromethane	EPA 624	5A06024	0.48	2.0	ND	1	01/06/05	01/06/05	
1,2-Dichlorobenzene	EPA 624	5A06024	0.39	2.0	ND	1	01/06/05	01/06/05	
1,3-Dichlorobenzene	EPA 624	5A06024	0.28	2.0	ND	1	01/06/05	01/06/05	
1,4-Dichlorobenzene	EPA 624	5A06024	0.41	2.0	ND	1	01/06/05	01/06/05	
1,1-Dichloroethane	EPA 624	5A06024	0.17	2.0	ND	1	01/06/05	01/06/05	
1,2-Dichloroethane	EPA 624	5A06024	0.43	2.0	ND	1	01/06/05	01/06/05	
1,1-Dichloroethene	EPA 624	5A06024	0.24	5.0	ND	1	01/06/05	01/06/05	
cis-1,2-Dichloroethene	EPA 624	5A06024	0.26	2.0	ND	1	01/06/05	01/06/05	
trans-1,2-Dichloroethene	EPA 624	5A06024	0.20	2.0	ND	1	01/06/05	01/06/05	
1,2-Dichloropropane	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	
cis-1,3-Dichloropropene	EPA 624	5A06024	0.31	2.0	ND	1	01/06/05	01/06/05	
trans-1,3-Dichloropropene	EPA 624	5A06024	0.32	2.0	ND	1	01/06/05	01/06/05	
Ethylbenzene	EPA 624	5A06024	0.31	2.0	ND	1	01/06/05	01/06/05	
Methylene chloride	EPA 624	5A06024	1.2	5.0	ND	1	01/06/05	01/06/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A06024	0.41	2.0	ND	1	01/06/05	01/06/05	
Tetrachloroethene	EPA 624	5A06024	0.39	2.0	ND	1	01/06/05	01/06/05	
Toluene	EPA 624	5A06024	0.28	2.0	ND	1	01/06/05	01/06/05	
1,1,1-Trichloroethane	EPA 624	5A06024	0.28	2.0	ND	1	01/06/05	01/06/05	
1,1,2-Trichloroethane	EPA 624	5A06024	0.41	2.0	ND	1	01/06/05	01/06/05	
Trichloroethene	EPA 624	5A06024	0.38	2.0	ND	1	01/06/05	01/06/05	
Trichlorofluoromethane	EPA 624	5A06024	0.37	5.0	ND	1	01/06/05	01/06/05	
Vinyl chloride	EPA 624	5A06024	0.24	5.0	ND	1	01/06/05	01/06/05	
Surrogate: Dibromofluoromethane (80-120%)					103 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

AMEC VALIDATION

LEVEL IV

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	QUAL CODE
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water)					Sampled: 01/05/05				RD	
Reporting Units: ug/l									QUAL	
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A06024	1.2	5.0	ND	1	01/06/05	01/06/05	UJ	C
Surrogate: Dibromofluoromethane (80-120%)					104 %					
Surrogate: Toluene-d8 (80-120%)					102 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					94 %					
Sample ID: IOA0131-02 (DRAFT: Trip Blank - Water)					Sampled: 01/04/05					
Reporting Units: ug/l										
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A06024	1.2	5.0	ND	1	01/06/05	01/06/05	U	
Surrogate: Dibromofluoromethane (80-120%)					103 %					
Surrogate: Toluene-d8 (80-120%)					103 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %					

AMEC VALIDATED

LEVEL IV

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## 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: IOA0131-01 (DRAFT: Outfall 011 - composite - Water)					Sampled: 01/05/05					<table border="1"> <tr> <td>RO</td> <td>QUAL</td> </tr> <tr> <td>QUAL</td> <td>CODE</td> </tr> </table>	RO	QUAL	QUAL	CODE
RO	QUAL													
QUAL	CODE													
Reporting Units: ug/l														
Acrolein	EPA 624	5A07016	4.6	50	ND	1	01/07/05	01/07/05	U					
Acrylonitrile	EPA 624	5A07016	5.1	50	ND	1	01/07/05	01/07/05	U					
2-Chloroethyl vinyl ether	EPA 624	5A07016	1.3	5.0	ND	1	01/07/05	01/07/05	U					
Surrogate: Dibromofluoromethane (80-120%)					108 %									
Surrogate: Toluene-d8 (80-120%)					103 %									
Surrogate: 4-Bromofluorobenzene (80-120%)					95 %									

ANALYST VALIDATED

LEVEL IV

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## 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: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05					REV	QUAL
Reporting Units: ug/l										QUAL	CODE
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A06024	N/A	2.5	ND	1	01/06/05	01/06/05	UJ	*10	
Cyclohexane	EPA 624 (MOD.)	5A06024	N/A	2.5	ND	1	01/06/05	01/06/05	UJ	*10	
Sample ID: IOA0131-02 (DRAFT: Trip Blank - Water)					Sampled: 01/04/05						
Reporting Units: ug/l											
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A06024	N/A	2.5	ND	1	01/06/05	01/06/05	UJ	*10	
Cyclohexane	EPA 624 (MOD.)	5A06024	N/A	2.5	ND	1	01/06/05	01/06/05	UJ	*10	

AMEC VALIDATED

LEVEL IV

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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  
Suite 500  
Lakewood, CO 80226

Package ID T711VO46  
Task Order 313150010  
SDG No. IOA0131

No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles (1,4-dioxane)

Date: February 11, 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\*

Acceptable as reviewed.

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

<sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0131

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 #: IOA0131  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Volatiles (1,4-dioxane)  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: M. Pokorny  
Date of Review: February 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 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.	Matrix	Method
Outfall 011	Outfall 011	IOA0131-01	water	624

## 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 Del Mar within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The sample was properly preserved. The COC noted that the sample was received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed by field and laboratory personnel. The COCs accounted for the analysis presented in this SDG. According to the sample login sheet, custody seals were not present on the cooler. No qualifications were required.

#### 2.1.3 Holding Times

The sample was 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 sample was analyzed within 12 hours of the BFB injection time. No qualifications were required.

### 2.3 CALIBRATION

One initial calibration, dated 01/07/04, was associated with this SDG. The average RRF for 1,4-dioxane was  $\geq 0.05$  and the %RSD was  $\leq 15\%$ . One continuing calibration, dated 01/07/05 was associated with this SDG. The RRF for 1,4-dioxane was  $\geq 0.05$  and the %D was  $\leq 20\%$ . The %RSD 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 (P5A1103-BLK1) was associated with this SDG. 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 (P5A1105-BS1/BS1D) with this SDG. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative recovery was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.6 SURROGATE RECOVERY

The sample and QC were fortified with dibromofluoromethane. The surrogate was recovered within the laboratory QC limits of 80-125%. The surrogate recovery for this sample was recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample Outfall 011 was the MS/MSD analyses performed with this SDG. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative recovery was 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

The sample in this SDG had no associated trip blank. No qualifications were required.

### 2.8.1 Field Blanks and Equipment Rinsates

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

### 2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for the sample were within the control limits established by the continuing calibration standards, of +100%/-50% for internal standard areas and  $\pm 0.50$  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 sample 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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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: 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: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	PSA1103	0.49	1.0	ND	1	01/11/05	01/11/05	U
Surrogate: Dibromofluoromethane (80-125%)					108 %				

AMEC VALIDATED

LEVEL IV

DRAFT REPORT  
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IOA0131 <Page 22 of 68>

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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


Package ID T711WC62  
 Task Order 313150010  
 SDG No. IOA0131

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method Perchlorate by 314.0

Date: 02/18/05  
 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

**COMMENTS<sup>b</sup>**      Acceptable as reviewed.

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOA0131

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 #: IOA0131  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Perchlorate  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: L. Jarusewic  
Date of Review: February 17, 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 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	IOA0131-01	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . 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; however, the COC did not account for the sample and analysis presented in this SDG. A memo dated 02/16/05 from MWH personnel requested the perchlorate analysis for the sample 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  $\geq 0.995$ . 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

The MS/MSD analyses were performed on water sample Outfall 011 in association with the samples in this SDG. The RPD was within the control limits of  $\leq 20\%$ . No qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The MS/MSD analyses were performed on water sample Outfall 011 in association with the samples in this SDG. The recoveries were within the control limits of 80-120%. No qualifications were required.

## 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 calculations 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 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 package.



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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5A05064	0.041	1.0	0.16	1	01/05/05	01/05/05	* B, J
Total Cyanide	EPA 335.2	5A05078	2.2	5.0	ND	1	01/05/05	01/05/05	↓
Perchlorate	EPA 314.0	5A12035	0.80	4.0	ND	1	01/12/05	01/12/05	U

### AMEC VALIDATED

### LEVEL IV

\*Analysis Not Validated

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 T711WC61  
 Task Order 313150010  
 SDG No. IOA0131

No. of Analyses 1

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method General Minerals

Date: 02/14/05

Reviewer's Signature

*P. Meeks*

ACTION ITEMS <sup>a</sup>	
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 hexavalent chromium detected in the method blank and detects below the reporting limits.</p> <p>Holding Times _____</p> <p>GC/MS Tune/Inst. 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> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
COMMENTS <sup>b</sup>	
<p><sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.</p> <p><sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</p>	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOA0131

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 #: IOA0131  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: February 14, 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, 218.6, 160.2, 160.5, 180.1, and 120.1, Standard Methods for the Examination of Water and Wastewater Methods 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 Composite	IOA0131-01	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 requested only a few of the presented analyses. The remaining analyses were requested in a memo from MWH personnel dated 02/16/05. 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 biological oxygen demand, surfactants, turbidity, nitrate/nitrite, and total settleable solids, and the 24-hour hexavalent chromium and residual chlorine holding time were met, and no qualifications were required.

### 2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were  $\geq 0.995$ . All ICV and continuing calibration information was acceptable with %Rs 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 or total settleable solids. No qualifications were required.

### 2.3 BLANKS

Hexavalent chromium was detected in the method blank at  $0.15 \mu\text{g/L}$  and in the bracketing CCB at  $0.20 \mu\text{g/L}$ ; therefore, hexavalent chromium detected in Outfall 011 (composite) was qualified as an estimated nondetect, "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 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 this SDG.

## **2.6 LABORATORY DUPLICATES**

A duplicate analysis was performed on Outfall 011 for chloride, fluoride, and sulfate only. The RPDs were within the laboratory-established control limit of  $\leq 20\%$ . No qualifications were required.

## **2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses were performed on Outfall 011 for chloride, fluoride, and sulfate only. All recoveries were within the laboratory-established control limits of 80-120% and no qualifications were required.

## **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 Is were verified against the raw data. No transcription errors or calculations errors were noted. MBAS was analyzed at a 10 $\times$  dilution, as the sample had formed on emulsion. Analytes 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 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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## 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: IOA0131-01 (DRAFT: Outfall 011 - composite - Water)													
Reporting Units: mg/l													
Total Recoverable Hydrocarbons	EPA 418.1	SA06070	0.31	1.0	ND	1	01/06/05	01/06/05	<table border="1"> <tr> <td>Raw Qual</td> <td>Qual Code</td> </tr> <tr> <td>U</td> <td></td> </tr> </table>	Raw Qual	Qual Code	U	
Raw Qual	Qual Code												
U													

**AMEC VALIDATED**

**LEVEL IV**

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.      Sampled: 01/05/05										
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5A05067	0.30	0.50	ND	1	01/05/05	01/05/05	U	
Biochemical Oxygen Demand	EPA 405.1	5A05054	0.59	2.0	1.3	1	01/05/05	01/10/05	J J	DNQ
Chloride	EPA 300.0	5A05050	0.26	0.50	4.3	1	01/05/05	01/05/05		
Fluoride	EPA 300.0	5A05050	0.074	0.50	0.28	1	01/05/05	01/05/05	J J	DNQ
Nitrate/Nitrite-N	EPA 300.0	5A05050	0.072	0.26	2.1	1	01/05/05	01/05/05		
Oil & Grease	EPA 413.1	5A05068	0.94	5.0	0.95	1	01/05/05	01/05/05	J J	DNQ
Residual Chlorine	EPA 330.5	5A05066	0.10	0.10	ND	1	01/05/05	01/05/05	U	
Sulfate	EPA 300.0	5A05050	0.18	0.50	6.0	1	01/05/05	01/05/05		
Surfactants (MBAS)	SM5540-C	5A05099	0.44	1.0	0.46	10	01/05/05	01/05/05	J RL-1, J	DNQ
Total Dissolved Solids	SM2540C	5A07084	10	10	100	1	01/07/05	01/07/05		
Total Organic Carbon	EPA 415.1	5A05058	0.56	1.0	13	1	01/05/05	01/05/05		
Total Suspended Solids	EPA 160.2	5A07077	10	10	ND	1	01/07/05	01/07/05	U	

### AMEC VALIDATED

### LEVEL IV

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers						
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05										
Reporting Units: ml/l/hr															
Total Settleable Solids	EPA 160.5	5A05055	0.10	0.10	ND	1	01/05/05	01/05/05	<table border="1"> <tr> <td>Per</td> <td>Qual</td> </tr> <tr> <td>Code</td> <td>Code</td> </tr> <tr> <td>U</td> <td></td> </tr> </table>	Per	Qual	Code	Code	U	
Per	Qual														
Code	Code														
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) 798-3623 FAX (702) 798-3621

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.													
Reporting Units: NTU													
Turbidity	EPA 180.1	5A05079	0.040	1.0	24	1	01/05/05	01/05/05	<table border="1"> <tr> <td>Pin Qual</td> <td>Qual Code</td> </tr> <tr> <td></td> <td></td> </tr> </table>	Pin Qual	Qual Code		
Pin Qual	Qual 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  
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 Attention: Bronwyn Kelly

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Qual Code
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.										
Reporting Units: ug/l					Sampled: 01/05/05					
Chromium VI	EPA 218.6	5A05064	0.041	1.0	0.16	1	01/05/05	01/05/05	UJ	B, J
Total Cyanide	EPA 335.2	5A05078	2.2	5.0	ND	1	01/05/05	01/05/05	U	B
Perchlorate	EPA 314.0	5A12035	0.80	4.0	ND	1	01/12/05	01/12/05	*	

\*Analysis not validated

AMEC VALIDATED

LEVEL IV

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## DRAFT: INORGANICS

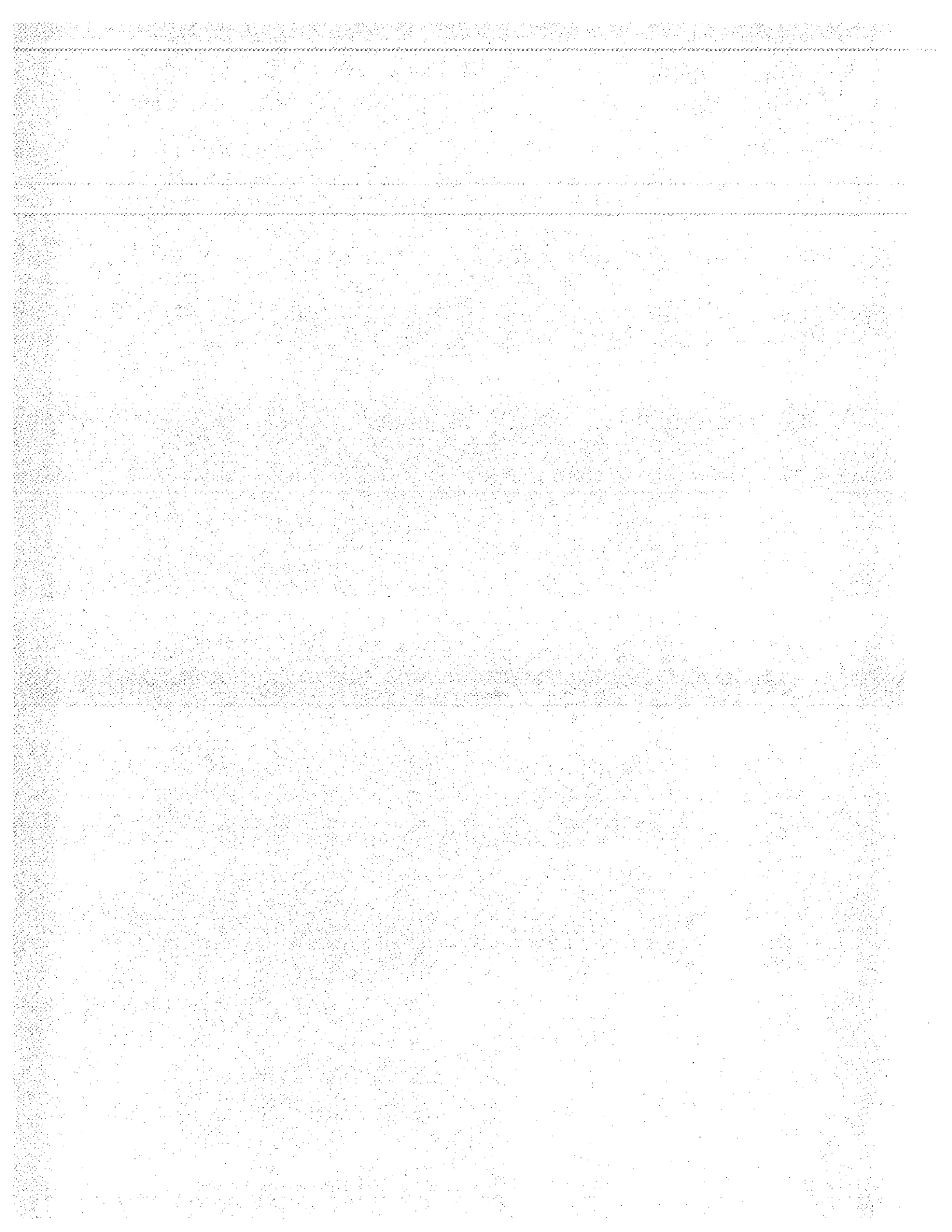
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOA0131-01 (DRAFT: Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05								
Reporting Units: umhos/cm													
Specific Conductance	EPA 120.1	5A06081	1.0	1.0	110	1	01/06/05	01/06/05	<table border="1"> <tr> <td>Resi Qual</td> <td>Qual Code</td> </tr> <tr> <td></td> <td></td> </tr> </table>	Resi Qual	Qual Code		
Resi 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: Quarterly Outfall 011 + 13267

Sampled: 01/04/05-01/05/05  
Received: 01/04/05  
Issued: 03/08/05 17:21

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 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. There was a dilution for the MBAS analysis due to emulsion.
- SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

LABORATORY ID

IOA0131-01  
IOA0131-02

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: Quarterly Outfall 011 + 13267  Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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**CORRECTIVE ACTION REPORT**

Department: Extractions

Date: 01/14/2005

Method: EPA 625

Matrix: Water

QC Batch: 5A10039

**Identification and Definition of Problem:**

The percent recoveries for benzidine in the LCS and LCSD were 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: 01/18/2005 09:20 AM

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (EPA 418.1)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0131-01 (Outfall 011 - composite - Water)</b>					<b>Sampled: 01/05/05</b>				
<b>Reporting Units: mg/l</b>									
Total Recoverable Hydrocarbons	EPA 418.1	5A06070	0.31	1.0	ND	1	01/06/05	01/06/05	

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: Quarterly Outfall 011 + 13267 Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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: IOA0131-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5A06045	0.082	0.50	ND	0.962	01/06/05	01/06/05	
Surrogate: n-Octacosane (40-125%)					58 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267  Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/05/05</b>				
<b>Reporting Units: mg/l</b>									
GRO (C4 - C12)	EPA 8015 Mod.	5A06001	0.050	0.10	ND	1	01/06/05	01/06/05	
<i>Surrogate: 4-BFB (FID) (65-140%)</i>					86 %				
<b>Sample ID: IOA0131-02 (Trip Blank - Water)</b>					<b>Sampled: 01/04/05</b>				
<b>Reporting Units: mg/l</b>									
GRO (C4 - C12)	EPA 8015 Mod.	5A06001	0.050	0.10	ND	1	01/06/05	01/06/05	
<i>Surrogate: 4-BFB (FID) (65-140%)</i>					84 %				

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: Quarterly Outfall 011 + 13267  Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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## FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0131-01 (Outfall 011 - composite - Water)</b>					<b>Sampled: 01/05/05</b>				
<b>Reporting Units: ug/l</b>									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A06024	1.2	5.0	ND	1	01/06/05	01/06/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					104 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					102 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					94 %				
<b>Sample ID: IOA0131-02 (Trip Blank - Water)</b>					<b>Sampled: 01/04/05</b>				
<b>Reporting Units: ug/l</b>									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A06024	1.2	5.0	ND	1	01/06/05	01/06/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					103 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					103 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					96 %				

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

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MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/04/05-01/05/05  
Received: 01/04/05

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: IOA0131-01 (Outfall 011 - composite - Water)					Sampled: 01/05/05				
Reporting Units: ug/l									
Benzene	EPA 624	5A06024	0.28	1.0	ND	1	01/06/05	01/06/05	
Bromodichloromethane	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	
Bromoform	EPA 624	5A06024	0.32	5.0	ND	1	01/06/05	01/06/05	
Bromomethane	EPA 624	5A06024	0.34	5.0	ND	1	01/06/05	01/06/05	
Carbon tetrachloride	EPA 624	5A06024	0.28	0.50	ND	1	01/06/05	01/06/05	
Chlorobenzene	EPA 624	5A06024	0.36	2.0	ND	1	01/06/05	01/06/05	
Chloroethane	EPA 624	5A06024	0.33	5.0	ND	1	01/06/05	01/06/05	
Chloroform	EPA 624	5A06024	0.33	2.0	ND	1	01/06/05	01/06/05	
Chloromethane	EPA 624	5A06024	0.30	5.0	ND	1	01/06/05	01/06/05	
Dibromochloromethane	EPA 624	5A06024	0.28	2.0	ND	1	01/06/05	01/06/05	
1,2-Dichlorobenzene	EPA 624	5A06024	0.32	2.0	ND	1	01/06/05	01/06/05	
1,3-Dichlorobenzene	EPA 624	5A06024	0.35	2.0	ND	1	01/06/05	01/06/05	
1,4-Dichlorobenzene	EPA 624	5A06024	0.37	2.0	ND	1	01/06/05	01/06/05	
1,1-Dichloroethane	EPA 624	5A06024	0.27	2.0	ND	1	01/06/05	01/06/05	
1,2-Dichloroethane	EPA 624	5A06024	0.28	0.50	ND	1	01/06/05	01/06/05	
1,1-Dichloroethene	EPA 624	5A06024	0.32	5.0	ND	1	01/06/05	01/06/05	
trans-1,2-Dichloroethene	EPA 624	5A06024	0.27	2.0	ND	1	01/06/05	01/06/05	
1,2-Dichloropropane	EPA 624	5A06024	0.35	2.0	ND	1	01/06/05	01/06/05	
cis-1,3-Dichloropropene	EPA 624	5A06024	0.22	2.0	ND	1	01/06/05	01/06/05	
trans-1,3-Dichloropropene	EPA 624	5A06024	0.24	2.0	ND	1	01/06/05	01/06/05	
Ethylbenzene	EPA 624	5A06024	0.25	2.0	ND	1	01/06/05	01/06/05	
Methylene chloride	EPA 624	5A06024	0.48	5.0	ND	1	01/06/05	01/06/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A06024	0.24	2.0	ND	1	01/06/05	01/06/05	
Tetrachloroethene	EPA 624	5A06024	0.32	2.0	ND	1	01/06/05	01/06/05	
Toluene	EPA 624	5A06024	0.36	2.0	ND	1	01/06/05	01/06/05	
1,1,1-Trichloroethane	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	
1,1,2-Trichloroethane	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	
Trichloroethene	EPA 624	5A06024	0.26	2.0	ND	1	01/06/05	01/06/05	
Trichlorofluoromethane	EPA 624	5A06024	0.34	5.0	ND	1	01/06/05	01/06/05	
Vinyl chloride	EPA 624	5A06024	0.26	0.50	ND	1	01/06/05	01/06/05	
Xylenes, Total	EPA 624	5A06024	0.52	4.0	ND	1	01/06/05	01/06/05	
Surrogate: Dibromofluoromethane (80-120%)									104 %
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 Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/04/05-01/05/05  
Received: 01/04/05

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: IOA0131-02 (Trip Blank - Water)					Sampled: 01/04/05				
Reporting Units: ug/l									
Benzene	EPA 624	5A06024	0.23	2.0	ND	1	01/06/05	01/06/05	
Bromodichloromethane	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	
Bromoform	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	
Bromomethane	EPA 624	5A06024	0.46	5.0	ND	1	01/06/05	01/06/05	
Carbon tetrachloride	EPA 624	5A06024	0.29	5.0	ND	1	01/06/05	01/06/05	
Chlorobenzene	EPA 624	5A06024	0.32	2.0	ND	1	01/06/05	01/06/05	
Chloroethane	EPA 624	5A06024	0.86	5.0	ND	1	01/06/05	01/06/05	
Chloroform	EPA 624	5A06024	0.23	2.0	ND	1	01/06/05	01/06/05	
Chloromethane	EPA 624	5A06024	0.44	5.0	ND	1	01/06/05	01/06/05	
Dibromochloromethane	EPA 624	5A06024	0.48	2.0	ND	1	01/06/05	01/06/05	
1,2-Dichlorobenzene	EPA 624	5A06024	0.39	2.0	ND	1	01/06/05	01/06/05	
1,3-Dichlorobenzene	EPA 624	5A06024	0.28	2.0	ND	1	01/06/05	01/06/05	
1,4-Dichlorobenzene	EPA 624	5A06024	0.41	2.0	ND	1	01/06/05	01/06/05	
1,1-Dichloroethane	EPA 624	5A06024	0.17	2.0	ND	1	01/06/05	01/06/05	
1,2-Dichloroethane	EPA 624	5A06024	0.43	2.0	ND	1	01/06/05	01/06/05	
1,1-Dichloroethene	EPA 624	5A06024	0.24	5.0	ND	1	01/06/05	01/06/05	
cis-1,2-Dichloroethene	EPA 624	5A06024	0.26	2.0	ND	1	01/06/05	01/06/05	
trans-1,2-Dichloroethene	EPA 624	5A06024	0.20	2.0	ND	1	01/06/05	01/06/05	
1,2-Dichloropropane	EPA 624	5A06024	0.30	2.0	ND	1	01/06/05	01/06/05	
cis-1,3-Dichloropropene	EPA 624	5A06024	0.31	2.0	ND	1	01/06/05	01/06/05	
trans-1,3-Dichloropropene	EPA 624	5A06024	0.32	2.0	ND	1	01/06/05	01/06/05	
Ethylbenzene	EPA 624	5A06024	0.31	2.0	ND	1	01/06/05	01/06/05	
Methylene chloride	EPA 624	5A06024	1.2	5.0	ND	1	01/06/05	01/06/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A06024	0.41	2.0	ND	1	01/06/05	01/06/05	
Tetrachloroethene	EPA 624	5A06024	0.39	2.0	ND	1	01/06/05	01/06/05	
Toluene	EPA 624	5A06024	0.28	2.0	ND	1	01/06/05	01/06/05	
1,1,1-Trichloroethane	EPA 624	5A06024	0.28	2.0	ND	1	01/06/05	01/06/05	
1,1,2-Trichloroethane	EPA 624	5A06024	0.41	2.0	ND	1	01/06/05	01/06/05	
Trichloroethene	EPA 624	5A06024	0.38	2.0	ND	1	01/06/05	01/06/05	
Trichlorofluoromethane	EPA 624	5A06024	0.37	5.0	ND	1	01/06/05	01/06/05	
Vinyl chloride	EPA 624	5A06024	0.24	5.0	ND	1	01/06/05	01/06/05	
Surrogate: Dibromofluoromethane (80-120%)					103 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

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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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05

Received: 01/04/05

**PURGEABLES BY GC/MS (EPA 624)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0131-01 (Outfall 011 - composite - Water)</b>					<b>Sampled: 01/05/05</b>				
Reporting Units: ug/l									
Acrolein	EPA 624	5A07016	4.6	50	ND	1	01/07/05	01/07/05	
Acrylonitrile	EPA 624	5A07016	5.1	50	ND	1	01/07/05	01/07/05	
2-Chloroethyl vinyl ether	EPA 624	5A07016	1.3	5.0	ND	1	01/07/05	01/07/05	
Surrogate: Dibromofluoromethane (80-120%)					108 %				
Surrogate: Toluene-d8 (80-120%)					103 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					95 %				

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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: Quarterly Outfall 011 + 13267  Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/05/05</b>				
<b>Reporting Units: ug/l</b>									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A06024	N/A	2.5	ND	1	01/06/05	01/06/05	
Cyclohexane	EPA 624 (MOD.)	5A06024	N/A	2.5	ND	1	01/06/05	01/06/05	
<b>Sample ID: IOA0131-02 (Trip Blank - Water)</b>					<b>Sampled: 01/04/05</b>				
<b>Reporting Units: ug/l</b>									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A06024	N/A	2.5	ND	1	01/06/05	01/06/05	
Cyclohexane	EPA 624 (MOD.)	5A06024	N/A	2.5	ND	1	01/06/05	01/06/05	

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
Received: 01/04/05

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: IOA0131-01 (Outfall 011 - composite - Water)					Sampled: 01/05/05				
Reporting Units: ug/l									
Acenaphthene	EPA 625	5A10039	0.10	0.50	ND	0.98	01/10/05	01/14/05	
Acenaphthylene	EPA 625	5A10039	0.10	0.50	ND	0.98	01/10/05	01/14/05	
Aniline	EPA 625	5A10039	2.9	10	ND	0.98	01/10/05	01/14/05	
Anthracene	EPA 625	5A10039	0.083	0.50	ND	0.98	01/10/05	01/14/05	
Benzidine	EPA 625	5A10039	2.4	5.0	ND	0.98	01/10/05	01/14/05	L2
Benzoic acid	EPA 625	5A10039	3.7	20	ND	0.98	01/10/05	01/14/05	
Benzo(a)anthracene	EPA 625	5A10039	0.038	5.0	ND	0.98	01/10/05	01/14/05	
Benzo(a)pyrene	EPA 625	5A10039	0.14	2.0	ND	0.98	01/10/05	01/14/05	
Benzo(b)fluoranthene	EPA 625	5A10039	0.050	2.0	ND	0.98	01/10/05	01/14/05	
Benzo(g,h,i)perylene	EPA 625	5A10039	0.059	5.0	ND	0.98	01/10/05	01/14/05	
Benzo(k)fluoranthene	EPA 625	5A10039	0.053	0.50	ND	0.98	01/10/05	01/14/05	
Benzyl alcohol	EPA 625	5A10039	0.21	5.0	ND	0.98	01/10/05	01/14/05	
Bis(2-chloroethoxy)methane	EPA 625	5A10039	0.072	0.50	ND	0.98	01/10/05	01/14/05	
Bis(2-chloroethyl)ether	EPA 625	5A10039	0.084	0.50	ND	0.98	01/10/05	01/14/05	
Bis(2-chloroisopropyl)ether	EPA 625	5A10039	0.11	0.50	ND	0.98	01/10/05	01/14/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5A10039	1.1	5.0	1.2	0.98	01/10/05	01/14/05	J
4-Bromophenyl phenyl ether	EPA 625	5A10039	0.12	1.0	ND	0.98	01/10/05	01/14/05	
Butyl benzyl phthalate	EPA 625	5A10039	0.34	5.0	ND	0.98	01/10/05	01/14/05	
4-Chloroaniline	EPA 625	5A10039	0.20	2.0	ND	0.98	01/10/05	01/14/05	
2-Chloronaphthalene	EPA 625	5A10039	0.059	0.50	ND	0.98	01/10/05	01/14/05	
4-Chloro-3-methylphenol	EPA 625	5A10039	0.34	2.0	ND	0.98	01/10/05	01/14/05	
4-Chlorophenyl phenyl ether	EPA 625	5A10039	0.056	0.50	ND	0.98	01/10/05	01/14/05	
2-Chlorophenol	EPA 625	5A10039	0.12	1.0	ND	0.98	01/10/05	01/14/05	
Chrysene	EPA 625	5A10039	0.072	0.50	ND	0.98	01/10/05	01/14/05	
Dibenz(a,h)anthracene	EPA 625	5A10039	0.083	0.50	ND	0.98	01/10/05	01/14/05	
Dibenzofuran	EPA 625	5A10039	0.075	0.50	ND	0.98	01/10/05	01/14/05	
Di-n-butyl phthalate	EPA 625	5A10039	0.26	2.0	ND	0.98	01/10/05	01/14/05	
1,2-Dichlorobenzene	EPA 625	5A10039	0.11	0.50	ND	0.98	01/10/05	01/14/05	
1,3-Dichlorobenzene	EPA 625	5A10039	0.13	0.50	ND	0.98	01/10/05	01/14/05	
1,4-Dichlorobenzene	EPA 625	5A10039	0.050	0.50	ND	0.98	01/10/05	01/14/05	
3,3-Dichlorobenzidine	EPA 625	5A10039	0.93	5.0	ND	0.98	01/10/05	01/14/05	
2,4-Dichlorophenol	EPA 625	5A10039	0.21	2.0	ND	0.98	01/10/05	01/14/05	
Diethyl phthalate	EPA 625	5A10039	0.12	1.0	ND	0.98	01/10/05	01/14/05	
2,4-Dimethylphenol	EPA 625	5A10039	0.31	2.0	ND	0.98	01/10/05	01/14/05	
Dimethyl phthalate	EPA 625	5A10039	0.081	0.50	ND	0.98	01/10/05	01/14/05	
4,6-Dinitro-2-methylphenol	EPA 625	5A10039	0.38	5.0	ND	0.98	01/10/05	01/14/05	
2,4-Dinitrophenol	EPA 625	5A10039	2.7	5.0	ND	0.98	01/10/05	01/14/05	
2,4-Dinitrotoluene	EPA 625	5A10039	0.23	5.0	ND	0.98	01/10/05	01/14/05	
2,6-Dinitrotoluene	EPA 625	5A10039	0.24	5.0	ND	0.98	01/10/05	01/14/05	
Di-n-octyl phthalate	EPA 625	5A10039	0.17	5.0	ND	0.98	01/10/05	01/14/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A10039	0.087	1.0	ND	0.98	01/10/05	01/14/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267	Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/05/05</b>				
<b>Reporting Units: ug/l</b>									
Fluoranthene	EPA 625	5A10039	0.089	0.50	ND	0.98	01/10/05	01/14/05	
Fluorene	EPA 625	5A10039	0.075	0.50	ND	0.98	01/10/05	01/14/05	
Hexachlorobenzene	EPA 625	5A10039	0.13	1.0	ND	0.98	01/10/05	01/14/05	
Hexachlorobutadiene	EPA 625	5A10039	0.38	2.0	ND	0.98	01/10/05	01/14/05	
Hexachlorocyclopentadiene	EPA 625	5A10039	1.8	5.0	ND	0.98	01/10/05	01/14/05	
Hexachloroethane	EPA 625	5A10039	0.51	3.0	ND	0.98	01/10/05	01/14/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5A10039	0.19	2.0	ND	0.98	01/10/05	01/14/05	
Isophorone	EPA 625	5A10039	0.059	1.0	0.098	0.98	01/10/05	01/14/05	J
2-Methylnaphthalene	EPA 625	5A10039	0.13	1.0	ND	0.98	01/10/05	01/14/05	
2-Methylphenol	EPA 625	5A10039	0.28	2.0	ND	0.98	01/10/05	01/14/05	
4-Methylphenol	EPA 625	5A10039	0.20	5.0	ND	0.98	01/10/05	01/14/05	
Naphthalene	EPA 625	5A10039	0.13	1.0	ND	0.98	01/10/05	01/14/05	
2-Nitroaniline	EPA 625	5A10039	0.18	5.0	ND	0.98	01/10/05	01/14/05	
3-Nitroaniline	EPA 625	5A10039	0.35	5.0	ND	0.98	01/10/05	01/14/05	
4-Nitroaniline	EPA 625	5A10039	0.49	5.0	ND	0.98	01/10/05	01/14/05	
Nitrobenzene	EPA 625	5A10039	0.10	1.0	ND	0.98	01/10/05	01/14/05	
2-Nitrophenol	EPA 625	5A10039	0.23	2.0	ND	0.98	01/10/05	01/14/05	
4-Nitrophenol	EPA 625	5A10039	0.73	5.0	ND	0.98	01/10/05	01/14/05	
N-Nitrosodimethylamine	EPA 625	5A10039	0.22	2.0	ND	0.98	01/10/05	01/14/05	
N-Nitroso-di-n-propylamine	EPA 625	5A10039	0.18	2.0	ND	0.98	01/10/05	01/14/05	
N-Nitrosodiphenylamine	EPA 625	5A10039	0.077	1.0	ND	0.98	01/10/05	01/14/05	
Pentachlorophenol	EPA 625	5A10039	0.78	2.0	ND	0.98	01/10/05	01/14/05	
Phenanthrene	EPA 625	5A10039	0.071	0.50	ND	0.98	01/10/05	01/14/05	
Phenol	EPA 625	5A10039	0.14	1.0	ND	0.98	01/10/05	01/14/05	
Pyrene	EPA 625	5A10039	0.059	0.50	ND	0.98	01/10/05	01/14/05	
1,2,4-Trichlorobenzene	EPA 625	5A10039	0.10	1.0	ND	0.98	01/10/05	01/14/05	
2,4,5-Trichlorophenol	EPA 625	5A10039	0.075	2.0	ND	0.98	01/10/05	01/14/05	
2,4,6-Trichlorophenol	EPA 625	5A10039	0.10	1.0	ND	0.98	01/10/05	01/14/05	
Surrogate: 2-Fluorophenol (35-120%)					74 %				
Surrogate: Phenol-d6 (45-120%)					80 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					89 %				
Surrogate: Nitrobenzene-d5 (45-120%)					77 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					82 %				
Surrogate: Terphenyl-d14 (45-135%)					83 %				

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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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05

Received: 01/04/05

## ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/05/05</b>				
<b>Reporting Units: ug/l</b>									
Aldrin	EPA 608	5A07033	0.029	0.10	ND	0.98	01/07/05	01/07/05	
alpha-BHC	EPA 608	5A07033	0.010	0.10	ND	0.98	01/07/05	01/07/05	
beta-BHC	EPA 608	5A07033	0.011	0.10	ND	0.98	01/07/05	01/07/05	
delta-BHC	EPA 608	5A07033	0.010	0.20	ND	0.98	01/07/05	01/07/05	
gamma-BHC (Lindane)	EPA 608	5A07033	0.0097	0.10	ND	0.98	01/07/05	01/07/05	
Chlordane	EPA 608	5A07033	0.18	1.0	ND	0.98	01/07/05	01/07/05	
4,4'-DDD	EPA 608	5A07033	0.011	0.10	ND	0.98	01/07/05	01/07/05	
4,4'-DDE	EPA 608	5A07033	0.017	0.10	ND	0.98	01/07/05	01/07/05	
4,4'-DDT	EPA 608	5A07033	0.015	0.10	ND	0.98	01/07/05	01/07/05	
Dieldrin	EPA 608	5A07033	0.010	0.10	ND	0.98	01/07/05	01/07/05	
Endosulfan I	EPA 608	5A07033	0.015	0.10	ND	0.98	01/07/05	01/07/05	
Endosulfan II	EPA 608	5A07033	0.037	0.10	ND	0.98	01/07/05	01/07/05	
Endosulfan sulfate	EPA 608	5A07033	0.013	0.20	ND	0.98	01/07/05	01/07/05	
Endrin	EPA 608	5A07033	0.0082	0.10	ND	0.98	01/07/05	01/07/05	
Endrin aldehyde	EPA 608	5A07033	0.045	0.10	ND	0.98	01/07/05	01/07/05	
Endrin ketone	EPA 608	5A07033	0.020	0.10	ND	0.98	01/07/05	01/07/05	
Heptachlor	EPA 608	5A07033	0.030	0.10	ND	0.98	01/07/05	01/07/05	
Heptachlor epoxide	EPA 608	5A07033	0.012	0.10	ND	0.98	01/07/05	01/07/05	
Methoxychlor	EPA 608	5A07033	0.034	0.10	ND	0.98	01/07/05	01/07/05	
Toxaphene	EPA 608	5A07033	0.77	5.0	ND	0.98	01/07/05	01/07/05	
<i>Surrogate: Tetrachloro-m-xylene (35-120%)</i>					58 %				
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					82 %				

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MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101 Attention: Bronwyn Kelly  
Sampled: 01/04/05-01/05/05  
Received: 01/04/05

TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5A07033	0.067	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1221	EPA 608	5A07033	0.057	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1232	EPA 608	5A07033	0.13	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1242	EPA 608	5A07033	0.12	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1248	EPA 608	5A07033	0.21	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1254	EPA 608	5A07033	0.16	1.0	ND	0.98	01/07/05	01/07/05	
Aroclor 1260	EPA 608	5A07033	0.17	1.0	ND	0.98	01/07/05	01/07/05	
Surrogate: Decachlorobiphenyl (45-120%)					71 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267 Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: mg/l									
Barium	EPA 200.8	5A05092	0.00014	0.0010	0.015	1	01/05/05	01/06/05	
Boron	EPA 200.7	5A06063	0.0074	0.050	0.051	1	01/06/05	01/06/05	
Iron	EPA 200.8	5A05092	0.0032	0.010	0.81	1	01/05/05	01/06/05	

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: ug/l									
Antimony	EPA 200.8	5A05092	0.18	2.0	0.42	1	01/05/05	01/06/05	J
Arsenic	EPA 200.8	5A05092	0.49	1.0	0.97	1	01/05/05	01/06/05	J
Beryllium	EPA 200.8	5A05092	0.037	0.50	0.072	1	01/05/05	01/06/05	J
Cadmium	EPA 200.8	5A05092	0.015	1.0	0.12	1	01/05/05	01/06/05	J
Chromium	EPA 200.8	5A05092	0.26	1.0	1.9	1	01/05/05	01/06/05	J
Cobalt	EPA 200.8	5A05092	0.10	1.0	0.34	1	01/05/05	01/06/05	J
Copper	EPA 200.8	5A05092	0.49	2.0	4.4	1	01/05/05	01/06/05	J
Lead	EPA 200.8	5A05092	0.13	1.0	0.82	1	01/05/05	01/06/05	J
Manganese	EPA 200.8	5A05092	0.44	1.0	14	1	01/05/05	01/06/05	J
Mercury	EPA 245.1	5A06051	0.063	0.20	0.17	1	01/06/05	01/06/05	J
Nickel	EPA 200.8	5A05092	0.15	1.0	2.1	1	01/05/05	01/06/05	J
Selenium	EPA 200.8	5A05092	0.36	2.0	0.66	1	01/05/05	01/06/05	J
Silver	EPA 200.8	5A05092	0.089	1.0	0.13	1	01/05/05	01/06/05	J
Thallium	EPA 200.8	5A05092	0.075	1.0	ND	1	01/05/05	01/06/05	
Vanadium	EPA 200.8	5A05092	0.86	1.0	1.1	1	01/05/05	01/06/05	
Zinc	EPA 200.8	5A05092	3.1	20	15	1	01/05/05	01/06/05	J

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
Received: 01/04/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5A05067	0.30	0.50	ND	1	01/05/05	01/05/05	
Biochemical Oxygen Demand	EPA 405.1	5A05054	0.59	2.0	1.3	1	01/05/05	01/10/05	J
Chloride	EPA 300.0	5A05050	0.26	0.50	4.3	1	01/05/05	01/05/05	
Fluoride	EPA 300.0	5A05050	0.074	0.50	0.28	1	01/05/05	01/05/05	J
Nitrate/Nitrite-N	EPA 300.0	5A05050	0.072	0.26	2.1	1	01/05/05	01/05/05	
Oil & Grease	EPA 413.1	5A05068	0.94	5.0	0.95	1	01/05/05	01/05/05	J
Residual Chlorine	EPA 330.5	5A05066	0.10	0.10	ND	1	01/05/05	01/05/05	
Sulfate	EPA 300.0	5A05050	0.18	0.50	6.0	1	01/05/05	01/05/05	
Surfactants (MBAS)	SM5540-C	5A05099	0.44	1.0	0.46	10	01/05/05	01/05/05	RL-1, J
Total Dissolved Solids	SM2540C	5A07084	10	10	100	1	01/07/05	01/07/05	
Total Organic Carbon	EPA 415.1	5A05058	0.56	1.0	13	1	01/05/05	01/05/05	
Total Suspended Solids	EPA 160.2	5A07077	10	10	ND	1	01/07/05	01/07/05	

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05

Received: 01/04/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/05/05</b>				
<b>Reporting Units: ml/hr</b>									
Total Settleable Solids	EPA 160.5	5A05055	0.10	0.10	ND	1	01/05/05	01/05/05	

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 300 North Lake Avenue, Suite 1200  
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 Attention: Bronwyn Kelly

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: NTU									
Turbidity	EPA 180.1	5A05079	0.040	1.0	24	1	01/05/05	01/05/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267 Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/05/05</b>				
<b>Reporting Units: ug/l</b>									
Chromium VI	EPA 218.6	5A05064	0.041	1.0	0.16	1	01/05/05	01/05/05	B, J
Total Cyanide	EPA 335.2	5A05078	2.2	5.0	ND	1	01/05/05	01/05/05	
Perchlorate	EPA 314.0	5A12035	0.80	4.0	ND	1	01/12/05	01/12/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267  Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0131-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/05/05</b>				
<b>Reporting Units: umhos/cm</b>									
Specific Conductance	EPA 120.1	5A06081	1.0	1.0	110	1	01/06/05	01/06/05	

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300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/04/05-01/05/05  
Received: 01/04/05

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: IOA0131-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/05/05				
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5A1103	0.49	1.0	ND	1	01/11/05	01/11/05	
Surrogate: Dibromofluoromethane (80-125%)					108 %				

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Attention: Bronwyn Kelly

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05

Received: 01/04/05

**SHORT HOLD TIME DETAIL REPORT**

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
<b>Sample ID: Outfall 011 - composite (IOA0131-01) - Water</b>					
EPA 160.5	2	01/05/2005 11:30	01/04/2005 18:25	01/05/2005 16:56	01/05/2005 18:00
EPA 180.1	2	01/05/2005 11:30	01/04/2005 18:25	01/05/2005 14:00	01/05/2005 15:00
EPA 218.6	1	01/05/2005 11:30	01/04/2005 18:25	01/05/2005 13:00	01/05/2005 13:12
EPA 300.0	2	01/05/2005 11:30	01/04/2005 18:25	01/05/2005 14:30	01/05/2005 14:59
EPA 330.5	1	01/05/2005 11:30	01/04/2005 18:25	01/05/2005 11:45	01/05/2005 12:00
EPA 405.1	2	01/05/2005 11:30	01/04/2005 18:25	01/05/2005 14:00	01/10/2005 20:30
EPA 624	3	01/05/2005 11:30	01/04/2005 18:25	01/07/2005 00:00	01/07/2005 13:50
SM5540-C	2	01/05/2005 11:30	01/04/2005 18:25	01/05/2005 20:09	01/05/2005 20:25

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267 Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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 Limit	Data Qualifiers
<b>Batch: 5A06070 Extracted: 01/06/05</b>										
<b>Blank Analyzed: 01/06/2005 (5A06070-BLK1)</b>										
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l						
<b>LCS Analyzed: 01/06/2005 (5A06070-BS1)</b>										
Total Recoverable Hydrocarbons	4.83	1.0	0.31	mg/l	5.00		97 65-120			M-NR1
<b>LCS Dup Analyzed: 01/06/2005 (5A06070-BSD1)</b>										
Total Recoverable Hydrocarbons	4.65	1.0	0.31	mg/l	5.00		93 65-120	4	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267 Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Batch: 5A06045 Extracted: 01/06/05</b>										
<b>Blank Analyzed: 01/06/2005 (5A06045-BLK1)</b>										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.131			mg/l	0.200		66 40-125			
<b>LCS Analyzed: 01/06/2005 (5A06045-BS1)</b>										
EFH (C13 - C40)	0.671	0.50	0.082	mg/l	0.775		87 40-120			M-NR1
Surrogate: n-Octacosane	0.136			mg/l	0.200		68 40-125			
<b>LCS Dup Analyzed: 01/06/2005 (5A06045-BSD1)</b>										
EFH (C13 - C40)	0.682	0.50	0.082	mg/l	0.775		88 40-120	2	25	
Surrogate: n-Octacosane	0.149			mg/l	0.200		74 40-125			

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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05

Received: 01/04/05

METHOD BLANK/QC DATA

VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A06001 Extracted: 01/06/05</b>										
<b>Blank Analyzed: 01/06/2005 (5A06001-BLK1)</b>										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00910			mg/l	0.0100		91 65-140			
<b>LCS Analyzed: 01/06/2005 (5A06001-BS1)</b>										
GRO (C4 - C12)	0.222	0.10	0.050	mg/l	0.220		101 70-140			
Surrogate: 4-BFB (FID)	0.0108			mg/l	0.0100		108 65-140			
<b>Matrix Spike Analyzed: 01/06/2005 (5A06001-MS1) Source: INL1858-04</b>										
GRO (C4 - C12)	0.233	0.10	0.050	mg/l	0.220	ND	106 60-140			
Surrogate: 4-BFB (FID)	0.0110			mg/l	0.0100		110 65-140			
<b>Matrix Spike Dup Analyzed: 01/06/2005 (5A06001-MSD1) Source: INL1858-04</b>										
GRO (C4 - C12)	0.224	0.10	0.050	mg/l	0.220	ND	102 60-140	4	20	
Surrogate: 4-BFB (FID)	0.0107			mg/l	0.0100		107 65-140			

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Received: 01/04/05

METHOD BLANK/QC DATA

FREON 113 (EPA 8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A06024 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06024-BLK1)</b>											
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l							
Surrogate: Dibromofluoromethane	25.8			ug/l	25.0		103	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	23.7			ug/l	25.0		95	80-120			

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Received: 01/04/05

## 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
<b>Batch: 5A06024 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06024-BLK1)</b>											
Benzene	ND	2.0	0.23	ug/l							
Benzene	ND	1.0	0.28	ug/l							
Bromodichloromethane	ND	2.0	0.30	ug/l							
Bromodichloromethane	ND	2.0	0.30	ug/l							
Bromoform	ND	2.0	0.30	ug/l							
Bromoform	ND	5.0	0.32	ug/l							
Bromomethane	ND	5.0	0.34	ug/l							
Bromomethane	ND	5.0	0.46	ug/l							
Carbon tetrachloride	ND	0.50	0.28	ug/l							
Carbon tetrachloride	ND	5.0	0.29	ug/l							
Chlorobenzene	ND	2.0	0.32	ug/l							
Chlorobenzene	ND	2.0	0.36	ug/l							
Chloroethane	ND	5.0	0.33	ug/l							
Chloroethane	ND	5.0	0.86	ug/l							
Chloroform	ND	2.0	0.23	ug/l							
Chloroform	ND	2.0	0.33	ug/l							
Chloromethane	ND	5.0	0.44	ug/l							
Chloromethane	ND	5.0	0.30	ug/l							
Dibromochloromethane	ND	2.0	0.28	ug/l							
Dibromochloromethane	ND	2.0	0.48	ug/l							
1,2-Dichlorobenzene	ND	2.0	0.32	ug/l							
1,2-Dichlorobenzene	ND	2.0	0.39	ug/l							
1,3-Dichlorobenzene	ND	2.0	0.28	ug/l							
1,3-Dichlorobenzene	ND	2.0	0.35	ug/l							
1,4-Dichlorobenzene	ND	2.0	0.37	ug/l							
1,4-Dichlorobenzene	ND	2.0	0.41	ug/l							
1,1-Dichloroethane	ND	2.0	0.27	ug/l							
1,1-Dichloroethane	ND	2.0	0.17	ug/l							
1,2-Dichloroethane	ND	0.50	0.28	ug/l							
1,2-Dichloroethane	ND	2.0	0.43	ug/l							
1,1-Dichloroethene	ND	5.0	0.32	ug/l							
1,1-Dichloroethene	ND	5.0	0.24	ug/l							
cis-1,2-Dichloroethene	ND	2.0	0.26	ug/l							
trans-1,2-Dichloroethene	ND	2.0	0.20	ug/l							
trans-1,2-Dichloroethene	ND	2.0	0.27	ug/l							

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MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/04/05-01/05/05  
Received: 01/04/05

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 RPD	Data Qualifiers
<b>Batch: 5A06024 Extracted: 01/06/05</b>										
<b>Blank Analyzed: 01/06/2005 (5A06024-BLK1)</b>										
1,2-Dichloropropane	ND	2.0	0.30	ug/l						
1,2-Dichloropropane	ND	2.0	0.35	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.31	ug/l						
cis-1,3-Dichloropropene	ND	2.0	0.22	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.32	ug/l						
trans-1,3-Dichloropropene	ND	2.0	0.24	ug/l						
Ethylbenzene	ND	2.0	0.31	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Methylene chloride	ND	5.0	0.48	ug/l						
Methylene chloride	ND	5.0	1.2	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.41	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	0.24	ug/l						
Tetrachloroethene	ND	2.0	0.39	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
Toluene	ND	2.0	0.28	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.28	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.41	ug/l						
Trichloroethene	ND	2.0	0.26	ug/l						
Trichloroethene	ND	2.0	0.38	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Trichlorofluoromethane	ND	5.0	0.37	ug/l						
Vinyl chloride	ND	5.0	0.24	ug/l						
Vinyl chloride	ND	0.50	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Surrogate: Dibromofluoromethane	25.8			ug/l	25.0	103	80-120			
Surrogate: Dibromofluoromethane	25.8			ug/l	25.0	103	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0	102	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0	102	80-120			
Surrogate: 4-Bromofluorobenzene	23.7			ug/l	25.0	95	80-120			
Surrogate: 4-Bromofluorobenzene	23.7			ug/l	25.0	95	80-120			

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Michele Harper  
Project Manager

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MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101  
Attention: Bronwyn Kelly Sampled: 01/04/05-01/05/05  
Received: 01/04/05

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: 5A06024 and LCS Analyzed: 01/06/2005.

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Michele Harper  
Project Manager



MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/04/05-01/05/05  
Received: 01/04/05

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
<b>Batch: 5A06024 Extracted: 01/06/05</b>										
<b>LCS Analyzed: 01/06/2005 (5A06024-BS1)</b>										
1,2-Dichloropropane	26.9	2.0	0.35	ug/l	25.0		108 70-120			
1,2-Dichloropropane	26.9	2.0	0.30	ug/l	25.0		108 70-120			
cis-1,3-Dichloropropene	27.5	2.0	0.31	ug/l	25.0		110 75-130			
cis-1,3-Dichloropropene	27.5	2.0	0.22	ug/l	25.0		110 75-130			
trans-1,3-Dichloropropene	27.5	2.0	0.32	ug/l	25.0		110 75-135			
trans-1,3-Dichloropropene	27.5	2.0	0.24	ug/l	25.0		110 75-135			
Ethylbenzene	27.6	2.0	0.31	ug/l	25.0		110 80-120			
Ethylbenzene	27.6	2.0	0.25	ug/l	25.0		110 80-120			
Methylene chloride	28.4	5.0	0.48	ug/l	25.0		114 60-135			
Methylene chloride	28.4	5.0	1.2	ug/l	25.0		114 60-135			
1,1,2,2-Tetrachloroethane	24.8	2.0	0.41	ug/l	25.0		99 60-135			
1,1,2,2-Tetrachloroethane	24.8	2.0	0.24	ug/l	25.0		99 60-135			
Tetrachloroethene	25.7	2.0	0.39	ug/l	25.0		103 75-125			
Tetrachloroethene	25.7	2.0	0.32	ug/l	25.0		103 75-125			
Toluene	26.4	2.0	0.36	ug/l	25.0		106 75-120			
Toluene	26.4	2.0	0.28	ug/l	25.0		106 75-120			
1,1,1-Trichloroethane	27.2	2.0	0.28	ug/l	25.0		109 75-140			
1,1,1-Trichloroethane	27.2	2.0	0.30	ug/l	25.0		109 75-140			
1,1,2-Trichloroethane	26.3	2.0	0.41	ug/l	25.0		105 70-125			
1,1,2-Trichloroethane	26.3	2.0	0.30	ug/l	25.0		105 70-125			
Trichloroethene	25.1	2.0	0.26	ug/l	25.0		100 80-120			
Trichloroethene	25.1	2.0	0.38	ug/l	25.0		100 80-120			
Trichlorofluoromethane	28.7	5.0	0.37	ug/l	25.0		115 65-145			
Trichlorofluoromethane	28.7	5.0	0.34	ug/l	25.0		115 65-145			
Vinyl chloride	26.6	5.0	0.24	ug/l	25.0		106 50-130			
Vinyl chloride	26.6	0.50	0.26	ug/l	25.0		106 50-130			
Surrogate: Dibromofluoromethane	26.0			ug/l	25.0		104 80-120			
Surrogate: Dibromofluoromethane	26.0			ug/l	25.0		104 80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103 80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103 80-120			
Surrogate: 4-Bromofluorobenzene	26.2			ug/l	25.0		105 80-120			
Surrogate: 4-Bromofluorobenzene	26.2			ug/l	25.0		105 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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05
Received: 01/04/05

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 a list of chemicals and their corresponding values.

Batch: 5A06024 Extracted: 01/06/05

Matrix Spike Analyzed: 01/06/2005 (5A06024-MS1)

Source: IOA0131-01

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101 Sampled: 01/04/05-01/05/05  
Attention: Bronwyn Kelly Received: 01/04/05

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 a list of analytes such as 1,2-Dichloropropane, Ethylbenzene, and various chlorinated hydrocarbons.

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Project Manager



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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05

Received: 01/04/05

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
<b>Batch: 5A06024 Extracted: 01/06/05</b>											
<b>Matrix Spike Dup Analyzed: 01/06/2005 (5A06024-MSD1)</b>						<b>Source: IOA0131-01</b>					
Benzene	25.5	2.0	0.23	ug/l	25.0	ND	102	70-120	1	20	
Benzene	25.5	1.0	0.28	ug/l	25.0	ND	102	70-120	1	20	
Bromodichloromethane	26.2	2.0	0.30	ug/l	25.0	ND	105	70-140	1	20	
Bromodichloromethane	26.2	2.0	0.30	ug/l	25.0	ND	105	70-140	1	20	
Bromoform	23.5	2.0	0.30	ug/l	25.0	ND	94	55-140	4	25	
Bromoform	23.5	5.0	0.32	ug/l	25.0	ND	94	55-140	4	25	
Bromomethane	31.6	5.0	0.46	ug/l	25.0	ND	126	50-145	7	25	
Bromomethane	31.6	5.0	0.34	ug/l	25.0	ND	126	50-145	7	25	
Carbon tetrachloride	26.9	0.50	0.28	ug/l	25.0	ND	108	70-145	3	25	
Carbon tetrachloride	26.9	5.0	0.29	ug/l	25.0	ND	108	70-145	3	25	
Chlorobenzene	25.5	2.0	0.36	ug/l	25.0	ND	102	80-125	1	20	
Chlorobenzene	25.5	2.0	0.32	ug/l	25.0	ND	102	80-125	1	20	
Chloroethane	30.8	5.0	0.33	ug/l	25.0	ND	123	50-145	4	25	
Chloroethane	30.8	5.0	0.86	ug/l	25.0	ND	123	50-145	4	25	
Chloroform	26.7	2.0	0.33	ug/l	25.0	ND	107	70-135	2	20	
Chloroform	26.7	2.0	0.23	ug/l	25.0	ND	107	70-135	2	20	
Chloromethane	29.1	5.0	0.30	ug/l	25.0	ND	116	35-145	1	25	
Chloromethane	29.1	5.0	0.44	ug/l	25.0	ND	116	35-145	1	25	
Dibromochloromethane	24.8	2.0	0.48	ug/l	25.0	ND	99	65-145	2	25	
Dibromochloromethane	24.8	2.0	0.28	ug/l	25.0	ND	99	65-145	2	25	
1,2-Dichlorobenzene	25.6	2.0	0.32	ug/l	25.0	ND	102	75-130	1	20	
1,2-Dichlorobenzene	25.6	2.0	0.39	ug/l	25.0	ND	102	75-130	1	20	
1,3-Dichlorobenzene	24.4	2.0	0.28	ug/l	25.0	ND	98	75-130	0	20	
1,3-Dichlorobenzene	24.4	2.0	0.35	ug/l	25.0	ND	98	75-130	0	20	
1,4-Dichlorobenzene	24.4	2.0	0.37	ug/l	25.0	ND	98	80-120	1	20	
1,4-Dichlorobenzene	24.4	2.0	0.41	ug/l	25.0	ND	98	80-120	1	20	
1,1-Dichloroethane	27.1	2.0	0.17	ug/l	25.0	ND	108	65-135	2	20	
1,1-Dichloroethane	27.1	2.0	0.27	ug/l	25.0	ND	108	65-135	2	20	
1,2-Dichloroethane	24.9	0.50	0.28	ug/l	25.0	ND	100	60-150	1	20	
1,2-Dichloroethane	24.9	2.0	0.43	ug/l	25.0	ND	100	60-150	1	20	
1,1-Dichloroethene	28.0	5.0	0.32	ug/l	25.0	ND	112	65-140	2	20	
1,1-Dichloroethene	28.0	5.0	0.24	ug/l	25.0	ND	112	65-140	2	20	
cis-1,2-Dichloroethene	27.4	2.0	0.26	ug/l	25.0	ND	110	65-130	2	20	
trans-1,2-Dichloroethene	28.3	2.0	0.27	ug/l	25.0	ND	113	65-135	1	20	
trans-1,2-Dichloroethene	28.3	2.0	0.20	ug/l	25.0	ND	113	65-135	1	20	

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Michele Harper  
Project Manager



MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101  
Attention: Bronwyn Kelly Sampled: 01/04/05-01/05/05  
Received: 01/04/05

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: 5A06024, Matrix Spike Dup Analyzed, and Source: IOA0131-01.

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101 Sampled: 01/04/05-01/05/05  
Attention: Bronwyn Kelly Received: 01/04/05

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
<b>Batch: 5A07016 Extracted: 01/07/05</b>											
<b>Blank Analyzed: 01/07/2005 (5A07016-BLK1)</b>											
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	25.8			ug/l	25.0		103	80-120			
Surrogate: Toluene-d8	25.9			ug/l	25.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	23.6			ug/l	25.0		94	80-120			
<b>LCS Analyzed: 01/07/2005 (5A07016-BS1)</b>											
2-Chloroethyl vinyl ether	27.7	5.0	1.3	ug/l	25.0		111	20-175			
Surrogate: Dibromofluoromethane	26.3			ug/l	25.0		105	80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	26.4			ug/l	25.0		106	80-120			
<b>Matrix Spike Analyzed: 01/07/2005 (5A07016-MS1) Source: IOA0264-02</b>											
2-Chloroethyl vinyl ether	23.8	5.0	1.3	ug/l	25.0	ND	95	20-175			
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106	80-120			
Surrogate: Toluene-d8	25.8			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	26.2			ug/l	25.0		105	80-120			
<b>Matrix Spike Dup Analyzed: 01/07/2005 (5A07016-MSD1) Source: IOA0264-02</b>											
2-Chloroethyl vinyl ether	26.7	5.0	1.3	ug/l	25.0	ND	107	20-175	11	25	
Surrogate: Dibromofluoromethane	25.6			ug/l	25.0		102	80-120			
Surrogate: Toluene-d8	25.5			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	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: Quarterly Outfall 011 + 13267  Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Batch: 5A06024 Extracted: 01/06/05</b>										
<b>Blank Analyzed: 01/06/2005 (5A06024-BLK1)</b>										
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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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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05

Received: 01/04/05

## 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	RPD Limit	Data Qualifiers
<b>Batch: 5A10039 Extracted: 01/10/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A10039-BLK1)</b>										
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	ND	5.0	0.34	ug/l						
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	ND	1.0	0.12	ug/l						
2,4-Dimethylphenol	ND	2.0	0.31	ug/l						
Dimethyl phthalate	ND	0.50	0.081	ug/l						

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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: Quarterly Outfall 011 + 13267	Sampled: 01/04/05-01/05/05 Received: 01/04/05
Report Number: IOA0131		

## 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
<b>Batch: 5A10039 Extracted: 01/10/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A10039-BLK1)</b>										
4,6-Dinitro-2-methylphenol	ND	5.0	0.38	ug/l						
2,4-Dinitrophenol	ND	5.0	2.7	ug/l						
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	13.2			ug/l	20.0	66	35-120			

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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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
Received: 01/04/05

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
<b>Batch: 5A10039 Extracted: 01/10/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A10039-BLK1)</b>										
Surrogate: Phenol-d6	13.6			ug/l	20.0		68 45-120			
Surrogate: 2,4,6-Tribromophenol	14.9			ug/l	20.0		74 50-125			
Surrogate: Nitrobenzene-d5	6.88			ug/l	10.0		69 45-120			
Surrogate: 2-Fluorobiphenyl	6.80			ug/l	10.0		68 45-120			
Surrogate: Terphenyl-d14	7.82			ug/l	10.0		78 45-135			
<b>LCS Analyzed: 01/14/2005 (5A10039-BS1)</b>										
Acenaphthene	8.24	0.50	0.10	ug/l	10.0		82 55-120			
Acenaphthylene	8.04	0.50	0.10	ug/l	10.0		80 55-120			
Aniline	7.28	10	2.9	ug/l	10.0		73 30-120			J
Anthracene	8.64	0.50	0.083	ug/l	10.0		86 60-120			
Benzidine	ND	5.0	2.4	ug/l	10.0		20-180			L2
Benzoic acid	5.84	20	3.7	ug/l	10.0		58 30-125			J
Benzo(a)anthracene	8.76	5.0	0.038	ug/l	10.0		88 65-120			
Benzo(a)pyrene	9.40	2.0	0.14	ug/l	10.0		94 55-125			
Benzo(b)fluoranthene	8.52	2.0	0.050	ug/l	10.0		85 50-125			
Benzo(g,h,i)perylene	8.40	5.0	0.059	ug/l	10.0		84 35-160			
Benzo(k)fluoranthene	8.82	0.50	0.053	ug/l	10.0		88 50-125			
Benzyl alcohol	9.58	5.0	0.21	ug/l	10.0		96 40-130			
Bis(2-chloroethoxy)methane	8.50	0.50	0.072	ug/l	10.0		85 55-120			
Bis(2-chloroethyl)ether	7.66	0.50	0.084	ug/l	10.0		77 50-120			
Bis(2-chloroisopropyl)ether	7.62	0.50	0.11	ug/l	10.0		76 50-120			
Bis(2-ethylhexyl)phthalate	10.8	5.0	1.1	ug/l	10.0		108 65-125			
4-Bromophenyl phenyl ether	8.64	1.0	0.12	ug/l	10.0		86 55-125			
Butyl benzyl phthalate	9.64	5.0	0.34	ug/l	10.0		96 60-125			
4-Chloroaniline	8.04	2.0	0.20	ug/l	10.0		80 55-120			
2-Chloronaphthalene	8.24	0.50	0.059	ug/l	10.0		82 60-120			
4-Chloro-3-methylphenol	8.80	2.0	0.34	ug/l	10.0		88 60-120			
4-Chlorophenyl phenyl ether	8.66	0.50	0.056	ug/l	10.0		87 55-120			
2-Chlorophenol	8.12	1.0	0.12	ug/l	10.0		81 45-120			
Chrysene	8.22	0.50	0.072	ug/l	10.0		82 65-120			
Dibenz(a,h)anthracene	9.08	0.50	0.083	ug/l	10.0		91 40-160			
Dibenzofuran	8.34	0.50	0.075	ug/l	10.0		83 60-120			
Di-n-butyl phthalate	9.62	2.0	0.26	ug/l	10.0		96 65-125			
1,2-Dichlorobenzene	7.74	0.50	0.11	ug/l	10.0		77 40-120			
1,3-Dichlorobenzene	7.36	0.50	0.13	ug/l	10.0		74 40-120			

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



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

Project ID: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
Received: 01/04/05

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
<b>Batch: 5A10039 Extracted: 01/10/05</b>										
<b>LCS Analyzed: 01/14/2005 (5A10039-BS1)</b>										
1,4-Dichlorobenzene	7.56	0.50	0.050	ug/l	10.0	76	40-120			
3,3-Dichlorobenzidine	7.54	5.0	0.93	ug/l	10.0	75	50-170			
2,4-Dichlorophenol	8.76	2.0	0.21	ug/l	10.0	88	55-120			
Diethyl phthalate	8.96	1.0	0.12	ug/l	10.0	90	60-120			
2,4-Dimethylphenol	6.42	2.0	0.31	ug/l	10.0	64	35-120			
Dimethyl phthalate	8.88	0.50	0.081	ug/l	10.0	89	60-120			
4,6-Dinitro-2-methylphenol	8.14	5.0	0.38	ug/l	10.0	81	55-120			
2,4-Dinitrophenol	13.8	5.0	2.7	ug/l	10.0	138	40-140			
2,4-Dinitrotoluene	9.30	5.0	0.23	ug/l	10.0	93	60-140			
2,6-Dinitrotoluene	8.96	5.0	0.24	ug/l	10.0	90	65-125			
Di-n-octyl phthalate	10.4	5.0	0.17	ug/l	10.0	104	60-130			
1,2-Diphenylhydrazine/Azobenzene	9.52	1.0	0.087	ug/l	10.0	95	60-120			
Fluoranthene	9.34	0.50	0.089	ug/l	10.0	93	55-125			
Fluorene	8.68	0.50	0.075	ug/l	10.0	87	60-120			
Hexachlorobenzene	8.30	1.0	0.13	ug/l	10.0	83	50-120			
Hexachlorobutadiene	7.82	2.0	0.38	ug/l	10.0	78	45-120			
Hexachlorocyclopentadiene	7.70	5.0	1.8	ug/l	10.0	77	10-130			
Hexachloroethane	7.62	3.0	0.51	ug/l	10.0	76	40-120			
Indeno(1,2,3-cd)pyrene	9.06	2.0	0.19	ug/l	10.0	91	35-150			
Isophorone	8.98	1.0	0.059	ug/l	10.0	90	55-120			
2-Methylnaphthalene	8.12	1.0	0.13	ug/l	10.0	81	50-120			
2-Methylphenol	8.44	2.0	0.28	ug/l	10.0	84	45-120			
4-Methylphenol	8.52	5.0	0.20	ug/l	10.0	85	45-120			
Naphthalene	8.00	1.0	0.13	ug/l	10.0	80	50-120			
2-Nitroaniline	8.96	5.0	0.18	ug/l	10.0	90	60-130			
3-Nitroaniline	8.72	5.0	0.35	ug/l	10.0	87	50-140			
4-Nitroaniline	9.74	5.0	0.49	ug/l	10.0	97	45-160			
Nitrobenzene	8.22	1.0	0.10	ug/l	10.0	82	50-120			
2-Nitrophenol	9.16	2.0	0.23	ug/l	10.0	92	55-120			
4-Nitrophenol	9.20	5.0	0.73	ug/l	10.0	92	50-135			
N-Nitrosodimethylamine	7.72	2.0	0.22	ug/l	10.0	77	40-120			
N-Nitroso-di-n-propylamine	8.70	2.0	0.18	ug/l	10.0	87	50-120			
N-Nitrosodiphenylamine	9.08	1.0	0.077	ug/l	10.0	91	60-120			
Pentachlorophenol	10.0	2.0	0.78	ug/l	10.0	100	50-125			
Phenanthrene	8.40	0.50	0.071	ug/l	10.0	84	55-120			

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267
300 North Lake Avenue, Suite 1200 Report Number: IOA0131
Pasadena, CA 91101 Attention: Bronwyn Kelly
Sampled: 01/04/05-01/05/05
Received: 01/04/05

METHOD BLANK/QC DATA

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

Table with 12 columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Data Qualifiers

Batch: 5A10039 Extracted: 01/10/05

LCS Analyzed: 01/14/2005 (5A10039-BS1)

Table listing LCS Analyzed results for various compounds like Phenol, Pyrene, 1,2,4-Trichlorobenzene, etc.

LCS Dup Analyzed: 01/13/2005 (5A10039-BSD1)

Main table listing LCS Dup Analyzed results for a wide range of compounds including Acenaphthene, Aniline, Anthracene, Benzo(a)anthracene, etc.

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
Received: 01/04/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A10039 Extracted: 01/10/05</b>											
<b>LCS Dup Analyzed: 01/13/2005 (5A10039-BSD1)</b>											<b>M-NR1</b>
Chrysene	8.14	0.50	0.072	ug/l	10.0	81	65-120	1	20		
Dibenz(a,h)anthracene	8.70	0.50	0.083	ug/l	10.0	87	40-160	4	25		
Dibenzofuran	8.16	0.50	0.075	ug/l	10.0	82	60-120	2	20		
Di-n-butyl phthalate	9.52	2.0	0.26	ug/l	10.0	95	65-125	1	20		
1,2-Dichlorobenzene	6.66	0.50	0.11	ug/l	10.0	67	40-120	15	25		
1,3-Dichlorobenzene	6.26	0.50	0.13	ug/l	10.0	63	40-120	16	25		
1,4-Dichlorobenzene	6.56	0.50	0.050	ug/l	10.0	66	40-120	14	25		
3,3-Dichlorobenzidine	7.12	5.0	0.93	ug/l	10.0	71	50-170	6	25		
2,4-Dichlorophenol	8.78	2.0	0.21	ug/l	10.0	88	55-120	0	20		
Diethyl phthalate	8.84	1.0	0.12	ug/l	10.0	88	60-120	1	20		
2,4-Dimethylphenol	7.56	2.0	0.31	ug/l	10.0	76	35-120	16	25		
Dimethyl phthalate	8.54	0.50	0.081	ug/l	10.0	85	60-120	4	20		
4,6-Dinitro-2-methylphenol	6.74	5.0	0.38	ug/l	10.0	67	55-120	19	25		
2,4-Dinitrophenol	11.2	5.0	2.7	ug/l	10.0	112	40-140	21	25		
2,4-Dinitrotoluene	8.68	5.0	0.23	ug/l	10.0	87	60-140	7	20		
2,6-Dinitrotoluene	8.58	5.0	0.24	ug/l	10.0	86	65-125	4	20		
Di-n-octyl phthalate	9.86	5.0	0.17	ug/l	10.0	99	60-130	5	20		
1,2-Diphenylhydrazine/Azobenzene	9.52	1.0	0.087	ug/l	10.0	95	60-120	0	25		
Fluoranthene	8.50	0.50	0.089	ug/l	10.0	85	55-125	9	20		
Fluorene	8.40	0.50	0.075	ug/l	10.0	84	60-120	3	20		
Hexachlorobenzene	8.10	1.0	0.13	ug/l	10.0	81	50-120	2	20		
Hexachlorobutadiene	7.30	2.0	0.38	ug/l	10.0	73	45-120	7	25		
Hexachlorocyclopentadiene	7.92	5.0	1.8	ug/l	10.0	79	10-130	3	30		
Hexachloroethane	6.32	3.0	0.51	ug/l	10.0	63	40-120	19	25		
Indeno(1,2,3-cd)pyrene	8.58	2.0	0.19	ug/l	10.0	86	35-150	5	25		
Isophorone	8.86	1.0	0.059	ug/l	10.0	89	55-120	1	20		
2-Methylnaphthalene	7.82	1.0	0.13	ug/l	10.0	78	50-120	4	20		
2-Methylphenol	8.42	2.0	0.28	ug/l	10.0	84	45-120	0	20		
4-Methylphenol	8.58	5.0	0.20	ug/l	10.0	86	45-120	1	20		
Naphthalene	7.54	1.0	0.13	ug/l	10.0	75	50-120	6	20		
2-Nitroaniline	8.86	5.0	0.18	ug/l	10.0	89	60-130	1	20		
3-Nitroaniline	8.56	5.0	0.35	ug/l	10.0	86	50-140	2	25		
4-Nitroaniline	9.42	5.0	0.49	ug/l	10.0	94	45-160	3	20		
Nitrobenzene	8.04	1.0	0.10	ug/l	10.0	80	50-120	2	25		
2-Nitrophenol	8.50	2.0	0.23	ug/l	10.0	85	55-120	7	25		

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101 Sampled: 01/04/05-01/05/05  
Attention: Bronwyn Kelly Received: 01/04/05

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
<b>Batch: 5A10039 Extracted: 01/10/05</b>											
<b>LCS Dup Analyzed: 01/13/2005 (5A10039-BSD1)</b>											
4-Nitrophenol	8.72	5.0	0.73	ug/l	10.0	87	50-135	5	25		M-NR1
N-Nitrosodimethylamine	9.20	2.0	0.22	ug/l	10.0	92	40-120	17	20		
N-Nitroso-di-n-propylamine	8.82	2.0	0.18	ug/l	10.0	88	50-120	1	20		
N-Nitrosodiphenylamine	8.58	1.0	0.077	ug/l	10.0	86	60-120	6	20		
Pentachlorophenol	9.00	2.0	0.78	ug/l	10.0	90	50-125	11	25		
Phenanthrene	7.96	0.50	0.071	ug/l	10.0	80	55-120	5	20		
Phenol	7.98	1.0	0.14	ug/l	10.0	80	45-120	1	25		
Pyrene	8.40	0.50	0.059	ug/l	10.0	84	50-120	4	25		
1,2,4-Trichlorobenzene	7.34	1.0	0.10	ug/l	10.0	73	50-120	10	20		
2,4,5-Trichlorophenol	8.94	2.0	0.075	ug/l	10.0	89	60-120	5	20		
2,4,6-Trichlorophenol	9.46	1.0	0.10	ug/l	10.0	95	60-120	1	20		
Surrogate: 2-Fluorophenol	14.3			ug/l	20.0	72	35-120				
Surrogate: Phenol-d6	15.2			ug/l	20.0	76	45-120				
Surrogate: 2,4,6-Tribromophenol	16.3			ug/l	20.0	82	50-125				
Surrogate: Nitrobenzene-d5	7.68			ug/l	10.0	77	45-120				
Surrogate: 2-Fluorobiphenyl	7.62			ug/l	10.0	76	45-120				
Surrogate: Terphenyl-d14	7.76			ug/l	10.0	78	45-135				

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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## METHOD BLANK/QC DATA

### ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
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**Batch: 5A07033 Extracted: 01/07/05**

**Blank Analyzed: 01/07/2005 (5A07033-BLK1)**

Aldrin	ND	0.10	0.029	ug/l						
alpha-BHC	ND	0.10	0.010	ug/l						
beta-BHC	ND	0.10	0.011	ug/l						
delta-BHC	ND	0.20	0.010	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.0097	ug/l						
Chlordane	ND	1.0	0.18	ug/l						
4,4'-DDD	ND	0.10	0.011	ug/l						
4,4'-DDE	ND	0.10	0.017	ug/l						
4,4'-DDT	ND	0.10	0.015	ug/l						
Dieldrin	ND	0.10	0.010	ug/l						
Endosulfan I	ND	0.10	0.015	ug/l						
Endosulfan II	ND	0.10	0.037	ug/l						
Endosulfan sulfate	ND	0.20	0.013	ug/l						
Endrin	ND	0.10	0.0082	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	0.012	ug/l						
Methoxychlor	ND	0.10	0.034	ug/l						
Toxaphene	ND	5.0	0.77	ug/l						
Surrogate: Tetrachloro-m-xylene	0.328			ug/l	0.500		66	35-120		
Surrogate: Decachlorobiphenyl	0.444			ug/l	0.500		89	45-120		

**LCS Analyzed: 01/07/2005 (5A07033-BS1)**

Aldrin	0.441	0.10	0.029	ug/l	0.500		88	45-115		
alpha-BHC	0.452	0.10	0.010	ug/l	0.500		90	45-115		
beta-BHC	0.468	0.10	0.011	ug/l	0.500		94	50-115		
delta-BHC	0.498	0.20	0.010	ug/l	0.500		100	55-120		
gamma-BHC (Lindane)	0.458	0.10	0.0097	ug/l	0.500		92	45-115		
4,4'-DDD	0.465	0.10	0.011	ug/l	0.500		93	60-120		
4,4'-DDE	0.473	0.10	0.017	ug/l	0.500		95	55-120		
4,4'-DDT	0.473	0.10	0.015	ug/l	0.500		95	60-130		
Dieldrin	0.475	0.10	0.010	ug/l	0.500		95	55-120		
Endosulfan I	0.466	0.10	0.015	ug/l	0.500		93	50-115		
Endosulfan II	0.461	0.10	0.037	ug/l	0.500		92	60-125		
Endosulfan sulfate	0.460	0.20	0.013	ug/l	0.500		92	60-120		

M-NR1

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: Quarterly Outfall 011 + 13267 Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Batch: 5A07033 Extracted: 01/07/05</b>										
<b>LCS Analyzed: 01/07/2005 (5A07033-BS1)</b>										
Endrin	0.500	0.10	0.0082	ug/l	0.500		100 55-125			M-NR1
Endrin aldehyde	0.443	0.10	0.045	ug/l	0.500		89 55-115			
Endrin ketone	0.456	0.10	0.020	ug/l	0.500		91 60-120			
Heptachlor	0.444	0.10	0.030	ug/l	0.500		89 45-115			
Heptachlor epoxide	0.463	0.10	0.012	ug/l	0.500		93 50-120			
Methoxychlor	0.460	0.10	0.034	ug/l	0.500		92 60-135			
Surrogate: Tetrachloro-m-xylene	0.397			ug/l	0.500		79 35-120			
Surrogate: Decachlorobiphenyl	0.496			ug/l	0.500		99 45-120			
<b>LCS Dup Analyzed: 01/07/2005 (5A07033-BS1)</b>										
Aldrin	0.396	0.10	0.029	ug/l	0.500		79 45-115	11	30	
alpha-BHC	0.459	0.10	0.010	ug/l	0.500		92 45-115	2	30	
beta-BHC	0.448	0.10	0.011	ug/l	0.500		90 50-115	4	30	
delta-BHC	0.503	0.20	0.010	ug/l	0.500		101 55-120	1	30	
gamma-BHC (Lindane)	0.459	0.10	0.0097	ug/l	0.500		92 45-115	0	30	
4,4'-DDD	0.501	0.10	0.011	ug/l	0.500		100 60-120	7	30	
4,4'-DDE	0.487	0.10	0.017	ug/l	0.500		97 55-120	3	30	
4,4'-DDT	0.518	0.10	0.015	ug/l	0.500		104 60-130	9	30	
Dieldrin	0.489	0.10	0.010	ug/l	0.500		98 55-120	3	30	
Endosulfan I	0.469	0.10	0.015	ug/l	0.500		94 50-115	1	30	
Endosulfan II	0.497	0.10	0.037	ug/l	0.500		99 60-125	8	30	
Endosulfan sulfate	0.510	0.20	0.013	ug/l	0.500		102 60-120	10	30	
Endrin	0.523	0.10	0.0082	ug/l	0.500		105 55-125	4	30	
Endrin aldehyde	0.495	0.10	0.045	ug/l	0.500		99 55-115	11	30	
Endrin ketone	0.507	0.10	0.020	ug/l	0.500		101 60-120	11	30	
Heptachlor	0.436	0.10	0.030	ug/l	0.500		87 45-115	2	30	
Heptachlor epoxide	0.464	0.10	0.012	ug/l	0.500		93 50-120	0	30	
Methoxychlor	0.520	0.10	0.034	ug/l	0.500		104 60-135	12	30	
Surrogate: Tetrachloro-m-xylene	0.390			ug/l	0.500		78 35-120			
Surrogate: Decachlorobiphenyl	0.546			ug/l	0.500		109 45-120			

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Project Manager

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MWH-Pasadena/Boeing Project ID: Quarterly Outfall 011 + 13267  
300 North Lake Avenue, Suite 1200 Report Number: IOA0131  
Pasadena, CA 91101 Sampled: 01/04/05-01/05/05  
Attention: Bronwyn Kelly Received: 01/04/05

METHOD BLANK/QC DATA

TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A07033 Extracted: 01/07/05</b>										
<b>Blank Analyzed: 01/07/2005 (5A07033-BLK1)</b>										
Aroclor 1016	ND	1.0	0.067	ug/l						
Aroclor 1221	ND	1.0	0.057	ug/l						
Aroclor 1232	ND	1.0	0.13	ug/l						
Aroclor 1242	ND	1.0	0.12	ug/l						
Aroclor 1248	ND	1.0	0.21	ug/l						
Aroclor 1254	ND	1.0	0.16	ug/l						
Aroclor 1260	ND	1.0	0.17	ug/l						
Surrogate: Decachlorobiphenyl	0.361			ug/l	0.500		72 45-120			
<b>LCS Analyzed: 01/07/2005 (5A07033-BS2)</b>										
Aroclor 1016	2.92	1.0	0.067	ug/l	4.00		73 50-115			M-NR1
Aroclor 1260	3.17	1.0	0.17	ug/l	4.00		79 60-115			
Surrogate: Decachlorobiphenyl	0.407			ug/l	0.500		81 45-120			
<b>LCS Dup Analyzed: 01/07/2005 (5A07033-BSD2)</b>										
Aroclor 1016	2.66	1.0	0.067	ug/l	4.00		66 50-115	9	30	
Aroclor 1260	2.95	1.0	0.17	ug/l	4.00		74 60-115	7	25	
Surrogate: Decachlorobiphenyl	0.401			ug/l	0.500		80 45-120			

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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: Quarterly Outfall 011 + 13267 Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Batch: 5A05092 Extracted: 01/05/05</b>										
<b>Blank Analyzed: 01/06/2005 (5A05092-BLK1)</b>										
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	ND	1.0	0.26	ug/l						
Cobalt	ND	1.0	0.10	ug/l						
Copper	ND	2.0	0.49	ug/l						
Iron	0.00392	0.010	0.0032	mg/l						J
Lead	ND	1.0	0.13	ug/l						
Manganese	0.632	1.0	0.44	ug/l						J
Nickel	ND	1.0	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	1.0	0.86	ug/l						
Zinc	ND	20	3.1	ug/l						

### LCS Analyzed: 01/06/2005 (5A05092-BS1)

Antimony	86.6	2.0	0.18	ug/l	80.0	108	85-115
Arsenic	87.1	1.0	0.49	ug/l	80.0	109	85-115
Barium	0.0825	0.0010	0.00014	mg/l	0.0800	103	85-115
Beryllium	81.7	0.50	0.037	ug/l	80.0	102	85-115
Cadmium	79.6	1.0	0.015	ug/l	80.0	100	85-115
Chromium	82.9	1.0	0.26	ug/l	80.0	104	85-115
Cobalt	81.9	1.0	0.10	ug/l	80.0	102	85-115
Copper	80.9	2.0	0.49	ug/l	80.0	101	85-115
Iron	0.850	0.010	0.0032	mg/l	0.800	106	85-115
Lead	83.1	1.0	0.13	ug/l	80.0	104	85-115
Manganese	83.8	1.0	0.44	ug/l	80.0	105	85-115
Nickel	82.9	1.0	0.15	ug/l	80.0	104	85-115
Selenium	82.7	2.0	0.36	ug/l	80.0	103	85-115
Silver	82.3	1.0	0.089	ug/l	80.0	103	85-115
Thallium	82.5	1.0	0.075	ug/l	80.0	103	85-115
Vanadium	80.9	1.0	0.86	ug/l	80.0	101	85-115
Zinc	77.9	20	3.1	ug/l	80.0	97	85-115

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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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05092 Extracted: 01/05/05</b>											
<b>Matrix Spike Analyzed: 01/06/2005 (5A05092-MS1)</b>						<b>Source: IOA0121-01</b>					
Antimony	98.6	2.0	0.18	ug/l	80.0	0.87	122	70-130			
Arsenic	99.7	1.0	0.49	ug/l	80.0	0.80	124	70-130			
Barium	0.118	0.0010	0.00014	mg/l	0.0800	0.025	116	70-130			
Beryllium	97.1	0.50	0.037	ug/l	80.0	0.14	121	70-130			
Cadmium	92.2	1.0	0.015	ug/l	80.0	0.25	115	70-130			
Chromium	93.9	1.0	0.26	ug/l	80.0	3.5	113	70-130			
Cobalt	90.1	1.0	0.10	ug/l	80.0	0.59	112	70-130			
Copper	92.5	2.0	0.49	ug/l	80.0	6.3	108	70-130			
Iron	1.96	0.010	0.0032	mg/l	0.800	1.5	58	70-130			M2
Lead	97.3	1.0	0.13	ug/l	80.0	1.4	120	70-130			
Manganese	113	1.0	0.44	ug/l	80.0	26	109	70-130			
Nickel	92.4	1.0	0.15	ug/l	80.0	3.5	111	70-130			
Selenium	91.6	2.0	0.36	ug/l	80.0	0.63	114	70-130			
Silver	93.3	1.0	0.089	ug/l	80.0	ND	117	70-130			
Thallium	97.9	1.0	0.075	ug/l	80.0	ND	122	70-130			
Vanadium	92.5	1.0	0.86	ug/l	80.0	2.4	113	70-130			
Zinc	101	20	3.1	ug/l	80.0	22	99	70-130			

#### Matrix Spike Dup Analyzed: 01/06/2005 (5A05092-MSD1)

Source: IOA0121-01

Antimony	97.7	2.0	0.18	ug/l	80.0	0.87	121	70-130	1	20	
Arsenic	97.2	1.0	0.49	ug/l	80.0	0.80	120	70-130	3	20	
Barium	0.118	0.0010	0.00014	mg/l	0.0800	0.025	116	70-130	0	20	
Beryllium	94.3	0.50	0.037	ug/l	80.0	0.14	118	70-130	3	20	
Cadmium	91.3	1.0	0.015	ug/l	80.0	0.25	114	70-130	1	20	
Chromium	93.3	1.0	0.26	ug/l	80.0	3.5	112	70-130	1	20	
Cobalt	89.8	1.0	0.10	ug/l	80.0	0.59	112	70-130	0	20	
Copper	92.4	2.0	0.49	ug/l	80.0	6.3	108	70-130	0	20	
Iron	1.99	0.010	0.0032	mg/l	0.800	1.5	61	70-130	2	20	M2
Lead	97.1	1.0	0.13	ug/l	80.0	1.4	120	70-130	0	20	
Manganese	113	1.0	0.44	ug/l	80.0	26	109	70-130	0	20	
Nickel	92.2	1.0	0.15	ug/l	80.0	3.5	111	70-130	0	20	
Selenium	89.6	2.0	0.36	ug/l	80.0	0.63	111	70-130	2	20	
Silver	92.4	1.0	0.089	ug/l	80.0	ND	116	70-130	1	20	
Thallium	98.3	1.0	0.075	ug/l	80.0	ND	123	70-130	0	20	
Vanadium	92.3	1.0	0.86	ug/l	80.0	2.4	112	70-130	0	20	
Zinc	100	20	3.1	ug/l	80.0	22	98	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: Quarterly Outfall 011 + 13267  Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Batch: 5A06051 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06051-BLK1)</b>											
Mercury	ND	0.20	0.063	ug/l							
<b>LCS Analyzed: 01/06/2005 (5A06051-BS1)</b>											
Mercury	8.28	0.20	0.063	ug/l	8.00		104	85-115			
<b>Matrix Spike Analyzed: 01/06/2005 (5A06051-MS1) Source: IOA0128-01</b>											
Mercury	8.23	0.20	0.063	ug/l	8.00	0.26	100	70-130			
<b>Matrix Spike Dup Analyzed: 01/06/2005 (5A06051-MSD1) Source: IOA0128-01</b>											
Mercury	8.19	0.20	0.063	ug/l	8.00	0.26	99	70-130	1	20	
<b>Batch: 5A06063 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06063-BLK1)</b>											
Boron	ND	0.050	0.0074	mg/l							
<b>LCS Analyzed: 01/06/2005 (5A06063-BS1)</b>											
Boron	0.479	0.050	0.0074	mg/l	0.500		96	85-115			
<b>Matrix Spike Analyzed: 01/06/2005 (5A06063-MS1) Source: IOA0172-01</b>											
Boron	0.471	0.050	0.0074	mg/l	0.500	ND	94	70-130			
<b>Matrix Spike Dup Analyzed: 01/06/2005 (5A06063-MSD1) Source: IOA0172-01</b>											
Boron	0.457	0.050	0.0074	mg/l	0.500	ND	91	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: Quarterly Outfall 011 + 13267  Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Batch: 5A05050 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05050-BLK1)</b>											
Chloride	ND	0.50	0.26	mg/l							
Fluoride	ND	0.50	0.074	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
<b>LCS Analyzed: 01/05/2005 (5A05050-BS1)</b>											
Chloride	4.79	0.50	0.26	mg/l	5.00		96	90-110			
Fluoride	4.59	0.50	0.074	mg/l	5.00		92	90-110			
Sulfate	9.98	0.50	0.18	mg/l	10.0		100	90-110			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05050-MS1) Source: IOA0131-01</b>											
Chloride	9.12	0.50	0.26	mg/l	5.00	4.3	96	80-120			
Fluoride	4.67	0.50	0.074	mg/l	5.00	0.28	88	80-120			
Sulfate	16.0	0.50	0.18	mg/l	10.0	6.0	100	80-120			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05050-MSD1) Source: IOA0131-01</b>											
Chloride	9.10	0.50	0.26	mg/l	5.00	4.3	96	80-120	0	20	
Fluoride	4.67	0.50	0.074	mg/l	5.00	0.28	88	80-120	0	20	
Sulfate	16.0	0.50	0.18	mg/l	10.0	6.0	100	80-120	0	20	
<b>Batch: 5A05054 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/10/2005 (5A05054-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
<b>LCS Analyzed: 01/10/2005 (5A05054-BS1)</b>											
Biochemical Oxygen Demand	208	100	30	mg/l	198		105	85-115			

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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
<b>Batch: 5A05054 Extracted: 01/05/05</b>											
<b>LCS Dup Analyzed: 01/10/2005 (5A05054-BSD1)</b>											
Biochemical Oxygen Demand	200	100	30	mg/l	198		101	85-115	4	20	
<b>Batch: 5A05058 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05058-BLK1)</b>											
Total Organic Carbon	ND	1.0	0.56	mg/l							
<b>LCS Analyzed: 01/05/2005 (5A05058-BS1)</b>											
Total Organic Carbon	11.0	1.0	0.56	mg/l	10.0		110	90-110			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05058-MS1)</b>											
Total Organic Carbon	5.62	1.0	0.56	mg/l	5.00	ND	112	80-120			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05058-MSD1)</b>											
Total Organic Carbon	5.39	1.0	0.56	mg/l	5.00	ND	108	80-120	4	20	
<b>Batch: 5A05064 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05064-BLK1)</b>											
Chromium VI	0.150	1.0	0.041	ug/l							J
<b>LCS Analyzed: 01/05/2005 (5A05064-BS1)</b>											
Chromium VI	51.9	1.0	0.041	ug/l	50.0		104	90-110			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05064-MS1)</b>											
Chromium VI	49.3	1.0	0.041	ug/l	50.0	0.17	98	90-110			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Quarterly Outfall 011 + 13267  Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Batch: 5A05064 Extracted: 01/05/05</b>											
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05064-MSD1)</b>						<b>Source: IOA0121-01</b>					
Chromium VI	52.2	1.0	0.041	ug/l	50.0	0.17	104	90-110	6	10	
<b>Batch: 5A05066 Extracted: 01/05/05</b>											
<b>Duplicate Analyzed: 01/05/2005 (5A05066-DUP1)</b>						<b>Source: IOA0121-01</b>					
Residual Chlorine	ND	0.10	0.10	mg/l		ND				20	
<b>Batch: 5A05067 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05067-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 01/05/2005 (5A05067-BS1)</b>											
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0		101	80-115			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05067-MS1)</b>						<b>Source: IOA0060-03</b>					
Ammonia-N (Distilled)	10.4	0.50	0.30	mg/l	10.0	0.56	98	70-120			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05067-MSD1)</b>						<b>Source: IOA0060-03</b>					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	0.56	95	70-120	3	15	
<b>Batch: 5A05068 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05068-BLK1)</b>											
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: Quarterly Outfall 011 + 13267 Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
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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
<b>Batch: 5A05068 Extracted: 01/05/05</b>											
<b>LCS Analyzed: 01/05/2005 (5A05068-BS1)</b>											
Oil & Grease	20.1	5.0	0.94	mg/l	20.0		100	65-120			M-NR1
<b>LCS Dup Analyzed: 01/05/2005 (5A05068-BSD1)</b>											
Oil & Grease	21.1	5.0	0.94	mg/l	20.0		106	65-120	5	20	
<b>Batch: 5A05078 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05078-BLK1)</b>											
Total Cyanide	ND	5.0	2.2	ug/l							
<b>LCS Analyzed: 01/05/2005 (5A05078-BS1)</b>											
Total Cyanide	191	5.0	2.2	ug/l	200		96	90-110			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05078-MS1)</b>											
Total Cyanide	153	5.0	2.2	ug/l	200	ND	76	70-115			Source: IOA0112-01
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05078-MSD1)</b>											
Total Cyanide	157	5.0	2.2	ug/l	200	ND	78	70-115	3	15	Source: IOA0112-01
<b>Batch: 5A05079 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05079-BLK1)</b>											
Turbidity	ND	1.0	0.040	NTU							
<b>Duplicate Analyzed: 01/05/2005 (5A05079-DUP1)</b>											
Turbidity	0.0900	1.0	0.040	NTU		0.10			11	20	J

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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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05099 Extracted: 01/05/05</b>										
<b>Blank Analyzed: 01/05/2005 (5A05099-BLK1)</b>										
Surfactants (MBAS)	ND	0.10	0.044	mg/l						
<b>LCS Analyzed: 01/05/2005 (5A05099-BS1)</b>										
Surfactants (MBAS)	0.257	0.10	0.044	mg/l	0.250		103 90-110			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05099-MS1)</b>										
						<b>Source: IOA0172-01</b>				
Surfactants (MBAS)	0.228	0.10	0.044	mg/l	0.250	ND	91 50-125			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05099-MSD1)</b>										
						<b>Source: IOA0172-01</b>				
Surfactants (MBAS)	0.233	0.10	0.044	mg/l	0.250	ND	93 50-125	2	20	
<b>Batch: 5A06081 Extracted: 01/06/05</b>										
<b>Duplicate Analyzed: 01/06/2005 (5A06081-DUP1)</b>										
						<b>Source: IOA0117-11</b>				
Specific Conductance	865	1.0	1.0	umhos/cm		880		2	5	
<b>Batch: 5A07077 Extracted: 01/07/05</b>										
<b>Blank Analyzed: 01/07/2005 (5A07077-BLK1)</b>										
Total Suspended Solids	ND	10	10	mg/l						
<b>LCS Analyzed: 01/07/2005 (5A07077-BS1)</b>										
Total Suspended Solids	989	10	10	mg/l	1000		99 85-115			
<b>Duplicate Analyzed: 01/07/2005 (5A07077-DUP1)</b>										
						<b>Source: IOA0210-01</b>				
Total Suspended Solids	ND	10	10	mg/l		ND			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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A07084 Extracted: 01/07/05</b>										
<b>Blank Analyzed: 01/07/2005 (5A07084-BLK1)</b>										
Total Dissolved Solids	ND	10	10	mg/l						
<b>LCS Analyzed: 01/07/2005 (5A07084-BS1)</b>										
Total Dissolved Solids	990	10	10	mg/l	1000		99 90-110			
<b>Duplicate Analyzed: 01/07/2005 (5A07084-DUP1)</b>										
					<b>Source: IOA0251-02</b>					
Total Dissolved Solids	614	10	10	mg/l		610		1	10	
<b>Batch: 5A12035 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12035-BLK1)</b>										
Perchlorate	ND	4.0	0.80	ug/l						
<b>LCS Analyzed: 01/12/2005 (5A12035-BS1)</b>										
Perchlorate	48.2	4.0	0.80	ug/l	50.0		96 85-115			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12035-MS1)</b>										
					<b>Source: IOA0131-01</b>					
Perchlorate	48.1	4.0	0.80	ug/l	50.0	ND	96 80-120			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12035-MSD1)</b>										
					<b>Source: IOA0131-01</b>					
Perchlorate	47.4	4.0	0.80	ug/l	50.0	ND	95 80-120	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: Quarterly Outfall 011 + 13267 Report Number: IOA0131	Sampled: 01/04/05-01/05/05 Received: 01/04/05
--	---	--

**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
<b>Batch: P5A1103 Extracted: 01/11/05</b>											
<b>Blank Analyzed: 01/11/2005 (P5A1103-BLK1)</b>											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.01			ug/l	1.00		101	80-125			
<b>LCS Analyzed: 01/11/2005 (P5A1103-BS1)</b>											
1,4-Dioxane	10.2	1.0	0.49	ug/l	10.0		102	70-130			
Surrogate: Dibromofluoromethane	1.10			ug/l	1.00		110	80-125			
<b>LCS Dup Analyzed: 01/11/2005 (P5A1103-BSD1)</b>											
1,4-Dioxane	10.5	1.0	0.49	ug/l	10.0		105	70-130	3	20	
Surrogate: Dibromofluoromethane	1.04			ug/l	1.00		104	80-125			
<b>Matrix Spike Analyzed: 01/11/2005 (P5A1103-MS1)</b>											
						<b>Source: POA0025-09</b>					
1,4-Dioxane	8.32	1.0	0.49	ug/l	10.0	0.63	77	70-150			
Surrogate: Dibromofluoromethane	1.11			ug/l	1.00		111	80-125			
<b>Matrix Spike Dup Analyzed: 01/11/2005 (P5A1103-MSD1)</b>											
						<b>Source: POA0025-09</b>					
1,4-Dioxane	8.31	1.0	0.49	ug/l	10.0	0.63	77	70-150	0	25	
Surrogate: Dibromofluoromethane	1.09			ug/l	1.00		109	80-125			

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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
Received: 01/04/05

### 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-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- RL-1** Reporting limit raised 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

### 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, 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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05  
 Received: 01/04/05

## 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 200.7	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
EPA 8260B	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](http://www.dmalabs.com).

### Subcontracted Laboratories

#### Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chronic

Samples: IOA0131-01

Analysis Performed: Bioassay-Acute 96hr

Samples: IOA0131-01

#### Del Mar Analytical - Phoenix NELAC Cert #01109CA, California Cert #2446

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B

### 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: Quarterly Outfall 011 + 13267

Report Number: IOA0131

Sampled: 01/04/05-01/05/05

Received: 01/04/05

**Del Mar Analytical - Phoenix** *NELAC Cert #01109CA, California Cert #2446*

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Samples: IOA0131-01

**Eberline Services - SUB**

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: Gross Alpha

Samples: IOA0131-01

Analysis Performed: Gross Beta

Samples: IOA0131-01

Analysis Performed: Level 3 Data Package

Samples: IOA0131-01

Analysis Performed: Strontium 90

Samples: IOA0131-01

Analysis Performed: Tritium

Samples: IOA0131-01

**Pace Analytical, MN- SUB**

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR

Samples: IOA0131-01

Analysis Performed: EDD + Level 4

Samples: IOA0131-01

**Truesdail Laboratories-SUB** *California Cert #1237*

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Hydrazine

Samples: IOA0131-01

Analysis Performed: Level 4 Data Package

Samples: IOA0131-01

**Del Mar Analytical, Irvine**  
Michele Harper  
Project Manager

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5 8/12/04

Client Name/Address:		Project:		Preservative		ANALYSIS REQUIRED										Field Readings:	
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Outfall 011 - 13267 Sampling Perimeter Pond		None		Total Recoverable Metals: B, Ba, Fe, Mn, Sb, As, Be, Cd, Ni, Se, Ag, Tl, Zn, Co, V Fluoride, Cr VI 625 - PP Lst, (608)-Pest + PCB VOCs 624 + Xylenes + Freon 113 + 1,1-DCE + Freon 123a + Cyclohexane day Chronic Bioassay-Acute, Bioassay-7 Monomethylhydrazine VOCs 624 + A+A+2CVE 8015 (Extractable Fuel Hydrocarbons), Dioxane-8260B-out 8015B (GHO) 8015 (Extractable Fuel Hydrocarbons), Dioxane-8260B-out										Temp = 52.0 pH = 6.7	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time		Tritium (906.0), Sr-90 (905.0), Radium 226 *	VOCs 624 + A+A+2CVE	Monomethylhydrazine	Bioassay-Acute, Bioassay-7	day Chronic	VOCs 624 + Xylenes + Freon 113 + 1,1-DCE + Freon 123a + Cyclohexane	625 - PP Lst, (608)-Pest + PCB	Fluoride, Cr VI	Total Recoverable Metals: B, Ba, Fe, Mn, Sb, As, Be, Cd, Ni, Se, Ag, Tl, Zn, Co, V	418.1 (TRPH)	Residual Chlorine	Comments
Outfall 011	W	Poly-1Gal	12	11/4/05	•	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = 27600 Flow (gpm) = 241
Outfall 011	W	Poly-1Gal	1	11/4/05	•	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = 30500 Flow (gpm) = 273
Outfall 011	W	Poly-1Gal	1	11/4/05		X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = 36300 Flow (gpm) = 268
Outfall 011	W	Poly-1Gal	1	11/4/05		X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = 44200 Flow (gpm) = 254
Outfall 011	W	Poly-1Gal	1	11/4/05		X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = 57100 Flow (gpm) = 236
Outfall 011	W	Poly-1Gal	1	11/4/05		X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = 55800 Flow (gpm) = 228
Outfall 011	W	Poly-1Gal	1	11/4/05		X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = 60400 Flow (gpm) = 220
Outfall 011	W	Poly-1Gal	1	11/4/05		X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = 64500 Flow (gpm) = 213
Outfall 011	W	Poly-1Gal	1	11/4/05		X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = 68600 Flow (gpm) = 211
Outfall 011	W	Poly-1Gal	1	11/4/05		X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = 72600 Flow (gpm) = 198
Outfall 011	W	Poly-1Gal	1	11/4/05		X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals) = Flow (gpm) =
Trip Blank	W	VOAs	16			X	X	X	X	X	X	X	X	X	X	X	
Relinquished By				Date/Time:		Received By										Date/Time:	
Sandra Hays				11/4/05 15:05		B.D. Beck										11/4/05 15:05	
Relinquished By				Date/Time:		Received By										Date/Time:	
B.D. Beck				11/4/05 18:05													
Relinquished By				Date/Time:		Received By										Date/Time:	

Note: Composite and analyze according to 13267 Sampling protocol. \* ANALYZE FOR TOTAL COMBINED RA-226 & 228 ONLY IF GROSS ALPHA >15pCi/L

• = Substrainers used for gross sample analysis of Radchem & Bioway S



F A X



300 N. Lake Ave., Suite 1200  
Pasadena, California 91101  
Tel: 626-568-6691  
Fax: 626-568-6515

Date: 02/17/05

To: Michele Harper / Del Mar Analytical

Fax No: 949-260-3297

Patti Meeks / AMEC

303-935-6575

Krissi McIlvenna / MWH

925-975-3412

From: Bronwyn K. Kelly

sign: 

Subject: Chain-of-Custody Form Analytical Request Change

No. of Pages: 2  
(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, Not Completed	Change(s) and Method (s) Now Requested
IOB0988	Outfall 003	02/11/05	Annual Constituents per 2004 NPDES Permit - Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, B, V, Al, +PP; TCDD (and all congeners); Oil and Grease (EPA 413.1); Cl-, SO4, N)3+NO2-N, Perchlorate; TDS, TSS VOCs (624); VOCs, A+A+2CVE; NPDES + PP; Pesticides/PCBs-PP; Gross Alpha, Gross Beta, Tritium (906.0), Sr-90, Total Combined Radium 226&228; SVOCs - PP; Acute toxicity, Cyanide.	Routine Constituents per 2004 NPDES Permit - Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg; TCDD (and all congeners); Oil and Grease (EPA 413.1); TDS, TSS.
IOB1002	Outfall 004	02/11/05	Annual Constituents per 2004 NPDES Permit - Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, B, V, Al, +PP; TCDD (and all congeners); Oil and Grease (EPA 413.1); Cl-, SO4, N)3+NO2-N, Perchlorate; TDS, TSS VOCs (624); VOCs, A+A+2CVE; NPDES + PP; Pesticides/PCBs-PP; Gross Alpha, Gross Beta, Tritium (906.0), Sr-90, Total Combined Radium 226&228; SVOCs - PP; Acute toxicity, Cyanide.	Routine Constituents per 2004 NPDES Permit - Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg; TCDD (and all congeners); Oil and Grease (EPA 413.1); TDS, TSS.
IOB0990	Outfall 005	02/11/05	Annual Constituents per 2004 NPDES Permit - Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, B, V, Al, +PP; TCDD (and all congeners); Oil and Grease (EPA 413.1); Cl-, SO4, N)3+NO2-N, Perchlorate; TDS, TSS VOCs (624); VOCs, A+A+2CVE; NPDES + PP; Pesticides/PCBs-PP; Gross Alpha, Gross Beta, Tritium (906.0), Sr-90, Total Combined Radium 226&228; SVOCs - PP; Acute toxicity, Cyanide.	Routine Constituents per 2004 NPDES Permit - Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg; TCDD (and all congeners); Oil and Grease (EPA 413.1); TDS, TSS.

IOB0992	Outfall 006	02/11/05	Annual Constituents per 2004 NPDES Permit - Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, B, V, Al, +PP; TCDD (and all congeners); Oil and Grease (EPA 413.1); Cl-, SO4, N3+NO2-N, Perchlorate; TDS, TSS VOCs (624); VOCs, A+A+2CVE; NPDES + PP; Pesticides/PCBs-PP; Gross Alpha, Gross Beta, Tritium (906.0), Sr-90, Total Combined Radium 226&228; SVOCs - PP; Acute toxicity; Cyanide.	Routine Constituents per 2004 NPDES Permit - Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg; TCDD (and all congeners); Oil and Grease (EPA 413.1); TDS, TSS.
IOB1008	Outfall 018	02/11/05	Annual Constituents per 2004 NPDES Permit - Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg, B, V, Al, +PP; TCDD (and all congeners); Oil and Grease (EPA 413.1); Cl-, SO4, N3+NO2-N, Perchlorate; TDS, TSS VOCs (624); VOCs, A+A+2CVE; NPDES + PP; Pesticides/PCBs-PP; Gross Alpha, Gross Beta, Tritium (906.0), Sr-90, Total Combined Radium 226&228; SVOCs - PP; Acute toxicity; Cyanide.	Routine Constituents per 2004 NPDES Permit - Total Recoverable Metals: Sb, Cd, Cu, Pb, Hg; TCDD (and all congeners); Oil and Grease (EPA 413.1); TDS, TSS.
IOB1014	Outfall 011	02/11/04	Chromium IV	
IOA0131	Outfall 011 -- Composite	01/04/05		Ammonia, BOD, Chloride, Nitrate/Nitrite as N, Oil and Grease, Sulfate, MBAS, TDS, TSS, TOC, Settleable Solids, Turbidity, Cr, Cyanide, perchlorate, Conductivity, Cu, Hg, TCDD
IOA0121	Outfall 011 -- Grab	01/04/05		Total Recoverable Hydrocarbons, Extractable Fuel Hydrocarbons, GRO, Fluoride, Residual Chlorine, TOC, Cr VI, 1,4-Dioxane, Monomethyl Hydrazine, Bioassays, SVOC (625)-PP list, Pest/PCB-PP list (608), Total Recoverable Metals, Cyclohexane & Freon 123a & A+A+2CVE (624), Radchem

The reason for these changes:

*Incorrectly marked on COC form*

*Lack of sample volume*

*MWH office personnel require this change*

*Other: Containers mislabeled*

\_\_\_\_\_ X \_\_\_\_\_  
 \_\_\_\_\_ X \_\_\_\_\_  
 \_\_\_\_\_

This Change Order supersedes all previous change orders submitted.

Thank you

*Brannigan*



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

February 25, 2005

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

Attention: Bronwyn Kelly  
  
Project: 13267 (Study 1)  
Outfall 011 Composite  
Sampled: 1/4/05  
Del Mar Analytical Number: IOA0131

Dear Ms. Kelly:

Aquatic Testing Laboratories performed the Fathead Minnow 96hr Percent Survival Bioassay by EPA Method 2000.0 and Ceriodaphnia Survival and Reproduction Test by EPA Method 1002, Eberline Services performed Gross Alpha/Gross Beta (EPA 900.0), Tritium (H-3, EPA 906.0), and Strontium-90 (Sr-90, EPA 905.0), Pace Analytical performed the TCDD analysis by USEPA Method 1613B, and Truesdail Laboratories performed the Hydrazines by EPA 8315B for the project referenced above. Please use the following cross-reference table when reviewing your results.

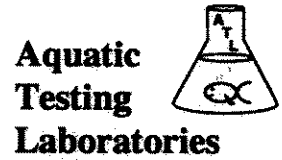
MWH ID	DEL MAR ID	ATL ID	EBERLINE ID	PACE ID	TRUESDAIL ID
Outfall 011-Composite	IOA0131-01	A-05010507-001/002	R501013/8147-001	105773001	938345-1

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

# LABORATORY REPORT



*"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:** January 12, 2005  
**Client:** Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614  
Attn: Michele Harper

**Laboratory No.:** A-05010507-001/002  
**Sample I.D.:** IOA0131-01

**Sample Control:** The sample was received by ATL chilled, with the chain of custody record attached.

Date Sampled: 01/05/05  
Date Received: 01/05/05  
Date Tested: 01/05/05 to 01/11/05

**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:

<b>Acute:</b>	<b><u>Survival</u></b>	<b><u>TUa</u></b>
Fathead Minnow:	100%	0.0
<b>Chronic:</b>	<b><u>NOEC</u></b>	<b><u>TUc</u></b>
<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-05010507-001  
 Client/ID: Del Mar - IOA0131-01

Start Date: 01/05/2005

## TEST SUMMARY

Species: *Pimephales promelas*.  
 Age: 11 (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-050104.

## TEST DATA

		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	19.5	9.1	8.0	0	0	RW 1430
	100%	19.9	10.9	7.0	0	0	
24 Hr	Control	19.3	8.6	7.6	0	0	RW 1230
	100%	19.4	8.5	7.1	0	0	
48 Hr	Control	19.7	8.1	7.7	0	0	RW 1300
	100%	20.0	7.6	7.2	0	0	
Renewal	Control	19.5	8.8	8.0	0	0	RW 1300
	100%	19.8	10.1	7.1	0	0	
72 Hr	Control	20.5	7.8	7.7	0	0	RW 1200
	100%	20.6	7.8	7.1	0	0	
96 Hr	Control	20.7	7.4	7.7	0	0	RW 1400
	100%	20.8	7.0	7.3	0	0	

### Comments:

Sample as received: Chlorine: 0 mg/l; pH: 7.0; Conductivity: 93 umho; Temp: 6°C;  
 DO: 10.9 mg/l; Alkalinity: 20 mg/l; Hardness: 27 mg/l; NH<sub>3</sub>-N: 0.4 mg/l.  
 Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes /  No.  
 Control: Alkalinity: 58 mg/l; Hardness: 96 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-05010507-002  
Client/ID: Del Mar IOA0131-01

Date Tested: 01/05/05 to 01/11/05

**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-050104.

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%	25.5
6.25%	100%	22.3
12.5%	100%	21.8
25%	100%	21.0
50%	100%	22.9
100%	100%	24.3

\* 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	Pass (25.5 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 = 28.1%)
Statistically significantly different concentrations relative difference >13%	NA - No stat. sig. diff. concentrations
Concentration response relationship acceptable	Pass (no sig. response at conc. tested)



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 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

## SUBCONTRACT ORDER - PROJECT # IOA0131

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: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Expiration	Comments
Sample ID: IOA0131-01 Water	Sampled: 01/05/05 11:30	Instant Notification
Bioassay-7 dy Chrnrc	01/06/05 23:30	ceriodaphnia
Bioassay-Acute 96hr	01/06/05 23:30	fathead minnow
<b>Containers Supplied:</b>		
1 gal Poly (IOA0131-01Y)		
1 gal Poly (IOA0131-01Z)		

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
Custody Seals Present:	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Samples Preserved Properly:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received On Ice:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received at (temp):	6°C	

Released By	1/5/05	1150	BD Decker	1/5/05	1150
Released By	1/5/05	1405	[Signature]	1-5-05	1405



**EBERLINE**  
SERVICES

February 14, 2005

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

Reference: Del Mar Analytical Project No. IOA0131  
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)  
Eberline Services Report R501013-8147

Dear Ms. Harper:

Enclosed are results from the analyses of one water sample received at Eberline Services on January 6, 2005. The sample was analyzed according to the accompanying Del Mar Analytical Subcontract Order Form. The requested analyses were gross alpha/gross beta (EPA900.0), tritium (H-3, EPA906.0), and strontium-90 (Sr-90, EPA905.0). The QC LCS, blank analyses, sample duplicates, and matrix spike results for the analyses were within the limits defined in Eberline Services Quality Control Procedures Manual. Analyses that involve the yielding of an analytical tracer or carrier, such as Sr-90, do not require matrix spike analyses to be performed.

Please call me if you have any questions concerning this report.

Regards,

Melissa Mannion  
Senior Program Manager

MCM/njv

Enclosure: Report  
Subcontract Form  
Receipt checklist  
Invoice

Analytical Services  
2030 Wright Avenue  
P.O. Box 4040  
Richmond, California 94804-0040  
(510) 235-2633 Fax (510) 235-0438  
Toll Free (800) 841-5487  
[www.eberlineservices.com](http://www.eberlineservices.com)



Eberline Services

ANALYSIS RESULTS

SDG <u>8147</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>RSD1013-01</u>	Contract <u>PROJECT# IOA0131</u>
Received Date <u>01/06/05</u>	Matrix <u>WATER</u>

<u>Client</u>	<u>Lab</u>						
<u>Sample ID</u>	<u>Sample ID</u>	<u>Collected</u>	<u>Analyzed</u>	<u>Nuclide</u>	<u>Results ± 2σ</u>	<u>Units</u>	<u>MDA</u>
IOA0131-01	8147-001	01/05/05	01/22/05	GrossAlpha	-0.671 ± 1.0	pCi/L	1.99
			01/22/05	Gross Beta	2.37 ± 1.2	pCi/L	1.80
			01/26/05	H3	-125 ± 170	pCi/L	300
			01/14/05	Sr90	0.002 ± 0.22	pCi/L	0.446

Certified by <u><i>[Signature]</i></u>
Report Date <u>02/13/05</u>
Page 1

Eberline Services

QC RESULTS

SDG <u>8147</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R501013-01</u>	Contract <u>PROJECT# IOA0131</u>
Received Date <u>01/06/05</u>	Matrix <u>WATER</u>

Lab	Sample ID	Nuclide	Results	Units	Amount Added	MDA	Evaluation
<u>LCS</u>							
	8147-002	GrossAlpha	11.7 ± 1.3	pCi/Smpl	11.2	0.522	104% recovery
		Gross Beta	11.8 ± 0.84	pCi/Smpl	12.1	0.607	98% recovery
		H3	264 ± 18	pCi/Smpl	260	15.8	102% recovery
		Sr90	11.7 ± 0.57	pCi/Smpl	11.1	0.229	105% recovery
<u>BLANK</u>							
	8147-003	GrossAlpha	0.122 ± 0.23	pCi/Smpl	NA	0.411	<MDA
		Gross Beta	0.050 ± 0.34	pCi/Smpl	NA	0.577	<MDA
		H3	-3.80 ± 17	pCi/Smpl	NA	30.2	<MDA
		Sr90	-0.041 ± 0.12	pCi/Smpl	NA	0.243	<MDA

<u>DUPLICATES</u>			
Sample ID	Nuclide	Results ± 2σ	MDA
8147-004	GrossAlpha	1.13 ± 0.74	0.963
	Gross Beta	2.74 ± 1.1	1.71
	H3	-62.6 ± 170	299
	Sr90	0.058 ± 0.35	0.608

<u>ORIGINALS</u>			
Sample ID	Results ± 2σ	MDA	RPD (Tot) Eval
8147-001	-0.671 ± 1.0	1.99	200 212 satis.
	2.37 ± 1.2	1.80	14 101 satis.
	-125 ± 170	300	- 0 satis.
	0.002 ± 0.22	0.446	- 0 satis.

<u>SPIKED SAMPLE</u>			
Sample ID	Nuclide	Results ± 2σ	MDA
8147-005	GrossAlpha	76.1 ± 4.9	1.11
	Gross Beta	79.6 ± 3.6	1.75
	H3	18900 ± 610	311

<u>ORIGINAL SAMPLE</u>				
Sample ID	Results ± 2σ	MDA	Added	%Recv
8147-001	-0.671 ± 1.0	1.99	76.6	100
	2.37 ± 1.2	1.80	74.1	104
	-125 ± 170	300	19000	100

Certified by [Signature]  
 Report Date 02/13/05  
 Page 2



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 9484 Chesapeake Drive, Suite B05, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9688  
 9830 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) 798-3820 Fax (702) 798-3821

## SUBCONTRACT ORDER - PROJECT # IOA0131

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	Eberline Services - SUB 2030 Wright Avenue Richmond, CA 94804 Phone: (510) 235-2633 Fax: (510) 235-0438

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

Analysis	Expiration	Comments
<b>Sample ID: IOA0131-01 Water      Sampled: 01/05/05 11:30</b>		
Gross Alpha-O	01/05/06 11:30	Instant Notification 900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Gross Beta-O	01/05/06 11:30	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Level 4 Data Package - Out	02/02/05 11:30	**LEVEL IV QC, ACCESS 7 EDD**
Radium, Combined-O	01/05/06 11:30	HOLD for Gross Alpha/Beta result; EPA 903.1 & 904.0
Strontium 90-O	01/05/06 11:30	905.0
Tritium-O	01/05/06 11:30	906

**Containers Supplied:**  
 1 gal Poly (IOA0131-01X)

### 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]      1/5/05      10:00      [Signature]      1-06-05      10:00  
 Released By      Date      Time      Received By      Date      Time

Released By      Date      Time      Received By      Date      Time



RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: Del Mar City Irvine State CA

Date/Time received 1-06-05 10:00 CoC No. IOA 0131

Container I.D. No. Styrofoam in Card board Requested TAT (Days) 14 P.O. Received Yes [ ] No [ ]

INSPECTION

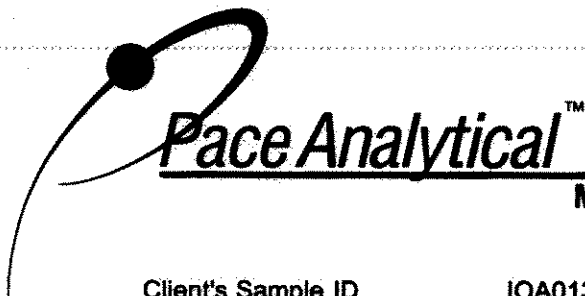
- 1. Custody seals on shipping container intact? Yes [ ] No [ ] N/A [X]
- 2. Custody seals on shipping container dated & signed? Yes [ ] No [ ] N/A [X]
- 3. Custody seals on sample containers intact? Yes [ ] No [ ] N/A [X]
- 4. Custody seals on sample containers dated & signed? Yes [ ] No [ ] N/A [X]
- 5. Packing material is: Wet [X] Dry [ ]
- 6. Number of samples in shipping container: 1 Sample Matrix Water
- 7. Number of containers per sample: 1 (Or see CoC 1)
- 8. Samples are in correct container Yes [X] No [ ]
- 9. Paperwork agrees with samples? Yes [ ] No [X]
- 10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
- 11. Samples are: in good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
- 12. Samples are: Preserved [ ] Not preserved [X] pH 7 Preservative \_\_\_\_\_
- 13. Describe any anomalies: Shipping container received wet. Styrofoam cooler broken, not reusable. No sample lost.  
Also CoC indicates samples collected in year 2006. F/K
- 14. Was P.M. notified of any anomalies? Yes [X] No [ ] Date 1-06-05
- 15. Inspected by F. J. Howard Date: 1-06-05 Time: 10:00

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_

Alpha Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_

Beta/Gamma Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_



### Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0131-01			
Lab Sample ID	105773001			
Filename	F50127B_03			
Injected By	MRO			
Total Amount Extracted	1040 mL	Matrix	Water	
% Moisture	NA	Dilution	NA	
Dry Weight Extracted	NA	Collected	01/05/2005	
ICAL Date	11/29/2004	Received	01/06/2005	
CCal Filename(s)	F50127A_13	Extracted	01/24/2005	
Method Blank ID	BLANK-6202	Analyzed	01/27/2005 22:36	

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	---	2.30	2,3,7,8-TCDF-13C	2.00	59
Total TCDF	ND	---	2.30	2,3,7,8-TCDD-13C	2.00	68
				1,2,3,7,8-PeCDF-13C	2.00	81
2,3,7,8-TCDD	ND	---	3.10	2,3,4,7,8-PeCDF-13C	2.00	77
Total TCDD	ND	---	3.10	1,2,3,7,8-PeCDD-13C	2.00	89
				1,2,3,4,7,8-HxCDF-13C	2.00	76
1,2,3,7,8-PeCDF	ND	---	2.60	1,2,3,6,7,8-HxCDF-13C	2.00	103
2,3,4,7,8-PeCDF	ND	---	1.20	2,3,4,6,7,8-HxCDF-13C	2.00	95
Total PeCDF	ND	---	1.90	1,2,3,7,8,9-HxCDF-13C	2.00	83
				1,2,3,4,7,8-HxCDD-13C	2.00	74
1,2,3,7,8-PeCDD	ND	---	1.50	1,2,3,6,7,8-HxCDD-13C	2.00	97
Total PeCDD	ND	---	1.50	1,2,3,4,6,7,8-HpCDF-13C	2.00	83
				1,2,3,4,7,8,9-HpCDF-13C	2.00	73
1,2,3,4,7,8-HxCDF	ND	---	1.30	1,2,3,4,6,7,8-HpCDD-13C	2.00	96
1,2,3,6,7,8-HxCDF	ND	---	1.10	OCDD-13C	4.00	92
2,3,4,6,7,8-HxCDF	ND	---	0.87			
1,2,3,7,8,9-HxCDF	ND	---	1.50	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	---	1.20	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	---	1.50	2,3,7,8-TCDD-37Cl4	0.20	64
1,2,3,6,7,8-HxCDD	ND	---	1.20			
1,2,3,7,8,9-HxCDD	ND	---	1.70			
Total HxCDD	ND	---	1.50			
1,2,3,4,6,7,8-HpCDF	2.1	---	1.90 J			
1,2,3,4,7,8,9-HpCDF	ND	---	2.90			
Total HpCDF	7.4	---	2.40 J			
1,2,3,4,6,7,8-HpCDD	7.1	---	2.20 BJ			
Total HpCDD	17.0	---	2.20 BJ			
OCDF	---	6.3	2.10 I			
OCDD	83.0	---	2.70 BJ			

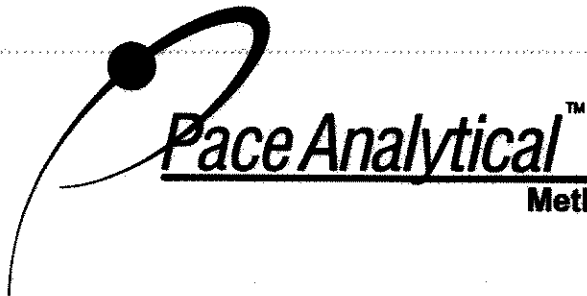
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....105773

## REPORT OF LABORATORY ANALYSIS

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### Method 1613B Blank Analysis Results

Client - Del Mar Analytical

Lab Sample ID	BLANK-6202	Matrix	Water
Filename	F50127A_06	Dilution	NA
Total Amount Extracted	982 mL	Extracted	01/24/2005
ICAL Date	11/29/2004	Analyzed	01/27/2005 14:13
CCal Filename(s)	F50127A_02	Injected By	MRO

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	4.7	2,3,7,8-TCDF-13C	2.00	33
Total TCDF	ND	----	----	2,3,7,8-TCDD-13C	2.00	45
				1,2,3,7,8-PeCDF-13C	2.00	68
2,3,7,8-TCDD	ND	----	5.1	2,3,4,7,8-PeCDF-13C	2.00	70
Total TCDD	ND	----	----	1,2,3,7,8-PeCDD-13C	2.00	81
				1,2,3,4,7,8-HxCDF-13C	2.00	75
1,2,3,7,8-PeCDF	ND	----	2.2	1,2,3,6,7,8-HxCDF-13C	2.00	95
2,3,4,7,8-PeCDF	ND	----	1.5	2,3,4,6,7,8-HxCDF-13C	2.00	98
Total PeCDF	ND	----	----	1,2,3,7,8,9-HxCDF-13C	2.00	85
				1,2,3,4,7,8-HxCDD-13C	2.00	78
1,2,3,7,8-PeCDD	ND	----	1.6	1,2,3,6,7,8-HxCDD-13C	2.00	94
Total PeCDD	ND	----	----	1,2,3,4,6,7,8-HpCDF-13C	2.00	85
				1,2,3,4,7,8,9-HpCDF-13C	2.00	78
1,2,3,4,7,8-HxCDF	ND	----	1.6	1,2,3,4,6,7,8-HpCDD-13C	2.00	99
1,2,3,6,7,8-HxCDF	ND	----	1.4	OCDD-13C	4.00	97
2,3,4,6,7,8-HxCDF	ND	----	1.1			
1,2,3,7,8,9-HxCDF	ND	----	1.6	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	----	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.6	2,3,7,8-TCDD-37Cl4	0.20	40
1,2,3,6,7,8-HxCDD	ND	----	1.2			
1,2,3,7,8,9-HxCDD	ND	----	1.7			
Total HxCDD	ND	----	----			
1,2,3,4,6,7,8-HpCDF	ND	----	1.5			
1,2,3,4,7,8,9-HpCDF	ND	----	1.4			
Total HpCDF	ND	----	----			
1,2,3,4,6,7,8-HpCDD	1.9	----	1.3 J			
Total HpCDD	1.9	----	---- J			
OCDF	8.3	----	1.9 J			
OCDD	26.0	----	2.3 J			

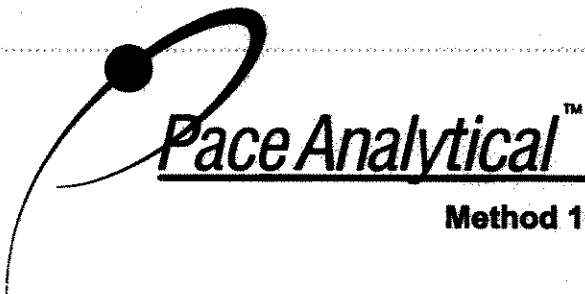
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 A = Limit of Detection based on signal to noise  
 P = Recovery outside of method 1613 control limits  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....105645

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCS-6203	Matrix	Water
Filename	F50127A_03	Dilution	NA
Total Amount Extracted	1030 mL	Extracted	01/24/2005
ICAL Date	11/29/2004	Analyzed	01/27/2005 11:44
CCal Filename	F50127A_02	Injected By	MRO
Method Blank ID	BLANK-6202		

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10.2	7.5	15.8	102
2,3,7,8-TCDD	10	9.0	6.7	15.8	90
1,2,3,7,8-PeCDF	50	50.1	40.0	67.0	100
2,3,4,7,8-PeCDF	50	48.4	34.0	80.0	97
1,2,3,7,8-PeCDD	50	43.4	35.0	71.0	87
1,2,3,4,7,8-HxCDF	50	44.8	36.0	67.0	90
1,2,3,6,7,8-HxCDF	50	48.0	42.0	65.0	96
2,3,4,6,7,8-HxCDF	50	48.6	35.0	78.0	97
1,2,3,7,8,9-HxCDF	50	46.4	39.0	65.0	93
1,2,3,4,7,8-HxCDD	50	50.0	35.0	82.0	100
1,2,3,6,7,8-HxCDD	50	51.7	38.0	67.0	103
1,2,3,7,8,9-HxCDD	50	48.5	32.0	81.0	97
1,2,3,4,6,7,8-HpCDF	50	51.4	41.0	61.0	103
1,2,3,4,7,8,9-HpCDF	50	52.3	39.0	69.0	105
1,2,3,4,6,7,8-HpCDD	50	43.4	35.0	70.0	87
OCDF	100	89.5	63.0	170.0	90
OCDD	100	96.9	78.0	144.0	97
2,3,7,8-TCDD-37Cl4	10	6.2	3.1	19.1	62
2,3,7,8-TCDF-13C	100	49.8	22.0	152.0	50
2,3,7,8-TCDD-13C	100	65.8	20.0	175.0	66
1,2,3,7,8-PeCDF-13C	100	75.7	21.0	192.0	76
2,3,4,7,8-PeCDF-13C	100	76.9	13.0	328.0	77
1,2,3,7,8-PeCDD-13C	100	93.4	21.0	227.0	93
1,2,3,4,7,8-HxCDF-13C	100	78.9	19.0	202.0	79
1,2,3,6,7,8-HxCDF-13C	100	89.8	21.0	159.0	90
2,3,4,6,7,8-HxCDF-13C	100	88.2	22.0	176.0	88
1,2,3,7,8,9-HxCDF-13C	100	81.5	17.0	205.0	81
1,2,3,4,7,8-HxCDD-13C	100	82.2	21.0	193.0	82
1,2,3,6,7,8-HxCDD-13C	100	95.2	25.0	163.0	95
1,2,3,4,6,7,8-HpCDF-13C	100	86.3	21.0	158.0	86
1,2,3,4,7,8,9-HpCDF-13C	100	75.6	20.0	186.0	76
1,2,3,4,6,7,8-HpCDD-13C	100	102.9	26.0	166.0	103
OCDD-13C	200	195.1	26.0	397.0	98

Cs = Concentration Spiked (ng/mL)

Cr = Concentration Recovered (ng/mL)

Rec. = Recovery (Expressed as Percent)

Control Limit Reference: Method 1613, Table 6, 10/94 Revision

X = Background subtracted value

P = Recovery outside of control limits

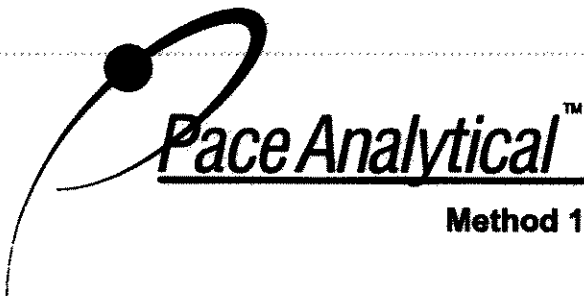
Nn = Value obtained from additional analysis

\* = See Discussion

Report No.....105645

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCSD-6204		
Filename	F50127A_04	Matrix	Water
Total Amount Extracted	1000 mL	Dilution	NA
ICAL Date	11/29/2004	Extracted	01/24/2005
CCal Filename	F50127A_02	Analyzed	01/27/2005 12:32
Method Blank ID	BLANK-6202	Injected By	MRO

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.9	7.5	15.8	99
2,3,7,8-TCDD	10	8.8	6.7	15.8	88
1,2,3,7,8-PeCDF	50	49.8	40.0	67.0	100
2,3,4,7,8-PeCDF	50	47.6	34.0	80.0	95
1,2,3,7,8-PeCDD	50	41.4	35.0	71.0	83
1,2,3,4,7,8-HxCDF	50	46.6	36.0	67.0	93
1,2,3,6,7,8-HxCDF	50	44.0	42.0	65.0	88
2,3,4,6,7,8-HxCDF	50	47.2	35.0	78.0	94
1,2,3,7,8,9-HxCDF	50	44.8	39.0	65.0	90
1,2,3,4,7,8-HxCDD	50	46.5	35.0	82.0	93
1,2,3,6,7,8-HxCDD	50	48.9	38.0	67.0	98
1,2,3,7,8,9-HxCDD	50	46.7	32.0	81.0	93
1,2,3,4,6,7,8-HpCDF	50	48.7	41.0	61.0	97
1,2,3,4,7,8,9-HpCDF	50	49.9	39.0	69.0	100
1,2,3,4,6,7,8-HpCDD	50	42.7	35.0	70.0	85
OCDF	100	84.8	63.0	170.0	85
OCDD	100	92.5	78.0	144.0	92
2,3,7,8-TCDD-37Cl4	10	7.5	3.1	19.1	75
2,3,7,8-TCDF-13C	100	65.7	22.0	152.0	66
2,3,7,8-TCDD-13C	100	83.8	20.0	175.0	84
1,2,3,7,8-PeCDF-13C	100	84.9	21.0	192.0	85
2,3,4,7,8-PeCDF-13C	100	85.6	13.0	328.0	86
1,2,3,7,8-PeCDD-13C	100	105.3	21.0	227.0	105
1,2,3,4,7,8-HxCDF-13C	100	82.6	19.0	202.0	83
1,2,3,6,7,8-HxCDF-13C	100	96.7	21.0	159.0	97
2,3,4,6,7,8-HxCDF-13C	100	92.3	22.0	176.0	92
1,2,3,7,8,9-HxCDF-13C	100	84.5	17.0	205.0	84
1,2,3,4,7,8-HxCDD-13C	100	81.9	21.0	193.0	82
1,2,3,6,7,8-HxCDD-13C	100	102.0	25.0	163.0	102
1,2,3,4,6,7,8-HpCDF-13C	100	90.1	21.0	158.0	90
1,2,3,4,7,8,9-HpCDF-13C	100	78.6	20.0	186.0	79
1,2,3,4,6,7,8-HpCDD-13C	100	106.1	26.0	166.0	106
OCDD-13C	200	196.4	26.0	397.0	98

Cs = Concentration Spiked (ng/mL)  
Cr = Concentration Recovered (ng/mL)  
Rec. = Recovery (Expressed as Percent)  
Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
X = Background subtracted value  
P = Recovery outside of control limits  
Nn = Value obtained from additional analysis  
\* = See Discussion

Report No.....105645

## REPORT OF LABORATORY ANALYSIS

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**SPIKE RECOVERY RELATIVE PERCENT DIFFERENCE (RPD) RESULTS**

Client..... Del Mar Analytical

SPIKE 1 ID..... LCS-6203  
SPIKE 1 Filename..... F50127A\_03  
SPIKE 2 ID..... LCSD-6204  
SPIKE 2 Filename..... F50127A\_04

COMPOUND	SPIKE 1 REC,%	SPIKE 2 REC,%	RPD,%
2378-TCDF	102	99	3.0
2378-TCDD	90	88	2.2
12378-PeCDF	100	100	0.0
23478-PeCDF	97	95	2.1
12378-PeCDD	87	83	4.7
123478-HxCDF	90	93	3.3
123678-HxCDF	96	88	8.7
234678-HxCDF	97	94	3.1
123789-HxCDF	93	90	3.3
123478-HxCDD	100	93	7.3
123678-HxCDD	103	98	5.0
123789-HxCDD	97	93	4.2
1234678-HpCDF	103	97	6.0
1234789-HpCDF	105	100	4.9
1234678-HpCDD	87	85	2.3
OCDF	90	85	5.7
OCDD	97	92	5.3

REC = Percent Recovered  
RPD = The difference between the two values divided by the average.  
NA = Not Applicable

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**TABLE 1. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans**

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

\*Excluding the 2,3,7,8-substituted congeners.

Reference: 1989 ITEFs

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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 # IOA0131 105773**

**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:**  
 Pace Analytical, MN- SUB  
 1700 Elm Street, Ste 200  
 Minneapolis, MN 55414  
 Phone : (612) 607-1700  
 Fax: (612) 607-6444

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

Analysis	Expiration	Comments
Sample ID: IOA0131-01 Water	Sampled: 01/05/05 11:30	Instant Notification
1613-Dioxin-HR	01/12/05 11:30	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	02/02/05 11:30	Excel EDD email to pm, Include Std logs for Lvl IV

105773001

**Containers Supplied:**  
 1 L Amber (IOA0131-01G)  
 1 L Amber (IOA0131-01H)

**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): 0.0

Released By: [Signature] Date: 1/5/05 Time: 1700 Received By: Bright Fleury Date: 1/6/05 Time: 9:25

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

January 12, 2005

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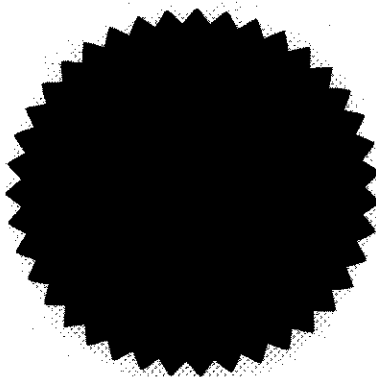
**Client:** Del Mar Analytical  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614  
**Attention:** Michele Harper

**Project Name:** IOA0131  
**Date Received:** 01/05/05

**Truesdail Project:** 938345  
**Sample Matrix:** Water / 1

## Samples Cross-reference

<u>Truesdail ID</u>	<u>Client ID</u>	<u>Date Sampled</u>	<u>Time Sampled</u>	<u>Analysis Requested</u>
938345-1	IOA0131-01	01/05/05	1130	Hydrazines by EPA 8315M



Respectfully Submitted,  
TRUESDAIL LABORATORIES, INC.

K.R.P. Iyer  
Quality Control/Quality Assurance Officer

Xuan Huong Dang  
Project Manager

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**Client:** Del Mar Analytical  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

**Attention:** Michele Harper

**Project Name:** IOA0131  
**Date Received:** 01/05/05

**Truesdail Project:** 938345  
**Sample Matrix:** Water / 1

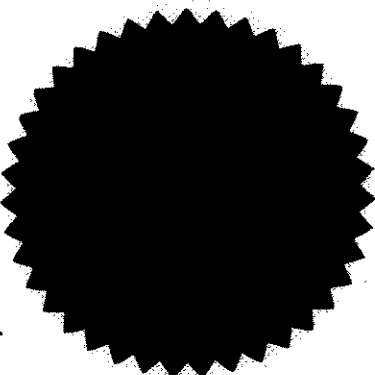
## Case Narrative

**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.



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



## REPORT

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**Client:** Del Mar Analytical-Alt.  
17461 Derian Ave.  
Irvine, CA 92614

**Attention:** Michele Harper  
**Sample:** Liquid / 1 Sample  
**Project Name:** IOA0131  
**P.O. Number:** IOA0131  
**Method Number:** 8315 (Modified)  
**Investigation:** Hydrazines in Liquid

**Laboratory No:** 938345  
**Report Date:** January 10, 2005  
**Sampling Date:** January 5, 2005  
**Receiving Date:** January 5, 2005  
**Extraction Date:** January 6, 2005  
**Analysis Date:** January 7, 2005  
**Units:** µg/L  
**Dilution Factor:** 1  
**Reported By:** RC

### Analytical Results

Sample ID	Sample Description	Monomethyl		Unsymmetrical Dimethyl		Hydrazine
		Hydrazine	ND	Hydrazine	ND	
704641-MB	Method Blank	ND	ND	ND	ND	ND
938345	IOA0131-01	ND	ND	ND	ND	ND
PQL		5.0	5.0	5.0	5.0	1.0
Sample Report Limits		5.0	5.0	5.0	5.0	1.0

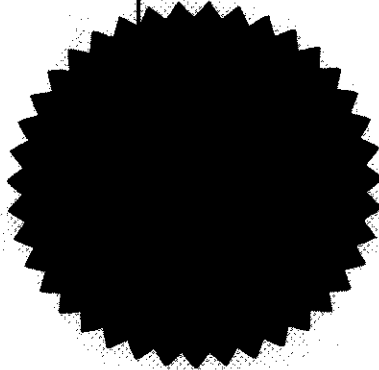
Page 1 of 1

PQL: Practical Quantitation Limit, µg/L

ND: Not Detected

N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.



Xuan Pang, 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.

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**Client:** Del Mar Analytical - Alt.  
17461 Dertian Ave.  
Irvine, CA 92614

**Client Contact:** Michele Harper  
**Sample:** Liquid / 1 Sample  
**Sample ID:** IOA0131  
**P.O. Number:** IOA0131  
**Method Number:** 9315 (Modified)  
**Run Batch No.:** Extraction: 2908; Analysis: 352  
**Investigation:** Hydrazines In Liquid

## REPORT

**QC Lab. No.:** 704641  
**Project Lab. No.:** 938345  
**Spiked Sample ID:** 938345  
**Report Date:** January 10, 2005  
**Sampling Date:** January 5, 2005  
**Receiving Date:** January 5, 2005  
**Extraction Date:** January 6, 2005  
**Analysis Date:** January 7, 2005  
**Units:** µg/L  
**Reported By:** RC

### Quality Control/Quality Assurance Calibration Report

#### ICV

Parameter	Theoretical Value (ug/L)	Measured Value (ug/L)	% Rec.	Control Limits	Flag
Monomethyl Hydrazine	25.0	24.9	99.8	85-115	PASS
u-Dimethyl Hydrazine	25.0	26.3	105	85-115	PASS
Hydrazine	5.0	5.08	102	85-115	PASS

#### QCS

Parameter	Theoretical Value (ug/L)	Measured Value (ug/L)	% Rec.	Control Limits	Flag
Monomethyl Hydrazine	50.0	50.9	102	85-115	PASS
u-Dimethyl Hydrazine	50.0	52.1	104	85-115	PASS
Hydrazine	10.0	11.0	110	85-115	PASS

### Quality Control/Quality Assurance Spikes Report

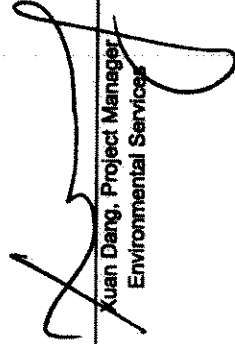
#### LCS/LCSD

Parameter	Spiked Conc.		Recovered Concentration		Percent Recovery (%)		LCS/LCSD		Control Limits		Flag
	ug/L	MSD	ug/L	MSD	LCS	LCSD	%D	%D	%D	%D	
Monomethyl Hydrazine	50.0	55.3	55.5	0.0	111	111	0.49%	PASS	20	70-130	
u-Dimethyl Hydrazine	50.0	54.1	54.2	0.0	108	108	0.11%	PASS	20	70-130	
Hydrazine	10.0	12.4	12.2	0.0	124	122	1.0%	PASS	20	70-130	

#### MS/MSD

Parameter	Spiked Conc.		Recovered Concentration		Percent Recovery (%)		MS/MSD		Control Limits	
	ug/L	MSD	ug/L	MSD	MS	MSD	%D	%D	%D	%D
Monomethyl Hydrazine	50.0	39.8	39.9	0.0	79.6	79.8	0.17%	PASS	20	0-150
u-Dimethyl Hydrazine	50.0	49.1	49.4	0.0	98.3	98.7	0.45%	PASS	20	0-150
Hydrazine	10.0	10.4	10.6	0.0	104	106	1.45%	PASS	20	0-150

ICV: Initial Calibration Verification  
CCV: Continued Calibration Verification  
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.

  
Juan 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

## 938345

### SUBCONTRACT ORDER - PROJECT # IOA0131

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) 505-9598 Fax (619) 505-9689

9530 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) 798-3620 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: IOA0131-01 Water	Sampled: 01/05/05 11:30	Instant Notification
Hydrazine-OUT	01/08/05 11:30	please sub to Truesdail for Monomethylhydrazine
Level 4 Data Package	02/02/05 11:30	
Containers Supplied: 1 L Amber (IOA0131-01T)		

Rec'd 01/05/05  
s14b 938345

**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: 1/5/05 Time: 13:00      Received By: *[Signature]* Date: 1/5/05 Time: 13:00  
 Released By: *[Signature]* Date: 1/5/05 Time: 13:15      Received By: *[Signature]* Date: 1/5/05 Time: 13:15





# Sample Integrity & Analysis Discrepancy Form

Client: Del Mar Analytical

Lab # 938345

Date Delivered: 01/05/05 Time: 13:15 By:  Mail  Field Service  Client

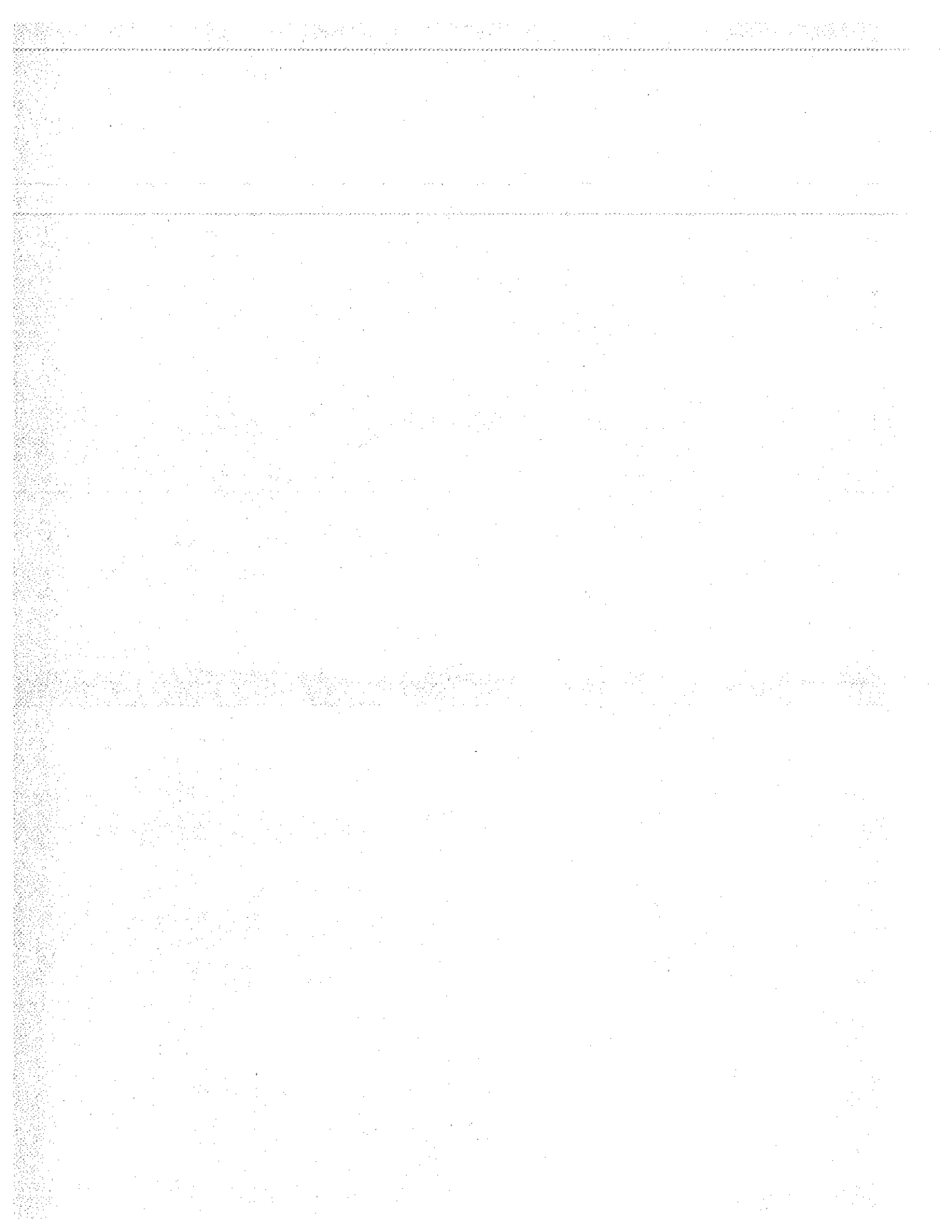
- 1. Was a Chain of Custody received and signed?  Yes  No  N/A
- 2. Does Customer require an acknowledgement of the COC?  Yes  No  N/A
- 3. Are there any special requirements or notes on the COC?  Yes  No  N/A
- 4. If a letter was sent with the COC, does it match the COC?  Yes  No  N/A
- 5. Were all 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  Std  Yes  No  N/A

**ALERT !!**  
**Level 1 QC**

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

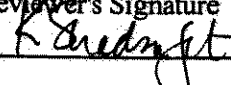


**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711DF22  
 Task Order 313150010  
 SDG No. Multiple  
 No. of Analyses 9

Laboratory Pace  
 Reviewer K. Shadowlight  
 Analysis/Method Dioxins

Date: February 18, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
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	* Method blank contamination
GC/MS Tune/Inst. Performance	* EMPCs
Calibration	* Detects below the lower method calibration level
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

## 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: 9  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: February 18, 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 (Pace)	Matrix	COC Method
Outfall 001	IOA0551-01	106124001	water	1613
Outfall 002	IOA0550-01	106130001	water	1613
Outfall 007	IOA0556-01	106128001	water	1613
Outfall 008	IOA0553-01	106126001	water	1613
Outfall 009	IOA0554-01	106131001	water	1613
Outfall 010	IOA0555-01	106127001	water	1613
Outfall 011	IOA0549-01	106132001	water	1613
Outfall 011	IOA0567-01	106135001	water	1613
Outfall 018	IOA0552-01	106125001	water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The samples were subcontracted to Pace Analytical for the dioxin/furan analyses. The samples in these SDGs were received at Pace Analytical Services within the temperature limits of 4°C ±2°C. The samples were received in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COCs and transfer COCs were signed by the appropriate field and laboratory personnel. The samples and analyses were accounted for on both the original COCs and transfer COCs. As the samples were couriered directly to the laboratory (Del Mar Analytical), custody seals were not required. There was no information regarding custody seals upon receipt at Pace. 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 column performance standard was combined with the daily calibration verification and analyzed at the beginning of each analytical sequence. The GC column performance was acceptable with the chromatographic separation of 2,3,7,8-TCDD and other TCDD isomers resolved with a valley of ≤25%. No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance could not be evaluated as the laboratory did not provide selected ion current profiles for the lock-mass ions. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

There was one initial calibration, analyzed 11/29/04 on Instrument 10MSHR05. The calibration consisted of five concentration level standards (CS1 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 2 native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in the Table 6 of the 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.

## 2.4 BLANKS

One method blank (Blank-6220) was extracted and analyzed with the samples in these SDGs. Target compounds total HpCDF, 1,2,3,4,6,7,8-HpCDF, total HpCDF, OCDF, and OCDD were reported in the method blank. Any detects for the aforementioned target compounds reported at concentrations  $< 5\times$  the concentrations reported in the method blank were qualified as estimated nondetects "UJ," at the levels of interference in the samples of these SDGs. 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 LCS/LCSD pair (LCS-6221/LCSD-6222) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of the Method 1613. There are no method QC limits established for RPDs. The reported RPDs were within  $\pm 20\%$ . No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy and precision was based on the LCS/LCSD 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 limit (MCL) were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." No further qualifications were required.

## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0549-01	Outfall oil
Lab Sample ID	106132001	
Filename	F50129B_14	
Injected By	BAL	
Total Amount Extracted	1030 mL	Matrix Water
% Moisture	NA	Dilution NA
Dry Weight Extracted	NA	Collected 01/11/2005
ICAL Date	11/29/2004	Received 01/13/2005
CCal Filename(s)	F50129B_02	Extracted 01/28/2005
Method Blank ID	BLANK-6220	Analyzed 01/30/2005 06:28

Qual Code	Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
u	2,3,7,8-TCDF	ND	----	0.79	2,3,7,8-TCDF-13C	2.00	67
u	Total TCDF	ND	----	0.79	2,3,7,8-TCDD-13C	2.00	84
u	2,3,7,8-TCDD	ND	----	0.70	1,2,3,7,8-PeCDF-13C	2.00	73
u	Total TCDD	ND	----	0.70	2,3,4,7,8-PeCDF-13C	2.00	76
u	1,2,3,7,8-PeCDF	ND	----	0.80	1,2,3,7,8-PeCDD-13C	2.00	91
u	2,3,4,7,8-PeCDF	ND	----	0.53	1,2,3,4,7,8-HxCDF-13C	2.00	77
u	Total PeCDF	ND	----	0.66	1,2,3,6,7,8-HxCDF-13C	2.00	86
u	1,2,3,7,8-PeCDD	ND	----	0.72	2,3,4,6,7,8-HxCDF-13C	2.00	81
u	Total PeCDD	ND	----	0.72	1,2,3,7,8,9-HxCDF-13C	2.00	78
u	1,2,3,4,7,8-HxCDF	ND	----	0.44	1,2,3,4,7,8-HxCDD-13C	2.00	72
u	1,2,3,6,7,8-HxCDF	ND	----	0.46	1,2,3,6,7,8-HxCDD-13C	2.00	91
u	2,3,4,6,7,8-HxCDF	ND	----	0.55	1,2,3,4,6,7,8-HpCDF-13C	2.00	80
u	1,2,3,7,8,9-HxCDF	ND	----	0.66	1,2,3,4,7,8,9-HpCDF-13C	2.00	68
u	Total HxCDF	ND	----	0.53	1,2,3,4,6,7,8-HpCDD-13C	2.00	87
u	1,2,3,4,7,8-HxCDD	ND	----	0.51	OCDD-13C	4.00	76
u	1,2,3,6,7,8-HxCDD	ND	----	0.50	1,2,3,4-TCDD-13C	2.00	NA
u	1,2,3,7,8,9-HxCDD	ND	----	0.75	1,2,3,7,8,9-HxCDD-13C	2.00	NA
u	Total HxCDD	2.0	----	0.59 J	2,3,7,8-TCDD-37Cl4	0.20	81
J	1,2,3,4,6,7,8-HpCDF	2.4	----	0.77 J			
J	1,2,3,4,7,8,9-HpCDF	ND	----	1.10			
US	Total HpCDF	9.4	----	0.95 BJ			
US	1,2,3,4,6,7,8-HpCDD	7.7	----	0.97 BJ			
S	Total HpCDD	18.0	----	0.97 BJ			
US	OCDF	9.1	----	1.30 BJ			
J	OCDD	81.0	----	1.70 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
D = Result obtained from analysis of diluted sample  
B = Less than 10 times higher than method blank level  
P = Recovery outside of method 1613 control limits  
J = Concentration detected is below the calibration range  
Nn = Value obtained from additional analysis

I = Interference  
E = PCDE Interference  
ND = Not Detected  
NA = Not Applicable  
NC = Not Calculated  
\* = See Discussion

Report No.....106132

ANEC VALIDATED  
LEVEL III

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc.

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711HZ4  
 Task Order 313150010  
 SDG No. IOA0549

No. of Analyses 1  
 Date: 03/09/05  
 Reviewer's Signature P. Meeks

Laboratory Truesdail  
 Reviewer P. Meeks  
 Analysis/Method Metals

<b>ACTION ITEMS<sup>a</sup></b>	
<b>1. Case Narrative Deficiencies</b>	
<b>2. Out of Scope Analyses</b>	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy Deliverables</b>	
<b>5. Incorrect Hardcopy Deliverables</b>	
<b>6. Deviations from Analysis Protocol, e.g.,</b>	
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<sup>b</sup>**      Acceptable as reviewed.

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



# DATA VALIDATION REPORT

NPDES  
Monitoring

ANALYSIS: HYDRAZINES

SAMPLE DELIVERY GROUP: IOA0549

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 #: IOA0549  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Hydrazines  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: March 09, 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.

**Table 1. Sample identification**

EPA ID	Del Mar ID	Laboratory ID	Matrix	COC Method
Outfall 011 Grab	IOA0549-01	938566	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 sample in this SDG was 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 this SDG noted that the sample was received intact at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC from the field to Del Mar was signed and dated by field and laboratory personnel, and the transfer COC from Del Mar to Truesdail Laboratories was signed and dated by personnel from both laboratories. Both the original COC and transfer COCs requested only monomethyl hydrazine analysis; however, unsymmetrical dimethyl hydrazine and hydrazine were also reported. As the sample was transported to Del Mar and then to Truesdail by courier, no custody seals were required. Truesdail Laboratories did not list the Outfall 011 ID on the Form I; therefore, the reviewer hand-corrected the Form I to include this information. 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 three-day extraction holding time for the hydrazine analysis was met and the sample was analyzed within three days of extraction. No qualifications were required.

### 2.2 CALIBRATION

The five-point initial calibrations were analyzed 01/13/05, with correlation coefficients of  $\geq 0.995$  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 this SDG. 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 this SDG. The hydrazines were recovered within the laboratory-established control limits of 70%-130%, and the RPD was 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 the Outfall 011. The recoveries for the hydrazines were within the laboratory QC limits of 0-150%; however, both recoveries were  $\geq 10\%$ . The RPDs were within the QC 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 sample. Following are findings associated with field QC samples:

### 2.7.1 Field Blanks and Equipment Rinsates

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

### 2.7.2 Field Duplicates

There were no field duplicate samples in this SDG.

## 2.8 COMPOUND IDENTIFICATION

The sample was 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.



# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



## REPORT

Established 1931

14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008  
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

**Client:** Del Mar Analytical-Alt.  
17461 Derian Ave.  
Irvine, CA 92614

**Attention:** Michele Harper  
**Sample:** Liquid / 1 Sample  
**Project Name:** IOA0549  
**P.O. Number:** IOA0549  
**Method Number:** 8315 (Modified)  
**Investigation:** Hydrazines in Liquid

**Laboratory No.:** 938566  
**Report Date:** January 14, 2005  
**Sampling Date:** January 11, 2005  
**Receiving Date:** January 12, 2005  
**Extraction Date:** January 12, 2005  
**Analysis Date:** January 13, 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	Hydrazine	Hydrazine	Hydrazine	
704660-MB	Method Blank	ND	*	ND	*	ND
938566	IOA0549-01 Cutoff	ND	U	ND	U	ND
PQL		5.0		5.0		1.0
Sample Report Limits		5.0		5.0		1.0

\* Analysis not validated

PQL: Practical Quantitation Limit, ug/L *PM 3/10/05*  
ND: Not Detected  
N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.

*[Signature]*  
Xuan Dang, Project Manager  
Environmental Services

# LEVELLIV

## 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.

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711MT40  
 Task Order 313150010  
 SDG No. IOA0549, IOA0552  
 No. of Analyses 2

Laboratory Del Mar

Date: 03/10/05

Reviewer P. Meeks

Reviewer's Signature 

Analysis/Method Metals

**ACTION ITEMS\***

<b>1. Case Narrative Deficiencies</b>	
<b>2. Out of Scope Analyses</b>	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy Deliverables</b>	
<b>5. Incorrect Hardcopy Deliverables</b>	
<b>6. Deviations from Analysis Protocol, e.g.,</b>  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	<b>Qualifications were applied for:</b> 1. Detects in the associated blanks 2. Reporting limit standard recovery outliers 3. Analytes detected below the reporting limit 4. Antimony result raised to level of bracketing CCB results

**COMMENTS\***

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



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: IOA0549 & IOA0552

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#: IOA0549, IOA0552  
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 10, 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.: IOA0549, 0552  
Analysis: MET

**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011 Grab	Outfall 011 Grab	IOA0549-01	water	ILM04
Outfall 018	Outfall 018	IOA0552-01	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 COC for Outfall 011 Grab requested only a few of the presented analytes. The remaining analytes were requested in a memo from MWH personnel dated 03/01/05. The COC for Outfall 018 accounted for the sample and the analytes reported. 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 and ICP 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 and ICP/MS and 80-120% for mercury. The beryllium and nickel reporting limit check standard recoveries were above the control limit; therefore, beryllium and nickel detected in Outfall 011 Grab were qualified as estimated, "J." Thallium and antimony were not recovered in the 0.1 and 0.2 ppb reporting limit check standards, respectively; therefore, nondetected antimony in Outfall 011 Grab was qualified as estimated, "UJ," and thallium detected in Outfall 011 Grab was qualified as estimated, "J." 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

There were detects reported for the method blanks and bracketing ICBs/CCBs associated with the samples in these SDGs. Selenium and silver were detected in bracketing CCBs at 0.672 and 0.102  $\mu\text{g/L}$ , respectively; therefore, selenium and silver detected in Outfall 011 Grab were qualified as estimated, "UJ." Chromium was detected in the method blank (5A14051-BLK1) at 0.434  $\mu\text{g/L}$ ; therefore, chromium detected in Outfall 011 Grab was qualified as estimated, "UJ."

Antimony was detected in both bracketing CCBs at approximately 0.800  $\mu\text{g/L}$ . The CCB detects combined with the laboratory's inability to recover antimony in the 0.2 ppb reporting limit check standard indicated the laboratory could not detect antimony at the level reported in the CCBs. The reviewer, therefore, raised the MDL for antimony to the level reported in the CCBs, 0.80  $\mu\text{g/L}$ . 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 boron analysis, but were not run on the day Outfall 011 Grab was analyzed. The recoveries for the interferents and boron were within the control limits of 80-120%.

ICSA and ICSAB analyses were included in the raw data for three of the four ICP-MS analytical runs. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride and lead was not spiked into the ICSAB solution. The results for potassium were above the calibration range of the instrument in all of the ICSA and ICSAB analyses and the results for sodium were above the calibration range in one of the ICSA/ICSAB pairs. Positive results, greater than the applicable reporting limits were reported for manganese and cobalt. The validator reviewed the raw data for the site sample ICP/MS analysis 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 qualifications were required.

## 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS samples were identified as 5A14051-BS1 and 5A12054-BS1. The ICP LCS sample was identified as 5A14046-BS1 and the Hg LCS sample was identified as 5A12047-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS, ICP, and Hg control limits of 85-115%. No qualifications were required.

## 2.7 LABORATORY DUPLICATES

The MS/MSD analyses were performed on Outfall 011 Grab for antimony, cadmium, copper, lead, nickel, and zinc only. The RPDs were less than the control limit of 20% and no qualifications were required.

## 2.8 MATRIX SPIKE

The MS/MSD analyses were performed on Outfall 011 Grab for antimony, cadmium, copper, lead, nickel, and zinc only. The recoveries were within the AMEC control limits of 75-125% and 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 and 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.



**DATA VALIDATION REPORT**

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Project: NPDES  
SDG No.: IOA0549, 0552  
Analysis: MET

**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: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5A12054	0.18	2.0	<del>0.35</del> 0.80	1	01/12/05	01/12/05	U J B, #3, J
Arsenic	EPA 200.8	5A14051	0.49	1.0	1.6	1	01/14/05	01/18/05	J J #3, DN
Beryllium	EPA 200.8	5A14051	0.037	0.50	0.063	1	01/14/05	01/18/05	J J DNQ
Cadmium	EPA 200.8	5A12054	0.015	1.0	0.14	1	01/12/05	01/12/05	U J B B
Chromium	EPA 200.8	5A14051	0.26	1.0	1.8	1	01/14/05	01/18/05	J J DNQ
Cobalt	EPA 200.8	5A14051	0.10	1.0	0.71	1	01/14/05	01/14/05	J J DNQ
Copper	EPA 200.8	5A12054	0.49	2.0	4.2	1	01/12/05	01/12/05	
Lead	EPA 200.8	5A12054	0.13	1.0	1.0	1	01/12/05	01/12/05	
Manganese	EPA 200.8	5A14051	0.44	1.0	16	1	01/14/05	01/14/05	
Mercury	EPA 245.1	5A12047	0.063	0.20	0.13	1	01/12/05	01/12/05	J J DNQ
Nickel	EPA 200.8	5A12054	0.15	1.0	2.3	1	01/12/05	01/12/05	J #3
Selenium	EPA 200.8	5A14051	0.36	2.0	0.90	1	01/14/05	01/14/05	U J J B
Silver	EPA 200.8	5A14051	0.089	1.0	0.26	1	01/14/05	01/14/05	U J J B
Thallium	EPA 200.8	5A14051	0.075	1.0	0.90	1	01/14/05	01/16/05	J J #3, D
Vanadium	EPA 200.8	5A14051	0.85	1.0	3.4	1	01/14/05	01/14/05	
Zinc	EPA 200.8	5A12054	3.1	20	18	1	01/12/05	01/12/05	J J DNQ

PM 3/10/05

**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)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont. Reporting Units: mg/l									
Barium	EPA 200.8	5A14051	0.00014	0.0010	0.019	1	01/14/05	01/14/05	Raw Qual
Boron	EPA 200.7	5A14046	0.0074	0.050	0.065	1	01/14/05	01/14/05	Qual Code
Iron	EPA 200.8	5A14051	0.0032	0.010	0.98	1	01/14/05	01/14/05	

# 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 T711PP15  
 Task Order 313150010  
 SDG No. IOA0549, IOA0552

No. of Analyses 2

Laboratory Del Mar Analytical

Date: March 10, 2005

Reviewer L. Calvin

Reviewer's Signature  


Analysis/Method Pesticides/PCBs by Method 608

ACTION ITEMS <sup>a</sup>	
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	Qualification was assigned for the following: --continuing calibration %D >15% --surrogate recoveries below the QC limits
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOA0549, IOA0552

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#: IOA0549, IOA0552  
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: March 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	Outfall 011	IOA0549-01	water	608
Outfall 018	Outfall 018	IOA0552-01	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 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 COC for Outfall 018 accounted for the analysis presented in this SDG. The Method 608 analysis for Outfall 011 was not listed on the COC; however, the analysis was requested in a memo dated 03/01/05 from MWH 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 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  $\pm 0.10$  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 were two initial calibrations dated 10/26/04 and 12/29/04 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  $\leq 10\%$  on both analytical columns. There was one initial calibration dated 01/03/05 associated with the PCB analysis of sample Outfall 011, consisting of five points for Arochlor 1016 and Arochlor 1260. Single point calibrations for Arochlor 1242, Arochlor 1248, and Arochlor 1254 were also analyzed. The average %RSDs for the individual peaks of Arochlor 1016 and Arochlor 1260 were  $\leq 10\%$  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

The pesticide analysis of sample Outfall 011 was bracketed by three continuing calibrations, one preceding and two following the analysis. In one of the bracketing calibrations following the sample analysis, the %D exceeded 15% on channel A for beta-bhc. As all results for this sample were reported from channel A, the nondetect result for beta-bhc was qualified as estimated, "UJ," in sample Outfall 011. The %Ds were within the Method QC limit of  $\pm 15\%$  for the remaining calibrations. The PCB analysis of this sample was bracketed by two CCVs and the %Ds for Arochlor 1016 and Arochlor 1260 were  $\leq 15\%$ .

The pesticide analysis of sample Outfall 018 was bracketed by three continuing calibrations. In two of the bracketing calibrations following the sample analysis, the %D exceeded 15% on channel A for alpha-bhc. As results were reported from channel B, no qualifications were assigned.

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 (5A13049-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 (5A13049-BS1/BSD1) 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 pesticide and PCB analyses of sample Outfall 011 were within the laboratory-established QC limits. Both surrogates were recovered below the QC limits but  $\geq 10\%$  in Outfall 018. A notation on the extraction benchsheet and in the raw data indicated an emulsion that may have affected surrogate recoveries. The result for alpha-bhc in sample Outfall 018 was qualified as estimated, "UJ." 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; however, as there were no detects reported in the samples, quantitation was verified by recalculating 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. 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)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5A13049	0.029	0.10	ND	0.962	01/13/05	01/13/05	vel qual code
alpha-BHC	EPA 608	5A13049	0.010	0.10	ND	0.962	01/13/05	01/13/05	u
beta-BHC	EPA 608	5A13049	0.011	0.10	ND	0.962	01/13/05	01/13/05	u
delta-BHC	EPA 608	5A13049	0.010	0.20	ND	0.962	01/13/05	01/13/05	u
gamma-BHC (Lindane)	EPA 608	5A13049	0.0097	0.10	ND	0.962	01/13/05	01/13/05	u
Chlordane	EPA 608	5A13049	0.18	1.0	ND	0.962	01/13/05	01/13/05	u
4,4'-DDD	EPA 608	5A13049	0.011	0.10	ND	0.962	01/13/05	01/13/05	u
4,4'-DDE	EPA 608	5A13049	0.017	0.10	ND	0.962	01/13/05	01/13/05	u
4,4'-DDT	EPA 608	5A13049	0.015	0.10	ND	0.962	01/13/05	01/13/05	u
Dieldrin	EPA 608	5A13049	0.010	0.10	ND	0.962	01/13/05	01/13/05	u
Endosulfan I	EPA 608	5A13049	0.015	0.10	ND	0.962	01/13/05	01/13/05	u
Endosulfan II	EPA 608	5A13049	0.037	0.10	ND	0.962	01/13/05	01/13/05	u
Endosulfan sulfate	EPA 608	5A13049	0.013	0.20	ND	0.962	01/13/05	01/13/05	u
Endrin	EPA 608	5A13049	0.0082	0.10	ND	0.962	01/13/05	01/13/05	u
Endrin aldehyde	EPA 608	5A13049	0.045	0.10	ND	0.962	01/13/05	01/13/05	u
Endrin ketone	EPA 608	5A13049	0.020	0.10	ND	0.962	01/13/05	01/13/05	u
Heptachlor	EPA 608	5A13049	0.030	0.10	ND	0.962	01/13/05	01/13/05	u
Heptachlor epoxide	EPA 608	5A13049	0.012	0.10	ND	0.962	01/13/05	01/13/05	u
Methoxychlor	EPA 608	5A13049	0.034	0.10	ND	0.962	01/13/05	01/13/05	u
Toxaphene	EPA 608	5A13049	0.77	5.0	ND	0.962	01/13/05	01/13/05	u
Surrogate: Tetrachloro-m-xylene (35-120%)									53 %
Surrogate: Decachlorobiphenyl (45-120%)									68 %

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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: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	0.962	01/13/05	01/14/05	<i>see qual code</i> u ↓
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	0.962	01/13/05	01/14/05	
Surrogate: Decachlorobiphenyl (45-120%)					70 %				

**AMEC VALIDATED**  
**LEVEL IV**

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**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

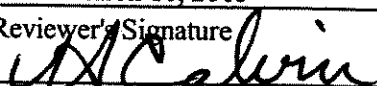
AMEC Earth & Environmental  
 550 South Wadsworth Boulevard  
 Suite 500  
 Lakewood, CO 80226

Package ID T711SV30  
 Task Order 313150010  
 SDG No. IOA0549, IOA0552  
 No. of Analyses 2

Laboratory Del Mar Analytical.

Reviewer L. Calvin

Analysis/Method Semivolatiles by Method 625

Date: March 10, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
1. Case Narrative Deficiencies	
2. Out of Scope Analyses	
3. Analyses Not Conducted	
4. Missing Hardcopy Deliverables	
5. Incorrect Hardcopy Deliverables	
6. Deviations from Analysis Protocol, e.g.,	Qualification was assigned for the following:
Holding Times	--initial calibration $r^2 < 0.995$
GC/MS Tune/Inst. Performance	--continuing calibration %D > 20%
Calibration	--method blank contamination
Method blanks	--BS/BSD recoveries below the QC limits and RPDs above the QC limits
Surrogates	--surrogates spiked below a recoverable level
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification	
Quantitation	
System Performance	

COMMENTS <sup>b</sup>

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOA0549, IOA0552

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#: IOA0549, IOA0552  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Semivolatiles  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: March 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	Outfall 011	IOA0549-01	water	625
Outfall 011	Outfall 018	IOA0552-01	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 COC for Outfall 018 accounted for the analysis presented in this SDG. The Method 625 analysis for Outfall 011 was not listed on the COC; however, the analysis was requested in a memo dated 03/01/05 from MWH 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 extracted within seven days of collection and analyzed within 40 days of extraction. No qualifications were required.

### 2.2 GC/MS TUNING

The DFTPP tune 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 these SDGs was dated 01/10/05. The average RRFs for were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  or  $r^2 \geq 0.995$  for all target compounds, with the exception of the  $r^2$  for 2,4-dinitrophenol. The nondetect result for 2,4-dinitrophenol was qualified as estimated, "UJ," in sample Outfall 011. The continuing calibration associated with the sample analyses was analyzed 01/17/05. The RRFs for all target compounds were  $\geq 0.05$ , and the %Ds were  $\leq 20\%$ , with the exception of the %D for 2,4-dinitrophenol. The nondetect result for 2,4-dinitrophenol was qualified as estimated, "UJ," in sample Outfall 011. A representative number of average RRFs, %RSDs, and  $r^2$ s for the initial calibration and RRFs and %Ds for the continuing calibration were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.4 BLANKS

One method blank (5A12027-BLK1) was extracted and analyzed with these SDGs. There were detects below the reporting limits for 2-methylnaphthalene, di-n-butylphthalate, butylbenzylphthalate, and bis(2-ethylhexyl)phthalate. The sample detect for 2-methylnaphthalene was less than five times the method blank concentration and was therefore qualified as a nondetect,

"U," at the reporting limit. There were no sample detects for the remaining compounds detected in the method blank. Review of the raw data indicated no reportable false positives or false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5A12027-BS1/BSD1) was extracted and analyzed with these SDGs. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary, to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ" for nondetects and "J" for detects, in the associated samples.

In both 5A12027-BS1 and 5A12027-BSD1, benzidine was not recovered and 3,3'-dichlorobenzidine was recovered below the QC limits but  $\geq 10\%$ . The RPDs for aniline, 4-chloroaniline, 3,3'-dichlorobenzidine, 2-methylnaphthalene, and naphthalene exceeded the laboratory QC limits. The nondetect sample result for benzidine was rejected, "R," the nondetect result for 3,3'-dichlorobenzidine was qualified as estimated, "UJ," and the results for the RPD outliers were qualified as estimated, "UJ" or "J," in sample Outfall 011. Spiked compounds 2-methylnaphthalene and naphthalene were recovered above the QC limits in 5A12027-BS1 only, and hexachlorobutadiene in 5A12027-BS1 only and 4-chloroaniline in 5A12027-BSD1 only were recovered below the QC limits but  $\geq 10\%$ . None of the aforementioned outliers were requested target compounds for sample Outfall 018. The remaining 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 further qualifications were required.

## 2.6 SURROGATE RECOVERY

The sample surrogate recoveries for sample Outfall 011 were within the laboratory QC limits. The case narrative for this SDG noted that the low-level preparation of sample Outfall 018 and the subsequent standard level analysis resulted in surrogate concentrations falling below the low calibration standard. The narrative further noted that even low-level analysis would have required dilution for matrix interference that would have diluted out the surrogates. As extraction efficiency could not be verified based on surrogate recoveries for sample Outfall 018, all results were qualified as estimated nondetects, "UJ." A representative number of 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

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.

## **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  $\pm 30$  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 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. The reporting limits were not adjusted for sample amount; however, the dilution factors on the sample result summaries reflected the sample amount extracted. Results were reported in  $\mu\text{g/L}$  (ppb). Compounds reported below the reporting limit but above the MDL were qualified as estimated, "J." No further 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)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

### 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: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont. Reporting Units: ug/l									
Acenaphthene	EPA 625	5A12027	0.10	0.50	ND	0.943	01/12/05	01/18/05	u
Acenaphthylene	EPA 625	5A12027	0.10	0.50	ND	0.943	01/12/05	01/18/05	u
Aniline	EPA 625	5A12027	2.9	10	ND	0.943	01/12/05	01/18/05	u
Anthracene	EPA 625	5A12027	0.083	0.50	ND	0.943	01/12/05	01/18/05	u
Benzidine	EPA 625	5A12027	2.4	5.0	ND	0.943	01/12/05	01/18/05	R
Benzoic acid	EPA 625	5A12027	3.7	20	ND	0.943	01/12/05	01/18/05	u
Benzo(a)anthracene	EPA 625	5A12027	0.038	5.0	ND	0.943	01/12/05	01/18/05	u
Benzo(a)pyrene	EPA 625	5A12027	0.14	2.0	ND	0.943	01/12/05	01/18/05	u
Benzo(b)fluoranthene	EPA 625	5A12027	0.050	2.0	ND	0.943	01/12/05	01/18/05	u
Benzo(g,h,i)perylene	EPA 625	5A12027	0.059	5.0	ND	0.943	01/12/05	01/18/05	u
Benzo(k)fluoranthene	EPA 625	5A12027	0.053	0.50	ND	0.943	01/12/05	01/18/05	u
Benzyl alcohol	EPA 625	5A12027	0.21	5.0	ND	0.943	01/12/05	01/18/05	u
Bis(2-chloroethoxy)methane	EPA 625	5A12027	0.072	0.50	ND	0.943	01/12/05	01/18/05	u
Bis(2-chloroethyl)ether	EPA 625	5A12027	0.084	0.50	ND	0.943	01/12/05	01/18/05	u
Bis(2-chloroisopropyl)ether	EPA 625	5A12027	0.11	0.50	ND	0.943	01/12/05	01/18/05	u
Bis(2-ethylhexyl)phthalate	EPA 625	5A12027	1.1	5.0	ND	0.943	01/12/05	01/18/05	u
4-Bromophenyl phenyl ether	EPA 625	5A12027	0.12	1.0	ND	0.943	01/12/05	01/18/05	u
Butyl benzyl phthalate	EPA 625	5A12027	0.34	5.0	ND	0.943	01/12/05	01/18/05	u
4-Chloroaniline	EPA 625	5A12027	0.20	2.0	ND	0.943	01/12/05	01/18/05	u
2-Chloronaphthalene	EPA 625	5A12027	0.059	0.50	ND	0.943	01/12/05	01/18/05	u
4-Chloro-3-methylphenol	EPA 625	5A12027	0.34	2.0	ND	0.943	01/12/05	01/18/05	u
4-Chlorophenyl phenyl ether	EPA 625	5A12027	0.056	0.50	ND	0.943	01/12/05	01/18/05	u
2-Chlorophenol	EPA 625	5A12027	0.12	1.0	ND	0.943	01/12/05	01/18/05	u
Chrysene	EPA 625	5A12027	0.072	0.50	ND	0.943	01/12/05	01/18/05	u
Dibenz(a,h)anthracene	EPA 625	5A12027	0.083	0.50	ND	0.943	01/12/05	01/18/05	u
Dibenzofuran	EPA 625	5A12027	0.075	0.50	ND	0.943	01/12/05	01/18/05	u
Di-n-butyl phthalate	EPA 625	5A12027	0.26	2.0	ND	0.943	01/12/05	01/18/05	u
1,2-Dichlorobenzene	EPA 625	5A12027	0.11	0.50	ND	0.943	01/12/05	01/18/05	u
1,3-Dichlorobenzene	EPA 625	5A12027	0.13	0.50	ND	0.943	01/12/05	01/18/05	u
1,4-Dichlorobenzene	EPA 625	5A12027	0.050	0.50	ND	0.943	01/12/05	01/18/05	u
3,3-Dichlorobenzidine	EPA 625	5A12027	0.93	5.0	ND	0.943	01/12/05	01/18/05	u
2,4-Dichlorophenol	EPA 625	5A12027	0.21	2.0	ND	0.943	01/12/05	01/18/05	u
Diethyl phthalate	EPA 625	5A12027	0.12	1.0	ND	0.943	01/12/05	01/18/05	u
2,4-Dimethylphenol	EPA 625	5A12027	0.31	2.0	ND	0.943	01/12/05	01/18/05	u
Dimethyl phthalate	EPA 625	5A12027	0.081	0.50	ND	0.943	01/12/05	01/18/05	u
4,6-Dinitro-2-methylphenol	EPA 625	5A12027	0.38	5.0	ND	0.943	01/12/05	01/18/05	u
2,4-Dinitrophenol	EPA 625	5A12027	2.7	5.0	ND	0.943	01/12/05	01/18/05	u
2,4-Dinitrotoluene	EPA 625	5A12027	0.23	5.0	ND	0.943	01/12/05	01/18/05	u
2,6-Dinitrotoluene	EPA 625	5A12027	0.24	5.0	ND	0.943	01/12/05	01/18/05	u
Di-n-octyl phthalate	EPA 625	5A12027	0.17	5.0	ND	0.943	01/12/05	01/18/05	u
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A12027	0.087	1.0	ND	0.943	01/12/05	01/18/05	u

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

Project ID: 13267 (Study 1)  
Routine Outfall 011 - Grab  
Report Number: IOA0549

Sampled: 01/11/05  
Received: 01/11/05

## 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: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.									
Reporting Units: ug/l									
Fluoranthene	EPA 625	5A12027	0.089	0.50	ND	0.943	01/12/05	01/18/05	see qual
Fluorene	EPA 625	5A12027	0.075	0.50	ND	0.943	01/12/05	01/18/05	qual Decide
Hexachlorobenzene	EPA 625	5A12027	0.13	1.0	ND	0.943	01/12/05	01/18/05	
Hexachlorobutadiene	EPA 625	5A12027	0.38	2.0	ND	0.943	01/12/05	01/18/05	
Hexachlorocyclopentadiene	EPA 625	5A12027	1.8	5.0	ND	0.943	01/12/05	01/18/05	L2
Hexachloroethane	EPA 625	5A12027	0.51	3.0	ND	0.943	01/12/05	01/18/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5A12027	0.19	2.0	ND	0.943	01/12/05	01/18/05	
Isophorone	EPA 625	5A12027	0.059	1.0	ND	0.943	01/12/05	01/18/05	
2-Methylnaphthalene	EPA 625	5A12027	0.13	1.0	ND	0.943	01/12/05	01/18/05	
2-Methylphenol	EPA 625	5A12027	0.28	2.0	ND	0.943	01/12/05	01/18/05	see qual
4-Methylphenol	EPA 625	5A12027	0.20	5.0	ND	0.943	01/12/05	01/18/05	L. JB*
Naphthalene	EPA 625	5A12027	0.13	1.0	0.21	0.943	01/12/05	01/18/05	L. JDN*
2-Nitroaniline	EPA 625	5A12027	0.18	5.0	ND	0.943	01/12/05	01/18/05	
3-Nitroaniline	EPA 625	5A12027	0.35	5.0	ND	0.943	01/12/05	01/18/05	
4-Nitroaniline	EPA 625	5A12027	0.49	5.0	ND	0.943	01/12/05	01/18/05	
Nitrobenzene	EPA 625	5A12027	0.10	1.0	ND	0.943	01/12/05	01/18/05	
2-Nitrophenol	EPA 625	5A12027	0.23	2.0	ND	0.943	01/12/05	01/18/05	
4-Nitrophenol	EPA 625	5A12027	0.73	5.0	ND	0.943	01/12/05	01/18/05	
N-Nitrosodimethylamine	EPA 625	5A12027	0.22	2.0	ND	0.943	01/12/05	01/18/05	
N-Nitroso-di-n-propylamine	EPA 625	5A12027	0.18	2.0	ND	0.943	01/12/05	01/18/05	
N-Nitrosodiphenylamine	EPA 625	5A12027	0.077	1.0	ND	0.943	01/12/05	01/18/05	
Pentachlorophenol	EPA 625	5A12027	0.78	2.0	ND	0.943	01/12/05	01/18/05	
Phenanthrene	EPA 625	5A12027	0.071	0.50	ND	0.943	01/12/05	01/18/05	
Phenol	EPA 625	5A12027	0.14	1.0	ND	0.943	01/12/05	01/18/05	
Pyrene	EPA 625	5A12027	0.059	0.50	ND	0.943	01/12/05	01/18/05	
1,2,4-Trichlorobenzene	EPA 625	5A12027	0.10	1.0	ND	0.943	01/12/05	01/18/05	
2,4,5-Trichlorophenol	EPA 625	5A12027	0.075	2.0	ND	0.943	01/12/05	01/18/05	
2,4,6-Trichlorophenol	EPA 625	5A12027	0.10	1.0	ND	0.943	01/12/05	01/18/05	
Surrogate: 2-Fluorophenol (35-120%)									71 %
Surrogate: Phenol-d6 (45-120%)									71 %
Surrogate: 2,4,6-Tribromophenol (50-125%)									83 %
Surrogate: Nitrobenzene-d5 (45-120%)									75 %
Surrogate: 2-Fluorobiphenyl (45-120%)									78 %
Surrogate: Terphenyl-d14 (45-135%)									89 %

**ANEC VALIDATED  
LEVEL IV**

*WKC*  
03.10.05

DRAFT REPORT  
DRAFT REPORT  
DATA SUBJECT TO CHANGE

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**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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 550 South Wadsworth Boulevard  
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 Lakewood, CO 80226

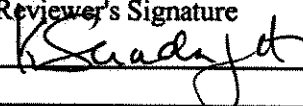
Package ID T711TF38  
 Task Order 313150010  
 SDG No. IOA0549

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer K. Shadowlight

Analysis/Method TPH-Extractable

Date March 9, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
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 <sup>b</sup>	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOA0549

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#: IOA0549  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Extractable  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: March 9, 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	Outfall 011	IOA0549-01	water	8015M/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 sample in this SDG was 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 COC was signed and dated by both field and laboratory personnel, and 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 sample was 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 analysis was analyzed on 11/11/04. 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.

### 2.3 METHOD BLANKS

One method blank (5A13035-BLK1) was extracted and analyzed with the sample in this SDG. 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.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One method blank spike (5A13035-BS1) was extracted and analyzed with the sample in this SDG. The recovery of alkane range C13-C40 from spiked diesel was within the laboratory-established QC limits of 40-120%. The recovery was checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

## 2.5 SURROGATE RECOVERY

The sample was fortified with the surrogate compound n-octacosane. The sample surrogate recovery was within the laboratory-established QC of 40-125%. The recovery was calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses associated with the sample of this SDG. Evaluation of method accuracy and precision was based on the BS/BSD results. No qualifications were required.

## 2.7 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:

### 2.7.1 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples associated with the site sample in this SDG. No qualifications were required.

### 2.7.2 Field Duplicates

There were no field duplicate samples associated with the samples in this SDG.

## 2.8 COMPOUND IDENTIFICATION

The laboratory analyzed for EFH n-alkane range C13-C22 by EPA SW846 Method 8015M. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for this SDG. No qualifications were required.

## 2.9 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG by recalculating any sample detect, 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. The reporting limit was not adjusted for sample amount; however, the dilution factor on the sample result summary reflected the sample amount extracted. No qualifications were required.



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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 783-0851  
 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)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5A13035	0.082	0.50	ND	0.952	01/13/05	01/14/05	low Qual
Surrogate: n-Octacosane (40-125%)					57 %				Qual

### MEC VALIDATED

# LEVEL IV

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

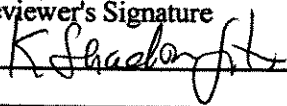
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AMEC Earth & Environmental  
 550 South Wadsworth Boulevard  
 Suite 500  
 Lakewood, CO 80226

Package ID T711TF39  
 Task Order 313150010  
 SDG No. IOA0549  
 No. of Analyses 1

Laboratory Del Mar Analytical  
 Reviewer K. Shadowlight  
 Analysis/Method TPH-Purgeable

Date March 9, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
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 <sup>b</sup>	Acceptable as reviewed.

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/PURGEABLE

SAMPLE DELIVERY GROUP: IOA0549

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#: IOA0549  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Purgeable  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: March 9, 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	Outfall 011	IOA0549-01	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 sample in this SDG was 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 was received intact, and the COC indicated the sample was properly preserved, without headspace in the VOA vials. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel. 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 analyzed within 14 days of collection. No qualifications were required.

### 2.2 CALIBRATION

One gasoline standard initial calibration dated 08/20/04 was associated with the sample analysis. 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.

### 2.3 METHOD BLANKS

One water method blank (5A17030-BLK1) was associated with the sample analysis. 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.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water method blank spike (5A17030-BS1) was associated with the sample analysis. 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.

## 2.5 SURROGATE RECOVERY

The sample was fortified with the surrogate compound bromofluorobenzene (BFB). The surrogate recovery was within the laboratory-established QC of 65-140% for the sample. The recovery was calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on the sample in this SDG; therefore, evaluation of method accuracy was based on the blank spike results. No qualifications were required.

## 2.7 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:

### 2.7.1 Trip Blanks, Field Blanks, and Equipment Rinsates

There were no trip blank, field blank, or equipment rinsate samples associated with this SDG. No qualifications were required.

### 2.7.2 Field Duplicates

There were no field duplicate samples in this SDG.

## 2.8 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 sample in this SDG. No qualifications were required.

## 2.9 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG 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 calibrations and by the laboratory MDL. 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)  
 Routine Outfall 011 - Grab  
 Report Number: IOA9549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: VOLATILE FUEL HYDROCARBONS (EPA 5030/CADHS Mod. 8015)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont. Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5A17030	0.050	0.10	ND 79 %	1	01/17/05	01/17/05	<div style="display: flex; justify-content: space-between;"> <div style="border-right: 1px solid black; padding-right: 5px;"> <i>Rev Qual</i> 4         </div> <div style="padding-left: 5px;"> <i>Qual</i> 500         </div> </div>
Surrogate: 4-BFB (FID) (65-140%)									

**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 T711VO55  
 Task Order 313150010  
 SDG No. IOA0549

No. of Analyses 1

Laboratory Del Mar Analytical

Date March 10, 2005

Reviewer K. Shadowlight

Reviewer's Signature

Analysis/Method Volatiles

*K. Shadowlight*

ACTION ITEMS*	
1. Case Narrative	
Deficiencies	
2. Out of Scope	
Analyses	
3. Analyses Not Conducted	Continuing calibration (blank spike reported as CCV)
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 <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0549

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 #: IOA0549  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Volatiles (1,4-dioxane)  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: March 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 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.	Matrix	Method
Outfall 011	Outfall 011	IOA0549-01	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 sample in this SDG was received at the Del Mar within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The sample was subcontracted to Del Mar (Phoenix) for 1,4-dioxane analysis. The sample was properly preserved. The COC and transfer COC noted that the sample was received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were signed by field and laboratory personnel. 1,4-Dioxane analysis was requested by Montgomery Watson personnel in a memo dated 03/01/05. As the sample was couriered directly to the laboratory, custody seals were not required. No qualifications were required.

#### 2.1.3 Holding Times

The sample was 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 sample was analyzed within 12 hours of the BFB injection time. No qualifications were required.

### 2.3 CALIBRATION

One initial calibration, dated 01/06/05, was associated with this SDG. The average RRF for 1,4-dioxane was  $\geq 0.05$  and the %RSD was  $\leq 15\%$ . In a notation on the instrument run sequence for 01/15/05, the CCV failed and was not reported by the laboratory. The laboratory reported the continuing calibration and the blank spike (P5A1502-BS1) from the same analysis. As the analysis cannot be reported as both a CCV and a blank spike, the reviewer reported P5A1502-BS1 as the continuing calibration. The RRF for 1,4-dioxane was  $\geq 0.05$  and the %D was  $\leq 20\%$ . The %RSD 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 (P5A1502-BLK1) was associated with this SDG. 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 (P5A1502-BS1/BS1D) with this SDG; however, P5A1502-BS1 was reported as the CCV (see section 2.3); therefore, P5A1502-BS1D was evaluated as a single blank spike. The recovery for 1,4-dioxane was within the laboratory QC limits. 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 recovery for this sample was 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 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

The sample in this SDG had no associated trip blank. No qualifications were required.

### 2.8.1 Field Blanks and Equipment Rinsates

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

### 2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for the samples were within the control limits established by the continuing calibration standards, of +100%/-50% for internal standard areas and  $\pm 0.50$  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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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

Del Mar Analytical - Irvine 17461 Derian Ave. Suite 100 Irvine, CA 92614 Attention: Michele Harper	Project ID: IOA0549 Report Number: POA0361	Sampled: 01/11/05 Received: 01/15/05
---	---	---

## 1,4-DIOXANE BY GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: POA0361-01 (IOA0549-01 - Water)	outfall oil							
Reporting Units: ug/l								
1,4-Dioxane	EPA 8260B	PSA1502	1.0	ND 103 %	1	1/15/2005	1/15/2005	u
Surrogate: Dibromofluoromethane (80-125%)								

Rev  
Qual  
Qual  
code

**REC VALIDATED**  
**LEVEL IV**

Del Mar Analytical - Phoenix  
Ken Baker  
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 T711VO56  
 Task Order 313150010  
 SDG No. IOA0549, IOA552

No. of Analyses 4

Laboratory Del Mar Analytical

Date March 10, 2005

Reviewer K. Shadowlight

Reviewer's Signature  
*K. Shadowlight*

Analysis/Method Volatiles

ACTION ITEMS <sup>a</sup>	
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	* %D outliers in the continuing calibration
GC/MS Tune/Inst. Perform	* Compounds reported as TICs (not calibrated for on instrument)
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0549, IOA0552

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#: IOA0549, IOA0552  
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: March, 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	IOA0549-01	water	624/8260B
Trip Blank	Trip Blank	IOA0549-02	water	624
Outfall 018	Outfall 018	IOA0552-01	water	624
Trip Blank	Trip Blank	IOA0552-02	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. In a memo from Montgomery Watson dated 03/01/05, additional target compounds trichlorotrifluoroethane (Freon 113), 1,2-dichloro-1,1,2-trifluoroethane (Freon 123), and cyclohexane were requested for volatile analysis in sample Outfall 011. The COCs accounted for the remaining 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 the EPA Method 624 and SW-846 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

Four initial calibrations dated 11/03/04 (acrolein and acrylonitrile only), 12/13/04 (GCMS36), 01/04/05 (GCMS33), and 01/04/05 (GCMS44) were associated with these SDGs. The average RRFs were  $\geq 0.05$  for all compounds listed on the sample result summaries. The %RSDs were  $\leq 35\%$  for the target compounds analyzed by EPA Method 624, and the %RSD for Freon 113 analyzed by EPA SW-846 Method 8260B was  $\leq 15\%$ . Three continuing calibrations associated with the sample analyses were analyzed 01/12/05 (instruments GCMS33, GCMS36, and GCMS44). The RRFs were  $\geq 0.05$  in all of the continuing calibrations. The %Ds for acrolein and acrylonitrile exceeded 20% in the continuing calibration analyzed on instrument GCMS33; therefore, the nondetect results for acrolein and acrylonitrile were qualified as estimated, "UJ," in sample Outfall 011. No qualifications were required for the Trip blank. The %Ds were  $\leq 20\%$  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

Three water method blanks (5A12003-BLK1, 5A12008-BLK1, and 512012-BLK1) were associated with the sample analyses. There were no detects above the MDLs for the target compounds listed on the sample result summaries. The method blank raw data showed no evidence of false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Three water blank spikes (5A12003-BS1, 5A12008-BS1, and 5A12012-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 performed for samples Outfall 011 and Outfall 018 associated with these SDGs. All recoveries and RPDs were within QC limits for both MS/MSD pairs. 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 (IOA549) and Trip Blank (IOA552) were the trip blanks associated with site samples Outfall 011 and Outfall 018, respectively. Chlorobenzene was detected in Trip Blank (IOA549) at 0.73ug/L; however, chlorobenzene was not reported in associated sample Outfall 011. There were no other 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, of +100%/-50% for internal standard areas and  $\pm 0.50$  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 trichlorotrifluoroethane by EPA SW-846 8260B and the remaining volatile target compounds by EPA Method 624. A TIC search was performed for requested target compounds 1,2-dichloro-1,1,2-trichloroethane and cyclohexane, as these compounds were 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 performed for target compounds 1,2-dichloro-1,1,2-trichloroethane and cyclohexane; therefore, the laboratory performed only a TIC search for those compounds. Nondetects for both compounds were qualified as estimated, "UJ," in sample Outfall 011. Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike and surrogate recoveries from the raw data. Detects reported between the MDL and the reporting limit 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 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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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8396 FAX (619) 505-9689  
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MWH-Pasadena/Boeing  
 30 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

**DRAFT: FREON 113 (EPA 8260B)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont. Reporting Units: ug/l									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A12008	1.2	5.0	ND	1	01/12/05	01/12/05	Pass Qual u
Surrogate: Dibromofluoromethane (80-120%)					100 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

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**LEVEL IV**

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

Project ID: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## 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: IOA0549-01 (DRAFT: Outfall 011 - grab - Water)									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A12008	N/A	120	ND	1	01/12/05	01/12/05	US
Cyclohexane	EPA 624 (MOD.)	5A12008	N/A	120	ND	1	01/12/05	01/12/05	US

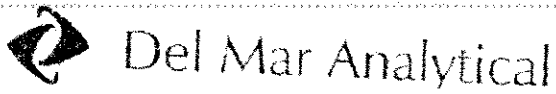
Raw	Final
Pass	Pass
US	*11
US	*11

**AMEC VALIDATED**

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**LEVEL IV**

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92124 (619) 505-8596 FAX (619) 505-9689  
 9430 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0857  
 2520 E. Sunset Rd., #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

**DRAFT: PURGEABLES BY GC/MS (EPA 624)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water)										
Reporting Units: ug/l										
Acrolein	EPA 624	5A12008	4.6	50	ND	1	01/12/05	01/12/05	u	C
Acrylonitrile	EPA 624	5A12008	5.1	50	ND	1	01/12/05	01/12/05	u	C
2-Chloroethyl vinyl ether	EPA 624	5A12008	1.3	5.0	ND	1	01/12/05	01/12/05	u	
Surrogate: Dibromofluoromethane (80-120%)					100 %					
Surrogate: Toluene-d8 (80-120%)					100 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %					
Sample ID: IOA0549-02 (DRAFT: Trip Blanks - Water)										
Reporting Units: ug/l										
Acrolein	EPA 624	5A12008	4.6	50	ND	1	01/12/05	01/12/05	u	
Acrylonitrile	EPA 624	5A12008	5.1	50	ND	1	01/12/05	01/12/05	u	
2-Chloroethyl vinyl ether	EPA 624	5A12008	1.3	5.0	ND	1	01/12/05	01/12/05	u	
Surrogate: Dibromofluoromethane (80-120%)					96 %					
Surrogate: Toluene-d8 (80-120%)					100 %					
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %					

ALL GC VALIDATED

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 9030 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 783-0043 FAX (480) 783-0811  
 2520 E. Sunset Rd., #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

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

Project ID: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont. Reporting Units: ug/l									
Benzene	EPA 624	5A12008	0.28	1.0	ND	1	01/12/05	01/12/05	u
Bromodichloromethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	
Bromoform	EPA 624	5A12008	0.32	5.0	ND	1	01/12/05	01/12/05	
Bromomethane	EPA 624	5A12008	0.34	5.0	ND	1	01/12/05	01/12/05	
Carbon tetrachloride	EPA 624	5A12008	0.28	0.50	ND	1	01/12/05	01/12/05	
Chlorobenzene	EPA 624	5A12008	0.36	2.0	ND	1	01/12/05	01/12/05	
Chloroethane	EPA 624	5A12008	0.33	5.0	ND	1	01/12/05	01/12/05	
Chloroform	EPA 624	5A12008	0.33	2.0	ND	1	01/12/05	01/12/05	
Chloromethane	EPA 624	5A12008	0.30	5.0	ND	1	01/12/05	01/12/05	
Dibromochloromethane	EPA 624	5A12008	0.28	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichlorobenzene	EPA 624	5A12008	0.32	2.0	ND	1	01/12/05	01/12/05	
1,3-Dichlorobenzene	EPA 624	5A12008	0.35	2.0	ND	1	01/12/05	01/12/05	
1,4-Dichlorobenzene	EPA 624	5A12008	0.37	2.0	ND	1	01/12/05	01/12/05	
1,1-Dichloroethane	EPA 624	5A12008	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloroethane	EPA 624	5A12008	0.28	0.50	ND	1	01/12/05	01/12/05	
trans-1,2-Dichloroethene	EPA 624	5A12008	0.32	5.0	ND	1	01/12/05	01/12/05	
1,2-Dichloropropane	EPA 624	5A12008	0.27	2.0	ND	1	01/12/05	01/12/05	
cis-1,3-Dichloropropene	EPA 624	5A12008	0.35	2.0	ND	1	01/12/05	01/12/05	
trans-1,3-Dichloropropene	EPA 624	5A12008	0.24	2.0	ND	1	01/12/05	01/12/05	
Ethylbenzene	EPA 624	5A12008	0.25	2.0	ND	1	01/12/05	01/12/05	
Methylene chloride	EPA 624	5A12008	0.48	5.0	ND	1	01/12/05	01/12/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A12008	0.24	2.0	ND	1	01/12/05	01/12/05	
Tetrachloroethene	EPA 624	5A12008	0.32	2.0	ND	1	01/12/05	01/12/05	
Toluene	EPA 624	5A12008	0.36	2.0	ND	1	01/12/05	01/12/05	
1,1,1-Trichloroethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	
1,1,2-Trichloroethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	
Trichloroethene	EPA 624	5A12008	0.26	2.0	ND	1	01/12/05	01/12/05	
Trichlorofluoromethane	EPA 624	5A12008	0.34	5.0	ND	1	01/12/05	01/12/05	
Vinyl chloride	EPA 624	5A12008	0.26	0.50	ND	1	01/12/05	01/12/05	
Xylenes, Total	EPA 624	5A12008	0.52	4.0	ND	1	01/12/05	01/12/05	
Surrogate: Dibromofluoromethane (80-120%)					100 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

NOT VALIDATED

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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: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-02 (DRAFT: Trip Blanks - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5A12008	0.28	1.0	ND	1	01/12/05	01/12/05	u
Bromodichloromethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	u
Bromoform	EPA 624	5A12008	0.32	5.0	ND	1	01/12/05	01/12/05	u
Bromomethane	EPA 624	5A12008	0.34	5.0	ND	1	01/12/05	01/12/05	u
Carbon tetrachloride	EPA 624	5A12008	0.28	0.50	ND	1	01/12/05	01/12/05	u
Chlorobenzene	EPA 624	5A12008	0.36	2.0	0.73	1	01/12/05	01/12/05	J J
Chloroethane	EPA 624	5A12008	0.33	5.0	ND	1	01/12/05	01/12/05	u
Chloroform	EPA 624	5A12008	0.33	2.0	ND	1	01/12/05	01/12/05	u
Chloromethane	EPA 624	5A12008	0.30	5.0	ND	1	01/12/05	01/12/05	u
Dibromochloromethane	EPA 624	5A12008	0.28	2.0	ND	1	01/12/05	01/12/05	u
1,2-Dichlorobenzene	EPA 624	5A12008	0.32	2.0	ND	1	01/12/05	01/12/05	u
1,3-Dichlorobenzene	EPA 624	5A12008	0.35	2.0	ND	1	01/12/05	01/12/05	u
1,4-Dichlorobenzene	EPA 624	5A12008	0.37	2.0	ND	1	01/12/05	01/12/05	u
1,1-Dichloroethane	EPA 624	5A12008	0.27	2.0	ND	1	01/12/05	01/12/05	u
1,2-Dichloroethane	EPA 624	5A12008	0.23	0.50	ND	1	01/12/05	01/12/05	u
1,1-Dichloroethene	EPA 624	5A12008	0.32	5.0	ND	1	01/12/05	01/12/05	u
trans-1,2-Dichloroethene	EPA 624	5A12008	0.27	2.0	ND	1	01/12/05	01/12/05	u
1,2-Dichloropropane	EPA 624	5A12008	0.35	2.0	ND	1	01/12/05	01/12/05	u
cis-1,3-Dichloropropene	EPA 624	5A12008	0.22	2.0	ND	1	01/12/05	01/12/05	u
trans-1,3-Dichloropropene	EPA 624	5A12008	0.24	2.0	ND	1	01/12/05	01/12/05	u
Ethylbenzene	EPA 624	5A12008	0.25	2.0	ND	1	01/12/05	01/12/05	u
Methylene chloride	EPA 624	5A12008	0.43	5.0	ND	1	01/12/05	01/12/05	u
1,1,2,2-Tetrachloroethane	EPA 624	5A12008	0.24	2.0	ND	1	01/12/05	01/12/05	u
Tetrachloroethene	EPA 624	5A12008	0.32	2.0	ND	1	01/12/05	01/12/05	u
Toluene	EPA 624	5A12008	0.36	2.0	ND	1	01/12/05	01/12/05	u
1,1,1-Trichloroethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	u
1,1,2-Trichloroethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	u
Trichloroethene	EPA 624	5A12008	0.26	2.0	ND	1	01/12/05	01/12/05	u
Trichlorofluoromethane	EPA 624	5A12008	0.34	5.0	ND	1	01/12/05	01/12/05	u
Vinyl chloride	EPA 624	5A12008	0.26	0.50	ND	1	01/12/05	01/12/05	u
Xylenes, Total	EPA 624	5A12008	0.52	4.0	ND	1	01/12/05	01/12/05	u
Surrogate: Dibromofluoromethane (80-120%)									96%
Surrogate: Toluene-d8 (80-120%)									100%
Surrogate: 4-Bromofluorobenzene (80-120%)									97%

UNLABELED

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# LEVEL IV

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**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

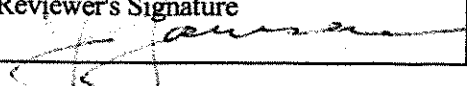
Package ID T711WC74  
Task Order 313150010  
SDG No. IOA0549/IOA0552

No. of Analyses 2

Laboratory Del Mar Analytical

Date: 03/10/05

Reviewer L. Jarusewic

Reviewer's Signature 

Analysis/Method General Minerals

<b>ACTION ITEMS*</b>	
1. <b>Case Narrative Deficiencies</b>	
2. <b>Out of Scope Analyses</b>	
3. <b>Analyses Not Conducted</b>	
4. <b>Missing Hardcopy Deliverables</b>	
5. <b>Incorrect Hardcopy Deliverables</b>	
6. <b>Deviations from Analysis Protocol, e.g.,</b>	Qualifications for:
	1) Detects between the MDL and reporting limit
	2) Detects in associated method blanks
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	
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	

### Data 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).

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# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOA0549 & IOA0552

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 #: IOA0549 & IOA0552  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 2  
Reviewer: L. Jarusewic  
Date of Review: March 10, 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, 150.1, 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	Outfall 011	IOA0549-01	Water	General Minerals
Outfall 018	Outfall 018	IOA0552-01	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. The fluoride analysis was requested in a memo from MWH personnel dated 03/01/05. 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  $\geq 0.995$ . Initial and continuing calibration information was acceptable with %Rs within the control limits of 90-110% for all analytes except hexavalent chromium. The CCV for hexavalent chromium exceeded the method control limits of 95-105%; however, as hexavalent chromium was not detected, no qualifications were required. 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 or total settleable solids. The total cyanide RL check standard was recovered within the control limits of 70-130%. No qualifications were required.

### 2.3 BLANKS

Fluoride was detected in the associated method blank at 0.149 mg/L; therefore, fluoride detected in Outfall 011 was qualified as estimated, "UJ." Oil and grease was detected in the associated method blank for Outfall 011 and Outfall 018; however, the oil and grease method blank result was insufficient to qualify

the Outfall 011 and Outfall 018 results. Hexavalent chromium was detected in the associated method blank for Outfall 011; however, hexavalent chromium was not detected in Outfall 011 and 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 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 remaining LCS results 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**

MS/MSD analyses were performed on Outfall 011 for hexavalent chromium. The RPD was within the control limit of  $\leq 20\%$ . No qualifications were required.

**2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses were performed on Outfall 011 for hexavalent chromium. The recoveries were within the laboratory-established control limits and no qualifications were required.

**2.8 FURNACE ATOMIC ABSORPTION QC**

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

**2.9 ICP SERIAL DILUTION**

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

## **2.10 SAMPLE RESULT VERIFICATION**

A Level IV review was performed for the samples in 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. BOD results 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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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-362

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

Project ID: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.										
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5A12043	0.10	0.10	ND	1	01/12/05	01/12/05	U	REV OUTL CODE

### AMEC VALIDATED

### LEVEL IV

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5A12058	0.040	1.0	18	1	01/12/05	01/12/05	REV QUAL COT

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

Project ID: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5A11092	0.041	1.0	ND	1	01/11/05	01/11/05	UL
Total Cyanide	EPA 335.2	5A11108	2.2	5.0	ND	1	01/11/05	01/11/05	↓
Perchlorate	EPA 314.0	5A13051	0.80	4.0	ND	1	01/13/05	01/13/05	*

\*Analysis Not Validated

## AMEC VALIDATED

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

Project ID: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Data	Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5A13060	1.0	1.0	94	1	01/13/05	01/13/05	REV QUAL COD

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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: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## 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: IOA0549-01 (DRAFT: Outfall 011 - grab - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5A12075	0.31	1.0	ND	1	01/12/05	01/12/05	u

REV  
QUAL  
COT

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

Project ID: 13267 (Study 1)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	
									Qualifiers	Outliers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.										
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5A13063	0.30	0.50	ND	1	01/13/05	01/13/05	U	
Biochemical Oxygen Demand	EPA 405.1	5A12041	0.59	2.0	0.83	1	01/12/05	01/17/05	J	J DN
Chloride	EPA 300.0	5A11040	0.26	0.50	3.6	1	01/11/05	01/11/05		
Fluoride	EPA 300.0	5A15022	0.074	0.50	0.26	1	01/15/05	01/15/05	WT	B, B
Nitrate/Nitrite-N	EPA 300.0	5A11040	0.072	0.26	0.91	1	01/11/05	01/11/05		
Oil & Grease	EPA 413.1	5A13065	0.94	5.0	2574	1	01/13/05	01/13/05		#
Residual Chlorine	EPA 330.5	5A12045	0.10	0.10	ND	1	01/12/05	01/12/05	U	
Sulfate	EPA 300.0	5A11040	0.18	0.50	4.9	1	01/11/05	01/11/05		
Surfactants (MBAS)	SM5540-C	5A12059	0.044	0.10	ND	1	01/12/05	01/12/05	U	
Total Dissolved Solids	SM2540C	5A13089	10	10	88	1	01/13/05	01/13/05		
Total Organic Carbon	EPA 415.1	5A13053	0.56	1.0	10	1	01/12/05	01/12/05		
Total Suspended Solids	EPA 160.2	5A14084	10	10	ND	1	01/14/05	01/14/05	U	

HJ 5-12-05

**AMEC VALIDATED**

**LEVEL IV**

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**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

AMEC Earth & Environmental  
 550 South Wadsworth Boulevard  
 Suite 500  
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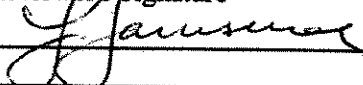
Package ID T711WC75  
 Task Order 313150010  
 SDG No. IOA0549/IOA0552

No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method Perchlorate

Date: 03/10/05  
 Reviewer's Signature  


**ACTION ITEMS<sup>a</sup>**

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<sup>b</sup>**

Acceptable as reviewed.

<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.

<sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUPS: IOA0549 & IOA0552

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 #: IOA0549/IOA0552  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Perchlorate  
QC Level: Level IV  
No. of Samples: 2  
Reviewer: L. Jarusewic  
Date of Review: March 10, 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 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	IOA0549-01	Water	Perchlorate
Outfall 018	Outfall 018	IOA0552-01	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . 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, 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 date of collection with the dates of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

### 2.2 CALIBRATION

The initial calibration correlation coefficients were  $\geq 0.995$ . The IPC-MA recoveries were 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 recoveries were 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.

## 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 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 calculations 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)  
 Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (DRAFT: Outfall 011 - grab - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5A11092	0.041	1.0	ND	1	01/11/05	01/11/05	* ↓ U
Total Cyanide	EPA 335.2	5A11108	2.2	5.0	ND	1	01/11/05	01/11/05	* ↓ U
Perchlorate	EPA 314.0	5A13051	0.80	4.0	ND	1	01/13/05	01/13/05	* ↓ U

### AMEC VALIDATED

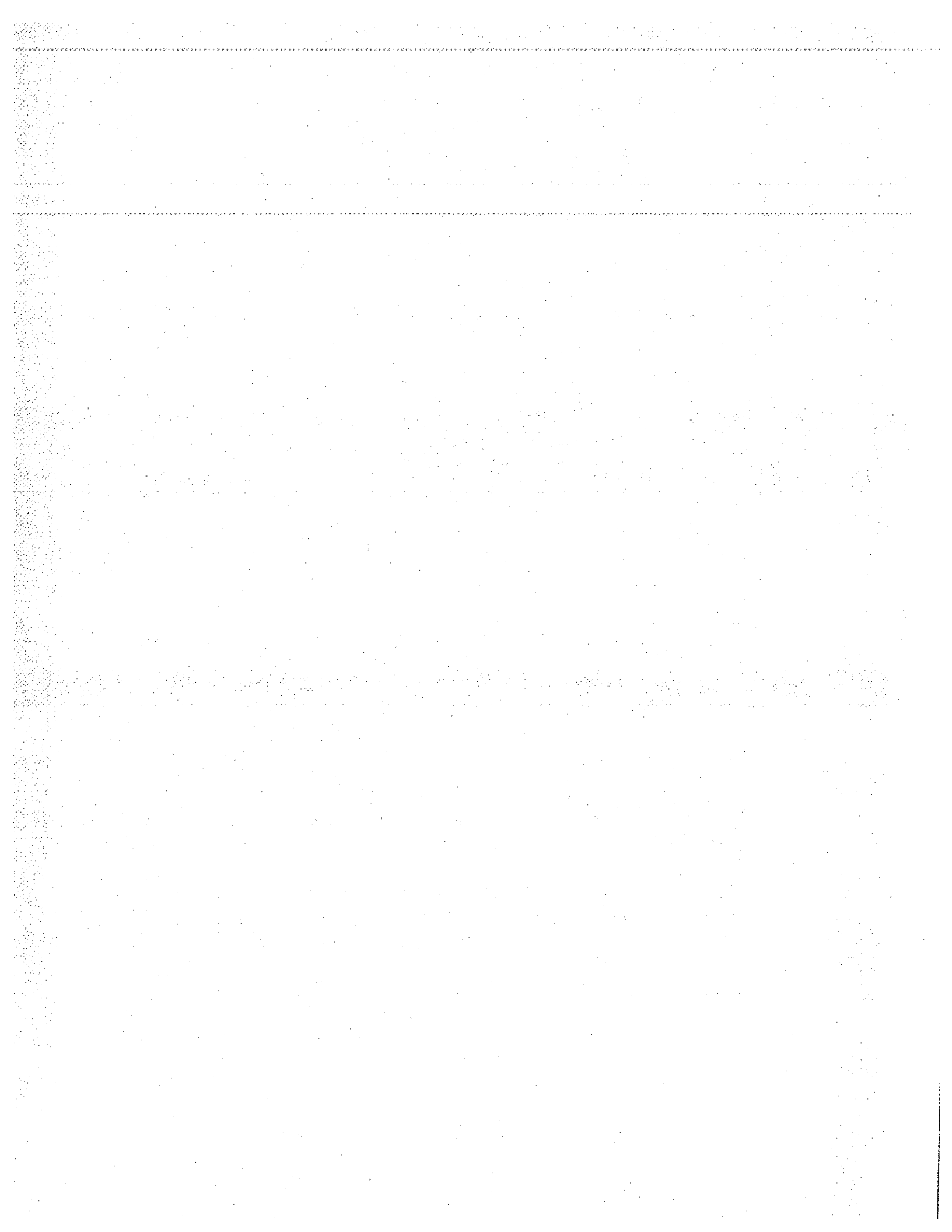
# LEVEL IV

*\*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 - Grab

Sampled: 01/11/05  
Received: 01/11/05  
Issued: 03/09/05 19:48

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, 6 pages, are included and are 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**

IOA0549-01  
IOA0549-02

**CLIENT ID**

Outfall 011 - grab  
Trip Blanks

**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: Routine Outfall 011 - Grab	Sampled: 01/11/05 Received: 01/11/05
Report Number: IOA0549		

CORRECTIVE ACTION REPORT

Department: Extractions

Date: 01/18/2005

Method: EPA 625

Matrix: Water

QC Batch: 5A12027

Identification and Definition of Problem:

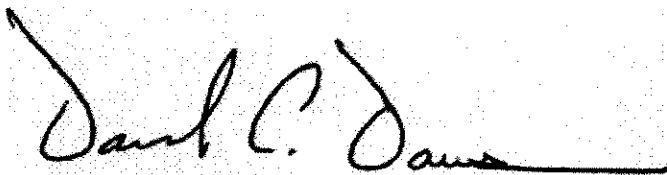
- 1) The percent recoveries for 3,3-dichlorobenzidine, 4-chloroaniline, benzidine, and hexachlorobutadiene in the LCS and/or LCSD were below method acceptance limits.
- 2) The RPD between the LCS and LCSD exceeded method acceptance limits for 2-methylnaphthalene, 3,3-dichlorobenzidine, 4-chloroaniline, aniline, naphthalene.

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. A definitive cause for the other QC failures has not been determined.

Corrective Action Taken:

All results reported for 3,3-dichlorobenzidine, 4-chloroaniline, benzidine, and hexachlorobutadiene are potentially biased low and can be considered estimates only. No acceptable precision data could be reported for 2-methylnaphthalene, 3,3-dichlorobenzidine, 4-chloroaniline, aniline, and naphthalene. Samples could not be reextracted within the method-specified holding time.



\_\_\_\_\_  
Dave Dawes

Quality Assurance Approval:

Date: 01/31/2005 11:14 AM

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 011 - Grab  Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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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
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water)</b>									
<b>Reporting Units: mg/l</b>									
Total Recoverable Hydrocarbons	EPA 418.1	5A12075	0.31	1.0	ND	1	01/12/05	01/12/05	

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 011 - Grab  Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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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
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.</b>									
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5A13035	0.082	0.50	ND	0.952	01/13/05	01/14/05	
Surrogate: n-Octacosane (40-125%)					57 %				

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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 - Grab

Report Number: IOA0549

Sampled: 01/11/05

Received: 01/11/05

## 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
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.</b>									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5A17030	0.050	0.10	ND	1	01/17/05	01/17/05	
Surrogate: 4-BFB (FID) (65-140%)					79 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 - Grab  Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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## FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A12008	1.2	5.0	ND	1	01/12/05	01/12/05	P1
Surrogate: Dibromofluoromethane (80-120%)					100 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

**Del Mar Analytical, Irvine**  
 Michele Harper  
 Project Manager

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

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05

Received: 01/11/05

## 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: IOA0549-01 (Outfall 011 - grab - Water) - cont.									
Reporting Units: ug/l									
Benzene	EPA 624	5A12008	0.28	1.0	ND	1	01/12/05	01/12/05	
Bromodichloromethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	
Bromoform	EPA 624	5A12008	0.32	5.0	ND	1	01/12/05	01/12/05	
Bromomethane	EPA 624	5A12008	0.34	5.0	ND	1	01/12/05	01/12/05	
Carbon tetrachloride	EPA 624	5A12008	0.28	0.50	ND	1	01/12/05	01/12/05	
Chlorobenzene	EPA 624	5A12008	0.36	2.0	ND	1	01/12/05	01/12/05	
Chloroethane	EPA 624	5A12008	0.33	5.0	ND	1	01/12/05	01/12/05	
Chloroform	EPA 624	5A12008	0.33	2.0	ND	1	01/12/05	01/12/05	
Chloromethane	EPA 624	5A12008	0.30	5.0	ND	1	01/12/05	01/12/05	
Dibromochloromethane	EPA 624	5A12008	0.28	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichlorobenzene	EPA 624	5A12008	0.32	2.0	ND	1	01/12/05	01/12/05	
1,3-Dichlorobenzene	EPA 624	5A12008	0.35	2.0	ND	1	01/12/05	01/12/05	
1,4-Dichlorobenzene	EPA 624	5A12008	0.37	2.0	ND	1	01/12/05	01/12/05	
1,1-Dichloroethane	EPA 624	5A12008	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloroethane	EPA 624	5A12008	0.28	0.50	ND	1	01/12/05	01/12/05	
1,1-Dichloroethene	EPA 624	5A12008	0.32	5.0	ND	1	01/12/05	01/12/05	
trans-1,2-Dichloroethene	EPA 624	5A12008	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloropropane	EPA 624	5A12008	0.35	2.0	ND	1	01/12/05	01/12/05	
cis-1,3-Dichloropropene	EPA 624	5A12008	0.22	2.0	ND	1	01/12/05	01/12/05	
trans-1,3-Dichloropropene	EPA 624	5A12008	0.24	2.0	ND	1	01/12/05	01/12/05	
Ethylbenzene	EPA 624	5A12008	0.25	2.0	ND	1	01/12/05	01/12/05	
Methylene chloride	EPA 624	5A12008	0.48	5.0	ND	1	01/12/05	01/12/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A12008	0.24	2.0	ND	1	01/12/05	01/12/05	
Tetrachloroethene	EPA 624	5A12008	0.32	2.0	ND	1	01/12/05	01/12/05	
Toluene	EPA 624	5A12008	0.36	2.0	ND	1	01/12/05	01/12/05	
1,1,1-Trichloroethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	
1,1,2-Trichloroethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	
Trichloroethene	EPA 624	5A12008	0.26	2.0	ND	1	01/12/05	01/12/05	
Trichlorofluoromethane	EPA 624	5A12008	0.34	5.0	ND	1	01/12/05	01/12/05	
Vinyl chloride	EPA 624	5A12008	0.26	0.50	ND	1	01/12/05	01/12/05	
Xylenes, Total	EPA 624	5A12008	0.52	4.0	ND	1	01/12/05	01/12/05	
Surrogate: Dibromofluoromethane (80-120%)									100 %
Surrogate: Toluene-d8 (80-120%)									100 %
Surrogate: 4-Bromofluorobenzene (80-120%)									98 %

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

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

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0549-02 (Trip Blanks - Water)</b>									
Reporting Units: ug/l									
Benzene	EPA 624	5A12008	0.28	1.0	ND	1	01/12/05	01/12/05	
Bromodichloromethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	
Bromoform	EPA 624	5A12008	0.32	5.0	ND	1	01/12/05	01/12/05	
Bromomethane	EPA 624	5A12008	0.34	5.0	ND	1	01/12/05	01/12/05	
Carbon tetrachloride	EPA 624	5A12008	0.28	0.50	ND	1	01/12/05	01/12/05	
Chlorobenzene	EPA 624	5A12008	0.36	2.0	0.73	1	01/12/05	01/12/05	J
Chloroethane	EPA 624	5A12008	0.33	5.0	ND	1	01/12/05	01/12/05	
Chloroform	EPA 624	5A12008	0.33	2.0	ND	1	01/12/05	01/12/05	
Chloromethane	EPA 624	5A12008	0.30	5.0	ND	1	01/12/05	01/12/05	
Dibromochloromethane	EPA 624	5A12008	0.28	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichlorobenzene	EPA 624	5A12008	0.32	2.0	ND	1	01/12/05	01/12/05	
1,3-Dichlorobenzene	EPA 624	5A12008	0.35	2.0	ND	1	01/12/05	01/12/05	
1,4-Dichlorobenzene	EPA 624	5A12008	0.37	2.0	ND	1	01/12/05	01/12/05	
1,1-Dichloroethane	EPA 624	5A12008	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloroethane	EPA 624	5A12008	0.28	0.50	ND	1	01/12/05	01/12/05	
1,1-Dichloroethene	EPA 624	5A12008	0.32	5.0	ND	1	01/12/05	01/12/05	
trans-1,2-Dichloroethene	EPA 624	5A12008	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloropropane	EPA 624	5A12008	0.35	2.0	ND	1	01/12/05	01/12/05	
cis-1,3-Dichloropropene	EPA 624	5A12008	0.22	2.0	ND	1	01/12/05	01/12/05	
trans-1,3-Dichloropropene	EPA 624	5A12008	0.24	2.0	ND	1	01/12/05	01/12/05	
Ethylbenzene	EPA 624	5A12008	0.25	2.0	ND	1	01/12/05	01/12/05	
Methylene chloride	EPA 624	5A12008	0.48	5.0	ND	1	01/12/05	01/12/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A12008	0.24	2.0	ND	1	01/12/05	01/12/05	
Tetrachloroethene	EPA 624	5A12008	0.32	2.0	ND	1	01/12/05	01/12/05	
Toluene	EPA 624	5A12008	0.36	2.0	ND	1	01/12/05	01/12/05	
1,1,1-Trichloroethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	
1,1,2-Trichloroethane	EPA 624	5A12008	0.30	2.0	ND	1	01/12/05	01/12/05	
Trichloroethene	EPA 624	5A12008	0.26	2.0	ND	1	01/12/05	01/12/05	
Trichlorofluoromethane	EPA 624	5A12008	0.34	5.0	ND	1	01/12/05	01/12/05	
Vinyl chloride	EPA 624	5A12008	0.26	0.50	ND	1	01/12/05	01/12/05	
Xylenes, Total	EPA 624	5A12008	0.52	4.0	ND	1	01/12/05	01/12/05	
Surrogate: Dibromofluoromethane (80-120%)					96 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

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 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05  
Received: 01/11/05

PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water)</b>									
Reporting Units: ug/l									
Acrolein	EPA 624	5A12008	4.6	50	ND	1	01/12/05	01/12/05	
Acrylonitrile	EPA 624	5A12008	5.1	50	ND	1	01/12/05	01/12/05	
2-Chloroethyl vinyl ether	EPA 624	5A12008	1.3	5.0	ND	1	01/12/05	01/12/05	
Surrogate: Dibromofluoromethane (80-120%)					100 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				
<b>Sample ID: IOA0549-02 (Trip Blanks - Water)</b>									
Reporting Units: ug/l									
Acrolein	EPA 624	5A12008	4.6	50	ND	1	01/12/05	01/12/05	
Acrylonitrile	EPA 624	5A12008	5.1	50	ND	1	01/12/05	01/12/05	
2-Chloroethyl vinyl ether	EPA 624	5A12008	1.3	5.0	ND	1	01/12/05	01/12/05	
Surrogate: Dibromofluoromethane (80-120%)					96 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

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 011 - Grab  Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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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
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water)</b>									
<b>Reporting Units: ug/l</b>									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A12008	N/A	120	ND	1	01/12/05	01/12/05	
Cyclohexane	EPA 624 (MOD.)	5A12008	N/A	120	ND	1	01/12/05	01/12/05	

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 Michele Harper  
 Project Manager

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MWH-Pasadena/Boeing Project ID: Routine Outfall 011 - Grab  
300 North Lake Avenue, Suite 1200 Report Number: IOA0549  
Pasadena, CA 91101 Sampled: 01/11/05  
Attention: Bronwyn Kelly Received: 01/11/05

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

Table with columns: Analyte, Method, Batch, MDL Limit, Reporting Limit, Sample Result, Dilution Factor, Date Extracted, Date Analyzed, Data Qualifiers. Includes sample ID IOA0549-01 and reporting units in ug/l.

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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: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## 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
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
Fluoranthene	EPA 625	5A12027	0.089	0.50	ND	0.943	01/12/05	01/18/05	
Fluorene	EPA 625	5A12027	0.075	0.50	ND	0.943	01/12/05	01/18/05	
Hexachlorobenzene	EPA 625	5A12027	0.13	1.0	ND	0.943	01/12/05	01/18/05	
Hexachlorobutadiene	EPA 625	5A12027	0.38	2.0	ND	0.943	01/12/05	01/18/05	
Hexachlorocyclopentadiene	EPA 625	5A12027	1.8	5.0	ND	0.943	01/12/05	01/18/05	L2
Hexachloroethane	EPA 625	5A12027	0.51	3.0	ND	0.943	01/12/05	01/18/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5A12027	0.19	2.0	ND	0.943	01/12/05	01/18/05	
Isophorone	EPA 625	5A12027	0.059	1.0	ND	0.943	01/12/05	01/18/05	
2-Methylnaphthalene	EPA 625	5A12027	0.13	1.0	0.74	0.943	01/12/05	01/18/05	B, L, J
2-Methylphenol	EPA 625	5A12027	0.28	2.0	ND	0.943	01/12/05	01/18/05	
4-Methylphenol	EPA 625	5A12027	0.20	5.0	ND	0.943	01/12/05	01/18/05	
Naphthalene	EPA 625	5A12027	0.13	1.0	0.21	0.943	01/12/05	01/18/05	L, J
2-Nitroaniline	EPA 625	5A12027	0.18	5.0	ND	0.943	01/12/05	01/18/05	
3-Nitroaniline	EPA 625	5A12027	0.35	5.0	ND	0.943	01/12/05	01/18/05	
4-Nitroaniline	EPA 625	5A12027	0.49	5.0	ND	0.943	01/12/05	01/18/05	
Nitrobenzene	EPA 625	5A12027	0.10	1.0	ND	0.943	01/12/05	01/18/05	
2-Nitrophenol	EPA 625	5A12027	0.23	2.0	ND	0.943	01/12/05	01/18/05	
4-Nitrophenol	EPA 625	5A12027	0.73	5.0	ND	0.943	01/12/05	01/18/05	
N-Nitrosodimethylamine	EPA 625	5A12027	0.22	2.0	ND	0.943	01/12/05	01/18/05	
N-Nitroso-di-n-propylamine	EPA 625	5A12027	0.18	2.0	ND	0.943	01/12/05	01/18/05	
N-Nitrosodiphenylamine	EPA 625	5A12027	0.077	1.0	ND	0.943	01/12/05	01/18/05	
Pentachlorophenol	EPA 625	5A12027	0.78	2.0	ND	0.943	01/12/05	01/18/05	
Phenanthrene	EPA 625	5A12027	0.071	0.50	ND	0.943	01/12/05	01/18/05	
Phenol	EPA 625	5A12027	0.14	1.0	ND	0.943	01/12/05	01/18/05	
Pyrene	EPA 625	5A12027	0.059	0.50	ND	0.943	01/12/05	01/18/05	
1,2,4-Trichlorobenzene	EPA 625	5A12027	0.10	1.0	ND	0.943	01/12/05	01/18/05	
2,4,5-Trichlorophenol	EPA 625	5A12027	0.075	2.0	ND	0.943	01/12/05	01/18/05	
2,4,6-Trichlorophenol	EPA 625	5A12027	0.10	1.0	ND	0.943	01/12/05	01/18/05	
Surrogate: 2-Fluorophenol (35-120%)					71 %				
Surrogate: Phenol-d6 (45-120%)					71 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					83 %				
Surrogate: Nitrobenzene-d5 (45-120%)					75 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					78 %				
Surrogate: Terphenyl-d14 (45-135%)					89 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 - Grab  Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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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: IOA0549-01 (Outfall 011 - grab - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5A13049	0.029	0.10	ND	0.962	01/13/05	01/13/05	
alpha-BHC	EPA 608	5A13049	0.010	0.10	ND	0.962	01/13/05	01/13/05	
beta-BHC	EPA 608	5A13049	0.011	0.10	ND	0.962	01/13/05	01/13/05	
delta-BHC	EPA 608	5A13049	0.010	0.20	ND	0.962	01/13/05	01/13/05	
gamma-BHC (Lindane)	EPA 608	5A13049	0.0097	0.10	ND	0.962	01/13/05	01/13/05	
Chlordane	EPA 608	5A13049	0.18	1.0	ND	0.962	01/13/05	01/13/05	
4,4'-DDD	EPA 608	5A13049	0.011	0.10	ND	0.962	01/13/05	01/13/05	
4,4'-DDE	EPA 608	5A13049	0.017	0.10	ND	0.962	01/13/05	01/13/05	
4,4'-DDT	EPA 608	5A13049	0.015	0.10	ND	0.962	01/13/05	01/13/05	
Dieldrin	EPA 608	5A13049	0.010	0.10	ND	0.962	01/13/05	01/13/05	
Endosulfan I	EPA 608	5A13049	0.015	0.10	ND	0.962	01/13/05	01/13/05	
Endosulfan II	EPA 608	5A13049	0.037	0.10	ND	0.962	01/13/05	01/13/05	
Endosulfan sulfate	EPA 608	5A13049	0.013	0.20	ND	0.962	01/13/05	01/13/05	
Endrin	EPA 608	5A13049	0.0082	0.10	ND	0.962	01/13/05	01/13/05	
Endrin aldehyde	EPA 608	5A13049	0.045	0.10	ND	0.962	01/13/05	01/13/05	
Endrin ketone	EPA 608	5A13049	0.020	0.10	ND	0.962	01/13/05	01/13/05	
Heptachlor	EPA 608	5A13049	0.030	0.10	ND	0.962	01/13/05	01/13/05	
Heptachlor epoxide	EPA 608	5A13049	0.012	0.10	ND	0.962	01/13/05	01/13/05	
Methoxychlor	EPA 608	5A13049	0.034	0.10	ND	0.962	01/13/05	01/13/05	
Toxaphene	EPA 608	5A13049	0.77	5.0	ND	0.962	01/13/05	01/13/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					53 %				
Surrogate: Decachlorobiphenyl (45-120%)					68 %				

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

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05

Received: 01/11/05

## TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.</b>									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	0.962	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	0.962	01/13/05	01/14/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					70 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 - Grab Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.</b>									
<b>Reporting Units: mg/l</b>									
Barium	EPA 200.8	5A14051	0.00014	0.0010	<b>0.019</b>	1	01/14/05	01/14/05	
Boron	EPA 200.7	5A14046	0.0074	0.050	<b>0.065</b>	1	01/14/05	01/14/05	
Iron	EPA 200.8	5A14051	0.0032	0.010	<b>0.98</b>	1	01/14/05	01/14/05	

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

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05

Received: 01/11/05

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5A12054	0.18	2.0	0.35	1	01/12/05	01/12/05	J
Arsenic	EPA 200.8	5A14051	0.49	1.0	1.6	1	01/14/05	01/18/05	
Beryllium	EPA 200.8	5A14051	0.037	0.50	0.063	1	01/14/05	01/18/05	J
Cadmium	EPA 200.8	5A12054	0.015	1.0	0.14	1	01/12/05	01/12/05	J
Chromium	EPA 200.8	5A14051	0.26	1.0	1.8	1	01/14/05	01/18/05	B
Cobalt	EPA 200.8	5A14051	0.10	1.0	0.71	1	01/14/05	01/14/05	J
Copper	EPA 200.8	5A12054	0.49	2.0	4.2	1	01/12/05	01/12/05	
Lead	EPA 200.8	5A12054	0.13	1.0	1.0	1	01/12/05	01/12/05	
Manganese	EPA 200.8	5A14051	0.44	1.0	16	1	01/14/05	01/14/05	
Mercury	EPA 245.1	5A12047	0.063	0.20	0.13	1	01/12/05	01/12/05	J
Nickel	EPA 200.8	5A12054	0.15	1.0	2.3	1	01/12/05	01/12/05	
Selenium	EPA 200.8	5A14051	0.36	2.0	0.90	1	01/14/05	01/14/05	J
Silver	EPA 200.8	5A14051	0.089	1.0	0.26	1	01/14/05	01/14/05	J
Thallium	EPA 200.8	5A14051	0.075	1.0	0.90	1	01/14/05	01/16/05	J
Vanadium	EPA 200.8	5A14051	0.86	1.0	3.4	1	01/14/05	01/14/05	
Zinc	EPA 200.8	5A12054	3.1	20	18	1	01/12/05	01/12/05	J

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MWH-Pasadena/Boeing Project ID: Routine Outfall 011 - Grab  
300 North Lake Avenue, Suite 1200 Report Number: IOA0549  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/11/05  
Received: 01/11/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5A13063	0.30	0.50	ND	1	01/13/05	01/13/05	
Biochemical Oxygen Demand	EPA 405.1	5A12041	0.59	2.0	0.83	1	01/12/05	01/17/05	J
Chloride	EPA 300.0	5A11040	0.26	0.50	3.6	1	01/11/05	01/11/05	
Fluoride	EPA 300.0	5A15022	0.074	0.50	0.26	1	01/15/05	01/15/05	B, J
Nitrate/Nitrite-N	EPA 300.0	5A11040	0.072	0.26	0.91	1	01/11/05	01/11/05	
Oil & Grease	EPA 413.1	5A13065	0.94	5.0	15	1	01/13/05	01/13/05	
Residual Chlorine	EPA 330.5	5A12045	0.10	0.10	ND	1	01/12/05	01/12/05	
Sulfate	EPA 300.0	5A11040	0.18	0.50	4.9	1	01/11/05	01/11/05	
Surfactants (MBAS)	SM5540-C	5A12059	0.044	0.10	ND	1	01/12/05	01/12/05	
Total Dissolved Solids	SM2540C	5A13089	10	10	88	1	01/13/05	01/13/05	
Total Organic Carbon	EPA 415.1	5A13053	0.56	1.0	10	1	01/12/05	01/12/05	
Total Suspended Solids	EPA 160.2	5A14084	10	10	ND	1	01/14/05	01/14/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 - Grab  Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.</b>									
<b>Reporting Units: ml/hr</b>									
Total Settleable Solids	EPA 160.5	5A12043	0.10	0.10	ND	1	01/12/05	01/12/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 - Grab  Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5A12058	0.040	1.0	18	1	01/12/05	01/12/05	

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05

Received: 01/11/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
Chromium VI	EPA 218.6	5A11092	0.041	1.0	ND	1	01/11/05	01/11/05	C
Total Cyanide	EPA 335.2	5A11108	2.2	5.0	ND	1	01/11/05	01/11/05	
Perchlorate	EPA 314.0	5A13051	0.80	4.0	ND	1	01/13/05	01/13/05	

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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 011 - Grab  Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.</b>									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5A13060	1.0	1.0	94	1	01/13/05	01/13/05	

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

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05

Received: 01/11/05

## 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
<b>Sample ID: IOA0549-01 (Outfall 011 - grab - Water) - cont.</b>									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5A1502	0.49	1.0	ND	1	01/15/05	01/15/05	
Surrogate: Dibromofluoromethane (80-125%)					103 %				

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

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05

Received: 01/11/05

SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
<b>Sample ID: Outfall 011 - grab (IOA0549-01) - Water</b>					
EPA 160.5	2	01/11/2005 10:48	01/11/2005 18:50	01/12/2005 09:30	01/12/2005 12:30
EPA 180.1	2	01/11/2005 10:48	01/11/2005 18:50	01/12/2005 11:30	01/12/2005 12:30
EPA 218.6	1	01/11/2005 10:48	01/11/2005 18:50	01/11/2005 21:36	01/11/2005 21:40
EPA 300.0	2	01/11/2005 10:48	01/11/2005 18:50	01/11/2005 21:00	01/11/2005 21:28
EPA 330.5	1	01/11/2005 10:48	01/11/2005 18:50	01/12/2005 10:00	01/12/2005 10:20
EPA 405.1	2	01/11/2005 10:48	01/11/2005 18:50	01/12/2005 11:00	01/17/2005 16:00
EPA 624	3	01/11/2005 10:48	01/11/2005 18:50	01/12/2005 00:00	01/12/2005 13:08
SM5540-C	2	01/11/2005 10:48	01/11/2005 18:50	01/12/2005 13:06	01/12/2005 20:16
<b>Sample ID: Trip Blanks (IOA0549-02) - Water</b>					
EPA 624	3	01/11/2005 14:55	01/11/2005 18:50	01/12/2005 00:00	01/12/2005 12:37

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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 Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12075 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12075-BLK1)</b>										
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l						
<b>LCS Analyzed: 01/12/2005 (5A12075-BS1)</b>										
Total Recoverable Hydrocarbons	4.64	1.0	0.31	mg/l	5.00		93 65-120			M-NRI
<b>LCS Dup Analyzed: 01/12/2005 (5A12075-BSD1)</b>										
Total Recoverable Hydrocarbons	4.99	1.0	0.31	mg/l	5.00		100 65-120	7	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
<b>Batch: 5A13035 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/14/2005 (5A13035-BLK1)</b>										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.143			mg/l	0.200		72 40-125			
<b>LCS Analyzed: 01/14/2005 (5A13035-BS1)</b>										
EFH (C13 - C40)	0.651	0.50	0.082	mg/l	0.775		84 40-120			
Surrogate: n-Octacosane	0.151			mg/l	0.200		75 40-125			
<b>Matrix Spike Analyzed: 01/14/2005 (5A13035-MS1) Source: IOA0635-03</b>										
EFH (C13 - C40)	0.647	0.50	0.082	mg/l	0.731	ND	89 40-120			
Surrogate: n-Octacosane	0.151			mg/l	0.189		80 40-125			
<b>Matrix Spike Dup Analyzed: 01/14/2005 (5A13035-MSD1) Source: IOA0635-03</b>										
EFH (C13 - C40)	0.456	0.50	0.082	mg/l	0.731	ND	62 40-120	35	30	R-2, J
Surrogate: n-Octacosane	0.103			mg/l	0.189		54 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 Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A17030 Extracted: 01/17/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A17030-BLK1)</b>										
GRO (C4 - C12)	ND	0.10	0.050	mg/l						
Surrogate: 4-BFB (FID)	0.00915			mg/l	0.0100		92 65-140			
<b>LCS Analyzed: 01/17/2005 (5A17030-BS1)</b>										
GRO (C4 - C12)	0.233	0.10	0.050	mg/l	0.220		106 70-140			
Surrogate: 4-BFB (FID)	0.0120			mg/l	0.0100		120 65-140			
<b>Matrix Spike Analyzed: 01/17/2005 (5A17030-MS1)</b>										
						<b>Source: IOA0539-07</b>				
GRO (C4 - C12)	0.244	0.10	0.050	mg/l	0.220	ND	111 60-140			
Surrogate: 4-BFB (FID)	0.0120			mg/l	0.0100		120 65-140			
<b>Matrix Spike Dup Analyzed: 01/17/2005 (5A17030-MSD1)</b>										
						<b>Source: IOA0539-07</b>				
GRO (C4 - C12)	0.219	0.10	0.050	mg/l	0.220	ND	100 60-140	11	20	
Surrogate: 4-BFB (FID)	0.0114			mg/l	0.0100		114 65-140			

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## METHOD BLANK/QC DATA

### FREON 113 (EPA 8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12008 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12008-BLK1)</b>											
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l							
Surrogate: Dibromofluoromethane	24.6			ug/l	25.0		98	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99	80-120			

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Report Number: IOA0549

Sampled: 01/11/05

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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
<b>Batch: 5A12008 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12008-BLK1)</b>										
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						
Surrogate: Dibromofluoromethane	24.6			ug/l	25.0		98	80-120		
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99	80-120		

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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
<b>Batch: 5A12008 Extracted: 01/12/05</b>										
<b>LCS Analyzed: 01/12/2005 (5A12008-BS1)</b>										
Benzene	23.0	1.0	0.28	ug/l	25.0		92 70-120			
Bromodichloromethane	26.3	2.0	0.30	ug/l	25.0		105 70-140			
Bromoform	26.3	5.0	0.32	ug/l	25.0		105 55-135			
Bromomethane	27.1	5.0	0.34	ug/l	25.0		108 60-140			
Carbon tetrachloride	29.2	0.50	0.28	ug/l	25.0		117 70-140			
Chlorobenzene	25.8	2.0	0.36	ug/l	25.0		103 80-125			
Chloroethane	24.9	5.0	0.33	ug/l	25.0		100 60-145			
Chloroform	24.5	2.0	0.33	ug/l	25.0		98 75-130			
Chloromethane	22.8	5.0	0.30	ug/l	25.0		91 40-145			
Dibromochloromethane	26.7	2.0	0.28	ug/l	25.0		107 65-145			
1,2-Dichlorobenzene	25.6	2.0	0.32	ug/l	25.0		102 80-120			
1,3-Dichlorobenzene	24.3	2.0	0.35	ug/l	25.0		97 80-120			
1,4-Dichlorobenzene	24.0	2.0	0.37	ug/l	25.0		96 80-120			
1,1-Dichloroethane	23.8	2.0	0.27	ug/l	25.0		95 70-135			
1,2-Dichloroethane	26.9	0.50	0.28	ug/l	25.0		108 60-150			
1,1-Dichloroethene	24.2	5.0	0.32	ug/l	25.0		97 75-135			
trans-1,2-Dichloroethene	25.2	2.0	0.27	ug/l	25.0		101 70-130			
1,2-Dichloropropane	24.3	2.0	0.35	ug/l	25.0		97 70-120			
cis-1,3-Dichloropropene	26.7	2.0	0.22	ug/l	25.0		107 75-130			
trans-1,3-Dichloropropene	27.4	2.0	0.24	ug/l	25.0		110 75-135			
Ethylbenzene	26.5	2.0	0.25	ug/l	25.0		106 80-120			
Methylene chloride	24.3	5.0	0.48	ug/l	25.0		97 60-135			
1,1,2,2-Tetrachloroethane	21.8	2.0	0.24	ug/l	25.0		87 60-135			
Tetrachloroethene	27.2	2.0	0.32	ug/l	25.0		109 75-125			
Toluene	24.2	2.0	0.36	ug/l	25.0		97 75-120			
1,1,1-Trichloroethane	28.0	2.0	0.30	ug/l	25.0		112 75-140			
1,1,2-Trichloroethane	24.9	2.0	0.30	ug/l	25.0		100 70-125			
Trichloroethene	25.9	2.0	0.26	ug/l	25.0		104 80-120			
Trichlorofluoromethane	28.6	5.0	0.34	ug/l	25.0		114 65-145			
Vinyl chloride	22.0	0.50	0.26	ug/l	25.0		88 50-130			
Surrogate: Dibromofluoromethane	23.9			ug/l	25.0		96 80-120			
Surrogate: Toluene-d8	24.9			ug/l	25.0		100 80-120			
Surrogate: 4-Bromofluorobenzene	25.2			ug/l	25.0		101 80-120			

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Report Number: IOA0549

Sampled: 01/11/05  
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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 Limits	RPD	RPD Limit	Data Qualifiers
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Batch: 5A12008 Extracted: 01/12/05

Matrix Spike Analyzed: 01/12/2005 (5A12008-MS1)

Source: IOA0549-01

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Benzene	26.0	1.0	0.28	ug/l	25.0	ND	104	70-120		
Bromodichloromethane	30.0	2.0	0.30	ug/l	25.0	ND	120	70-140		
Bromoform	29.1	5.0	0.32	ug/l	25.0	ND	116	55-140		
Bromomethane	31.9	5.0	0.34	ug/l	25.0	ND	128	50-145		
Carbon tetrachloride	32.8	0.50	0.28	ug/l	25.0	ND	131	70-145		
Chlorobenzene	28.8	2.0	0.36	ug/l	25.0	ND	115	80-125		
Chloroethane	29.8	5.0	0.33	ug/l	25.0	ND	119	50-145		
Chloroform	28.4	2.0	0.33	ug/l	25.0	ND	114	70-135		
Chloromethane	27.4	5.0	0.30	ug/l	25.0	ND	110	35-145		
Dibromochloromethane	30.2	2.0	0.28	ug/l	25.0	ND	121	65-145		
1,2-Dichlorobenzene	28.8	2.0	0.32	ug/l	25.0	ND	115	75-130		
1,3-Dichlorobenzene	27.3	2.0	0.35	ug/l	25.0	ND	109	75-130		
1,4-Dichlorobenzene	27.0	2.0	0.37	ug/l	25.0	ND	108	80-120		
1,1-Dichloroethane	27.8	2.0	0.27	ug/l	25.0	ND	111	65-135		
1,2-Dichloroethane	30.3	0.50	0.28	ug/l	25.0	ND	121	60-150		
1,1-Dichloroethene	28.1	5.0	0.32	ug/l	25.0	ND	112	65-140		
trans-1,2-Dichloroethene	29.4	2.0	0.27	ug/l	25.0	ND	118	65-135		
1,2-Dichloropropane	27.7	2.0	0.35	ug/l	25.0	ND	111	65-130		
cis-1,3-Dichloropropene	30.2	2.0	0.22	ug/l	25.0	ND	121	70-140		
trans-1,3-Dichloropropene	30.6	2.0	0.24	ug/l	25.0	ND	122	70-140		
Ethylbenzene	29.7	2.0	0.25	ug/l	25.0	ND	119	70-130		
Methylene chloride	28.3	5.0	0.48	ug/l	25.0	ND	113	60-135		
1,1,2,2-Tetrachloroethane	24.8	2.0	0.24	ug/l	25.0	ND	99	60-145		
Tetrachloroethene	30.4	2.0	0.32	ug/l	25.0	ND	122	70-130		
Toluene	27.6	2.0	0.36	ug/l	25.0	ND	110	70-120		
1,1,1-Trichloroethane	32.6	2.0	0.30	ug/l	25.0	ND	130	75-140		
1,1,2-Trichloroethane	27.8	2.0	0.30	ug/l	25.0	ND	111	60-135		
Trichloroethene	28.9	2.0	0.26	ug/l	25.0	ND	116	70-125		
Trichlorofluoromethane	33.3	5.0	0.34	ug/l	25.0	ND	133	55-145		
Vinyl chloride	26.1	0.50	0.26	ug/l	25.0	ND	104	40-135		
Surrogate: Dibromofluoromethane	24.7			ug/l	25.0		99	80-120		
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	80-120		

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Project Manager



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Sampled: 01/11/05  
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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	RPD Limits	RPD RPD	Data Limit	Qualifiers
<b>Batch: 5A12008 Extracted: 01/12/05</b>											
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12008-MSD1)</b>						<b>Source: IOA0549-01</b>					
Benzene	22.7	1.0	0.28	ug/l	25.0	ND	91	70-120	14	20	
Bromodichloromethane	25.6	2.0	0.30	ug/l	25.0	ND	102	70-140	16	20	
Bromoform	24.9	5.0	0.32	ug/l	25.0	ND	100	55-140	16	25	
Bromomethane	28.8	5.0	0.34	ug/l	25.0	ND	115	50-145	10	25	
Carbon tetrachloride	28.3	0.50	0.28	ug/l	25.0	ND	113	70-145	15	25	
Chlorobenzene	25.4	2.0	0.36	ug/l	25.0	ND	102	80-125	13	20	
Chloroethane	26.8	5.0	0.33	ug/l	25.0	ND	107	50-145	11	25	
Chloroform	24.5	2.0	0.33	ug/l	25.0	ND	98	70-135	15	20	
Chloromethane	24.8	5.0	0.30	ug/l	25.0	ND	99	35-145	10	25	
Dibromochloromethane	26.2	2.0	0.28	ug/l	25.0	ND	105	65-145	14	25	
1,2-Dichlorobenzene	25.2	2.0	0.32	ug/l	25.0	ND	101	75-130	13	20	
1,3-Dichlorobenzene	24.2	2.0	0.35	ug/l	25.0	ND	97	75-130	12	20	
1,4-Dichlorobenzene	24.0	2.0	0.37	ug/l	25.0	ND	96	80-120	12	20	
1,1-Dichloroethane	23.8	2.0	0.27	ug/l	25.0	ND	95	65-135	16	20	
1,2-Dichloroethane	25.8	0.50	0.28	ug/l	25.0	ND	103	60-150	16	20	
1,1-Dichloroethene	24.4	5.0	0.32	ug/l	25.0	ND	98	65-140	14	20	
trans-1,2-Dichloroethene	25.5	2.0	0.27	ug/l	25.0	ND	102	65-135	14	20	
1,2-Dichloropropane	24.0	2.0	0.35	ug/l	25.0	ND	96	65-130	14	20	
cis-1,3-Dichloropropene	25.9	2.0	0.22	ug/l	25.0	ND	104	70-140	15	20	
trans-1,3-Dichloropropene	26.5	2.0	0.24	ug/l	25.0	ND	106	70-140	14	25	
Ethylbenzene	26.2	2.0	0.25	ug/l	25.0	ND	105	70-130	13	20	
Methylene chloride	24.7	5.0	0.48	ug/l	25.0	ND	99	60-135	14	20	
1,1,2,2-Tetrachloroethane	21.7	2.0	0.24	ug/l	25.0	ND	87	60-145	13	30	
Tetrachloroethene	26.8	2.0	0.32	ug/l	25.0	ND	107	70-130	13	20	
Toluene	24.0	2.0	0.36	ug/l	25.0	ND	96	70-120	14	20	
1,1,1-Trichloroethane	27.9	2.0	0.30	ug/l	25.0	ND	112	75-140	16	20	
1,1,2-Trichloroethane	23.6	2.0	0.30	ug/l	25.0	ND	94	60-135	16	25	
Trichloroethene	25.0	2.0	0.26	ug/l	25.0	ND	100	70-125	14	20	
Trichlorofluoromethane	28.6	5.0	0.34	ug/l	25.0	ND	114	55-145	15	25	
Vinyl chloride	23.4	0.50	0.26	ug/l	25.0	ND	94	40-135	11	30	
Surrogate: Dibromofluoromethane	24.3			ug/l	25.0		97	80-120			
Surrogate: Toluene-d8	24.8			ug/l	25.0		99	80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	80-120			

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Project Manager





MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 011 - Grab Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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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 Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12008 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12008-BLK1)</b>										
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	24.6			ug/l	25.0		98	80-120		
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99	80-120		
<b>LCS Analyzed: 01/12/2005 (5A12008-BS1)</b>										
2-Chloroethyl vinyl ether	23.4	5.0	1.3	ug/l	25.0		94	20-175		
Surrogate: Dibromofluoromethane	23.9			ug/l	25.0		96	80-120		
Surrogate: Toluene-d8	24.9			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	25.2			ug/l	25.0		101	80-120		
<b>Matrix Spike Analyzed: 01/12/2005 (5A12008-MS1) Source: IOA0549-01</b>										
2-Chloroethyl vinyl ether	26.2	5.0	1.3	ug/l	25.0	ND	105	20-175		
Surrogate: Dibromofluoromethane	24.7			ug/l	25.0		99	80-120		
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	80-120		
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12008-MSD1) Source: IOA0549-01</b>										
2-Chloroethyl vinyl ether	21.8	5.0	1.3	ug/l	25.0	ND	87	20-175	18	25
Surrogate: Dibromofluoromethane	24.3			ug/l	25.0		97	80-120		
Surrogate: Toluene-d8	24.8			ug/l	25.0		99	80-120		
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	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 Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12008 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12008-BLK1)</b>										
1,2-Dichloro-1,1,2-trifluoroethane	ND	120	N/A	ug/l						
Cyclohexane	ND	120	N/A	ug/l						

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# 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 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12027 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A12027-BLK1)</b>										
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	0.340	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	0.400	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	ND	1.0	0.12	ug/l						
2,4-Dimethylphenol	ND	2.0	0.31	ug/l						
Dimethyl phthalate	ND	0.50	0.081	ug/l						

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 Project Manager

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

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05  
Received: 01/11/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12027 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A12027-BLK1)</b>										
4,6-Dinitro-2-methylphenol	ND	5.0	0.38	ug/l						
2,4-Dinitrophenol	ND	5.0	2.7	ug/l						
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	0.200	1.0	0.13	ug/l						J
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	14.2			ug/l	20.0		71	35-120		

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Project Manager



MWH-Pasadena/Boeing Project ID: Routine Outfall 011 - Grab  
300 North Lake Avenue, Suite 1200 Report Number: IOA0549  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/11/05  
Received: 01/11/05

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 sections for Batch: 5A12027, Blank Analyzed: 01/17/2005, and LCS Analyzed: 01/17/2005.

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 300 North Lake Avenue, Suite 1200  
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 Attention: Bronwyn Kelly

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 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12027 Extracted: 01/12/05</b>										
<b>LCS Analyzed: 01/17/2005 (5A12027-BS1)</b>										
1,4-Dichlorobenzene	5.34	0.50	0.050	ug/l	10.0		53 40-120			
3,3-Dichlorobenzidine	3.54	5.0	0.93	ug/l	10.0		35 50-170			L2, J
2,4-Dichlorophenol	8.08	2.0	0.21	ug/l	10.0		81 55-120			
Diethyl phthalate	8.08	1.0	0.12	ug/l	10.0		81 60-120			
2,4-Dimethylphenol	6.30	2.0	0.31	ug/l	10.0		63 35-120			
Dimethyl phthalate	7.90	0.50	0.081	ug/l	10.0		79 60-120			
4,6-Dinitro-2-methylphenol	6.66	5.0	0.38	ug/l	10.0		67 55-120			
2,4-Dinitrophenol	7.08	5.0	2.7	ug/l	10.0		71 40-140			
2,4-Dinitrotoluene	7.36	5.0	0.23	ug/l	10.0		74 60-140			
2,6-Dinitrotoluene	7.58	5.0	0.24	ug/l	10.0		76 65-125			
Di-n-octyl phthalate	8.68	5.0	0.17	ug/l	10.0		87 60-130			
1,2-Diphenylhydrazine/Azobenzene	8.34	1.0	0.087	ug/l	10.0		83 60-120			
Fluoranthene	9.16	0.50	0.089	ug/l	10.0		92 55-125			
Fluorene	8.44	0.50	0.075	ug/l	10.0		84 60-120			
Hexachlorobenzene	7.66	1.0	0.13	ug/l	10.0		77 50-120			
Hexachlorobutadiene	4.40	2.0	0.38	ug/l	10.0		44 45-120			L2
Hexachlorocyclopentadiene	4.94	5.0	1.8	ug/l	10.0		49 10-130			J
Hexachloroethane	4.18	3.0	0.51	ug/l	10.0		42 40-120			
Indeno(1,2,3-cd)pyrene	8.74	2.0	0.19	ug/l	10.0		87 35-150			
Isophorone	7.50	1.0	0.059	ug/l	10.0		75 55-120			
2-Methylnaphthalene	7.54	1.0	0.13	ug/l	10.0		75 50-120			
2-Methylphenol	7.68	2.0	0.28	ug/l	10.0		77 45-120			
4-Methylphenol	7.36	5.0	0.20	ug/l	10.0		74 45-120			
Naphthalene	6.88	1.0	0.13	ug/l	10.0		69 50-120			
2-Nitroaniline	7.88	5.0	0.18	ug/l	10.0		79 60-130			
3-Nitroaniline	8.02	5.0	0.35	ug/l	10.0		80 50-140			
4-Nitroaniline	9.10	5.0	0.49	ug/l	10.0		91 45-160			
Nitrobenzene	6.84	1.0	0.10	ug/l	10.0		68 50-120			
2-Nitrophenol	7.10	2.0	0.23	ug/l	10.0		71 55-120			
4-Nitrophenol	7.08	5.0	0.73	ug/l	10.0		71 50-135			
N-Nitrosodimethylamine	7.68	2.0	0.22	ug/l	10.0		77 40-120			
N-Nitroso-di-n-propylamine	7.14	2.0	0.18	ug/l	10.0		71 50-120			
N-Nitrosodiphenylamine	6.74	1.0	0.077	ug/l	10.0		67 60-120			
Pentachlorophenol	8.04	2.0	0.78	ug/l	10.0		80 50-125			
Phenanthrene	8.16	0.50	0.071	ug/l	10.0		82 55-120			

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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: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A1207 Extracted: 01/12/05</b>										
<b>LCS Analyzed: 01/17/2005 (5A1207-BS1)</b>										
Phenol	7.34	1.0	0.14	ug/l	10.0		73 45-120			
Pyrene	8.42	0.50	0.059	ug/l	10.0		84 50-120			
1,2,4-Trichlorobenzene	5.56	1.0	0.10	ug/l	10.0		56 50-120			
2,4,5-Trichlorophenol	8.66	2.0	0.075	ug/l	10.0		87 60-120			
2,4,6-Trichlorophenol	8.64	1.0	0.10	ug/l	10.0		86 60-120			
Surrogate: 2-Fluorophenol	14.5			ug/l	20.0		72 35-120			
Surrogate: Phenol-d6	14.5			ug/l	20.0		72 45-120			
Surrogate: 2,4,6-Tribromophenol	14.7			ug/l	20.0		74 50-125			
Surrogate: Nitrobenzene-d5	7.14			ug/l	10.0		71 45-120			
Surrogate: 2-Fluorobiphenyl	7.80			ug/l	10.0		78 45-120			
Surrogate: Terphenyl-d14	8.56			ug/l	10.0		86 45-135			
<b>LCS Dup Analyzed: 01/17/2005 (5A1207-BSD1)</b>										
Acenaphthene	8.36	0.50	0.10	ug/l	10.0		84 55-120	6	20	M-NRI
Acenaphthylene	8.42	0.50	0.10	ug/l	10.0		84 55-120	3	20	
Aniline	3.20	10	2.9	ug/l	10.0		32 30-120	75	25	R-7, J
Anthracene	8.22	0.50	0.083	ug/l	10.0		82 60-120	3	20	
Benzidine	ND	5.0	2.4	ug/l	10.0		20-180		35	L2
Benzoic acid	7.70	20	3.7	ug/l	10.0		77 30-125	12	30	J
Benzo(a)anthracene	8.52	5.0	0.038	ug/l	10.0		85 65-120	3	20	
Benzo(a)pyrene	9.10	2.0	0.14	ug/l	10.0		91 55-125	2	25	
Benzo(b)fluoranthene	8.74	2.0	0.050	ug/l	10.0		87 50-125	2	25	
Benzo(g,h,i)perylene	9.24	5.0	0.059	ug/l	10.0		92 35-160	3	25	
Benzo(k)fluoranthene	8.88	0.50	0.053	ug/l	10.0		89 50-125	0	20	
Benzyl alcohol	8.44	5.0	0.21	ug/l	10.0		84 40-130	1	20	
Bis(2-chloroethoxy)methane	7.60	0.50	0.072	ug/l	10.0		76 55-120	3	20	
Bis(2-chloroethyl)ether	6.80	0.50	0.084	ug/l	10.0		68 50-120	0	20	
Bis(2-chloroisopropyl)ether	6.90	0.50	0.11	ug/l	10.0		69 50-120	0	20	
Bis(2-ethylhexyl)phthalate	8.24	5.0	1.1	ug/l	10.0		82 65-125	4	20	
4-Bromophenyl phenyl ether	7.72	1.0	0.12	ug/l	10.0		77 55-125	0	25	
Butyl benzyl phthalate	8.26	5.0	0.34	ug/l	10.0		83 60-125	7	20	
4-Chloroaniline	4.02	2.0	0.20	ug/l	10.0		40 55-120	53	25	L2, R-2
2-Chloronaphthalene	7.78	0.50	0.059	ug/l	10.0		78 60-120	2	20	
4-Chloro-3-methylphenol	8.42	2.0	0.34	ug/l	10.0		84 60-120	5	25	
4-Chlorophenyl phenyl ether	8.06	0.50	0.056	ug/l	10.0		81 55-120	3	20	
2-Chlorophenol	7.50	1.0	0.12	ug/l	10.0		75 45-120	2	25	

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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: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05
Received: 01/11/05

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-sections for Batch: 5A12027 and LCS Dup Analyzed: 01/17/2005.

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Project Manager

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Pasadena, CA 91101  
Attention: Bronwyn Kelly

Project ID: Routine Outfall 011 - Grab  
Report Number: IOA0549

Sampled: 01/11/05  
Received: 01/11/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12027 Extracted: 01/12/05</b>										
<b>LCS Dup Analyzed: 01/17/2005 (5A12027-BSD1)</b>										
4-Nitrophenol	7.28	5.0	0.73	ug/l	10.0	73	50-135	3	25	M-NR1
N-Nitrosodimethylamine	7.20	2.0	0.22	ug/l	10.0	72	40-120	6	20	
N-Nitroso-di-n-propylamine	7.58	2.0	0.18	ug/l	10.0	76	50-120	6	20	
N-Nitrosodiphenylamine	7.94	1.0	0.077	ug/l	10.0	79	60-120	16	20	
Pentachlorophenol	7.68	2.0	0.78	ug/l	10.0	77	50-125	5	25	
Phenanthrene	8.14	0.50	0.071	ug/l	10.0	81	55-120	0	20	
Phenol	7.04	1.0	0.14	ug/l	10.0	70	45-120	4	25	
Pyrene	8.22	0.50	0.059	ug/l	10.0	82	50-120	2	25	
1,2,4-Trichlorobenzene	5.90	1.0	0.10	ug/l	10.0	59	50-120	6	20	
2,4,5-Trichlorophenol	8.64	2.0	0.075	ug/l	10.0	86	60-120	0	20	
2,4,6-Trichlorophenol	8.76	1.0	0.10	ug/l	10.0	88	60-120	1	20	
Surrogate: 2-Fluorophenol	14.3			ug/l	20.0	72	35-120			
Surrogate: Phenol-d6	14.5			ug/l	20.0	72	45-120			
Surrogate: 2,4,6-Tribromophenol	15.0			ug/l	20.0	75	50-125			
Surrogate: Nitrobenzene-d5	7.38			ug/l	10.0	74	45-120			
Surrogate: 2-Fluorobiphenyl	7.66			ug/l	10.0	77	45-120			
Surrogate: Terphenyl-d14	9.00			ug/l	10.0	90	45-135			

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

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## 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
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**Batch: 5A13049 Extracted: 01/13/05**

**Blank Analyzed: 01/13/2005 (5A13049-BLK1)**

Aldrin	ND	0.10	0.029	ug/l						
alpha-BHC	ND	0.10	0.010	ug/l						
beta-BHC	ND	0.10	0.011	ug/l						
delta-BHC	ND	0.20	0.010	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.0097	ug/l						
Chlordane	ND	1.0	0.18	ug/l						
4,4'-DDD	ND	0.10	0.011	ug/l						
4,4'-DDE	ND	0.10	0.017	ug/l						
4,4'-DDT	ND	0.10	0.015	ug/l						
Dieldrin	ND	0.10	0.010	ug/l						
Endosulfan I	ND	0.10	0.015	ug/l						
Endosulfan II	ND	0.10	0.037	ug/l						
Endosulfan sulfate	ND	0.20	0.013	ug/l						
Endrin	ND	0.10	0.0082	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	0.012	ug/l						
Methoxychlor	ND	0.10	0.034	ug/l						
Toxaphene	ND	5.0	0.77	ug/l						
Surrogate: Tetrachloro-m-xylene	0.348			ug/l	0.500		70		35-120	
Surrogate: Decachlorobiphenyl	0.424			ug/l	0.500		85		45-120	

**LCS Analyzed: 01/13/2005 (5A13049-BS1)**

**M-NR1**

Aldrin	0.517	0.10	0.029	ug/l	0.500		103		45-115	
alpha-BHC	0.527	0.10	0.010	ug/l	0.500		105		45-115	
beta-BHC	0.496	0.10	0.011	ug/l	0.500		99		50-115	
delta-BHC	0.564	0.20	0.010	ug/l	0.500		113		55-120	
gamma-BHC (Lindane)	0.525	0.10	0.0097	ug/l	0.500		105		45-115	
4,4'-DDD	0.537	0.10	0.011	ug/l	0.500		107		60-120	
4,4'-DDE	0.534	0.10	0.017	ug/l	0.500		107		55-120	
4,4'-DDT	0.557	0.10	0.015	ug/l	0.500		111		60-130	
Dieldrin	0.540	0.10	0.010	ug/l	0.500		108		55-120	
Endosulfan I	0.512	0.10	0.015	ug/l	0.500		102		50-115	
Endosulfan II	0.525	0.10	0.037	ug/l	0.500		105		60-125	
Endosulfan sulfate	0.528	0.20	0.013	ug/l	0.500		106		60-120	

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

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## 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
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/13/2005 (5A13049-BS1)</b>										
Endrin	0.578	0.10	0.0082	ug/l	0.500		116 55-125			M-NRI
Endrin aldehyde	0.553	0.10	0.045	ug/l	0.500		111 55-115			
Endrin ketone	0.513	0.10	0.020	ug/l	0.500		103 60-120			
Heptachlor	0.513	0.10	0.030	ug/l	0.500		103 45-115			
Heptachlor epoxide	0.527	0.10	0.012	ug/l	0.500		105 50-120			
Methoxychlor	0.535	0.10	0.034	ug/l	0.500		107 60-135			
Surrogate: Tetrachloro-m-xylene	0.435			ug/l	0.500		87 35-120			
Surrogate: Decachlorobiphenyl	0.527			ug/l	0.500		105 45-120			
<b>LCS Dup Analyzed: 01/13/2005 (5A13049-BSD1)</b>										
Aldrin	0.512	0.10	0.029	ug/l	0.500		102 45-115	1	30	
alpha-BHC	0.534	0.10	0.010	ug/l	0.500		107 45-115	1	30	
beta-BHC	0.487	0.10	0.011	ug/l	0.500		97 50-115	2	30	
delta-BHC	0.547	0.20	0.010	ug/l	0.500		109 55-120	3	30	
gamma-BHC (Lindane)	0.525	0.10	0.0097	ug/l	0.500		105 45-115	0	30	
4,4'-DDD	0.505	0.10	0.011	ug/l	0.500		101 60-120	6	30	
4,4'-DDE	0.510	0.10	0.017	ug/l	0.500		102 55-120	5	30	
4,4'-DDT	0.520	0.10	0.015	ug/l	0.500		104 60-130	7	30	
Dieldrin	0.515	0.10	0.010	ug/l	0.500		103 55-120	5	30	
Endosulfan I	0.493	0.10	0.015	ug/l	0.500		99 50-115	4	30	
Endosulfan II	0.495	0.10	0.037	ug/l	0.500		99 60-125	6	30	
Endosulfan sulfate	0.498	0.20	0.013	ug/l	0.500		100 60-120	6	30	
Endrin	0.550	0.10	0.0082	ug/l	0.500		110 55-125	5	30	
Endrin aldehyde	0.511	0.10	0.045	ug/l	0.500		102 55-115	8	30	
Endrin ketone	0.490	0.10	0.020	ug/l	0.500		98 60-120	5	30	
Heptachlor	0.510	0.10	0.030	ug/l	0.500		102 45-115	1	30	
Heptachlor epoxide	0.510	0.10	0.012	ug/l	0.500		102 50-120	3	30	
Methoxychlor	0.505	0.10	0.034	ug/l	0.500		101 60-135	6	30	
Surrogate: Tetrachloro-m-xylene	0.449			ug/l	0.500		90 35-120			
Surrogate: Decachlorobiphenyl	0.494			ug/l	0.500		99 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 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13049-BLK1)</b>										
Aroclor 1016	ND	1.0	0.067	ug/l						
Aroclor 1221	ND	1.0	0.057	ug/l						
Aroclor 1232	ND	1.0	0.13	ug/l						
Aroclor 1242	ND	1.0	0.12	ug/l						
Aroclor 1248	ND	1.0	0.21	ug/l						
Aroclor 1254	ND	1.0	0.16	ug/l						
Aroclor 1260	ND	1.0	0.17	ug/l						
Surrogate: Decachlorobiphenyl	0.387			ug/l	0.500		77 45-120			
<b>LCS Analyzed: 01/13/2005 (5A13049-BS2)</b>										
Aroclor 1016	2.82	1.0	0.067	ug/l	4.00		70 50-115			M-NRI
Aroclor 1260	2.91	1.0	0.17	ug/l	4.00		73 60-115			
Surrogate: Decachlorobiphenyl	0.389			ug/l	0.500		78 45-120			
<b>LCS Dup Analyzed: 01/13/2005 (5A13049-BSD2)</b>										
Aroclor 1016	2.68	1.0	0.067	ug/l	4.00		67 50-115	5	30	
Aroclor 1260	2.88	1.0	0.17	ug/l	4.00		72 60-115	1	25	
Surrogate: Decachlorobiphenyl	0.379			ug/l	0.500		76 45-120			

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Report Number: IOA0549

Sampled: 01/11/05  
Received: 01/11/05

METHOD BLANK/QC DATA

METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12047 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12047-BLK1)</b>										
Mercury	ND	0.20	0.063	ug/l						
<b>LCS Analyzed: 01/12/2005 (5A12047-BS1)</b>										
Mercury	8.12	0.20	0.063	ug/l	8.00	ND	102 85-115			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12047-MS1)</b>										
						<b>Source: IOA0483-01</b>				
Mercury	8.00	0.20	0.063	ug/l	8.00	ND	100 70-130			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12047-MSD1)</b>										
						<b>Source: IOA0483-01</b>				
Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103 70-130	3	20	
<b>Batch: 5A12054 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12054-BLK1)</b>										
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						
Nickel	ND	1.0	0.15	ug/l						
Zinc	ND	20	3.1	ug/l						
<b>LCS Analyzed: 01/12/2005 (5A12054-BS1)</b>										
Antimony	89.1	2.0	0.18	ug/l	80.0		111 85-115			
Cadmium	84.7	1.0	0.015	ug/l	80.0		106 85-115			
Copper	80.7	2.0	0.49	ug/l	80.0		101 85-115			
Lead	80.4	1.0	0.13	ug/l	80.0		100 85-115			
Nickel	83.0	1.0	0.15	ug/l	80.0		104 85-115			
Zinc	79.4	20	3.1	ug/l	80.0		99 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 011 - Grab Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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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
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#### Batch: 5A12054 Extracted: 01/12/05

#### Matrix Spike Analyzed: 01/12/2005 (5A12054-MS1)

Source: IOA0549-01

Antimony	88.7	2.0	0.18	ug/l	80.0	0.35	110	70-130		
Cadmium	85.3	1.0	0.015	ug/l	80.0	0.14	106	70-130		
Copper	83.9	2.0	0.49	ug/l	80.0	4.2	100	70-130		
Lead	81.3	1.0	0.13	ug/l	80.0	1.0	100	70-130		
Nickel	84.7	1.0	0.15	ug/l	80.0	2.3	103	70-130		
Zinc	93.0	20	3.1	ug/l	80.0	18	94	70-130		

#### Matrix Spike Dup Analyzed: 01/12/2005 (5A12054-MSD1)

Source: IOA0549-01

Antimony	90.1	2.0	0.18	ug/l	80.0	0.35	112	70-130	2	20
Cadmium	86.1	1.0	0.015	ug/l	80.0	0.14	107	70-130	1	20
Copper	83.8	2.0	0.49	ug/l	80.0	4.2	100	70-130	0	20
Lead	80.9	1.0	0.13	ug/l	80.0	1.0	100	70-130	1	20
Nickel	85.0	1.0	0.15	ug/l	80.0	2.3	103	70-130	0	20
Zinc	93.0	20	3.1	ug/l	80.0	18	94	70-130	0	20

#### Batch: 5A14046 Extracted: 01/14/05

#### Blank Analyzed: 01/14/2005 (5A14046-BLK1)

Boron	ND	0.050	0.0074	mg/l						
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#### LCS Analyzed: 01/14/2005 (5A14046-BS1)

Boron	0.469	0.050	0.0074	mg/l	0.500		94	85-115		
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#### Matrix Spike Analyzed: 01/14/2005 (5A14046-MS1)

Source: IOA0701-01

Boron	0.675	0.050	0.0074	mg/l	0.500	0.18	99	70-130		
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#### Matrix Spike Dup Analyzed: 01/14/2005 (5A14046-MSD1)

Source: IOA0701-01

Boron	0.682	0.050	0.0074	mg/l	0.500	0.18	100	70-130	1	20
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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
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Batch: 5A14051 Extracted: 01/14/05

**Blank Analyzed: 01/17/2005 (5A14051-BLK1)**

Arsenic	ND	1.0	0.49	ug/l						
Barium	ND	0.0010	0.00014	mg/l						
Beryllium	ND	0.50	0.037	ug/l						
Chromium	0.434	1.0	0.26	ug/l						
Cobalt	ND	1.0	0.10	ug/l						J
Iron	0.00901	0.010	0.0032	mg/l						J
Manganese	0.502	1.0	0.44	ug/l						J
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	1.0	0.86	ug/l						

**LCS Analyzed: 01/14/2005-01/16/2005 (5A14051-BS1)**

Arsenic	83.5	1.0	0.49	ug/l	80.0		104	85-115		
Barium	0.0823	0.0010	0.00014	mg/l	0.0800		103	85-115		
Beryllium	87.2	0.50	0.037	ug/l	80.0		109	85-115		
Chromium	81.3	1.0	0.26	ug/l	80.0		102	85-115		
Cobalt	78.9	1.0	0.10	ug/l	80.0		99	85-115		
Iron	0.803	0.010	0.0032	mg/l	0.800		100	85-115		
Manganese	83.9	1.0	0.44	ug/l	80.0		105	85-115		
Selenium	79.6	2.0	0.36	ug/l	80.0		100	85-115		
Silver	78.8	1.0	0.089	ug/l	80.0		98	85-115		
Thallium	84.9	1.0	0.075	ug/l	80.0		106	85-115		
Vanadium	81.2	1.0	0.86	ug/l	80.0		102	85-115		

**Matrix Spike Analyzed: 01/14/2005-01/18/2005 (5A14051-MS1)**

Source: IOA0707-01

Arsenic	86.5	1.0	0.49	ug/l	80.0	1.8	106	70-130		
Barium	0.110	0.0010	0.00014	mg/l	0.0800	0.024	108	70-130		
Beryllium	74.8	0.50	0.037	ug/l	80.0	ND	94	70-130		
Chromium	108	1.0	0.26	ug/l	80.0	31	96	70-130		
Cobalt	78.5	1.0	0.10	ug/l	80.0	2.6	95	70-130		
Iron	0.787	0.010	0.0032	mg/l	0.800	0.19	75	70-130		
Manganese	182	1.0	0.44	ug/l	80.0	100	102	70-130		
Selenium	81.0	2.0	0.36	ug/l	80.0	1.4	100	70-130		
Silver	71.6	1.0	0.089	ug/l	80.0	ND	90	70-130		
Thallium	77.6	1.0	0.075	ug/l	80.0	0.47	96	70-130		

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

Project ID: Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A14051 Extracted: 01/14/05</b>										
<b>Matrix Spike Analyzed: 01/14/2005-01/18/2005 (5A14051-MS1)</b>					<b>Source: IOA0707-01</b>					
Vanadium	81.6	1.0	0.86	ug/l	80.0	1.4	100 70-130			
<b>Matrix Spike Dup Analyzed: 01/14/2005-01/16/2005 (5A14051-MSD1)</b>					<b>Source: IOA0707-01</b>					
Arsenic	86.0	1.0	0.49	ug/l	80.0	1.8	105 70-130	1	20	
Barium	0.108	0.0010	0.00014	mg/l	0.0800	0.024	105 70-130	2	20	
Beryllium	75.1	0.50	0.037	ug/l	80.0	ND	94 70-130	0	20	
Chromium	106	1.0	0.26	ug/l	80.0	31	94 70-130	2	20	
Cobalt	79.9	1.0	0.10	ug/l	80.0	2.6	97 70-130	2	20	
Iron	0.764	0.010	0.0032	mg/l	0.800	0.19	72 70-130	3	20	
Manganese	180	1.0	0.44	ug/l	80.0	100	100 70-130	1	20	
Selenium	81.2	2.0	0.36	ug/l	80.0	1.4	100 70-130	0	20	
Silver	71.5	1.0	0.089	ug/l	80.0	ND	89 70-130	0	20	
Thallium	78.3	1.0	0.075	ug/l	80.0	0.47	97 70-130	1	20	
Vanadium	80.9	1.0	0.86	ug/l	80.0	1.4	99 70-130	1	20	

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011 - Grab  
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Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A11040 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11040-BLK1)</b>										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
<b>LCS Analyzed: 01/11/2005 (5A11040-BS1)</b>										
Chloride	4.84	0.50	0.26	mg/l	5.00		97 90-110			
Sulfate	10.1	0.50	0.18	mg/l	10.0		101 90-110			
<b>Matrix Spike Analyzed: 01/11/2005 (5A11040-MS1)</b>										
					<b>Source: IOA0494-01</b>					
Chloride	24.1	2.5	1.3	mg/l	5.00	20	82 80-120			
Sulfate	38.6	2.5	0.90	mg/l	10.0	29	96 80-120			
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11040-MSD1)</b>										
					<b>Source: IOA0494-01</b>					
Chloride	24.1	2.5	1.3	mg/l	5.00	20	82 80-120	0	20	
Sulfate	38.8	2.5	0.90	mg/l	10.0	29	98 80-120	1	20	
<b>Batch: 5A11092 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11092-BLK1)</b>										
Chromium VI	0.149	1.0	0.041	ug/l						J
<b>LCS Analyzed: 01/11/2005 (5A11092-BS1)</b>										
Chromium VI	51.4	1.0	0.041	ug/l	50.0		103 90-110			
<b>Matrix Spike Analyzed: 01/11/2005 (5A11092-MS1)</b>										
					<b>Source: IOA0549-01</b>					
Chromium VI	48.5	1.0	0.041	ug/l	50.0	ND	97 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 011 - Grab Report Number: IOA0549	Sampled: 01/11/05 Received: 01/11/05
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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
<b>Batch: 5A11092 Extracted: 01/11/05</b>										
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11092-MSD1)</b>					<b>Source: IOA0549-01</b>					
Chromium VI	48.7	1.0	0.041	ug/l	50.0	ND	97 90-110	0	10	
<b>Batch: 5A11108 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11108-BLK1)</b>										
Total Cyanide	ND	5.0	2.2	ug/l						
<b>LCS Analyzed: 01/11/2005 (5A11108-BS1)</b>										
Total Cyanide	184	5.0	2.2	ug/l	200		92 90-110			
<b>Matrix Spike Analyzed: 01/11/2005 (5A11108-MS1)</b>					<b>Source: IOA0214-01</b>					
Total Cyanide	171	5.0	2.2	ug/l	200	ND	86 70-115			
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11108-MSD1)</b>					<b>Source: IOA0214-01</b>					
Total Cyanide	169	5.0	2.2	ug/l	200	ND	84 70-115	1	15	
<b>Batch: 5A12041 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A12041-BLK1)</b>										
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l						
<b>LCS Analyzed: 01/17/2005 (5A12041-BS1)</b>										
Biochemical Oxygen Demand	208	100	30	mg/l	198		105 85-115			
<b>LCS Dup Analyzed: 01/17/2005 (5A12041-BSD1)</b>										
Biochemical Oxygen Demand	212	100	30	mg/l	198		107 85-115	2	20	

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12045 Extracted: 01/12/05</b>											
<b>Duplicate Analyzed: 01/12/2005 (5A12045-DUP1)</b>											
Residual Chlorine	ND	0.10	0.10	mg/l		ND				20	
<b>Batch: 5A12058 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12058-BLK1)</b>											
Turbidity	ND	1.0	0.040	NTU							
<b>Duplicate Analyzed: 01/12/2005 (5A12058-DUP1)</b>											
Turbidity	0.260	1.0	0.040	NTU		0.23			12	20	J
<b>Batch: 5A12059 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12059-BLK1)</b>											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
<b>LCS Analyzed: 01/12/2005 (5A12059-BS1)</b>											
Surfactants (MBAS)	0.248	0.10	0.044	mg/l	0.250		99	90-110			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12059-MS1)</b>											
Surfactants (MBAS)	0.191	0.10	0.044	mg/l	0.250	0.052	56	50-125			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12059-MSD1)</b>											
Surfactants (MBAS)	0.193	0.10	0.044	mg/l	0.250	0.052	56	50-125	1	20	
<b>Batch: 5A13051 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13051-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							

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

Project ID: Routine Outfall 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13051 Extracted: 01/13/05</b>											
<b>LCS Analyzed: 01/13/2005 (5A13051-BS1)</b>											
Perchlorate	50.0	4.0	0.80	ug/l	50.0		100	85-115			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13051-MS1)</b>											
Perchlorate	49.6	4.0	0.80	ug/l	50.0	0.93	97	80-120			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13051-MSD1)</b>											
Perchlorate	50.7	4.0	0.80	ug/l	50.0	0.93	100	80-120	2	20	
<b>Batch: 5A13053 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A13053-BLK1)</b>											
Total Organic Carbon	ND	1.0	0.56	mg/l							
<b>LCS Analyzed: 01/12/2005 (5A13053-BS1)</b>											
Total Organic Carbon	10.4	1.0	0.56	mg/l	10.0		104	90-110			
<b>Matrix Spike Analyzed: 01/12/2005 (5A13053-MS1)</b>											
Total Organic Carbon	10.3	1.0	0.56	mg/l	5.00	5.1	104	80-120			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A13053-MSD1)</b>											
Total Organic Carbon	10.2	1.0	0.56	mg/l	5.00	5.1	102	80-120	1	20	
<b>Batch: 5A13060 Extracted: 01/13/05</b>											
<b>Duplicate Analyzed: 01/13/2005 (5A13060-DUP1)</b>											
Specific Conductance	164	1.0	1.0	umhos/cm		160			2	5	

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 Attention: Bronwyn Kelly

**Project ID: Routine Outfall 011 - Grab**  
**Report Number: IOA0549**
**Sampled: 01/11/05**  
**Received: 01/11/05**
**METHOD BLANK/QC DATA**
**INORGANICS**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13063 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13063-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 01/13/2005 (5A13063-BS1)</b>											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0		98	80-115			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13063-MS1)</b>											
						<b>Source: IOA0632-01</b>					
Ammonia-N (Distilled)	11.5	0.50	0.30	mg/l	10.0	0.56	109	70-120			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13063-MSD1)</b>											
						<b>Source: IOA0632-01</b>					
Ammonia-N (Distilled)	11.2	0.50	0.30	mg/l	10.0	0.56	106	70-120	3	15	
<b>Batch: 5A13065 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13065-BLK1)</b>											
Oil & Grease	1.20	5.0	0.94	mg/l							J
<b>LCS Analyzed: 01/13/2005 (5A13065-BS1)</b>											
Oil & Grease	18.6	5.0	0.94	mg/l	20.0		93	65-120			M-NRI
<b>LCS Dup Analyzed: 01/13/2005 (5A13065-BSD1)</b>											
Oil & Grease	21.1	5.0	0.94	mg/l	20.0		106	65-120	13	20	
<b>Batch: 5A13089 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13089-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/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	RPD Limit	Data Qualifiers
<b>Batch: 5A13089 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/13/2005 (5A13089-BS1)</b>										
Total Dissolved Solids	994	10	10	mg/l	1000		99 90-110			
<b>Duplicate Analyzed: 01/13/2005 (5A13089-DUP1)</b>										
						<b>Source: IOA0549-01</b>				
Total Dissolved Solids	92.0	10	10	mg/l		88		4	10	
<b>Batch: 5A14084 Extracted: 01/14/05</b>										
<b>Blank Analyzed: 01/14/2005 (5A14084-BLK1)</b>										
Total Suspended Solids	ND	10	10	mg/l						
<b>LCS Analyzed: 01/14/2005 (5A14084-BS1)</b>										
Total Suspended Solids	949	10	10	mg/l	1000		95 85-115			
<b>Duplicate Analyzed: 01/14/2005 (5A14084-DUP1)</b>										
						<b>Source: IOA0607-01</b>				
Total Suspended Solids	ND	10	10	mg/l		ND			10	
<b>Batch: 5A15022 Extracted: 01/15/05</b>										
<b>Blank Analyzed: 01/15/2005 (5A15022-BLK1)</b>										
Fluoride	0.149	0.50	0.074	mg/l						J
<b>LCS Analyzed: 01/15/2005 (5A15022-BS1)</b>										
Fluoride	4.58	0.50	0.074	mg/l	5.00		92 90-110			
<b>Matrix Spike Analyzed: 01/15/2005 (5A15022-MS1)</b>										
						<b>Source: IOA0835-03</b>				
Fluoride	5.23	0.50	0.074	mg/l	5.00	0.31	98 80-120			

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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
<b>Batch: 5A15022 Extracted: 01/15/05</b>											
<b>Matrix Spike Dup Analyzed: 01/15/2005 (5A15022-MSD1)</b>						<b>Source: IOA0835-03</b>					
Fluoride	5.25	0.50	0.074	mg/l	5.00	0.31	99	80-120	0	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 Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: P5A1502 Extracted: 01/15/05</b>										
<b>Blank Analyzed: 01/15/2005 (P5A1502-BLK1)</b>										
1,4-Dioxane	ND	1.0	0.49	ug/l						
Surrogate: Dibromofluoromethane	1.03			ug/l	1.00		103 80-125			
<b>LCS Analyzed: 01/15/2005 (P5A1502-BS1)</b>										
1,4-Dioxane	9.04	1.0	0.49	ug/l	10.0		90 70-130			
Surrogate: Dibromofluoromethane	0.950			ug/l	1.00		95 80-125			
<b>LCS Dup Analyzed: 01/15/2005 (P5A1502-BSD1)</b>										
1,4-Dioxane	9.30	1.0	0.49	ug/l	10.0		93 70-130	3	20	
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98 80-125			
<b>Matrix Spike Analyzed: 01/15/2005 (P5A1502-MS1) Source: POA0240-01</b>										
1,4-Dioxane	10.7	1.0	0.49	ug/l	10.0	ND	107 70-150			
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98 80-125			
<b>Matrix Spike Dup Analyzed: 01/15/2005 (P5A1502-MSD1) Source: POA0240-01</b>										
1,4-Dioxane	9.07	1.0	0.49	ug/l	10.0	ND	91 70-150	16	25	
Surrogate: Dibromofluoromethane	0.940			ug/l	1.00		94 80-125			

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 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05

Received: 01/11/05

**DATA QUALIFIERS AND DEFINITIONS**

- B** Analyte was detected in the associated Method Blank.
- C** Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- L** Laboratory Control Sample recovery was above the method control limits. Analyte not detected, data not impacted.
- 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.
- P1** Sample received and analyzed without chemical preservation.
- R-2** The RPD exceeded the method control limit.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- 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, Irvine  
Michele Harper  
Project Manager



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

Project ID: Routine Outfall 011 - Grab  
 Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

## 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 200.7	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
EPA 8260B	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](http://www.dmalabs.com).*

### Subcontracted Laboratories

#### Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrnrc

Samples: IOA0549-01

Analysis Performed: Bioassay-Acute 96hr

Samples: IOA0549-01

#### Del Mar Analytical - Phoenix NELAC Cert #01109CA, California Cert #2446

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B

### 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 011 - Grab

Report Number: IOA0549

Sampled: 01/11/05  
 Received: 01/11/05

**Del Mar Analytical - Phoenix** *NELAC Cert #01109CA, California Cert #2446*

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044  
 Samples: IOA0549-01

**Eberline Services - SUB**

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4  
 Samples: IOA0549-01

Analysis Performed: Gross Alpha  
 Samples: IOA0549-01

Analysis Performed: Gross Beta  
 Samples: IOA0549-01

Analysis Performed: Radium, Combined  
 Samples: IOA0549-01

Analysis Performed: Strontium 90  
 Samples: IOA0549-01

Analysis Performed: Tritium  
 Samples: IOA0549-01

**Pace Analytical, MN- SUB**

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR  
 Samples: IOA0549-01

Analysis Performed: EDD + Level 4  
 Samples: IOA0549-01

**Truesdail Laboratories-SUB** *California Cert #1237*

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Hydrazine  
 Samples: IOA0549-01

Analysis Performed: Level 4 Data Package  
 Samples: IOA0549-01

**Del Mar Analytical, Irvine**  
 Michele Harper  
 Project Manager

IOA0549

Del Mar Analytical Version 5.8/12/04 CHAIN OF CUSTODY FORM

Client Name/Address:  
**MWH-Pasadena**  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Project Manager: Bronwyn Kelly  
 Sampler: *BK / LH*

Project:  
**Boeing-SSFL NPDES**  
**Outfall 011 Routine/13267**

Perimeter Pond  
 Phone Number:  
 (626) 568-6691  
 Fax Number:  
 (626) 568-6515

ANALYSIS REQUIRED			
Sample Description	Container Type	Sample Matrix	# of Cont.
Outfall 011	Poly-1L	W	1
Outfall 011-Dup	Poly-1L	W	1
Outfall 011	Poly-1L	W	1
Outfall 011	VOAs	W	3
Outfall 011	1L Amber	W	2
Outfall 011	1L Amber	W	2
Outfall 011	Poly-500 ml	W	1
Outfall 011	Poly-1L	W	1
Outfall 011	Poly-500 ml	W	2
Outfall 011	Poly-500 ml	W	2
Outfall 011	Poly-500 ml	W	2
Outfall 011	Poly-500 ml	W	1
Outfall 011	1L Amber	W	2
Outfall 011	1L Amber	W	2
Trip Blank	VOAs	W	3

Sample Description	Container Type	Sample Matrix	# of Cont.	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, Titr (350.2) w/dist	Alpha BHC (8081A)	2,4,6 Trichlorophenol, 2,4 Dinitrofluorene, Bis(2-ethylhexyl)phthalate, NDMA, pentachlorophenol (EPA 625)	Field readings: Temp = 57.6 pH = 6.8	Comments
Outfall 011	Poly-1L	W	1	HNO3	1A	X														
Outfall 011-Dup	Poly-1L	W	1	HNO3	1B	X														
Outfall 011	Poly-1L	W	1	None	2		X													
Outfall 011	VOAs	W	3	HCl	3A, 3B, 3C			X												
Outfall 011	1L Amber	W	2	None	4A, 4B				X											
Outfall 011	1L Amber	W	2	None	5A, 5B				X											
Outfall 011	Poly-500 ml	W	1	HCl	6					X										
Outfall 011	Poly-1L	W	1	NaOH	7						X									
Outfall 011	Poly-500 ml	W	2	None	8A, 8B							X								
Outfall 011	Poly-500 ml	W	2	None	9A, 9B								X							
Outfall 011	Poly-500 ml	W	2	None	10A, 10B									X						
Outfall 011	Poly-500 ml	W	1	H2SO4	11															
Outfall 011	1L Amber	W	2	None	12A, 12B															
Outfall 011	1L Amber	W	2	None	13A, 13B															
Trip Blank	VOAs	W	3	HCl	14A, 14B, 14C															

Relinquished By: *[Signature]* Date/Time: 1/11/05 1455  
 Relinquished By: *[Signature]* Date/Time: 7-11-05 1800  
 Relinquished By: *[Signature]* Date/Time: 1/11/05 1800

Received By: *[Signature]* Date/Time: 1-11-05 1455  
 Received By: *[Signature]* Date/Time: 1/11/05 1800  
 Received By: *[Signature]* Date/Time: 1/11/05 1800

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:    
 Intact

46

59

20°C

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5.8/1204

<b>Client Name/Address:</b> MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		<b>Project:</b> Boeing-SSFL NPDES Outfall 011 Routine/13267 Perimeter Pond		<b>ANALYSIS REQUIRED</b>										Temp = 57.6 PK = 6.8 Comments									
<b>Project Manager:</b> Bronwyn Kelly Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		<b>Sampler:</b> <i>BK/LH</i>		Residual Chlorine		TOC		Chromium VI (218.6)		Rad Chem		Total Rec. Petroleum Hydrocarbons (EPA 418.1)		Diesel		8015 (GRO)		Momomethylhydrazine		624-Mod A+A+2CVE		Acute and Chronic toxicity-bioassays	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Bottle #	Residual Chlorine	TOC	Chromium VI (218.6)	Rad Chem	Total Rec. Petroleum Hydrocarbons (EPA 418.1)	Diesel	8015 (GRO)	Momomethylhydrazine	624-Mod A+A+2CVE	Acute and Chronic toxicity-bioassays							
Outfall 011	W	150ml Brown Poly	1	1/11/05 1048	None		X																
Outfall 011	W	VOA	3		HCl			X															
Outfall 011	W	500ml Poly	1		None				X														
Outfall 011	W	Poly-1Gal	1		None					X													
Outfall 011	W	1L Amber	2		HCl						X												
Outfall 011	W	1L Amber	2		None							X											
Outfall 011	W	VOA	3		None								X										
Outfall 011	W	1L Amber	2		None									X									
Outfall 011	W	VOA	3		None										X								
Outfall 011	W	Poly-1Gal	2		None											X							
Trip Balms	W	VOA	3		None												X						

Relinquished By: *Andrew Hays* Date/Time: 1/11/05 1455  
 Received By: *Bronwyn Kelly* Date/Time: 1-11-05 1455  
 Relinquished By: *Bronwyn Kelly* Date/Time: 1-11-05 1800  
 Received By: *Bronwyn Kelly* Date/Time: 1-11-05 1800

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  Cont.



300 N. Lake Ave., Suite 1200  
 Pasadena, California 91101  
 Tel: 626-568-6691  
 Fax: 626-568-6515

Date: 03/01/05

To: Michele Harper / Del Mar Analytical Fax No: 949-260-3297  
 Krissi McIlvanna / MWH 925-975-3412

From: Bronwyn K. Kelly

sign:

Subject: Chain-of-Custody Form Analytical Request Change No. of Pages: 1  
(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, Not Completed	Change(s) and Method (s) Now Requested
IOA0567	Outfall 011 – Composite	01/11/05		NH3, BOD, Cl-, N/N-N, Oil and Grease, Sulfate, MBAS, TDS, TSS, Settleable Solids, Turbidity, CN, Clo4-, Conductivity, Lead, Cr, Cu, Hg, TOC, TCDD.
IOA0549	Outfall 011 – Grab	01/11/05		608 Pest/PCB-PP list, 625-PP list, Sb, As, Ba, Be, B, Cd, Cr, Co, F, Fe, Mn, Ni, Se, Ag, Tl, V, Zn, 1,4-Dioxane, 624-Preon 113, Freon 123a, Cyclohexane
IOB1004	Outfall 011 – Composite	01/11/05		NH3, BOD, Cl-, N/N-N, Oil and Grease, Sulfate, MBAS, TDS, TSS, Settleable Solids, Turbidity, CN, Clo4-, Conductivity, Lead, Cr, Cu, Hg, TOC, TCDD.

The reason for these changes:

- Incorrectly marked on COC form* \_\_\_\_\_
- Lack of sample volume* \_\_\_\_\_
- MWH office personnel require this change* \_\_\_\_\_ **X** \_\_\_\_\_
- Other: Containers mislabeled* \_\_\_\_\_

This Change Order supersedes all previous change orders submitted.

Thank you





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 9, 2005

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

Attention: Bronwyn Kelly  
 Project: 13267 (Study 1)  
 Outfall 011 Grab  
 Sampled: 1/11/05  
 Del Mar Analytical Number: IOA0549

Dear Ms. Kelly:

Aquatic Testing Laboratories performed the Fathead Minnow 96hr Percent Survival Bioassay by EPA Method 2000.0 and Ceriodaphnia Survival and Reproduction Test by EPA Method 1002, Eberline Services performed Gross Alpha/Gross Beta (EPA 900.0), Tritium (H-3, EPA 906.0), and Strontium-90 (Sr-90, EPA 905.0), Pace Analytical performed the TCDD analysis by USEPA Method 1613B, and Truesdail Laboratories performed the Hydrazines by EPA 8315B for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ATL ID	EBERLINE ID	PACE ID	TRUESDAIL ID
Outfall 011-Grab	IOA0549-01	A-05011205-001/002	R501122/8175-001	106132001	938566-1

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

# LABORATORY REPORT

**Aquatic  
Testing  
Laboratories**



*"dedicated to providing quality aquatic toxicity testing"*

**Date:** January 19, 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-05011205-001/002  
**Sample I.D.:** IOA0549-01

**Sample Control:** The sample was received by ATL chilled, with the chain of custody record attached.

Date Sampled: 01/11/05  
Date Received: 01/12/05  
Date Tested: 01/12/05 to 01/18/05

**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:

<b>Acute:</b>	<b><u>Survival</u></b>	<b><u>TUa</u></b>
Fathead Minnow:	100%	0.0
<b>Chronic:</b>	<b><u>NOEC</u></b>	<b><u>TUc</u></b>
<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-05011205-001  
 Client/ID: Del Mar IOA0549-01

Start Date: 01/12/2005

## TEST SUMMARY

Species: *Pimephales promelas*.  
 Age: 13 (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-050104.

## TEST DATA

		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	20.0	8.9	8.0	0	0	Rv 1400
	100%	20.2	9.8	6.9	0	0	
24 Hr	Control	19.2	8.6	7.6	0	0	Rv 1200
	100%	19.0	8.7	7.0	0	0	
48 Hr	Control	19.4	8.3	7.6	0	0	Rv 1200
	100%	19.4	8.2	7.1	0	0	
Renewal	Control	19.3	9.2	7.9	0	0	Rv 1200
	100%	19.5	10.8	6.8	0	0	
72 Hr	Control	19.2	8.0	7.7	0	0	Rv 1100
	100%	19.2	8.5	7.2	0	0	
96 Hr	Control	19.2	7.4	7.6	0	0	Rv 1400
	100%	19.1	8.5	7.6	0	0	

**Comments:**

Sample as received: Chlorine: 0 mg/l; pH: 6.9; Conductivity: 78 umho; Temp: 4°C;  
 DO: 9.8 mg/l; Alkalinity: 24 mg/l; Hardness: 32 mg/l; NH<sub>3</sub>-N: 0.4 mg/l.  
 Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes / No  
 Control: Alkalinity: 60 mg/l; Hardness: 100 mg/l; Conductivity: 35 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-05011205  
Client/ID: Del Mar IOA0549-01

Date Tested: 01/12/05 to 01/18/05

**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-050104.

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%	23.0
6.25%	100%	24.0
12.5%	100%	29.1
25%	100%	30.3
50%	100%	30.5
100%	100%	30.7

\* 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	Pass (23.0 young)
≥60% surviving controls had 3 broods	Pass (70% with 3 broods)
PMSD <47% for reproduction; if >47% and no toxicity at IWC, the test must be repeated	Pass (PMSD = 25.4%)
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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 9630 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 # IOA0549

**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	Sampled:	Comments
Sample ID: IOA0549-01 Water		01/11/05 10:48	Instant Notification
Bioassay-7 dy Chrnrc	01/12/05 22:48		ceriodaphnia, 13267
Bioassay-Acute 96hr	01/12/05 22:48		fathead minnow, 13267
<b>Containers Supplied:</b>			
1 gal Poly (IOA0549-01AP)			
1 gal Poly (IOA0549-01AQ)			

**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): 4°C

Released By: Stacy Sunada Date: 1/12/05 Time: 0715 Received By: Stacy Sunada Date: 1/12/05 Time: 0715  
 Released By: Stacy Sunada Date: 1/14/05 Time: 1330 Received By: Stacy Sunada Date: 1-12-05 Time: 1330



# EBERLINE SERVICES

February 28, 2005

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

Reference: Del Mar Analytical Project No. IOA0549  
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)  
Eberline Services Report R501122-8175

Dear Ms. Harper:

Enclosed are results from the analyses of one water sample received at Eberline Services on January 14, 2005. The sample was analyzed according to the accompanying Del Mar Analytical Subcontract Order Form. The requested analyses were gross alpha/gross beta (EPA900.0), tritium (H-3, EPA906.0), and strontium-90 (Sr-90, EPA905.0). The QC LCS, blank analyses, sample duplicates, and matrix spike results for the analyses were within the limits defined in Eberline Services Quality Control Procedures Manual. Analyses that involve the yielding of an analytical tracer or carrier, such as Sr-90, do not require matrix spike analyses to be performed.

Please call me if you have any questions concerning this report.

Regards,

Melissa Mannion  
Senior Program Manager

MCM/njv

Enclosure: Report  
Subcontract Form  
Receipt checklist  
Invoice

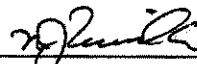
Analytical Services  
2030 Wright Avenue  
P.O. Box 4040  
Richmond, California 94804-0040  
(510) 235-2633 Fax (510) 235-0438  
Toll Free (800) 841-5487  
[www.eberlineservices.com](http://www.eberlineservices.com)

# Eberline Services

## ANALYSIS RESULTS

SDG <u>8175</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R501122-01</u>	Contract <u>PROJECT# IOA0549</u>
Received Date <u>01/14/05</u>	Matrix <u>WATER</u>

Client	Lab						
<u>Sample ID</u>	<u>Sample ID</u>	<u>Collected</u>	<u>Analyzed</u>	<u>Nuclide</u>	<u>Results ± 2σ</u>	<u>Units</u>	<u>MDA</u>
IOA0549-01	8175-001	01/11/05	01/31/05	GrossAlpha	0.850 ± 0.70	pCi/L	0.930
			01/31/05	Gross Beta	2.40 ± 1.2	pCi/L	1.86
			02/16/05	H3	17.8 ± 150	pCi/L	249
			01/27/05	Sr90	-0.173 ± 0.29	pCi/L	0.607

Certified by   
Report Date 02/21/05  
Page 1

# Eberline Services

## QC RESULTS

SDG <u>8175</u> Work Order <u>R50-122-01</u> Received Date <u>01/14/05</u>	Client <u>DEL MAR ANAL</u> Contract <u>PROJECT# IOA0549</u> Matrix <u>WATER</u>
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Lab	Sample ID	Nuclide	Results	Units	Amount Added	MDA	Evaluation
<u>LCS</u>							
	8174-002	GrossAlpha	10.8 ± 1.3	pCi/Smpl	11.2	0.643	96% recovery
		Gross Beta	12.0 ± 0.83	pCi/Smpl	12.1	0.571	99% recovery
		H3	246 ± 23	pCi/Smpl	260	24.4	95% recovery
		Sr90	12.4 ± 0.44	pCi/Smpl	11.1	0.156	112% recovery
<u>BLANK</u>							
	8174-003	GrossAlpha	0.293 ± 0.33	pCi/Smpl	NA	0.511	<MDA
		Gross Beta	-0.071 ± 0.35	pCi/Smpl	NA	0.601	<MDA
		H3	1.76 ± 14	pCi/Smpl	NA	24.7	<MDA
		Sr90	-0.053 ± 0.13	pCi/Smpl	NA	0.240	<MDA

<u>DUPLICATES</u>			
Sample ID	Nuclide	Results + 2σ	MDA
8174-004	GrossAlpha	1.73 ± 1.1	1.18
	Gross Beta	1.98 ± 1.1	1.76
	H3	-28.3 ± 140	248
	Sr90	-0.048 ± 0.27	0.558

<u>ORIGINALS</u>					
Sample ID	Results + 2σ	MDA	RPD (Tot)	3σ	Eval
8174-001	0.294 ± 1.0	1.75	142	226	satis.
	2.50 ± 1.2	1.78	23	114	satis.
	-71.9 ± 140	252	-	0	satis.
	-0.023 ± 0.24	0.431	-	0	satis.

<u>SPIKED SAMPLE</u>			
Sample ID	Nuclide	Results + 2σ	MDA
8174-005	GrossAlpha	84.6 ± 5.2	0.772
	Gross Beta	80.0 ± 3.6	1.75
	H3	8830 ± 380	249

<u>ORIGINAL SAMPLE</u>					
Sample ID	Results + 2σ	MDA	Added	%Recv	
8174-001	0.294 ± 1.0	1.75	76.6	110	
	2.50 ± 1.2	1.78	74.0	105	
	-71.9 ± 140	252	9490	94	

Certified by <u><i>[Signature]</i></u> Report Date <u>02/27/05</u> Page 2
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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) 505-9386 Fax (619) 505-9389  
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 2520 E. Camel Rd., Suite 403, Las Vegas, NV 89120 Ph (702) 796-3820 Fax (702) 796-3821

**SUBCONTRACT ORDER - PROJECT # IOA0549**

**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:**  
 Eberline Services  
 2030 Wright Avenue  
 Richmond, CA 94804  
 Phone: (510) 235-2633  
 Fax: (510) 235-0438

**REVISED**

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

Analysis	Expiration	Comments
Sample ID: IOA0549-01 Water	Sampled: 01/11/05 10:48	Instant Notification
Gross Alpha-O	01/11/06 10:48	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Gross Beta-O	01/11/06 10:48	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Radium, Combined-O	01/11/06 10:48	HOLD for Gross Alpha/Beta result; EPA 905.1 & 904.0
Strontium 90-O	01/11/06 10:48	905.0
Tritium-O	01/11/06 10:48	906

Containers Supplied:  
 1 gal Poly (IOA0549-01AC)

**FAXED**  
 1/13/05

**SAMPLE INTEGRITY:**

All containers intact:  Yes  No  
 Sample labels/COC agree:  Yes  No  
 Samples Received On Ice:  Yes  No  
 Custody Seals Prescat:  Yes  No  
 Samples Preserved Properly:  Yes  No  
 Samples Received at (camp): \_\_\_\_\_

Released By: [Signature] Date: 1/13/05 Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_



RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: Del Mar City: Irvine State: CA  
 Date/Time received: 1-14-05 / 10:00 CoC No.: IOA0549

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Container I.D. No. Cooler Requested TAT (Days) 14 P.O. Received Yes [ ] No [ ]

**INSPECTION**

1. Custody seals on shipping container intact? Yes [ ] No [ ] N/A [  ]
2. Custody seals on shipping container dated & signed? Yes [ ] No [ ] N/A [  ]
3. Custody seals on sample containers intact? Yes [ ] No [ ] N/A [  ]
4. Custody seals on sample containers dated & signed? Yes [ ] No [ ] N/A [  ]
5. Packing material is: Wet [  ] Dry [ ]
6. Number of samples in shipping container: 1 Sample Matrix: Water
7. Number of containers per sample: 1 (Or see CoC \_\_\_\_\_)
8. Samples are in correct container Yes [  ] No [ ]
9. Paperwork agrees with samples? Yes [  ] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [  ]
11. Samples are: In good condition [  ] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [  ] pH 7 Preservative \_\_\_\_\_
13. Describe any anomalies: \_\_\_\_\_

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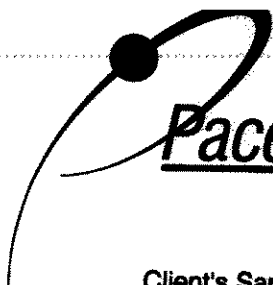
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date \_\_\_\_\_

15. Inspected by JLP Date: 1-14-05 Time: 10:00

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_  
 Alpha Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_  
 Beta/Gamma Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_





## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0549-01				
Lab Sample ID	106132001				
Filename	F50129B_14				
Injected By	BAL				
Total Amount Extracted	1030 mL			Matrix	Water
% Moisture	NA			Dilution	NA
Dry Weight Extracted	NA			Collected	01/11/2005
ICAL Date	11/29/2004			Received	01/13/2005
CCal Filename(s)	F50129B_02			Extracted	01/28/2005
Method Blank ID	BLANK-6220			Analyzed	01/30/2005 06:28

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.79	2,3,7,8-TCDF-13C	2.00	67
Total TCDF	ND	----	0.79	2,3,7,8-TCDD-13C	2.00	84
				1,2,3,7,8-PeCDF-13C	2.00	73
2,3,7,8-TCDD	ND	----	0.70	2,3,4,7,8-PeCDF-13C	2.00	76
Total TCDD	ND	----	0.70	1,2,3,7,8-PeCDD-13C	2.00	91
				1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	----	0.80	1,2,3,6,7,8-HxCDF-13C	2.00	86
2,3,4,7,8-PeCDF	ND	----	0.53	2,3,4,6,7,8-HxCDF-13C	2.00	81
Total PeCDF	ND	----	0.66	1,2,3,7,8,9-HxCDF-13C	2.00	78
				1,2,3,4,7,8-HxCDD-13C	2.00	72
1,2,3,7,8-PeCDD	ND	----	0.72	1,2,3,6,7,8-HxCDD-13C	2.00	91
Total PeCDD	ND	----	0.72	1,2,3,4,6,7,8-HpCDF-13C	2.00	80
				1,2,3,4,7,8,9-HpCDF-13C	2.00	68
1,2,3,4,7,8-HxCDF	ND	----	0.44	1,2,3,4,6,7,8-HpCDD-13C	2.00	87
1,2,3,6,7,8-HxCDF	ND	----	0.46	OCDD-13C	4.00	76
2,3,4,6,7,8-HxCDF	ND	----	0.55			
1,2,3,7,8,9-HxCDF	ND	----	0.66	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.53	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.51	2,3,7,8-TCDD-37Cl4	0.20	81
1,2,3,6,7,8-HxCDD	ND	----	0.50			
1,2,3,7,8,9-HxCDD	ND	----	0.75			
Total HxCDD	2.0	----	0.59 J			
1,2,3,4,6,7,8-HpCDF	2.4	----	0.77 J			
1,2,3,4,7,8,9-HpCDF	ND	----	1.10			
Total HpCDF	9.4	----	0.95 BJ			
1,2,3,4,6,7,8-HpCDD	7.7	----	0.97 BJ			
Total HpCDD	18.0	----	0.97 BJ			
OCDF	9.1	----	1.30 BJ			
OCDD	81.0	----	1.70 J			

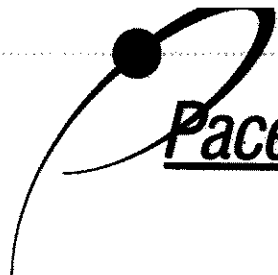
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106132

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Blank Analysis Results

Client - Del Mar Analytical

Lab Sample ID	BLANK-6220	Matrix	Water
Filename	F50129B_06	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 23:49
CCal Filename(s)	F50129B_02	Injected By	BAL

Native Isomers	Conc pg/L	EMPC pg/L	PRL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.20	2,3,7,8-TCDF-13C	2.00	58
Total TCDF	ND	-----	-----	2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	ND	-----	1.20	2,3,4,7,8-PeCDF-13C	2.00	67
Total TCDD	ND	-----	-----	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	-----	1.50	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	-----	1.20	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	-----	-----	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	-----	1.60	1,2,3,6,7,8-HxCDD-13C	2.00	88
Total PeCDD	ND	-----	-----	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
				1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	ND	-----	0.75	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	ND	-----	0.86	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	ND	-----	1.10			
1,2,3,7,8,9-HxCDF	ND	-----	1.20	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	-----	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	1.10	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	ND	-----	0.99			
1,2,3,7,8,9-HxCDD	ND	-----	1.00			
Total HxCDD	ND	-----	-----			
1,2,3,4,6,7,8-HpCDF	ND	-----	2.10			
1,2,3,4,7,8,9-HpCDF	ND	-----	1.90			
Total HpCDF	2.2	-----	----- J			
1,2,3,4,6,7,8-HpCDD	2.4	-----	1.40 J			
Total HpCDD	2.4	-----	----- J			
OCDF	5.2	-----	1.80 J			
OCDD	5.6	-----	2.90 J			

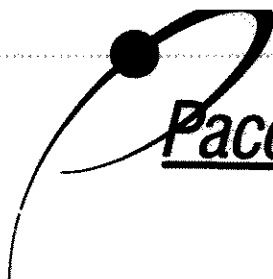
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 PRL = Pace Analytical Reporting Limit  
 A = Limit of Detection based on signal to noise  
 P = Recovery outside of method 1613 control limits  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 J = Value below calibration range  
 \* = See Discussion

Report No.....106124

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCS-6221	Matrix	Water
Filename	F50129B_03	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 21:22
CCal Filename	F50129B_02	Injected By	BAL
Method Blank ID	BLANK-6220		

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.9	7.5	15.8	99
2,3,7,8-TCDD	10	8.6	6.7	15.8	86
1,2,3,7,8-PeCDF	50	50.5	40.0	67.0	101
2,3,4,7,8-PeCDF	50	48.2	34.0	80.0	96
1,2,3,7,8-PeCDD	50	43.3	35.0	71.0	87
1,2,3,4,7,8-HxCDF	50	45.6	36.0	67.0	91
1,2,3,6,7,8-HxCDF	50	48.7	42.0	65.0	97
2,3,4,6,7,8-HxCDF	50	49.1	35.0	78.0	98
1,2,3,7,8,9-HxCDF	50	46.5	39.0	65.0	93
1,2,3,4,7,8-HxCDD	50	49.9	35.0	82.0	100
1,2,3,6,7,8-HxCDD	50	51.3	38.0	67.0	103
1,2,3,7,8,9-HxCDD	50	50.1	32.0	81.0	100
1,2,3,4,6,7,8-HpCDF	50	50.3	41.0	61.0	101
1,2,3,4,7,8,9-HpCDF	50	53.3	39.0	69.0	107
1,2,3,4,6,7,8-HpCDD	50	45.4	35.0	70.0	91
OCDF	100	95.6	63.0	170.0	96
OCDD	100	97.1	78.0	144.0	97
2,3,7,8-TCDD-37Cl4	10	6.9	3.1	19.1	69
2,3,7,8-TCDF-13C	100	51.5	22.0	152.0	52
2,3,7,8-TCDD-13C	100	67.8	20.0	175.0	68
1,2,3,7,8-PeCDF-13C	100	61.4	21.0	192.0	61
2,3,4,7,8-PeCDF-13C	100	65.9	13.0	328.0	66
1,2,3,7,8-PeCDD-13C	100	77.8	21.0	227.0	78
1,2,3,4,7,8-HxCDF-13C	100	70.2	19.0	202.0	70
1,2,3,6,7,8-HxCDF-13C	100	78.0	21.0	159.0	78
2,3,4,6,7,8-HxCDF-13C	100	74.1	22.0	176.0	74
1,2,3,7,8,9-HxCDF-13C	100	70.4	17.0	205.0	70
1,2,3,4,7,8-HxCDD-13C	100	69.0	21.0	193.0	69
1,2,3,6,7,8-HxCDD-13C	100	82.8	25.0	163.0	83
1,2,3,4,6,7,8-HpCDF-13C	100	72.1	21.0	158.0	72
1,2,3,4,7,8,9-HpCDF-13C	100	62.4	20.0	186.0	62
1,2,3,4,6,7,8-HpCDD-13C	100	80.1	26.0	166.0	80
OCDD-13C	200	135.6	26.0	397.0	68

Cs = Concentration Spiked (ng/mL)  
 Cr = Concentration Recovered (ng/mL)  
 Rec. = Recovery (Expressed as Percent)  
 Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
 X = Background subtracted value  
 P = Recovery outside of control limits  
 Nn = Value obtained from additional analysis  
 \* = See Discussion

Report No.....106124

## REPORT OF LABORATORY ANALYSIS

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**Method 1613B Laboratory Control Spike Results**

Client - Del Mar Analytical

Lab Sample ID	LCSD-6222	Matrix	Water
Filename	F50129B_04	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 22:09
CCal Filename	F50129B_02	Injected By	BAL
Method Blank ID	BLANK-6220		

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10.6	7.5	15.8	106
2,3,7,8-TCDD	10	9.4	6.7	15.8	94
1,2,3,7,8-PeCDF	50	53.2	40.0	67.0	106
2,3,4,7,8-PeCDF	50	50.7	34.0	80.0	101
1,2,3,7,8-PeCDD	50	46.0	35.0	71.0	92
1,2,3,4,7,8-HxCDF	50	47.6	36.0	67.0	95
1,2,3,6,7,8-HxCDF	50	50.9	42.0	65.0	102
2,3,4,6,7,8-HxCDF	50	50.9	35.0	78.0	102
1,2,3,7,8,9-HxCDF	50	49.0	39.0	65.0	98
1,2,3,4,7,8-HxCDD	50	52.4	35.0	82.0	105
1,2,3,6,7,8-HxCDD	50	54.2	38.0	67.0	108
1,2,3,7,8,9-HxCDD	50	52.5	32.0	81.0	105
1,2,3,4,6,7,8-HpCDF	50	55.0	41.0	61.0	110
1,2,3,4,7,8,9-HpCDF	50	55.7	39.0	69.0	111
1,2,3,4,6,7,8-HpCDD	50	48.0	35.0	70.0	96
OCDF	100	100.6	63.0	170.0	101
OCDD	100	101.9	78.0	144.0	102
2,3,7,8-TCDD-37Cl4	10	8.7	3.1	19.1	87
2,3,7,8-TCDF-13C	100	70.4	22.0	152.0	70
2,3,7,8-TCDD-13C	100	88.6	20.0	175.0	89
1,2,3,7,8-PeCDF-13C	100	73.6	21.0	192.0	74
2,3,4,7,8-PeCDF-13C	100	79.0	13.0	328.0	79
1,2,3,7,8-PeCDD-13C	100	95.5	21.0	227.0	96
1,2,3,4,7,8-HxCDF-13C	100	84.8	19.0	202.0	85
1,2,3,6,7,8-HxCDF-13C	100	89.5	21.0	159.0	90
2,3,4,6,7,8-HxCDF-13C	100	87.2	22.0	176.0	87
1,2,3,7,8,9-HxCDF-13C	100	82.1	17.0	205.0	82
1,2,3,4,7,8-HxCDD-13C	100	80.1	21.0	193.0	80
1,2,3,6,7,8-HxCDD-13C	100	97.0	25.0	163.0	97
1,2,3,4,6,7,8-HpCDF-13C	100	84.4	21.0	158.0	84
1,2,3,4,7,8,9-HpCDF-13C	100	71.7	20.0	186.0	72
1,2,3,4,6,7,8-HpCDD-13C	100	92.4	26.0	166.0	92
OCDD-13C	200	159.2	26.0	397.0	80

Cs = Concentration Spiked (ng/mL)  
 Cr = Concentration Recovered (ng/mL)  
 Rec. = Recovery (Expressed as Percent)  
 Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
 X = Background subtracted value  
 P = Recovery outside of control limits  
 Nn = Value obtained from additional analysis  
 \* = See Discussion

Report No.....106124

**REPORT OF LABORATORY ANALYSIS**

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**SPIKE RECOVERY RELATIVE PERCENT DIFFERENCE (RPD) RESULTS**

Client..... Del Mar Analytical

SPIKE 1 ID..... LCS-6221  
SPIKE 1 Filename..... F50129B\_03  
SPIKE 2 ID..... LCSD-6222  
SPIKE 2 Filename..... F50129B\_04

COMPOUND	SPIKE 1 REC,%	SPIKE 2 REC,%	RPD,%
2378-TCDF	99	106	6.8
2378-TCDD	86	94	8.9
12378-PeCDF	101	106	4.8
23478-PeCDF	96	101	5.1
12378-PeCDD	87	92	5.6
123478-HxCDF	91	95	4.3
123678-HxCDF	97	102	5.0
234678-HxCDF	98	102	4.0
123789-HxCDF	93	98	5.2
123478-HxCDD	100	105	4.9
123678-HxCDD	103	108	4.7
123789-HxCDD	100	105	4.9
1234678-HpCDF	101	110	8.5
1234789-HpCDF	107	111	3.7
1234678-HpCDD	91	96	5.3
OCDF	96	101	5.1
OCDD	97	102	5.0

REC = Percent Recovered  
RPD = The difference between the two values divided by the average.  
NA = Not Applicable

Report No..... 106124, 106125, 106126  
106127, 106128, 106130  
106131, 106132, 106135

**REPORT OF LABORATORY ANALYSIS**

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**TABLE 1. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans**

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

\*Excluding the 2,3,7,8-substituted congeners.

Reference: 1989 ITEFs

## REPORT OF LABORATORY ANALYSIS

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 9484 Chesapeake Drive, Suite 806, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

**SUBCONTRACT ORDER - PROJECT # IOA0549** *106132*

**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:**  
 Pace Analytical, MN- SUB  
 1700 Elm Street, Ste 200  
 Minneapolis, MN 55414  
 Phone : (612) 607-1700  
 Fax: (612) 607-6444

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

Analysis	Expiration	Comments
Sample ID: IOA0549-01 Water	Sampled: 01/11/05 10:48	Instant Notification
1613-Dioxin-HR	01/18/05 10:48	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	02/08/05 10:48	Excel EDD email to pm, Include Std logs for Lvl IV
<b>Containers Supplied:</b>		
1 L Amber (IOA0549-01G)		
1 L Amber (IOA0549-01H)		

*106132001*

**SAMPLE INTEGRITY:**

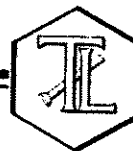
All containers intact:  Yes  No      Sample labels/COC agree:  Yes  No      Samples Received On Ice:  Yes  No  
 Custody Seals Present:  Yes  No      Samples Preserved Properly:  Yes  No      Samples Received at (temp): 2.3°C

Released By: *Stacy Johnson* Date: *1/12/05* Time: \_\_\_\_\_ Received By: *Kelli Anderson* Date: *1/13/05* Time: *9:45*

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

January 24, 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:** IOA0549  
**Date Received:** 01/12/05

**Truesdail Project:** 938566

## 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>
938566-1	IOA0549-01	Water	01/11/05	1048	Hydrazines by EPA 8315M

Respectfully Submitted,  
TRUESDAIL LABORATORIES, INC.

K. R. P. Goyen  
K.R.P. Iyer  
Quality Control/Quality Assurance Officer

Xuan Huong Dang  
Xuan Huong Dang  
Project Manager



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www.truesdail.com

**Client:** Del Mar Analytical  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

**Attention:** Michele Harper

**Project Name:** IOA0549

**Truesdail Project:** 938566

**Date Received:** 01/12/05

## 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 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.

On 1/24/05, client called to add a Level IV Data Package to the project. Since the request was made after the analysis was completed, the normal procedure for logging-in for Level IV was not followed. However, the data package for this project is completed as per the requirement.

Respectfully Submitted,  
TRUESDAIL LABORATORIES, INC.

K. R. P. Iyer

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-Alt.  
17461 Derian Ave.  
Irvine, CA 92614

**Attention:** Michele Harper  
**Sample:** Liquid / 1 Sample  
**Project Name:** IOA0549  
**P.O. Number:** IOA0549  
**Method Number:** 8315 (Modified)  
**Investigation:** Hydrazines in Liquid

**Laboratory No:** 938566  
**Report Date:** January 14, 2005  
**Sampling Date:** January 11, 2005  
**Receiving Date:** January 12, 2005  
**Extraction Date:** January 12, 2005  
**Analysis Date:** January 13, 2005  
**Units:** µg/L  
**Dilution Factor:** 1  
**Reported By:** JS

Page 1 of 1

### Analytical Results

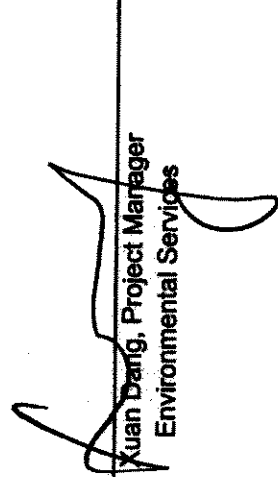
Sample ID	Sample Description	Monomethyl		Unsymmetrical Dimethyl		Hydrazine
		Hydrazine	Hydrazine	Hydrazine	Hydrazine	
704660-MB	Method Blank	ND	ND	ND	ND	
938566	IOA0549-01	ND	ND	ND	ND	
PQL		5.0	5.0	5.0	1.0	
Sample Report Limits		5.0	5.0	5.0	1.0	

PQL: Practical Quantitation Limit, ug/L

ND: Not Detected

N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.

  
Juan 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

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**Client:** Del Mar Analytical - Alt.  
17461 Derfan Ave.  
Irvine, CA 92614

**Client Contact:** Michele Harper  
**Sample:** Liquid / 1 Sample  
**Sample ID:** IOA9549  
**P.O. Number:** IOA0549  
**Method Number:** 8315 (Modified)  
**Run Batch No.:** Extraction: 2915; Analysis: 353  
**Investigation:** Hydrazines in Liquid

## REPORT

**QC Lab. No.:** 704660  
**Project Lab. No.:** 938566  
**Spiked Sample ID:** 938566  
**Report Date:** January 14, 2005  
**Sampling Date:** January 11, 2005  
**Receiving Date:** January 12, 2005  
**Extraction Date:** January 12, 2005  
**Analysis Date:** January 13, 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	23.5	94.1	85-115	PASS
u-Dimethyl Hydrazine	25.0	23.2	93.0	85-115	PASS
Hydrazine	5.0	5.00	100	85-115	PASS

#### QCS

Parameter	Theoretical Value (ug/L)		Measured Value (ug/L)		% Rec.	Control Limits	Flag
	Value	Rec.	Value	Rec.			
Monomethyl Hydrazine	50.0	114	57.0	114	114	85-115	PASS
u-Dimethyl Hydrazine	50.0	106	52.8	106	106	85-115	PASS
Hydrazine	10.0	111	11.1	111	111	85-115	PASS

### Quality Control/Quality Assurance Spikes Report

#### LCS/LCSD

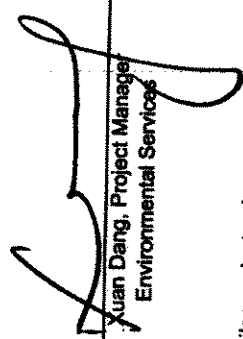
Parameter	Spiked Conc.		Recovered Concentration		Percent Recovery (%)		LCS/LCSD %D		Control Limits		Flag
	ug/L	MSD	LCS	MB	LCS	LCSD	%D	%D	% Rec.	% Rec.	
Monomethyl Hydrazine	50.0	56.1	58.0	0.0	112	116	3.32%	PASS	20	70-130	
u-Dimethyl Hydrazine	50.0	51.0	51.8	0.0	102	104	1.51%	PASS	20	70-130	
Hydrazine	10.0	12.1	12.5	0.0	121	125	3.4%	PASS	20	70-130	

#### MS/MSD

Parameter	Spiked Conc.		Recovered Concentration		Percent Recovery (%)		MS/MSD %D		Accuracy Control Limits	
	ug/L	MSD	MS	MSD	MS	MSD	%D	%D	% Rec.	% Rec.
Monomethyl Hydrazine	50.0	47.2	46.6	0.0	94.5	93.2	1.39%	PASS	20	0-150
u-Dimethyl Hydrazine	50.0	50.3	49.6	0.0	101	99.1	1.52%	PASS	20	0-150
Hydrazine	10.0	11.3	10.9	0.0	113	109	3.08%	PASS	20	0-150

ICV: Initial Calibration Verification  
CCV: Continued Calibration Verification  
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.

  
Juan Dang, Project Manager  
Environmental Services

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**Del Mar Analytical**  
**935566**

17461 Darlan 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) 785-0851  
 2620 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

**SUBCONTRACT ORDER - PROJECT # IOA0549**

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	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: IOA0549-01 Water Hydrazine-OUT	Sampled: 01/11/05 10:48 01/14/05 10:48	Instant Notification Sub Truesdail for Monomethylhydrazine, 13267
Containers Supplied: 1 L Amber (IOA0549-01AK) 1 L Amber (IOA0549-01AL)		

Rec'd 01/12/05  
sl5c 938566

**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: Mary Gunawan Date: \_\_\_\_\_ Time: \_\_\_\_\_      Received By: Michele Harper Date: 1-12-05 Time: 7:10  
 Released By: Michele Harper Date: 1-12-05 Time: 7:30      Received By: Rafael Davila Date: 1-12-05 Time: 7:30 AM



# Del Mar Analytical

NO. 2299 - P. 2/2

17491 Derian Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1228 Fax (949) 261-1228

1014 E. Cooky Dr., Suite A, Colton, CA 92324 Ph (909) 370-4887 Fax (909) 370-1048

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9820 South 81st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0891

2828 E. Sunset Rd., Suite 40, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

## SUBCONTRACT ORDER - PROJECT # IOA0549

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	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: IOA0549-01 Water	Sampled: 01/11/05 10:48	Instant Notification
Hydrazine-OUT	01/14/05 10:48	Sub Truesdail for Monomethylhydrazine, 13267
Level 4 Data Package	02/08/05 10:48	
Containers Supplied:		
1 L Amber (IOA0549-01AK)		
1 L Amber (IOA0549-01AL)		

*MH 1/24/05*

### 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	Sampler Received On lot:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Chemdry Seals Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Preserved Properly:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Samples Received at (stamp):	_____

Released By	Date	Time	Received By	Date	Time



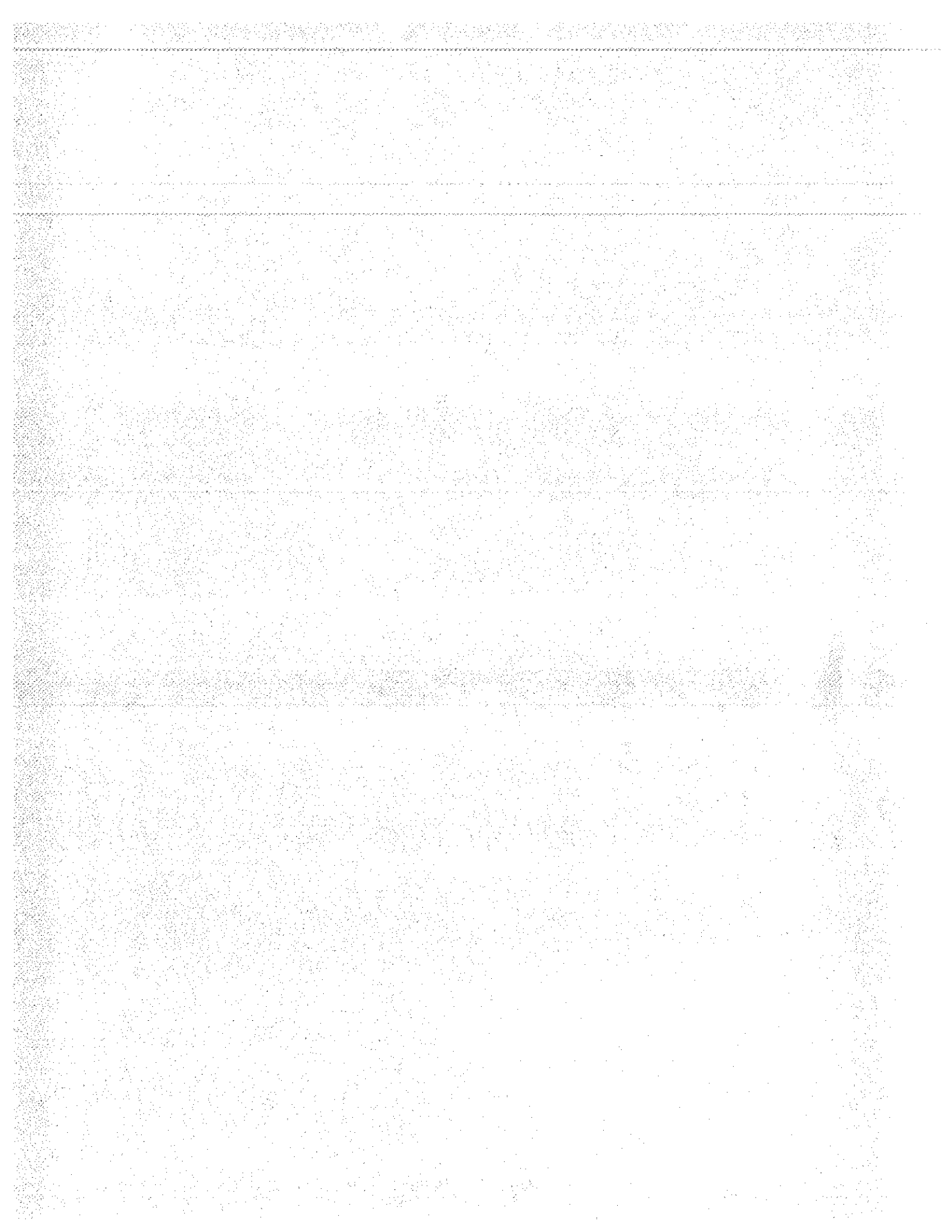
# Sample Integrity & Analysis Discrepancy Form

Client: Del Mar Analytical

Lab # 935566

Date Delivered: 1/12/05 Time: 7:30 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 by:  Truesdail  Client  Yes  No  N/A
12. Were samples pH checked? pH = NP  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



**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711SV27  
 Task Order 313150010  
 SDG No. IOA0567  
 No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Semivolatiles

Date: March 2, 2005  
 Reviewer's Signature 

ACTION ITEMS <sup>a</sup>	
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 RPD outliers.
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	





# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOA0567

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#: IOA0567  
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: March 2, 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	IOA0567-01	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, at 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 01/12/05. 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 01/17/05. The RRFs for all target compounds were ≥0.05, and the %Ds were ≤20%, except for the %D for 2,4-dinitrophenol. 2,4-Dinitrophenol was qualified as an estimated nondetect, "UJ," in the sample of this SDG. A representative number of RRFs 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 (5A13038-BLK1) was extracted and analyzed with this SDG. Naphthalene and 2-methylnaphthalene were reported in the method blank; however, the associated sample had the aforementioned compounds reported at more than five times the level found in the method blank and no qualifications were required. Review of the raw data indicated no reportable false negatives or false positives.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5A13038-BS1/BSD1) was extracted and analyzed with this SDG. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary, to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ" for nondetects and "J" for detects, in the associated samples. All percent recoveries and RPDs were within the laboratory QC limits except for the RPD for hexachloroethane. The sample of this SDG had hexachloroethane qualified as an estimated nondetect, "UJ." 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 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 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 this SDG. No qualifications were required.

### 2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 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  $\pm 30$  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 the 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. Detects below the reporting limit were qualified as estimated, "J," by the laboratory. No further 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: 13267 (Study 1)  
 Outfall 011  
 Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

**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	REV QUAL	QUAL CODE
Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water)					Sampled: 01/12/05						
Reporting Units: ug/l											
Acenaphthene	EPA 625	5A13038	0.10	0.50	11	1	01/13/05	01/18/05			
Acenaphthylene	EPA 625	5A13038	0.10	0.50	0.12	1	01/13/05	01/18/05	J J		DNQ
Aniline	EPA 625	5A13038	2.9	10	ND	1	01/13/05	01/18/05	U		
Anthracene	EPA 625	5A13038	0.083	0.50	0.14	1	01/13/05	01/18/05	J J		DNQ
Benzidine	EPA 625	5A13038	2.4	5.0	ND	1	01/13/05	01/18/05	U		
Benzoic acid	EPA 625	5A13038	3.7	20	ND	1	01/13/05	01/18/05			
Benzo(a)anthracene	EPA 625	5A13038	0.038	5.0	ND	1	01/13/05	01/18/05			
Benzo(a)pyrene	EPA 625	5A13038	0.14	2.0	ND	1	01/13/05	01/18/05			
Benzo(b)fluoranthene	EPA 625	5A13038	0.050	2.0	ND	1	01/13/05	01/18/05			
Benzo(g,h,i)perylene	EPA 625	5A13038	0.059	5.0	ND	1	01/13/05	01/18/05			
Benzo(k)fluoranthene	EPA 625	5A13038	0.053	0.50	ND	1	01/13/05	01/18/05			
Benzyl alcohol	EPA 625	5A13038	0.21	5.0	ND	1	01/13/05	01/18/05			
Bis(2-chloroethoxy)methane	EPA 625	5A13038	0.072	0.50	ND	1	01/13/05	01/18/05			
Bis(2-chloroethyl)ether	EPA 625	5A13038	0.084	0.50	ND	1	01/13/05	01/18/05			
Bis(2-chloroisopropyl)ether	EPA 625	5A13038	0.11	0.50	ND	1	01/13/05	01/18/05			
Bis(2-ethylhexyl)phthalate	EPA 625	5A13038	1.1	5.0	ND	1	01/13/05	01/18/05			
4-Bromophenyl phenyl ether	EPA 625	5A13038	0.12	1.0	ND	1	01/13/05	01/18/05			
Butyl benzyl phthalate	EPA 625	5A13038	0.34	5.0	ND	1	01/13/05	01/18/05			
4-Chloroaniline	EPA 625	5A13038	0.20	2.0	ND	1	01/13/05	01/18/05			
2-Chloronaphthalene	EPA 625	5A13038	0.059	0.50	ND	1	01/13/05	01/18/05			
4-Chloro-3-methylphenol	EPA 625	5A13038	0.34	2.0	ND	1	01/13/05	01/18/05			
4-Chlorophenyl phenyl ether	EPA 625	5A13038	0.056	0.50	ND	1	01/13/05	01/18/05			
2-Chlorophenol	EPA 625	5A13038	0.12	1.0	ND	1	01/13/05	01/18/05			
Chrysene	EPA 625	5A13038	0.072	0.50	ND	1	01/13/05	01/18/05			
Dibenz(a,h)anthracene	EPA 625	5A13038	0.083	0.50	ND	1	01/13/05	01/18/05			
Dibenzofuran	EPA 625	5A13038	0.075	0.50	ND	1	01/13/05	01/18/05			
Di-n-butyl phthalate	EPA 625	5A13038	0.26	2.0	ND	1	01/13/05	01/18/05			
1,2-Dichlorobenzene	EPA 625	5A13038	0.11	0.50	ND	1	01/13/05	01/18/05			
1,3-Dichlorobenzene	EPA 625	5A13038	0.13	0.50	ND	1	01/13/05	01/18/05			
1,4-Dichlorobenzene	EPA 625	5A13038	0.050	0.50	ND	1	01/13/05	01/18/05			
3,3-Dichlorobenzidine	EPA 625	5A13038	0.93	5.0	ND	1	01/13/05	01/18/05			
2,4-Dichlorophenol	EPA 625	5A13038	0.21	2.0	ND	1	01/13/05	01/18/05			
Diethyl phthalate	EPA 625	5A13038	0.12	1.0	ND	1	01/13/05	01/18/05			
2,4-Dimethylphenol	EPA 625	5A13038	0.31	2.0	ND	1	01/13/05	01/18/05			
Dimethyl phthalate	EPA 625	5A13038	0.081	0.50	ND	1	01/13/05	01/18/05			
4,6-Dinitro-2-methylphenol	EPA 625	5A13038	0.38	5.0	ND	1	01/13/05	01/18/05			
2,4-Dinitrophenol	EPA 625	5A13038	2.7	5.0	ND	1	01/13/05	01/18/05	U J C		
2,4-Dinitrotoluene	EPA 625	5A13038	0.23	5.0	ND	1	01/13/05	01/18/05	U		
2,6-Dinitrotoluene	EPA 625	5A13038	0.24	5.0	ND	1	01/13/05	01/18/05			
Di-n-octyl phthalate	EPA 625	5A13038	0.17	5.0	ND	1	01/13/05	01/18/05			
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A13038	0.087	1.0	ND	1	01/13/05	01/18/05			

DRAFT REPORT  
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 DATA SUBJECT TO CHANGE

**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: 13267 (Study 1)  
 Outfall 011  
 Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

**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	REV QUAL	QUAL CODE
Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.										Sampled: 01/12/05	
Reporting Units: ug/l											
Fluoranthene	EPA 625	5A13038	0.089	0.50	ND	1	01/13/05	01/18/05	U		
Fluorene	EPA 625	5A13038	0.075	0.50	4.7	1	01/13/05	01/18/05	U		
Hexachlorobenzene	EPA 625	5A13038	0.13	1.0	ND	1	01/13/05	01/18/05	U		
Hexachlorobutadiene	EPA 625	5A13038	0.38	2.0	ND	1	01/13/05	01/18/05	U		
Hexachlorocyclopentadiene	EPA 625	5A13038	1.8	5.0	ND	1	01/13/05	01/18/05	U		
Hexachloroethane	EPA 625	5A13038	0.51	3.0	ND	1	01/13/05	01/18/05	U		
Indeno(1,2,3-cd)pyrene	EPA 625	5A13038	0.19	2.0	ND	1	01/13/05	01/18/05	U		
Isophorone	EPA 625	5A13038	0.059	1.0	ND	1	01/13/05	01/18/05	U		
2-Methylnaphthalene	EPA 625	5A13038	0.13	1.0	9.5	1	01/13/05	01/18/05	U		
2-Methylphenol	EPA 625	5A13038	0.28	2.0	ND	1	01/13/05	01/18/05	U		
4-Methylphenol	EPA 625	5A13038	0.20	5.0	ND	1	01/13/05	01/18/05	U		
Naphthalene	EPA 625	5A13038	0.13	1.0	8.3	1	01/13/05	01/18/05	U		
2-Nitroaniline	EPA 625	5A13038	0.18	5.0	ND	1	01/13/05	01/18/05	U		
3-Nitroaniline	EPA 625	5A13038	0.35	5.0	ND	1	01/13/05	01/18/05	U		
4-Nitroaniline	EPA 625	5A13038	0.49	5.0	ND	1	01/13/05	01/18/05	U		
Nitrobenzene	EPA 625	5A13038	0.10	1.0	ND	1	01/13/05	01/18/05	U		
2-Nitrophenol	EPA 625	5A13038	0.23	2.0	ND	1	01/13/05	01/18/05	U		
4-Nitrophenol	EPA 625	5A13038	0.73	5.0	ND	1	01/13/05	01/18/05	U		
N-Nitrosodimethylamine	EPA 625	5A13038	0.22	2.0	ND	1	01/13/05	01/18/05	U		
N-Nitroso-di-n-propylamine	EPA 625	5A13038	0.18	2.0	ND	1	01/13/05	01/18/05	U		
N-Nitrosodiphenylamine	EPA 625	5A13038	0.077	1.0	ND	1	01/13/05	01/18/05	U		
Pentachlorophenol	EPA 625	5A13038	0.78	2.0	ND	1	01/13/05	01/18/05	U		
Phenanthrene	EPA 625	5A13038	0.071	0.50	0.98	1	01/13/05	01/18/05	U		
Phenol	EPA 625	5A13038	0.14	1.0	ND	1	01/13/05	01/18/05	U		
Pyrene	EPA 625	5A13038	0.059	0.50	ND	1	01/13/05	01/18/05	U		
1,2,4-Trichlorobenzene	EPA 625	5A13038	0.10	1.0	ND	1	01/13/05	01/18/05	U		
2,4,5-Trichlorophenol	EPA 625	5A13038	0.075	2.0	ND	1	01/13/05	01/18/05	U		
2,4,6-Trichlorophenol	EPA 625	5A13038	0.10	1.0	ND	1	01/13/05	01/18/05	U		
Surrogate: 2-Fluorophenol (35-120%)											66 %
Surrogate: Phenol-d6 (45-120%)											69 %
Surrogate: 2,4,6-Tribromophenol (50-125%)											78 %
Surrogate: Nitrobenzene-d5 (45-120%)											69 %
Surrogate: 2-Fluorobiphenyl (45-120%)											74 %
Surrogate: Terphenyl-d14 (45-135%)											74 %

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

**AMEC VALIDATED**

LEVEL IV

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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 T711TF36  
 Task Order 313150010  
 SDG No. IOA0567

No. of Analyses 2

Laboratory Del Mar Analytical  
 Reviewer K. Shadowlight  
 Analysis/Method TPH-Extractable

Date March 4, 2005  
 Reviewer's Signature  
*K. Shadowlight*

ACTION ITEMS <sup>a</sup>	
<b>1. Case Narrative</b>	
Deficiencies	_____
<b>2. Out of Scope</b>	
Analyses	_____ _____ _____
<b>3. Analyses Not Conducted</b>	_____ _____
<b>4. Missing Hardcopy</b>	
Deliverables	_____ _____ _____
<b>5. Incorrect Hardcopy</b>	
Deliverables	_____
<b>6. Deviations from Analysis</b>	
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 <sup>b</sup>	
Acceptable as reviewed.	
<small><sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.</small> <small><sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</small>	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOA0567

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#: IOA0567  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Extractable  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: March 4, 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	Outfall 011	IOA0567-01	water	8015M/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 sample in this SDG was 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 COC was signed and dated by both field and laboratory personnel, and 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 sample was 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 analysis was analyzed on 11/11/04. 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.

### 2.3 METHOD BLANKS

One method blank (5A13035-BLK1) was extracted and analyzed with the sample in this SDG. 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.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One method blank spike (5A13035-BS1) was extracted and analyzed with the sample in this SDG. The recovery of alkane range C13-C40 from spiked diesel was within the laboratory-established QC limits of 40-120%. The recovery was checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

## 2.5 SURROGATE RECOVERY

The sample was fortified with the surrogate compound n-octacosane. The sample surrogate recovery was within the laboratory-established QC of 40-125%. The recovery was calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses associated with the sample of this SDG. Evaluation of method accuracy and precision was based on the BS/BSD results. No qualifications were required.

## 2.7 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:

### 2.7.1 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples associated with the site sample in this SDG. No qualifications were required.

### 2.7.2 Field Duplicates

There were no field duplicate samples associated with the samples in this SDG.

## 2.8 COMPOUND IDENTIFICATION

The laboratory analyzed for EFH n-alkane range C13-C22 by EPA SW846 Method 8015M. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for this SDG. No qualifications were required.

## 2.9 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG by recalculating any sample detect, 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. The reporting limit was not adjusted for sample amount; however, the dilution factor on the sample result summary reflected the sample amount extracted. 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: 13267 (Study 1)  
 Outfall 011  
 Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05				
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5A13035	0.082	0.50	ND	0.99	01/13/05	01/13/05	u
Surrogate: n-Octacosane (40-125%)					65 %				

Key Qual / Qual with

### AMEC VALIDATED

### LEVEL IV

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

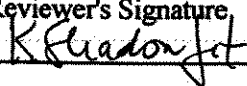
**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711TF37  
 Task Order 313150010  
 SDG No. IOA0567

No. of Analyses 1

Laboratory Del Mar Analytical  
 Reviewer K. Shadowlight  
 Analysis/Method TPH-Purgeable

Date March 4, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
<b>1. Case Narrative</b>	
Deficiencies	
<b>2. Out of Scope</b>	
Analyses	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy</b>	
Deliverables	
<b>5. Incorrect Hardcopy</b>	
Deliverables	
<b>6. Deviations from Analysis</b>	
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 <sup>b</sup>	
Acceptable as reviewed.	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	





# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/PURGEABLE

SAMPLE DELIVERY GROUP: IOA0567

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#: IOA0567  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Purgeable  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: March 4, 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	Outfall 011	IOA0567-01	water	8015M/GRO
Trip Blank	Trip Blank	IOA0567-02	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 this SDG 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 samples were received intact, and the COC indicated the samples were properly preserved, without headspace in the VOA vials. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was 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 08/20/04 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.

### 2.3 METHOD BLANKS

One water method blank (5A13005-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.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water method blank spike (5A13005-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.

## 2.5 SURROGATE RECOVERY

The samples were fortified with the surrogate compound bromofluorobenzene (BFB). Surrogate recoveries were within the laboratory-established QC of 65-140% for both samples. Recoveries were calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on the samples in this SDG; therefore, evaluation of method accuracy was based on the blank spike results. No qualifications were required.

## 2.7 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:

### 2.7.1 Trip Blanks, Field Blanks, and Equipment Rinsates

Sample Trip Blank was the trip blank associated with site sample Outfall 011. GRO (C4-C12) was not detected above the MDL in the trip blank. Review of the raw data indicated no false negative result. There were no field blank or equipment rinsate samples associated with this SDG. No qualifications were necessary.

### 2.7.2 Field Duplicates

There were no field duplicate samples in this SDG.

## 2.8 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 this SDG. No qualifications were required.

## 2.9 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG 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 calibrations and by the laboratory MDL. 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: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5A13005	0.050	0.10	ND	1	01/13/05	01/13/05	LL
Surrogate: 4-BFB (FID) (65-140%)					93 %				
Sample ID: IOA0567-02 (DRAFT: Trip Blank - Water)									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5A13005	0.050	0.10	ND	1	01/13/05	01/13/05	LL
Surrogate: 4-BFB (FID) (65-140%)					94 %				

Per  
 Qual  
 Qual  
 Lab

### 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 T711RA3  
 Task Order 313150010  
 SDG No. IOA0549, IOA0567

No. of Analyses 2

Laboratory Eberline

Date: 03/09/05

Reviewer P. Meeks

Reviewer's Signature  
*P. Meeks*

Analysis/Method Radionuclides

**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:       |
| Holding Times                               | 1. Incorrect sample container          |
| GC/MS Tune/Inst. Performance                | 2. Exceeded holding time               |
| Calibrations                                | 3. Detector efficiencies less than 20% |
| Blanks                                      |  |
| Surrogates                                  |  |
| Matrix Spike/Dup LCS                        |  |
| Field QC                                    |  |
| Internal Standard Performance               |  |
| Compound Identification and Quantitation    |  |
| System Performance                          |  |
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**COMMENTS<sup>b</sup>**

\* 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: RADIONUCLIDES

SAMPLE DELIVERY GROUPS:  
IOA0549 & IOA0567

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#: IOA0549, IOA0567  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Radionuclides  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: March 09, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *EPA Prescribed Procedures for Measurements of Radioactivity in Drinking Water, Methods 900.0, 905.0, and 906.0*, and validation procedures 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.: IOA0549, 0567  
Analysis: RAD

**Table 1. Sample identification**

Client ID <sup>a</sup>	Del Mar ID	Eberline ID	Matrix	COC Method
Outfall 011 Grab	IOA0549-01	8175-001	water	900.0, 905.0, 906.0
Outfall 011	IOA0567-01	8174-001	water	900.0, 905.0, 906.0

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of  $4\pm 2^{\circ}\text{C}$ . No temperature information was provided by Eberline, the subcontract laboratory; however, as it is not necessary to chill radiological samples, no qualifications were required. All samples were received intact and in good condition.

According to the Eberline login sheet, none of the samples were received preserved. It was confirmed in correspondence with Eberline dated 01/31/05, that the gross alpha, gross beta, and strontium samples were not preserved upon receipt. According to the Los Angeles Water Quality Control Board (LARWQCB) guidance letter dated 01/12/05, unfiltered samples should not be preserved and filtered aliquots should be preserved after filtration. Neither sample in this SDG was filtered prior to analysis.

Additionally, according to the 01/12/05 LARWQCB guidance letter, samples collected for tritium analysis should be submitted in glass containers to avoid potential loss of tritium by sorption onto the plastic container. As neither of the tritium samples were submitted in glass containers, both nondetect tritium results were qualified as estimated, "UJ." No further qualifications were required.

#### 2.1.2 Chain of Custody

The original COCs were signed and dated by field and laboratory personnel and the transfer COC for Outfall 011 was signed by personnel from both laboratories. The transfer COC for Outfall 011 (IOA0567) was not signed as received by Eberline. The original and transfer COCs accounted for the samples and analyses presented in this data package. Eberline did not list the MWH IDs on the Form Is; therefore, the reviewer edited the Form Is to reflect these IDs. No qualifications were required.

#### 2.1.3 Holding Times

The tritium and strontium samples were analyzed within 180 days of collection. The gross alpha and gross beta samples were analyzed beyond the five day holding time for unpreserved samples; therefore, the gross alpha and gross beta results were qualified as estimated, "J," for detects and, "UJ," for nondetects. No further qualifications were necessary.

### 2.2 CALIBRATION

The laboratory calibration information included the standard certificates and applicable preparation/dilutions logs for NIST-traceability.

### Gross Alpha

The initial calibration included with the data was performed in February 2003. All detector efficiencies were below 20%; therefore, the nondetected alpha results were qualified as estimated, "UJ."

### Tritium

No calibration standards were analyzed for this method. According to the laboratory, every sample was spiked for efficiency determination; therefore, no calibration is necessary. All detector efficiencies in the samples were at least 20% and were considered acceptable.

### Gross Beta and Strontium-90

The initial calibrations were performed in June 1997. All tritium detector efficiencies were at least 20% and were considered acceptable. All strontium chemical yields were at least 65% and were considered acceptable and the strontium continuing calibration results were within the laboratory control limits. No qualifications were necessary.

## **2.3 BLANKS**

No measurable activities were detected in the method blanks; therefore, no qualifications were necessary.

## **2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

One blank spike (8174-002) was analyzed in association with the samples in these SDGs. The gross alpha, gross beta, and tritium recoveries were within the 3-sigma limits. The strontium recovery was outside of the 3-sigma limit, but was considered acceptable at 112%. No qualifications were necessary.

## **2.5 LABORATORY DUPLICATES**

The laboratory performed a duplicate analysis on Outfall 011. The RPDs for tritium and strontium were  $\leq 20\%$ . The RPDs for gross alpha and gross beta were  $>20\%$ ; however, as the results were within the 3-sigma limit, no qualifications were necessary.

## **2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

The laboratory performed matrix spike analyses on Outfall 011 for gross alpha, gross beta, and tritium. The recoveries were within both 3-sigma limits. No qualifications were necessary.

## **2.7 SAMPLE RESULT VERIFICATION**

An EPA Level IV review was performed for the samples in these data packages. Sample results and MDAs reported on the sample result forms were verified against the raw data and no calculation or transcription errors were noted. No qualifications were necessary.

## **2.8 FIELD QC SAMPLES**

Field QC samples were evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

### **2.8.1 Field Blanks and Equipment Rinsates**

The 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 in these SDGs.

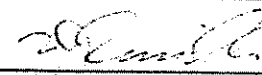
# Eberline Services

## ANALYSIS RESULTS

SDG <u>8175</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R501122-01</u>	Contract <u>PROJECT# IOA0549</u>
Received Date <u>01/14/05</u>	Matrix <u>WATER</u>

Client	Lab								Rev	Qual
<u>Sample ID</u>	<u>Sample ID</u>	<u>Collected</u>	<u>Analyzed</u>	<u>Nuclide</u>	<u>Results + 2σ</u>	<u>Units</u>	<u>MDA</u>		<u>Qual</u>	<u>Code</u>
Outfall Oil Grab IOA0549-01	8175-001	01/11/05	01/31/05	GrossAlpha	0.850 ± 0.70	pCi/L	0.930		UJ	H <sub>2</sub> R
			01/31/05	Gross Beta	2.40 ± 1.2	pCi/L	1.86		J	H
			02/16/05	H3	17.8 ± 150	pCi/L	249		UJ	#1
			01/27/05	Sr90	-0.173 ± 0.29	pCi/L	0.607		U	

**AMEC VALIDATED  
LEVEL IV**

Certified by 
Report Date <u>03/03/05</u>
Page 1

# Eberline Services

## ANALYSIS RESULTS

SDG <u>8174</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R501121-01</u>	Contract <u>PROJECT# IOA0567</u>
Received Date <u>01/14/05</u>	Matrix <u>WATER</u>

Client	Lab	Sample ID	Collected	Analyzed	Nuclide	Results + 2σ	Units	MDA	Rec Qual	Qual Cd.
Client <u>Sample ID</u> Outfall 011 IOA0567-01	8174-001		01/12/05	01/31/05	GrossAlpha	0.294 ± 1.0	pCi/L	1.75	UJ	H, R
				01/31/05	Gross Beta	2.50 ± 1.2	pCi/L	1.78	J	H
				02/16/05	H3	-71.9 ± 140	pCi/L	252	UJ	*1
				01/27/05	Sr90	-0.023 ± 0.24	pCi/L	0.431	U	

**AMEC VALIDATED**

**LEVEL IV**

Certified by <u>[Signature]</u>
Report Date <u>03/03/05</u>
Page 1

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711MT34  
 Task Order 313150010  
 SDG No. IOA0567

No. of Analyses 1

Laboratory Del Mar

Date: 03/09/05

Reviewer P. Meeks

Reviewer's Signature

Analysis/Method Metals

*P. Meeks*

<b>ACTION ITEMS<sup>a</sup></b>	
1. <b>Case Narrative Deficiencies</b>	
2. <b>Out of Scope Analyses</b>	
3. <b>Analyses Not Conducted</b>	
4. <b>Missing Hardcopy Deliverables</b>	
5. <b>Incorrect Hardcopy Deliverables</b>	
6. <b>Deviations from Analysis Protocol, e.g.,</b>	<b>Qualifications were applied for:</b> 1. Detects in the associated blanks 2. Reporting limit standard recovery outliers 3. Analytes detected 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	
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	





# DATA VALIDATION REPORT

NPDES  
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: IOA0567

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#: IOA0567  
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 08, 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.: IOA0567  
Analysis: MET

**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011	Outfall 011	IOA0567-01	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. The COC requested only a few of the presented analytes. The remaining analytes were requested in a memo from MWH personnel dated 03/01/05. 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 and ICP 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 but did not report %RSDs. The laboratory SOP states that to be acceptable, the %RSD must be 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 and ICP/MS and 80-120% for mercury. The beryllium, cobalt, and lead reporting limit check standard recoveries were above the control limit; therefore, barium, beryllium, cobalt, copper, and lead detected in Outfall 011 were qualified as estimated, "J." 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

There were detects and negative results reported for the method blanks and bracketing ICBs/CCBs associated with the sample in this SDG. Antimony and thallium were detected in a bracketing CCB at 0.390 and 0.101  $\mu\text{g/L}$ , respectively, and boron was detected in a bracketing CCB at 0.0176  $\text{mg/L}$ ; therefore, antimony, boron, and thallium detected in Outfall 011 were qualified as estimated, "UJ." Cadmium and chromium were reported in the method blank (5A13044-BLK1) at 0.321 and 0.611  $\mu\text{g/L}$ , respectively; therefore, cadmium and chromium detected in Outfall 011 were 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)

No ICPMS interference check samples were analyzed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion.

ICSA and ICSAB analyses were included in the raw data for the ICP boron analysis. The recoveries for boron and the interferents were within the control limits of 80-120%. A negative result was reported for boron in the ICSA. The validator reviewed the raw data for the site sample ICP analysis for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the concentration of interferents was not high enough to cause matrix affects. No sample qualifications were required due to the ICP ICS analysis.

## 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS sample was identified as 5A13044-BS1, the ICP LCS sample was identified as 5A13042-BS1, and the Hg LCS sample was identified as 5A13050-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS, ICP, and Hg control limits of 85-115%. No qualifications were required.

## 2.7 LABORATORY DUPLICATES

MS/MSD analyses were performed on Outfall 011. The RPDs were less than the control limit of 20% and no qualifications were required.

## 2.8 MATRIX SPIKE

MS/MSD analyses were performed on Outfall 011. The recoveries were within the AMEC control limits of 75-125% and no qualifications were required.

## 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 and 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. 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 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

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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## 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: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05						
Reporting Units: ug/l											
Antimony	EPA 200.8	5A13044	0.18	2.0	0.59	1	01/13/05	01/13/05	U J J		B
Arsenic	EPA 200.8	5A13044	0.49	1.0	1.8	1	01/13/05	01/13/05			
Barium	EPA 200.8	5A13044	0.14	1.0	18	1	01/13/05	01/13/05			
Beryllium	EPA 200.8	5A13044	0.037	0.50	0.070	1	01/13/05	01/13/05	J J		*3, DA
Cadmium	EPA 200.8	5A13044	0.015	1.0	0.15	1	01/13/05	01/13/05	U J B, J		B
Chromium	EPA 200.8	5A13044	0.26	1.0	2.2	1	01/13/05	01/13/05	U J B		B
Cobalt	EPA 200.8	5A13044	0.10	1.0	0.38	1	01/13/05	01/13/05	J J		*3, DA
Copper	EPA 200.8	5A13044	0.49	2.0	7.2	1	01/13/05	01/13/05			
Lead	EPA 200.8	5A13044	0.13	1.0	0.90	1	01/13/05	01/13/05	J J		*3, DA
Manganese	EPA 200.8	5A13044	0.44	1.0	15	1	01/13/05	01/13/05			
Mercury	EPA 245.1	5A13050	0.063	0.20	0.16	1	01/13/05	01/13/05	J J		DA, R
Nickel	EPA 200.8	5A13044	0.15	1.0	2.4	1	01/13/05	01/13/05			
Selenium	EPA 200.8	5A13044	0.36	2.0	ND	1	01/13/05	01/13/05			
Silver	EPA 200.8	5A13044	0.089	1.0	ND	1	01/13/05	01/13/05			
Thallium	EPA 200.8	5A13044	0.075	1.0	0.11	1	01/13/05	01/13/05	U J J		B
Vanadium	EPA 200.8	5A13044	0.86	1.0	2.7	1	01/13/05	01/13/05			
Zinc	EPA 200.8	5A13044	3.1	20	21	1	01/13/05	01/13/05			

### 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: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05				
Reporting Units: mg/l									Rev Qual
Boron	EPA 200.7	5A13042	0.0074	0.050	0.069	1	01/13/05	01/13/05	WJ
Iron	EPA 200.8	5A13044	0.0032	0.010	1.0	1	01/13/05	01/13/05	B

AMEC VALIDATED  
 LEVEL IV

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

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# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOA0567

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#: IOA0567  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Pesticides/PCBs  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: February 28, 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	IOA0567-01	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 on ice within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , at  $2^{\circ}$ . The analysis did not require preservation, and no preservation was noted in the field. The case narrative 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 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  $\pm 0.10$  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 12/29/04 associated with pesticide analysis of sample Outfall 011, 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  $\leq 10\%$  on both analytical columns. There was one initial calibration dated 01/03/05 associated with the PCB analysis of the sample, consisting of five points for Arochlor 1016 and Arochlor 1260. Single point calibrations for Arochlor 1242, Arochlor 1248, and Arochlor 1254 were analyzed but were not provided in the data package. The average %RSDs for the individual peaks of Arochlor 1016 and Arochlor 1260 were  $\leq 10\%$  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

The pesticide sample analysis of this SDG was bracketed by four continuing calibrations. In one of the bracketing calibrations following the sample analysis, the %D exceeded 15% on channel A for beta-bhc. As all results in this SDG were reported from channel A, the nondetect result for beta-bhc was qualified as estimated, "UJ," in sample Outfall 011. The %Ds were within the Method QC limit of  $\pm 15\%$  for the remaining calibrations. The PCB analysis of this sample was bracketed by two CCVs and the %Ds for Arochlor 1016 and Arochlor 1260 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 the analytical sequence. Cross-contamination was not evident in the sample. No qualifications were necessary.

### 2.4.2 Method Blanks

One water method blank (5A13049-BLK1) was extracted and analyzed with this SDG. 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 (5A13049-BS1/BSD1) 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  $\leq 30\%$ . 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 this SDG 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. 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 benchesheets, 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 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 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 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 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 detects reported in this SDG, quantitation was verified by recalculating 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 study. 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: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## DRAFT: TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	1	01/13/05	01/14/05	<i>rel qual</i> <i>qual</i> <i>Code</i> ↓
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	1	01/13/05	01/14/05	
Surrogate: Decachlorobiphenyl (45-120%)					64 %				

**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 T711VO50  
 Task Order 313150010  
 SDG No. IOA0567

No. of Analyses 1

Laboratory Del Mar

Date: March 2, 2005

Reviewer M. Pokorny

Reviewer's Signature 

Analysis/Method Volatiles (1,4-dioxane)

**ACTION ITEMS\***

<b>1. Case Narrative</b>	
<b>Deficiencies</b>	
<b>2. Out of Scope</b>	
<b>Analyses</b>	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy</b>	
<b>Deliverables</b>	
<b>5. Incorrect Hardcopy</b>	
<b>Deliverables</b>	
<b>6. Deviations from Analysis</b>	
<b>Protocol, e.g.,</b>	
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<sup>b</sup>**      Acceptable as reviewed.

\* Subcontracted analytical laboratory is not meeting contract and/or method requirements.  
<sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0567

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 #: IOA0567  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Volatiles (1,4-dioxane)  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: M. Pokorny  
Date of Review: March 2, 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.	Matrix	Method
Outfall 011	Outfall 011	IOA0567-01	water	624

## 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 Del Mar within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The sample was properly preserved. The COC noted that the sample was received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed by field and laboratory personnel. The COC accounted for the analysis presented in this SDG. According to the sample login sheet, custody seals were not present on the cooler. No qualifications were required.

#### 2.1.3 Holding Times

The sample was 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 sample was analyzed within 12 hours of the BFB injection time. No qualifications were required.

### 2.3 CALIBRATION

One initial calibration, dated 01/07/05, was associated with this SDG. The average RRF for 1,4-dioxane was  $\geq 0.05$  and the %RSD was  $\leq 15\%$ . One continuing calibration, dated 01/07/05 was associated with this SDG. The RRF for 1,4-dioxane was  $\geq 0.05$  and the %D was  $\leq 20\%$ . The %RSD 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 (P5A1502-BLK1) was associated with this SDG. 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 (P5A1502-BS1/BS1D) with this SDG. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative 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 recovery for this sample was 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 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

The samples in this SDG had no associated trip blank. No qualifications were required.

### 2.8.1 Field Blanks and Equipment Rinsates

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

### 2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for the samples were within the control limits established by the continuing calibration standards, of +100%/-50% for internal standard areas and  $\pm 0.50$  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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 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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
--	--	--

**DRAFT: 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: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05				REV QUAL
Reporting Units: ug/l									QUAL CODE
1,4-Dioxane	EPA 8260B	P5A1502	0.49	1.0	ND	1	01/15/05	01/15/05	U
Surrogate: Dibromofluoromethane (80-125%)						105 %			

**AMEC VALIDATED**

LEVEL IV

**DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE**

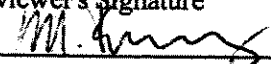
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**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711VO51  
 Task Order 313150010  
 SDG No. IOA0567  
 No. of Analyses 2

Laboratory Del Mar  
 Reviewer M. Pokorny  
 Analysis/Method Volatiles

Date: March 4, 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	Qualifications were required for calibration outliers.
COMMENTS <sup>b</sup>	
<p><sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.  <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</p>	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0567

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#: IOA0567  
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: March 4, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample identification**

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 011	Outfall 011	IOA0567-01	water	624
Trip Blank	Trip Blank	IOA0567-02	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. According to the COC, the samples were received intact, without headspace, and in good condition. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed by field and laboratory personnel and accounted for the analyses presented in this SDG. As the samples were couriered directly to the laboratory, custody seals are 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 report were consistent with those specified in the EPA Method 624 and 8260 (Freon 113). All ion abundances were within the established windows and were therefore acceptable. 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 11/10/04 and 01/10/05, were associated with this SDG. The average RRFs were ≥0.05 and the %RSDs were ≤35% (≤15% for Freon 113) for the target compounds listed on the sample summary forms. One continuing calibration, dated 01/13/05, was associated with this SDG. The RRFs for all target compounds were ≥0.05 and the %Ds were ≤20% except for the %Ds for chloromethane, methylene chloride, carbon tetrachloride, 2-chloroethylvinylether, and bromoform. The site sample of this SDG had the aforementioned compounds qualified as estimated, "UJ," for nondetects and "J," for detects. A representative number of %RSDs and average RRFs from the initial calibrations, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No further qualifications were required.

## 2.4 BLANKS

Two water method blanks (5A12019-BLK1 and 5A13008-BLK1) were associated with this SDG. There were no detects for the target compounds listed on the summary forms except for methylene chloride in 5A12019-BLK1; however, methylene chloride was not reported in the associated sample. 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 (5A12019-BS1 and 5A13008-BS1) were associated with this SDG. All spike 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 within the QC limits of 80-120%. 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 was 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 (IOA0567-02) was the trip blank associated with the site sample of this SDG. No target compounds were detected in the trip blank. No qualifications were required.

### 2.8.2 Field Blanks and Equipment Rinsates

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

### 2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for this SDG were within the control limits established by the continuing calibration standards, of +100%/-50% for internal standard areas and  $\pm 0.50$  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 a subset of volatile target compounds by EPA Method 624 and Freon 113 by EPA Method 8260. Chromatograms, retention times, and spectra for the samples and QC were examined and no target compound identification problems were noted.

The laboratory analyzed for 1,2-dichloro-1,1,2-trifluoroethane and cyclohexane as TICs for this SDG. 1,2-dichloro-1,1,2-trifluoroethane was present in the calibration standards. Neither compound was reported either as a TIC or as a target compound in the samples of this SDG and were reported as estimated nondetects, "UJ."

No further 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 detect, and/or a representative number of 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

The laboratory searched for 1,2-dichloro-1,1,2-trifluoroethane and cyclohexane as TICs for this SDG. Neither compound was detected as a TIC in the samples of 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: 13267 (Study 1)  
 Outfall 011  
 Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

**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: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05					REV QUAL
Reporting Units: ug/l										
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A13008	N/A	2.5	ND	1	01/13/05	01/13/05	NJ #10	
Cyclohexane	EPA 624 (MOD.)	5A13008	N/A	2.5	ND	1	01/13/05	01/13/05	NJ #10	
Sample ID: IOA0567-02 (DRAFT: Trip Blank - Water)					Sampled: 01/11/05					QUAL CODE
Reporting Units: ug/l										
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A12019	N/A	2.5	ND	1	01/12/05	01/12/05	NJ #10	
Cyclohexane	EPA 624 (MOD.)	5A12019	N/A	2.5	ND	1	01/12/05	01/12/05	NJ #10	

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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: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## DRAFT: FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water)</b>					<b>Sampled: 01/12/05</b>				
Reporting Units: ug/l									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A13008	1.2	5.0	ND	1	01/13/05	01/13/05	U
Surrogate: Dibromofluoromethane (80-120%)					102 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				
<b>Sample ID: IOA0567-02 (DRAFT: Trip Blank - Water)</b>					<b>Sampled: 01/11/05</b>				
Reporting Units: ug/l									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A12019	1.2	5.0	ND	1	01/12/05	01/12/05	U
Surrogate: Dibromofluoromethane (80-120%)					98 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

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 Attention: Bronwyn Kelly

Project ID: 13267 (Study 1)  
 Outfall 011  
 Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

**DRAFT: PURGEABLES BY GC/MS (EPA 624)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water)					Sampled: 01/12/05				
Reporting Units: ug/l									
Acrolein	EPA 624	5A13008	4.6	50	ND	1	01/13/05	01/13/05	U
Acrylonitrile	EPA 624	5A13008	5.1	50	ND	1	01/13/05	01/13/05	U
2-Chloroethyl vinyl ether	EPA 624	5A13008	1.3	5.0	ND	1	01/13/05	01/13/05	UJ C
Surrogate: Dibromofluoromethane (80-120%)					102 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

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Project ID: 13267 (Study 1)  
 Outfall 011  
 Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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: IOA0567-01 (DRAFT: Outfall 011 - Water)											
Reporting Units: ug/l											
										Sampled: 01/12/05	
Benzene	EPA 624	5A13008	0.28	1.0	ND	1	01/13/05	01/13/05	U		
Bromodichloromethane	EPA 624	5A13008	0.30	2.0	ND	1	01/13/05	01/13/05	U		
Bromoform	EPA 624	5A13008	0.32	5.0	ND	1	01/13/05	01/13/05	U		C
Bromomethane	EPA 624	5A13008	0.34	5.0	ND	1	01/13/05	01/13/05	U		C
Carbon tetrachloride	EPA 624	5A13008	0.28	0.50	ND	1	01/13/05	01/13/05	U		C
Chlorobenzene	EPA 624	5A13008	0.36	2.0	ND	1	01/13/05	01/13/05	U		C
Chloroethane	EPA 624	5A13008	0.33	5.0	ND	1	01/13/05	01/13/05	U		
Chloroform	EPA 624	5A13008	0.33	2.0	ND	1	01/13/05	01/13/05	U		
Chloromethane	EPA 624	5A13008	0.30	5.0	ND	1	01/13/05	01/13/05	U		C
Dibromochloromethane	EPA 624	5A13008	0.28	2.0	ND	1	01/13/05	01/13/05	U		
1,2-Dichlorobenzene	EPA 624	5A13008	0.32	2.0	ND	1	01/13/05	01/13/05	U		
1,3-Dichlorobenzene	EPA 624	5A13008	0.35	2.0	ND	1	01/13/05	01/13/05	U		
1,4-Dichlorobenzene	EPA 624	5A13008	0.37	2.0	ND	1	01/13/05	01/13/05	U		
1,1-Dichloroethane	EPA 624	5A13008	0.27	2.0	ND	1	01/13/05	01/13/05	U		
1,2-Dichloroethane	EPA 624	5A13008	0.28	0.50	ND	1	01/13/05	01/13/05	U		
1,1-Dichloroethene	EPA 624	5A13008	0.32	5.0	ND	1	01/13/05	01/13/05	U		
trans-1,2-Dichloroethene	EPA 624	5A13008	0.27	2.0	ND	1	01/13/05	01/13/05	U		
1,2-Dichloropropane	EPA 624	5A13008	0.35	2.0	ND	1	01/13/05	01/13/05	U		
cis-1,3-Dichloropropene	EPA 624	5A13008	0.22	2.0	ND	1	01/13/05	01/13/05	U		
trans-1,3-Dichloropropene	EPA 624	5A13008	0.24	2.0	ND	1	01/13/05	01/13/05	U		
Ethylbenzene	EPA 624	5A13008	0.25	2.0	ND	1	01/13/05	01/13/05	U		
Methylene chloride	EPA 624	5A13008	0.48	5.0	0.97	1	01/13/05	01/13/05	J	J	DNG
1,1,2,2-Tetrachloroethane	EPA 624	5A13008	0.24	2.0	ND	1	01/13/05	01/13/05	U		
Tetrachloroethene	EPA 624	5A13008	0.32	2.0	ND	1	01/13/05	01/13/05	U		
Toluene	EPA 624	5A13008	0.36	2.0	ND	1	01/13/05	01/13/05	U		
1,1,1-Trichloroethane	EPA 624	5A13008	0.30	2.0	ND	1	01/13/05	01/13/05	U		
1,1,2-Trichloroethane	EPA 624	5A13008	0.30	2.0	ND	1	01/13/05	01/13/05	U		
Trichloroethene	EPA 624	5A13008	0.26	2.0	ND	1	01/13/05	01/13/05	U		
Trichlorofluoromethane	EPA 624	5A13008	0.34	5.0	ND	1	01/13/05	01/13/05	U		
Vinyl chloride	EPA 624	5A13008	0.26	0.50	ND	1	01/13/05	01/13/05	U		
Xylenes, Total	EPA 624	5A13008	0.52	4.0	ND	1	01/13/05	01/13/05	U		
Surrogate: Dibromofluoromethane (80-120%)											102 %
Surrogate: Toluene-d8 (80-120%)											101 %
Surrogate: 4-Bromofluorobenzene (80-120%)											96 %

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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: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

**DRAFT: PURGEABLES BY GC/MS (EPA 624)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0567-02 (DRAFT: Trip Blank - Water)									
Reporting Units: ug/l									
Sampled: 01/11/05									
Benzene	EPA 624	5A12019	0.28	1.0	ND	1	01/12/05	01/12/05	REV QUAL
Bromodichloromethane	EPA 624	5A12019	0.30	2.0	ND	1	01/12/05	01/12/05	QUAL CODE
Bromoform	EPA 624	5A12019	0.32	5.0	ND	1	01/12/05	01/12/05	
Bromomethane	EPA 624	5A12019	0.34	5.0	ND	1	01/12/05	01/12/05	
Carbon tetrachloride	EPA 624	5A12019	0.28	0.50	ND	1	01/12/05	01/12/05	
Chlorobenzene	EPA 624	5A12019	0.36	2.0	ND	1	01/12/05	01/12/05	
Chloroethane	EPA 624	5A12019	0.33	5.0	ND	1	01/12/05	01/12/05	
Chloroform	EPA 624	5A12019	0.33	2.0	ND	1	01/12/05	01/12/05	
Chloromethane	EPA 624	5A12019	0.30	5.0	ND	1	01/12/05	01/12/05	
Dibromochloromethane	EPA 624	5A12019	0.28	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichlorobenzene	EPA 624	5A12019	0.32	2.0	ND	1	01/12/05	01/12/05	
1,3-Dichlorobenzene	EPA 624	5A12019	0.35	2.0	ND	1	01/12/05	01/12/05	
1,4-Dichlorobenzene	EPA 624	5A12019	0.37	2.0	ND	1	01/12/05	01/12/05	
1,1-Dichloroethane	EPA 624	5A12019	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloroethane	EPA 624	5A12019	0.28	0.50	ND	1	01/12/05	01/12/05	
1,1-Dichloroethene	EPA 624	5A12019	0.32	5.0	ND	1	01/12/05	01/12/05	
trans-1,2-Dichloroethene	EPA 624	5A12019	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloropropane	EPA 624	5A12019	0.35	2.0	ND	1	01/12/05	01/12/05	
cis-1,3-Dichloropropene	EPA 624	5A12019	0.22	2.0	ND	1	01/12/05	01/12/05	
trans-1,3-Dichloropropene	EPA 624	5A12019	0.24	2.0	ND	1	01/12/05	01/12/05	
Ethylbenzene	EPA 624	5A12019	0.25	2.0	ND	1	01/12/05	01/12/05	
Methylene chloride	EPA 624	5A12019	0.48	5.0	ND	1	01/12/05	01/12/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A12019	0.24	2.0	ND	1	01/12/05	01/12/05	
Tetrachloroethene	EPA 624	5A12019	0.32	2.0	ND	1	01/12/05	01/12/05	
Toluene	EPA 624	5A12019	0.36	2.0	ND	1	01/12/05	01/12/05	
1,1,1-Trichloroethane	EPA 624	5A12019	0.30	2.0	ND	1	01/12/05	01/12/05	
1,1,2-Trichloroethane	EPA 624	5A12019	0.30	2.0	ND	1	01/12/05	01/12/05	
Trichloroethene	EPA 624	5A12019	0.26	2.0	ND	1	01/12/05	01/12/05	
Trichlorofluoromethane	EPA 624	5A12019	0.34	5.0	ND	1	01/12/05	01/12/05	
Vinyl chloride	EPA 624	5A12019	0.26	0.50	ND	1	01/12/05	01/12/05	
Xylenes, Total	EPA 624	5A12019	0.52	4.0	ND	1	01/12/05	01/12/05	
Surrogate: Dibromofluoromethane (80-120%)					98 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

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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 T711WC67  
 Task Order 313150010  
 SDG No. IOA0567

No. of Analyses 1

Laboratory Del Mar Analytical

Date: 02/24/05

Reviewer L. Jarusewic

Reviewer's Signature 

Analysis/Method Perchlorate by 314.0

**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.  
 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 GROUP: IOA0567

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 #: IOA0567  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Perchlorate  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: L. Jarusewic  
Date of Review: February 24, 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 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	IOA0567-01	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . 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; however, the COC did not account for the sample and analysis presented in this SDG. A memo dated 03/01/05 from MWH personnel requested the perchlorate analysis for the sample 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  $\geq 0.995$ . 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 analyses were performed in association with the sample in this SDG; therefore, no assessment was made with respect to this criterion. No qualifications were required.

## **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. No qualifications were required.

## **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 calculations 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 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 package.



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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: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

**DRAFT: INORGANICS**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5A12034	0.041	1.0	ND	1	01/12/05	01/12/05	* ↓ M2 U
Total Cyanide	EPA 335.2	5A18093	2.2	5.0	ND	1	01/18/05	01/19/05	
Perchlorate	EPA 314.0	5A13051	0.80	4.0	ND	1	01/13/05	01/13/05	

**AMEC VALIDATED**

**LEVEL IV**

*\*Analysis Not Validated*

**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 T711WC68  
 Task Order 313150010  
 SDG No. IOA0567

No. of Analyses 1

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method General Minerals

Date: 02/28/05

Reviewer's Signature

*P. Meeks*

**ACTION ITEMS<sup>a</sup>**

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.,	Cyanide was rejected due to MS/MSD recovery outliers.
Holding Times	Fluoride was qualified as estimated due to a detect in a bracketing CCB and
GC/MS Tune/Inst. Performance	analytes detected between the RL and MDL were qualified as estimated.
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

**COMMENTS<sup>b</sup>**

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

### Data 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).

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# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOA0567

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 #: IOA0567  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: February 28, 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, 150.1, 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	Outfall 011	IOA0567-01	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 requested only a few of the presented analyses. The remaining analyses were requested in a memo from MWH personnel dated 03/01/05. 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 biological oxygen demand, surfactants, turbidity, nitrate/nitrite, 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  $\geq 0.995$ . All ICV and continuing calibration information was acceptable with %Rs 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 or total settleable solids.

The total cyanide 2xRL check standard was recovered at 54%, below the control limits of 70-130%. As the total cyanide result was subsequently rejected (see section 2.7), no qualifications were required for this result. No qualifications were required.

### 2.3 BLANKS

Fluoride was detected in a bracketing CCB at 0.1461 mg/L; therefore, fluoride detected in Outfall 011 was qualified as estimated, "UJ." Oil and grease and hexavalent chromium were detected in the associated

DATA VALIDATION REPORT

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method blanks; however, hexavalent chromium was not detected in Outfall 011 and the oil and grease method blank result was insufficient to qualify the Outfall 011 result. 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 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 this SDG.

#### **2.6 LABORATORY DUPLICATES**

MS/MSD analyses were performed on Outfall 011 for cyanide. The RPD was above the control limit of 20% at 44%; however, as the cyanide result was subsequently rejected (see section 2.7), no qualification was required.

#### **2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses were performed on Outfall 011 for cyanide. The recoveries were 6% and 4%, respectively; therefore, nondetected cyanide in Outfall 011 was rejected, "R." No further qualifications were required.

#### **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.

*DATA VALIDATION REPORT*

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**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. Analytes 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 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.



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

Project ID: 13267 (Study 1)  
Outfall 011  
Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

**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: IOA0567-01 (DRAFT: Outfall 011 - Water)					Sampled: 01/12/05										
Reporting Units: mg/l															
Total Recoverable Hydrocarbons	EPA 418.1	5A12075	0.31	1.0	ND	1	01/12/05	01/12/05	<table border="1"> <tr> <td>Rev</td> <td>Qual</td> </tr> <tr> <td></td> <td>Code</td> </tr> <tr> <td>U</td> <td></td> </tr> </table>	Rev	Qual		Code	U	
Rev	Qual														
	Code														
U															

**AMEC VALIDATED  
LEVEL IV**

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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: 13267 (Study 1)  
 Outfall 011  
 Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05								
Reporting Units: ml/lhr													
Total Settleable Solids	EPA 160.5	5A12043	0.10	0.10	ND	1	01/12/05	01/12/05	<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													

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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: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05					Rev Qual
Reporting Units: NTU										
Turbidity	EPA 180.1	5A13082	0.040	1.0	18	1	01/13/05	01/13/05	Qual Code	

**AMEC VALIDATED  
 LEVEL IV**

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5A12034	0.041	1.0	ND	1	01/12/05	01/12/05	Re Qual U
Total Cyanide	EPA 335.2	5A18093	2.2	5.0	ND	1	01/18/05	01/19/05	R M2 Q
Perchlorate	EPA 314.0	5A13051	0.80	4.0	ND	1	01/13/05	01/13/05	*

\* Analysis not validated

**AMEC VALIDATED**  
**LEVEL IV**

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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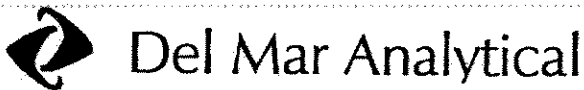
## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05								
Reporting Units: umhos/cm													
Specific Conductance	EPA 120.1	5A14087	1.0	1.0	94	1	01/14/05	01/14/05	<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**

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DATA SUBJECT TO CHANGE

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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 Project ID: 13267 (Study 1)  
 300 North Lake Avenue, Suite 1200 Outfall 011  
 Pasadena, CA 91101 Report Number: IOA0567  
 Attention: Bronwyn Kelly  
 Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

**DRAFT: INORGANICS**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0567-01 (DRAFT: Outfall 011 - Water) - cont.					Sampled: 01/12/05				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5A13063	0.30	0.50	ND	1	01/13/05	01/13/05	U
Biochemical Oxygen Demand	EPA 405.1	5A12041	0.59	2.0	0.96	1	01/12/05	01/17/05	J J DNG
Chloride	EPA 300.0	5A12036	0.26	0.50	3.6	1	01/12/05	01/12/05	
Fluoride	EPA 300.0	5A12036	0.074	0.50	0.29	1	01/12/05	01/12/05	U J B
Nitrate/Nitrite-N	EPA 300.0	5A12036	0.072	0.26	0.92	1	01/12/05	01/12/05	
Oil & Grease	EPA 413.1	5A13065	0.94	5.0	43.42	1	01/13/05	01/13/05	\$
Residual Chlorine	EPA 330.5	5A12045	0.10	0.10	ND	1	01/12/05	01/12/05	U
Sulfate	EPA 300.0	5A12036	0.18	0.50	4.7	1	01/12/05	01/12/05	
Surfactants (MBAS)	SM5540-C	5A12059	0.044	0.10	ND	1	01/12/05	01/12/05	U
Total Dissolved Solids	SM2540C	5A13089	10	10	99	1	01/13/05	01/13/05	
Total Organic Carbon	EPA 415.1	5A13053	0.56	1.0	9.2	1	01/12/05	01/12/05	
Total Suspended Solids	EPA 160.2	5A17060	10	10	ND	1	01/17/05	01/17/05	U

ET/5-12-05

**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 T711HZ3  
 Task Order 313150010  
 SDG No. IOA0567

No. of Analyses 1  
 Date: 03/02/05  
 Reviewer's Signature  
P. Meeks

Laboratory Truesdail

Reviewer P. Meeks

Analysis/Method Hydrazines

**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<sup>b</sup>**      Acceptable as reviewed.

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



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: HYDRAZINES

SAMPLE DELIVERY GROUP: IOA0567

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 #: IOA0576  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Hydrazines  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: March 01, 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.

**Table 1. Sample identification**

EPA ID	Del Mar ID	Laboratory ID	Matrix	COC Method
Outfall 011	IOA0567-01	938627-1	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 sample in this SDG was 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 this SDG noted that the sample was received intact at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC from the field to Del Mar was signed and dated by field and laboratory personnel, and the transfer COC from Del Mar to Truesdail Laboratories was signed and dated by personnel from both laboratories. Both the original COC and transfer COCs requested only monomethyl hydrazine analysis; however, unsymmetrical dimethyl hydrazine and hydrazine were also reported. As the sample was transported to Del Mar and then to Truesdail by courier, no custody seals were required. Truesdail Laboratories did not list the Outfall 011 ID on the Form I; therefore, the reviewer hand-corrected the Form I to include this information. 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 three-day extraction holding time for the hydrazine analysis was met and the sample was analyzed within three days of extraction. No qualifications were required.

### 2.2 CALIBRATION

The five-point initial calibrations were analyzed 01/13/05, with correlation coefficients of  $\geq 0.995$  for the hydrazines. The ICV and CCV bracketing the sample analyses had recoveries for the hydrazines within the QC limits of 85-115%. The validator could not exactly reproduce the laboratory's value for the CCV for monomethyl hydrazine and unsymmetrical dimethyl hydrazine; however, as both values were acceptable and as the %D between the two values was  $< 2\%$ , no qualifications were required.

### 2.3 BLANKS

One method blank was analyzed with this SDG. 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 this SDG. The hydrazines were recovered within the laboratory-established control limits of 70%-130%, and the RPD was within the control limit of  $\leq 20\%$ . The validator could not exactly reproduce the laboratory's values for the LCS or LCSD for monomethyl hydrazine and unsymmetrical dimethyl hydrazine; however, as all values were acceptable and as the %D between the two values was  $< 2\%$ , 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 the Outfall 011. The recoveries for the hydrazines were within the laboratory QC limits of 0-150%; however, both recoveries were  $\geq 10\%$ . The RPDs were within the QC limit of  $\leq 20\%$ . The validator could not exactly reproduce the laboratory's values for the MS or MSD for monomethyl hydrazine and unsymmetrical dimethyl hydrazine; however, as all values were acceptable and as the %D between the two values was  $< 2\%$ , 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 sample. Following are findings associated with field QC samples:

### 2.7.1 Field Blanks and Equipment Rinsates

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

### 2.7.2 Field Duplicates

There were no field duplicate samples in this SDG.

## 2.8 COMPOUND IDENTIFICATION

The sample was 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.

# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

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## REPORT

**Client:** Del Mar Analytical-Alt.  
17461 Derian Ave.  
Irvine, CA 92614

**Attention:** Michele Harper  
**Sample:** Liquid / 1 Sample  
**Project Name:** IOA0567  
**P.O. Number:** IOA0567  
**Method Number:** 8315 (Modified)  
**Investigation:** Hydrazines in Liquid

**Laboratory No:** 938627  
**Report Date:** January 17, 2005  
**Sampling Date:** January 12, 2005  
**Receiving Date:** January 13, 2005  
**Extraction Date:** January 13, 2005  
**Analysis Date:** January 14, 2005  
**Units:** µg/L  
**Dilution Factor:** 1  
**Reported By:** RC

Page 1 of 1

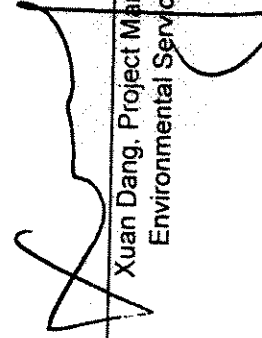
### Analytical Results

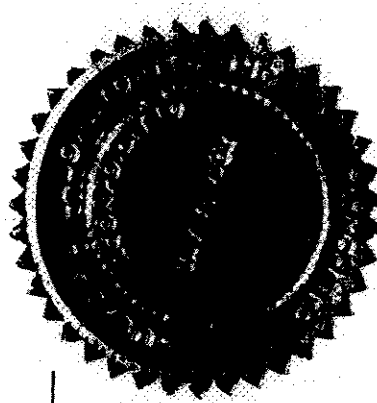
Sample ID	Sample Description	Monomethyl Hydrazine	Dimethyl Hydrazine	Unsymmetrical Dimethyl Hydrazine	Hydrazine	Qual Code
704662-MB	Method Blank	ND	ND	ND	ND	*
938627 Outfall Oil	IOA0567-01	ND	ND	ND	ND	*
PQL		5.0	5.0	5.0	5.0	
Sample Report Limits		5.0	5.0	5.0	5.0	

\* Analysis not validated

PQL: Practical Quantitation Limit, ug/L  
ND: Not Detected  
N/A: Not Applicable

Note: Results based on detector #1 (UV=365nm) data.

  
Xuan Dang, Project Manager  
Environmental Services



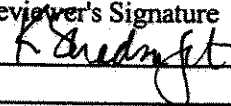
## AMEC VALIDATED

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the 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.

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711DF22  
 Task Order 313150010  
 SDG No. Multiple

No. of Analyses 9  
 Date: February 18, 2005  
 Reviewer's Signature  


Laboratory Pace  
 Reviewer K. Shadowlight  
 Analysis/Method Dioxins

ACTION ITEMS <sup>a</sup>	
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: * Method blank contamination * EMPCs * Detects below the lower method calibration level
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

## 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: 9  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: February 18, 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.

## 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: 9  
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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 (Pace)	Matrix	COC Method
Outfall 001	IOA0551-01	106124001	water	1613
Outfall 002	IOA0550-01	106130001	water	1613
Outfall 007	IOA0556-01	106128001	water	1613
Outfall 008	IOA0553-01	106126001	water	1613
Outfall 009	IOA0554-01	106131001	water	1613
Outfall 010	IOA0555-01	106127001	water	1613
Outfall 011	IOA0549-01	106132001	water	1613
Outfall 011	IOA0567-01	106135001	water	1613
Outfall 018	IOA0552-01	106125001	water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were subcontracted to Pace Analytical for the dioxin/furan analyses. The samples in these SDGs were received at Pace Analytical Services within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were received in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COCs and transfer COCs were signed by the appropriate field and laboratory personnel. The samples and analyses were accounted for on both the original COCs and transfer COCs. As the samples were couriered directly to the laboratory (Del Mar Analytical), custody seals were not required. There was no information regarding custody seals upon receipt at Pace. 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 column performance standard was combined with the daily calibration verification and analyzed at the beginning of each analytical sequence. The GC column performance was acceptable with the chromatographic separation of 2,3,7,8-TCDD and other TCDD isomers resolved with a valley of  $\leq 25\%$ . No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance could not be evaluated as the laboratory did not provide selected ion current profiles for the lock-mass ions. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

There was one initial calibration, analyzed 11/29/04 on Instrument 10MSHR05. The calibration consisted of five concentration level standards (CS1 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 2 native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in the Table 6 of the 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.

## 2.4 BLANKS

One method blank (Blank-6220) was extracted and analyzed with the samples in these SDGs. Target compounds total HpCDF, 1,2,3,4,6,7,8-HpCDF, total HpCDF, OCDF, and OCDD were reported in the method blank. Any detects for the aforementioned target compounds reported at concentrations  $< 5\times$  the concentrations reported in the method blank were qualified as estimated nondetects "UJ," at the levels of interference in the samples of these SDGs. 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 LCS/LCSD pair (LCS-6221/LCSD-6222) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of the Method 1613. There are no method QC limits established for RPDs. The reported RPDs were within  $\pm 20\%$ . No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy and precision was based on the LCS/LCSD 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 limit (MCL) were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." No further qualifications were required.

## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0549-01	Outfall oil
Lab Sample ID	106132001	
Filename	F50129B_14	
Injected By	BAL	
Total Amount Extracted	1030 mL	
% Moisture	NA	Matrix Water
Dry Weight Extracted	NA	Dilution NA
ICAL Date	11/29/2004	Collected 01/11/2005
CCal Filename(s)	F50129B_02	Received 01/13/2005
Method Blank ID	BLANK-6220	Extracted 01/28/2005
		Analyzed 01/30/2005 06:28

Raw Anal	Final Code	Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
u		2,3,7,8-TCDF	ND	----	0.79	2,3,7,8-TCDF-13C	2.00	67
u		Total TCDF	ND	----	0.79	2,3,7,8-TCDD-13C	2.00	84
u		2,3,7,8-TCDD	ND	----	0.70	1,2,3,7,8-PeCDF-13C	2.00	73
u		Total TCDD	ND	----	0.70	2,3,4,7,8-PeCDF-13C	2.00	76
u		1,2,3,7,8-PeCDF	ND	----	0.80	1,2,3,7,8-PeCDD-13C	2.00	91
u		2,3,4,7,8-PeCDF	ND	----	0.53	1,2,3,4,7,8-HxCDF-13C	2.00	77
u		Total PeCDF	ND	----	0.66	1,2,3,6,7,8-HxCDF-13C	2.00	86
u		1,2,3,7,8-PeCDD	ND	----	0.72	2,3,4,6,7,8-HxCDF-13C	2.00	81
u		Total PeCDD	ND	----	0.72	1,2,3,7,8,9-HxCDF-13C	2.00	78
u		1,2,3,4,7,8-HxCDF	ND	----	0.44	1,2,3,4,7,8-HxCDD-13C	2.00	72
u		1,2,3,6,7,8-HxCDF	ND	----	0.46	1,2,3,6,7,8-HxCDD-13C	2.00	91
u		2,3,4,6,7,8-HxCDF	ND	----	0.55	1,2,3,4,6,7,8-HpCDF-13C	2.00	80
u		1,2,3,7,8,9-HxCDF	ND	----	0.66	1,2,3,4,7,8,9-HpCDF-13C	2.00	68
u		Total HxCDF	ND	----	0.53	1,2,3,4,6,7,8-HpCDD-13C	4.00	76
u		1,2,3,4,7,8-HxCDD	ND	----	0.51	1,2,3,4-TCDD-13C	2.00	NA
u		1,2,3,6,7,8-HxCDD	ND	----	0.50	1,2,3,7,8,9-HxCDD-13C	2.00	NA
u		1,2,3,7,8,9-HxCDD	ND	----	0.75			
u		Total HxCDD	2.0	----	0.59	2,3,7,8-TCDD-37Cl4	0.20	81
u	DNQ	1,2,3,4,6,7,8-HpCDF	2.4	----	0.77			
u	DNQ	1,2,3,4,7,8,9-HpCDF	ND	----	1.10			
u	B	Total HpCDF	9.4	----	0.95			BJ
u	B	1,2,3,4,6,7,8-HpCDD	7.7	----	0.97			BJ
u	DNQ	Total HpCDD	18.0	----	0.97			BJ
u	B	OCDF	9.1	----	1.30			BJ
u	DNQ	OCDD	81.0	----	1.70			J

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106132

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## REPORT OF LABORATORY ANALYSIS

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### Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0567-01	air fall oil
Lab Sample ID	106135001	
Filename	F50129B_15	
Injected By	BAL	
Total Amount Extracted	995 mL	Matrix
% Moisture	NA	Water
Dry Weight Extracted	NA	Dilution
ICAL Date	11/29/2004	Collected
CCal Filename(s)	F50129B_02	Received
Method Blank ID	BLANK-6220	Extracted
		Analyzed

Qual	Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
U	2,3,7,8-TCDF	ND	-----	0.83	2,3,7,8-TCDF-13C	2.00	65
J	Total TCDF	1.2	-----	0.83 J	2,3,7,8-TCDD-13C	2.00	78
U	2,3,7,8-TCDD	ND	-----	1.20	1,2,3,7,8-PeCDF-13C	2.00	71
U	Total TCDD	ND	-----	1.20	2,3,4,7,8-PeCDF-13C	2.00	73
U	1,2,3,7,8-PeCDF	ND	-----	1.40	1,2,3,7,8-PeCDD-13C	2.00	85
U	2,3,4,7,8-PeCDF	ND	-----	1.20	1,2,3,4,7,8-HxCDF-13C	2.00	70
U	Total PeCDF	ND	-----	1.30	1,2,3,6,7,8-HxCDF-13C	2.00	85
U	1,2,3,7,8-PeCDD	ND	-----	1.10	2,3,4,6,7,8-HxCDF-13C	2.00	77
U	Total PeCDD	ND	-----	1.10	1,2,3,7,8,9-HxCDF-13C	2.00	73
U	1,2,3,4,7,8-HxCDF	ND	-----	0.97	1,2,3,4,7,8-HxCDD-13C	2.00	64
U	1,2,3,6,7,8-HxCDF	ND	-----	0.93	1,2,3,6,7,8-HxCDD-13C	2.00	89
U	2,3,4,6,7,8-HxCDF	ND	-----	0.77	1,2,3,4,6,7,8-HpCDF-13C	2.00	76
U	1,2,3,7,8,9-HxCDF	ND	-----	1.10	1,2,3,4,7,8,9-HpCDF-13C	2.00	64
U	Total HxCDF	ND	-----	0.95	1,2,3,4,6,7,8-HpCDD-13C	2.00	82
U	1,2,3,4,7,8-HxCDD	ND	-----	1.20	OCDD-13C	4.00	72
U	1,2,3,6,7,8-HxCDD	ND	-----	0.97	1,2,3,4-TCDD-13C	2.00	NA
U	1,2,3,7,8,9-HxCDD	ND	-----	0.93	1,2,3,7,8,9-HxCDD-13C	2.00	NA
U	Total HxCDD	ND	-----	1.00	2,3,7,8-TCDD-37Cl4	0.20	80
U	1,2,3,4,6,7,8-HpCDF	2.2	-----	1.10 J			
U	1,2,3,4,7,8,9-HpCDF	ND	-----	2.10			
U	Total HpCDF	2.2	-----	1.60 BJ			
U	1,2,3,4,6,7,8-HpCDD	7.4	-----	1.40 BJ			
U	Total HpCDD	18.0	-----	1.40 BJ			
U	OCDF	8.4	-----	2.10 BJ			
U	OCDD	66.0	-----	2.30 J			

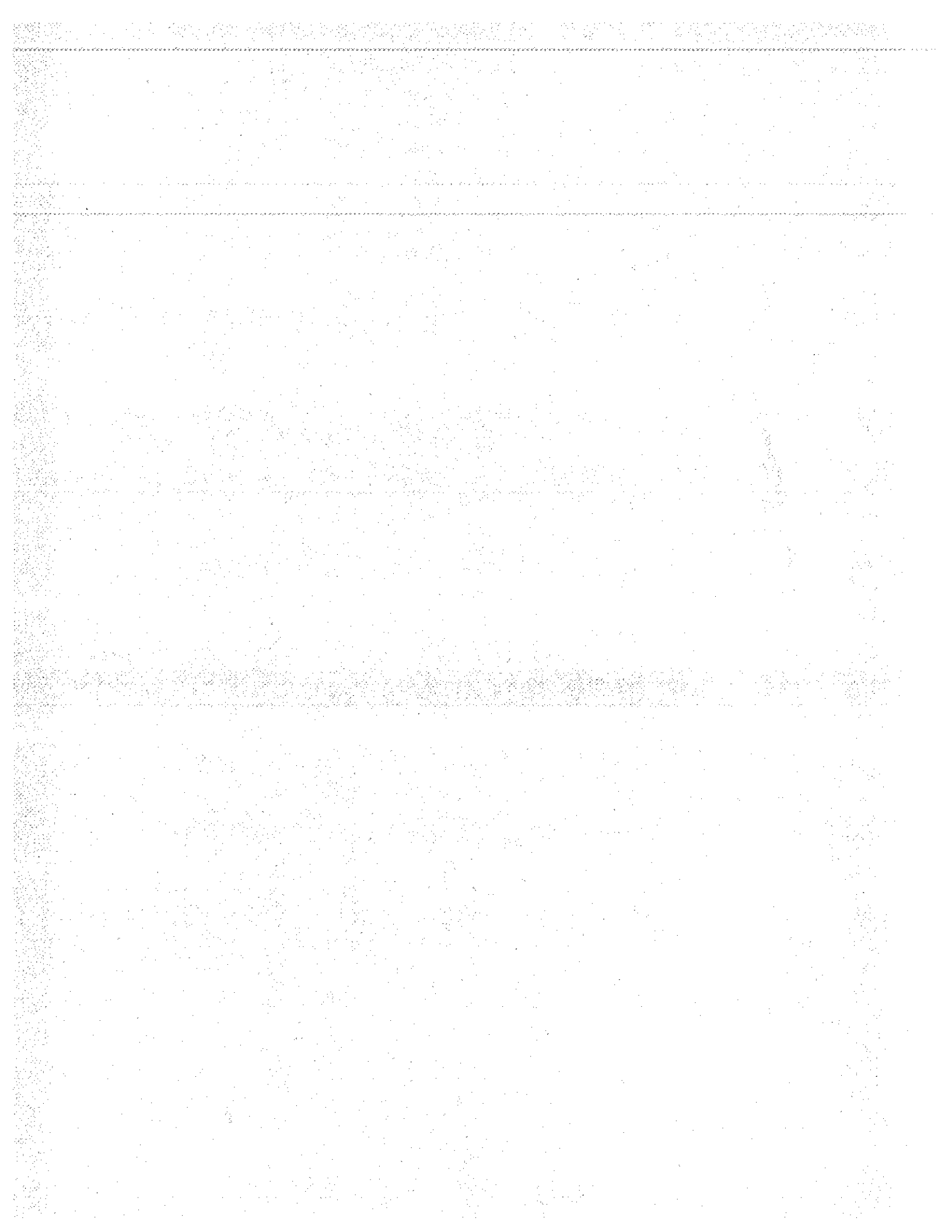
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
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Report No.....106135

## REPORT OF LABORATORY ANALYSIS

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LABORATORY REPORT

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

Project: Outfall 011

Sampled: 01/11/05-01/12/05  
Received: 01/11/05  
Issued: 03/09/05 19:55

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.*

SAMPLE CROSS REFERENCE

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

LABORATORY ID

IOA0567-01  
IOA0567-02

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: Outfall 011 Report Number: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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**CORRECTIVE ACTION REPORT**

Department: Extractions

Date: 01/18/2005

Method: EPA 625

Matrix: Water

QC Batch: 5A13038

**Identification and Definition of Problem:**

The percent recoveries for benzidine in the LCS and LCSD were 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: 01/31/2005 11:56 AM

Del Mar Analytical, Irvine  
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: Outfall 011  Report Number: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water)</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: mg/l</b>									
Total Recoverable Hydrocarbons	EPA 418.1	5A12075	N/A	1.0	ND	1	01/12/05	01/12/05	

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 Michele Harper  
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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: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## 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: IOA0567-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/12/05				
Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5A13035	N/A	0.50	ND	0.99	01/13/05	01/13/05	
Surrogate: n-Octacosane (40-125%)					65 %				

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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: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## 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
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: mg/l</b>									
GRO (C4 - C12)	EPA 8015 Mod.	5A13005	N/A	0.10	ND	1	01/13/05	01/13/05	
<i>Surrogate: 4-BFB (FID) (65-140%)</i>					93 %				
<b>Sample ID: IOA0567-02 (Trip Blank - Water)</b>					<b>Sampled: 01/11/05</b>				
<b>Reporting Units: mg/l</b>									
GRO (C4 - C12)	EPA 8015 Mod.	5A13005	N/A	0.10	ND	1	01/13/05	01/13/05	
<i>Surrogate: 4-BFB (FID) (65-140%)</i>					94 %				

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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## FREON 113 (EPA 8260B)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water)</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A13008	N/A	5.0	ND	1	01/13/05	01/13/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					102 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					101 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					96 %				
<b>Sample ID: IOA0567-02 (Trip Blank - Water)</b>					<b>Sampled: 01/11/05</b>				
<b>Reporting Units: ug/l</b>									
Trichlorotrifluoroethane (Freon 113)	EPA 8260B	5A12019	N/A	5.0	ND	1	01/12/05	01/12/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					98 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					100 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					98 %				

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water)</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Benzene	EPA 624	5A13008	N/A	1.0	ND	1	01/13/05	01/13/05	
Bromodichloromethane	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
Bromoform	EPA 624	5A13008	N/A	5.0	ND	1	01/13/05	01/13/05	
Bromomethane	EPA 624	5A13008	N/A	5.0	ND	1	01/13/05	01/13/05	
Carbon tetrachloride	EPA 624	5A13008	N/A	0.50	ND	1	01/13/05	01/13/05	
Chlorobenzene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
Chloroethane	EPA 624	5A13008	N/A	5.0	ND	1	01/13/05	01/13/05	
Chloroform	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
Chloromethane	EPA 624	5A13008	N/A	5.0	ND	1	01/13/05	01/13/05	
Dibromochloromethane	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
1,2-Dichlorobenzene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
1,3-Dichlorobenzene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
1,4-Dichlorobenzene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
1,1-Dichloroethane	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
1,2-Dichloroethane	EPA 624	5A13008	N/A	0.50	ND	1	01/13/05	01/13/05	
1,1-Dichloroethene	EPA 624	5A13008	N/A	5.0	ND	1	01/13/05	01/13/05	
trans-1,2-Dichloroethene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
1,2-Dichloropropane	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
cis-1,3-Dichloropropene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
trans-1,3-Dichloropropene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
Ethylbenzene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
Methylene chloride	EPA 624	5A13008	N/A	5.0	ND	1	01/13/05	01/13/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
Tetrachloroethene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
Toluene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
1,1,1-Trichloroethane	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
1,1,2-Trichloroethane	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
Trichloroethene	EPA 624	5A13008	N/A	2.0	ND	1	01/13/05	01/13/05	
Trichlorofluoromethane	EPA 624	5A13008	N/A	5.0	ND	1	01/13/05	01/13/05	
Vinyl chloride	EPA 624	5A13008	N/A	0.50	ND	1	01/13/05	01/13/05	
Xylenes, Total	EPA 624	5A13008	N/A	4.0	ND	1	01/13/05	01/13/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					102 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					101 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					96 %				

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 Michele Harper  
 Project Manager

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MWH-Pasadena/Boeing Project ID: Outfall 011  
300 North Lake Avenue, Suite 1200 Report Number: IOA0567  
Pasadena, CA 91101 Sampled: 01/11/05-01/12/05  
Attention: Bronwyn Kelly Received: 01/11/05

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: IOA0567-02 (Trip Blank - Water)					Sampled: 01/11/05				
Reporting Units: ug/l									
Benzene	EPA 624	5A12019	N/A	1.0	ND	1	01/12/05	01/12/05	
Bromodichloromethane	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
Bromoform	EPA 624	5A12019	N/A	5.0	ND	1	01/12/05	01/12/05	
Bromomethane	EPA 624	5A12019	N/A	5.0	ND	1	01/12/05	01/12/05	
Carbon tetrachloride	EPA 624	5A12019	N/A	0.50	ND	1	01/12/05	01/12/05	
Chlorobenzene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
Chloroethane	EPA 624	5A12019	N/A	5.0	ND	1	01/12/05	01/12/05	
Chloroform	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
Chloromethane	EPA 624	5A12019	N/A	5.0	ND	1	01/12/05	01/12/05	
Dibromochloromethane	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichlorobenzene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
1,3-Dichlorobenzene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
1,4-Dichlorobenzene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
1,1-Dichloroethane	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloroethane	EPA 624	5A12019	N/A	0.50	ND	1	01/12/05	01/12/05	
1,1-Dichloroethene	EPA 624	5A12019	N/A	5.0	ND	1	01/12/05	01/12/05	
trans-1,2-Dichloroethene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloropropane	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
cis-1,3-Dichloropropene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
trans-1,3-Dichloropropene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
Ethylbenzene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
Methylene chloride	EPA 624	5A12019	N/A	5.0	ND	1	01/12/05	01/12/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
Tetrachloroethene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
Toluene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
1,1,1-Trichloroethane	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
1,1,2-Trichloroethane	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
Trichloroethene	EPA 624	5A12019	N/A	2.0	ND	1	01/12/05	01/12/05	
Trichlorofluoromethane	EPA 624	5A12019	N/A	5.0	ND	1	01/12/05	01/12/05	
Vinyl chloride	EPA 624	5A12019	N/A	0.50	ND	1	01/12/05	01/12/05	
Xylenes, Total	EPA 624	5A12019	N/A	4.0	ND	1	01/12/05	01/12/05	
Surrogate: Dibromofluoromethane (80-120%)					98 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



MWH-Pasadena/Boeing Project ID: Outfall 011  
300 North Lake Avenue, Suite 1200 Report Number: IOA0567  
Pasadena, CA 91101 Attention: Bronwyn Kelly  
Sampled: 01/11/05-01/12/05  
Received: 01/11/05

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: IOA0567-01 (Outfall 011 - composite - Water)					Sampled: 01/12/05				
Reporting Units: ug/l									
Acrolein	EPA 624	5A13008	N/A	50	ND	1	01/13/05	01/13/05	
Acrylonitrile	EPA 624	5A13008	N/A	50	ND	1	01/13/05	01/13/05	
2-Chloroethyl vinyl ether	EPA 624	5A13008	N/A	5.0	ND	1	01/13/05	01/13/05	
Surrogate: Dibromofluoromethane (80-120%)					102 %				
Surrogate: Toluene-d8 (80-120%)					101 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					96 %				

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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: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

**PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A13008	N/A	2.5	ND	1	01/13/05	01/13/05	
Cyclohexane	EPA 624 (MOD.)	5A13008	N/A	2.5	ND	1	01/13/05	01/13/05	
<b>Sample ID: IOA0567-02 (Trip Blank - Water)</b>					<b>Sampled: 01/11/05</b>				
<b>Reporting Units: ug/l</b>									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5A12019	N/A	2.5	ND	1	01/12/05	01/12/05	
Cyclohexane	EPA 624 (MOD.)	5A12019	N/A	2.5	ND	1	01/12/05	01/12/05	

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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: Outfall 011 Report Number: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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: IOA0567-01 (Outfall 011 - composite - Water)					Sampled: 01/12/05				
Reporting Units: ug/l									
Acenaphthene	EPA 625	5A13038	N/A	0.50	11	1	01/13/05	01/18/05	
Acenaphthylene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
Aniline	EPA 625	5A13038	N/A	10	ND	1	01/13/05	01/18/05	
Anthracene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
Benzidine	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
Benzoic acid	EPA 625	5A13038	N/A	20	ND	1	01/13/05	01/18/05	
Benzo(a)anthracene	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
Benzo(a)pyrene	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
Benzo(b)fluoranthene	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
Benzo(g,h,i)perylene	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
Benzo(k)fluoranthene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
Benzyl alcohol	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
Bis(2-chloroethoxy)methane	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
Bis(2-chloroethyl)ether	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
Bis(2-chloroisopropyl)ether	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
4-Bromophenyl phenyl ether	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	
Butyl benzyl phthalate	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
4-Chloroaniline	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
2-Chloronaphthalene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
4-Chloro-3-methylphenol	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
4-Chlorophenyl phenyl ether	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
2-Chlorophenol	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	
Chrysene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
Dibenz(a,h)anthracene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
Dibenzofuran	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
Di-n-butyl phthalate	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
1,2-Dichlorobenzene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
1,3-Dichlorobenzene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
1,4-Dichlorobenzene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
3,3-Dichlorobenzidine	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
2,4-Dichlorophenol	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
Diethyl phthalate	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	
2,4-Dimethylphenol	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
Dimethyl phthalate	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
4,6-Dinitro-2-methylphenol	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
2,4-Dinitrophenol	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
2,4-Dinitrotoluene	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
2,6-Dinitrotoluene	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
Di-n-octyl phthalate	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Fluoranthene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
Fluorene	EPA 625	5A13038	N/A	0.50	4.7	1	01/13/05	01/18/05	
Hexachlorobenzene	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	
Hexachlorobutadiene	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
Hexachlorocyclopentadiene	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
Hexachloroethane	EPA 625	5A13038	N/A	3.0	ND	1	01/13/05	01/18/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
Isophorone	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	
2-Methylnaphthalene	EPA 625	5A13038	N/A	1.0	9.5	1	01/13/05	01/18/05	
2-Methylphenol	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
4-Methylphenol	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
Naphthalene	EPA 625	5A13038	N/A	1.0	8.3	1	01/13/05	01/18/05	
2-Nitroaniline	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
3-Nitroaniline	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
4-Nitroaniline	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
Nitrobenzene	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	
2-Nitrophenol	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
4-Nitrophenol	EPA 625	5A13038	N/A	5.0	ND	1	01/13/05	01/18/05	
N-Nitrosodimethylamine	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
N-Nitroso-di-n-propylamine	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
N-Nitrosodiphenylamine	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	
Pentachlorophenol	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
Phenanthrene	EPA 625	5A13038	N/A	0.50	0.98	1	01/13/05	01/18/05	
Phenol	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	
Pyrene	EPA 625	5A13038	N/A	0.50	ND	1	01/13/05	01/18/05	
1,2,4-Trichlorobenzene	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	
2,4,5-Trichlorophenol	EPA 625	5A13038	N/A	2.0	ND	1	01/13/05	01/18/05	
2,4,6-Trichlorophenol	EPA 625	5A13038	N/A	1.0	ND	1	01/13/05	01/18/05	
Surrogate: 2-Fluorophenol (35-120%)					66 %				
Surrogate: Phenol-d6 (45-120%)					69 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					78 %				
Surrogate: Nitrobenzene-d5 (45-120%)					69 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					74 %				
Surrogate: Terphenyl-d14 (45-135%)					74 %				

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Aldrin	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
alpha-BHC	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
beta-BHC	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
delta-BHC	EPA 608	5A13049	N/A	0.20	ND	1	01/13/05	01/13/05	
gamma-BHC (Lindane)	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Chlordane	EPA 608	5A13049	N/A	1.0	ND	1	01/13/05	01/13/05	
4,4'-DDD	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
4,4'-DDE	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
4,4'-DDT	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Dieldrin	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Endosulfan I	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Endosulfan II	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Endosulfan sulfate	EPA 608	5A13049	N/A	0.20	ND	1	01/13/05	01/13/05	
Endrin	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Endrin aldehyde	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Endrin ketone	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Heptachlor	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Heptachlor epoxide	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Methoxychlor	EPA 608	5A13049	N/A	0.10	ND	1	01/13/05	01/13/05	
Toxaphene	EPA 608	5A13049	N/A	5.0	ND	1	01/13/05	01/13/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					50 %				
Surrogate: Decachlorobiphenyl (45-120%)					66 %				

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Aroclor 1016	EPA 608	5A13049	N/A	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1221	EPA 608	5A13049	N/A	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	N/A	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	N/A	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	N/A	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	N/A	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	N/A	1.0	ND	1	01/13/05	01/14/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					64 %				

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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: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/12/05				
Reporting Units: mg/l									
Barium	EPA 200.8	5A13044	N/A	0.0010	0.018	1	01/13/05	01/13/05	
Boron	EPA 200.7	5A13042	N/A	0.050	0.069	1	01/13/05	01/13/05	
Iron	EPA 200.8	5A13044	N/A	0.010	1.0	1	01/13/05	01/13/05	

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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Antimony	EPA 200.8	5A13044	N/A	2.0	ND	1	01/13/05	01/13/05	
Arsenic	EPA 200.8	5A13044	N/A	1.0	1.8	1	01/13/05	01/13/05	
Beryllium	EPA 200.8	5A13044	N/A	0.50	ND	1	01/13/05	01/13/05	
Cadmium	EPA 200.8	5A13044	N/A	1.0	ND	1	01/13/05	01/13/05	B
Chromium	EPA 200.8	5A13044	N/A	1.0	2.2	1	01/13/05	01/13/05	B
Cobalt	EPA 200.8	5A13044	N/A	1.0	ND	1	01/13/05	01/13/05	
Copper	EPA 200.8	5A13044	N/A	2.0	7.2	1	01/13/05	01/13/05	
Lead	EPA 200.8	5A13044	N/A	1.0	ND	1	01/13/05	01/13/05	
Manganese	EPA 200.8	5A13044	N/A	1.0	15	1	01/13/05	01/13/05	
Mercury	EPA 245.1	5A13050	N/A	0.20	ND	1	01/13/05	01/13/05	
Nickel	EPA 200.8	5A13044	N/A	1.0	2.4	1	01/13/05	01/13/05	
Selenium	EPA 200.8	5A13044	N/A	2.0	ND	1	01/13/05	01/13/05	
Silver	EPA 200.8	5A13044	N/A	1.0	ND	1	01/13/05	01/13/05	
Thallium	EPA 200.8	5A13044	N/A	1.0	ND	1	01/13/05	01/13/05	
Vanadium	EPA 200.8	5A13044	N/A	1.0	2.7	1	01/13/05	01/13/05	
Zinc	EPA 200.8	5A13044	N/A	20	21	1	01/13/05	01/13/05	

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 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOA0567

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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: mg/l</b>									
Ammonia-N (Distilled)	EPA 350.2	5A13063	N/A	0.50	ND	1	01/13/05	01/13/05	
Biochemical Oxygen Demand	EPA 405.1	5A12041	N/A	2.0	ND	1	01/12/05	01/17/05	
Chloride	EPA 300.0	5A12036	N/A	0.50	3.6	1	01/12/05	01/12/05	
Fluoride	EPA 300.0	5A12036	N/A	0.50	ND	1	01/12/05	01/12/05	
Nitrate/Nitrite-N	EPA 300.0	5A12036	N/A	0.26	0.92	1	01/12/05	01/12/05	
Oil & Grease	EPA 413.1	5A13065	N/A	5.0	43	1	01/13/05	01/13/05	
Residual Chlorine	EPA 330.5	5A12045	N/A	0.10	ND	1	01/12/05	01/12/05	
Sulfate	EPA 300.0	5A12036	N/A	0.50	4.7	1	01/12/05	01/12/05	
Surfactants (MBAS)	SM5540-C	5A12059	N/A	0.10	ND	1	01/12/05	01/12/05	
Total Dissolved Solids	SM2540C	5A13089	N/A	10	99	1	01/13/05	01/13/05	
Total Organic Carbon	EPA 415.1	5A13053	N/A	1.0	9.2	1	01/12/05	01/12/05	
Total Suspended Solids	EPA 160.2	5A17060	N/A	10	ND	1	01/17/05	01/17/05	

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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5A12043	N/A	0.10	ND	1	01/12/05	01/12/05	

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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: Outfall 011  Report Number: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: NTU</b>									
Turbidity	EPA 180.1	5A13082	N/A	1.0	18	1	01/13/05	01/13/05	

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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: Outfall 011  Report Number: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Chromium VI	EPA 218.6	5A12034	N/A	1.0	ND	1	01/12/05	01/12/05	
Total Cyanide	EPA 335.2	5A18093	N/A	5.0	ND	1	01/18/05	01/19/05	M2
Perchlorate	EPA 314.0	5A13051	N/A	4.0	ND	1	01/13/05	01/13/05	

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

Project ID: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0567-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/12/05				
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5A14087	N/A	1.0	94	1	01/14/05	01/14/05	

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 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## 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: IOA0567-01 (Outfall 011 - composite - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5A1502	0.49	1.0	ND	1	01/15/05	01/15/05	
Surrogate: Dibromofluoromethane (80-125%)					105 %				

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 011 - composite (IOA0567-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	01/12/2005 13:00	01/11/2005 18:50	01/12/2005 13:00	01/12/2005 15:20
EPA 180.1	2	01/12/2005 13:00	01/11/2005 18:50	01/13/2005 12:30	01/13/2005 13:30
EPA 218.6	1	01/12/2005 13:00	01/11/2005 18:50	01/12/2005 16:00	01/12/2005 16:08
EPA 300.0	2	01/12/2005 13:00	01/11/2005 18:50	01/12/2005 16:30	01/12/2005 17:08
EPA 330.5	1	01/12/2005 13:00	01/11/2005 18:50	01/12/2005 13:30	01/12/2005 13:40
EPA 405.1	2	01/12/2005 13:00	01/11/2005 18:50	01/12/2005 19:00	01/17/2005 20:00
EPA 624	3	01/12/2005 13:00	01/11/2005 18:50	01/13/2005 00:00	01/13/2005 15:39
SM5540-C	2	01/12/2005 13:00	01/11/2005 18:50	01/12/2005 13:06	01/12/2005 20:16

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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
<b>Batch: 5A12075 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12075-BLK1)</b>											
Total Recoverable Hydrocarbons	ND	1.0	N/A	mg/l							
<b>LCS Analyzed: 01/12/2005 (5A12075-BS1)</b>											
Total Recoverable Hydrocarbons	4.64	1.0	N/A	mg/l	5.00		93	65-120			M-NR1
<b>LCS Dup Analyzed: 01/12/2005 (5A12075-BSD1)</b>											
Total Recoverable Hydrocarbons	4.99	1.0	N/A	mg/l	5.00		100	65-120	7	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
<b>Batch: 5A13035 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/14/2005 (5A13035-BLK1)</b>											
EFH (C13 - C22)	ND	0.50	N/A	mg/l							
EFH (C13 - C40)	ND	0.50	N/A	mg/l							
Surrogate: n-Octacosane	0.143			mg/l	0.200		72	40-125			
<b>LCS Analyzed: 01/14/2005 (5A13035-BS1)</b>											
EFH (C13 - C40)	0.651	0.50	N/A	mg/l	0.775		84	40-120			
Surrogate: n-Octacosane	0.151			mg/l	0.200		75	40-125			
<b>Matrix Spike Analyzed: 01/14/2005 (5A13035-MS1) Source: IOA0635-03</b>											
EFH (C13 - C40)	0.647	0.50	N/A	mg/l	0.731	ND	89	40-120			
Surrogate: n-Octacosane	0.151			mg/l	0.189		80	40-125			
<b>Matrix Spike Dup Analyzed: 01/14/2005 (5A13035-MSD1) Source: IOA0635-03</b>											
EFH (C13 - C40)	0.456	0.50	N/A	mg/l	0.731	ND	62	40-120	35	30	R-2
Surrogate: n-Octacosane	0.103			mg/l	0.189		54	40-125			

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Received: 01/11/05

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 Limit	Data Qualifiers
<b>Batch: 5A13005 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13005-BLK1)</b>											
GRO (C4 - C12)	ND	0.10	N/A	mg/l							
Surrogate: 4-BFB (FID)	0.00936			mg/l	0.0100		94	65-140			
<b>LCS Analyzed: 01/13/2005 (5A13005-BS1)</b>											
GRO (C4 - C12)	0.230	0.10	N/A	mg/l	0.220		105	70-140			
Surrogate: 4-BFB (FID)	0.0119			mg/l	0.0100		119	65-140			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13005-MS1) Source: IOA0425-01</b>											
GRO (C4 - C12)	0.251	0.10	N/A	mg/l	0.220	ND	114	60-140			
Surrogate: 4-BFB (FID)	0.0120			mg/l	0.0100		120	65-140			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13005-MSD1) Source: IOA0425-01</b>											
GRO (C4 - C12)	0.249	0.10	N/A	mg/l	0.220	ND	113	60-140	1	20	
Surrogate: 4-BFB (FID)	0.0116			mg/l	0.0100		116	65-140			

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## METHOD BLANK/QC DATA

### FREON 113 (EPA 8260B)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12019 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12019-BLK1)</b>										
Trichlorotrifluoroethane (Freon 113)	ND	5.0	N/A	ug/l						
Surrogate: Dibromofluoromethane	24.7			ug/l	25.0		99 80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100 80-120			
Surrogate: 4-Bromofluorobenzene	24.5			ug/l	25.0		98 80-120			
<b>Batch: 5A13008 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13008-BLK1)</b>										
Trichlorotrifluoroethane (Freon 113)	ND	5.0	N/A	ug/l						
Surrogate: Dibromofluoromethane	24.3			ug/l	25.0		97 80-120			
Surrogate: Toluene-d8	24.9			ug/l	25.0		100 80-120			
Surrogate: 4-Bromofluorobenzene	24.1			ug/l	25.0		96 80-120			

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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
<b>Batch: 5A12019 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12019-BLK1)</b>										
1,2,3-Trichloropropane	ND	10	N/A	ug/l						
Benzene	ND	1.0	N/A	ug/l						
Bromodichloromethane	ND	2.0	N/A	ug/l						
Bromoform	ND	5.0	N/A	ug/l						
Bromomethane	ND	5.0	N/A	ug/l						
Carbon tetrachloride	ND	0.50	N/A	ug/l						
Chlorobenzene	ND	2.0	N/A	ug/l						
Chloroethane	ND	5.0	N/A	ug/l						
Chloroform	ND	2.0	N/A	ug/l						
Chloromethane	ND	5.0	N/A	ug/l						
Dibromochloromethane	ND	2.0	N/A	ug/l						
1,2-Dichlorobenzene	ND	2.0	N/A	ug/l						
1,3-Dichlorobenzene	ND	2.0	N/A	ug/l						
1,4-Dichlorobenzene	ND	2.0	N/A	ug/l						
1,1-Dichloroethane	ND	2.0	N/A	ug/l						
1,2-Dichloroethane	ND	0.50	N/A	ug/l						
1,1-Dichloroethene	ND	5.0	N/A	ug/l						
trans-1,2-Dichloroethene	ND	2.0	N/A	ug/l						
1,2-Dichloropropane	ND	2.0	N/A	ug/l						
cis-1,3-Dichloropropene	ND	2.0	N/A	ug/l						
trans-1,3-Dichloropropene	ND	2.0	N/A	ug/l						
Ethylbenzene	ND	2.0	N/A	ug/l						
Methylene chloride	ND	5.0	N/A	ug/l						
1,1,2,2-Tetrachloroethane	ND	2.0	N/A	ug/l						
Tetrachloroethene	ND	2.0	N/A	ug/l						
Toluene	ND	2.0	N/A	ug/l						
1,1,1-Trichloroethane	ND	2.0	N/A	ug/l						
1,1,2-Trichloroethane	ND	2.0	N/A	ug/l						
Trichloroethene	ND	2.0	N/A	ug/l						
Trichlorofluoromethane	ND	5.0	N/A	ug/l						
Vinyl chloride	ND	0.50	N/A	ug/l						
Xylenes, Total	ND	4.0	N/A	ug/l						
Surrogate: Dibromofluoromethane	24.7			ug/l	25.0		99	80-120		
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	24.5			ug/l	25.0		98	80-120		

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Received: 01/11/05

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	RPD Limit	Data Qualifiers
<b>Batch: 5A12019 Extracted: 01/12/05</b>										
<b>LCS Analyzed: 01/12/2005 (5A12019-BS1)</b>										
Benzene	23.4	1.0	N/A	ug/l	25.0		94 70-120			
Bromodichloromethane	26.4	2.0	N/A	ug/l	25.0		106 70-140			
Bromoform	25.2	5.0	N/A	ug/l	25.0		101 55-135			
Bromomethane	29.0	5.0	N/A	ug/l	25.0		116 60-140			
Carbon tetrachloride	28.8	0.50	N/A	ug/l	25.0		115 70-140			
Chlorobenzene	25.5	2.0	N/A	ug/l	25.0		102 80-125			
Chloroethane	26.8	5.0	N/A	ug/l	25.0		107 60-145			
Chloroform	24.9	2.0	N/A	ug/l	25.0		100 75-130			
Chloromethane	24.5	5.0	N/A	ug/l	25.0		98 40-145			
Dibromochloromethane	26.2	2.0	N/A	ug/l	25.0		105 65-145			
1,2-Dichlorobenzene	25.9	2.0	N/A	ug/l	25.0		104 80-120			
1,3-Dichlorobenzene	24.9	2.0	N/A	ug/l	25.0		100 80-120			
1,4-Dichlorobenzene	24.6	2.0	N/A	ug/l	25.0		98 80-120			
1,1-Dichloroethane	24.4	2.0	N/A	ug/l	25.0		98 70-135			
1,2-Dichloroethane	26.6	0.50	N/A	ug/l	25.0		106 60-150			
1,1-Dichloroethene	25.0	5.0	N/A	ug/l	25.0		100 75-135			
trans-1,2-Dichloroethene	25.9	2.0	N/A	ug/l	25.0		104 70-130			
1,2-Dichloropropane	24.7	2.0	N/A	ug/l	25.0		99 70-120			
cis-1,3-Dichloropropene	26.9	2.0	N/A	ug/l	25.0		108 75-130			
trans-1,3-Dichloropropene	26.9	2.0	N/A	ug/l	25.0		108 75-135			
Ethylbenzene	26.6	2.0	N/A	ug/l	25.0		106 80-120			
Methylene chloride	26.1	5.0	N/A	ug/l	25.0		104 60-135			
1,1,2,2-Tetrachloroethane	22.3	2.0	N/A	ug/l	25.0		89 60-135			
Tetrachloroethene	26.9	2.0	N/A	ug/l	25.0		108 75-125			
Toluene	24.6	2.0	N/A	ug/l	25.0		98 75-120			
1,1,1-Trichloroethane	28.4	2.0	N/A	ug/l	25.0		114 75-140			
1,1,2-Trichloroethane	24.6	2.0	N/A	ug/l	25.0		98 70-125			
Trichloroethene	25.2	2.0	N/A	ug/l	25.0		101 80-120			
Trichlorofluoromethane	29.3	5.0	N/A	ug/l	25.0		117 65-145			
Vinyl chloride	23.7	0.50	N/A	ug/l	25.0		95 50-130			
Surrogate: Dibromofluoromethane	24.3			ug/l	25.0		97 80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100 80-120			
Surrogate: 4-Bromofluorobenzene	25.0			ug/l	25.0		100 80-120			

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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
<b>Batch: 5A12019 Extracted: 01/12/05</b>											
<b>Matrix Spike Analyzed: 01/12/2005 (5A12019-MS1)</b>						<b>Source: IOA0503-01</b>					
Benzene	24.5	1.0	N/A	ug/l	25.0	ND	98	70-120			
Bromodichloromethane	27.5	2.0	N/A	ug/l	25.0	ND	110	70-140			
Bromoform	24.0	5.0	N/A	ug/l	25.0	ND	96	55-140			
Bromomethane	30.7	5.0	N/A	ug/l	25.0	ND	123	50-145			
Carbon tetrachloride	30.7	0.50	N/A	ug/l	25.0	ND	123	70-145			
Chlorobenzene	26.9	2.0	N/A	ug/l	25.0	ND	108	80-125			
Chloroethane	28.5	5.0	N/A	ug/l	25.0	ND	114	50-145			
Chloroform	26.6	2.0	N/A	ug/l	25.0	ND	106	70-135			
Chloromethane	25.7	5.0	N/A	ug/l	25.0	ND	103	35-145			
Dibromochloromethane	26.1	2.0	N/A	ug/l	25.0	ND	104	65-145			
1,2-Dichlorobenzene	26.5	2.0	N/A	ug/l	25.0	ND	106	75-130			
1,3-Dichlorobenzene	25.7	2.0	N/A	ug/l	25.0	ND	103	75-130			
1,4-Dichlorobenzene	25.5	2.0	N/A	ug/l	25.0	ND	102	80-120			
1,1-Dichloroethane	25.9	2.0	N/A	ug/l	25.0	ND	104	65-135			
1,2-Dichloroethane	26.9	0.50	N/A	ug/l	25.0	ND	108	60-150			
1,1-Dichloroethene	26.3	5.0	N/A	ug/l	25.0	ND	105	65-140			
trans-1,2-Dichloroethene	27.3	2.0	N/A	ug/l	25.0	ND	109	65-135			
1,2-Dichloropropane	25.7	2.0	N/A	ug/l	25.0	ND	103	65-130			
cis-1,3-Dichloropropene	27.3	2.0	N/A	ug/l	25.0	ND	109	70-140			
trans-1,3-Dichloropropene	27.0	2.0	N/A	ug/l	25.0	ND	108	70-140			
Ethylbenzene	27.8	2.0	N/A	ug/l	25.0	ND	111	70-130			
Methylene chloride	27.0	5.0	N/A	ug/l	25.0	ND	108	60-135			
1,1,2,2-Tetrachloroethane	21.5	2.0	N/A	ug/l	25.0	ND	86	60-145			
Tetrachloroethene	27.9	2.0	N/A	ug/l	25.0	ND	112	70-130			
Toluene	25.8	2.0	N/A	ug/l	25.0	ND	103	70-120			
1,1,1-Trichloroethane	30.4	2.0	N/A	ug/l	25.0	ND	122	75-140			
1,1,2-Trichloroethane	24.2	2.0	N/A	ug/l	25.0	ND	97	60-135			
Trichloroethene	26.4	2.0	N/A	ug/l	25.0	ND	106	70-125			
Trichlorofluoromethane	31.2	5.0	N/A	ug/l	25.0	ND	125	55-145			
Vinyl chloride	24.9	0.50	N/A	ug/l	25.0	ND	100	40-135			
Surrogate: Dibromofluoromethane	24.6			ug/l	25.0		98	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102	80-120			

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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

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
<b>Batch: 5A12019 Extracted: 01/12/05</b>											
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12019-MSD1)</b>						<b>Source: IOA0503-01</b>					
Benzene	24.0	1.0	N/A	ug/l	25.0	ND	96	70-120	2	20	
Bromodichloromethane	27.1	2.0	N/A	ug/l	25.0	ND	108	70-140	1	20	
Bromoform	27.6	5.0	N/A	ug/l	25.0	ND	110	55-140	14	25	
Bromomethane	29.8	5.0	N/A	ug/l	25.0	ND	119	50-145	3	25	
Carbon tetrachloride	29.9	0.50	N/A	ug/l	25.0	ND	120	70-145	3	25	
Chlorobenzene	26.4	2.0	N/A	ug/l	25.0	ND	106	80-125	2	20	
Chloroethane	28.1	5.0	N/A	ug/l	25.0	ND	112	50-145	1	25	
Chloroform	25.9	2.0	N/A	ug/l	25.0	ND	104	70-135	3	20	
Chloromethane	25.8	5.0	N/A	ug/l	25.0	ND	103	35-145	0	25	
Dibromochloromethane	28.2	2.0	N/A	ug/l	25.0	ND	113	65-145	8	25	
1,2-Dichlorobenzene	26.4	2.0	N/A	ug/l	25.0	ND	106	75-130	0	20	
1,3-Dichlorobenzene	25.1	2.0	N/A	ug/l	25.0	ND	100	75-130	2	20	
1,4-Dichlorobenzene	24.9	2.0	N/A	ug/l	25.0	ND	100	80-120	2	20	
1,1-Dichloroethane	25.3	2.0	N/A	ug/l	25.0	ND	101	65-135	2	20	
1,2-Dichloroethane	27.8	0.50	N/A	ug/l	25.0	ND	111	60-150	3	20	
1,1-Dichloroethene	25.8	5.0	N/A	ug/l	25.0	ND	103	65-140	2	20	
trans-1,2-Dichloroethene	27.0	2.0	N/A	ug/l	25.0	ND	108	65-135	1	20	
1,2-Dichloropropane	25.6	2.0	N/A	ug/l	25.0	ND	102	65-130	0	20	
cis-1,3-Dichloropropene	27.4	2.0	N/A	ug/l	25.0	ND	110	70-140	0	20	
trans-1,3-Dichloropropene	28.3	2.0	N/A	ug/l	25.0	ND	113	70-140	5	25	
Ethylbenzene	27.2	2.0	N/A	ug/l	25.0	ND	109	70-130	2	20	
Methylene chloride	26.4	5.0	N/A	ug/l	25.0	ND	106	60-135	2	20	
1,1,1,2-Tetrachloroethane	25.4	2.0	N/A	ug/l	25.0	ND	102	60-145	17	30	
Tetrachloroethene	27.5	2.0	N/A	ug/l	25.0	ND	110	70-130	1	20	
Toluene	25.3	2.0	N/A	ug/l	25.0	ND	101	70-120	2	20	
1,1,1-Trichloroethane	29.2	2.0	N/A	ug/l	25.0	ND	117	75-140	4	20	
1,1,2-Trichloroethane	26.0	2.0	N/A	ug/l	25.0	ND	104	60-135	7	25	
Trichloroethene	25.8	2.0	N/A	ug/l	25.0	ND	103	70-125	2	20	
Trichlorofluoromethane	30.5	5.0	N/A	ug/l	25.0	ND	122	55-145	2	25	
Vinyl chloride	24.5	0.50	N/A	ug/l	25.0	ND	98	40-135	2	30	
Surrogate: Dibromofluoromethane	24.7			ug/l	25.0		99	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102	80-120			

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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: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## 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
<b>Batch: 5A13008 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13008-BLK1)</b>											
Benzene	ND	1.0	N/A	ug/l							
Bromodichloromethane	ND	2.0	N/A	ug/l							
Bromoform	ND	5.0	N/A	ug/l							
Bromomethane	ND	5.0	N/A	ug/l							
Carbon tetrachloride	ND	0.50	N/A	ug/l							
Chlorobenzene	ND	2.0	N/A	ug/l							
Chloroethane	ND	5.0	N/A	ug/l							
Chloroform	ND	2.0	N/A	ug/l							
Chloromethane	ND	5.0	N/A	ug/l							
Dibromochloromethane	ND	2.0	N/A	ug/l							
1,2-Dichlorobenzene	ND	2.0	N/A	ug/l							
1,3-Dichlorobenzene	ND	2.0	N/A	ug/l							
1,4-Dichlorobenzene	ND	2.0	N/A	ug/l							
1,1-Dichloroethane	ND	2.0	N/A	ug/l							
1,2-Dichloroethane	ND	0.50	N/A	ug/l							
1,1-Dichloroethene	ND	5.0	N/A	ug/l							
trans-1,2-Dichloroethene	ND	2.0	N/A	ug/l							
1,2-Dichloropropane	ND	2.0	N/A	ug/l							
cis-1,3-Dichloropropene	ND	2.0	N/A	ug/l							
trans-1,3-Dichloropropene	ND	2.0	N/A	ug/l							
Ethylbenzene	ND	2.0	N/A	ug/l							
Methylene chloride	ND	5.0	N/A	ug/l							
1,1,2,2-Tetrachloroethane	ND	2.0	N/A	ug/l							
Tetrachloroethene	ND	2.0	N/A	ug/l							
Toluene	ND	2.0	N/A	ug/l							
1,1,1-Trichloroethane	ND	2.0	N/A	ug/l							
1,1,2-Trichloroethane	ND	2.0	N/A	ug/l							
Trichloroethene	ND	2.0	N/A	ug/l							
Trichlorofluoromethane	ND	5.0	N/A	ug/l							
Vinyl chloride	ND	0.50	N/A	ug/l							
Xylenes, Total	ND	4.0	N/A	ug/l							
Surrogate: Dibromofluoromethane	24.3			ug/l	25.0		97	80-120			
Surrogate: Toluene-d8	24.9			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.1			ug/l	25.0		96	80-120			

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

Project ID: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## 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
<b>Batch: 5A13008 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/13/2005 (5A13008-BS1)</b>										
Benzene	22.5	1.0	N/A	ug/l	25.0	90	70-120			
Bromodichloromethane	28.7	2.0	N/A	ug/l	25.0	115	70-140			
Bromoform	26.4	5.0	N/A	ug/l	25.0	106	55-135			
Bromomethane	27.9	5.0	N/A	ug/l	25.0	112	60-140			
Carbon tetrachloride	31.6	0.50	N/A	ug/l	25.0	126	70-140			
Chlorobenzene	24.0	2.0	N/A	ug/l	25.0	96	80-125			
Chloroethane	23.2	5.0	N/A	ug/l	25.0	93	60-145			
Chloroform	26.3	2.0	N/A	ug/l	25.0	105	75-130			
Chloromethane	19.9	5.0	N/A	ug/l	25.0	80	40-145			
Dibromochloromethane	25.6	2.0	N/A	ug/l	25.0	102	65-145			
1,2-Dichlorobenzene	25.3	2.0	N/A	ug/l	25.0	101	80-120			
1,3-Dichlorobenzene	24.6	2.0	N/A	ug/l	25.0	98	80-120			
1,4-Dichlorobenzene	24.8	2.0	N/A	ug/l	25.0	99	80-120			
1,1-Dichloroethane	23.0	2.0	N/A	ug/l	25.0	92	70-135			
1,2-Dichloroethane	28.5	0.50	N/A	ug/l	25.0	114	60-150			
1,1-Dichloroethene	23.3	5.0	N/A	ug/l	25.0	93	75-135			
trans-1,2-Dichloroethene	24.2	2.0	N/A	ug/l	25.0	97	70-130			
1,2-Dichloropropane	20.9	2.0	N/A	ug/l	25.0	84	70-120			
cis-1,3-Dichloropropene	24.1	2.0	N/A	ug/l	25.0	96	75-130			
trans-1,3-Dichloropropene	26.2	2.0	N/A	ug/l	25.0	105	75-135			
Ethylbenzene	24.9	2.0	N/A	ug/l	25.0	100	80-120			
Methylene chloride	20.4	5.0	N/A	ug/l	25.0	82	60-135			
1,1,2,2-Tetrachloroethane	22.0	2.0	N/A	ug/l	25.0	88	60-135			
Tetrachloroethene	26.0	2.0	N/A	ug/l	25.0	104	75-125			
Toluene	25.3	2.0	N/A	ug/l	25.0	101	75-120			
1,1,1-Trichloroethane	29.4	2.0	N/A	ug/l	25.0	118	75-140			
1,1,2-Trichloroethane	22.3	2.0	N/A	ug/l	25.0	89	70-125			
Trichloroethene	26.1	2.0	N/A	ug/l	25.0	104	80-120			
Trichlorofluoromethane	30.0	5.0	N/A	ug/l	25.0	120	65-145			
Vinyl chloride	25.0	0.50	N/A	ug/l	25.0	100	50-130			
Surrogate: Dibromofluoromethane	25.7			ug/l	25.0	103	80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0	101	80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0	101	80-120			

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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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
<b>Batch: 5A13008 Extracted: 01/13/05</b>											
<b>Matrix Spike Analyzed: 01/13/2005 (5A13008-MS1)</b>						<b>Source: IOA0558-01</b>					
Benzene	24.1	1.0	N/A	ug/l	25.0	ND	96	70-120			
Bromodichloromethane	31.4	2.0	N/A	ug/l	25.0	ND	126	70-140			
Bromoform	28.1	5.0	N/A	ug/l	25.0	ND	112	55-140			
Bromomethane	28.8	5.0	N/A	ug/l	25.0	ND	115	50-145			
Carbon tetrachloride	33.3	0.50	N/A	ug/l	25.0	ND	133	70-145			
Chlorobenzene	25.8	2.0	N/A	ug/l	25.0	ND	103	80-125			
Chloroethane	25.0	5.0	N/A	ug/l	25.0	0.85	97	50-145			
Chloroform	28.8	2.0	N/A	ug/l	25.0	0.74	112	70-135			
Chloromethane	20.4	5.0	N/A	ug/l	25.0	ND	82	35-145			
Dibromochloromethane	27.3	2.0	N/A	ug/l	25.0	ND	109	65-145			
1,2-Dichlorobenzene	27.3	2.0	N/A	ug/l	25.0	ND	109	75-130			
1,3-Dichlorobenzene	26.9	2.0	N/A	ug/l	25.0	ND	108	75-130			
1,4-Dichlorobenzene	27.4	2.0	N/A	ug/l	25.0	1.2	105	80-120			
1,1-Dichloroethane	24.0	2.0	N/A	ug/l	25.0	ND	96	65-135			
1,2-Dichloroethane	30.9	0.50	N/A	ug/l	25.0	0.30	122	60-150			
1,1-Dichloroethene	23.7	5.0	N/A	ug/l	25.0	ND	95	65-140			
trans-1,2-Dichloroethene	24.9	2.0	N/A	ug/l	25.0	ND	100	65-135			
1,2-Dichloropropane	22.8	2.0	N/A	ug/l	25.0	ND	91	65-130			
cis-1,3-Dichloropropene	26.5	2.0	N/A	ug/l	25.0	ND	106	70-140			
trans-1,3-Dichloropropene	29.0	2.0	N/A	ug/l	25.0	ND	116	70-140			
Ethylbenzene	26.5	2.0	N/A	ug/l	25.0	ND	106	70-130			
Methylene chloride	23.1	5.0	N/A	ug/l	25.0	0.71	90	60-135			
1,1,2,2-Tetrachloroethane	24.2	2.0	N/A	ug/l	25.0	ND	97	60-145			
Tetrachloroethene	27.7	2.0	N/A	ug/l	25.0	ND	111	70-130			
Toluene	27.1	2.0	N/A	ug/l	25.0	ND	108	70-120			
1,1,1-Trichloroethane	30.7	2.0	N/A	ug/l	25.0	ND	123	75-140			
1,1,2-Trichloroethane	24.9	2.0	N/A	ug/l	25.0	ND	100	60-135			
Trichloroethene	27.0	2.0	N/A	ug/l	25.0	ND	108	70-125			
Trichlorofluoromethane	31.0	5.0	N/A	ug/l	25.0	ND	124	55-145			
Vinyl chloride	25.8	0.50	N/A	ug/l	25.0	ND	103	40-135			
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0		101	80-120			
Surrogate: Toluene-d8	25.9			ug/l	25.0		104	80-120			
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102	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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

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
<b>Batch: 5A13008 Extracted: 01/13/05</b>											
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13008-MSD1)</b>						<b>Source: IOA0558-01</b>					
Benzene	25.1	1.0	N/A	ug/l	25.0	ND	100	70-120	4	20	
Bromodichloromethane	32.5	2.0	N/A	ug/l	25.0	ND	130	70-140	3	20	
Bromoform	30.2	5.0	N/A	ug/l	25.0	ND	121	55-140	7	25	
Bromomethane	29.9	5.0	N/A	ug/l	25.0	ND	120	50-145	4	25	
Carbon tetrachloride	34.0	0.50	N/A	ug/l	25.0	ND	136	70-145	2	25	
Chlorobenzene	27.2	2.0	N/A	ug/l	25.0	ND	109	80-125	5	20	
Chloroethane	26.3	5.0	N/A	ug/l	25.0	0.85	102	50-145	5	25	
Chloroform	30.4	2.0	N/A	ug/l	25.0	0.74	119	70-135	5	20	
Chloromethane	21.8	5.0	N/A	ug/l	25.0	ND	87	35-145	7	25	
Dibromochloromethane	29.2	2.0	N/A	ug/l	25.0	ND	117	65-145	7	25	
1,2-Dichlorobenzene	29.4	2.0	N/A	ug/l	25.0	ND	118	75-130	7	20	
1,3-Dichlorobenzene	28.7	2.0	N/A	ug/l	25.0	ND	115	75-130	6	20	
1,4-Dichlorobenzene	29.4	2.0	N/A	ug/l	25.0	1.2	113	80-120	7	20	
1,1-Dichloroethane	25.3	2.0	N/A	ug/l	25.0	ND	101	65-135	5	20	
1,2-Dichloroethane	32.9	0.50	N/A	ug/l	25.0	0.30	130	60-150	6	20	
1,1-Dichloroethene	25.1	5.0	N/A	ug/l	25.0	ND	100	65-140	6	20	
trans-1,2-Dichloroethene	26.9	2.0	N/A	ug/l	25.0	ND	108	65-135	8	20	
1,2-Dichloropropane	24.4	2.0	N/A	ug/l	25.0	ND	98	65-130	7	20	
cis-1,3-Dichloropropene	28.0	2.0	N/A	ug/l	25.0	ND	112	70-140	6	20	
trans-1,3-Dichloropropene	30.7	2.0	N/A	ug/l	25.0	ND	123	70-140	6	25	
Ethylbenzene	27.8	2.0	N/A	ug/l	25.0	ND	111	70-130	5	20	
Methylene chloride	25.0	5.0	N/A	ug/l	25.0	0.71	97	60-135	8	20	
1,1,2,2-Tetrachloroethane	26.7	2.0	N/A	ug/l	25.0	ND	107	60-145	10	30	
Tetrachloroethene	29.1	2.0	N/A	ug/l	25.0	ND	116	70-130	5	20	
Toluene	28.5	2.0	N/A	ug/l	25.0	ND	114	70-120	5	20	
1,1,1-Trichloroethane	32.0	2.0	N/A	ug/l	25.0	ND	128	75-140	4	20	
1,1,2-Trichloroethane	27.0	2.0	N/A	ug/l	25.0	ND	108	60-135	8	25	
Trichloroethene	28.0	2.0	N/A	ug/l	25.0	ND	112	70-125	4	20	
Trichlorofluoromethane	31.9	5.0	N/A	ug/l	25.0	ND	128	55-145	3	25	
Vinyl chloride	27.3	0.50	N/A	ug/l	25.0	ND	109	40-135	6	30	
Surrogate: Dibromofluoromethane	25.4			ug/l	25.0		102	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102	80-120			

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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: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## 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
<b>Batch: 5A13008 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13008-BLK1)</b>										
Acrolein	ND	50	N/A	ug/l						
Acrylonitrile	ND	50	N/A	ug/l						
2-Chloroethyl vinyl ether	ND	5.0	N/A	ug/l						
Surrogate: Dibromofluoromethane	24.3			ug/l	25.0		97		80-120	
Surrogate: Toluene-d8	24.9			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	24.1			ug/l	25.0		96		80-120	
<b>LCS Analyzed: 01/13/2005 (5A13008-BS1)</b>										
2-Chloroethyl vinyl ether	18.0	5.0	N/A	ug/l	25.0		72		20-175	
Surrogate: Dibromofluoromethane	25.7			ug/l	25.0		103		80-120	
Surrogate: Toluene-d8	25.3			ug/l	25.0		101		80-120	
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101		80-120	
<b>Matrix Spike Analyzed: 01/13/2005 (5A13008-MS1) Source: IOA0558-01</b>										
2-Chloroethyl vinyl ether	20.5	5.0	N/A	ug/l	25.0	ND	82		20-175	
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0		101		80-120	
Surrogate: Toluene-d8	25.9			ug/l	25.0		104		80-120	
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102		80-120	
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13008-MSD1) Source: IOA0558-01</b>										
2-Chloroethyl vinyl ether	21.8	5.0	N/A	ug/l	25.0	ND	87		20-175	6 25
Surrogate: Dibromofluoromethane	25.4			ug/l	25.0		102		80-120	
Surrogate: Toluene-d8	25.4			ug/l	25.0		102		80-120	
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102		80-120	

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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
<b>Batch: 5A12019 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12019-BLK1)</b>										
Cyclohexane	ND	2.5	N/A	ug/l						
1,2-Dichloro-1,1,2-trifluoroethane	ND	2.5	N/A	ug/l						
<b>Batch: 5A13008 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13008-BLK1)</b>										
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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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13038 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13038-BLK1)</b>										
Acenaphthene	ND	0.50	N/A	ug/l						
Acenaphthylene	ND	0.50	N/A	ug/l						
Aniline	ND	10	N/A	ug/l						
Anthracene	ND	0.50	N/A	ug/l						
Benzidine	ND	5.0	N/A	ug/l						
Benzoic acid	ND	20	N/A	ug/l						
Benzo(a)anthracene	ND	5.0	N/A	ug/l						
Benzo(a)pyrene	ND	2.0	N/A	ug/l						
Benzo(b)fluoranthene	ND	2.0	N/A	ug/l						
Benzo(g,h,i)perylene	ND	5.0	N/A	ug/l						
Benzo(k)fluoranthene	ND	0.50	N/A	ug/l						
Benzyl alcohol	ND	5.0	N/A	ug/l						
Bis(2-chloroethoxy)methane	ND	0.50	N/A	ug/l						
Bis(2-chloroethyl)ether	ND	0.50	N/A	ug/l						
Bis(2-chloroisopropyl)ether	ND	0.50	N/A	ug/l						
Bis(2-ethylhexyl)phthalate	ND	5.0	N/A	ug/l						
4-Bromophenyl phenyl ether	ND	1.0	N/A	ug/l						
Butyl benzyl phthalate	ND	5.0	N/A	ug/l						
4-Chloroaniline	ND	2.0	N/A	ug/l						
2-Chloronaphthalene	ND	0.50	N/A	ug/l						
4-Chloro-3-methylphenol	ND	2.0	N/A	ug/l						
4-Chlorophenyl phenyl ether	ND	0.50	N/A	ug/l						
2-Chlorophenol	ND	1.0	N/A	ug/l						
Chrysene	ND	0.50	N/A	ug/l						
Dibenz(a,h)anthracene	ND	0.50	N/A	ug/l						
Dibenzofuran	ND	0.50	N/A	ug/l						
Di-n-butyl phthalate	ND	2.0	N/A	ug/l						
1,2-Dichlorobenzene	ND	0.50	N/A	ug/l						
1,3-Dichlorobenzene	ND	0.50	N/A	ug/l						
1,4-Dichlorobenzene	ND	0.50	N/A	ug/l						
3,3-Dichlorobenzidine	ND	5.0	N/A	ug/l						
2,4-Dichlorophenol	ND	2.0	N/A	ug/l						
Diethyl phthalate	ND	1.0	N/A	ug/l						
2,4-Dimethylphenol	ND	2.0	N/A	ug/l						
Dimethyl phthalate	ND	0.50	N/A	ug/l						

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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: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13038 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13038-BLK1)</b>										
4,6-Dinitro-2-methylphenol	ND	5.0	N/A	ug/l						
2,4-Dinitrophenol	ND	5.0	N/A	ug/l						
2,4-Dinitrotoluene	ND	5.0	N/A	ug/l						
2,6-Dinitrotoluene	ND	5.0	N/A	ug/l						
Di-n-octyl phthalate	ND	5.0	N/A	ug/l						
1,2-Diphenylhydrazine/Azobenzene	ND	1.0	N/A	ug/l						
Fluoranthene	ND	0.50	N/A	ug/l						
Fluorene	ND	0.50	N/A	ug/l						
Hexachlorobenzene	ND	1.0	N/A	ug/l						
Hexachlorobutadiene	ND	2.0	N/A	ug/l						
Hexachlorocyclopentadiene	ND	5.0	N/A	ug/l						
Hexachloroethane	ND	3.0	N/A	ug/l						
Indeno(1,2,3-cd)pyrene	ND	2.0	N/A	ug/l						
Isophorone	ND	1.0	N/A	ug/l						
2-Methylnaphthalene	ND	1.0	N/A	ug/l						
2-Methylphenol	ND	2.0	N/A	ug/l						
4-Methylphenol	ND	5.0	N/A	ug/l						
Naphthalene	ND	1.0	N/A	ug/l						
2-Nitroaniline	ND	5.0	N/A	ug/l						
3-Nitroaniline	ND	5.0	N/A	ug/l						
4-Nitroaniline	ND	5.0	N/A	ug/l						
Nitrobenzene	ND	1.0	N/A	ug/l						
2-Nitrophenol	ND	2.0	N/A	ug/l						
4-Nitrophenol	ND	5.0	N/A	ug/l						
N-Nitrosodimethylamine	ND	2.0	N/A	ug/l						
N-Nitroso-di-n-propylamine	ND	2.0	N/A	ug/l						
N-Nitrosodiphenylamine	ND	1.0	N/A	ug/l						
Pentachlorophenol	ND	2.0	N/A	ug/l						
Phenanthrene	ND	0.50	N/A	ug/l						
Phenol	ND	1.0	N/A	ug/l						
Pyrene	ND	0.50	N/A	ug/l						
1,2,4-Trichlorobenzene	ND	1.0	N/A	ug/l						
2,4,5-Trichlorophenol	ND	2.0	N/A	ug/l						
2,4,6-Trichlorophenol	ND	1.0	N/A	ug/l						
Surrogate: 2-Fluorophenol	12.7			ug/l	20.0		64	35-120		

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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: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13038 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13038-BLK1)</b>										
Surrogate: Phenol-d6	12.8			ug/l	20.0		64 45-120			
Surrogate: 2,4,6-Tribromophenol	12.1			ug/l	20.0		60 50-125			
Surrogate: Nitrobenzene-d5	6.58			ug/l	10.0		66 45-120			
Surrogate: 2-Fluorobiphenyl	7.08			ug/l	10.0		71 45-120			
Surrogate: Terphenyl-d14	7.28			ug/l	10.0		73 45-135			
<b>LCS Analyzed: 01/17/2005 (5A13038-BS1)</b>										
Acenaphthene	8.34	0.50	N/A	ug/l	10.0		83 55-120			
Acenaphthylene	8.12	0.50	N/A	ug/l	10.0		81 55-120			
Aniline	7.50	10	N/A	ug/l	10.0		75 30-120			
Anthracene	9.00	0.50	N/A	ug/l	10.0		90 60-120			
Benzidine	3.52	5.0	N/A	ug/l	10.0		35 20-180			
Benzoic acid	7.46	20	N/A	ug/l	10.0		75 30-125			
Benzo(a)anthracene	9.26	5.0	N/A	ug/l	10.0		93 65-120			
Benzo(a)pyrene	9.88	2.0	N/A	ug/l	10.0		99 55-125			
Benzo(b)fluoranthene	9.12	2.0	N/A	ug/l	10.0		91 50-125			
Benzo(g,h,i)perylene	9.74	5.0	N/A	ug/l	10.0		97 35-160			
Benzo(k)fluoranthene	9.76	0.50	N/A	ug/l	10.0		98 50-125			
Benzyl alcohol	8.32	5.0	N/A	ug/l	10.0		83 40-130			
Bis(2-chloroethoxy)methane	8.26	0.50	N/A	ug/l	10.0		83 55-120			
Bis(2-chloroethyl)ether	7.50	0.50	N/A	ug/l	10.0		75 50-120			
Bis(2-chloroisopropyl)ether	6.72	0.50	N/A	ug/l	10.0		67 50-120			
Bis(2-ethylhexyl)phthalate	10.3	5.0	N/A	ug/l	10.0		103 65-125			
4-Bromophenyl phenyl ether	8.08	1.0	N/A	ug/l	10.0		81 55-125			
Butyl benzyl phthalate	9.48	5.0	N/A	ug/l	10.0		95 60-125			
4-Chloroaniline	8.08	2.0	N/A	ug/l	10.0		81 55-120			
2-Chloronaphthalene	7.98	0.50	N/A	ug/l	10.0		80 60-120			
4-Chloro-3-methylphenol	8.28	2.0	N/A	ug/l	10.0		83 60-120			
4-Chlorophenyl phenyl ether	8.60	0.50	N/A	ug/l	10.0		86 55-120			
2-Chlorophenol	7.38	1.0	N/A	ug/l	10.0		74 45-120			
Chrysene	9.02	0.50	N/A	ug/l	10.0		90 65-120			
Dibenz(a,h)anthracene	9.76	0.50	N/A	ug/l	10.0		98 40-160			
Dibenzofuran	8.56	0.50	N/A	ug/l	10.0		86 60-120			
Di-n-butyl phthalate	10.7	2.0	N/A	ug/l	10.0		107 65-125			
1,2-Dichlorobenzene	5.26	0.50	N/A	ug/l	10.0		53 40-120			
1,3-Dichlorobenzene	4.68	0.50	N/A	ug/l	10.0		47 40-120			

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 Project Manager

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MWH-Pasadena/Boeing Project ID: Outfall 011  
300 North Lake Avenue, Suite 1200 Report Number: IOA0567  
Pasadena, CA 91101 Sampled: 01/11/05-01/12/05  
Attention: Bronwyn Kelly Received: 01/11/05

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: 5A13038 and LCS Analyzed: 01/17/2005.

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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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13038 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/17/2005 (5A13038-BS1)</b>										
Phenol	7.58	1.0	N/A	ug/l	10.0		76 45-120			
Pyrene	8.70	0.50	N/A	ug/l	10.0		87 50-120			
1,2,4-Trichlorobenzene	5.92	1.0	N/A	ug/l	10.0		59 50-120			
2,4,5-Trichlorophenol	9.10	2.0	N/A	ug/l	10.0		91 60-120			
2,4,6-Trichlorophenol	8.92	1.0	N/A	ug/l	10.0		89 60-120			
Surrogate: 2-Fluorophenol	13.3			ug/l	20.0		66 35-120			
Surrogate: Phenol-d6	13.6			ug/l	20.0		68 45-120			
Surrogate: 2,4,6-Tribromophenol	14.6			ug/l	20.0		73 50-125			
Surrogate: Nitrobenzene-d5	6.68			ug/l	10.0		67 45-120			
Surrogate: 2-Fluorobiphenyl	7.64			ug/l	10.0		76 45-120			
Surrogate: Terphenyl-d14	7.30			ug/l	10.0		73 45-135			
<b>LCS Dup Analyzed: 01/17/2005 (5A13038-BSD1)</b>										
<b>M-NRI</b>										
Acenaphthene	8.22	0.50	N/A	ug/l	10.0		82 55-120	1	20	
Acenaphthylene	8.02	0.50	N/A	ug/l	10.0		80 55-120	1	20	
Aniline	7.74	10	N/A	ug/l	10.0		77 30-120	3	25	
Anthracene	8.74	0.50	N/A	ug/l	10.0		87 60-120	3	20	
Benzidine	3.88	5.0	N/A	ug/l	10.0		39 20-180	10	35	
Benzoic acid	7.34	20	N/A	ug/l	10.0		73 30-125	2	30	
Benzo(a)anthracene	9.14	5.0	N/A	ug/l	10.0		91 65-120	1	20	
Benzo(a)pyrene	9.66	2.0	N/A	ug/l	10.0		97 55-125	2	25	
Benzo(b)fluoranthene	8.96	2.0	N/A	ug/l	10.0		90 50-125	2	25	
Benzo(g,h,i)perylene	9.76	5.0	N/A	ug/l	10.0		98 35-160	0	25	
Benzo(k)fluoranthene	9.58	0.50	N/A	ug/l	10.0		96 50-125	2	20	
Benzyl alcohol	8.24	5.0	N/A	ug/l	10.0		82 40-130	1	20	
Bis(2-chloroethoxy)methane	8.04	0.50	N/A	ug/l	10.0		80 55-120	3	20	
Bis(2-chloroethyl)ether	7.24	0.50	N/A	ug/l	10.0		72 50-120	4	20	
Bis(2-chloroisopropyl)ether	6.68	0.50	N/A	ug/l	10.0		67 50-120	1	20	
Bis(2-ethylhexyl)phthalate	10.2	5.0	N/A	ug/l	10.0		102 65-125	1	20	
4-Bromophenyl phenyl ether	8.90	1.0	N/A	ug/l	10.0		89 55-125	10	25	
Butyl benzyl phthalate	9.56	5.0	N/A	ug/l	10.0		96 60-125	1	20	
4-Chloroaniline	8.26	2.0	N/A	ug/l	10.0		83 55-120	2	25	
2-Chloronaphthalene	8.16	0.50	N/A	ug/l	10.0		82 60-120	2	20	
4-Chloro-3-methylphenol	8.32	2.0	N/A	ug/l	10.0		83 60-120	1	25	
4-Chlorophenyl phenyl ether	8.50	0.50	N/A	ug/l	10.0		85 55-120	1	20	
2-Chlorophenol	7.30	1.0	N/A	ug/l	10.0		73 45-120	1	25	

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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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13038 Extracted: 01/13/05</b>											
<b>LCS Dup Analyzed: 01/17/2005 (5A13038-BSD1)</b>											<b>M-NR1</b>
Chrysene	8.80	0.50	N/A	ug/l	10.0	88	65-120	2	20		
Dibenz(a,h)anthracene	9.74	0.50	N/A	ug/l	10.0	97	40-160	0	25		
Dibenzofuran	8.10	0.50	N/A	ug/l	10.0	81	60-120	6	20		
Di-n-butyl phthalate	10.2	2.0	N/A	ug/l	10.0	102	65-125	5	20		
1,2-Dichlorobenzene	6.32	0.50	N/A	ug/l	10.0	63	40-120	18	25		
1,3-Dichlorobenzene	5.98	0.50	N/A	ug/l	10.0	60	40-120	24	25		
1,4-Dichlorobenzene	6.16	0.50	N/A	ug/l	10.0	62	40-120	22	25		
3,3-Dichlorobenzidine	8.78	5.0	N/A	ug/l	10.0	88	50-170	2	25		
2,4-Dichlorophenol	8.58	2.0	N/A	ug/l	10.0	86	55-120	2	20		
Diethyl phthalate	9.24	1.0	N/A	ug/l	10.0	92	60-120	3	20		
2,4-Dimethylphenol	6.48	2.0	N/A	ug/l	10.0	65	35-120	8	25		
Dimethyl phthalate	8.88	0.50	N/A	ug/l	10.0	89	60-120	2	20		
4,6-Dinitro-2-methylphenol	7.22	5.0	N/A	ug/l	10.0	72	55-120	4	25		
2,4-Dinitrophenol	12.1	5.0	N/A	ug/l	10.0	121	40-140	4	25		
2,4-Dinitrotoluene	8.50	5.0	N/A	ug/l	10.0	85	60-140	1	20		
2,6-Dinitrotoluene	8.34	5.0	N/A	ug/l	10.0	83	65-125	5	20		
Di-n-octyl phthalate	9.94	5.0	N/A	ug/l	10.0	99	60-130	5	20		
1,2-Diphenylhydrazine/Azobenzene	9.84	1.0	N/A	ug/l	10.0	98	60-120	3	25		
Fluoranthene	9.56	0.50	N/A	ug/l	10.0	96	55-125	4	20		
Fluorene	8.48	0.50	N/A	ug/l	10.0	85	60-120	6	20		
Hexachlorobenzene	8.24	1.0	N/A	ug/l	10.0	82	50-120	1	20		
Hexachlorobutadiene	6.70	2.0	N/A	ug/l	10.0	67	45-120	22	25		
Hexachlorocyclopentadiene	7.40	5.0	N/A	ug/l	10.0	74	10-130	11	30		
Hexachloroethane	5.64	3.0	N/A	ug/l	10.0	56	40-120	29	25		R-7
Indeno(1,2,3-cd)pyrene	9.58	2.0	N/A	ug/l	10.0	96	35-150	7	25		
Isophorone	8.68	1.0	N/A	ug/l	10.0	87	55-120	1	20		
2-Methylnaphthalene	7.62	1.0	N/A	ug/l	10.0	76	50-120	5	20		
2-Methylphenol	7.72	2.0	N/A	ug/l	10.0	77	45-120	0	20		
4-Methylphenol	7.66	5.0	N/A	ug/l	10.0	77	45-120	1	20		
Naphthalene	7.22	1.0	N/A	ug/l	10.0	72	50-120	8	20		
2-Nitroaniline	7.98	5.0	N/A	ug/l	10.0	80	60-130	6	20		
3-Nitroaniline	8.72	5.0	N/A	ug/l	10.0	87	50-140	1	25		
4-Nitroaniline	9.36	5.0	N/A	ug/l	10.0	94	45-160	9	20		
Nitrobenzene	7.52	1.0	N/A	ug/l	10.0	75	50-120	0	25		
2-Nitrophenol	7.62	2.0	N/A	ug/l	10.0	76	55-120	2	25		

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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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

**METHOD BLANK/QC DATA**

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13038 Extracted: 01/13/05</b>											
<b>LCS Dup Analyzed: 01/17/2005 (5A13038-BSD1)</b>											<b>M-NRI</b>
4-Nitrophenol	7.94	5.0	N/A	ug/l	10.0	79	50-135	5	25		
N-Nitrosodimethylamine	7.28	2.0	N/A	ug/l	10.0	73	40-120	10	20		
N-Nitroso-di-n-propylamine	8.06	2.0	N/A	ug/l	10.0	81	50-120	1	20		
N-Nitrosodiphenylamine	9.00	1.0	N/A	ug/l	10.0	90	60-120	1	20		
Pentachlorophenol	8.48	2.0	N/A	ug/l	10.0	85	50-125	3	25		
Phenanthrene	8.46	0.50	N/A	ug/l	10.0	85	55-120	1	20		
Phenol	7.40	1.0	N/A	ug/l	10.0	74	45-120	2	25		
Pyrene	8.94	0.50	N/A	ug/l	10.0	89	50-120	3	25		
1,2,4-Trichlorobenzene	7.00	1.0	N/A	ug/l	10.0	70	50-120	17	20		
2,4,5-Trichlorophenol	9.10	2.0	N/A	ug/l	10.0	91	60-120	0	20		
2,4,6-Trichlorophenol	8.96	1.0	N/A	ug/l	10.0	90	60-120	0	20		
Surrogate: 2-Fluorophenol	13.2			ug/l	20.0	66	35-120				
Surrogate: Phenol-d6	13.8			ug/l	20.0	69	45-120				
Surrogate: 2,4,6-Tribromophenol	14.7			ug/l	20.0	74	50-125				
Surrogate: Nitrobenzene-d5	6.86			ug/l	10.0	69	45-120				
Surrogate: 2-Fluorobiphenyl	7.66			ug/l	10.0	77	45-120				
Surrogate: Terphenyl-d14	7.54			ug/l	10.0	75	45-135				

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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	RPD Limit	Data Qualifiers
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13049-BLK1)</b>										
Aldrin	ND	0.10	N/A	ug/l						
alpha-BHC	ND	0.10	N/A	ug/l						
beta-BHC	ND	0.10	N/A	ug/l						
delta-BHC	ND	0.20	N/A	ug/l						
gamma-BHC (Lindane)	ND	0.10	N/A	ug/l						
Chlordane	ND	1.0	N/A	ug/l						
4,4'-DDD	ND	0.10	N/A	ug/l						
4,4'-DDE	ND	0.10	N/A	ug/l						
4,4'-DDT	ND	0.10	N/A	ug/l						
Dieldrin	ND	0.10	N/A	ug/l						
Endosulfan I	ND	0.10	N/A	ug/l						
Endosulfan II	ND	0.10	N/A	ug/l						
Endosulfan sulfate	ND	0.20	N/A	ug/l						
Endrin	ND	0.10	N/A	ug/l						
Endrin aldehyde	ND	0.10	N/A	ug/l						
Endrin ketone	ND	0.10	N/A	ug/l						
Heptachlor	ND	0.10	N/A	ug/l						
Heptachlor epoxide	ND	0.10	N/A	ug/l						
Methoxychlor	ND	0.10	N/A	ug/l						
Toxaphene	ND	5.0	N/A	ug/l						
Surrogate: Tetrachloro-m-xylene	0.348			ug/l	0.500		70	35-120		
Surrogate: Decachlorobiphenyl	0.424			ug/l	0.500		85	45-120		
<b>LCS Analyzed: 01/13/2005 (5A13049-BS1)</b>										
Aldrin	0.517	0.10	N/A	ug/l	0.500		103	45-115		M-NR1
alpha-BHC	0.527	0.10	N/A	ug/l	0.500		105	45-115		
beta-BHC	0.496	0.10	N/A	ug/l	0.500		99	50-115		
delta-BHC	0.564	0.20	N/A	ug/l	0.500		113	55-120		
gamma-BHC (Lindane)	0.525	0.10	N/A	ug/l	0.500		105	45-115		
4,4'-DDD	0.537	0.10	N/A	ug/l	0.500		107	60-120		
4,4'-DDE	0.534	0.10	N/A	ug/l	0.500		107	55-120		
4,4'-DDT	0.557	0.10	N/A	ug/l	0.500		111	60-130		
Dieldrin	0.540	0.10	N/A	ug/l	0.500		108	55-120		
Endosulfan I	0.512	0.10	N/A	ug/l	0.500		102	50-115		
Endosulfan II	0.525	0.10	N/A	ug/l	0.500		105	60-125		
Endosulfan sulfate	0.528	0.20	N/A	ug/l	0.500		106	60-120		

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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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## 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
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/13/2005 (5A13049-BS1)</b>										
Endrin	0.578	0.10	N/A	ug/l	0.500		116 55-125			M-NR1
Endrin aldehyde	0.553	0.10	N/A	ug/l	0.500		111 55-115			
Endrin ketone	0.513	0.10	N/A	ug/l	0.500		103 60-120			
Heptachlor	0.513	0.10	N/A	ug/l	0.500		103 45-115			
Heptachlor epoxide	0.527	0.10	N/A	ug/l	0.500		105 50-120			
Methoxychlor	0.535	0.10	N/A	ug/l	0.500		107 60-135			
Surrogate: Tetrachloro-m-xylene	0.435			ug/l	0.500		87 35-120			
Surrogate: Decachlorobiphenyl	0.527			ug/l	0.500		105 45-120			
<b>LCS Dup Analyzed: 01/13/2005 (5A13049-BSD1)</b>										
Aldrin	0.512	0.10	N/A	ug/l	0.500		102 45-115	1	30	
alpha-BHC	0.534	0.10	N/A	ug/l	0.500		107 45-115	1	30	
beta-BHC	0.487	0.10	N/A	ug/l	0.500		97 50-115	2	30	
delta-BHC	0.547	0.20	N/A	ug/l	0.500		109 55-120	3	30	
gamma-BHC (Lindane)	0.525	0.10	N/A	ug/l	0.500		105 45-115	0	30	
4,4'-DDD	0.505	0.10	N/A	ug/l	0.500		101 60-120	6	30	
4,4'-DDE	0.510	0.10	N/A	ug/l	0.500		102 55-120	5	30	
4,4'-DDT	0.520	0.10	N/A	ug/l	0.500		104 60-130	7	30	
Dieldrin	0.515	0.10	N/A	ug/l	0.500		103 55-120	5	30	
Endosulfan I	0.493	0.10	N/A	ug/l	0.500		99 50-115	4	30	
Endosulfan II	0.495	0.10	N/A	ug/l	0.500		99 60-125	6	30	
Endosulfan sulfate	0.498	0.20	N/A	ug/l	0.500		100 60-120	6	30	
Endrin	0.550	0.10	N/A	ug/l	0.500		110 55-125	5	30	
Endrin aldehyde	0.511	0.10	N/A	ug/l	0.500		102 55-115	8	30	
Endrin ketone	0.490	0.10	N/A	ug/l	0.500		98 60-120	5	30	
Heptachlor	0.510	0.10	N/A	ug/l	0.500		102 45-115	1	30	
Heptachlor epoxide	0.510	0.10	N/A	ug/l	0.500		102 50-120	3	30	
Methoxychlor	0.505	0.10	N/A	ug/l	0.500		101 60-135	6	30	
Surrogate: Tetrachloro-m-xylene	0.449			ug/l	0.500		90 35-120			
Surrogate: Decachlorobiphenyl	0.494			ug/l	0.500		99 45-120			

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 Project Manager

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MWH-Pasadena/Boeing  
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 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## 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
<b>Batch: 5A13049 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13049-BLK1)</b>											
Aroclor 1016	ND	1.0	N/A	ug/l							
Aroclor 1221	ND	1.0	N/A	ug/l							
Aroclor 1232	ND	1.0	N/A	ug/l							
Aroclor 1242	ND	1.0	N/A	ug/l							
Aroclor 1248	ND	1.0	N/A	ug/l							
Aroclor 1254	ND	1.0	N/A	ug/l							
Aroclor 1260	ND	1.0	N/A	ug/l							
Surrogate: Decachlorobiphenyl	0.387			ug/l	0.500		77	45-120			
<b>LCS Analyzed: 01/13/2005 (5A13049-BS2)</b>											
Aroclor 1016	2.82	1.0	N/A	ug/l	4.00		70	50-115			M-NR1
Aroclor 1260	2.91	1.0	N/A	ug/l	4.00		73	60-115			
Surrogate: Decachlorobiphenyl	0.389			ug/l	0.500		78	45-120			
<b>LCS Dup Analyzed: 01/13/2005 (5A13049-BSD2)</b>											
Aroclor 1016	2.68	1.0	N/A	ug/l	4.00		67	50-115	5	30	
Aroclor 1260	2.88	1.0	N/A	ug/l	4.00		72	60-115	1	25	
Surrogate: Decachlorobiphenyl	0.379			ug/l	0.500		76	45-120			

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 Attention: Bronwyn Kelly

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Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13042 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13042-BLK1)</b>											
Boron	ND	0.050	N/A	mg/l							
<b>LCS Analyzed: 01/13/2005 (5A13042-BS1)</b>											
Boron	0.480	0.050	N/A	mg/l	0.500		96	85-115			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13042-MS1)</b>											
						<b>Source: IOA0567-01</b>					
Boron	0.566	0.050	N/A	mg/l	0.500	0.069	99	70-130			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13042-MSD1)</b>											
						<b>Source: IOA0567-01</b>					
Boron	0.555	0.050	N/A	mg/l	0.500	0.069	97	70-130	2	20	
<b>Batch: 5A13044 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13044-BLK1)</b>											
Antimony	ND	2.0	N/A	ug/l							
Arsenic	ND	1.0	N/A	ug/l							
Barium	ND	0.0010	N/A	mg/l							
Beryllium	ND	0.50	N/A	ug/l							
Cadmium	ND	1.0	N/A	ug/l							
Chromium	ND	1.0	N/A	ug/l							
Cobalt	ND	1.0	N/A	ug/l							
Copper	ND	2.0	N/A	ug/l							
Iron	ND	0.010	N/A	mg/l							
Lead	ND	1.0	N/A	ug/l							
Manganese	ND	1.0	N/A	ug/l							
Nickel	ND	1.0	N/A	ug/l							
Selenium	ND	2.0	N/A	ug/l							
Silver	ND	1.0	N/A	ug/l							
Thallium	ND	1.0	N/A	ug/l							
Vanadium	ND	1.0	N/A	ug/l							
Zinc	ND	20	N/A	ug/l							

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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: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13044 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/13/2005 (5A13044-BS1)</b>										
Antimony	91.5	2.0	N/A	ug/l	80.0	114	85-115			
Arsenic	90.5	1.0	N/A	ug/l	80.0	113	85-115			
Barium	0.0802	0.0010	N/A	mg/l	0.0800	100	85-115			
Beryllium	77.4	0.50	N/A	ug/l	80.0	97	85-115			
Cadmium	88.4	1.0	N/A	ug/l	80.0	110	85-115			
Chromium	89.4	1.0	N/A	ug/l	80.0	112	85-115			
Cobalt	89.1	1.0	N/A	ug/l	80.0	111	85-115			
Copper	86.7	2.0	N/A	ug/l	80.0	108	85-115			
Iron	0.905	0.010	N/A	mg/l	0.800	113	85-115			
Lead	89.1	1.0	N/A	ug/l	80.0	111	85-115			
Manganese	90.1	1.0	N/A	ug/l	80.0	113	85-115			
Nickel	89.3	1.0	N/A	ug/l	80.0	112	85-115			
Selenium	86.1	2.0	N/A	ug/l	80.0	108	85-115			
Silver	87.1	1.0	N/A	ug/l	80.0	109	85-115			
Thallium	87.0	1.0	N/A	ug/l	80.0	109	85-115			
Vanadium	86.4	1.0	N/A	ug/l	80.0	108	85-115			
Zinc	87.1	20	N/A	ug/l	80.0	109	85-115			

**Matrix Spike Analyzed: 01/13/2005 (5A13044-MS1)**

Source: IOA0567-01

Antimony	78.3	2.0	N/A	ug/l	80.0	0.59	97	70-130		
Arsenic	77.0	1.0	N/A	ug/l	80.0	1.8	94	70-130		
Barium	0.100	0.0010	N/A	mg/l	0.0800	0.018	102	70-130		
Beryllium	78.5	0.50	N/A	ug/l	80.0	0.070	98	70-130		
Cadmium	76.1	1.0	N/A	ug/l	80.0	0.15	95	70-130		
Chromium	77.3	1.0	N/A	ug/l	80.0	2.2	94	70-130		
Cobalt	76.4	1.0	N/A	ug/l	80.0	0.38	95	70-130		
Copper	76.8	2.0	N/A	ug/l	80.0	7.2	87	70-130		
Iron	1.65	0.010	N/A	mg/l	0.800	1.0	81	70-130		
Lead	84.1	1.0	N/A	ug/l	80.0	0.90	104	70-130		
Manganese	90.7	1.0	N/A	ug/l	80.0	15	95	70-130		
Nickel	78.3	1.0	N/A	ug/l	80.0	2.4	95	70-130		
Selenium	70.4	2.0	N/A	ug/l	80.0	ND	88	70-130		
Silver	75.3	1.0	N/A	ug/l	80.0	ND	94	70-130		
Thallium	76.4	1.0	N/A	ug/l	80.0	0.11	95	70-130		
Vanadium	76.6	1.0	N/A	ug/l	80.0	2.7	92	70-130		
Zinc	88.1	20	N/A	ug/l	80.0	21	84	70-130		

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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: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13044 Extracted: 01/13/05</b>											
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13044-MSD1)</b>						<b>Source: IOA0567-01</b>					
Antimony	85.0	2.0	N/A	ug/l	80.0	0.59	106	70-130	8	20	
Arsenic	83.9	1.0	N/A	ug/l	80.0	1.8	103	70-130	9	20	
Barium	0.0995	0.0010	N/A	mg/l	0.0800	0.018	102	70-130	1	20	
Beryllium	77.8	0.50	N/A	ug/l	80.0	0.070	97	70-130	1	20	
Cadmium	82.6	1.0	N/A	ug/l	80.0	0.15	103	70-130	8	20	
Chromium	83.8	1.0	N/A	ug/l	80.0	2.2	102	70-130	8	20	
Cobalt	82.4	1.0	N/A	ug/l	80.0	0.38	103	70-130	8	20	
Copper	83.7	2.0	N/A	ug/l	80.0	7.2	96	70-130	9	20	
Iron	1.88	0.010	N/A	mg/l	0.800	1.0	110	70-130	13	20	
Lead	83.1	1.0	N/A	ug/l	80.0	0.90	103	70-130	1	20	
Manganese	98.0	1.0	N/A	ug/l	80.0	15	104	70-130	8	20	
Nickel	84.7	1.0	N/A	ug/l	80.0	2.4	103	70-130	8	20	
Selenium	77.6	2.0	N/A	ug/l	80.0	ND	97	70-130	10	20	
Silver	80.6	1.0	N/A	ug/l	80.0	ND	101	70-130	7	20	
Thallium	83.6	1.0	N/A	ug/l	80.0	0.11	104	70-130	9	20	
Vanadium	82.0	1.0	N/A	ug/l	80.0	2.7	99	70-130	7	20	
Zinc	94.4	20	N/A	ug/l	80.0	21	92	70-130	7	20	

**Batch: 5A13050 Extracted: 01/13/05**

**Blank Analyzed: 01/13/2005 (5A13050-BLK1)**

Mercury	ND	0.20	N/A	ug/l							
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**LCS Analyzed: 01/13/2005 (5A13050-BS1)**

Mercury	8.08	0.20	N/A	ug/l	8.00		101	85-115			
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**Matrix Spike Analyzed: 01/13/2005 (5A13050-MS1)**

Mercury	8.57	0.20	N/A	ug/l	8.00	0.16	105	70-130			
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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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
<b>Batch: 5A13050 Extracted: 01/13/05</b>											
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13050-MSD1)</b>											
Mercury	8.54	0.20	N/A	ug/l	8.00	0.16	105	70-130	0	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
<b>Batch: 5A12034 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12034-BLK1)</b>											
Chromium VI	ND	1.0	N/A	ug/l							
<b>LCS Analyzed: 01/12/2005 (5A12034-BS1)</b>											
Chromium VI	50.3	1.0	N/A	ug/l	50.0		101	90-110			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12034-MS1)</b>											
						<b>Source: IOA0563-01</b>					
Chromium VI	49.5	1.0	N/A	ug/l	50.0	ND	99	90-110			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12034-MSD1)</b>											
						<b>Source: IOA0563-01</b>					
Chromium VI	49.5	1.0	N/A	ug/l	50.0	ND	99	90-110	0	10	
<b>Batch: 5A12036 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12036-BLK1)</b>											
Chloride	ND	0.50	N/A	mg/l							
Fluoride	ND	0.50	N/A	mg/l							
Nitrate/Nitrite-N	ND	0.26	N/A	mg/l							
Sulfate	ND	0.50	N/A	mg/l							
<b>LCS Analyzed: 01/12/2005 (5A12036-BS1)</b>											
Chloride	4.84	0.50	N/A	mg/l	5.00		97	90-110			
Fluoride	4.63	0.50	N/A	mg/l	5.00		93	90-110			
Sulfate	10.1	0.50	N/A	mg/l	10.0		101	90-110			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12036-MS1)</b>											
						<b>Source: IOA0527-01</b>					
Chloride	15.0	2.5	N/A	mg/l	5.00	11	80	80-120			
Fluoride	5.63	2.5	N/A	mg/l	5.00	1.1	91	80-120			
Sulfate	164	2.5	N/A	mg/l	10.0	150	140	80-120			M-HA

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 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12036 Extracted: 01/12/05</b>											
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12036-MSD1)</b>						<b>Source: IOA0527-01</b>					
Chloride	15.1	2.5	N/A	mg/l	5.00	11	82	80-120	1	20	
Fluoride	5.50	2.5	N/A	mg/l	5.00	1.1	88	80-120	2	20	
Sulfate	164	2.5	N/A	mg/l	10.0	150	140	80-120	0	20	M-HA
<b>Batch: 5A12041 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/17/2005 (5A12041-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	N/A	mg/l							
<b>LCS Analyzed: 01/17/2005 (5A12041-BS1)</b>											
Biochemical Oxygen Demand	208	100	N/A	mg/l	198		105	85-115			
<b>LCS Dup Analyzed: 01/17/2005 (5A12041-BSD1)</b>											
Biochemical Oxygen Demand	212	100	N/A	mg/l	198		107	85-115	2	20	
<b>Batch: 5A12045 Extracted: 01/12/05</b>											
<b>Duplicate Analyzed: 01/12/2005 (5A12045-DUP1)</b>						<b>Source: IOA0549-01</b>					
Residual Chlorine	ND	0.10	N/A	mg/l		ND				20	
<b>Batch: 5A12059 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12059-BLK1)</b>											
Surfactants (MBAS)	ND	0.10	N/A	mg/l							

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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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
<b>Batch: 5A12059 Extracted: 01/12/05</b>											
<b>LCS Analyzed: 01/12/2005 (5A12059-BS1)</b>											
Surfactants (MBAS)	0.248	0.10	N/A	mg/l	0.250		99	90-110			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12059-MS1)</b>											
						<b>Source: IOA0578-01</b>					
Surfactants (MBAS)	0.191	0.10	N/A	mg/l	0.250	0.052	56	50-125			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12059-MSD1)</b>											
						<b>Source: IOA0578-01</b>					
Surfactants (MBAS)	0.193	0.10	N/A	mg/l	0.250	0.052	56	50-125	1	20	
<b>Batch: 5A13051 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13051-BLK1)</b>											
Perchlorate	ND	4.0	N/A	ug/l							
<b>LCS Analyzed: 01/13/2005 (5A13051-BS1)</b>											
Perchlorate	50.0	4.0	N/A	ug/l	50.0		100	85-115			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13051-MS1)</b>											
						<b>Source: IOA0417-02</b>					
Perchlorate	49.6	4.0	N/A	ug/l	50.0	0.93	97	80-120			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13051-MSD1)</b>											
						<b>Source: IOA0417-02</b>					
Perchlorate	50.7	4.0	N/A	ug/l	50.0	0.93	100	80-120	2	20	
<b>Batch: 5A13053 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A13053-BLK1)</b>											
Total Organic Carbon	ND	1.0	N/A	mg/l							

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 Attention: Bronwyn Kelly

Project ID: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13053 Extracted: 01/12/05</b>											
<b>LCS Analyzed: 01/12/2005 (5A13053-BS1)</b>											
Total Organic Carbon	10.4	1.0	N/A	mg/l	10.0		104	90-110			
<b>Matrix Spike Analyzed: 01/12/2005 (5A13053-MS1) Source: IOA0150-04</b>											
Total Organic Carbon	10.3	1.0	N/A	mg/l	5.00	5.1	104	80-120			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A13053-MSD1) Source: IOA0150-04</b>											
Total Organic Carbon	10.2	1.0	N/A	mg/l	5.00	5.1	102	80-120	1	20	
<b>Batch: 5A13063 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13063-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	N/A	mg/l							
<b>LCS Analyzed: 01/13/2005 (5A13063-BS1)</b>											
Ammonia-N (Distilled)	9.80	0.50	N/A	mg/l	10.0		98	80-115			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13063-MS1) Source: IOA0632-01</b>											
Ammonia-N (Distilled)	11.5	0.50	N/A	mg/l	10.0	0.56	109	70-120			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13063-MSD1) Source: IOA0632-01</b>											
Ammonia-N (Distilled)	11.2	0.50	N/A	mg/l	10.0	0.56	106	70-120	3	15	
<b>Batch: 5A13065 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13065-BLK1)</b>											
Oil & Grease	ND	5.0	N/A	mg/l							

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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: Outfall 011 Report Number: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
--	---	--

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13065 Extracted: 01/13/05</b>											
<b>LCS Analyzed: 01/13/2005 (5A13065-BS1)</b>											
Oil & Grease	18.6	5.0	N/A	mg/l	20.0		93	65-120			M-NR1
<b>LCS Dup Analyzed: 01/13/2005 (5A13065-BSD1)</b>											
Oil & Grease	21.1	5.0	N/A	mg/l	20.0		106	65-120	13	20	
<b>Batch: 5A13082 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13082-BLK1)</b>											
Turbidity	ND	1.0	N/A	NTU							
<b>Duplicate Analyzed: 01/13/2005 (5A13082-DUP1)</b>											
Turbidity	2.70	1.0	N/A	NTU		Source: IOA0617-01	2.6		4	20	
<b>Batch: 5A13089 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13089-BLK1)</b>											
Total Dissolved Solids	ND	10	N/A	mg/l							
<b>LCS Analyzed: 01/13/2005 (5A13089-BS1)</b>											
Total Dissolved Solids	994	10	N/A	mg/l	1000		99	90-110			
<b>Duplicate Analyzed: 01/13/2005 (5A13089-DUP1)</b>											
Total Dissolved Solids	92.0	10	N/A	mg/l		Source: IOA0549-01	88		4	10	
<b>Batch: 5A14087 Extracted: 01/14/05</b>											
<b>Duplicate Analyzed: 01/14/2005 (5A14087-DUP1)</b>											
Specific Conductance	73.8	1.0	N/A	umhos/cm		Source: IOA0801-01	75		2	5	

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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A17060 Extracted: 01/17/05</b>											
<b>Blank Analyzed: 01/17/2005 (5A17060-BLK1)</b>											
Total Suspended Solids	ND	10	N/A	mg/l							
<b>LCS Analyzed: 01/17/2005 (5A17060-BS1)</b>											
Total Suspended Solids	971	10	N/A	mg/l	1000		97	85-115			
<b>Duplicate Analyzed: 01/17/2005 (5A17060-DUP1)</b>											
Total Suspended Solids	ND	10	N/A	mg/l		Source: IOA0673-01 ND				10	
<b>Batch: 5A18093 Extracted: 01/18/05</b>											
<b>Blank Analyzed: 01/19/2005 (5A18093-BLK1)</b>											
Total Cyanide	ND	5.0	N/A	ug/l							
<b>LCS Analyzed: 01/19/2005 (5A18093-BS1)</b>											
Total Cyanide	188	5.0	N/A	ug/l	200		94	90-110			
<b>Matrix Spike Analyzed: 01/19/2005 (5A18093-MS1)</b>											
Total Cyanide	12.7	5.0	N/A	ug/l	200	ND	6	70-115			M2
<b>Matrix Spike Dup Analyzed: 01/19/2005 (5A18093-MSD1)</b>											
Total Cyanide	8.08	5.0	N/A	ug/l	200	ND	4	70-115	44	15	M2, R-3

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 Project Manager

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IOA0567 <Page 57 of 61>





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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: IOA0567	Sampled: 01/11/05-01/12/05 Received: 01/11/05
--	---	--

## 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
<b>Batch: P5A1502 Extracted: 01/15/05</b>											
<b>Blank Analyzed: 01/15/2005 (P5A1502-BLK1)</b>											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.03			ug/l	1.00		103	80-125			
<b>LCS Analyzed: 01/15/2005 (P5A1502-BS1)</b>											
1,4-Dioxane	9.04	1.0	0.49	ug/l	10.0		90	70-130			
Surrogate: Dibromofluoromethane	0.950			ug/l	1.00		95	80-125			
<b>LCS Dup Analyzed: 01/15/2005 (P5A1502-BSD1)</b>											
1,4-Dioxane	9.30	1.0	0.49	ug/l	10.0		93	70-130	3	20	
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	80-125			
<b>Matrix Spike Analyzed: 01/15/2005 (P5A1502-MS1)</b>											
1,4-Dioxane	10.7	1.0	0.49	ug/l	10.0	ND	107	70-150			
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	80-125			
<b>Matrix Spike Dup Analyzed: 01/15/2005 (P5A1502-MSD1)</b>											
1,4-Dioxane	9.07	1.0	0.49	ug/l	10.0	ND	91	70-150	16	25	
Surrogate: Dibromofluoromethane	0.940			ug/l	1.00		94	80-125			

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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05

Received: 01/11/05

### DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- M2** The MS and/or MSD were below the acceptance limits due to sample matrix interference. See Blank Spike (LCS).
- M-HA** Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. 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-2** The RPD exceeded the method control limit.
- R-3** The RPD exceeded the method control limit due to sample matrix effects.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- 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, 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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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 200.7	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
EPA 8260B	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](http://www.dmalabs.com).

### Subcontracted Laboratories

#### Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chnric

Samples: IOA0567-01

Analysis Performed: Bioassay-Acute 96hr

Samples: IOA0567-01

#### Del Mar Analytical - Phoenix NELAC Cert #01109CA, California Cert #2446

9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Method Performed: EPA 8260B

### 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: Outfall 011

Report Number: IOA0567

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

**Del Mar Analytical - Phoenix** *NELAC Cert #01109CA, California Cert #2446*  
9830 S. 51st Street, Suite B-120 - Phoenix, AZ 85044

Samples: IOA0567-01

**Eberline Services - SUB**

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: Gross Alpha  
Samples: IOA0567-01

Analysis Performed: Gross Beta  
Samples: IOA0567-01

Analysis Performed: Level 3 Data Package  
Samples: IOA0567-01

Analysis Performed: Radium, Combined  
Samples: IOA0567-01

Analysis Performed: Strontium 90  
Samples: IOA0567-01

Analysis Performed: Tritium  
Samples: IOA0567-01

**Pace Analytical, MN- SUB**

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR  
Samples: IOA0567-01

Analysis Performed: EDD + Level 4  
Samples: IOA0567-01

**Truesdail Laboratories-SUB** *California Cert #1237*

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Hydrazine  
Samples: IOA0567-01

Analysis Performed: Level 4 Data Package  
Samples: IOA0567-01

**Del Mar Analytical, Irvine**  
Michele Harper  
Project Manager

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IOA0567

CHAIN OF CUSTODY FORM

Version 5.8/12/04

Client Name/Address:		Project:		Project Manager:		Sampler:		ANALYSIS REQUIRED												Field Readings:	
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Outfall 011 - 13267 Sampling Perimeter Pond		Bronwyn Kelly		Michele Harper		Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Radium 226 * 8015B (GRO) 8015 (Extractable Fuel Hydrocarbons), Dioxane- 8260B-out VOCs 624 +A+A+2CVE Monomethylhydrazine Bioassay-Acute, Bioassay-7 day Chronic VOCs 624 + xylenes + Freon 113 + 1,1-DCE + Freon 123a + Cyclohexane 625 - PP List, (608)-Pest + PCB Fluoride, Cr VI Total Recoverable Metals: B, Ba, Fe, Mn, Sb, As, Be, Cd, Ni, Se, Ag, Tl, Zn, Co, V 418.1 (TRPH) Residual Chlorine												Temp = 57.6 pH = 6.8	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (905.0), Radium 226 *	8015B (GRO)	8015 (Extractable Fuel Hydrocarbons), Dioxane-8260B-out	VOCs 624 +A+A+2CVE	Monomethylhydrazine	Bioassay-Acute, Bioassay-7 day Chronic	VOCs 624 + xylenes + Freon 113 + 1,1-DCE + Freon 123a + Cyclohexane	625 - PP List, (608)-Pest + PCB	Fluoride, Cr VI	Total Recoverable Metals: B, Ba, Fe, Mn, Sb, As, Be, Cd, Ni, Se, Ag, Tl, Zn, Co, V	418.1 (TRPH)	Residual Chlorine	Field Readings:			
Outfall 011	W	Poly -1Gal	1	1/11/05 11:00	None	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals)=3145900 Flow (gpm)=1204			
Outfall 011	W	Poly -1Gal	1	1/11/05 11:30	None	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals)=3143340 Flow (gpm)=1279			
Outfall 011	W	Poly -1Gal	1	1/11/05 11:40	None	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals)=3145960 Flow (gpm)=1208			
Outfall 011	W	Poly -1Gal	1	1/11/05 12:00	None	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals)=3148740 Flow (gpm)=1122			
Outfall 011	W	Poly -1Gal	1	1/11/05 12:20	None	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals)=31512100 Flow (gpm)=1116			
Outfall 011	W	Poly -1Gal	1	1/11/05 12:40	None	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals)=31529900 Flow (gpm)=1077			
Outfall 011	W	Poly -1Gal	1	1/11/05 13:00	None	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals)=3153750 Flow (gpm)=1055			
Outfall 011	W	Poly -1Gal	1	1/11/05 13:20	None	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals)=31572100 Flow (gpm)=1022			
Outfall 011	W	Poly -1Gal	1	1/11/05 13:40	None	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals)=31582900 Flow (gpm)=1054			
Outfall 011	W	Poly -1Gal	1	1/11/05 14:00	None	X	X	X	X	X	X	X	X	X	X	X	X	Total Flow (gals)=31644700 Flow (gpm)=970			
Trip Blank	W	VOAs	9		HCL		X		X		X										
Relinquished By				Date/Time:	Received By				Date/Time:	Turn around Time: (check)											
Doris Hayes				1/11/05 1455	Garry Kelly				1-11-05 1455	24 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/>											
Relinquished By				Date/Time:	Received By				Date/Time:	48 Hours <input type="checkbox"/> 10 Days <input type="checkbox"/>											
Garry Kelly				1-11-05 1450	Doris Hayes				1-11-05 1850	72 Hours <input type="checkbox"/> Normal <input checked="" type="checkbox"/>											
Relinquished By				Date/Time:	Received By				Date/Time:	Perchlorate Only 72 Hours <input type="checkbox"/>											
										Metals Only 72 Hours <input type="checkbox"/>											
										Sample Integrity: (Check) <input checked="" type="checkbox"/> On Ice <input type="checkbox"/>											

Note: Composite and analyze according to 13267 Sampling protocol. \* ANALYZE FOR TOTAL COMBINED RA-226 & 228 ONLY IF GROSS ALPHA > 15pCi/L

F A X



MWH

300 N. Lake Ave., Suite 1200  
Pasadena, California 91101  
Tel: 626-568-6691  
Fax: 626-568-6515

Date: 03/01/05

To: Michele Harper / Del Mar Analytical

Fax No: 949-260-3297

Krissi McIlvanna / MWH

925-975-3412

From: Bronwyn K. Kelly

sign: 

Subject: Chain-of-Custody Form Analytical Request Change

No. of Pages: 1  
(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, Not Completed	Change(s) and Method (s) Now Requested
IOA0567	Outfall 011 - Composite	01/11/05		NH3, BOD, Cl-, N/N-N, Oil and Grease, Sulfate, MBAS, TDS, TSS, Settleable Solids, Turbidity, CN, Clo4-, Conductivity, Lead, Cr, Cu, Hg, TOC, TCDD.
IOA0549	Outfall 011 - Grab	01/11/05		608 Pest/PCB-PP list, 625-PP list, Sb, As, Ba, Be, B, Cd, Cr, Co, F, Fe, Mn, Ni, Se, Ag, Tl, V, Zn, 1,4-Dioxane, 624-Freon 113, Freon 123a, Cyclohexane
IOB1004	Outfall 011 - Composite	01/11/05		NH3, BOD, Cl-, N/N-N, Oil and Grease, Sulfate, MBAS, TDS, TSS, Settleable Solids, Turbidity, CN, Clo4-, Conductivity, Lead, Cr, Cu, Hg, TOC, TCDD.

The reason for these changes:

*Incorrectly marked on COC form* \_\_\_\_\_

*Lack of sample volume* \_\_\_\_\_

*MWH office personnel require this change* \_\_\_\_\_ X \_\_\_\_\_

*Other: Containers mislabeled* \_\_\_\_\_

This Change Order supersedes all previous change orders submitted.

Thank you

-8505913.doc

1





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March 9, 2005

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

Attention: Bronwyn Kelly  
Project: 13267 (Study 1)  
Outfall 011 Composite  
Sampled: 1/12/05  
Del Mar Analytical Number: IOA0567


Dear Ms. Kelly:

Aquatic Testing Laboratories performed the Fathead Minnow 96hr Percent Survival Bioassay by EPA Method 2000.0 and Ceriodaphnia Survival and Reproduction Test by EPA Method 1002, Eberline Services performed Gross Alpha/Gross Beta (EPA 900.0), Tritium (H-3, EPA 906.0), and Strontium-90 (Sr-90, EPA 905.0), Pace Analytical performed the TCDD analysis by USEPA Method 1613B, and Truesdail Laboratories performed the Hydrazines by EPA 8315B for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ATL ID	EBERLINE ID	PACE ID	TRUESDAIL ID
Outfall 011-Composite	IOA0567-01	A-05011310-001/002	R501121/8174-001	106135001	938627-1

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

# LABORATORY REPORT

**Aquatic  
Testing  
Laboratories**



*"dedicated to providing quality aquatic toxicity testing"*

**Date:** January 20, 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-05011310-001/002  
**Sample I.D.:** IOA0567-01

**Sample Control:** The sample was received by ATL chilled, with the chain of custody record attached.

Date Sampled: 01/12/05  
Date Received: 01/13/05  
Date Tested: 01/13/05 to 01/19/05

**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:

<b>Acute:</b>	<b><u>Survival</u></b>	<b><u>TUa</u></b>
Fathead Minnow:	100%	0.0
<b>Chronic:</b>	<b><u>NOEC</u></b>	<b><u>TUc</u></b>
<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-05011310-001  
 Client/ID: Del Mar IOA0567-01

Start Date: 01/13/2005

## TEST SUMMARY

Species: *Pimephales promelas*.  
 Age: 14 (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-050104.

## TEST DATA

		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	19.2	9.4	8.0	0	0	Rv 1330
	100%	19.7	11.8	6.6	0	0	
24 Hr	Control	19.5	7.9	7.7	0	0	Rv 1200
	100%	19.5	8.0	7.3	0	0	
48 Hr	Control	19.3	8.0	7.7	0	0	Rv 1100
	100%	19.4	8.2	7.5	0	0	
Renewal	Control	19.2	8.8	8.0	0	0	Rv 1100
	100%	19.5	11.5	6.9	0	0	
72 Hr	Control	19.3	7.2	7.7	0	0	Rv 1300
	100%	19.2	7.9	7.8	0	0	
96 Hr	Control	19.9	7.7	7.7	0	0	Rv 1330
	100%	19.7	8.2	8.1	0	0	

### Comments:

Sample as received: Chlorine: 0 mg/l; pH: 6.6; Conductivity: 88 umho; Temp: 4°C;  
 DO: 11.8 mg/l; Alkalinity: 24 mg/l; Hardness: 34 mg/l; NH<sub>3</sub>-N: 0.4 mg/l.  
 Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes / No.  
 Control: Alkalinity: 60 mg/l; Hardness: 98 mg/l; Conductivity: 305 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-05011310  
Client/ID: Del Mar IOA0567-01

Date Tested: 01/13/05 to 01/19/05

**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-050104.

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%	21.4
6.25%	100%	21.6
12.5%	100%	23.1
25%	100%	27.2
50%	100%	26.5
100%	100%	26.2

\* 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	Pass (21.4 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 = 22.4%)
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  
 9630 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 # IOA0567

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: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Expiration	Comments
Sample ID: IOA0567-01 Water	Sampled: 01/12/05 13:00	Instant Notification
Bioassay-7 dy Chronic	01/14/05 01:00	ceriodaphnia, 13267
Bioassay-Acute 96hr	01/14/05 01:00	fathead minnow, 13267
<b>Containers Supplied:</b>		
1 gal Poly (IOA0567-01AP)		
1 gal Poly (IOA0567-01AQ)		

### 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: 1/13/05 Time: 0700      Received By: [Signature] Date: 1/13/05 Time: 0700  
 Released By: [Signature] Date: 1/13/05 Time: 12:25      Received By: [Signature] Date: 1-13-05 Time: 1230



# EBERLINE SERVICES

February 28, 2005

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

Reference: Del Mar Analytical Project No. IOA0567  
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)  
Eberline Services Report R501121-8174

Dear Ms. Harper:

Enclosed are results from the analyses of one water sample received at Eberline Services on January 14, 2005. The sample was analyzed according to the accompanying Del Mar Analytical Subcontract Order Form. The requested analyses were gross alpha/gross beta (EPA900.0), tritium (H-3, EPA906.0), and strontium-90 (Sr-90, EPA905.0). The QC LCS, blank analyses, sample duplicates, and matrix spike results for the analyses were within the limits defined in Eberline Services Quality Control Procedures Manual. Analyses that involve the yielding of an analytical tracer or carrier, such as Sr-90, do not require matrix spike analyses to be performed.

Please call me if you have any questions concerning this report.

Regards,

Melissa Mannion  
Senior Program Manager

MC/M/njv

Enclosure: Report  
Subcontract Form  
Receipt checklist  
Invoice

Analytical Services  
2030 Wright Avenue  
P.O. Box 4040  
Richmond, California 94804-0040  
(510) 235-2633 Fax (510) 235-0438  
Toll Free (800) 841-5487  
[www.eberlineservices.com](http://www.eberlineservices.com)

Eberline Services

ANALYSIS RESULTS

SDG <u>8174</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R501121-01</u>	Contract <u>PROJECT# IOA0567</u>
Received Date <u>01/14/05</u>	Matrix <u>WATER</u>

Client	Lab						
<u>Sample ID</u>	<u>Sample ID</u>	<u>Collected</u>	<u>Analyzed</u>	<u>Nuclide</u>	<u>Results ± 2σ</u>	<u>Units</u>	<u>MDA</u>
IOA0567-01	8174-001	01/12/05	01/31/05	GrossAlpha	0.294 ± 1.0	pCi/L	1.75
			01/31/05	Gross Beta	2.50 ± 1.2	pCi/L	1.78
			02/16/05	H3	-71.9 ± 140	pCi/L	252
			01/27/05	Sr90	-0.023 ± 0.24	pCi/L	0.431

Certified by <u><i>[Signature]</i></u>
Report Date <u>02/01/05</u>
Page 1

# Eberline Services

## QC RESULTS

SDG <u>8174</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R501121-01</u>	Contract <u>PROJECT# IOA0567</u>
Received Date <u>01/14/05</u>	Matrix <u>WATER</u>

Lab	Sample ID	Nuclide	Results	Units	Amount Added	MDA	Evaluation
<u>LCS</u>							
	8174-002	GrossAlpha	10.8 ± 1.3	pCi/Smpl	11.2	0.643	96% recovery
		Gross Beta	12.0 ± 0.83	pCi/Smpl	12.1	0.571	99% recovery
		H3	246 ± 23	pCi/Smpl	260	24.4	95% recovery
		Sr90	12.4 ± 0.44	pCi/Smpl	11.1	0.156	112% recovery
<u>BLANK</u>							
	8174-003	GrossAlpha	0.293 ± 0.33	pCi/Smpl	NA	0.511	<MDA
		Gross Beta	-0.071 ± 0.35	pCi/Smpl	NA	0.601	<MDA
		H3	1.76 ± 14	pCi/Smpl	NA	24.7	<MDA
		Sr90	-0.053 ± 0.13	pCi/Smpl	NA	0.240	<MDA

<u>DUPLICATES</u>			
Sample ID	Nuclide	Results ± 2σ	MDA
8174-004	GrossAlpha	1.73 ± 1.1	1.18
	Gross Beta	1.98 ± 1.1	1.76
	H3	-28.3 ± 140	248
	Sr90	-0.048 ± 0.27	0.558

<u>ORIGINALS</u>					
Sample ID	Results ± 2σ	MDA	RPD (Tot)	3σ	Eval
8174-001	0.294 ± 1.0	1.75	142	226	satis.
	2.50 ± 1.2	1.78	23	114	satis.
	-71.9 ± 140	252	-	0	satis.
	-0.023 ± 0.24	0.431	-	0	satis.

<u>SPIKED SAMPLE</u>			
Sample ID	Nuclide	Results ± 2σ	MDA
8174-005	GrossAlpha	84.6 ± 5.2	0.772
	Gross Beta	80.0 ± 3.6	1.75
	H3	8830 ± 380	249

<u>ORIGINAL SAMPLE</u>					
Sample ID	Results ± 2σ	MDA	Added	%Recv	
8174-001	0.294 ± 1.0	1.75	76.6	110	
	2.50 ± 1.2	1.78	74.0	105	
	-71.9 ± 140	252	9490	94	

Certified by <u><i>[Signature]</i></u> Report Date <u>02/20/05</u> Page 2
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 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 # IOA0567**

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	Eberline Services 2030 Wright Avenue Richmond, CA 94804 Phone : (510) 235-2633 Fax: (510) 235-0438

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

Analysis	Expiration	Comments
Sample ID: IOA0567-01 Water	Sampled: 01/12/05 13:00	Instant Notification
Gross Alpha-O	01/12/06 13:00	900.0, IF RESULT > 15 pCi/L, run Radium 226 & 228
Gross Beta-O	01/12/06 13:00	900.0, IF RESULT > 15 pCi/L, run Radium 226 & 228
Level 3 Data Package - Out	02/09/05 13:00	**LEVEL IV QC, ACCESS 7 EDD**
Radium, Combined-O	01/12/06 13:00	HOLD for Gross Alpha/Beta result; EPA 903.1 & 904.0
Strontium 90-O	01/12/06 13:00	905.0
Tritium-O	01/12/06 13:00	906

Containers Supplied:  
 1 gal Poly (IOA0567-01AC)

**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: 1-13-05 Time: 1700 Received By: *[Signature]* Eberline Date: 1-14-05 Time: 70:00

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_



RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: Del Mar City Irvine State CA

Date/Time received 1/14/05/10:00 CoC No. IOA 0567

Container I.D. No. cooler Requested TAT (Days) 14 P.O. Received Yes [ ] No [ ]

INSPECTION

- 1. Custody seals on shipping container intact? Yes [ ] No [ ] N/A [  ]
- 2. Custody seals on shipping container dated & signed? Yes [ ] No [ ] N/A [  ]
- 3. Custody seals on sample containers intact? Yes [ ] No [ ] N/A [  ]
- 4. Custody seals on sample containers dated & signed? Yes [ ] No [ ] N/A [  ]
- 5. Packing material is: Wet [  ] Dry [ ]
- 6. Number of samples in shipping container: 1 Sample Matrix Water
- 7. Number of containers per sample: 1 (Or see CoC \_\_\_\_\_)
- 8. Samples are in correct container Yes [  ] No [ ]
- 9. Paperwork agrees with samples? Yes [  ] No [  ] 21cc
- 10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [  ]
- 11. Samples are: In good condition [  ] Leaking [ ] Broken Container [ ] Missing [ ]
- 12. Samples are: Preserved [ ] Not preserved [  ] pH 7 Preservative \_\_\_\_\_
- 13. Describe any anomalies: None

14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date \_\_\_\_\_

15. Inspected by JL dp Date: 1-14-05 Time: 10:00

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_

Alpha Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_

Beta/Gamma Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_



## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0567-01		
Lab Sample ID	106135001		
Filename	F50129B_15		
Injected By	BAL		
Total Amount Extracted	995 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	01/12/2005
ICAL Date	11/29/2004	Received	01/13/2005
CCal Filename(s)	F50129B_02	Extracted	01/28/2005
Method Blank ID	BLANK-6220	Analyzed	01/30/2005 07:18

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.83	2,3,7,8-TCDF-13C	2.00	65
Total TCDF	1.2	----	0.83 J	2,3,7,8-TCDD-13C	2.00	78
				1,2,3,7,8-PeCDF-13C	2.00	71
2,3,7,8-TCDD	ND	----	1.20	2,3,4,7,8-PeCDF-13C	2.00	73
Total TCDD	ND	----	1.20	1,2,3,7,8-PeCDD-13C	2.00	85
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	----	1.40	1,2,3,6,7,8-HxCDF-13C	2.00	85
2,3,4,7,8-PeCDF	ND	----	1.20	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	1.30	1,2,3,7,8,9-HxCDF-13C	2.00	73
				1,2,3,4,7,8-HxCDD-13C	2.00	64
1,2,3,7,8-PeCDD	ND	----	1.10	1,2,3,6,7,8-HxCDD-13C	2.00	89
Total PeCDD	ND	----	1.10	1,2,3,4,6,7,8-HpCDF-13C	2.00	76
				1,2,3,4,7,8,9-HpCDF-13C	2.00	64
1,2,3,4,7,8-HxCDF	ND	----	0.97	1,2,3,4,6,7,8-HpCDD-13C	2.00	82
1,2,3,6,7,8-HxCDF	ND	----	0.93	OCDD-13C	4.00	72
2,3,4,6,7,8-HxCDF	ND	----	0.77			
1,2,3,7,8,9-HxCDF	ND	----	1.10	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.95	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.20	2,3,7,8-TCDD-37Cl4	0.20	80
1,2,3,6,7,8-HxCDD	ND	----	0.97			
1,2,3,7,8,9-HxCDD	ND	----	0.93			
Total HxCDD	ND	----	1.00			
1,2,3,4,6,7,8-HpCDF	2.2	----	1.10 J			
1,2,3,4,7,8,9-HpCDF	ND	----	2.10			
Total HpCDF	2.2	----	1.60 BJ			
1,2,3,4,6,7,8-HpCDD	7.4	----	1.40 BJ			
Total HpCDD	18.0	----	1.40 BJ			
OCDF	8.4	----	2.10 BJ			
OCDD	66.0	----	2.30 J			

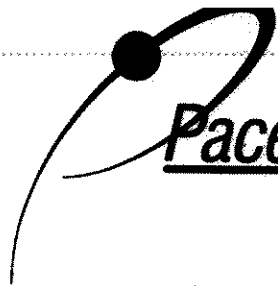
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106135

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Blank Analysis Results

Client - Del Mar Analytical

Lab Sample ID	BLANK-6220	Matrix	Water
Filename	F50129B_06	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 23:49
CCal Filename(s)	F50129B_02	Injected By	BAL

Native Isomers	Conc pg/L	EMPC pg/L	PRL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.20	2,3,7,8-TCDF-13C	2.00	58
Total TCDF	ND	----	----	2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	ND	----	1.20	2,3,4,7,8-PeCDF-13C	2.00	67
Total TCDD	ND	----	----	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	----	1.50	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	1.20	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	----	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	----	1.60	1,2,3,6,7,8-HxCDD-13C	2.00	88
Total PeCDD	ND	----	----	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
				1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	ND	----	0.75	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	ND	----	0.86	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	ND	----	1.10			
1,2,3,7,8,9-HxCDF	ND	----	1.20	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	----	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.10	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	ND	----	0.99			
1,2,3,7,8,9-HxCDD	ND	----	1.00			
Total HxCDD	ND	----	----			
1,2,3,4,6,7,8-HpCDF	ND	----	2.10			
1,2,3,4,7,8,9-HpCDF	ND	----	1.90			
Total HpCDF	2.2	----	---- J			
1,2,3,4,6,7,8-HpCDD	2.4	----	1.40 J			
Total HpCDD	2.4	----	---- J			
OCDF	5.2	----	1.80 J			
OCDD	5.6	----	2.90 J			

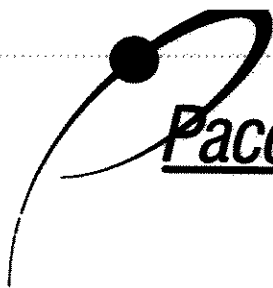
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 PRL = Pace Analytical Reporting Limit  
 A = Limit of Detection based on signal to noise  
 P = Recovery outside of method 1613 control limits  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 J = Value below calibration range  
 \* = See Discussion

Report No.....106124

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCS-6221		
Filename	F50129B_03	Matrix	Water
Total Amount Extracted	1040 mL	Dilution	NA
ICAL Date	11/29/2004	Extracted	01/28/2005
CCal Filename	F50129B_02	Analyzed	01/29/2005 21:22
Method Blank ID	BLANK-6220	Injected By	BAL

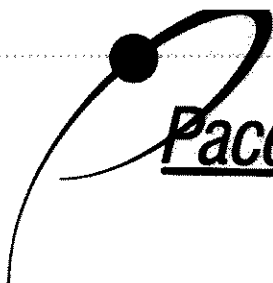
Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.9	7.5	15.8	99
2,3,7,8-TCDD	10	8.6	6.7	15.8	86
1,2,3,7,8-PeCDF	50	50.5	40.0	67.0	101
2,3,4,7,8-PeCDF	50	48.2	34.0	80.0	96
1,2,3,7,8-PeCDD	50	43.3	35.0	71.0	87
1,2,3,4,7,8-HxCDF	50	45.6	36.0	67.0	91
1,2,3,6,7,8-HxCDF	50	48.7	42.0	65.0	97
2,3,4,6,7,8-HxCDF	50	49.1	35.0	78.0	98
1,2,3,7,8,9-HxCDF	50	46.5	39.0	65.0	93
1,2,3,4,7,8-HxCDD	50	49.9	35.0	82.0	100
1,2,3,6,7,8-HxCDD	50	51.3	38.0	67.0	103
1,2,3,7,8,9-HxCDD	50	50.1	32.0	81.0	100
1,2,3,4,6,7,8-HpCDF	50	50.3	41.0	61.0	101
1,2,3,4,7,8,9-HpCDF	50	53.3	39.0	69.0	107
1,2,3,4,6,7,8-HpCDD	50	45.4	35.0	70.0	91
OCDF	100	95.6	63.0	170.0	96
OCDD	100	97.1	78.0	144.0	97
2,3,7,8-TCDD-37Cl4	10	6.9	3.1	19.1	69
2,3,7,8-TCDF-13C	100	51.5	22.0	152.0	52
2,3,7,8-TCDD-13C	100	67.8	20.0	175.0	68
1,2,3,7,8-PeCDF-13C	100	61.4	21.0	192.0	61
2,3,4,7,8-PeCDF-13C	100	65.9	13.0	328.0	66
1,2,3,7,8-PeCDD-13C	100	77.8	21.0	227.0	78
1,2,3,4,7,8-HxCDF-13C	100	70.2	19.0	202.0	70
1,2,3,6,7,8-HxCDF-13C	100	78.0	21.0	159.0	78
2,3,4,6,7,8-HxCDF-13C	100	74.1	22.0	176.0	74
1,2,3,7,8,9-HxCDF-13C	100	70.4	17.0	205.0	70
1,2,3,4,7,8-HxCDD-13C	100	69.0	21.0	193.0	69
1,2,3,6,7,8-HxCDD-13C	100	82.8	25.0	163.0	83
1,2,3,4,6,7,8-HpCDF-13C	100	72.1	21.0	158.0	72
1,2,3,4,7,8,9-HpCDF-13C	100	62.4	20.0	186.0	62
1,2,3,4,6,7,8-HpCDD-13C	100	80.1	26.0	166.0	80
OCDD-13C	200	135.6	26.0	397.0	68

Cs = Concentration Spiked (ng/mL)  
 Cr = Concentration Recovered (ng/mL)  
 Rec. = Recovery (Expressed as Percent)  
 Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
 X = Background subtracted value  
 P = Recovery outside of control limits  
 Nn = Value obtained from additional analysis  
 \* = See Discussion

Report No.....106124

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCSD-6222		
Filename	F50129B_04	Matrix	Water
Total Amount Extracted	1040 mL	Dilution	NA
ICAL Date	11/29/2004	Extracted	01/28/2005
CCal Filename	F50129B_02	Analyzed	01/29/2005 22:09
Method Blank ID	BLANK-6220	Injected By	BAL

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10.6	7.5	15.8	106
2,3,7,8-TCDD	10	9.4	6.7	15.8	94
1,2,3,7,8-PeCDF	50	53.2	40.0	67.0	106
2,3,4,7,8-PeCDF	50	50.7	34.0	80.0	101
1,2,3,7,8-PeCDD	50	46.0	35.0	71.0	92
1,2,3,4,7,8-HxCDF	50	47.6	36.0	67.0	95
1,2,3,6,7,8-HxCDF	50	50.9	42.0	65.0	102
2,3,4,6,7,8-HxCDF	50	50.9	35.0	78.0	102
1,2,3,7,8,9-HxCDF	50	49.0	39.0	65.0	98
1,2,3,4,7,8-HxCDD	50	52.4	35.0	82.0	105
1,2,3,6,7,8-HxCDD	50	54.2	38.0	67.0	108
1,2,3,7,8,9-HxCDD	50	52.5	32.0	81.0	105
1,2,3,4,6,7,8-HpCDF	50	55.0	41.0	61.0	110
1,2,3,4,7,8,9-HpCDF	50	55.7	39.0	69.0	111
1,2,3,4,6,7,8-HpCDD	50	48.0	35.0	70.0	96
OCDF	100	100.6	63.0	170.0	101
OCDD	100	101.9	78.0	144.0	102
2,3,7,8-TCDD-37Cl4	10	8.7	3.1	19.1	87
2,3,7,8-TCDF-13C	100	70.4	22.0	152.0	70
2,3,7,8-TCDD-13C	100	88.6	20.0	175.0	89
1,2,3,7,8-PeCDF-13C	100	73.6	21.0	192.0	74
2,3,4,7,8-PeCDF-13C	100	79.0	13.0	328.0	79
1,2,3,7,8-PeCDD-13C	100	95.5	21.0	227.0	96
1,2,3,4,7,8-HxCDF-13C	100	84.8	19.0	202.0	85
1,2,3,6,7,8-HxCDF-13C	100	89.5	21.0	159.0	90
2,3,4,6,7,8-HxCDF-13C	100	87.2	22.0	176.0	87
1,2,3,7,8,9-HxCDF-13C	100	82.1	17.0	205.0	82
1,2,3,4,7,8-HxCDD-13C	100	80.1	21.0	193.0	80
1,2,3,6,7,8-HxCDD-13C	100	97.0	25.0	163.0	97
1,2,3,4,6,7,8-HpCDF-13C	100	84.4	21.0	158.0	84
1,2,3,4,7,8,9-HpCDF-13C	100	71.7	20.0	186.0	72
1,2,3,4,6,7,8-HpCDD-13C	100	92.4	26.0	166.0	92
OCDD-13C	200	159.2	26.0	397.0	80

Cs = Concentration Spiked (ng/mL)

Cr = Concentration Recovered (ng/mL)

Rec. = Recovery (Expressed as Percent)

Control Limit Reference: Method 1613, Table 6, 10/94 Revision

X = Background subtracted value

P = Recovery outside of control limits

Nn = Value obtained from additional analysis

\* = See Discussion

Report No.....106124

## REPORT OF LABORATORY ANALYSIS

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**SPIKE RECOVERY RELATIVE PERCENT DIFFERENCE (RPD) RESULTS**

Client..... Del Mar Analytical

SPIKE 1 ID..... LCS-6221  
 SPIKE 1 Filename..... F50129B\_03  
 SPIKE 2 ID..... LCSD-6222  
 SPIKE 2 Filename..... F50129B\_04

COMPOUND	SPIKE 1 REC,%	SPIKE 2 REC,%	RPD,%
2378-TCDF	99	106	6.8
2378-TCDD	86	94	8.9
12378-PeCDF	101	106	4.8
23478-PeCDF	96	101	5.1
12378-PeCDD	87	92	5.6
123478-HxCDF	91	95	4.3
123678-HxCDF	97	102	5.0
234678-HxCDF	98	102	4.0
123789-HxCDF	93	98	5.2
123478-HxCDD	100	105	4.9
123678-HxCDD	103	108	4.7
123789-HxCDD	100	105	4.9
1234678-HpCDF	101	110	8.5
1234789-HpCDF	107	111	3.7
1234678-HpCDD	91	96	5.3
OCDF	96	101	5.1
OCDD	97	102	5.0

REC = Percent Recovered  
 RPD = The difference between the two values divided by the average.  
 NA = Not Applicable

Report No..... 106124, 106125, 106126  
 106127, 106128, 106130  
 106131, 106132, 106135

**REPORT OF LABORATORY ANALYSIS**

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**TABLE 1. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans**

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

\*Excluding the 2,3,7,8-substituted congeners.

Reference: 1989 ITEFs

## REPORT OF LABORATORY ANALYSIS

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 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) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 786-3620 Fax (702) 786-3621

**SUBCONTRACT ORDER - PROJECT # IOA0567 106135**

**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:**  
 Pace Analytical, MN- SUB  
 1700 Elm Street, Ste 200  
 Minneapolis, MN 55414  
 Phone : (612) 607-1700  
 Fax: (612) 607-6444

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

Analysis	Expiration	Comments
Sample ID: IOA0567-01 Water	Sampled: 01/12/05 13:00	Instant Notification
1613-Dioxin-HR	01/19/05 13:00	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	02/09/05 13:00	Excel EDD email to pm, Include Std logs for Lvl IV

106135001

**Containers Supplied:**  
 1 L Amber (IOA0567-01G)  
 1 L Amber (IOA0567-01H)

**SAMPLE INTEGRITY:**

All containers intact:  Yes  No  
 Sample labels/COC agree:  Yes  No  
 Custody Seals Present:  Yes  No  
 Samples Preserved Properly:  Yes  No  
 Samples Received On Ice:  Yes  No  
 Samples Received at (temp): 2.3°C

Released By: [Signature] Date: 1/12/05 Time: \_\_\_\_\_ Received By: [Signature] Date: 1/13/05 Time: 9:45

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

January 18, 2005

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www.truesdail.com

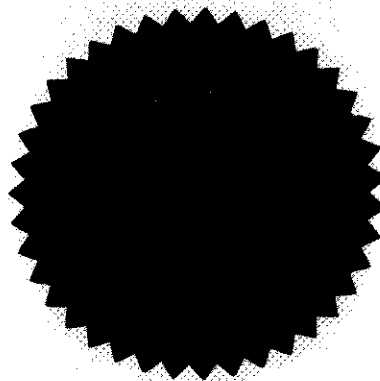
**Client:** Del Mar Analytical  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614  
**Attention:** Michele Harper

**Project Name:** IOA0567  
**Date Received:** 01/13/05

**Truesdail Project:** 938627

## 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>
938627-1	IOA0567-01	Water	01/12/05	1300	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.

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www.truesdail.com

**Client:** Del Mar Analytical  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614  
**Attention:** Michele Harper

**Project Name:** IOA0567  
**Date Received:** 01/13/05

**Truesdail Project:** 938627

## 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.

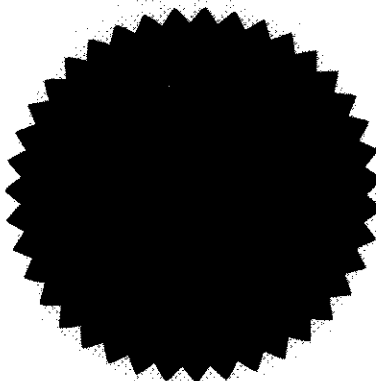
**Analysis** The analysis was performed as requested on the chain-of-custody.


**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.

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 - Alt.  
17461 Derian Ave.  
Irvine, CA 92614

**Attention:** Michele Harper

**Sample:** Liquid / 1 Sample

**Project Name:** IOA0567

**P.O. Number:** IOA0567

**Method Number:** 8315 (Modified)

**Investigation:** Hydrazines in Liquid

**Laboratory No:** 938627

**Report Date:** January 17, 2005

**Sampling Date:** January 12, 2005

**Receiving Date:** January 13, 2005

**Extraction Date:** January 13, 2005

**Analysis Date:** January 14, 2005

**Units:** µg/L

**Dilution Factor:** 1

**Reported By:** RC

Page 1 of 1

### Analytical Results

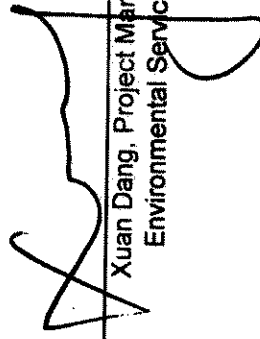
Sample ID	Sample Description	Monomethyl		Unsymmetrical Dimethyl		Hydrazine
		Hydrazine	Hydrazine	Hydrazine	Hydrazine	
704662-MB	Method Blank	ND	ND	ND	ND	
938627	IOA0567-01	ND	ND	ND	ND	
PQL		5.0	5.0	5.0	1.0	
Sample Report Limits		5.0	5.0	5.0	1.0	

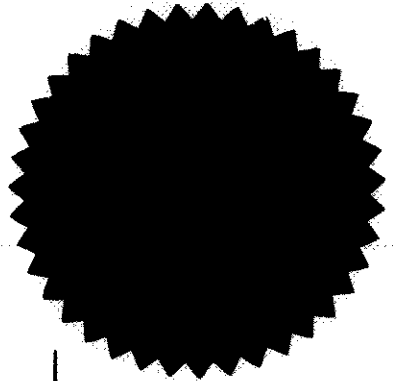
PQL: Practical Quantitation Limit, µg/L

ND: Not Detected

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.

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**Client:** Del Mar Analytical-Alt.  
17491 Derlan Ave.  
Irvine, CA 92614

**Client Contact:** Michele Harper  
**Sample:** Liquid / 1 Sample  
**Sample ID:** IOA0557  
**P.O. Number:** IOA0567  
**Method Number:** 8315 (Modified)  
**Run Batch No.:** Extraction: 2916; Analysis: 354  
**Investigation:** Hydrazines in Liquid

## REPORT

**QC Lab. No.:** 704652  
**Project Lab. No.:** 938627  
**Spiked Sample ID:** 938627  
**Report Date:** January 17, 2005  
**Sampling Date:** January 12, 2005  
**Receiving Date:** January 13, 2005  
**Extraction Date:** January 13, 2005  
**Analysis Date:** January 14, 2005  
**Units:** µg/L  
**Reported By:** RC

### Quality Control/Quality Assurance Calibration Report

Parameter	Theoretical Value (ug/L)	Measured Value (ug/L)	% Rec.	Control		Flag
				Limits	Rec.	
Monomethyl Hydrazine	25.0	26.6	106	85-115		PASS
u-Dimethyl Hydrazine	25.0	23.2	92.7	85-115		PASS
Hydrazine	5.0	4.85	96.9	85-115		PASS

### QCS

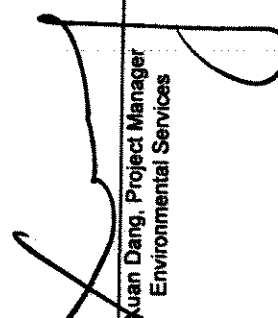
Parameter	Theoretical Value (ug/L)	Measured Value (ug/L)	% Rec.	Control		Flag
				Limits	Rec.	
Monomethyl Hydrazine	50.0	48.4	96.9	85-115		PASS
u-Dimethyl Hydrazine	50.0	47.2	94.4	85-115		PASS
Hydrazine	10.0	10.6	106	85-115		PASS

### Quality Control/Quality Assurance Spikes Report

Parameter	LCS/LCSD			Percent Recovery (%)			MS/MSD			
	Spiked Conc. ug/L	Recovered LCS	Concentration LCSD	LCS	LCSD	%D	MS	MSD	%D	
Monomethyl Hydrazine	50.0	46.7	48.7	0.0	93.3	97.4	4.31%	74.6	75.2	0.70%
u-Dimethyl Hydrazine	50.0	46.1	47.3	0.0	92.2	94.6	2.54%	90.4	90.3	0.13%
Hydrazine	10.0	11.5	11.0	0.0	115	110	4.8%	99.4	106	6.64%

ICV: Initial Calibration Verification  
CCV: Continued Calibration Verification  
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

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# Del Mar Analytical

## 938627

### SUBCONTRACT ORDER - PROJECT # IOA0567

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 (908) 370-4667 Fax (908) 370-1046  
 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 605-9696 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2529 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

**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: IOA0567-01 Water	Sampled: 01/12/05 13:00	Instant Notification
Hydrazine-OUT	01/15/05 13:00	Sub Truesdail for Monomethylhydrazine, 13267
Level 4 Data Package	02/09/05 13:00	

Containers Supplied:  
 1 L Amber (IOA0567-01AK)  
 1 L Amber (IOA0567-01AL)

**ALERT !!**  
**Level IVQC**

Rec'd 01/12/05  
 s16a 938627

**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: 1-13-05 Time: 8:10  
 Received By: *[Signature]* Date: 1-13-05 Time: 8:10  
 Released By: *[Signature]* Date: 1-13-05 Time: 9:00  
 Received By: *[Signature]* Date: 1/13/05 Time: 9:00



# Sample Integrity & Analysis Discrepancy Form

Client: Del Mar Analytical

Lab # 938627

Date Delivered: 1/13/05 Time: 9:00 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 = NA  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
16. Comments: \_\_\_\_\_
17. Sample Check-In completed by Truesdail Log-In/Receiving: J Brown

**ALERT!!**  
**Level IV QC**

# **APPENDIX G**

## **Section 12**

January Outfall 015

AMEC Data Validation Reports

Del Mar Analytical Laboratory Report

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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


Package ID T711SV26  
 Task Order 313150010  
 SDG No. IOA0454, 0456

No. of Analyses 2

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method NDMA

Date: February 23, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
<b>1. Case Narrative</b>	
<b>Deficiencies</b>	  
<b>2. Out of Scope</b>	
<b>Analyses</b>	  
<b>3. Analyses Not Conducted</b>	  
<b>4. Missing Hardcopy</b>	
<b>Deliverables</b>	  
<b>5. Incorrect Hardcopy</b>	
<b>Deliverables</b>	  
<b>6. Deviations from Analysis</b>	
<b>Protocol, e.g.,</b>	
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 <sup>b</sup>	
	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOA0454, IOA0456

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#: IOA0454, IOA0456  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Semivolatiles (NDMA)  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: M. Pokorny  
Date of Review: February 23, 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 1625C*, 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 017	Outfall 017	IOA0454-01	water	1625C
Outfall 015	Outfall 015	IOA0456-01	water	1625C

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

The samples in these SDGs were received at the laboratory within the temperature limits of  $4^{\circ}\text{C}\pm 2$ , at  $4^{\circ}\text{C}$ . According to COCs, the samples were received intact and in good condition. No qualifications were required.

#### 2.1.2 Chain of Custody

The COCs from the field to Del Mar Analytical were signed by field and laboratory personnel and accounted for the analyses presented in these SDGs. As the samples were couriered to the laboratory, custody seals are 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 extraction. No qualifications were required.

### 2.2 GC/MS TUNING

Tuning is not applicable for this analysis. No qualifications were required.

### 2.3 CALIBRATION

The initial calibration associated with these SDGs was dated 12/30/04. The average RRF for NDMA was  $\geq 0.05$  and the %RSD was  $\leq 35\%$ . The continuing calibration was analyzed 01/13/05. The RRF for NDMA was  $\geq 0.05$ , and the %D was  $\leq 20\%$ . The RRFs, %RSD, and %D were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.4 BLANKS

One method blank (5A12032-BLK1) was extracted and analyzed with these SDGs. NDMA was not reported in the method blank. Review of the raw data indicated no false negative. No qualifications were required.

### 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5A12032-BS1/BS1D) was extracted and analyzed with these SDGs. The NDMA recoveries and the RPD were within the laboratory QC limits. The recoveries and RPD were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with the samples in these SDGs. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate results. 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

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

### 2.7.2 Field Duplicates

There were no field duplicate samples associated with these SDGs. Field duplicate samples are required at a rate of 10% per matrix for site samples only and may not be present in every data package. Qualifications are not routinely assigned based on field duplicate results.

## 2.8 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas. Recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for NDMA by EPA Method 1625C. Review of sample chromatograms and retention times indicated no problems with target compound identification. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified by recalculating any sample detects and/or blank spike/blank spike duplicate concentrations from the raw data and no calculation or transcription errors were found. The reporting limits were supported by the low level of the initial calibration. Reporting limits were not adjusted for sample amount; however, the dilution factors listed on the sample result summaries reflected the sample amount extracted. Results were reported in ug/L. No qualifications were required.

## **2.11 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 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

## DRAFT: SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/1625C MOD)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOA0456-01 (DRAFT: Outfall 015-Grab - Water) - cont. Reporting Units: ug/l													
N-Nitrosodimethylamine	EPA 1625C Mod	5A12032	0.00070	0.0020	0.0075	0.995	01/12/05	01/13/05	<table border="1"> <tr> <td>REV</td> <td>QUAL</td> </tr> <tr> <td>QUAL</td> <td>CODE</td> </tr> </table>	REV	QUAL	QUAL	CODE
REV	QUAL												
QUAL	CODE												

### 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 T711VO48  
 Task Order 313150010  
 SDG No. IOA0454, IOA0456  
 No. of Analyses 3

Laboratory Del Mar Analytical.  
 Reviewer L. Calvin  
 Analysis/Method Volatiles by Method 624

Date: February 28, 2005  
 Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
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	Qualification was assigned for the following:
Protocol, e.g.,	-- surrogate recovery below the QC limits
Holding Times	-- detects above the MDL and below the reporting limit
GC/MS Tune/Inst. Performance	
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification	
Quantitation	
System Performance	
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA454, IOA456

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#: IOA454, IOA456  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Volatiles  
QC Level: Level IV  
No. of Samples: 3  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: February 28, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample identification**

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 017	Outfall 017	IOA0454-01	water	624
Outfall 015	Outfall 015	IOA0456-01	water	624
Trip Blank	Trip Blank	IOA0456-02	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , at  $4^{\circ}\text{C}$ . 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 Trip Blank sample associated with Outfall 015 was crossed out on the COC. The COCs accounted for the remaining 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 report were consistent with those specified in the 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 01/04/05 was associated with these SDGs. The average RRFs were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  for the target compounds listed on the sample result summaries. The continuing calibrations associated with the sample analyses were analyzed 01/11/05 at 08:13 and 03:52. The RRFs were  $\geq 0.05$ , and %Ds were  $\leq 20\%$  for all target compounds. A representative number of %RSDs and average RRFs from the initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

## 2.4 BLANKS

Two water method blanks (5A11011-BLK1 and 5A11017-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 (5A11011-BS1 and 5A11017-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

Surrogate toluene-d8 was recovered below the QC limits of 80-120% in sample Outfall 017. According to the case narrative for this SDG, the sample was reanalyzed with similar results, indicating a matrix effect on the surrogate. The laboratory submitted only the reanalysis for Outfall 017. Results were qualified as estimated, "J," for detects and "UJ," for nondetects in Outfall 017. The remaining 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 further qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on either of the site samples in these SDGs. Method accuracy was assessed 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 was the trip blank associated with site sample Outfall 017. There were no target compounds detected above the MDLs in the trip blank. Sample Outfall 015 did not have an associated trip blank analysis; and was therefore not evaluated for possible trip blank contamination. 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, of +100%/-50% for internal standard areas and  $\pm 0.50$  minutes for retention times. A representative number of internal standard areas and retention times were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

## 2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed for volatile target compounds by EPA Method 624. Chromatograms, retention times, and spectra for the samples and QC were examined and no target compound identification problems were noted. Detects reported between the MDL and the reporting limit were qualified as estimated, "J," by the laboratory. No further 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 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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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3622

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

Project ID: Outfall 015  
 Report Number: IOA0456

Sampled: 01/09/05  
 Received: 01/10/05

**DRAFT: PURGEABLES BY GC/MS (EPA 624)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifier
Sample ID: IOA0456-01 (DRAFT: Outfall 015-Grab - Water)									
Reporting Units: ug/l									
1,2,3-Trichloropropane	EPA 624	5A11011	0.85	10	ND	1	01/11/05	01/11/05	u
Benzene	EPA 624	5A11011	0.28	1.0	ND	1	01/11/05	01/11/05	u
Bromodichloromethane	EPA 624	5A11011	0.30	2.0	0.66	1	01/11/05	01/11/05	J
Bromoform	EPA 624	5A11011	0.32	5.0	ND	1	01/11/05	01/11/05	u
Bromomethane	EPA 624	5A11011	0.34	5.0	ND	1	01/11/05	01/11/05	u
Carbon tetrachloride	EPA 624	5A11011	0.28	0.50	ND	1	01/11/05	01/11/05	u
Chloroethane	EPA 624	5A11011	0.33	5.0	ND	1	01/11/05	01/11/05	u
Chloromethane	EPA 624	5A11011	0.30	5.0	ND	1	01/11/05	01/11/05	u
Dibromochloromethane	EPA 624	5A11011	0.28	2.0	ND	1	01/11/05	01/11/05	u
1,2-Dichlorobenzene	EPA 624	5A11011	0.32	2.0	ND	1	01/11/05	01/11/05	u
1,3-Dichlorobenzene	EPA 624	5A11011	0.35	2.0	ND	1	01/11/05	01/11/05	u
1,4-Dichlorobenzene	EPA 624	5A11011	0.37	2.0	ND	1	01/11/05	01/11/05	u
1,1-Dichloroethane	EPA 624	5A11011	0.27	2.0	ND	1	01/11/05	01/11/05	u
1,2-Dichloroethane	EPA 624	5A11011	0.28	0.50	ND	1	01/11/05	01/11/05	u
1,1-Dichloroethene	EPA 624	5A11011	0.32	5.0	ND	1	01/11/05	01/11/05	u
trans-1,2-Dichloroethene	EPA 624	5A11011	0.27	2.0	ND	1	01/11/05	01/11/05	u
1,2-Dichloropropane	EPA 624	5A11011	0.35	2.0	ND	1	01/11/05	01/11/05	u
cis-1,3-Dichloropropene	EPA 624	5A11011	0.22	2.0	ND	1	01/11/05	01/11/05	u
trans-1,3-Dichloropropene	EPA 624	5A11011	0.24	2.0	ND	1	01/11/05	01/11/05	u
Ethylbenzene	EPA 624	5A11011	0.25	2.0	ND	1	01/11/05	01/11/05	u
Methylene chloride	EPA 624	5A11011	0.48	5.0	ND	1	01/11/05	01/11/05	u
1,1,2,2-Tetrachloroethane	EPA 624	5A11011	0.24	2.0	ND	1	01/11/05	01/11/05	u
Tetrachloroethene	EPA 624	5A11011	0.32	2.0	ND	1	01/11/05	01/11/05	u
Toluene	EPA 624	5A11011	0.36	2.0	ND	1	01/11/05	01/11/05	u
1,1,1-Trichloroethane	EPA 624	5A11011	0.30	2.0	ND	1	01/11/05	01/11/05	u
1,1,2-Trichloroethane	EPA 624	5A11011	0.30	2.0	ND	1	01/11/05	01/11/05	u
Trichloroethene	EPA 624	5A11011	0.26	2.0	1.2	1	01/11/05	01/11/05	J
Trichlorofluoromethane	EPA 624	5A11011	0.34	5.0	ND	1	01/11/05	01/11/05	u
Vinyl chloride	EPA 624	5A11011	0.26	0.50	ND	1	01/11/05	01/11/05	u
Xylenes, Total	EPA 624	5A11011	0.52	4.0	ND	1	01/11/05	01/11/05	u
Surrogate: Dibromofluoromethane (80-120%)					88 %				
Surrogate: Toluene-d8 (80-120%)					98 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

Sample ID: IOA0456-01RE1 (DRAFT: Outfall 015-Grab - Water)

Reporting Units: ug/l

Chlorobenzene	EPA 624	5A11017	0.36	2.0	ND	1	01/11/05	01/12/05	u
Chloroform	EPA 624	5A11017	0.35	2.0	7.4	1	01/11/05	01/12/05	u
Surrogate: Dibromofluoromethane (80-120%)					108 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					106 %				

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

**AMEC VALIDATED**

**LEVEL IV**

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

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711VO49  
 Task Order 313150010  
 SDG No. IOA0454, 0456  
 No. of Analyses 2

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles (1,4-dioxane)

Date: February 23, 2005
Reviewer's Signature <i>M. Pokorny</i>

ACTION ITEMS <sup>a</sup>	
<b>1. Case Narrative Deficiencies</b>	_____
<b>2. Out of Scope Analyses</b>	_____
<b>3. Analyses Not Conducted</b>	_____
<b>4. Missing Hardcopy Deliverables</b>	_____
<b>5. Incorrect Hardcopy Deliverables</b>	_____
<b>6. Deviations from Analysis Protocol, e.g.,</b>	_____
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	_____
<b>COMMENTS<sup>b</sup></b>	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0454, 0456

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 #: IOA0454, IOA456  
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: M. Pokorny  
Date of Review: February 23, 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.	Matrix	Method
Outfall 017	Outfall 017	IOA0454-01	water	624
Outfall 015	Outfall 015	IOA0456-01	water	624

## 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 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 by field and laboratory personnel. The COCs accounted for the analyses presented in these SDGs. According to the sample login sheets, custody seals were not present on the cooler. 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 01/07/05, was associated with this SDG. The average RRF for 1,4-dioxane was  $\geq 0.05$  and the %RSD was  $\leq 15\%$ . One continuing calibration, dated 01/07/05 was associated with this SDG. The RRF for 1,4-dioxane was  $\geq 0.05$  and the %D was  $\leq 20\%$ . The %RSD 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 (P5A1502-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 (P5A1502-BS1/BS1D) with these SDGs. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative 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 these 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

Sample Outfall 015 was the MS/MSD analyses performed with these SDGs. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative recovery was 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

The samples in these SDGs had no associated trip blank. No qualifications were required.

### 2.8.1 Field Blanks and Equipment Rinsates

The site sample 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.

## 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, of +100%/-50% for internal standard areas and  $\pm 0.50$  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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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 781-0851  
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 793-3621

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

Project ID: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05  
 Received: 01/10/05

## DRAFT: 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: IOA0456-01 (DRAFT: Outfall 015-Grab - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5A1502	0.49	1.0	ND	1	01/15/05	01/15/05	U
Surrogate: Dibromofluoromethane (80-125%)					93 %				

**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 T711WC65  
Task Order 313150010  
SDG No. IOA0454, IOA0456  
No. of Analyses 2

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method General Minerals

Date: 02/22/05  
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.,	Hexavalent chromium detected below the reporting limit was qualified as estimated.
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\***

\* 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).

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# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOA0454 & IOA0456

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 #: IOA0454 & IOA456  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: February 22, 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, 218.6, 160.2, 160.5, 180.1, and 120.1, Standard Methods for the Examination of Water and Wastewater Methods 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 015	Outfall 015	IOA0456-01	water	General Minerals
Outfall 017	Outfall 017	IOA0454-01	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 COC had been hand-corrected to request settleable solids but TSS was reported. 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 oil and grease, the seven-day holding time for total suspended solids, and the 24-hour hexavalent chromium and dissolved oxygen holding time were met, and no qualifications were required.

### 2.2 CALIBRATION

For hexavalent chromium, the initial calibration correlation coefficient was  $\geq 0.995$ , and the ICV and continuing calibration information was acceptable with %Rs within the control limits of 90-110%. The dissolved oxygen probe was checked in zero water and tap water and balance calibration information was provided for TSS. Balance calibration information was not provided to oil and grease; however, as the LCS/LCSD results were within the CCV control limits, no qualifications were required. No qualifications were required.

### 2.3 BLANKS

Oil and grease was detected in the method blank, but not at sufficient concentration to qualify the site samples. The remaining method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the samples were nondetects at the reporting limit. No qualifications were required.

## **2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

The laboratory control sample and laboratory control sample duplicate (oil and grease only) recoveries were within the laboratory-established control limits. The LCS is not applicable to dissolved oxygen. 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 duplicate analysis was performed on Outfall 017 for dissolved oxygen and MS/MSD analyses were performed on Outfall 017 for hexavalent chromium. The RPDs were within the laboratory-established control limits of  $\leq 20\%$  and  $\leq 10\%$ , respectively. No qualifications were required.

## **2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses were performed on Outfall 017 for hexavalent chromium. Both recoveries were within the laboratory-established control limits of 90-110% and no qualifications were required.

## **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 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 calculations errors were noted. Hexavalent chromium detected below the reporting limit in Outfall 017 was qualified as estimated, "J." No further qualifications were required.

DATA VALIDATION REPORT

---

**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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 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 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0456-01 (DRAFT: Outfall 015-Grab - Water) - cont. Reporting Units: mg/l									
Dissolved Oxygen	EPA 360.1	5A10085	1.0	1.0	7.4	1	01/10/05	01/10/05	Rev Qual
Oil & Grease	EPA 413.1	5A12061	0.94	5.0	19.0	1	01/12/05	01/12/05	Qual Code

HJ 5.12.05

**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 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0456-01 (DRAFT: Outfall 015-Grab - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5A10086	0.041	1.0	ND	1	01/10/05	01/10/05	U
Perchlorate	EPA 314.0	5A14042	8.0	40	150	10	01/14/05	01/14/05	*

Rev Qual	Qual Code
U	
*	

\* Analysis not validated

# 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 T711WC66  
 Task Order 313150010  
 SDG No. IOA0454/IOA0456  
 No. of Analyses 2

Laboratory Del Mar Analytical  
 Reviewer L. Jarusewic  
 Analysis/Method Perchlorate by 314.0

Date: 02/17/05  
 Reviewer's Signature 

**ACTION ITEMS<sup>a</sup>**

- |  |  |
|--|--|
| <b>1. Case Narrative Deficiencies</b>              |  |
| <b>2. Out of Scope Analyses</b>                    |  |
| <b>3. Analyses Not Conducted</b>                   |  |
| <b>4. Missing Hardcopy Deliverables</b>            |  |
| <b>5. Incorrect Hardcopy Deliverables</b>          |  |
| <b>6. Deviations from Analysis Protocol, e.g.,</b> | <u>Qualifications were applied for MS exceeding QC limits.</u> |
| 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<sup>b</sup>**

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



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUPS: IOA0454 and IOA0456

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 #: IOA0454 and IOA0456  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Perchlorate  
QC Level: Level IV  
No. of Samples: 2  
Reviewer: L. Jarusewic  
Date of Review: February 17, 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 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 015	Outfall 015	IOA0456-01	Water	Perchlorate
Outfall 017	Outfall 017	IOA0454-01	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . 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, 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 date of collection with the dates of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

### 2.2 CALIBRATION

The initial calibration correlation coefficients were  $\geq 0.995$ . The IPC-MA recoveries were 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 recoveries were 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 either SDG; however, a confirmation spike was performed on sample Outfall 015 in association with SDG IOA0456. The perchlorate recovery was above the method control limits of 80-120%. Perchlorate in this sample was qualified as estimated, "J." No further qualifications were required.

## 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 samples in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculations 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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 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 015

Report Number: IOA0456

Sampled: 01/09/05  
 Received: 01/10/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Analyzed	Data Qualifiers
Sample ID: IOA0456-01 (DRAFT: Outfall 015-Grab - Water) - cont.									
Reporting Units: ug/l									
Chromium VI	EPA 218.6	5A10086	0.041	1.0	ND	1	01/10/05	01/10/05	* J
Perchlorate	EPA 314.0	5A14042	8.0	40	150	10	01/14/05	01/14/05	J Q

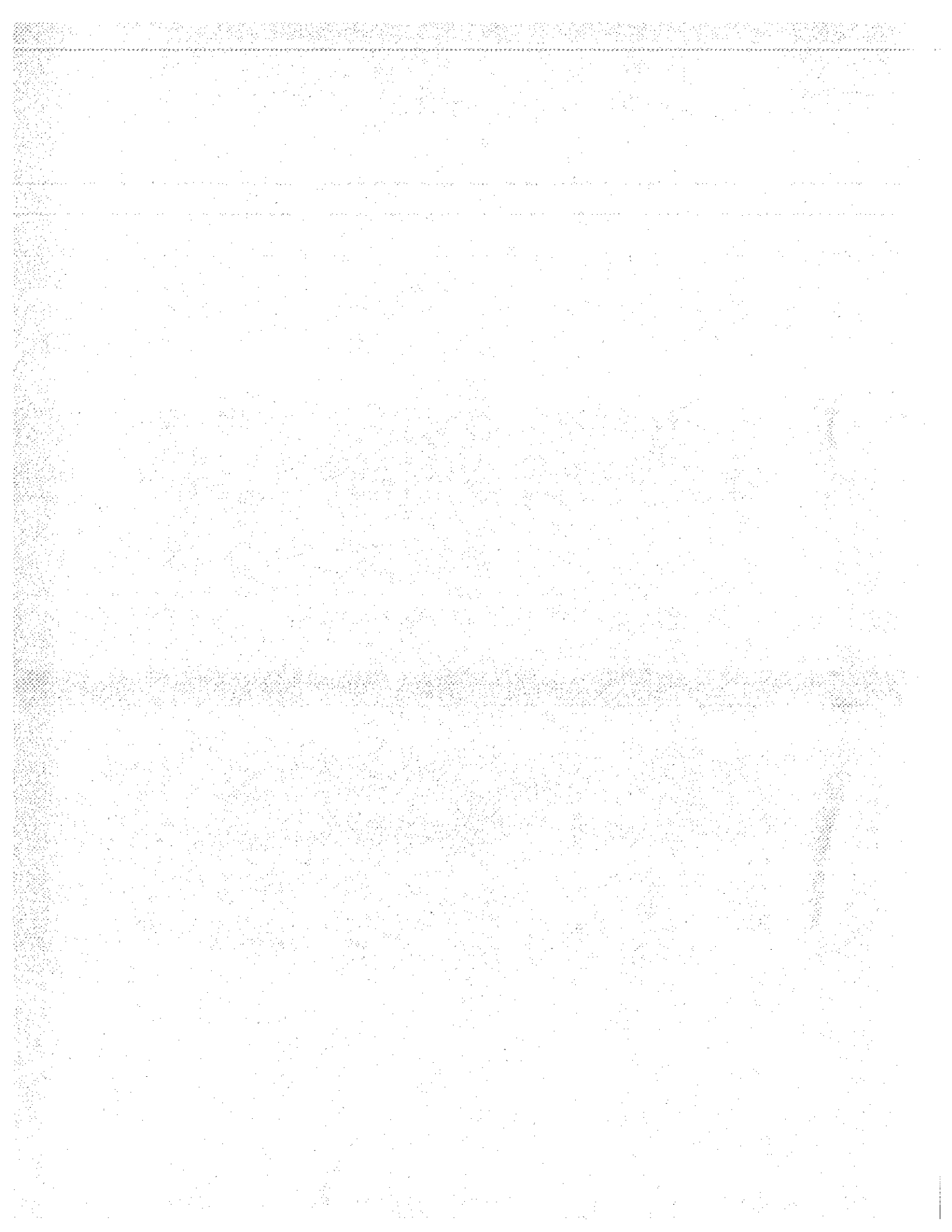
### AMEC VALIDATED

# 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: Outfall 015

Sampled: 01/09/05  
Received: 01/10/05  
Issued: 03/07/05 08:51

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, 2 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 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. Total suspended solids analyzed instead of total settleable solids due to miscommunication on the COC.
- SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

LABORATORY ID  
IOA0456-01

CLIENT ID  
Outfall 015-Grab

MATRIX  
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: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

PURGEABLES BY GC/MS (EPA 624)

Table with columns: Analyte, Method, Batch, MDL Limit, Reporting Limit, Sample Result, Dilution Factor, Date Extracted, Date Analyzed, Data Qualifiers. Includes sample ID IOA0456-01 and various chemical analytes like Trichloropropane, Benzene, Bromodichloromethane, etc.

Sample ID: IOA0456-01RE1 (Outfall 015-Grab - Water)

Reporting Units: ug/l

Table with columns: Analyte, Method, Batch, MDL Limit, Reporting Limit, Sample Result, Dilution Factor, Date Extracted, Date Analyzed, Data Qualifiers. Includes Chlorobenzene, Chloroform, and surrogate results.

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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

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Sampled: 01/09/05

Received: 01/10/05

**SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/1625C MOD)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0456-01 (Outfall 015-Grab - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
N-Nitrosodimethylamine	EPA 1625C Mod	5A12032	0.00070	0.0020	0.0075	0.995	01/12/05	01/13/05	

Del Mar Analytical, Irvine  
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: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0456-01 (Outfall 015-Grab - Water) - cont.</b>									
<b>Reporting Units: mg/l</b>									
Chromium VI	EPA 218.6	5A10086	0.000041	0.0010	ND	1	01/10/05	01/10/05	
Dissolved Oxygen	EPA 360.1	5A10085	1.0	1.0	7.4	1	01/10/05	01/10/05	
Oil & Grease	EPA 413.1	5A12061	0.94	5.0	11	1	01/12/05	01/12/05	B
Surfactants (MBAS)	SM5540-C	5A10079	0.044	0.10	0.19	1	01/10/05	01/10/05	
Total Suspended Solids	EPA 160.2	5A11105	10	10	ND	1	01/11/05	01/11/05	

Del Mar Analytical, Irvine  
 Michele Harper  
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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Outfall 015 Report Number: IOA0456	Sampled: 01/09/05 Received: 01/10/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0456-01 (Outfall 015-Grab - Water) - cont.									
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5A14042	8.0	40	150	10	01/14/05	01/14/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Outfall 015 Report Number: IOA0456	Sampled: 01/09/05 Received: 01/10/05
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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
<b>Sample ID: IOA0456-01 (Outfall 015-Grab - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
1,4-Dioxane	EPA 8260B	P5A1502	0.49	1.0	ND	1	01/15/05	01/15/05	
<i>Surrogate: Dibromofluoromethane (80-125%)</i>					93 %				

**Del Mar Analytical, Irvine**  
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Project ID: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 015-Grab (IOA0456-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 218.6	1	01/09/2005 20:25	01/10/2005 16:20	01/10/2005 18:08	01/10/2005 19:23
EPA 360.1	1	01/09/2005 20:25	01/10/2005 16:20	01/10/2005 18:06	01/10/2005 20:00
SM5540-C	2	01/09/2005 20:25	01/10/2005 16:20	01/10/2005 21:39	01/10/2005 22:04

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Project ID: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

## METHOD BLANK/QC DATA

### PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD RPD	Data Qualifiers
<b>Batch: 5A11011 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11011-BLK1)</b>										
1,2,3-Trichloropropane	ND	10	0.85	ug/l						
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						
Surrogate: Dibromofluoromethane	24.1			ug/l	25.0		96		80-120	
Surrogate: Toluene-d8	24.9			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	24.1			ug/l	25.0		96		80-120	

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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
<b>Batch: 5A11011 Extracted: 01/11/05</b>											
<b>LCS Analyzed: 01/11/2005 (5A11011-BS1)</b>											
1,2,3-Trichloropropane	22.8	10	0.85	ug/l	25.0	91	60-130				
Benzene	21.4	1.0	0.28	ug/l	25.0	86	70-120				
Bromodichloromethane	24.5	2.0	0.30	ug/l	25.0	98	70-140				
Bromoform	25.0	5.0	0.32	ug/l	25.0	100	55-135				
Bromomethane	25.4	5.0	0.34	ug/l	25.0	102	60-140				
Carbon tetrachloride	26.1	0.50	0.28	ug/l	25.0	104	70-140				
Chlorobenzene	24.2	2.0	0.36	ug/l	25.0	97	80-125				
Chloroethane	24.1	5.0	0.33	ug/l	25.0	96	60-145				
Chloroform	22.8	2.0	0.33	ug/l	25.0	91	75-130				
Chloromethane	20.7	5.0	0.30	ug/l	25.0	83	40-145				
Dibromochloromethane	25.6	2.0	0.28	ug/l	25.0	102	65-145				
1,2-Dichlorobenzene	24.2	2.0	0.32	ug/l	25.0	97	80-120				
1,3-Dichlorobenzene	23.3	2.0	0.35	ug/l	25.0	93	80-120				
1,4-Dichlorobenzene	23.2	2.0	0.37	ug/l	25.0	93	80-120				
1,1-Dichloroethane	22.3	2.0	0.27	ug/l	25.0	89	70-135				
1,2-Dichloroethane	24.3	0.50	0.28	ug/l	25.0	97	60-150				
1,1-Dichloroethene	22.5	5.0	0.32	ug/l	25.0	90	75-135				
trans-1,2-Dichloroethene	23.6	2.0	0.27	ug/l	25.0	94	70-130				
1,2-Dichloropropane	23.0	2.0	0.35	ug/l	25.0	92	70-120				
cis-1,3-Dichloropropene	25.0	2.0	0.22	ug/l	25.0	100	75-130				
trans-1,3-Dichloropropene	25.3	2.0	0.24	ug/l	25.0	101	75-135				
Ethylbenzene	24.7	2.0	0.25	ug/l	25.0	99	80-120				
Methylene chloride	22.7	5.0	0.48	ug/l	25.0	91	60-135				
1,1,2,2-Tetrachloroethane	21.2	2.0	0.24	ug/l	25.0	85	60-135				
Tetrachloroethene	25.4	2.0	0.32	ug/l	25.0	102	75-125				
Toluene	22.9	2.0	0.36	ug/l	25.0	92	75-120				
1,1,1-Trichloroethane	25.3	2.0	0.30	ug/l	25.0	101	75-140				
1,1,2-Trichloroethane	23.6	2.0	0.30	ug/l	25.0	94	70-125				
Trichloroethene	24.9	2.0	0.26	ug/l	25.0	100	80-120				
Trichlorofluoromethane	25.2	5.0	0.34	ug/l	25.0	101	65-145				
Vinyl chloride	20.2	0.50	0.26	ug/l	25.0	81	50-130				
Surrogate: Dibromofluoromethane	24.4			ug/l	25.0	98	80-120				
Surrogate: Toluene-d8	25.0			ug/l	25.0	100	80-120				
Surrogate: 4-Bromofluorobenzene	24.6			ug/l	25.0	98	80-120				

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Michele Harper  
Project Manager



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Attention: Bronwyn Kelly

Project ID: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

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
<b>Batch: 5A11011 Extracted: 01/11/05</b>											
<b>Matrix Spike Analyzed: 01/11/2005 (5A11011-MS1)</b>						<b>Source: IOA0480-01</b>					<b>P1</b>
1,2,3-Trichloropropane	21.1	10	0.85	ug/l	25.0	ND	84	55-140			
Benzene	19.1	1.0	0.28	ug/l	25.0	ND	76	70-120			
Bromodichloromethane	21.1	2.0	0.30	ug/l	25.0	ND	84	70-140			
Bromoform	23.5	5.0	0.32	ug/l	25.0	ND	94	55-140			
Bromomethane	18.1	5.0	0.34	ug/l	25.0	ND	72	50-145			
Carbon tetrachloride	21.7	0.50	0.28	ug/l	25.0	ND	87	70-145			
Chlorobenzene	23.8	2.0	0.36	ug/l	25.0	1.8	88	80-125			
Chloroethane	17.6	5.0	0.33	ug/l	25.0	ND	70	50-145			
Chloroform	18.4	2.0	0.33	ug/l	25.0	ND	74	70-135			
Chloromethane	14.2	5.0	0.30	ug/l	25.0	ND	57	35-145			
Dibromochloromethane	23.1	2.0	0.28	ug/l	25.0	ND	92	65-145			
1,2-Dichlorobenzene	23.1	2.0	0.32	ug/l	25.0	ND	92	75-130			
1,3-Dichlorobenzene	21.8	2.0	0.35	ug/l	25.0	ND	87	75-130			
1,4-Dichlorobenzene	21.6	2.0	0.37	ug/l	25.0	ND	86	80-120			
1,1-Dichloroethane	18.2	2.0	0.27	ug/l	25.0	ND	73	65-135			
1,2-Dichloroethane	20.9	0.50	0.28	ug/l	25.0	ND	84	60-150			
1,1-Dichloroethene	18.4	5.0	0.32	ug/l	25.0	ND	74	65-140			
trans-1,2-Dichloroethene	19.9	2.0	0.27	ug/l	25.0	ND	80	65-135			
1,2-Dichloropropane	20.8	2.0	0.35	ug/l	25.0	ND	83	65-130			
cis-1,3-Dichloropropene	22.5	2.0	0.22	ug/l	25.0	ND	90	70-140			
trans-1,3-Dichloropropene	22.8	2.0	0.24	ug/l	25.0	ND	91	70-140			
Ethylbenzene	22.2	2.0	0.25	ug/l	25.0	ND	89	70-130			
Methylene chloride	18.8	5.0	0.48	ug/l	25.0	ND	75	60-135			
1,1,2,2-Tetrachloroethane	21.3	2.0	0.24	ug/l	25.0	ND	85	60-145			
Tetrachloroethene	24.2	2.0	0.32	ug/l	25.0	ND	97	70-130			
Toluene	20.6	2.0	0.36	ug/l	25.0	ND	82	70-120			
1,1,1-Trichloroethane	20.4	2.0	0.30	ug/l	25.0	ND	82	75-140			
1,1,2-Trichloroethane	21.2	2.0	0.30	ug/l	25.0	ND	85	60-135			
Trichloroethene	22.0	2.0	0.26	ug/l	25.0	ND	88	70-125			
Trichlorofluoromethane	18.7	5.0	0.34	ug/l	25.0	ND	75	55-145			
Vinyl chloride	14.9	0.50	0.26	ug/l	25.0	ND	60	40-135			
Surrogate: Dibromofluoromethane	22.2			ug/l	25.0		89	80-120			
Surrogate: Toluene-d8	24.6			ug/l	25.0		98	80-120			
Surrogate: 4-Bromofluorobenzene	23.7			ug/l	25.0		95	80-120			

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Received: 01/10/05

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
<b>Batch: 5A11011 Extracted: 01/11/05</b>											
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11011-MSD1)</b>						<b>Source: IOA0480-01</b>					<b>P1</b>
1,2,3-Trichloropropane	20.7	10	0.85	ug/l	25.0	ND	83	55-140	2	30	
Benzene	19.4	1.0	0.28	ug/l	25.0	ND	78	70-120	2	20	
Bromodichloromethane	21.3	2.0	0.30	ug/l	25.0	ND	85	70-140	1	20	
Bromoform	23.0	5.0	0.32	ug/l	25.0	ND	92	55-140	2	25	
Bromomethane	18.9	5.0	0.34	ug/l	25.0	ND	76	50-145	4	25	
Carbon tetrachloride	22.5	0.50	0.28	ug/l	25.0	ND	90	70-145	4	25	
Chlorobenzene	24.0	2.0	0.36	ug/l	25.0	1.8	89	80-125	1	20	
Chloroethane	18.5	5.0	0.33	ug/l	25.0	ND	74	50-145	5	25	
Chloroform	18.6	2.0	0.33	ug/l	25.0	ND	74	70-135	1	20	
Chloromethane	14.5	5.0	0.30	ug/l	25.0	ND	58	35-145	2	25	
Dibromochloromethane	23.0	2.0	0.28	ug/l	25.0	ND	92	65-145	0	25	
1,2-Dichlorobenzene	23.7	2.0	0.32	ug/l	25.0	ND	95	75-130	3	20	
1,3-Dichlorobenzene	22.3	2.0	0.35	ug/l	25.0	ND	89	75-130	2	20	
1,4-Dichlorobenzene	22.1	2.0	0.37	ug/l	25.0	ND	88	80-120	2	20	
1,1-Dichloroethane	18.7	2.0	0.27	ug/l	25.0	ND	75	65-135	3	20	
1,2-Dichloroethane	20.6	0.50	0.28	ug/l	25.0	ND	82	60-150	1	20	
1,1-Dichloroethene	19.1	5.0	0.32	ug/l	25.0	ND	76	65-140	4	20	
trans-1,2-Dichloroethene	20.3	2.0	0.27	ug/l	25.0	ND	81	65-135	2	20	
1,2-Dichloropropane	21.1	2.0	0.35	ug/l	25.0	ND	84	65-130	1	20	
cis-1,3-Dichloropropene	22.3	2.0	0.22	ug/l	25.0	ND	89	70-140	1	20	
trans-1,3-Dichloropropene	22.6	2.0	0.24	ug/l	25.0	ND	90	70-140	1	25	
Ethylbenzene	22.8	2.0	0.25	ug/l	25.0	ND	91	70-130	3	20	
Methylene chloride	18.7	5.0	0.48	ug/l	25.0	ND	75	60-135	1	20	
1,1,2,2-Tetrachloroethane	21.1	2.0	0.24	ug/l	25.0	ND	84	60-145	1	30	
Tetrachloroethene	25.1	2.0	0.32	ug/l	25.0	ND	100	70-130	4	20	
Toluene	21.1	2.0	0.36	ug/l	25.0	ND	84	70-120	2	20	
1,1,1-Trichloroethane	20.8	2.0	0.30	ug/l	25.0	ND	83	75-140	2	20	
1,1,2-Trichloroethane	20.6	2.0	0.30	ug/l	25.0	ND	82	60-135	3	25	
Trichloroethene	22.6	2.0	0.26	ug/l	25.0	ND	90	70-125	3	20	
Trichlorofluoromethane	19.5	5.0	0.34	ug/l	25.0	ND	78	55-145	4	25	
Vinyl chloride	15.7	0.50	0.26	ug/l	25.0	ND	63	40-135	5	30	
Surrogate: Dibromofluoromethane	22.0			ug/l	25.0		88	80-120			
Surrogate: Toluene-d8	24.8			ug/l	25.0		99	80-120			
Surrogate: 4-Bromofluorobenzene	23.4			ug/l	25.0		94	80-120			

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: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

## 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
<b>Batch: 5A11017 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11017-BLK1)</b>										
1,2,3-Trichloropropane	ND	10	0.85	ug/l						
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						
Surrogate: Dibromofluoromethane	25.0			ug/l	25.0		100		80-120	
Surrogate: Toluene-d8	24.9			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	24.7			ug/l	25.0		99		80-120	

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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 Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A11017 Extracted: 01/11/05</b>										
<b>LCS Analyzed: 01/11/2005 (5A11017-BS1)</b>										
1,2,3-Trichloropropane	18.1	10	0.85	ug/l	25.0	72	60-130			
Benzene	21.6	1.0	0.28	ug/l	25.0	86	70-120			
Bromodichloromethane	23.1	2.0	0.30	ug/l	25.0	92	70-140			
Bromoform	16.7	5.0	0.32	ug/l	25.0	67	55-135			
Bromomethane	22.7	5.0	0.34	ug/l	25.0	91	60-140			
Carbon tetrachloride	24.3	0.50	0.28	ug/l	25.0	97	70-140			
Chlorobenzene	23.3	2.0	0.36	ug/l	25.0	93	80-125			
Chloroethane	21.9	5.0	0.33	ug/l	25.0	88	60-145			
Chloroform	23.4	2.0	0.33	ug/l	25.0	94	75-130			
Chloromethane	19.1	5.0	0.30	ug/l	25.0	76	40-145			
Dibromochloromethane	19.4	2.0	0.28	ug/l	25.0	78	65-145			
1,2-Dichlorobenzene	22.5	2.0	0.32	ug/l	25.0	90	80-120			
1,3-Dichlorobenzene	23.1	2.0	0.35	ug/l	25.0	92	80-120			
1,4-Dichlorobenzene	22.9	2.0	0.37	ug/l	25.0	92	80-120			
1,1-Dichloroethane	23.0	2.0	0.27	ug/l	25.0	92	70-135			
1,2-Dichloroethane	21.5	0.50	0.28	ug/l	25.0	86	60-150			
1,1-Dichloroethene	21.5	5.0	0.32	ug/l	25.0	86	75-135			
trans-1,2-Dichloroethene	23.3	2.0	0.27	ug/l	25.0	93	70-130			
1,2-Dichloropropane	22.8	2.0	0.35	ug/l	25.0	91	70-120			
cis-1,3-Dichloropropene	22.8	2.0	0.22	ug/l	25.0	91	75-130			
trans-1,3-Dichloropropene	21.6	2.0	0.24	ug/l	25.0	86	75-135			
Ethylbenzene	24.4	2.0	0.25	ug/l	25.0	98	80-120			
Methylene chloride	21.6	5.0	0.48	ug/l	25.0	86	60-135			
1,1,2,2-Tetrachloroethane	18.6	2.0	0.24	ug/l	25.0	74	60-135			
Tetrachloroethene	23.1	2.0	0.32	ug/l	25.0	92	75-125			
Toluene	23.0	2.0	0.36	ug/l	25.0	92	75-120			
1,1,1-Trichloroethane	24.6	2.0	0.30	ug/l	25.0	98	75-140			
1,1,2-Trichloroethane	19.4	2.0	0.30	ug/l	25.0	78	70-125			
Trichloroethene	22.8	2.0	0.26	ug/l	25.0	91	80-120			
Trichlorofluoromethane	21.5	5.0	0.34	ug/l	25.0	86	65-145			
Vinyl chloride	20.3	0.50	0.26	ug/l	25.0	81	50-130			
Surrogate: Dibromofluoromethane	24.6			ug/l	25.0	98	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0	100	80-120			
Surrogate: 4-Bromofluorobenzene	24.4			ug/l	25.0	98	80-120			

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: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

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
<b>Batch: 5A11017 Extracted: 01/11/05</b>											
<b>Matrix Spike Analyzed: 01/11/2005 (5A11017-MS1)</b>						<b>Source: IOA0497-08</b>					
1,2,3-Trichloropropane	17.8	10	0.85	ug/l	25.0	ND	71	55-140			
Benzene	21.7	1.0	0.28	ug/l	25.0	ND	87	70-120			
Bromodichloromethane	23.6	2.0	0.30	ug/l	25.0	ND	94	70-140			
Bromoform	17.0	5.0	0.32	ug/l	25.0	ND	68	55-140			
Bromomethane	22.7	5.0	0.34	ug/l	25.0	ND	91	50-145			
Carbon tetrachloride	24.5	0.50	0.28	ug/l	25.0	ND	98	70-145			
Chlorobenzene	23.5	2.0	0.36	ug/l	25.0	ND	94	80-125			
Chloroethane	22.0	5.0	0.33	ug/l	25.0	ND	88	50-145			
Chloroform	23.6	2.0	0.33	ug/l	25.0	ND	94	70-135			
Chloromethane	18.7	5.0	0.30	ug/l	25.0	ND	75	35-145			
Dibromochloromethane	19.4	2.0	0.28	ug/l	25.0	ND	78	65-145			
1,2-Dichlorobenzene	22.0	2.0	0.32	ug/l	25.0	ND	88	75-130			
1,3-Dichlorobenzene	22.8	2.0	0.35	ug/l	25.0	ND	91	75-130			
1,4-Dichlorobenzene	22.4	2.0	0.37	ug/l	25.0	ND	90	80-120			
1,1-Dichloroethane	23.1	2.0	0.27	ug/l	25.0	ND	92	65-135			
1,2-Dichloroethane	21.9	0.50	0.28	ug/l	25.0	ND	88	60-150			
1,1-Dichloroethene	21.0	5.0	0.32	ug/l	25.0	ND	84	65-140			
trans-1,2-Dichloroethene	23.0	2.0	0.27	ug/l	25.0	ND	92	65-135			
1,2-Dichloropropane	23.0	2.0	0.35	ug/l	25.0	ND	92	65-130			
cis-1,3-Dichloropropene	23.1	2.0	0.22	ug/l	25.0	ND	92	70-140			
trans-1,3-Dichloropropene	22.1	2.0	0.24	ug/l	25.0	ND	88	70-140			
Ethylbenzene	24.1	2.0	0.25	ug/l	25.0	ND	96	70-130			
Methylene chloride	21.8	5.0	0.48	ug/l	25.0	ND	87	60-135			
1,1,2,2-Tetrachloroethane	19.3	2.0	0.24	ug/l	25.0	ND	77	60-145			
Tetrachloroethene	23.3	2.0	0.32	ug/l	25.0	0.54	91	70-130			
Toluene	23.2	2.0	0.36	ug/l	25.0	ND	93	70-120			
1,1,1-Trichloroethane	24.8	2.0	0.30	ug/l	25.0	ND	99	75-140			
1,1,2-Trichloroethane	20.0	2.0	0.30	ug/l	25.0	ND	80	60-135			
Trichloroethene	22.5	2.0	0.26	ug/l	25.0	ND	90	70-125			
Trichlorofluoromethane	22.1	5.0	0.34	ug/l	25.0	ND	88	55-145			
Vinyl chloride	20.2	0.50	0.26	ug/l	25.0	ND	81	40-135			
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0		101	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	25.5			ug/l	25.0		102	80-120			

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

Project ID: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

## 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
<b>Batch: 5A11017 Extracted: 01/11/05</b>											
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11017-MSD1)</b>						<b>Source: IOA0497-08</b>					
1,2,3-Trichloropropane	20.4	10	0.85	ug/l	25.0	ND	82	55-140	14	30	
Benzene	20.7	1.0	0.28	ug/l	25.0	ND	83	70-120	5	20	
Bromodichloromethane	23.0	2.0	0.30	ug/l	25.0	ND	92	70-140	3	20	
Bromoform	19.3	5.0	0.32	ug/l	25.0	ND	77	55-140	13	25	
Bromomethane	22.1	5.0	0.34	ug/l	25.0	ND	88	50-145	3	25	
Carbon tetrachloride	23.4	0.50	0.28	ug/l	25.0	ND	94	70-145	5	25	
Chlorobenzene	22.6	2.0	0.36	ug/l	25.0	ND	90	80-125	4	20	
Chloroethane	21.6	5.0	0.33	ug/l	25.0	ND	86	50-145	2	25	
Chloroform	22.6	2.0	0.33	ug/l	25.0	ND	90	70-135	4	20	
Chloromethane	18.3	5.0	0.30	ug/l	25.0	ND	73	35-145	2	25	
Dibromochloromethane	20.3	2.0	0.28	ug/l	25.0	ND	81	65-145	5	25	
1,2-Dichlorobenzene	21.7	2.0	0.32	ug/l	25.0	ND	87	75-130	1	20	
1,3-Dichlorobenzene	21.7	2.0	0.35	ug/l	25.0	ND	87	75-130	5	20	
1,4-Dichlorobenzene	21.6	2.0	0.37	ug/l	25.0	ND	86	80-120	4	20	
1,1-Dichloroethane	21.9	2.0	0.27	ug/l	25.0	ND	88	65-135	5	20	
1,2-Dichloroethane	22.2	0.50	0.28	ug/l	25.0	ND	89	60-150	1	20	
1,1-Dichloroethene	20.6	5.0	0.32	ug/l	25.0	ND	82	65-140	2	20	
trans-1,2-Dichloroethene	22.0	2.0	0.27	ug/l	25.0	ND	88	65-135	4	20	
1,2-Dichloropropane	22.5	2.0	0.35	ug/l	25.0	ND	90	65-130	2	20	
cis-1,3-Dichloropropene	23.0	2.0	0.22	ug/l	25.0	ND	92	70-140	0	20	
trans-1,3-Dichloropropene	22.7	2.0	0.24	ug/l	25.0	ND	91	70-140	3	25	
Ethylbenzene	23.0	2.0	0.25	ug/l	25.0	ND	92	70-130	5	20	
Methylene chloride	21.2	5.0	0.48	ug/l	25.0	ND	85	60-135	3	20	
1,1,2,2-Tetrachloroethane	21.6	2.0	0.24	ug/l	25.0	ND	86	60-145	11	30	
Tetrachloroethene	22.0	2.0	0.32	ug/l	25.0	0.54	86	70-130	6	20	
Toluene	22.1	2.0	0.36	ug/l	25.0	ND	88	70-120	5	20	
1,1,1-Trichloroethane	23.7	2.0	0.30	ug/l	25.0	ND	95	75-140	5	20	
1,1,2-Trichloroethane	21.0	2.0	0.30	ug/l	25.0	ND	84	60-135	5	25	
Trichloroethene	21.8	2.0	0.26	ug/l	25.0	ND	87	70-125	3	20	
Trichlorofluoromethane	21.4	5.0	0.34	ug/l	25.0	ND	86	55-145	3	25	
Vinyl chloride	19.2	0.50	0.26	ug/l	25.0	ND	77	40-135	5	30	
Surrogate: Dibromofluoromethane	25.0			ug/l	25.0		100	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	25.7			ug/l	25.0		103	80-120			

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: Outfall 015  Report Number: IOA0456	Sampled: 01/09/05 Received: 01/10/05
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## METHOD BLANK/QC DATA

### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/1625C MOD)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD RPD	Data Qualifiers
<b>Batch: 5A12032 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A12032-BLK1)</b>										
N-Nitrosodimethylamine	ND	0.0020	0.00070	ug/l						
<b>LCS Analyzed: 01/13/2005 (5A12032-BS1)</b>										
N-Nitrosodimethylamine	0.00961	0.0020	0.00070	ug/l	0.0100		96	70-130		M-NR1
<b>LCS Analyzed: 01/13/2005 (5A12032-BS2)</b>										
N-Nitrosodimethylamine	0.00246	0.0020	0.00070	ug/l	0.00200		123	70-130		
<b>LCS Dup Analyzed: 01/13/2005 (5A12032-BSD1)</b>										
N-Nitrosodimethylamine	0.00920	0.0020	0.00070	ug/l	0.0100		92	70-130	4	20

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

Project ID: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A10079 Extracted: 01/10/05</b>											
<b>Blank Analyzed: 01/10/2005 (5A10079-BLK1)</b>											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
<b>LCS Analyzed: 01/10/2005 (5A10079-BS1)</b>											
Surfactants (MBAS)	0.258	0.10	0.044	mg/l	0.250		103	90-110			
<b>Matrix Spike Analyzed: 01/10/2005 (5A10079-MS1)</b>											
						<b>Source: IOA0437-01</b>					
Surfactants (MBAS)	0.371	0.10	0.044	mg/l	0.250	0.19	72	50-125			
<b>Matrix Spike Dup Analyzed: 01/10/2005 (5A10079-MSD1)</b>											
						<b>Source: IOA0437-01</b>					
Surfactants (MBAS)	0.352	0.10	0.044	mg/l	0.250	0.19	65	50-125	5	20	
<b>Batch: 5A10085 Extracted: 01/10/05</b>											
<b>Duplicate Analyzed: 01/10/2005 (5A10085-DUP1)</b>											
						<b>Source: IOA0454-01</b>					
Dissolved Oxygen	6.60	1.0	1.0	mg/l		6.2			6	20	
<b>Batch: 5A10086 Extracted: 01/10/05</b>											
<b>Blank Analyzed: 01/10/2005 (5A10086-BLK1)</b>											
Chromium VI	ND	0.0010	0.000041	mg/l							
<b>LCS Analyzed: 01/10/2005 (5A10086-BS1)</b>											
Chromium VI	0.0524	0.0010	0.000041	mg/l	0.0500		105	90-110			
<b>Matrix Spike Analyzed: 01/10/2005 (5A10086-MS1)</b>											
						<b>Source: IOA0454-01</b>					
Chromium VI	0.0508	0.0010	0.000041	mg/l	0.0500	0.00013	101	90-110			

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

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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: Outfall 015 Report Number: IOA0456	Sampled: 01/09/05 Received: 01/10/05
--	---	---

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A10086 Extracted: 01/10/05</b>											
<b>Matrix Spike Dup Analyzed: 01/10/2005 (5A10086-MSD1)</b>						<b>Source: IOA0454-01</b>					
Chromium VI	0.0508	0.0010	0.000041	mg/l	0.0500	0.00013	101	90-110	0	10	
<b>Batch: 5A11105 Extracted: 01/11/05</b>											
<b>Blank Analyzed: 01/11/2005 (5A11105-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 01/11/2005 (5A11105-BS1)</b>											
Total Suspended Solids	962	10	10	mg/l	1000		96	85-115			
<b>Duplicate Analyzed: 01/11/2005 (5A11105-DUP1)</b>						<b>Source: IOA0446-01</b>					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
<b>Batch: 5A12061 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12061-BLK1)</b>											
Oil & Grease	1.60	5.0	0.94	mg/l							J
<b>LCS Analyzed: 01/12/2005 (5A12061-BS1)</b>											
Oil & Grease	21.2	5.0	0.94	mg/l	20.0		106	65-120			M-NR1
<b>LCS Dup Analyzed: 01/12/2005 (5A12061-BSD1)</b>											
Oil & Grease	20.8	5.0	0.94	mg/l	20.0		104	65-120	2	20	
<b>Batch: 5A14042 Extracted: 01/14/05</b>											
<b>Blank Analyzed: 01/14/2005 (5A14042-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							

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: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A14042 Extracted: 01/14/05</b>											
<b>LCS Analyzed: 01/14/2005 (5A14042-BS1)</b>											
Perchlorate	48.2	4.0	0.80	ug/l	50.0		96	85-115			
<b>Matrix Spike Analyzed: 01/14/2005 (5A14042-MS1)</b>											
						<b>Source: IOA0742-01</b>					
Perchlorate	43.6	4.0	0.80	ug/l	50.0	ND	87	80-120			
<b>Matrix Spike Dup Analyzed: 01/14/2005 (5A14042-MSD1)</b>											
						<b>Source: IOA0742-01</b>					
Perchlorate	44.2	4.0	0.80	ug/l	50.0	ND	88	80-120	1	20	

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: Outfall 015 Report Number: IOA0456	Sampled: 01/09/05 Received: 01/10/05
--	---	---

**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
<b>Batch: P5A1502 Extracted: 01/15/05</b>											
<b>Blank Analyzed: 01/15/2005 (P5A1502-BLK1)</b>											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.03			ug/l	1.00		103	80-125			
<b>LCS Analyzed: 01/15/2005 (P5A1502-BS1)</b>											
1,4-Dioxane	9.04	1.0	0.49	ug/l	10.0		90	70-130			
Surrogate: Dibromofluoromethane	0.950			ug/l	1.00		95	80-125			
<b>LCS Dup Analyzed: 01/15/2005 (P5A1502-BSD1)</b>											
1,4-Dioxane	9.30	1.0	0.49	ug/l	10.0		93	70-130	3	20	
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	80-125			
<b>Matrix Spike Analyzed: 01/15/2005 (P5A1502-MS1) Source: IOA0456-01</b>											
1,4-Dioxane	10.7	1.0	0.49	ug/l	10.0	ND	107	70-150			
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	80-125			
<b>Matrix Spike Dup Analyzed: 01/15/2005 (P5A1502-MSD1) Source: IOA0456-01</b>											
1,4-Dioxane	9.07	1.0	0.49	ug/l	10.0	ND	91	70-150	16	25	
Surrogate: Dibromofluoromethane	0.940			ug/l	1.00		94	80-125			

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: Outfall 015  Report Number: IOA0456	Sampled: 01/09/05 Received: 01/10/05
--	---	---

**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
IOA0456-01	413.1 Oil and Grease	Oil & Grease	mg/l	<b>11</b>	5.0	<b>10.00</b>
IOA0456-01	MBAS - SM5540-C	Surfactants (MBAS)	mg/l	0.19	0.10	0.50
IOA0456-01	TSS - EPA 160.2	Total Suspended Solids	mg/l	7.00	10	30

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: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

### 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-NRI** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- P1** Sample received and analyzed without chemical preservation.
- 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: Outfall 015

Report Number: IOA0456

Sampled: 01/09/05

Received: 01/10/05

## Certification Summary

### Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 1625C Mod	Water	X	X
EPA 218.6	Water	X	X
EPA 314.0	Water	X	X
EPA 360.1	Water	X	X
EPA 413.1	Water	X	X
EPA 624	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](http://www.dmalabs.com).*

### Subcontracted Laboratories

#### 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: IOA0456-01

#### Truesdail Laboratories-SUB *California Cert #1237*

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Fecal Coliform

Samples: IOA0456-01

Analysis Performed: Total Coliform

Samples: IOA0456-01

### 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.*

IGAC 456

# CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5/8/12/04

Client Name/Address:		Project:		ANALYSIS REQUIRED												Field readings:	
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Outfall 015 Effluent STP I		Oil & Grease (EPA 413.1)	Disolved Oxygen	Surfactants (MBAS)	Perchlorate	NDMA	1,4-Dioxane	1,2,3-TCF	Acute & Chronic Toxicity	Total & Fecal Coliform	Cr VI	VOCS	Temp	pH	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative												
Outfall 015-Grab	W	Poly-1L	1	1/9/05 / 2025	None	X										52.2 F	
Outfall 015-Grab	W	1L Amber	1		HCL		X									6.8	
Outfall 015-Grab	W	VOAs	2		None		X										
Outfall 015-Grab	W	Poly-500 ml	1		None		X										
Outfall 015-Grab	W	Poly-500 ml	1		None		X										
Outfall 015-Grab	W	1L Amber	1		None		X										
Outfall 015-Grab	W	VOAs	3		HCL			X									
Outfall 015-Grab	W	VOAs	3		HCL				X								
Outfall 015-Grab	W	1 gal cube	1	1/10/05	None					X							
Outfall 015-Grab	W		2	1-9-05 / 2025	None						X						
Outfall 015-Grab	W	Poly-500 ml	1		None							X					
Outfall 015-Grab	W	VOAs	3		HCL								X				
Outfall 045	W	1 gal cube	4	1/9/05	None									X			
Trip Blank	W	VOAs	3	1/10/05	None												
Trip Blank	W	VOAs	3	1/10/05	None												
Relinquished By				Date/Time	Received By				Date/Time							Turn around Time: (check)	
B. Kelly				1-10-05 1250	[Signature]				1/10/05 1250							24 Hours	
B. Kelly				1/10/05 1620	[Signature]				1/10/05 1620							48 Hours	
B. Kelly				1/10/05 1620	[Signature]				1/10/05 1620							72 Hours	
																Perchlorate Only 72 Hours	
																Metals Only 72 Hours	
																Sample Integrity: (Check) <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/>	

40C

January 26, 2005

MWH-San Diego  
300 North Lake Avenue, Suite 1200  
Pasadena, Ca., 91101

Attention: Browyn Kelly

Project: Outfall 015

Sampled: 01/09/05  
Del Mar Analytical Number: IOA0456

Dear Ms. Kelly:

Truesdail Laboratories performed the Multiple Tube Fermentation Test for group Bacteria APHA Standard Methods for the Examination of Water and Wastewater, 18<sup>th</sup> Ed. Method 9221B, 9221E for the project referenced above. Please use the following table when reviewing your results.

MWH ID	Del Mar ID	Truesdail ID
Outfall 015- Grab	IOA0456-01	938492/ IOA0456-01

Attached is the final report from the subcontract laboratory. If you have any questions or require further assistance, please contact me at (949) 261-1022, extension 215.

Sincerely yours,

DEL MAR ANALYTICAL



Michele Harper  
Project Manager

Enclosure

# 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

## REPORT

Del Mar Analytical  
Attn: Michele Harper  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Report Date: 1/13/05  
Date Received: 1/10/05  
Laboratory No.: 938492

Sample: One water marked IOA0456-01, 1/9/05, 20:25

Analysis Date: 1/10/05      Time: 1830  
Completion Date: 1/13/05      Time: 1000

Investigation: Multiple Tube Fermentation Test for Coliform Group Bacteria APHA Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992 Method 9221B, 9221E

### RESULTS

Sample Designation	Colliform Group Bacteria MPN*/100ml	
	Total	Fecal
1. IOA0456-01, 20:25	8	2

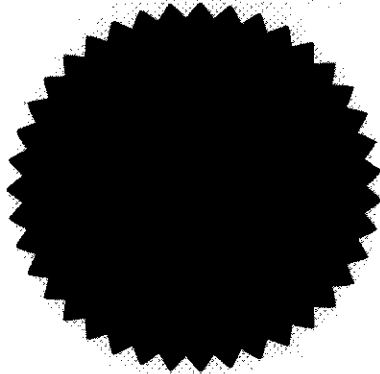
\* Most Probable No./100 ml

\*\* None Detected

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Karl W. Schiller, M.S.  
Chief Microbiologist



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.



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

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2620 E. Sunset Pk., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

### SUBCONTRACT ORDER - PROJECT # IOA0456

**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: IOA0456-01 Water	Sampled: 01/09/05 20:25	OK to run SHs past HT
Fecal Coliform	01/10/05 01:13	MPN/100 ml, Sub to Truesdail
Total Coliform	01/10/05 20:25	MPN/100 ml, Sub to Truesdail

**Containers Supplied:**

- Bacti Bottle (IOA0456-01A)
- Bacti Bottle (IOA0456-01B)

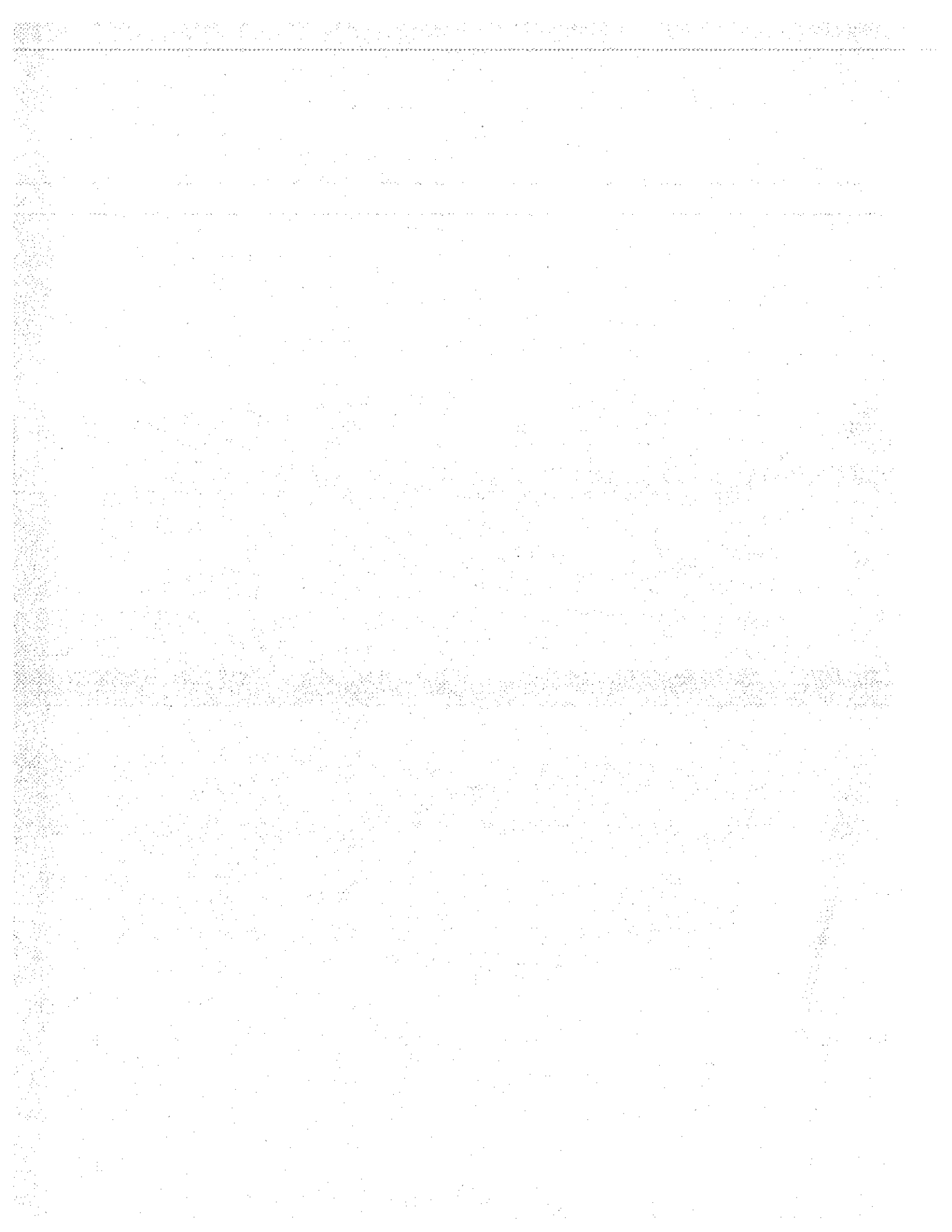
**SAMPLE INTEGRITY:**

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): \_\_\_\_\_

Released By: [Signature] Date: 1/10/05 Time: 17:00 Received By: [Signature] Date: 1/10/05 Time: 17:00  
 Released By: [Signature] Date: 1/10/05 Time: 17:15 Received By: [Signature] Date: 1/10/05 Time: 17:00



# CHAIN OF CUSTODY FORM

Project:

BOEING - SSTL NPDES

ANALYSIS REQUIRED

ROUTE & CHEMISTRY

Project Manager/Phone Number:

Bronwyn Kelly  
626-926-0268

Sampler:

Boiling Log

OUTSIDE

Sample Description

1 gal  
1 gal

Sample Matrix

W  
W

Container Type

ERRUMENT  
↓

# of Containers

1  
1

Sampling Date/Time

1-9-05 / 2025  
1-9-05 / 2048

Preservation

none  
↓

Sampler's ID#

Relinquished By

Bronwyn Kelly 1/10/05 1445

Relinquished By

John Kelly 1/10/05 1340

Received By

John Kelly 1/10/05 11:45

Received By

John Kelly 1-10-05  
1340

Received By

Turnaround Time: (check)  
Same Day \_\_\_\_\_ 72 Hours \_\_\_\_\_

24 Hours \_\_\_\_\_ 5 days \_\_\_\_\_

48 hours \_\_\_\_\_ normal \_\_\_\_\_

Sample Integrity: (Check)  
Intact  On Ice:

5



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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

January 26, 2005

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

Attention: Bronwyn Kelly  
Project: Outfall 015  
Sampled: 01/09/05  
Del Mar Analytical Number: IOA0481

Dear Ms. Kelly:

Aquatic Testing Laboratories performed The Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0) for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Aquatic Testing Laboratories ID
Outfall 015	IOA0481-01	A-05011002-001

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



# LABORATORY REPORT



*"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:** January 14, 2005  
**Client:** Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614  
Attn: Michele Harper

**Laboratory No.:** A-05011002-001  
**Sample ID.:** IOA0481-01

**Sample Control:** The samples were received by ATL in a chilled state, with the chain of custody record attached.

Date Sampled: 01/09/05  
Date Received: 01/10/05  
Date Tested: 01/10/05 to 01/14/05

**Sample Analysis:** The following analyses were performed on your sample:

Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0).

Attached are the test data generated from the analysis of your sample.

## Result Summary:

<u>Sample ID.</u>	<u>Results</u>
IOA0481-01	100% Survival (TUa = 0.0)

**Quality Control:** Reviewed and approved by:

Joseph A. LeMay  
Laboratory Director

# FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05011002-001

Client/ID: Del Mar Outfall 015  
To A 0481-01

Start Date: 01/10/2005

## TEST SUMMARY

Species: *Pimephales promelas*.

Age: 14 (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-050104.

## TEST DATA

		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	20.6	8.4	7.9	0	0	L 1500
	100%	20.6	8.2	7.0	0	0	
24 Hr	Control	20.0	8.6	7.7	0	0	L 1300
	100%	19.9	7.9	7.5	0	0	
48 Hr	Control	19.8	7.7	7.8	0	0	L 1300
	100%	19.7	6.4	7.6	0	0	
Renewal	Control	20.1	8.9	8.0	0	0	L 1300
	100%	19.5	9.8	7.1	0	0	
72 Hr	Control	19.1	8.8	7.7	0	0	L 1300
	100%	19.1	7.4	7.2	0	0	
96 Hr	Control	19.2	8.6	7.8	0	0	L 1400
	100%	19.2	8.4	7.7	0	0	

Comments: \* Aeration w/ sodium trisulfate  
 Sample as received: Chlorine: 1.0 mg/l; pH: 7.0; Conductivity: 589 umho; Temp: 4°C;  
 DO: 9.1 mg/l; Alkalinity: 49 mg/l; Hardness: 67 mg/l; NH<sub>3</sub>-N: 1.9 mg/l.  
 Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes /  No.  
 Control: Alkalinity: 60 mg/l; Hardness: 100 mg/l; Conductivity: 316 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 %

# SSFL ANALYTICAL

# CHAIN OF CUSTODY FORM

Project:

BOEING - SSFL NPDES

ANALYSIS REQUIRED

ROUTE X CHROME

Project Manager/Phone Number:

Bronwyn Kelly  
626-926-0268

Sampler:

Boeing  
Log  
OUTSIDE  
SAMPLER

Sample Description  
1 gal  
1 gal

Sample Matrix  
W  
W

Container Type  
BPA Free  
✓

# of Containers  
1  
1

Sampling Date/Time  
1-9-05 / 2025  
1-9-05 / 2048

Preservation  
NONE  
✓

Sampler's ID#

Relinquished By  
*Bronwyn Kelly* 1/10/05 1445  
Date/Time

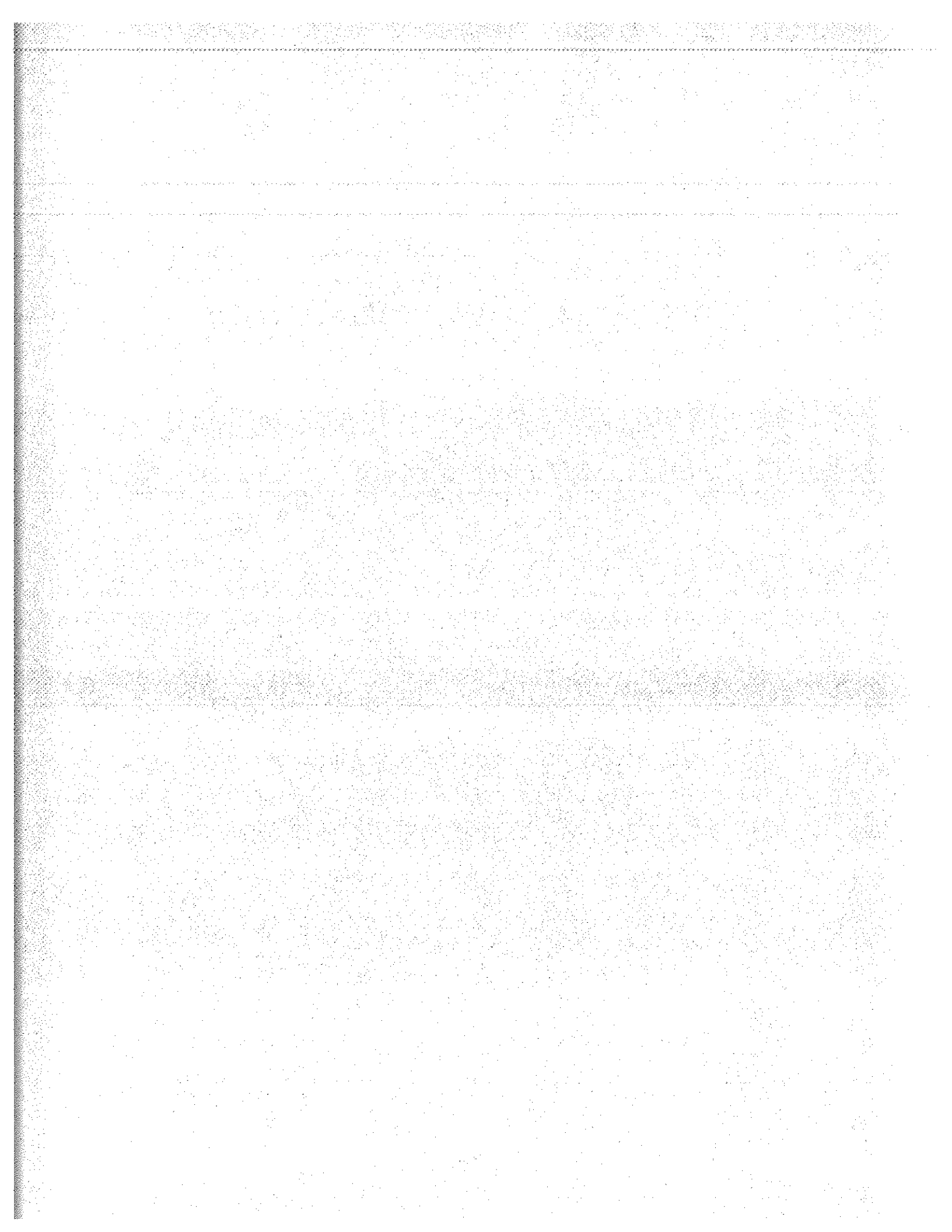
Relinquished By  
*John Kelly* 1/10/05 1340  
Date/Time

Received By  
*Bronwyn Kelly* 1/10/05 11:45  
Date/Time

Received By  
*John Kelly* 1-10-05  
Date/Time

Received By  
*John Kelly* 1-10-05  
Date/Time

Turnaround Time: (check)  
Same Day \_\_\_\_\_ 72 Hours \_\_\_\_\_  
24 Hours \_\_\_\_\_ 6 days \_\_\_\_\_  
48 hours \_\_\_\_\_ normal \_\_\_\_\_  
Sample Integrity: (Check)  
Intact \_\_\_\_\_ On loss: \_\_\_\_\_







# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOA0451 & IOA0452

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 #: IOA0451 & IOA452  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: February 23, 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 330.5 and 180.1*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 015	Outfall 015	IOA0451-01	water	General Minerals
Outfall 017	Outfall 017	IOA0452-01	water	General Minerals



## 2.6 LABORATORY DUPLICATES

Duplicate analyses was performed on Outfall 017 for turbidity and residual chlorine. The RPDs were within the laboratory-established control limits of  $\leq 20\%$ . No qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses are not applicable to the turbidity or residual chlorine methods. No qualifications were required.

## 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 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 calculations errors were noted. Residual chlorine in Outfall 017 was analyzed at a  $5\times$  dilution. 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.

## 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 and accounted for the samples and analyses presented in these SDGs. No sample qualifications were required.

#### 2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analyses. The 48-hour analytical holding time for turbidity and the 24-hour analytical holding time for residual chlorine were met, and no qualifications were required.

### 2.2 CALIBRATION

For turbidity, the initial calibration correlation coefficient was  $\geq 0.995$  and the continuing calibration information was acceptable with %Rs within the control limits of 90-110%. Calibration is not applicable to the residual chlorine method. No qualifications were required.

### 2.3 BLANKS

Turbidity was reported in the method blank and CCB, but not at sufficient concentration to qualify the site samples. Blanks are not applicable to the residual chlorine method. No qualifications were required.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Laboratory control samples are not applicable to the turbidity or residual chlorine methods. No qualifications were required.

### 2.5 SURROGATES RECOVERY

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



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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: Outfall 015

Report Number: IOA0451

Sampled: 01/10/05

Received: 01/10/05

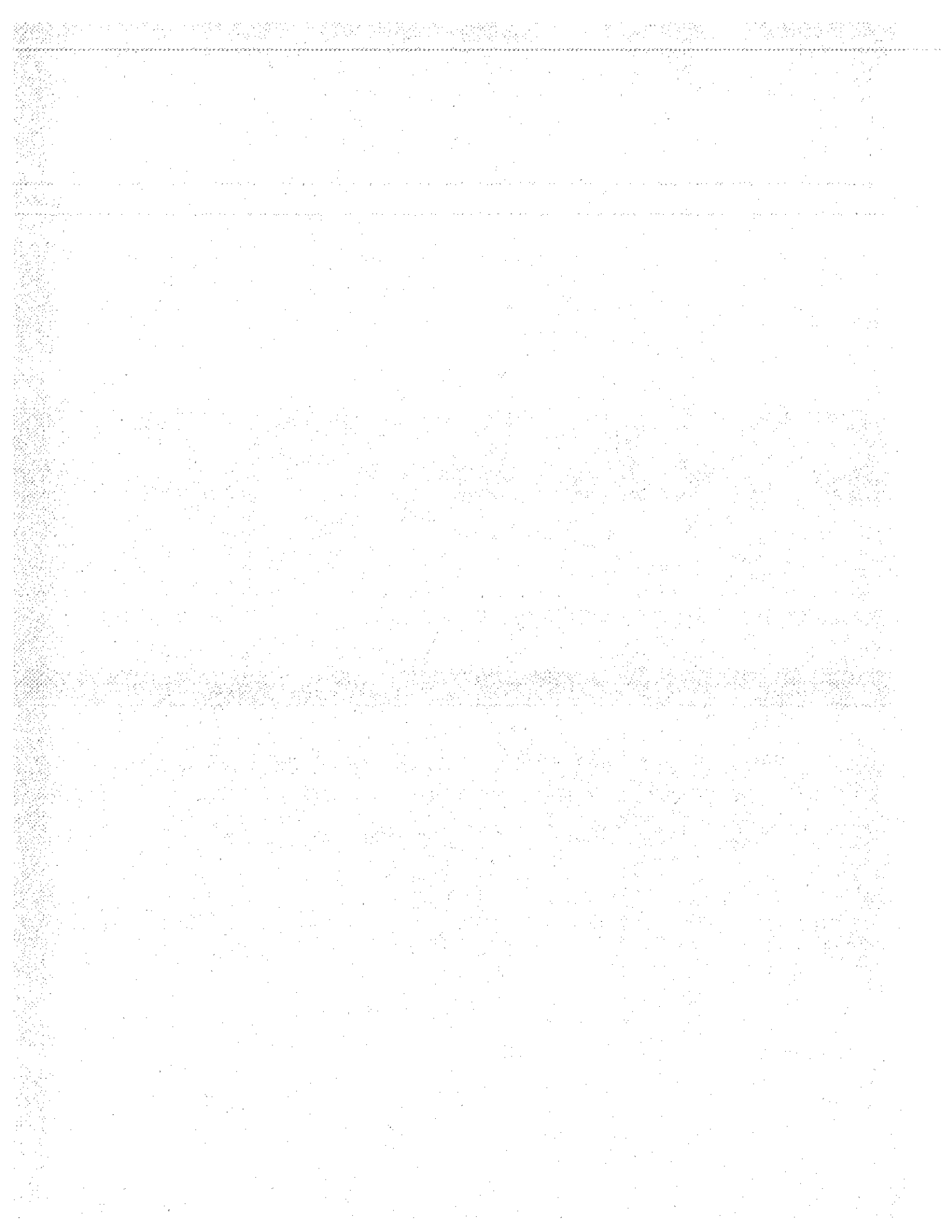
**DRAFT: INORGANICS**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0451-01 (DRAFT: Outfall 015-Grab - Water)									
Reporting Units: mg/l									
Residual Chlorine	EPA 330.5	5A10084	0.10	0.10	1.0	1	01/10/05	01/10/05	Rev Qual Code
Sample ID: IOA0451-01 (DRAFT: Outfall 015-Grab - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5A11071	0.040	1.0	30	1	01/11/05	01/11/05	

**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.*





**LABORATORY REPORT**

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

Project: Outfall 015

Sampled: 01/10/05  
Received: 01/10/05  
Issued: 03/19/05 17:09

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**  
IOA0451-01

**CLIENT ID**  
Outfall 015-Grab

**MATRIX**  
Water

Reviewed By:

Del Mar Analytical, Irvine  
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: Outfall 015

Report Number: IOA0451

Sampled: 01/10/05

Received: 01/10/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0451-01 (Outfall 015-Grab - Water)</b>									
Reporting Units: mg/l									
Residual Chlorine	EPA 330.5	5A10084	0.10	0.10	1.0	1	01/10/05	01/10/05	
<b>Sample ID: IOA0451-01 (Outfall 015-Grab - Water)</b>									
Reporting Units: NTU									
Turbidity	EPA 180.1	5A11071	0.040	1.0	30	1	01/11/05	01/11/05	

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: Outfall 015

Report Number: IOA0451

Sampled: 01/10/05

Received: 01/10/05

**SHORT HOLD TIME DETAIL REPORT**

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
<b>Sample ID: Outfall 015-Grab (IOA0451-01) - Water</b>					
EPA 180.1	2	01/10/2005 12:22	01/10/2005 16:20	01/11/2005 10:00	01/11/2005 11:00
EPA 330.5	1	01/10/2005 12:22	01/10/2005 16:20	01/10/2005 20:00	01/10/2005 20:15

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: Outfall 015

Report Number: IOA0451

Sampled: 01/10/05

Received: 01/10/05

**METHOD BLANK/QC DATA**

**INORGANICS**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A10084 Extracted: 01/10/05</b>										
<b>Duplicate Analyzed: 01/10/2005 (5A10084-DUP1)</b>										
Residual Chlorine	1.00	0.10	0.10	mg/l		1.0		0	20	
<b>Batch: 5A11071 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11071-BLK1)</b>										
Turbidity	0.0700	1.0	0.040	NTU						J
<b>Duplicate Analyzed: 01/11/2005 (5A11071-DUP1)</b>										
Turbidity	30.4	1.0	0.040	NTU		30		1	20	

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: Outfall 015

Report Number: IOA0451

Sampled: 01/10/05

Received: 01/10/05

**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
IOA0451-01	Chlorine, Residual	Residual Chlorine	mg/l	1.00	0.10	0.100

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: Outfall 015

Report Number: IOA0451

Sampled: 01/10/05

Received: 01/10/05

### 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.
- 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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 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 015

Report Number: IOA0451

Sampled: 01/10/05

Received: 01/10/05

## Certification Summary

### Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 180.1	Water	X	X
EPA 330.5	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](http://www.dmalabs.com).*

### Subcontracted Laboratories

#### Truesdail Laboratories-SUB California Cert #1237

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Fecal Coliform

Samples: IOA0451-01

Analysis Performed: Total Coliform

Samples: IOA0451-01

**Del Mar Analytical, Irvine**  
 Michele Harper  
 Project Manager

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

January 26, 2005

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

Attention: Bronwyn Kelly  
Project: Outfall 015  
Sampled: 01/10/05  
Del Mar Analytical Number: IOA0451

Dear Ms. Kelly:

Truesdail Laboratories Inc. performed The Multiple Tube Fermentation Test by APHA Standard Methods 9221B and 9221E for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Truesdail Laboratories ID
Outfall 015-Grab	IOA0451-01	938489/IOA0451-01

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

# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

## REPORT

14201 FRANKLIN AVENUE  
TUSTIN, CALIFORNIA 92780-7008  
(714) 730-6239 · FAX (714) 730-6462  
www.truesdail.com

Del Mar Analytical  
Attn: Michele Harper  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Report Date: 1/13/05  
Date Received: 1/10/05  
Laboratory No.: 938489

Sample: One water IOA0451-01, 1/10/05, 12:22

Analysis Date: 1/10/05                      Time: 1830  
Completion Date: 1/13/05                      Time: 1030

Investigation: Multiple Tube Fermentation Test for Coliform Group Bacteria APHA Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992 Method 9221B, 9221E

### RESULTS

Sample Designation	Coliform Group Bacteria MPN*/100ml	
	Total	Fecal
1. IOA0451-01, 12:22	23	<2**

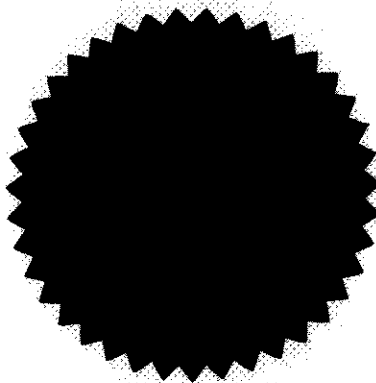
\* Most Probable No./100 ml

\*\* None Detected

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Karl W. Schiller, M.S.  
Chief Microbiologist



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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 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9586 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 # IOA0451

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	Truesdail Laboratories-SUB 14201 Franklin Avenue Tustin, CA 92680 Phone: (714) 730-6239 Fax: (714) 730-6462

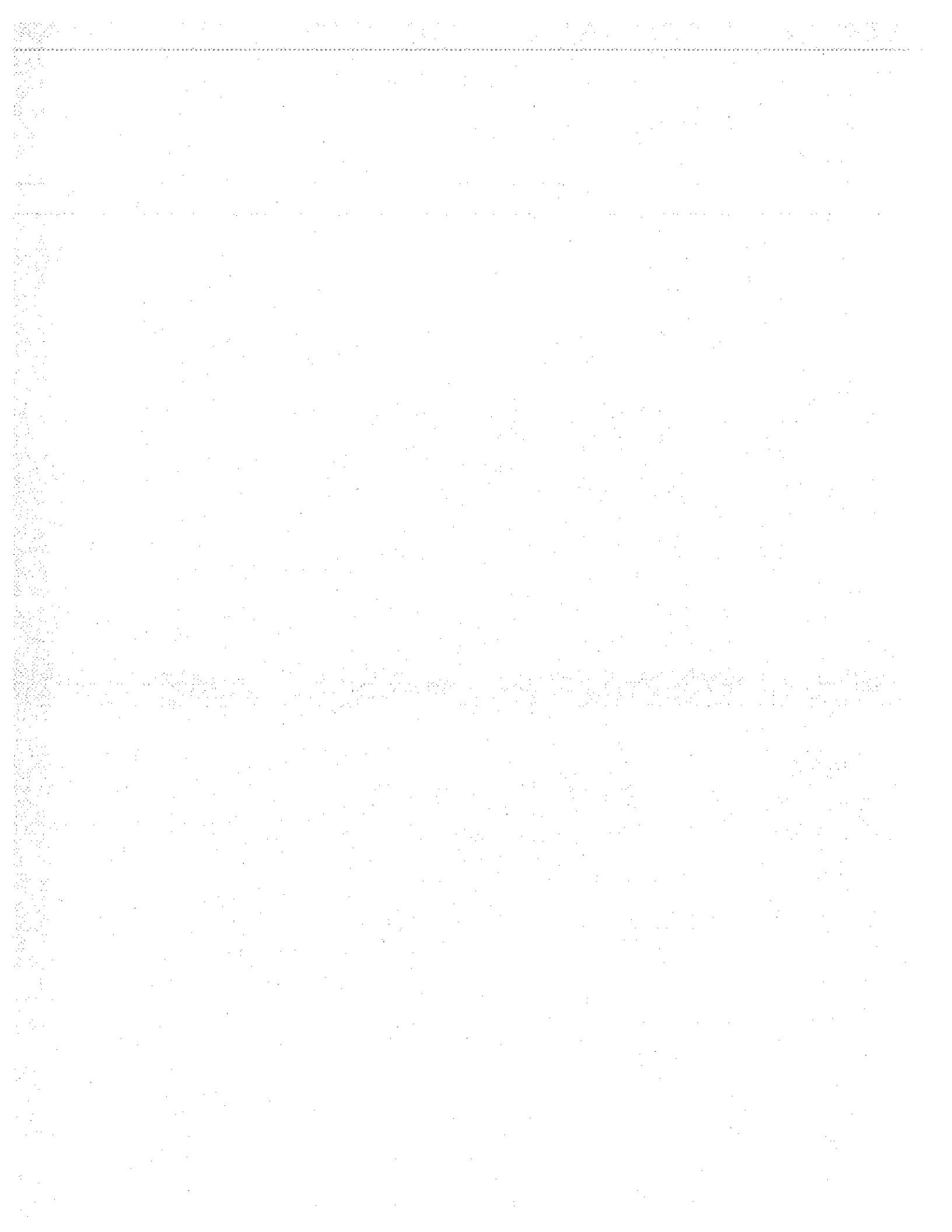
Standard TAT is requested unless specific due date is requested => Due Date: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Expiration	Comments
<b>Sample ID: IOA0451-01 Water      Sampled: 01/10/05 12:22</b>		
Fecal Coliform	01/10/05 17:10	MPN/100 ml, Sub to Truesdail
Total Coliform	01/11/05 12:22	MPN/100 ml, Sub to Truesdail

**Containers Supplied:**  
 Bacti Bottle (IOA0451-01A)  
 Bacti Bottle (IOA0451-01B)

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):	_____	

<i>[Signature]</i>	Date	Time	<i>[Signature]</i>	Date	Time
	1/10/05	1700		1/10/05	1700
<i>[Signature]</i>	Date	Time	<i>[Signature]</i>	Date	Time
	1/10/05	1715		1/10/05	1715



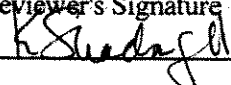


**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711DF21  
 Task Order 313150010  
 SDG No. Multiple  
 No. of Analyses 4

Laboratory Pace  
 Reviewer K. Shadowlight  
 Analysis/Method Dioxins

Date: February 18, 2005  
 Reviewer's Signature  


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



# 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: February 18, 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 (Pace)	Matrix	COC Method
Outfall 015	IOA0557-02	106233001	water	1613
Outfall 015	IOA0580-01	106237001	water	1613
Outfall 017	IOA0558-02	106234001	water	1613
Outfall 017	IOA0576-02	106236001	water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of 4°C ±2°C. The samples were subcontracted to Pace Analytical for the dioxin/furan analyses. The samples in these SDGs were received at Pace Analytical Services below the temperature limits of 4°C ±2°C; however, as none of the samples were noted to have been frozen or damaged, no qualifications were required. The samples were received in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were signed by the appropriate field and laboratory personnel. The samples and analyses were accounted for on both the original COCs and transfer COCs. As the samples were couriered directly to the laboratory (Del Mar Analytical), custody seals were not required. There was no information regarding custody seals upon receipt at Pace. 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 column performance standard was combined with the daily calibration verification and analyzed at the beginning of each analytical sequence. The GC column performance was acceptable with the chromatographic separation of 2,3,7,8-TCDD and other TCDD isomers resolved with a valley of ≤25%. No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance could not be evaluated as the laboratory did not provide selected ion current profiles for the lock-mass ions. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

There was one initial calibration, analyzed 11/29/04 on Instrument 10MSHR05. The calibration consisted of five concentration level standards (CS1 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 2 native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in the Table 6 of the 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.

## 2.4 BLANKS

One method blank (Blank-6220) was extracted and analyzed with the samples in these SDGs. Target compounds total HpCDF, 1,2,3,4,6,7,8-HpCDF, total HpCDF, OCDF, and OCDD were reported in the method blank. Any detects for the aforementioned target compounds reported at concentrations  $< 5\times$  the concentrations reported in the method blank were qualified as estimated nondetects "UJ," at the levels of interference in the samples of these SDGs. 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 LCS/LCSD pair (LCS-6221/LCSD-6222) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of the Method 1613. There were no QC limits established for RPDs. The reported RPDs were within  $\pm 20\%$ . No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy and precision was based on the LCS/LCSD 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 limit (MCL) were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." No further qualifications were required.

## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0580-01	<i>Outfall DIS</i>		
Lab Sample ID	106237001			
Filename	F50130A_08			
Injected By	BAL			
Total Amount Extracted	965 mL		Matrix	Water
% Moisture	NA		Dilution	NA
Dry Weight Extracted	NA		Collected	01/12/2005
ICAL Date	11/29/2004		Received	01/14/2005
CCal Filename(s)	F50129B_18		Extracted	01/28/2005
Method Blank ID	BLANK-6220		Analyzed	01/30/2005 16:29

<i>Re Prod</i>	<i>Real Lab</i>	Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
<i>4</i>		2,3,7,8-TCDF	ND	----	0.83	2,3,7,8-TCDF-13C	2.00	70
<i>3</i>	<i>DRQ</i>	Total TCDF	1.30	----	0.83	2,3,7,8-TCDD-13C	2.00	86
<i>4</i>		2,3,7,8-TCDD	ND	----	0.66	1,2,3,7,8-PeCDF-13C	2.00	78
<i>4</i>		Total TCDD	ND	----	0.66	2,3,4,7,8-PeCDF-13C	2.00	80
<i>4</i>		1,2,3,7,8-PeCDF	ND	----	1.30	1,2,3,7,8-PeCDD-13C	2.00	96
<i>↓</i>		2,3,4,7,8-PeCDF	ND	----	0.60	1,2,3,4,7,8-HxCDF-13C	2.00	80
		Total PeCDF	ND	----	0.94	1,2,3,6,7,8-HxCDF-13C	2.00	78
<i>4</i>		1,2,3,7,8-PeCDD	ND	----	1.30	2,3,4,6,7,8-HxCDF-13C	2.00	80
<i>4</i>		Total PeCDD	ND	----	1.30	1,2,3,7,8,9-HxCDF-13C	2.00	81
<i>3</i>	<i>DRQ</i>	1,2,3,4,7,8-HxCDF	0.81	----	0.63	1,2,3,4,7,8-HxCDD-13C	2.00	74
<i>3</i>		1,2,3,6,7,8-HxCDF	ND	----	0.66	1,2,3,6,7,8-HxCDD-13C	2.00	86
<i>3</i>		2,3,4,6,7,8-HxCDF	ND	----	0.49	1,2,3,4,6,7,8-HpCDF-13C	2.00	77
<i>3</i>		1,2,3,7,8,9-HxCDF	ND	----	0.62	1,2,3,4,7,8,9-HpCDF-13C	2.00	67
<i>3</i>	<i>DRQ</i>	Total HxCDF	0.81	----	0.60	1,2,3,4,6,7,8-HpCDD-13C	2.00	84
<i>4</i>		1,2,3,4,7,8-HxCDD	ND	----	0.55	OCDD-13C	4.00	79
<i>4</i>	<i>DRQ</i>	1,2,3,6,7,8-HxCDD	0.77	----	0.59	1,2,3,4-TCDD-13C	2.00	NA
<i>4</i>		1,2,3,7,8,9-HxCDD	ND	----	0.58	1,2,3,7,8,9-HxCDD-13C	2.00	NA
<i>3</i>	<i>DRQ</i>	Total HxCDD	3.90	----	0.57	2,3,7,8-TCDD-37Cl4	0.20	85
<i>4</i>		1,2,3,4,6,7,8-HpCDF	ND	----	1.70			
<i>↓</i>		1,2,3,4,7,8,9-HpCDF	ND	----	2.10			
		Total HpCDF	ND	----	1.90			
<i>4</i>	<i>B</i>	1,2,3,4,6,7,8-HpCDD	7.90	----	0.80			
<i>3</i>	<i>DRQ</i>	Total HpCDD	18.00	----	0.80			
<i>4</i>	<i>B</i>	OCDF	8.60	----	1.50			
<i>3</i>	<i>DRQ</i>	OCDD	96.00	----	1.20			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
D = Result obtained from analysis of diluted sample  
B = Less than 10 times higher than method blank level  
P = Recovery outside of method 1613 control limits  
J = Concentration detected is below the calibration range  
Nn = Value obtained from additional analysis

I = Interference  
E = PCDE Interference  
ND = Not Detected  
NA = Not Applicable  
NC = Not Calculated  
\* = See Discussion

Report No.....106237

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## REPORT OF LABORATORY ANALYSIS

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LEVEL IV



## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0557-02	<i>Outfall 015</i>
Lab Sample ID	106233001	
Filename	F50130A_05	
Injected By	BAL	
Total Amount Extracted	1050 mL	
% Moisture	NA	Matrix Water
Dry Weight Extracted	NA	Dilution NA
ICAL Date	11/29/2004	Collected 01/12/2005
CCal Filename(s)	F50129B_18	Received 01/14/2005
Method Blank ID	BLANK-6220	Extracted 01/28/2005
		Analyzed 01/30/2005 13:58

	Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
<i>3</i>	2,3,7,8-TCDF	ND	----	0.84	2,3,7,8-TCDF-13C	2.00	71
	Total TCDF	1.6	----	0.84 J	2,3,7,8-TCDD-13C	2.00	89
					1,2,3,7,8-PeCDF-13C	2.00	75
<i>4</i>	2,3,7,8-TCDD	ND	----	0.80	2,3,4,7,8-PeCDF-13C	2.00	80
	Total TCDD	ND	----	0.80	1,2,3,7,8-PeCDD-13C	2.00	94
					1,2,3,4,7,8-HxCDF-13C	2.00	84
<i>5</i>	1,2,3,7,8-PeCDF	ND	----	0.71	1,2,3,6,7,8-HxCDF-13C	2.00	92
	2,3,4,7,8-PeCDF	ND	----	0.47	2,3,4,6,7,8-HxCDF-13C	2.00	79
	Total PeCDF	ND	----	0.59	1,2,3,7,8,9-HxCDF-13C	2.00	81
					1,2,3,4,7,8-HxCDD-13C	2.00	72
<i>6</i>	1,2,3,7,8-PeCDD	ND	----	1.00	1,2,3,6,7,8-HxCDD-13C	2.00	94
	Total PeCDD	ND	----	1.00	1,2,3,4,6,7,8-HpCDF-13C	2.00	78
					1,2,3,4,7,8,9-HpCDF-13C	2.00	66
<i>7</i>	1,2,3,4,7,8-HxCDF	----	1.1	0.85 I	1,2,3,4,6,7,8-HpCDD-13C	2.00	85
	1,2,3,6,7,8-HxCDF	ND	----	0.84	OCDD-13C	4.00	72
	2,3,4,6,7,8-HxCDF	ND	----	0.81			
	1,2,3,7,8,9-HxCDF	ND	----	0.72	1,2,3,4-TCDD-13C	2.00	NA
	Total HxCDF	ND	----	0.80	1,2,3,7,8,9-HxCDD-13C	2.00	NA
<i>8</i>	1,2,3,4,7,8-HxCDD	ND	----	1.30	2,3,7,8-TCDD-37Cl4	0.20	87
	1,2,3,6,7,8-HxCDD	ND	----	1.30			
	1,2,3,7,8,9-HxCDD	ND	----	1.20			
	Total HxCDD	ND	----	1.20			
<i>9</i>	1,2,3,4,6,7,8-HpCDF	2.8	----	1.80 J			
	1,2,3,4,7,8,9-HpCDF	ND	----	1.30			
	Total HpCDF	11.0	----	1.50 BJ			
<i>10</i>	1,2,3,4,6,7,8-HpCDD	8.4	----	1.50 BJ			
	Total HpCDD	21.0	----	1.50 BJ			
<i>11</i>	OCDF	10.0	----	1.80 BJ			
	OCDD	94.0	----	4.20 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106233

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### REPORT OF LABORATORY ANALYSIS

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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 T711MT37  
 Task Order 313150010  
 SDG No. IOA0557, IOA0580

No. of Analyses 2

Laboratory Del Mar  
 Reviewer P. Meeks  
 Analysis/Method Metals

Date: 03/09/05  
 Reviewer's Signature  
P. Meeks

<b>ACTION ITEMS<sup>a</sup></b>	
1. <b>Case Narrative Deficiencies</b>	
2. <b>Out of Scope Analyses</b>	
3. <b>Analyses Not Conducted</b>	
4. <b>Missing Hardcopy Deliverables</b>	
5. <b>Incorrect Hardcopy Deliverables</b>	
6. <b>Deviations from Analysis Protocol, e.g.,</b>  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	<b>Qualifications applied for:</b> 1. Detects below the reporting limit. 2. Reporting limit check standard recovery outliers. 3. Negative results in the associated blanks.
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES  
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUPS: IOA0557 & IOA0580

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#: IOA0557, IOA0580  
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 08, 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 015 Comp Influent	Outfall 015 Comp Influent	IOA0557-02	water	ILM04
Outfall 015 Comp Effluent	Outfall 015 Comp Effluent	IOA0580-01	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 laboratory composited the samples and named the Outfall 015 Comp Influent and Outfall 015 Comp Effluent. The COCs accounted for the analyses presented in these SDGs. 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 metals and 28 days for mercury. No qualifications were required.

### 2.2 ICP-MS TUNING

ICP-MS was not utilized for the analysis of these samples; therefore, ICP-MS tuning criteria are not applicable.

### 2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP and 80-120% for mercury. The silver reporting limit check standard recoveries were below the control limit; therefore, nondetected silver in Outfall 015 Comp Influent and Outfall 015 Comp Effluent was qualified as estimated, "UJ." The reporting limit check recovery for thallium analyzed 01/16/05 was recovered below the control limit; therefore, nondetected thallium in Outfall 015 Comp Effluent 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

There were detects and negative results reported for the method blanks and bracketing ICBs/CCBs associated with the samples in these SDGs. Thallium and silver were reported in bracketing CCBs at  $-0.0038$  and  $-0.0024$   $\mu\text{g/L}$ , respectively; therefore, nondetected thallium in Outfall 015 Comp Effluent and nondetected silver in Outfall 015 Comp Influent were 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. The recoveries for the interferents and spiked analytes were within the control limits of 80-120%. Detects for chromium, lead, thallium, and zinc and negative results for arsenic, chromium, antimony, selenium that were greater than the applicable reporting limits were reported in the ICSA analyses. The validator reviewed the raw data for the site sample ICP analysis for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the concentration of interferents was not high enough to cause matrix effects. No sample qualifications were required due to the ICP ICS analysis.

## 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP LCS samples were identified as 5A14046-BS1 and 5A13042-BS1. The Hg LCS samples were identified as 5A14053-BS1 and 5A13050-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP and Hg control limits of 85-115%. No qualifications were required.

## 2.7 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.

## 2.8 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 assessed 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

ICP-MS was not utilized for the analysis of these samples; therefore, ICP-MS internal standard recoveries are not applicable.

## 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: Outfall 015  
 Report Number: IOA0580

Sampled: 01/12/05  
 Received: 01/11/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0580-01 (DRAFT: Outfall 015-Comp Effluent - Water) - cont.									
Reporting Units: mg/l									
Antimony	EPA 200.7	5A14046	0.0042	0.010	ND	1	01/14/05	01/14/05	U
Arsenic	EPA 200.7	5A14046	0.0038	0.0050	0.0048	1	01/14/05	01/14/05	J J DNQ
Beryllium	EPA 200.7	5A14046	0.00062	0.0020	ND	1	01/14/05	01/14/05	U
Boron	EPA 200.7	5A14046	0.0074	0.050	0.10	1	01/14/05	01/14/05	
Cadmium	EPA 200.7	5A14046	0.00034	0.0050	0.00090	1	01/14/05	01/14/05	J J DNQ
Chromium	EPA 200.7	5A14046	0.00068	0.0050	0.65	1	01/14/05	01/14/05	
Copper	EPA 200.7	5A14046	0.0017	0.010	0.032	1	01/14/05	01/14/05	
Lead	EPA 200.7	5A14046	0.0021	0.0050	ND	1	01/14/05	01/14/05	U
Mercury	EPA 245.1	5A14053	0.000063	0.00020	0.00029	1	01/14/05	01/14/05	
Nickel	EPA 200.7	5A14046	0.0020	0.010	0.83	1	01/14/05	01/14/05	
Selenium	EPA 200.7	5A14046	0.0046	0.0050	ND	1	01/14/05	01/14/05	U
Silver	EPA 200.7	5A14046	0.0013	0.010	ND	1	01/14/05	01/14/05	UJ *3
Thallium	EPA 200.7	5A14046	0.0031	0.0050	ND	1	01/14/05	01/16/05	UJ *3,E
Zinc	EPA 200.7	5A14046	0.0037	0.020	0.16	1	01/14/05	01/14/05	

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### LEVEL IV

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE



# Del Mar Analytical

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

Project ID: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOA0557-02 (Outfall 015 Composite Influent - Water) - cont.					Sampled: 01/12/05					
Reporting Units: mg/l									Rev Qual	Qual Code
Antimony	EPA 200.7	5A13042	0.0042	0.010	ND	1	01/13/05	01/13/05	U	
Arsenic	EPA 200.7	5A13042	0.0038	0.0050	ND	1	01/13/05	01/13/05	U	
Beryllium	EPA 200.7	5A13042	0.00062	0.0020	ND	1	01/13/05	01/13/05	U	
Cadmium	EPA 200.7	5A13042	0.00034	0.0050	0.00090	1	01/13/05	01/13/05	J	J
Chromium	EPA 200.7	5A13042	0.00068	0.0050	0.19	1	01/13/05	01/13/05	J	J
Copper	EPA 200.7	5A13042	0.0017	0.010	0.0094	1	01/13/05	01/13/05	J	J
Lead	EPA 200.7	5A13042	0.0021	0.0050	0.0034	1	01/13/05	01/13/05	J	J
Mercury	EPA 245.1	5A13050	0.000063	0.00020	0.00014	1	01/13/05	01/13/05	J	J
Nickel	EPA 200.7	5A13042	0.0020	0.010	0.069	1	01/13/05	01/13/05	J	J
Selenium	EPA 200.7	5A13042	0.0046	0.0050	ND	1	01/13/05	01/13/05	U	
Silver	EPA 200.7	5A13042	0.0013	0.010	ND	1	01/13/05	01/13/05	U	
Thallium	EPA 200.7	5A13042	0.0031	0.0050	0.0096	1	01/13/05	01/13/05	U	J
Zinc	EPA 200.7	5A13042	0.0037	0.020	0.074	1	01/13/05	01/13/05	U	J

**AMEC VALIDATED**  
**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 T711PP14  
 Task Order 313150010  
 SDG No. IOA0557, IOA0580  
 No. of Analyses 2

Laboratory Del Mar Analytical.

Reviewer L. Calvin

Analysis/Method Pesticides/PCBs by Method 608

Date: <u>March 11, 2005</u>
Reviewer's Signature <i>L. Calvin</i>

ACTION ITEMS <sup>a</sup>	
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	Qualification was assigned for continuing calibration %Ds >15%.
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOA0557, IOA0580

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#: IOA0557, IOA0580  
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: March 3, 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 015 Composite Influent	Outfall 015 Composite Influent	IOA0557-01	water	608
Outfall 015 Composite Effluent	Outfall 015 Composite Effluent	IOA0580-01	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 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. 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  $\pm 0.10$  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

The initial calibrations associated with the pesticide analyses of the samples were dated 12/29/04 and 01/14/05, and consisted of six-point calibrations for the pesticide compounds. The %RSDs were within the EPA Method 608 QC limit of  $\leq 10\%$  or  $r^2 \geq 0.995$  on both analytical columns. Single point calibrations were analyzed for toxaphene and chlordane. There was one initial calibration dated 01/03/05 associated with the PCB analyses of the samples, consisting of five points for Arochlor 1016 and Arochlor 1260. The average %RSDs for the individual peaks of Arochlor 1016 and Arochlor 1260 were  $\leq 10\%$  on both analytical columns. Single point calibrations for Arochlor 1242, Arochlor 1248, and Arochlor 1254 were also analyzed. 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

The pesticide analysis of sample Outfall 015 Composite Effluent was bracketed by four continuing calibrations, two preceding and two following the analysis. In all of the bracketing calibrations, the %Ds exceeded 15% on one or both channels for 4,4'-DDT, methoxychlor, and endrin ketone. Results for the aforementioned compounds were qualified as estimated, "UJ," in sample Outfall 015 Composite Effluent. The %Ds were within the Method QC limit of  $\leq 15\%$  for the calibrations bracketing sample Outfall 015 Composite Influent. The PCB analyses of both samples were bracketed by three CCVs, with %Ds for Arochlor 1016 and Arochlor 1260 of  $\leq 15\%$ . A representative number of %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No further 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 (5A13049-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 (5A13049-BS1/BSD1) 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 pesticide and PCB analyses of 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 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; however, as there were no detects reported in the samples, quantitation was verified by recalculating a representative number of

DATA VALIDATION REPORT

Project: NPDES  
SDG: IOA0557, IOA0580  
Analysis: Pest/PCB

blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and the laboratory MDL studies. No qualifications were required.



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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 783-0831  
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-1621

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

Project ID: Outfall 015  
 Report Number: IOA0580

Sampled: 01/12/05  
 Received: 01/11/05

**DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0580-01 (DRAFT: Outfall 015-Comp Effluent - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5A13049	0.029	0.10	ND	1.02	01/13/05	01/14/05	u
alpha-BHC	EPA 608	5A13049	0.010	0.10	ND	1.02	01/13/05	01/14/05	u
beta-BHC	EPA 608	5A13049	0.011	0.10	ND	1.02	01/13/05	01/14/05	u
delta-BHC	EPA 608	5A13049	0.010	0.20	ND	1.02	01/13/05	01/14/05	u
gamma-BHC (Lindane)	EPA 608	5A13049	0.0097	0.10	ND	1.02	01/13/05	01/14/05	u
Chlordane	EPA 608	5A13049	0.18	1.0	ND	1.02	01/13/05	01/14/05	u
4,4'-DDD	EPA 608	5A13049	0.011	0.10	ND	1.02	01/13/05	01/14/05	u
4,4'-DDE	EPA 608	5A13049	0.017	0.10	ND	1.02	01/13/05	01/14/05	u
4,4'-DDT	EPA 608	5A13049	0.015	0.10	ND	1.02	01/13/05	01/14/05	u
Dieldrin	EPA 608	5A13049	0.010	0.10	ND	1.02	01/13/05	01/14/05	u
Endosulfan I	EPA 608	5A13049	0.015	0.10	ND	1.02	01/13/05	01/14/05	u
Endosulfan II	EPA 608	5A13049	0.037	0.10	ND	1.02	01/13/05	01/14/05	u
Endosulfan sulfate	EPA 608	5A13049	0.013	0.20	ND	1.02	01/13/05	01/14/05	u
Endrin	EPA 608	5A13049	0.0082	0.10	ND	1.02	01/13/05	01/14/05	u
Endrin aldehyde	EPA 608	5A13049	0.045	0.10	ND	1.02	01/13/05	01/14/05	u
Endrin ketone	EPA 608	5A13049	0.020	0.10	ND	1.02	01/13/05	01/14/05	u
Heptachlor	EPA 608	5A13049	0.030	0.10	ND	1.02	01/13/05	01/14/05	u
Heptachlor epoxide	EPA 608	5A13049	0.012	0.10	ND	1.02	01/13/05	01/14/05	u
Methoxychlor	EPA 608	5A13049	0.034	0.10	ND	1.02	01/13/05	01/14/05	u
Toxaphene	EPA 608	5A13049	0.77	5.0	ND	1.02	01/13/05	01/14/05	u
Surrogate: Tetrachloro-m-xylene (35-120%)					101 %				
Surrogate: Decachlorobiphenyl (45-120%)					67 %				

**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 015  
 Report Number: IOA0580

Sampled: 01/12/05  
 Received: 01/11/05

## DRAFT: TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifier's
Sample ID: IOA0580-01 (DRAFT: Outfall 015-Comp Effluent - Water) - cont.									
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	1.02	01/13/05	01/14/05	u
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	1.02	01/13/05	01/14/05	↓ new qual code
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	1.02	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	1.02	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	1.02	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	1.02	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	1.02	01/13/05	01/14/05	
Surrogate: Decachlorobiphenyl (45-120%)					76 %				

### AMEC VALIDATED

### LEVEL IV

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-964  
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-081  
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-361

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

Project ID: Outfall 015  
 Report Number: IOA0557

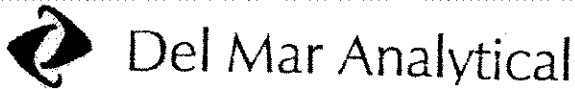
Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0557-02 (Outfall 015 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	1.05	01/13/05	01/14/05	<i>rel qual</i> <i>qual code</i> ↓
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	1.05	01/13/05	01/14/05	
Surrogate: Decachlorobiphenyl (45-120%)					74%				

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**LEVEL IV**

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager



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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-081  
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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

**ORGANOCHLORINE PESTICIDES (EPA 608)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0557-02 (Outfall 015 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Aldrin	EPA 608	5A13049	0.029	0.10	ND	1.05	01/13/05	01/14/05	<i>see qual</i> <i>qual</i> <i>code</i> u ↓
alpha-BHC	EPA 608	5A13049	0.010	0.10	ND	1.05	01/13/05	01/14/05	
beta-BHC	EPA 608	5A13049	0.011	0.10	ND	1.05	01/13/05	01/14/05	
delta-BHC	EPA 608	5A13049	0.010	0.20	ND	1.05	01/13/05	01/14/05	
gamma-BHC (Lindane)	EPA 608	5A13049	0.0097	0.10	ND	1.05	01/13/05	01/14/05	
Chlordane	EPA 608	5A13049	0.18	1.0	ND	1.05	01/13/05	01/14/05	
4,4'-DDD	EPA 608	5A13049	0.011	0.10	ND	1.05	01/13/05	01/14/05	
4,4'-DDE	EPA 608	5A13049	0.017	0.10	ND	1.05	01/13/05	01/14/05	
4,4'-DDT	EPA 608	5A13049	0.015	0.10	ND	1.05	01/13/05	01/14/05	
Dieldrin	EPA 608	5A13049	0.010	0.10	ND	1.05	01/13/05	01/14/05	
Endosulfan I	EPA 608	5A13049	0.015	0.10	ND	1.05	01/13/05	01/14/05	
Endosulfan II	EPA 608	5A13049	0.037	0.10	ND	1.05	01/13/05	01/14/05	
Endosulfan sulfate	EPA 608	5A13049	0.013	0.20	ND	1.05	01/13/05	01/14/05	
Endrin	EPA 608	5A13049	0.0082	0.10	ND	1.05	01/13/05	01/14/05	
Endrin aldehyde	EPA 608	5A13049	0.045	0.10	ND	1.05	01/13/05	01/14/05	
Endrin ketone	EPA 608	5A13049	0.020	0.10	ND	1.05	01/13/05	01/14/05	
Heptachlor	EPA 608	5A13049	0.030	0.10	ND	1.05	01/13/05	01/14/05	
Heptachlor epoxide	EPA 608	5A13049	0.012	0.10	ND	1.05	01/13/05	01/14/05	
Methoxychlor	EPA 608	5A13049	0.034	0.10	ND	1.05	01/13/05	01/14/05	
Toxaphene	EPA 608	5A13049	0.77	5.0	ND	1.05	01/13/05	01/14/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					36 %				
Surrogate: Decachlorobiphenyl (45-120%)					77 %				

**AMEC VALIDATED**  
**LEVEL IV**


Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711SV29  
 Task Order 313150010  
 SDG No. IOA557, IOA580  
 No. of Analyses 2

Laboratory Del Mar  
 Reviewer M. Pokorny  
 Analysis/Method Semivolatiles

Date: March 11, 2005  
 Reviewer's Signature  


ACTION ITEMS*	
1. <b>Case Narrative</b> <b>Deficiencies</b>	  
2. <b>Out of Scope</b> <b>Analyses</b>	  
3. <b>Analyses Not Conducted</b>	  
4. <b>Missing Hardcopy</b> <b>Deliverables</b>	  
5. <b>Incorrect Hardcopy</b> <b>Deliverables</b>	  
6. <b>Deviations from Analysis</b>	Qualifications were required for detects below the reporting limits, and calibration and LCS outliers.
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	
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOA0557, IOA0580

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#: IOA0557, IOA0580  
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: March 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 1625C*, 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 015 Composite Influent	Outfall 015 Composite Influent	IOA0557-01	water	625
Outfall 015 Comp Effluent	Outfall 015 Comp Effluent	IOA0580-01	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  $4^{\circ}\text{C}\pm 2$ , at  $4^{\circ}\text{C}$ . According to COCs, the samples were received intact and in good condition. No qualifications were required.

#### 2.1.2 Chain of Custody

The COCs from the field to Del Mar Analytical were signed by field and laboratory personnel and accounted for the analyses presented in these SDGs. As the samples were couriered to the laboratory, custody seals are 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 extraction. 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 these SDGs was dated 12/30/04. The average RRFs for were  $\geq 0.05$ , the %RSDs were  $\leq 35\%$ , except for the %RSD for 2,4-dinitrophenol, and the  $r^2$  values were  $\geq 0.995$ , except for the  $r^2$  values for bis(2-chloroethoxy)methane and 4,6-dinitro-2-methylphenol. 2,4-Dinitrophenol, bis(2-chloroethoxy)methane, and 4,6-dinitro-2-methylphenol were qualified as estimated nondetects, "UJ," in both of the samples. The continuing calibration was analyzed 01/18/05. The RRFs for all target compounds were  $\geq 0.05$  and the %Ds were  $\leq 20\%$  except for the %Ds for 2,4-dinitrophenol, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene. A representative number of the RRFs, %RSD,  $r^2$  values, and %D 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 (5A13037-BLK1) was extracted and analyzed with these SDGs. No target compounds were reported in the method blank. Review of the raw data indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5A13037-BS1/BS1D) was extracted and analyzed with these SDGs. The recoveries and RPDs were within the laboratory QC limits, except for the RPD for benzidine. Benzidine was qualified as an estimated nondetect, "UJ," in both of the samples. 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 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with the samples in these SDGs. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate results. 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

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

### 2.7.2 Field Duplicates

There were no field duplicate samples associated with these SDGs.

## 2.8 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for semivolatile target compounds by EPA Method 625C. Review of sample chromatograms and retention times indicated no problems with target compound identification. No qualifications were required.

## **2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS**

Compound quantitation was verified by recalculating any sample detects and/or blank spike/blank spike duplicate concentrations from the raw data and no calculation or transcription errors were found. The reporting limits were supported by the low level of the initial calibration. Reporting limits were not adjusted for sample amount; however, the dilution factors listed on the sample result summaries reflected the sample amount extracted. Results were reported in ug/L. Results reported between the MDL and the reporting limit were qualified as estimated, "J," by the laboratory. No further qualifications were required.

## **2.11 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 015

Report Number: IOA0580

Sampled: 01/12/05  
 Received: 01/11/05

## 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: IOA0580-01 (DRAFT: Outfall 015-Comp Effluent - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5A13037	4.3	10	14	1.05	01/13/05	01/18/05	U
Acenaphthylene	EPA 625	5A13037	3.2	10	ND	1.05	01/13/05	01/18/05	U
Aniline	EPA 625	5A13037	2.9	10	ND	1.05	01/13/05	01/18/05	U
Anthracene	EPA 625	5A13037	3.2	10	ND	1.05	01/13/05	01/18/05	U
Benzidine	EPA 625	5A13037	5.2	20	ND	1.05	01/13/05	01/18/05	U
Benzoic acid	EPA 625	5A13037	2.6	20	13	1.05	01/13/05	01/18/05	U
Benzo(a)anthracene	EPA 625	5A13037	3.7	10	ND	1.05	01/13/05	01/18/05	U
Benzo(b)fluoranthene	EPA 625	5A13037	2.7	10	ND	1.05	01/13/05	01/18/05	U
Benzo(k)fluoranthene	EPA 625	5A13037	3.4	10	ND	1.05	01/13/05	01/18/05	U
Benzo(g,h,i)perylene	EPA 625	5A13037	5.3	10	ND	1.05	01/13/05	01/18/05	U
Benzo(a)pyrene	EPA 625	5A13037	3.5	10	ND	1.05	01/13/05	01/18/05	U
Benzyl alcohol	EPA 625	5A13037	2.5	20	ND	1.05	01/13/05	01/18/05	U
Bis(2-chloroethoxy)methane	EPA 625	5A13037	3.9	10	ND	1.05	01/13/05	01/18/05	U
Bis(2-chloroethyl)ether	EPA 625	5A13037	4.4	10	ND	1.05	01/13/05	01/18/05	U
Bis(2-chloroisopropyl)ether	EPA 625	5A13037	4.6	10	ND	1.05	01/13/05	01/18/05	U
Bis(2-ethylhexyl)phthalate	EPA 625	5A13037	5.2	50	ND	1.05	01/13/05	01/18/05	U
4-Bromophenyl phenyl ether	EPA 625	5A13037	4.6	10	ND	1.05	01/13/05	01/18/05	U
Butyl benzyl phthalate	EPA 625	5A13037	3.5	20	6.0	1.05	01/13/05	01/18/05	U
4-Chloroaniline	EPA 625	5A13037	6.0	10	ND	1.05	01/13/05	01/18/05	U
2-Chloronaphthalene	EPA 625	5A13037	4.0	10	ND	1.05	01/13/05	01/18/05	U
4-Chloro-3-methylphenol	EPA 625	5A13037	3.5	20	ND	1.05	01/13/05	01/18/05	U
2-Chlorophenol	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05	U
4-Chlorophenyl phenyl ether	EPA 625	5A13037	3.0	10	ND	1.05	01/13/05	01/18/05	U
Chrysene	EPA 625	5A13037	2.8	10	ND	1.05	01/13/05	01/18/05	U
Dibenz(a,h)anthracene	EPA 625	5A13037	4.7	20	ND	1.05	01/13/05	01/18/05	U
Dibenzofuran	EPA 625	5A13037	2.6	10	9.8	1.05	01/13/05	01/18/05	U
Di-n-butyl phthalate	EPA 625	5A13037	2.8	20	5.8	1.05	01/13/05	01/18/05	U
1,3-Dichlorobenzene	EPA 625	5A13037	4.1	10	ND	1.05	01/13/05	01/18/05	U
1,4-Dichlorobenzene	EPA 625	5A13037	3.9	10	ND	1.05	01/13/05	01/18/05	U
1,2-Dichlorobenzene	EPA 625	5A13037	4.5	10	ND	1.05	01/13/05	01/18/05	U
3,3-Dichlorobenzidine	EPA 625	5A13037	11	20	ND	1.05	01/13/05	01/18/05	U
2,4-Dichlorophenol	EPA 625	5A13037	4.1	10	ND	1.05	01/13/05	01/18/05	U
Diethyl phthalate	EPA 625	5A13037	3.1	10	ND	1.05	01/13/05	01/18/05	U
2,4-Dimethylphenol	EPA 625	5A13037	4.4	20	ND	1.05	01/13/05	01/18/05	U
Dimethyl phthalate	EPA 625	5A13037	3.6	10	ND	1.05	01/13/05	01/18/05	U
4,6-Dinitro-2-methylphenol	EPA 625	5A13037	5.1	20	ND	1.05	01/13/05	01/18/05	U
2,4-Dinitrophenol	EPA 625	5A13037	5.3	20	ND	1.05	01/13/05	01/18/05	U
2,4-Dinitrotoluene	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05	U
2,6-Dinitrotoluene	EPA 625	5A13037	3.2	10	ND	1.05	01/13/05	01/18/05	U
Di-n-octyl phthalate	EPA 625	5A13037	4.7	20	ND	1.05	01/13/05	01/18/05	U
Fluoranthene	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05	U

RB QUAL  
 QUAL CODE

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LEVEL IV

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WR 2.11.05



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

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05  
 Received: 01/11/05

## 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	QUAL	QUAL CODE
Sample ID: IOA0580-01 (DRAFT: Outfall 015-Comp Effluent - Water) - cont.										R✓	QUAL
Reporting Units: ug/l											
Fluorene.	EPA 625	5A13037	3.9	10	6.9	1.05	01/13/05	01/18/05		J J	DNQ
Hexachlorobenzene	EPA 625	5A13037	4.8	10	ND	1.05	01/13/05	01/18/05		U	
Hexachlorobutadiene	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05			
Hexachlorocyclopentadiene	EPA 625	5A13037	3.4	20	ND	1.05	01/13/05	01/18/05			
Hexachloroethane	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05			
Indeno(1,2,3-cd)pyrene	EPA 625	5A13037	5.4	20	ND	1.05	01/13/05	01/18/05		U J TC	C
Isophorone	EPA 625	5A13037	3.7	10	ND	1.05	01/13/05	01/18/05		U	
2-Methylnaphthalene	EPA 625	5A13037	3.0	10	9.8	1.05	01/13/05	01/18/05		J J	DNQ
2-Methylphenol	EPA 625	5A13037	3.7	10	ND	1.05	01/13/05	01/18/05		U	
4-Methylphenol	EPA 625	5A13037	3.8	10	ND	1.05	01/13/05	01/18/05		U	
Naphthalene	EPA 625	5A13037	4.5	10	8.6	1.05	01/13/05	01/18/05		J J	DNQ
2-Nitroaniline	EPA 625	5A13037	3.9	20	ND	1.05	01/13/05	01/18/05		U	
3-Nitroaniline	EPA 625	5A13037	4.5	20	ND	1.05	01/13/05	01/18/05			
4-Nitroaniline	EPA 625	5A13037	4.9	20	ND	1.05	01/13/05	01/18/05			
Nitrobenzene	EPA 625	5A13037	4.2	20	ND	1.05	01/13/05	01/18/05			
2-Nitrophenol	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05			
4-Nitrophenol	EPA 625	5A13037	6.6	20	ND	1.05	01/13/05	01/18/05			
N-Nitrosodiphenylamine	EPA 625	5A13037	4.0	10	ND	1.05	01/13/05	01/18/05			
N-Nitroso-di-n-propylamine	EPA 625	5A13037	3.6	10	ND	1.05	01/13/05	01/18/05			
Pentachlorophenol	EPA 625	5A13037	4.0	20	ND	1.05	01/13/05	01/18/05			
Phenanthrene	EPA 625	5A13037	3.3	10	ND	1.05	01/13/05	01/18/05			
Phenol	EPA 625	5A13037	4.0	10	ND	1.05	01/13/05	01/18/05			
Pyrene	EPA 625	5A13037	3.9	10	ND	1.05	01/13/05	01/18/05			
1,2,4-Trichlorobenzene	EPA 625	5A13037	4.4	10	ND	1.05	01/13/05	01/18/05			
2,4,5-Trichlorophenol	EPA 625	5A13037	3.6	20	ND	1.05	01/13/05	01/18/05			
2,4,6-Trichlorophenol	EPA 625	5A13037	4.1	20	ND	1.05	01/13/05	01/18/05			
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A13037	5.0	20	ND	1.05	01/13/05	01/18/05			
N-Nitrosodimethylamine	EPA 625	5A13037	3.7	20	ND	1.05	01/13/05	01/18/05			
Surrogate: 2-Fluorophenol (35-120%)					55 %						
Surrogate: Phenol-d6 (45-120%)					76 %						
Surrogate: 2,4,6-Tribromophenol (50-125%)					73 %						
Surrogate: Nitrobenzene-d5 (45-120%)					62 %						
Surrogate: 2-Fluorobiphenyl (45-120%)					69 %						
Surrogate: Terphenyl-d14 (45-135%)					89 %						

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

Project ID: Outfall 015  
 Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

### 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: IOA0557-02 (Outfall 015 Composite Influent - Water)					Sampled: 01/12/05				
Reporting Units: ug/l					REV QUAL CODE				
Acenaphthene	EPA 625	5A13037	4.3	10	ND	1	01/13/05	01/18/05	U
Acenaphthylene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	U
Aniline	EPA 625	5A13037	2.9	10	ND	1	01/13/05	01/18/05	U
Anthracene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	U
Benzidine	EPA 625	5A13037	5.2	20	ND	1	01/13/05	01/18/05	U
Benzoic acid	EPA 625	5A13037	2.6	20	11	1	01/13/05	01/18/05	U J #5 DNQ
Benzo(a)anthracene	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	U
Benzo(b)fluoranthene	EPA 625	5A13037	2.7	10	ND	1	01/13/05	01/18/05	U
Benzo(k)fluoranthene	EPA 625	5A13037	3.4	10	ND	1	01/13/05	01/18/05	U
Benzo(g,h,i)perylene	EPA 625	5A13037	5.3	10	ND	1	01/13/05	01/18/05	U J C
Benzo(a)pyrene	EPA 625	5A13037	3.5	10	ND	1	01/13/05	01/18/05	U
Benzyl alcohol	EPA 625	5A13037	2.5	20	ND	1	01/13/05	01/18/05	U
Bis(2-chloroethoxy)methane	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	U J C
Bis(2-chloroethyl)ether	EPA 625	5A13037	4.4	10	ND	1	01/13/05	01/18/05	U
Bis(2-chloroisopropyl)ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	U
Bis(2-ethylhexyl)phthalate	EPA 625	5A13037	5.2	50	26	1	01/13/05	01/18/05	U J DNQ
4-Bromophenyl phenyl ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	U
Butyl benzyl phthalate	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	U
4-Chloroaniline	EPA 625	5A13037	6.0	10	ND	1	01/13/05	01/18/05	U
2-Chloronaphthalene	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	U
4-Chloro-3-methylphenol	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	U
2-Chlorophenol	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U
4-Chlorophenyl phenyl ether	EPA 625	5A13037	3.0	10	ND	1	01/13/05	01/18/05	U
Chrysene	EPA 625	5A13037	2.8	10	ND	1	01/13/05	01/18/05	U
Dibenz(a,h)anthracene	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	U
Dibenzofuran	EPA 625	5A13037	2.6	10	ND	1	01/13/05	01/18/05	U
Di-n-butyl phthalate	EPA 625	5A13037	2.8	20	ND	1	01/13/05	01/18/05	U
1,3-Dichlorobenzene	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	U
1,4-Dichlorobenzene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	U
1,2-Dichlorobenzene	EPA 625	5A13037	4.5	10	ND	1	01/13/05	01/18/05	U
3,3-Dichlorobenzidine	EPA 625	5A13037	11	20	ND	1	01/13/05	01/18/05	U
2,4-Dichlorophenol	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	U
Diethyl phthalate	EPA 625	5A13037	3.1	10	ND	1	01/13/05	01/18/05	U
2,4-Dimethylphenol	EPA 625	5A13037	4.4	20	ND	1	01/13/05	01/18/05	U
Dimethyl phthalate	EPA 625	5A13037	3.6	10	ND	1	01/13/05	01/18/05	U
4,6-Dinitro-2-methylphenol	EPA 625	5A13037	5.1	20	ND	1	01/13/05	01/18/05	U
2,4-Dinitrophenol	EPA 625	5A13037	5.3	20	ND	1	01/13/05	01/18/05	U J C
2,4-Dinitrotoluene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U
2,6-Dinitrotoluene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	U
Di-n-octyl phthalate	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	U
Fluoranthene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U

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: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

**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: IOA0557-02 (Outfall 015 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									REV QUAL
Fluorene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	U
Hexachlorobenzene	EPA 625	5A13037	4.8	10	ND	1	01/13/05	01/18/05	
Hexachlorobutadiene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
Hexachlorocyclopentadiene	EPA 625	5A13037	3.4	20	ND	1	01/13/05	01/18/05	
Hexachloroethane	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5A13037	5.4	20	ND	1	01/13/05	01/18/05	U JTC C
Isophorone	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	U
2-Methylnaphthalene	EPA 625	5A13037	3.0	10	ND	1	01/13/05	01/18/05	
2-Methylphenol	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	
4-Methylphenol	EPA 625	5A13037	3.8	10	ND	1	01/13/05	01/18/05	
Naphthalene	EPA 625	5A13037	4.5	10	ND	1	01/13/05	01/18/05	
2-Nitroaniline	EPA 625	5A13037	3.9	20	ND	1	01/13/05	01/18/05	
3-Nitroaniline	EPA 625	5A13037	4.5	20	ND	1	01/13/05	01/18/05	
4-Nitroaniline	EPA 625	5A13037	4.9	20	ND	1	01/13/05	01/18/05	
Nitrobenzene	EPA 625	5A13037	4.2	20	ND	1	01/13/05	01/18/05	
2-Nitrophenol	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
4-Nitrophenol	EPA 625	5A13037	6.6	20	ND	1	01/13/05	01/18/05	
N-Nitrosodiphenylamine	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	
N-Nitroso-di-n-propylamine	EPA 625	5A13037	3.6	10	ND	1	01/13/05	01/18/05	
Pentachlorophenol	EPA 625	5A13037	4.0	20	ND	1	01/13/05	01/18/05	
Phenanthrene	EPA 625	5A13037	3.3	10	ND	1	01/13/05	01/18/05	
Phenol	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	
Pyrene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
1,2,4-Trichlorobenzene	EPA 625	5A13037	4.4	10	ND	1	01/13/05	01/18/05	
2,4,5-Trichlorophenol	EPA 625	5A13037	3.6	20	ND	1	01/13/05	01/18/05	
2,4,6-Trichlorophenol	EPA 625	5A13037	4.1	20	ND	1	01/13/05	01/18/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A13037	5.0	20	ND	1	01/13/05	01/18/05	
N-Nitrosodimethylamine	EPA 625	5A13037	3.7	20	ND	1	01/13/05	01/18/05	
Surrogate: 2-Fluorophenol (35-120%)					56 %				
Surrogate: Phenol-d6 (45-120%)					69 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					73 %				
Surrogate: Nitrobenzene-d5 (45-120%)					63 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					70 %				
Surrogate: Terphenyl-d14 (45-135%)					90 %				

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

**AMEC VALIDATED**

**LEVEL IV**

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**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

AMEC Earth & Environmental  
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 Lakewood, CO 80226

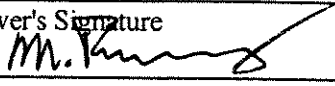
Package ID T711VO54  
 Task Order 313150010  
 SDG No. IOA0557

No. of Analyses 1

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles

Date: March 7, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
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 method blank contamination.
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0557

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#: IOA0557  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Volatiles  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: M. Pokorny  
Date of Review: March 7, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample identification**

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 015 Grab Influent - Water	Outfall 015 Grab Influent - Water	IOA0557-01	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 sample in this SDG was received at the laboratory within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . According to the COC, the sample was received intact, without headspace, and in good condition. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed by field and laboratory personnel and accounted for the analysis presented in this SDG. As the sample was couriered to the laboratory, custody seals are not required. No qualifications were required.

#### 2.1.3 Holding Times

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

### 2.2 GC/MS TUNING

The ion abundance windows shown on the quantitation report were consistent with those specified in the EPA Method 624. All ion abundances were within the established windows and were therefore acceptable. 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 01/04/05, was associated with this SDG. The average RRFs were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  for the target compounds listed on the sample summary forms. One continuing calibration, dated 01/12/05, was associated with this SDG. The RRFs for all target compounds were  $\geq 0.05$  and the %Ds were  $\leq 20\%$ . A representative number of %RSDs and average RRFs from the initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

### 2.4 BLANKS

One water method blank (5A12019-BLK1) was associated with this SDG. Methylene chloride was reported in the method blank at  $0.71\mu\text{g/L}$ . The sample of this SDG had methylene chloride qualified as a nondetect, "U," and raised to the reporting limit. The method blank raw data showed no evidence of false negatives or false positives. No further qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water blank spike (5A12019-BS1) was associated with this SDG. All spike 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 within the QC limits of 80-120%. 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 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

A trip blank was not analyzed with this SDG. No qualifications were required.

### 2.8.2 Field Blanks and Equipment Rinsates

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

### 2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for this SDG were within the control limits established by the continuing calibration standards, of +100%/-50% for internal standard areas and  $\pm 0.50$  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 a subset of volatile target compounds by EPA Method 624. Chromatograms, retention times, and spectra for the sample 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 sample detects, and/or a representative number of 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**

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: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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: IOA0557-01 (Outfall 015 Grab Influent - Water)					Sampled: 01/11/05				
Reporting Units: ug/l									LEVEL QUAL
1,2,3-Trichloropropane	EPA 624	5A12019	N/A	10	ND	1	01/12/05	01/12/05	U
Acrolein	EPA 624	5A13008	4.6	50	ND	1	01/13/05	01/13/05	
Acrylonitrile	EPA 624	5A13008	5.1	50	ND	1	01/13/05	01/13/05	
Benzene	EPA 624	5A12019	0.28	1.0	ND	1	01/12/05	01/12/05	
Bromodichloromethane	EPA 624	5A12019	0.30	2.0	ND	1	01/12/05	01/12/05	
Bromoform	EPA 624	5A12019	0.32	5.0	ND	1	01/12/05	01/12/05	
Bromomethane	EPA 624	5A12019	0.34	5.0	ND	1	01/12/05	01/12/05	
Carbon tetrachloride	EPA 624	5A12019	0.28	0.50	ND	1	01/12/05	01/12/05	
Chlorobenzene	EPA 624	5A12019	0.36	2.0	ND	1	01/12/05	01/12/05	
Chloroethane	EPA 624	5A12019	0.33	5.0	ND	1	01/12/05	01/12/05	
2-Chloroethyl vinyl ether	EPA 624	5A13008	1.3	5.0	ND	1	01/13/05	01/13/05	
Chloroform	EPA 624	5A12019	0.33	2.0	ND	1	01/12/05	01/12/05	
Chloromethane	EPA 624	5A12019	0.30	5.0	ND	1	01/12/05	01/12/05	
Dibromochloromethane	EPA 624	5A12019	0.28	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichlorobenzene	EPA 624	5A12019	0.32	2.0	ND	1	01/12/05	01/12/05	
1,3-Dichlorobenzene	EPA 624	5A12019	0.35	2.0	ND	1	01/12/05	01/12/05	
1,4-Dichlorobenzene	EPA 624	5A12019	0.37	2.0	ND	1	01/12/05	01/12/05	
1,1-Dichloroethane	EPA 624	5A12019	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloroethane	EPA 624	5A12019	0.28	0.50	ND	1	01/12/05	01/12/05	
1,1-Dichloroethene	EPA 624	5A12019	0.32	5.0	ND	1	01/12/05	01/12/05	
trans-1,2-Dichloroethene	EPA 624	5A12019	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloropropane	EPA 624	5A12019	0.35	2.0	ND	1	01/12/05	01/12/05	
cis-1,3-Dichloropropene	EPA 624	5A12019	0.22	2.0	ND	1	01/12/05	01/12/05	
trans-1,3-Dichloropropene	EPA 624	5A12019	0.24	2.0	ND	1	01/12/05	01/12/05	
Ethylbenzene	EPA 624	5A12019	0.25	2.0	ND	1	01/12/05	01/12/05	
Methylene chloride	EPA 624	5A12019	0.48	5.0	0.71	5.01	01/12/05	01/12/05	U B, J B
1,1,2,2-Tetrachloroethane	EPA 624	5A12019	0.24	2.0	ND	1	01/12/05	01/12/05	U
Tetrachloroethene	EPA 624	5A12019	0.32	2.0	ND	1	01/12/05	01/12/05	
Toluene	EPA 624	5A12019	0.36	2.0	ND	1	01/12/05	01/12/05	
1,1,1-Trichloroethane	EPA 624	5A12019	0.30	2.0	ND	1	01/12/05	01/12/05	
1,1,2-Trichloroethane	EPA 624	5A12019	0.30	2.0	ND	1	01/12/05	01/12/05	
Trichloroethene	EPA 624	5A12019	0.26	2.0	2.9	1	01/12/05	01/12/05	
Trichlorofluoromethane	EPA 624	5A12019	0.34	5.0	ND	1	01/12/05	01/12/05	U
Vinyl chloride	EPA 624	5A12019	0.26	0.50	ND	1	01/12/05	01/12/05	U
Xylenes, Total	EPA 624	5A12019	0.52	4.0	ND	1	01/12/05	01/12/05	U
Surrogate: Dibromofluoromethane (80-120%)									98 %
Surrogate: Dibromofluoromethane (80-120%)									100 %
Surrogate: Toluene-d8 (80-120%)									100 %
Surrogate: Toluene-d8 (80-120%)									99 %
Surrogate: 4-Bromofluorobenzene (80-120%)									100 %
Surrogate: 4-Bromofluorobenzene (80-120%)									96 %

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

**AMEC VALIDATED**

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LEVEL II

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711WC71  
Task Order 313150010  
SDG No. IOA0557/IOA0580  
No. of Analyses 3

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 03/10/05

Reviewer's Signature



<b>ACTION ITEMS<sup>a</sup></b>	
<b>1. Case Narrative</b>	
<b>Deficiencies</b>	
<b>2. Out of Scope</b>	
<b>Analyses</b>	
<b>3. Analyses Not</b>	
<b>Conducted</b>	
<b>4. Missing Hardcopy</b>	
<b>Deliverables</b>	
<b>5. Incorrect Hardcopy</b>	
<b>Deliverables</b>	
<b>6. Deviations from Analysis Protocol, e.g.,</b>	<b>Qualifications for cyanide RL standard recovered below QC limits</b>
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	
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOA0557 & IOA0580

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 #: IOA0557/IOA0580  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 3  
Reviewer: L. Jarusewic  
Date of Review: March 10, 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, 405.1, 335.2, 218.6, and 160.2. 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 015-Grab-Influent	Outfall 015-Grab-Influent	IOA0557-01	Water	General Minerals
Outfall 015-Composite-Influent	Outfall 015-Composite-Influent	IOA0557-02	Water	General Minerals
Outfall 015-Composite-Effluent	Outfall 015-Composite-Effluent	IOA0580-01	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 and samples present 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 14-day analytical holding time for cyanide, the 7-day holding time for total suspended solids, the 48-hour holding time for nitrate and biological oxygen demand, and the 24-hour hexavalent chromium holding times were met. No qualifications were required.

### 2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were  $\geq 0.995$ . Initial and continuing calibration information was acceptable with %Rs within the control limits of 90-110% for all analytes except hexavalent chromium. The CCV for hexavalent chromium exceeded the method control limits of 95-105%; however, as hexavalent chromium was not detected, 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 in Outfall 015-Composite-Influent. As per a telephone conversation dated 03/11/05 with J. Hatfield of Del Mar Analytical, it was confirmed that the analyst did not spike the reporting limit check standard. Another reporting limit check standard was run that day and was recovered within the control limits of 70-130%; therefore, the reviewer did not reject the Outfall 015-Composite-Influent result. Nondetected cyanide was qualified as estimated, "UJ." No further qualifications were required.

### 2.3 BLANKS

Hexavalent chromium was detected in the associated method blank for Outfall 015-Grab-Influent; however, hexavalent chromium was not detected in Outfall 015-Grab-Influent and 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 samples were nondetects at the reporting limit. No qualifications were required.

#### **2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

The laboratory control sample and laboratory control sample duplicate (BOD and cyanide only) recoveries and RPDs were within the laboratory-established control limits. The remaining LCS results 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 these SDGs.

#### **2.6 LABORATORY DUPLICATES**

No MS/MSD 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 associations with the samples in these SDGs; therefore, no assessment was made with respect to this criterion.

#### **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. 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 015

Report Number: IOA0580

Sampled: 01/12/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Analyzed	Date Extracted	Data Analyzed	Qualifiers
Sample ID: IOA0580-01 (DRAFT: Outfall 015-Comp Effluent - Water) - cont.										
Reporting Units: mg/l										
Total Cyanide	EPA 335.2	5A13092	0.017	0.025	ND	1	01/13/05	01/13/05	ll	REV QUAL CODE
Nitrate-N	EPA 300.0	5A12036	0.072	0.11	2.2	1	01/12/05	01/12/05		

# AMEC VALIDATED

# LEVEL IV

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

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 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-085  
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-362

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

Project ID: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## INORGANICS

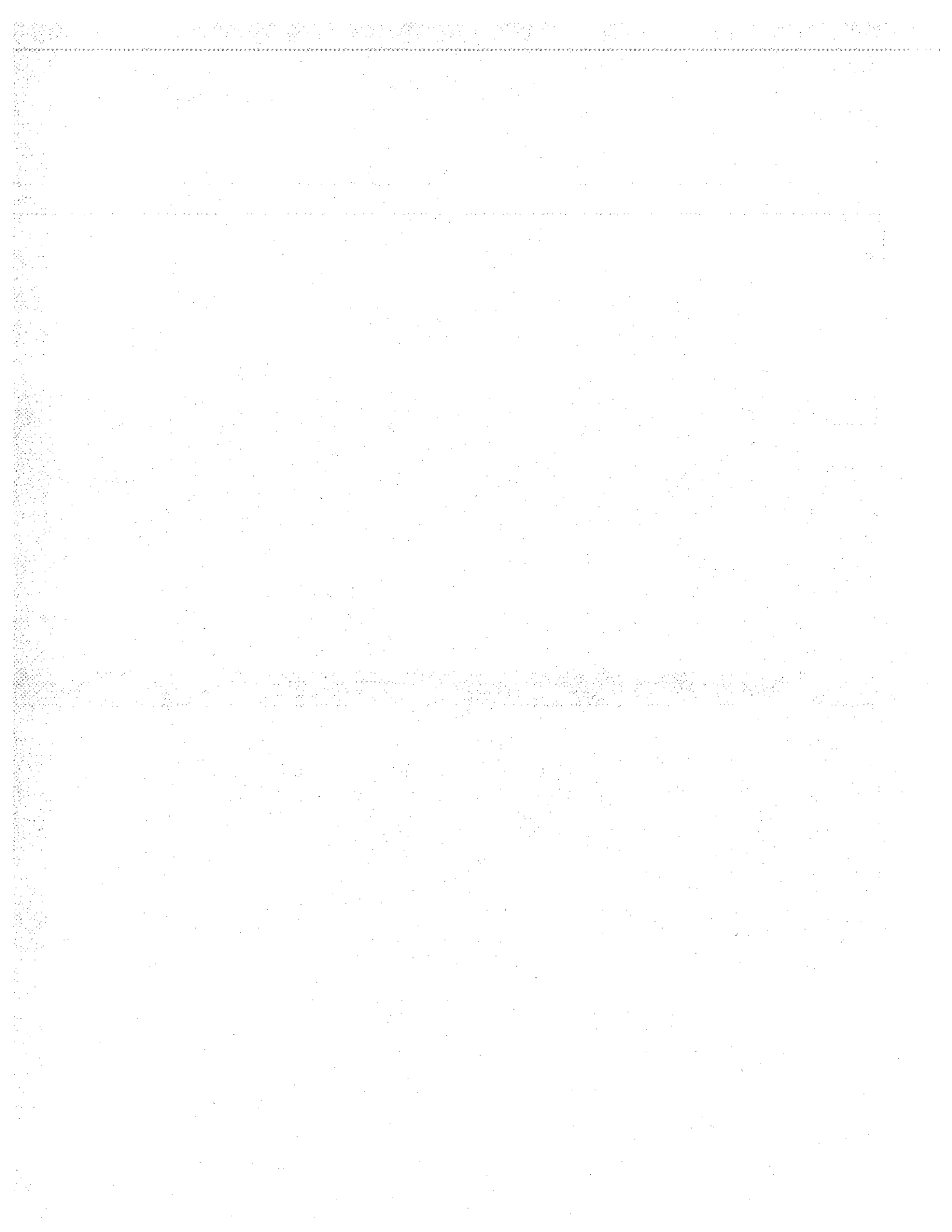
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0557-01 (Outfall 015 Grab Influent - Water)					Sampled: 01/11/05				
Reporting Units: mg/l									
Chromium VI	EPA 218.6	5A11092	0.000041	0.0010	ND	1	01/11/05	01/11/05	U
Sample ID: IOA0557-02 (Outfall 015 Composite Influent - Water)					Sampled: 01/12/05				
Reporting Units: mg/l									
Biochemical Oxygen Demand	EPA 405.1	5A12041	0.59	2.0	14	1	01/12/05	01/17/05	
Total Cyanide	EPA 335.2	5A17067	0.017	0.025	ND	1	01/17/05	01/17/05	UJ
Total Suspended Solids	EPA 160.2	5A17060	10	10	18	1	01/17/05	01/17/05	#2

### AMEC VALIDATED

### LEVEL IV

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

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LABORATORY REPORT

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

Project: Outfall 015

Sampled: 01/11/05-01/12/05  
Received: 01/11/05  
Issued: 02/23/05 18:14

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.*

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.
- 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.
- ADDITIONAL INFORMATION: The date of the composite sample is the date the compositing was performed.

LABORATORY ID	CLIENT ID	MATRIX
IOA0557-01	Outfall 015 Grab Influent	Water
IOA0557-02	Outfall 015 Composite Influent	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: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05

Received: 01/11/05

PURGEABLES BY GC/MS (EPA 624)

Table with columns: Analyte, Method, Batch, MDL Limit, Reporting Limit, Sample Result, Dilution Factor, Date Extracted, Date Analyzed, Data Qualifiers. Includes sample ID IOA0557-01 and various chemical analytes like 1,2,3-Trichloropropane, Acrolein, etc.

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: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05

Received: 01/11/05

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: IOA0557-02 (Outfall 015 Composite Influent - Water)					Sampled: 01/12/05				
Reporting Units: ug/l									
Acenaphthene	EPA 625	5A13037	4.3	10	ND	1	01/13/05	01/18/05	
Acenaphthylene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	
Aniline	EPA 625	5A13037	2.9	10	ND	1	01/13/05	01/18/05	
Anthracene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	
Benzidine	EPA 625	5A13037	5.2	20	ND	1	01/13/05	01/18/05	
Benzoic acid	EPA 625	5A13037	2.6	20	11	1	01/13/05	01/18/05	J
Benzo(a)anthracene	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	
Benzo(b)fluoranthene	EPA 625	5A13037	2.7	10	ND	1	01/13/05	01/18/05	
Benzo(k)fluoranthene	EPA 625	5A13037	3.4	10	ND	1	01/13/05	01/18/05	
Benzo(g,h,i)perylene	EPA 625	5A13037	5.3	10	ND	1	01/13/05	01/18/05	C
Benzo(a)pyrene	EPA 625	5A13037	3.5	10	ND	1	01/13/05	01/18/05	
Benzyl alcohol	EPA 625	5A13037	2.5	20	ND	1	01/13/05	01/18/05	
Bis(2-chloroethoxy)methane	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
Bis(2-chloroethyl)ether	EPA 625	5A13037	4.4	10	ND	1	01/13/05	01/18/05	
Bis(2-chloroisopropyl)ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5A13037	5.2	50	26	1	01/13/05	01/18/05	J
4-Bromophenyl phenyl ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	
Butyl benzyl phthalate	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	
4-Chloroaniline	EPA 625	5A13037	6.0	10	ND	1	01/13/05	01/18/05	
2-Chloronaphthalene	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	
4-Chloro-3-methylphenol	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	
2-Chlorophenol	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
4-Chlorophenyl phenyl ether	EPA 625	5A13037	3.0	10	ND	1	01/13/05	01/18/05	
Chrysene	EPA 625	5A13037	2.8	10	ND	1	01/13/05	01/18/05	
Dibenz(a,h)anthracene	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	
Dibenzofuran	EPA 625	5A13037	2.6	10	ND	1	01/13/05	01/18/05	
Di-n-butyl phthalate	EPA 625	5A13037	2.8	20	ND	1	01/13/05	01/18/05	
1,3-Dichlorobenzene	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	
1,4-Dichlorobenzene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
1,2-Dichlorobenzene	EPA 625	5A13037	4.5	10	ND	1	01/13/05	01/18/05	
3,3-Dichlorobenzidine	EPA 625	5A13037	11	20	ND	1	01/13/05	01/18/05	
2,4-Dichlorophenol	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	
Diethyl phthalate	EPA 625	5A13037	3.1	10	ND	1	01/13/05	01/18/05	
2,4-Dimethylphenol	EPA 625	5A13037	4.4	20	ND	1	01/13/05	01/18/05	
Dimethyl phthalate	EPA 625	5A13037	3.6	10	ND	1	01/13/05	01/18/05	
4,6-Dinitro-2-methylphenol	EPA 625	5A13037	5.1	20	ND	1	01/13/05	01/18/05	
2,4-Dinitrophenol	EPA 625	5A13037	5.3	20	ND	1	01/13/05	01/18/05	
2,4-Dinitrotoluene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
2,6-Dinitrotoluene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	
Di-n-octyl phthalate	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	
Fluoranthene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	

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: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05
Received: 01/11/05

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

Table with columns: Analyte, Method, Batch, MDL Limit, Reporting Limit, Sample Result, Dilution Factor, Date Extracted, Date Analyzed, Data Qualifiers. Includes sample ID IOA0557-02 and various chemical analytes like Fluorene, Hexachlorobenzene, etc.

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing Project ID: Outfall 015  
300 North Lake Avenue, Suite 1200 Report Number: IOA0557  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/11/05-01/12/05  
Received: 01/11/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0557-02 (Outfall 015 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Aldrin	EPA 608	5A13049	0.029	0.10	ND	1.05	01/13/05	01/14/05	
alpha-BHC	EPA 608	5A13049	0.010	0.10	ND	1.05	01/13/05	01/14/05	
beta-BHC	EPA 608	5A13049	0.011	0.10	ND	1.05	01/13/05	01/14/05	
delta-BHC	EPA 608	5A13049	0.010	0.20	ND	1.05	01/13/05	01/14/05	
gamma-BHC (Lindane)	EPA 608	5A13049	0.0097	0.10	ND	1.05	01/13/05	01/14/05	
Chlordane	EPA 608	5A13049	0.18	1.0	ND	1.05	01/13/05	01/14/05	
4,4'-DDD	EPA 608	5A13049	0.011	0.10	ND	1.05	01/13/05	01/14/05	
4,4'-DDE	EPA 608	5A13049	0.017	0.10	ND	1.05	01/13/05	01/14/05	
4,4'-DDT	EPA 608	5A13049	0.015	0.10	ND	1.05	01/13/05	01/14/05	
Dieldrin	EPA 608	5A13049	0.010	0.10	ND	1.05	01/13/05	01/14/05	
Endosulfan I	EPA 608	5A13049	0.015	0.10	ND	1.05	01/13/05	01/14/05	
Endosulfan II	EPA 608	5A13049	0.037	0.10	ND	1.05	01/13/05	01/14/05	
Endosulfan sulfate	EPA 608	5A13049	0.013	0.20	ND	1.05	01/13/05	01/14/05	
Endrin	EPA 608	5A13049	0.0082	0.10	ND	1.05	01/13/05	01/14/05	
Endrin aldehyde	EPA 608	5A13049	0.045	0.10	ND	1.05	01/13/05	01/14/05	
Endrin ketone	EPA 608	5A13049	0.020	0.10	ND	1.05	01/13/05	01/14/05	
Heptachlor	EPA 608	5A13049	0.030	0.10	ND	1.05	01/13/05	01/14/05	
Heptachlor epoxide	EPA 608	5A13049	0.012	0.10	ND	1.05	01/13/05	01/14/05	
Methoxychlor	EPA 608	5A13049	0.034	0.10	ND	1.05	01/13/05	01/14/05	
Toxaphene	EPA 608	5A13049	0.77	5.0	ND	1.05	01/13/05	01/14/05	
Surrogate: Tetrachloro-m-xylene (35-120%)									36 %
Surrogate: Decachlorobiphenyl (45-120%)									77 %

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager

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# Del Mar Analytical

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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689  
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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 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0557-02 (Outfall 015 Composite Influent - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	1.05	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	1.05	01/13/05	01/14/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					74 %				

Del Mar Analytical, Irvine  
 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: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0557-02 (Outfall 015 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: mg/l									
Antimony	EPA 200.7	5A13042	0.0042	0.010	ND	1	01/13/05	01/13/05	
Arsenic	EPA 200.7	5A13042	0.0038	0.0050	ND	1	01/13/05	01/13/05	
Beryllium	EPA 200.7	5A13042	0.00062	0.0020	ND	1	01/13/05	01/13/05	
Cadmium	EPA 200.7	5A13042	0.00034	0.0050	<b>0.00090</b>	1	01/13/05	01/13/05	J
Chromium	EPA 200.7	5A13042	0.00068	0.0050	<b>0.19</b>	1	01/13/05	01/13/05	
Copper	EPA 200.7	5A13042	0.0017	0.010	<b>0.0094</b>	1	01/13/05	01/13/05	J
Lead	EPA 200.7	5A13042	0.0021	0.0050	<b>0.0034</b>	1	01/13/05	01/13/05	J
Mercury	EPA 245.1	5A13050	0.000063	0.00020	<b>0.00014</b>	1	01/13/05	01/13/05	J
Nickel	EPA 200.7	5A13042	0.0020	0.010	<b>0.069</b>	1	01/13/05	01/13/05	
Selenium	EPA 200.7	5A13042	0.0046	0.0050	ND	1	01/13/05	01/13/05	
Silver	EPA 200.7	5A13042	0.0013	0.010	ND	1	01/13/05	01/13/05	
Thallium	EPA 200.7	5A13042	0.0031	0.0050	<b>0.0096</b>	1	01/13/05	01/13/05	
Zinc	EPA 200.7	5A13042	0.0037	0.020	<b>0.074</b>	1	01/13/05	01/13/05	

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

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MWH-Pasadena/Boeing Project ID: Outfall 015  
300 North Lake Avenue, Suite 1200 Report Number: IOA0557  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/11/05-01/12/05  
Received: 01/11/05

INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0557-01 (Outfall 015 Grab Influent - Water)</b>					<b>Sampled: 01/11/05</b>				
Reporting Units: mg/l									
Chromium VI	EPA 218.6	5A11092	0.000041	0.0010	ND	1	01/11/05	01/11/05	C
<b>Sample ID: IOA0557-02 (Outfall 015 Composite Influent - Water)</b>					<b>Sampled: 01/12/05</b>				
Reporting Units: mg/l									
Biochemical Oxygen Demand	EPA 405.1	5A12041	0.59	2.0	14	1	01/12/05	01/17/05	
Total Cyanide	EPA 335.2	5A17067	0.017	0.025	ND	1	01/17/05	01/17/05	
Total Suspended Solids	EPA 160.2	5A17060	10	10	18	1	01/17/05	01/17/05	

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



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

Project ID: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

**SHORT HOLD TIME DETAIL REPORT**

	<b>Hold Time (in days)</b>	<b>Date/Time Sampled</b>	<b>Date/Time Received</b>	<b>Date/Time Extracted</b>	<b>Date/Time Analyzed</b>
<b>Sample ID: Outfall 015 Grab Influent (IOA0557-01) - Water</b>					
EPA 218.6	1	01/11/2005 14:40	01/11/2005 18:50	01/11/2005 21:36	01/11/2005 22:10
EPA 624	3	01/11/2005 14:40	01/11/2005 18:50	01/13/2005 00:00	01/13/2005 12:31
<b>Sample ID: Outfall 015 Composite Influent (IOA0557-02) - Water</b>					
EPA 405.1	2	01/12/2005 13:30	01/11/2005 18:50	01/12/2005 19:00	01/17/2005 20:00

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



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Project ID: Outfall 015

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Received: 01/11/05

**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
<b>Batch: 5A12019 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12019-BLK1)</b>										
1,2,3-Trichloropropane	ND	10	N/A	ug/l						
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	0.710	5.0	0.48	ug/l						J
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						
Surrogate: Dibromofluoromethane	24.7			ug/l	25.0		99		80-120	
Surrogate: Toluene-d8	25.1			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	24.5			ug/l	25.0		98		80-120	

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# Del Mar Analytical

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

Project ID: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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
<b>Batch: 5A12019 Extracted: 01/12/05</b>										
<b>LCS Analyzed: 01/12/2005 (5A12019-BS1)</b>										
Benzene	23.4	1.0	0.28	ug/l	25.0		94 70-120			
Bromodichloromethane	26.4	2.0	0.30	ug/l	25.0		106 70-140			
Bromoform	25.2	5.0	0.32	ug/l	25.0		101 55-135			
Bromomethane	29.0	5.0	0.34	ug/l	25.0		116 60-140			
Carbon tetrachloride	28.8	0.50	0.28	ug/l	25.0		115 70-140			
Chlorobenzene	25.5	2.0	0.36	ug/l	25.0		102 80-125			
Chloroethane	26.8	5.0	0.33	ug/l	25.0		107 60-145			
Chloroform	24.9	2.0	0.33	ug/l	25.0		100 75-130			
Chloromethane	24.5	5.0	0.30	ug/l	25.0		98 40-145			
Dibromochloromethane	26.2	2.0	0.28	ug/l	25.0		105 65-145			
1,2-Dichlorobenzene	25.9	2.0	0.32	ug/l	25.0		104 80-120			
1,3-Dichlorobenzene	24.9	2.0	0.35	ug/l	25.0		100 80-120			
1,4-Dichlorobenzene	24.6	2.0	0.37	ug/l	25.0		98 80-120			
1,1-Dichloroethane	24.4	2.0	0.27	ug/l	25.0		98 70-135			
1,2-Dichloroethane	26.6	0.50	0.28	ug/l	25.0		106 60-150			
1,1-Dichloroethene	25.0	5.0	0.32	ug/l	25.0		100 75-135			
trans-1,2-Dichloroethene	25.9	2.0	0.27	ug/l	25.0		104 70-130			
1,2-Dichloropropane	24.7	2.0	0.35	ug/l	25.0		99 70-120			
cis-1,3-Dichloropropene	26.9	2.0	0.22	ug/l	25.0		108 75-130			
trans-1,3-Dichloropropene	26.9	2.0	0.24	ug/l	25.0		108 75-135			
Ethylbenzene	26.6	2.0	0.25	ug/l	25.0		106 80-120			
Methylene chloride	26.1	5.0	0.48	ug/l	25.0		104 60-135			
1,1,2,2-Tetrachloroethane	22.3	2.0	0.24	ug/l	25.0		89 60-135			
Tetrachloroethene	26.9	2.0	0.32	ug/l	25.0		108 75-125			
Toluene	24.6	2.0	0.36	ug/l	25.0		98 75-120			
1,1,1-Trichloroethane	28.4	2.0	0.30	ug/l	25.0		114 75-140			
1,1,2-Trichloroethane	24.6	2.0	0.30	ug/l	25.0		98 70-125			
Trichloroethene	25.2	2.0	0.26	ug/l	25.0		101 80-120			
Trichlorofluoromethane	29.3	5.0	0.34	ug/l	25.0		117 65-145			
Vinyl chloride	23.7	0.50	0.26	ug/l	25.0		95 50-130			
Surrogate: Dibromofluoromethane	24.3			ug/l	25.0		97 80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100 80-120			
Surrogate: 4-Bromofluorobenzene	25.0			ug/l	25.0		100 80-120			

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

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Attention: Bronwyn Kelly

Project ID: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12019 Extracted: 01/12/05</b>											
<b>Matrix Spike Analyzed: 01/12/2005 (5A12019-MS1)</b>						<b>Source: IOA0503-01</b>					
Benzene	24.5	1.0	0.28	ug/l	25.0	ND	98	70-120			
Bromodichloromethane	27.5	2.0	0.30	ug/l	25.0	ND	110	70-140			
Bromoform	24.0	5.0	0.32	ug/l	25.0	ND	96	55-140			
Bromomethane	30.7	5.0	0.34	ug/l	25.0	ND	123	50-145			
Carbon tetrachloride	30.7	0.50	0.28	ug/l	25.0	ND	123	70-145			
Chlorobenzene	26.9	2.0	0.36	ug/l	25.0	ND	108	80-125			
Chloroethane	28.5	5.0	0.33	ug/l	25.0	ND	114	50-145			
Chloroform	26.6	2.0	0.33	ug/l	25.0	ND	106	70-135			
Chloromethane	25.7	5.0	0.30	ug/l	25.0	ND	103	35-145			
Dibromochloromethane	26.1	2.0	0.28	ug/l	25.0	ND	104	65-145			
1,2-Dichlorobenzene	26.5	2.0	0.32	ug/l	25.0	ND	106	75-130			
1,3-Dichlorobenzene	25.7	2.0	0.35	ug/l	25.0	ND	103	75-130			
1,4-Dichlorobenzene	25.5	2.0	0.37	ug/l	25.0	ND	102	80-120			
1,1-Dichloroethane	25.9	2.0	0.27	ug/l	25.0	ND	104	65-135			
1,2-Dichloroethane	26.9	0.50	0.28	ug/l	25.0	ND	108	60-150			
1,1-Dichloroethene	26.3	5.0	0.32	ug/l	25.0	ND	105	65-140			
trans-1,2-Dichloroethene	27.3	2.0	0.27	ug/l	25.0	ND	109	65-135			
1,2-Dichloropropane	25.7	2.0	0.35	ug/l	25.0	ND	103	65-130			
cis-1,3-Dichloropropene	27.3	2.0	0.22	ug/l	25.0	ND	109	70-140			
trans-1,3-Dichloropropene	27.0	2.0	0.24	ug/l	25.0	ND	108	70-140			
Ethylbenzene	27.8	2.0	0.25	ug/l	25.0	ND	111	70-130			
Methylene chloride	27.0	5.0	0.48	ug/l	25.0	ND	108	60-135			
1,1,1,2-Tetrachloroethane	21.5	2.0	0.24	ug/l	25.0	ND	86	60-145			
Tetrachloroethene	27.9	2.0	0.32	ug/l	25.0	ND	112	70-130			
Toluene	25.8	2.0	0.36	ug/l	25.0	ND	103	70-120			
1,1,1-Trichloroethane	30.4	2.0	0.30	ug/l	25.0	ND	122	75-140			
1,1,2-Trichloroethane	24.2	2.0	0.30	ug/l	25.0	ND	97	60-135			
Trichloroethene	26.4	2.0	0.26	ug/l	25.0	ND	106	70-125			
Trichlorofluoromethane	31.2	5.0	0.34	ug/l	25.0	ND	125	55-145			
Vinyl chloride	24.9	0.50	0.26	ug/l	25.0	ND	100	40-135			
Surrogate: Dibromofluoromethane	24.6			ug/l	25.0		98	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102	80-120			

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Michele Harper  
Project Manager



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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
<b>Batch: 5A12019 Extracted: 01/12/05</b>											
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12019-MSD1)</b>						<b>Source: IOA0503-01</b>					
Benzene	24.0	1.0	0.28	ug/l	25.0	ND	96	70-120	2	20	
Bromodichloromethane	27.1	2.0	0.30	ug/l	25.0	ND	108	70-140	1	20	
Bromoform	27.6	5.0	0.32	ug/l	25.0	ND	110	55-140	14	25	
Bromomethane	29.8	5.0	0.34	ug/l	25.0	ND	119	50-145	3	25	
Carbon tetrachloride	29.9	0.50	0.28	ug/l	25.0	ND	120	70-145	3	25	
Chlorobenzene	26.4	2.0	0.36	ug/l	25.0	ND	106	80-125	2	20	
Chloroethane	28.1	5.0	0.33	ug/l	25.0	ND	112	50-145	1	25	
Chloroform	25.9	2.0	0.33	ug/l	25.0	ND	104	70-135	3	20	
Chloromethane	25.8	5.0	0.30	ug/l	25.0	ND	103	35-145	0	25	
Dibromochloromethane	28.2	2.0	0.28	ug/l	25.0	ND	113	65-145	8	25	
1,2-Dichlorobenzene	26.4	2.0	0.32	ug/l	25.0	ND	106	75-130	0	20	
1,3-Dichlorobenzene	25.1	2.0	0.35	ug/l	25.0	ND	100	75-130	2	20	
1,4-Dichlorobenzene	24.9	2.0	0.37	ug/l	25.0	ND	100	80-120	2	20	
1,1-Dichloroethane	25.3	2.0	0.27	ug/l	25.0	ND	101	65-135	2	20	
1,2-Dichloroethane	27.8	0.50	0.28	ug/l	25.0	ND	111	60-150	3	20	
1,1-Dichloroethene	25.8	5.0	0.32	ug/l	25.0	ND	103	65-140	2	20	
trans-1,2-Dichloroethene	27.0	2.0	0.27	ug/l	25.0	ND	108	65-135	1	20	
1,2-Dichloropropane	25.6	2.0	0.35	ug/l	25.0	ND	102	65-130	0	20	
cis-1,3-Dichloropropene	27.4	2.0	0.22	ug/l	25.0	ND	110	70-140	0	20	
trans-1,3-Dichloropropene	28.3	2.0	0.24	ug/l	25.0	ND	113	70-140	5	25	
Ethylbenzene	27.2	2.0	0.25	ug/l	25.0	ND	109	70-130	2	20	
Methylene chloride	26.4	5.0	0.48	ug/l	25.0	ND	106	60-135	2	20	
1,1,2,2-Tetrachloroethane	25.4	2.0	0.24	ug/l	25.0	ND	102	60-145	17	30	
Tetrachloroethene	27.5	2.0	0.32	ug/l	25.0	ND	110	70-130	1	20	
Toluene	25.3	2.0	0.36	ug/l	25.0	ND	101	70-120	2	20	
1,1,1-Trichloroethane	29.2	2.0	0.30	ug/l	25.0	ND	117	75-140	4	20	
1,1,2-Trichloroethane	26.0	2.0	0.30	ug/l	25.0	ND	104	60-135	7	25	
Trichloroethene	25.8	2.0	0.26	ug/l	25.0	ND	103	70-125	2	20	
Trichlorofluoromethane	30.5	5.0	0.34	ug/l	25.0	ND	122	55-145	2	25	
Vinyl chloride	24.5	0.50	0.26	ug/l	25.0	ND	98	40-135	2	30	
Surrogate: Dibromofluoromethane	24.7			ug/l	25.0		99	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102	80-120			

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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
<b>Batch: 5A13008 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13008-BLK1)</b>										
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	24.3			ug/l	25.0		97 80-120			
Surrogate: Toluene-d8	24.9			ug/l	25.0		100 80-120			
Surrogate: 4-Bromofluorobenzene	24.1			ug/l	25.0		96 80-120			
<b>LCS Analyzed: 01/13/2005 (5A13008-BS1)</b>										
2-Chloroethyl vinyl ether	18.0	5.0	1.3	ug/l	25.0		72 20-175			
Surrogate: Dibromofluoromethane	25.7			ug/l	25.0		103 80-120			
Surrogate: Toluene-d8	25.3			ug/l	25.0		101 80-120			
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101 80-120			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13008-MS1) Source: IOA0558-01</b>										
2-Chloroethyl vinyl ether	20.5	5.0	1.3	ug/l	25.0	ND	82 20-175			
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0		101 80-120			
Surrogate: Toluene-d8	25.9			ug/l	25.0		104 80-120			
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102 80-120			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13008-MSD1) Source: IOA0558-01</b>										
2-Chloroethyl vinyl ether	21.8	5.0	1.3	ug/l	25.0	ND	87 20-175	6	25	
Surrogate: Dibromofluoromethane	25.4			ug/l	25.0		102 80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0		102 80-120			
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102 80-120			

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## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>										
Acenaphthene	ND	10	4.3	ug/l						
Acenaphthylene	ND	10	3.2	ug/l						
Aniline	ND	10	2.9	ug/l						
Anthracene	ND	10	3.2	ug/l						
Benzidine	ND	20	5.2	ug/l						
Benzoic acid	ND	20	2.6	ug/l						
Benzo(a)anthracene	ND	10	3.7	ug/l						
Benzo(b)fluoranthene	ND	10	2.7	ug/l						
Benzo(k)fluoranthene	ND	10	3.4	ug/l						
Benzo(g,h,i)perylene	ND	10	5.3	ug/l						
Benzo(a)pyrene	ND	10	3.5	ug/l						
Benzyl alcohol	ND	20	2.5	ug/l						
Bis(2-chloroethoxy)methane	ND	10	3.9	ug/l						
Bis(2-chloroethyl)ether	ND	10	4.4	ug/l						
Bis(2-chloroisopropyl)ether	ND	10	4.6	ug/l						
Bis(2-ethylhexyl)phthalate	ND	50	5.2	ug/l						
4-Bromophenyl phenyl ether	ND	10	4.6	ug/l						
Butyl benzyl phthalate	ND	20	3.5	ug/l						
4-Chloroaniline	ND	10	6.0	ug/l						
2-Chloronaphthalene	ND	10	4.0	ug/l						
4-Chloro-3-methylphenol	ND	20	3.5	ug/l						
2-Chlorophenol	ND	10	4.2	ug/l						
4-Chlorophenyl phenyl ether	ND	10	3.0	ug/l						
Chrysene	ND	10	2.8	ug/l						
Dibenz(a,h)anthracene	ND	20	4.7	ug/l						
Dibenzofuran	ND	10	2.6	ug/l						
Di-n-butyl phthalate	ND	20	2.8	ug/l						
1,3-Dichlorobenzene	ND	10	4.1	ug/l						
1,4-Dichlorobenzene	ND	10	3.9	ug/l						
1,2-Dichlorobenzene	ND	10	4.5	ug/l						
3,3-Dichlorobenzidine	ND	20	11	ug/l						
2,4-Dichlorophenol	ND	10	4.1	ug/l						
Diethyl phthalate	ND	10	3.1	ug/l						
2,4-Dimethylphenol	ND	20	4.4	ug/l						
Dimethyl phthalate	ND	10	3.6	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	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>										
4,6-Dinitro-2-methylphenol	ND	20	5.1	ug/l						
2,4-Dinitrophenol	ND	20	5.3	ug/l						
2,4-Dinitrotoluene	ND	10	4.2	ug/l						
2,6-Dinitrotoluene	ND	10	3.2	ug/l						
Di-n-octyl phthalate	ND	20	4.7	ug/l						
Fluoranthene	ND	10	4.2	ug/l						
Fluorene	ND	10	3.9	ug/l						
Hexachlorobenzene	ND	10	4.8	ug/l						
Hexachlorobutadiene	ND	10	4.2	ug/l						
Hexachlorocyclopentadiene	ND	20	3.4	ug/l						
Hexachloroethane	ND	10	4.2	ug/l						
Indeno(1,2,3-cd)pyrene	ND	20	5.4	ug/l						
Isophorone	ND	10	3.7	ug/l						
2-Methylnaphthalene	ND	10	3.0	ug/l						
2-Methylphenol	ND	10	3.7	ug/l						
4-Methylphenol	ND	10	3.8	ug/l						
Naphthalene	ND	10	4.5	ug/l						
2-Nitroaniline	ND	20	3.9	ug/l						
3-Nitroaniline	ND	20	4.5	ug/l						
4-Nitroaniline	ND	20	4.9	ug/l						
Nitrobenzene	ND	20	4.2	ug/l						
2-Nitrophenol	ND	10	4.2	ug/l						
4-Nitrophenol	ND	20	6.6	ug/l						
N-Nitrosodiphenylamine	ND	10	4.0	ug/l						
N-Nitroso-di-n-propylamine	ND	10	3.6	ug/l						
Pentachlorophenol	ND	20	4.0	ug/l						
Phenanthrene	ND	10	3.3	ug/l						
Phenol	ND	10	4.0	ug/l						
Pyrene	ND	10	3.9	ug/l						
1,2,4-Trichlorobenzene	ND	10	4.4	ug/l						
2,4,5-Trichlorophenol	ND	20	3.6	ug/l						
2,4,6-Trichlorophenol	ND	20	4.1	ug/l						
1,2-Diphenylhydrazine/Azobenzene	ND	20	5.0	ug/l						
N-Nitrosodimethylamine	ND	20	3.7	ug/l						
Surrogate: 2-Fluorophenol	120			ug/l	200		60		35-120	

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: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>										
Surrogate: Phenol-d6	129			ug/l	200		64 45-120			
Surrogate: 2,4,6-Tribromophenol	160			ug/l	200		80 50-125			
Surrogate: Nitrobenzene-d5	63.1			ug/l	100		63 45-120			
Surrogate: 2-Fluorobiphenyl	72.3			ug/l	100		72 45-120			
Surrogate: Terphenyl-d14	75.6			ug/l	100		76 45-135			
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>										
Acenaphthene	75.6	10	4.3	ug/l	100		76 55-120			M-NRI
Acenaphthylene	75.9	10	3.2	ug/l	100		76 55-120			
Aniline	68.9	10	2.9	ug/l	100		69 30-120			
Anthracene	80.4	10	3.2	ug/l	100		80 60-120			
Benzidine	62.5	20	5.2	ug/l	100		62 20-180			
Benzoic acid	81.0	20	2.6	ug/l	100		81 30-125			
Benzo(a)anthracene	81.8	10	3.7	ug/l	100		82 65-120			
Benzo(b)fluoranthene	81.3	10	2.7	ug/l	100		81 50-125			
Benzo(k)fluoranthene	77.8	10	3.4	ug/l	100		78 50-125			
Benzo(g,h,i)perylene	84.8	10	5.3	ug/l	100		85 35-160			
Benzo(a)pyrene	80.7	10	3.5	ug/l	100		81 55-125			
Benzyl alcohol	73.4	20	2.5	ug/l	100		73 40-130			
Bis(2-chloroethoxy)methane	73.3	10	3.9	ug/l	100		73 55-120			
Bis(2-chloroethyl)ether	63.5	10	4.4	ug/l	100		64 50-120			
Bis(2-chloroisopropyl)ether	69.9	10	4.6	ug/l	100		70 50-120			
Bis(2-ethylhexyl)phthalate	77.3	50	5.2	ug/l	100		77 65-125			
4-Bromophenyl phenyl ether	70.8	10	4.6	ug/l	100		71 55-125			
Butyl benzyl phthalate	75.0	20	3.5	ug/l	100		75 60-125			
4-Chloroaniline	79.0	10	6.0	ug/l	100		79 55-120			
2-Chloronaphthalene	75.9	10	4.0	ug/l	100		76 60-120			
4-Chloro-3-methylphenol	73.5	20	3.5	ug/l	100		74 60-120			
2-Chlorophenol	69.8	10	4.2	ug/l	100		70 45-120			
4-Chlorophenyl phenyl ether	77.3	10	3.0	ug/l	100		77 55-120			
Chrysene	81.9	10	2.8	ug/l	100		82 65-120			
Dibenz(a,h)anthracene	85.7	20	4.7	ug/l	100		86 40-160			
Dibenzofuran	77.5	10	2.6	ug/l	100		78 60-120			
Di-n-butyl phthalate	71.9	20	2.8	ug/l	100		72 65-125			
1,3-Dichlorobenzene	66.5	10	4.1	ug/l	100		66 40-120			
1,4-Dichlorobenzene	62.7	10	3.9	ug/l	100		63 40-120			

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Michele Harper  
Project Manager



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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
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>										
<b>M-NR1</b>										
1,2-Dichlorobenzene	63.6	10	4.5	ug/l	100	64	40-120			
3,3-Dichlorobenzidine	90.6	20	11	ug/l	100	91	50-170			
2,4-Dichlorophenol	70.8	10	4.1	ug/l	100	71	55-120			
Diethyl phthalate	71.0	10	3.1	ug/l	100	71	60-120			
2,4-Dimethylphenol	59.6	20	4.4	ug/l	100	60	35-120			
Dimethyl phthalate	69.3	10	3.6	ug/l	100	69	60-120			
4,6-Dinitro-2-methylphenol	78.6	20	5.1	ug/l	100	79	55-120			
2,4-Dinitrophenol	86.2	20	5.3	ug/l	100	86	40-140			
2,4-Dinitrotoluene	81.5	10	4.2	ug/l	100	82	60-140			
2,6-Dinitrotoluene	74.3	10	3.2	ug/l	100	74	65-125			
Di-n-octyl phthalate	81.2	20	4.7	ug/l	100	81	60-130			
Fluoranthene	81.4	10	4.2	ug/l	100	81	55-125			
Fluorene	80.2	10	3.9	ug/l	100	80	60-120			
Hexachlorobenzene	73.6	10	4.8	ug/l	100	74	50-120			
Hexachlorobutadiene	61.7	10	4.2	ug/l	100	62	45-120			
Hexachlorocyclopentadiene	54.7	20	3.4	ug/l	100	55	10-130			
Hexachloroethane	60.9	10	4.2	ug/l	100	61	40-120			
Indeno(1,2,3-cd)pyrene	81.9	20	5.4	ug/l	100	82	35-150			
Isophorone	65.8	10	3.7	ug/l	100	66	55-120			
2-Methylnaphthalene	84.8	10	3.0	ug/l	100	85	50-120			
2-Methylphenol	70.0	10	3.7	ug/l	100	70	45-120			
4-Methylphenol	70.1	10	3.8	ug/l	100	70	45-120			
Naphthalene	76.9	10	4.5	ug/l	100	77	50-120			
2-Nitroaniline	78.9	20	3.9	ug/l	100	79	60-130			
3-Nitroaniline	91.3	20	4.5	ug/l	100	91	50-140			
4-Nitroaniline	96.0	20	4.9	ug/l	100	96	45-160			
Nitrobenzene	65.6	20	4.2	ug/l	100	66	50-120			
2-Nitrophenol	80.9	10	4.2	ug/l	100	81	55-120			
4-Nitrophenol	67.9	20	6.6	ug/l	100	68	50-135			
N-Nitrosodiphenylamine	71.9	10	4.0	ug/l	100	72	60-120			
N-Nitroso-di-n-propylamine	65.9	10	3.6	ug/l	100	66	50-120			
Pentachlorophenol	80.8	20	4.0	ug/l	100	81	50-125			
Phenanthrene	81.8	10	3.3	ug/l	100	82	55-120			
Phenol	66.0	10	4.0	ug/l	100	66	45-120			
Pyrene	80.9	10	3.9	ug/l	100	81	50-120			

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

Project ID: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>											
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>											
1,2,4-Trichlorobenzene	65.3	10	4.4	ug/l	100	65	50-120				M-NR1
2,4,5-Trichlorophenol	78.9	20	3.6	ug/l	100	79	60-120				
2,4,6-Trichlorophenol	77.9	20	4.1	ug/l	100	78	60-120				
1,2-Diphenylhydrazine/Azobenzene	79.5	20	5.0	ug/l	100	80	60-120				
N-Nitrosodimethylamine	66.8	20	3.7	ug/l	100	67	40-120				
Surrogate: 2-Fluorophenol	125			ug/l	200	62	35-120				
Surrogate: Phenol-d6	129			ug/l	200	64	45-120				
Surrogate: 2,4,6-Tribromophenol	160			ug/l	200	80	50-125				
Surrogate: Nitrobenzene-d5	66.3			ug/l	100	66	45-120				
Surrogate: 2-Fluorobiphenyl	73.6			ug/l	100	74	45-120				
Surrogate: Terphenyl-d14	73.4			ug/l	100	73	45-135				
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>											
Acenaphthene	73.9	10	4.3	ug/l	100	74	55-120	2	20		
Acenaphthylene	74.7	10	3.2	ug/l	100	75	55-120	2	20		
Aniline	68.6	10	2.9	ug/l	100	69	30-120	0	25		
Anthracene	77.5	10	3.2	ug/l	100	78	60-120	4	20		
Benzidine	143	20	5.2	ug/l	100	143	20-180	78	35		R-7
Benzoic acid	78.1	20	2.6	ug/l	100	78	30-125	4	30		
Benzo(a)anthracene	80.6	10	3.7	ug/l	100	81	65-120	1	20		
Benzo(b)fluoranthene	77.5	10	2.7	ug/l	100	78	50-125	5	25		
Benzo(k)fluoranthene	77.5	10	3.4	ug/l	100	78	50-125	0	20		
Benzo(g,h,i)perylene	81.4	10	5.3	ug/l	100	81	35-160	4	25		
Benzo(a)pyrene	80.7	10	3.5	ug/l	100	81	55-125	0	25		
Benzyl alcohol	72.7	20	2.5	ug/l	100	73	40-130	1	20		
Bis(2-chloroethoxy)methane	71.8	10	3.9	ug/l	100	72	55-120	2	20		
Bis(2-chloroethyl)ether	61.1	10	4.4	ug/l	100	61	50-120	4	20		
Bis(2-chloroisopropyl)ether	68.9	10	4.6	ug/l	100	69	50-120	1	20		
Bis(2-ethylhexyl)phthalate	78.8	50	5.2	ug/l	100	79	65-125	2	20		
4-Bromophenyl phenyl ether	70.6	10	4.6	ug/l	100	71	55-125	0	25		
Butyl benzyl phthalate	75.3	20	3.5	ug/l	100	75	60-125	0	20		
4-Chloroaniline	77.6	10	6.0	ug/l	100	78	55-120	2	25		
2-Chloronaphthalene	74.3	10	4.0	ug/l	100	74	60-120	2	20		
4-Chloro-3-methylphenol	71.1	20	3.5	ug/l	100	71	60-120	3	25		
2-Chlorophenol	68.2	10	4.2	ug/l	100	68	45-120	2	25		
4-Chlorophenyl phenyl ether	73.3	10	3.0	ug/l	100	73	55-120	5	20		

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 Michele Harper  
 Project Manager

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MWH-Pasadena/Boeing  
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Attention: Bronwyn Kelly

Project ID: Outfall 015

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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
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>										
Chrysene	80.8	10	2.8	ug/l	100		81 65-120	1	20	
Dibenz(a,h)anthracene	82.0	20	4.7	ug/l	100		82 40-160	4	25	
Dibenzofuran	74.7	10	2.6	ug/l	100		75 60-120	4	20	
Di-n-butyl phthalate	70.9	20	2.8	ug/l	100		71 65-125	1	20	
1,3-Dichlorobenzene	59.6	10	4.1	ug/l	100		60 40-120	11	25	
1,4-Dichlorobenzene	63.5	10	3.9	ug/l	100		64 40-120	1	25	
1,2-Dichlorobenzene	61.5	10	4.5	ug/l	100		62 40-120	3	25	
3,3-Dichlorobenzidine	87.9	20	11	ug/l	100		88 50-170	3	25	
2,4-Dichlorophenol	70.2	10	4.1	ug/l	100		70 55-120	1	20	
Diethyl phthalate	67.9	10	3.1	ug/l	100		68 60-120	4	20	
2,4-Dimethylphenol	62.1	20	4.4	ug/l	100		62 35-120	4	25	
Dimethyl phthalate	69.0	10	3.6	ug/l	100		69 60-120	0	20	
4,6-Dinitro-2-methylphenol	73.8	20	5.1	ug/l	100		74 55-120	6	25	
2,4-Dinitrophenol	77.6	20	5.3	ug/l	100		78 40-140	11	25	
2,4-Dinitrotoluene	77.6	10	4.2	ug/l	100		78 60-140	5	20	
2,6-Dinitrotoluene	72.9	10	3.2	ug/l	100		73 65-125	2	20	
Di-n-octyl phthalate	81.0	20	4.7	ug/l	100		81 60-130	0	20	
Fluoranthene	77.9	10	4.2	ug/l	100		78 55-125	4	20	
Fluorene	77.6	10	3.9	ug/l	100		78 60-120	3	20	
Hexachlorobenzene	71.6	10	4.8	ug/l	100		72 50-120	3	20	
Hexachlorobutadiene	60.3	10	4.2	ug/l	100		60 45-120	2	25	
Hexachlorocyclopentadiene	50.9	20	3.4	ug/l	100		51 10-130	7	30	
Hexachloroethane	56.9	10	4.2	ug/l	100		57 40-120	7	25	
Indeno(1,2,3-cd)pyrene	79.2	20	5.4	ug/l	100		79 35-150	3	25	
Isophorone	65.6	10	3.7	ug/l	100		66 55-120	0	20	
2-Methylnaphthalene	72.7	10	3.0	ug/l	100		73 50-120	15	20	
2-Methylphenol	67.3	10	3.7	ug/l	100		67 45-120	4	20	
4-Methylphenol	70.2	10	3.8	ug/l	100		70 45-120	0	20	
Naphthalene	73.6	10	4.5	ug/l	100		74 50-120	4	20	
2-Nitroaniline	76.6	20	3.9	ug/l	100		77 60-130	3	20	
3-Nitroaniline	85.4	20	4.5	ug/l	100		85 50-140	7	25	
4-Nitroaniline	88.5	20	4.9	ug/l	100		88 45-160	8	20	
Nitrobenzene	63.6	20	4.2	ug/l	100		64 50-120	3	25	
2-Nitrophenol	79.0	10	4.2	ug/l	100		79 55-120	2	25	
4-Nitrophenol	63.6	20	6.6	ug/l	100		64 50-135	7	25	

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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
<b>Batch: 5A13037 Extracted: 01/13/05</b>											
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>											
N-Nitrosodiphenylamine	69.9	10	4.0	ug/l	100	70	60-120	3	20		
N-Nitroso-di-n-propylamine	63.2	10	3.6	ug/l	100	63	50-120	4	20		
Pentachlorophenol	75.5	20	4.0	ug/l	100	76	50-125	7	25		
Phenanthrene	79.5	10	3.3	ug/l	100	80	55-120	3	20		
Phenol	65.0	10	4.0	ug/l	100	65	45-120	2	25		
Pyrene	81.3	10	3.9	ug/l	100	81	50-120	1	25		
1,2,4-Trichlorobenzene	63.8	10	4.4	ug/l	100	64	50-120	2	20		
2,4,5-Trichlorophenol	76.4	20	3.6	ug/l	100	76	60-120	3	20		
2,4,6-Trichlorophenol	76.4	20	4.1	ug/l	100	76	60-120	2	20		
1,2-Diphenylhydrazine/Azobenzene	75.1	20	5.0	ug/l	100	75	60-120	6	25		
N-Nitrosodimethylamine	63.2	20	3.7	ug/l	100	63	40-120	6	20		
Surrogate: 2-Fluorophenol	122			ug/l	200	61	35-120				
Surrogate: Phenol-d6	126			ug/l	200	63	45-120				
Surrogate: 2,4,6-Tribromophenol	154			ug/l	200	77	50-125				
Surrogate: Nitrobenzene-d5	64.7			ug/l	100	65	45-120				
Surrogate: 2-Fluorobiphenyl	70.9			ug/l	100	71	45-120				
Surrogate: Terphenyl-d14	73.4			ug/l	100	73	45-135				

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## 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
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13049-BLK1)</b>										
Aldrin	ND	0.10	0.029	ug/l						
alpha-BHC	ND	0.10	0.010	ug/l						
beta-BHC	ND	0.10	0.011	ug/l						
delta-BHC	ND	0.20	0.010	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.0097	ug/l						
Chlordane	ND	1.0	0.18	ug/l						
4,4'-DDD	ND	0.10	0.011	ug/l						
4,4'-DDE	ND	0.10	0.017	ug/l						
4,4'-DDT	ND	0.10	0.015	ug/l						
Dieldrin	ND	0.10	0.010	ug/l						
Endosulfan I	ND	0.10	0.015	ug/l						
Endosulfan II	ND	0.10	0.037	ug/l						
Endosulfan sulfate	ND	0.20	0.013	ug/l						
Endrin	ND	0.10	0.0082	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	0.012	ug/l						
Methoxychlor	ND	0.10	0.034	ug/l						
Toxaphene	ND	5.0	0.77	ug/l						
Surrogate: Tetrachloro-m-xylene	0.348			ug/l	0.500		70	35-120		
Surrogate: Decachlorobiphenyl	0.424			ug/l	0.500		85	45-120		
<b>LCS Analyzed: 01/13/2005 (5A13049-BS1)</b>										
Aldrin	0.517	0.10	0.029	ug/l	0.500		103	45-115		M-NR1
alpha-BHC	0.527	0.10	0.010	ug/l	0.500		105	45-115		
beta-BHC	0.496	0.10	0.011	ug/l	0.500		99	50-115		
delta-BHC	0.564	0.20	0.010	ug/l	0.500		113	55-120		
gamma-BHC (Lindane)	0.525	0.10	0.0097	ug/l	0.500		105	45-115		
4,4'-DDD	0.537	0.10	0.011	ug/l	0.500		107	60-120		
4,4'-DDE	0.534	0.10	0.017	ug/l	0.500		107	55-120		
4,4'-DDT	0.557	0.10	0.015	ug/l	0.500		111	60-130		
Dieldrin	0.540	0.10	0.010	ug/l	0.500		108	55-120		
Endosulfan I	0.512	0.10	0.015	ug/l	0.500		102	50-115		
Endosulfan II	0.525	0.10	0.037	ug/l	0.500		105	60-125		
Endosulfan sulfate	0.528	0.20	0.013	ug/l	0.500		106	60-120		

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 Project Manager

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MWH-Pasadena/Boeing Project ID: Outfall 015  
300 North Lake Avenue, Suite 1200 Report Number: IOA0557  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/11/05-01/12/05  
Received: 01/11/05

METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Table with columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC, Limits, RPD, RPD Limit, Data Qualifiers. Includes sections for Batch: 5A13049, LCS Analyzed: 01/13/2005, and LCS Dup Analyzed: 01/13/2005.

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

Project ID: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### TOTAL PCBS (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13049-BLK1)</b>										
Aroclor 1016	ND	1.0	0.067	ug/l						
Aroclor 1221	ND	1.0	0.057	ug/l						
Aroclor 1232	ND	1.0	0.13	ug/l						
Aroclor 1242	ND	1.0	0.12	ug/l						
Aroclor 1248	ND	1.0	0.21	ug/l						
Aroclor 1254	ND	1.0	0.16	ug/l						
Aroclor 1260	ND	1.0	0.17	ug/l						
Surrogate: Decachlorobiphenyl	0.387			ug/l	0.500		77	45-120		
<b>LCS Analyzed: 01/13/2005 (5A13049-BS2)</b>										
Aroclor 1016	2.82	1.0	0.067	ug/l	4.00		70	50-115		M-NR1
Aroclor 1260	2.91	1.0	0.17	ug/l	4.00		73	60-115		
Surrogate: Decachlorobiphenyl	0.389			ug/l	0.500		78	45-120		
<b>LCS Dup Analyzed: 01/13/2005 (5A13049-BSD2)</b>										
Aroclor 1016	2.68	1.0	0.067	ug/l	4.00		67	50-115	5	30
Aroclor 1260	2.88	1.0	0.17	ug/l	4.00		72	60-115	1	25
Surrogate: Decachlorobiphenyl	0.379			ug/l	0.500		76	45-120		

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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: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
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Batch: 5A13042 Extracted: 01/13/05

#### Blank Analyzed: 01/13/2005 (5A13042-BLK1)

Antimony	ND	0.010	0.0042	mg/l						
Arsenic	ND	0.0050	0.0038	mg/l						
Beryllium	ND	0.0020	0.00062	mg/l						
Cadmium	ND	0.0050	0.00034	mg/l						
Chromium	ND	0.0050	0.00068	mg/l						
Copper	ND	0.010	0.0017	mg/l						
Lead	ND	0.0050	0.0021	mg/l						
Nickel	ND	0.010	0.0020	mg/l						
Selenium	ND	0.0050	0.0046	mg/l						
Silver	ND	0.010	0.0013	mg/l						
Thallium	ND	0.0050	0.0031	mg/l						
Zinc	ND	0.020	0.0037	mg/l						

#### LCS Analyzed: 01/13/2005 (5A13042-BS1)

Antimony	0.514	0.010	0.0042	mg/l	0.500		103	85-115		
Arsenic	0.490	0.0050	0.0038	mg/l	0.500		98	85-115		
Beryllium	0.494	0.0020	0.00062	mg/l	0.500		99	85-115		
Cadmium	0.482	0.0050	0.00034	mg/l	0.500		96	85-115		
Chromium	0.499	0.0050	0.00068	mg/l	0.500		100	85-115		
Copper	0.469	0.010	0.0017	mg/l	0.500		94	85-115		
Lead	0.502	0.0050	0.0021	mg/l	0.500		100	85-115		
Nickel	0.484	0.010	0.0020	mg/l	0.500		97	85-115		
Selenium	0.492	0.0050	0.0046	mg/l	0.500		98	85-115		
Silver	0.252	0.010	0.0013	mg/l	0.250		101	85-115		
Thallium	0.504	0.0050	0.0031	mg/l	0.500		101	85-115		
Zinc	0.474	0.020	0.0037	mg/l	0.500		95	85-115		

#### Matrix Spike Analyzed: 01/13/2005 (5A13042-MS1)

Source: IOA0567-01

Antimony	0.528	0.010	0.0042	mg/l	0.500	ND	106	70-130		
Arsenic	0.508	0.0050	0.0038	mg/l	0.500	ND	102	70-130		
Beryllium	0.511	0.0020	0.00062	mg/l	0.500	ND	102	70-130		
Cadmium	0.503	0.0050	0.00034	mg/l	0.500	ND	101	70-130		
Chromium	0.517	0.0050	0.00068	mg/l	0.500	0.0022	103	70-130		
Copper	0.514	0.010	0.0017	mg/l	0.500	0.0036	102	70-130		
Lead	0.518	0.0050	0.0021	mg/l	0.500	ND	104	70-130		
Nickel	0.511	0.010	0.0020	mg/l	0.500	0.0025	102	70-130		

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: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13042 Extracted: 01/13/05</b>											
<b>Matrix Spike Analyzed: 01/13/2005 (5A13042-MS1)</b>						<b>Source: IOA0567-01</b>					
Selenium	0.511	0.0050	0.0046	mg/l	0.500	ND	102	70-130			
Silver	0.258	0.010	0.0013	mg/l	0.250	ND	103	70-130			
Thallium	0.515	0.0050	0.0031	mg/l	0.500	0.0031	102	70-130			
Zinc	0.520	0.020	0.0037	mg/l	0.500	0.014	101	70-130			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13042-MSD1)</b>						<b>Source: IOA0567-01</b>					
Antimony	0.517	0.010	0.0042	mg/l	0.500	ND	103	70-130	2	20	
Arsenic	0.500	0.0050	0.0038	mg/l	0.500	ND	100	70-130	2	20	
Beryllium	0.505	0.0020	0.00062	mg/l	0.500	ND	101	70-130	1	20	
Cadmium	0.494	0.0050	0.00034	mg/l	0.500	ND	99	70-130	2	20	
Chromium	0.505	0.0050	0.00068	mg/l	0.500	0.0022	101	70-130	2	20	
Copper	0.503	0.010	0.0017	mg/l	0.500	0.0036	100	70-130	2	20	
Lead	0.508	0.0050	0.0021	mg/l	0.500	ND	102	70-130	2	20	
Nickel	0.503	0.010	0.0020	mg/l	0.500	0.0025	100	70-130	2	20	
Selenium	0.499	0.0050	0.0046	mg/l	0.500	ND	100	70-130	2	20	
Silver	0.253	0.010	0.0013	mg/l	0.250	ND	101	70-130	2	20	
Thallium	0.502	0.0050	0.0031	mg/l	0.500	0.0031	100	70-130	3	20	
Zinc	0.510	0.020	0.0037	mg/l	0.500	0.014	99	70-130	2	20	

### Batch: 5A13050 Extracted: 01/13/05

#### Blank Analyzed: 01/13/2005 (5A13050-BLK1)

Mercury	ND	0.00020	0.000063	mg/l							
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#### LCS Analyzed: 01/13/2005 (5A13050-BS1)

Mercury	0.00808	0.00020	0.000063	mg/l	0.00800		101	85-115			
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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: Outfall 015 Report Number: IOA0557	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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
<b>Batch: 5A13050 Extracted: 01/13/05</b>											
<b>Matrix Spike Analyzed: 01/13/2005 (5A13050-MS1)</b>						<b>Source: IOA0567-01</b>					
Mercury	0.00857	0.00020	0.000063	mg/l	0.00800	0.00016	105	70-130			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13050-MSD1)</b>						<b>Source: IOA0567-01</b>					
Mercury	0.00854	0.00020	0.000063	mg/l	0.00800	0.00016	105	70-130	0	20	

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

Project ID: Outfall 015  
 Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A11092 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11092-BLK1)</b>										
Chromium VI	0.000149	0.0010	0.000041	mg/l						J
<b>LCS Analyzed: 01/11/2005 (5A11092-BS1)</b>										
Chromium VI	0.0514	0.0010	0.000041	mg/l	0.0500		103 90-110			
<b>Matrix Spike Analyzed: 01/11/2005 (5A11092-MS1) Source: IOA0549-01</b>										
Chromium VI	0.0485	0.0010	0.000041	mg/l	0.0500	ND	97 90-110			
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11092-MSD1) Source: IOA0549-01</b>										
Chromium VI	0.0487	0.0010	0.000041	mg/l	0.0500	ND	97 90-110	0	10	
<b>Batch: 5A12041 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A12041-BLK1)</b>										
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l						
<b>LCS Analyzed: 01/17/2005 (5A12041-BS1)</b>										
Biochemical Oxygen Demand	208	100	30	mg/l	198		105 85-115			
<b>LCS Dup Analyzed: 01/17/2005 (5A12041-BSD1)</b>										
Biochemical Oxygen Demand	212	100	30	mg/l	198		107 85-115	2	20	
<b>Batch: 5A17060 Extracted: 01/17/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A17060-BLK1)</b>										
Total Suspended Solids	ND	10	10	mg/l						

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: Outfall 015 Report Number: IOA0557	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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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
<b>Batch: 5A17060 Extracted: 01/17/05</b>											
<b>LCS Analyzed: 01/17/2005 (5A17060-BS1)</b>											
Total Suspended Solids	971	10	10	mg/l	1000		97	85-115			
<b>Duplicate Analyzed: 01/17/2005 (5A17060-DUP1)</b>											
Total Suspended Solids	ND	10	10	mg/l		Source: IOA0673-01 ND				10	
<b>Batch: 5A17067 Extracted: 01/17/05</b>											
<b>Blank Analyzed: 01/17/2005 (5A17067-BLK1)</b>											
Total Cyanide	ND	0.025	0.017	mg/l							
<b>LCS Analyzed: 01/17/2005 (5A17067-BS1)</b>											
Total Cyanide	0.211	0.025	0.017	mg/l	0.200		106	90-110			
<b>Matrix Spike Analyzed: 01/17/2005 (5A17067-MS1)</b>											
Total Cyanide	0.0894	0.025	0.017	mg/l	0.200	Source: IOA0715-02 ND	45	70-115			M2
<b>Matrix Spike Dup Analyzed: 01/17/2005 (5A17067-MSD1)</b>											
Total Cyanide	0.140	0.025	0.017	mg/l	0.200	Source: IOA0715-02 ND	70	70-115	44	15	R-3

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: Outfall 015

Report Number: IOA0557

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

### DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- C** Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- M2** The MS and/or MSD were below 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-3** The RPD exceeded the method control limit due to sample matrix effects.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

### ADDITIONAL COMMENTS

**For 1,2-Diphenylhydrazine:**

The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product, Azobenzene.

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: Outfall 015  Report Number: IOA0557	Sampled: 01/11/05-01/12/05 Received: 01/11/05
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**Certification Summary**

**Del Mar Analytical, Irvine**

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.7	Water	X	X
EPA 218.6	Water	X	X
EPA 245.1	Water	X	X
EPA 335.2	Water	X	X
EPA 405.1	Water	X	X
EPA 608	Water	X	X
EPA 624	Water	X	X
EPA 625	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](http://www.dmalabs.com).*

**Subcontracted Laboratories**

**Pace Analytical, MN- SUB**

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR

Samples: IOA0557-02

Analysis Performed: EDD + Level 4

Samples: IOA0557-02

**Del Mar Analytical, Irvine**

Michele Harper  
Project Manager

20A0557

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5/8/12/04

Client Name/Address:				Project:				ANALYSIS REQUIRED												Field readings:				
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101				Boeing-SSFL NPDES Outfall 015 Influent Sampling Semi Annually STP III																Temp = 55.2 F pH = 6.5				
Project Manager: Bronwyn Kelly				Phone Number: (626) 568-6691 Fax Number: (626) 568-6515																Comments				
Sampler: Pollock																				24 hour composite sample				
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	% 20 deg C, EPA Priority	Suspended solids, BOD	asbestos	VOCS	CR VI												Grab		
Outfall 015	W	1 gal cube	2	1/11/05 1440	None	X			X													Grab		
Outfall 015	W	VOAS	3		HCL					X												Grab		
Outfall 015	W	1L Poly	1		None																			
												(Signature)												
Relinquished By: Bronwyn Kelly				Date/Time: 1/11/05 1525				Received By: [Signature]				Date/Time: 1-11-05 1525				Turn around Time: (check) 24 Hours _____ 5 Days _____								
Relinquished By: [Signature]				Date/Time: 1/11/05 1850				Received By: [Signature]				Date/Time: 1-11-05 1850				48 Hours _____ 10 Days _____								
Relinquished By: [Signature]				Date/Time:				Received By:				Date/Time:				72 Hours _____ Normal _____								
																Perchlorate Only 72 Hours _____								
																Metals Only 72 Hours _____								
																Sample integrity: (Check) Intact _____ On Ice: 20C								



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

February 23, 2005

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

Attention: Bronwyn Kelly  
Project: Routine Outfall 015  
Sampled: 01/11/05-1/12/05  
Del Mar Analytical Number: IOA0557

Dear Ms. Kelly:

Pace Analytical performed Method 1613B analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Pace ID
Outfall 015	IOA0557-01	106233001

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



### Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0557-02		
Lab Sample ID	106233001		
Filename	F50130A_05		
Injected By	BAL		
Total Amount Extracted	1050 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	01/12/2005
ICAL Date	11/29/2004	Received	01/14/2005
CCal Filename(s)	F50129B_18	Extracted	01/28/2005
Method Blank ID	BLANK-6220	Analyzed	01/30/2005 13:58

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.84	2,3,7,8-TCDF-13C	2.00	71
Total TCDF	1.6	----	0.84 J	2,3,7,8-TCDD-13C	2.00	89
				1,2,3,7,8-PeCDF-13C	2.00	75
2,3,7,8-TCDD	ND	----	0.80	2,3,4,7,8-PeCDF-13C	2.00	80
Total TCDD	ND	----	0.80	1,2,3,7,8-PeCDD-13C	2.00	94
				1,2,3,4,7,8-HxCDF-13C	2.00	84
1,2,3,7,8-PeCDF	ND	----	0.71	1,2,3,6,7,8-HxCDF-13C	2.00	92
2,3,4,7,8-PeCDF	ND	----	0.47	2,3,4,6,7,8-HxCDF-13C	2.00	79
Total PeCDF	ND	----	0.59	1,2,3,7,8,9-HxCDF-13C	2.00	81
				1,2,3,4,7,8-HxCDD-13C	2.00	72
1,2,3,7,8-PeCDD	ND	----	1.00	1,2,3,6,7,8-HxCDD-13C	2.00	94
Total PeCDD	ND	----	1.00	1,2,3,4,6,7,8-HpCDF-13C	2.00	78
				1,2,3,4,7,8,9-HpCDF-13C	2.00	66
1,2,3,4,7,8-HxCDF	----	1.1	0.85 I	1,2,3,4,6,7,8-HpCDD-13C	2.00	85
1,2,3,6,7,8-HxCDF	ND	----	0.84	OCDD-13C	4.00	72
2,3,4,6,7,8-HxCDF	ND	----	0.81			
1,2,3,7,8,9-HxCDF	ND	----	0.72	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.80	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.30	2,3,7,8-TCDD-37Cl4	0.20	87
1,2,3,6,7,8-HxCDD	ND	----	1.30			
1,2,3,7,8,9-HxCDD	ND	----	1.20			
Total HxCDD	ND	----	1.20			
1,2,3,4,6,7,8-HpCDF	2.8	----	1.80 J			
1,2,3,4,7,8,9-HpCDF	ND	----	1.30			
Total HpCDF	11.0	----	1.50 BJ			
1,2,3,4,6,7,8-HpCDD	8.4	----	1.50 BJ			
Total HpCDD	21.0	----	1.50 BJ			
OCDF	10.0	----	1.80 BJ			
OCDD	94.0	----	4.20 J			

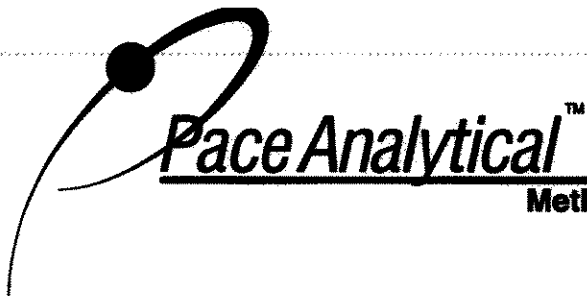
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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### Method 1613B Blank Analysis Results

Client - Del Mar Analytical

Lab Sample ID	BLANK-6220	Matrix	Water
Filename	F50129B_06	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 23:49
CCal Filename(s)	F50129B_02	Injected By	BAL

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.20	2,3,7,8-TCDF-13C	2.00	58
Total TCDF	ND	----	----	2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	ND	----	1.20	2,3,4,7,8-PeCDF-13C	2.00	67
Total TCDD	ND	----	----	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	----	1.50	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	1.20	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	----	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	----	1.60	1,2,3,6,7,8-HxCDD-13C	2.00	88
Total PeCDD	ND	----	----	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
				1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	ND	----	0.75	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	ND	----	0.86	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	ND	----	1.10			
1,2,3,7,8,9-HxCDF	ND	----	1.20	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	----	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.10	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	ND	----	0.99			
1,2,3,7,8,9-HxCDD	ND	----	1.00			
Total HxCDD	ND	----	----			
1,2,3,4,6,7,8-HpCDF	ND	----	2.10			
1,2,3,4,7,8,9-HpCDF	ND	----	1.90			
Total HpCDF	2.2	----	---- J			
1,2,3,4,6,7,8-HpCDD	2.4	----	1.40 J			
Total HpCDD	2.4	----	---- J			
OCDF	5.2	----	1.80 J			
OCDD	5.6	----	2.90 J			

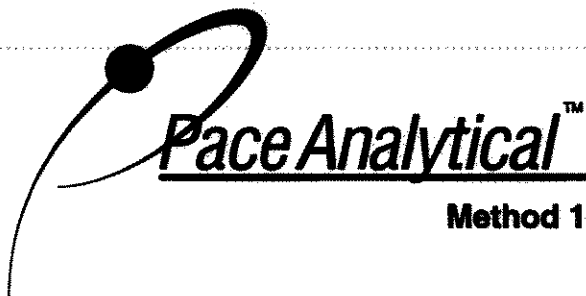
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 A = Limit of Detection based on signal to noise  
 P = Recovery outside of method 1613 control limits  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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### Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCS-6221	Matrix	Water
Filename	F50129B_03	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 21:22
CCal Filename	F50129B_02	Injected By	BAL
Method Blank ID	BLANK-6220		

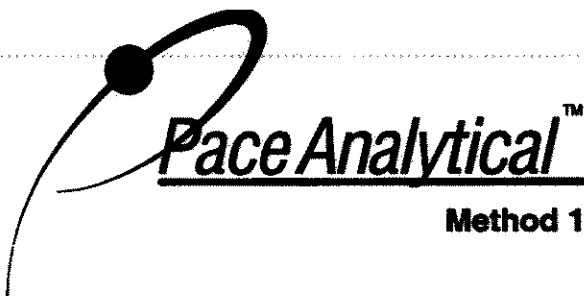
Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.9	7.5	15.8	99
2,3,7,8-TCDD	10	8.6	6.7	15.8	86
1,2,3,7,8-PeCDF	50	50.5	40.0	67.0	101
2,3,4,7,8-PeCDF	50	48.2	34.0	80.0	96
1,2,3,7,8-PeCDD	50	43.3	35.0	71.0	87
1,2,3,4,7,8-HxCDF	50	45.6	36.0	67.0	91
1,2,3,6,7,8-HxCDF	50	48.7	42.0	65.0	97
2,3,4,6,7,8-HxCDF	50	49.1	35.0	78.0	98
1,2,3,7,8,9-HxCDF	50	46.5	39.0	65.0	93
1,2,3,4,7,8-HxCDD	50	49.9	35.0	82.0	100
1,2,3,6,7,8-HxCDD	50	51.3	38.0	67.0	103
1,2,3,7,8,9-HxCDD	50	50.1	32.0	81.0	100
1,2,3,4,6,7,8-HpCDF	50	50.3	41.0	61.0	101
1,2,3,4,7,8,9-HpCDF	50	53.3	39.0	69.0	107
1,2,3,4,6,7,8-HpCDD	50	45.4	35.0	70.0	91
OCDF	100	95.6	63.0	170.0	96
OCDD	100	97.1	78.0	144.0	97
2,3,7,8-TCDD-37Cl4	10	6.9	3.1	19.1	69
2,3,7,8-TCDF-13C	100	51.5	22.0	152.0	52
2,3,7,8-TCDD-13C	100	67.8	20.0	175.0	68
1,2,3,7,8-PeCDF-13C	100	61.4	21.0	192.0	61
2,3,4,7,8-PeCDF-13C	100	65.9	13.0	328.0	66
1,2,3,7,8-PeCDD-13C	100	77.8	21.0	227.0	78
1,2,3,4,7,8-HxCDF-13C	100	70.2	19.0	202.0	70
1,2,3,6,7,8-HxCDF-13C	100	78.0	21.0	159.0	78
2,3,4,6,7,8-HxCDF-13C	100	74.1	22.0	176.0	74
1,2,3,7,8,9-HxCDF-13C	100	70.4	17.0	205.0	70
1,2,3,4,7,8-HxCDD-13C	100	69.0	21.0	193.0	69
1,2,3,6,7,8-HxCDD-13C	100	82.8	25.0	163.0	83
1,2,3,4,6,7,8-HpCDF-13C	100	72.1	21.0	158.0	72
1,2,3,4,7,8,9-HpCDF-13C	100	62.4	20.0	186.0	62
1,2,3,4,6,7,8-HpCDD-13C	100	80.1	26.0	166.0	80
OCDD-13C	200	135.6	26.0	397.0	68

Cs = Concentration Spiked (ng/mL)  
 Cr = Concentration Recovered (ng/mL)  
 Rec. = Recovery (Expressed as Percent)  
 Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
 X = Background subtracted value  
 P = Recovery outside of control limits  
 Nn = Value obtained from additional analysis  
 \* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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### Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCSD-6222	Matrix	Water
Filename	F50129B_04	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 22:09
CCal Filename	F50129B_02	Injected By	BAL
Method Blank ID	BLANK-6220		

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10.6	7.5	15.8	106
2,3,7,8-TCDD	10	9.4	6.7	15.8	94
1,2,3,7,8-PeCDF	50	53.2	40.0	67.0	106
2,3,4,7,8-PeCDF	50	50.7	34.0	80.0	101
1,2,3,7,8-PeCDD	50	46.0	35.0	71.0	92
1,2,3,4,7,8-HxCDF	50	47.6	36.0	67.0	95
1,2,3,6,7,8-HxCDF	50	50.9	42.0	65.0	102
2,3,4,6,7,8-HxCDF	50	50.9	35.0	78.0	102
1,2,3,7,8,9-HxCDF	50	49.0	39.0	65.0	98
1,2,3,4,7,8-HxCDD	50	52.4	35.0	82.0	105
1,2,3,6,7,8-HxCDD	50	54.2	38.0	67.0	108
1,2,3,7,8,9-HxCDD	50	52.5	32.0	81.0	105
1,2,3,4,6,7,8-HpCDF	50	55.0	41.0	61.0	110
1,2,3,4,7,8,9-HpCDF	50	55.7	39.0	69.0	111
1,2,3,4,6,7,8-HpCDD	50	48.0	35.0	70.0	96
OCDF	100	100.6	63.0	170.0	101
OCDD	100	101.9	78.0	144.0	102
2,3,7,8-TCDD-37Cl4	10	8.7	3.1	19.1	87
2,3,7,8-TCDF-13C	100	70.4	22.0	152.0	70
2,3,7,8-TCDD-13C	100	88.6	20.0	175.0	89
1,2,3,7,8-PeCDF-13C	100	73.6	21.0	192.0	74
2,3,4,7,8-PeCDF-13C	100	79.0	13.0	328.0	79
1,2,3,7,8-PeCDD-13C	100	95.5	21.0	227.0	96
1,2,3,4,7,8-HxCDF-13C	100	84.8	19.0	202.0	85
1,2,3,6,7,8-HxCDF-13C	100	89.5	21.0	159.0	90
2,3,4,6,7,8-HxCDF-13C	100	87.2	22.0	176.0	87
1,2,3,7,8,9-HxCDF-13C	100	82.1	17.0	205.0	82
1,2,3,4,7,8-HxCDD-13C	100	80.1	21.0	193.0	80
1,2,3,6,7,8-HxCDD-13C	100	97.0	25.0	163.0	97
1,2,3,4,6,7,8-HpCDF-13C	100	84.4	21.0	158.0	84
1,2,3,4,7,8,9-HpCDF-13C	100	71.7	20.0	186.0	72
1,2,3,4,6,7,8-HpCDD-13C	100	92.4	26.0	166.0	92
OCDD-13C	200	159.2	26.0	397.0	80

Cs = Concentration Spiked (ng/mL)  
Cr = Concentration Recovered (ng/mL)  
Rec. = Recovery (Expressed as Percent)  
Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
X = Background subtracted value  
P = Recovery outside of control limits  
Nn = Value obtained from additional analysis  
\* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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Client..... Del Mar Analytical

SPIKE 1 ID..... LCS-6221  
SPIKE 1 Filename..... F50129B\_03  
SPIKE 2 ID..... LCSD-6222  
SPIKE 2 Filename..... F50129B\_04

COMPOUND	SPIKE 1 REC,%	SPIKE 2 REC,%	RPD,%
2378-TCDF	99	106	6.8
2378-TCDD	86	94	8.9
12378-PeCDF	101	106	4.8
23478-PeCDF	96	101	5.1
12378-PeCDD	87	92	5.6
123478-HxCDF	91	95	4.3
123678-HxCDF	97	102	5.0
234678-HxCDF	98	102	4.0
123789-HxCDF	93	98	5.2
123478-HxCDD	100	105	4.9
123678-HxCDD	103	108	4.7
123789-HxCDD	100	105	4.9
1234678-HpCDF	101	110	8.5
1234789-HpCDF	107	111	3.7
1234678-HpCDD	91	96	5.3
OCDF	96	101	5.1
OCDD	97	102	5.0

REC = Percent Recovered  
RPD = The difference between the two values divided by the average.  
NA = Not Applicable

Report No..... 106233

### REPORT OF LABORATORY ANALYSIS

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**TABLE 1. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans**

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

\*Excluding the 2,3,7,8-substituted congeners.

Reference: 1989 ITEFs

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 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  
 2620 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

**SUBCONTRACT ORDER - PROJECT # IOA0557 106233**

<p><b>SENDING LABORATORY:</b>          Del Mar Analytical, Irvine          17461 Derian Avenue, Suite 100          Irvine, CA 92614          Phone: (949) 261-1022          Fax: (949) 261-1228          Project Manager: Michele Harper</p>	<p><b>RECEIVING LABORATORY:</b>          Pace Analytical, MN- SUB          1700 Elm Street, Ste 200          Minneapolis, MN 55414          Phone : (612) 607-1700          Fax: (612) 607-6444</p>
--	---

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

Analysis	Expiration	Comments
Sample ID: IOA0557-02 Water 1613-Dioxin-HR	Water 01/19/05 13:30	Sampled: 01/12/05 13:30 J flags, 17 congeners, no TEQ, sub to Pace-MN
Containers Supplied: 1 L Amber (IOA0557-02A) 1 L Amber (IOA0557-02B)		

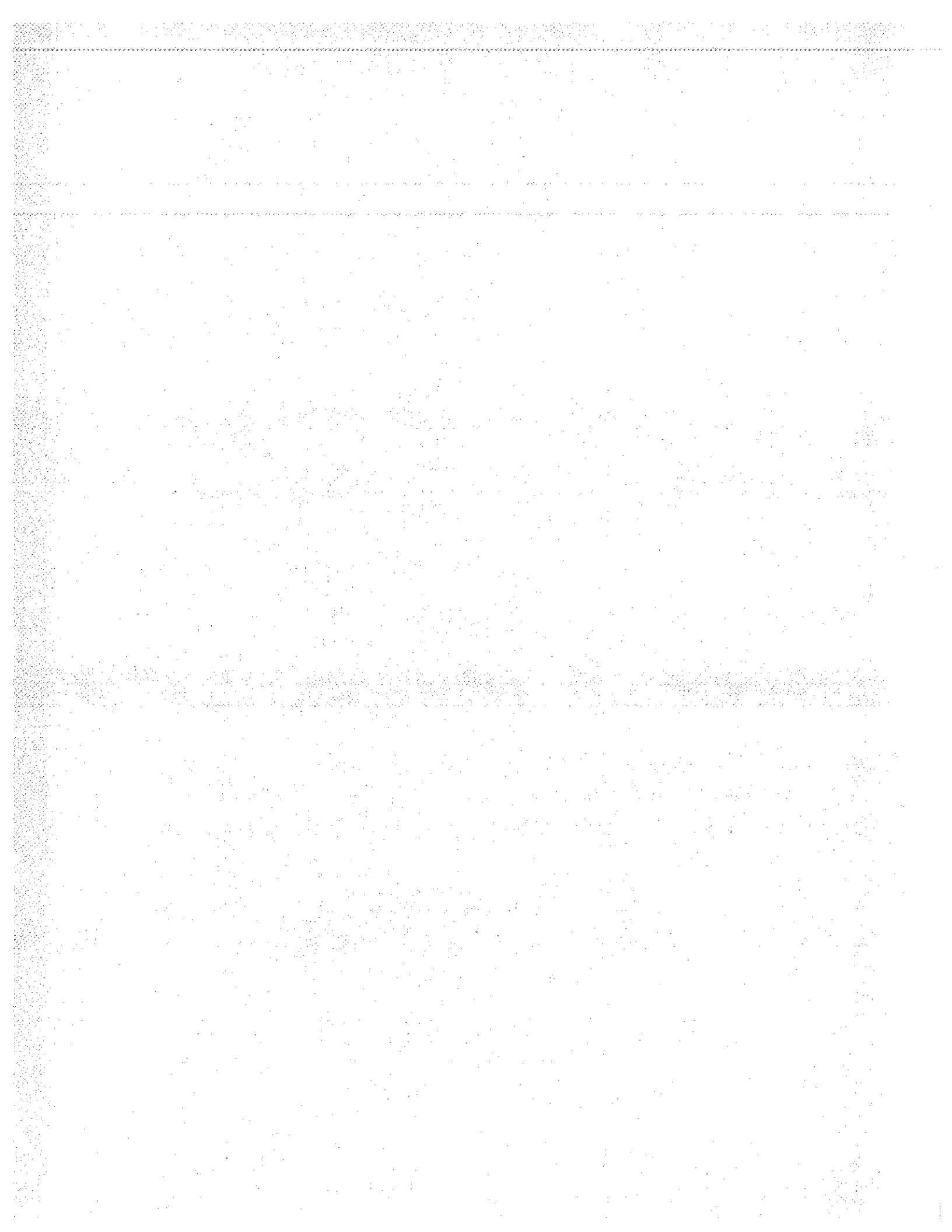
106 233001

**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): 1000

Released By: [Signature] Date: 1-13-05 Time: 1700 Received By: [Signature] Date: 1/14/05 Time: 11:30

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_





**LABORATORY REPORT**

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

**Project:** Outfall 015

**Sampled:** 01/12/05  
**Received:** 01/11/05  
**Issued:** 03/10/05 12:21

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**

IOA0580-01

**CLIENT ID**

Outfall 015-Comp Effluent

**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: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## 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
<b>Sample ID: IOA0580-01 (Outfall 015-Comp Effluent - Water)</b>									
<b>Reporting Units: ug/l</b>									
Acenaphthene	EPA 625	5A13037	4.3	10	14	1.05	01/13/05	01/18/05	
Acenaphthylene	EPA 625	5A13037	3.2	10	ND	1.05	01/13/05	01/18/05	
Aniline	EPA 625	5A13037	2.9	10	ND	1.05	01/13/05	01/18/05	
Anthracene	EPA 625	5A13037	3.2	10	ND	1.05	01/13/05	01/18/05	
Benzidine	EPA 625	5A13037	5.2	20	ND	1.05	01/13/05	01/18/05	
Benzoic acid	EPA 625	5A13037	2.6	20	13	1.05	01/13/05	01/18/05	J
Benzo(a)anthracene	EPA 625	5A13037	3.7	10	ND	1.05	01/13/05	01/18/05	
Benzo(b)fluoranthene	EPA 625	5A13037	2.7	10	ND	1.05	01/13/05	01/18/05	
Benzo(k)fluoranthene	EPA 625	5A13037	3.4	10	ND	1.05	01/13/05	01/18/05	
Benzo(g,h,i)perylene	EPA 625	5A13037	5.3	10	ND	1.05	01/13/05	01/18/05	C
Benzo(a)pyrene	EPA 625	5A13037	3.5	10	ND	1.05	01/13/05	01/18/05	
Benzyl alcohol	EPA 625	5A13037	2.5	20	ND	1.05	01/13/05	01/18/05	
Bis(2-chloroethoxy)methane	EPA 625	5A13037	3.9	10	ND	1.05	01/13/05	01/18/05	
Bis(2-chloroethyl)ether	EPA 625	5A13037	4.4	10	ND	1.05	01/13/05	01/18/05	
Bis(2-chloroisopropyl)ether	EPA 625	5A13037	4.6	10	ND	1.05	01/13/05	01/18/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5A13037	5.2	50	ND	1.05	01/13/05	01/18/05	
4-Bromophenyl phenyl ether	EPA 625	5A13037	4.6	10	ND	1.05	01/13/05	01/18/05	
Butyl benzyl phthalate	EPA 625	5A13037	3.5	20	6.0	1.05	01/13/05	01/18/05	J
4-Chloroaniline	EPA 625	5A13037	6.0	10	ND	1.05	01/13/05	01/18/05	
2-Chloronaphthalene	EPA 625	5A13037	4.0	10	ND	1.05	01/13/05	01/18/05	
4-Chloro-3-methylphenol	EPA 625	5A13037	3.5	20	ND	1.05	01/13/05	01/18/05	
2-Chlorophenol	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05	
4-Chlorophenyl phenyl ether	EPA 625	5A13037	3.0	10	ND	1.05	01/13/05	01/18/05	
Chrysene	EPA 625	5A13037	2.8	10	ND	1.05	01/13/05	01/18/05	
Dibenz(a,h)anthracene	EPA 625	5A13037	4.7	20	ND	1.05	01/13/05	01/18/05	
Dibenzofuran	EPA 625	5A13037	2.6	10	9.8	1.05	01/13/05	01/18/05	J
Di-n-butyl phthalate	EPA 625	5A13037	2.8	20	5.8	1.05	01/13/05	01/18/05	J
1,3-Dichlorobenzene	EPA 625	5A13037	4.1	10	ND	1.05	01/13/05	01/18/05	
1,4-Dichlorobenzene	EPA 625	5A13037	3.9	10	ND	1.05	01/13/05	01/18/05	
1,2-Dichlorobenzene	EPA 625	5A13037	4.5	10	ND	1.05	01/13/05	01/18/05	
3,3-Dichlorobenzidine	EPA 625	5A13037	11	20	ND	1.05	01/13/05	01/18/05	
2,4-Dichlorophenol	EPA 625	5A13037	4.1	10	ND	1.05	01/13/05	01/18/05	
Diethyl phthalate	EPA 625	5A13037	3.1	10	ND	1.05	01/13/05	01/18/05	
2,4-Dimethylphenol	EPA 625	5A13037	4.4	20	ND	1.05	01/13/05	01/18/05	
Dimethyl phthalate	EPA 625	5A13037	3.6	10	ND	1.05	01/13/05	01/18/05	
4,6-Dinitro-2-methylphenol	EPA 625	5A13037	5.1	20	ND	1.05	01/13/05	01/18/05	
2,4-Dinitrophenol	EPA 625	5A13037	5.3	20	ND	1.05	01/13/05	01/18/05	
2,4-Dinitrotoluene	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05	
2,6-Dinitrotoluene	EPA 625	5A13037	3.2	10	ND	1.05	01/13/05	01/18/05	
Di-n-octyl phthalate	EPA 625	5A13037	4.7	20	ND	1.05	01/13/05	01/18/05	
Fluoranthene	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05	

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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: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## 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
<b>Sample ID: IOA0580-01 (Outfall 015-Comp Effluent - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
Fluorene	EPA 625	5A13037	3.9	10	6.9	1.05	01/13/05	01/18/05	J
Hexachlorobenzene	EPA 625	5A13037	4.8	10	ND	1.05	01/13/05	01/18/05	
Hexachlorobutadiene	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05	
Hexachlorocyclopentadiene	EPA 625	5A13037	3.4	20	ND	1.05	01/13/05	01/18/05	
Hexachloroethane	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5A13037	5.4	20	ND	1.05	01/13/05	01/18/05	C
Isophorone	EPA 625	5A13037	3.7	10	ND	1.05	01/13/05	01/18/05	
2-Methylnaphthalene	EPA 625	5A13037	3.0	10	9.8	1.05	01/13/05	01/18/05	J
2-Methylphenol	EPA 625	5A13037	3.7	10	ND	1.05	01/13/05	01/18/05	
4-Methylphenol	EPA 625	5A13037	3.8	10	ND	1.05	01/13/05	01/18/05	
Naphthalene	EPA 625	5A13037	4.5	10	8.6	1.05	01/13/05	01/18/05	J
2-Nitroaniline	EPA 625	5A13037	3.9	20	ND	1.05	01/13/05	01/18/05	
3-Nitroaniline	EPA 625	5A13037	4.5	20	ND	1.05	01/13/05	01/18/05	
4-Nitroaniline	EPA 625	5A13037	4.9	20	ND	1.05	01/13/05	01/18/05	
Nitrobenzene	EPA 625	5A13037	4.2	20	ND	1.05	01/13/05	01/18/05	
2-Nitrophenol	EPA 625	5A13037	4.2	10	ND	1.05	01/13/05	01/18/05	
4-Nitrophenol	EPA 625	5A13037	6.6	20	ND	1.05	01/13/05	01/18/05	
N-Nitrosodiphenylamine	EPA 625	5A13037	4.0	10	ND	1.05	01/13/05	01/18/05	
N-Nitroso-di-n-propylamine	EPA 625	5A13037	3.6	10	ND	1.05	01/13/05	01/18/05	
Pentachlorophenol	EPA 625	5A13037	4.0	20	ND	1.05	01/13/05	01/18/05	
Phenanthrene	EPA 625	5A13037	3.3	10	ND	1.05	01/13/05	01/18/05	
Phenol	EPA 625	5A13037	4.0	10	ND	1.05	01/13/05	01/18/05	
Pyrene	EPA 625	5A13037	3.9	10	ND	1.05	01/13/05	01/18/05	
1,2,4-Trichlorobenzene	EPA 625	5A13037	4.4	10	ND	1.05	01/13/05	01/18/05	
2,4,5-Trichlorophenol	EPA 625	5A13037	3.6	20	ND	1.05	01/13/05	01/18/05	
2,4,6-Trichlorophenol	EPA 625	5A13037	4.1	20	ND	1.05	01/13/05	01/18/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A13037	5.0	20	ND	1.05	01/13/05	01/18/05	
N-Nitrosodimethylamine	EPA 625	5A13037	3.7	20	ND	1.05	01/13/05	01/18/05	
Surrogate: 2-Fluorophenol (35-120%)					55 %				
Surrogate: Phenol-d6 (45-120%)					76 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					73 %				
Surrogate: Nitrobenzene-d5 (45-120%)					62 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					69 %				
Surrogate: Terphenyl-d14 (45-135%)					89 %				

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

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0580-01 (Outfall 015-Comp Effluent - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
Aldrin	EPA 608	5A13049	0.029	0.10	ND	1.02	01/13/05	01/14/05	
alpha-BHC	EPA 608	5A13049	0.010	0.10	ND	1.02	01/13/05	01/14/05	
beta-BHC	EPA 608	5A13049	0.011	0.10	ND	1.02	01/13/05	01/14/05	
delta-BHC	EPA 608	5A13049	0.010	0.20	ND	1.02	01/13/05	01/14/05	
gamma-BHC (Lindane)	EPA 608	5A13049	0.0097	0.10	ND	1.02	01/13/05	01/14/05	
Chlordane	EPA 608	5A13049	0.18	1.0	ND	1.02	01/13/05	01/14/05	
4,4'-DDD	EPA 608	5A13049	0.011	0.10	ND	1.02	01/13/05	01/14/05	
4,4'-DDE	EPA 608	5A13049	0.017	0.10	ND	1.02	01/13/05	01/14/05	
4,4'-DDT	EPA 608	5A13049	0.015	0.10	ND	1.02	01/13/05	01/14/05	C5
Dieldrin	EPA 608	5A13049	0.010	0.10	ND	1.02	01/13/05	01/14/05	
Endosulfan I	EPA 608	5A13049	0.015	0.10	ND	1.02	01/13/05	01/14/05	
Endosulfan II	EPA 608	5A13049	0.037	0.10	ND	1.02	01/13/05	01/14/05	
Endosulfan sulfate	EPA 608	5A13049	0.013	0.20	ND	1.02	01/13/05	01/14/05	
Endrin	EPA 608	5A13049	0.0082	0.10	ND	1.02	01/13/05	01/14/05	
Endrin aldehyde	EPA 608	5A13049	0.045	0.10	ND	1.02	01/13/05	01/14/05	
Endrin ketone	EPA 608	5A13049	0.020	0.10	ND	1.02	01/13/05	01/14/05	
Heptachlor	EPA 608	5A13049	0.030	0.10	ND	1.02	01/13/05	01/14/05	
Heptachlor epoxide	EPA 608	5A13049	0.012	0.10	ND	1.02	01/13/05	01/14/05	
Methoxychlor	EPA 608	5A13049	0.034	0.10	ND	1.02	01/13/05	01/14/05	C5
Toxaphene	EPA 608	5A13049	0.77	5.0	ND	1.02	01/13/05	01/14/05	
<i>Surrogate: Tetrachloro-m-xylene (35-120%)</i>					101 %				
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					67 %				

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

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0580-01 (Outfall 015-Comp Effluent - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	1.02	01/13/05	01/14/05	
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	1.02	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	1.02	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	1.02	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	1.02	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	1.02	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	1.02	01/13/05	01/14/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					76 %				

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

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0580-01 (Outfall 015-Comp Effluent - Water) - cont.									
Reporting Units: mg/l									
Antimony	EPA 200.7	5A14046	0.0042	0.010	ND	1	01/14/05	01/14/05	
Arsenic	EPA 200.7	5A14046	0.0038	0.0050	<b>0.0048</b>	1	01/14/05	01/14/05	J
Barium	EPA 200.7	5A14046	0.0028	0.010	<b>0.023</b>	1	01/14/05	01/14/05	
Beryllium	EPA 200.7	5A14046	0.00062	0.0020	ND	1	01/14/05	01/14/05	
Boron	EPA 200.7	5A14046	0.0074	0.050	<b>0.10</b>	1	01/14/05	01/14/05	
Cadmium	EPA 200.7	5A14046	0.00034	0.0050	<b>0.00090</b>	1	01/14/05	01/14/05	J
Chromium	EPA 200.7	5A14046	0.00068	0.0050	<b>0.65</b>	1	01/14/05	01/14/05	
Copper	EPA 200.7	5A14046	0.0017	0.010	<b>0.032</b>	1	01/14/05	01/14/05	
Lead	EPA 200.7	5A14046	0.0021	0.0050	ND	1	01/14/05	01/14/05	
Mercury	EPA 245.1	5A14053	0.000063	0.00020	<b>0.00029</b>	1	01/14/05	01/14/05	
Nickel	EPA 200.7	5A14046	0.0020	0.010	<b>0.83</b>	1	01/14/05	01/14/05	
Selenium	EPA 200.7	5A14046	0.0046	0.0050	ND	1	01/14/05	01/14/05	
Silver	EPA 200.7	5A14046	0.0013	0.010	ND	1	01/14/05	01/14/05	
Thallium	EPA 200.7	5A14046	0.0031	0.0050	ND	1	01/14/05	01/16/05	
Zinc	EPA 200.7	5A14046	0.0037	0.020	<b>0.16</b>	1	01/14/05	01/14/05	

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

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0580-01 (Outfall 015-Comp Effluent - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5A13063	0.30	0.50	0.56	1	01/13/05	01/13/05	
Biochemical Oxygen Demand	EPA 405.1	5A13052	0.59	2.0	17	1	01/13/05	01/18/05	
Chloride	EPA 300.0	5A12036	2.6	5.0	140	10	01/12/05	01/12/05	
Total Cyanide	EPA 335.2	5A13092	0.017	0.025	ND	1	01/13/05	01/13/05	
Fluoride	EPA 300.0	5A12036	0.074	0.50	0.36	1	01/12/05	01/12/05	J
Nitrate-N	EPA 300.0	5A12036	0.072	0.11	2.2	1	01/12/05	01/12/05	
Nitrite-N	EPA 300.0	5A12036	0.058	0.15	ND	1	01/12/05	01/12/05	
Nitrate/Nitrite-N	EPA 300.0	5A12036	0.072	0.26	2.2	1	01/12/05	01/12/05	
Sulfate	EPA 300.0	5A12036	0.18	0.50	16	1	01/12/05	01/12/05	
Total Dissolved Solids	SM2540C	5A13089	10	10	400	1	01/13/05	01/13/05	
Total Suspended Solids	EPA 160.2	5A17060	10	10	22	1	01/17/05	01/17/05	

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

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
<b>Sample ID: Outfall 015-Comp Effluent (IOA0580-01) - Water</b>					
EPA 300.0	2	01/12/2005 13:30	01/11/2005 18:50	01/12/2005 16:30	01/12/2005 16:54
EPA 405.1	2	01/12/2005 13:30	01/11/2005 18:50	01/13/2005 09:36	01/18/2005 11:30

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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: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>										
Acenaphthene	ND	10	4.3	ug/l						
Acenaphthylene	ND	10	3.2	ug/l						
Aniline	ND	10	2.9	ug/l						
Anthracene	ND	10	3.2	ug/l						
Benzidine	ND	20	5.2	ug/l						
Benzoic acid	ND	20	2.6	ug/l						
Benzo(a)anthracene	ND	10	3.7	ug/l						
Benzo(b)fluoranthene	ND	10	2.7	ug/l						
Benzo(k)fluoranthene	ND	10	3.4	ug/l						
Benzo(g,h,i)perylene	ND	10	5.3	ug/l						
Benzo(a)pyrene	ND	10	3.5	ug/l						
Benzyl alcohol	ND	20	2.5	ug/l						
Bis(2-chloroethoxy)methane	ND	10	3.9	ug/l						
Bis(2-chloroethyl)ether	ND	10	4.4	ug/l						
Bis(2-chloroisopropyl)ether	ND	10	4.6	ug/l						
Bis(2-ethylhexyl)phthalate	ND	50	5.2	ug/l						
4-Bromophenyl phenyl ether	ND	10	4.6	ug/l						
Butyl benzyl phthalate	ND	20	3.5	ug/l						
4-Chloroaniline	ND	10	6.0	ug/l						
2-Chloronaphthalene	ND	10	4.0	ug/l						
4-Chloro-3-methylphenol	ND	20	3.5	ug/l						
2-Chlorophenol	ND	10	4.2	ug/l						
4-Chlorophenyl phenyl ether	ND	10	3.0	ug/l						
Chrysene	ND	10	2.8	ug/l						
Dibenz(a,h)anthracene	ND	20	4.7	ug/l						
Dibenzofuran	ND	10	2.6	ug/l						
Di-n-butyl phthalate	ND	20	2.8	ug/l						
1,3-Dichlorobenzene	ND	10	4.1	ug/l						
1,4-Dichlorobenzene	ND	10	3.9	ug/l						
1,2-Dichlorobenzene	ND	10	4.5	ug/l						
3,3-Dichlorobenzidine	ND	20	11	ug/l						
2,4-Dichlorophenol	ND	10	4.1	ug/l						
Diethyl phthalate	ND	10	3.1	ug/l						
2,4-Dimethylphenol	ND	20	4.4	ug/l						
Dimethyl phthalate	ND	10	3.6	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	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>										
4,6-Dinitro-2-methylphenol	ND	20	5.1	ug/l						
2,4-Dinitrophenol	ND	20	5.3	ug/l						
2,4-Dinitrotoluene	ND	10	4.2	ug/l						
2,6-Dinitrotoluene	ND	10	3.2	ug/l						
Di-n-octyl phthalate	ND	20	4.7	ug/l						
Fluoranthene	ND	10	4.2	ug/l						
Fluorene	ND	10	3.9	ug/l						
Hexachlorobenzene	ND	10	4.8	ug/l						
Hexachlorobutadiene	ND	10	4.2	ug/l						
Hexachlorocyclopentadiene	ND	20	3.4	ug/l						
Hexachloroethane	ND	10	4.2	ug/l						
Indeno(1,2,3-cd)pyrene	ND	20	5.4	ug/l						
Isophorone	ND	10	3.7	ug/l						
2-Methylnaphthalene	ND	10	3.0	ug/l						
2-Methylphenol	ND	10	3.7	ug/l						
4-Methylphenol	ND	10	3.8	ug/l						
Naphthalene	ND	10	4.5	ug/l						
2-Nitroaniline	ND	20	3.9	ug/l						
3-Nitroaniline	ND	20	4.5	ug/l						
4-Nitroaniline	ND	20	4.9	ug/l						
Nitrobenzene	ND	20	4.2	ug/l						
2-Nitrophenol	ND	10	4.2	ug/l						
4-Nitrophenol	ND	20	6.6	ug/l						
N-Nitrosodiphenylamine	ND	10	4.0	ug/l						
N-Nitroso-di-n-propylamine	ND	10	3.6	ug/l						
Pentachlorophenol	ND	20	4.0	ug/l						
Phenanthrene	ND	10	3.3	ug/l						
Phenol	ND	10	4.0	ug/l						
Pyrene	ND	10	3.9	ug/l						
1,2,4-Trichlorobenzene	ND	10	4.4	ug/l						
2,4,5-Trichlorophenol	ND	20	3.6	ug/l						
2,4,6-Trichlorophenol	ND	20	4.1	ug/l						
1,2-Diphenylhydrazine/Azobenzene	ND	20	5.0	ug/l						
N-Nitrosodimethylamine	ND	20	3.7	ug/l						
Surrogate: 2-Fluorophenol	120			ug/l	200		60		35-120	

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## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>										
Surrogate: Phenol-d6	129			ug/l	200		64 45-120			
Surrogate: 2,4,6-Tribromophenol	160			ug/l	200		80 50-125			
Surrogate: Nitrobenzene-d5	63.1			ug/l	100		63 45-120			
Surrogate: 2-Fluorobiphenyl	72.3			ug/l	100		72 45-120			
Surrogate: Terphenyl-d14	75.6			ug/l	100		76 45-135			
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>										
Acenaphthene	75.6	10	4.3	ug/l	100		76 55-120			M-NR1
Acenaphthylene	75.9	10	3.2	ug/l	100		76 55-120			
Aniline	68.9	10	2.9	ug/l	100		69 30-120			
Anthracene	80.4	10	3.2	ug/l	100		80 60-120			
Benzidine	62.5	20	5.2	ug/l	100		62 20-180			
Benzoic acid	81.0	20	2.6	ug/l	100		81 30-125			
Benzo(a)anthracene	81.8	10	3.7	ug/l	100		82 65-120			
Benzo(b)fluoranthene	81.3	10	2.7	ug/l	100		81 50-125			
Benzo(k)fluoranthene	77.8	10	3.4	ug/l	100		78 50-125			
Benzo(g,h,i)perylene	84.8	10	5.3	ug/l	100		85 35-160			
Benzo(a)pyrene	80.7	10	3.5	ug/l	100		81 55-125			
Benzyl alcohol	73.4	20	2.5	ug/l	100		73 40-130			
Bis(2-chloroethoxy)methane	73.3	10	3.9	ug/l	100		73 55-120			
Bis(2-chloroethyl)ether	63.5	10	4.4	ug/l	100		64 50-120			
Bis(2-chloroisopropyl)ether	69.9	10	4.6	ug/l	100		70 50-120			
Bis(2-ethylhexyl)phthalate	77.3	50	5.2	ug/l	100		77 65-125			
4-Bromophenyl phenyl ether	70.8	10	4.6	ug/l	100		71 55-125			
Butyl benzyl phthalate	75.0	20	3.5	ug/l	100		75 60-125			
4-Chloroaniline	79.0	10	6.0	ug/l	100		79 55-120			
2-Chloronaphthalene	75.9	10	4.0	ug/l	100		76 60-120			
4-Chloro-3-methylphenol	73.5	20	3.5	ug/l	100		74 60-120			
2-Chlorophenol	69.8	10	4.2	ug/l	100		70 45-120			
4-Chlorophenyl phenyl ether	77.3	10	3.0	ug/l	100		77 55-120			
Chrysene	81.9	10	2.8	ug/l	100		82 65-120			
Dibenz(a,h)anthracene	85.7	20	4.7	ug/l	100		86 40-160			
Dibenzofuran	77.5	10	2.6	ug/l	100		78 60-120			
Di-n-butyl phthalate	71.9	20	2.8	ug/l	100		72 65-125			
1,3-Dichlorobenzene	66.5	10	4.1	ug/l	100		66 40-120			
1,4-Dichlorobenzene	62.7	10	3.9	ug/l	100		63 40-120			

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

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>										
<b>M-NRI</b>										
1,2-Dichlorobenzene	63.6	10	4.5	ug/l	100	64	40-120			
3,3-Dichlorobenzidine	90.6	20	11	ug/l	100	91	50-170			
2,4-Dichlorophenol	70.8	10	4.1	ug/l	100	71	55-120			
Diethyl phthalate	71.0	10	3.1	ug/l	100	71	60-120			
2,4-Dimethylphenol	59.6	20	4.4	ug/l	100	60	35-120			
Dimethyl phthalate	69.3	10	3.6	ug/l	100	69	60-120			
4,6-Dinitro-2-methylphenol	78.6	20	5.1	ug/l	100	79	55-120			
2,4-Dinitrophenol	86.2	20	5.3	ug/l	100	86	40-140			
2,4-Dinitrotoluene	81.5	10	4.2	ug/l	100	82	60-140			
2,6-Dinitrotoluene	74.3	10	3.2	ug/l	100	74	65-125			
Di-n-octyl phthalate	81.2	20	4.7	ug/l	100	81	60-130			
Fluoranthene	81.4	10	4.2	ug/l	100	81	55-125			
Fluorene	80.2	10	3.9	ug/l	100	80	60-120			
Hexachlorobenzene	73.6	10	4.8	ug/l	100	74	50-120			
Hexachlorobutadiene	61.7	10	4.2	ug/l	100	62	45-120			
Hexachlorocyclopentadiene	54.7	20	3.4	ug/l	100	55	10-130			
Hexachloroethane	60.9	10	4.2	ug/l	100	61	40-120			
Indeno(1,2,3-cd)pyrene	81.9	20	5.4	ug/l	100	82	35-150			
Isophorone	65.8	10	3.7	ug/l	100	66	55-120			
2-Methylnaphthalene	84.8	10	3.0	ug/l	100	85	50-120			
2-Methylphenol	70.0	10	3.7	ug/l	100	70	45-120			
4-Methylphenol	70.1	10	3.8	ug/l	100	70	45-120			
Naphthalene	76.9	10	4.5	ug/l	100	77	50-120			
2-Nitroaniline	78.9	20	3.9	ug/l	100	79	60-130			
3-Nitroaniline	91.3	20	4.5	ug/l	100	91	50-140			
4-Nitroaniline	96.0	20	4.9	ug/l	100	96	45-160			
Nitrobenzene	65.6	20	4.2	ug/l	100	66	50-120			
2-Nitrophenol	80.9	10	4.2	ug/l	100	81	55-120			
4-Nitrophenol	67.9	20	6.6	ug/l	100	68	50-135			
N-Nitrosodiphenylamine	71.9	10	4.0	ug/l	100	72	60-120			
N-Nitroso-di-n-propylamine	65.9	10	3.6	ug/l	100	66	50-120			
Pentachlorophenol	80.8	20	4.0	ug/l	100	81	50-125			
Phenanthrene	81.8	10	3.3	ug/l	100	82	55-120			
Phenol	66.0	10	4.0	ug/l	100	66	45-120			
Pyrene	80.9	10	3.9	ug/l	100	81	50-120			

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 Attention: Bronwyn Kelly

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>										
1,2,4-Trichlorobenzene	65.3	10	4.4	ug/l	100	65	50-120			M-NRI
2,4,5-Trichlorophenol	78.9	20	3.6	ug/l	100	79	60-120			
2,4,6-Trichlorophenol	77.9	20	4.1	ug/l	100	78	60-120			
1,2-Diphenylhydrazine/Azobenzene	79.5	20	5.0	ug/l	100	80	60-120			
N-Nitrosodimethylamine	66.8	20	3.7	ug/l	100	67	40-120			
Surrogate: 2-Fluorophenol	125			ug/l	200	62	35-120			
Surrogate: Phenol-d6	129			ug/l	200	64	45-120			
Surrogate: 2,4,6-Tribromophenol	160			ug/l	200	80	50-125			
Surrogate: Nitrobenzene-d5	66.3			ug/l	100	66	45-120			
Surrogate: 2-Fluorobiphenyl	73.6			ug/l	100	74	45-120			
Surrogate: Terphenyl-d14	73.4			ug/l	100	73	45-135			
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>										
Acenaphthene	73.9	10	4.3	ug/l	100	74	55-120	2	20	
Acenaphthylene	74.7	10	3.2	ug/l	100	75	55-120	2	20	
Aniline	68.6	10	2.9	ug/l	100	69	30-120	0	25	
Anthracene	77.5	10	3.2	ug/l	100	78	60-120	4	20	
Benzidine	143	20	5.2	ug/l	100	143	20-180	78	35	R-7
Benzoic acid	78.1	20	2.6	ug/l	100	78	30-125	4	30	
Benzo(a)anthracene	80.6	10	3.7	ug/l	100	81	65-120	1	20	
Benzo(b)fluoranthene	77.5	10	2.7	ug/l	100	78	50-125	5	25	
Benzo(k)fluoranthene	77.5	10	3.4	ug/l	100	78	50-125	0	20	
Benzo(g,h,i)perylene	81.4	10	5.3	ug/l	100	81	35-160	4	25	
Benzo(a)pyrene	80.7	10	3.5	ug/l	100	81	55-125	0	25	
Benzyl alcohol	72.7	20	2.5	ug/l	100	73	40-130	1	20	
Bis(2-chloroethoxy)methane	71.8	10	3.9	ug/l	100	72	55-120	2	20	
Bis(2-chloroethyl)ether	61.1	10	4.4	ug/l	100	61	50-120	4	20	
Bis(2-chloroisopropyl)ether	68.9	10	4.6	ug/l	100	69	50-120	1	20	
Bis(2-ethylhexyl)phthalate	78.8	50	5.2	ug/l	100	79	65-125	2	20	
4-Bromophenyl phenyl ether	70.6	10	4.6	ug/l	100	71	55-125	0	25	
Butyl benzyl phthalate	75.3	20	3.5	ug/l	100	75	60-125	0	20	
4-Chloroaniline	77.6	10	6.0	ug/l	100	78	55-120	2	25	
2-Chloronaphthalene	74.3	10	4.0	ug/l	100	74	60-120	2	20	
4-Chloro-3-methylphenol	71.1	20	3.5	ug/l	100	71	60-120	3	25	
2-Chlorophenol	68.2	10	4.2	ug/l	100	68	45-120	2	25	
4-Chlorophenyl phenyl ether	73.3	10	3.0	ug/l	100	73	55-120	5	20	

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Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>										
Chrysene	80.8	10	2.8	ug/l	100	81	65-120	1	20	
Dibenz(a,h)anthracene	82.0	20	4.7	ug/l	100	82	40-160	4	25	
Dibenzofuran	74.7	10	2.6	ug/l	100	75	60-120	4	20	
Di-n-butyl phthalate	70.9	20	2.8	ug/l	100	71	65-125	1	20	
1,3-Dichlorobenzene	59.6	10	4.1	ug/l	100	60	40-120	11	25	
1,4-Dichlorobenzene	63.5	10	3.9	ug/l	100	64	40-120	1	25	
1,2-Dichlorobenzene	61.5	10	4.5	ug/l	100	62	40-120	3	25	
3,3-Dichlorobenzidine	87.9	20	11	ug/l	100	88	50-170	3	25	
2,4-Dichlorophenol	70.2	10	4.1	ug/l	100	70	55-120	1	20	
Diethyl phthalate	67.9	10	3.1	ug/l	100	68	60-120	4	20	
2,4-Dimethylphenol	62.1	20	4.4	ug/l	100	62	35-120	4	25	
Dimethyl phthalate	69.0	10	3.6	ug/l	100	69	60-120	0	20	
4,6-Dinitro-2-methylphenol	73.8	20	5.1	ug/l	100	74	55-120	6	25	
2,4-Dinitrophenol	77.6	20	5.3	ug/l	100	78	40-140	11	25	
2,4-Dinitrotoluene	77.6	10	4.2	ug/l	100	78	60-140	5	20	
2,6-Dinitrotoluene	72.9	10	3.2	ug/l	100	73	65-125	2	20	
Di-n-octyl phthalate	81.0	20	4.7	ug/l	100	81	60-130	0	20	
Fluoranthene	77.9	10	4.2	ug/l	100	78	55-125	4	20	
Fluorene	77.6	10	3.9	ug/l	100	78	60-120	3	20	
Hexachlorobenzene	71.6	10	4.8	ug/l	100	72	50-120	3	20	
Hexachlorobutadiene	60.3	10	4.2	ug/l	100	60	45-120	2	25	
Hexachlorocyclopentadiene	50.9	20	3.4	ug/l	100	51	10-130	7	30	
Hexachloroethane	56.9	10	4.2	ug/l	100	57	40-120	7	25	
Indeno(1,2,3-cd)pyrene	79.2	20	5.4	ug/l	100	79	35-150	3	25	
Isophorone	65.6	10	3.7	ug/l	100	66	55-120	0	20	
2-Methylnaphthalene	72.7	10	3.0	ug/l	100	73	50-120	15	20	
2-Methylphenol	67.3	10	3.7	ug/l	100	67	45-120	4	20	
4-Methylphenol	70.2	10	3.8	ug/l	100	70	45-120	0	20	
Naphthalene	73.6	10	4.5	ug/l	100	74	50-120	4	20	
2-Nitroaniline	76.6	20	3.9	ug/l	100	77	60-130	3	20	
3-Nitroaniline	85.4	20	4.5	ug/l	100	85	50-140	7	25	
4-Nitroaniline	88.5	20	4.9	ug/l	100	88	45-160	8	20	
Nitrobenzene	63.6	20	4.2	ug/l	100	64	50-120	3	25	
2-Nitrophenol	79.0	10	4.2	ug/l	100	79	55-120	2	25	
4-Nitrophenol	63.6	20	6.6	ug/l	100	64	50-135	7	25	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Outfall 015  Report Number: IOA0580	Sampled: 01/12/05 Received: 01/11/05
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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 Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>										
N-Nitrosodiphenylamine	69.9	10	4.0	ug/l	100	70	60-120	3	20	
N-Nitroso-di-n-propylamine	63.2	10	3.6	ug/l	100	63	50-120	4	20	
Pentachlorophenol	75.5	20	4.0	ug/l	100	76	50-125	7	25	
Phenanthrene	79.5	10	3.3	ug/l	100	80	55-120	3	20	
Phenol	65.0	10	4.0	ug/l	100	65	45-120	2	25	
Pyrene	81.3	10	3.9	ug/l	100	81	50-120	1	25	
1,2,4-Trichlorobenzene	63.8	10	4.4	ug/l	100	64	50-120	2	20	
2,4,5-Trichlorophenol	76.4	20	3.6	ug/l	100	76	60-120	3	20	
2,4,6-Trichlorophenol	76.4	20	4.1	ug/l	100	76	60-120	2	20	
1,2-Diphenylhydrazine/Azobenzene	75.1	20	5.0	ug/l	100	75	60-120	6	25	
N-Nitrosodimethylamine	63.2	20	3.7	ug/l	100	63	40-120	6	20	
Surrogate: 2-Fluorophenol	122			ug/l	200	61	35-120			
Surrogate: Phenol-d6	126			ug/l	200	63	45-120			
Surrogate: 2,4,6-Tribromophenol	154			ug/l	200	77	50-125			
Surrogate: Nitrobenzene-d5	64.7			ug/l	100	65	45-120			
Surrogate: 2-Fluorobiphenyl	70.9			ug/l	100	71	45-120			
Surrogate: Terphenyl-d14	73.4			ug/l	100	73	45-135			

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

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## 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
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13049-BLK1)</b>										
Aldrin	ND	0.10	0.029	ug/l						
alpha-BHC	ND	0.10	0.010	ug/l						
beta-BHC	ND	0.10	0.011	ug/l						
delta-BHC	ND	0.20	0.010	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.0097	ug/l						
Chlordane	ND	1.0	0.18	ug/l						
4,4'-DDD	ND	0.10	0.011	ug/l						
4,4'-DDE	ND	0.10	0.017	ug/l						
4,4'-DDT	ND	0.10	0.015	ug/l						
Dieldrin	ND	0.10	0.010	ug/l						
Endosulfan I	ND	0.10	0.015	ug/l						
Endosulfan II	ND	0.10	0.037	ug/l						
Endosulfan sulfate	ND	0.20	0.013	ug/l						
Endrin	ND	0.10	0.0082	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	0.012	ug/l						
Methoxychlor	ND	0.10	0.034	ug/l						
Toxaphene	ND	5.0	0.77	ug/l						
Surrogate: Tetrachloro-m-xylene	0.348			ug/l	0.500		70		35-120	
Surrogate: Decachlorobiphenyl	0.424			ug/l	0.500		85		45-120	
<b>LCS Analyzed: 01/13/2005 (5A13049-BS1)</b>										
Aldrin	0.517	0.10	0.029	ug/l	0.500		103		45-115	
alpha-BHC	0.527	0.10	0.010	ug/l	0.500		105		45-115	
beta-BHC	0.496	0.10	0.011	ug/l	0.500		99		50-115	
delta-BHC	0.564	0.20	0.010	ug/l	0.500		113		55-120	
gamma-BHC (Lindane)	0.525	0.10	0.0097	ug/l	0.500		105		45-115	
4,4'-DDD	0.537	0.10	0.011	ug/l	0.500		107		60-120	
4,4'-DDE	0.534	0.10	0.017	ug/l	0.500		107		55-120	
4,4'-DDT	0.557	0.10	0.015	ug/l	0.500		111		60-130	
Dieldrin	0.540	0.10	0.010	ug/l	0.500		108		55-120	
Endosulfan I	0.512	0.10	0.015	ug/l	0.500		102		50-115	
Endosulfan II	0.525	0.10	0.037	ug/l	0.500		105		60-125	
Endosulfan sulfate	0.528	0.20	0.013	ug/l	0.500		106		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: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## 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
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/13/2005 (5A13049-BS1)</b>										
Endrin	0.578	0.10	0.0082	ug/l	0.500		116 55-125			M-NRI
Endrin aldehyde	0.553	0.10	0.045	ug/l	0.500		111 55-115			
Endrin ketone	0.513	0.10	0.020	ug/l	0.500		103 60-120			
Heptachlor	0.513	0.10	0.030	ug/l	0.500		103 45-115			
Heptachlor epoxide	0.527	0.10	0.012	ug/l	0.500		105 50-120			
Methoxychlor	0.535	0.10	0.034	ug/l	0.500		107 60-135			
Surrogate: Tetrachloro-m-xylene	0.435			ug/l	0.500		87 35-120			
Surrogate: Decachlorobiphenyl	0.527			ug/l	0.500		105 45-120			
<b>LCS Dup Analyzed: 01/13/2005 (5A13049-BSD1)</b>										
Aldrin	0.512	0.10	0.029	ug/l	0.500		102 45-115	1	30	
alpha-BHC	0.534	0.10	0.010	ug/l	0.500		107 45-115	1	30	
beta-BHC	0.487	0.10	0.011	ug/l	0.500		97 50-115	2	30	
delta-BHC	0.547	0.20	0.010	ug/l	0.500		109 55-120	3	30	
gamma-BHC (Lindane)	0.525	0.10	0.0097	ug/l	0.500		105 45-115	0	30	
4,4'-DDD	0.505	0.10	0.011	ug/l	0.500		101 60-120	6	30	
4,4'-DDE	0.510	0.10	0.017	ug/l	0.500		102 55-120	5	30	
4,4'-DDT	0.520	0.10	0.015	ug/l	0.500		104 60-130	7	30	
Dieldrin	0.515	0.10	0.010	ug/l	0.500		103 55-120	5	30	
Endosulfan I	0.493	0.10	0.015	ug/l	0.500		99 50-115	4	30	
Endosulfan II	0.495	0.10	0.037	ug/l	0.500		99 60-125	6	30	
Endosulfan sulfate	0.498	0.20	0.013	ug/l	0.500		100 60-120	6	30	
Endrin	0.550	0.10	0.0082	ug/l	0.500		110 55-125	5	30	
Endrin aldehyde	0.511	0.10	0.045	ug/l	0.500		102 55-115	8	30	
Endrin ketone	0.490	0.10	0.020	ug/l	0.500		98 60-120	5	30	
Heptachlor	0.510	0.10	0.030	ug/l	0.500		102 45-115	1	30	
Heptachlor epoxide	0.510	0.10	0.012	ug/l	0.500		102 50-120	3	30	
Methoxychlor	0.505	0.10	0.034	ug/l	0.500		101 60-135	6	30	
Surrogate: Tetrachloro-m-xylene	0.449			ug/l	0.500		90 35-120			
Surrogate: Decachlorobiphenyl	0.494			ug/l	0.500		99 45-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Outfall 015 Report Number: IOA0580	Sampled: 01/12/05 Received: 01/11/05
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## 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
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13049-BLK1)</b>										
Aroclor 1016	ND	1.0	0.067	ug/l						
Aroclor 1221	ND	1.0	0.057	ug/l						
Aroclor 1232	ND	1.0	0.13	ug/l						
Aroclor 1242	ND	1.0	0.12	ug/l						
Aroclor 1248	ND	1.0	0.21	ug/l						
Aroclor 1254	ND	1.0	0.16	ug/l						
Aroclor 1260	ND	1.0	0.17	ug/l						
Surrogate: Decachlorobiphenyl	0.387			ug/l	0.500		77		45-120	
<b>LCS Analyzed: 01/13/2005 (5A13049-BS2)</b>										
Aroclor 1016	2.82	1.0	0.067	ug/l	4.00		70		50-115	M-NR1
Aroclor 1260	2.91	1.0	0.17	ug/l	4.00		73		60-115	
Surrogate: Decachlorobiphenyl	0.389			ug/l	0.500		78		45-120	
<b>LCS Dup Analyzed: 01/13/2005 (5A13049-BSD2)</b>										
Aroclor 1016	2.68	1.0	0.067	ug/l	4.00		67	5	50-115	30
Aroclor 1260	2.88	1.0	0.17	ug/l	4.00		72	1	60-115	25
Surrogate: Decachlorobiphenyl	0.379			ug/l	0.500		76		45-120	

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 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
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**Batch: 5A14046 Extracted: 01/14/05**

**Blank Analyzed: 01/14/2005-01/16/2005 (5A14046-BLK1)**

Antimony	ND	0.010	0.0042	mg/l						
Arsenic	ND	0.0050	0.0038	mg/l						
Barium	ND	0.010	0.0028	mg/l						
Beryllium	ND	0.0020	0.00062	mg/l						
Boron	ND	0.050	0.0074	mg/l						
Cadmium	ND	0.0050	0.00034	mg/l						
Chromium	ND	0.0050	0.00068	mg/l						
Copper	ND	0.010	0.0017	mg/l						
Lead	ND	0.0050	0.0021	mg/l						
Nickel	ND	0.010	0.0020	mg/l						
Selenium	ND	0.0050	0.0046	mg/l						
Silver	ND	0.010	0.0013	mg/l						
Thallium	0.00330	0.0050	0.0031	mg/l						J
Zinc	ND	0.020	0.0037	mg/l						

**LCS Analyzed: 01/14/2005-01/16/2005 (5A14046-BS1)**

Antimony	0.512	0.010	0.0042	mg/l	0.500		102	85-115		
Arsenic	0.490	0.0050	0.0038	mg/l	0.500		98	85-115		
Barium	0.489	0.010	0.0028	mg/l	0.500		98	85-115		
Beryllium	0.484	0.0020	0.00062	mg/l	0.500		97	85-115		
Boron	0.469	0.050	0.0074	mg/l	0.500		94	85-115		
Cadmium	0.482	0.0050	0.00034	mg/l	0.500		96	85-115		
Chromium	0.492	0.0050	0.00068	mg/l	0.500		98	85-115		
Copper	0.475	0.010	0.0017	mg/l	0.500		95	85-115		
Lead	0.490	0.0050	0.0021	mg/l	0.500		98	85-115		
Nickel	0.482	0.010	0.0020	mg/l	0.500		96	85-115		
Selenium	0.476	0.0050	0.0046	mg/l	0.500		95	85-115		
Silver	0.247	0.010	0.0013	mg/l	0.250		99	85-115		
Thallium	0.497	0.0050	0.0031	mg/l	0.500		99	85-115		
Zinc	0.473	0.020	0.0037	mg/l	0.500		95	85-115		

Del Mar Analytical, Irvine  
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 Project Manager

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Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD	RPD Limit	Data Qualifiers
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**Batch: 5A14046 Extracted: 01/14/05**

**Matrix Spike Analyzed: 01/14/2005-01/16/2005 (5A14046-MS1)**

**Source: IOA0701-01**

Antimony	0.536	0.010	0.0042	mg/l	0.500	ND	107	70-130		
Arsenic	0.508	0.0050	0.0038	mg/l	0.500	ND	102	70-130		
Barium	0.521	0.010	0.0028	mg/l	0.500	0.022	100	70-130		
Beryllium	0.502	0.0020	0.00062	mg/l	0.500	ND	100	70-130		
Boron	0.675	0.050	0.0074	mg/l	0.500	0.18	99	70-130		
Cadmium	0.494	0.0050	0.00034	mg/l	0.500	0.00070	99	70-130		
Chromium	0.508	0.0050	0.00068	mg/l	0.500	0.0024	101	70-130		
Copper	0.509	0.010	0.0017	mg/l	0.500	0.0028	101	70-130		
Lead	0.507	0.0050	0.0021	mg/l	0.500	0.0024	101	70-130		
Nickel	0.498	0.010	0.0020	mg/l	0.500	0.0024	99	70-130		
Selenium	0.486	0.0050	0.0046	mg/l	0.500	ND	97	70-130		
Silver	0.252	0.010	0.0013	mg/l	0.250	ND	101	70-130		
Thallium	0.515	0.0050	0.0031	mg/l	0.500	ND	103	70-130		
Zinc	0.795	0.020	0.0037	mg/l	0.500	0.31	97	70-130		

**Matrix Spike Dup Analyzed: 01/14/2005-01/16/2005 (5A14046-MSD1)**

**Source: IOA0701-01**

Antimony	0.540	0.010	0.0042	mg/l	0.500	ND	108	70-130	1	20
Arsenic	0.511	0.0050	0.0038	mg/l	0.500	ND	102	70-130	1	20
Barium	0.522	0.010	0.0028	mg/l	0.500	0.022	100	70-130	0	20
Beryllium	0.506	0.0020	0.00062	mg/l	0.500	ND	101	70-130	1	20
Boron	0.682	0.050	0.0074	mg/l	0.500	0.18	100	70-130	1	20
Cadmium	0.500	0.0050	0.00034	mg/l	0.500	0.00070	100	70-130	1	20
Chromium	0.509	0.0050	0.00068	mg/l	0.500	0.0024	101	70-130	0	20
Copper	0.515	0.010	0.0017	mg/l	0.500	0.0028	102	70-130	1	20
Lead	0.510	0.0050	0.0021	mg/l	0.500	0.0024	102	70-130	1	20
Nickel	0.503	0.010	0.0020	mg/l	0.500	0.0024	100	70-130	1	20
Selenium	0.494	0.0050	0.0046	mg/l	0.500	ND	99	70-130	2	20
Silver	0.254	0.010	0.0013	mg/l	0.250	ND	102	70-130	1	20
Thallium	0.509	0.0050	0.0031	mg/l	0.500	ND	102	70-130	1	20
Zinc	0.806	0.020	0.0037	mg/l	0.500	0.31	99	70-130	1	20

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 Wendy Kirkeeng For Michele Harper  
 Project Manager

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IOA0580 <Page 20 of 27>





# 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 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A14053 Extracted: 01/14/05</b>											
<b>Blank Analyzed: 01/14/2005 (5A14053-BLK1)</b>											
Mercury	ND	0.00020	0.000063	mg/l							
<b>LCS Analyzed: 01/14/2005 (5A14053-BS1)</b>											
Mercury	0.00785	0.00020	0.000063	mg/l	0.00800		98	85-115			
<b>Matrix Spike Analyzed: 01/14/2005 (5A14053-MS1) Source: IOA0701-01</b>											
Mercury	0.00838	0.00020	0.000063	mg/l	0.00800	ND	105	70-130			
<b>Matrix Spike Dup Analyzed: 01/14/2005 (5A14053-MSD1) Source: IOA0701-01</b>											
Mercury	0.00823	0.00020	0.000063	mg/l	0.00800	ND	103	70-130	2	20	

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

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12036 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12036-BLK1)</b>										
Chloride	ND	0.50	0.26	mg/l						
Fluoride	ND	0.50	0.074	mg/l						
Nitrate-N	ND	0.11	0.072	mg/l						
Nitrite-N	ND	0.15	0.058	mg/l						
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
<b>LCS Analyzed: 01/12/2005 (5A12036-BS1)</b>										
Chloride	4.84	0.50	0.26	mg/l	5.00		97 90-110			
Fluoride	4.63	0.50	0.074	mg/l	5.00		93 90-110			
Nitrate-N	1.15	0.11	0.072	mg/l	1.13		102 90-110			M-3
Nitrite-N	1.42	0.15	0.058	mg/l	1.52		93 90-110			
Sulfate	10.1	0.50	0.18	mg/l	10.0		101 90-110			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12036-MS1) Source: IOA0527-01</b>										
Chloride	15.0	2.5	1.3	mg/l	5.00	11	80 80-120			
Fluoride	5.63	2.5	0.37	mg/l	5.00	1.1	91 80-120			
Nitrite-N	1.78	0.75	0.29	mg/l	1.52	ND	117 80-120			
Sulfate	164	2.5	0.90	mg/l	10.0	150	140 80-120			M-HA
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12036-MSD1) Source: IOA0527-01</b>										
Chloride	15.1	2.5	1.3	mg/l	5.00	11	82 80-120	1	20	
Fluoride	5.50	2.5	0.37	mg/l	5.00	1.1	88 80-120	2	20	
Nitrite-N	1.70	0.75	0.29	mg/l	1.52	ND	112 80-120	5	20	
Sulfate	164	2.5	0.90	mg/l	10.0	150	140 80-120	0	20	M-HA
<b>Batch: 5A13052 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/18/2005 (5A13052-BLK1)</b>										
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l						

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Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b><u>Batch: 5A13052 Extracted: 01/13/05</u></b>											
<b>LCS Analyzed: 01/18/2005 (5A13052-BS1)</b>											
Biochemical Oxygen Demand	217	100	30	mg/l	198		110	85-115			
<b>LCS Dup Analyzed: 01/18/2005 (5A13052-BSD1)</b>											
Biochemical Oxygen Demand	214	100	30	mg/l	198		108	85-115	1	20	
<b><u>Batch: 5A13063 Extracted: 01/13/05</u></b>											
<b>Blank Analyzed: 01/13/2005 (5A13063-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 01/13/2005 (5A13063-BS1)</b>											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0		98	80-115			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13063-MS1)</b>											
Ammonia-N (Distilled)	11.5	0.50	0.30	mg/l	10.0	0.56	109	70-120			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13063-MSD1)</b>											
Ammonia-N (Distilled)	11.2	0.50	0.30	mg/l	10.0	0.56	106	70-120	3	15	
<b><u>Batch: 5A13089 Extracted: 01/13/05</u></b>											
<b>Blank Analyzed: 01/13/2005 (5A13089-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 01/13/2005 (5A13089-BS1)</b>											
Total Dissolved Solids	994	10	10	mg/l	1000		99	90-110			

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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: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13089 Extracted: 01/13/05</b>										
<b>Duplicate Analyzed: 01/13/2005 (5A13089-DUP1)</b>					<b>Source: IOA0549-01</b>					
Total Dissolved Solids	92.0	10	10	mg/l		88		4	10	
<b>Batch: 5A13092 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13092-BLK1)</b>										
Total Cyanide	ND	0.025	0.017	mg/l						
<b>LCS Analyzed: 01/13/2005 (5A13092-BS1)</b>										
Total Cyanide	0.197	0.025	0.017	mg/l	0.200		98 90-110			M-NRI
<b>LCS Dup Analyzed: 01/13/2005 (5A13092-BSD1)</b>										
Total Cyanide	0.188	0.025	0.017	mg/l	0.200		94 90-110	5	10	
<b>Batch: 5A17060 Extracted: 01/17/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A17060-BLK1)</b>										
Total Suspended Solids	ND	10	10	mg/l						
<b>LCS Analyzed: 01/17/2005 (5A17060-BS1)</b>										
Total Suspended Solids	971	10	10	mg/l	1000		97 85-115			
<b>Duplicate Analyzed: 01/17/2005 (5A17060-DUP1)</b>					<b>Source: IOA0673-01</b>					
Total Suspended Solids	ND	10	10	mg/l		ND			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: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05  
Received: 01/11/05

### 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
IOA0580-01	Barium-200.7	Barium	mg/l	0.023	0.010	1.00
IOA0580-01	BOD	Biochemical Oxygen Demand	mg/l	17	2.0	30
IOA0580-01	Chloride - 300.0	Chloride	mg/l	140	5.0	150
IOA0580-01	Fluoride-300.0	Fluoride	mg/l	0.36	0.50	1.60
IOA0580-01	Nitrite-N, 300.0	Nitrite-N	mg/l	0	0.15	1.00
IOA0580-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	2.20	0.26	8.00
IOA0580-01	Sulfate-300.0	Sulfate	mg/l	16	0.50	300
IOA0580-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	400	10	950
IOA0580-01	TSS - EPA 160.2	Total Suspended Solids	mg/l	22	10	30

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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: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05  
Received: 01/11/05

## DATA QUALIFIERS AND DEFINITIONS

- C** Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
- C5** Calibration Verification recovery was below the method control limit for this analyte. An additional check standard was analyzed at the reporting limit to ensure instrument sensitivity at the reporting limit. Samples ND.
- 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-HA** Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. 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-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

## ADDITIONAL COMMENTS

### For 1,2-Diphenylhydrazine:

The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product, Azobenzene.

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



# Del Mar Analytical

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 Attention: Bronwyn Kelly

Project ID: Outfall 015

Report Number: IOA0580

Sampled: 01/12/05

Received: 01/11/05

## Certification Summary

### Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.7	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	Water	X	X
EPA 335.2	Water	X	X
EPA 350.2	Water	X	X
EPA 405.1	Water	X	X
EPA 608	Water	X	X
EPA 625	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](http://www.dmalabs.com).*

### Subcontracted Laboratories

#### Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chronic  
 Samples: IOA0580-01

Analysis Performed: Bioassay-Acute 96hr  
 Samples: IOA0580-01

#### Pace Analytical, MN- SUB

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR  
 Samples: IOA0580-01

Analysis Performed: EDD + Level 4  
 Samples: IOA0580-01

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

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30A0580

CHAIN OF CUSTODY FORM

Del Mar Analytical Version 5/8/2004

Client Name/Address:		Project:		ANALYSIS REQUIRED										Field readings:						
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Outfall 015 Effluent - Daily STP 1		Turbidity	Residual Chlorine	Total & Fecal Coliform	Suspended Solids	BOD 5 @ 20°C	AMMONIA-N	NITRATE-N	NITRATE-N	NITRATE-N	TDS CHLORIDE	SULFATE BORON	PHOSPHORUS	CHROMIUM	TRICHLOR	remaining USEP	priority pollutants	
Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Sampling Date/Time	Turbidity	Residual Chlorine	Total & Fecal Coliform	Suspended Solids	BOD 5 @ 20°C	AMMONIA-N	NITRATE-N	NITRATE-N	TDS CHLORIDE	SULFATE BORON	PHOSPHORUS	CHROMIUM	TRICHLOR	remaining USEP	priority pollutants
Outfall 015-Grab	W	500ml Poly	1	None	1/11/09 - 1445	*														
Outfall 015-Grab	W	VOAe	2	None	PK		*													
Outfall 015-Grab	W	Glass	2	None	PK			X												
Outfall 015	W	1 gal Poly	2	None	1/11/09 - 1445				X	X	X	X	X	X	X	X	X	X	X	24 hour composite
Relinquished By				Received By				Date/Time				Date/Time				Turn around Time: (check)				
Steven B. [unclear]				[unclear]				1/11/09 1525				1-11-05 1525				24 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/>				
Relinquished By				Received By				Date/Time				Date/Time				48 Hours <input type="checkbox"/> 10 Days <input type="checkbox"/>				
John Schuler				[unclear]				1-11-05 1850				1-11-05 1850				72 Hours <input type="checkbox"/> Normal <input checked="" type="checkbox"/>				
Relinquished By				Received By				Date/Time				Date/Time				Perchlorate Only 72 Hours <input type="checkbox"/> MTH 1/12-105				
																Metals Only 72 Hours <input type="checkbox"/>				
Sample Integrity: (Check) Intact <input type="checkbox"/>																				



March 10, 2005

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

Attention: Bronwyn Kelly  
  
Project: Outfall 015  
Sampled: 01/11/05-01/12/05  
Del Mar Analytical Number: IOA0580

Dear Ms. Kelly:

Pace Analytical performed USEPA Method 1613 B and Aquatic Testing Laboratories performed *Ceriodaphnia dubia* Survival and Reproduction Test (EPA Method 1002) for the project referenced above. Please use the following cross-reference table when reviewing your results.

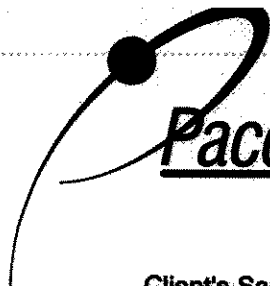
MWH ID	Del Mar ID	Pace ID	ATL ID
Outfall 015-Comp Effluent	IOA0580-01	106237001	A-05011312-001

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 at (949) 261-1022, extension 215.

Sincerely yours,  
DEL MAR ANALYTICAL



Michele Harper  
Project Manager



## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0580-01				
Lab Sample ID	106237001				
Filename	F50130A_08				
Injected By	BAL				
Total Amount Extracted	965 mL			Matrix	Water
% Moisture	NA			Dilution	NA
Dry Weight Extracted	NA			Collected	01/12/2005
ICAL Date	11/29/2004			Received	01/14/2005
CCal Filename(s)	F50129B_18			Extracted	01/28/2005
Method Blank ID	BLANK-6220			Analyzed	01/30/2005 16:29

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.83	2,3,7,8-TCDF-13C	2.00	70
Total TCDF	1.30	----	0.83 J	2,3,7,8-TCDD-13C	2.00	86
				1,2,3,7,8-PeCDF-13C	2.00	78
2,3,7,8-TCDD	ND	----	0.66	2,3,4,7,8-PeCDF-13C	2.00	80
Total TCDD	ND	----	0.66	1,2,3,7,8-PeCDD-13C	2.00	96
				1,2,3,4,7,8-HxCDF-13C	2.00	80
1,2,3,7,8-PeCDF	ND	----	1.30	1,2,3,6,7,8-HxCDF-13C	2.00	78
2,3,4,7,8-PeCDF	ND	----	0.60	2,3,4,6,7,8-HxCDF-13C	2.00	80
Total PeCDF	ND	----	0.94	1,2,3,7,8,9-HxCDF-13C	2.00	81
				1,2,3,4,7,8-HxCDD-13C	2.00	74
1,2,3,7,8-PeCDD	ND	----	1.30	1,2,3,6,7,8-HxCDD-13C	2.00	86
Total PeCDD	ND	----	1.30	1,2,3,4,6,7,8-HpCDF-13C	2.00	77
				1,2,3,4,7,8,9-HpCDF-13C	2.00	67
1,2,3,4,7,8-HxCDF	0.81	----	0.63 J	1,2,3,4,6,7,8-HpCDD-13C	2.00	84
1,2,3,6,7,8-HxCDF	ND	----	0.66	OCDD-13C	4.00	79
2,3,4,6,7,8-HxCDF	ND	----	0.49			
1,2,3,7,8,9-HxCDF	ND	----	0.62	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.81	----	0.60 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.55	2,3,7,8-TCDD-37Cl4	0.20	85
1,2,3,6,7,8-HxCDD	0.77	----	0.59 J			
1,2,3,7,8,9-HxCDD	ND	----	0.58			
Total HxCDD	3.90	----	0.57 J			
1,2,3,4,6,7,8-HpCDF	ND	----	1.70			
1,2,3,4,7,8,9-HpCDF	ND	----	2.10			
Total HpCDF	ND	----	1.90			
1,2,3,4,6,7,8-HpCDD	7.90	----	0.80 BJ			
Total HpCDD	18.00	----	0.80 BJ			
OCDF	8.60	----	1.50 BJ			
OCDD	96.00	----	1.20 J			

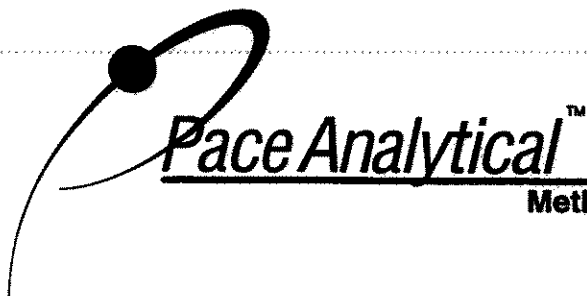
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106237

## REPORT OF LABORATORY ANALYSIS

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### Method 1613B Blank Analysis Results

Client - Del Mar Analytical

Lab Sample ID	BLANK-6220	Matrix	Water
Filename	F50129B_06	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 23:49
CCal Filename(s)	F50129B_02	Injected By	BAL

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.20	2,3,7,8-TCDF-13C	2.00	58
Total TCDF	ND	----	----	2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	ND	----	1.20	2,3,4,7,8-PeCDF-13C	2.00	67
Total TCDD	ND	----	----	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	----	1.50	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	1.20	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	----	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	----	1.60	1,2,3,6,7,8-HxCDD-13C	2.00	88
Total PeCDD	ND	----	----	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
				1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	ND	----	0.75	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	ND	----	0.86	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	ND	----	1.10			
1,2,3,7,8,9-HxCDF	ND	----	1.20	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	----	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.10	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	ND	----	0.99			
1,2,3,7,8,9-HxCDD	ND	----	1.00			
Total HxCDD	ND	----	----			
1,2,3,4,6,7,8-HpCDF	ND	----	2.10			
1,2,3,4,7,8,9-HpCDF	ND	----	1.90			
Total HpCDF	2.2	----	---- J			
1,2,3,4,6,7,8-HpCDD	2.4	----	1.40 J			
Total HpCDD	2.4	----	---- J			
OCDF	5.2	----	1.80 J			
OCDD	5.6	----	2.90 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).

EMPC = Estimated Maximum Possible Concentration

LOD = Limit of Detection. Totals are averages of individual isomer LODs.

A = Limit of Detection based on signal to noise

P = Recovery outside of method 1613 control limits

Nn = Value obtained from additional analysis

I = Interference

E = PCDE Interference

ND = Not Detected

NA = Not Applicable

NC = Not Calculated

\* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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### Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCS-6221	Matrix	Water
Filename	F50129B_03	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 21:22
CCal Filename	F50129B_02	Injected By	BAL
Method Blank ID	BLANK-6220		

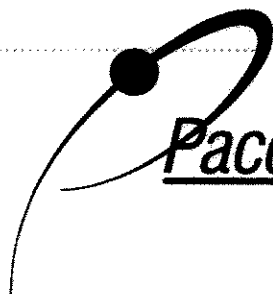
Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.9	7.5	15.8	99
2,3,7,8-TCDD	10	8.6	6.7	15.8	86
1,2,3,7,8-PeCDF	50	50.5	40.0	67.0	101
2,3,4,7,8-PeCDF	50	48.2	34.0	80.0	96
1,2,3,7,8-PeCDD	50	43.3	35.0	71.0	87
1,2,3,4,7,8-HxCDF	50	45.6	36.0	67.0	91
1,2,3,6,7,8-HxCDF	50	48.7	42.0	65.0	97
2,3,4,6,7,8-HxCDF	50	49.1	35.0	78.0	98
1,2,3,7,8,9-HxCDF	50	46.5	39.0	65.0	93
1,2,3,4,7,8-HxCDD	50	49.9	35.0	82.0	100
1,2,3,6,7,8-HxCDD	50	51.3	38.0	67.0	103
1,2,3,7,8,9-HxCDD	50	50.1	32.0	81.0	100
1,2,3,4,6,7,8-HpCDF	50	50.3	41.0	61.0	101
1,2,3,4,7,8,9-HpCDF	50	53.3	39.0	69.0	107
1,2,3,4,6,7,8-HpCDD	50	45.4	35.0	70.0	91
OCDF	100	95.6	63.0	170.0	96
OCDD	100	97.1	78.0	144.0	97
2,3,7,8-TCDD-37Cl4	10	6.9	3.1	19.1	69
2,3,7,8-TCDF-13C	100	51.5	22.0	152.0	52
2,3,7,8-TCDD-13C	100	67.8	20.0	175.0	68
1,2,3,7,8-PeCDF-13C	100	61.4	21.0	192.0	61
2,3,4,7,8-PeCDF-13C	100	65.9	13.0	328.0	66
1,2,3,7,8-PeCDD-13C	100	77.8	21.0	227.0	78
1,2,3,4,7,8-HxCDF-13C	100	70.2	19.0	202.0	70
1,2,3,6,7,8-HxCDF-13C	100	78.0	21.0	159.0	78
2,3,4,6,7,8-HxCDF-13C	100	74.1	22.0	176.0	74
1,2,3,7,8,9-HxCDF-13C	100	70.4	17.0	205.0	70
1,2,3,4,7,8-HxCDD-13C	100	69.0	21.0	193.0	69
1,2,3,6,7,8-HxCDD-13C	100	82.8	25.0	163.0	83
1,2,3,4,6,7,8-HpCDF-13C	100	72.1	21.0	158.0	72
1,2,3,4,7,8,9-HpCDF-13C	100	62.4	20.0	186.0	62
1,2,3,4,6,7,8-HpCDD-13C	100	80.1	26.0	166.0	80
OCDD-13C	200	135.6	26.0	397.0	68

Cs = Concentration Spiked (ng/mL)  
Cr = Concentration Recovered (ng/mL)  
Rec. = Recovery (Expressed as Percent)  
Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
X = Background subtracted value  
P = Recovery outside of control limits  
Nn = Value obtained from additional analysis  
\* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCSD-6222	Matrix	Water
Filename	F50129B_04	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 22:09
CCal Filename	F50129B_02	Injected By	BAL
Method Blank ID	BLANK-6220		

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10.6	7.5	15.8	106
2,3,7,8-TCDD	10	9.4	6.7	15.8	94
1,2,3,7,8-PeCDF	50	53.2	40.0	67.0	106
2,3,4,7,8-PeCDF	50	50.7	34.0	80.0	101
1,2,3,7,8-PeCDD	50	46.0	35.0	71.0	92
1,2,3,4,7,8-HxCDF	50	47.6	36.0	67.0	95
1,2,3,6,7,8-HxCDF	50	50.9	42.0	65.0	102
2,3,4,6,7,8-HxCDF	50	50.9	35.0	78.0	102
1,2,3,7,8,9-HxCDF	50	49.0	39.0	65.0	98
1,2,3,4,7,8-HxCDD	50	52.4	35.0	82.0	105
1,2,3,6,7,8-HxCDD	50	54.2	38.0	67.0	108
1,2,3,7,8,9-HxCDD	50	52.5	32.0	81.0	105
1,2,3,4,6,7,8-HpCDF	50	55.0	41.0	61.0	110
1,2,3,4,7,8,9-HpCDF	50	55.7	39.0	69.0	111
1,2,3,4,6,7,8-HpCDD	50	48.0	35.0	70.0	96
OCDF	100	100.6	63.0	170.0	101
OCDD	100	101.9	78.0	144.0	102
2,3,7,8-TCDD-37Cl4	10	8.7	3.1	19.1	87
2,3,7,8-TCDF-13C	100	70.4	22.0	152.0	70
2,3,7,8-TCDD-13C	100	88.6	20.0	175.0	89
1,2,3,7,8-PeCDF-13C	100	73.6	21.0	192.0	74
2,3,4,7,8-PeCDF-13C	100	79.0	13.0	328.0	79
1,2,3,7,8-PeCDD-13C	100	95.5	21.0	227.0	96
1,2,3,4,7,8-HxCDF-13C	100	84.8	19.0	202.0	85
1,2,3,6,7,8-HxCDF-13C	100	89.5	21.0	159.0	90
2,3,4,6,7,8-HxCDF-13C	100	87.2	22.0	176.0	87
1,2,3,7,8,9-HxCDF-13C	100	82.1	17.0	205.0	82
1,2,3,4,7,8-HxCDD-13C	100	80.1	21.0	193.0	80
1,2,3,6,7,8-HxCDD-13C	100	97.0	25.0	163.0	97
1,2,3,4,6,7,8-HpCDF-13C	100	84.4	21.0	158.0	84
1,2,3,4,7,8,9-HpCDF-13C	100	71.7	20.0	186.0	72
1,2,3,4,6,7,8-HpCDD-13C	100	92.4	26.0	166.0	92
OCDD-13C	200	159.2	26.0	397.0	80

Cs = Concentration Spiked (ng/mL)  
 Cr = Concentration Recovered (ng/mL)  
 Rec. = Recovery (Expressed as Percent)  
 Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
 X = Background subtracted value  
 P = Recovery outside of control limits  
 Nn = Value obtained from additional analysis  
 \* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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**TABLE 1. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans**

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

\*Excluding the 2,3,7,8-substituted congeners.

Reference: 1989 ITEFs

## REPORT OF LABORATORY ANALYSIS

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 9484 Chesapeake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

**SUBCONTRACT ORDER - PROJECT # IOA0580 106237**

**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:**  
 Pace Analytical, MN- SUB  
 1700 Elm Street, Ste 200  
 Minneapolis, MN 55414  
 Phone : (612) 607-1700  
 Fax: (612) 607-6444

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

Analysis	Expiration	Comments
----------	------------	----------

Sample ID: IOA0580-01 Water	Sampled: 01/12/05 13:30	
1613-Dioxin-HR	01/19/05 13:30	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4-OUT	02/09/05 13:30	

106237001

Containers Supplied:  
 1 L Amber (IOA0580-01B)

**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): 1:12

Released By: [Signature] Date: 1-13-05 Time: 1700 Received By: Kathleen Anderson Date: 1/14/05 Time: 11:22

Released By \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_ Received By \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

# LABORATORY REPORT

**Aquatic  
Testing  
Laboratories**



*"dedicated to providing quality aquatic toxicity testing"*

**Date:** January 20, 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-05011312-001  
**Sample I.D.:** IOA0580-01

**Sample Control:** The sample was received by ATL chilled, with the chain of custody record attached.

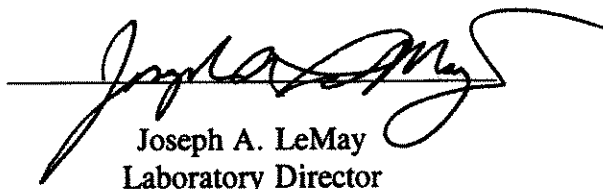
Date Sampled: 01/12/05  
Date Received: 01/13/05  
Date Tested: 01/13/05 to 01/19/05

**Sample Analysis:** The following analyses were performed on your sample:  
*Ceriodaphnia dubia* Survival and Reproduction Test (EPA Method 1002).  
Attached are the test data generated from the analysis of your sample.

## Result Summary:

<b>Chronic:</b>	<b><u>NOEC</u></b>	<b><u>TUc</u></b>
<i>Ceriodaphnia</i> Survival:	< 6.25%	> 16.0
<i>Ceriodaphnia</i> Reproduction:	< 6.25%	> 16.0

**Quality Control:** Reviewed and approved by:

  
Joseph A. LeMay  
Laboratory Director



**CERIODAPHNIA CHRONIC BIOASSAY  
EPA METHOD 1002.0**



Lab No.: A-05011312  
Client/ID: Del Mar IOA0580-01

Date Tested: 01/13/05 to 01/19/05

**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-050104.

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%	21.6
6.25%	0% *	1.1 **
12.5%	0% *	0 **
25%	0% *	0 **
50%	0% *	0 **
100%	0% *	0 **

\* 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	<6.25%	<6.25%
TUc	>16.0	>16.0

**QA/QC TEST ACCEPTABILITY**

Parameter	Result
Control survival ≥80%	Pass (100% survival)
>15 young per surviving control female	Pass (21.6 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 = 11.7%)
Statistically significantly different concentrations relative difference >13%	Pass (stat. sig. diff. conc. >94.9% difference)
Concentration response relationship acceptable	Pass (significant response at conc. tested)



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 9484 Chesapeake Drive, Suite 806, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9889  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 786-0043 Fax (480) 786-0851  
 2629 E. Sunset Rd., Suite 83, Las Vegas, NV 89120 Ph (702) 786-3620 Fax (702) 786-3621

## SUBCONTRACT ORDER - PROJECT # IOA0580

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: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Expiration	Comments
Sample ID: IOA0580-01 Water	Sampled: 01/12/05 13:30	
Bioassay-7 dy Chronic	01/14/05 01:30	Cerio, EPA/821-R02-013, Sub to AqTox Labs
Bioassay-Acute 96hr	01/14/05 01:30	FH minnow, EPA/821-R02-012, Sub to AqTox Labs
Containers Supplied:		
1 gal Poly (IOA0580-01A)		

### 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): 4

Released By: [Signature] Date: 1/13/05 Time: 0700     
 Received By: [Signature] Date: 1/13/05 Time: 0700  
 Released By: [Signature] Date: 1/13/05 Time: 12:25     
 Received By: [Signature] Date: 1-13-05 Time: 1230

**APPENDIX G**

**Section 13**

**January Outfall 017**

**AMEC Data Validation Reports**

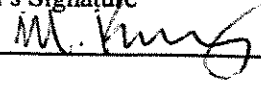
**Del Mar Analytical Laboratory Reports**

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711SV26  
 Task Order 313150010  
 SDG No. IOA0454, 0456  
 No. of Analyses 2

Laboratory Del Mar  
 Reviewer M. Pokorny  
 Analysis/Method NDMA

Date: February 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. Perform  
 Calibrations  
 Blanks  
 Surrogates  
 Matrix Spike/Dup LCS  
 Field QC  
 Internal Standard Performance  
 Compound Identification and  
 Quantitation  
 System Performance

**COMMENTS<sup>b</sup>**      Acceptable as reviewed.

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOA0454, IOA0456

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#: IOA0454, IOA0456  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Semivolatiles (NDMA)  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: M. Pokorny  
Date of Review: February 23, 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 1625C*, 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 017	Outfall 017	IOA0454-01	water	1625C
Outfall 015	Outfall 015	IOA0456-01	water	1625C

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

The samples in these SDGs were received at the laboratory within the temperature limits of  $4^{\circ}\text{C}\pm 2$ , at  $4^{\circ}\text{C}$ . According to COCs, the samples were received intact and in good condition. No qualifications were required.

#### 2.1.2 Chain of Custody

The COCs from the field to Del Mar Analytical were signed by field and laboratory personnel and accounted for the analyses presented in these SDGs. As the samples were couriered to the laboratory, custody seals are 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 extraction. No qualifications were required.

### 2.2 GC/MS TUNING

Tuning is not applicable for this analysis. No qualifications were required.

### 2.3 CALIBRATION

The initial calibration associated with these SDGs was dated 12/30/04. The average RRF for NDMA was  $\geq 0.05$  and the %RSD was  $\leq 35\%$ . The continuing calibration was analyzed 01/13/05. The RRF for NDMA was  $\geq 0.05$ , and the %D was  $\leq 20\%$ . The RRFs, %RSD, and %D were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.4 BLANKS

One method blank (5A12032-BLK1) was extracted and analyzed with these SDGs. NDMA was not reported in the method blank. Review of the raw data indicated no false negative. No qualifications were required.

### 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5A12032-BS1/BS1D) was extracted and analyzed with these SDGs. The NDMA recoveries and the RPD were within the laboratory QC limits. The recoveries and RPD were calculated from the raw data and no calculation or transcription errors were found. No qualifications were required.



## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with the samples in these SDGs. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate results. 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

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

### 2.7.2 Field Duplicates

There were no field duplicate samples associated with these SDGs. Field duplicate samples are required at a rate of 10% per matrix for site samples only and may not be present in every data package. Qualifications are not routinely assigned based on field duplicate results.

## 2.8 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas. Recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for NDMA by EPA Method 1625C. Review of sample chromatograms and retention times indicated no problems with target compound identification. No qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified by recalculating any sample detects and/or blank spike/blank spike duplicate concentrations from the raw data and no calculation or transcription errors were found. The reporting limits were supported by the low level of the initial calibration. Reporting limits were not adjusted for sample amount; however, the dilution factors listed on the sample result summaries reflected the sample amount extracted. Results were reported in ug/L. No qualifications were required.

## **2.11 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 017  
 Report Number: IOA0454

Sampled: 01/09/05  
 Received: 01/10/05

## DRAFT: SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/1625C MOD)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0454-01 (DRAFT: Outfall 017-Grab - Water)									
Reporting Units: ug/l									
Sampled: 01/09/05									
N-Nitrosodimethylamine	EPA 1625C Mod	5A12032	0.00070	0.0020	0.038	0.99	01/12/05	01/13/05	see qual good

**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 T711VO48  
 Task Order 313150010  
 SDG No. IOA0454, IOA0456

No. of Analyses 3

Laboratory Del Mar Analytical.

Reviewer L. Calvin

Analysis/Method Volatiles by Method 624

Date: February 28, 2005

Reviewer's Signature  


**ACTION ITEMS\***

<b>Case Narrative</b>	
<b>Deficiencies</b>	
<b>2. Out of Scope</b>	
<b>Analyses</b>	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy</b>	
<b>Deliverables</b>	
<b>5. Incorrect Hardcopy</b>	
<b>Deliverables</b>	
<b>6. Deviations from Analysis</b>	<b>Qualification was assigned for the following:</b>
<b>Protocol, e.g.,</b>	-- surrogate recovery below the QC limits
<b>Holding Times</b>	--detects above the MDL and below the reporting limit
<b>GC/MS Tune/Inst. Performance</b>	
<b>Calibration</b>	
<b>Method blanks</b>	
<b>Surrogates</b>	
<b>Matrix Spike/Dup LCS</b>	
<b>Field QC</b>	
<b>Internal Standard Performance</b>	
<b>Compound Identification</b>	
<b>Quantitation</b>	
<b>System Performance</b>	

**COMMENTS<sup>b</sup>**

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA454, IOA456

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#: IOA454, IOA456  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Volatiles  
QC Level: Level IV  
No. of Samples: 3  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: February 28, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample identification**

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 017	Outfall 017	IOA0454-01	water	624
Outfall 015	Outfall 015	IOA0456-01	water	624
Trip Blank	Trip Blank	IOA0456-02	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ , at  $4^{\circ}\text{C}$ . 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 Trip Blank sample associated with Outfall 015 was crossed out on the COC. The COCs accounted for the remaining 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 report were consistent with those specified in the 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 01/04/05 was associated with these SDGs. The average RRFs were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  for the target compounds listed on the sample result summaries. The continuing calibrations associated with the sample analyses were analyzed 01/11/05 at 08:13 and 03:52. The RRFs were  $\geq 0.05$ , and %Ds were  $\leq 20\%$  for all target compounds. A representative number of %RSDs and average RRFs from the initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.



## 2.4 BLANKS

Two water method blanks (5A11011-BLK1 and 5A11017-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 (5A11011-BS1 and 5A11017-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

Surrogate toluene-d8 was recovered below the QC limits of 80-120% in sample Outfall 017. According to the case narrative for this SDG, the sample was reanalyzed with similar results, indicating a matrix effect on the surrogate. The laboratory submitted only the reanalysis for Outfall 017. Results were qualified as estimated, "J," for detects and "UJ," for nondetects in Outfall 017. The remaining 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 further qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed on either of the site samples in these SDGs. Method accuracy was assessed 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 was the trip blank associated with site sample Outfall 017. There were no target compounds detected above the MDLs in the trip blank. Sample Outfall 015 did not have an associated trip blank analysis; and was therefore not evaluated for possible trip blank contamination. 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, of +100%/-50% for internal standard areas and  $\pm 0.50$  minutes for retention times. A representative number of internal standard areas and retention times were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

## 2.10 COMPOUND IDENTIFICATION

Target compound identification was verified at a Level IV data validation. The laboratory analyzed for volatile target compounds by EPA Method 624. Chromatograms, retention times, and spectra for the samples and QC were examined and no target compound identification problems were noted. Detects reported between the MDL and the reporting limit were qualified as estimated, "J," by the laboratory. No further 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 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 017

Report Number: IOA0454

Sampled: 01/09/05  
 Received: 01/10/05

## 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: IOA0454-02 (DRAFT: Trip Blank - Water)					Sampled: 01/09/05					<i>very good</i> <i>Qual</i> <i>Decade</i> ↓
Reporting Units: ug/l										
1,2,3-Trichloropropane	EPA 624	5A11011	0.85	10	ND	1	01/11/05	01/11/05		
Benzene	EPA 624	5A11011	0.28	1.0	ND	1	01/11/05	01/11/05		
Bromodichloromethane	EPA 624	5A11011	0.30	2.0	ND	1	01/11/05	01/11/05		
Bromoform	EPA 624	5A11011	0.32	5.0	ND	1	01/11/05	01/11/05		
Bromomethane	EPA 624	5A11011	0.34	5.0	ND	1	01/11/05	01/11/05		
Carbon tetrachloride	EPA 624	5A11011	0.28	0.50	ND	1	01/11/05	01/11/05		
Chloroethane	EPA 624	5A11011	0.33	5.0	ND	1	01/11/05	01/11/05		
Chloromethane	EPA 624	5A11011	0.30	5.0	ND	1	01/11/05	01/11/05		
Dibromochloromethane	EPA 624	5A11011	0.28	2.0	ND	1	01/11/05	01/11/05		
1,2-Dichlorobenzene	EPA 624	5A11011	0.32	2.0	ND	1	01/11/05	01/11/05		
1,3-Dichlorobenzene	EPA 624	5A11011	0.35	2.0	ND	1	01/11/05	01/11/05		
1,4-Dichlorobenzene	EPA 624	5A11011	0.37	2.0	ND	1	01/11/05	01/11/05		
1,1-Dichloroethane	EPA 624	5A11011	0.27	2.0	ND	1	01/11/05	01/11/05		
1,2-Dichloroethane	EPA 624	5A11011	0.28	0.50	ND	1	01/11/05	01/11/05		
1,1-Dichloroethene	EPA 624	5A11011	0.32	5.0	ND	1	01/11/05	01/11/05		
trans-1,2-Dichloroethene	EPA 624	5A11011	0.27	2.0	ND	1	01/11/05	01/11/05		
1,2-Dichloropropane	EPA 624	5A11011	0.35	2.0	ND	1	01/11/05	01/11/05		
cis-1,3-Dichloropropene	EPA 624	5A11011	0.22	2.0	ND	1	01/11/05	01/11/05		
trans-1,3-Dichloropropene	EPA 624	5A11011	0.24	2.0	ND	1	01/11/05	01/11/05		
Ethylbenzene	EPA 624	5A11011	0.25	2.0	ND	1	01/11/05	01/11/05		
Methylene chloride	EPA 624	5A11011	0.48	5.0	ND	1	01/11/05	01/11/05		
1,1,2,2-Tetrachloroethane	EPA 624	5A11011	0.24	2.0	ND	1	01/11/05	01/11/05		
Tetrachloroethene	EPA 624	5A11011	0.32	2.0	ND	1	01/11/05	01/11/05		
Toluene	EPA 624	5A11011	0.36	2.0	ND	1	01/11/05	01/11/05		
1,1,1-Trichloroethane	EPA 624	5A11011	0.30	2.0	ND	1	01/11/05	01/11/05		
1,1,2-Trichloroethane	EPA 624	5A11011	0.30	2.0	ND	1	01/11/05	01/11/05		
Trichloroethene	EPA 624	5A11011	0.26	2.0	ND	1	01/11/05	01/11/05		
Trichlorofluoromethane	EPA 624	5A11011	0.34	5.0	ND	1	01/11/05	01/11/05		
Vinyl chloride	EPA 624	5A11011	0.26	0.50	ND	1	01/11/05	01/11/05		
Xylenes, Total	EPA 624	5A11011	0.52	4.0	ND	1	01/11/05	01/11/05		
Surrogate: Dibromofluoromethane (80-120%)								87 %		
Surrogate: Toluene-d8 (80-120%)								98 %		
Surrogate: 4-Bromofluorobenzene (80-120%)								96 %		

Sample ID: IOA0454-02RE1 (DRAFT: Trip Blank - Water)  
 Reporting Units: ug/l

Sampled: 01/09/05

Chlorobenzene	EPA 624	5A11017	0.36	2.0	ND	1	01/11/05	01/11/05	↓ ↓
Chloroform	EPA 624	5A11017	0.33	2.0	ND	1	01/11/05	01/11/05	
Surrogate: Dibromofluoromethane (80-120%)								100 %	
Surrogate: Toluene-d8 (80-120%)								100 %	
Surrogate: 4-Bromofluorobenzene (80-120%)								101 %	

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

**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 T711VO49  
 Task Order 313150010  
 SDG No. IOA0454, 0456  
 No. of Analyses 2

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Volatiles (1,4-dioxane)

Date: February 23, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
<b>1. Case Narrative Deficiencies</b>	  
<b>2. Out of Scope Analyses</b>	  
<b>3. Analyses Not Conducted</b>	  
<b>4. Missing Hardcopy Deliverables</b>	  
<b>5. Incorrect Hardcopy Deliverables</b>	  
<b>6. Deviations from Analysis Protocol, e.g.,</b>	
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	 
<b>COMMENTS<sup>b</sup></b>	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0454, 0456

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 #: IOA0454, IOA456  
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: M. Pokorny  
Date of Review: February 23, 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.	Matrix	Method
Outfall 017	Outfall 017	IOA0454-01	water	624
Outfall 015	Outfall 015	IOA0456-01	water	624



## 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 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 by field and laboratory personnel. The COCs accounted for the analyses presented in these SDGs. According to the sample login sheets, custody seals were not present on the cooler. 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 01/07/05, was associated with this SDG. The average RRF for 1,4-dioxane was  $\geq 0.05$  and the %RSD was  $\leq 15\%$ . One continuing calibration, dated 01/07/05 was associated with this SDG. The RRF for 1,4-dioxane was  $\geq 0.05$  and the %D was  $\leq 20\%$ . The %RSD 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 (P5A1502-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 (P5A1502-BS1/BS1D) with these SDGs. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative 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 these 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

Sample Outfall 015 was the MS/MSD analyses performed with these SDGs. The recoveries and RPD for 1,4-dioxane were within the laboratory QC limits. A representative recovery was 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

The samples in these SDGs had no associated trip blank. No qualifications were required.

### 2.8.1 Field Blanks and Equipment Rinsates

The site sample 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.

## 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, of +100%/-50% for internal standard areas and  $\pm 0.50$  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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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05  
 Received: 01/10/05

## DRAFT: 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: IOA0454-01 (DRAFT: Outfall 017-Grab - Water) - cont.					Sampled: 01/09/05				REV QUAL
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5A1502	0.49	1.0	ND	1	01/15/05	01/15/05	U
Surrogate: Dibromofluoromethane (80-125%)					94 %				

### 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.



### 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 detected 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).

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# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOA0454 & IOA0456

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 #: IOA0454 & IOA456  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: February 22, 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, 218.6, 160.2, 160.5, 180.1, and 120.1, Standard Methods for the Examination of Water and Wastewater Methods 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 015	Outfall 015	IOA0456-01	water	General Minerals
Outfall 017	Outfall 017	IOA0454-01	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 COC had been hand-corrected to request settleable solids but TSS was reported. 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 oil and grease, the seven-day holding time for total suspended solids, and the 24-hour hexavalent chromium and dissolved oxygen holding time were met, and no qualifications were required.

### 2.2 CALIBRATION

For hexavalent chromium, the initial calibration correlation coefficient was  $\geq 0.995$ , and the ICV and continuing calibration information was acceptable with %Rs within the control limits of 90-110%. The dissolved oxygen probe was checked in zero water and tap water and balance calibration information was provided for TSS. Balance calibration information was not provided to oil and grease; however, as the LCS/LCSD results were within the CCV control limits, no qualifications were required. No qualifications were required.

### 2.3 BLANKS

Oil and grease was detected in the method blank, but not at sufficient concentration to qualify the site samples. The remaining method blank and CCB results reported on the summary forms and in the raw data for blank analyses associated with the samples were nondetects at the reporting limit. No qualifications were required.

## **2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

The laboratory control sample and laboratory control sample duplicate (oil and grease only) recoveries were within the laboratory-established control limits. The LCS is not applicable to dissolved oxygen. 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 duplicate analysis was performed on Outfall 017 for dissolved oxygen and MS/MSD analyses were performed on Outfall 017 for hexavalent chromium. The RPDs were within the laboratory-established control limits of  $\leq 20\%$  and  $\leq 10\%$ , respectively. No qualifications were required.

## **2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses were performed on Outfall 017 for hexavalent chromium. Both recoveries were within the laboratory-established control limits of 90-110% and no qualifications were required.

## **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 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 calculations errors were noted. Hexavalent chromium detected below the reporting limit in Outfall 017 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 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 017

Report Number: IOA0454

Sampled: 01/09/05  
 Received: 01/10/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Rev Qual	Qual Code
Sample ID: IOA0454-01 (DRAFT: Outfall 017-Grab - Water) - cont.					Sampled: 01/09/05						
Reporting Units: mg/l											
Dissolved Oxygen	EPA 360.1	5A10085	1.0	1.0	6.2	1	01/10/05	01/10/05			
Oil & Grease	EPA 413.1	5A12061	0.94	5.0	1210	1	01/12/05	01/12/05	B		#
Total Suspended Solids	EPA 160.2	5A11105	10	10	35	1	01/11/05	01/11/05			
Sample ID: IOA0454-01 (DRAFT: Outfall 017-Grab - Water)					Sampled: 01/09/05						
Reporting Units: ug/l											
Chromium VI	EPA 218.6	5A10086	0.041	1.0	0.13	1	01/10/05	01/10/05	J J		DNG
Perchlorate	EPA 314.0	5A13051	0.80	4.0	43	1	01/13/05	01/14/05	*		

\* Analysis not validated

HJ 5-12-05

**AMEC VALIDATED**

**LEVEL IV**

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

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# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUPS: IOA0454 and IOA0456

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 #: IOA0454 and IOA0456  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Perchlorate  
QC Level: Level IV  
No. of Samples: 2  
Reviewer: L. Jarusewic  
Date of Review: February 17, 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 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 015	Outfall 015	IOA0456-01	Water	Perchlorate
Outfall 017	Outfall 017	IOA0454-01	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . 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, 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 date of collection with the dates of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

### 2.2 CALIBRATION

The initial calibration correlation coefficients were  $\geq 0.995$ . The IPC-MA recoveries were 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 recoveries were 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 either SDG; however, a confirmation spike was performed on sample Outfall 015 in association with SDG IOA0456. The perchlorate recovery was above the method control limits of 80-120%. Perchlorate in this sample was qualified as estimated, "J." No further qualifications were required.

## 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 samples in this data package. Calculations were verified, and the sample results reported on the Form Is were verified against the raw data. No transcription errors or calculations 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 017

Report Number: IOA0454

Sampled: 01/09/05  
 Received: 01/10/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOA0454-01 (DRAFT: Outfall 017-Grab - Water) - cont.					Sampled: 01/09/05					REV QUAL QUAL CODE
Reporting Units: mg/l										
Dissolved Oxygen	EPA 360.1	5A10085	1.0	1.0	6.2	1	01/10/05	01/10/05	*	
Oil & Grease	EPA 413.1	5A12061	0.94	5.0	12	1	01/12/05	01/12/05	B	
Total Suspended Solids	EPA 160.2	5A11105	10	10	35	1	01/11/05	01/11/05		
Sample ID: IOA0454-01 (DRAFT: Outfall 017-Grab - Water)					Sampled: 01/09/05					
Reporting Units: ug/l										
Chromium VI	EPA 218.6	5A10086	0.041	1.0	0.13	1	01/10/05	01/10/05	J	
Perchlorate	EPA 314.0	5A13051	0.80	4.0	43	1	01/13/05	01/14/05		

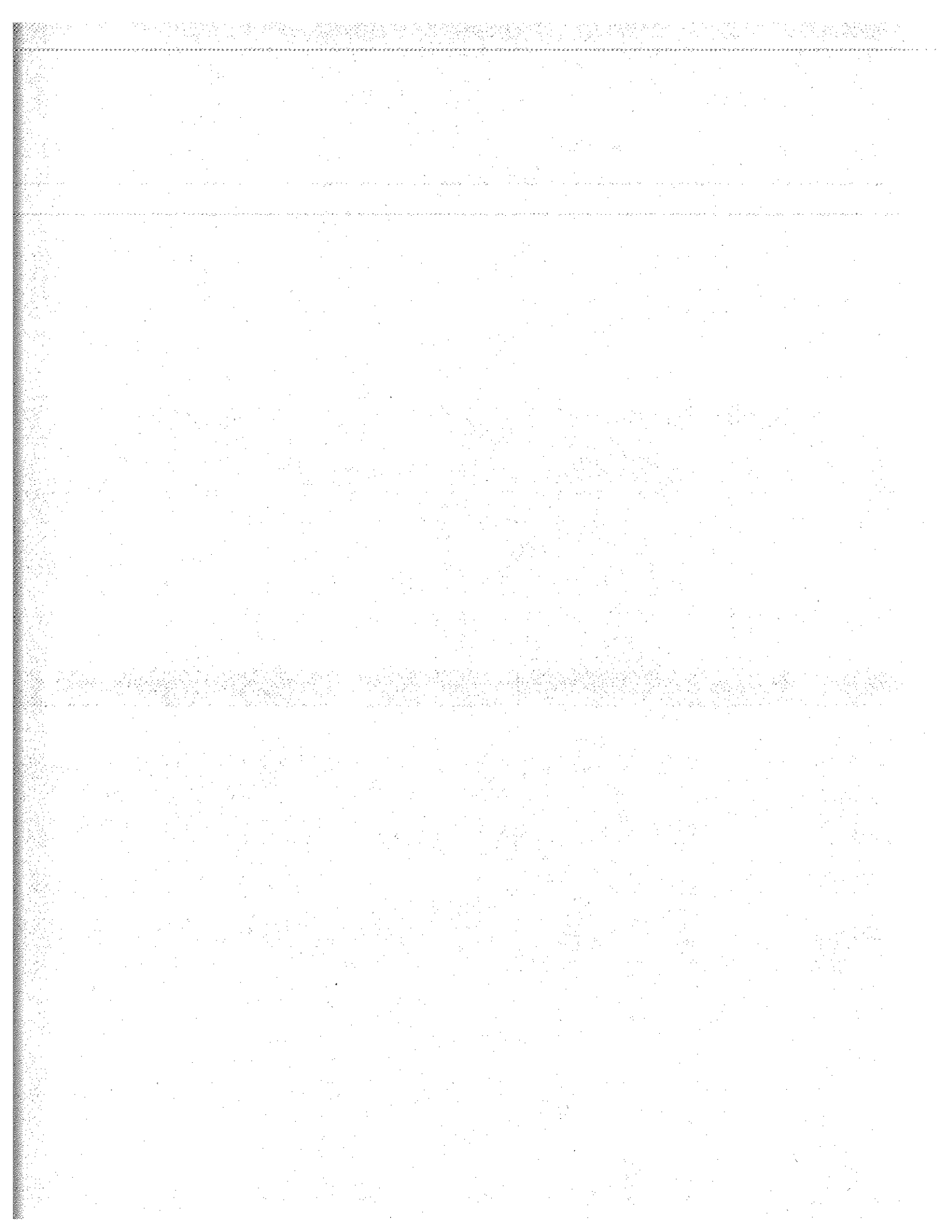
### AMEC VALIDATED

# LEVEL IV

\*Analysis Not Validated

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 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: Outfall 017

Sampled: 01/09/05  
Received: 01/10/05  
Issued: 03/07/05 08:45

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, 2 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 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. Total suspended solids analyzed instead of total settleable solids due to miscommunication on the COC.
- SUBCONTRACTED: Refer to the last page for specific subcontract laboratory information included in this report.

LABORATORY ID	CLIENT ID	MATRIX
IOA0454-01	Outfall 017-Grab	Water
IOA0454-02	Trip Blank	Water

Reviewed By:

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: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## 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: IOA0454-01 (Outfall 017-Grab - Water)					Sampled: 01/09/05				
Reporting Units: ug/l									
1,2,3-Trichloropropane	EPA 624	5A11017	0.85	10	ND	1	01/11/05	01/11/05	
Benzene	EPA 624	5A11017	0.28	1.0	ND	1	01/11/05	01/11/05	
Bromodichloromethane	EPA 624	5A11017	0.30	2.0	4.7	1	01/11/05	01/11/05	
Bromoform	EPA 624	5A11017	0.32	5.0	ND	1	01/11/05	01/11/05	
Bromomethane	EPA 624	5A11017	0.34	5.0	ND	1	01/11/05	01/11/05	
Carbon tetrachloride	EPA 624	5A11017	0.28	0.50	ND	1	01/11/05	01/11/05	
Chlorobenzene	EPA 624	5A11017	0.36	2.0	ND	1	01/11/05	01/11/05	
Chloroethane	EPA 624	5A11017	0.33	5.0	ND	1	01/11/05	01/11/05	
Chloroform	EPA 624	5A11017	0.33	2.0	34	1	01/11/05	01/11/05	
Chloromethane	EPA 624	5A11017	0.30	5.0	ND	1	01/11/05	01/11/05	
Dibromochloromethane	EPA 624	5A11017	0.28	2.0	ND	1	01/11/05	01/11/05	
1,2-Dichlorobenzene	EPA 624	5A11017	0.32	2.0	ND	1	01/11/05	01/11/05	
1,3-Dichlorobenzene	EPA 624	5A11017	0.35	2.0	ND	1	01/11/05	01/11/05	
1,4-Dichlorobenzene	EPA 624	5A11017	0.37	2.0	ND	1	01/11/05	01/11/05	
1,1-Dichloroethane	EPA 624	5A11017	0.27	2.0	ND	1	01/11/05	01/11/05	
1,2-Dichloroethane	EPA 624	5A11017	0.28	0.50	ND	1	01/11/05	01/11/05	
1,1-Dichloroethene	EPA 624	5A11017	0.32	5.0	ND	1	01/11/05	01/11/05	
trans-1,2-Dichloroethene	EPA 624	5A11017	0.27	2.0	ND	1	01/11/05	01/11/05	
1,2-Dichloropropane	EPA 624	5A11017	0.35	2.0	ND	1	01/11/05	01/11/05	
cis-1,3-Dichloropropene	EPA 624	5A11017	0.22	2.0	ND	1	01/11/05	01/11/05	
trans-1,3-Dichloropropene	EPA 624	5A11017	0.24	2.0	ND	1	01/11/05	01/11/05	
Ethylbenzene	EPA 624	5A11017	0.25	2.0	ND	1	01/11/05	01/11/05	
Methylene chloride	EPA 624	5A11017	0.48	5.0	ND	1	01/11/05	01/11/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A11017	0.24	2.0	ND	1	01/11/05	01/11/05	
Tetrachloroethene	EPA 624	5A11017	0.32	2.0	ND	1	01/11/05	01/11/05	
Toluene	EPA 624	5A11017	0.36	2.0	ND	1	01/11/05	01/11/05	
1,1,1-Trichloroethane	EPA 624	5A11017	0.30	2.0	ND	1	01/11/05	01/11/05	
1,1,2-Trichloroethane	EPA 624	5A11017	0.30	2.0	ND	1	01/11/05	01/11/05	
Trichloroethene	EPA 624	5A11017	0.26	2.0	ND	1	01/11/05	01/11/05	
Trichlorofluoromethane	EPA 624	5A11017	0.34	5.0	ND	1	01/11/05	01/11/05	
Vinyl chloride	EPA 624	5A11017	0.26	0.50	ND	1	01/11/05	01/11/05	
Xylenes, Total	EPA 624	5A11017	0.52	4.0	ND	1	01/11/05	01/11/05	
Surrogate: Dibromofluoromethane (80-120%)					101 %				
Surrogate: Toluene-d8 (80-120%)					63 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					102 %				

A-01, Z

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: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0454-02 (Trip Blank - Water)</b>					<b>Sampled: 01/09/05</b>				
<b>Reporting Units: ug/l</b>									
1,2,3-Trichloropropane	EPA 624	5A11011	0.85	10	ND	1	01/11/05	01/11/05	
Benzene	EPA 624	5A11011	0.28	1.0	ND	1	01/11/05	01/11/05	
Bromodichloromethane	EPA 624	5A11011	0.30	2.0	ND	1	01/11/05	01/11/05	
Bromoform	EPA 624	5A11011	0.32	5.0	ND	1	01/11/05	01/11/05	
Bromomethane	EPA 624	5A11011	0.34	5.0	ND	1	01/11/05	01/11/05	
Carbon tetrachloride	EPA 624	5A11011	0.28	0.50	ND	1	01/11/05	01/11/05	
Chloroethane	EPA 624	5A11011	0.33	5.0	ND	1	01/11/05	01/11/05	
Chloromethane	EPA 624	5A11011	0.30	5.0	ND	1	01/11/05	01/11/05	
Dibromochloromethane	EPA 624	5A11011	0.28	2.0	ND	1	01/11/05	01/11/05	
1,2-Dichlorobenzene	EPA 624	5A11011	0.32	2.0	ND	1	01/11/05	01/11/05	
1,3-Dichlorobenzene	EPA 624	5A11011	0.35	2.0	ND	1	01/11/05	01/11/05	
1,4-Dichlorobenzene	EPA 624	5A11011	0.37	2.0	ND	1	01/11/05	01/11/05	
1,1-Dichloroethane	EPA 624	5A11011	0.27	2.0	ND	1	01/11/05	01/11/05	
1,2-Dichloroethane	EPA 624	5A11011	0.28	0.50	ND	1	01/11/05	01/11/05	
1,1-Dichloroethene	EPA 624	5A11011	0.32	5.0	ND	1	01/11/05	01/11/05	
trans-1,2-Dichloroethene	EPA 624	5A11011	0.27	2.0	ND	1	01/11/05	01/11/05	
1,2-Dichloropropane	EPA 624	5A11011	0.35	2.0	ND	1	01/11/05	01/11/05	
cis-1,3-Dichloropropene	EPA 624	5A11011	0.22	2.0	ND	1	01/11/05	01/11/05	
trans-1,3-Dichloropropene	EPA 624	5A11011	0.24	2.0	ND	1	01/11/05	01/11/05	
Ethylbenzene	EPA 624	5A11011	0.25	2.0	ND	1	01/11/05	01/11/05	
Methylene chloride	EPA 624	5A11011	0.48	5.0	ND	1	01/11/05	01/11/05	
1,1,2,2-Tetrachloroethane	EPA 624	5A11011	0.24	2.0	ND	1	01/11/05	01/11/05	
Tetrachloroethene	EPA 624	5A11011	0.32	2.0	ND	1	01/11/05	01/11/05	
Toluene	EPA 624	5A11011	0.36	2.0	ND	1	01/11/05	01/11/05	
1,1,1-Trichloroethane	EPA 624	5A11011	0.30	2.0	ND	1	01/11/05	01/11/05	
1,1,2-Trichloroethane	EPA 624	5A11011	0.30	2.0	ND	1	01/11/05	01/11/05	
Trichloroethene	EPA 624	5A11011	0.26	2.0	ND	1	01/11/05	01/11/05	
Trichlorofluoromethane	EPA 624	5A11011	0.34	5.0	ND	1	01/11/05	01/11/05	
Vinyl chloride	EPA 624	5A11011	0.26	0.50	ND	1	01/11/05	01/11/05	
Xylenes, Total	EPA 624	5A11011	0.52	4.0	ND	1	01/11/05	01/11/05	

Surrogate: Dibromofluoromethane (80-120%)

87 %

Surrogate: Toluene-d8 (80-120%)

98 %

Surrogate: 4-Bromofluorobenzene (80-120%)

96 %

**Sample ID: IOA0454-02RE1 (Trip Blank - Water)**

**Sampled: 01/09/05**

**Reporting Units: ug/l**

Chlorobenzene	EPA 624	5A11017	0.36	2.0	ND	1	01/11/05	01/11/05	
Chloroform	EPA 624	5A11017	0.33	2.0	ND	1	01/11/05	01/11/05	

Surrogate: Dibromofluoromethane (80-120%)

100 %

Surrogate: Toluene-d8 (80-120%)

100 %

Surrogate: 4-Bromofluorobenzene (80-120%)

101 %

**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: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/1625C MOD)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0454-01 (Outfall 017-Grab - Water)					Sampled: 01/09/05				
Reporting Units: ug/l									
N-Nitrosodimethylamine	EPA 1625C Mod	5A12032	0.00070	0.0020	0.038	0.99	01/12/05	01/13/05	

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Project ID: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0454-01 (Outfall 017-Grab - Water) - cont.					Sampled: 01/09/05				
Reporting Units: mg/l									
Chromium VI	EPA 218.6	5A10086	0.000041	0.0010	0.00013	1	01/10/05	01/10/05	J
Dissolved Oxygen	EPA 360.1	5A10085	1.0	1.0	6.2	1	01/10/05	01/10/05	
Oil & Grease	EPA 413.1	5A12061	0.94	5.0	12	1	01/12/05	01/12/05	B
Surfactants (MBAS)	SM5540-C	5A10079	0.044	0.10	0.044	1	01/10/05	01/10/05	J
Total Suspended Solids	EPA 160.2	5A11105	10	10	35	1	01/11/05	01/11/05	
Sample ID: IOA0454-01 (Outfall 017-Grab - Water)					Sampled: 01/09/05				
Reporting Units: ug/l									
Perchlorate	EPA 314.0	5A13051	0.80	4.0	43	1	01/13/05	01/14/05	

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 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## 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: IOA0454-01 (Outfall 017-Grab - Water) - cont.					Sampled: 01/09/05				
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5A1502	0.49	1.0	ND	1	01/15/05	01/15/05	
Surrogate: Dibromofluoromethane (80-125%)					94 %				

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 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 017-Grab (IOA0454-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 218.6	1	01/09/2005 20:48	01/10/2005 16:20	01/10/2005 18:08	01/10/2005 19:34
EPA 360.1	1	01/09/2005 20:48	01/10/2005 16:20	01/10/2005 18:06	01/10/2005 20:00
SM5540-C	2	01/09/2005 20:48	01/10/2005 16:20	01/10/2005 21:39	01/10/2005 22:04

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 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## METHOD BLANK/QC DATA

### PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting		Spike	Source	%REC		RPD	Data	
		Limit	MDL			Units	Level			Result
<b>Batch: 5A11011 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11011-BLK1)</b>										
1,2,3-Trichloropropane	ND	10	0.85	ug/l						
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						
Surrogate: Dibromofluoromethane	24.1			ug/l	25.0	96	80-120			
Surrogate: Toluene-d8	24.9			ug/l	25.0	100	80-120			
Surrogate: 4-Bromofluorobenzene	24.1			ug/l	25.0	96	80-120			

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

Project ID: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## METHOD BLANK/QC DATA

### PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A11011 Extracted: 01/11/05</b>											
<b>LCS Analyzed: 01/11/2005 (5A11011-BS1)</b>											
1,2,3-Trichloropropane	22.8	10	0.85	ug/l	25.0		91	60-130			
Benzene	21.4	1.0	0.28	ug/l	25.0		86	70-120			
Bromodichloromethane	24.5	2.0	0.30	ug/l	25.0		98	70-140			
Bromoform	25.0	5.0	0.32	ug/l	25.0		100	55-135			
Bromomethane	25.4	5.0	0.34	ug/l	25.0		102	60-140			
Carbon tetrachloride	26.1	0.50	0.28	ug/l	25.0		104	70-140			
Chlorobenzene	24.2	2.0	0.36	ug/l	25.0		97	80-125			
Chloroethane	24.1	5.0	0.33	ug/l	25.0		96	60-145			
Chloroform	22.8	2.0	0.33	ug/l	25.0		91	75-130			
Chloromethane	20.7	5.0	0.30	ug/l	25.0		83	40-145			
Dibromochloromethane	25.6	2.0	0.28	ug/l	25.0		102	65-145			
1,2-Dichlorobenzene	24.2	2.0	0.32	ug/l	25.0		97	80-120			
1,3-Dichlorobenzene	23.3	2.0	0.35	ug/l	25.0		93	80-120			
1,4-Dichlorobenzene	23.2	2.0	0.37	ug/l	25.0		93	80-120			
1,1-Dichloroethane	22.3	2.0	0.27	ug/l	25.0		89	70-135			
1,2-Dichloroethane	24.3	0.50	0.28	ug/l	25.0		97	60-150			
1,1-Dichloroethene	22.5	5.0	0.32	ug/l	25.0		90	75-135			
trans-1,2-Dichloroethene	23.6	2.0	0.27	ug/l	25.0		94	70-130			
1,2-Dichloropropane	23.0	2.0	0.35	ug/l	25.0		92	70-120			
cis-1,3-Dichloropropene	25.0	2.0	0.22	ug/l	25.0		100	75-130			
trans-1,3-Dichloropropene	25.3	2.0	0.24	ug/l	25.0		101	75-135			
Ethylbenzene	24.7	2.0	0.25	ug/l	25.0		99	80-120			
Methylene chloride	22.7	5.0	0.48	ug/l	25.0		91	60-135			
1,1,2,2-Tetrachloroethane	21.2	2.0	0.24	ug/l	25.0		85	60-135			
Tetrachloroethene	25.4	2.0	0.32	ug/l	25.0		102	75-125			
Toluene	22.9	2.0	0.36	ug/l	25.0		92	75-120			
1,1,1-Trichloroethane	25.3	2.0	0.30	ug/l	25.0		101	75-140			
1,1,2-Trichloroethane	23.6	2.0	0.30	ug/l	25.0		94	70-125			
Trichloroethene	24.9	2.0	0.26	ug/l	25.0		100	80-120			
Trichlorofluoromethane	25.2	5.0	0.34	ug/l	25.0		101	65-145			
Vinyl chloride	20.2	0.50	0.26	ug/l	25.0		81	50-130			
Surrogate: Dibromofluoromethane	24.4			ug/l	25.0		98	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.6			ug/l	25.0		98	80-120			

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MWH-Pasadena/Boeing  
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Attention: Bronwyn Kelly

Project ID: Outfall 017

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Sampled: 01/09/05  
Received: 01/10/05

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	
<b>Batch: 5A11011 Extracted: 01/11/05</b>												
<b>Matrix Spike Analyzed: 01/11/2005 (5A11011-MS1)</b>						<b>Source: IOA0480-01</b>						<b>P1</b>
1,2,3-Trichloropropane	21.1	10	0.85	ug/l	25.0	ND	84	55-140				
Benzene	19.1	1.0	0.28	ug/l	25.0	ND	76	70-120				
Bromodichloromethane	21.1	2.0	0.30	ug/l	25.0	ND	84	70-140				
Bromoform	23.5	5.0	0.32	ug/l	25.0	ND	94	55-140				
Bromomethane	18.1	5.0	0.34	ug/l	25.0	ND	72	50-145				
Carbon tetrachloride	21.7	0.50	0.28	ug/l	25.0	ND	87	70-145				
Chlorobenzene	23.8	2.0	0.36	ug/l	25.0	1.8	88	80-125				
Chloroethane	17.6	5.0	0.33	ug/l	25.0	ND	70	50-145				
Chloroform	18.4	2.0	0.33	ug/l	25.0	ND	74	70-135				
Chloromethane	14.2	5.0	0.30	ug/l	25.0	ND	57	35-145				
Dibromochloromethane	23.1	2.0	0.28	ug/l	25.0	ND	92	65-145				
1,2-Dichlorobenzene	23.1	2.0	0.32	ug/l	25.0	ND	92	75-130				
1,3-Dichlorobenzene	21.8	2.0	0.35	ug/l	25.0	ND	87	75-130				
1,4-Dichlorobenzene	21.6	2.0	0.37	ug/l	25.0	ND	86	80-120				
1,1-Dichloroethane	18.2	2.0	0.27	ug/l	25.0	ND	73	65-135				
1,2-Dichloroethane	20.9	0.50	0.28	ug/l	25.0	ND	84	60-150				
1,1-Dichloroethene	18.4	5.0	0.32	ug/l	25.0	ND	74	65-140				
trans-1,2-Dichloroethene	19.9	2.0	0.27	ug/l	25.0	ND	80	65-135				
1,2-Dichloropropane	20.8	2.0	0.35	ug/l	25.0	ND	83	65-130				
cis-1,3-Dichloropropene	22.5	2.0	0.22	ug/l	25.0	ND	90	70-140				
trans-1,3-Dichloropropene	22.8	2.0	0.24	ug/l	25.0	ND	91	70-140				
Ethylbenzene	22.2	2.0	0.25	ug/l	25.0	ND	89	70-130				
Methylene chloride	18.8	5.0	0.48	ug/l	25.0	ND	75	60-135				
1,1,2,2-Tetrachloroethane	21.3	2.0	0.24	ug/l	25.0	ND	85	60-145				
Tetrachloroethene	24.2	2.0	0.32	ug/l	25.0	ND	97	70-130				
Toluene	20.6	2.0	0.36	ug/l	25.0	ND	82	70-120				
1,1,1-Trichloroethane	20.4	2.0	0.30	ug/l	25.0	ND	82	75-140				
1,1,2-Trichloroethane	21.2	2.0	0.30	ug/l	25.0	ND	85	60-135				
Trichloroethene	22.0	2.0	0.26	ug/l	25.0	ND	88	70-125				
Trichlorofluoromethane	18.7	5.0	0.34	ug/l	25.0	ND	75	55-145				
Vinyl chloride	14.9	0.50	0.26	ug/l	25.0	ND	60	40-135				
Surrogate: Dibromofluoromethane	22.2			ug/l	25.0		89	80-120				
Surrogate: Toluene-d8	24.6			ug/l	25.0		98	80-120				
Surrogate: 4-Bromofluorobenzene	23.7			ug/l	25.0		95	80-120				

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

Project ID: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## METHOD BLANK/QC DATA

### PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A11011 Extracted: 01/11/05</b>											
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11011-MSD1)</b>											
						<b>Source: IOA0480-01</b>					<b>P1</b>
1,2,3-Trichloropropane	20.7	10	0.85	ug/l	25.0	ND	83	55-140	2	30	
Benzene	19.4	1.0	0.28	ug/l	25.0	ND	78	70-120	2	20	
Bromodichloromethane	21.3	2.0	0.30	ug/l	25.0	ND	85	70-140	1	20	
Bromoform	23.0	5.0	0.32	ug/l	25.0	ND	92	55-140	2	25	
Bromomethane	18.9	5.0	0.34	ug/l	25.0	ND	76	50-145	4	25	
Carbon tetrachloride	22.5	0.50	0.28	ug/l	25.0	ND	90	70-145	4	25	
Chlorobenzene	24.0	2.0	0.36	ug/l	25.0	1.8	89	80-125	1	20	
Chloroethane	18.5	5.0	0.33	ug/l	25.0	ND	74	50-145	5	25	
Chloroform	18.6	2.0	0.33	ug/l	25.0	ND	74	70-135	1	20	
Chloromethane	14.5	5.0	0.30	ug/l	25.0	ND	58	35-145	2	25	
Dibromochloromethane	23.0	2.0	0.28	ug/l	25.0	ND	92	65-145	0	25	
1,2-Dichlorobenzene	23.7	2.0	0.32	ug/l	25.0	ND	95	75-130	3	20	
1,3-Dichlorobenzene	22.3	2.0	0.35	ug/l	25.0	ND	89	75-130	2	20	
1,4-Dichlorobenzene	22.1	2.0	0.37	ug/l	25.0	ND	88	80-120	2	20	
1,1-Dichloroethane	18.7	2.0	0.27	ug/l	25.0	ND	75	65-135	3	20	
1,2-Dichloroethane	20.6	0.50	0.28	ug/l	25.0	ND	82	60-150	1	20	
1,1-Dichloroethene	19.1	5.0	0.32	ug/l	25.0	ND	76	65-140	4	20	
trans-1,2-Dichloroethene	20.3	2.0	0.27	ug/l	25.0	ND	81	65-135	2	20	
1,2-Dichloropropane	21.1	2.0	0.35	ug/l	25.0	ND	84	65-130	1	20	
cis-1,3-Dichloropropene	22.3	2.0	0.22	ug/l	25.0	ND	89	70-140	1	20	
trans-1,3-Dichloropropene	22.6	2.0	0.24	ug/l	25.0	ND	90	70-140	1	25	
Ethylbenzene	22.8	2.0	0.25	ug/l	25.0	ND	91	70-130	3	20	
Methylene chloride	18.7	5.0	0.48	ug/l	25.0	ND	75	60-135	1	20	
1,1,2,2-Tetrachloroethane	21.1	2.0	0.24	ug/l	25.0	ND	84	60-145	1	30	
Tetrachloroethene	25.1	2.0	0.32	ug/l	25.0	ND	100	70-130	4	20	
Toluene	21.1	2.0	0.36	ug/l	25.0	ND	84	70-120	2	20	
1,1,1-Trichloroethane	20.8	2.0	0.30	ug/l	25.0	ND	83	75-140	2	20	
1,1,2-Trichloroethane	20.6	2.0	0.30	ug/l	25.0	ND	82	60-135	3	25	
Trichloroethene	22.6	2.0	0.26	ug/l	25.0	ND	90	70-125	3	20	
Trichlorofluoromethane	19.5	5.0	0.34	ug/l	25.0	ND	78	55-145	4	25	
Vinyl chloride	15.7	0.50	0.26	ug/l	25.0	ND	63	40-135	5	30	
Surrogate: Dibromofluoromethane	22.0			ug/l	25.0		88	80-120			
Surrogate: Toluene-d8	24.8			ug/l	25.0		99	80-120			
Surrogate: 4-Bromofluorobenzene	23.4			ug/l	25.0		94	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: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## 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	RPD Limit	Data Qualifiers
<b>Batch: 5A11017 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11017-BLK1)</b>										
1,2,3-Trichloropropane	ND	10	0.85	ug/l						
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						
Surrogate: Dibromofluoromethane	25.0			ug/l	25.0		100	80-120		
Surrogate: Toluene-d8	24.9			ug/l	25.0		100	80-120		
Surrogate: 4-Bromofluorobenzene	24.7			ug/l	25.0		99	80-120		

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 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## METHOD BLANK/QC DATA

### PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A11017 Extracted: 01/11/05</b>											
<b>LCS Analyzed: 01/11/2005 (5A11017-BS1)</b>											
1,2,3-Trichloropropane	18.1	10	0.85	ug/l	25.0		72	60-130			
Benzene	21.6	1.0	0.28	ug/l	25.0		86	70-120			
Bromodichloromethane	23.1	2.0	0.30	ug/l	25.0		92	70-140			
Bromoform	16.7	5.0	0.32	ug/l	25.0		67	55-135			
Bromomethane	22.7	5.0	0.34	ug/l	25.0		91	60-140			
Carbon tetrachloride	24.3	0.50	0.28	ug/l	25.0		97	70-140			
Chlorobenzene	23.3	2.0	0.36	ug/l	25.0		93	80-125			
Chloroethane	21.9	5.0	0.33	ug/l	25.0		88	60-145			
Chloroform	23.4	2.0	0.33	ug/l	25.0		94	75-130			
Chloromethane	19.1	5.0	0.30	ug/l	25.0		76	40-145			
Dibromochloromethane	19.4	2.0	0.28	ug/l	25.0		78	65-145			
1,2-Dichlorobenzene	22.5	2.0	0.32	ug/l	25.0		90	80-120			
1,3-Dichlorobenzene	23.1	2.0	0.35	ug/l	25.0		92	80-120			
1,4-Dichlorobenzene	22.9	2.0	0.37	ug/l	25.0		92	80-120			
1,1-Dichloroethane	23.0	2.0	0.27	ug/l	25.0		92	70-135			
1,2-Dichloroethane	21.5	0.50	0.28	ug/l	25.0		86	60-150			
1,1-Dichloroethene	21.5	5.0	0.32	ug/l	25.0		86	75-135			
trans-1,2-Dichloroethene	23.3	2.0	0.27	ug/l	25.0		93	70-130			
1,2-Dichloropropane	22.8	2.0	0.35	ug/l	25.0		91	70-120			
cis-1,3-Dichloropropene	22.8	2.0	0.22	ug/l	25.0		91	75-130			
trans-1,3-Dichloropropene	21.6	2.0	0.24	ug/l	25.0		86	75-135			
Ethylbenzene	24.4	2.0	0.25	ug/l	25.0		98	80-120			
Methylene chloride	21.6	5.0	0.48	ug/l	25.0		86	60-135			
1,1,2,2-Tetrachloroethane	18.6	2.0	0.24	ug/l	25.0		74	60-135			
Tetrachloroethene	23.1	2.0	0.32	ug/l	25.0		92	75-125			
Toluene	23.0	2.0	0.36	ug/l	25.0		92	75-120			
1,1,1-Trichloroethane	24.6	2.0	0.30	ug/l	25.0		98	75-140			
1,1,2-Trichloroethane	19.4	2.0	0.30	ug/l	25.0		78	70-125			
Trichloroethene	22.8	2.0	0.26	ug/l	25.0		91	80-120			
Trichlorofluoromethane	21.5	5.0	0.34	ug/l	25.0		86	65-145			
Vinyl chloride	20.3	0.50	0.26	ug/l	25.0		81	50-130			
Surrogate: Dibromofluoromethane	24.6			ug/l	25.0		98	80-120			
Surrogate: Toluene-d8	25.1			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	24.4			ug/l	25.0		98	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: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## METHOD BLANK/QC DATA

### PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A11017 Extracted: 01/11/05</b>											
<b>Matrix Spike Analyzed: 01/11/2005 (5A11017-MS1)</b>						<b>Source: IOA0497-08</b>					
1,2,3-Trichloropropane	17.8	10	0.85	ug/l	25.0	ND	71	55-140			
Benzene	21.7	1.0	0.28	ug/l	25.0	ND	87	70-120			
Bromodichloromethane	23.6	2.0	0.30	ug/l	25.0	ND	94	70-140			
Bromoform	17.0	5.0	0.32	ug/l	25.0	ND	68	55-140			
Bromomethane	22.7	5.0	0.34	ug/l	25.0	ND	91	50-145			
Carbon tetrachloride	24.5	0.50	0.28	ug/l	25.0	ND	98	70-145			
Chlorobenzene	23.5	2.0	0.36	ug/l	25.0	ND	94	80-125			
Chloroethane	22.0	5.0	0.33	ug/l	25.0	ND	88	50-145			
Chloroform	23.6	2.0	0.33	ug/l	25.0	ND	94	70-135			
Chloromethane	18.7	5.0	0.30	ug/l	25.0	ND	75	35-145			
Dibromochloromethane	19.4	2.0	0.28	ug/l	25.0	ND	78	65-145			
1,2-Dichlorobenzene	22.0	2.0	0.32	ug/l	25.0	ND	88	75-130			
1,3-Dichlorobenzene	22.8	2.0	0.35	ug/l	25.0	ND	91	75-130			
1,4-Dichlorobenzene	22.4	2.0	0.37	ug/l	25.0	ND	90	80-120			
1,1-Dichloroethane	23.1	2.0	0.27	ug/l	25.0	ND	92	65-135			
1,2-Dichloroethane	21.9	0.50	0.28	ug/l	25.0	ND	88	60-150			
1,1-Dichloroethene	21.0	5.0	0.32	ug/l	25.0	ND	84	65-140			
trans-1,2-Dichloroethene	23.0	2.0	0.27	ug/l	25.0	ND	92	65-135			
1,2-Dichloropropane	23.0	2.0	0.35	ug/l	25.0	ND	92	65-130			
cis-1,3-Dichloropropene	23.1	2.0	0.22	ug/l	25.0	ND	92	70-140			
trans-1,3-Dichloropropene	22.1	2.0	0.24	ug/l	25.0	ND	88	70-140			
Ethylbenzene	24.1	2.0	0.25	ug/l	25.0	ND	96	70-130			
Methylene chloride	21.8	5.0	0.48	ug/l	25.0	ND	87	60-135			
1,1,2,2-Tetrachloroethane	19.3	2.0	0.24	ug/l	25.0	ND	77	60-145			
Tetrachloroethene	23.3	2.0	0.32	ug/l	25.0	0.54	91	70-130			
Toluene	23.2	2.0	0.36	ug/l	25.0	ND	93	70-120			
1,1,1-Trichloroethane	24.8	2.0	0.30	ug/l	25.0	ND	99	75-140			
1,1,2-Trichloroethane	20.0	2.0	0.30	ug/l	25.0	ND	80	60-135			
Trichloroethene	22.5	2.0	0.26	ug/l	25.0	ND	90	70-125			
Trichlorofluoromethane	22.1	5.0	0.34	ug/l	25.0	ND	88	55-145			
Vinyl chloride	20.2	0.50	0.26	ug/l	25.0	ND	81	40-135			
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0		101	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	25.5			ug/l	25.0		102	80-120			

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: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05  
 Received: 01/10/05

## METHOD BLANK/QC DATA

### PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A11017 Extracted: 01/11/05</b>											
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11017-MSD1)</b>											
					<b>Source: IOA0497-08</b>						
1,2,3-Trichloropropane	20.4	10	0.85	ug/l	25.0	ND	82	55-140	14	30	
Benzene	20.7	1.0	0.28	ug/l	25.0	ND	83	70-120	5	20	
Bromodichloromethane	23.0	2.0	0.30	ug/l	25.0	ND	92	70-140	3	20	
Bromoform	19.3	5.0	0.32	ug/l	25.0	ND	77	55-140	13	25	
Bromomethane	22.1	5.0	0.34	ug/l	25.0	ND	88	50-145	3	25	
Carbon tetrachloride	23.4	0.50	0.28	ug/l	25.0	ND	94	70-145	5	25	
Chlorobenzene	22.6	2.0	0.36	ug/l	25.0	ND	90	80-125	4	20	
Chloroethane	21.6	5.0	0.33	ug/l	25.0	ND	86	50-145	2	25	
Chloroform	22.6	2.0	0.33	ug/l	25.0	ND	90	70-135	4	20	
Chloromethane	18.3	5.0	0.30	ug/l	25.0	ND	73	35-145	2	25	
Dibromochloromethane	20.3	2.0	0.28	ug/l	25.0	ND	81	65-145	5	25	
1,2-Dichlorobenzene	21.7	2.0	0.32	ug/l	25.0	ND	87	75-130	1	20	
1,3-Dichlorobenzene	21.7	2.0	0.35	ug/l	25.0	ND	87	75-130	5	20	
1,4-Dichlorobenzene	21.6	2.0	0.37	ug/l	25.0	ND	86	80-120	4	20	
1,1-Dichloroethane	21.9	2.0	0.27	ug/l	25.0	ND	88	65-135	5	20	
1,2-Dichloroethane	22.2	0.50	0.28	ug/l	25.0	ND	89	60-150	1	20	
1,1-Dichloroethene	20.6	5.0	0.32	ug/l	25.0	ND	82	65-140	2	20	
trans-1,2-Dichloroethene	22.0	2.0	0.27	ug/l	25.0	ND	88	65-135	4	20	
1,2-Dichloropropane	22.5	2.0	0.35	ug/l	25.0	ND	90	65-130	2	20	
cis-1,3-Dichloropropene	23.0	2.0	0.22	ug/l	25.0	ND	92	70-140	0	20	
trans-1,3-Dichloropropene	22.7	2.0	0.24	ug/l	25.0	ND	91	70-140	3	25	
Ethylbenzene	23.0	2.0	0.25	ug/l	25.0	ND	92	70-130	5	20	
Methylene chloride	21.2	5.0	0.48	ug/l	25.0	ND	85	60-135	3	20	
1,1,2,2-Tetrachloroethane	21.6	2.0	0.24	ug/l	25.0	ND	86	60-145	11	30	
Tetrachloroethene	22.0	2.0	0.32	ug/l	25.0	0.54	86	70-130	6	20	
Toluene	22.1	2.0	0.36	ug/l	25.0	ND	88	70-120	5	20	
1,1,1-Trichloroethane	23.7	2.0	0.30	ug/l	25.0	ND	95	75-140	5	20	
1,1,2-Trichloroethane	21.0	2.0	0.30	ug/l	25.0	ND	84	60-135	5	25	
Trichloroethene	21.8	2.0	0.26	ug/l	25.0	ND	87	70-125	3	20	
Trichlorofluoromethane	21.4	5.0	0.34	ug/l	25.0	ND	86	55-145	3	25	
Vinyl chloride	19.2	0.50	0.26	ug/l	25.0	ND	77	40-135	5	30	
Surrogate: Dibromofluoromethane	25.0			ug/l	25.0		100	80-120			
Surrogate: Toluene-d8	25.4			ug/l	25.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	25.7			ug/l	25.0		103	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: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

**METHOD BLANK/QC DATA**

**SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/1625C MOD)**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12032 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A12032-BLK1)</b>											
N-Nitrosodimethylamine	ND	0.0020	0.00070	ug/l							
<b>LCS Analyzed: 01/13/2005 (5A12032-BS1)</b>											
N-Nitrosodimethylamine	0.00961	0.0020	0.00070	ug/l	0.0100		96	70-130			M-NR1
<b>LCS Analyzed: 01/13/2005 (5A12032-BS2)</b>											
N-Nitrosodimethylamine	0.00246	0.0020	0.00070	ug/l	0.00200		123	70-130			
<b>LCS Dup Analyzed: 01/13/2005 (5A12032-BSD1)</b>											
N-Nitrosodimethylamine	0.00920	0.0020	0.00070	ug/l	0.0100		92	70-130	4	20	

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

Project ID: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A10079 Extracted: 01/10/05</b>											
<b>Blank Analyzed: 01/10/2005 (5A10079-BLK1)</b>											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
<b>LCS Analyzed: 01/10/2005 (5A10079-BS1)</b>											
Surfactants (MBAS)	0.258	0.10	0.044	mg/l	0.250		103	90-110			
<b>Matrix Spike Analyzed: 01/10/2005 (5A10079-MS1)</b>											
Surfactants (MBAS)	0.371	0.10	0.044	mg/l	0.250	0.19	72	50-125			
						<b>Source: IOA0437-01</b>					
<b>Matrix Spike Dup Analyzed: 01/10/2005 (5A10079-MSD1)</b>											
Surfactants (MBAS)	0.352	0.10	0.044	mg/l	0.250	0.19	65	50-125	5	20	
<b>Batch: 5A10085 Extracted: 01/10/05</b>											
<b>Duplicate Analyzed: 01/10/2005 (5A10085-DUP1)</b>											
Dissolved Oxygen	6.60	1.0	1.0	mg/l		6.2			6	20	
						<b>Source: IOA0454-01</b>					
<b>Batch: 5A10086 Extracted: 01/10/05</b>											
<b>Blank Analyzed: 01/10/2005 (5A10086-BLK1)</b>											
Chromium VI	ND	0.0010	0.000041	mg/l							
<b>LCS Analyzed: 01/10/2005 (5A10086-BS1)</b>											
Chromium VI	0.0524	0.0010	0.000041	mg/l	0.0500		105	90-110			
<b>Matrix Spike Analyzed: 01/10/2005 (5A10086-MS1)</b>											
Chromium VI	0.0508	0.0010	0.000041	mg/l	0.0500	0.00013	101	90-110			
						<b>Source: IOA0454-01</b>					

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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: Outfall 017  
 Report Number: IOA0454

Sampled: 01/09/05  
 Received: 01/10/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A10086 Extracted: 01/10/05</b>											
<b>Matrix Spike Dup Analyzed: 01/10/2005 (5A10086-MSD1)</b>											
Chromium VI	0.0508	0.0010	0.000041	mg/l	0.0500	0.00013	101	90-110	0	10	
<b>Source: IOA0454-01</b>											
<b>Batch: 5A11105 Extracted: 01/11/05</b>											
<b>Blank Analyzed: 01/11/2005 (5A11105-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 01/11/2005 (5A11105-BS1)</b>											
Total Suspended Solids	962	10	10	mg/l	1000		96	85-115			
<b>Duplicate Analyzed: 01/11/2005 (5A11105-DUP1)</b>											
Total Suspended Solids	ND	10	10	mg/l		ND				10	
<b>Source: IOA0446-01</b>											
<b>Batch: 5A12061 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12061-BLK1)</b>											
Oil & Grease	1.60	5.0	0.94	mg/l							J
<b>LCS Analyzed: 01/12/2005 (5A12061-BS1)</b>											
Oil & Grease	21.2	5.0	0.94	mg/l	20.0		106	65-120			M-NR1
<b>LCS Dup Analyzed: 01/12/2005 (5A12061-BSD1)</b>											
Oil & Grease	20.8	5.0	0.94	mg/l	20.0		104	65-120	2	20	
<b>Batch: 5A13051 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13051-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							

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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: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13051 Extracted: 01/13/05</b>											
<b>LCS Analyzed: 01/13/2005 (5A13051-BS1)</b>											
Perchlorate	50.0	4.0	0.80	ug/l	50.0		100	85-115			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13051-MS1)</b>											
						<b>Source: IOA0417-02</b>					
Perchlorate	49.6	4.0	0.80	ug/l	50.0	0.93	97	80-120			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13051-MSD1)</b>											
						<b>Source: IOA0417-02</b>					
Perchlorate	50.7	4.0	0.80	ug/l	50.0	0.93	100	80-120	2	20	

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300 North Lake Avenue, Suite 1200  
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Attention: Bronwyn Kelly

Project ID: Outfall 017  
Report Number: IOA0454

Sampled: 01/09/05  
Received: 01/10/05

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
<b>Batch: P5A1502 Extracted: 01/15/05</b>											
<b>Blank Analyzed: 01/15/2005 (P5A1502-BLK1)</b>											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	1.03			ug/l	1.00		103	80-125			
<b>LCS Analyzed: 01/15/2005 (P5A1502-BS1)</b>											
1,4-Dioxane	9.04	1.0	0.49	ug/l	10.0		90	70-130			
Surrogate: Dibromofluoromethane	0.950			ug/l	1.00		95	80-125			
<b>LCS Dup Analyzed: 01/15/2005 (P5A1502-BSD1)</b>											
1,4-Dioxane	9.30	1.0	0.49	ug/l	10.0		93	70-130	3	20	
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	80-125			
<b>Matrix Spike Analyzed: 01/15/2005 (P5A1502-MS1)</b>											
						<b>Source: POA0240-01</b>					
1,4-Dioxane	10.7	1.0	0.49	ug/l	10.0	ND	107	70-150			
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	80-125			
<b>Matrix Spike Dup Analyzed: 01/15/2005 (P5A1502-MSD1)</b>											
						<b>Source: POA0240-01</b>					
1,4-Dioxane	9.07	1.0	0.49	ug/l	10.0	ND	91	70-150	16	25	
Surrogate: Dibromofluoromethane	0.940			ug/l	1.00		94	80-125			

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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: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

## 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
IOA0454-01	413.1 Oil and Grease	Oil & Grease	mg/l	12	5.0	<b>10.00</b>
IOA0454-01	MBAS - SM5540-C	Surfactants (MBAS)	mg/l	0.044	0.10	0.50
IOA0454-01	TSS - EPA 160.2	Total Suspended Solids	mg/l	35	10	<b>30</b>

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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: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05

Received: 01/10/05

### DATA QUALIFIERS AND DEFINITIONS

- A-01** Low surrogate confirmed on GC/MS #33 (01/11/05)
- 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.
- P1** Sample received and analyzed without chemical preservation.
- Z** Due to sample matrix effects, the surrogate recovery was below 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



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

Project ID: Outfall 017

Report Number: IOA0454

Sampled: 01/09/05  
 Received: 01/10/05

## Certification Summary

### Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 1625C Mod	Water	X	X
EPA 218.6	Water	X	X
EPA 314.0	Water	X	X
EPA 360.1	Water	X	X
EPA 413.1	Water	X	X
EPA 624	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.dmlabs.com](http://www.dmlabs.com).*

### Subcontracted Laboratories

**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: IOA0454-01

**Truesdail Laboratories-SUB** California Cert #1237  
 14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Fecal Coliform  
 Samples: IOA0454-01

Analysis Performed: Total Coliform  
 Samples: IOA0454-01

**Del Mar Analytical, Irvine**  
 Michele Harper  
 Project Manager

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## SUBCONTRACT ORDER - PROJECT # IOA0454

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	Del Mar Analytical - Phoenix 9830 S. 51st Street, Suite B-120 Phoenix, AZ 85044 Phone : (480) 785-0043 Fax: (480) 785-0851

Analysis	Expiration	Due	Comments
Sample ID: IOA0454-01 Water	Sampled: 01/09/05 20:48		OK to run coliform past HT
Dioxane-8260B-out	01/23/05 20:48	01/19/05 12:00	Boeing, J flags, Sub to DMAP
Level 4 Data Package - Out	02/06/05 20:48	01/19/05 12:00	

POA0239-01

**Containers Supplied:**  
 40 ml VOA w/HCL (IOA0454-01T)  
 40 ml VOA w/HCL (IOA0454-01U)  
 40 ml VOA w/HCL (IOA0454-01V)

SAMPLE INTEGRITY:					
All containers intact:	<input checked="" 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 checked="" type="checkbox"/> No	Samples Preserved Properly:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received On Ice:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received at (temp):	2-9-C	

<i>[Signature]</i>	Date	Time	<i>[Signature]</i>	Date	Time
	01/11/05			01/12/05	
<i>[Signature]</i>	Date	Time	<i>[Signature]</i>	Date	Time
	01/12/05			01/12/05	09:50

T-0A0454

Client Name/Address:  
**MWH-Pasadena**  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Project Manager: Bronwyn Kelly

Project:  
**Boeing-SSFL NPDES  
 Outfall 017 Effluent  
 STP III**

Phone Number:  
 (626) 568-6691  
 Fax Number:  
 (626) 568-6515

Sampler: *Follace*

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Oil & Grease (EPA 413.1)	Dissolved Oxygen	Surfactants (MBAS)	Perchlorate	NDMA	1,4-Dioxane	1,2,3-TCP	Acute & Chronic Toxicity	Total & Fecal Coliform	Cr VI	VOCs	Comments
Outfall 017-Grab	W	Poly-1L	1	1/9/05 / 2048	None	X											
Outfall 017-Grab	W	1L Amber	1		HCL	X											
Outfall 017-Grab	W	VOAS	5		None		X										
Outfall 017-Grab	W	Poly-500 ml	1		None			X									
Outfall 017-Grab	W	Poly-500 ml	1		None				X								
Outfall 017-Grab	W	1L Amber	1		None					X							
Outfall 017-Grab	W	VOAS	3		HCL						X						
Outfall 017-Grab	W	VOAS	3		HCL							X					
Outfall 017-Grab	W	1 gal cube	1	1/9/10/05	None								X				
Outfall 017-Grab	W		2	1-9-05/2048	None									X			
Outfall 017-Grab	W	Poly-500 ml	1		None										X		
Outfall 017-Grab	W	VOAS	3		HCL											X	
Outfall 017-Grab	W	1 gal cube	4	1/9/05	None												
Trip Blank	W	VOAS	3		None												
Trip Blank	W	VOAS	3		HCL												

Field readings:  
 Temp = 55.6 F  
 pH = 8.1

(Signature)

24hr Composite Sample

Relinquished By: *[Signature]* Date/Time: 1-10-05 1250  
 Received By: *[Signature]* Date/Time: 1/10/05 1230

Relinquished By: *[Signature]* Date/Time: 1/10/05 1620  
 Received By: *[Signature]* Date/Time: 1/10/05 1620

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*





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

February 7, 2005

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

Attention: Bronwyn Kelly  
Project: Outfall 017  
Sampled: 01/10/05  
Del Mar Analytical Number: IOA0454

Dear Ms. Kelly:

Truesdail Laboratories, Inc. performed the Total and Fecal Coliform analyses by EPA 9221B and 9221E for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Truesdail ID
Outfall 017-Grab	IOA0454-01	938491 / IOA0454-01

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

# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

## REPORT

14201 FRANKLIN AVENUE  
TUSTIN, CALIFORNIA 92780-7008  
(714) 730-6239 · FAX (714) 730-6462  
www.truesdail.com

Del Mar Analytical  
Attn: Michele Harper  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Report Date: 1/13/05

Date Received: 1/10/05

Laboratory No.: 938491

Sample: One water marked IOA0454-01, taken 1/9/04, 20:48

Analysis Date: 1/10/05  
Completion Date: 1/13/05

Time: 1830  
Time: 1000

Investigation: Multiple Tube Fermentation Test for Coliform Group Bacteria APHA Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992 Method 9221B, 9221E

### RESULTS

#### Sample Designation

#### Coliform Group Bacteria MPN\*/100ml

	Total	Fecal
1. IOA0454-01, 20:48	<2**	<2

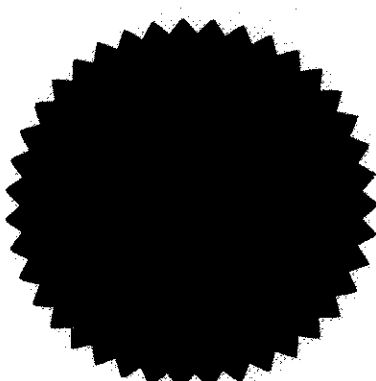
\* Most Probable No./100 ml

\*\* None Detected

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Karl W. Schiller, M.S.  
Chief Microbiologist



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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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

2820 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3821

## SUBCONTRACT ORDER - PROJECT # IOA0454

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	Truesdail Laboratories-SUB 14201 Franklin Avenue Tustin, CA 92680 Phone: (714) 730-6239 Fax: (714) 730-6462

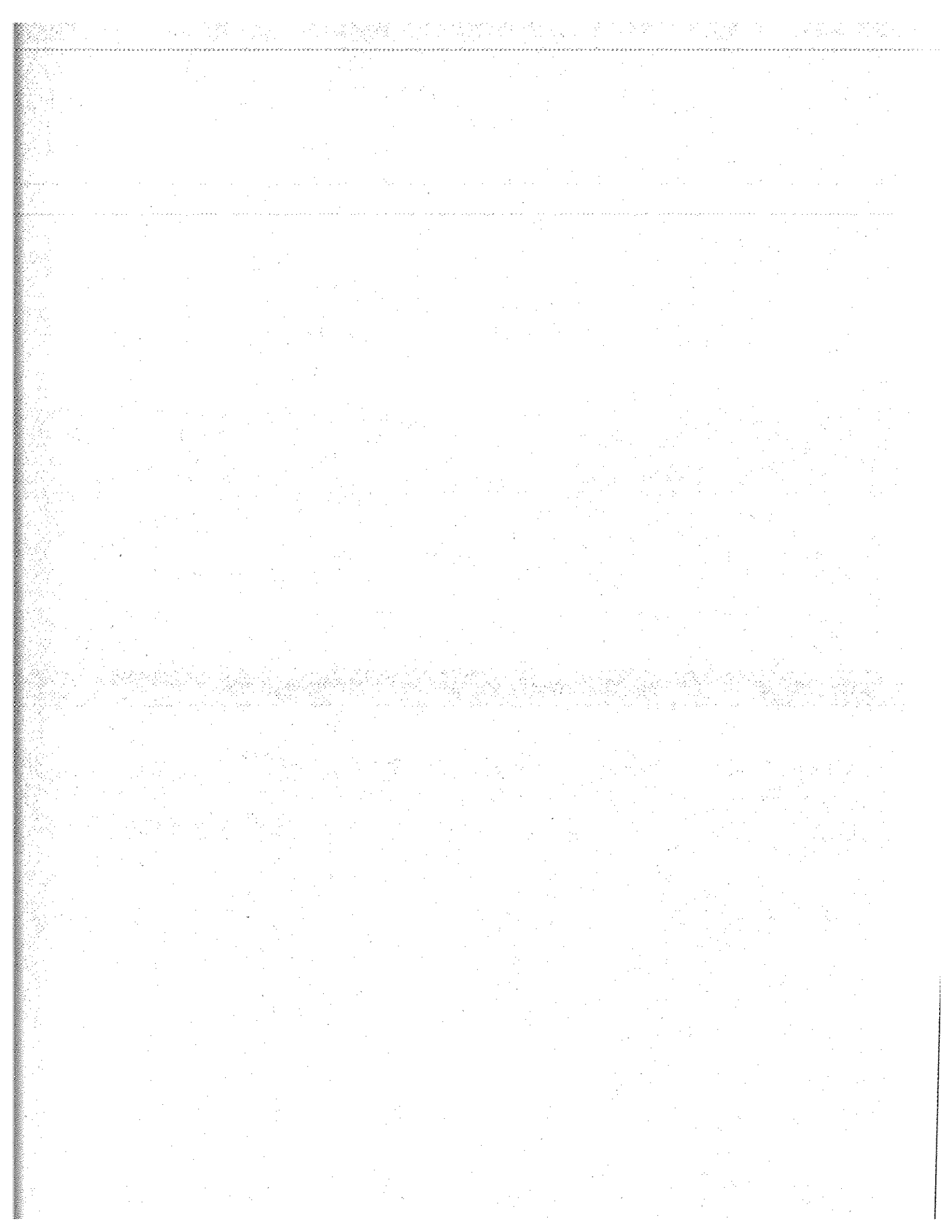
Standard TAT is requested unless specific due date is requested => Due Date: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Expiration	Sampled:	Comments
Sample ID: IOA0454-01 Water		01/09/05 20:48	OK to run SHs past HT
Fecal Coliform	01/10/05 01:36		MPN/100 ml, Sub to Truesdail
Total Coliform	01/10/05 20:48		MPN/100 ml, Sub to Truesdail
<b>Containers Supplied:</b>			
Bacti Bottle (IOA0454-01A)			
Bacti Bottle (IOA0454-01B)			

### 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): \_\_\_\_\_

<i>Sandra Morgan</i> Released By	1/10/05 Date	17:00 Time	 Received By	1/10/05 Date	17:00 Time
 Released By	1/10/05 Date	17:15 Time	L. Muebeck Received By	1/10/05 Date	17:00 Time







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

January 26, 2005

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

Attention: Bronwyn Kelly  
Project: Outfall 017  
Sampled: 01/09/05  
Del Mar Analytical Number: IOA0482

Dear Ms. Kelly:

Aquatic Testing Laboratories performed The Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0) for the project referenced above. Please use the following cross-reference table when reviewing your results.

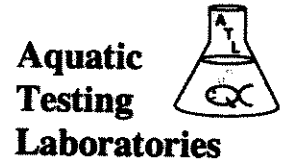
MWH ID	DEL MAR ID	Aquatic Testing Laboratories ID
Outfall 017	IOA0482-01	A-05011002-002

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

# LABORATORY REPORT



*"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:** January 14, 2005  
**Client:** Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614  
Attn: Michele Harper

**Laboratory No.:** A-05011002-002  
**Sample ID.:** IOA0482-01

**Sample Control:** The samples were received by ATL in a chilled state, with the chain of custody record attached.

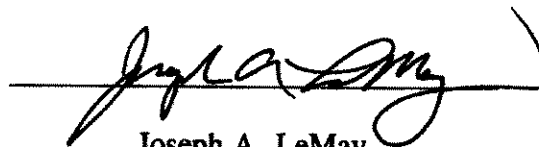
Date Sampled: 01/09/05  
Date Received: 01/10/05  
Date Tested: 01/10/05 to 01/14/05

**Sample Analysis:** The following analyses were performed on your sample:  
Fathead Minnow 96hr Percent Survival Bioassay (EPA Method 2000.0).  
Attached are the test data generated from the analysis of your sample.

## Result Summary:

<u>Sample ID.</u>	<u>Results</u>
IOA0482-01	100% Survival (TUa = 0.0)

**Quality Control:** Reviewed and approved by:

  
Joseph A. LeMay  
Laboratory Director

# FATHEAD MINNOW PERCENT SURVIVAL TEST



Lab No.: A-05011002-002  
 Client/ID: Del Mar Outfall 017  
 IOA 0482-01

Start Date: 01/10/2005

## TEST SUMMARY

Species: *Pimephales promelas*.  
 Age: 14 (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-050104.

## TEST DATA

		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	20.6	8.4	7.9	0	0	L 1500
	100%	20.2	9.7	7.5	0	0	
24 Hr	Control	20.0	8.6	7.7	0	0	L 1300
	100%	19.9	8.4	7.5	0	0	
48 Hr	Control	19.8	7.7	7.8	0	0	L 1300
	100%	19.7	7.1	7.6	0	0	
Renewal	Control	20.1	8.9	8.0	0	0	L 1300
	100%	19.5	10.7	7.6	0	0	
72 Hr	Control	19.1	8.8	7.7	0	0	L 1300
	100%	19.2	7.7	7.3	0	0	
96 Hr	Control	19.2	8.6	7.8	0	0	L 1400
	100%	19.2	5.8	6.7	0	0	

**Comments:**

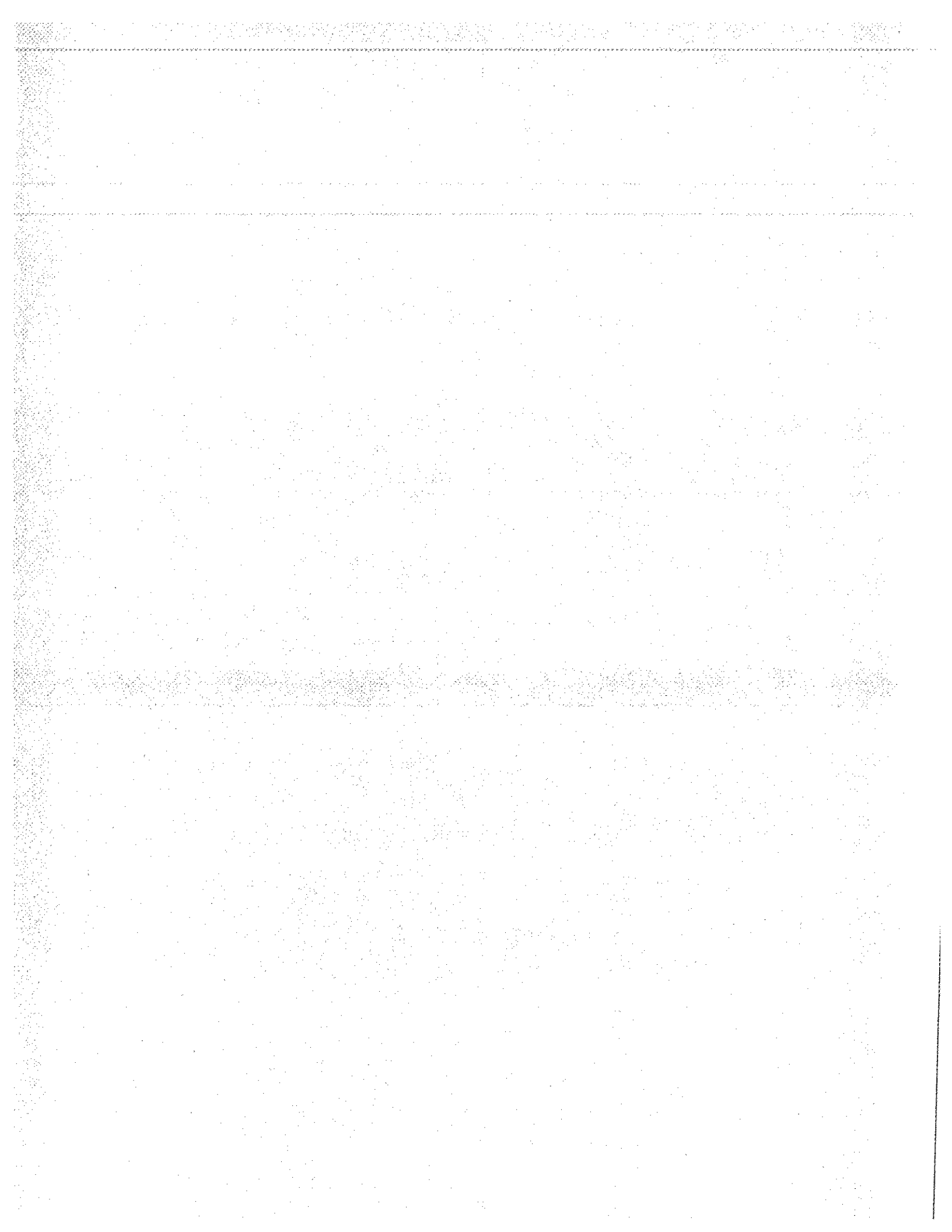
*\* dechlorinated w/ sodium + bisphite*  
 Sample as received: Chlorine: 2.0 mg/l; pH: 7.5; Conductivity: 839 umho; Temp: 4°C;  
 DO: 4.8 mg/l; Alkalinity: 46 mg/l; Hardness: 64 mg/l; NH<sub>3</sub>-N: 0.3 mg/l.  
 Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes / **NO**  
 Control: Alkalinity: 60 mg/l; Hardness: 10 mg/l; Conductivity: 315 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 %











# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUPS: IOA0451 & IOA0452

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 #: IOA0451 & IOA452  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: February 23, 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 330.5 and 180.1*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 015	Outfall 015	IOA0451-01	water	General Minerals
Outfall 017	Outfall 017	IOA0452-01	water	General Minerals

## **2.6 LABORATORY DUPLICATES**

Duplicate analyses was performed on Outfall 017 for turbidity and residual chlorine. The RPDs were within the laboratory-established control limits of  $\leq 20\%$ . No qualifications were required.

## **2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses are not applicable to the turbidity or residual chlorine methods. No qualifications were required.

## **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 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 calculations errors were noted. Residual chlorine in Outfall 017 was analyzed at a  $5\times$  dilution. 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.

## 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 and accounted for the samples and analyses presented in these SDGs. No sample qualifications were required.

#### 2.1.3 Holding Times

The holding times were assessed by comparing the date of collection with the dates of analyses. The 48-hour analytical holding time for turbidity and the 24-hour analytical holding time for residual chlorine were met, and no qualifications were required.

### 2.2 CALIBRATION

For turbidity, the initial calibration correlation coefficient was  $\geq 0.995$  and the continuing calibration information was acceptable with %Rs within the control limits of 90-110%. Calibration is not applicable to the residual chlorine method. No qualifications were required.

### 2.3 BLANKS

Turbidity was reported in the method blank and CCB, but not at sufficient concentration to qualify the site samples. Blanks are not applicable to the residual chlorine method. No qualifications were required.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Laboratory control samples are not applicable to the turbidity or residual chlorine methods. No qualifications were required.

### 2.5 SURROGATES RECOVERY

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





# Del Mar Analytical

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

Project ID: Outfall 017

Report Number: IOA0452

Sampled: 01/10/05  
 Received: 01/10/05

## DRAFT: INORGANICS

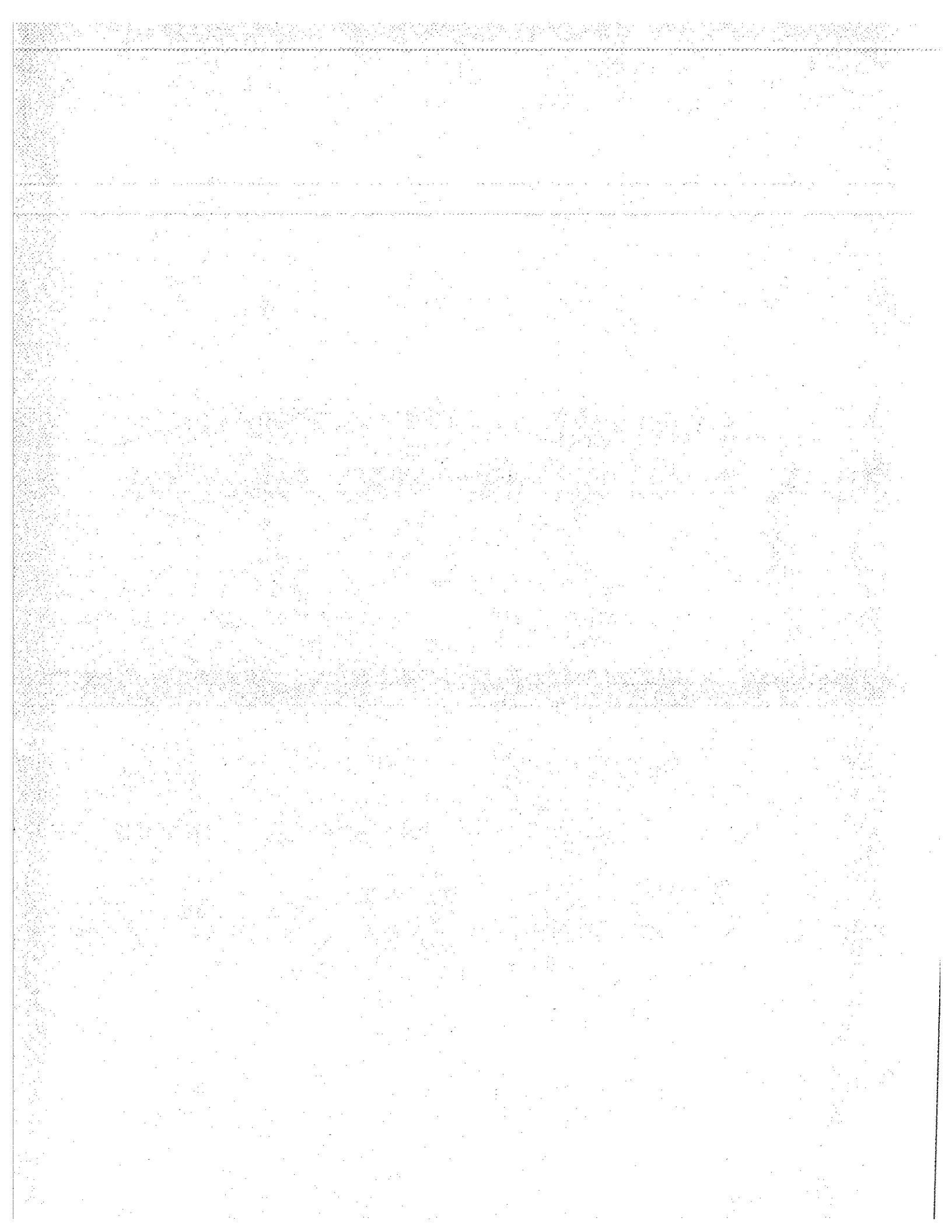
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
									Raw Qual   Qual Code
Sample ID: IOA0452-01 (DRAFT: Outfall 017-Grab - Water)									
Reporting Units: mg/l									
Residual Chlorine	EPA 330.5	5A10084	0.50	0.50	5.0	5	01/10/05	01/10/05	
Sample ID: IOA0452-01 (DRAFT: Outfall 017-Grab - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5A11071	0.040	1.0	16	1	01/11/05	01/11/05	

### 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.*





**LABORATORY REPORT**

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

Project: Outfall 017

Sampled: 01/10/05  
Received: 01/10/05  
Issued: 03/19/05 17:10

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**  
IOA0452-01

**CLIENT ID**  
Outfall 017-Grab

**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: Outfall 017

Report Number: IOA0452

Sampled: 01/10/05

Received: 01/10/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0452-01 (Outfall 017-Grab - Water)</b>									
Reporting Units: mg/l									
Residual Chlorine	EPA 330.5	5A10084	0.50	0.50	5.0	5	01/10/05	01/10/05	
<b>Sample ID: IOA0452-01 (Outfall 017-Grab - Water)</b>									
Reporting Units: NTU									
Turbidity	EPA 180.1	5A11071	0.040	1.0	16	1	01/11/05	01/11/05	

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

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**Del Mar Analytical**

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

Project ID: Outfall 017

Report Number: IOA0452

Sampled: 01/10/05  
Received: 01/10/05

**SHORT HOLD TIME DETAIL REPORT**

Sample ID: Outfall 017-Grab (IOA0452-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 180.1	2	01/10/2005 12:46	01/10/2005 16:20	01/11/2005 10:00	01/11/2005 11:00
EPA 330.5	1	01/10/2005 12:46	01/10/2005 16:20	01/10/2005 20:00	01/10/2005 20:15

**Del Mar Analytical, Irvine**  
Michele Harper  
Project Manager

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# Del Mar Analytical

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

Project ID: Outfall 017

Report Number: IOA0452

Sampled: 01/10/05  
 Received: 01/10/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A10084 Extracted: 01/10/05</b>											
<b>Duplicate Analyzed: 01/10/2005 (5A10084-DUP1)</b>											
Residual Chlorine	1.00	0.10	0.10	mg/l		1.0			0	20	
<b>Batch: 5A11071 Extracted: 01/11/05</b>											
<b>Blank Analyzed: 01/11/2005 (5A11071-BLK1)</b>											
Turbidity	0.0700	1.0	0.040	NTU							J
<b>Duplicate Analyzed: 01/11/2005 (5A11071-DUP1)</b>											
Turbidity	30.4	1.0	0.040	NTU		30			1	20	

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: Outfall 017

Report Number: IOA0452

Sampled: 01/10/05

Received: 01/10/05

**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
IOA0452-01	Chlorine, Residual	Residual Chlorine	mg/l	5.00	0.50	0.100

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: Outfall 017

Report Number: IOA0452

Sampled: 01/10/05

Received: 01/10/05

### 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.
- 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

*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.*

**IOA0452 <Page 6 of 7>**





# 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: Outfall 017

Report Number: IOA0452

Sampled: 01/10/05  
Received: 01/10/05

## Certification Summary

### Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 180.1	Water	X	X
EPA 330.5	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](http://www.dmalabs.com).*

### Subcontracted Laboratories

#### Truesdail Laboratories-SUB California Cert #1237

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Fecal Coliform  
Samples: IOA0452-01

Analysis Performed: Total Coliform  
Samples: IOA0452-01

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.*

# Del Mar Analytical Version 5/8/2004 CHAIN OF CUSTODY FORM

Client Name/Address: <b>MWH-Pasadena</b> 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Project Manager: Bronwyn Kelly		Project: <b>Boeing-SSFL NPDES</b> <b>Outfall 017 Effluent - Daily</b> <b>STP III</b>		ANALYSIS REQUIRED										Field readings: Temp = pH =						
Sampler: <i>Pollack</i>		Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		Turbidity		Residual Chlorine		Total & Fecal Coliform		Comments										
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative															
Outfall 017-Grab	W	500ml Poly	1	1-10-05 12:16	None															
Outfall 017-Grab	W	VOAS	2		None															
Outfall 017-Grab	W	Glass	2		None															
Relinquished By: <i>[Signature]</i>						Date/Time: 1/10/05 12:50	Received By: <i>[Signature]</i>						Date/Time: 1/10/05 12:50	Turn around Time: (check) 24 Hours <input type="checkbox"/> 5 Days <input type="checkbox"/> 48 Hours <input type="checkbox"/> 10 Days <input type="checkbox"/> 72 Hours <input type="checkbox"/> Normal <input checked="" type="checkbox"/>						
Relinquished By: <i>[Signature]</i>						Date/Time: 1/10/05 16:20	Received By: <i>[Signature]</i>						Date/Time: 1/10/05 16:20	Perchlorate Only 72 Hours <input type="checkbox"/> Metals Only 72 Hours <input type="checkbox"/> Sample Integrity: (Check) Intact <input checked="" type="checkbox"/> On Ice: <input checked="" type="checkbox"/> 4°C						
Relinquished By: <i>[Signature]</i>						Date/Time: 1/10/05 16:20	Received By: <i>[Signature]</i>						Date/Time: 1/10/05 16:20							

*[Handwritten Signature]*



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

January 26, 2005

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

Attention: Bronwyn Kelly  
  
Project: Outfall 017  
Sampled: 01/10/05  
Del Mar Analytical Number: IOA0452

Dear Ms. Kelly:

Truesdail Laboratories Inc. performed The Multiple Tube Fermentation Test by APHA Standard Methods 9221B and 9221E for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Truesdail Laboratories ID
Outfall 017-Grab	IOA0452-01	938490/IOA0452-01

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

# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

## REPORT

14201 FRANKLIN AVENUE  
TUSTIN, CALIFORNIA 92780-7008  
(714) 730-6239 · FAX (714) 730-6462  
www.truesdail.com

Del Mar Analytical  
Attn: Michele Harper  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Report Date: 1/13/05

Date Received: 1/10/05

Laboratory No.: 938490

Sample: One water marked IOA0452-01, 1/10/05, 12:46

Analysis Date: 1/10/05

Time: 1830

Completion Date: 1/12/05

Time: 1800

Investigation: Multiple Tube Fermentation Test for Coliform Group Bacteria APHA Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992 Method 9221B, 9221E

### RESULTS

#### Sample Designation

#### Coliform Group Bacteria MPN\*/100ml

1. IOA0452-01, 12:46

Total      Fecal

<2\*\*      <2

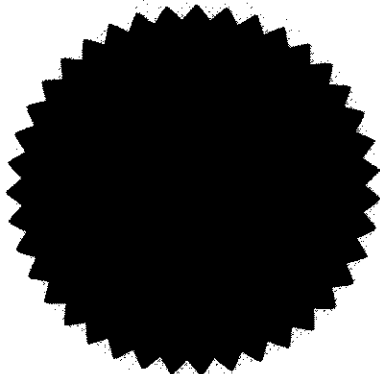
\* Most Probable No./100 ml

\*\* None Detected

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Karl W. Schiller, M.S.  
Chief Microbiologist





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) 370-4657 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) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

## SUBCONTRACT ORDER - PROJECT # IOA0452

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	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: \_\_\_\_\_

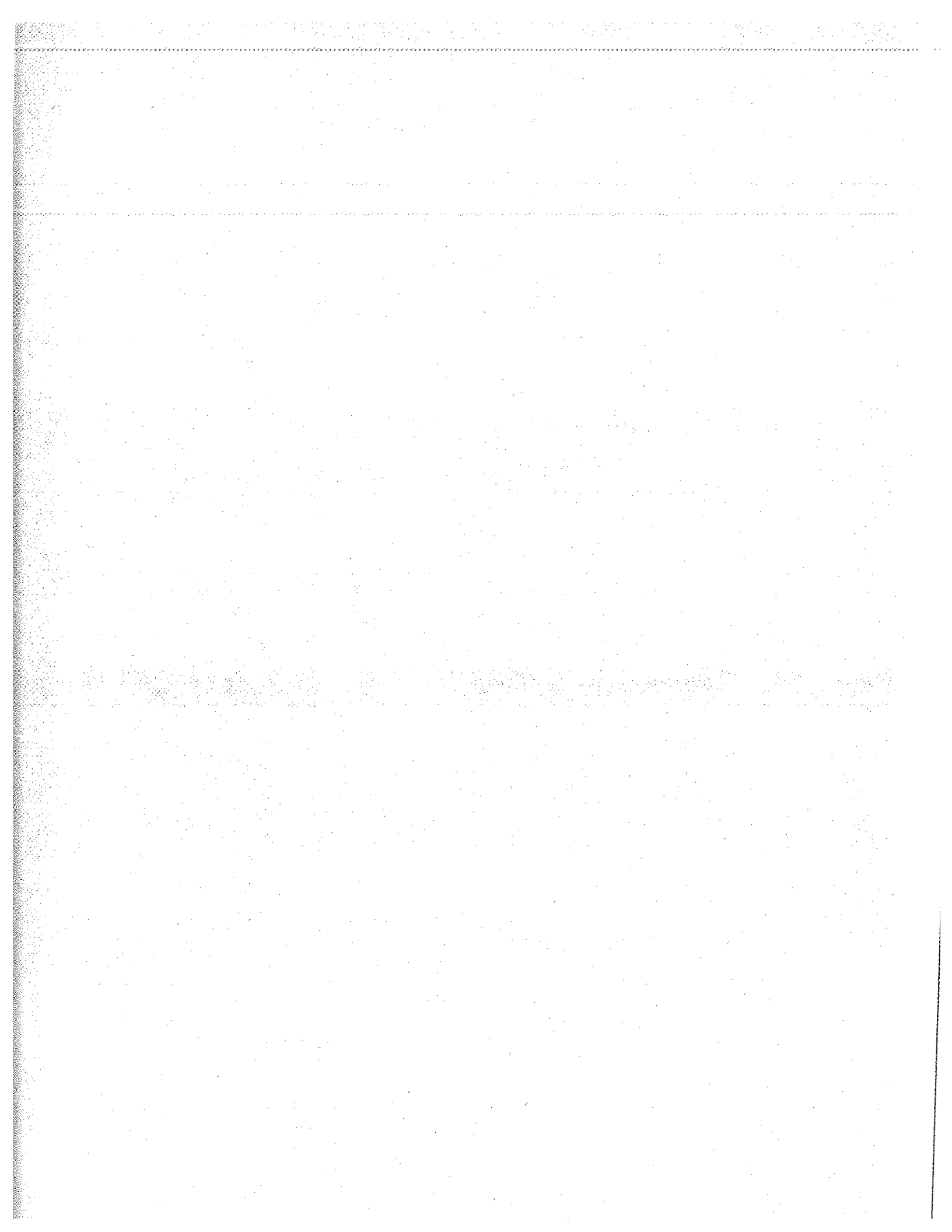
Analysis	Expiration	Comments
Sample ID: IOA0452-01 Water      Sampled: 01/10/05 12:46		
Fecal Coliform	01/10/05 17:34	MPN/100 ml, Sub to Truesdail
Total Coliform	01/11/05 12:46	MPN/100 ml, Sub to Truesdail

**Containers Supplied:**  
 Bacti Bottle (IOA0452-01A)  
 Bacti Bottle (IOA0452-01B)

### 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): \_\_\_\_\_

*Lauren Marge* 1/10/05 17:00      *EDH* 1/10/05 17:00  
 Released By      Date      Time      Received By      Date      Time  
*[Signature]* 1/10/05 17:15      *A. Shubert* 1/10/05 17:00  
 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 T711DF21  
 Task Order 313150010  
 SDG No. Multiple  
 No. of Analyses 4

Laboratory Pace  
 Reviewer K. Shadowlight  
 Analysis/Method Dioxins

Date: February 18, 2005  
 Reviewer's Signature  
*K. Shadowlight*

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



# 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: February 18, 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 (Pace)	Matrix	COC Method
Outfall 015	IOA0557-02	106233001	water	1613
Outfall 015	IOA0580-01	106237001	water	1613
Outfall 017	IOA0558-02	106234001	water	1613
Outfall 017	IOA0576-02	106236001	water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were subcontracted to Pace Analytical for the dioxin/furan analyses. The samples in these SDGs were received at Pace Analytical Services below the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ; however, as none of the samples were noted to have been frozen or damaged, no qualifications were required. The samples were received in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were signed by the appropriate field and laboratory personnel. The samples and analyses were accounted for on both the original COCs and transfer COCs. As the samples were couriered directly to the laboratory (Del Mar Analytical), custody seals were not required. There was no information regarding custody seals upon receipt at Pace. 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 column performance standard was combined with the daily calibration verification and analyzed at the beginning of each analytical sequence. The GC column performance was acceptable with the chromatographic separation of 2,3,7,8-TCDD and other TCDD isomers resolved with a valley of  $\leq 25\%$ . No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance could not be evaluated as the laboratory did not provide selected ion current profiles for the lock-mass ions. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

There was one initial calibration, analyzed 11/29/04 on Instrument 10MSHR05. The calibration consisted of five concentration level standards (CS1 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 2 native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in the Table 6 of the 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.

## 2.4 BLANKS

One method blank (Blank-6220) was extracted and analyzed with the samples in these SDGs. Target compounds total HpCDF, 1,2,3,4,6,7,8-HpCDF, total HpCDF, OCDF, and OCDD were reported in the method blank. Any detects for the aforementioned target compounds reported at concentrations  $< 5\times$  the concentrations reported in the method blank were qualified as estimated nondetects "UJ," at the levels of interference in the samples of these SDGs. 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 LCS/LCSD pair (LCS-6221/LCSD-6222) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of the Method 1613. There were no QC limits established for RPDs. The reported RPDs were within  $\pm 20\%$ . No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy and precision was based on the LCS/LCSD 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 limit (MCL) were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." No further qualifications were required.

## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0576-02	
Lab Sample ID	106236001	<i>out fall 017</i>
Filename	F50130A_07	
Injected By	BAL	
Total Amount Extracted	973 mL	Matrix
% Moisture	NA	Water
Dry Weight Extracted	NA	Dilution
ICAL Date	11/29/2004	Collected
CCal Filename(s)	F50129B_18	Received
Method Blank ID	BLANK-6220	Extracted
		Analyzed

Conc	EMPC	LOD	Internal Standards	ng's Added	Percent Recovery
ND	-----	0.69	2,3,7,8-TCDF-13C	2.00	66
ND	-----	0.69	2,3,7,8-TCDD-13C	2.00	82
ND	-----	0.80	1,2,3,7,8-PeCDF-13C	2.00	74
ND	-----	0.80	2,3,4,7,8-PeCDF-13C	2.00	75
ND	-----	1.00	1,2,3,7,8-PeCDD-13C	2.00	91
ND	-----	0.91	1,2,3,4,7,8-HxCDF-13C	2.00	76
1.70	-----	0.96 J	1,2,3,6,7,8-HxCDF-13C	2.00	82
ND	-----	0.76	2,3,4,6,7,8-HxCDF-13C	2.00	77
ND	-----	0.76	1,2,3,7,8,9-HxCDF-13C	2.00	76
ND	-----	0.76	1,2,3,4,7,8-HxCDD-13C	2.00	70
0.92	-----	0.62 J	1,2,3,6,7,8-HxCDD-13C	2.00	85
ND	-----	0.69	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
ND	-----	0.54	1,2,3,4,7,8,9-HpCDF-13C	2.00	64
ND	-----	0.76	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
3.90	-----	0.65 J	OCDD-13C	4.00	72
1.20	-----	0.75 J	1,2,3,4-TCDD-13C	2.00	NA
1.80	-----	0.60 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
-----	1.7	0.73 I	2,3,7,8-TCDD-37Cl4	0.20	84
8.80	-----	0.69 J			
6.30	-----	1.10 J			
ND	-----	1.20			
8.40	-----	1.10 BJ			
28.00	-----	1.50 J			
58.00	-----	1.50 J			
16.00	-----	1.50 BJ			
250.00	-----	2.30			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106236

**REC VALIDATED**  
**REPORT OF LABORATORY ANALYSIS**  
**LEVEL IV**

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## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID: IOA0558-02 *Out Call 017*  
 Lab Sample ID: 106234001  
 Filename: F50130A\_06  
 Injected By: BAL  
 Total Amount Extracted: 985 mL  
 % Moisture: NA  
 Dry Weight Extracted: NA  
 ICAL Date: 11/29/2004  
 CCAL Filename(s): F50129B\_18  
 Method Blank ID: BLANK-6220

Matrix: Water  
 Dilution: NA  
 Collected: 01/12/2005  
 Received: 01/14/2005  
 Extracted: 01/28/2005  
 Analyzed: 01/30/2005 14:49

Rev	Qual	Qual Code	Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
u			2,3,7,8-TCDF	ND	----	0.88	2,3,7,8-TCDF-13C	2.00	67
J		DMR	Total TCDF	1.8	----	0.88 J	2,3,7,8-TCDD-13C	2.00	84
u			2,3,7,8-TCDD	ND	----	0.60	1,2,3,7,8-PeCDF-13C	2.00	71
u			Total TCDD	ND	----	0.60	2,3,4,7,8-PeCDF-13C	2.00	74
u			1,2,3,7,8-PeCDF	ND	----	0.81	1,2,3,7,8-PeCDD-13C	2.00	89
u			2,3,4,7,8-PeCDF	ND	----	0.74	1,2,3,4,7,8-HxCDF-13C	2.00	82
u			Total PeCDF	ND	----	0.78	1,2,3,6,7,8-HxCDF-13C	2.00	82
u			1,2,3,7,8-PeCDD	ND	----	1.20	2,3,4,6,7,8-HxCDF-13C	2.00	78
u			Total PeCDD	ND	----	1.20	1,2,3,7,8,9-HxCDF-13C	2.00	76
u			1,2,3,4,7,8-HxCDF	1.7	----	0.64 J	1,2,3,4,7,8-HxCDD-13C	2.00	73
u			1,2,3,6,7,8-HxCDF	ND	----	0.70	1,2,3,6,7,8-HxCDD-13C	2.00	85
u			2,3,4,6,7,8-HxCDF	ND	----	0.60	1,2,3,4,6,7,8-HpCDF-13C	2.00	72
u			1,2,3,7,8,9-HxCDF	ND	----	1.00	1,2,3,4,7,8,9-HpCDF-13C	2.00	64
u			Total HxCDF	1.7	----	0.74 J	1,2,3,4,6,7,8-HpCDD-13C	2.00	82
u			1,2,3,4,7,8-HxCDD	----	1.1	0.95 I	OCDD-13C	4.00	68
u			1,2,3,6,7,8-HxCDD	1.9	----	0.74 J	1,2,3,4-TCDD-13C	2.00	NA
u			1,2,3,7,8,9-HxCDD	----	1.7	0.75 I	1,2,3,7,8,9-HxCDD-13C	2.00	NA
u			Total HxCDD	1.9	----	0.81 J	2,3,7,8-TCDD-37Cl4	0.20	83
u			1,2,3,4,6,7,8-HpCDF	4.7	----	1.20 J			
u			1,2,3,4,7,8,9-HpCDF	ND	----	1.60			
u			Total HpCDF	4.7	----	1.40 BJ			
u			1,2,3,4,6,7,8-HpCDD	22.0	----	1.80 BJ			
u			Total HpCDD	43.0	----	1.80 J			
u			OCDF	11.0	----	2.00 BJ			
u			OCDD	190.0	----	3.70			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106234

AMEC VALIDATED

### REPORT OF LABORATORY ANALYSIS

LEVEL III

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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 T711MT36  
Task Order 313150010  
SDG No. IOA0558/IOA0576

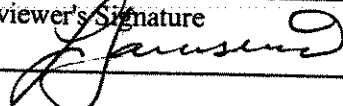
No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method Metals

Date: 03/11/05

Reviewer's Signature 

#### ACTION ITEMS<sup>a</sup>

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 were applied for:

1) Detects between the MDL and the reporting limit

2) CRDL check standards recovered below control limits

3) Detects in method blanks and CCBs

#### COMMENTS<sup>b</sup>

<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.

<sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.





# DATA VALIDATION REPORT

NPDES  
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: IOA0558 & IOA0576

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#: IOA0558/IOA0576  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Metals  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Jarusewic  
Date of Review: March 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 017-Composite-Influent	Outfall 017-Composite-Influent	IOA0558-02	water	ILM04
Outfall 017-Composite Effluent	Outfall 017-Composite Effluent	IOA0576-02	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 analyses and samples presented in these SDGs. No 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 metals and 28 days for mercury. No qualifications were required.

### 2.2 ICP-MS TUNING

ICP-MS tuning was not applicable to the analyses presented in these SDGs.

### 2.3 CALIBRATION

The ICV and CCV results showed acceptable recoveries, 90-110% for ICP and 80-120% for mercury. The silver reporting limit check standard recoveries were below the control limit; therefore, nondetected silver in Outfall 017-Composite-Influent and Outfall 017-Composite-Effluent was qualified as estimated, "UJ." The thallium reporting limit check standard for Outfall 017-Composite-Effluent was recovered below the control limit; therefore, thallium in Outfall 017-Composite-Effluent 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

There were detects and negative results reported for the method blanks and bracketing ICBs/CCBs associated with the samples in these SDGs. Silver was reported in the associated method blank

(5A13042-BLK1) for Outfall 017-Composite-Influent at -0.0023 mg/L; therefore, nondetected silver in Outfall 017-Composite-Influent was qualified as estimated, "UJ." Boron was detected in a bracketing CCB at 0.0084 mg/L; however, the boron CCB result was insufficient to qualify the Outfall 017-Composite-Effluent result. Thallium was reported in a bracketing CCB at -0.0038 mg/L; therefore, nondetected thallium in Outfall 017-Composite-Effluent 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)

ICP-MS interference check samples were not applicable to the analyses presented in these SDGs.

ICSA and ICSAB analyses were included in the raw data for the ICP analysis. The recoveries for the interferents were within the control limits of 80-120%. There were detects and negative results reported for antimony, arsenic, chromium, lead, selenium, and zinc in the ICSA. The validator reviewed the raw data for the site sample ICP analysis for the level of reported interferents, Al, Ca, Fe, and Mg, and determined that the concentration of interferents was not high enough to cause matrix effects. No sample qualifications were required due to the ICP ICS analysis.

## 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP LCS samples were identified as 5A13042-BS1 and 5A14046-BS1, and the Hg LCS samples were identified as 5A13050-BS1 and 5A14053-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP and Hg 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 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.

## 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

Internal standards were not applicable to the analyses presented in these SDGs.

## 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 sample.



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

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0576-02 (DRAFT: Outfall 017-Comp Effluent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: mg/l					REV QUAL CODE				
Antimony	EPA 200.7	5A14046	0.0042	0.010	ND	1	01/14/05	01/14/05	U
Arsenic	EPA 200.7	5A14046	0.0038	0.0050	ND	1	01/14/05	01/14/05	↓
Beryllium	EPA 200.7	5A14046	0.00062	0.0020	ND	1	01/14/05	01/14/05	↓
Boron	EPA 200.7	5A14046	0.0074	0.050	0.093	1	01/14/05	01/14/05	J
Cadmium	EPA 200.7	5A14046	0.00034	0.0050	0.00050	1	01/14/05	01/14/05	J
Chromium	EPA 200.7	5A14046	0.00068	0.0050	0.11	1	01/14/05	01/14/05	J
Copper	EPA 200.7	5A14046	0.0017	0.010	0.0079	1	01/14/05	01/14/05	J
Lead	EPA 200.7	5A14046	0.0021	0.0050	ND	1	01/14/05	01/14/05	U
Mercury	EPA 245.1	5A14053	0.000063	0.00020	0.00030	1	01/14/05	01/14/05	U
Nickel	EPA 200.7	5A14046	0.0020	0.010	0.12	1	01/14/05	01/14/05	U
Selenium	EPA 200.7	5A14046	0.0046	0.0050	ND	1	01/14/05	01/14/05	U
Silver	EPA 200.7	5A14046	0.0013	0.010	ND	1	01/14/05	01/14/05	UJ
Thallium	EPA 200.7	5A14046	0.0031	0.0050	ND	1	01/14/05	01/16/05	UJ
Zinc	EPA 200.7	5A14046	0.0037	0.020	0.099	1	01/14/05	01/14/05	UJ

### 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 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
									QUAL	CODE
Sample ID: IOA0558-02 (Outfall 017 Composite Influent - Water) - cont.					Sampled: 01/12/05				REV	QUAL
Reporting Units: mg/l										
Antimony	EPA 200.7	5A13042	0.0042	0.010	ND	1	01/13/05	01/13/05	U	
Arsenic	EPA 200.7	5A13042	0.0038	0.0050	ND	1	01/13/05	01/13/05	↓	
Beryllium	EPA 200.7	5A13042	0.00062	0.0020	ND	1	01/13/05	01/13/05	↓	
Cadmium	EPA 200.7	5A13042	0.00034	0.0050	0.00060	1	01/13/05	01/13/05	J	JDNQ
Chromium	EPA 200.7	5A13042	0.00068	0.0050	0.30	1	01/13/05	01/13/05		
Copper	EPA 200.7	5A13042	0.0017	0.010	0.015	1	01/13/05	01/13/05		
Lead	EPA 200.7	5A13042	0.0021	0.0050	0.0029	1	01/13/05	01/13/05	J	JDNQ
Mercury	EPA 245.1	5A13050	0.000063	0.00020	ND	1	01/13/05	01/13/05	U	
Nickel	EPA 200.7	5A13042	0.0020	0.010	0.22	1	01/13/05	01/13/05		
Selenium	EPA 200.7	5A13042	0.0046	0.0050	ND	1	01/13/05	01/13/05	U	
Silver	EPA 200.7	5A13042	0.0013	0.010	ND	1	01/13/05	01/13/05	UT	B, #3
Thallium	EPA 200.7	5A13042	0.0031	0.0050	0.0052	1	01/13/05	01/13/05		
Zinc	EPA 200.7	5A13042	0.0037	0.020	0.13	1	01/13/05	01/13/05		

### AMEC VALIDATED

# 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 T711PP13  
 Task Order 313150010  
 SDG No. IOA0558, IOA0576

No. of Analyses 2

Laboratory Del Mar Analytical.

Reviewer L. Calvin

Analysis/Method Pesticides/PCBs by Method 608

Date: March 11, 2005

Reviewer's Signature

*L. Calvin*

**ACTION ITEMS<sup>a</sup>**

<b>1. Case Narrative</b>	
<b>Deficiencies</b>	
<b>2. Out of Scope</b>	
<b>Analyses</b>	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy</b>	
<b>Deliverables</b>	
<b>5. Incorrect Hardcopy</b>	
<b>Deliverables</b>	
<b>6. Deviations from Analysis</b>	<b>Qualification was assigned for continuing calibration %Ds &gt;15%.</b>
<b>Protocol, e.g.,</b>	
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<sup>b</sup>**

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOA0558, IOA0576

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#: IOA0558, IOA0576  
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: March 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 017 Composite Influent	Outfall 017 Composite Influent	IOA0558-02	water	608
Outfall 017 Composite Effluent	Outfall 017 Composite Effluent	IOA0576-01	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 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. 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  $\pm 0.10$  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

The initial calibration associated with the pesticide analyses of the samples was dated 12/29/04, and consisted of six-point calibrations for the pesticide compounds. The %RSDs were within the EPA Method 608 QC limit of  $\leq 10\%$  on both analytical columns. Single point calibrations were analyzed for toxaphene and chlordane. There was one initial calibration dated 01/03/05 associated with the PCB analyses of the samples, consisting of five points for Arochlor 1016 and Arochlor 1260. Single point calibrations for Arochlor 1242, Arochlor 1248, and Arochlor 1254 were also analyzed. The average %RSDs for the individual peaks of Arochlor 1016 and Arochlor 1260 were  $\leq 10\%$  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

The pesticide analysis of sample Outfall 017 Composite Influent was bracketed by four continuing calibrations, two preceding and two following the analysis. In all of the bracketing calibrations, the %Ds exceeded 15% on one or both channels for 4,4'-DDT, methoxychlor, and endrin ketone. Results for the aforementioned compounds were qualified as estimated, "UJ," in sample Outfall 017 Composite Influent. The %Ds were within the Method QC limit of  $\leq 15\%$  for the calibrations bracketing sample Outfall 017 Composite Effluent. The PCB analyses of both samples were bracketed by three CCVs, with %Ds for Arochlor 1016 and Arochlor 1260 of  $\leq 15\%$ . A representative number of %Ds were recalculated from the raw data and no transcription or calculation errors were noted. No further 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 (5A13049-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 (5A13049-BS1/BSD1) 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 pesticide and PCB analyses of 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 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; however, as there were no detects reported in the samples, quantitation was verified by recalculating a representative number of

*DATA VALIDATION REPORT*

Project: NPDES  
SDG: IOA0558, IOA0576  
Analysis: Pest/PCB

blank spike and surrogate recoveries. Reporting limits were supported by the low level standard of the initial calibration and the laboratory MDL studies. 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 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0576-02 (DRAFT: Outfall 017-Comp Effluent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Aldrin	EPA 608	5A13049	0.029	0.10	ND	1.01	01/13/05	01/13/05	<i>see qual code</i> ↓
alpha-BHC	EPA 608	5A13049	0.010	0.10	ND	1.01	01/13/05	01/13/05	
beta-BHC	EPA 608	5A13049	0.011	0.10	ND	1.01	01/13/05	01/13/05	
delta-BHC	EPA 608	5A13049	0.010	0.20	ND	1.01	01/13/05	01/13/05	
gamma-BHC (Lindane)	EPA 608	5A13049	0.0097	0.10	ND	1.01	01/13/05	01/13/05	
Chlordane	EPA 608	5A13049	0.18	1.0	ND	1.01	01/13/05	01/13/05	
4,4'-DDD	EPA 608	5A13049	0.011	0.10	ND	1.01	01/13/05	01/13/05	
4,4'-DDE	EPA 608	5A13049	0.017	0.10	ND	1.01	01/13/05	01/13/05	
4,4'-DDT	EPA 608	5A13049	0.015	0.10	ND	1.01	01/13/05	01/13/05	
Dieldrin	EPA 608	5A13049	0.010	0.10	ND	1.01	01/13/05	01/13/05	
Endosulfan I	EPA 608	5A13049	0.015	0.10	ND	1.01	01/13/05	01/13/05	
Endosulfan II	EPA 608	5A13049	0.037	0.10	ND	1.01	01/13/05	01/13/05	
Endosulfan sulfate	EPA 608	5A13049	0.013	0.20	ND	1.01	01/13/05	01/13/05	
Endrin	EPA 608	5A13049	0.0082	0.10	ND	1.01	01/13/05	01/13/05	
Endrin aldehyde	EPA 608	5A13049	0.045	0.10	ND	1.01	01/13/05	01/13/05	
Endrin ketone	EPA 608	5A13049	0.020	0.10	ND	1.01	01/13/05	01/13/05	
Heptachlor	EPA 608	5A13049	0.030	0.10	ND	1.01	01/13/05	01/13/05	
Heptachlor epoxide	EPA 608	5A13049	0.012	0.10	ND	1.01	01/13/05	01/13/05	
Methoxychlor	EPA 608	5A13049	0.034	0.10	ND	1.01	01/13/05	01/13/05	
Toxaphene	EPA 608	5A13049	0.77	5.0	ND	1.01	01/13/05	01/13/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					36 %				
Surrogate: Decachlorobiphenyl (45-120%)					76 %				

**AMEC VALIDATED**

**LEVEL IV**

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 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3627

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

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## DRAFT: TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0576-02 (DRAFT: Outfall 017-Comp Effluent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	1.01	01/13/05	01/14/05	<i>very good</i> <i>u</i> <i>↓</i> <i>good</i> <i>Decade</i>
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	1.01	01/13/05	01/14/05	
Surrogate: Decachlorobiphenyl (45-120%)					76 %				

### AMEC VALIDATED

### LEVEL IV

DRAFT REPORT  
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 DATA SUBJECT TO CHANGE

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

Project ID: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0558-02 (Outfall 017 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Aldrin	EPA 608	5A13049	0.029	0.10	ND	1	01/13/05	01/14/05	u
alpha-BHC	EPA 608	5A13049	0.010	0.10	ND	1	01/13/05	01/14/05	u
beta-BHC	EPA 608	5A13049	0.011	0.10	ND	1	01/13/05	01/14/05	u
delta-BHC	EPA 608	5A13049	0.010	0.20	ND	1	01/13/05	01/14/05	u
gamma-BHC (Lindane)	EPA 608	5A13049	0.0097	0.10	ND	1	01/13/05	01/14/05	u
Chlordane	EPA 608	5A13049	0.18	1.0	ND	1	01/13/05	01/14/05	u
4,4'-DDD	EPA 608	5A13049	0.011	0.10	ND	1	01/13/05	01/14/05	u
4,4'-DDE	EPA 608	5A13049	0.017	0.10	ND	1	01/13/05	01/14/05	u
4,4'-DDT	EPA 608	5A13049	0.015	0.10	ND	1	01/13/05	01/14/05	u
Dieldrin	EPA 608	5A13049	0.010	0.10	ND	1	01/13/05	01/14/05	u
Endosulfan I	EPA 608	5A13049	0.015	0.10	ND	1	01/13/05	01/14/05	u
Endosulfan II	EPA 608	5A13049	0.037	0.10	ND	1	01/13/05	01/14/05	u
Endosulfan sulfate	EPA 608	5A13049	0.013	0.20	ND	1	01/13/05	01/14/05	u
Endrin	EPA 608	5A13049	0.0082	0.10	ND	1	01/13/05	01/14/05	u
Endrin aldehyde	EPA 608	5A13049	0.045	0.10	ND	1	01/13/05	01/14/05	u
Endrin ketone	EPA 608	5A13049	0.020	0.10	ND	1	01/13/05	01/14/05	u
Heptachlor	EPA 608	5A13049	0.030	0.10	ND	1	01/13/05	01/14/05	u
Heptachlor epoxide	EPA 608	5A13049	0.012	0.10	ND	1	01/13/05	01/14/05	u
Methoxychlor	EPA 608	5A13049	0.034	0.10	ND	1	01/13/05	01/14/05	u
Toxaphene	EPA 608	5A13049	0.77	5.0	ND	1	01/13/05	01/14/05	u
Surrogate: Tetrachloro-m-xylene (35-120%)									41 %
Surrogate: Decachlorobiphenyl (45-120%)									59 %

**AMEC VALIDATED**

**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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifies
Sample ID: IOA0558-02 (Outfall 017 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	1	01/13/05	01/14/05	u
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	1	01/13/05	01/14/05	
Surrogate: Decachlorobiphenyl (45-120%)					69 %				

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**AMEC VALIDATED**  
**LEVEL IV**

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

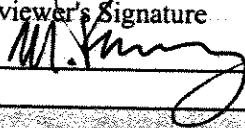
AMEC Earth & Environmental  
 550 South Wadsworth Boulevard  
 Suite 500  
 Lakewood, CO 80226

Package ID T711SV28  
 Task Order 313150010  
 SDG No. IOA0558, IOA0576  
 No. of Analyses 2

Laboratory Del Mar

Reviewer M. Pokorny

Analysis/Method Semivolatiles

Date: March 11, 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**

<p><b>Protocol, e.g.,</b>                      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</p>	<p>Qualifications were required for detects below the reporting limits, and calibration and LCS outliers.</p>
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**COMMENTS<sup>b</sup>** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\* Subcontracted analytical laboratory is not meeting contract and/or method requirements.  
<sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOA0558, IOA0576

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#: IOA0558, IOA0576  
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: March 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 1625C*, 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 017 Composite Influent	Outfall 017 Composite Influent	IOA0558-02	water	625
Outfall 017 Composite Effluent	Outfall 017 Composite Effluent	IOA0576-02	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  $4^{\circ}\text{C}\pm 2$ , at  $4^{\circ}\text{C}$ . According to COCs, the samples were received intact and in good condition. No qualifications were required.

#### 2.1.2 Chain of Custody

The COCs from the field to Del Mar Analytical were signed by field and laboratory personnel and accounted for the analyses presented in these SDGs. As the samples were couriered to the laboratory, custody seals are 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 extraction. 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 these SDGs was dated 12/30/04. The average RRFs for all target compounds were  $\geq 0.05$ , the %RSDs were  $\leq 35\%$ , except for the %RSD for 2,4-dinitrophenol, and the  $r^2$  values were  $\geq 0.995$ , except for the  $r^2$  values for bis(2-chloroethoxy)methane and 4,6-dinitro-2-methylphenol. 2,4-Dinitrophenol, bis(2-chloroethoxy)methane, and 4,6-dinitro-2-methylphenol were qualified as estimated nondetects, "UJ," in both of the samples. The continuing calibration was analyzed 01/18/05. The RRFs for all target compounds were  $\geq 0.05$  and the %Ds were  $\leq 20\%$  except for the %Ds for 2,4-dinitrophenol, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene. A representative number of the RRFs, %RSD,  $r^2$  values, and %D 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 (5A13037-BLK1) was extracted and analyzed with these SDGs. No target compounds were reported in the method blank. Review of the raw data indicated no false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5A13037-BS1/BS1D) was extracted and analyzed with these SDGs. The recoveries and RPDs were within the laboratory QC limits, except for the RPD for benzidine. Benzidine was qualified as an estimated nondetect, "UJ," in both of the samples. 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 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD analyses were associated with the samples in these SDGs. Evaluation of method accuracy and precision was based on blank spike/blank spike duplicate results. 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

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

### 2.7.2 Field Duplicates

There were no field duplicate samples associated with these SDGs.

## 2.8 INTERNAL STANDARDS PERFORMANCE

The internal standard area counts were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas. A representative number of recoveries were calculated from the raw data, and no transcription or calculation errors were noted. No qualifications were required.

## 2.9 COMPOUND IDENTIFICATION

The laboratory analyzed for semivolatile target compounds by EPA Method 625C. Review of sample chromatograms and retention times indicated no problems with target compound identification. No qualifications were required.

## **2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS**

Compound quantitation was verified by recalculating any sample detects and/or blank spike/blank spike duplicate concentrations from the raw data and no calculation or transcription errors were found. The reporting limits were supported by the low level of the initial calibration. Reporting limits were not adjusted for sample amount; however, the dilution factors listed on the sample result summaries reflected the sample amount extracted. Results were reported in ug/L. Results reported between the MDL and the reporting limit were qualified as estimated, "J," by the laboratory. No further qualifications were required.

## **2.11 SYSTEM PERFORMANCE**

Review of the raw data indicated no problems with system performance. No qualifications were required.



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 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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: IOA0576-02 (DRAFT: Outfall 017-Comp Effluent - Water)					Sampled: 01/12/05				
Reporting Units: ug/l									
Acenaphthene	EPA 625	5A13037	4.3	10	ND	1	01/13/05	01/18/05	U
Acenaphthylene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	U
Aniline	EPA 625	5A13037	2.9	10	ND	1	01/13/05	01/18/05	U
Anthracene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	U
Benzidine	EPA 625	5A13037	5.2	20	ND	1	01/13/05	01/18/05	U
Benzoic acid	EPA 625	5A13037	2.6	20	13	1	01/13/05	01/18/05	J *5 J DNG
Benzo(a)anthracene	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	U
Benzo(b)fluoranthene	EPA 625	5A13037	2.7	10	ND	1	01/13/05	01/18/05	U
Benzo(k)fluoranthene	EPA 625	5A13037	3.4	10	ND	1	01/13/05	01/18/05	U
Benzo(g,h,i)perylene	EPA 625	5A13037	5.3	10	ND	1	01/13/05	01/18/05	U J C C
Benzo(a)pyrene	EPA 625	5A13037	3.5	10	ND	1	01/13/05	01/18/05	U
Benzyl alcohol	EPA 625	5A13037	2.5	20	ND	1	01/13/05	01/18/05	U
Bis(2-chloroethoxy)methane	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	U J C
Bis(2-chloroethyl)ether	EPA 625	5A13037	4.4	10	ND	1	01/13/05	01/18/05	U
Bis(2-chloroisopropyl)ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	U
Bis(2-ethylhexyl)phthalate	EPA 625	5A13037	5.2	50	ND	1	01/13/05	01/18/05	U
4-Bromophenyl phenyl ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	U
Butyl benzyl phthalate	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	U
4-Chloroaniline	EPA 625	5A13037	6.0	10	ND	1	01/13/05	01/18/05	U
2-Chloronaphthalene	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	U
4-Chloro-3-methylphenol	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	U
2-Chlorophenol	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U
4-Chlorophenyl phenyl ether	EPA 625	5A13037	3.0	10	ND	1	01/13/05	01/18/05	U
Chrysene	EPA 625	5A13037	2.8	10	ND	1	01/13/05	01/18/05	U
Dibenz(a,h)anthracene	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	U
Dibenzofuran	EPA 625	5A13037	2.6	10	ND	1	01/13/05	01/18/05	U
Di-n-butyl phthalate	EPA 625	5A13037	2.8	20	ND	1	01/13/05	01/18/05	U
1,3-Dichlorobenzene	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	U
1,4-Dichlorobenzene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	U
1,2-Dichlorobenzene	EPA 625	5A13037	4.5	10	ND	1	01/13/05	01/18/05	U
3,3-Dichlorobenzidine	EPA 625	5A13037	11	20	ND	1	01/13/05	01/18/05	U
2,4-Dichlorophenol	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	U
Diethyl phthalate	EPA 625	5A13037	3.1	10	ND	1	01/13/05	01/18/05	U
2,4-Dimethylphenol	EPA 625	5A13037	4.4	20	ND	1	01/13/05	01/18/05	U
Dimethyl phthalate	EPA 625	5A13037	3.6	10	ND	1	01/13/05	01/18/05	U
4,6-Dinitro-2-methylphenol	EPA 625	5A13037	5.1	20	ND	1	01/13/05	01/18/05	U J C
2,4-Dinitrophenol	EPA 625	5A13037	5.3	20	ND	1	01/13/05	01/18/05	U J C
2,4-Dinitrotoluene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U
2,6-Dinitrotoluene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	U
Di-n-octyl phthalate	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	U
Fluoranthene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U

DRAFT REPORT  
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ANEC VALIDATED

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 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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: IOA0558-02 (Outfall 017 Composite Influent - Water)					Sampled: 01/12/05				
Reporting Units: ug/l					REV QUAL   QUA CDS				
Acenaphthene	EPA 625	5A13037	4.3	10	ND	1	01/13/05	01/18/05	U
Acenaphthylene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	U
Aniline	EPA 625	5A13037	2.9	10	ND	1	01/13/05	01/18/05	U
Anthracene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	U
Benzidine	EPA 625	5A13037	5.2	20	ND	1	01/13/05	01/18/05	U
Benzoic acid	EPA 625	5A13037	2.6	20	13	1	01/13/05	01/18/05	U J #5 DNG
Benzo(a)anthracene	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	U
Benzo(b)fluoranthene	EPA 625	5A13037	2.7	10	ND	1	01/13/05	01/18/05	U
Benzo(k)fluoranthene	EPA 625	5A13037	3.4	10	ND	1	01/13/05	01/18/05	U
Benzo(g,h,i)perylene	EPA 625	5A13037	5.3	10	ND	1	01/13/05	01/18/05	U C
Benzo(a)pyrene	EPA 625	5A13037	3.5	10	ND	1	01/13/05	01/18/05	U
Benzyl alcohol	EPA 625	5A13037	2.5	20	ND	1	01/13/05	01/18/05	U
Bis(2-chloroethoxy)methane	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	U C
Bis(2-chloroethyl)ether	EPA 625	5A13037	4.4	10	ND	1	01/13/05	01/18/05	U
Bis(2-chloroisopropyl)ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	U
Bis(2-ethylhexyl)phthalate	EPA 625	5A13037	5.2	50	ND	1	01/13/05	01/18/05	U
4-Bromophenyl phenyl ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	U
Butyl benzyl phthalate	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	U
4-Chloroaniline	EPA 625	5A13037	6.0	10	ND	1	01/13/05	01/18/05	U
2-Chloronaphthalene	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	U
4-Chloro-3-methylphenol	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	U
2-Chlorophenol	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U
4-Chlorophenyl phenyl ether	EPA 625	5A13037	3.0	10	ND	1	01/13/05	01/18/05	U
Chrysene	EPA 625	5A13037	2.8	10	ND	1	01/13/05	01/18/05	U
Dibenz(a,h)anthracene	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	U
Dibenzofuran	EPA 625	5A13037	2.6	10	ND	1	01/13/05	01/18/05	U
Di-n-butyl phthalate	EPA 625	5A13037	2.8	20	ND	1	01/13/05	01/18/05	U
1,3-Dichlorobenzene	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	U
1,4-Dichlorobenzene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	U
1,2-Dichlorobenzene	EPA 625	5A13037	4.5	10	ND	1	01/13/05	01/18/05	U
3,3-Dichlorobenzidine	EPA 625	5A13037	11	20	ND	1	01/13/05	01/18/05	U
2,4-Dichlorophenol	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	U
Diethyl phthalate	EPA 625	5A13037	3.1	10	ND	1	01/13/05	01/18/05	U
2,4-Dimethylphenol	EPA 625	5A13037	4.4	20	ND	1	01/13/05	01/18/05	U
Dimethyl phthalate	EPA 625	5A13037	3.6	10	ND	1	01/13/05	01/18/05	U
4,6-Dinitro-2-methylphenol	EPA 625	5A13037	5.1	20	ND	1	01/13/05	01/18/05	U HA C
2,4-Dinitrophenol	EPA 625	5A13037	5.3	20	ND	1	01/13/05	01/18/05	U HA C
2,4-Dinitrotoluene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U
2,6-Dinitrotoluene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	U
Di-n-octyl phthalate	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	U
Fluoranthene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U

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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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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: IOA0558-02 (Outfall 017 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l					REV QUAL   QUA COO				
Fluorene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	U
Hexachlorobenzene	EPA 625	5A13037	4.8	10	ND	1	01/13/05	01/18/05	U
Hexachlorobutadiene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U
Hexachlorocyclopentadiene	EPA 625	5A13037	3.4	20	ND	1	01/13/05	01/18/05	U
Hexachloroethane	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U
Indeno(1,2,3-cd)pyrene	EPA 625	5A13037	5.4	20	ND	1	01/13/05	01/18/05	U
Isophorone	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	U
2-Methylnaphthalene	EPA 625	5A13037	3.0	10	ND	1	01/13/05	01/18/05	U
2-Methylphenol	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	U
4-Methylphenol	EPA 625	5A13037	3.8	10	ND	1	01/13/05	01/18/05	U
Naphthalene	EPA 625	5A13037	4.5	10	ND	1	01/13/05	01/18/05	U
2-Nitroaniline	EPA 625	5A13037	3.9	20	ND	1	01/13/05	01/18/05	U
3-Nitroaniline	EPA 625	5A13037	4.5	20	ND	1	01/13/05	01/18/05	U
4-Nitroaniline	EPA 625	5A13037	4.9	20	ND	1	01/13/05	01/18/05	U
Nitrobenzene	EPA 625	5A13037	4.2	20	ND	1	01/13/05	01/18/05	U
2-Nitrophenol	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	U
4-Nitrophenol	EPA 625	5A13037	6.6	20	ND	1	01/13/05	01/18/05	U
N-Nitrosodiphenylamine	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	U
N-Nitroso-di-n-propylamine	EPA 625	5A13037	3.6	10	ND	1	01/13/05	01/18/05	U
Pentachlorophenol	EPA 625	5A13037	4.0	20	ND	1	01/13/05	01/18/05	U
Phenanthrene	EPA 625	5A13037	3.3	10	ND	1	01/13/05	01/18/05	U
Phenol	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	U
Pyrene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	U
1,2,4-Trichlorobenzene	EPA 625	5A13037	4.4	10	ND	1	01/13/05	01/18/05	U
2,4,5-Trichlorophenol	EPA 625	5A13037	3.6	20	ND	1	01/13/05	01/18/05	U
2,4,6-Trichlorophenol	EPA 625	5A13037	4.1	20	ND	1	01/13/05	01/18/05	U
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A13037	5.0	20	ND	1	01/13/05	01/18/05	U
N-Nitrosodimethylamine	EPA 625	5A13037	3.7	20	ND	1	01/13/05	01/18/05	U
Surrogate: 2-Fluorophenol (35-120%)					54 %				
Surrogate: Phenol-d6 (45-120%)					61 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					70 %				
Surrogate: Nitrobenzene-d5 (45-120%)					60 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					68 %				
Surrogate: Terphenyl-d14 (45-135%)					85 %				

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 Michele Harper  
 Project Manager

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LEVEL IV

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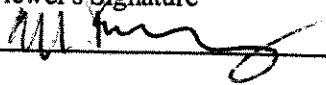
**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711VO53  
 Task Order 313150010  
 SDG No. IOA0558

No. of Analyses 1

Laboratory Del Mar  
 Reviewer M. Pokorny  
 Analysis/Method Volatiles

Date: March 4, 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	Qualifications were required for blank contamination.
COMMENTS <sup>b</sup>	

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





# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0558

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#: IOA0558  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Volatiles  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: M. Pokorny  
Date of Review: March 4, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample identification**

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 017 Grab Influent - Water	Outfall 017 Grab Influent - Water	IOA0558-01	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 sample in this SDG was received at the laboratory within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . According to the COC, the sample was received intact, without headspace, and in good condition. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed by field and laboratory personnel and accounted for the analysis presented in this SDG. As the sample was couriered to the laboratory, custody seals are not required. No qualifications were required.

#### 2.1.3 Holding Times

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

### 2.2 GC/MS TUNING

The ion abundance windows shown on the quantitation report were consistent with those specified in the EPA Method 624. All ion abundances were within the established windows and were therefore acceptable. 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 01/04/05, was associated with this SDG. The average RRFs were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  for the target compounds listed on the sample summary forms. One continuing calibration, dated 01/12/05, was associated with this SDG. The RRFs for all target compounds were  $\geq 0.05$  and the %Ds were  $\leq 20\%$ . A representative number of %RSDs and average RRFs from the initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

### 2.4 BLANKS

One water method blank (5A12019-BLK1) was associated with this SDG. Methylene chloride was reported in the method blank at  $0.71\mu\text{g/L}$ . The sample of this SDG had methylene chloride qualified as a nondetect, "U." The method blank raw data showed no evidence of false negatives or false positives. No further qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water blank spike (5A12019-BS1) was associated with this SDG. All spike 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 within the QC limits of 80-120%. 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 was 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

A trip blank was not analyzed with this SDG. No qualifications were required.

### 2.8.2 Field Blanks and Equipment Rinsates

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

### 2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for this SDG were within the control limits established by the continuing calibration standards, of +100%/-50% for internal standard areas and  $\pm 0.50$  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 a subset of volatile target compounds by EPA Method 624. Chromatograms, retention times, and spectra for the sample 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 sample detects, and/or a representative number of 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**

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: Outfall 017  
 Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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: IOA0558-01 (Outfall 017 Grab Influent - Water)					Sampled: 01/11/05				
Reporting Units: ug/l									
1,2,3-Trichloropropane	EPA 624	5A12019	N/A	10	ND	1	01/12/05	01/12/05	U
Acrolein	EPA 624	5A13008	4.6	50	ND	1	01/13/05	01/13/05	
Acrylonitrile	EPA 624	5A13008	5.1	50	ND	1	01/13/05	01/13/05	
Benzene	EPA 624	5A12019	0.28	1.0	ND	1	01/12/05	01/12/05	
Bromodichloromethane	EPA 624	5A12019	0.30	2.0	ND	1	01/12/05	01/12/05	
Bromoform	EPA 624	5A12019	0.32	5.0	ND	1	01/12/05	01/12/05	
Bromomethane	EPA 624	5A12019	0.34	5.0	ND	1	01/12/05	01/12/05	
Carbon tetrachloride	EPA 624	5A12019	0.28	0.50	ND	1	01/12/05	01/12/05	
Chlorobenzene	EPA 624	5A12019	0.36	2.0	ND	1	01/12/05	01/12/05	
Chloroethane	EPA 624	5A12019	0.33	5.0	0.85	1	01/12/05	01/12/05	J
2-Chloroethyl vinyl ether	EPA 624	5A13008	1.3	5.0	ND	1	01/13/05	01/13/05	J DNQ
Chloroform	EPA 624	5A12019	0.33	2.0	0.74	1	01/12/05	01/12/05	J DNQ
Chloromethane	EPA 624	5A12019	0.30	5.0	ND	1	01/12/05	01/12/05	
Dibromochloromethane	EPA 624	5A12019	0.28	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichlorobenzene	EPA 624	5A12019	0.32	2.0	ND	1	01/12/05	01/12/05	
1,3-Dichlorobenzene	EPA 624	5A12019	0.35	2.0	ND	1	01/12/05	01/12/05	
1,4-Dichlorobenzene	EPA 624	5A12019	0.37	2.0	1.2	1	01/12/05	01/12/05	J DNQ
1,1-Dichloroethane	EPA 624	5A12019	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloroethane	EPA 624	5A12019	0.28	0.50	0.30	1	01/12/05	01/12/05	J DNQ
1,1-Dichloroethene	EPA 624	5A12019	0.32	5.0	ND	1	01/12/05	01/12/05	
trans-1,2-Dichloroethene	EPA 624	5A12019	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloropropane	EPA 624	5A12019	0.35	2.0	ND	1	01/12/05	01/12/05	
cis-1,3-Dichloropropene	EPA 624	5A12019	0.22	2.0	ND	1	01/12/05	01/12/05	
trans-1,3-Dichloropropene	EPA 624	5A12019	0.24	2.0	ND	1	01/12/05	01/12/05	
Ethylbenzene	EPA 624	5A12019	0.25	2.0	ND	1	01/12/05	01/12/05	
Methylene chloride	EPA 624	5A12019	0.48	5.0	0.71	5.0	01/12/05	01/12/05	J B, J B
1,1,2,2-Tetrachloroethane	EPA 624	5A12019	0.24	2.0	ND	1	01/12/05	01/12/05	
Tetrachloroethene	EPA 624	5A12019	0.32	2.0	ND	1	01/12/05	01/12/05	
Toluene	EPA 624	5A12019	0.36	2.0	ND	1	01/12/05	01/12/05	
1,1,1-Trichloroethane	EPA 624	5A12019	0.30	2.0	ND	1	01/12/05	01/12/05	
1,1,2-Trichloroethane	EPA 624	5A12019	0.30	2.0	ND	1	01/12/05	01/12/05	
Trichloroethene	EPA 624	5A12019	0.26	2.0	ND	1	01/12/05	01/12/05	
Trichlorofluoromethane	EPA 624	5A12019	0.34	5.0	ND	1	01/12/05	01/12/05	
Vinyl chloride	EPA 624	5A12019	0.26	0.50	ND	1	01/12/05	01/12/05	
Xylenes, Total	EPA 624	5A12019	0.52	4.0	0.88	1	01/12/05	01/12/05	J DNQ
Surrogate: Dibromofluoromethane (80-120%)					99 %				
Surrogate: Dibromofluoromethane (80-120%)					101 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: Toluene-d8 (80-120%)					100 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					97 %				

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

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**LEVEL IV**

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# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOA0558 & IOA0576

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 #: IOA0558/IOA0576  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 4  
Reviewer: L. Jarusewic  
Date of Review: March 10, 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, 330.5, 405.1, 335.2, 218.6, 160.2, 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 017-Grab-Influent	Outfall 017-Grab-Influent	IOA0558-01	Water	General Minerals
Outfall 017-Composite-Influent	Outfall 017-Composite-Influent	IOA0558-02	Water	General Minerals
Outfall 017-Grab-Effluent	Outfall 017-Grab-Effluent	IOA0576-01	Water	General Minerals
Outfall 017-Composite-Effluent	Outfall 017-Composite-Effluent	IOA0576-02	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 the analyses and samples presented in these SDGs. No 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 14-day analytical holding time for cyanide, the seven-day holding time for total suspended solids, the 48-hour holding time for turbidity, nitrate, and biological oxygen demand, and the 24-hour hexavalent chromium and residual chlorine holding times were met were met. No qualifications were required.

### 2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were  $\geq 0.995$ . The initial and continuing calibration verification information was acceptable with %Rs within the control limits of 90-110% except for hexavalent chromium. The CCV for hexavalent chromium exceeded the method control limits of 95-105%; however, hexavalent chromium was not detected in Outfall 017 and 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 or total suspended solids.

The total cyanide reporting limit check standard was recovered in Outfall 015-Composite-Influent. As per a telephone conversation dated 03/11/05 with J. Hatfield of Del Mar Analytical, it was confirmed that the analyst did not spike the reporting limit check standard. Another reporting limit check standard was run that day and was recovered within the control limits of 70-130%; therefore, the reviewer did not reject the Outfall 015-Composite-Influent result. Nondetected cyanide was qualified as estimated, "UJ." No further qualifications were required.

### 2.3 BLANKS

Hexavalent chromium was detected in the associated method blank; however, as the hexavalent chromium result was not retained, 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 further qualifications were required.

#### **2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

The laboratory control sample and laboratory control sample duplicate (BOD and cyanide only) recoveries were within the laboratory-established control limits. The LCS is not applicable to turbidity or residual chlorine. No qualifications were required.

#### **2.5 SURROGATES RECOVERY**

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

#### **2.6 LABORATORY DUPLICATES**

No MS/MSD 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.

#### **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. 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 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOA0576-01 (DRAFT: Outfall 017-Grab Effluent - Water)					Sampled: 01/11/05					REV QUAL COD
Reporting Units: mg/l										
Residual Chlorine	EPA 330.5	5A12045	0.10	0.10	1.0	1	01/12/05	01/12/05		
Sample ID: IOA0576-02 (DRAFT: Outfall 017-Comp Effluent - Water)					Sampled: 01/12/05					
Reporting Units: mg/l										
Total Cyanide	EPA 335.2	5A13092	0.017	0.025	ND	1	01/13/05	01/13/05	U	
Nitrate-N	EPA 300.0	5A12036	0.072	0.11	1.6	1	01/12/05	01/12/05		
Sample ID: IOA0576-01 (DRAFT: Outfall 017-Grab Effluent - Water)					Sampled: 01/11/05					
Reporting Units: NTU										
Turbidity	EPA 180.1	5A13082	0.040	1.0	33	1	01/13/05	01/13/05		

### 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 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## INORGANICS

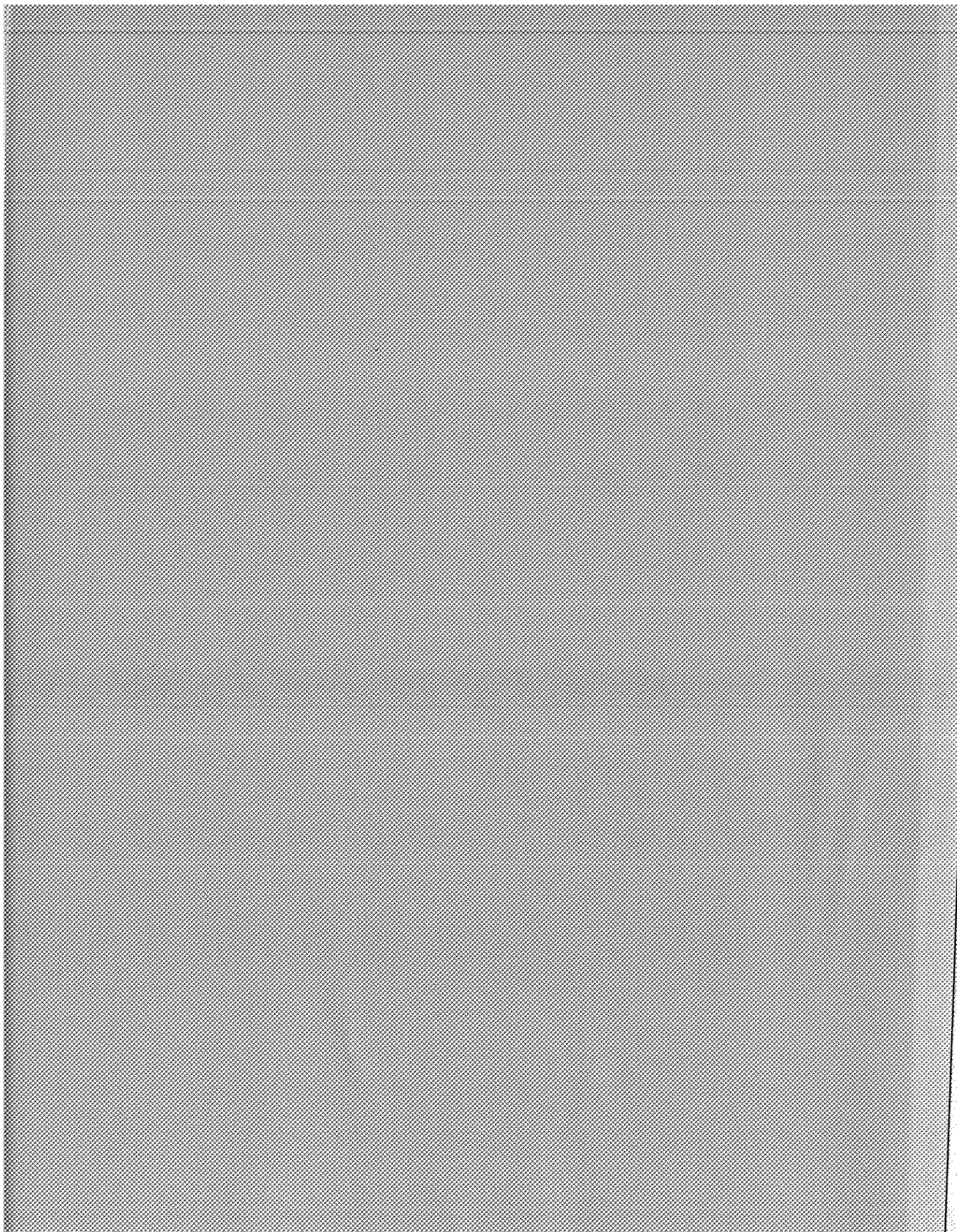
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data	Qualifiers		
Sample ID: IOA0558-01 (Outfall 017 Grab Influent - Water)					Sampled: 01/11/05						REV	QUAL
Reporting Units: mg/l												
Chromium VI	EPA 218.6	5A110920	0.00041	0.0010	ND	1	01/11/05	01/11/05	U	C		
Sample ID: IOA0558-02 (Outfall 017 Composite Influent - Water)					Sampled: 01/12/05							
Reporting Units: mg/l												
Biochemical Oxygen Demand	EPA 405.1	5A12041	0.59	2.0	24	1	01/12/05	01/17/05				
Total Cyanide	EPA 335.2	5A17067	0.017	0.025	ND	1	01/17/05	01/17/05	UJ	#2		
Total Suspended Solids	EPA 160.2	5A17060	10	10	28	1	01/17/05	01/17/05				

### AMEC VALIDATED

### LEVEL IV

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager







LABORATORY REPORT

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

Project: Outfall 017

Sampled: 01/11/05-01/12/05  
Received: 01/11/05  
Issued: 02/23/05 18:21

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 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.
- 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.
- ADDITIONAL INFORMATION: The date of the composite sample is the date the compositing was performed.

LABORATORY ID	CLIENT ID	MATRIX
IOA0558-01	Outfall 017 Grab Influent	Water
IOA0558-02	Outfall 017 Composite Influent	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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05

Received: 01/11/05

PURGEABLES BY GC/MS (EPA 624)

Table with columns: Analyte, Method, Batch, MDL Limit, Reporting Limit, Sample Result, Dilution Factor, Date Extracted, Date Analyzed, Data Qualifiers. Includes sample ID IOA0558-01 and various chemical analytes like 1,2,3-Trichloropropane, Acrolein, etc.

Del Mar Analytical, Irvine
Michele Harper
Project Manager



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MWH-Pasadena/Boeing  
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 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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: IOA0558-02 (Outfall 017 Composite Influent - Water)					Sampled: 01/12/05				
Reporting Units: ug/l									
Acenaphthene	EPA 625	5A13037	4.3	10	ND	1	01/13/05	01/18/05	
Acenaphthylene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	
Aniline	EPA 625	5A13037	2.9	10	ND	1	01/13/05	01/18/05	
Anthracene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	
Benzidine	EPA 625	5A13037	5.2	20	ND	1	01/13/05	01/18/05	
<b>Benzoic acid</b>	EPA 625	5A13037	2.6	20	<b>13</b>	1	01/13/05	01/18/05	<b>J</b>
Benzo(a)anthracene	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	
Benzo(b)fluoranthene	EPA 625	5A13037	2.7	10	ND	1	01/13/05	01/18/05	
Benzo(k)fluoranthene	EPA 625	5A13037	3.4	10	ND	1	01/13/05	01/18/05	
Benzo(g,h,i)perylene	EPA 625	5A13037	5.3	10	ND	1	01/13/05	01/18/05	<b>C</b>
Benzo(a)pyrene	EPA 625	5A13037	3.5	10	ND	1	01/13/05	01/18/05	
Benzyl alcohol	EPA 625	5A13037	2.5	20	ND	1	01/13/05	01/18/05	
Bis(2-chloroethoxy)methane	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
Bis(2-chloroethyl)ether	EPA 625	5A13037	4.4	10	ND	1	01/13/05	01/18/05	
Bis(2-chloroisopropyl)ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5A13037	5.2	50	ND	1	01/13/05	01/18/05	
4-Bromophenyl phenyl ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	
Butyl benzyl phthalate	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	
4-Chloroaniline	EPA 625	5A13037	6.0	10	ND	1	01/13/05	01/18/05	
2-Chloronaphthalene	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	
4-Chloro-3-methylphenol	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	
2-Chlorophenol	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
4-Chlorophenyl phenyl ether	EPA 625	5A13037	3.0	10	ND	1	01/13/05	01/18/05	
Chrysene	EPA 625	5A13037	2.8	10	ND	1	01/13/05	01/18/05	
Dibenz(a,h)anthracene	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	
Dibenzofuran	EPA 625	5A13037	2.6	10	ND	1	01/13/05	01/18/05	
Di-n-butyl phthalate	EPA 625	5A13037	2.8	20	ND	1	01/13/05	01/18/05	
1,3-Dichlorobenzene	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	
1,4-Dichlorobenzene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
1,2-Dichlorobenzene	EPA 625	5A13037	4.5	10	ND	1	01/13/05	01/18/05	
3,3-Dichlorobenzidine	EPA 625	5A13037	11	20	ND	1	01/13/05	01/18/05	
2,4-Dichlorophenol	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	
Diethyl phthalate	EPA 625	5A13037	3.1	10	ND	1	01/13/05	01/18/05	
2,4-Dimethylphenol	EPA 625	5A13037	4.4	20	ND	1	01/13/05	01/18/05	
Dimethyl phthalate	EPA 625	5A13037	3.6	10	ND	1	01/13/05	01/18/05	
4,6-Dinitro-2-methylphenol	EPA 625	5A13037	5.1	20	ND	1	01/13/05	01/18/05	
2,4-Dinitrophenol	EPA 625	5A13037	5.3	20	ND	1	01/13/05	01/18/05	
2,4-Dinitrotoluene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
2,6-Dinitrotoluene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	
Di-n-octyl phthalate	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	
Fluoranthene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	

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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

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: IOA0558-02 (Outfall 017 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Fluorene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
Hexachlorobenzene	EPA 625	5A13037	4.8	10	ND	1	01/13/05	01/18/05	
Hexachlorobutadiene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
Hexachlorocyclopentadiene	EPA 625	5A13037	3.4	20	ND	1	01/13/05	01/18/05	
Hexachloroethane	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5A13037	5.4	20	ND	1	01/13/05	01/18/05	C
Isophorone	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	
2-Methylnaphthalene	EPA 625	5A13037	3.0	10	ND	1	01/13/05	01/18/05	
2-Methylphenol	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	
4-Methylphenol	EPA 625	5A13037	3.8	10	ND	1	01/13/05	01/18/05	
Naphthalene	EPA 625	5A13037	4.5	10	ND	1	01/13/05	01/18/05	
2-Nitroaniline	EPA 625	5A13037	3.9	20	ND	1	01/13/05	01/18/05	
3-Nitroaniline	EPA 625	5A13037	4.5	20	ND	1	01/13/05	01/18/05	
4-Nitroaniline	EPA 625	5A13037	4.9	20	ND	1	01/13/05	01/18/05	
Nitrobenzene	EPA 625	5A13037	4.2	20	ND	1	01/13/05	01/18/05	
2-Nitrophenol	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
4-Nitrophenol	EPA 625	5A13037	6.6	20	ND	1	01/13/05	01/18/05	
N-Nitrosodiphenylamine	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	
N-Nitroso-di-n-propylamine	EPA 625	5A13037	3.6	10	ND	1	01/13/05	01/18/05	
Pentachlorophenol	EPA 625	5A13037	4.0	20	ND	1	01/13/05	01/18/05	
Phenanthrene	EPA 625	5A13037	3.3	10	ND	1	01/13/05	01/18/05	
Phenol	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	
Pyrene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
1,2,4-Trichlorobenzene	EPA 625	5A13037	4.4	10	ND	1	01/13/05	01/18/05	
2,4,5-Trichlorophenol	EPA 625	5A13037	3.6	20	ND	1	01/13/05	01/18/05	
2,4,6-Trichlorophenol	EPA 625	5A13037	4.1	20	ND	1	01/13/05	01/18/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A13037	5.0	20	ND	1	01/13/05	01/18/05	
N-Nitrosodimethylamine	EPA 625	5A13037	3.7	20	ND	1	01/13/05	01/18/05	
Surrogate: 2-Fluorophenol (35-120%)					54 %				
Surrogate: Phenol-d6 (45-120%)					61 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					70 %				
Surrogate: Nitrobenzene-d5 (45-120%)					60 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					68 %				
Surrogate: Terphenyl-d14 (45-135%)					85 %				

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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0558-02 (Outfall 017 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Aldrin	EPA 608	5A13049	0.029	0.10	ND	1	01/13/05	01/14/05	
alpha-BHC	EPA 608	5A13049	0.010	0.10	ND	1	01/13/05	01/14/05	
beta-BHC	EPA 608	5A13049	0.011	0.10	ND	1	01/13/05	01/14/05	
delta-BHC	EPA 608	5A13049	0.010	0.20	ND	1	01/13/05	01/14/05	
gamma-BHC (Lindane)	EPA 608	5A13049	0.0097	0.10	ND	1	01/13/05	01/14/05	
Chlordane	EPA 608	5A13049	0.18	1.0	ND	1	01/13/05	01/14/05	
4,4'-DDD	EPA 608	5A13049	0.011	0.10	ND	1	01/13/05	01/14/05	
4,4'-DDE	EPA 608	5A13049	0.017	0.10	ND	1	01/13/05	01/14/05	
4,4'-DDT	EPA 608	5A13049	0.015	0.10	ND	1	01/13/05	01/14/05	C5
Dieldrin	EPA 608	5A13049	0.010	0.10	ND	1	01/13/05	01/14/05	
Endosulfan I	EPA 608	5A13049	0.015	0.10	ND	1	01/13/05	01/14/05	
Endosulfan II	EPA 608	5A13049	0.037	0.10	ND	1	01/13/05	01/14/05	
Endosulfan sulfate	EPA 608	5A13049	0.013	0.20	ND	1	01/13/05	01/14/05	
Endrin	EPA 608	5A13049	0.0082	0.10	ND	1	01/13/05	01/14/05	
Endrin aldehyde	EPA 608	5A13049	0.045	0.10	ND	1	01/13/05	01/14/05	
Endrin ketone	EPA 608	5A13049	0.020	0.10	ND	1	01/13/05	01/14/05	
Heptachlor	EPA 608	5A13049	0.030	0.10	ND	1	01/13/05	01/14/05	
Heptachlor epoxide	EPA 608	5A13049	0.012	0.10	ND	1	01/13/05	01/14/05	
Methoxychlor	EPA 608	5A13049	0.034	0.10	ND	1	01/13/05	01/14/05	C5
Toxaphene	EPA 608	5A13049	0.77	5.0	ND	1	01/13/05	01/14/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					41 %				
Surrogate: Decachlorobiphenyl (45-120%)					59 %				

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



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Project ID: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

**TOTAL PCBS (EPA 608)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0558-02 (Outfall 017 Composite Influent - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	1	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	1	01/13/05	01/14/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					69 %				

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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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0558-02 (Outfall 017 Composite Influent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: mg/l									
Antimony	EPA 200.7	5A13042	0.0042	0.010	ND	1	01/13/05	01/13/05	
Arsenic	EPA 200.7	5A13042	0.0038	0.0050	ND	1	01/13/05	01/13/05	
Beryllium	EPA 200.7	5A13042	0.00062	0.0020	ND	1	01/13/05	01/13/05	
Cadmium	EPA 200.7	5A13042	0.00034	0.0050	<b>0.00060</b>	1	01/13/05	01/13/05	J
Chromium	EPA 200.7	5A13042	0.00068	0.0050	<b>0.30</b>	1	01/13/05	01/13/05	
Copper	EPA 200.7	5A13042	0.0017	0.010	<b>0.015</b>	1	01/13/05	01/13/05	
Lead	EPA 200.7	5A13042	0.0021	0.0050	<b>0.0029</b>	1	01/13/05	01/13/05	J
Mercury	EPA 245.1	5A13050	0.000063	0.00020	ND	1	01/13/05	01/13/05	
Nickel	EPA 200.7	5A13042	0.0020	0.010	<b>0.22</b>	1	01/13/05	01/13/05	
Selenium	EPA 200.7	5A13042	0.0046	0.0050	ND	1	01/13/05	01/13/05	
Silver	EPA 200.7	5A13042	0.0013	0.010	ND	1	01/13/05	01/13/05	
Thallium	EPA 200.7	5A13042	0.0031	0.0050	<b>0.0052</b>	1	01/13/05	01/13/05	
Zinc	EPA 200.7	5A13042	0.0037	0.020	<b>0.13</b>	1	01/13/05	01/13/05	

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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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0558-01 (Outfall 017 Grab Influent - Water)</b>					<b>Sampled: 01/11/05</b>				
<b>Reporting Units: mg/l</b>									
Chromium VI	EPA 218.6	5A11092	0.000041	0.0010	ND	1	01/11/05	01/11/05	C
<b>Sample ID: IOA0558-02 (Outfall 017 Composite Influent - Water)</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: mg/l</b>									
Biochemical Oxygen Demand	EPA 405.1	5A12041	0.59	2.0	24	1	01/12/05	01/17/05	
Total Cyanide	EPA 335.2	5A17067	0.017	0.025	ND	1	01/17/05	01/17/05	
Total Suspended Solids	EPA 160.2	5A17060	10	10	28	1	01/17/05	01/17/05	

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300 North Lake Avenue, Suite 1200  
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Project ID: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

**SHORT HOLD TIME DETAIL REPORT**

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
<b>Sample ID: Outfall 017 Grab Influent (IOA0558-01) - Water</b>					
EPA 218.6	1	01/11/2005 14:50	01/11/2005 18:50	01/11/2005 21:36	01/11/2005 22:20
EPA 624	3	01/11/2005 14:50	01/11/2005 18:50	01/13/2005 00:00	01/13/2005 10:57
<b>Sample ID: Outfall 017 Composite Influent (IOA0558-02) - Water</b>					
EPA 405.1	2	01/12/2005 13:30	01/11/2005 18:50	01/12/2005 19:00	01/17/2005 20:00

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300 North Lake Avenue, Suite 1200  
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Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

**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
<b>Batch: 5A12019 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12019-BLK1)</b>										
1,2,3-Trichloropropane	ND	10	N/A	ug/l						
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	0.710	5.0	0.48	ug/l						J
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						
Surrogate: Dibromofluoromethane	24.7			ug/l	25.0		99		80-120	
Surrogate: Toluene-d8	25.1			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	24.5			ug/l	25.0		98		80-120	

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Report Number: IOA0558

Sampled: 01/11/05-01/12/05

Received: 01/11/05

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
<b>Batch: 5A12019 Extracted: 01/12/05</b>										
<b>LCS Analyzed: 01/12/2005 (5A12019-BS1)</b>										
Benzene	23.4	1.0	0.28	ug/l	25.0		94 70-120			
Bromodichloromethane	26.4	2.0	0.30	ug/l	25.0		106 70-140			
Bromoform	25.2	5.0	0.32	ug/l	25.0		101 55-135			
Bromomethane	29.0	5.0	0.34	ug/l	25.0		116 60-140			
Carbon tetrachloride	28.8	0.50	0.28	ug/l	25.0		115 70-140			
Chlorobenzene	25.5	2.0	0.36	ug/l	25.0		102 80-125			
Chloroethane	26.8	5.0	0.33	ug/l	25.0		107 60-145			
Chloroform	24.9	2.0	0.33	ug/l	25.0		100 75-130			
Chloromethane	24.5	5.0	0.30	ug/l	25.0		98 40-145			
Dibromochloromethane	26.2	2.0	0.28	ug/l	25.0		105 65-145			
1,2-Dichlorobenzene	25.9	2.0	0.32	ug/l	25.0		104 80-120			
1,3-Dichlorobenzene	24.9	2.0	0.35	ug/l	25.0		100 80-120			
1,4-Dichlorobenzene	24.6	2.0	0.37	ug/l	25.0		98 80-120			
1,1-Dichloroethane	24.4	2.0	0.27	ug/l	25.0		98 70-135			
1,2-Dichloroethane	26.6	0.50	0.28	ug/l	25.0		106 60-150			
1,1-Dichloroethene	25.0	5.0	0.32	ug/l	25.0		100 75-135			
trans-1,2-Dichloroethene	25.9	2.0	0.27	ug/l	25.0		104 70-130			
1,2-Dichloropropane	24.7	2.0	0.35	ug/l	25.0		99 70-120			
cis-1,3-Dichloropropene	26.9	2.0	0.22	ug/l	25.0		108 75-130			
trans-1,3-Dichloropropene	26.9	2.0	0.24	ug/l	25.0		108 75-135			
Ethylbenzene	26.6	2.0	0.25	ug/l	25.0		106 80-120			
Methylene chloride	26.1	5.0	0.48	ug/l	25.0		104 60-135			
1,1,1,2-Tetrachloroethane	22.3	2.0	0.24	ug/l	25.0		89 60-135			
Tetrachloroethene	26.9	2.0	0.32	ug/l	25.0		108 75-125			
Toluene	24.6	2.0	0.36	ug/l	25.0		98 75-120			
1,1,1-Trichloroethane	28.4	2.0	0.30	ug/l	25.0		114 75-140			
1,1,2-Trichloroethane	24.6	2.0	0.30	ug/l	25.0		98 70-125			
Trichloroethene	25.2	2.0	0.26	ug/l	25.0		101 80-120			
Trichlorofluoromethane	29.3	5.0	0.34	ug/l	25.0		117 65-145			
Vinyl chloride	23.7	0.50	0.26	ug/l	25.0		95 50-130			
Surrogate: Dibromofluoromethane	24.3			ug/l	25.0		97 80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100 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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## 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
<b>Batch: 5A12019 Extracted: 01/12/05</b>											
<b>Matrix Spike Analyzed: 01/12/2005 (5A12019-MS1)</b>						<b>Source: IOA0503-01</b>					
Benzene	24.5	1.0	0.28	ug/l	25.0	ND	98	70-120			
Bromodichloromethane	27.5	2.0	0.30	ug/l	25.0	ND	110	70-140			
Bromoform	24.0	5.0	0.32	ug/l	25.0	ND	96	55-140			
Bromomethane	30.7	5.0	0.34	ug/l	25.0	ND	123	50-145			
Carbon tetrachloride	30.7	0.50	0.28	ug/l	25.0	ND	123	70-145			
Chlorobenzene	26.9	2.0	0.36	ug/l	25.0	ND	108	80-125			
Chloroethane	28.5	5.0	0.33	ug/l	25.0	ND	114	50-145			
Chloroform	26.6	2.0	0.33	ug/l	25.0	ND	106	70-135			
Chloromethane	25.7	5.0	0.30	ug/l	25.0	ND	103	35-145			
Dibromochloromethane	26.1	2.0	0.28	ug/l	25.0	ND	104	65-145			
1,2-Dichlorobenzene	26.5	2.0	0.32	ug/l	25.0	ND	106	75-130			
1,3-Dichlorobenzene	25.7	2.0	0.35	ug/l	25.0	ND	103	75-130			
1,4-Dichlorobenzene	25.5	2.0	0.37	ug/l	25.0	ND	102	80-120			
1,1-Dichloroethane	25.9	2.0	0.27	ug/l	25.0	ND	104	65-135			
1,2-Dichloroethane	26.9	0.50	0.28	ug/l	25.0	ND	108	60-150			
1,1-Dichloroethene	26.3	5.0	0.32	ug/l	25.0	ND	105	65-140			
trans-1,2-Dichloroethene	27.3	2.0	0.27	ug/l	25.0	ND	109	65-135			
1,2-Dichloropropane	25.7	2.0	0.35	ug/l	25.0	ND	103	65-130			
cis-1,3-Dichloropropene	27.3	2.0	0.22	ug/l	25.0	ND	109	70-140			
trans-1,3-Dichloropropene	27.0	2.0	0.24	ug/l	25.0	ND	108	70-140			
Ethylbenzene	27.8	2.0	0.25	ug/l	25.0	ND	111	70-130			
Methylene chloride	27.0	5.0	0.48	ug/l	25.0	ND	108	60-135			
1,1,2,2-Tetrachloroethane	21.5	2.0	0.24	ug/l	25.0	ND	86	60-145			
Tetrachloroethene	27.9	2.0	0.32	ug/l	25.0	ND	112	70-130			
Toluene	25.8	2.0	0.36	ug/l	25.0	ND	103	70-120			
1,1,1-Trichloroethane	30.4	2.0	0.30	ug/l	25.0	ND	122	75-140			
1,1,2-Trichloroethane	24.2	2.0	0.30	ug/l	25.0	ND	97	60-135			
Trichloroethene	26.4	2.0	0.26	ug/l	25.0	ND	106	70-125			
Trichlorofluoromethane	31.2	5.0	0.34	ug/l	25.0	ND	125	55-145			
Vinyl chloride	24.9	0.50	0.26	ug/l	25.0	ND	100	40-135			
Surrogate: Dibromofluoromethane	24.6			ug/l	25.0		98	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102	80-120			

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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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

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
<b>Batch: 5A12019 Extracted: 01/12/05</b>											
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12019-MSD1)</b>						<b>Source: IOA0503-01</b>					
Benzene	24.0	1.0	0.28	ug/l	25.0	ND	96	70-120	2	20	
Bromodichloromethane	27.1	2.0	0.30	ug/l	25.0	ND	108	70-140	1	20	
Bromoform	27.6	5.0	0.32	ug/l	25.0	ND	110	55-140	14	25	
Bromomethane	29.8	5.0	0.34	ug/l	25.0	ND	119	50-145	3	25	
Carbon tetrachloride	29.9	0.50	0.28	ug/l	25.0	ND	120	70-145	3	25	
Chlorobenzene	26.4	2.0	0.36	ug/l	25.0	ND	106	80-125	2	20	
Chloroethane	28.1	5.0	0.33	ug/l	25.0	ND	112	50-145	1	25	
Chloroform	25.9	2.0	0.33	ug/l	25.0	ND	104	70-135	3	20	
Chloromethane	25.8	5.0	0.30	ug/l	25.0	ND	103	35-145	0	25	
Dibromochloromethane	28.2	2.0	0.28	ug/l	25.0	ND	113	65-145	8	25	
1,2-Dichlorobenzene	26.4	2.0	0.32	ug/l	25.0	ND	106	75-130	0	20	
1,3-Dichlorobenzene	25.1	2.0	0.35	ug/l	25.0	ND	100	75-130	2	20	
1,4-Dichlorobenzene	24.9	2.0	0.37	ug/l	25.0	ND	100	80-120	2	20	
1,1-Dichloroethane	25.3	2.0	0.27	ug/l	25.0	ND	101	65-135	2	20	
1,2-Dichloroethane	27.8	0.50	0.28	ug/l	25.0	ND	111	60-150	3	20	
1,1-Dichloroethene	25.8	5.0	0.32	ug/l	25.0	ND	103	65-140	2	20	
trans-1,2-Dichloroethene	27.0	2.0	0.27	ug/l	25.0	ND	108	65-135	1	20	
1,2-Dichloropropane	25.6	2.0	0.35	ug/l	25.0	ND	102	65-130	0	20	
cis-1,3-Dichloropropene	27.4	2.0	0.22	ug/l	25.0	ND	110	70-140	0	20	
trans-1,3-Dichloropropene	28.3	2.0	0.24	ug/l	25.0	ND	113	70-140	5	25	
Ethylbenzene	27.2	2.0	0.25	ug/l	25.0	ND	109	70-130	2	20	
Methylene chloride	26.4	5.0	0.48	ug/l	25.0	ND	106	60-135	2	20	
1,1,2,2-Tetrachloroethane	25.4	2.0	0.24	ug/l	25.0	ND	102	60-145	17	30	
Tetrachloroethene	27.5	2.0	0.32	ug/l	25.0	ND	110	70-130	1	20	
Toluene	25.3	2.0	0.36	ug/l	25.0	ND	101	70-120	2	20	
1,1,1-Trichloroethane	29.2	2.0	0.30	ug/l	25.0	ND	117	75-140	4	20	
1,1,2-Trichloroethane	26.0	2.0	0.30	ug/l	25.0	ND	104	60-135	7	25	
Trichloroethene	25.8	2.0	0.26	ug/l	25.0	ND	103	70-125	2	20	
Trichlorofluoromethane	30.5	5.0	0.34	ug/l	25.0	ND	122	55-145	2	25	
Vinyl chloride	24.5	0.50	0.26	ug/l	25.0	ND	98	40-135	2	30	
Surrogate: Dibromofluoromethane	24.7			ug/l	25.0		99	80-120			
Surrogate: Toluene-d8	25.0			ug/l	25.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102	80-120			

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

Project ID: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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
<b>Batch: 5A13008 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13008-BLK1)</b>										
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	24.3			ug/l	25.0		97		80-120	
Surrogate: Toluene-d8	24.9			ug/l	25.0		100		80-120	
Surrogate: 4-Bromofluorobenzene	24.1			ug/l	25.0		96		80-120	
<b>LCS Analyzed: 01/13/2005 (5A13008-BS1)</b>										
2-Chloroethyl vinyl ether	18.0	5.0	1.3	ug/l	25.0		72		20-175	
Surrogate: Dibromofluoromethane	25.7			ug/l	25.0		103		80-120	
Surrogate: Toluene-d8	25.3			ug/l	25.0		101		80-120	
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101		80-120	
<b>Matrix Spike Analyzed: 01/13/2005 (5A13008-MS1) Source: IOA0558-01</b>										
2-Chloroethyl vinyl ether	20.5	5.0	1.3	ug/l	25.0	ND	82		20-175	
Surrogate: Dibromofluoromethane	25.2			ug/l	25.0		101		80-120	
Surrogate: Toluene-d8	25.9			ug/l	25.0		104		80-120	
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102		80-120	
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13008-MSD1) Source: IOA0558-01</b>										
2-Chloroethyl vinyl ether	21.8	5.0	1.3	ug/l	25.0	ND	87		20-175	6 25
Surrogate: Dibromofluoromethane	25.4			ug/l	25.0		102		80-120	
Surrogate: Toluene-d8	25.4			ug/l	25.0		102		80-120	
Surrogate: 4-Bromofluorobenzene	25.4			ug/l	25.0		102		80-120	

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 Michele Harper  
 Project Manager

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

Project ID: Outfall 017

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Received: 01/11/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>										
Acenaphthene	ND	10	4.3	ug/l						
Acenaphthylene	ND	10	3.2	ug/l						
Aniline	ND	10	2.9	ug/l						
Anthracene	ND	10	3.2	ug/l						
Benzidine	ND	20	5.2	ug/l						
Benzoic acid	ND	20	2.6	ug/l						
Benzo(a)anthracene	ND	10	3.7	ug/l						
Benzo(b)fluoranthene	ND	10	2.7	ug/l						
Benzo(k)fluoranthene	ND	10	3.4	ug/l						
Benzo(g,h,i)perylene	ND	10	5.3	ug/l						
Benzo(a)pyrene	ND	10	3.5	ug/l						
Benzyl alcohol	ND	20	2.5	ug/l						
Bis(2-chloroethoxy)methane	ND	10	3.9	ug/l						
Bis(2-chloroethyl)ether	ND	10	4.4	ug/l						
Bis(2-chloroisopropyl)ether	ND	10	4.6	ug/l						
Bis(2-ethylhexyl)phthalate	ND	50	5.2	ug/l						
4-Bromophenyl phenyl ether	ND	10	4.6	ug/l						
Butyl benzyl phthalate	ND	20	3.5	ug/l						
4-Chloroaniline	ND	10	6.0	ug/l						
2-Chloronaphthalene	ND	10	4.0	ug/l						
4-Chloro-3-methylphenol	ND	20	3.5	ug/l						
2-Chlorophenol	ND	10	4.2	ug/l						
4-Chlorophenyl phenyl ether	ND	10	3.0	ug/l						
Chrysene	ND	10	2.8	ug/l						
Dibenz(a,h)anthracene	ND	20	4.7	ug/l						
Dibenzofuran	ND	10	2.6	ug/l						
Di-n-butyl phthalate	ND	20	2.8	ug/l						
1,3-Dichlorobenzene	ND	10	4.1	ug/l						
1,4-Dichlorobenzene	ND	10	3.9	ug/l						
1,2-Dichlorobenzene	ND	10	4.5	ug/l						
3,3-Dichlorobenzidine	ND	20	11	ug/l						
2,4-Dichlorophenol	ND	10	4.1	ug/l						
Diethyl phthalate	ND	10	3.1	ug/l						
2,4-Dimethylphenol	ND	20	4.4	ug/l						
Dimethyl phthalate	ND	10	3.6	ug/l						

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager





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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 a list of analytes such as 4,6-Dinitro-2-methylphenol, 2,4-Dinitrophenol, etc., with their respective results and limits.

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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
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>										
Surrogate: Phenol-d6	129			ug/l	200		64 45-120			
Surrogate: 2,4,6-Tribromophenol	160			ug/l	200		80 50-125			
Surrogate: Nitrobenzene-d5	63.1			ug/l	100		63 45-120			
Surrogate: 2-Fluorobiphenyl	72.3			ug/l	100		72 45-120			
Surrogate: Terphenyl-d14	75.6			ug/l	100		76 45-135			
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>										
Acenaphthene	75.6	10	4.3	ug/l	100		76 55-120			M-NR1
Acenaphthylene	75.9	10	3.2	ug/l	100		76 55-120			
Aniline	68.9	10	2.9	ug/l	100		69 30-120			
Anthracene	80.4	10	3.2	ug/l	100		80 60-120			
Benzidine	62.5	20	5.2	ug/l	100		62 20-180			
Benzoic acid	81.0	20	2.6	ug/l	100		81 30-125			
Benzo(a)anthracene	81.8	10	3.7	ug/l	100		82 65-120			
Benzo(b)fluoranthene	81.3	10	2.7	ug/l	100		81 50-125			
Benzo(k)fluoranthene	77.8	10	3.4	ug/l	100		78 50-125			
Benzo(g,h,i)perylene	84.8	10	5.3	ug/l	100		85 35-160			
Benzo(a)pyrene	80.7	10	3.5	ug/l	100		81 55-125			
Benzyl alcohol	73.4	20	2.5	ug/l	100		73 40-130			
Bis(2-chloroethoxy)methane	73.3	10	3.9	ug/l	100		73 55-120			
Bis(2-chloroethyl)ether	63.5	10	4.4	ug/l	100		64 50-120			
Bis(2-chloroisopropyl)ether	69.9	10	4.6	ug/l	100		70 50-120			
Bis(2-ethylhexyl)phthalate	77.3	50	5.2	ug/l	100		77 65-125			
4-Bromophenyl phenyl ether	70.8	10	4.6	ug/l	100		71 55-125			
Butyl benzyl phthalate	75.0	20	3.5	ug/l	100		75 60-125			
4-Chloroaniline	79.0	10	6.0	ug/l	100		79 55-120			
2-Chloronaphthalene	75.9	10	4.0	ug/l	100		76 60-120			
4-Chloro-3-methylphenol	73.5	20	3.5	ug/l	100		74 60-120			
2-Chlorophenol	69.8	10	4.2	ug/l	100		70 45-120			
4-Chlorophenyl phenyl ether	77.3	10	3.0	ug/l	100		77 55-120			
Chrysene	81.9	10	2.8	ug/l	100		82 65-120			
Dibenz(a,h)anthracene	85.7	20	4.7	ug/l	100		86 40-160			
Dibenzofuran	77.5	10	2.6	ug/l	100		78 60-120			
Di-n-butyl phthalate	71.9	20	2.8	ug/l	100		72 65-125			
1,3-Dichlorobenzene	66.5	10	4.1	ug/l	100		66 40-120			
1,4-Dichlorobenzene	62.7	10	3.9	ug/l	100		63 40-120			

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 Michele Harper  
 Project Manager



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Received: 01/11/05

**METHOD BLANK/QC DATA**

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>										
										<b>M-NRI</b>
1,2-Dichlorobenzene	63.6	10	4.5	ug/l	100	64	40-120			
3,3-Dichlorobenzidine	90.6	20	11	ug/l	100	91	50-170			
2,4-Dichlorophenol	70.8	10	4.1	ug/l	100	71	55-120			
Diethyl phthalate	71.0	10	3.1	ug/l	100	71	60-120			
2,4-Dimethylphenol	59.6	20	4.4	ug/l	100	60	35-120			
Dimethyl phthalate	69.3	10	3.6	ug/l	100	69	60-120			
4,6-Dinitro-2-methylphenol	78.6	20	5.1	ug/l	100	79	55-120			
2,4-Dinitrophenol	86.2	20	5.3	ug/l	100	86	40-140			
2,4-Dinitrotoluene	81.5	10	4.2	ug/l	100	82	60-140			
2,6-Dinitrotoluene	74.3	10	3.2	ug/l	100	74	65-125			
Di-n-octyl phthalate	81.2	20	4.7	ug/l	100	81	60-130			
Fluoranthene	81.4	10	4.2	ug/l	100	81	55-125			
Fluorene	80.2	10	3.9	ug/l	100	80	60-120			
Hexachlorobenzene	73.6	10	4.8	ug/l	100	74	50-120			
Hexachlorobutadiene	61.7	10	4.2	ug/l	100	62	45-120			
Hexachlorocyclopentadiene	54.7	20	3.4	ug/l	100	55	10-130			
Hexachloroethane	60.9	10	4.2	ug/l	100	61	40-120			
Indeno(1,2,3-cd)pyrene	81.9	20	5.4	ug/l	100	82	35-150			
Isophorone	65.8	10	3.7	ug/l	100	66	55-120			
2-Methylnaphthalene	84.8	10	3.0	ug/l	100	85	50-120			
2-Methylphenol	70.0	10	3.7	ug/l	100	70	45-120			
4-Methylphenol	70.1	10	3.8	ug/l	100	70	45-120			
Naphthalene	76.9	10	4.5	ug/l	100	77	50-120			
2-Nitroaniline	78.9	20	3.9	ug/l	100	79	60-130			
3-Nitroaniline	91.3	20	4.5	ug/l	100	91	50-140			
4-Nitroaniline	96.0	20	4.9	ug/l	100	96	45-160			
Nitrobenzene	65.6	20	4.2	ug/l	100	66	50-120			
2-Nitrophenol	80.9	10	4.2	ug/l	100	81	55-120			
4-Nitrophenol	67.9	20	6.6	ug/l	100	68	50-135			
N-Nitrosodiphenylamine	71.9	10	4.0	ug/l	100	72	60-120			
N-Nitroso-di-n-propylamine	65.9	10	3.6	ug/l	100	66	50-120			
Pentachlorophenol	80.8	20	4.0	ug/l	100	81	50-125			
Phenanthrene	81.8	10	3.3	ug/l	100	82	55-120			
Phenol	66.0	10	4.0	ug/l	100	66	45-120			
Pyrene	80.9	10	3.9	ug/l	100	81	50-120			

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Michele Harper  
Project Manager



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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 sections for LCS Analyzed and LCS Dup Analyzed.

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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
<b>Batch: 5A13037 Extracted: 01/13/05</b>											
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>											
Chrysene	80.8	10	2.8	ug/l	100	81	65-120	1	20		
Dibenz(a,h)anthracene	82.0	20	4.7	ug/l	100	82	40-160	4	25		
Dibenzofuran	74.7	10	2.6	ug/l	100	75	60-120	4	20		
Di-n-butyl phthalate	70.9	20	2.8	ug/l	100	71	65-125	1	20		
1,3-Dichlorobenzene	59.6	10	4.1	ug/l	100	60	40-120	11	25		
1,4-Dichlorobenzene	63.5	10	3.9	ug/l	100	64	40-120	1	25		
1,2-Dichlorobenzene	61.5	10	4.5	ug/l	100	62	40-120	3	25		
3,3-Dichlorobenzidine	87.9	20	11	ug/l	100	88	50-170	3	25		
2,4-Dichlorophenol	70.2	10	4.1	ug/l	100	70	55-120	1	20		
Diethyl phthalate	67.9	10	3.1	ug/l	100	68	60-120	4	20		
2,4-Dimethylphenol	62.1	20	4.4	ug/l	100	62	35-120	4	25		
Dimethyl phthalate	69.0	10	3.6	ug/l	100	69	60-120	0	20		
4,6-Dinitro-2-methylphenol	73.8	20	5.1	ug/l	100	74	55-120	6	25		
2,4-Dinitrophenol	77.6	20	5.3	ug/l	100	78	40-140	11	25		
2,4-Dinitrotoluene	77.6	10	4.2	ug/l	100	78	60-140	5	20		
2,6-Dinitrotoluene	72.9	10	3.2	ug/l	100	73	65-125	2	20		
Di-n-octyl phthalate	81.0	20	4.7	ug/l	100	81	60-130	0	20		
Fluoranthene	77.9	10	4.2	ug/l	100	78	55-125	4	20		
Fluorene	77.6	10	3.9	ug/l	100	78	60-120	3	20		
Hexachlorobenzene	71.6	10	4.8	ug/l	100	72	50-120	3	20		
Hexachlorobutadiene	60.3	10	4.2	ug/l	100	60	45-120	2	25		
Hexachlorocyclopentadiene	50.9	20	3.4	ug/l	100	51	10-130	7	30		
Hexachloroethane	56.9	10	4.2	ug/l	100	57	40-120	7	25		
Indeno(1,2,3-cd)pyrene	79.2	20	5.4	ug/l	100	79	35-150	3	25		
Isophorone	65.6	10	3.7	ug/l	100	66	55-120	0	20		
2-Methylnaphthalene	72.7	10	3.0	ug/l	100	73	50-120	15	20		
2-Methylphenol	67.3	10	3.7	ug/l	100	67	45-120	4	20		
4-Methylphenol	70.2	10	3.8	ug/l	100	70	45-120	0	20		
Naphthalene	73.6	10	4.5	ug/l	100	74	50-120	4	20		
2-Nitroaniline	76.6	20	3.9	ug/l	100	77	60-130	3	20		
3-Nitroaniline	85.4	20	4.5	ug/l	100	85	50-140	7	25		
4-Nitroaniline	88.5	20	4.9	ug/l	100	88	45-160	8	20		
Nitrobenzene	63.6	20	4.2	ug/l	100	64	50-120	3	25		
2-Nitrophenol	79.0	10	4.2	ug/l	100	79	55-120	2	25		
4-Nitrophenol	63.6	20	6.6	ug/l	100	64	50-135	7	25		

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 Michele Harper  
 Project Manager

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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
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>										
N-Nitrosodiphenylamine	69.9	10	4.0	ug/l	100	70	60-120	3	20	
N-Nitroso-di-n-propylamine	63.2	10	3.6	ug/l	100	63	50-120	4	20	
Pentachlorophenol	75.5	20	4.0	ug/l	100	76	50-125	7	25	
Phenanthrene	79.5	10	3.3	ug/l	100	80	55-120	3	20	
Phenol	65.0	10	4.0	ug/l	100	65	45-120	2	25	
Pyrene	81.3	10	3.9	ug/l	100	81	50-120	1	25	
1,2,4-Trichlorobenzene	63.8	10	4.4	ug/l	100	64	50-120	2	20	
2,4,5-Trichlorophenol	76.4	20	3.6	ug/l	100	76	60-120	3	20	
2,4,6-Trichlorophenol	76.4	20	4.1	ug/l	100	76	60-120	2	20	
1,2-Diphenylhydrazine/Azobenzene	75.1	20	5.0	ug/l	100	75	60-120	6	25	
N-Nitrosodimethylamine	63.2	20	3.7	ug/l	100	63	40-120	6	20	
Surrogate: 2-Fluorophenol	122			ug/l	200	61	35-120			
Surrogate: Phenol-d6	126			ug/l	200	63	45-120			
Surrogate: 2,4,6-Tribromophenol	154			ug/l	200	77	50-125			
Surrogate: Nitrobenzene-d5	64.7			ug/l	100	65	45-120			
Surrogate: 2-Fluorobiphenyl	70.9			ug/l	100	71	45-120			
Surrogate: Terphenyl-d14	73.4			ug/l	100	73	45-135			

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Michele Harper  
Project Manager



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METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Table with 12 columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC, %REC Limits, RPD, RPD Limit, Data Qualifiers

Batch: 5A13049 Extracted: 01/13/05

Blank Analyzed: 01/13/2005 (5A13049-BLK1)

Table listing various pesticides (Aldrin, alpha-BHC, beta-BHC, etc.) with their respective results (ND) and reporting limits.

LCS Analyzed: 01/13/2005 (5A13049-BS1)

M-NR1

Table listing pesticides (Aldrin, alpha-BHC, beta-BHC, etc.) with their results (e.g., 0.517) and reporting limits.

Del Mar Analytical, Irvine
Michele Harper
Project Manager



MWH-Pasadena/Boeing Project ID: Outfall 017  
300 North Lake Avenue, Suite 1200 Report Number: IOA0558  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/11/05-01/12/05  
Received: 01/11/05

METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Table with columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC, Limits, RPD, RPD Limit, Data Qualifiers. Includes sections for Batch: 5A13049, LCS Analyzed: 01/13/2005 (5A13049-BS1), and LCS Dup Analyzed: 01/13/2005 (5A13049-BS1).

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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13049-BLK1)</b>										
Aroclor 1016	ND	1.0	0.067	ug/l						
Aroclor 1221	ND	1.0	0.057	ug/l						
Aroclor 1232	ND	1.0	0.13	ug/l						
Aroclor 1242	ND	1.0	0.12	ug/l						
Aroclor 1248	ND	1.0	0.21	ug/l						
Aroclor 1254	ND	1.0	0.16	ug/l						
Aroclor 1260	ND	1.0	0.17	ug/l						
Surrogate: Decachlorobiphenyl	0.387			ug/l	0.500		77	45-120		
<b>LCS Analyzed: 01/13/2005 (5A13049-BS2)</b>										
Aroclor 1016	2.82	1.0	0.067	ug/l	4.00		70	50-115		M-NR1
Aroclor 1260	2.91	1.0	0.17	ug/l	4.00		73	60-115		
Surrogate: Decachlorobiphenyl	0.389			ug/l	0.500		78	45-120		
<b>LCS Dup Analyzed: 01/13/2005 (5A13049-BSD2)</b>										
Aroclor 1016	2.68	1.0	0.067	ug/l	4.00		67	50-115	5	30
Aroclor 1260	2.88	1.0	0.17	ug/l	4.00		72	60-115	1	25
Surrogate: Decachlorobiphenyl	0.379			ug/l	0.500		76	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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13042 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13042-BLK1)</b>										
Antimony	ND	0.010	0.0042	mg/l						
Arsenic	ND	0.0050	0.0038	mg/l						
Beryllium	ND	0.0020	0.00062	mg/l						
Cadmium	ND	0.0050	0.00034	mg/l						
Chromium	ND	0.0050	0.00068	mg/l						
Copper	ND	0.010	0.0017	mg/l						
Lead	ND	0.0050	0.0021	mg/l						
Nickel	ND	0.010	0.0020	mg/l						
Selenium	ND	0.0050	0.0046	mg/l						
Silver	ND	0.010	0.0013	mg/l						
Thallium	ND	0.0050	0.0031	mg/l						
Zinc	ND	0.020	0.0037	mg/l						
<b>LCS Analyzed: 01/13/2005 (5A13042-BS1)</b>										
Antimony	0.514	0.010	0.0042	mg/l	0.500		103	85-115		
Arsenic	0.490	0.0050	0.0038	mg/l	0.500		98	85-115		
Beryllium	0.494	0.0020	0.00062	mg/l	0.500		99	85-115		
Cadmium	0.482	0.0050	0.00034	mg/l	0.500		96	85-115		
Chromium	0.499	0.0050	0.00068	mg/l	0.500		100	85-115		
Copper	0.469	0.010	0.0017	mg/l	0.500		94	85-115		
Lead	0.502	0.0050	0.0021	mg/l	0.500		100	85-115		
Nickel	0.484	0.010	0.0020	mg/l	0.500		97	85-115		
Selenium	0.492	0.0050	0.0046	mg/l	0.500		98	85-115		
Silver	0.252	0.010	0.0013	mg/l	0.250		101	85-115		
Thallium	0.504	0.0050	0.0031	mg/l	0.500		101	85-115		
Zinc	0.474	0.020	0.0037	mg/l	0.500		95	85-115		
<b>Matrix Spike Analyzed: 01/13/2005 (5A13042-MS1)</b>										
<b>Source: IOA0567-01</b>										
Antimony	0.528	0.010	0.0042	mg/l	0.500	ND	106	70-130		
Arsenic	0.508	0.0050	0.0038	mg/l	0.500	ND	102	70-130		
Beryllium	0.511	0.0020	0.00062	mg/l	0.500	ND	102	70-130		
Cadmium	0.503	0.0050	0.00034	mg/l	0.500	ND	101	70-130		
Chromium	0.517	0.0050	0.00068	mg/l	0.500	0.0022	103	70-130		
Copper	0.514	0.010	0.0017	mg/l	0.500	0.0036	102	70-130		
Lead	0.518	0.0050	0.0021	mg/l	0.500	ND	104	70-130		
Nickel	0.511	0.010	0.0020	mg/l	0.500	0.0025	102	70-130		

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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13042 Extracted: 01/13/05</b>											
<b>Matrix Spike Analyzed: 01/13/2005 (5A13042-MS1)</b>						<b>Source: IOA0567-01</b>					
Selenium	0.511	0.0050	0.0046	mg/l	0.500	ND	102	70-130			
Silver	0.258	0.010	0.0013	mg/l	0.250	ND	103	70-130			
Thallium	0.515	0.0050	0.0031	mg/l	0.500	0.0031	102	70-130			
Zinc	0.520	0.020	0.0037	mg/l	0.500	0.014	101	70-130			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13042-MSD1)</b>						<b>Source: IOA0567-01</b>					
Antimony	0.517	0.010	0.0042	mg/l	0.500	ND	103	70-130	2	20	
Arsenic	0.500	0.0050	0.0038	mg/l	0.500	ND	100	70-130	2	20	
Beryllium	0.505	0.0020	0.00062	mg/l	0.500	ND	101	70-130	1	20	
Cadmium	0.494	0.0050	0.00034	mg/l	0.500	ND	99	70-130	2	20	
Chromium	0.505	0.0050	0.00068	mg/l	0.500	0.0022	101	70-130	2	20	
Copper	0.503	0.010	0.0017	mg/l	0.500	0.0036	100	70-130	2	20	
Lead	0.508	0.0050	0.0021	mg/l	0.500	ND	102	70-130	2	20	
Nickel	0.503	0.010	0.0020	mg/l	0.500	0.0025	100	70-130	2	20	
Selenium	0.499	0.0050	0.0046	mg/l	0.500	ND	100	70-130	2	20	
Silver	0.253	0.010	0.0013	mg/l	0.250	ND	101	70-130	2	20	
Thallium	0.502	0.0050	0.0031	mg/l	0.500	0.0031	100	70-130	3	20	
Zinc	0.510	0.020	0.0037	mg/l	0.500	0.014	99	70-130	2	20	

**Batch: 5A13050 Extracted: 01/13/05**

**Blank Analyzed: 01/13/2005 (5A13050-BLK1)**

Mercury ND 0.00020 0.000063 mg/l

**LCS Analyzed: 01/13/2005 (5A13050-BS1)**

Mercury 0.00808 0.00020 0.000063 mg/l 0.00800 101 85-115

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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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13050 Extracted: 01/13/05</b>											
<b>Matrix Spike Analyzed: 01/13/2005 (5A13050-MS1)</b>						<b>Source: IOA0567-01</b>					
Mercury	0.00857	0.00020	0.000063	mg/l	0.00800	0.00016	105	70-130			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13050-MSD1)</b>						<b>Source: IOA0567-01</b>					
Mercury	0.00854	0.00020	0.000063	mg/l	0.00800	0.00016	105	70-130	0	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Outfall 017 Report Number: IOA0558	Sampled: 01/11/05-01/12/05 Received: 01/11/05
--	---	--

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A11092 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11092-BLK1)</b>										
Chromium VI	0.000149	0.0010	0.000041	mg/l						J
<b>LCS Analyzed: 01/11/2005 (5A11092-BS1)</b>										
Chromium VI	0.0514	0.0010	0.000041	mg/l	0.0500		103 90-110			
<b>Matrix Spike Analyzed: 01/11/2005 (5A11092-MS1) Source: IOA0549-01</b>										
Chromium VI	0.0485	0.0010	0.000041	mg/l	0.0500	ND	97 90-110			
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11092-MSD1) Source: IOA0549-01</b>										
Chromium VI	0.0487	0.0010	0.000041	mg/l	0.0500	ND	97 90-110	0	10	
<b>Batch: 5A12041 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A12041-BLK1)</b>										
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l						
<b>LCS Analyzed: 01/17/2005 (5A12041-BS1)</b>										
Biochemical Oxygen Demand	208	100	30	mg/l	198		105 85-115			
<b>LCS Dup Analyzed: 01/17/2005 (5A12041-BSD1)</b>										
Biochemical Oxygen Demand	212	100	30	mg/l	198		107 85-115	2	20	
<b>Batch: 5A17060 Extracted: 01/17/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A17060-BLK1)</b>										
Total Suspended Solids	ND	10	10	mg/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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A17060 Extracted: 01/17/05</b>											
<b>LCS Analyzed: 01/17/2005 (5A17060-BS1)</b>											
Total Suspended Solids	971	10	10	mg/l	1000		97	85-115			
<b>Duplicate Analyzed: 01/17/2005 (5A17060-DUP1)</b>											
						<b>Source: IOA0673-01</b>					
Total Suspended Solids	ND	10	10	mg/l		ND				10	
<b>Batch: 5A17067 Extracted: 01/17/05</b>											
<b>Blank Analyzed: 01/17/2005 (5A17067-BLK1)</b>											
Total Cyanide	ND	0.025	0.017	mg/l							
<b>LCS Analyzed: 01/17/2005 (5A17067-BS1)</b>											
Total Cyanide	0.211	0.025	0.017	mg/l	0.200		106	90-110			
<b>Matrix Spike Analyzed: 01/17/2005 (5A17067-MS1)</b>											
						<b>Source: IOA0715-02</b>					
Total Cyanide	0.0894	0.025	0.017	mg/l	0.200	ND	45	70-115			M2
<b>Matrix Spike Dup Analyzed: 01/17/2005 (5A17067-MSD1)</b>											
						<b>Source: IOA0715-02</b>					
Total Cyanide	0.140	0.025	0.017	mg/l	0.200	ND	70	70-115	44	15	R-3

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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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05

Received: 01/11/05

### DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- C** Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
- C5** Calibration Verification recovery was below the method control limit for this analyte. An additional check standard was analyzed at the reporting limit to ensure instrument sensitivity at the reporting limit. Samples ND.
- 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.
- M2** The MS and/or MSD were below 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-3** The RPD exceeded the method control limit due to sample matrix effects.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

### ADDITIONAL COMMENTS

**For 1,2-Diphenylhydrazine:**

The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product, Azobenzene.

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: Outfall 017

Report Number: IOA0558

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## Certification Summary

### Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 200.7	Water	X	X
EPA 218.6	Water	X	X
EPA 245.1	Water	X	X
EPA 335.2	Water	X	X
EPA 405.1	Water	X	X
EPA 608	Water	X	X
EPA 624	Water	X	X
EPA 625	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](http://www.dmalabs.com).*

### Subcontracted Laboratories

#### Pace Analytical, MN- SUB

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR  
 Samples: IOA0558-02

Analysis Performed: EDD + Level 4  
 Samples: IOA0558-02

**Del Mar Analytical, Irvine**  
 Michele Harper  
 Project Manager







2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228  
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February 23, 2005

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

Attention: Bronwyn Kelly

Project: Routine Outfall 017  
Sampled: 01/11/05-1/12/05  
Del Mar Analytical Number: IOA0558

Dear Ms. Kelly:

Pace Analytical performed Method 1613B analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Pace ID
Outfall 017	IOA0558-01	106234001

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

## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0558-02		
Lab Sample ID	106234001		
Filename	F50130A_06		
Injected By	BAL		
Total Amount Extracted	985 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	01/12/2005
ICAL Date	11/29/2004	Received	01/14/2005
CCal Filename(s)	F50129B_18	Extracted	01/28/2005
Method Blank ID	BLANK-6220	Analyzed	01/30/2005 14:49

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.88	2,3,7,8-TCDF-13C	2.00	67
Total TCDF	1.8	----	0.88 J	2,3,7,8-TCDD-13C	2.00	84
				1,2,3,7,8-PeCDF-13C	2.00	71
2,3,7,8-TCDD	ND	----	0.60	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	ND	----	0.60	1,2,3,7,8-PeCDD-13C	2.00	89
				1,2,3,4,7,8-HxCDF-13C	2.00	82
1,2,3,7,8-PeCDF	ND	----	0.81	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	0.74	2,3,4,6,7,8-HxCDF-13C	2.00	78
Total PeCDF	ND	----	0.78	1,2,3,7,8,9-HxCDF-13C	2.00	76
				1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	----	1.20	1,2,3,6,7,8-HxCDD-13C	2.00	85
Total PeCDD	ND	----	1.20	1,2,3,4,6,7,8-HpCDF-13C	2.00	72
				1,2,3,4,7,8,9-HpCDF-13C	2.00	64
1,2,3,4,7,8-HxCDF	1.7	----	0.64 J	1,2,3,4,6,7,8-HpCDD-13C	2.00	82
1,2,3,6,7,8-HxCDF	ND	----	0.70	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	ND	----	0.60			
1,2,3,7,8,9-HxCDF	ND	----	1.00	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	1.7	----	0.74 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	----	1.1	0.95 I	2,3,7,8-TCDD-37Cl4	0.20	83
1,2,3,6,7,8-HxCDD	1.9	----	0.74 J			
1,2,3,7,8,9-HxCDD	----	1.7	0.75 I			
Total HxCDD	1.9	----	0.81 J			
1,2,3,4,6,7,8-HpCDF	4.7	----	1.20 J			
1,2,3,4,7,8,9-HpCDF	ND	----	1.60			
Total HpCDF	4.7	----	1.40 BJ			
1,2,3,4,6,7,8-HpCDD	22.0	----	1.80 BJ			
Total HpCDD	43.0	----	1.80 J			
OCDF	11.0	----	2.00 BJ			
OCDD	190.0	----	3.70			

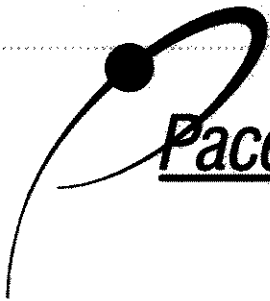
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106234

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Blank Analysis Results

Client - Del Mar Analytical

Lab Sample ID	BLANK-6220	Matrix	Water
Filename	F50129B_06	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 23:49
CCal Filename(s)	F50129B_02	Injected By	BAL

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.20	2,3,7,8-TCDF-13C	2.00	58
Total TCDF	ND	----	----	2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	ND	----	1.20	2,3,4,7,8-PeCDF-13C	2.00	67
Total TCDD	ND	----	----	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	----	1.50	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	1.20	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	----	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	----	1.60	1,2,3,6,7,8-HxCDD-13C	2.00	88
Total PeCDD	ND	----	----	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
				1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	ND	----	0.75	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	ND	----	0.86	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	ND	----	1.10			
1,2,3,7,8,9-HxCDF	ND	----	1.20	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	----	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.10	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	ND	----	0.99			
1,2,3,7,8,9-HxCDD	ND	----	1.00			
Total HxCDD	ND	----	----			
1,2,3,4,6,7,8-HpCDF	ND	----	2.10			
1,2,3,4,7,8,9-HpCDF	ND	----	1.90			
Total HpCDF	2.2	----	---- J			
1,2,3,4,6,7,8-HpCDD	2.4	----	1.40 J			
Total HpCDD	2.4	----	---- J			
OCDF	5.2	----	1.80 J			
OCDD	5.6	----	2.90 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 A = Limit of Detection based on signal to noise  
 P = Recovery outside of method 1613 control limits  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCS-6221	Matrix	Water
Filename	F50129B_03	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 21:22
CCal Filename	F50129B_02	Injected By	BAL
Method Blank ID	BLANK-6220		

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.9	7.5	15.8	99
2,3,7,8-TCDD	10	8.6	6.7	15.8	86
1,2,3,7,8-PeCDF	50	50.5	40.0	67.0	101
2,3,4,7,8-PeCDF	50	48.2	34.0	80.0	96
1,2,3,7,8-PeCDD	50	43.3	35.0	71.0	87
1,2,3,4,7,8-HxCDF	50	45.6	36.0	67.0	91
1,2,3,6,7,8-HxCDF	50	48.7	42.0	65.0	97
2,3,4,6,7,8-HxCDF	50	49.1	35.0	78.0	98
1,2,3,7,8,9-HxCDF	50	46.5	39.0	65.0	93
1,2,3,4,7,8-HxCDD	50	49.9	35.0	82.0	100
1,2,3,6,7,8-HxCDD	50	51.3	38.0	67.0	103
1,2,3,7,8,9-HxCDD	50	50.1	32.0	81.0	100
1,2,3,4,6,7,8-HpCDF	50	50.3	41.0	61.0	101
1,2,3,4,7,8,9-HpCDF	50	53.3	39.0	69.0	107
1,2,3,4,6,7,8-HpCDD	50	45.4	35.0	70.0	91
OCDF	100	95.6	63.0	170.0	96
OCDD	100	97.1	78.0	144.0	97
2,3,7,8-TCDD-37Cl4	10	6.9	3.1	19.1	69
2,3,7,8-TCDF-13C	100	51.5	22.0	152.0	52
2,3,7,8-TCDD-13C	100	67.8	20.0	175.0	68
1,2,3,7,8-PeCDF-13C	100	61.4	21.0	192.0	61
2,3,4,7,8-PeCDF-13C	100	65.9	13.0	328.0	66
1,2,3,7,8-PeCDD-13C	100	77.8	21.0	227.0	78
1,2,3,4,7,8-HxCDF-13C	100	70.2	19.0	202.0	70
1,2,3,6,7,8-HxCDF-13C	100	78.0	21.0	159.0	78
2,3,4,6,7,8-HxCDF-13C	100	74.1	22.0	176.0	74
1,2,3,7,8,9-HxCDF-13C	100	70.4	17.0	205.0	70
1,2,3,4,7,8-HxCDD-13C	100	69.0	21.0	193.0	69
1,2,3,6,7,8-HxCDD-13C	100	82.8	25.0	163.0	83
1,2,3,4,6,7,8-HpCDF-13C	100	72.1	21.0	158.0	72
1,2,3,4,7,8,9-HpCDF-13C	100	62.4	20.0	186.0	62
1,2,3,4,6,7,8-HpCDD-13C	100	80.1	26.0	166.0	80
OCDD-13C	200	135.6	26.0	397.0	68

Cs = Concentration Spiked (ng/mL)

Cr = Concentration Recovered (ng/mL)

Rec. = Recovery (Expressed as Percent)

Control Limit Reference: Method 1613, Table 6, 10/94 Revision

X = Background subtracted value

P = Recovery outside of control limits

Nn = Value obtained from additional analysis

\* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCSD-6222		
Filename	F50129B_04	Matrix	Water
Total Amount Extracted	1040 mL	Dilution	NA
ICAL Date	11/29/2004	Extracted	01/28/2005
CCal Filename	F50129B_02	Analyzed	01/29/2005 22:09
Method Blank ID	BLANK-6220	Injected By	BAL

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10.6	7.5	15.8	106
2,3,7,8-TCDD	10	9.4	6.7	15.8	94
1,2,3,7,8-PeCDF	50	53.2	40.0	67.0	106
2,3,4,7,8-PeCDF	50	50.7	34.0	80.0	101
1,2,3,7,8-PeCDD	50	46.0	35.0	71.0	92
1,2,3,4,7,8-HxCDF	50	47.6	36.0	67.0	95
1,2,3,6,7,8-HxCDF	50	50.9	42.0	65.0	102
2,3,4,6,7,8-HxCDF	50	50.9	35.0	78.0	102
1,2,3,7,8,9-HxCDF	50	49.0	39.0	65.0	98
1,2,3,4,7,8-HxCDD	50	52.4	35.0	82.0	105
1,2,3,6,7,8-HxCDD	50	54.2	38.0	67.0	108
1,2,3,7,8,9-HxCDD	50	52.5	32.0	81.0	105
1,2,3,4,6,7,8-HpCDF	50	55.0	41.0	61.0	110
1,2,3,4,7,8,9-HpCDF	50	55.7	39.0	69.0	111
1,2,3,4,6,7,8-HpCDD	50	48.0	35.0	70.0	96
OCDF	100	100.6	63.0	170.0	101
OCDD	100	101.9	78.0	144.0	102
2,3,7,8-TCDD-37Cl4	10	8.7	3.1	19.1	87
2,3,7,8-TCDF-13C	100	70.4	22.0	152.0	70
2,3,7,8-TCDD-13C	100	88.6	20.0	175.0	89
1,2,3,7,8-PeCDF-13C	100	73.6	21.0	192.0	74
2,3,4,7,8-PeCDF-13C	100	79.0	13.0	328.0	79
1,2,3,7,8-PeCDD-13C	100	95.5	21.0	227.0	96
1,2,3,4,7,8-HxCDF-13C	100	84.8	19.0	202.0	85
1,2,3,6,7,8-HxCDF-13C	100	89.5	21.0	159.0	90
2,3,4,6,7,8-HxCDF-13C	100	87.2	22.0	176.0	87
1,2,3,7,8,9-HxCDF-13C	100	82.1	17.0	205.0	82
1,2,3,4,7,8-HxCDD-13C	100	80.1	21.0	193.0	80
1,2,3,6,7,8-HxCDD-13C	100	97.0	25.0	163.0	97
1,2,3,4,6,7,8-HpCDF-13C	100	84.4	21.0	158.0	84
1,2,3,4,7,8,9-HpCDF-13C	100	71.7	20.0	186.0	72
1,2,3,4,6,7,8-HpCDD-13C	100	92.4	26.0	166.0	92
OCDD-13C	200	159.2	26.0	397.0	80

Cs = Concentration Spiked (ng/mL)  
Cr = Concentration Recovered (ng/mL)  
Rec. = Recovery (Expressed as Percent)  
Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
X = Background subtracted value  
P = Recovery outside of control limits  
Nn = Value obtained from additional analysis  
\* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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# Pace Analytical®

## SPIKE RECOVERY/RELATIVE PERCENT DIFFERENCE (RPD) RESULTS

Pace Analytical Services, Inc.  
1700 Elm Street  
Minneapolis, MN 55414  
Phone: 612.607.1700  
Fax: 612.607.6444

Client..... Del Mar Analytical

SPIKE 1 ID..... LCS-6221  
SPIKE 1 Filename..... F50129B\_03  
SPIKE 2 ID..... LCSD-6222  
SPIKE 2 Filename..... F50129B\_04

COMPOUND	SPIKE 1 REC,%	SPIKE 2 REC,%	RPD,%
2378-TCDF	99	106	6.8
2378-TCDD	86	94	8.9
12378-PeCDF	101	106	4.8
23478-PeCDF	96	101	5.1
12378-PeCDD	87	92	5.6
123478-HxCDF	91	95	4.3
123678-HxCDF	97	102	5.0
234678-HxCDF	98	102	4.0
123789-HxCDF	93	98	5.2
123478-HxCDD	100	105	4.9
123678-HxCDD	103	108	4.7
123789-HxCDD	100	105	4.9
1234678-HpCDF	101	110	8.5
1234789-HpCDF	107	111	3.7
1234678-HpCDD	91	96	5.3
OCDF	96	101	5.1
OCDD	97	102	5.0

REC = Percent Recovered  
RPD = The difference between the two values divided by the average.  
NA = Not Applicable

Report No..... 106233

### REPORT OF LABORATORY ANALYSIS

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**TABLE 1. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzop-dioxins and Dibenzofurans**

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

\*Excluding the 2,3,7,8-substituted congeners.

Reference: 1989 ITEFs

**REPORT OF LABORATORY ANALYSIS**

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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 806, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

**SUBCONTRACT ORDER - PROJECT # IOA0558**

106234

**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:**  
 Pace Analytical, MN- SUB  
 1700 Elm Street, Ste 200  
 Minneapolis, MN 55414  
 Phone : (612) 607-1700  
 Fax: (612) 607-6444

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

Analysis	Expiration	Comments
Sample ID: IOA0558-02 Water 1613-Dioxin-HR	Sampled: 01/12/05 13:30 01/19/05 13:30	J flags, 17 congeners, no TEQ, sub to Pace-MN

106234001

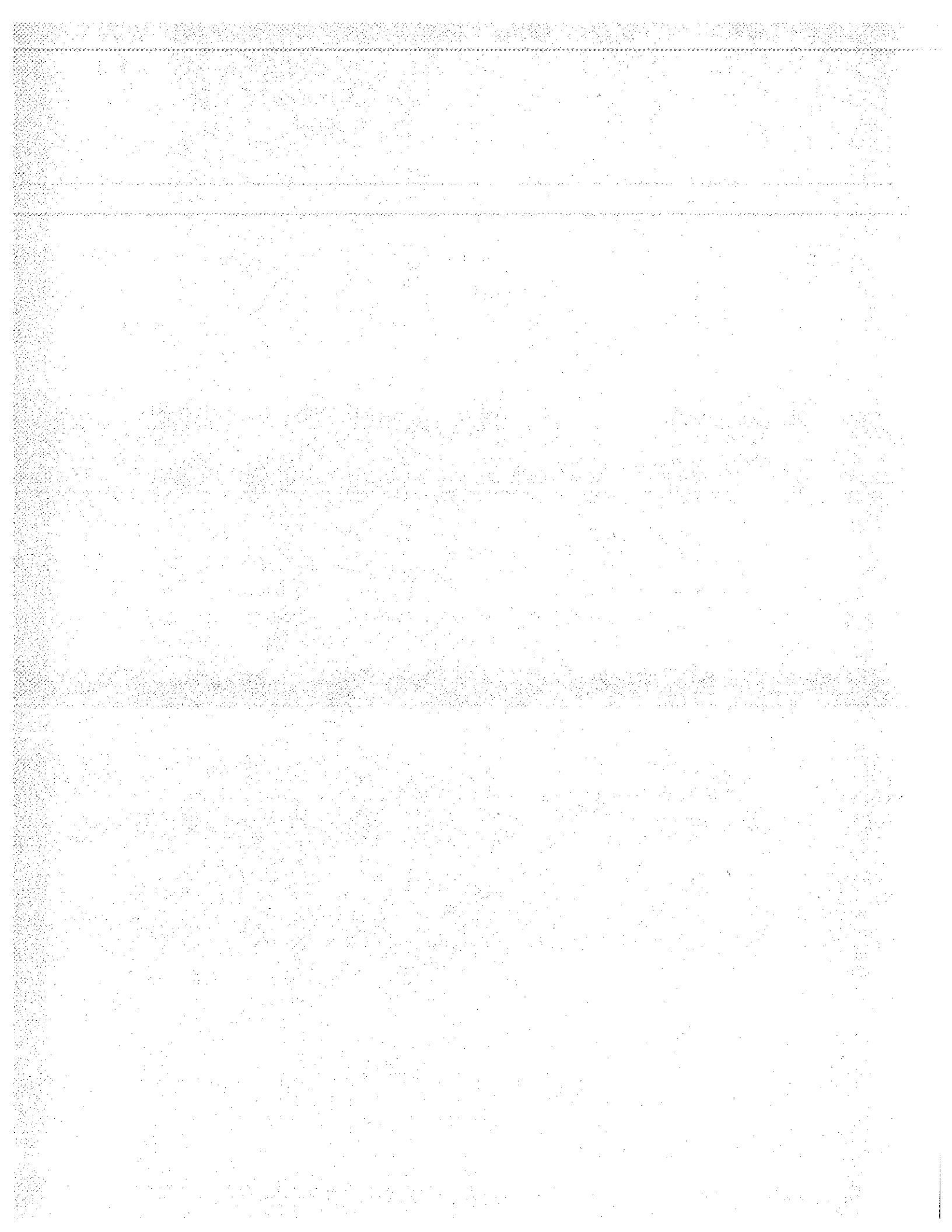
**Containers Supplied:**  
 1 L Amber (IOA0558-02A)  
 1 L Amber (IOA0558-02B)

**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): 16

Released By: [Signature]      Date: 1-13-05      Time: 1700      Received By: Katell Anderson      Date: 1/14/05      Time: 11:22

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_





**LABORATORY REPORT**

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

Project: Outfall 017

Sampled: 01/11/05-01/12/05  
Received: 01/11/05  
Issued: 03/10/05 12:19

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	CLIENT ID	MATRIX
IOA0576-01	Outfall 017-Grab Effluent	Water
IOA0576-02	Outfall 017-Comp Effluent	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: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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: IOA0576-02 (Outfall 017-Comp Effluent - Water)					Sampled: 01/12/05				
Reporting Units: ug/l									
Acenaphthene	EPA 625	5A13037	4.3	10	ND	1	01/13/05	01/18/05	
Acenaphthylene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	
Aniline	EPA 625	5A13037	2.9	10	ND	1	01/13/05	01/18/05	
Anthracene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	
Benzidine	EPA 625	5A13037	5.2	20	ND	1	01/13/05	01/18/05	
<b>Benzoic acid</b>	EPA 625	5A13037	2.6	20	13	1	01/13/05	01/18/05	J
Benzo(a)anthracene	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	
Benzo(b)fluoranthene	EPA 625	5A13037	2.7	10	ND	1	01/13/05	01/18/05	
Benzo(k)fluoranthene	EPA 625	5A13037	3.4	10	ND	1	01/13/05	01/18/05	
Benzo(g,h,i)perylene	EPA 625	5A13037	5.3	10	ND	1	01/13/05	01/18/05	C
Benzo(a)pyrene	EPA 625	5A13037	3.5	10	ND	1	01/13/05	01/18/05	
Benzyl alcohol	EPA 625	5A13037	2.5	20	ND	1	01/13/05	01/18/05	
Bis(2-chloroethoxy)methane	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
Bis(2-chloroethyl)ether	EPA 625	5A13037	4.4	10	ND	1	01/13/05	01/18/05	
Bis(2-chloroisopropyl)ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5A13037	5.2	50	ND	1	01/13/05	01/18/05	
4-Bromophenyl phenyl ether	EPA 625	5A13037	4.6	10	ND	1	01/13/05	01/18/05	
Butyl benzyl phthalate	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	
4-Chloroaniline	EPA 625	5A13037	6.0	10	ND	1	01/13/05	01/18/05	
2-Chloronaphthalene	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	
4-Chloro-3-methylphenol	EPA 625	5A13037	3.5	20	ND	1	01/13/05	01/18/05	
2-Chlorophenol	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
4-Chlorophenyl phenyl ether	EPA 625	5A13037	3.0	10	ND	1	01/13/05	01/18/05	
Chrysene	EPA 625	5A13037	2.8	10	ND	1	01/13/05	01/18/05	
Dibenz(a,h)anthracene	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	
Dibenzofuran	EPA 625	5A13037	2.6	10	ND	1	01/13/05	01/18/05	
Di-n-butyl phthalate	EPA 625	5A13037	2.8	20	ND	1	01/13/05	01/18/05	
1,3-Dichlorobenzene	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	
1,4-Dichlorobenzene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
1,2-Dichlorobenzene	EPA 625	5A13037	4.5	10	ND	1	01/13/05	01/18/05	
3,3-Dichlorobenzidine	EPA 625	5A13037	11	20	ND	1	01/13/05	01/18/05	
2,4-Dichlorophenol	EPA 625	5A13037	4.1	10	ND	1	01/13/05	01/18/05	
Diethyl phthalate	EPA 625	5A13037	3.1	10	ND	1	01/13/05	01/18/05	
2,4-Dimethylphenol	EPA 625	5A13037	4.4	20	ND	1	01/13/05	01/18/05	
Dimethyl phthalate	EPA 625	5A13037	3.6	10	ND	1	01/13/05	01/18/05	
4,6-Dinitro-2-methylphenol	EPA 625	5A13037	5.1	20	ND	1	01/13/05	01/18/05	
2,4-Dinitrophenol	EPA 625	5A13037	5.3	20	ND	1	01/13/05	01/18/05	
2,4-Dinitrotoluene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
2,6-Dinitrotoluene	EPA 625	5A13037	3.2	10	ND	1	01/13/05	01/18/05	
Di-n-octyl phthalate	EPA 625	5A13037	4.7	20	ND	1	01/13/05	01/18/05	
Fluoranthene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	

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

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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
<b>Sample ID: IOA0576-02 (Outfall 017-Comp Effluent - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Fluorene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
Hexachlorobenzene	EPA 625	5A13037	4.8	10	ND	1	01/13/05	01/18/05	
Hexachlorobutadiene	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
Hexachlorocyclopentadiene	EPA 625	5A13037	3.4	20	ND	1	01/13/05	01/18/05	
Hexachloroethane	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5A13037	5.4	20	ND	1	01/13/05	01/18/05	C
Isophorone	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	
2-Methylnaphthalene	EPA 625	5A13037	3.0	10	ND	1	01/13/05	01/18/05	
2-Methylphenol	EPA 625	5A13037	3.7	10	ND	1	01/13/05	01/18/05	
4-Methylphenol	EPA 625	5A13037	3.8	10	ND	1	01/13/05	01/18/05	
Naphthalene	EPA 625	5A13037	4.5	10	ND	1	01/13/05	01/18/05	
2-Nitroaniline	EPA 625	5A13037	3.9	20	ND	1	01/13/05	01/18/05	
3-Nitroaniline	EPA 625	5A13037	4.5	20	ND	1	01/13/05	01/18/05	
4-Nitroaniline	EPA 625	5A13037	4.9	20	ND	1	01/13/05	01/18/05	
Nitrobenzene	EPA 625	5A13037	4.2	20	ND	1	01/13/05	01/18/05	
2-Nitrophenol	EPA 625	5A13037	4.2	10	ND	1	01/13/05	01/18/05	
4-Nitrophenol	EPA 625	5A13037	6.6	20	ND	1	01/13/05	01/18/05	
N-Nitrosodiphenylamine	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	
N-Nitroso-di-n-propylamine	EPA 625	5A13037	3.6	10	ND	1	01/13/05	01/18/05	
Pentachlorophenol	EPA 625	5A13037	4.0	20	ND	1	01/13/05	01/18/05	
Phenanthrene	EPA 625	5A13037	3.3	10	ND	1	01/13/05	01/18/05	
Phenol	EPA 625	5A13037	4.0	10	ND	1	01/13/05	01/18/05	
Pyrene	EPA 625	5A13037	3.9	10	ND	1	01/13/05	01/18/05	
1,2,4-Trichlorobenzene	EPA 625	5A13037	4.4	10	ND	1	01/13/05	01/18/05	
2,4,5-Trichlorophenol	EPA 625	5A13037	3.6	20	ND	1	01/13/05	01/18/05	
2,4,6-Trichlorophenol	EPA 625	5A13037	4.1	20	ND	1	01/13/05	01/18/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5A13037	5.0	20	ND	1	01/13/05	01/18/05	
N-Nitrosodimethylamine	EPA 625	5A13037	3.7	20	ND	1	01/13/05	01/18/05	
Surrogate: 2-Fluorophenol (35-120%)					52 %				
Surrogate: Phenol-d6 (45-120%)					73 %				
Surrogate: 2,4,6-Tribromophenol (50-125%)					70 %				
Surrogate: Nitrobenzene-d5 (45-120%)					59 %				
Surrogate: 2-Fluorobiphenyl (45-120%)					65 %				
Surrogate: Terphenyl-d14 (45-135%)					88 %				

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

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0576-02 (Outfall 017-Comp Effluent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: ug/l									
Aldrin	EPA 608	5A13049	0.029	0.10	ND	1.01	01/13/05	01/13/05	
alpha-BHC	EPA 608	5A13049	0.010	0.10	ND	1.01	01/13/05	01/13/05	
beta-BHC	EPA 608	5A13049	0.011	0.10	ND	1.01	01/13/05	01/13/05	
delta-BHC	EPA 608	5A13049	0.010	0.20	ND	1.01	01/13/05	01/13/05	
gamma-BHC (Lindane)	EPA 608	5A13049	0.0097	0.10	ND	1.01	01/13/05	01/13/05	
Chlordane	EPA 608	5A13049	0.18	1.0	ND	1.01	01/13/05	01/13/05	
4,4'-DDD	EPA 608	5A13049	0.011	0.10	ND	1.01	01/13/05	01/13/05	
4,4'-DDE	EPA 608	5A13049	0.017	0.10	ND	1.01	01/13/05	01/13/05	
4,4'-DDT	EPA 608	5A13049	0.015	0.10	ND	1.01	01/13/05	01/13/05	
Dieldrin	EPA 608	5A13049	0.010	0.10	ND	1.01	01/13/05	01/13/05	
Endosulfan I	EPA 608	5A13049	0.015	0.10	ND	1.01	01/13/05	01/13/05	
Endosulfan II	EPA 608	5A13049	0.037	0.10	ND	1.01	01/13/05	01/13/05	
Endosulfan sulfate	EPA 608	5A13049	0.013	0.20	ND	1.01	01/13/05	01/13/05	
Endrin	EPA 608	5A13049	0.0082	0.10	ND	1.01	01/13/05	01/13/05	
Endrin aldehyde	EPA 608	5A13049	0.045	0.10	ND	1.01	01/13/05	01/13/05	
Endrin ketone	EPA 608	5A13049	0.020	0.10	ND	1.01	01/13/05	01/13/05	
Heptachlor	EPA 608	5A13049	0.030	0.10	ND	1.01	01/13/05	01/13/05	
Heptachlor epoxide	EPA 608	5A13049	0.012	0.10	ND	1.01	01/13/05	01/13/05	
Methoxychlor	EPA 608	5A13049	0.034	0.10	ND	1.01	01/13/05	01/13/05	
Toxaphene	EPA 608	5A13049	0.77	5.0	ND	1.01	01/13/05	01/13/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					36 %				
Surrogate: Decachlorobiphenyl (45-120%)					76 %				

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

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## TOTAL PCBS (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0576-02 (Outfall 017-Comp Effluent - Water) - cont.</b>					<b>Sampled: 01/12/05</b>				
<b>Reporting Units: ug/l</b>									
Aroclor 1016	EPA 608	5A13049	0.067	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1221	EPA 608	5A13049	0.057	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1232	EPA 608	5A13049	0.13	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1242	EPA 608	5A13049	0.12	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1248	EPA 608	5A13049	0.21	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1254	EPA 608	5A13049	0.16	1.0	ND	1.01	01/13/05	01/14/05	
Aroclor 1260	EPA 608	5A13049	0.17	1.0	ND	1.01	01/13/05	01/14/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					76 %				

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 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0576-02 (Outfall 017-Comp Effluent - Water) - cont.					Sampled: 01/12/05				
Reporting Units: mg/l									
Antimony	EPA 200.7	5A14046	0.0042	0.010	ND	1	01/14/05	01/14/05	
Arsenic	EPA 200.7	5A14046	0.0038	0.0050	ND	1	01/14/05	01/14/05	
Barium	EPA 200.7	5A14046	0.0028	0.010	0.021	1	01/14/05	01/14/05	
Beryllium	EPA 200.7	5A14046	0.00062	0.0020	ND	1	01/14/05	01/14/05	
Boron	EPA 200.7	5A14046	0.0074	0.050	0.093	1	01/14/05	01/14/05	
Cadmium	EPA 200.7	5A14046	0.00034	0.0050	0.00050	1	01/14/05	01/14/05	J
Chromium	EPA 200.7	5A14046	0.00068	0.0050	0.11	1	01/14/05	01/14/05	
Copper	EPA 200.7	5A14046	0.0017	0.010	0.0079	1	01/14/05	01/14/05	J
Lead	EPA 200.7	5A14046	0.0021	0.0050	ND	1	01/14/05	01/14/05	
Mercury	EPA 245.1	5A14053	0.000063	0.00020	0.00030	1	01/14/05	01/14/05	
Nickel	EPA 200.7	5A14046	0.0020	0.010	0.12	1	01/14/05	01/14/05	
Selenium	EPA 200.7	5A14046	0.0046	0.0050	ND	1	01/14/05	01/14/05	
Silver	EPA 200.7	5A14046	0.0013	0.010	ND	1	01/14/05	01/14/05	
Thallium	EPA 200.7	5A14046	0.0031	0.0050	ND	1	01/14/05	01/16/05	
Zinc	EPA 200.7	5A14046	0.0037	0.020	0.099	1	01/14/05	01/14/05	

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 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0576-01 (Outfall 017-Grab Effluent - Water)</b>					<b>Sampled: 01/11/05</b>				
Reporting Units: mg/l									
Residual Chlorine	EPA 330.5	5A12045	0.10	0.10	1.0	1	01/12/05	01/12/05	
<b>Sample ID: IOA0576-02 (Outfall 017-Comp Effluent - Water)</b>					<b>Sampled: 01/12/05</b>				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5A13063	0.30	0.50	ND	1	01/13/05	01/13/05	
Biochemical Oxygen Demand	EPA 405.1	5A13052	0.59	2.0	14	1	01/13/05	01/18/05	
Chloride	EPA 300.0	5A12036	2.6	5.0	140	10	01/12/05	01/12/05	
Total Cyanide	EPA 335.2	5A13092	0.017	0.025	ND	1	01/13/05	01/13/05	
Fluoride	EPA 300.0	5A12036	0.074	0.50	0.33	1	01/12/05	01/12/05	J
Nitrate-N	EPA 300.0	5A12036	0.072	0.11	1.6	1	01/12/05	01/12/05	
Nitrite-N	EPA 300.0	5A12036	0.058	0.15	ND	1	01/12/05	01/12/05	
Nitrate/Nitrite-N	EPA 300.0	5A12036	0.072	0.26	1.6	1	01/12/05	01/12/05	
Sulfate	EPA 300.0	5A12036	0.18	0.50	38	1	01/12/05	01/12/05	
Total Dissolved Solids	SM2540C	5A13089	10	10	440	1	01/13/05	01/13/05	
Total Suspended Solids	EPA 160.2	5A17060	10	10	ND	1	01/17/05	01/17/05	
<b>Sample ID: IOA0576-01 (Outfall 017-Grab Effluent - Water)</b>					<b>Sampled: 01/11/05</b>				
Reporting Units: NTU									
Turbidity	EPA 180.1	5A13082	0.040	1.0	33	1	01/13/05	01/13/05	

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 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
<b>Sample ID: Outfall 017-Grab Effluent (IOA0576-01) - Water</b>					
EPA 180.1	2	01/11/2005 15:05	01/11/2005 18:50	01/13/2005 12:30	01/13/2005 13:30
EPA 330.5	1	01/11/2005 15:05	01/11/2005 18:50	01/12/2005 13:00	01/12/2005 13:40
<b>Sample ID: Outfall 017-Comp Effluent (IOA0576-02) - Water</b>					
EPA 300.0	2	01/12/2005 13:00	01/11/2005 18:50	01/12/2005 15:30	01/12/2005 16:01
EPA 405.1	2	01/12/2005 13:00	01/11/2005 18:50	01/13/2005 09:36	01/18/2005 11:30

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 Wendy Kirkeeng For Michele Harper  
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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>											
Acenaphthene	ND	10	4.3	ug/l							
Acenaphthylene	ND	10	3.2	ug/l							
Aniline	ND	10	2.9	ug/l							
Anthracene	ND	10	3.2	ug/l							
Benzidine	ND	20	5.2	ug/l							
Benzoic acid	ND	20	2.6	ug/l							
Benzo(a)anthracene	ND	10	3.7	ug/l							
Benzo(b)fluoranthene	ND	10	2.7	ug/l							
Benzo(k)fluoranthene	ND	10	3.4	ug/l							
Benzo(g,h,i)perylene	ND	10	5.3	ug/l							
Benzo(a)pyrene	ND	10	3.5	ug/l							
Benzyl alcohol	ND	20	2.5	ug/l							
Bis(2-chloroethoxy)methane	ND	10	3.9	ug/l							
Bis(2-chloroethyl)ether	ND	10	4.4	ug/l							
Bis(2-chloroisopropyl)ether	ND	10	4.6	ug/l							
Bis(2-ethylhexyl)phthalate	ND	50	5.2	ug/l							
4-Bromophenyl phenyl ether	ND	10	4.6	ug/l							
Butyl benzyl phthalate	ND	20	3.5	ug/l							
4-Chloroaniline	ND	10	6.0	ug/l							
2-Chloronaphthalene	ND	10	4.0	ug/l							
4-Chloro-3-methylphenol	ND	20	3.5	ug/l							
2-Chlorophenol	ND	10	4.2	ug/l							
4-Chlorophenyl phenyl ether	ND	10	3.0	ug/l							
Chrysene	ND	10	2.8	ug/l							
Dibenz(a,h)anthracene	ND	20	4.7	ug/l							
Dibenzofuran	ND	10	2.6	ug/l							
Di-n-butyl phthalate	ND	20	2.8	ug/l							
1,3-Dichlorobenzene	ND	10	4.1	ug/l							
1,4-Dichlorobenzene	ND	10	3.9	ug/l							
1,2-Dichlorobenzene	ND	10	4.5	ug/l							
3,3-Dichlorobenzidine	ND	20	11	ug/l							
2,4-Dichlorophenol	ND	10	4.1	ug/l							
Diethyl phthalate	ND	10	3.1	ug/l							
2,4-Dimethylphenol	ND	20	4.4	ug/l							
Dimethyl phthalate	ND	10	3.6	ug/l							

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Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>										
4,6-Dinitro-2-methylphenol	ND	20	5.1	ug/l						
2,4-Dinitrophenol	ND	20	5.3	ug/l						
2,4-Dinitrotoluene	ND	10	4.2	ug/l						
2,6-Dinitrotoluene	ND	10	3.2	ug/l						
Di-n-octyl phthalate	ND	20	4.7	ug/l						
Fluoranthene	ND	10	4.2	ug/l						
Fluorene	ND	10	3.9	ug/l						
Hexachlorobenzene	ND	10	4.8	ug/l						
Hexachlorobutadiene	ND	10	4.2	ug/l						
Hexachlorocyclopentadiene	ND	20	3.4	ug/l						
Hexachloroethane	ND	10	4.2	ug/l						
Indeno(1,2,3-cd)pyrene	ND	20	5.4	ug/l						
Isophorone	ND	10	3.7	ug/l						
2-Methylnaphthalene	ND	10	3.0	ug/l						
2-Methylphenol	ND	10	3.7	ug/l						
4-Methylphenol	ND	10	3.8	ug/l						
Naphthalene	ND	10	4.5	ug/l						
2-Nitroaniline	ND	20	3.9	ug/l						
3-Nitroaniline	ND	20	4.5	ug/l						
4-Nitroaniline	ND	20	4.9	ug/l						
Nitrobenzene	ND	20	4.2	ug/l						
2-Nitrophenol	ND	10	4.2	ug/l						
4-Nitrophenol	ND	20	6.6	ug/l						
N-Nitrosodiphenylamine	ND	10	4.0	ug/l						
N-Nitroso-di-n-propylamine	ND	10	3.6	ug/l						
Pentachlorophenol	ND	20	4.0	ug/l						
Phenanthrene	ND	10	3.3	ug/l						
Phenol	ND	10	4.0	ug/l						
Pyrene	ND	10	3.9	ug/l						
1,2,4-Trichlorobenzene	ND	10	4.4	ug/l						
2,4,5-Trichlorophenol	ND	20	3.6	ug/l						
2,4,6-Trichlorophenol	ND	20	4.1	ug/l						
1,2-Diphenylhydrazine/Azobenzene	ND	20	5.0	ug/l						
N-Nitrosodimethylamine	ND	20	3.7	ug/l						
Surrogate: 2-Fluorophenol	120			ug/l	200		60		35-120	

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### 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
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A13037-BLK1)</b>										
Surrogate: Phenol-d6	129			ug/l	200		64 45-120			
Surrogate: 2,4,6-Tribromophenol	160			ug/l	200		80 50-125			
Surrogate: Nitrobenzene-d5	63.1			ug/l	100		63 45-120			
Surrogate: 2-Fluorobiphenyl	72.3			ug/l	100		72 45-120			
Surrogate: Terphenyl-d14	75.6			ug/l	100		76 45-135			
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>										
Acenaphthene	75.6	10	4.3	ug/l	100		76 55-120			M-NR1
Acenaphthylene	75.9	10	3.2	ug/l	100		76 55-120			
Aniline	68.9	10	2.9	ug/l	100		69 30-120			
Anthracene	80.4	10	3.2	ug/l	100		80 60-120			
Benzidine	62.5	20	5.2	ug/l	100		62 20-180			
Benzoic acid	81.0	20	2.6	ug/l	100		81 30-125			
Benzo(a)anthracene	81.8	10	3.7	ug/l	100		82 65-120			
Benzo(b)fluoranthene	81.3	10	2.7	ug/l	100		81 50-125			
Benzo(k)fluoranthene	77.8	10	3.4	ug/l	100		78 50-125			
Benzo(g,h,i)perylene	84.8	10	5.3	ug/l	100		85 35-160			
Benzo(a)pyrene	80.7	10	3.5	ug/l	100		81 55-125			
Benzyl alcohol	73.4	20	2.5	ug/l	100		73 40-130			
Bis(2-chloroethoxy)methane	73.3	10	3.9	ug/l	100		73 55-120			
Bis(2-chloroethyl)ether	63.5	10	4.4	ug/l	100		64 50-120			
Bis(2-chloroisopropyl)ether	69.9	10	4.6	ug/l	100		70 50-120			
Bis(2-ethylhexyl)phthalate	77.3	50	5.2	ug/l	100		77 65-125			
4-Bromophenyl phenyl ether	70.8	10	4.6	ug/l	100		71 55-125			
Butyl benzyl phthalate	75.0	20	3.5	ug/l	100		75 60-125			
4-Chloroaniline	79.0	10	6.0	ug/l	100		79 55-120			
2-Chloronaphthalene	75.9	10	4.0	ug/l	100		76 60-120			
4-Chloro-3-methylphenol	73.5	20	3.5	ug/l	100		74 60-120			
2-Chlorophenol	69.8	10	4.2	ug/l	100		70 45-120			
4-Chlorophenyl phenyl ether	77.3	10	3.0	ug/l	100		77 55-120			
Chrysene	81.9	10	2.8	ug/l	100		82 65-120			
Dibenz(a,h)anthracene	85.7	20	4.7	ug/l	100		86 40-160			
Dibenzofuran	77.5	10	2.6	ug/l	100		78 60-120			
Di-n-butyl phthalate	71.9	20	2.8	ug/l	100		72 65-125			
1,3-Dichlorobenzene	66.5	10	4.1	ug/l	100		66 40-120			
1,4-Dichlorobenzene	62.7	10	3.9	ug/l	100		63 40-120			

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## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>											
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>											<b>M-NRI</b>
1,2-Dichlorobenzene	63.6	10	4.5	ug/l	100		64	40-120			
3,3-Dichlorobenzidine	90.6	20	11	ug/l	100		91	50-170			
2,4-Dichlorophenol	70.8	10	4.1	ug/l	100		71	55-120			
Diethyl phthalate	71.0	10	3.1	ug/l	100		71	60-120			
2,4-Dimethylphenol	59.6	20	4.4	ug/l	100		60	35-120			
Dimethyl phthalate	69.3	10	3.6	ug/l	100		69	60-120			
4,6-Dinitro-2-methylphenol	78.6	20	5.1	ug/l	100		79	55-120			
2,4-Dinitrophenol	86.2	20	5.3	ug/l	100		86	40-140			
2,4-Dinitrotoluene	81.5	10	4.2	ug/l	100		82	60-140			
2,6-Dinitrotoluene	74.3	10	3.2	ug/l	100		74	65-125			
Di-n-octyl phthalate	81.2	20	4.7	ug/l	100		81	60-130			
Fluoranthene	81.4	10	4.2	ug/l	100		81	55-125			
Fluorene	80.2	10	3.9	ug/l	100		80	60-120			
Hexachlorobenzene	73.6	10	4.8	ug/l	100		74	50-120			
Hexachlorobutadiene	61.7	10	4.2	ug/l	100		62	45-120			
Hexachlorocyclopentadiene	54.7	20	3.4	ug/l	100		55	10-130			
Hexachloroethane	60.9	10	4.2	ug/l	100		61	40-120			
Indeno(1,2,3-cd)pyrene	81.9	20	5.4	ug/l	100		82	35-150			
Isophorone	65.8	10	3.7	ug/l	100		66	55-120			
2-Methylnaphthalene	84.8	10	3.0	ug/l	100		85	50-120			
2-Methylphenol	70.0	10	3.7	ug/l	100		70	45-120			
4-Methylphenol	70.1	10	3.8	ug/l	100		70	45-120			
Naphthalene	76.9	10	4.5	ug/l	100		77	50-120			
2-Nitroaniline	78.9	20	3.9	ug/l	100		79	60-130			
3-Nitroaniline	91.3	20	4.5	ug/l	100		91	50-140			
4-Nitroaniline	96.0	20	4.9	ug/l	100		96	45-160			
Nitrobenzene	65.6	20	4.2	ug/l	100		66	50-120			
2-Nitrophenol	80.9	10	4.2	ug/l	100		81	55-120			
4-Nitrophenol	67.9	20	6.6	ug/l	100		68	50-135			
N-Nitrosodiphenylamine	71.9	10	4.0	ug/l	100		72	60-120			
N-Nitroso-di-n-propylamine	65.9	10	3.6	ug/l	100		66	50-120			
Pentachlorophenol	80.8	20	4.0	ug/l	100		81	50-125			
Phenanthrene	81.8	10	3.3	ug/l	100		82	55-120			
Phenol	66.0	10	4.0	ug/l	100		66	45-120			
Pyrene	80.9	10	3.9	ug/l	100		81	50-120			

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### 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
<b>Batch: 5A13037 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/17/2005 (5A13037-BS1)</b>										
1,2,4-Trichlorobenzene	65.3	10	4.4	ug/l	100	65	50-120			M-NR1
2,4,5-Trichlorophenol	78.9	20	3.6	ug/l	100	79	60-120			
2,4,6-Trichlorophenol	77.9	20	4.1	ug/l	100	78	60-120			
1,2-Diphenylhydrazine/Azobenzene	79.5	20	5.0	ug/l	100	80	60-120			
N-Nitrosodimethylamine	66.8	20	3.7	ug/l	100	67	40-120			
Surrogate: 2-Fluorophenol	125			ug/l	200	62	35-120			
Surrogate: Phenol-d6	129			ug/l	200	64	45-120			
Surrogate: 2,4,6-Tribromophenol	160			ug/l	200	80	50-125			
Surrogate: Nitrobenzene-d5	66.3			ug/l	100	66	45-120			
Surrogate: 2-Fluorobiphenyl	73.6			ug/l	100	74	45-120			
Surrogate: Terphenyl-d14	73.4			ug/l	100	73	45-135			
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>										
Acenaphthene	73.9	10	4.3	ug/l	100	74	55-120	2	20	
Acenaphthylene	74.7	10	3.2	ug/l	100	75	55-120	2	20	
Aniline	68.6	10	2.9	ug/l	100	69	30-120	0	25	
Anthracene	77.5	10	3.2	ug/l	100	78	60-120	4	20	
Benzidine	143	20	5.2	ug/l	100	143	20-180	78	35	R-7
Benzoic acid	78.1	20	2.6	ug/l	100	78	30-125	4	30	
Benzo(a)anthracene	80.6	10	3.7	ug/l	100	81	65-120	1	20	
Benzo(b)fluoranthene	77.5	10	2.7	ug/l	100	78	50-125	5	25	
Benzo(k)fluoranthene	77.5	10	3.4	ug/l	100	78	50-125	0	20	
Benzo(g,h,i)perylene	81.4	10	5.3	ug/l	100	81	35-160	4	25	
Benzo(a)pyrene	80.7	10	3.5	ug/l	100	81	55-125	0	25	
Benzyl alcohol	72.7	20	2.5	ug/l	100	73	40-130	1	20	
Bis(2-chloroethoxy)methane	71.8	10	3.9	ug/l	100	72	55-120	2	20	
Bis(2-chloroethyl)ether	61.1	10	4.4	ug/l	100	61	50-120	4	20	
Bis(2-chloroisopropyl)ether	68.9	10	4.6	ug/l	100	69	50-120	1	20	
Bis(2-ethylhexyl)phthalate	78.8	50	5.2	ug/l	100	79	65-125	2	20	
4-Bromophenyl phenyl ether	70.6	10	4.6	ug/l	100	71	55-125	0	25	
Butyl benzyl phthalate	75.3	20	3.5	ug/l	100	75	60-125	0	20	
4-Chloroaniline	77.6	10	6.0	ug/l	100	78	55-120	2	25	
2-Chloronaphthalene	74.3	10	4.0	ug/l	100	74	60-120	2	20	
4-Chloro-3-methylphenol	71.1	20	3.5	ug/l	100	71	60-120	3	25	
2-Chlorophenol	68.2	10	4.2	ug/l	100	68	45-120	2	25	
4-Chlorophenyl phenyl ether	73.3	10	3.0	ug/l	100	73	55-120	5	20	

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Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>											
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>											
Chrysene	80.8	10	2.8	ug/l	100	81	65-120	1	20		
Dibenz(a,h)anthracene	82.0	20	4.7	ug/l	100	82	40-160	4	25		
Dibenzofuran	74.7	10	2.6	ug/l	100	75	60-120	4	20		
Di-n-butyl phthalate	70.9	20	2.8	ug/l	100	71	65-125	1	20		
1,3-Dichlorobenzene	59.6	10	4.1	ug/l	100	60	40-120	11	25		
1,4-Dichlorobenzene	63.5	10	3.9	ug/l	100	64	40-120	1	25		
1,2-Dichlorobenzene	61.5	10	4.5	ug/l	100	62	40-120	3	25		
3,3-Dichlorobenzidine	87.9	20	11	ug/l	100	88	50-170	3	25		
2,4-Dichlorophenol	70.2	10	4.1	ug/l	100	70	55-120	1	20		
Diethyl phthalate	67.9	10	3.1	ug/l	100	68	60-120	4	20		
2,4-Dimethylphenol	62.1	20	4.4	ug/l	100	62	35-120	4	25		
Dimethyl phthalate	69.0	10	3.6	ug/l	100	69	60-120	0	20		
4,6-Dinitro-2-methylphenol	73.8	20	5.1	ug/l	100	74	55-120	6	25		
2,4-Dinitrophenol	77.6	20	5.3	ug/l	100	78	40-140	11	25		
2,4-Dinitrotoluene	77.6	10	4.2	ug/l	100	78	60-140	5	20		
2,6-Dinitrotoluene	72.9	10	3.2	ug/l	100	73	65-125	2	20		
Di-n-octyl phthalate	81.0	20	4.7	ug/l	100	81	60-130	0	20		
Fluoranthene	77.9	10	4.2	ug/l	100	78	55-125	4	20		
Fluorene	77.6	10	3.9	ug/l	100	78	60-120	3	20		
Hexachlorobenzene	71.6	10	4.8	ug/l	100	72	50-120	3	20		
Hexachlorobutadiene	60.3	10	4.2	ug/l	100	60	45-120	2	25		
Hexachlorocyclopentadiene	50.9	20	3.4	ug/l	100	51	10-130	7	30		
Hexachloroethane	56.9	10	4.2	ug/l	100	57	40-120	7	25		
Indeno(1,2,3-cd)pyrene	79.2	20	5.4	ug/l	100	79	35-150	3	25		
Isophorone	65.6	10	3.7	ug/l	100	66	55-120	0	20		
2-Methylnaphthalene	72.7	10	3.0	ug/l	100	73	50-120	15	20		
2-Methylphenol	67.3	10	3.7	ug/l	100	67	45-120	4	20		
4-Methylphenol	70.2	10	3.8	ug/l	100	70	45-120	0	20		
Naphthalene	73.6	10	4.5	ug/l	100	74	50-120	4	20		
2-Nitroaniline	76.6	20	3.9	ug/l	100	77	60-130	3	20		
3-Nitroaniline	85.4	20	4.5	ug/l	100	85	50-140	7	25		
4-Nitroaniline	88.5	20	4.9	ug/l	100	88	45-160	8	20		
Nitrobenzene	63.6	20	4.2	ug/l	100	64	50-120	3	25		
2-Nitrophenol	79.0	10	4.2	ug/l	100	79	55-120	2	25		
4-Nitrophenol	63.6	20	6.6	ug/l	100	64	50-135	7	25		

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

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13037 Extracted: 01/13/05</b>											
<b>LCS Dup Analyzed: 01/17/2005 (5A13037-BSD1)</b>											
N-Nitrosodiphenylamine	69.9	10	4.0	ug/l	100	70	60-120	3	20		
N-Nitroso-di-n-propylamine	63.2	10	3.6	ug/l	100	63	50-120	4	20		
Pentachlorophenol	75.5	20	4.0	ug/l	100	76	50-125	7	25		
Phenanthrene	79.5	10	3.3	ug/l	100	80	55-120	3	20		
Phenol	65.0	10	4.0	ug/l	100	65	45-120	2	25		
Pyrene	81.3	10	3.9	ug/l	100	81	50-120	1	25		
1,2,4-Trichlorobenzene	63.8	10	4.4	ug/l	100	64	50-120	2	20		
2,4,5-Trichlorophenol	76.4	20	3.6	ug/l	100	76	60-120	3	20		
2,4,6-Trichlorophenol	76.4	20	4.1	ug/l	100	76	60-120	2	20		
1,2-Diphenylhydrazine/Azobenzene	75.1	20	5.0	ug/l	100	75	60-120	6	25		
N-Nitrosodimethylamine	63.2	20	3.7	ug/l	100	63	40-120	6	20		
Surrogate: 2-Fluorophenol	122			ug/l	200	61	35-120				
Surrogate: Phenol-d6	126			ug/l	200	63	45-120				
Surrogate: 2,4,6-Tribromophenol	154			ug/l	200	77	50-125				
Surrogate: Nitrobenzene-d5	64.7			ug/l	100	65	45-120				
Surrogate: 2-Fluorobiphenyl	70.9			ug/l	100	71	45-120				
Surrogate: Terphenyl-d14	73.4			ug/l	100	73	45-135				

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

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	Data Limit	Qualifiers
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13049-BLK1)</b>										
Aldrin	ND	0.10	0.029	ug/l						
alpha-BHC	ND	0.10	0.010	ug/l						
beta-BHC	ND	0.10	0.011	ug/l						
delta-BHC	ND	0.20	0.010	ug/l						
gamma-BHC (Lindane)	ND	0.10	0.0097	ug/l						
Chlordane	ND	1.0	0.18	ug/l						
4,4'-DDD	ND	0.10	0.011	ug/l						
4,4'-DDE	ND	0.10	0.017	ug/l						
4,4'-DDT	ND	0.10	0.015	ug/l						
Dieldrin	ND	0.10	0.010	ug/l						
Endosulfan I	ND	0.10	0.015	ug/l						
Endosulfan II	ND	0.10	0.037	ug/l						
Endosulfan sulfate	ND	0.20	0.013	ug/l						
Endrin	ND	0.10	0.0082	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	0.012	ug/l						
Methoxychlor	ND	0.10	0.034	ug/l						
Toxaphene	ND	5.0	0.77	ug/l						
Surrogate: Tetrachloro-m-xylene	0.348			ug/l	0.500		70	35-120		
Surrogate: Decachlorobiphenyl	0.424			ug/l	0.500		85	45-120		
<b>LCS Analyzed: 01/13/2005 (5A13049-BS1)</b>										
Aldrin	0.517	0.10	0.029	ug/l	0.500		103	45-115		M-NR1
alpha-BHC	0.527	0.10	0.010	ug/l	0.500		105	45-115		
beta-BHC	0.496	0.10	0.011	ug/l	0.500		99	50-115		
delta-BHC	0.564	0.20	0.010	ug/l	0.500		113	55-120		
gamma-BHC (Lindane)	0.525	0.10	0.0097	ug/l	0.500		105	45-115		
4,4'-DDD	0.537	0.10	0.011	ug/l	0.500		107	60-120		
4,4'-DDE	0.534	0.10	0.017	ug/l	0.500		107	55-120		
4,4'-DDT	0.557	0.10	0.015	ug/l	0.500		111	60-130		
Dieldrin	0.540	0.10	0.010	ug/l	0.500		108	55-120		
Endosulfan I	0.512	0.10	0.015	ug/l	0.500		102	50-115		
Endosulfan II	0.525	0.10	0.037	ug/l	0.500		105	60-125		
Endosulfan sulfate	0.528	0.20	0.013	ug/l	0.500		106	60-120		

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

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>LCS Analyzed: 01/13/2005 (5A13049-BS1)</b>										
Endrin	0.578	0.10	0.0082	ug/l	0.500		116 55-125			M-NR1
Endrin aldehyde	0.553	0.10	0.045	ug/l	0.500		111 55-115			
Endrin ketone	0.513	0.10	0.020	ug/l	0.500		103 60-120			
Heptachlor	0.513	0.10	0.030	ug/l	0.500		103 45-115			
Heptachlor epoxide	0.527	0.10	0.012	ug/l	0.500		105 50-120			
Methoxychlor	0.535	0.10	0.034	ug/l	0.500		107 60-135			
Surrogate: Tetrachloro-m-xylene	0.435			ug/l	0.500		87 35-120			
Surrogate: Decachlorobiphenyl	0.527			ug/l	0.500		105 45-120			
<b>LCS Dup Analyzed: 01/13/2005 (5A13049-BSD1)</b>										
Aldrin	0.512	0.10	0.029	ug/l	0.500		102 45-115	1	30	
alpha-BHC	0.534	0.10	0.010	ug/l	0.500		107 45-115	1	30	
beta-BHC	0.487	0.10	0.011	ug/l	0.500		97 50-115	2	30	
delta-BHC	0.547	0.20	0.010	ug/l	0.500		109 55-120	3	30	
gamma-BHC (Lindane)	0.525	0.10	0.0097	ug/l	0.500		105 45-115	0	30	
4,4'-DDD	0.505	0.10	0.011	ug/l	0.500		101 60-120	6	30	
4,4'-DDE	0.510	0.10	0.017	ug/l	0.500		102 55-120	5	30	
4,4'-DDT	0.520	0.10	0.015	ug/l	0.500		104 60-130	7	30	
Dieldrin	0.515	0.10	0.010	ug/l	0.500		103 55-120	5	30	
Endosulfan I	0.493	0.10	0.015	ug/l	0.500		99 50-115	4	30	
Endosulfan II	0.495	0.10	0.037	ug/l	0.500		99 60-125	6	30	
Endosulfan sulfate	0.498	0.20	0.013	ug/l	0.500		100 60-120	6	30	
Endrin	0.550	0.10	0.0082	ug/l	0.500		110 55-125	5	30	
Endrin aldehyde	0.511	0.10	0.045	ug/l	0.500		102 55-115	8	30	
Endrin ketone	0.490	0.10	0.020	ug/l	0.500		98 60-120	5	30	
Heptachlor	0.510	0.10	0.030	ug/l	0.500		102 45-115	1	30	
Heptachlor epoxide	0.510	0.10	0.012	ug/l	0.500		102 50-120	3	30	
Methoxychlor	0.505	0.10	0.034	ug/l	0.500		101 60-135	6	30	
Surrogate: Tetrachloro-m-xylene	0.449			ug/l	0.500		90 35-120			
Surrogate: Decachlorobiphenyl	0.494			ug/l	0.500		99 45-120			

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

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## 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
<b>Batch: 5A13049 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13049-BLK1)</b>										
Aroclor 1016	ND	1.0	0.067	ug/l						
Aroclor 1221	ND	1.0	0.057	ug/l						
Aroclor 1232	ND	1.0	0.13	ug/l						
Aroclor 1242	ND	1.0	0.12	ug/l						
Aroclor 1248	ND	1.0	0.21	ug/l						
Aroclor 1254	ND	1.0	0.16	ug/l						
Aroclor 1260	ND	1.0	0.17	ug/l						
Surrogate: Decachlorobiphenyl	0.387			ug/l	0.500		77 45-120			
<b>LCS Analyzed: 01/13/2005 (5A13049-BS2)</b>										
Aroclor 1016	2.82	1.0	0.067	ug/l	4.00		70 50-115			M-NR1
Aroclor 1260	2.91	1.0	0.17	ug/l	4.00		73 60-115			
Surrogate: Decachlorobiphenyl	0.389			ug/l	0.500		78 45-120			
<b>LCS Dup Analyzed: 01/13/2005 (5A13049-BSD2)</b>										
Aroclor 1016	2.68	1.0	0.067	ug/l	4.00		67 50-115	5	30	
Aroclor 1260	2.88	1.0	0.17	ug/l	4.00		72 60-115	1	25	
Surrogate: Decachlorobiphenyl	0.379			ug/l	0.500		76 45-120			

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Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
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**Batch: 5A14046 Extracted: 01/14/05**

**Blank Analyzed: 01/14/2005-01/16/2005 (5A14046-BLK1)**

Antimony	ND	0.010	0.0042	mg/l							
Arsenic	ND	0.0050	0.0038	mg/l							
Barium	ND	0.010	0.0028	mg/l							
Beryllium	ND	0.0020	0.00062	mg/l							
Boron	ND	0.050	0.0074	mg/l							
Cadmium	ND	0.0050	0.00034	mg/l							
Chromium	ND	0.0050	0.00068	mg/l							
Copper	ND	0.010	0.0017	mg/l							
Lead	ND	0.0050	0.0021	mg/l							
Nickel	ND	0.010	0.0020	mg/l							
Selenium	ND	0.0050	0.0046	mg/l							
Silver	ND	0.010	0.0013	mg/l							
Thallium	0.00330	0.0050	0.0031	mg/l							J
Zinc	ND	0.020	0.0037	mg/l							

**LCS Analyzed: 01/14/2005-01/16/2005 (5A14046-BS1)**

Antimony	0.512	0.010	0.0042	mg/l	0.500		102	85-115			
Arsenic	0.490	0.0050	0.0038	mg/l	0.500		98	85-115			
Barium	0.489	0.010	0.0028	mg/l	0.500		98	85-115			
Beryllium	0.484	0.0020	0.00062	mg/l	0.500		97	85-115			
Boron	0.469	0.050	0.0074	mg/l	0.500		94	85-115			
Cadmium	0.482	0.0050	0.00034	mg/l	0.500		96	85-115			
Chromium	0.492	0.0050	0.00068	mg/l	0.500		98	85-115			
Copper	0.475	0.010	0.0017	mg/l	0.500		95	85-115			
Lead	0.490	0.0050	0.0021	mg/l	0.500		98	85-115			
Nickel	0.482	0.010	0.0020	mg/l	0.500		96	85-115			
Selenium	0.476	0.0050	0.0046	mg/l	0.500		95	85-115			
Silver	0.247	0.010	0.0013	mg/l	0.250		99	85-115			
Thallium	0.497	0.0050	0.0031	mg/l	0.500		99	85-115			
Zinc	0.473	0.020	0.0037	mg/l	0.500		95	85-115			

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Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
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Batch: 5A14046 Extracted: 01/14/05

Matrix Spike Analyzed: 01/14/2005-01/16/2005 (5A14046-MS1)

Source: IOA0701-01

Antimony	0.536	0.010	0.0042	mg/l	0.500	ND	107	70-130			
Arsenic	0.508	0.0050	0.0038	mg/l	0.500	ND	102	70-130			
Barium	0.521	0.010	0.0028	mg/l	0.500	0.022	100	70-130			
Beryllium	0.502	0.0020	0.00062	mg/l	0.500	ND	100	70-130			
Boron	0.675	0.050	0.0074	mg/l	0.500	0.18	99	70-130			
Cadmium	0.494	0.0050	0.00034	mg/l	0.500	0.00070	99	70-130			
Chromium	0.508	0.0050	0.00068	mg/l	0.500	0.0024	101	70-130			
Copper	0.509	0.010	0.0017	mg/l	0.500	0.0028	101	70-130			
Lead	0.507	0.0050	0.0021	mg/l	0.500	0.0024	101	70-130			
Nickel	0.498	0.010	0.0020	mg/l	0.500	0.0024	99	70-130			
Selenium	0.486	0.0050	0.0046	mg/l	0.500	ND	97	70-130			
Silver	0.252	0.010	0.0013	mg/l	0.250	ND	101	70-130			
Thallium	0.515	0.0050	0.0031	mg/l	0.500	ND	103	70-130			
Zinc	0.795	0.020	0.0037	mg/l	0.500	0.31	97	70-130			

Matrix Spike Dup Analyzed: 01/14/2005-01/16/2005 (5A14046-MSD1)

Source: IOA0701-01

Antimony	0.540	0.010	0.0042	mg/l	0.500	ND	108	70-130	1	20	
Arsenic	0.511	0.0050	0.0038	mg/l	0.500	ND	102	70-130	1	20	
Barium	0.522	0.010	0.0028	mg/l	0.500	0.022	100	70-130	0	20	
Beryllium	0.506	0.0020	0.00062	mg/l	0.500	ND	101	70-130	1	20	
Boron	0.682	0.050	0.0074	mg/l	0.500	0.18	100	70-130	1	20	
Cadmium	0.500	0.0050	0.00034	mg/l	0.500	0.00070	100	70-130	1	20	
Chromium	0.509	0.0050	0.00068	mg/l	0.500	0.0024	101	70-130	0	20	
Copper	0.515	0.010	0.0017	mg/l	0.500	0.0028	102	70-130	1	20	
Lead	0.510	0.0050	0.0021	mg/l	0.500	0.0024	102	70-130	1	20	
Nickel	0.503	0.010	0.0020	mg/l	0.500	0.0024	100	70-130	1	20	
Selenium	0.494	0.0050	0.0046	mg/l	0.500	ND	99	70-130	2	20	
Silver	0.254	0.010	0.0013	mg/l	0.250	ND	102	70-130	1	20	
Thallium	0.509	0.0050	0.0031	mg/l	0.500	ND	102	70-130	1	20	
Zinc	0.806	0.020	0.0037	mg/l	0.500	0.31	99	70-130	1	20	

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 Wendy Kirkeeng For Michele Harper  
 Project Manager

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IOA0576 <Page 20 of 28>



# 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 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A14053 Extracted: 01/14/05</b>											
<b>Blank Analyzed: 01/14/2005 (5A14053-BLK1)</b>											
Mercury	ND	0.00020	0.000063	mg/l							
<b>LCS Analyzed: 01/14/2005 (5A14053-BS1)</b>											
Mercury	0.00785	0.00020	0.000063	mg/l	0.00800		98	85-115			
<b>Matrix Spike Analyzed: 01/14/2005 (5A14053-MS1)</b>											
						<b>Source: IOA0701-01</b>					
Mercury	0.00838	0.00020	0.000063	mg/l	0.00800	ND	105	70-130			
<b>Matrix Spike Dup Analyzed: 01/14/2005 (5A14053-MSD1)</b>											
						<b>Source: IOA0701-01</b>					
Mercury	0.00823	0.00020	0.000063	mg/l	0.00800	ND	103	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: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12036 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12036-BLK1)</b>											
Chloride	ND	0.50	0.26	mg/l							
Fluoride	ND	0.50	0.074	mg/l							
Nitrate-N	ND	0.11	0.072	mg/l							
Nitrite-N	ND	0.15	0.058	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
<b>LCS Analyzed: 01/12/2005 (5A12036-BS1)</b>											
Chloride	4.84	0.50	0.26	mg/l	5.00		97	90-110			
Fluoride	4.63	0.50	0.074	mg/l	5.00		93	90-110			
Nitrate-N	1.15	0.11	0.072	mg/l	1.13		102	90-110			M-3
Nitrite-N	1.42	0.15	0.058	mg/l	1.52		93	90-110			
Sulfate	10.1	0.50	0.18	mg/l	10.0		101	90-110			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12036-MS1)</b>											
						<b>Source: IOA0527-01</b>					
Chloride	15.0	2.5	1.3	mg/l	5.00	11	80	80-120			
Fluoride	5.63	2.5	0.37	mg/l	5.00	1.1	91	80-120			
Nitrite-N	1.78	0.75	0.29	mg/l	1.52	ND	117	80-120			
Sulfate	164	2.5	0.90	mg/l	10.0	150	140	80-120			M-HA
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12036-MSD1)</b>											
						<b>Source: IOA0527-01</b>					
Chloride	15.1	2.5	1.3	mg/l	5.00	11	82	80-120	1	20	
Fluoride	5.50	2.5	0.37	mg/l	5.00	1.1	88	80-120	2	20	
Nitrite-N	1.70	0.75	0.29	mg/l	1.52	ND	112	80-120	5	20	
Sulfate	164	2.5	0.90	mg/l	10.0	150	140	80-120	0	20	M-HA
<b>Batch: 5A12045 Extracted: 01/12/05</b>											
<b>Duplicate Analyzed: 01/12/2005 (5A12045-DUPI)</b>											
						<b>Source: IOA0549-01</b>					
Residual Chlorine	ND	0.10	0.10	mg/l		ND				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: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13052 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/18/2005 (5A13052-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
<b>LCS Analyzed: 01/18/2005 (5A13052-BS1)</b>											
Biochemical Oxygen Demand	217	100	30	mg/l	198		110	85-115			
<b>LCS Dup Analyzed: 01/18/2005 (5A13052-BSD1)</b>											
Biochemical Oxygen Demand	214	100	30	mg/l	198		108	85-115	1	20	
<b>Batch: 5A13063 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13063-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 01/13/2005 (5A13063-BS1)</b>											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0		98	80-115			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13063-MS1)</b>											
Ammonia-N (Distilled)	11.5	0.50	0.30	mg/l	10.0	0.56	109	70-120			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13063-MSD1)</b>											
Ammonia-N (Distilled)	11.2	0.50	0.30	mg/l	10.0	0.56	106	70-120	3	15	
<b>Batch: 5A13082 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13082-BLK1)</b>											
Turbidity	ND	1.0	0.040	NTU							

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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: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13082 Extracted: 01/13/05</b>										
<b>Duplicate Analyzed: 01/13/2005 (5A13082-DUP1)</b>										
<b>Source: IOA0617-01</b>										
Turbidity	2.70	1.0	0.040	NTU		2.6		4	20	
<b>Batch: 5A13089 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13089-BLK1)</b>										
Total Dissolved Solids	ND	10	10	mg/l						
<b>LCS Analyzed: 01/13/2005 (5A13089-BS1)</b>										
Total Dissolved Solids	994	10	10	mg/l	1000		99 90-110			
<b>Duplicate Analyzed: 01/13/2005 (5A13089-DUP1)</b>										
<b>Source: IOA0549-01</b>										
Total Dissolved Solids	92.0	10	10	mg/l		88		4	10	
<b>Batch: 5A13092 Extracted: 01/13/05</b>										
<b>Blank Analyzed: 01/13/2005 (5A13092-BLK1)</b>										
Total Cyanide	ND	0.025	0.017	mg/l						
<b>LCS Analyzed: 01/13/2005 (5A13092-BS1)</b>										
Total Cyanide	0.197	0.025	0.017	mg/l	0.200		98 90-110			M-NR1
<b>LCS Dup Analyzed: 01/13/2005 (5A13092-BSD1)</b>										
Total Cyanide	0.188	0.025	0.017	mg/l	0.200		94 90-110	5	10	
<b>Batch: 5A17060 Extracted: 01/17/05</b>										
<b>Blank Analyzed: 01/17/2005 (5A17060-BLK1)</b>										
Total Suspended Solids	ND	10	10	mg/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: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A17060 Extracted: 01/17/05</b>											
<b>LCS Analyzed: 01/17/2005 (5A17060-BS1)</b>											
Total Suspended Solids	971	10	10	mg/l	1000		97	85-115			
<b>Duplicate Analyzed: 01/17/2005 (5A17060-DUP1)</b>											
Total Suspended Solids	ND	10	10	mg/l		ND				10	

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

Project ID: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05

Received: 01/11/05

## 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
IOA0576-01	Chlorine, Residual	Residual Chlorine	mg/l	<b>1.00</b>	<b>0.10</b>	<b>0.100</b>
IOA0576-02	Barium-200.7	Barium	mg/l	0.021	0.010	1.00
IOA0576-02	BOD	Biochemical Oxygen Demand	mg/l	14	2.0	30
IOA0576-02	Chloride - 300.0	Chloride	mg/l	140	5.0	150
IOA0576-02	Fluoride-300.0	Fluoride	mg/l	0.33	0.50	1.60
IOA0576-02	Nitrite-N, 300.0	Nitrite-N	mg/l	0	0.15	1.00
IOA0576-02	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	1.60	0.26	8.00
IOA0576-02	Sulfate-300.0	Sulfate	mg/l	38	0.50	300
IOA0576-02	TDS - SM 2540C	Total Dissolved Solids	mg/l	440	10	950
IOA0576-02	TSS - EPA 160.2	Total Suspended Solids	mg/l	4.00	10	30

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: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
Received: 01/11/05

## DATA QUALIFIERS AND DEFINITIONS

- C** Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of 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-HA** Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. 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-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

## ADDITIONAL COMMENTS

### For 1,2-Diphenylhydrazine:

The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product, Azobenzene.

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: Outfall 017

Report Number: IOA0576

Sampled: 01/11/05-01/12/05  
 Received: 01/11/05

## Certification Summary

### Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 160.2	Water	X	X
EPA 180.1	Water	X	X
EPA 200.7	Water	X	X
EPA 245.1	Water	X	X
EPA 300.0	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 608	Water	X	X
EPA 625	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](http://www.dmalabs.com).*

### Subcontracted Laboratories

#### Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chronic

Samples: IOA0576-02

Analysis Performed: Bioassay-Acute 96hr

Samples: IOA0576-02

#### Pace Analytical, MN- SUB

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR

Samples: IOA0576-02

Analysis Performed: EDD + Level 4

Samples: IOA0576-02

#### Truesdail Laboratories-SUB California Cert #1237

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Fecal Coliform

Samples: IOA0576-01

Analysis Performed: Total Coliform

Samples: IOA0576-01

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

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**10A0576**

**Client Name/Address:**  
 MWH-Pasadena  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
**Project Manager:** Bronwyn Kelly  
**Sampler:**

**Project:**  
 Boeing-SSFL NPDES  
 Outfall 017 Effluent - Daily/  
 Composite  
 STP III  
**Phone Number:**  
 (626) 568-6691  
**Fax Number:**  
 (626) 568-6515

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Turbidity	Residual Chlorine	Total & Fecal Coliform	Suspended Solids PDD to C	Ammonia-N	Nitrate-N	Nitrite-N	Fluoride	Boron	Cadmium	Copper	Lead	Mercury	Vanadium	Chromium	TOC	TOX	Other	Field readings:	Comments
Outfall 017-Grab	W	500ml Poly	1	1/11/05 1505	None	X																		Temp = NA pH = NA	
Outfall 017-Grab	W	VOAS	2		None		X																		
Outfall 017-Grab	W	Glass	2		None			X																	
Outfall 017	W	1 gal Poly	2		None				X																TOOK TO TRACES DALE 24 hour composite

**ANALYSIS REQUIRED**

**Requested By:** *Bronwyn Kelly* **Date/Time:** 1/11/05 1525  
**Received By:** *[Signature]* **Date/Time:** 1-11-05 1525  
**Relinquished By:** *[Signature]* **Date/Time:** 1-11-05 1850  
**Received By:** *[Signature]* **Date/Time:** 1-11-05 1850  
**Relinquished By:** *[Signature]* **Date/Time:** 1-11-05 1850

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

Temperature: 20°C

March 10, 2005

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

Attention: Bronwyn Kelly

Project: Routine Outfall 017  
Sampled: 01/11/05(Grab), 01/11/05- 01/12/05 (Comp)  
Del Mar Analytical Number: IOA0576

Dear Ms. Kelly:

Pace Analytical performed Method 1613B, Truesdail Laboratories performed Multiple Tube Fermentation Test for Coliform Group Bacteria APHA Standard Methods for the Examination of Water and Wastewater, 18<sup>th</sup> ED., 1992 Method 9221B, 9221 E and Aquatic Testing Laboratories performed the *Ceriodaphnia dubia* Survival and Reproduction Test (EPA Method 1002) analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Pace ID	ATL ID	Truesdail ID
Outfall 017- Grab Effluent	IOA0576-01	N/A	N/A	938561
Outfall 017- Comp Effluent	IOA0576-02	106236001	A-05011311-001	N/A

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 at (949) 261-1022, extension 215.

Sincerely yours,  
DEL MAR ANALYTICAL



Michele Harper  
Project Manager



**Method 1613B Analysis Results**

Client - Del Mar Analytical

Client's Sample ID	IOA0576-02		
Lab Sample ID	106236001		
Filename	F50130A_07		
Injected By	BAL		
Total Amount Extracted	973 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	01/12/2005
ICAL Date	11/29/2004	Received	01/14/2005
CCal Filename(s)	F50129B_18	Extracted	01/28/2005
Method Blank ID	BLANK-6220	Analyzed	01/30/2005 15:39

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.69	2,3,7,8-TCDF-13C	2.00	66
Total TCDF	ND	----	0.69	2,3,7,8-TCDD-13C	2.00	82
				1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	ND	----	0.80	2,3,4,7,8-PeCDF-13C	2.00	75
Total TCDD	ND	----	0.80	1,2,3,7,8-PeCDD-13C	2.00	91
				1,2,3,4,7,8-HxCDF-13C	2.00	76
1,2,3,7,8-PeCDF	ND	----	1.00	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	0.91	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	1.70	----	0.96 J	1,2,3,7,8,9-HxCDF-13C	2.00	76
				1,2,3,4,7,8-HxCDD-13C	2.00	70
1,2,3,7,8-PeCDD	ND	----	0.76	1,2,3,6,7,8-HxCDD-13C	2.00	85
Total PeCDD	ND	----	0.76	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
				1,2,3,4,7,8,9-HpCDF-13C	2.00	64
1,2,3,4,7,8-HxCDF	0.92	----	0.62 J	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	ND	----	0.69	OCDD-13C	4.00	72
2,3,4,6,7,8-HxCDF	ND	----	0.54			
1,2,3,7,8,9-HxCDF	ND	----	0.76	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	3.90	----	0.65 J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.20	----	0.75 J	2,3,7,8-TCDD-37Cl4	0.20	84
1,2,3,6,7,8-HxCDD	1.80	----	0.60 J			
1,2,3,7,8,9-HxCDD	----	1.7	0.73 I			
Total HxCDD	8.80	----	0.69 J			
1,2,3,4,6,7,8-HpCDF	6.30	----	1.10 J			
1,2,3,4,7,8,9-HpCDF	ND	----	1.20			
Total HpCDF	8.40	----	1.10 BJ			
1,2,3,4,6,7,8-HpCDD	28.00	----	1.50 J			
Total HpCDD	58.00	----	1.50 J			
OCDF	16.00	----	1.50 BJ			
OCDD	250.00	----	2.30			

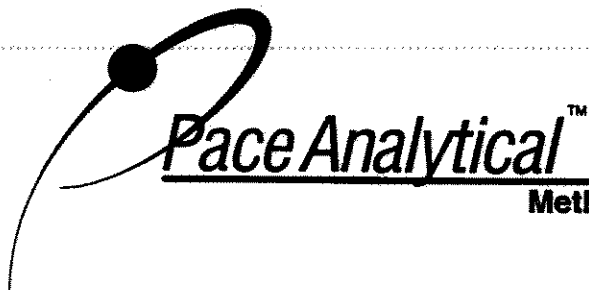
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106236

**REPORT OF LABORATORY ANALYSIS**

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### Method 1613B Blank Analysis Results

Client - Del Mar Analytical

Lab Sample ID	BLANK-6220	Matrix	Water
Filename	F50129B_06	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 23:49
CCal Filename(s)	F50129B_02	Injected By	BAL

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.20	2,3,7,8-TCDF-13C	2.00	58
Total TCDF	ND	----	----	2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	ND	----	1.20	2,3,4,7,8-PeCDF-13C	2.00	67
Total TCDD	ND	----	----	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	----	1.50	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	1.20	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	----	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	----	1.60	1,2,3,6,7,8-HxCDD-13C	2.00	88
Total PeCDD	ND	----	----	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
				1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	ND	----	0.75	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	ND	----	0.86	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	ND	----	1.10			
1,2,3,7,8,9-HxCDF	ND	----	1.20	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	----	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.10	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	ND	----	0.99			
1,2,3,7,8,9-HxCDD	ND	----	1.00			
Total HxCDD	ND	----	----			
1,2,3,4,6,7,8-HpCDF	ND	----	2.10			
1,2,3,4,7,8,9-HpCDF	ND	----	1.90			
Total HpCDF	2.2	----	---- J			
1,2,3,4,6,7,8-HpCDD	2.4	----	1.40 J			
Total HpCDD	2.4	----	---- J			
OCDF	5.2	----	1.80 J			
OCDD	5.6	----	2.90 J			

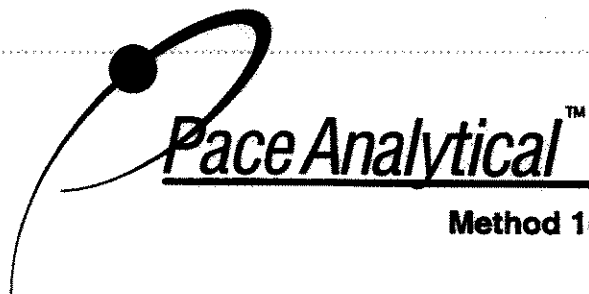
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 A = Limit of Detection based on signal to noise  
 P = Recovery outside of method 1613 control limits  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCS-6221	Matrix	Water
Filename	F50129B_03	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 21:22
CCal Filename	F50129B_02	Injected By	BAL
Method Blank ID	BLANK-6220		

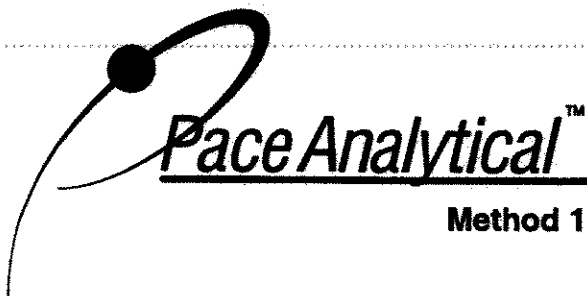
Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.9	7.5	15.8	99
2,3,7,8-TCDD	10	8.6	6.7	15.8	86
1,2,3,7,8-PeCDF	50	50.5	40.0	67.0	101
2,3,4,7,8-PeCDF	50	48.2	34.0	80.0	96
1,2,3,7,8-PeCDD	50	43.3	35.0	71.0	87
1,2,3,4,7,8-HxCDF	50	45.6	36.0	67.0	91
1,2,3,6,7,8-HxCDF	50	48.7	42.0	65.0	97
2,3,4,6,7,8-HxCDF	50	49.1	35.0	78.0	98
1,2,3,7,8,9-HxCDF	50	46.5	39.0	65.0	93
1,2,3,4,7,8-HxCDD	50	49.9	35.0	82.0	100
1,2,3,6,7,8-HxCDD	50	51.3	38.0	67.0	103
1,2,3,7,8,9-HxCDD	50	50.1	32.0	81.0	100
1,2,3,4,6,7,8-HpCDF	50	50.3	41.0	61.0	101
1,2,3,4,7,8,9-HpCDF	50	53.3	39.0	69.0	107
1,2,3,4,6,7,8-HpCDD	50	45.4	35.0	70.0	91
OCDF	100	95.6	63.0	170.0	96
OCDD	100	97.1	78.0	144.0	97
2,3,7,8-TCDD-37Cl4	10	6.9	3.1	19.1	69
2,3,7,8-TCDF-13C	100	51.5	22.0	152.0	52
2,3,7,8-TCDD-13C	100	67.8	20.0	175.0	68
1,2,3,7,8-PeCDF-13C	100	61.4	21.0	192.0	61
2,3,4,7,8-PeCDF-13C	100	65.9	13.0	328.0	66
1,2,3,7,8-PeCDD-13C	100	77.8	21.0	227.0	78
1,2,3,4,7,8-HxCDF-13C	100	70.2	19.0	202.0	70
1,2,3,6,7,8-HxCDF-13C	100	78.0	21.0	159.0	78
2,3,4,6,7,8-HxCDF-13C	100	74.1	22.0	176.0	74
1,2,3,7,8,9-HxCDF-13C	100	70.4	17.0	205.0	70
1,2,3,4,7,8-HxCDD-13C	100	69.0	21.0	193.0	69
1,2,3,6,7,8-HxCDD-13C	100	82.8	25.0	163.0	83
1,2,3,4,6,7,8-HpCDF-13C	100	72.1	21.0	158.0	72
1,2,3,4,7,8,9-HpCDF-13C	100	62.4	20.0	186.0	62
1,2,3,4,6,7,8-HpCDD-13C	100	80.1	26.0	166.0	80
OCDD-13C	200	135.6	26.0	397.0	68

Cs = Concentration Spiked (ng/mL)  
 Cr = Concentration Recovered (ng/mL)  
 Rec. = Recovery (Expressed as Percent)  
 Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
 X = Background subtracted value  
 P = Recovery outside of control limits  
 Nn = Value obtained from additional analysis  
 \* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCSD-6222	Matrix	Water
Filename	F50129B_04	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 22:09
CCal Filename	F50129B_02	Injected By	BAL
Method Blank ID	BLANK-6220		

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10.6	7.5	15.8	106
2,3,7,8-TCDD	10	9.4	6.7	15.8	94
1,2,3,7,8-PeCDF	50	53.2	40.0	67.0	106
2,3,4,7,8-PeCDF	50	50.7	34.0	80.0	101
1,2,3,7,8-PeCDD	50	46.0	35.0	71.0	92
1,2,3,4,7,8-HxCDF	50	47.6	36.0	67.0	95
1,2,3,6,7,8-HxCDF	50	50.9	42.0	65.0	102
2,3,4,6,7,8-HxCDF	50	50.9	35.0	78.0	102
1,2,3,7,8,9-HxCDF	50	49.0	39.0	65.0	98
1,2,3,4,7,8-HxCDD	50	52.4	35.0	82.0	105
1,2,3,6,7,8-HxCDD	50	54.2	38.0	67.0	108
1,2,3,7,8,9-HxCDD	50	52.5	32.0	81.0	105
1,2,3,4,6,7,8-HpCDF	50	55.0	41.0	61.0	110
1,2,3,4,7,8,9-HpCDF	50	55.7	39.0	69.0	111
1,2,3,4,6,7,8-HpCDD	50	48.0	35.0	70.0	96
OCDF	100	100.6	63.0	170.0	101
OCDD	100	101.9	78.0	144.0	102
2,3,7,8-TCDD-37Cl4	10	8.7	3.1	19.1	87
2,3,7,8-TCDF-13C	100	70.4	22.0	152.0	70
2,3,7,8-TCDD-13C	100	88.6	20.0	175.0	89
1,2,3,7,8-PeCDF-13C	100	73.6	21.0	192.0	74
2,3,4,7,8-PeCDF-13C	100	79.0	13.0	328.0	79
1,2,3,7,8-PeCDD-13C	100	95.5	21.0	227.0	96
1,2,3,4,7,8-HxCDF-13C	100	84.8	19.0	202.0	85
1,2,3,6,7,8-HxCDF-13C	100	89.5	21.0	159.0	90
2,3,4,6,7,8-HxCDF-13C	100	87.2	22.0	176.0	87
1,2,3,7,8,9-HxCDF-13C	100	82.1	17.0	205.0	82
1,2,3,4,7,8-HxCDD-13C	100	80.1	21.0	193.0	80
1,2,3,6,7,8-HxCDD-13C	100	97.0	25.0	163.0	97
1,2,3,4,6,7,8-HpCDF-13C	100	84.4	21.0	158.0	84
1,2,3,4,7,8,9-HpCDF-13C	100	71.7	20.0	186.0	72
1,2,3,4,6,7,8-HpCDD-13C	100	92.4	26.0	166.0	92
OCDD-13C	200	159.2	26.0	397.0	80

Cs = Concentration Spiked (ng/mL)  
Cr = Concentration Recovered (ng/mL)  
Rec. = Recovery (Expressed as Percent)  
Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
X = Background subtracted value  
P = Recovery outside of control limits  
Nn = Value obtained from additional analysis  
\* = See Discussion

Report No.....106233

## REPORT OF LABORATORY ANALYSIS

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**TABLE 1. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans**

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

\*Excluding the 2,3,7,8-substituted congeners.

Reference: 1989 ITEFs

## REPORT OF LABORATORY ANALYSIS

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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) 505-9586 Fax (619) 505-9689  
 9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851  
 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

**SUBCONTRACT ORDER - PROJECT # IOA0576 106236**

<p><b>SENDING LABORATORY:</b>          Del Mar Analytical, Irvine          17461 Derian Avenue, Suite 100          Irvine, CA 92614          Phone: (949) 261-1022          Fax: (949) 261-1228          Project Manager: Michele Harper</p>	<p><b>RECEIVING LABORATORY:</b>          Pace Analytical, MN- SUB          1700 Elm Street, Ste 200          Minneapolis, MN 55414          Phone : (612) 607-1700          Fax: (612) 607-6444</p>
--	---

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

Analysis	Expiration	Comments
Sample ID: IOA0576-02 Water	Sampled: 01/12/05 13:00	
1613-Dioxin-HR	01/19/05 13:00	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4-OUT	02/09/05 13:00	
<b>Containers Supplied:</b>		
1 L Amber (IOA0576-02B)		

10623600 |

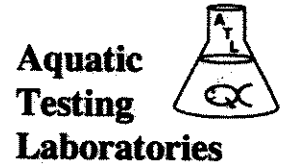
**SAMPLE INTEGRITY:**

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): <u>LU</u>

Released By: [Signature] Date: 1-13-05 Time: 1700 Received By: Ketur Robinson Date: 1/14/05 Time: 11:30

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

# LABORATORY REPORT



"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:** January 20, 2005  
**Client:** Del Mar Analytical, Irvine  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614  
Attn: Michele Harper

**Laboratory No.:** A-05011311-001  
**Sample I.D.:** IOA0576-01

**Sample Control:** The sample was received by ATL chilled, with the chain of custody record attached.

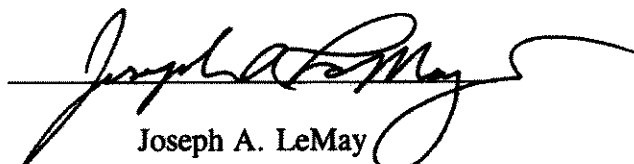
Date Sampled: 01/12/05  
Date Received: 01/13/05  
Date Tested: 01/13/05 to 01/19/05

**Sample Analysis:** The following analyses were performed on your sample:  
*Ceriodaphnia dubia* Survival and Reproduction Test (EPA Method 1002).  
Attached are the test data generated from the analysis of your sample.

## Result Summary:

<b>Chronic:</b>	<b><u>NOEC</u></b>	<b><u>TUc</u></b>
<i>Ceriodaphnia</i> Survival:	12.5%	8.0
<i>Ceriodaphnia</i> Reproduction:	< 6.25%	> 16.0

**Quality Control:** Reviewed and approved by:



Joseph A. LeMay  
Laboratory Director

**CERIODAPHNIA CHRONIC BIOASSAY  
EPA METHOD 1002.0**



Lab No.: A-05011311  
Client/ID: Del Mar IOA0576-01

Date Tested: 01/13/05 to 01/19/05

**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-050104.

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%	22.5
6.25%	90%	11.5 *
12.5%	70%	10.0 *
25%	0% *	3.5 **
50%	0% *	2.4 **
100%	0% *	0.0 **

\* 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	12.5%	<6.25%
TUc	8.0	>16.0

**QA/QC TEST ACCEPTABILITY**

Parameter	Result
Control survival ≥80%	Pass (100% survival)
>15 young per surviving control female	Pass (22.5 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 = 15.0%)
Statistically significantly different concentrations relative difference >13%	Pass (stat. sig. diff. conc. >48.9% difference)
Concentration response relationship acceptable	Pass (significant 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. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

## SUBCONTRACT ORDER - PROJECT # IOA0576

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: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Expiration	Comments
<b>Sample ID: IOA0576-02 Water      Sampled: 01/12/05 13:00</b>		
Bioassay-7 dy Chnric	01/14/05 01:00	Cerio, EPA/821-R02-013, Sub to AqTox Labs
Bioassay-Acute 96hr	01/14/05 01:00	FH minnow, EPA/821-R02-012, Sub to AqTox Labs
<b>Containers Supplied:</b>		
1 gal Poly (IOA0576-02A)		

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
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 On Ice:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received at (temp):	4	

<i>[Signature]</i>	Date	Time	<i>[Signature]</i>	Date	Time
	1/13/05	0700		1/13/05	0700
<i>[Signature]</i>	Date	Time	<i>[Signature]</i>	Date	Time
	1/13/05	12:25		1-13-05	1230

# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

## REPORT

14201 FRANKLIN AVENUE  
TUSTIN, CALIFORNIA 92780-7008  
(714) 730-6239 · FAX (714) 730-6462  
www.truesdail.com

Del Mar Analytical  
Attn: Michele Harper  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614

Report Date: 1/13/05

Date Received: 1/11/05

Laboratory No.: 938561

Sample: One water marked IOA0576-01, 1/11/05, 15:05

Analysis Date: 1/11/05

Time: 1830

Completion Date: 1/13/05

Time: 1600

Investigation: Multiple Tube Fermentation Test for Coliform Group Bacteria APHA Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992 Method 9221B, 9221E

### RESULTS

#### Sample Designation

#### Coliform Group Bacteria MPN\*/100ml

Total      Fecal

1. IOA0576-01, 15:50

<2\*\*

<2

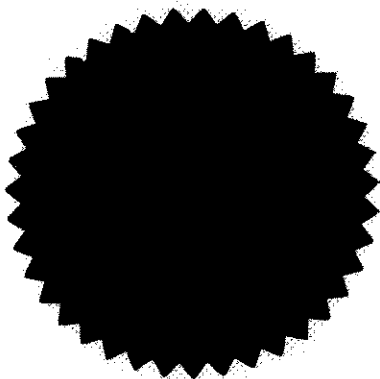
\* Most Probable No./100 ml

\*\* None Detected

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Karl W. Schiller, M.S.  
Chief Microbiologist



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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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-8889  
 9830 South 51st St., Suite B-150, Phoenix AZ 85044 (480) 785-0043 FAX (480) 785-0851  
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3820 FAX (702) 798-3821

# CHAIN OF CUSTODY FORM

Client Name/Address: DEL MAR ANALYTICAL 17481 DERRAN AVE IRVINE CA 92614				P.O. #:		ANALYSIS REQUIRED															
Project Manager/Phone Number: GARY HANCOCK				Phone Number: 949 261 1122		Special Instructions															
Sampler:				Fax Number: 949 260 3297		Special Instructions															
Sample Description	Sample Matrix	Container Type	# of Containers	Sampling Date/Time	Preservation																
OUTFALL 17 CANB	WW	PLAST	2	7/11/05		X															
Relinquished By <i>[Signature]</i>	Date/Time: 7/11/05	Received By <i>[Signature]</i>	Date/Time: 7/11/05	Turnaround Time: (check) Same Day _____ 72 Hours _____ 24 Hours _____ 5 days _____ 48 hours _____ normal _____	Sample Integrity: (Check) Intact _____ On Ice: _____																



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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) 505-9596 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 # IOA0576**

**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: IOA0576-01 Water	Sampled: 01/11/05 15:05	
Fecal Coliform	01/11/05 19:53	MPN/100 ml, Sub to Truesdail
Total Coliform	01/12/05 15:05	MPN/100 ml, Sub to Truesdail

**Containers Supplied:**  
 Bacti Bottle (IOA0576-01A)  
 Bacti Bottle (IOA0576-01B)

*IOA0519 is now IOA 0576*

**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: \_\_\_\_\_  
 Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**APPENDIX G**

**Section 14**

**January Outfall 018**

**AMEC Data Validation Reports**

**Del Mar Analytical Laboratory Reports**

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

AMEC Earth & Environmental  
550 South Wadsworth Boulevard

Package ID T711DF20

Task Order 313150010

Suite 500  
Lakewood, CO 80226

SDG No. Multiple

No. of Analyses 15

Laboratory Alta

Date: February 11, 2005

Reviewer K. Shadowlight

Reviewer's Signature  
*K. Shadowlight*

Analysis/Method Dioxins

ACTION ITEMS <sup>a</sup>	
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	* Method blank contamination
GC/MS Tune/Inst. Performance	* EMPCs
Calibration	* Detects below the lower method calibration level
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS <sup>b</sup>	<u>Rev. 1</u>
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

## 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: 15  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: February 11, 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 (Pace)	Matrix	COC Method
Outfall 003	IOA0026-01	105648001	water	1613
Outfall 004	IOA0027-01	105646001	water	1613
Outfall 005	IOA0028-01	105645001	water	1613
Outfall 007	IOA0108-01	105774001	water	1613
Outfall 008	IOA0109-01	105775001	water	1613
Outfall 009	IOA0110-01	105770001	water	1613
Outfall 010	IOA0111-01	105758001	water	1613
Outfall 001	IOA0112-01	105778001	water	1613
Outfall 002	IOA0119-01	105772001	water	1613
Outfall 018	IOA0122-01	105779001	water	1613
Outfall 011	IOA0131-01	105773001	water	1613
Outfall 006	IOA0458-01	106048001	water	1613
Outfall 004	IOA0460-01	106050001	water	1613
Outfall 005	IOA0464-01	106052001	water	1613
Outfall 003	IOA0466-01	106051001	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . Several of the samples in these SDGs were received at Pace Analytical Services below the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ; however, as none of the samples were noted to have been damaged, no qualifications were required. The samples were received in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC and transfer COC were signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. As the samples were couriered directly to the laboratory (Del Mar Analytical), custody seals were not required. There was no information regarding custody seals upon receipt at Pace. 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 column performance standard was combined with the daily calibration verification and analyzed at the beginning of each analytical sequence. The GC column performance was acceptable with the chromatographic separation of 2,3,7,8-TCDD and other TCDD isomers resolved with a valley of  $\leq 25\%$ . No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance could not be evaluated as the laboratory did not provide selected ion current profiles for the lock-mass ions. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

There was one initial calibration, analyzed 11/29/04 on Instrument 10MSHR05. The calibration consisted of five concentration level standards (CS1 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 2 native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in the Table 6 of the 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.

## 2.4 BLANKS

One method blank (Blank-6202) was extracted and analyzed with the samples in these SDGs. Target compounds 1,2,3,4,6,7,8-HpCDD, total HpCDD, OCDF, and OCDD were reported in the method blank. Any detects for the aforementioned target compounds reported at concentrations  $< 5x$  the concentrations reported in the method blank were qualified as estimated nondetects "UJ." at the levels of interference in the samples of these SDGs. 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 LCS/LCSD pair (LCS-6203/LCSD-6204) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of the Method 1613. There were no QC limits established for RPDs. The reported RPDs were within  $\pm 20\%$ . No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy and precision was based on the LCS/LCSD 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 limit (MCL) were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." No further qualifications were required.

## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID IOA0122-01 *out fall 08*  
 Lab Sample ID 105779001  
 Filename F50127B\_04  
 Injected By MRO  
 Total Amount Extracted 980 mL  
 % Moisture NA  
 Dry Weight Extracted NA  
 ICAL Date 11/29/2004  
 CCal Filename(s) F50127A\_13  
 Method Blank ID BLANK-6202

Matrix Water  
 Dilution NA  
 Collected 01/04/2005  
 Received 01/06/2005  
 Extracted 01/24/2005  
 Analyzed 01/27/2005 23:27

Rev	Qual	Qual	Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
u			2,3,7,8-TCDF	ND	----	2.6	2,3,7,8-TCDF-13C	2.00	47
u			Total TCDF	ND	----	2.6	2,3,7,8-TCDD-13C	2.00	59
							1,2,3,7,8-PeCDF-13C	2.00	79
u			2,3,7,8-TCDD	ND	----	2.7	2,3,4,7,8-PeCDF-13C	2.00	78
u			Total TCDD	ND	----	2.7	1,2,3,7,8-PeCDD-13C	2.00	90
							1,2,3,4,7,8-HxCDF-13C	2.00	75
u			1,2,3,7,8-PeCDF	ND	----	1.7	1,2,3,6,7,8-HxCDF-13C	2.00	98
↓			2,3,4,7,8-PeCDF	ND	----	2.1	2,3,4,6,7,8-HxCDF-13C	2.00	90
			Total PeCDF	ND	----	1.9	1,2,3,7,8,9-HxCDF-13C	2.00	81
							1,2,3,4,7,8-HxCDD-13C	2.00	73
u			1,2,3,7,8-PeCDD	ND	----	2.2	1,2,3,6,7,8-HxCDD-13C	2.00	92
u			Total PeCDD	ND	----	2.2	1,2,3,4,6,7,8-HpCDF-13C	2.00	81
							1,2,3,4,7,8,9-HpCDF-13C	2.00	73
u			1,2,3,4,7,8-HxCDF	ND	----	1.4	1,2,3,4,6,7,8-HpCDD-13C	2.00	96
↓			1,2,3,6,7,8-HxCDF	ND	----	1.1	OCDD-13C	4.00	90
			2,3,4,6,7,8-HxCDF	ND	----	1.2			
↓			1,2,3,7,8,9-HxCDF	ND	----	1.6	1,2,3,4-TCDD-13C	2.00	NA
			Total HxCDF	ND	----	1.3	1,2,3,7,8,9-HxCDD-13C	2.00	NA
u			1,2,3,4,7,8-HxCDD	ND	----	1.5	2,3,7,8-TCDD-37Cl4	0.20	55
↓			1,2,3,6,7,8-HxCDD	ND	----	1.6			
			1,2,3,7,8,9-HxCDD	ND	----	1.8			
↓			Total HxCDD	ND	----	1.7			
u	#10		1,2,3,4,6,7,8-HpCDF	---	2.3	1.6			
u			1,2,3,4,7,8,9-HpCDF	ND	----	1.9			
u			Total HpCDF	ND	----	1.8			
u	B		1,2,3,4,6,7,8-HpCDD	9.0	----	1.8			BJ
J	DND		Total HpCDD	18.0	----	1.8			BJ
u	B		OCDF	12.0	----	2.4			BJ
u	B		OCDD	110.0	----	2.7			B

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....105779

AMEC VALIDATED

### REPORT OF LABORATORY ANALYSIS

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LEVEL IV





# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: IOA0122

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#: IOA0122  
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: February 04, 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.: IOA0122  
Analysis: MET

**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 018	Outfall 018	IOA0122-01	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 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. The COC listed a duplicate samples for metals analyses; 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 date 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 but did not report %RSDs. The laboratory SOP states that to be acceptable, the %RSD must be less than 5%. The mass calibrations were within 0.1 amu of the true mass and an the instrument resolutions were less than 0.75 amu at 10 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 reporting limit check standards were recovered within the AMEC control limits of 70-130%. No qualifications were required.

**2.4 BLANKS**

There were no detects in the method blanks or CCBs associated with the sample in this SDG. No qualifications were required.

**2.5 ICP INTERFERENCE CHECK SAMPLE (ICS A/AB)**

No ICPMS interference check samples were analyzed in association with the sample in these SDGs; therefore, no assessment was made with respect to this criterion.

**2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES**

The ICP/MS LCS sample was identified as 5A05052-BS1 and the mercury LCS sample was identified as 5A05061-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 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.

**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 SERIAL DILUTION**

No serial dilution analysis was 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 copper internal standard recovery was above the control limit in the LCS; however, as the LCS copper recovery was acceptable, no qualification was required. The remaining 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 I were verified against the raw data. No transcription errors or calculation errors were noted. Detects 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 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

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

Project ID: Routine Outfall 018  
 Report Number: IOA0122

Sampled: 01/04/05  
 Received: 01/04/05

## 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: IOA0122-01 (DRAFT: Outfall 018 - Water) - cont.					Sampled: 01/04/05						
Reporting Units: ug/l											
Copper	EPA 200.8	5A05052	0.49	2.0	3.8	1	01/05/05	01/05/05			
Lead	EPA 200.8	5A05052	0.13	1.0	0.65	1	01/05/05	01/05/05	J	J	DNQ
Mercury	EPA 245.1	5A05061	0.063	0.20	0.16	1	01/05/05	01/05/05	J	J	DNQ

# 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 T711PP9  
 Task Order 313150010  
 SDG No. IOA0122

No. of Analyses 1  
 Date February 2, 2005  
 Reviewer's Signature K. Shadowlight

Laboratory Del Mar Analytical  
 Reviewer K. Shadowlight  
 Analysis/Method Pesticides

**ACTION ITEMS<sup>a</sup>**

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<sup>b</sup>**

Acceptable as reviewed.

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES

SAMPLE DELIVERY GROUP: IOA0122

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#: IOA0122  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: PCBs  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: February 2, 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**

<b>Client ID</b>	<b>EPA ID</b>	<b>Laboratory ID</b>	<b>Matrix</b>	<b>Method</b>
Outfall 018	Outfall 018	IOA0122-01	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, at 5°. 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 ±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 10/26/04 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  $\leq 10\%$ . 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 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 one closing continuing calibration standard. The applicable %Ds were within the Method QC limit of  $\pm 15\%$  for both calibrations. One %D exceeded 15% on channel A with high response; however, as all results were reported from channel B, no qualifications were assigned. 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 (5A05041-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 (5A05041-BS1/5A05041-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 this SDG 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 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 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 detects reported in this SDG, 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 water 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 018

Report Number: IOA0122

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
alpha-BHC	EPA 608	5A05041	0.00049	0.010	ND	1.02	01/05/05	01/05/05	u
Surrogate: Decachlorobiphenyl (45-120%)					70 %				
Surrogate: Tetrachloro-m-xylene (35-120%)					54 %				

Key Qual  
 Qual  
 bad

**AMEC VALIDATED**

**LEVEL IV**

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

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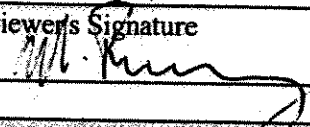
**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711SV23  
 Task Order 313150010  
 SDG No. IOA0122

No. of Analyses 1

Laboratory Del Mar  
 Reviewer M. Pokorny  
 Analysis/Method Semivolatiles

Date: February 4, 2005  
 Reviewer's Signature 

ACTION ITEMS <sup>a</sup>	
1. Case Narrative	
Deficiencies	<hr/> <hr/> <hr/>
2. Out of Scope	
Analyses	<hr/> <hr/> <hr/>
3. Analyses Not Conducted	<hr/> <hr/> <hr/>
4. Missing Hardcopy	
Deliverables	<hr/> <hr/> <hr/>
5. Incorrect Hardcopy	
Deliverables	<hr/> <hr/> <hr/>
6. Deviations from Analysis	
Protocol, e.g.,	<hr/>
Holding Times	<hr/>
GC/MS Tune/Inst. Perform	<hr/>
Calibrations	<hr/>
Blanks	<hr/>
Surrogates	<hr/>
Matrix Spike/Dup LCS	<hr/>
Field QC	<hr/>
Internal Standard Performance	<hr/>
Compound Identification and	<hr/>
Quantitation	<hr/>
System Performance	<hr/>
<b>COMMENTS<sup>b</sup></b>	Acceptable as reviewed.
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOA0122

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#: IOA0122  
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: February 4, 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 018	Outfall 018	IOA0122-01	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, at 5°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 01/12/05. The average RRFs for were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  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 01/13/05. The RRFs for all target compounds were  $\geq 0.05$ , and the %Ds were  $\leq 20$ . A representative number of RRFs 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 (5A03039-BLK1) was extracted and analyzed with this SDG. There were no reportable detects for the target compounds listed on the summary form. 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 (5A03039-BS1/BSD1) was extracted and analyzed with this SDG. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary,

to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ" for nondetects and "J" for detects, in the associated samples. 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 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 this SDG. No qualifications were required.

### 2.8.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 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  $\pm 30$  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 Project ID: Routine Outfall 018  
 300 North Lake Avenue, Suite 1200 Report Number: IOA0122  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly  
 Sampled: 01/04/05  
 Received: 01/04/05

**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	
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water)					Sampled: 01/04/05				REV	QUAL
Reporting Units: ug/l									QUAL	CODE
Bis(2-ethylhexyl)phthalate	EPA 625	5A05039	1.1	5.0	ND	1	01/05/05	01/14/05	U	
2,4-Dinitrotoluene	EPA 625	5A05039	0.23	9.0	ND	1	01/05/05	01/14/05	↓	
N-Nitrosodimethylamine	EPA 625	5A05039	0.22	8.0	ND	1	01/05/05	01/14/05		
Pentachlorophenol	EPA 625	5A05039	0.78	8.0	ND	1	01/05/05	01/14/05		
2,4,6-Trichlorophenol	EPA 625	5A05039	0.10	6.0	ND	1	01/05/05	01/14/05		
Surrogate: 2-Fluorophenol (35-120%)					77 %					
Surrogate: Phenol-d6 (45-120%)					82 %					
Surrogate: 2,4,6-Tribromophenol (50-125%)					88 %					
Surrogate: Nitrobenzene-d5 (45-120%)					78 %					
Surrogate: 2-Fluorobiphenyl (45-120%)					84 %					
Surrogate: Terphenyl-d14 (45-135%)					85 %					

**AMEC VALIDATED**

LEVEL IV

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

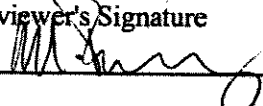
**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711VO40  
 Task Order 313150010  
 SDG No. IOA0122

No. of Analyses 2

Laboratory Del Mar  
 Reviewer M. Pokorny  
 Analysis/Method Volatiles

Date: February 2, 2005  
 Reviewer's Signature 

**ACTION ITEMS<sup>a</sup>**

1. **Case Narrative Deficiencies** \_\_\_\_\_
2. **Out of Scope Analyses** \_\_\_\_\_
3. **Analyses Not Conducted** \_\_\_\_\_
4. **Missing Hardcopy Deliverables** \_\_\_\_\_
5. **Incorrect Hardcopy Deliverables** \_\_\_\_\_
6. **Deviations from Analysis Protocol, e.g.,**
  - Qualification was required for a detect below the reporting limit.
  - 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<sup>b</sup>**

\_\_\_\_\_

\_\_\_\_\_

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0122

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#: IOA0122  
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: February 2, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *AMEC Data Validation Procedure for Levels C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.



**Table 1. Sample identification**

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 018	Outfall 018	IOA0122-01	water	624
Trip Blank	Trip Blank	IOA0122-02	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . According to the COC, the samples were received intact, without headspace, and in good condition. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed by field and laboratory personnel and accounted for the analyses presented in this SDG. As the samples were couriered to the laboratory, custody seals are 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 report were consistent with those specified in the EPA Method 624. All ion abundances were within the established windows and were therefore acceptable. 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 11/10/04, was associated with this SDG. The average RRFs were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  for the target compounds listed on the sample summary forms. One continuing calibration, dated 01/05/05, was associated with this SDG. The RRFs for all target compounds were  $\geq 0.05$  and the %Ds were  $\leq 20\%$ . A representative number of %RSDs and average RRFs from the initial calibration, and %Ds and RRFs from the continuing calibration were recalculated from the raw data, and no calculation or transcription errors were found. No qualifications were required.

### 2.4 BLANKS

One water method blank (5A05017-BLK1) was associated with this SDG. There were no detects for the target compounds listed on the summary form. 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 (5A05017-BS1) was associated with this SDG. All spike 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 within the QC limits of 80-120%. 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

The MS/MSD analyses were performed for sample Outfall 018 for this SDG. All spike recoveries and RPDs were within the laboratory-established QC limits. No qualifications were required.

## 2.8 FIELD QC SAMPLES

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

### 2.8.1 Trip Blanks

Sample Trip Blank (IOA0122-02) was the trip blank associated with the site sample of this SDG. There were no target compounds detected in the trip blank. No qualifications were required.

### 2.8.2 Field Blanks and Equipment Rinsates

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

### 2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for this SDG were within the control limits established by the continuing calibration standards, of +100%/-50% for internal standard areas and  $\pm 0.50$  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 a subset of 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 MDL study. Compound quantitation was verified by recalculating any sample detect, and/or a representative number of blank spike and surrogate recoveries from the raw data. No calculation or transcription errors were noted. Target compounds detected below the reporting limit were qualified as estimated, "J," by the laboratory. 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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 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 018

Report Number: IOA0122

Sampled: 01/04/05  
 Received: 01/04/05

**DRAFT: PURGEABLES BY GC/MS (EPA 624)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	REV QUAL	QUAL CODE
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water)					Sampled: 01/04/05					REV	QUAL
Reporting Units: ug/l										QUAL	CODE
Benzene	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05		U	
Carbon tetrachloride	EPA 624	5A05017	0.28	5.0	ND	1	01/05/05	01/05/05			
Chloroform	EPA 624	5A05017	0.33	2.0	ND	1	01/05/05	01/05/05			
1,1-Dichloroethane	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05			
1,2-Dichloroethane	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05			
1,1-Dichloroethene	EPA 624	5A05017	0.32	3.0	ND	1	01/05/05	01/05/05			
Ethylbenzene	EPA 624	5A05017	0.25	2.0	ND	1	01/05/05	01/05/05			
Tetrachloroethene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05			
Toluene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05			
1,1,1-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05			
1,1,2-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05			
Trichloroethene	EPA 624	5A05017	0.26	5.0	0.32	1	01/05/05	01/05/05		J	DNQ
Trichlorofluoromethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05		U	
Vinyl chloride	EPA 624	5A05017	0.26	5.0	ND	1	01/05/05	01/05/05		U	
Xylenes, Total	EPA 624	5A05017	0.52	4.0	ND	1	01/05/05	01/05/05		U	
Surrogate: Dibromofluoromethane (80-120%)					103%						
Surrogate: Toluene-d8 (80-120%)					101%						
Surrogate: 4-Bromofluorobenzene (80-120%)					99%						
Sample ID: IOA0122-02 (DRAFT: Trip Blank - Water)					Sampled: 01/04/05						
Reporting Units: ug/l											
Benzene	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05		U	
Carbon tetrachloride	EPA 624	5A05017	0.28	5.0	ND	1	01/05/05	01/05/05			
Chloroform	EPA 624	5A05017	0.33	2.0	ND	1	01/05/05	01/05/05			
1,1-Dichloroethane	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05			
1,2-Dichloroethane	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05			
1,1-Dichloroethene	EPA 624	5A05017	0.32	3.0	ND	1	01/05/05	01/05/05			
Ethylbenzene	EPA 624	5A05017	0.25	2.0	ND	1	01/05/05	01/05/05			
Tetrachloroethene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05			
Toluene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05			
1,1,1-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05			
1,1,2-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05			
Trichloroethene	EPA 624	5A05017	0.26	5.0	ND	1	01/05/05	01/05/05			
Trichlorofluoromethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05			
Vinyl chloride	EPA 624	5A05017	0.26	5.0	ND	1	01/05/05	01/05/05			
Xylenes, Total	EPA 624	5A05017	0.52	4.0	ND	1	01/05/05	01/05/05			
Surrogate: Dibromofluoromethane (80-120%)					101%						
Surrogate: Toluene-d8 (80-120%)					100%						
Surrogate: 4-Bromofluorobenzene (80-120%)					98%						

MP  
2-4-05

**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 T711WC55  
 Task Order 313150010  
 SDG No. IOA0122

No. of Analyses 1

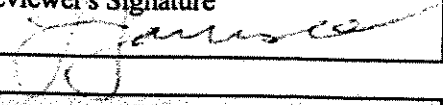
Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method Perchlorate

Date: 02/02/05

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 CCV recovered above 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<sup>b</sup>**

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUP: IOA0122

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 #: IOA0122  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Perchlorate  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: L. Jarusewic  
Date of Review: February 2, 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 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 018	Outfall 018	IOA0122-01	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . 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, 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  $\geq 0.995$ . 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%. The CCV recovery was above the control limits of 90-110%. Perchlorate was qualified as estimated, "J," in sample Outfall 018. 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

The MS/MSD analyses were performed on sample Outfall 018. The RPD was within the control limit of  $\leq 20\%$ . No qualifications were required.

## 2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The MS/MSD analyses were performed on sample Outfall 018. The recoveries were within the control limits of 80-120%. No qualifications were required.

## 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 calculations 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 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 package.



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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

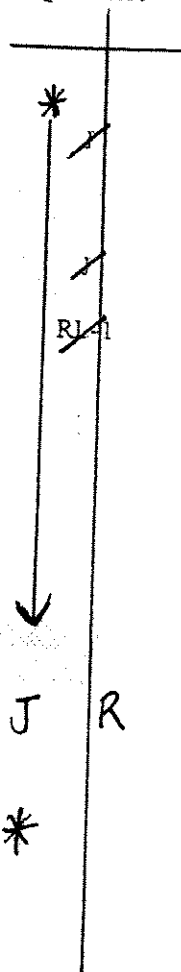
Project ID: Routine Outfall 018

Report Number: IOA0122

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water) - cont.					Sampled: 01/04/05					
Reporting Units: mg/l										
Ammonia-N (Distilled)	EPA 350.2	5A05067	0.30	0.50	ND	1	01/05/05	01/05/05	*	
Biochemical Oxygen Demand	EPA 405.1	5A05054	0.59	2.0	1.5	1	01/05/05	01/10/05		
Chloride	EPA 300.0	5A04042	0.26	0.50	8.4	1	01/04/05	01/04/05		
Total Cyanide	EPA 335.2	5A05078	0.0022	0.0050	ND	1	01/05/05	01/05/05		
Nitrate/Nitrite-N	EPA 300.0	5A04042	0.072	0.26	1.1	1	01/04/05	01/04/05		
Oil & Grease	EPA 413.1	5A05068	0.94	5.0	1.1	1	01/05/05	01/05/05		
Sulfate	EPA 300.0	5A04042	0.18	0.50	25	1	01/04/05	01/04/05		
Surfactants (MBAS)	EPA 425.1	5A04104	4.4	10	ND	100	01/04/05	01/04/05		
Total Dissolved Solids	EPA 160.1	5A06082	10	10	170	1	01/06/05	01/06/05		
Total Suspended Solids	EPA 160.2	5A07077	10	10	ND	1	01/07/05	01/07/05		
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water)					Sampled: 01/04/05					
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5A05055	0.10	0.10	ND	1	01/05/05	01/05/05		
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water)					Sampled: 01/04/05					
Reporting Units: NTU										
Turbidity	EPA 180.1	5A05079	0.040	1.0	14	1	01/05/05	01/05/05		
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water)					Sampled: 01/04/05					
Reporting Units: ug/l										
Perchlorate	EPA 314.0	5A06055	0.80	4.0	5.8	1	01/06/05	01/06/05	J R	
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water)					Sampled: 01/04/05					
Reporting Units: umhos/cm										
Specific Conductance	EPA 120.1	5A06081	1.0	1.0	210	1	01/06/05	01/06/05	*	



LJ 2/2/05

\*Analysis Not Validated

**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 T711WC56  
 Task Order 313150010  
 SDG No. IOA0122

No. of Analyses 1

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method General Minerals

Date: 02/04/05

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 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\***

\* 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: IOA0122**

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 #: IOA0122  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: February 04, 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 425.1, 350.2, 180.1, and 120.1, Standard Methods for the Examination of Water and Wastewater Method SM5540-C*, 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 018	Outfall 018	IOA0122-01	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 and accounted for the samples and analyses presented. 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, specific conductance, 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, and the 48-hour holding time for biological oxygen demand, surfactants, turbidity, nitrate/nitrite, and total settleable solids were met, and no qualifications were required.

### 2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were  $\geq 0.995$ . All ICV and continuing calibration information was acceptable with recoveries within the control limits of 90-110%. For the titration method, ammonia, no information regarding the standardization of the titrant was provided; however, as the LCS recovery for ammonia was within the CCV control limits, no qualifications were required. 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 further qualifications were required.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

For the applicable methods, the laboratory control sample recoveries were within the laboratory-established control limits. The LCS is not applicable to turbidity or specific conductance. 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 or duplicate analyses were performed in association with the samples 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.

## 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 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 calculations errors were noted. MBAS for Outfall 018 was reported from a 100× dilution as the sample had formed an emulsion. BOD and oil and grease 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 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) 785-0851  
 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 018

Report Number: IOA0122

Sampled: 01/04/05  
 Received: 01/04/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water) - cont.					Sampled: 01/04/05					
Reporting Units: mg/l									Raw Qual	Qual Code
Ammonia-N (Distilled)	EPA 350.2	5A05067	0.30	0.50	ND	1	01/05/05	01/05/05	U	
Biochemical Oxygen Demand	EPA 405.1	5A05054	0.59	2.0	1.5	1	01/05/05	01/10/05	J J	DNQ
Chloride	EPA 300.0	5A04042	0.26	0.50	8.4	1	01/04/05	01/04/05		
Total Cyanide	EPA 335.2	5A05078	0.0022	0.0050	ND	1	01/05/05	01/05/05	U	
Nitrate/Nitrite-N	EPA 300.0	5A04042	0.072	0.26	1.1	1	01/04/05	01/04/05		
Oil & Grease	EPA 413.1	5A05068	0.94	5.0	1.1	1	01/05/05	01/05/05	J J	DNQ
Sulfate	EPA 300.0	5A04042	0.18	0.50	25	1	01/04/05	01/04/05		
Surfactants (MBAS)	EPA 425.1	5A04104	4.4	10	ND	100	01/04/05	01/04/05	U	RL-1
Total Dissolved Solids	EPA 160.1	5A06082	10	10	170	1	01/06/05	01/06/05		
Total Suspended Solids	EPA 160.2	5A07077	10	10	ND	1	01/07/05	01/07/05	U	
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water)					Sampled: 01/04/05					
Reporting Units: ml/hr										
Total Settleable Solids	EPA 160.5	5A05055	0.10	0.10	ND	1	01/05/05	01/05/05	U	
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water)					Sampled: 01/04/05					
Reporting Units: NTU										
Turbidity	EPA 180.1	5A05079	0.040	1.0	14	1	01/05/05	01/05/05		
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water)					Sampled: 01/04/05					
Reporting Units: ug/l										
Perchlorate	EPA 314.0	5A06055	0.80	4.0	5.8	1	01/06/05	01/06/05	X	
Sample ID: IOA0122-01 (DRAFT: Outfall 018 - Water)					Sampled: 01/04/05					
Reporting Units: umhos/cm										
Specific Conductance	EPA 120.1	5A06081	1.0	1.0	210	1	01/06/05	01/06/05		

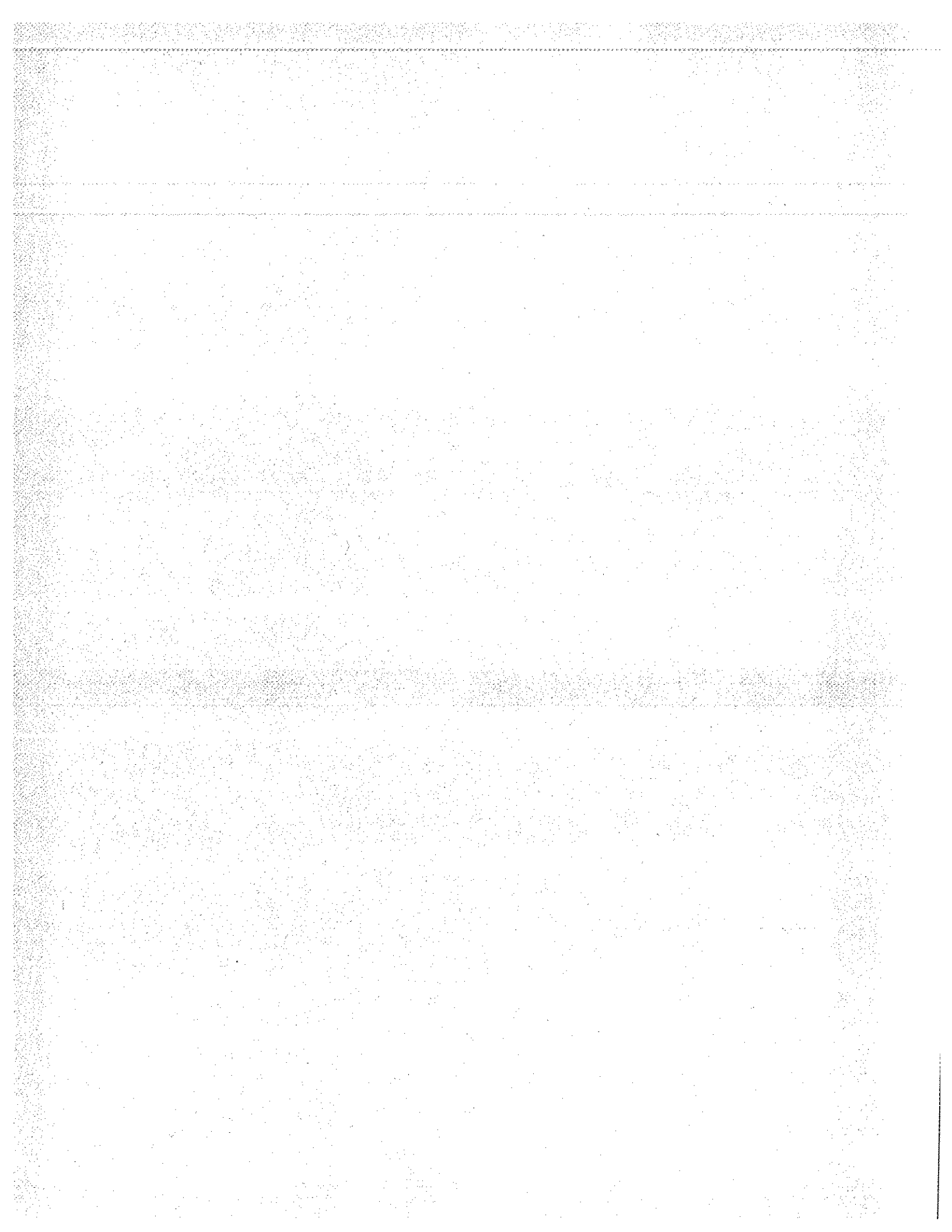
\* Analysis not validated

**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 018

Sampled: 01/04/05  
Received: 01/04/05  
Issued: 02/21/05 12:06

NELAP #01108CA California ELAP#1197 CSDLAC #10117

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This entire report was reviewed and approved for release.*

**SAMPLE CROSS REFERENCE**

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

LABORATORY ID	CLIENT ID	MATRIX
IOA0122-01	Outfall 018	Water
IOA0122-02	Trip Blank	Water

Reviewed By:

**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 018  Report Number: IOA0122	Sampled: 01/04/05 Received: 01/04/05
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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
<b>Sample ID: IOA0122-01 (Outfall 018 - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ug/l									
Benzene	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05	
Carbon tetrachloride	EPA 624	5A05017	0.28	5.0	ND	1	01/05/05	01/05/05	
Chloroform	EPA 624	5A05017	0.33	2.0	ND	1	01/05/05	01/05/05	
1,1-Dichloroethane	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichloroethane	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05	
1,1-Dichloroethene	EPA 624	5A05017	0.32	3.0	ND	1	01/05/05	01/05/05	
Ethylbenzene	EPA 624	5A05017	0.25	2.0	ND	1	01/05/05	01/05/05	
Tetrachloroethene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05	
Toluene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05	
1,1,1-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
1,1,2-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
Trichloroethene	EPA 624	5A05017	0.26	5.0	0.32	1	01/05/05	01/05/05	J
Trichlorofluoromethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05	
Vinyl chloride	EPA 624	5A05017	0.26	5.0	ND	1	01/05/05	01/05/05	
Xylenes, Total	EPA 624	5A05017	0.52	4.0	ND	1	01/05/05	01/05/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					103 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					101 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					99 %				
<b>Sample ID: IOA0122-02 (Trip Blank - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ug/l									
Benzene	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05	
Carbon tetrachloride	EPA 624	5A05017	0.28	5.0	ND	1	01/05/05	01/05/05	
Chloroform	EPA 624	5A05017	0.33	2.0	ND	1	01/05/05	01/05/05	
1,1-Dichloroethane	EPA 624	5A05017	0.27	2.0	ND	1	01/05/05	01/05/05	
1,2-Dichloroethane	EPA 624	5A05017	0.28	2.0	ND	1	01/05/05	01/05/05	
1,1-Dichloroethene	EPA 624	5A05017	0.32	3.0	ND	1	01/05/05	01/05/05	
Ethylbenzene	EPA 624	5A05017	0.25	2.0	ND	1	01/05/05	01/05/05	
Tetrachloroethene	EPA 624	5A05017	0.32	2.0	ND	1	01/05/05	01/05/05	
Toluene	EPA 624	5A05017	0.36	2.0	ND	1	01/05/05	01/05/05	
1,1,1-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
1,1,2-Trichloroethane	EPA 624	5A05017	0.30	2.0	ND	1	01/05/05	01/05/05	
Trichloroethene	EPA 624	5A05017	0.26	5.0	ND	1	01/05/05	01/05/05	
Trichlorofluoromethane	EPA 624	5A05017	0.34	5.0	ND	1	01/05/05	01/05/05	
Vinyl chloride	EPA 624	5A05017	0.26	5.0	ND	1	01/05/05	01/05/05	
Xylenes, Total	EPA 624	5A05017	0.52	4.0	ND	1	01/05/05	01/05/05	
<i>Surrogate: Dibromofluoromethane (80-120%)</i>					101 %				
<i>Surrogate: Toluene-d8 (80-120%)</i>					100 %				
<i>Surrogate: 4-Bromofluorobenzene (80-120%)</i>					98 %				

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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 018  Report Number: IOA0122	Sampled: 01/04/05 Received: 01/04/05
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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
<b>Sample ID: IOA0122-01 (Outfall 018 - Water)</b>					<b>Sampled: 01/04/05</b>				
<b>Reporting Units: ug/l</b>									
Bis(2-ethylhexyl)phthalate	EPA 625	5A05039	1.1	5.0	ND	1	01/05/05	01/14/05	
2,4-Dinitrotoluene	EPA 625	5A05039	0.23	9.0	ND	1	01/05/05	01/14/05	
N-Nitrosodimethylamine	EPA 625	5A05039	0.22	8.0	ND	1	01/05/05	01/14/05	
Pentachlorophenol	EPA 625	5A05039	0.78	8.0	ND	1	01/05/05	01/14/05	
2,4,6-Trichlorophenol	EPA 625	5A05039	0.10	6.0	ND	1	01/05/05	01/14/05	
Surrogate: 2-Fluorophenol (35-120%)									77 %
Surrogate: Phenol-d6 (45-120%)									82 %
Surrogate: 2,4,6-Tribromophenol (50-125%)									88 %
Surrogate: Nitrobenzene-d5 (45-120%)									78 %
Surrogate: 2-Fluorobiphenyl (45-120%)									84 %
Surrogate: Terphenyl-d14 (45-135%)									85 %

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MWH-Pasadena/Boeing Project ID: Routine Outfall 018  
300 North Lake Avenue, Suite 1200 Report Number: IOA0122  
Pasadena, CA 91101  
Attention: Bronwyn Kelly Sampled: 01/04/05  
Received: 01/04/05

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0122-01 (Outfall 018 - Water) - cont.					Sampled: 01/04/05				
Reporting Units: ug/l									
alpha-BHC	EPA 608	5A05041	0.00049	0.010	ND	1.02	01/05/05	01/05/05	
Surrogate: Decachlorobiphenyl (45-120%)					70 %				
Surrogate: Tetrachloro-m-xylene (35-120%)					54 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018  Report Number: IOA0122	Sampled: 01/04/05 Received: 01/04/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0122-01 (Outfall 018 - Water) - cont.					Sampled: 01/04/05				
Reporting Units: ug/l									
Copper	EPA 200.8	5A05052	0.49	2.0	3.8	1	01/05/05	01/05/05	
Lead	EPA 200.8	5A05052	0.13	1.0	0.65	1	01/05/05	01/05/05	J
Mercury	EPA 245.1	5A05061	0.063	0.20	0.16	1	01/05/05	01/05/05	J

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018  Report Number: IOA0122	Sampled: 01/04/05 Received: 01/04/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0122-01 (Outfall 018 - Water) - cont.</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5A05067	0.30	0.50	ND	1	01/05/05	01/05/05	
Biochemical Oxygen Demand	EPA 405.1	5A05054	0.59	2.0	1.5	1	01/05/05	01/10/05	J
Chloride	EPA 300.0	5A04042	0.26	0.50	8.4	1	01/04/05	01/04/05	
Nitrate/Nitrite-N	EPA 300.0	5A04042	0.072	0.26	1.1	1	01/04/05	01/04/05	
Oil & Grease	EPA 413.1	5A05068	0.94	5.0	1.1	1	01/05/05	01/05/05	J
Sulfate	EPA 300.0	5A04042	0.18	0.50	25	1	01/04/05	01/04/05	
Surfactants (MBAS)	EPA 425.1	5A04104	4.4	10	ND	100	01/04/05	01/04/05	RL-1
Total Dissolved Solids	EPA 160.1	5A06082	10	10	170	1	01/06/05	01/06/05	
Total Suspended Solids	EPA 160.2	5A07077	10	10	ND	1	01/07/05	01/07/05	
<b>Sample ID: IOA0122-01 (Outfall 018 - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5A05055	0.10	0.10	ND	1	01/05/05	01/05/05	
<b>Sample ID: IOA0122-01 (Outfall 018 - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: NTU									
Turbidity	EPA 180.1	5A05079	0.040	1.0	14	1	01/05/05	01/05/05	
<b>Sample ID: IOA0122-01 (Outfall 018 - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5A05078	2.2	5.0	ND	1	01/05/05	01/05/05	
Perchlorate	EPA 314.0	5A06055	0.80	4.0	5.8	1	01/06/05	01/06/05	
<b>Sample ID: IOA0122-01 (Outfall 018 - Water)</b>					<b>Sampled: 01/04/05</b>				
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5A06081	1.0	1.0	210	1	01/06/05	01/06/05	

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

Project ID: Routine Outfall 018

Report Number: IOA0122

Sampled: 01/04/05

Received: 01/04/05

## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 018 (IOA0122-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	01/04/2005 13:22	01/04/2005 18:30	01/05/2005 09:28	01/05/2005 11:00
EPA 180.1	2	01/04/2005 13:22	01/04/2005 18:30	01/05/2005 14:00	01/05/2005 15:00
EPA 300.0	2	01/04/2005 13:22	01/04/2005 18:30	01/04/2005 22:30	01/04/2005 23:36
EPA 405.1	2	01/04/2005 13:22	01/04/2005 18:30	01/05/2005 14:00	01/10/2005 19:00
EPA 425.1	2	01/04/2005 13:22	01/04/2005 18:30	01/04/2005 21:33	01/04/2005 22:04

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

Project ID: Routine Outfall 018

Report Number: IOA0122

Sampled: 01/04/05  
 Received: 01/04/05

## 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
<b>Batch: 5A05017 Extracted: 01/05/05</b>										
<b>Blank Analyzed: 01/05/2005 (5A05017-BLK1)</b>										
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	25.2			ug/l	25.0		101	80-120		
Surrogate: Toluene-d8	25.2			ug/l	25.0		101	80-120		
Surrogate: 4-Bromofluorobenzene	24.3			ug/l	25.0		97	80-120		
<b>LCS Analyzed: 01/05/2005 (5A05017-BS1)</b>										
Benzene	21.5	2.0	0.28	ug/l	25.0		86	70-120		
Carbon tetrachloride	29.0	5.0	0.28	ug/l	25.0		116	70-140		
Chloroform	25.3	2.0	0.33	ug/l	25.0		101	75-130		
1,1-Dichloroethane	21.9	2.0	0.27	ug/l	25.0		88	70-135		
1,2-Dichloroethane	27.6	2.0	0.28	ug/l	25.0		110	60-150		
1,1-Dichloroethene	21.4	3.0	0.32	ug/l	25.0		86	75-135		
Ethylbenzene	23.6	2.0	0.25	ug/l	25.0		94	80-120		
Tetrachloroethene	24.6	2.0	0.32	ug/l	25.0		98	75-125		
Toluene	23.4	2.0	0.36	ug/l	25.0		94	75-120		
1,1,1-Trichloroethane	27.2	2.0	0.30	ug/l	25.0		109	75-140		
1,1,2-Trichloroethane	23.4	2.0	0.30	ug/l	25.0		94	70-125		
Trichloroethene	24.1	5.0	0.26	ug/l	25.0		96	80-120		
Trichlorofluoromethane	27.7	5.0	0.34	ug/l	25.0		111	65-145		
Vinyl chloride	23.2	5.0	0.26	ug/l	25.0		93	50-130		
Surrogate: Dibromofluoromethane	25.5			ug/l	25.0		102	80-120		
Surrogate: Toluene-d8	25.7			ug/l	25.0		103	80-120		

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: Routine Outfall 018

Report Number: IOA0122

Sampled: 01/04/05  
Received: 01/04/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05017 Extracted: 01/05/05</b>											
<b>LCS Analyzed: 01/05/2005 (5A05017-BS1)</b>											
Surrogate: 4-Bromofluorobenzene	25.3			ug/l	25.0		101	80-120			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05017-MS1)</b>											
<b>Source: IOA0112-01</b>											
Benzene	21.0	2.0	0.28	ug/l	25.0	ND	84	70-120			
Carbon tetrachloride	28.8	5.0	0.28	ug/l	25.0	ND	115	70-145			
Chloroform	24.7	2.0	0.33	ug/l	25.0	ND	99	70-135			
1,1-Dichloroethane	21.2	2.0	0.27	ug/l	25.0	ND	85	65-135			
1,2-Dichloroethane	27.2	2.0	0.28	ug/l	25.0	ND	109	60-150			
1,1-Dichloroethene	21.1	3.0	0.32	ug/l	25.0	ND	84	65-140			
Ethylbenzene	23.3	2.0	0.25	ug/l	25.0	ND	93	70-130			
Tetrachloroethene	24.5	2.0	0.32	ug/l	25.0	ND	98	70-130			
Toluene	23.2	2.0	0.36	ug/l	25.0	ND	93	70-120			
1,1,1-Trichloroethane	26.8	2.0	0.30	ug/l	25.0	ND	107	75-140			
1,1,2-Trichloroethane	21.9	2.0	0.30	ug/l	25.0	ND	88	60-135			
Trichloroethene	23.3	5.0	0.26	ug/l	25.0	ND	93	70-125			
Trichlorofluoromethane	27.1	5.0	0.34	ug/l	25.0	ND	108	55-145			
Vinyl chloride	21.8	5.0	0.26	ug/l	25.0	ND	87	40-135			
Surrogate: Dibromofluoromethane	25.5			ug/l	25.0		102	80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	25.5			ug/l	25.0		102	80-120			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05017-MSD1)</b>											
<b>Source: IOA0112-01</b>											
Benzene	22.3	2.0	0.28	ug/l	25.0	ND	89	70-120	6	20	
Carbon tetrachloride	30.1	5.0	0.28	ug/l	25.0	ND	120	70-145	4	25	
Chloroform	25.6	2.0	0.33	ug/l	25.0	ND	102	70-135	4	20	
1,1-Dichloroethane	22.4	2.0	0.27	ug/l	25.0	ND	90	65-135	6	20	
1,2-Dichloroethane	28.1	2.0	0.28	ug/l	25.0	ND	112	60-150	3	20	
1,1-Dichloroethene	22.3	3.0	0.32	ug/l	25.0	ND	89	65-140	6	20	
Ethylbenzene	24.3	2.0	0.25	ug/l	25.0	ND	97	70-130	4	20	
Tetrachloroethene	25.3	2.0	0.32	ug/l	25.0	ND	101	70-130	3	20	
Toluene	24.5	2.0	0.36	ug/l	25.0	ND	98	70-120	5	20	
1,1,1-Trichloroethane	27.5	2.0	0.30	ug/l	25.0	ND	110	75-140	3	20	
1,1,2-Trichloroethane	23.5	2.0	0.30	ug/l	25.0	ND	94	60-135	7	25	
Trichloroethene	24.3	5.0	0.26	ug/l	25.0	ND	97	70-125	4	20	
Trichlorofluoromethane	27.8	5.0	0.34	ug/l	25.0	ND	111	55-145	3	25	
Vinyl chloride	23.3	5.0	0.26	ug/l	25.0	ND	93	40-135	7	30	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018  Report Number: IOA0122	Sampled: 01/04/05 Received: 01/04/05
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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
<b>Batch: 5A05017 Extracted: 01/05/05</b>											
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05017-MSD1)</b>						<b>Source: IOA0112-01</b>					
Surrogate: Dibromofluoromethane	25.5			ug/l	25.0		102	80-120			
Surrogate: Toluene-d8	25.7			ug/l	25.0		103	80-120			
Surrogate: 4-Bromofluorobenzene	25.5			ug/l	25.0		102	80-120			

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METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
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Batch: 5A05039 Extracted: 01/05/05

Blank Analyzed: 01/13/2005 (5A05039-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	15.2			ug/l	20.0		76	35-120			
Surrogate: Phenol-d6	15.8			ug/l	20.0		79	45-120			
Surrogate: 2,4,6-Tribromophenol	16.1			ug/l	20.0		80	50-125			
Surrogate: Nitrobenzene-d5	7.68			ug/l	10.0		77	45-120			
Surrogate: 2-Fluorobiphenyl	7.72			ug/l	10.0		77	45-120			
Surrogate: Terphenyl-d14	8.24			ug/l	10.0		82	45-135			

LCS Analyzed: 01/13/2005 (5A05039-BS1)

Bis(2-ethylhexyl)phthalate	9.64	5.0	1.1	ug/l	10.0		96	65-125			M-NR1
2,4-Dinitrotoluene	9.12	9.0	0.23	ug/l	10.0		91	60-140			
N-Nitrosodimethylamine	8.98	8.0	0.22	ug/l	10.0		90	40-120			
Pentachlorophenol	8.90	8.0	0.78	ug/l	10.0		89	50-125			
2,4,6-Trichlorophenol	9.40	6.0	0.10	ug/l	10.0		94	60-120			
Surrogate: 2-Fluorophenol	14.2			ug/l	20.0		71	35-120			
Surrogate: Phenol-d6	15.6			ug/l	20.0		78	45-120			
Surrogate: 2,4,6-Tribromophenol	16.0			ug/l	20.0		80	50-125			
Surrogate: Nitrobenzene-d5	7.74			ug/l	10.0		77	45-120			
Surrogate: 2-Fluorobiphenyl	7.48			ug/l	10.0		75	45-120			
Surrogate: Terphenyl-d14	7.84			ug/l	10.0		78	45-135			

LCS Dup Analyzed: 01/13/2005 (5A05039-BSD1)

Bis(2-ethylhexyl)phthalate	10.7	5.0	1.1	ug/l	10.0		107	65-125	10	20	
2,4-Dinitrotoluene	10.3	9.0	0.23	ug/l	10.0		103	60-140	12	20	
N-Nitrosodimethylamine	10.6	8.0	0.22	ug/l	10.0		106	40-120	17	20	
Pentachlorophenol	10.0	8.0	0.78	ug/l	10.0		100	50-125	12	25	
2,4,6-Trichlorophenol	10.9	6.0	0.10	ug/l	10.0		109	60-120	15	20	
Surrogate: 2-Fluorophenol	16.5			ug/l	20.0		82	35-120			
Surrogate: Phenol-d6	17.4			ug/l	20.0		87	45-120			
Surrogate: 2,4,6-Tribromophenol	17.8			ug/l	20.0		89	50-125			
Surrogate: Nitrobenzene-d5	8.50			ug/l	10.0		85	45-120			
Surrogate: 2-Fluorobiphenyl	8.54			ug/l	10.0		85	45-120			

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**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
<b>Batch: 5A05039 Extracted: 01/05/05</b>											
<b>LCS Dup Analyzed: 01/13/2005 (5A05039-BSD1)</b>											
Surrogate: Terphenyl-d14	8.36			ug/l	10.0		84	45-135			

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METHOD BLANK/QC DATA

ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05041 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05041-BLK1)</b>											
alpha-BHC	ND	0.010	0.00049	ug/l							
Surrogate: Decachlorobiphenyl	0.437			ug/l	0.500		87	45-120			
Surrogate: Tetrachloro-m-xylene	0.374			ug/l	0.500		75	35-120			
<b>LCS Analyzed: 01/05/2005 (5A05041-BS1)</b>											
alpha-BHC	0.463	0.010	0.00049	ug/l	0.500		93	45-115			M-NR1
Surrogate: Decachlorobiphenyl	0.459			ug/l	0.500		92	45-120			
Surrogate: Tetrachloro-m-xylene	0.368			ug/l	0.500		74	35-120			
<b>LCS Dup Analyzed: 01/05/2005 (5A05041-BSD1)</b>											
alpha-BHC	0.425	0.010	0.00049	ug/l	0.500		85	45-115	9	30	
Surrogate: Decachlorobiphenyl	0.456			ug/l	0.500		91	45-120			
Surrogate: Tetrachloro-m-xylene	0.331			ug/l	0.500		66	35-120			

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## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05052 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05052-BLK1)</b>											
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
<b>LCS Analyzed: 01/05/2005 (5A05052-BS1)</b>											
Copper	78.3	2.0	0.49	ug/l	80.0		98	85-115			
Lead	74.5	1.0	0.13	ug/l	80.0		93	85-115			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05052-MS1) Source: IOA0108-01</b>											
Copper	82.4	2.0	0.49	ug/l	80.0	3.7	98	70-130			
Lead	81.4	1.0	0.13	ug/l	80.0	0.74	101	70-130			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05052-MS2) Source: IOA0117-01</b>											
Copper	73.3	2.0	0.49	ug/l	80.0	ND	92	70-130			
Lead	77.6	1.0	0.13	ug/l	80.0	ND	97	70-130			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05052-MSD1) Source: IOA0108-01</b>											
Copper	84.3	2.0	0.49	ug/l	80.0	3.7	101	70-130	2	20	
Lead	83.3	1.0	0.13	ug/l	80.0	0.74	103	70-130	2	20	
<b>Batch: 5A05061 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05061-BLK1)</b>											
Mercury	ND	0.20	0.063	ug/l							
<b>LCS Analyzed: 01/05/2005 (5A05061-BS1)</b>											
Mercury	8.18	0.20	0.063	ug/l	8.00		102	85-115			

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 018

Report Number: IOA0122

Sampled: 01/04/05

Received: 01/04/05

**METHOD BLANK/QC DATA**

**METALS**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A05061 Extracted: 01/05/05</b>											
<b>Matrix Spike Analyzed: 01/05/2005 (5A05061-MS1)</b>						<b>Source: IOA0084-01</b>					
Mercury	7.81	0.20	0.063	ug/l	8.00	0.086	97	70-130			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05061-MSD1)</b>						<b>Source: IOA0084-01</b>					
Mercury	7.89	0.20	0.063	ug/l	8.00	0.086	98	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
<b>Batch: 5A04042 Extracted: 01/04/05</b>											
<b>Blank Analyzed: 01/04/2005 (5A04042-BLK1)</b>											
Chloride	ND	0.50	0.26	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							
<b>LCS Analyzed: 01/04/2005 (5A04042-BS1)</b>											
Chloride	4.97	0.50	0.26	mg/l	5.00		99	90-110			
Sulfate	9.93	0.50	0.18	mg/l	10.0		99	90-110			
<b>Matrix Spike Analyzed: 01/04/2005 (5A04042-MS1) Source: IOA0049-01</b>											
Chloride	5.60	0.50	0.26	mg/l	5.00	0.51	102	80-120			
Sulfate	10.4	0.50	0.18	mg/l	10.0	0.63	98	80-120			
<b>Matrix Spike Dup Analyzed: 01/04/2005 (5A04042-MSD1) Source: IOA0049-01</b>											
Chloride	5.72	0.50	0.26	mg/l	5.00	0.51	104	80-120	2	20	
Sulfate	10.6	0.50	0.18	mg/l	10.0	0.63	100	80-120	2	20	
<b>Batch: 5A04104 Extracted: 01/04/05</b>											
<b>Blank Analyzed: 01/04/2005 (5A04104-BLK1)</b>											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							
<b>LCS Analyzed: 01/04/2005 (5A04104-BS1)</b>											
Surfactants (MBAS)	0.236	0.10	0.044	mg/l	0.250		94	90-110			
<b>Matrix Spike Analyzed: 01/04/2005 (5A04104-MS1) Source: IOA0069-02</b>											
Surfactants (MBAS)	0.199	0.10	0.044	mg/l	0.250	ND	80	50-125			

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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
<b>Batch: 5A04104 Extracted: 01/04/05</b>											
<b>Matrix Spike Dup Analyzed: 01/04/2005 (5A04104-MSD1)</b>						<b>Source: IOA0069-02</b>					
Surfactants (MBAS)	0.172	0.10	0.044	mg/l	0.250	ND	69	50-125	15	20	
<b>Batch: 5A05054 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/10/2005 (5A05054-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
<b>LCS Analyzed: 01/10/2005 (5A05054-BS1)</b>											
Biochemical Oxygen Demand	208	100	30	mg/l	198		105	85-115			
<b>LCS Dup Analyzed: 01/10/2005 (5A05054-BSD1)</b>											
Biochemical Oxygen Demand	200	100	30	mg/l	198		101	85-115	4	20	
<b>Batch: 5A05067 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05067-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 01/05/2005 (5A05067-BS1)</b>											
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0		101	80-115			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05067-MS1)</b>						<b>Source: IOA0060-03</b>					
Ammonia-N (Distilled)	10.4	0.50	0.30	mg/l	10.0	0.56	98	70-120			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05067-MSD1)</b>						<b>Source: IOA0060-03</b>					
Ammonia-N (Distilled)	10.1	0.50	0.30	mg/l	10.0	0.56	95	70-120	3	15	

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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
<b>Batch: 5A05068 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05068-BLK1)</b>											
Oil & Grease	ND	5.0	0.94	mg/l							
<b>LCS Analyzed: 01/05/2005 (5A05068-BS1)</b>											
Oil & Grease	20.1	5.0	0.94	mg/l	20.0		100	65-120			M-NR1
<b>LCS Dup Analyzed: 01/05/2005 (5A05068-BSD1)</b>											
Oil & Grease	21.1	5.0	0.94	mg/l	20.0		106	65-120	5	20	
<b>Batch: 5A05078 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05078-BLK1)</b>											
Total Cyanide	ND	5.0	2.2	ug/l							
<b>LCS Analyzed: 01/05/2005 (5A05078-BS1)</b>											
Total Cyanide	191	5.0	2.2	ug/l	200		96	90-110			
<b>Matrix Spike Analyzed: 01/05/2005 (5A05078-MS1)</b>											
Total Cyanide	153	5.0	2.2	ug/l	200	ND	76	70-115			
<b>Matrix Spike Dup Analyzed: 01/05/2005 (5A05078-MSD1)</b>											
Total Cyanide	157	5.0	2.2	ug/l	200	ND	78	70-115	3	15	
<b>Batch: 5A05079 Extracted: 01/05/05</b>											
<b>Blank Analyzed: 01/05/2005 (5A05079-BLK1)</b>											
Turbidity	ND	1.0	0.040	NTU							

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

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# Del Mar Analytical

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 9484 Chesapeake Dr., Suite 005, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689  
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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 018

Report Number: IOA0122

Sampled: 01/04/05

Received: 01/04/05

## 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
<b>Batch: 5A05079 Extracted: 01/05/05</b>											
<b>Duplicate Analyzed: 01/05/2005 (5A05079-DUP1)</b>											
Turbidity	0.0900	1.0	0.040	NTU		0.10			11	20	J
<b>Batch: 5A06055 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06055-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							
<b>LCS Analyzed: 01/06/2005 (5A06055-BS1)</b>											
Perchlorate	51.3	4.0	0.80	ug/l	50.0	5.8	103	85-115			
<b>Matrix Spike Analyzed: 01/06/2005 (5A06055-MS1)</b>											
Perchlorate	54.1	4.0	0.80	ug/l	50.0	5.8	97	80-120			
<b>Matrix Spike Dup Analyzed: 01/06/2005 (5A06055-MSD1)</b>											
Perchlorate	53.2	4.0	0.80	ug/l	50.0	5.8	95	80-120	2	20	
<b>Batch: 5A06081 Extracted: 01/06/05</b>											
<b>Duplicate Analyzed: 01/06/2005 (5A06081-DUP1)</b>											
Specific Conductance	865	1.0	1.0	umhos/cm		880			2	5	
<b>Batch: 5A06082 Extracted: 01/06/05</b>											
<b>Blank Analyzed: 01/06/2005 (5A06082-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/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 018

Report Number: IOA0122

Sampled: 01/04/05

Received: 01/04/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A06082 Extracted: 01/06/05</b>											
<b>LCS Analyzed: 01/06/2005 (5A06082-BS1)</b>											
Total Dissolved Solids	904	10	10	mg/l	1000		90	90-110			
<b>Duplicate Analyzed: 01/06/2005 (5A06082-DUP1)</b>											
Total Dissolved Solids	198	10	10	mg/l		200			1	10	
<b>Batch: 5A07077 Extracted: 01/07/05</b>											
<b>Blank Analyzed: 01/07/2005 (5A07077-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 01/07/2005 (5A07077-BS1)</b>											
Total Suspended Solids	989	10	10	mg/l	1000		99	85-115			
<b>Duplicate Analyzed: 01/07/2005 (5A07077-DUP1)</b>											
Total Suspended Solids	ND	10	10	mg/l		ND				10	

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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 018

Report Number: IOA0122

Sampled: 01/04/05

Received: 01/04/05

### 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-NR1** There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike Duplicate.
- RL-1** Reporting limit raised 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  
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 018

Report Number: IOA0122

Sampled: 01/04/05  
 Received: 01/04/05

## Certification Summary

### Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 120.1	Water	X	X
EPA 160.1	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 425.1	Water	X	X
EPA 608	Water	X	X
EPA 624	Water	X	X
EPA 625	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](http://www.dmalabs.com).*

### Subcontracted Laboratories

#### Pace Analytical, MN- SUB

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR  
 Samples: IOA0122-01

Analysis Performed: EDD + Level 4  
 Samples: IOA0122-01

Del Mar Analytical, Irvine  
 Michele Harper  
 Project Manager

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IOA 0122

**CHAIN OF CUSTODY FORM**

Del Mar Analytical Version 5.8/12/04

Client Name/Address:

**MWH-Pasadena**  
300 North Lake Avenue, Suite 1200  
Pasadena, CA 91101  
**Project Manager: Bronwyn Kelly**  
**Sampler: Pollock**

**Project:**  
Boeing-SSFL NPDES  
Quarterly Outfall 018  
R-2 Spillway  
**Phone Number:**  
(626) 568-6691  
**Fax Number:**  
(626) 568-6515

**ANALYSIS REQUIRED**

Total Recoverable Metals: Cu, Pb, Hg	X
Settleable Solids	
VOCs 624 + xylenes + Freon 113	X
TCDD (and all congeners)	X
Oil & Grease (EPA 413.1)	
Cyanide (total recoverable)	
BOD5 (20 degrees C)	
Surfactants (MBAS)	
Cl-, SO4, NO3+NO2-N, Perchlorate	
Turbidity, TDS, TSS, Conductivity	
Ammonia-N	
Alpha BHC (6081A)	
2,4,6 Trichlorophenol, 2,4 Dinitrofluorene, Bis(2- ethylhexyl)phthalate, NDMA, pentachlorophenol (EPA 625)	
Monomethylhydrazine	

Field readings:  
Temp = 79.5  
pH = 6.6

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservative	Boil-off #
Outfall 018	W	Poly-1L	1	1-4-05 1722	HNO3	1A
Outfall 018-Dup	W	Poly-1L	1		HNO3	1B
Outfall 018	W	Poly-1L	1		None	2
Outfall 018	W	VOAs	3		HCl	3A, 3B, 3C
Outfall 018	W	1L Amber	2		None	4A, 4B
Outfall 018	W	1L Amber	2		HCl	5A, 5B
Outfall 018	W	Poly-500 ml	1		NaOH	6
Outfall 018	W	Poly-1 L	1		None	7
Outfall 018	W	Poly-500 ml	2		None	8A, 8B
Outfall 018	W	Poly-500 ml	2		None	9A, 9B
Outfall 018	W	Poly-500 ml	2		None	10A, 10B
Outfall 018	W	Poly-500 ml	1		H2SO4	11
Outfall 018	W	1L Amber	2		None	12A, 12B
Outfall 018	W	1L Amber	2		None	13A, 13B
Outfall 018	W	1L Amber	2		None	14A, 14B,
Trip Blank	W	VOAs	3		HCl	15A, 15B, 15C

Relinquished By: <i>[Signature]</i>	Date/Time: 1-4-05 1520	Received By: <i>[Signature]</i>	Date/Time: 1/4/05 1520
Relinquished By: <i>[Signature]</i>	Date/Time: 1-4-05 1830	Received By: <i>[Signature]</i>	Date/Time: 1/4/05 1830
Relinquished By: <i>[Signature]</i>	Date/Time: 1-4-05 1830	Received By: <i>[Signature]</i>	Date/Time: 1/4/05 1830

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:  *50c*

*[Handwritten note]*



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February 3, 2005

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

Attention: Bronwyn Kelly  
Project: Routine Outfall 018  
Sampled: 01/04/05  
Del Mar Analytical Number: IOA0122

Dear Ms. Kelly:

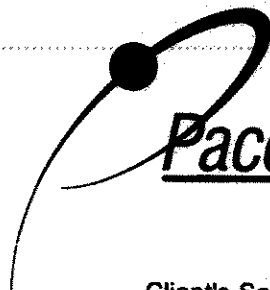
Pace Analytical performed Method 1613B analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Pace ID
Outfall 018	IOA0122-01	105779001

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



## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0122-01				
Lab Sample ID	105779001				
Filename	F50127B_04				
Injected By	MRO				
Total Amount Extracted	980 mL	Matrix	Water		
% Moisture	NA	Dilution	NA		
Dry Weight Extracted	NA	Collected	01/04/2005		
ICAL Date	11/29/2004	Received	01/06/2005		
CCal Filename(s)	F50127A_13	Extracted	01/24/2005		
Method Blank ID	BLANK-6202	Analyzed	01/27/2005 23:27		

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	---	2.6	2,3,7,8-TCDF-13C	2.00	47
Total TCDF	ND	---	2.6	2,3,7,8-TCDD-13C	2.00	59
				1,2,3,7,8-PeCDF-13C	2.00	79
2,3,7,8-TCDD	ND	---	2.7	2,3,4,7,8-PeCDF-13C	2.00	78
Total TCDD	ND	---	2.7	1,2,3,7,8-PeCDD-13C	2.00	90
				1,2,3,4,7,8-HxCDF-13C	2.00	75
1,2,3,7,8-PeCDF	ND	---	1.7	1,2,3,6,7,8-HxCDF-13C	2.00	98
2,3,4,7,8-PeCDF	ND	---	2.1	2,3,4,6,7,8-HxCDF-13C	2.00	90
Total PeCDF	ND	---	1.9	1,2,3,7,8,9-HxCDF-13C	2.00	81
				1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	---	2.2	1,2,3,6,7,8-HxCDD-13C	2.00	92
Total PeCDD	ND	---	2.2	1,2,3,4,6,7,8-HpCDF-13C	2.00	81
				1,2,3,4,7,8,9-HpCDF-13C	2.00	73
1,2,3,4,7,8-HxCDF	ND	---	1.4	1,2,3,4,6,7,8-HpCDD-13C	2.00	96
1,2,3,6,7,8-HxCDF	ND	---	1.1	OCDD-13C	4.00	90
2,3,4,6,7,8-HxCDF	ND	---	1.2			
1,2,3,7,8,9-HxCDF	ND	---	1.6	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	---	1.3	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	---	1.5	2,3,7,8-TCDD-37Cl4	0.20	55
1,2,3,6,7,8-HxCDD	ND	---	1.6			
1,2,3,7,8,9-HxCDD	ND	---	1.8			
Total HxCDD	ND	---	1.7			
1,2,3,4,6,7,8-HpCDF	---	2.3	1.6 I			
1,2,3,4,7,8,9-HpCDF	ND	---	1.9			
Total HpCDF	ND	---	1.8			
1,2,3,4,6,7,8-HpCDD	9.0	---	1.8 BJ			
Total HpCDD	18.0	---	1.8 BJ			
OCDF	12.0	---	2.4 BJ			
OCDD	110.0	---	2.7 B			

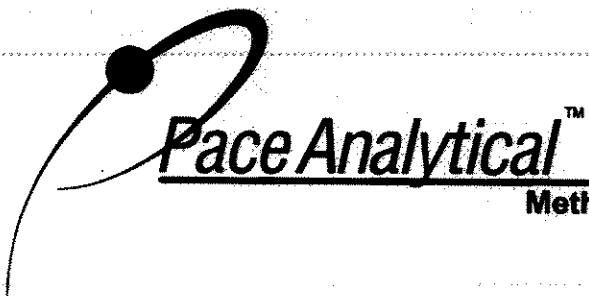
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....105779

## REPORT OF LABORATORY ANALYSIS

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### Method 1613B Blank Analysis Results

Client - Del Mar Analytical

Lab Sample ID	BLANK-6202	Matrix	Water
Filename	F50127A_06	Dilution	NA
Total Amount Extracted	982 mL	Extracted	01/24/2005
ICAL Date	11/29/2004	Analyzed	01/27/2005 14:13
CCal Filename(s)	F50127A_02	Injected By	MRO

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	---	4.7	2,3,7,8-TCDF-13C	2.00	33
Total TCDF	ND	---	---	2,3,7,8-TCDD-13C	2.00	45
				1,2,3,7,8-PeCDF-13C	2.00	68
2,3,7,8-TCDD	ND	---	5.1	2,3,4,7,8-PeCDF-13C	2.00	70
Total TCDD	ND	---	---	1,2,3,7,8-PeCDD-13C	2.00	81
				1,2,3,4,7,8-HxCDF-13C	2.00	75
1,2,3,7,8-PeCDF	ND	---	2.2	1,2,3,6,7,8-HxCDF-13C	2.00	95
2,3,4,7,8-PeCDF	ND	---	1.5	2,3,4,6,7,8-HxCDF-13C	2.00	98
Total PeCDF	ND	---	---	1,2,3,7,8,9-HxCDF-13C	2.00	85
				1,2,3,4,7,8-HxCDD-13C	2.00	78
1,2,3,7,8-PeCDD	ND	---	1.6	1,2,3,6,7,8-HxCDD-13C	2.00	94
Total PeCDD	ND	---	---	1,2,3,4,6,7,8-HpCDF-13C	2.00	85
				1,2,3,4,7,8,9-HpCDF-13C	2.00	78
1,2,3,4,7,8-HxCDF	ND	---	1.6	1,2,3,4,6,7,8-HpCDD-13C	2.00	99
1,2,3,6,7,8-HxCDF	ND	---	1.4	OCDD-13C	4.00	97
2,3,4,6,7,8-HxCDF	ND	---	1.1			
1,2,3,7,8,9-HxCDF	ND	---	1.6	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	---	---	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	---	1.6	2,3,7,8-TCDD-37Cl4	0.20	40
1,2,3,6,7,8-HxCDD	ND	---	1.2			
1,2,3,7,8,9-HxCDD	ND	---	1.7			
Total HxCDD	ND	---	---			
1,2,3,4,6,7,8-HpCDF	ND	---	1.5			
1,2,3,4,7,8,9-HpCDF	ND	---	1.4			
Total HpCDF	ND	---	---			
1,2,3,4,6,7,8-HpCDD	1.9	---	1.3 J			
Total HpCDD	1.9	---	---			
OCDF	8.3	---	1.9 J			
OCDD	26.0	---	2.3 J			

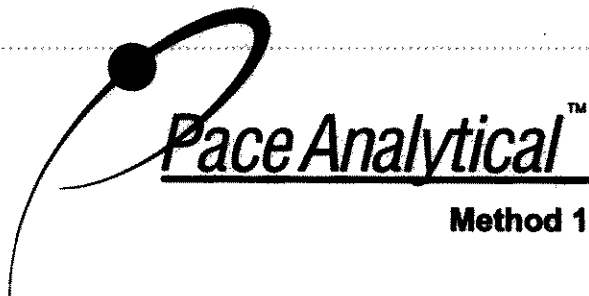
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 A = Limit of Detection based on signal to noise  
 P = Recovery outside of method 1613 control limits  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....105645

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCS-6203		
Filename	F50127A_03	Matrix	Water
Total Amount Extracted	1030 mL	Dilution	NA
ICAL Date	11/29/2004	Extracted	01/24/2005
CCal Filename	F50127A_02	Analyzed	01/27/2005 11:44
Method Blank ID	BLANK-6202	Injected By	MRO

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10.2	7.5	15.8	102
2,3,7,8-TCDD	10	9.0	6.7	15.8	90
1,2,3,7,8-PeCDF	50	50.1	40.0	67.0	100
2,3,4,7,8-PeCDF	50	48.4	34.0	80.0	97
1,2,3,7,8-PeCDD	50	43.4	35.0	71.0	87
1,2,3,4,7,8-HxCDF	50	44.8	36.0	67.0	90
1,2,3,6,7,8-HxCDF	50	48.0	42.0	65.0	96
2,3,4,6,7,8-HxCDF	50	48.6	35.0	78.0	97
1,2,3,7,8,9-HxCDF	50	46.4	39.0	65.0	93
1,2,3,4,7,8-HxCDD	50	50.0	35.0	82.0	100
1,2,3,6,7,8-HxCDD	50	51.7	38.0	67.0	103
1,2,3,7,8,9-HxCDD	50	48.5	32.0	81.0	97
1,2,3,4,6,7,8-HpCDF	50	51.4	41.0	61.0	103
1,2,3,4,7,8,9-HpCDF	50	52.3	39.0	69.0	105
1,2,3,4,6,7,8-HpCDD	50	43.4	35.0	70.0	87
OCDF	100	89.5	63.0	170.0	90
OCDD	100	96.9	78.0	144.0	97
2,3,7,8-TCDD-37Cl4	10	6.2	3.1	19.1	62
2,3,7,8-TCDF-13C	100	49.8	22.0	152.0	50
2,3,7,8-TCDD-13C	100	65.8	20.0	175.0	66
1,2,3,7,8-PeCDF-13C	100	75.7	21.0	192.0	76
2,3,4,7,8-PeCDF-13C	100	76.9	13.0	328.0	77
1,2,3,7,8-PeCDD-13C	100	93.4	21.0	227.0	93
1,2,3,4,7,8-HxCDF-13C	100	78.9	19.0	202.0	79
1,2,3,6,7,8-HxCDF-13C	100	89.8	21.0	159.0	90
2,3,4,6,7,8-HxCDF-13C	100	88.2	22.0	176.0	88
1,2,3,7,8,9-HxCDF-13C	100	81.5	17.0	205.0	81
1,2,3,4,7,8-HxCDD-13C	100	82.2	21.0	193.0	82
1,2,3,6,7,8-HxCDD-13C	100	95.2	25.0	163.0	95
1,2,3,4,6,7,8-HpCDF-13C	100	86.3	21.0	158.0	86
1,2,3,4,7,8,9-HpCDF-13C	100	75.6	20.0	186.0	76
1,2,3,4,6,7,8-HpCDD-13C	100	102.9	26.0	166.0	103
OCDD-13C	200	195.1	26.0	397.0	98

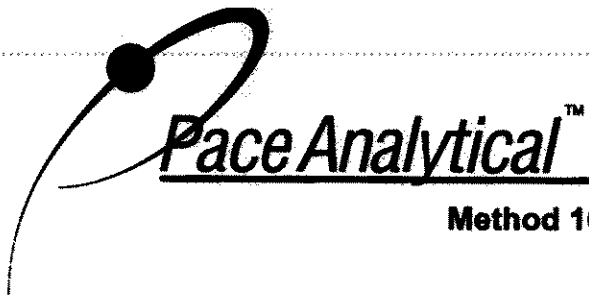
Cs = Concentration Spiked (ng/mL)  
 Cr = Concentration Recovered (ng/mL)  
 Rec. = Recovery (Expressed as Percent)  
 Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
 X = Background subtracted value  
 P = Recovery outside of control limits  
 Nn = Value obtained from additional analysis  
 \* = See Discussion

Report No.....105645

## REPORT OF LABORATORY ANALYSIS

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### Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCSD-6204	Matrix	Water
Filename	F50127A_04	Dilution	NA
Total Amount Extracted	1000 mL	Extracted	01/24/2005
ICAL Date	11/29/2004	Analyzed	01/27/2005 12:32
CCal Filename	F50127A_02	Injected By	MRO
Method Blank ID	BLANK-6202		

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.9	7.5	15.8	99
2,3,7,8-TCDD	10	8.8	6.7	15.8	88
1,2,3,7,8-PeCDF	50	49.8	40.0	67.0	100
2,3,4,7,8-PeCDF	50	47.6	34.0	80.0	95
1,2,3,7,8-PeCDD	50	41.4	35.0	71.0	83
1,2,3,4,7,8-HxCDF	50	46.6	36.0	67.0	93
1,2,3,6,7,8-HxCDF	50	44.0	42.0	65.0	88
2,3,4,6,7,8-HxCDF	50	47.2	35.0	78.0	94
1,2,3,7,8,9-HxCDF	50	44.8	39.0	65.0	90
1,2,3,4,7,8-HxCDD	50	46.5	35.0	82.0	93
1,2,3,6,7,8-HxCDD	50	48.9	38.0	67.0	98
1,2,3,7,8,9-HxCDD	50	46.7	32.0	81.0	93
1,2,3,4,6,7,8-HpCDF	50	48.7	41.0	61.0	97
1,2,3,4,7,8,9-HpCDF	50	49.9	39.0	69.0	100
1,2,3,4,6,7,8-HpCDD	50	42.7	35.0	70.0	85
OCDF	100	84.8	63.0	170.0	85
OCDD	100	92.5	78.0	144.0	92
2,3,7,8-TCDD-37Cl4	10	7.5	3.1	19.1	75
2,3,7,8-TCDF-13C	100	65.7	22.0	152.0	66
2,3,7,8-TCDD-13C	100	83.8	20.0	175.0	84
1,2,3,7,8-PeCDF-13C	100	84.9	21.0	192.0	85
2,3,4,7,8-PeCDF-13C	100	85.6	13.0	328.0	86
1,2,3,7,8-PeCDD-13C	100	105.3	21.0	227.0	105
1,2,3,4,7,8-HxCDF-13C	100	82.6	19.0	202.0	83
1,2,3,6,7,8-HxCDF-13C	100	96.7	21.0	159.0	97
2,3,4,6,7,8-HxCDF-13C	100	92.3	22.0	176.0	92
1,2,3,7,8,9-HxCDF-13C	100	84.5	17.0	205.0	84
1,2,3,4,7,8-HxCDD-13C	100	81.9	21.0	193.0	82
1,2,3,6,7,8-HxCDD-13C	100	102.0	25.0	163.0	102
1,2,3,4,6,7,8-HpCDF-13C	100	90.1	21.0	158.0	90
1,2,3,4,7,8,9-HpCDF-13C	100	78.6	20.0	186.0	79
1,2,3,4,6,7,8-HpCDD-13C	100	106.1	26.0	166.0	106
OCDD-13C	200	196.4	26.0	397.0	98

Cs = Concentration Spiked (ng/mL)  
Cr = Concentration Recovered (ng/mL)  
Rec. = Recovery (Expressed as Percent)  
Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
X = Background subtracted value  
P = Recovery outside of control limits  
Nn = Value obtained from additional analysis  
\* = See Discussion

Report No.....105645

## REPORT OF LABORATORY ANALYSIS

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**SPIKE RECOVERY RELATIVE PERCENT DIFFERENCE (RPD) RESULTS**

Client..... Del Mar Analytical

SPIKE 1 ID..... LCS-6203  
SPIKE 1 Filename..... F50127A\_03  
SPIKE 2 ID..... LCSD-6204  
SPIKE 2 Filename..... F50127A\_04

COMPOUND	SPIKE 1 REC,%	SPIKE 2 REC,%	RPD,%
2378-TCDF	102	99	3.0
2378-TCDD	90	88	2.2
12378-PeCDF	100	100	0.0
23478-PeCDF	97	95	2.1
12378-PeCDD	87	83	4.7
123478-HxCDF	90	93	3.3
123678-HxCDF	96	88	8.7
234678-HxCDF	97	94	3.1
123789-HxCDF	93	90	3.3
123478-HxCDD	100	93	7.3
123678-HxCDD	103	98	5.0
123789-HxCDD	97	93	4.2
1234678-HpCDF	103	97	6.0
1234789-HpCDF	105	100	4.9
1234678-HpCDD	87	85	2.3
OCDF	90	85	5.7
OCDD	97	92	5.3

REC = Percent Recovered

RPD = The difference between the two values divided by the average.

NA = Not Applicable

Report No..... 105645

**REPORT OF LABORATORY ANALYSIS**

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**TABLE 1. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans**

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

\*Excluding the 2,3,7,8-substituted congeners.

Reference: 1989 ITEFs

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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 #5, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

**SUBCONTRACT ORDER - PROJECT # IOA0122 105779**

**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:**  
 Pace Analytical, MN- SUB  
 1700 Elm Street, Ste 200  
 Minneapolis, MN 55414  
 Phone : (612) 607-1700  
 Fax: (612) 607-6444

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

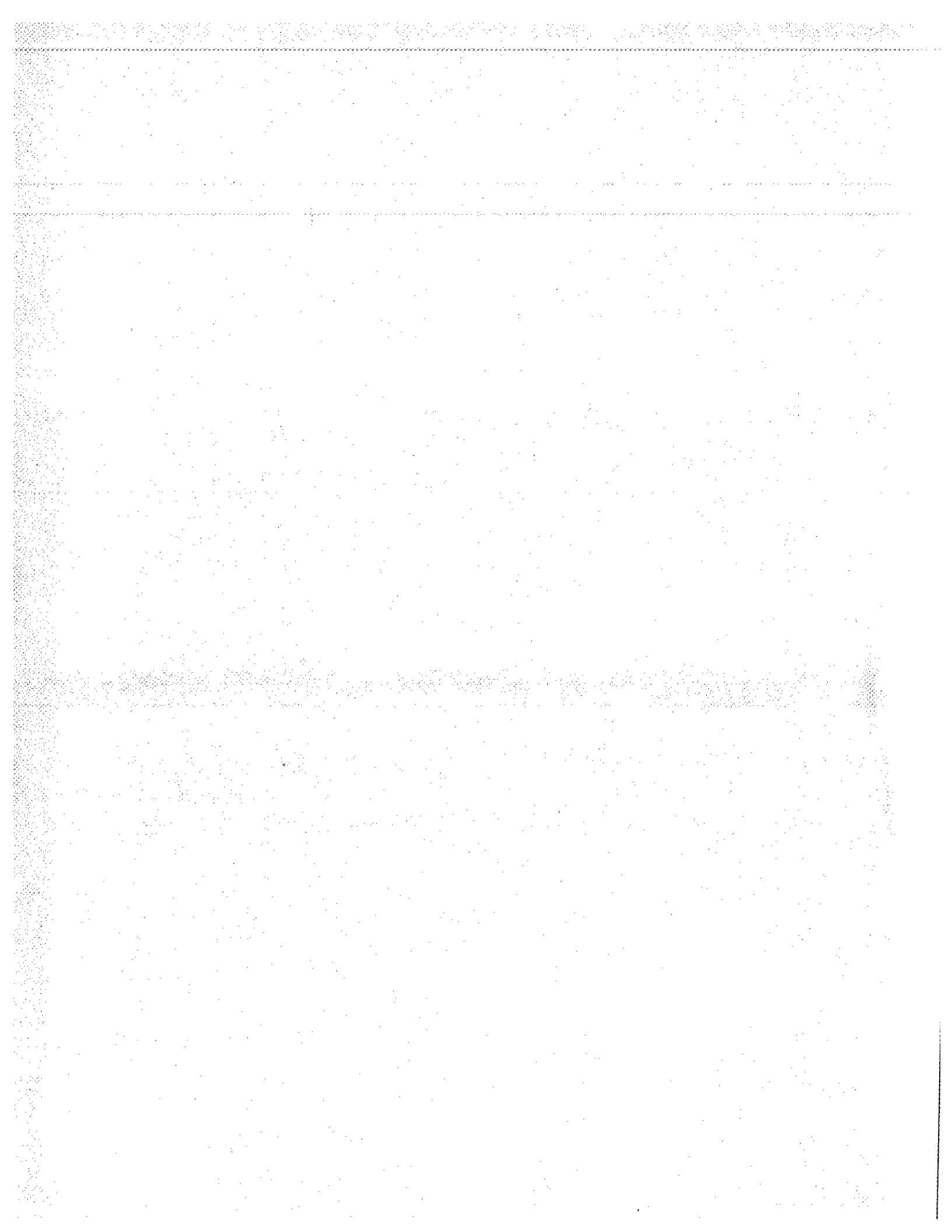
Analysis	Expiration	Comments
Sample ID: IOA0122-01 Water 1613-Dioxin-HR	Sampled: 01/04/05 13:22 01/11/05 13:22	Instant Notification J flags, 17 congeners, no TEQ, sub to Pace-MN
Containers Supplied: 1 L Amber (IOA0122-01G) 1 L Amber (IOA0122-01H)		

105779001

**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): 0

Released By: [Signature] Date: 1-05-05 Time: 1700  
 Received By: Bright Fierro Date: 1/6/05 Time: 9:25




**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711DF22  
 Task Order 313150010  
 SDG No. Multiple  
 No. of Analyses 9

Laboratory Pace \_\_\_\_\_  
 Reviewer K. Shadowlight  
 Analysis/Method Dioxins

Date: February 18, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
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: * Method blank contamination * EMPCs * Detects below the lower method calibration level
COMMENTS <sup>b</sup>	_____

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



# DATA VALIDATION REPORT

## 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: 9  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: February 18, 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 (Pace)	Matrix	COC Method
Outfall 001	IOA0551-01	106124001	water	1613
Outfall 002	IOA0550-01	106130001	water	1613
Outfall 007	IOA0556-01	106128001	water	1613
Outfall 008	IOA0553-01	106126001	water	1613
Outfall 009	IOA0554-01	106131001	water	1613
Outfall 010	IOA0555-01	106127001	water	1613
Outfall 011	IOA0549-01	106132001	water	1613
Outfall 011	IOA0567-01	106135001	water	1613
Outfall 018	IOA0552-01	106125001	water	1613

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

The samples in these SDGs were received at Del Mar Analytical within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were subcontracted to Pace Analytical for the dioxin/furan analyses. The samples in these SDGs were received at Pace Analytical Services within the temperature limits of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The samples were received in good condition at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COCs and transfer COCs were signed by the appropriate field and laboratory personnel. The samples and analyses were accounted for on both the original COCs and transfer COCs. As the samples were couriered directly to the laboratory (Del Mar Analytical), custody seals were not required. There was no information regarding custody seals upon receipt at Pace. 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 column performance standard was combined with the daily calibration verification and analyzed at the beginning of each analytical sequence. The GC column performance was acceptable with the chromatographic separation of 2,3,7,8-TCDD and other TCDD isomers resolved with a valley of  $\leq 25\%$ . No qualifications were required.

#### 2.2.2 Mass Spectrometer Performance

The mass spectrometer performance could not be evaluated as the laboratory did not provide selected ion current profiles for the lock-mass ions. No qualifications were required.

## 2.3 CALIBRATION

### 2.3.1 Initial Calibration

There was one initial calibration, analyzed 11/29/04 on Instrument 10MSHR05. The calibration consisted of five concentration level standards (CS1 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 2 native and all labeled compounds (calibration by internal standard). The relative retention times and ion abundance ratios were within the QC limits listed in Method 1613 for all standards. A representative number of %RSDs were verified from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.3.2 Continuing Calibration

Calibration verification (VER) consisted of a mid-level standard (CS3) analyzed at the beginning of each analytical sequence. The VER was acceptable with the concentrations within the acceptance criteria listed in the Table 6 of the 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.

## 2.4 BLANKS

One method blank (Blank-6220) was extracted and analyzed with the samples in these SDGs. Target compounds total HpCDF, 1,2,3,4,6,7,8-HpCDF, total HpCDF, OCDF, and OCDD were reported in the method blank. Any detects for the aforementioned target compounds reported at concentrations  $< 5\times$  the concentrations reported in the method blank were qualified as estimated nondetects "UJ," at the levels of interference in the samples of these SDGs. 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 LCS/LCSD pair (LCS-6221/LCSD-6222) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of the Method 1613. There are no method QC limits established for RPDs. The reported RPDs were within  $\pm 20\%$ . No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed in these SDGs. Evaluation of method accuracy and precision was based on the LCS/LCSD 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 limit (MCL) were qualified as estimated, "J." Any reported EMPC was qualified as an estimated nondetect, "UJ." No further qualifications were required.

## Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0552-01	<i>outfall 018</i>		
Lab Sample ID	106125001			
Filename	F50129B_08			
Injected By	BAL			
Total Amount Extracted	1040 mL		Matrix	Water
% Moisture	NA		Dilution	NA
Dry Weight Extracted	NA		Collected	01/11/2005
ICAL Date	11/29/2004		Received	01/13/2005
CCal Filename(s)	F50129B_02		Extracted	01/28/2005
Method Blank ID	BLANK-6220		Analyzed	01/30/2005 01:29

Qual	Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
U	2,3,7,8-TCDF	ND	----	1.30	2,3,7,8-TCDF-13C	2.00	65
U	Total TCDF	ND	----	1.30	2,3,7,8-TCDD-13C	2.00	81
U	2,3,7,8-TCDD	ND	----	1.20	1,2,3,7,8-PeCDF-13C	2.00	72
U	Total TCDD	ND	----	1.20	2,3,4,7,8-PeCDF-13C	2.00	74
U	1,2,3,7,8-PeCDF	ND	----	1.20	1,2,3,7,8-PeCDD-13C	2.00	88
↓	2,3,4,7,8-PeCDF	ND	----	0.81	1,2,3,4,7,8-HxCDF-13C	2.00	73
↓	Total PeCDF	ND	----	0.99	1,2,3,6,7,8-HxCDF-13C	2.00	87
U	1,2,3,7,8-PeCDD	ND	----	0.89	2,3,4,6,7,8-HxCDF-13C	2.00	81
U	Total PeCDD	ND	----	0.89	1,2,3,7,8,9-HxCDF-13C	2.00	76
U	1,2,3,4,7,8-HxCDF	ND	----	0.81	1,2,3,4,7,8-HxCDD-13C	2.00	73
U	1,2,3,6,7,8-HxCDF	ND	----	0.85	1,2,3,6,7,8-HxCDD-13C	2.00	89
↓	2,3,4,6,7,8-HxCDF	ND	----	0.59	1,2,3,4,6,7,8-HpCDF-13C	2.00	80
↓	1,2,3,7,8,9-HxCDF	ND	----	0.89	1,2,3,4,7,8,9-HpCDF-13C	2.00	67
↓	Total HxCDF	ND	----	0.79	1,2,3,4,6,7,8-HpCDD-13C	2.00	87
U	1,2,3,4,7,8-HxCDD	ND	----	0.91	OCDD-13C	4.00	74
↓	1,2,3,6,7,8-HxCDD	ND	----	1.10			
J	1,2,3,7,8,9-HxCDD	ND	----	0.81	2,3,7,8-TCDD-37Cl4	0.20	79
J	Total HxCDD	1.2	----	0.95			
U	1,2,3,4,6,7,8-HpCDF	----	2.2	0.84			
U	1,2,3,4,7,8,9-HpCDF	ND	----	0.80			
U	Total HpCDF	ND	----	0.82			
U	1,2,3,4,6,7,8-HpCDD	12.0	----	1.90			
J	Total HpCDD	26.0	----	1.90			
U	OCDF	10.0	----	1.70			
U	OCDD	140.0	----	3.00			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106125

### AMEC VALIDATED REPORT OF LABORATORY ANALYSIS

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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 T711MT40  
 Task Order 313150010  
 SDG No. IOA0549, IOA0552

No. of Analyses 2

Laboratory Del Mar  
 Reviewer P. Meeks  
 Analysis/Method Metals

Date: 03/10/05  
 Reviewer's Signature  


**ACTION ITEMS<sup>a</sup>**

<b>1. Case Narrative Deficiencies</b>	
<b>2. Out of Scope Analyses</b>	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy Deliverables</b>	
<b>5. Incorrect Hardcopy Deliverables</b>	
<b>6. Deviations from Analysis Protocol, e.g.,</b>	<b>Qualifications were applied for:</b>
Holding Times	1. Detects in the associated blanks
GC/MS Tune/Inst. Performance	2. Reporting limit standard recovery outliers
Calibrations	3. Analytes detected below the reporting limit
Blanks	4. Antimony result raised to level of bracketing CCB results
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

**COMMENTS<sup>a</sup>**

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



# DATA VALIDATION REPORT

NPDES  
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: IOA0549 & IOA0552

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#: IOA0549, IOA0552  
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 10, 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.: IOA0549, 0552  
Analysis: MET

**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 011 Grab	Outfall 011 Grab	IOA0549-01	water	ILM04
Outfall 018	Outfall 018	IOA0552-01	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 COC for Outfall 011 Grab requested only a few of the presented analytes. The remaining analytes were requested in a memo from MWH personnel dated 03/01/05. The COC for Outfall 018 accounted for the sample and the analytes reported. 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 and ICP 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 and ICP/MS and 80-120% for mercury. The beryllium and nickel reporting limit check standard recoveries were above the control limit; therefore, beryllium and nickel detected in Outfall 011 Grab were qualified as estimated, "J." Thallium and antimony were not recovered in the 0.1 and 0.2 ppb reporting limit check standards, respectively; therefore, nondetected antimony in Outfall 011 Grab was qualified as estimated, "UJ," and thallium detected in Outfall 011 Grab was qualified as estimated, "J." 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

There were detects reported for the method blanks and bracketing ICBs/CCBs associated with the samples in these SDGs. Selenium and silver were detected in bracketing CCBs at 0.672 and 0.102  $\mu\text{g/L}$ , respectively; therefore, selenium and silver detected in Outfall 011 Grab were qualified as estimated, "UJ." Chromium was detected in the method blank (5A14051-BLK1) at 0.434  $\mu\text{g/L}$ ; therefore, chromium detected in Outfall 011 Grab was qualified as estimated, "UJ."

Antimony was detected in both bracketing CCBs at approximately 0.800  $\mu\text{g/L}$ . The CCB detects combined with the laboratory's inability to recover antimony in the 0.2 ppb reporting limit check standard indicated the laboratory could not detect antimony at the level reported in the CCBs. The reviewer, therefore, raised the MDL for antimony to the level reported in the CCBs, 0.80  $\mu\text{g/L}$ . 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 boron analysis, but were not run on the day Outfall 011 Grab was analyzed. The recoveries for the interferents and boron were within the control limits of 80-120%.

ICSA and ICSAB analyses were included in the raw data for three of the four ICP-MS analytical runs. Results were not provided for spiked interferents sulfur, phosphorus, carbon, and chloride and lead was not spiked into the ICSAB solution. The results for potassium were above the calibration range of the instrument in all of the ICSA and ICSAB analyses and the results for sodium were above the calibration range in one of the ICSA/ICSAB pairs. Positive results, greater than the applicable reporting limits were reported for manganese and cobalt. The validator reviewed the raw data for the site sample ICP/MS analysis 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 qualifications were required.

## 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP/MS LCS samples were identified as 5A14051-BS1 and 5A12054-BS1. The ICP LCS sample was identified as 5A14046-BS1 and the Hg LCS sample was identified as 5A12047-BS1. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP/MS, ICP, and Hg control limits of 85-115%. No qualifications were required.

## 2.7 LABORATORY DUPLICATES

The MS/MSD analyses were performed on Outfall 011 Grab for antimony, cadmium, copper, lead, nickel, and zinc only. The RPDs were less than the control limit of 20% and no qualifications were required.

## 2.8 MATRIX SPIKE

The MS/MSD analyses were performed on Outfall 011 Grab for antimony, cadmium, copper, lead, nickel, and zinc only. The recoveries were within the AMEC control limits of 75-125% and 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 and 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.

**DATA VALIDATION REPORT**

Project: NPDES  
SDG No.: IOA0549, 0552  
Analysis: MET

**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 018

Report Number: IOA0552

Sampled: 01/11/05

Received: 01/11/05

## 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: IOA0552-01 (DRAFT: Outfall 018 - Water) - cont.										
Reporting Units: ug/l										
Copper	EPA 200.8	5A12054	0.49	2.0	3.5	1	01/12/05	01/12/05		
Lead	EPA 200.8	5A12054	0.13	1.0	0.82	1	01/12/05	01/12/05		
Mercury	EPA 245.1	5A12047	0.063	0.20	0.16	1	01/12/05	01/12/05	JH JH	J J DNQ DNQ

**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  
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Package ID T711PP15  
 Task Order 313150010  
 SDG No. IOA0549, IOA0552

No. of Analyses 2

Laboratory Del Mar Analytical.  
 Reviewer L. Calvin  
 Analysis/Method Pesticides/PCBs by Method 608

Date: March 10, 2005  
 Reviewer's Signature  


<b>ACTION ITEMS<sup>a</sup></b>	
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	Qualification was assigned for the following:
Protocol, e.g.,	-continuing calibration %D >15%
Holding Times	-surrogate recoveries below the QC limits
GC/MS Tune/Inst. Performance	
Calibration	
Method blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification	
Quantitation	
System Performance	

**COMMENTS<sup>b</sup>**

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOA0549, IOA0552

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#: IOA0549, IOA0552  
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: March 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	Outfall 011	IOA0549-01	water	608
Outfall 018	Outfall 018	IOA0552-01	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 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 COC for Outfall 018 accounted for the analysis presented in this SDG. The Method 608 analysis for Outfall 011 was not listed on the COC; however, the analysis was requested in a memo dated 03/01/05 from MWH 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 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  $\pm 0.10$  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 were two initial calibrations dated 10/26/04 and 12/29/04 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  $\leq 10\%$  on both analytical columns. There was one initial calibration dated 01/03/05 associated with the PCB analysis of sample Outfall 011, consisting of five points for Arochlor 1016 and Arochlor 1260. Single point calibrations for Arochlor 1242, Arochlor 1248, and Arochlor 1254 were also analyzed. The average %RSDs for the individual peaks of Arochlor 1016 and Arochlor 1260 were  $\leq 10\%$  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

The pesticide analysis of sample Outfall 011 was bracketed by three continuing calibrations, one preceding and two following the analysis. In one of the bracketing calibrations following the sample analysis, the %D exceeded 15% on channel A for beta-bhc. As all results for this sample were reported from channel A, the nondetect result for beta-bhc was qualified as estimated, "UJ," in sample Outfall 011. The %Ds were within the Method QC limit of  $\pm 15\%$  for the remaining calibrations. The PCB analysis of this sample was bracketed by two CCVs and the %Ds for Arochlor 1016 and Arochlor 1260 were  $\leq 15\%$ .

The pesticide analysis of sample Outfall 018 was bracketed by three continuing calibrations. In two of the bracketing calibrations following the sample analysis, the %D exceeded 15% on channel A for alpha-bhc. As results were reported from channel B, no qualifications were assigned.

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 (5A13049-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 (5A13049-BS1/BSD1) 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 pesticide and PCB analyses of sample Outfall 011 were within the laboratory-established QC limits. Both surrogates were recovered below the QC limits but  $\geq 10\%$  in Outfall 018. A notation on the extraction benchsheet and in the raw data indicated an emulsion that may have affected surrogate recoveries. The result for alpha-bhc in sample Outfall 018 was qualified as estimated, "UJ." 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; however, as there were no detects reported in the samples, quantitation was verified by recalculating 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. 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 018

Report Number: IOA0552

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
alpha-BHC	EPA 608	5A13049	0.00049	0.010	ND	0.962	01/13/05	01/14/05	WT S
Surrogate: Decachlorobiphenyl (45-120%)					38 %				Z
Surrogate: Tetrachloro-m-xylene (35-120%)					14 %				Z

*see qual code*

**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  
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Package ID T711SV30  
 Task Order 313150010  
 SDG No. IOA0549, IOA0552

No. of Analyses 2

Laboratory Del Mar Analytical.

Reviewer L. Calvin

Analysis/Method Semivolatiles by Method 625

Date: March 10, 2005  
 Reviewer's Signature L. Calvin

<b>ACTION ITEMS<sup>a</sup></b>	
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	Qualification was assigned for the following: --initial calibration $r^2 < 0.995$ --continuing calibration %D > 20% --method blank contamination --BS/BSD recoveries below the QC limits and RPDs above the QC limits --surrogates spiked below a recoverable level
<b>COMMENTS<sup>b</sup></b>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	





# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOA0549, IOA0552

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#: IOA0549, IOA0552  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Semivolatiles  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: L. Calvin  
Date of Review: March 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	Outfall 011	IOA0549-01	water	625
Outfall 011	Outfall 018	IOA0552-01	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 COC for Outfall 018 accounted for the analysis presented in this SDG. The Method 625 analysis for Outfall 011 was not listed on the COC; however, the analysis was requested in a memo dated 03/01/05 from MWH 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 extracted within seven days of collection and analyzed within 40 days of extraction. No qualifications were required.

### 2.2 GC/MS TUNING

The DFTPP tune 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 these SDGs was dated 01/10/05. The average RRFs for were  $\geq 0.05$  and the %RSDs were  $\leq 35\%$  or  $r^2 \geq 0.995$  for all target compounds, with the exception of the  $r^2$  for 2,4-dinitrophenol. The nondetect result for 2,4-dinitrophenol was qualified as estimated, "UJ," in sample Outfall 011. The continuing calibration associated with the sample analyses was analyzed 01/17/05. The RRFs for all target compounds were  $\geq 0.05$ , and the %Ds were  $\leq 20\%$ , with the exception of the %D for 2,4-dinitrophenol. The nondetect result for 2,4-dinitrophenol was qualified as estimated, "UJ," in sample Outfall 011. A representative number of average RRFs, %RSDs, and  $r^2$ s for the initial calibration and RRFs and %Ds for the continuing calibration were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.

### 2.4 BLANKS

One method blank (5A12027-BLK1) was extracted and analyzed with these SDGs. There were detects below the reporting limits for 2-methylnaphthalene, di-n-butylphthalate, butylbenzylphthalate, and bis(2-ethylhexyl)phthalate. The sample detect for 2-methylnaphthalene was less than five times the method blank concentration and was therefore qualified as a nondetect,

"U," at the reporting limit. There were no sample detects for the remaining compounds detected in the method blank. Review of the raw data indicated no reportable false positives or false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5A12027-BS1/BSD1) was extracted and analyzed with these SDGs. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary, to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ" for nondetects and "J" for detects, in the associated samples.

In both 5A12027-BS1 and 5A12027-BSD1, benzidine was not recovered and 3,3'-dichlorobenzidine was recovered below the QC limits but  $\geq 10\%$ . The RPDs for aniline, 4-chloroaniline, 3,3'-dichlorobenzidine, 2-methylnaphthalene, and naphthalene exceeded the laboratory QC limits. The nondetect sample result for benzidine was rejected, "R," the nondetect result for 3,3'-dichlorobenzidine was qualified as estimated, "UJ," and the results for the RPD outliers were qualified as estimated, "UJ" or "J," in sample Outfall 011. Spiked compounds 2-methylnaphthalene and naphthalene were recovered above the QC limits in 5A12027-BS1 only, and hexachlorobutadiene in 5A12027-BS1 only and 4-chloroaniline in 5A12027-BSD1 only were recovered below the QC limits but  $\geq 10\%$ . None of the aforementioned outliers were requested target compounds for sample Outfall 018. The remaining 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 further qualifications were required.

## 2.6 SURROGATE RECOVERY

The sample surrogate recoveries for sample Outfall 011 were within the laboratory QC limits. The case narrative for this SDG noted that the low-level preparation of sample Outfall 018 and the subsequent standard level analysis resulted in surrogate concentrations falling below the low calibration standard. The narrative further noted that even low-level analysis would have required dilution for matrix interference that would have diluted out the surrogates. As extraction efficiency could not be verified based on surrogate recoveries for sample Outfall 018, all results were qualified as estimated nondetects, "UJ." A representative number of 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

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.

## **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  $\pm 30$  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 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. The reporting limits were not adjusted for sample amount; however, the dilution factors on the sample result summaries reflected the sample amount extracted. Results were reported in  $\mu\text{g/L}$  (ppb). Compounds reported below the reporting limit but above the MDL were qualified as estimated, "J." No further 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: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05  
 Received: 01/11/05

## 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: IOA0552-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: ug/l									
Bis(2-ethylhexyl)phthalate	EPA 625	5A12027	5.2	6.0	ND	0.948	01/12/05	01/17/05	U S
2,4-Dinitrotoluene	EPA 625	5A12027	4.2	9.0	ND	0.948	01/12/05	01/17/05	U S
N-Nitrosodimethylamine	EPA 625	5A12027	3.7	8.0	ND	0.948	01/12/05	01/17/05	U S
Pentachlorophenol	EPA 625	5A12027	4.0	10	ND	0.948	01/12/05	01/17/05	U S
2,4,6-Trichlorophenol	EPA 625	5A12027	4.1	6.0	ND	0.948	01/12/05	01/17/05	U S
Surrogate: 2-Fluorophenol (35-120%)					17 %				Z
Surrogate: Phenol-d6 (45-120%)					8 %				Z
Surrogate: 2,4,6-Tribromophenol (50-125%)					13 %				Z
Surrogate: Nitrobenzene-d5 (45-120%)					1 %				Z
Surrogate: 2-Fluorobiphenyl (45-120%)					*				Z
Surrogate: Terphenyl-d14 (45-135%)					67 %				Z

**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 T711VO56  
 Task Order 313150010  
 SDG No. IOA0549, IOA552

No. of Analyses 4

Laboratory Del Mar Analytical

Date March 10, 2005

Reviewer K. Shadowlight

Reviewer's Signature  
*K. Shadowlight*

Analysis/Method Volatiles

**ACTION ITEMS\***

<b>1. Case Narrative</b>	
<b>Deficiencies</b>	
<b>2. Out of Scope</b>	
<b>Analyses</b>	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy Deliverables</b>	
<b>5. Incorrect Hardcopy Deliverables</b>	
<b>6. Deviations from Analysis Protocol, e.g.,</b>	<b>Qualifications were assigned for the following:</b>
Holding Times	* %D outliers in the continuing calibration
GC/MS Tune/Inst. Perform	* Compounds reported as TICs (not calibrated for on instrument)
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	

**COMMENTS<sup>b</sup>**

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





# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOA0549, IOA0552

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#: IOA0549, IOA0552  
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: March, 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	IOA0549-01	water	624/8260B
Trip Blank	Trip Blank	IOA0549-02	water	624
Outfall 018	Outfall 018	IOA0552-01	water	624
Trip Blank	Trip Blank	IOA0552-02	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. In a memo from Montgomery Watson dated 03/01/05, additional target compounds trichlorotrifluoroethane (Freon 113), 1,2-dichloro-1,1,2-trifluoroethane (Freon 123), and cyclohexane were requested for volatile analysis in sample Outfall 011. The COCs accounted for the remaining 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 the EPA Method 624 and SW-846 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

Four initial calibrations dated 11/03/04 (acrolein and acrylonitrile only), 12/13/04 (GCMS36), 01/04/05 (GCMS33), and 01/04/05 (GCMS44) were associated with these SDGs. The average RRFs were  $\geq 0.05$  for all compounds listed on the sample result summaries. The %RSDs were  $\leq 35\%$  for the target compounds analyzed by EPA Method 624, and the %RSD for Freon 113 analyzed by EPA SW-846 Method 8260B was  $\leq 15\%$ . Three continuing calibrations associated with the sample analyses were analyzed 01/12/05 (instruments GCMS33, GCMS36, and GCMS44). The RRFs were  $\geq 0.05$  in all of the continuing calibrations. The %Ds for acrolein and acrylonitrile exceeded 20% in the continuing calibration analyzed on instrument GCMS33; therefore, the nondetect results for acrolein and acrylonitrile were qualified as estimated, "UJ," in sample Outfall 011. No qualifications were required for the Trip blank. The %Ds were  $\leq 20\%$  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

Three water method blanks (5A12003-BLK1, 5A12008-BLK1, and 512012-BLK1) were associated with the sample analyses. There were no detects above the MDLs for the target compounds listed on the sample result summaries. The method blank raw data showed no evidence of false negatives. No qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Three water blank spikes (5A12003-BS1, 5A12008-BS1, and 5A12012-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 performed for samples Outfall 011 and Outfall 018 associated with these SDGs. All recoveries and RPDs were within QC limits for both MS/MSD pairs. 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 (IOA549) and Trip Blank (IOA552) were the trip blanks associated with site samples Outfall 011 and Outfall 018, respectively. Chlorobenzene was detected in Trip Blank (IOA549) at 0.73ug/L; however, chlorobenzene was not reported in associated sample Outfall 011. There were no other 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, of +100%/-50% for internal standard areas and  $\pm 0.50$  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 trichlorotrifluoroethane by EPA SW-846 8260B and the remaining volatile target compounds by EPA Method 624. A TIC search was performed for requested target compounds 1,2-dichloro-1,1,2-trichloroethane and cyclohexane, as these compounds were 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 performed for target compounds 1,2-dichloro-1,1,2-trichloroethane and cyclohexane; therefore, the laboratory performed only a TIC search for those compounds. Nondetects for both compounds were qualified as estimated, "UJ," in sample Outfall 011. Compound quantitation was verified by recalculating any sample detects and a representative number of blank spike and surrogate recoveries from the raw data. Detects reported between the MDL and the reporting limit 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 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: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: ug/l									
Benzene	EPA 624	5A12003	0.28	2.0	ND	1	01/12/05	01/12/05	u
Carbon tetrachloride	EPA 624	5A12003	0.28	5.0	ND	1	01/12/05	01/12/05	
Chloroform	EPA 624	5A12003	0.33	2.0	ND	1	01/12/05	01/12/05	
1,1-Dichloroethane	EPA 624	5A12003	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloroethane	EPA 624	5A12003	0.28	2.0	ND	1	01/12/05	01/12/05	
1,1-Dichloroethene	EPA 624	5A12003	0.32	3.0	ND	1	01/12/05	01/12/05	
Ethylbenzene	EPA 624	5A12003	0.25	2.0	ND	1	01/12/05	01/12/05	
Tetrachloroethene	EPA 624	5A12003	0.32	2.0	ND	1	01/12/05	01/12/05	
Toluene	EPA 624	5A12003	0.36	2.0	ND	1	01/12/05	01/12/05	
1,1,1-Trichloroethane	EPA 624	5A12003	0.30	2.0	ND	1	01/12/05	01/12/05	
1,1,2-Trichloroethane	EPA 624	5A12003	0.30	2.0	ND	1	01/12/05	01/12/05	
Trichloroethene	EPA 624	5A12003	0.26	5.0	ND	1	01/12/05	01/12/05	
Trichlorofluoromethane	EPA 624	5A12003	0.34	5.0	ND	1	01/12/05	01/12/05	
Vinyl chloride	EPA 624	5A12003	0.26	5.0	ND	1	01/12/05	01/12/05	
Xylenes, Total	EPA 624	5A12003	0.52	4.0	ND	1	01/12/05	01/12/05	
Surrogate: Dibromofluoromethane (80-120%)					98%				
Surrogate: Toluene-d8 (80-120%)					93%				
Surrogate: 4-Bromofluorobenzene (80-120%)					99%				

Rev Qual  
Qual code

Sample ID: IOA0552-02 (DRAFT: Trip Blank - Water)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Reporting Units: ug/l									
Benzene	EPA 624	5A12012	0.28	2.0	ND	1	01/12/05	01/13/05	u
Carbon tetrachloride	EPA 624	5A12012	0.28	5.0	ND	1	01/12/05	01/13/05	
Chloroform	EPA 624	5A12012	0.33	2.0	ND	1	01/12/05	01/13/05	
1,1-Dichloroethane	EPA 624	5A12012	0.27	2.0	ND	1	01/12/05	01/13/05	
1,2-Dichloroethane	EPA 624	5A12012	0.28	2.0	ND	1	01/12/05	01/13/05	
1,1-Dichloroethene	EPA 624	5A12012	0.32	3.0	ND	1	01/12/05	01/13/05	
Ethylbenzene	EPA 624	5A12012	0.25	2.0	ND	1	01/12/05	01/13/05	
Tetrachloroethene	EPA 624	5A12012	0.32	2.0	ND	1	01/12/05	01/13/05	
Toluene	EPA 624	5A12012	0.36	2.0	ND	1	01/12/05	01/13/05	
1,1,1-Trichloroethane	EPA 624	5A12012	0.30	2.0	ND	1	01/12/05	01/13/05	
1,1,2-Trichloroethane	EPA 624	5A12012	0.30	2.0	ND	1	01/12/05	01/13/05	
Trichloroethene	EPA 624	5A12012	0.26	5.0	ND	1	01/12/05	01/13/05	
Trichlorofluoromethane	EPA 624	5A12012	0.34	5.0	ND	1	01/12/05	01/13/05	
Vinyl chloride	EPA 624	5A12012	0.26	5.0	ND	1	01/12/05	01/13/05	
Xylenes, Total	EPA 624	5A12012	0.52	4.0	ND	1	01/12/05	01/13/05	
Surrogate: Dibromofluoromethane (80-120%)					108%				
Surrogate: Toluene-d8 (80-120%)					104%				
Surrogate: 4-Bromofluorobenzene (80-120%)					102%				

Rev Qual  
Qual code

DRAFT REPORT  
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**LEVEL IV**





### 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 detected 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).

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# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOA0549 & IOA0552

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 #: IOA0549 & IOA0552  
Project Manager: B. Mellvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 2  
Reviewer: L. Jarusewic  
Date of Review: March 10, 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, 150.1, 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	Outfall 011	IOA0549-01	Water	General Minerals
Outfall 018	Outfall 018	IOA0552-01	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. The fluoride analysis was requested in a memo from MWH personnel dated 03/01/05. 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  $\geq 0.995$ . Initial and continuing calibration information was acceptable with %Rs within the control limits of 90-110% for all analytes except hexavalent chromium. The CCV for hexavalent chromium exceeded the method control limits of 95-105%; however, as hexavalent chromium was not detected, no qualifications were required. 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 or total settleable solids. The total cyanide RL check standard was recovered within the control limits of 70-130%. No qualifications were required.

### 2.3 BLANKS

Fluoride was detected in the associated method blank at 0.149 mg/L; therefore, fluoride detected in Outfall 011 was qualified as estimated, "UJ." Oil and grease was detected in the associated method blank for Outfall 011 and Outfall 018; however, the oil and grease method blank result was insufficient to qualify



the Outfall 011 and Outfall 018 results. Hexavalent chromium was detected in the associated method blank for Outfall 011; however, hexavalent chromium was not detected in Outfall 011 and 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 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 remaining LCS results 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**

MS/MSD analyses were performed on Outfall 011 for hexavalent chromium. The RPD was within the control limit of  $\leq 20\%$ . No qualifications were required.

#### **2.7 MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

MS/MSD analyses were performed on Outfall 011 for hexavalent chromium. The recoveries were within the laboratory-established control limits and no qualifications were required.

#### **2.8 FURNACE ATOMIC ABSORPTION QC**

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

#### **2.9 ICP SERIAL DILUTION**

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

## **2.10 SAMPLE RESULT VERIFICATION**

A Level IV review was performed for the samples in 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. BOD results 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: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5A13063	0.30	0.50	ND	1	01/13/05	01/13/05	U
Biochemical Oxygen Demand	EPA 405.1	5A12041	0.59	2.0	1.1	1	01/12/05	01/17/05	J
Chloride	EPA 300.0	5A11041	0.26	0.50	6.0	1	01/11/05	01/11/05	J
Nitrate/Nitrite-N	EPA 300.0	5A11041	0.072	0.26	0.76	1	01/11/05	01/11/05	
Oil & Grease	EPA 413.1	5A13065	0.94	5.0	19.17	1	01/13/05	01/13/05	#
Sulfate	EPA 300.0	5A11041	0.18	0.50	14	1	01/11/05	01/11/05	
Surfactants (MBAS)	EPA 425.1	5A12059	0.044	0.10	ND	1	01/12/05	01/12/05	U
Total Dissolved Solids	EPA 160.1	5A13089	10	10	140	1	01/13/05	01/13/05	U
Total Suspended Solids	EPA 160.2	5A14084	10	10	ND	1	01/14/05	01/14/05	U
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5A12043	0.10	0.10	ND	1	01/12/05	01/12/05	U
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: NTU									
Turbidity	EPA 180.1	5A12058	0.040	1.0	19	1	01/12/05	01/12/05	
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5A11108	2.2	5.0	ND	1	01/11/05	01/11/05	U
Perchlorate	EPA 314.0	5A13051	0.80	4.0	ND	1	01/13/05	01/13/05	*
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water)									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5A13060	1.0	1.0	160	1	01/13/05	01/13/05	

J 5-12-05

**AMEC VALIDATED**

\*Analysis Not 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 T711WC75  
 Task Order 313150010  
 SDG No. IOA0549/IOA0552  
 No. of Analyses 2

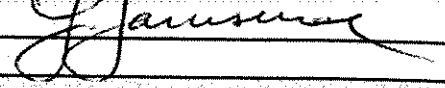
Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method Perchlorate

Date: 03/10/05

Reviewer's Signature



**ACTION ITEMS<sup>a</sup>**

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<sup>b</sup>**      Acceptable as reviewed.

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



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: PERCHLORATE

SAMPLE DELIVERY GROUPS: IOA0549 & IOA0552

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 #: IOA0549/IOA0552  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Perchlorate  
QC Level: Level IV  
No. of Samples: 2  
Reviewer: L. Jarusewic  
Date of Review: March 10, 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 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	IOA0549-01	Water	Perchlorate
Outfall 018	Outfall 018	IOA0552-01	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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . 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, 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 date of collection with the dates of analysis. The 28-day analytical holding time for perchlorate was met, and no qualifications were required.

### 2.2 CALIBRATION

The initial calibration correlation coefficients were  $\geq 0.995$ . The IPC-MA recoveries were 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 recoveries were 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.

## **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 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 calculations 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: Routine Outfall 018  
 Report Number: IOA0552

Sampled: 01/11/05  
 Received: 01/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water) - cont. Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5A13063	0.30	0.50	ND	1	01/13/05	01/13/05	* J
Biochemical Oxygen Demand	EPA 405.1	5A12041	0.59	2.0	1.1	1	01/12/05	01/17/05	
Chloride	EPA 300.0	5A11041	0.26	0.50	6.0	1	01/11/05	01/11/05	
Nitrate/Nitrite-N	EPA 300.0	5A11041	0.072	0.26	0.76	1	01/11/05	01/11/05	
Oil & Grease	EPA 413.1	5A13065	0.94	5.0	19	1	01/13/05	01/13/05	
Sulfate	EPA 300.0	5A11041	0.18	0.50	14	1	01/11/05	01/11/05	
Surfactants (MBAS)	EPA 425.1	5A12059	0.044	0.10	ND	1	01/12/05	01/12/05	
Total Dissolved Solids	EPA 160.1	5A13089	10	10	140	1	01/13/05	01/13/05	
Total Suspended Solids	EPA 160.2	5A14084	10	10	ND	1	01/14/05	01/14/05	
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water) Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5A12043	0.10	0.10	ND	1	01/12/05	01/12/05	
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water) Reporting Units: NTU									
Turbidity	EPA 180.1	5A12058	0.040	1.0	19	1	01/12/05	01/12/05	
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water) Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5A11108	2.2	5.0	ND	1	01/11/05	01/11/05	✓
Perchlorate	EPA 314.0	5A13051	0.80	4.0	ND	1	01/13/05	01/13/05	u
Sample ID: IOA0552-01 (DRAFT: Outfall 018 - Water) Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5A13060	1.0	1.0	160	1	01/13/05	01/13/05	*

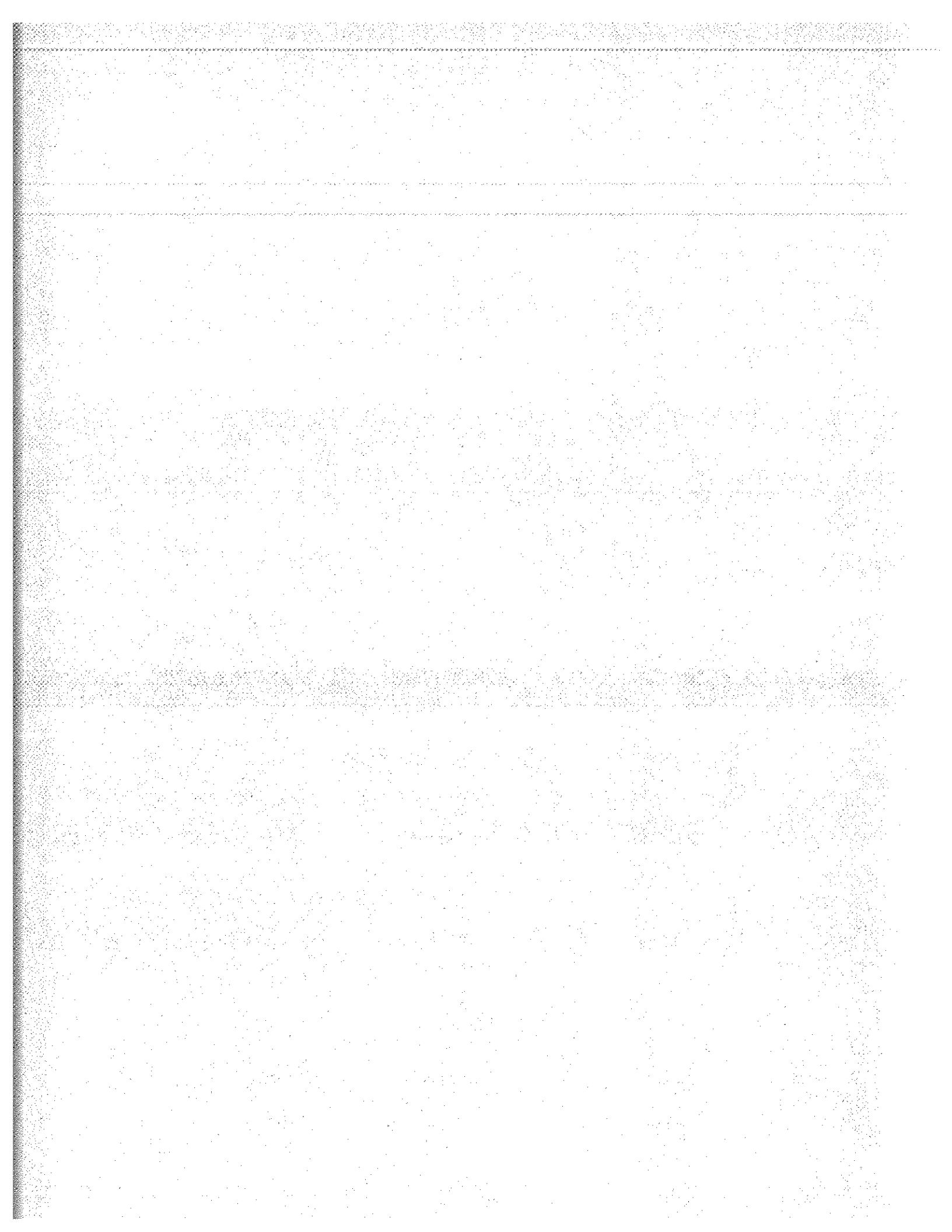
### AMEC VALIDATED

# 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.*





LABORATORY REPORT

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

Project: Routine Outfall 018

Sampled: 01/11/05  
Received: 01/11/05  
Issued: 03/09/05 19:07

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 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.
- 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.
- ADDITIONAL INFORMATION: Due to instruction from the client to analyze samples from Outfall 018 the same as Outfalls 001 & 002, the specified reporting limits in the permit require preparation for low level analysis. During the screening process, high hydrocarbon interference was noted. Due to potential instrument contamination problems, the sample was analyzed at no dilution on the standard level instrument. The low surrogate recoveries are due to spike levels below the instrument ICAL and is the result of sample preparation for low level analysis. The surrogate recoveries would have been out of limits on the low level instrument as well, due to a necessary dilution to account for matrix interference's.

LABORATORY ID	CLIENT ID	MATRIX
IOA0552-01	Outfall 018	Water
IOA0552-02	Trip Blank	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: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05  
Received: 01/11/05

PURGEABLES BY GC/MS (EPA 624)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0552-01 (Outfall 018 - Water)</b>									
Reporting Units: ug/l									
Benzene	EPA 624	5A12003	0.28	2.0	ND	1	01/12/05	01/12/05	
Carbon tetrachloride	EPA 624	5A12003	0.28	5.0	ND	1	01/12/05	01/12/05	
Chloroform	EPA 624	5A12003	0.33	2.0	ND	1	01/12/05	01/12/05	
1,1-Dichloroethane	EPA 624	5A12003	0.27	2.0	ND	1	01/12/05	01/12/05	
1,2-Dichloroethane	EPA 624	5A12003	0.28	2.0	ND	1	01/12/05	01/12/05	
1,1-Dichloroethene	EPA 624	5A12003	0.32	3.0	ND	1	01/12/05	01/12/05	
Ethylbenzene	EPA 624	5A12003	0.25	2.0	ND	1	01/12/05	01/12/05	
Tetrachloroethene	EPA 624	5A12003	0.32	2.0	ND	1	01/12/05	01/12/05	
Toluene	EPA 624	5A12003	0.36	2.0	ND	1	01/12/05	01/12/05	
1,1,1-Trichloroethane	EPA 624	5A12003	0.30	2.0	ND	1	01/12/05	01/12/05	
1,1,2-Trichloroethane	EPA 624	5A12003	0.30	2.0	ND	1	01/12/05	01/12/05	
Trichloroethene	EPA 624	5A12003	0.26	5.0	ND	1	01/12/05	01/12/05	
Trichlorofluoromethane	EPA 624	5A12003	0.34	5.0	ND	1	01/12/05	01/12/05	
Vinyl chloride	EPA 624	5A12003	0.26	5.0	ND	1	01/12/05	01/12/05	
Xylenes, Total	EPA 624	5A12003	0.52	4.0	ND	1	01/12/05	01/12/05	
Surrogate: Dibromofluoromethane (80-120%)					98 %				
Surrogate: Toluene-d8 (80-120%)					93 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					99 %				
<b>Sample ID: IOA0552-02 (Trip Blank - Water)</b>									
Reporting Units: ug/l									
Benzene	EPA 624	5A12012	0.28	2.0	ND	1	01/12/05	01/13/05	
Carbon tetrachloride	EPA 624	5A12012	0.28	5.0	ND	1	01/12/05	01/13/05	
Chloroform	EPA 624	5A12012	0.33	2.0	ND	1	01/12/05	01/13/05	
1,1-Dichloroethane	EPA 624	5A12012	0.27	2.0	ND	1	01/12/05	01/13/05	
1,2-Dichloroethane	EPA 624	5A12012	0.28	2.0	ND	1	01/12/05	01/13/05	
1,1-Dichloroethene	EPA 624	5A12012	0.32	3.0	ND	1	01/12/05	01/13/05	
Ethylbenzene	EPA 624	5A12012	0.25	2.0	ND	1	01/12/05	01/13/05	
Tetrachloroethene	EPA 624	5A12012	0.32	2.0	ND	1	01/12/05	01/13/05	
Toluene	EPA 624	5A12012	0.36	2.0	ND	1	01/12/05	01/13/05	
1,1,1-Trichloroethane	EPA 624	5A12012	0.30	2.0	ND	1	01/12/05	01/13/05	
1,1,2-Trichloroethane	EPA 624	5A12012	0.30	2.0	ND	1	01/12/05	01/13/05	
Trichloroethene	EPA 624	5A12012	0.26	5.0	ND	1	01/12/05	01/13/05	
Trichlorofluoromethane	EPA 624	5A12012	0.34	5.0	ND	1	01/12/05	01/13/05	
Vinyl chloride	EPA 624	5A12012	0.26	5.0	ND	1	01/12/05	01/13/05	
Xylenes, Total	EPA 624	5A12012	0.52	4.0	ND	1	01/12/05	01/13/05	
Surrogate: Dibromofluoromethane (80-120%)					108 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					102 %				

Del Mar Analytical, Irvine  
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  
 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 018

Report Number: IOA0552

Sampled: 01/11/05

Received: 01/11/05

## 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
<b>Sample ID: IOA0552-01 (Outfall 018 - Water)</b>									
<b>Reporting Units: ug/l</b>									
Bis(2-ethylhexyl)phthalate	EPA 625	5A12027	5.2	6.0	ND	0.948	01/12/05	01/17/05	N-1
2,4-Dinitrotoluene	EPA 625	5A12027	4.2	9.0	ND	0.948	01/12/05	01/17/05	
N-Nitrosodimethylamine	EPA 625	5A12027	3.7	8.0	ND	0.948	01/12/05	01/17/05	
Pentachlorophenol	EPA 625	5A12027	4.0	10	ND	0.948	01/12/05	01/17/05	
2,4,6-Trichlorophenol	EPA 625	5A12027	4.1	6.0	ND	0.948	01/12/05	01/17/05	
Surrogate: 2-Fluorophenol (35-120%)					17 %				Z
Surrogate: Phenol-d6 (45-120%)					8 %				Z
Surrogate: 2,4,6-Tribromophenol (50-125%)					13 %				Z
Surrogate: Nitrobenzene-d5 (45-120%)					1 %				Z
Surrogate: 2-Fluorobiphenyl (45-120%)					*				Z
Surrogate: Terphenyl-d14 (45-135%)					67 %				

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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 018

Report Number: IOA0552

Sampled: 01/11/05

Received: 01/11/05

**ORGANOCHLORINE PESTICIDES (EPA 608)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0552-01 (Outfall 018 - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
alpha-BHC	EPA 608	5A13049	0.00049	0.010	ND	0.962	01/13/05	01/14/05	
Surrogate: Decachlorobiphenyl (45-120%)					38 %				Z
Surrogate: Tetrachloro-m-xylene (35-120%)					14 %				Z

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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: Routine Outfall 018 Report Number: IOA0552	Sampled: 01/11/05 Received: 01/11/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOA0552-01 (Outfall 018 - Water) - cont.									
Reporting Units: ug/l									
Copper	EPA 200.8	5A12054	0.49	2.0	3.5	1	01/12/05	01/12/05	
Lead	EPA 200.8	5A12054	0.13	1.0	0.82	1	01/12/05	01/12/05	J
Mercury	EPA 245.1	5A12047	0.063	0.20	0.16	1	01/12/05	01/12/05	J

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

Project ID: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05

Received: 01/11/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOA0552-01 (Outfall 018 - Water) - cont.</b>									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5A13063	0.30	0.50	ND	1	01/13/05	01/13/05	
Biochemical Oxygen Demand	EPA 405.1	5A12041	0.59	2.0	1.1	1	01/12/05	01/17/05	J
Chloride	EPA 300.0	5A11041	0.26	0.50	6.0	1	01/11/05	01/11/05	
Nitrate/Nitrite-N	EPA 300.0	5A11041	0.072	0.26	0.76	1	01/11/05	01/11/05	
Oil & Grease	EPA 413.1	5A13065	0.94	5.0	19	1	01/13/05	01/13/05	
Sulfate	EPA 300.0	5A11041	0.18	0.50	14	1	01/11/05	01/11/05	
Surfactants (MBAS)	EPA 425.1	5A12059	0.044	0.10	ND	1	01/12/05	01/12/05	
Total Dissolved Solids	EPA 160.1	5A13089	10	10	140	1	01/13/05	01/13/05	
Total Suspended Solids	EPA 160.2	5A14084	10	10	ND	1	01/14/05	01/14/05	
<b>Sample ID: IOA0552-01 (Outfall 018 - Water)</b>									
Reporting Units: ml/hr									
Total Settleable Solids	EPA 160.5	5A12043	0.10	0.10	ND	1	01/12/05	01/12/05	
<b>Sample ID: IOA0552-01 (Outfall 018 - Water)</b>									
Reporting Units: NTU									
Turbidity	EPA 180.1	5A12058	0.040	1.0	19	1	01/12/05	01/12/05	
<b>Sample ID: IOA0552-01 (Outfall 018 - Water)</b>									
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5A11108	2.2	5.0	ND	1	01/11/05	01/11/05	
Perchlorate	EPA 314.0	5A13051	0.80	4.0	ND	1	01/13/05	01/13/05	
<b>Sample ID: IOA0552-01 (Outfall 018 - Water)</b>									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5A13060	1.0	1.0	160	1	01/13/05	01/13/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018  Report Number: IOA0552	Sampled: 01/11/05 Received: 01/11/05
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**SHORT HOLD TIME DETAIL REPORT**

Sample ID: Outfall 018 (IOA0552-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	01/11/2005 11:38	01/11/2005 18:50	01/12/2005 09:30	01/12/2005 12:30
EPA 180.1	2	01/11/2005 11:38	01/11/2005 18:50	01/12/2005 11:30	01/12/2005 12:30
EPA 300.0	2	01/11/2005 11:38	01/11/2005 18:50	01/11/2005 21:00	01/11/2005 21:43
EPA 405.1	2	01/11/2005 11:38	01/11/2005 18:50	01/12/2005 11:00	01/17/2005 16:00
EPA 425.1	2	01/11/2005 11:38	01/11/2005 18:50	01/12/2005 13:06	01/12/2005 20:16

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

Project ID: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05  
 Received: 01/11/05

## 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	RPD Limit	Data Qualifiers
<b>Batch: 5A12003 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12003-BLK1)</b>										
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	25.0			ug/l	25.0		100	80-120		
Surrogate: Toluene-d8	23.8			ug/l	25.0		95	80-120		
Surrogate: 4-Bromofluorobenzene	25.2			ug/l	25.0		101	80-120		
<b>LCS Analyzed: 01/12/2005 (5A12003-BS1)</b>										
Benzene	23.1	2.0	0.28	ug/l	25.0		92	70-120		
Carbon tetrachloride	24.6	5.0	0.28	ug/l	25.0		98	70-140		
Chloroform	26.8	2.0	0.33	ug/l	25.0		107	75-130		
1,1-Dichloroethane	24.2	2.0	0.27	ug/l	25.0		97	70-135		
1,2-Dichloroethane	27.6	2.0	0.28	ug/l	25.0		110	60-150		
1,1-Dichloroethene	22.5	3.0	0.32	ug/l	25.0		90	75-135		
Ethylbenzene	25.4	2.0	0.25	ug/l	25.0		102	80-120		
Tetrachloroethene	22.3	2.0	0.32	ug/l	25.0		89	75-125		
Toluene	23.0	2.0	0.36	ug/l	25.0		92	75-120		
1,1,1-Trichloroethane	28.0	2.0	0.30	ug/l	25.0		112	75-140		
1,1,2-Trichloroethane	24.5	2.0	0.30	ug/l	25.0		98	70-125		
Trichloroethene	19.9	5.0	0.26	ug/l	25.0		80	80-120		
Trichlorofluoromethane	26.8	5.0	0.34	ug/l	25.0		107	65-145		
Vinyl chloride	23.4	5.0	0.26	ug/l	25.0		94	50-130		
Surrogate: Dibromofluoromethane	25.0			ug/l	25.0		100	80-120		
Surrogate: Toluene-d8	23.7			ug/l	25.0		95	80-120		

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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: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05
Received: 01/11/05

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 sections for LCS Analyzed, Matrix Spike Analyzed, and Matrix Spike Dup Analyzed.

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

Project ID: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05

Received: 01/11/05

## 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: 5A12003 Extracted: 01/12/05**

**Matrix Spike Dup Analyzed: 01/12/2005 (5A12003-MSD1)**

Source: IOA0552-01

Surrogate: Dibromofluoromethane	24.6			ug/l	25.0		98	80-120			
Surrogate: Toluene-d8	23.6			ug/l	25.0		94	80-120			
Surrogate: 4-Bromofluorobenzene	25.0			ug/l	25.0		100	80-120			

**Batch: 5A12012 Extracted: 01/12/05**

**Blank Analyzed: 01/12/2005 (5A12012-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	26.2			ug/l	25.0		105	80-120			
Surrogate: Toluene-d8	26.3			ug/l	25.0		105	80-120			
Surrogate: 4-Bromofluorobenzene	25.7			ug/l	25.0		103	80-120			

**LCS Analyzed: 01/12/2005 (5A12012-BS1)**

Benzene	26.8	2.0	0.28	ug/l	25.0		107	70-120			
Carbon tetrachloride	27.0	5.0	0.28	ug/l	25.0		108	70-140			
Chloroform	28.6	2.0	0.33	ug/l	25.0		114	75-130			
1,1-Dichloroethane	27.9	2.0	0.27	ug/l	25.0		112	70-135			
1,2-Dichloroethane	29.3	2.0	0.28	ug/l	25.0		117	60-150			
1,1-Dichloroethene	25.6	3.0	0.32	ug/l	25.0		102	75-135			
Ethylbenzene	28.3	2.0	0.25	ug/l	25.0		113	80-120			
Tetrachloroethene	27.8	2.0	0.32	ug/l	25.0		111	75-125			
Toluene	27.8	2.0	0.36	ug/l	25.0		111	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 018

Report Number: IOA0552

Sampled: 01/11/05
Received: 01/11/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Table with columns: Analyte, Result, Reporting Limit, MDL, Units, Spike Level, Source Result, %REC, Limits, RPD, RPD Limit, Data Qualifiers. Includes sections for Batch: 5A12012, LCS Analyzed: 01/12/2005, and Matrix Spike Analyzed: 01/12/2005.

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Michele Harper
Project Manager



MWH-Pasadena/Boeing Project ID: Routine Outfall 018  
300 North Lake Avenue, Suite 1200 Report Number: IOA0552  
Pasadena, CA 91101  
Attention: Bronwyn Kelly  
Sampled: 01/11/05  
Received: 01/11/05

METHOD BLANK/QC DATA

PURGEABLES BY GC/MS (EPA 624)

Analyte Result Reporting Limit MDL Units Spike Level Source Result %REC Limits RPD Limit Data Qualifiers  
Batch: 5A12012 Extracted: 01/12/05

Matrix Spike Dup Analyzed: 01/12/2005 (5A12012-MSD1)

Source: IOA0521-04

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Data Qualifiers
Benzene	27.1	2.0	0.28	ug/l	25.0	0.34	107 70-120	2	20	
Carbon tetrachloride	28.1	5.0	0.28	ug/l	25.0	ND	112 70-145	4	25	
Chloroform	28.0	2.0	0.33	ug/l	25.0	ND	112 70-135	1	20	
1,1-Dichloroethane	26.8	2.0	0.27	ug/l	25.0	ND	107 65-135	1	20	
1,2-Dichloroethane	28.8	2.0	0.28	ug/l	25.0	ND	115 60-150	1	20	
1,1-Dichloroethene	23.4	3.0	0.32	ug/l	25.0	ND	94 65-140	1	20	
Ethylbenzene	28.7	2.0	0.25	ug/l	25.0	0.42	113 70-130	2	20	
Tetrachloroethene	27.5	2.0	0.32	ug/l	25.0	ND	110 70-130	3	20	
Toluene	28.8	2.0	0.36	ug/l	25.0	1.1	111 70-120	2	20	
1,1,1-Trichloroethane	29.3	2.0	0.30	ug/l	25.0	ND	117 75-140	1	20	
1,1,2-Trichloroethane	28.2	2.0	0.30	ug/l	25.0	ND	113 60-135	1	25	
Trichloroethene	27.7	5.0	0.26	ug/l	25.0	ND	111 70-125	2	20	
Trichlorofluoromethane	28.6	5.0	0.34	ug/l	25.0	ND	114 55-145	2	25	
Vinyl chloride	30.6	5.0	0.26	ug/l	25.0	ND	122 40-135	0	30	
Surrogate: Dibromofluoromethane	26.4			ug/l	25.0		106 80-120			
Surrogate: Toluene-d8	26.6			ug/l	25.0		106 80-120			
Surrogate: 4-Bromofluorobenzene	26.6			ug/l	25.0		106 80-120			

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Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018 Report Number: IOA0552	Sampled: 01/11/05 Received: 01/11/05
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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	RPD Limit	Data Qualifiers
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Batch: 5A12027 Extracted: 01/12/05

#### Blank Analyzed: 01/17/2005 (5A12027-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	14.2			ug/l	20.0		71	35-120		
Surrogate: Phenol-d6	14.7			ug/l	20.0		74	45-120		
Surrogate: 2,4,6-Tribromophenol	14.3			ug/l	20.0		72	50-125		
Surrogate: Nitrobenzene-d5	6.84			ug/l	10.0		68	45-120		
Surrogate: 2-Fluorobiphenyl	7.60			ug/l	10.0		76	45-120		
Surrogate: Terphenyl-d14	8.12			ug/l	10.0		81	45-135		

#### LCS Analyzed: 01/17/2005 (5A12027-BS1)

Bis(2-ethylhexyl)phthalate	8.56	5.0	1.1	ug/l	10.0		86	65-125		
2,4-Dinitrotoluene	7.36	9.0	0.23	ug/l	10.0		74	60-140		J
N-Nitrosodimethylamine	7.68	8.0	0.22	ug/l	10.0		77	40-120		J
Pentachlorophenol	8.04	8.0	0.78	ug/l	10.0		80	50-125		
2,4,6-Trichlorophenol	8.64	6.0	0.10	ug/l	10.0		86	60-120		
Surrogate: 2-Fluorophenol	14.5			ug/l	20.0		72	35-120		
Surrogate: Phenol-d6	14.5			ug/l	20.0		72	45-120		
Surrogate: 2,4,6-Tribromophenol	14.7			ug/l	20.0		74	50-125		
Surrogate: Nitrobenzene-d5	7.14			ug/l	10.0		71	45-120		
Surrogate: 2-Fluorobiphenyl	7.80			ug/l	10.0		78	45-120		
Surrogate: Terphenyl-d14	8.56			ug/l	10.0		86	45-135		

M-NR1

#### LCS Dup Analyzed: 01/17/2005 (5A12027-BSD1)

Bis(2-ethylhexyl)phthalate	8.24	5.0	1.1	ug/l	10.0		82	65-125	4	20	
2,4-Dinitrotoluene	7.48	9.0	0.23	ug/l	10.0		75	60-140	2	20	J
N-Nitrosodimethylamine	7.20	8.0	0.22	ug/l	10.0		72	40-120	6	20	J
Pentachlorophenol	7.68	8.0	0.78	ug/l	10.0		77	50-125	5	25	J
2,4,6-Trichlorophenol	8.76	6.0	0.10	ug/l	10.0		88	60-120	1	20	
Surrogate: 2-Fluorophenol	14.3			ug/l	20.0		72	35-120			
Surrogate: Phenol-d6	14.5			ug/l	20.0		72	45-120			
Surrogate: 2,4,6-Tribromophenol	15.0			ug/l	20.0		75	50-125			
Surrogate: Nitrobenzene-d5	7.38			ug/l	10.0		74	45-120			
Surrogate: 2-Fluorobiphenyl	7.66			ug/l	10.0		77	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: Routine Outfall 018  Report Number: IOA0552	Sampled: 01/11/05 Received: 01/11/05
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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
<b>Batch: 5A12027 Extracted: 01/12/05</b>											
<b>LCS Dup Analyzed: 01/17/2005 (5A12027-BSD1)</b>											
Surrogate: Terphenyl-d14	9.00			ug/l	10.0		90	45-135			

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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
<b>Batch: 5A13049 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/14/2005 (5A13049-BLK1)</b>											
alpha-BHC	ND	0.010	0.00049	ug/l							
Surrogate: Decachlorobiphenyl	0.456			ug/l	0.500		91	45-120			
Surrogate: Tetrachloro-m-xylene	0.349			ug/l	0.500		70	35-120			
<b>LCS Analyzed: 01/14/2005 (5A13049-BS1)</b>											
alpha-BHC	0.427	0.010	0.00049	ug/l	0.500		85	45-115			M-NR1
Surrogate: Decachlorobiphenyl	0.432			ug/l	0.500		86	45-120			
Surrogate: Tetrachloro-m-xylene	0.347			ug/l	0.500		69	35-120			
<b>LCS Dup Analyzed: 01/14/2005 (5A13049-BSD1)</b>											
alpha-BHC	0.433	0.010	0.00049	ug/l	0.500		87	45-115	1	30	
Surrogate: Decachlorobiphenyl	0.407			ug/l	0.500		81	45-120			
Surrogate: Tetrachloro-m-xylene	0.364			ug/l	0.500		73	35-120			

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

Project ID: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12047 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12047-BLK1)</b>										
Mercury	ND	0.20	0.063	ug/l						
<b>LCS Analyzed: 01/12/2005 (5A12047-BS1)</b>										
Mercury	8.12	0.20	0.063	ug/l	8.00		102 85-115			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12047-MS1)</b>										
						<b>Source: IOA0483-01</b>				
Mercury	8.00	0.20	0.063	ug/l	8.00	ND	100 70-130			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12047-MSD1)</b>										
						<b>Source: IOA0483-01</b>				
Mercury	8.26	0.20	0.063	ug/l	8.00	ND	103 70-130	3	20	
<b>Batch: 5A12054 Extracted: 01/12/05</b>										
<b>Blank Analyzed: 01/12/2005 (5A12054-BLK1)</b>										
Copper	ND	2.0	0.49	ug/l						
Lead	ND	1.0	0.13	ug/l						
<b>LCS Analyzed: 01/12/2005 (5A12054-BS1)</b>										
Copper	80.7	2.0	0.49	ug/l	80.0		101 85-115			
Lead	80.4	1.0	0.13	ug/l	80.0		100 85-115			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12054-MS1)</b>										
						<b>Source: IOA0549-01</b>				
Copper	83.9	2.0	0.49	ug/l	80.0	4.2	100 70-130			
Lead	81.3	1.0	0.13	ug/l	80.0	1.0	100 70-130			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12054-MSD1)</b>										
						<b>Source: IOA0549-01</b>				
Copper	83.8	2.0	0.49	ug/l	80.0	4.2	100 70-130	0	20	
Lead	80.9	1.0	0.13	ug/l	80.0	1.0	100 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	Limits RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A11041 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11041-BLK1)</b>										
Chloride	ND	0.50	0.26	mg/l						
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l						
Sulfate	ND	0.50	0.18	mg/l						
<b>LCS Analyzed: 01/11/2005 (5A11041-BS1)</b>										
Chloride	5.00	0.50	0.26	mg/l	5.00		100	90-110		
Sulfate	10.8	0.50	0.18	mg/l	10.0		108	90-110		
<b>Matrix Spike Analyzed: 01/11/2005 (5A11041-MS1)</b>										
					<b>Source: IOA0551-01</b>					
Chloride	8.89	0.50	0.26	mg/l	5.00	4.2	94	80-120		
Sulfate	17.1	0.50	0.18	mg/l	10.0	6.8	103	80-120		
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11041-MSD1)</b>										
					<b>Source: IOA0551-01</b>					
Chloride	9.11	0.50	0.26	mg/l	5.00	4.2	98	80-120	2	20
Sulfate	17.2	0.50	0.18	mg/l	10.0	6.8	104	80-120	1	20
<b>Batch: 5A11108 Extracted: 01/11/05</b>										
<b>Blank Analyzed: 01/11/2005 (5A11108-BLK1)</b>										
Total Cyanide	ND	5.0	2.2	ug/l						
<b>LCS Analyzed: 01/11/2005 (5A11108-BS1)</b>										
Total Cyanide	184	5.0	2.2	ug/l	200		92	90-110		
<b>Matrix Spike Analyzed: 01/11/2005 (5A11108-MS1)</b>										
					<b>Source: IOA0214-01</b>					
Total Cyanide	171	5.0	2.2	ug/l	200	ND	86	70-115		

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Routine Outfall 018 Report Number: IOA0552	Sampled: 01/11/05 Received: 01/11/05
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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
<b>Batch: 5A11108 Extracted: 01/11/05</b>											
<b>Matrix Spike Dup Analyzed: 01/11/2005 (5A11108-MSD1)</b>						<b>Source: IOA0214-01</b>					
Total Cyanide	169	5.0	2.2	ug/l	200	ND	84	70-115	1	15	
<b>Batch: 5A12041 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/17/2005 (5A12041-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
<b>LCS Analyzed: 01/17/2005 (5A12041-BS1)</b>											
Biochemical Oxygen Demand	208	100	30	mg/l	198		105	85-115			
<b>LCS Dup Analyzed: 01/17/2005 (5A12041-BSD1)</b>											
Biochemical Oxygen Demand	212	100	30	mg/l	198		107	85-115	2	20	
<b>Batch: 5A12058 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12058-BLK1)</b>											
Turbidity	ND	1.0	0.040	NTU							
<b>Duplicate Analyzed: 01/12/2005 (5A12058-DUP1)</b>						<b>Source: IOA0541-01</b>					
Turbidity	0.260	1.0	0.040	NTU		0.23			12	20	J
<b>Batch: 5A12059 Extracted: 01/12/05</b>											
<b>Blank Analyzed: 01/12/2005 (5A12059-BLK1)</b>											
Surfactants (MBAS)	ND	0.10	0.044	mg/l							

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A12059 Extracted: 01/12/05</b>											
<b>LCS Analyzed: 01/12/2005 (5A12059-BS1)</b>											
Surfactants (MBAS)	0.248	0.10	0.044	mg/l	0.250		99	90-110			
<b>Matrix Spike Analyzed: 01/12/2005 (5A12059-MS1) Source: IOA0578-01</b>											
Surfactants (MBAS)	0.191	0.10	0.044	mg/l	0.250	0.052	56	50-125			
<b>Matrix Spike Dup Analyzed: 01/12/2005 (5A12059-MSD1) Source: IOA0578-01</b>											
Surfactants (MBAS)	0.193	0.10	0.044	mg/l	0.250	0.052	56	50-125	1	20	
<b>Batch: 5A13051 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13051-BLK1)</b>											
Perchlorate	ND	4.0	0.80	ug/l							
<b>LCS Analyzed: 01/13/2005 (5A13051-BS1)</b>											
Perchlorate	50.0	4.0	0.80	ug/l	50.0		100	85-115			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13051-MS1) Source: IOA0417-02</b>											
Perchlorate	49.6	4.0	0.80	ug/l	50.0	0.93	97	80-120			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13051-MSD1) Source: IOA0417-02</b>											
Perchlorate	50.7	4.0	0.80	ug/l	50.0	0.93	100	80-120	2	20	
<b>Batch: 5A13060 Extracted: 01/13/05</b>											
<b>Duplicate Analyzed: 01/13/2005 (5A13060-DUP1) Source: IOA0552-01</b>											
Specific Conductance	164	1.0	1.0	umhos/cm		160			2	5	

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 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13063 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13063-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 01/13/2005 (5A13063-BS1)</b>											
Ammonia-N (Distilled)	9.80	0.50	0.30	mg/l	10.0		98	80-115			
<b>Matrix Spike Analyzed: 01/13/2005 (5A13063-MS1)</b>											
						<b>Source: IOA0632-01</b>					
Ammonia-N (Distilled)	11.5	0.50	0.30	mg/l	10.0	0.56	109	70-120			
<b>Matrix Spike Dup Analyzed: 01/13/2005 (5A13063-MSD1)</b>											
						<b>Source: IOA0632-01</b>					
Ammonia-N (Distilled)	11.2	0.50	0.30	mg/l	10.0	0.56	106	70-120	3	15	
<b>Batch: 5A13065 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13065-BLK1)</b>											
Oil & Grease	1.20	5.0	0.94	mg/l							J
<b>LCS Analyzed: 01/13/2005 (5A13065-BS1)</b>											
Oil & Grease	18.6	5.0	0.94	mg/l	20.0		93	65-120			M-NR1
<b>LCS Dup Analyzed: 01/13/2005 (5A13065-BSD1)</b>											
Oil & Grease	21.1	5.0	0.94	mg/l	20.0		106	65-120	13	20	
<b>Batch: 5A13089 Extracted: 01/13/05</b>											
<b>Blank Analyzed: 01/13/2005 (5A13089-BLK1)</b>											
Total Dissolved Solids	ND	10	10	mg/l							

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 Attention: Bronwyn Kelly

Project ID: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05  
 Received: 01/11/05

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5A13089 Extracted: 01/13/05</b>											
<b>LCS Analyzed: 01/13/2005 (5A13089-BS1)</b>											
Total Dissolved Solids	994	10	10	mg/l	1000		99	90-110			
<b>Duplicate Analyzed: 01/13/2005 (5A13089-DUP1)</b>											
Total Dissolved Solids	92.0	10	10	mg/l		Source: IOA0549-01	88		4	10	
<b>Batch: 5A14084 Extracted: 01/14/05</b>											
<b>Blank Analyzed: 01/14/2005 (5A14084-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 01/14/2005 (5A14084-BS1)</b>											
Total Suspended Solids	949	10	10	mg/l	1000		95	85-115			
<b>Duplicate Analyzed: 01/14/2005 (5A14084-DUP1)</b>											
Total Suspended Solids	ND	10	10	mg/l		Source: IOA0607-01	ND			10	

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Report Number: IOA0552

Sampled: 01/11/05

Received: 01/11/05

### 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.
- N-1** See case narrative.
- Z** Due to sample matrix effects, the surrogate recovery was below the acceptance limits.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

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Project ID: Routine Outfall 018

Report Number: IOA0552

Sampled: 01/11/05  
Received: 01/11/05

## Certification Summary

### Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
EPA 120.1	Water	X	X
EPA 160.1	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 425.1	Water	X	X
EPA 608	Water	X	X
EPA 624	Water	X	X
EPA 625	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](http://www.dmalabs.com).*

### Subcontracted Laboratories

#### Pace Analytical, MN- SUB

1700 Elm Street, Ste 200 - Minneapolis, MN 55414

Analysis Performed: 1613-Dioxin-HR  
Samples: IOA0552-01

Analysis Performed: EDD + Level 4  
Samples: IOA0552-01

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Michele Harper  
Project Manager

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IOA0552

**CHAIN OF CUSTODY FORM**

Del Mar Analytical Version 5/8/2004

Client Name/Address:		Project:		ANALYSIS REQUIRED										Field readings:						
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Routine Outfall 018 R-2 Spillway		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 DinitrotoLuene, Bis(2-ethylhexyl)phthalate, NDMA, pentachlorophenol (EPA 625)	Temp = 55.9 pH = 7.0				
Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #	Sampling Date/Time	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 DinitrotoLuene, Bis(2-ethylhexyl)phthalate, NDMA, pentachlorophenol (EPA 625)	Temp = 55.9 pH = 7.0	
Outfall 018	W	Poly-1L	1	HNO3	1A	1-11-05 11:38	X													
Outfall 018-Dup	W	Poly-1L	1	HNO3	1B		X													
Outfall 018	W	Poly-1L	1	None	2			X												
Outfall 018	W	VOAs	3	HCl	3A, 3B, 3C				X											
Outfall 018	W	1L Amber	2	None	4A, 4B					X										
Outfall 018	W	1L Amber	2	HCl	5A, 5B						X									
Outfall 018	W	Poly-500 ml	1	NaOH	6							X								
Outfall 018	W	Poly-1L	1	None	7								X							
Outfall 018	W	Poly-500 ml	2	None	8A, 8B									X						
Outfall 018	W	Poly-500 ml	2	None	9A, 9B										X					
Outfall 018	W	Poly-500 ml	2	None	10A, 10B											X				
Outfall 018	W	Poly-500 ml	1	H2SO4	11												X			
Outfall 018	W	1L Amber	2	None	12A, 12B													X		
Outfall 018	W	1L Amber	2	None	13A, 13B															X
Trip Blank	W	VOAs	3	HCl	15A, 15B, 15C				X											
Relinquished By				Received By		Date/Time														
Relinquished By				Received By		Date/Time														
Relinquished By				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:

Received By: *[Signature]* Date/Time: 1-11-05 1435  
 Received By: *[Signature]* Date/Time: 1-11-05 1830  
 Received By: *[Signature]* Date/Time: 1-11-05 1850



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

March 9, 2005

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

Attention: Bronwyn Kelly  
Project: Routine Outfall 018  
Sampled: 01/11/05  
Del Mar Analytical Number: IOA0552

Dear Ms. Kelly:

Pace Analytical performed Method 1613B analysis for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	Pace ID
Outfall 018	IOA0552-01	106125001

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



### Method 1613B Analysis Results

Client - Del Mar Analytical

Client's Sample ID	IOA0552-01		
Lab Sample ID	106125001		
Filename	F50129B_08		
Injected By	BAL		
Total Amount Extracted	1040 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	01/11/2005
ICAL Date	11/29/2004	Received	01/13/2005
CCal Filename(s)	F50129B_02	Extracted	01/28/2005
Method Blank ID	BLANK-6220	Analyzed	01/30/2005 01:29

Native Isomers	Conc pg/L	EMPC pg/L	LOD pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.30	2,3,7,8-TCDF-13C	2.00	65
Total TCDF	ND	----	1.30	2,3,7,8-TCDD-13C	2.00	81
				1,2,3,7,8-PeCDF-13C	2.00	72
2,3,7,8-TCDD	ND	----	1.20	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	ND	----	1.20	1,2,3,7,8-PeCDD-13C	2.00	88
				1,2,3,4,7,8-HxCDF-13C	2.00	73
1,2,3,7,8-PeCDF	ND	----	1.20	1,2,3,6,7,8-HxCDF-13C	2.00	87
2,3,4,7,8-PeCDF	ND	----	0.81	2,3,4,6,7,8-HxCDF-13C	2.00	81
Total PeCDF	ND	----	0.99	1,2,3,7,8,9-HxCDF-13C	2.00	76
				1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	----	0.89	1,2,3,6,7,8-HxCDD-13C	2.00	89
Total PeCDD	ND	----	0.89	1,2,3,4,6,7,8-HpCDF-13C	2.00	80
				1,2,3,4,7,8,9-HpCDF-13C	2.00	67
1,2,3,4,7,8-HxCDF	ND	----	0.81	1,2,3,4,6,7,8-HpCDD-13C	2.00	87
1,2,3,6,7,8-HxCDF	ND	----	0.85	OCDD-13C	4.00	74
2,3,4,6,7,8-HxCDF	ND	----	0.59			
1,2,3,7,8,9-HxCDF	ND	----	0.89	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.79	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.91	2,3,7,8-TCDD-37Cl4	0.20	79
1,2,3,6,7,8-HxCDD	ND	----	1.10			
1,2,3,7,8,9-HxCDD	ND	----	0.81			
Total HxCDD	1.2	----	0.95 J			
1,2,3,4,6,7,8-HpCDF	----	2.2	0.84 I			
1,2,3,4,7,8,9-HpCDF	ND	----	0.80			
Total HpCDF	ND	----	0.82			
1,2,3,4,6,7,8-HpCDD	12.0	----	1.90 BJ			
Total HpCDD	26.0	----	1.90 J			
OCDF	10.0	----	1.70 BJ			
OCDD	140.0	----	3.00			

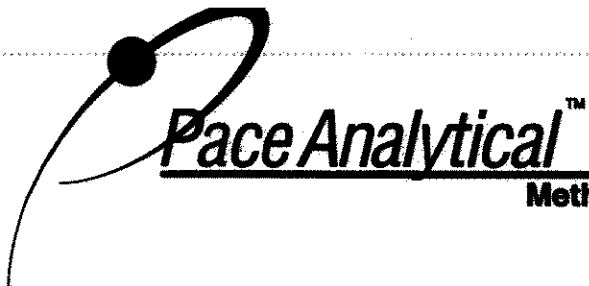
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 LOD = Limit of Detection. Totals are averages of individual isomer LODs.  
 D = Result obtained from analysis of diluted sample  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of method 1613 control limits  
 J = Concentration detected is below the calibration range  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....106125

## REPORT OF LABORATORY ANALYSIS

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### Method 1613B Blank Analysis Results

Client - Del Mar Analytical

Lab Sample ID	BLANK-6220	Matrix	Water
Filename	F50129B_06	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 23:49
CCal Filename(s)	F50129B_02	Injected By	BAL

Native Isomers	Conc pg/L	EMPC pg/L	PRL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	1.20	2,3,7,8-TCDF-13C	2.00	58
Total TCDF	ND	----	----	2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	ND	----	1.20	2,3,4,7,8-PeCDF-13C	2.00	67
Total TCDD	ND	----	----	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	----	1.50	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	1.20	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	----	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	----	1.60	1,2,3,6,7,8-HxCDD-13C	2.00	88
Total PeCDD	ND	----	----	1,2,3,4,6,7,8-HpCDF-13C	2.00	73
				1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	ND	----	0.75	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	ND	----	0.86	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	ND	----	1.10			
1,2,3,7,8,9-HxCDF	ND	----	1.20	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	----	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.10	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	ND	----	0.99			
1,2,3,7,8,9-HxCDD	ND	----	1.00			
Total HxCDD	ND	----	----			
1,2,3,4,6,7,8-HpCDF	ND	----	2.10			
1,2,3,4,7,8,9-HpCDF	ND	----	1.90			
Total HpCDF	2.2	----	---- J			
1,2,3,4,6,7,8-HpCDD	2.4	----	1.40 J			
Total HpCDD	2.4	----	---- J			
OCDF	5.2	----	1.80 J			
OCDD	5.6	----	2.90 J			

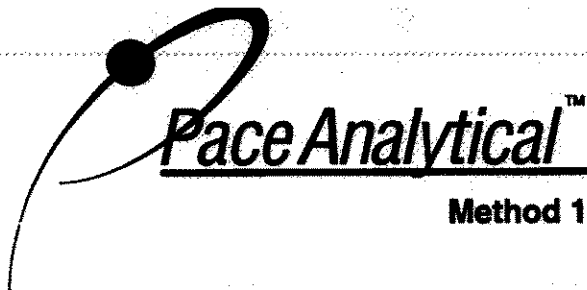
Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
 EMPC = Estimated Maximum Possible Concentration  
 PRL = Pace Analytical Reporting Limit  
 A = Limit of Detection based on signal to noise  
 P = Recovery outside of method 1613 control limits  
 Nn = Value obtained from additional analysis

I = Interference  
 E = PCDE Interference  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 J = Value below calibration range  
 \* = See Discussion

Report No.....106124

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCS-6221	Matrix	Water
Filename	F50129B_03	Dilution	NA
Total Amount Extracted	1040 mL	Extracted	01/28/2005
ICAL Date	11/29/2004	Analyzed	01/29/2005 21:22
CCal Filename	F50129B_02	Injected By	BAL
Method Blank ID	BLANK-6220		

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.9	7.5	15.8	99
2,3,7,8-TCDD	10	8.6	6.7	15.8	86
1,2,3,7,8-PeCDF	50	50.5	40.0	67.0	101
2,3,4,7,8-PeCDF	50	48.2	34.0	80.0	96
1,2,3,7,8-PeCDD	50	43.3	35.0	71.0	87
1,2,3,4,7,8-HxCDF	50	45.6	36.0	67.0	91
1,2,3,6,7,8-HxCDF	50	48.7	42.0	65.0	97
2,3,4,6,7,8-HxCDF	50	49.1	35.0	78.0	98
1,2,3,7,8,9-HxCDF	50	46.5	39.0	65.0	93
1,2,3,4,7,8-HxCDD	50	49.9	35.0	82.0	100
1,2,3,6,7,8-HxCDD	50	51.3	38.0	67.0	103
1,2,3,7,8,9-HxCDD	50	50.1	32.0	81.0	100
1,2,3,4,6,7,8-HpCDF	50	50.3	41.0	61.0	101
1,2,3,4,7,8,9-HpCDF	50	53.3	39.0	69.0	107
1,2,3,4,6,7,8-HpCDD	50	45.4	35.0	70.0	91
OCDF	100	95.6	63.0	170.0	96
OCDD	100	97.1	78.0	144.0	97
2,3,7,8-TCDD-37Cl4	10	6.9	3.1	19.1	69
2,3,7,8-TCDF-13C	100	51.5	22.0	152.0	52
2,3,7,8-TCDD-13C	100	67.8	20.0	175.0	68
1,2,3,7,8-PeCDF-13C	100	61.4	21.0	192.0	61
2,3,4,7,8-PeCDF-13C	100	65.9	13.0	328.0	66
1,2,3,7,8-PeCDD-13C	100	77.8	21.0	227.0	78
1,2,3,4,7,8-HxCDF-13C	100	70.2	19.0	202.0	70
1,2,3,6,7,8-HxCDF-13C	100	78.0	21.0	159.0	78
2,3,4,6,7,8-HxCDF-13C	100	74.1	22.0	176.0	74
1,2,3,7,8,9-HxCDF-13C	100	70.4	17.0	205.0	70
1,2,3,4,7,8-HxCDD-13C	100	69.0	21.0	193.0	69
1,2,3,6,7,8-HxCDD-13C	100	82.8	25.0	163.0	83
1,2,3,4,6,7,8-HpCDF-13C	100	72.1	21.0	158.0	72
1,2,3,4,7,8,9-HpCDF-13C	100	62.4	20.0	186.0	62
1,2,3,4,6,7,8-HpCDD-13C	100	80.1	26.0	166.0	80
OCDD-13C	200	135.6	26.0	397.0	68

Cs = Concentration Spiked (ng/mL)

Cr = Concentration Recovered (ng/mL)

Rec. = Recovery (Expressed as Percent)

Control Limit Reference: Method 1613, Table 6, 10/94 Revision

X = Background subtracted value

P = Recovery outside of control limits

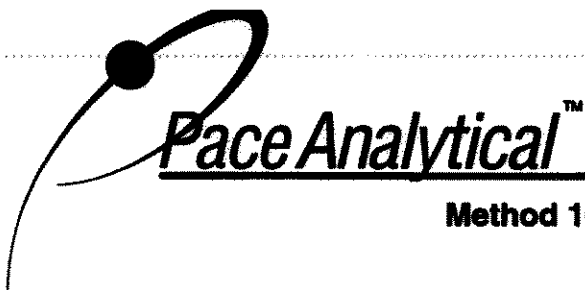
Nn = Value obtained from additional analysis

\* = See Discussion

Report No.....106124

## REPORT OF LABORATORY ANALYSIS

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## Method 1613B Laboratory Control Spike Results

Client - Del Mar Analytical

Lab Sample ID	LCSD-6222		
Filename	F50129B_04	Matrix	Water
Total Amount Extracted	1040 mL	Dilution	NA
ICAL Date	11/29/2004	Extracted	01/28/2005
CCal Filename	F50129B_02	Analyzed	01/29/2005 22:09
Method Blank ID	BLANK-6220	Injected By	BAL

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10.6	7.5	15.8	106
2,3,7,8-TCDD	10	9.4	6.7	15.8	94
1,2,3,7,8-PeCDF	50	53.2	40.0	67.0	106
2,3,4,7,8-PeCDF	50	50.7	34.0	80.0	101
1,2,3,7,8-PeCDD	50	46.0	35.0	71.0	92
1,2,3,4,7,8-HxCDF	50	47.6	36.0	67.0	95
1,2,3,6,7,8-HxCDF	50	50.9	42.0	65.0	102
2,3,4,6,7,8-HxCDF	50	50.9	35.0	78.0	102
1,2,3,7,8,9-HxCDF	50	49.0	39.0	65.0	98
1,2,3,4,7,8-HxCDD	50	52.4	35.0	82.0	105
1,2,3,6,7,8-HxCDD	50	54.2	38.0	67.0	108
1,2,3,7,8,9-HxCDD	50	52.5	32.0	81.0	105
1,2,3,4,6,7,8-HpCDF	50	55.0	41.0	61.0	110
1,2,3,4,7,8,9-HpCDF	50	55.7	39.0	69.0	111
1,2,3,4,6,7,8-HpCDD	50	48.0	35.0	70.0	96
OCDF	100	100.6	63.0	170.0	101
OCDD	100	101.9	78.0	144.0	102
2,3,7,8-TCDD-37Cl4	10	8.7	3.1	19.1	87
2,3,7,8-TCDF-13C	100	70.4	22.0	152.0	70
2,3,7,8-TCDD-13C	100	88.6	20.0	175.0	89
1,2,3,7,8-PeCDF-13C	100	73.6	21.0	192.0	74
2,3,4,7,8-PeCDF-13C	100	79.0	13.0	328.0	79
1,2,3,7,8-PeCDD-13C	100	95.5	21.0	227.0	96
1,2,3,4,7,8-HxCDF-13C	100	84.8	19.0	202.0	85
1,2,3,6,7,8-HxCDF-13C	100	89.5	21.0	159.0	90
2,3,4,6,7,8-HxCDF-13C	100	87.2	22.0	176.0	87
1,2,3,7,8,9-HxCDF-13C	100	82.1	17.0	205.0	82
1,2,3,4,7,8-HxCDD-13C	100	80.1	21.0	193.0	80
1,2,3,6,7,8-HxCDD-13C	100	97.0	25.0	163.0	97
1,2,3,4,6,7,8-HpCDF-13C	100	84.4	21.0	158.0	84
1,2,3,4,7,8,9-HpCDF-13C	100	71.7	20.0	186.0	72
1,2,3,4,6,7,8-HpCDD-13C	100	92.4	26.0	166.0	92
OCDD-13C	200	159.2	26.0	397.0	80

Cs = Concentration Spiked (ng/mL)  
Cr = Concentration Recovered (ng/mL)  
Rec. = Recovery (Expressed as Percent)  
Control Limit Reference: Method 1613, Table 6, 10/94 Revision  
X = Background subtracted value  
P = Recovery outside of control limits  
Nn = Value obtained from additional analysis  
\* = See Discussion

Report No.....106124

## REPORT OF LABORATORY ANALYSIS

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**SPIKE RECOVERY RELATIVE PERCENT DIFFERENCE (RPD) RESULTS**

Client..... Del Mar Analytical

SPIKE 1 ID..... LCS-6221  
SPIKE 1 Filename..... F50129B\_03  
SPIKE 2 ID..... LCSD-6222  
SPIKE 2 Filename..... F50129B\_04

COMPOUND	SPIKE 1 REC,%	SPIKE 2 REC,%	RPD,%
2378-TCDF	99	106	6.8
2378-TCDD	86	94	8.9
12378-PeCDF	101	106	4.8
23478-PeCDF	96	101	5.1
12378-PeCDD	87	92	5.6
123478-HxCDF	91	95	4.3
123678-HxCDF	97	102	5.0
234678-HxCDF	98	102	4.0
123789-HxCDF	93	98	5.2
123478-HxCDD	100	105	4.9
123678-HxCDD	103	108	4.7
123789-HxCDD	100	105	4.9
1234678-HpCDF	101	110	8.5
1234789-HpCDF	107	111	3.7
1234678-HpCDD	91	96	5.3
OCDF	96	101	5.1
OCDD	97	102	5.0

REC = Percent Recovered

RPD = The difference between the two values divided by the average.

NA = Not Applicable

Report No..... 106124, 106125, 106126  
106127, 106128, 106130  
106131, 106132, 106135

**REPORT OF LABORATORY ANALYSIS**

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**TABLE 1. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans**

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

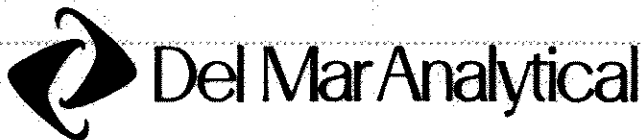
\*Excluding the 2,3,7,8-substituted congeners.

Reference: 1989 ITEFs

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 2520 E. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

**SUBCONTRACT ORDER - PROJECT # IOA0552** *106125*

**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:**  
 Pace Analytical, MN- SUB  
 1700 Elm Street, Ste 200  
 Minneapolis, MN 55414  
 Phone : (612) 607-1700  
 Fax: (612) 607-6444

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

Analysis	Expiration	Comments
Sample ID: IOA0552-01 Water	Sampled: 01/11/05 11:38	Instant Notification <i>106125001</i>
1613-Dioxin-HR	01/18/05 11:38	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	02/08/05 11:38	Excel EDD email to pm, Include Std logs for Lvl IV

**Containers Supplied:**  
 1 L Amber (IOA0552-01G)  
 1 L Amber (IOA0552-01H)

**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): 3.0°C

Released By *[Signature]* *11/12/05* Date Time Received By *[Signature]* *Pace* *1-13-05* *09:45* Date Time

Released By \_\_\_\_\_ Date Time Received By \_\_\_\_\_ Date Time

**APPENDIX G**

**Section 15**

**February Outfall 001**

**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 T711DF30  
 Task Order 313150010  
 SDG No. Multi  
 No. of Analyses 13

Laboratory Alta Analytical Perspective

Reviewer H. Chang

Analysis/Method Dioxin&Furans/1613

Date: March 18, 2005
Reviewer's Signature <i>H. Chang</i>

ACTION ITEMS <sup>a</sup>	
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." False negative and false positives noted. Several transcription errors were noted.
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

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 SDGs  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Dioxins/Furans  
QC Level: Level IV  
No. of Samples: 13  
No. of Reanalyses/Dilutions: 0  
Reviewer: H. Chang  
Date of Review: March 18, 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 AP)	Matrix	COC Method
Outfall 001	IOB0980-01	P5072_2989_007	water	1613B
Outfall 002	IOB0981-01	P5072_2989_013	water	1613B
Outfall 003	IOB0988-01	P5072_2989_012	water	1613B
Outfall 004	IOB1002-01	P5072_2989_009	water	1613B
Outfall 005	IOB0990-01	P5072_2989_006	water	1613B
Outfall 006	IOB0992-01	P5072_2989_010	water	1613B
Outfall 007	IOB0993-01	P5072_2989_002	water	1613B
Outfall 008	IOB0997-01	P5072_2989_004	water	1613B
Outfall 009	IOB0996-01	P5072_2989_003	water	1613B
Outfall 010	IOB1001-01	P5072_2989_001	water	1613B
Outfall 011 Composite	IOB1004-01	P5072_2989_011	water	1613B
Outfall 011	IOB1014-01	P5072_2989_005	water	1613B
Outfall 018	IOB1008-01	P5072_2989_008	water	1613B



## 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  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$  except sample Outfall 009 which was at  $8^{\circ}\text{C}$ . Due to non-volatile nature of the analytes, no qualifications were necessary for the elevated cooler temperature. The samples were received at Pace Analytical with cooler temperatures of  $1.6^{\circ}\text{C}$ ,  $2.3^{\circ}\text{C}$ , and  $3^{\circ}\text{C}$ . The samples were received at Alta Analytical Perspectives with cooler temperatures of  $1^{\circ}\text{C}$  and  $3^{\circ}\text{C}$ . According to the laboratory login sheets, all samples were received intact and in good condition at Del Mar and Alta AP. No sample conditions were available for review for the sample receipt at Pace. No qualifications were required.

#### 2.1.2 Chain of Custody

It appears that the samples were initially sent from Del Mar Analytical to Pace Analytical then subsequently shipped to Alta Analytical Perspectives. The COCs from the field to Del Mar, Del Mar to Pace, and Pace to Alta were available for review. The COCs were legible and signed by the appropriate field and laboratory personnel, and accounted for the analyses presented in these SDGs. The custody seals were not present on the coolers upon receipt at either Del Mar or Alta. No custody seal information was available for Pace. 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 Column Performance Check Standard (CPSM) containing the first and last eluting congeners of each descriptor and isomer specificity compounds was analyzed prior to initial calibration analysis. A separate CPSM was not analyzed for daily analytical sequence; instead, CPSM compounds were added to OPR analysis. 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 calibrations, analyzed 08/12/04. The calibrations each 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 native compounds and  $\leq 35\%$  for the labeled compounds. 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.

## 2.4 BLANKS

One method blank (0\_2989\_MB001) was extracted and analyzed with the samples in these SDGs. There were no 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\_2989\_OPR001) was extracted and analyzed with the samples in these SDGs. All recoveries were within the acceptance criteria listed in Table 6 of the 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. The laboratory reported total PeCDFs detects in samples Outfall 005, Outfall 006, Outfall 007, and Outfall 011. The reviewer deemed the signals used to be below the signal-to-noise ratio of 2.5 and the results were changed to nondetects. A false negative for total HxCDD was noted in sample Outfall 001 and was changed to a detect. No further qualifications were required.

## 2.10 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantitation was verified from the raw data. The laboratory calculated and reported compound-specific detection limits. Any detects below the lower method calibration level (MCL) were qualified as estimated, "J." The laboratory did not flag OCDD in samples Outfall 002 and Outfall 003 although the reported concentrations were below the lower MCL. OCDD in these samples was qualified as estimated, "J." The laboratory did not notate detects below the lower MCL for totals. These totals were qualified as estimated, "J." The "DNQ" qualification code was applied only if all components of the totals were below the lower MCL.

The laboratory indicated that one of the non-2,3,7,8 substituted HxCDD detect, present in majority of the samples, was due to recovery standard (13C-1,2,3,4,6,7-HxCDD) contribution. This compound was also present in the method blank. This compound was not included in the total HxCDD concentration. Several total HxCDD results could not be reproduced from the raw data by the reviewer and were hand-corrected on the Form I. No further qualifications were required.

**Sample ID: IOB0980-01**

Outfall 001

**Method 1613**

Client Data		Sample Data		Laboratory Data	
Name:	Pace Inc.	Matrix:	Aqueous	Project No.:	P5072
Project ID:	General Analytical HRMS	Weight/Volume:	1.00 L	Sample ID:	P5072_2989_007
Date Collected:	11 Feb 05	pH	6	QC Batch No.:	2989
Analyte	Conc.	DL	EMPC	Qualifier	Recoveries
	pg/L	pg/L	pg/L		ES CS
2,3,7,8-TCDD	ND	2.55			79.1
1,2,3,7,8-PeCDD	ND	1.89			89.4
1,2,3,4,7,8-HxCDD	ND	2.42			83.1
1,2,3,6,7,8-HxCDD	ND	2.41			83.1
1,2,3,7,8,9-HxCDD	ND	2.88			83.1
1,2,3,4,6,7,8-HpCDD	49.8	7.48			62.4
OCDD	471	6.38			62.4
2,3,7,8-TCDF	ND	1.64			79.1
1,2,3,7,8-PeCDF	ND	1.98			83.9
2,3,4,7,8-PeCDF	ND	2.03			83.9
1,2,3,4,7,8-HxCDF	ND	1.47			83.1
1,2,3,6,7,8-HxCDF	ND	1.51			83.1
2,3,4,6,7,8-HxCDF	ND	1.9			83.1
1,2,3,7,8,9-HxCDF	ND	2.85			83.1
1,2,3,4,6,7,8-HpCDF	10.8	1.71		J	62.4
1,2,3,4,7,8,9-HpCDF	ND	2.58			62.4
OCDF	34.9	12		J	62.4
<b>Totals &amp; TEQs</b>					
TCDDs	ND	2.55			
PeCDDs	ND	1.89			
HxCDDs	<del>ND</del> 5.96	2.58	-8.869.31		
HpCDDs	101	7.48			
TCDFs	ND	1.64			
PeCDFs	ND	2.01	2.21		
HxCDFs	4.13	1.87	0.368		
HpCDFs	36.5	2.12	7.22		
<b>Total PCDD/Fs</b>	<b>648.653</b>		<b>663</b>		



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Checkcode: 0067

AAP 2005 Rev. B

**AMEC VALIDATED**

Reviewer \_\_\_\_\_  
Date \_\_\_\_\_





# DATA VALIDATION REPORT

NPDES  
Monitoring

ANALYSIS: HYDRAZINES

SAMPLE DELIVERY GROUP: IOB0980

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 #: IOB0980  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Hydrazines  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: P. Meeks  
Date of Review: March 29, 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.

**Table 1. Sample identification**

EPA ID	Del Mar ID	Laboratory ID	Matrix	COC Method
Outfall 001	IOB0980-01	939702	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 sample in this SDG was 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 this SDG noted that the sample was received intact at both laboratories. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC from the field to Del Mar was signed and dated by field and laboratory personnel, and the transfer COC from Del Mar to Truesdail Laboratories was signed and dated by personnel from both laboratories. Both the original COC and transfer COCs requested only monomethyl hydrazine analysis; however, unsymmetrical dimethyl hydrazine and hydrazine were also reported. As the sample was transported to Del Mar and then to Truesdail by courier, no custody seals were required. Truesdail Laboratories did not list the Outfall 001 ID on the Form I; therefore, the reviewer hand-corrected the Form I to include this information. 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 three-day extraction holding time for the hydrazine analysis was met and the sample was analyzed within three days of extraction. No qualifications were required.

### 2.2 CALIBRATION

The five-point initial calibrations were analyzed 02/14/05, with correlation coefficients of  $\geq 0.995$  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 this SDG. The results reported on the method blank summary form and in the raw data for the instrument and method blank analyses associated with the sample 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 this SDG. The hydrazines were recovered within the laboratory-established control limits of 70%-130%, and the RPD was 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 001. The recoveries for the hydrazines were within the laboratory QC limits of 0-150%; however, both recoveries were  $\geq 10\%$ . The RPDs were within the QC 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 sample. Following are findings associated with field QC samples:

### 2.7.1 Field Blanks and Equipment Rinsates

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

### 2.7.2 Field Duplicates

There were no field duplicate samples in this SDG.

## 2.8 COMPOUND IDENTIFICATION

The sample was 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.

# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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## REPORT

**Client:** Del Mar Analytical  
17461 Derian Ave.  
Irvine, CA 92614

**Attention:** Michele Harper

**Sample:** Liquid / 1 Sample

**Project Name:** IOB0980

**P.O. Number:** IOB0980

**Method Number:** 8315 (Modified)

**Investigation:** Hydrazines in Liquid

**Laboratory No:** 939702

**Report Date:** February 16, 2005

**Sampling Date:** February 11, 2005

**Receiving Date:** February 14, 2005

**Extraction Date:** February 14, 2005

**Analysis Date:** February 15, 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		Qual Code
		ND	Y	ND	Y	ND	Y	
704765-MB	Method Blank	ND	Y	ND	Y	ND	Y	*
939702	outfall 601	ND	U	ND	U	ND	U	U
MDL		1.2		0.27				
PQL		5.0		5.0				

pm 2/30/05

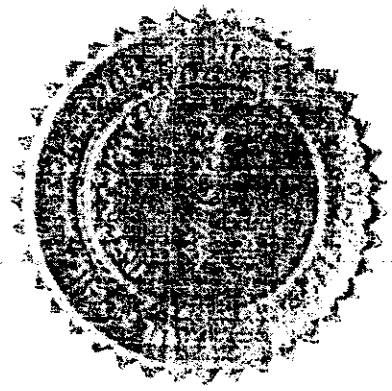
Analytic Not Valid

# AMEC VALIDATED

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.





# DATA VALIDATION REPORT

NPDES  
Monitoring

ANALYSIS: METALS

SAMPLE DELIVERY GROUP: IOB0980

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#: IOB0980  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Metals  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 2  
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 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.

**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 001	Outfall 001	IOB09801-01	water	ILM04
Outfall 001 RE1	Outfall 001 RE1	IOB09801-01	water	ILM04
Outfall 001 RE2	Outfall 001 RE2	IOB09801-01	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. As the laboratory did not append the client IDs with RE1 or RE2, the reviewer added this information to the Form Is. 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 and 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 the ICP and ICP/MS metals. Copper was not recovered in the 1.0 ppb reporting limit standard and was recovered at 66% in the 2.0 ppb reporting limit check standard; however, the associated (and retained) copper result was  $\geq 3 \times \text{RL}$ , and no qualifications were required. The reporting limit check standards associated with the retained results were recovered within the AMEC control limits of 70-130%. No sample qualifications were required.



## 2.4 BLANKS

Boron was detected in a bracketing CCB at 0.0248 mg/L; therefore, boron detected in Outfall 001 was qualified as estimated, "UJ." Chromium was reported in the method blank at 0.670 µg/L; however, this was insufficient to qualify the retained chromium result. No other detects were reported in the method blanks or CCBs and 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 analyses, but were not run on the day the site sample was analyzed. The recoveries for the interferents and the other spiked analytes were within the control limits of 80-120%. No ICP/MS ICSA and ICSAB analyses reported with the retained ICP/MS results; therefore, no assessment was made with respect to this criterion. No qualifications were required.

## 2.6 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

The ICP LCS and ICP/MS samples associated with the retained results were identified as 5B12044-BS1 and 5B12041-BS1, respectively. The LCS results on the summary forms and in the raw data were within the laboratory-established ICP and 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 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

Scandium was recovered above the control limit in Outfall 001; however, as scandium was not the internal standard associated with the reported analytes, no qualifications were required. The remaining 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. Cobalt detected below the reporting limit in Outfall 001 was qualified as estimated, "J."

The laboratory twice reanalyzed Outfall 001 for iron, chromium, copper, lead, manganese, and zinc, and reported the results as Outfall 001 RE1 and Outfall 001 RE2. As the reanalyzes yielded results similar to the original analysis, the reviewer rejected, "R," the results in both reanalyses, Outfall 001 RE1 and Outfall 001 RE2, in favor of the original results, Outfall 001. 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

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

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water) - cont.									
Reporting Units: mg/l									
Boron	EPA 200.7	5B12044	0.0074	0.050	0.054	1	02/12/05	02/12/05	UJ B B
Iron	EPA 200.7	5B12044	0.0088	0.040	27	1	02/12/05	02/12/05	

# AMEC VALIDATED

*[Handwritten Signature]*  
 2/11/05

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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOB0980-01RE1 (DRAFT: Outfall 001 - Water) - cont.													
Reporting Units: mg/l													
Iron	EPA 200.7	5B14113	0.0088	0.040	27	1	02/14/05	02/15/05	<table border="1"> <tr> <td>Low Qual</td> <td>Code</td> </tr> <tr> <td>R</td> <td>D</td> </tr> </table>	Low Qual	Code	R	D
Low Qual	Code												
R	D												

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

**DRAFT: METALS**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers				
Sample ID: IOB0980-01RE2 (DRAFT: Outfall 001 - Water) - cont.													
Reporting Units: mg/l													
Iron	EPA 200.7	5B17052	0.0088	0.040	29	1	02/12/05	02/17/05	<table border="1"> <tr> <td>Raw</td> <td>Qual</td> </tr> <tr> <td>R</td> <td>D</td> </tr> </table>	Raw	Qual	R	D
Raw	Qual												
R	D												

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05

Received: 02/11/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water) - cont. Reporting Units: ug/l									
Chromium	EPA 200.7	5B12044	0.68	5.0	27	1	02/12/05	02/12/05	RW Qual
Cobalt	EPA 200.7	5B12044	0.89	10	6.8	1	02/12/05	02/12/05	J J DNE
Copper	EPA 200.8	5B12041	0.49	2.0	13	1	02/12/05	02/14/05	
Lead	EPA 200.8	5B12041	0.13	1.0	9.7	1	02/12/05	02/14/05	
Manganese	EPA 200.7	5B12044	3.2	20	370	1	02/12/05	02/12/05	
Vanadium	EPA 200.7	5B12044	1.4	10	48	1	02/12/05	02/12/05	
Zinc	EPA 200.7	5B12044	3.7	20	90	1	02/12/05	02/12/05	

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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01RE1 (DRAFT: Outfall 001 - Water) - cont.									
Reporting Units: ug/l									
Chromium	EPA 200.7	5B14113	0.68	5.0	26	1	02/14/05	02/15/05	R D
Copper	EPA 200.8	5B14104	0.49	2.0	17	1	02/14/05	02/15/05	↓ ↓
Lead	EPA 200.8	5B14104	0.13	1.0	13	1	02/14/05	02/15/05	↓ ↓
Manganese	EPA 200.7	5B14113	3.2	20	350	1	02/14/05	02/15/05	↓ ↓
Zinc	EPA 200.7	5B14113	3.7	20	98	1	02/14/05	02/15/05	↓ ↓

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## DRAFT: METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01RE2 (DRAFT: Outfall 001 - Water) - cont.									
Reporting Units: ug/l									
Chromium	EPA 200.7	5B17052	0.68	5.0	28	1	02/12/05	02/17/05	R
Copper	EPA 200.8	5B17051	0.98	4.0	16	2	02/12/05	02/17/05	D
Lead	EPA 200.8	5B17051	0.26	2.0	11	2	02/12/05	02/17/05	
Manganese	EPA 200.7	5B17052	3.2	20	360	1	02/12/05	02/17/05	
Zinc	EPA 200.7	5B17052	3.7	20	82	1	02/12/05	02/17/05	

Handwritten notes in the table header:  
 Outfall 001 RE2  
 Qual | Code  
 R | D  
 ↓ | ↓

**AMEC VALIDATED**

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 T711PP22  
 Task Order 313150010  
 SDG No. IOB0980

No. of Analyses 1

Laboratory Del Mar

Date: March 31, 2005

Reviewer H. Chang

Reviewer's Signature 

Analysis/Method Pesticides PCBs/608

ACTION ITEMS <sup>a</sup>	
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	Sample was qualified due to %D above 15% in continuing calibration.
COMMENTS <sup>b</sup>	

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: PESTICIDES/PCBs

SAMPLE DELIVERY GROUP: IOB0980

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#: IOB0980  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Pesticides/PCBs  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: H. Chang  
Date of Review: March 31, 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 001	Outfall 001	IOB0980-01	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 was received at the laboratory with cooler temperature within 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 samples 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 analyzed a endrin/DDT breakdown check standard with a breakdown of ≤20% for individual components (4,4-DDT and endrin) and ≤30% for the total, as suggested in the National Functional Guidelines. A review of the raw data indicated that the resolution of the pesticide compounds were adequate.

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 02/15/05 associated with the pesticide analysis of this SDG, which consisted of six point calibrations for the single component pesticides on two analytical columns. The %RSDs were within the EPA Method 608 QC limit of  $\leq 10\%$  or the  $r^2$  values were  $\geq 0.995$  on both analytical columns. There was no initial calibration reported for toxaphene; however, a toxaphene ICV was analyzed prior to sample analysis and was utilized as the identification standard. 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.

There was one initial calibration dated 02/11/05 associated with the PCB analysis in this SDG which consisted of five points for Aroclor 1016 and Aroclor 1260. The average %RSD for Aroclor 1016 and Aroclor 1260 were  $\leq 10\%$ . There were no initial calibration data for Aroclors 1221, 1232, 1248, and 1254. An ICV containing Aroclors 1016 and 1260 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

There were four continuing calibration analyses; two preceding and two following the sample analysis. The %D for heptachlor was above 15% in one of the continuing calibrations on the primary column (channel B). This compound was qualified as an estimated nondetect, "UJ." All other %Ds were  $\leq 15\%$  in the primary column in the other continuing calibrations. Since there were no detects in the sample requiring confirmation, confirmation column (channel A) data were not assessed.

The PCB analysis for this SDG was bracketed by two CCVs with the %Ds for Aroclor 1016 and Aroclor 1260 in both CCVs  $\leq 15\%$  on the primary column (channel B). 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. There were no target compound detects in the instrument blank. No qualifications were necessary.

### 2.4.2 Method Blanks

One water method blank (5B14073-BLK1) was extracted and analyzed with the sample in this SDG. There were no detects for target compounds 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 (5B14073-BS1/BSD1) 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  $\leq 30\%$ . A representative number of recoveries were verified 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 pesticide and PCB analyses of the 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. 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 benchesheets, PCB extracts were acid washed. No other cleanups were performed. 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 sample in this SDG.

## 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 this SDG. No qualifications were required.

## 2.11 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG. Since there were no detects reported in the samples, quantitation was verified by recalculating 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 the sample volume; however, the dilution factor listed on the summaries reflects the actual volume. 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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

**DRAFT: ORGANOCHLORINE PESTICIDES (EPA 608)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Per Qual	Anal Conc
Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water) - cont.											
Reporting Units: ug/l											
Aldrin	EPA 608	5B14073	0.030	0.10	ND	0.98	02/14/05	02/15/05			
alpha-BHC	EPA 608	5B14073	0.00049	0.010	ND	0.98	02/14/05	02/15/05			
beta-BHC	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05			
delta-BHC	EPA 608	5B14073	0.020	0.20	ND	0.98	02/14/05	02/15/05			
gamma-BHC (Lindane)	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05			
Chlordane	EPA 608	5B14073	0.20	1.0	ND	0.98	02/14/05	02/15/05			
4,4'-DDD	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05			
4,4'-DDE	EPA 608	5B14073	0.020	0.10	ND	0.98	02/14/05	02/15/05			
4,4'-DDT	EPA 608	5B14073	0.030	0.10	ND	0.98	02/14/05	02/15/05			
Dieldrin	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05			
Endosulfan I	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05			
Endosulfan II	EPA 608	5B14073	0.040	0.10	ND	0.98	02/14/05	02/15/05			
Endosulfan sulfate	EPA 608	5B14073	0.015	0.20	ND	0.98	02/14/05	02/15/05			
Endrin	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05			
Endrin aldehyde	EPA 608	5B14073	0.045	0.10	ND	0.98	02/14/05	02/15/05			
Endrin ketone	EPA 608	5B14073	0.020	0.10	ND	0.98	02/14/05	02/15/05			
Heptachlor	EPA 608	5B14073	0.030	0.10	ND	0.98	02/14/05	02/15/05			
Heptachlor epoxide	EPA 608	5B14073	0.020	0.10	ND	0.98	02/14/05	02/15/05			
Methoxychlor	EPA 608	5B14073	0.035	0.10	ND	0.98	02/14/05	02/15/05			
Toxaphene	EPA 608	5B14073	1.5	5.0	ND	0.98	02/14/05	02/15/05			
Surrogate: Tetrachloro-m-xylene (35-120%)					52 %						
Surrogate: Decachlorobiphenyl (45-120%)					61 %						
Surrogate: Tetrachloro-m-xylene (35-120%)					52 %						
Surrogate: Decachlorobiphenyl (45-120%)					61 %						

Per Qual  
 Anal Conc  
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**AMEC VALIDATED**

LEVEL IV

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

**DRAFT: TOTAL PCBS (EPA 608)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Raw Data	Calc
Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water) - cont.											
Reporting Units: ug/l											
Aroclor 1016	EPA 608	5B14073	0.20	1.0	ND	0.98	02/14/05	02/15/05		u	
Aroclor 1221	EPA 608	5B14073	0.10	1.0	ND	0.98	02/14/05	02/15/05			
Aroclor 1232	EPA 608	5B14073	0.15	1.0	ND	0.98	02/14/05	02/15/05			
Aroclor 1242	EPA 608	5B14073	0.15	1.0	ND	0.98	02/14/05	02/15/05			
Aroclor 1248	EPA 608	5B14073	0.25	1.0	ND	0.98	02/14/05	02/15/05			
Aroclor 1254	EPA 608	5B14073	0.25	1.0	ND	0.98	02/14/05	02/15/05			
Aroclor 1260	EPA 608	5B14073	0.40	1.0	ND	0.98	02/14/05	02/15/05			
Surrogate: Decachlorobiphenyl (45-120%)					66 %						

**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 T711RA4  
 Task Order 313150010  
 SDG No. Multiple

No. of Analyses 11

Laboratory Del Mar

Reviewer P. Meeks

Analysis/Method Radionuclides

Date: 03/24/05

Reviewer's Signature

*P. Meeks*

**ACTION ITEMS<sup>a</sup>**

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:
Holding Times	1. Exceeded holding times
GC/MS Tune/Inst. Performance	2. Matrix spike recovery outlier.
Calibrations	3. Laboratory duplicate RPD outlier.
Blanks	4. Incorrect sample container.
Surrogates	5. Detector efficiency outliers.
Matrix Spike/Dup LCS	6. Incorrect sample preservation.
Field QC	7. Reanalysis rejected in favor of original result
Internal Standard Performance	Three tritium results rejected due to incorrect sample preservation.
Compound Identification and Quantitation	
System Performance	

**COMMENTS<sup>b</sup>**

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



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: RADIONUCLIDES

SAMPLE DELIVERY GROUPS:  
IOB0418, IOB0980, IOB0993, IOB0996, IOB0997,  
IOB1001, IOB1004, IOB1014, & IOB1069

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#: IOB0418, IOB0980, IOB0993, IOB0996, IOB0997,  
IOB1001, IOB1004, IOB1014, & IOB1069  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Radionuclides  
QC Level: Level IV  
No. of Samples: 11  
No. of Reanalyses/Dilutions: 0  
Reviewer: P. Meeks  
Date of Review: March 23, 2005

The samples listed in Table 1 were validated based on the guidelines outlined in the *EPA Prescribed Procedures for Measurements of Radioactivity in Drinking Water, Methods 900.0, 905.0, and 906.0*, and validation procedures 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	Del Mar ID	Eberline ID	Matrix	COC Method
Outfall 002	IOB0418-01	8237-001	water	900.0, 905.0, 906.0
Outfall 001	IOB0980-01	8265-001	water	900.0, 905.0, 906.0
Outfall 001RE1	IOB0980-01RE1	8265-001	water	900.0
Outfall 007	IOB0993-01	8261-001	water	900.0, 905.0, 906.0
Outfall 009	IOB0996-01	8262-001	water	900.0, 905.0, 906.0
Outfall 008	IOB0997-01	8266-001	water	900.0, 905.0, 906.0
Outfall 010	IOB1001-01	8267-001	water	900.0, 905.0, 906.0
Outfall 011	IOB1004-01	8263-001	water	900.0, 905.0, 906.0
Outfall 011	IOB1014-01	8264-001	water	900.0, 905.0, 906.0
Outfall 003 Filtered	IOB1069-01	8268-001	water	900.0, 905.0, 906.0
Outfall 003 Unfiltered	IOB1069-02	8268-002	water	900.0, 905.0, 906.0
Outfall 003 Substrate	IOB1069-03	8269-001	water	901.1

## 2. DATA VALIDATION FINDINGS

### 2.1 SAMPLE MANAGEMENT

Following are findings associated with sample management:

#### 2.1.1 Sample Preservation, Handling, and Transport

Most samples in these SDGs were received at Del Mar Analytical within the temperature limits of  $4\pm 2^{\circ}\text{C}$ . After the analyses were complete, Del Mar Analytical sent extra volume of Outfall 001 to Eberline for gross alpha reanalysis. No temperature information was provided by Eberline, the subcontract laboratory; however, as it is not necessary to chill radiological samples, no qualifications were required. All samples were received intact and in good condition.

According to the Eberline login sheet, Outfall 002 was received unpreserved. It was confirmed in correspondence with Eberline dated 01/31/05, that the gross alpha, gross beta, and strontium samples were not preserved upon receipt; therefore, the nondetected strontium result for Outfall 002 was qualified as estimated, "UJ." According to the Los Angeles Water Quality Control Board (LARWQCB) guidance letter dated 01/12/05, unfiltered samples should not be preserved and filtered aliquots should be preserved after filtration.

Eberline noted on their login sheets that Outfall 007, Outfall 008, Outfall 009 and Outfall 010 were received preserved, in plastic containers. Per the method, tritium samples should not be preserved. Per a telephone conversation with M. Mannion of Eberline, the pH of these samples was adjusted back to about 7 upon receipt at Eberline. Due to the improper pH adjustments, the tritium results for Outfall 007, Outfall 008, Outfall 009, and Outfall 010 were rejected, "R." Additional, unpreserved aliquots of Outfall 007, Outfall 008, Outfall 009, and Outfall 010 were sent from Del Mar to Eberline for tritium reanalysis. These results were not available at the time of this report.

Additionally, according to the 01/12/05 LARWQCB guidance letter, samples collected for tritium analysis should be submitted in glass containers to avoid potential loss of tritium by sorption onto the plastic container. As the Outfall 007, Outfall 008, Outfall 009 and Outfall 010 tritium samples were previously rejected, no further qualifications were required.

#### 2.1.2 Chain of Custody

The original COCs were signed and dated by field and laboratory personnel and the transfer COCs were signed by personnel from both laboratories. Filtered, unfiltered, and substrate analyses were requested for Outfall 011 (IOB1014) on the original COC from the field to Del Mar. There instructions did not appear on the transfer COC to Eberline and subsequently only filtered unanalyses were performed. The remaining original and transfer COCs accounted for the samples and analyses presented in this data package. Eberline did not list the MWH IDs on the Form Is; therefore, the reviewer edited the Form Is to reflect these IDs. A reanalysis for gross alpha was requested for Outfall 001. To distinguish between the two results, the reviewer added an "RE1," suffix to the Outfall 001 and Del Mar Analytical IDs. No qualifications were required.

### 2.1.3 Holding Times

The tritium and strontium samples were analyzed within 180 days of collection. The Outfall 002 and Outfall 003 Unfiltered gross alpha and gross beta samples were analyzed beyond the five day holding time for unpreserved samples; therefore, these gross alpha and gross beta results were qualified as estimated, "J," for detects and, "UJ," for nondetects. No further qualifications were necessary.

## 2.2 CALIBRATION

The laboratory calibration information included the standard certificates and applicable preparation/dilutions logs for NIST-traceability.

### Gross Alpha

The initial calibration included with the data was performed in February 2003. All detector efficiencies were below 20%; therefore, the gross alpha results were qualified as estimated, "UJ," for nondetects and, "J," for detects, unless otherwise rejected (see section 2.10).

### Tritium

No calibration standards were analyzed for this method. According to the laboratory, every sample was spiked for efficiency determination; therefore, no calibration is necessary. All detector efficiencies in the samples were at least 20% and were considered acceptable. All internal spike efficiency to default efficiency ratios were near 1, indicating that quenching did not occur.

### Gross Beta and Strontium-90

The initial calibrations were performed in June 1997. All gross beta detector efficiencies were at least 20% and were considered acceptable. All strontium chemical yields were at least 65% and were considered acceptable and the strontium continuing calibration results were within the laboratory control limits. No qualifications were necessary.

### Cesium

The reviewer confirmed that the 662 KeV peak was used for quantitation, with an efficiency of 85%. No qualifications were necessary.

## 2.3 BLANKS

No measurable activities were detected in the method blanks; therefore, no qualifications were necessary.

## 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

Three blank spikes (8261-002, 8237-002, 8269-002) were analyzed in association with the samples in these SDGs. The gross alpha, gross beta, and strontium recoveries for 8261-002 were outside of the 3-sigma limits, but all had acceptable recoveries of 80%, 88%, and 108%, respectively. The remaining blank spike results were within the 3-sigma limits. No qualifications were necessary.



## 2.5 LABORATORY DUPLICATES

The laboratory performed duplicate analysis on Outfall 002, Outfall 007, and Outfall 003 Substrate. The gross alpha and tritium RPDs were greater than 20% for Outfall 007. The gross alpha results were within 3-sigma and were considered acceptable, but the tritium result was just above 3-sigma; however, as no tritium detects were retained (see section 2.1.1), no qualifications were required. The remaining RPD were  $\leq 20\%$ . No further qualifications were necessary.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The laboratory performed matrix spike analyses on Outfall 002 and Outfall 007 for gross alpha, gross beta, and tritium. The Outfall 002 recovery for gross alpha was below 3-sigma; therefore, the gross alpha results in all samples except Outfall 007 were qualified as estimated, "J," for detects and, "UJ," for nondetects. As Outfall 007 had an acceptable recovery for gross alpha, no qualifications were applied. The remaining recoveries were within the 3-sigma limits. No further qualifications were necessary.

## 2.7 SAMPLE RESULT VERIFICATION

An EPA Level IV review was performed for the samples in these data packages. Sample results and MDAs reported on the sample result forms were verified against the raw data and no calculation or transcription errors were noted.

The original planchet for gross alpha in Outfall 001 was recounted once per a request from MWH personnel. The recount yielded an equivalent result as the original count and was not reported. The sample was later reanalyzed from extra sample volume provided by Del Mar Analytical, and was reported as Outfall 001 RE1. As the two gross alpha results were similar, the reviewer rejected, "R," the reanalysis, Outfall 001 RE1, in favor of the original result, Outfall 001. No further qualifications were necessary.

## 2.8 FIELD QC SAMPLES

Field QC samples were evaluated, and if necessary, qualified based only on laboratory blanks. Any remaining detects are used to evaluate the associated samples.

### 2.8.1 Field Blanks and Equipment Rinsates

The 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 in these SDGs.

Eberline Services

ANALYSIS RESULTS

SDG <u>8265</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502136-01</u>	Contract <u>PROJECT# IOB0980</u>
Received Date <u>02/15/05</u>	Matrix <u>WATER</u>

Client	Lab	Sample ID	Collected	Analyzed	Nuclide	Results ± 2σ	Units	MDA	Rev Qual	Qual Code
Outfall 001 IOB0980-01		8265-001	02/11/05	03/01/05	GrossAlpha	17.3 ± 4.5	pCi/L	2.78	J	R, Q
				03/01/05	Gross Beta	20.0 ± 3.4	pCi/L	3.94		
				03/03/05	H3	157 ± 150	pCi/L	244	U	
				02/25/05	Sr90	0.034 ± 0.20	pCi/L	0.392	U	

mm 3/24/05

**AMEC VALIDATED**  
**LEVEL IV**

Certified by <u><i>[Signature]</i></u>
Report Date <u>03/08/05</u>
Page 1

Eberline Services

ANALYSIS RESULTS

SDG <u>8384</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R503234-01</u>	Contract <u>PROJECT# IOB0980</u>
Received Date <u>03/30/05</u>	Matrix <u>WATER</u>

Client	Lab	Sample ID	Collected	Analyzed	Nuclide	Results ± 2σ	Units	MDA	Rev Qual	Qual Code
		<u>Outfall 001 RE1</u>								
<u>IOB0980-01 RE1</u>		<u>8384-001</u>	<u>02/11/05</u>	<u>04/04/05</u>	<u>GrossAlpha</u>	<u>18.1 ± 4.3</u>	<u>pCi/L</u>	<u>2.40</u>	<u>R</u>	<u>D</u>

*pm 4/14/05*

**AMEC VALIDATED  
LEVEL IV**

Certified by <u><i>N. [Signature]</i></u>
Report Date <u>04/06/05</u>
Page 1

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711SV39  
 Task Order 313150010  
 SDG No. IOB0980  
 No. of Analyses 1

Laboratory Del Mar

Date: March 31, 2005

Reviewer M. Pokorny

Reviewer's Signature  


Analysis/Method Semivolatiles

ACTION ITEMS <sup>a</sup>	
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.
COMMENTS <sup>b</sup>	
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: SEMIVOLATILES

SAMPLE DELIVERY GROUP: IOB0980

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#: IOB0980  
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: March 31, 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 001	Outfall 001	IOB0980-01	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, at 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 02/17/05. The average RRFs for were ≥0.05 and the %RSDs were ≤35% or  $r^2 \geq 0.995$  for all target compounds except for the  $r^2$  values for 2,4-dinitrophenol, 4-nitroaniline, and 4,6-dinitro-2-methylphenol. 2,4-Dinitrophenol, 4-nitroaniline, and 4,6-dinitro-2-methylphenol were qualified as estimated nondetects, "UJ," in the sample of this SDG. 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 02/18/05. The RRFs for all target compounds were ≥0.05, and the %Ds were ≤20%, except for the %Ds for n-nitrosodimethylamine, benzoic acid, and 4-nitrophenol. N-Nitrosodimethylamine, benzoic acid, and 4-nitrophenol were qualified as estimated nondetects, "UJ," in the sample of this SDG, unless otherwise rejected. A representative number of RRFs 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 (5B14010-BLK1) was extracted and analyzed with this SDG. Diethylphthalate, fluorene, 2-methylnaphthalene, naphthalene, and phenanthrene were detected in the method blank. 2-Methylnaphthalene was qualified as a nondetect, "U," in the sample of this



SDG. Review of the raw data indicated no reportable false negatives. No further qualifications were required.

## 2.5 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One blank spike/ blank spike duplicate pair (5B14010-BS1/BSD1) was extracted and analyzed with this SDG. For blank spike/blank spike duplicate pairs, qualifications are applied, if necessary, to the associated samples based on those recoveries consistently outside of the laboratory-established QC limits in both the blank spike and blank spike duplicate. Results for those compounds with recoveries not consistent within the pair, with RPDs above the QC limit, are qualified as estimated, "UJ," for nondetects, and "J," for detects, in the associated samples. All percent recoveries and RPDs were within the laboratory QC limits except for benzidine which was not recovered in the BSD and the RPDs for benzidine and NDMA. The sample of this SDG had benzidine and NDMA qualified as estimated nondetects, "UJ." 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 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.

## **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  $\pm 30$  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 the 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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 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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

**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	Rev Chad	Doc Ced
Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water)											
Reporting Units: ug/l											
Acenaphthene	EPA 625	5B14010	0.10	0.50	ND	0.962	02/14/05	02/18/05			
Acenaphthylene	EPA 625	5B14010	0.10	0.50	ND	0.962	02/14/05	02/18/05			
Aniline	EPA 625	5B14010	2.9	10	ND	0.962	02/14/05	02/18/05			
Anthracene	EPA 625	5B14010	0.083	0.50	ND	0.962	02/14/05	02/18/05			
Benzidine	EPA 625	5B14010	2.4	5.0	ND	0.962	02/14/05	02/18/05			
Benzoic acid	EPA 625	5B14010	3.7	20	ND	0.962	02/14/05	02/18/05	L2		
Benzo(a)anthracene	EPA 625	5B14010	0.038	5.0	ND	0.962	02/14/05	02/18/05			
Benzo(a)pyrene	EPA 625	5B14010	0.14	2.0	ND	0.962	02/14/05	02/18/05			
Benzo(b)fluoranthene	EPA 625	5B14010	0.050	2.0	ND	0.962	02/14/05	02/18/05			
Benzo(g,h,i)perylene	EPA 625	5B14010	0.059	5.0	ND	0.962	02/14/05	02/18/05			
Benzo(k)fluoranthene	EPA 625	5B14010	0.053	0.50	ND	0.962	02/14/05	02/18/05			
Benzyl alcohol	EPA 625	5B14010	0.21	5.0	ND	0.962	02/14/05	02/18/05			
Bis(2-chloroethoxy)methane	EPA 625	5B14010	0.072	0.50	ND	0.962	02/14/05	02/18/05			
Bis(2-chloroethyl)ether	EPA 625	5B14010	0.084	0.50	ND	0.962	02/14/05	02/18/05			
Bis(2-chloroisopropyl)ether	EPA 625	5B14010	0.11	0.50	ND	0.962	02/14/05	02/18/05			
Bis(2-ethylhexyl)phthalate	EPA 625	5B14010	1.1	5.0	ND	0.962	02/14/05	02/18/05			
4-Bromophenyl phenyl ether	EPA 625	5B14010	0.12	1.0	ND	0.962	02/14/05	02/18/05			
Butyl benzyl phthalate	EPA 625	5B14010	0.34	5.0	ND	0.962	02/14/05	02/18/05			
4-Chloroaniline	EPA 625	5B14010	0.20	2.0	ND	0.962	02/14/05	02/18/05			
2-Chloronaphthalene	EPA 625	5B14010	0.059	0.50	ND	0.962	02/14/05	02/18/05			
4-Chloro-3-methylphenol	EPA 625	5B14010	0.34	2.0	ND	0.962	02/14/05	02/18/05			
4-Chlorophenyl phenyl ether	EPA 625	5B14010	0.056	0.50	ND	0.962	02/14/05	02/18/05			
2-Chlorophenol	EPA 625	5B14010	0.12	1.0	ND	0.962	02/14/05	02/18/05			
Chrysene	EPA 625	5B14010	0.072	0.50	ND	0.962	02/14/05	02/18/05			
Dibenz(a,h)anthracene	EPA 625	5B14010	0.083	0.50	ND	0.962	02/14/05	02/18/05			
Dibenzofuran	EPA 625	5B14010	0.075	0.50	ND	0.962	02/14/05	02/18/05			
Di-n-butyl phthalate	EPA 625	5B14010	0.26	2.0	ND	0.962	02/14/05	02/18/05			
1,2-Dichlorobenzene	EPA 625	5B14010	0.11	0.50	ND	0.962	02/14/05	02/18/05			
1,3-Dichlorobenzene	EPA 625	5B14010	0.13	0.50	ND	0.962	02/14/05	02/18/05			
1,4-Dichlorobenzene	EPA 625	5B14010	0.050	0.50	ND	0.962	02/14/05	02/18/05			
3,3-Dichlorobenzidine	EPA 625	5B14010	0.93	5.0	ND	0.962	02/14/05	02/18/05			
2,4-Dichlorophenol	EPA 625	5B14010	0.21	2.0	ND	0.962	02/14/05	02/18/05			
Diethyl phthalate	EPA 625	5B14010	0.12	1.0	ND	0.962	02/14/05	02/18/05			
2,4-Dimethylphenol	EPA 625	5B14010	0.31	2.0	ND	0.962	02/14/05	02/18/05			
Dimethyl phthalate	EPA 625	5B14010	0.081	0.50	ND	0.962	02/14/05	02/18/05			
4,6-Dinitro-2-methylphenol	EPA 625	5B14010	0.38	5.0	ND	0.962	02/14/05	02/18/05			
2,4-Dinitrophenol	EPA 625	5B14010	2.7	5.0	ND	0.962	02/14/05	02/18/05			
2,4-Dinitrotoluene	EPA 625	5B14010	0.23	5.0	ND	0.962	02/14/05	02/18/05			
2,6-Dinitrotoluene	EPA 625	5B14010	0.24	5.0	ND	0.962	02/14/05	02/18/05			
Di-n-octyl phthalate	EPA 625	5B14010	0.17	5.0	ND	0.962	02/14/05	02/18/05			
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B14010	0.087	1.0	ND	0.962	02/14/05	02/18/05			

Handwritten notes and arrows on the right side of the table, including 'L2', 'L1', 'L3', and 'C' with arrows pointing to specific rows.

DRAFT REPORT  
 DRAFT REPORT  
 DATA SUBJECT TO CHANGE

**AMEC VALIDATED**

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LEVEL III



# Del Mar Analytical

17461 Deran Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297  
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 9484 Chesapeake Dr., Suite 803, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-9689  
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0643 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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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	Qual	Qual Co
Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water) - cont.											
Reporting Units: ug/l											
Fluoranthene	EPA 625	5B14010	0.089	0.50	ND	0.962	02/14/05	02/18/05		U	
Fluorene	EPA 625	5B14010	0.075	0.50	ND	0.962	02/14/05	02/18/05		U	
Hexachlorobenzene	EPA 625	5B14010	0.13	1.0	ND	0.962	02/14/05	02/18/05		U	
Hexachlorobutadiene	EPA 625	5B14010	0.38	2.0	ND	0.962	02/14/05	02/18/05		U	
Hexachlorocyclopentadiene	EPA 625	5B14010	1.8	5.0	ND	0.962	02/14/05	02/18/05		U	
Hexachloroethane	EPA 625	5B14010	0.51	3.0	ND	0.962	02/14/05	02/18/05		U	
Indeno(1,2,3-cd)pyrene	EPA 625	5B14010	0.19	2.0	ND	0.962	02/14/05	02/18/05		U	
Isophorone	EPA 625	5B14010	0.059	1.0	ND	0.962	02/14/05	02/18/05		U	
2-Methylnaphthalene	EPA 625	5B14010	0.13	1.0	0.15	0.962	02/14/05	02/18/05	B, J	U	B
2-Methylphenol	EPA 625	5B14010	0.28	2.0	ND	0.962	02/14/05	02/18/05		U	
4-Methylphenol	EPA 625	5B14010	0.20	5.0	ND	0.962	02/14/05	02/18/05		U	
Naphthalene	EPA 625	5B14010	0.13	1.0	ND	0.962	02/14/05	02/18/05		U	
2-Nitroaniline	EPA 625	5B14010	0.18	5.0	ND	0.962	02/14/05	02/18/05		U	
3-Nitroaniline	EPA 625	5B14010	0.35	5.0	ND	0.962	02/14/05	02/18/05		U	
4-Nitroaniline	EPA 625	5B14010	0.49	5.0	ND	0.962	02/14/05	02/18/05		U	
Nitrobenzene	EPA 625	5B14010	0.10	1.0	ND	0.962	02/14/05	02/18/05		U	
2-Nitrophenol	EPA 625	5B14010	0.23	2.0	ND	0.962	02/14/05	02/18/05		U	
4-Nitrophenol	EPA 625	5B14010	0.73	5.0	ND	0.962	02/14/05	02/18/05		U	
N-Nitrosodimethylamine	EPA 625	5B14010	0.22	2.0	ND	0.962	02/14/05	02/18/05		U	
N-Nitroso-di-n-propylamine	EPA 625	5B14010	0.18	2.0	ND	0.962	02/14/05	02/18/05		U	
N-Nitrosodiphenylamine	EPA 625	5B14010	0.077	1.0	ND	0.962	02/14/05	02/18/05		U	
Pentachlorophenol	EPA 625	5B14010	0.78	2.0	ND	0.962	02/14/05	02/18/05		U	
Phenanthrene	EPA 625	5B14010	0.071	0.50	ND	0.962	02/14/05	02/18/05		U	
Phenol	EPA 625	5B14010	0.14	1.0	ND	0.962	02/14/05	02/18/05		U	
Pyrene	EPA 625	5B14010	0.059	0.50	ND	0.962	02/14/05	02/18/05		U	
1,2,4-Trichlorobenzene	EPA 625	5B14010	0.10	1.0	ND	0.962	02/14/05	02/18/05		U	
2,4,5-Trichlorophenol	EPA 625	5B14010	0.075	2.0	ND	0.962	02/14/05	02/18/05		U	
2,4,6-Trichlorophenol	EPA 625	5B14010	0.10	1.0	ND	0.962	02/14/05	02/18/05		U	
Surrogate: 2-Fluorophenol (35-120%)					81 %						
Surrogate: Phenol-d6 (45-120%)					77 %						
Surrogate: 2,4,6-Tribromophenol (50-125%)					84 %						
Surrogate: Nitrobenzene-d5 (45-120%)					78 %						
Surrogate: 2-Fluorobiphenyl (45-120%)					81 %						
Surrogate: Terphenyl-d14 (45-135%)					80 %						

Handwritten notes on the right side of the table:  
 - A vertical arrow pointing downwards.  
 - 'U' markings in the 'Data Qualifiers' column for several rows.  
 - 'B, J' next to the 2-Methylnaphthalene row.  
 - 'C' markings in the 'Qual' column for several rows.  
 - 'UJ' and 'UJ #5' markings in the 'Qual' column for the 4-Nitrophenol row.  
 - 'C' marking in the 'Qual' column for the N-Nitrosodimethylamine row.

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 DATA SUBJECT TO CHANGE

**AMEC VALIDATED**

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LEVEL IV

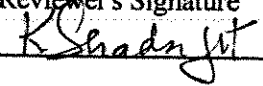
3-31-05

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711TF44  
 Task Order 313150010  
 SDG No. IOB0980  
 No. of Analyses 2

Laboratory Del Mar Analytical  
 Reviewer K. Shadowlight  
 Analysis/Method TPH-Purgeable

Date April 1, 2005  
 Reviewer's Signature  


ACTION ITEMS <sup>a</sup>	
<b>1. Case Narrative</b>	
Deficiencies	
<b>2. Out of Scope</b>	
Analyses	
<b>3. Analyses Not Conducted</b>	
<b>4. Missing Hardcopy</b>	
Deliverables	
<b>5. Incorrect Hardcopy</b>	
Deliverables	
<b>6. Deviations from Analysis</b>	
GC/MS Tune/Inst. Perform	
Calibrations	
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and	
Quantitation	
System Performance	
<b>COMMENTS<sup>b</sup></b>	Acceptable as reviewed
<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements. <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.	



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/PURGEABLE

SAMPLE DELIVERY GROUP: IOB0980

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#: IOB0980  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Purgeable  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: April 1, 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 001	Outfall 001	IOB0980-01	water	8015M/GRO
Trip Blank	Trip Blank	IOB0980-02	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 this SDG 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 samples were received intact, and the COC indicated the samples were properly preserved; however, information regarding absence of headspace was not provided. No qualifications were required.

#### 2.1.2 Chain of Custody

The COC was signed and dated by both field and laboratory personnel. 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 08/26/04 was associated with this SDG. 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 the 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.

### 2.3 METHOD BLANKS

One water method blank (5B18031-BLK1) was associated with this SDG. 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.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One water method blank spike (5B18031-BS1) was associated with this SDG. 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.

## 2.5 SURROGATE RECOVERY

The samples and QC were fortified with the surrogate compound bromofluorobenzene (BFB). The surrogate recovery was within the laboratory QC limits of 65-140% for the samples. The recovery was calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD analyses were not performed for this SDG; therefore, evaluation of method accuracy was based on the blank spike results. No qualifications were required.

## 2.7 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:

### 2.7.1 Trip Blanks, Field Blanks, and Equipment Rinsates

Sample Trip Blank was the trip blank associated with this SDG. Target compound GRO was not detected in the trip blank. There were no other field QC samples associated with this SDG. No qualifications were required.

### 2.7.2 Field Duplicates

There were no field duplicate samples in this SDG.

## 2.8 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 this SDG. No qualifications were required.

## 2.9 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG 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 calibrations and by the laboratory MDL. 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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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	Ref	Comp
<b>Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water) - cont.</b>											
Reporting Units: mg/l											
GRO (C4 - C12)	EPA 8015 Mod.	5B18031	0.050	0.10	ND	1	02/18/05	02/18/05	U		
Surrogate: 4-BFB (FID) (65-140%)											
<b>Sample ID: IOB0980-02 (DRAFT: Trip Blank - Water)</b>											
Reporting Units: mg/l											
GRO (C4 - C12)	EPA 8015 Mod.	5B18031	0.050	0.10	ND	1	02/18/05	02/18/05	U		
Surrogate: 4-BFB (FID) (65-140%)											

### 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 T711TF45  
 Task Order 313150010  
 SDG No. IOB0980

No. of Analyses 1

Laboratory Del Mar Analytical

Reviewer K. Shadowlight

Analysis/Method TPH-Extractable

Date April 1, 2005
Reviewer's Signature <i>K. Shadowlight</i>

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 <sup>b</sup>	Acceptable as reviewed

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



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: TPH/EXTRACTABLE

SAMPLE DELIVERY GROUP: IOB0980

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#: IOB0980  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: TPH-Extractable  
QC Level: Level IV  
No. of Samples: 1  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
Date of Review: April 1, 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 001	Outfall 001	IOB0980-01	water	8015M/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 sample in this SDG was 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 COC was signed and dated by both field and laboratory personnel, and accounted for the analysis presented in this SDG. As the sample was couriered directly to the laboratory from the field, custody seals were not required. No qualifications were required.

#### 2.1.3 Holding Times

The sample was 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 analysis was analyzed on 11/11/04. 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.

### 2.3 METHOD BLANKS

One method blank (5B12001-BLK1) was extracted and analyzed with the sample in this SDG. 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.

### 2.4 BLANK SPIKES AND LABORATORY CONTROL SAMPLES

One method blank spike/blank spike duplicate pair (5B12001-BS1/5B12001-BS1D) was extracted and analyzed with the sample in this SDG. The recoveries of alkane range C13-C40 from spiked diesel was within the laboratory-established QC limits of 40-120% and the RPD was  $\leq 25\%$ . The recoveries and RPD were checked from the raw data, and no calculation or transcription errors were noted. No qualifications were required.



## 2.5 SURROGATE RECOVERY

The sample and QC were fortified with the surrogate compound n-octacosane. The surrogate recoveries were within the laboratory-established QC limits of 40-125%. The recovery was calculated from the raw data and no transcription or calculation errors were noted. No qualifications were required.

## 2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

There were no MS/MSD analyses associated with the sample of this SDG. Evaluation of method accuracy and precision was based on the BS/BSD results. No qualifications were required.

## 2.7 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:

### 2.7.1 Field Blanks and Equipment Rinsates

There were no field blank or equipment rinsate samples associated with the site sample in this SDG. No qualifications were required.

### 2.7.2 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.8 COMPOUND IDENTIFICATION

The laboratory analyzed for EFH n-alkane range C13-C22 by EPA SW846 Method 8015M. Compound identification is verified at a Level IV validation. Review of chromatograms and retention times indicated no problems with compound identification for this SDG. No qualifications were required.

## 2.9 COMPOUND QUANTIFICATION AND REPORTED DETECTION LIMITS

Compound quantification was verified for this SDG by recalculating any sample detect, 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. The reporting limit was not adjusted for sample amount; however, the dilution factor on the sample result summary reflected the sample amount extracted. No qualifications were required.



# Del Mar Analytical

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 9484 Chesapeake Dr., Suite 803, San Diego, CA 92123 (619) 505-8596 FAX (619) 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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## DRAFT: EXTRACTABLE FUEL HYDROCARBONS (CADHS/8015 Modified)

*Rev'd*  
*Anal*  
*Code*

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water) - cont. Reporting Units: mg/l									
EFH (C13 - C22)	EPA 8015B	5B12001	0.082	0.50	ND	0.971	02/12/05	02/15/05	CL
Surrogate: n-Octacosane (40-125%)						74 %			

### 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 T711VO69  
 Task Order 313150010  
 SDG No. IOB0980  
 No. of Analyses 2

Laboratory Del Mar Analytical

Reviewer K. Shadowlight

Analysis/Method Volatiles

Date April 01, 2005

Reviewer's Signature

*K. Shadowlight*

ACTION ITEMS <sup>a</sup>	
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	* Initial calibration average RRF<0.05 and cont. calibration RRF<0.05
Calibrations	* Continuing calibration %D outliers
Blanks	
Surrogates	
Matrix Spike/Dup LCS	
Field QC	
Internal Standard Performance	
Compound Identification and Quantitation	
System Performance	
COMMENTS <sup>b</sup>	

<sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.

<sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.



# DATA VALIDATION REPORT

NPDES Monitoring

ANALYSIS: VOLATILES

SAMPLE DELIVERY GROUP: IOB0980

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#: IOB0980  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: Volatiles  
QC Level: Level IV  
No. of Samples: 2  
No. of Reanalyses/Dilutions: 0  
Reviewer: K. Shadowlight  
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 C and D Volatile Organics (DVP-2, Rev. 2)*, *EPA Method 624, SW846 Method 8260B*, and the *National Functional Guidelines For Organic Data Review (2/94)*. Any deviations from these procedures are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the summary forms as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.

**Table 1. Sample identification**

Client ID	EPA ID	Lab No.	Matrix	Method
Outfall 001	Outfall 001	IOB0980-01	water	624
Trip Blank	Trip Blank	IOB0980-02	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, at 4°C. The samples were properly preserved. The COC noted that the samples were received intact; however, information regarding absence of headspace was not provided. No qualifications were required.

#### 2.1.2 Chain of Custody

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

#### 2.1.3 Holding Times

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

### 2.2 GC/MS TUNING

The ion abundance windows shown on the quantitation reports were consistent with those specified in EPA Method 624, and all ion abundances were within the established windows. The samples and associated QC were analyzed within 12 hours of the BFB injection 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 10/14/04 (trichlorotrifluoroethane, acrolein, and acrylonitrile only) and 02/07/05 were associated with this SDG. The average RRF for acrolein was <0.05 in the initial calibration dated 10/14/04; therefore, the nondetect results for acrolein were rejected, "R," in the samples of this SDG. The remaining average RRFs were ≥0.05 for all compounds listed on the sample result summaries. The %RSDs were ≤35% for the target compounds analyzed by EPA Method 624. There were two continuing calibrations dated 02/12/05 and 02/17/05 associated with the sample analyses. The RRF for acrolein was <0.05 in the continuing calibration dated 02/12/05; therefore, the nondetect results for acrolein were rejected, "R," acrolein in the samples of this SDG. The RRFs were ≥0.05 for the remaining target compounds listed on the sample result summaries. The %Ds for acrolein, and acrylonitrile exceeded 20% in the continuing calibration dated 02/12/05 and the %D for trichlorotrifluoroethane exceeded 20% in the continuing calibration dated 02/17/05; therefore, the nondetect results for trichlorotrifluoroethane, acrolein, and acrylonitrile were qualified as estimated, "UJ," in sample Outfall 001. No qualifications were required for the Trip Blank. 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 (5B17020-BLK1 and 5B12011-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 (5B17020-BS1 and 5B12011-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 performed for sample Outfall 001 for this SDG. Recoveries and RPDs were within the laboratory-established control limits. A representative number of recoveries were recalculated from the raw data and no calculation or transcription errors were found. No qualifications were required.

## 2.8 FIELD QC SAMPLES

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

### 2.8.1 Trip Blanks

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



### 2.8.2 Field Blanks and Equipment Rinsates

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

### 2.8.3 Field Duplicates

There were no field duplicate samples associated with this SDG.

## 2.9 INTERNAL STANDARDS PERFORMANCE

Internal standard area counts and retention times for the samples in this SDG were within the control limits established by the continuing calibration standards: +100%/-50% for internal standard areas and  $\pm 0.50$  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, as these compounds were 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 performed for target compounds 1,2-dichloro-1,1,2-trifluoroethane and cyclohexane; therefore, the laboratory performed only a TIC search for those compounds. Nondetects for both compounds were qualified as estimated, "UJ," in sample Outfall 001. 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 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.



17461 Deran Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297  
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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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

**DRAFT: PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS**

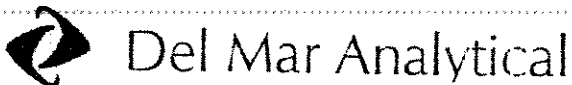
Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water)</b>									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17020	N/A	2.5	ND	1	02/17/05	02/17/05	US
Cyclohexane	EPA 624 (MOD.)	5B17020	N/A	2.5	ND	1	02/17/05	02/17/05	US
<b>Sample ID: IOB0980-02 (DRAFT: Trip Blank - Water)</b>									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17020	N/A	2.5	ND	1	02/17/05	02/17/05	US
Cyclohexane	EPA 624 (MOD.)	5B17020	N/A	2.5	ND	1	02/17/05	02/17/05	US

*Handwritten notes:*  
 PW  
 Outfall  
 Outfall  
 Code

**AMEC VALIDATED**

**DRAFT REPORT  
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 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-8596 FAX (619) 505-6665  
 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 783-0043 FAX (480) 783-0081  
 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3620

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

**DRAFT: PURGEABLES BY GC/MS (EPA 624)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water)</b>									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	Rev Qual
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	R U S C
2-Chloroethyl vinyl ether	EPA 624	5B12011	1.3	5.0	ND	1	02/12/05	02/12/05	U
Surrogate: Dibromofluoromethane (80-120%)					87 %				
Surrogate: Toluene-d8 (80-120%)					105 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				
<b>Sample ID: IOB0980-02 (DRAFT: Trip Blank - Water)</b>									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	Rev Qual
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	R U
2-Chloroethyl vinyl ether	EPA 624	5B12011	1.3	5.0	ND	1	02/12/05	02/12/05	U
Surrogate: Dibromofluoromethane (80-120%)					84 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
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: Annual Outfall 001  
 Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

**DRAFT: PURGEABLES BY GC/MS (EPA 624)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water)</b>									
Reporting Units: ug/l									
Bromodichloromethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05	u
Bromoform	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17020	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17020	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17020	0.37	2.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17020	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17020	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)									111 %
Surrogate: Toluene-d8 (80-120%)									109 %
Surrogate: 4-Bromofluorobenzene (80-120%)									104 %

**Sample ID: IOB0980-02 (DRAFT: Trip Blank - Water)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Reporting Units: ug/l									
Bromodichloromethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05	u
Bromoform	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17020	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17020	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17020	0.37	2.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17020	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17020	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)									105 %
Surrogate: Toluene-d8 (80-120%)									108 %
Surrogate: 4-Bromofluorobenzene (80-120%)									101 %

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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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

**DRAFT: PURGEABLES BY GC/MS (EPA 624)**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers	Raw Data	Qual. Code
<b>Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water)</b>											
Reporting Units: ug/l											
Benzene	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05			
Trichlorotrifluoroethane (Freon 113)	EPA 624	5B17020	1.2	5.0	ND	1	02/17/05	02/17/05			
Carbon tetrachloride	EPA 624	5B17020	0.28	5.0	ND	1	02/17/05	02/17/05			
Chloroform	EPA 624	5B17020	0.33	2.0	ND	1	02/17/05	02/17/05			
1,1-Dichloroethane	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/17/05			
1,2-Dichloroethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05			
1,1-Dichloroethene	EPA 624	5B17020	0.32	3.0	ND	1	02/17/05	02/17/05			
Ethylbenzene	EPA 624	5B17020	0.25	2.0	ND	1	02/17/05	02/17/05			
Tetrachloroethene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/17/05			
Toluene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/17/05			
1,1,1-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05			
1,1,2-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05			
Trichloroethene	EPA 624	5B17020	0.26	5.0	ND	1	02/17/05	02/17/05			
Trichlorofluoromethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/17/05			
Vinyl chloride	EPA 624	5B17020	0.26	5.0	ND	1	02/17/05	02/17/05			
Xylenes, Total	EPA 624	5B17020	0.52	4.0	ND	1	02/17/05	02/17/05			
Surrogate: Dibromofluoromethane (80-120%)									111 %		
Surrogate: Toluene-d8 (80-120%)									109 %		
Surrogate: 4-Bromofluorobenzene (80-120%)									104 %		
<b>Sample ID: IOB0980-02 (DRAFT: Trip Blank - Water)</b>											
Reporting Units: ug/l											
Benzene	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05			
Trichlorotrifluoroethane (Freon 113)	EPA 624	5B17020	1.2	5.0	ND	1	02/17/05	02/17/05			
Carbon tetrachloride	EPA 624	5B17020	0.28	5.0	ND	1	02/17/05	02/17/05			
Chloroform	EPA 624	5B17020	0.33	2.0	ND	1	02/17/05	02/17/05			
1,1-Dichloroethane	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/17/05			
1,2-Dichloroethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05			
1,1-Dichloroethene	EPA 624	5B17020	0.32	3.0	ND	1	02/17/05	02/17/05			
Ethylbenzene	EPA 624	5B17020	0.25	2.0	ND	1	02/17/05	02/17/05			
Tetrachloroethene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/17/05			
Toluene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/17/05			
1,1,1-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05			
1,1,2-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05			
Trichloroethene	EPA 624	5B17020	0.26	5.0	ND	1	02/17/05	02/17/05			
Trichlorofluoromethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/17/05			
Vinyl chloride	EPA 624	5B17020	0.26	5.0	ND	1	02/17/05	02/17/05			
Xylenes, Total	EPA 624	5B17020	0.52	4.0	ND	1	02/17/05	02/17/05			
Surrogate: Dibromofluoromethane (80-120%)									105 %		
Surrogate: Toluene-d8 (80-120%)									108 %		
Surrogate: 4-Bromofluorobenzene (80-120%)									101 %		

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VALIDATED  
 LEVEL IV

**CONTRACT COMPLIANCE SCREENING FORM FOR HARDCOPY DATA**

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

Package ID T711WC96  
 Task Order 313150010  
 SDG No. IOB0980  
 No. of Analyses 1

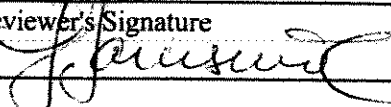
Laboratory Del Mar Analytical

Reviewer L. Jarusewic

Analysis/Method General Minerals

Date: 03/30/05

Reviewer's Signature



<b>ACTION ITEMS*</b>	
1. <b>Case Narrative Deficiencies</b>	
2. <b>Out of Scope Analyses</b>	
3. <b>Analyses Not Conducted</b>	
4. <b>Missing Hardcopy Deliverables</b>	
5. <b>Incorrect Hardcopy Deliverables</b>	
6. <b>Deviations from Analysis Protocol, e.g.,</b>	
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	
<b>COMMENTS<sup>b</sup></b>	Acceptable as reviewed.
<small><sup>a</sup> Subcontracted analytical laboratory is not meeting contract and/or method requirements.  <sup>b</sup> Differences in protocol have been adopted by the laboratory but no action against the laboratory is required.</small>	



# DATA VALIDATION REPORT

## NPDES Monitoring

ANALYSIS: GENERAL MINERALS

SAMPLE DELIVERY GROUP: IOB0980

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 #: IOB0980  
Project Manager: B. McIlvaine  
Matrix: Water  
Analysis: General Minerals  
QC Level: Level IV  
No. of Samples: 1  
Reviewer: L. Jarusewic  
Date of Review: March 30, 2005

The sample listed in Table 1 was validated based on the guidelines outlined in the AMEC *Data Validation Procedures SOP DVP-6, Rev. 2, USEPA Methods for Chemical Analysis of Water and Wastes Method 350.2, 415.1, 160.2, 120.1 418.1, and 180.1. Standard Methods for the Examination of Water and Wastewater Method SM5540-C*, and validation guidelines outlined in the USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (2/94)*. Any deviations from these procedures and guidelines are documented herein. Qualifiers were applied in cases where the data did not meet the required QC criteria or where special consideration by the data user is required. Data qualifiers were placed on Form Is with the associated qualification codes. Analytes that were rejected for any reason are denoted on the Form I as having only the "R" data qualifier and associated qualification code(s) denoting the reason for rejection. Any additional problems with the data that may have resulted in an estimated value were not denoted by a qualification code since the data had already been rejected.



**Table 1. Sample identification**

Client ID	EPA ID	Laboratory ID	Matrix	COC Method
Outfall 001	Outfall 001	IOB0980-01	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, total organic carbon, total recoverable hydrocarbons, and conductivity and the 7-day holding time for total suspended solids, and the 48-hour holding time for turbidity and surfactants were met. No qualifications were required.

### 2.2 CALIBRATION

For the applicable analyses, the initial calibration correlation coefficients were  $\geq 0.995$ . 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. Calibration is not applicable to total suspended solids. No qualifications were required.

### 2.3 BLANKS

Turbidity was detected in the method blank (5B12055-BLK1) for Outfall 001 at 0.040 NTU; however, the turbidity method blank result was insufficient to qualify the Outfall 001 result. 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 duplicate sample (total recoverable hydrocarbons only) recoveries were within the laboratory-established control limits. The LCS is not applicable to turbidity or conductivity. No qualifications were required.

## 2.5 SURROGATES RECOVERY

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

## 2.6 LABORATORY DUPLICATES

There were no MS/MSD or duplicate analyses 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

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

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

*DATA VALIDATION REPORT*

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Project: NPDES  
SDG No.: IOB0980  
Analysis: General Minerals

**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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05

Received: 02/11/05

## 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: IOB0980-01 (DRAFT: Outfall 001 - Water)										
Reporting Units: mg/l										
Total Recoverable Hydrocarbons	EPA 418.1	5B15078	0.31	1.0	ND	1	02/15/05	02/15/05	u	REV QUAL COD

### 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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5B12055	0.80	20	530	20	02/12/05	02/12/05	<div style="display: flex; justify-content: space-between;"> <span>PLM</span> <span>AMC</span> </div>

# AMEC VALIDATED

# LEVEL 1

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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05

Received: 02/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5B16120	1.0	1.0	190	1	02/16/05	02/16/05	ENV 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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## DRAFT: INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (DRAFT: Outfall 001 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5B11117	0.30	0.50	4.2	1	02/11/05	02/11/05	REN QUAL
Surfactants (MBAS)	SM5540-C	5B12050	0.44	1.0	1.0	10	02/12/05	02/12/05	QUAL CODE
Total Organic Carbon	EPA 415.1	5B17130	0.25	1.0	9.3	1	02/17/05	02/17/05	
Total Suspended Solids	EPA 160.2	5B16128	10	10	460	1	02/16/05	02/16/05	

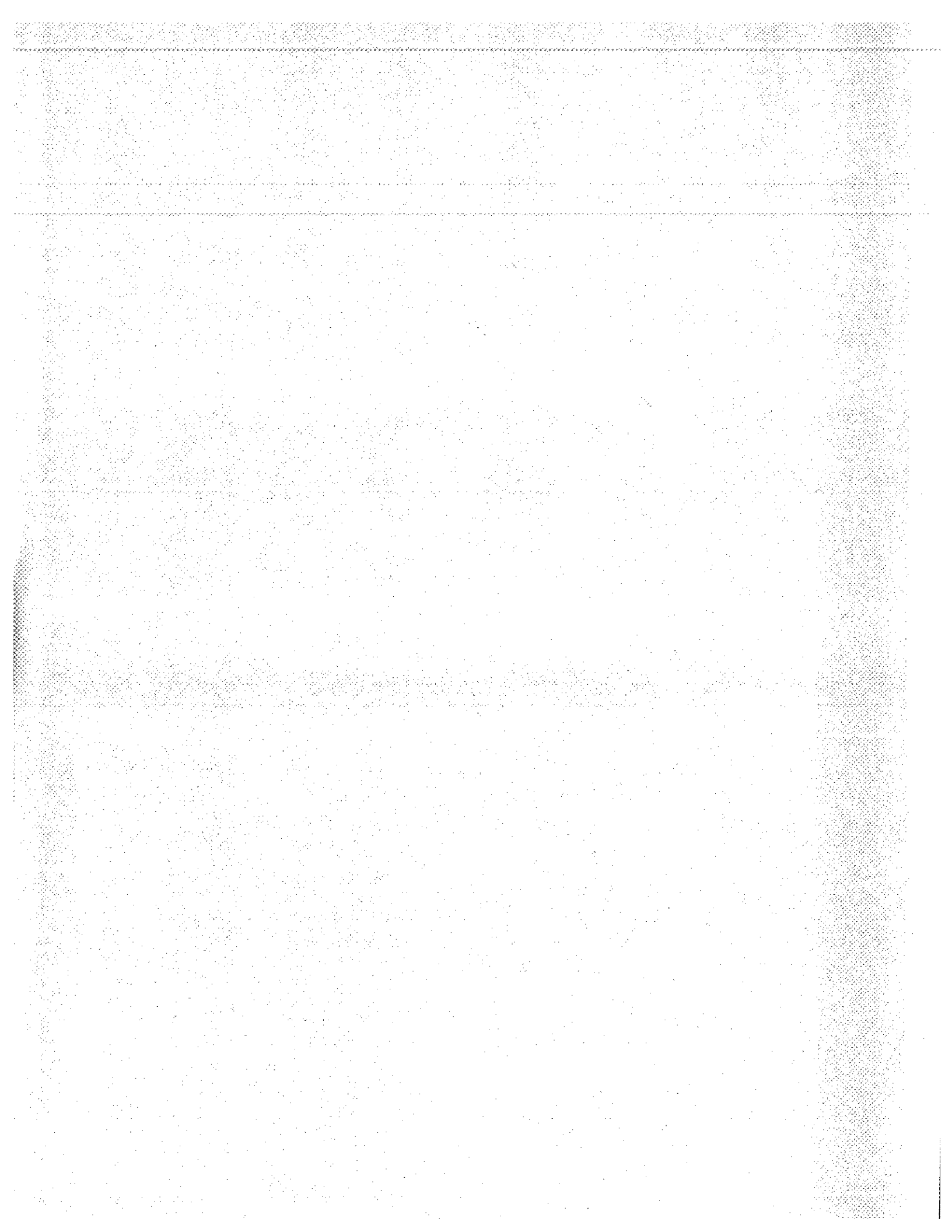
**AMEC VALIDATED**

**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: Annual Outfall 001

Sampled: 02/11/05  
Received: 02/11/05  
Issued: 04/02/05 15:39

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, 3 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.
- 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.
- ADDITIONAL INFORMATION: The metals results for sample IOB0980-01RE1 are confirmations and the aliquot used was taken from the original container and re-prepared for the analysis. The metals results for sample IOB0980-01RE2 are confirmations and the aliquot used was taken from an unpreserved container that was preserved, allowed to acclimate for 24 hours, then was prepared and analyzed.

LABORATORY ID	CLIENT ID	MATRIX
IOB0980-01	Outfall 001	Water
IOB0980-02	Trip Blank	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: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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CORRECTIVE ACTION REPORT

Department: Extractions

Date: 02/22/2005

Method: EPA 625

Matrix: Water

QC Batch: 5B14010

Identification and Definition of Problem:

The percent recovery for benzidine in the BSD 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:

The percent recovery in the BS was within the acceptance limits. All results reported for benzidine are potentially biased low and can be considered estimates only.

Quality Assurance Approval:

Rima Angkasa

Date: 02/24/2005 10:17 AM

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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
Received: 02/11/05

**CORRECTIVE ACTION REPORT**

Department: Extractions

Date: 02/22/2005

Method: EPA 625

Matrix: Water

QC Batch: 5B14010

**Identification and Definition of Problem:**

The Method Blank result for 2-Methylnaphthalene was above the reporting limit (8.7ppb).

**Determination of the Cause of the Problem:**

A definitive cause for the QC failure has not been determined.

**Corrective Action Taken:**

There was insufficient sample volume for re-analysis. Samples had J-flag hits and were flagged with 'B' qualifier.

Quality Assurance Approval:

Rima Angkasa

Date: 02/24/2005 11:49 AM

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: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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: IOB0980-01 (Outfall 001 - Water)									
Reporting Units: mg/l									
Total Recoverable Hydrocarbons	EPA 418.1	5B15078	0.31	1.0	ND	1	02/15/05	02/15/05	

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: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.</b>									
<b>Reporting Units: mg/l</b>									
EFH (C13 - C22)	EPA 8015B	5B12001	0.082	0.50	ND	0.971	02/12/05	02/15/05	
<i>Surrogate: n-Octacosane (40-125%)</i>					74 %				

**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: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.</b>									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5B18031	0.050	0.10	ND	1	02/18/05	02/18/05	
Surrogate: 4-BFB (FID) (65-140%)					96 %				
<b>Sample ID: IOB0980-02 (Trip Blank - Water)</b>									
Reporting Units: mg/l									
GRO (C4 - C12)	EPA 8015 Mod.	5B18031	0.050	0.10	ND	1	02/18/05	02/18/05	
Surrogate: 4-BFB (FID) (65-140%)					81 %				

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: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Sample ID: IOB0980-01 (Outfall 001 - Water)</b>									
Reporting Units: ug/l									
Benzene	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5B17020	1.2	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17020	0.28	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17020	0.33	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17020	0.32	3.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17020	0.25	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17020	0.26	5.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17020	0.26	5.0	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17020	0.52	4.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					111 %				
Surrogate: Toluene-d8 (80-120%)					109 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					104 %				
<b>Sample ID: IOB0980-02 (Trip Blank - Water)</b>									
Reporting Units: ug/l									
Benzene	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05	
Trichlorotrifluoroethane (Freon 113)	EPA 624	5B17020	1.2	5.0	ND	1	02/17/05	02/17/05	
Carbon tetrachloride	EPA 624	5B17020	0.28	5.0	ND	1	02/17/05	02/17/05	
Chloroform	EPA 624	5B17020	0.33	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethane	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloroethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05	
1,1-Dichloroethene	EPA 624	5B17020	0.32	3.0	ND	1	02/17/05	02/17/05	
Ethylbenzene	EPA 624	5B17020	0.25	2.0	ND	1	02/17/05	02/17/05	
Tetrachloroethene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/17/05	
Toluene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/17/05	
1,1,1-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05	
1,1,2-Trichloroethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05	
Trichloroethene	EPA 624	5B17020	0.26	5.0	ND	1	02/17/05	02/17/05	
Trichlorofluoromethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/17/05	
Vinyl chloride	EPA 624	5B17020	0.26	5.0	ND	1	02/17/05	02/17/05	
Xylenes, Total	EPA 624	5B17020	0.52	4.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					105 %				
Surrogate: Toluene-d8 (80-120%)					108 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					101 %				

Del Mar Analytical, Irvine  
 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: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Sample ID: IOB0980-01 (Outfall 001 - Water)</b>									
Reporting Units: ug/l									
Bromodichloromethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17020	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17020	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17020	0.37	2.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17020	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17020	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					111 %				
Surrogate: Toluene-d8 (80-120%)					109 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					104 %				
<b>Sample ID: IOB0980-02 (Trip Blank - Water)</b>									
Reporting Units: ug/l									
Bromodichloromethane	EPA 624	5B17020	0.30	2.0	ND	1	02/17/05	02/17/05	
Bromoform	EPA 624	5B17020	0.32	5.0	ND	1	02/17/05	02/17/05	
Bromomethane	EPA 624	5B17020	0.34	5.0	ND	1	02/17/05	02/17/05	
Chlorobenzene	EPA 624	5B17020	0.36	2.0	ND	1	02/17/05	02/17/05	
Chloroethane	EPA 624	5B17020	0.33	5.0	ND	1	02/17/05	02/17/05	
Chloromethane	EPA 624	5B17020	0.30	5.0	ND	1	02/17/05	02/17/05	
Dibromochloromethane	EPA 624	5B17020	0.28	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichlorobenzene	EPA 624	5B17020	0.32	2.0	ND	1	02/17/05	02/17/05	
1,3-Dichlorobenzene	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/17/05	
1,4-Dichlorobenzene	EPA 624	5B17020	0.37	2.0	ND	1	02/17/05	02/17/05	
trans-1,2-Dichloroethene	EPA 624	5B17020	0.27	2.0	ND	1	02/17/05	02/17/05	
1,2-Dichloropropane	EPA 624	5B17020	0.35	2.0	ND	1	02/17/05	02/17/05	
cis-1,3-Dichloropropene	EPA 624	5B17020	0.22	2.0	ND	1	02/17/05	02/17/05	
trans-1,3-Dichloropropene	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/17/05	
Methylene chloride	EPA 624	5B17020	0.48	5.0	ND	1	02/17/05	02/17/05	
1,1,2,2-Tetrachloroethane	EPA 624	5B17020	0.24	2.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-120%)					105 %				
Surrogate: Toluene-d8 (80-120%)					108 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					101 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001 Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Sample ID: IOB0980-01 (Outfall 001 - Water)</b>									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	
2-Chloroethyl vinyl ether	EPA 624	5B12011	1.3	5.0	ND	1	02/12/05	02/12/05	
Surrogate: Dibromofluoromethane (80-120%)					87 %				
Surrogate: Toluene-d8 (80-120%)					105 %				
Surrogate: 4-Bromofluorobenzene (80-120%)					98 %				
<b>Sample ID: IOB0980-02 (Trip Blank - Water)</b>									
Reporting Units: ug/l									
Acrolein	EPA 624	5B12011	4.6	50	ND	1	02/12/05	02/12/05	
Acrylonitrile	EPA 624	5B12011	5.1	50	ND	1	02/12/05	02/12/05	
2-Chloroethyl vinyl ether	EPA 624	5B12011	1.3	5.0	ND	1	02/12/05	02/12/05	
Surrogate: Dibromofluoromethane (80-120%)					84 %				
Surrogate: Toluene-d8 (80-120%)					104 %				
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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
Received: 02/11/05

**PURGEABLES BY GC/MS, TENTATIVELY IDENTIFIED COMPOUNDS**

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOB0980-01 (Outfall 001 - Water)</b>									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17020	N/A	2.5	ND	1	02/17/05	02/17/05	
Cyclohexane	EPA 624 (MOD.)	5B17020	N/A	2.5	ND	1	02/17/05	02/17/05	
<b>Sample ID: IOB0980-02 (Trip Blank - Water)</b>									
Reporting Units: ug/l									
1,2-Dichloro-1,1,2-trifluoroethane	EPA 624 (MOD.)	5B17020	N/A	2.5	ND	1	02/17/05	02/17/05	
Cyclohexane	EPA 624 (MOD.)	5B17020	N/A	2.5	ND	1	02/17/05	02/17/05	

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

Project ID: Annual Outfall 001  
Report Number: IOB0980

Sampled: 02/11/05  
Received: 02/11/05

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: IOB0980-01 (Outfall 001 - Water)									
Reporting Units: ug/l									
Acenaphthene	EPA 625	5B14010	0.10	0.50	ND	0.962	02/14/05	02/18/05	
Acenaphthylene	EPA 625	5B14010	0.10	0.50	ND	0.962	02/14/05	02/18/05	
Aniline	EPA 625	5B14010	2.9	10	ND	0.962	02/14/05	02/18/05	
Anthracene	EPA 625	5B14010	0.083	0.50	ND	0.962	02/14/05	02/18/05	
Benzidine	EPA 625	5B14010	2.4	5.0	ND	0.962	02/14/05	02/18/05	L2
Benzoic acid	EPA 625	5B14010	3.7	20	ND	0.962	02/14/05	02/18/05	
Benzo(a)anthracene	EPA 625	5B14010	0.038	5.0	ND	0.962	02/14/05	02/18/05	
Benzo(a)pyrene	EPA 625	5B14010	0.14	2.0	ND	0.962	02/14/05	02/18/05	
Benzo(b)fluoranthene	EPA 625	5B14010	0.050	2.0	ND	0.962	02/14/05	02/18/05	
Benzo(g,h,i)perylene	EPA 625	5B14010	0.059	5.0	ND	0.962	02/14/05	02/18/05	
Benzo(k)fluoranthene	EPA 625	5B14010	0.053	0.50	ND	0.962	02/14/05	02/18/05	
Benzyl alcohol	EPA 625	5B14010	0.21	5.0	ND	0.962	02/14/05	02/18/05	
Bis(2-chloroethoxy)methane	EPA 625	5B14010	0.072	0.50	ND	0.962	02/14/05	02/18/05	
Bis(2-chloroethyl)ether	EPA 625	5B14010	0.084	0.50	ND	0.962	02/14/05	02/18/05	
Bis(2-chloroisopropyl)ether	EPA 625	5B14010	0.11	0.50	ND	0.962	02/14/05	02/18/05	
Bis(2-ethylhexyl)phthalate	EPA 625	5B14010	1.1	5.0	ND	0.962	02/14/05	02/18/05	
4-Bromophenyl phenyl ether	EPA 625	5B14010	0.12	1.0	ND	0.962	02/14/05	02/18/05	
Butyl benzyl phthalate	EPA 625	5B14010	0.34	5.0	ND	0.962	02/14/05	02/18/05	
4-Chloroaniline	EPA 625	5B14010	0.20	2.0	ND	0.962	02/14/05	02/18/05	
2-Chloronaphthalene	EPA 625	5B14010	0.059	0.50	ND	0.962	02/14/05	02/18/05	
4-Chloro-3-methylphenol	EPA 625	5B14010	0.34	2.0	ND	0.962	02/14/05	02/18/05	
4-Chlorophenyl phenyl ether	EPA 625	5B14010	0.056	0.50	ND	0.962	02/14/05	02/18/05	
2-Chlorophenol	EPA 625	5B14010	0.12	1.0	ND	0.962	02/14/05	02/18/05	
Chrysene	EPA 625	5B14010	0.072	0.50	ND	0.962	02/14/05	02/18/05	
Dibenz(a,h)anthracene	EPA 625	5B14010	0.083	0.50	ND	0.962	02/14/05	02/18/05	
Dibenzofuran	EPA 625	5B14010	0.075	0.50	ND	0.962	02/14/05	02/18/05	
Di-n-butyl phthalate	EPA 625	5B14010	0.26	2.0	ND	0.962	02/14/05	02/18/05	
1,2-Dichlorobenzene	EPA 625	5B14010	0.11	0.50	ND	0.962	02/14/05	02/18/05	
1,3-Dichlorobenzene	EPA 625	5B14010	0.13	0.50	ND	0.962	02/14/05	02/18/05	
1,4-Dichlorobenzene	EPA 625	5B14010	0.050	0.50	ND	0.962	02/14/05	02/18/05	
3,3-Dichlorobenzidine	EPA 625	5B14010	0.93	5.0	ND	0.962	02/14/05	02/18/05	
2,4-Dichlorophenol	EPA 625	5B14010	0.21	2.0	ND	0.962	02/14/05	02/18/05	
Diethyl phthalate	EPA 625	5B14010	0.12	1.0	ND	0.962	02/14/05	02/18/05	
2,4-Dimethylphenol	EPA 625	5B14010	0.31	2.0	ND	0.962	02/14/05	02/18/05	
Dimethyl phthalate	EPA 625	5B14010	0.081	0.50	ND	0.962	02/14/05	02/18/05	
4,6-Dinitro-2-methylphenol	EPA 625	5B14010	0.38	5.0	ND	0.962	02/14/05	02/18/05	
2,4-Dinitrophenol	EPA 625	5B14010	2.7	5.0	ND	0.962	02/14/05	02/18/05	
2,4-Dinitrotoluene	EPA 625	5B14010	0.23	5.0	ND	0.962	02/14/05	02/18/05	
2,6-Dinitrotoluene	EPA 625	5B14010	0.24	5.0	ND	0.962	02/14/05	02/18/05	
Di-n-octyl phthalate	EPA 625	5B14010	0.17	5.0	ND	0.962	02/14/05	02/18/05	
1,2-Diphenylhydrazine/Azobenzene	EPA 625	5B14010	0.087	1.0	ND	0.962	02/14/05	02/18/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
Fluoranthene	EPA 625	5B14010	0.089	0.50	ND	0.962	02/14/05	02/18/05	
Fluorene	EPA 625	5B14010	0.075	0.50	ND	0.962	02/14/05	02/18/05	
Hexachlorobenzene	EPA 625	5B14010	0.13	1.0	ND	0.962	02/14/05	02/18/05	
Hexachlorobutadiene	EPA 625	5B14010	0.38	2.0	ND	0.962	02/14/05	02/18/05	
Hexachlorocyclopentadiene	EPA 625	5B14010	1.8	5.0	ND	0.962	02/14/05	02/18/05	
Hexachloroethane	EPA 625	5B14010	0.51	3.0	ND	0.962	02/14/05	02/18/05	
Indeno(1,2,3-cd)pyrene	EPA 625	5B14010	0.19	2.0	ND	0.962	02/14/05	02/18/05	
Isophorone	EPA 625	5B14010	0.059	1.0	ND	0.962	02/14/05	02/18/05	
2-Methylnaphthalene	EPA 625	5B14010	0.13	1.0	<b>0.15</b>	0.962	02/14/05	02/18/05	B, J
2-Methylphenol	EPA 625	5B14010	0.28	2.0	ND	0.962	02/14/05	02/18/05	
4-Methylphenol	EPA 625	5B14010	0.20	5.0	ND	0.962	02/14/05	02/18/05	
Naphthalene	EPA 625	5B14010	0.13	1.0	ND	0.962	02/14/05	02/18/05	
2-Nitroaniline	EPA 625	5B14010	0.18	5.0	ND	0.962	02/14/05	02/18/05	
3-Nitroaniline	EPA 625	5B14010	0.35	5.0	ND	0.962	02/14/05	02/18/05	
4-Nitroaniline	EPA 625	5B14010	0.49	5.0	ND	0.962	02/14/05	02/18/05	
Nitrobenzene	EPA 625	5B14010	0.10	1.0	ND	0.962	02/14/05	02/18/05	
2-Nitrophenol	EPA 625	5B14010	0.23	2.0	ND	0.962	02/14/05	02/18/05	
4-Nitrophenol	EPA 625	5B14010	0.73	5.0	ND	0.962	02/14/05	02/18/05	
N-Nitrosodimethylamine	EPA 625	5B14010	0.22	2.0	ND	0.962	02/14/05	02/18/05	C
N-Nitroso-di-n-propylamine	EPA 625	5B14010	0.18	2.0	ND	0.962	02/14/05	02/18/05	
N-Nitrosodiphenylamine	EPA 625	5B14010	0.077	1.0	ND	0.962	02/14/05	02/18/05	
Pentachlorophenol	EPA 625	5B14010	0.78	2.0	ND	0.962	02/14/05	02/18/05	
Phenanthrene	EPA 625	5B14010	0.071	0.50	ND	0.962	02/14/05	02/18/05	
Phenol	EPA 625	5B14010	0.14	1.0	ND	0.962	02/14/05	02/18/05	
Pyrene	EPA 625	5B14010	0.059	0.50	ND	0.962	02/14/05	02/18/05	
1,2,4-Trichlorobenzene	EPA 625	5B14010	0.10	1.0	ND	0.962	02/14/05	02/18/05	
2,4,5-Trichlorophenol	EPA 625	5B14010	0.075	2.0	ND	0.962	02/14/05	02/18/05	
2,4,6-Trichlorophenol	EPA 625	5B14010	0.10	1.0	ND	0.962	02/14/05	02/18/05	
Surrogate: 2-Fluorophenol (35-120%)									81 %
Surrogate: Phenol-d6 (45-120%)									77 %
Surrogate: 2,4,6-Tribromophenol (50-125%)									84 %
Surrogate: Nitrobenzene-d5 (45-120%)									78 %
Surrogate: 2-Fluorobiphenyl (45-120%)									81 %
Surrogate: Terphenyl-d14 (45-135%)									80 %

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001	Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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: IOB0980-01 (Outfall 001 - Water) - cont.									
Reporting Units: ug/l									
Aldrin	EPA 608	5B14073	0.030	0.10	ND	0.98	02/14/05	02/15/05	
alpha-BHC	EPA 608	5B14073	0.00049	0.010	ND	0.98	02/14/05	02/15/05	
beta-BHC	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05	
delta-BHC	EPA 608	5B14073	0.020	0.20	ND	0.98	02/14/05	02/15/05	
gamma-BHC (Lindane)	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05	
Chlordane	EPA 608	5B14073	0.20	1.0	ND	0.98	02/14/05	02/15/05	
4,4'-DDD	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05	
4,4'-DDE	EPA 608	5B14073	0.020	0.10	ND	0.98	02/14/05	02/15/05	
4,4'-DDT	EPA 608	5B14073	0.030	0.10	ND	0.98	02/14/05	02/15/05	
Dieldrin	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05	
Endosulfan I	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05	
Endosulfan II	EPA 608	5B14073	0.040	0.10	ND	0.98	02/14/05	02/15/05	
Endosulfan sulfate	EPA 608	5B14073	0.015	0.20	ND	0.98	02/14/05	02/15/05	
Endrin	EPA 608	5B14073	0.015	0.10	ND	0.98	02/14/05	02/15/05	
Endrin aldehyde	EPA 608	5B14073	0.045	0.10	ND	0.98	02/14/05	02/15/05	
Endrin ketone	EPA 608	5B14073	0.020	0.10	ND	0.98	02/14/05	02/15/05	
Heptachlor	EPA 608	5B14073	0.030	0.10	ND	0.98	02/14/05	02/15/05	
Heptachlor epoxide	EPA 608	5B14073	0.020	0.10	ND	0.98	02/14/05	02/15/05	
Methoxychlor	EPA 608	5B14073	0.035	0.10	ND	0.98	02/14/05	02/15/05	
Toxaphene	EPA 608	5B14073	1.5	5.0	ND	0.98	02/14/05	02/15/05	
Surrogate: Tetrachloro-m-xylene (35-120%)					52 %				
Surrogate: Decachlorobiphenyl (45-120%)					61 %				
Surrogate: Tetrachloro-m-xylene (35-120%)					52 %				
Surrogate: Decachlorobiphenyl (45-120%)					61 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.</b>									
<b>Reporting Units: ug/l</b>									
Aroclor 1016	EPA 608	5B14073	0.20	1.0	ND	0.98	02/14/05	02/15/05	
Aroclor 1221	EPA 608	5B14073	0.10	1.0	ND	0.98	02/14/05	02/15/05	
Aroclor 1232	EPA 608	5B14073	0.15	1.0	ND	0.98	02/14/05	02/15/05	
Aroclor 1242	EPA 608	5B14073	0.15	1.0	ND	0.98	02/14/05	02/15/05	
Aroclor 1248	EPA 608	5B14073	0.25	1.0	ND	0.98	02/14/05	02/15/05	
Aroclor 1254	EPA 608	5B14073	0.25	1.0	ND	0.98	02/14/05	02/15/05	
Aroclor 1260	EPA 608	5B14073	0.40	1.0	ND	0.98	02/14/05	02/15/05	
<i>Surrogate: Decachlorobiphenyl (45-120%)</i>					66 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001 Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.</b>									
<b>Reporting Units: mg/l</b>									
Barium	EPA 200.7	5B12044	0.0028	0.010	0.14	1	02/12/05	02/12/05	
Boron	EPA 200.7	5B12044	0.0074	0.050	0.054	1	02/12/05	02/12/05	B
Iron	EPA 200.7	5B12044	0.0088	0.040	27	1	02/12/05	02/12/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01RE1 (Outfall 001 - Water) - cont.									
Reporting Units: mg/l									
Iron	EPA 200.7	5B14113	0.0088	0.040	27	1	02/14/05	02/15/05	

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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01RE2 (Outfall 001 - Water) - cont.									
Reporting Units: mg/l									
Iron	EPA 200.7	5B17052	0.0088	0.040	29	1	02/12/05	02/17/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.									
Reporting Units: ug/l									
Antimony	EPA 200.8	5B12041	0.18	2.0	0.20	1	02/12/05	02/14/05	J
Arsenic	EPA 200.7	5B12044	3.8	5.0	6.7	1	02/12/05	02/12/05	
Beryllium	EPA 200.7	5B12044	0.62	2.0	1.3	1	02/12/05	02/12/05	J
Cadmium	EPA 200.8	5B12041	0.015	1.0	0.19	1	02/12/05	02/14/05	J
Chromium	EPA 200.7	5B12044	0.68	5.0	27	1	02/12/05	02/12/05	
Cobalt	EPA 200.7	5B12044	0.89	10	6.8	1	02/12/05	02/12/05	J
Copper	EPA 200.8	5B12041	0.49	2.0	13	1	02/12/05	02/14/05	
Lead	EPA 200.8	5B12041	0.13	1.0	9.7	1	02/12/05	02/14/05	
Manganese	EPA 200.7	5B12044	3.2	20	370	1	02/12/05	02/12/05	
Mercury	EPA 245.1	5B12033	0.063	0.20	0.16	1	02/12/05	02/12/05	J
Nickel	EPA 200.7	5B12044	2.0	10	23	1	02/12/05	02/12/05	
Selenium	EPA 200.8	5B12041	0.36	2.0	0.37	1	02/12/05	02/14/05	J
Silver	EPA 200.8	5B12041	0.089	1.0	0.10	1	02/12/05	02/14/05	J
Thallium	EPA 200.8	5B12041	0.075	1.0	0.46	1	02/12/05	02/14/05	J
Vanadium	EPA 200.7	5B12044	1.4	10	48	1	02/12/05	02/12/05	
Zinc	EPA 200.7	5B12044	3.7	20	90	1	02/12/05	02/12/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001 Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01RE1 (Outfall 001 - Water) - cont.									
Reporting Units: ug/l									
Chromium	EPA 200.7	5B14113	0.68	5.0	26	1	02/14/05	02/15/05	
Copper	EPA 200.8	5B14104	0.49	2.0	17	1	02/14/05	02/15/05	
Lead	EPA 200.8	5B14104	0.13	1.0	13	1	02/14/05	02/15/05	
Manganese	EPA 200.7	5B14113	3.2	20	350	1	02/14/05	02/15/05	
Zinc	EPA 200.7	5B14113	3.7	20	98	1	02/14/05	02/15/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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## METALS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01RE2 (Outfall 001 - Water) - cont.									
Reporting Units: ug/l									
Chromium	EPA 200.7	5B17052	0.68	5.0	28	1	02/12/05	02/17/05	
Copper	EPA 200.8	5B17051	0.98	4.0	16	2	02/12/05	02/17/05	
Lead	EPA 200.8	5B17051	0.26	2.0	11	2	02/12/05	02/17/05	
Manganese	EPA 200.7	5B17052	3.2	20	360	1	02/12/05	02/17/05	
Zinc	EPA 200.7	5B17052	3.7	20	82	1	02/12/05	02/17/05	

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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.									
Reporting Units: mg/l									
Ammonia-N (Distilled)	EPA 350.2	5B11117	0.30	0.50	4.2	1	02/11/05	02/11/05	
Biochemical Oxygen Demand	EPA 405.1	5B11108	0.59	2.0	3.0	1	02/11/05	02/16/05	K
Chloride	EPA 300.0	5B11120	0.26	0.50	11	1	02/11/05	02/12/05	
Fluoride	EPA 300.0	5B11120	0.10	0.50	0.29	1	02/11/05	02/12/05	J
Nitrate/Nitrite-N	EPA 300.0	5B11120	0.072	0.26	0.94	1	02/11/05	02/12/05	
Oil & Grease	EPA 413.1	5B14044	0.94	5.0	3.8	1	02/14/05	02/14/05	J
Residual Chlorine	EPA 330.5	5B11072	0.10	0.10	ND	1	02/11/05	02/11/05	
Sulfate	EPA 300.0	5B11120	0.18	0.50	29	1	02/11/05	02/12/05	
Surfactants (MBAS)	SM5540-C	5B12050	0.44	1.0	1.0	10	02/12/05	02/12/05	
Total Dissolved Solids	SM2540C	5B16118	10	10	190	1	02/16/05	02/16/05	
Total Organic Carbon	EPA 415.1	5B17130	0.25	1.0	9.3	1	02/17/05	02/17/05	
Total Suspended Solids	EPA 160.2	5B16128	10	10	460	1	02/16/05	02/16/05	

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
<b>Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.</b>									
<b>Reporting Units: ml/hr</b>									
Total Settleable Solids	EPA 160.5	5B11071	0.10	0.10	ND	1	02/11/05	02/11/05	

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 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.									
Reporting Units: NTU									
Turbidity	EPA 180.1	5B12055	0.80	20	530	20	02/12/05	02/12/05	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.									
Reporting Units: ug/l									
Total Cyanide	EPA 335.2	5B12048	2.2	5.0	ND	1	02/12/05	02/12/05	
Perchlorate	EPA 314.0	5B16069	0.80	4.0	ND	1	02/16/05	02/16/05	

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## INORGANICS

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOB0980-01 (Outfall 001 - Water) - cont.									
Reporting Units: umhos/cm									
Specific Conductance	EPA 120.1	5B16120	1.0	1.0	190	1	02/16/05	02/16/05	

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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: IOB0980-01 (Outfall 001 - Water) - cont.									
Reporting Units: ug/l									
1,4-Dioxane	EPA 8260B	P5B1701	0.49	1.0	ND	1	02/17/05	02/17/05	
Surrogate: Dibromofluoromethane (80-125%)					96 %				

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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## SHORT HOLD TIME DETAIL REPORT

Sample ID: Outfall 001 (IOB0980-01) - Water	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
EPA 160.5	2	02/11/2005 10:56	02/11/2005 18:15	02/11/2005 22:00	02/11/2005 22:00
EPA 180.1	2	02/11/2005 10:56	02/11/2005 18:15	02/12/2005 12:00	02/12/2005 13:00
EPA 300.0	2	02/11/2005 10:56	02/11/2005 18:15	02/11/2005 23:00	02/12/2005 01:10
EPA 330.5	1	02/11/2005 10:56	02/11/2005 18:15	02/11/2005 18:06	02/11/2005 21:00
EPA 405.1	2	02/11/2005 10:56	02/11/2005 18:15	02/11/2005 22:20	02/16/2005 13:30
EPA 624	3	02/11/2005 10:56	02/11/2005 18:15	02/12/2005 00:00	02/12/2005 13:19
SM5540-C	2	02/11/2005 10:56	02/11/2005 18:15	02/12/2005 13:09	02/12/2005 17:41
Sample ID: Trip Blank (IOB0980-02) - Water					
EPA 624	3	02/11/2005 14:20	02/11/2005 18:15	02/12/2005 00:00	02/12/2005 11:46

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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	Data Qualifiers
<b><u>Batch: 5B15078 Extracted: 02/15/05</u></b>										
<b>Blank Analyzed: 02/15/2005 (5B15078-BLK1)</b>										
Total Recoverable Hydrocarbons	ND	1.0	0.31	mg/l						
<b>LCS Analyzed: 02/15/2005 (5B15078-BS1)</b>										
Total Recoverable Hydrocarbons	4.46	1.0	0.31	mg/l	5.00		89 65-120			M-NR1
<b>LCS Dup Analyzed: 02/15/2005 (5B15078-BSD1)</b>										
Total Recoverable Hydrocarbons	4.21	1.0	0.31	mg/l	5.00		84 65-120	6	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Batch: 5B12001 Extracted: 02/12/05</b>										
<b>Blank Analyzed: 02/14/2005 (5B12001-BLK1)</b>										
EFH (C13 - C22)	ND	0.50	0.082	mg/l						
EFH (C13 - C40)	ND	0.50	0.082	mg/l						
Surrogate: n-Octacosane	0.104			mg/l	0.200		52 40-125			
<b>LCS Analyzed: 02/14/2005 (5B12001-BS1)</b>										
EFH (C13 - C40)	0.547	0.50	0.082	mg/l	0.775		71 40-120			M-NR1
Surrogate: n-Octacosane	0.125			mg/l	0.200		62 40-125			
<b>LCS Dup Analyzed: 02/14/2005 (5B12001-BSD1)</b>										
EFH (C13 - C40)	0.439	0.50	0.082	mg/l	0.775		57 40-120	22	25	J
Surrogate: n-Octacosane	0.0969			mg/l	0.200		48 40-125			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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	RPD Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B18031 Extracted: 02/18/05</b>											
<b>Blank Analyzed: 02/18/2005 (5B18031-BLK1)</b>											
GRO (C4 - C12)	ND	0.10	0.050	mg/l							
Surrogate: 4-BFB (FID)	0.00817			mg/l	0.0100		82	65-140			
<b>LCS Analyzed: 02/18/2005 (5B18031-BS1)</b>											
GRO (C4 - C12)	0.644	0.10	0.050	mg/l	0.800		80	70-140			
Surrogate: 4-BFB (FID)	0.0262			mg/l	0.0300		87	65-140			
<b>Matrix Spike Analyzed: 02/18/2005 (5B18031-MS1) Source: IOB0897-01</b>											
GRO (C4 - C12)	0.199	0.10	0.050	mg/l	0.220	ND	90	60-140			
Surrogate: 4-BFB (FID)	0.00979			mg/l	0.0100		98	65-140			
<b>Matrix Spike Dup Analyzed: 02/18/2005 (5B18031-MSD1) Source: IOB0897-01</b>											
GRO (C4 - C12)	0.203	0.10	0.050	mg/l	0.220	ND	92	60-140	2	20	
Surrogate: 4-BFB (FID)	0.00967			mg/l	0.0100		97	65-140			

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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	RPD Limit	Data Qualifiers
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**Batch: 5B17020 Extracted: 02/17/05**

**Blank Analyzed: 02/17/2005 (5B17020-BLK1)**

Benzene	ND	2.0	0.28	ug/l						
Trichlorotrifluoroethane (Freon 113)	ND	5.0	1.2	ug/l						
Carbon tetrachloride	ND	5.0	0.28	ug/l						
Chloroform	ND	2.0	0.33	ug/l						
1,1-Dichloroethane	ND	2.0	0.27	ug/l						
1,2-Dichloroethane	ND	2.0	0.28	ug/l						
1,1-Dichloroethene	ND	3.0	0.32	ug/l						
Ethylbenzene	ND	2.0	0.25	ug/l						
Tetrachloroethene	ND	2.0	0.32	ug/l						
Toluene	ND	2.0	0.36	ug/l						
1,1,1-Trichloroethane	ND	2.0	0.30	ug/l						
1,1,2-Trichloroethane	ND	2.0	0.30	ug/l						
Trichloroethene	ND	5.0	0.26	ug/l						
Trichlorofluoromethane	ND	5.0	0.34	ug/l						
Vinyl chloride	ND	5.0	0.26	ug/l						
Xylenes, Total	ND	4.0	0.52	ug/l						
Surrogate: Dibromofluoromethane	27.0			ug/l	25.0		108	80-120		
Surrogate: Toluene-d8	26.8			ug/l	25.0		107	80-120		
Surrogate: 4-Bromofluorobenzene	26.0			ug/l	25.0		104	80-120		

**LCS Analyzed: 02/17/2005 (5B17020-BS1)**

Benzene	24.5	2.0	0.28	ug/l	25.0		98	70-120		
Carbon tetrachloride	24.4	5.0	0.28	ug/l	25.0		98	70-140		
Chloroform	25.0	2.0	0.33	ug/l	25.0		100	75-130		
1,1-Dichloroethane	24.1	2.0	0.27	ug/l	25.0		96	70-135		
1,2-Dichloroethane	26.6	2.0	0.28	ug/l	25.0		106	60-150		
1,1-Dichloroethene	24.8	3.0	0.32	ug/l	25.0		99	75-135		
Ethylbenzene	25.7	2.0	0.25	ug/l	25.0		103	80-120		
Tetrachloroethene	23.0	2.0	0.32	ug/l	25.0		92	75-125		
Toluene	25.0	2.0	0.36	ug/l	25.0		100	75-120		
1,1,1-Trichloroethane	23.8	2.0	0.30	ug/l	25.0		95	75-140		
1,1,2-Trichloroethane	25.6	2.0	0.30	ug/l	25.0		102	70-125		
Trichloroethene	24.0	5.0	0.26	ug/l	25.0		96	80-120		
Trichlorofluoromethane	24.1	5.0	0.34	ug/l	25.0		96	65-145		
Vinyl chloride	25.3	5.0	0.26	ug/l	25.0		101	50-130		
Surrogate: Dibromofluoromethane	27.1			ug/l	25.0		108	80-120		

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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
<b>Batch: 5B17020 Extracted: 02/17/05</b>											
<b>LCS Analyzed: 02/17/2005 (5B17020-BS1)</b>											
Surrogate: Toluene-d8	27.1			ug/l	25.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	27.3			ug/l	25.0		109	80-120			
<b>Matrix Spike Analyzed: 02/17/2005 (5B17020-MS1)</b>											
<b>Source: IOB0980-01</b>											
Benzene	26.8	2.0	0.28	ug/l	25.0	ND	107	70-120			
Carbon tetrachloride	27.2	5.0	0.28	ug/l	25.0	ND	109	70-145			
Chloroform	27.9	2.0	0.33	ug/l	25.0	ND	112	70-135			
1,1-Dichloroethane	27.0	2.0	0.27	ug/l	25.0	ND	108	65-135			
1,2-Dichloroethane	27.5	2.0	0.28	ug/l	25.0	ND	110	60-150			
1,1-Dichloroethene	27.7	3.0	0.32	ug/l	25.0	ND	111	65-140			
Ethylbenzene	28.4	2.0	0.25	ug/l	25.0	ND	114	70-130			
Tetrachloroethene	25.2	2.0	0.32	ug/l	25.0	ND	101	70-130			
Toluene	27.1	2.0	0.36	ug/l	25.0	ND	108	70-120			
1,1,1-Trichloroethane	26.7	2.0	0.30	ug/l	25.0	ND	107	75-140			
1,1,2-Trichloroethane	27.8	2.0	0.30	ug/l	25.0	ND	111	60-135			
Trichloroethene	26.1	5.0	0.26	ug/l	25.0	ND	104	70-125			
Trichlorofluoromethane	27.8	5.0	0.34	ug/l	25.0	ND	111	55-145			
Vinyl chloride	28.6	5.0	0.26	ug/l	25.0	ND	114	40-135			
Surrogate: Dibromofluoromethane	28.2			ug/l	25.0		113	80-120			
Surrogate: Toluene-d8	27.3			ug/l	25.0		109	80-120			
Surrogate: 4-Bromofluorobenzene	28.2			ug/l	25.0		113	80-120			
<b>Matrix Spike Dup Analyzed: 02/17/2005 (5B17020-MSD1)</b>											
<b>Source: IOB0980-01</b>											
Benzene	26.0	2.0	0.28	ug/l	25.0	ND	104	70-120	3	20	
Carbon tetrachloride	25.6	5.0	0.28	ug/l	25.0	ND	102	70-145	6	25	
Chloroform	26.0	2.0	0.33	ug/l	25.0	ND	104	70-135	7	20	
1,1-Dichloroethane	25.4	2.0	0.27	ug/l	25.0	ND	102	65-135	6	20	
1,2-Dichloroethane	25.0	2.0	0.28	ug/l	25.0	ND	100	60-150	10	20	
1,1-Dichloroethene	26.9	3.0	0.32	ug/l	25.0	ND	108	65-140	3	20	
Ethylbenzene	26.3	2.0	0.25	ug/l	25.0	ND	105	70-130	8	20	
Tetrachloroethene	23.9	2.0	0.32	ug/l	25.0	ND	96	70-130	5	20	
Toluene	26.3	2.0	0.36	ug/l	25.0	ND	105	70-120	3	20	
1,1,1-Trichloroethane	24.6	2.0	0.30	ug/l	25.0	ND	98	75-140	8	20	
1,1,2-Trichloroethane	25.8	2.0	0.30	ug/l	25.0	ND	103	60-135	7	25	
Trichloroethene	25.0	5.0	0.26	ug/l	25.0	ND	100	70-125	4	20	
Trichlorofluoromethane	25.7	5.0	0.34	ug/l	25.0	ND	103	55-145	8	25	

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 Project Manager



MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B17020 Extracted: 02/17/05</b>											
<b>Matrix Spike Dup Analyzed: 02/17/2005 (5B17020-MSD1)</b>						<b>Source: IOB0980-01</b>					
Vinyl chloride	27.6	5.0	0.26	ug/l	25.0	ND	110	40-135	4	30	
Surrogate: Dibromofluoromethane	27.1			ug/l	25.0		108	80-120			
Surrogate: Toluene-d8	27.2			ug/l	25.0		109	80-120			
Surrogate: 4-Bromofluorobenzene	26.9			ug/l	25.0		108	80-120			

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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	RPD Limits	RPD RPD	Data Qualifiers
<b>Batch: 5B17020 Extracted: 02/17/05</b>										
<b>Blank Analyzed: 02/17/2005 (5B17020-BLK1)</b>										
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						
Surrogate: Dibromofluoromethane	27.0			ug/l	25.0		108	80-120		
Surrogate: Toluene-d8	26.8			ug/l	25.0		107	80-120		
Surrogate: 4-Bromofluorobenzene	26.0			ug/l	25.0		104	80-120		

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001 Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Batch: 5B17020 Extracted: 02/17/05</b>											
<b>LCS Analyzed: 02/17/2005 (5B17020-BS1)</b>											
Benzene	24.5	1.0	0.28	ug/l	25.0		98	70-120			
Bromodichloromethane	24.6	2.0	0.30	ug/l	25.0		98	70-140			
Bromoform	25.2	5.0	0.32	ug/l	25.0		101	55-135			
Bromomethane	26.6	5.0	0.34	ug/l	25.0		106	60-140			
Carbon tetrachloride	24.4	0.50	0.28	ug/l	25.0		98	70-140			
Chlorobenzene	24.2	2.0	0.36	ug/l	25.0		97	80-125			
Chloroethane	25.7	5.0	0.33	ug/l	25.0		103	60-145			
Chloroform	25.0	2.0	0.33	ug/l	25.0		100	75-130			
Chloromethane	24.1	5.0	0.30	ug/l	25.0		96	40-145			
Dibromochloromethane	25.0	2.0	0.28	ug/l	25.0		100	65-145			
1,2-Dichlorobenzene	24.4	2.0	0.32	ug/l	25.0		98	80-120			
1,3-Dichlorobenzene	23.6	2.0	0.35	ug/l	25.0		94	80-120			
1,4-Dichlorobenzene	23.8	2.0	0.37	ug/l	25.0		95	80-120			
1,1-Dichloroethane	24.1	2.0	0.27	ug/l	25.0		96	70-135			
1,2-Dichloroethane	26.6	0.50	0.28	ug/l	25.0		106	60-150			
1,1-Dichloroethene	24.8	5.0	0.32	ug/l	25.0		99	75-135			
trans-1,2-Dichloroethene	24.5	2.0	0.27	ug/l	25.0		98	70-130			
1,2-Dichloropropane	24.2	2.0	0.35	ug/l	25.0		97	70-120			
cis-1,3-Dichloropropene	25.3	2.0	0.22	ug/l	25.0		101	75-130			
trans-1,3-Dichloropropene	26.2	2.0	0.24	ug/l	25.0		105	75-135			
Ethylbenzene	25.7	2.0	0.25	ug/l	25.0		103	80-120			
Methylene chloride	26.2	5.0	0.48	ug/l	25.0		101	60-135			
1,1,2,2-Tetrachloroethane	26.7	2.0	0.24	ug/l	25.0		107	60-135			
Tetrachloroethene	23.0	2.0	0.32	ug/l	25.0		92	75-125			
Toluene	25.0	2.0	0.36	ug/l	25.0		100	75-120			
1,1,1-Trichloroethane	23.8	2.0	0.30	ug/l	25.0		95	75-140			
1,1,2-Trichloroethane	25.6	2.0	0.30	ug/l	25.0		102	70-125			
Trichloroethene	24.0	2.0	0.26	ug/l	25.0		96	80-120			
Trichlorofluoromethane	24.1	5.0	0.34	ug/l	25.0		96	65-145			
Vinyl chloride	25.3	0.50	0.26	ug/l	25.0		101	50-130			
Surrogate: Dibromofluoromethane	27.1			ug/l	25.0		108	80-120			
Surrogate: Toluene-d8	27.1			ug/l	25.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	27.3			ug/l	25.0		109	80-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Batch: 5B17020 Extracted: 02/17/05</b>											
<b>Matrix Spike Analyzed: 02/17/2005 (5B17020-MS1)</b>						<b>Source: IOB0980-01</b>					
Benzene	26.8	1.0	0.28	ug/l	25.0	ND	107	70-120			
Bromodichloromethane	27.4	2.0	0.30	ug/l	25.0	ND	110	70-140			
Bromoform	28.7	5.0	0.32	ug/l	25.0	ND	115	55-140			
Bromomethane	29.8	5.0	0.34	ug/l	25.0	ND	119	50-145			
Carbon tetrachloride	27.2	0.50	0.28	ug/l	25.0	ND	109	70-145			
Chlorobenzene	26.5	2.0	0.36	ug/l	25.0	ND	106	80-125			
Chloroethane	28.9	5.0	0.33	ug/l	25.0	ND	116	50-145			
Chloroform	27.9	2.0	0.33	ug/l	25.0	ND	112	70-135			
Chloromethane	26.2	5.0	0.30	ug/l	25.0	ND	105	35-145			
Dibromochloromethane	28.2	2.0	0.28	ug/l	25.0	ND	113	65-145			
1,2-Dichlorobenzene	27.0	2.0	0.32	ug/l	25.0	ND	108	75-130			
1,3-Dichlorobenzene	25.9	2.0	0.35	ug/l	25.0	ND	104	75-130			
1,4-Dichlorobenzene	26.1	2.0	0.37	ug/l	25.0	ND	104	80-120			
1,1-Dichloroethane	27.0	2.0	0.27	ug/l	25.0	ND	108	65-135			
1,2-Dichloroethane	27.5	0.50	0.28	ug/l	25.0	ND	110	60-150			
1,1-Dichloroethene	27.7	5.0	0.32	ug/l	25.0	ND	111	65-140			
trans-1,2-Dichloroethene	27.1	2.0	0.27	ug/l	25.0	ND	108	65-135			
1,2-Dichloropropane	26.6	2.0	0.35	ug/l	25.0	ND	106	65-130			
cis-1,3-Dichloropropene	27.2	2.0	0.22	ug/l	25.0	ND	109	70-140			
trans-1,3-Dichloropropene	28.2	2.0	0.24	ug/l	25.0	ND	113	70-140			
Ethylbenzene	28.4	2.0	0.25	ug/l	25.0	ND	114	70-130			
Methylene chloride	27.7	5.0	0.48	ug/l	25.0	ND	111	60-135			
1,1,2,2-Tetrachloroethane	29.2	2.0	0.24	ug/l	25.0	ND	117	60-145			
Tetrachloroethene	25.2	2.0	0.32	ug/l	25.0	ND	101	70-130			
Toluene	27.1	2.0	0.36	ug/l	25.0	ND	108	70-120			
1,1,1-Trichloroethane	26.7	2.0	0.30	ug/l	25.0	ND	107	75-140			
1,1,2-Trichloroethane	27.8	2.0	0.30	ug/l	25.0	ND	111	60-135			
Trichloroethene	26.1	2.0	0.26	ug/l	25.0	ND	104	70-125			
Trichlorofluoromethane	27.8	5.0	0.34	ug/l	25.0	ND	111	55-145			
Vinyl chloride	28.6	0.50	0.26	ug/l	25.0	ND	114	40-135			
Surrogate: Dibromofluoromethane	28.2			ug/l	25.0		113	80-120			
Surrogate: Toluene-d8	27.3			ug/l	25.0		109	80-120			
Surrogate: 4-Bromofluorobenzene	28.2			ug/l	25.0		113	80-120			

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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
<b>Batch: 5B17020 Extracted: 02/17/05</b>											
<b>Matrix Spike Dup Analyzed: 02/17/2005 (5B17020-MSD1)</b>						<b>Source: IOB0980-01</b>					
Benzene	26.0	1.0	0.28	ug/l	25.0	ND	104	70-120	3	20	
Bromodichloromethane	26.1	2.0	0.30	ug/l	25.0	ND	104	70-140	5	20	
Bromoform	25.4	5.0	0.32	ug/l	25.0	ND	102	55-140	12	25	
Bromomethane	28.7	5.0	0.34	ug/l	25.0	ND	115	50-145	4	25	
Carbon tetrachloride	25.6	0.50	0.28	ug/l	25.0	ND	102	70-145	6	25	
Chlorobenzene	25.1	2.0	0.36	ug/l	25.0	ND	100	80-125	5	20	
Chloroethane	27.9	5.0	0.33	ug/l	25.0	ND	112	50-145	4	25	
Chloroform	26.0	2.0	0.33	ug/l	25.0	ND	104	70-135	7	20	
Chloromethane	26.0	5.0	0.30	ug/l	25.0	ND	104	35-145	1	25	
Dibromochloromethane	25.4	2.0	0.28	ug/l	25.0	ND	102	65-145	10	25	
1,2-Dichlorobenzene	25.7	2.0	0.32	ug/l	25.0	ND	103	75-130	5	20	
1,3-Dichlorobenzene	24.9	2.0	0.35	ug/l	25.0	ND	100	75-130	4	20	
1,4-Dichlorobenzene	24.9	2.0	0.37	ug/l	25.0	ND	100	80-120	5	20	
1,1-Dichloroethane	25.4	2.0	0.27	ug/l	25.0	ND	102	65-135	6	20	
1,2-Dichloroethane	25.0	0.50	0.28	ug/l	25.0	ND	100	60-150	10	20	
1,1-Dichloroethene	26.9	5.0	0.32	ug/l	25.0	ND	108	65-140	3	20	
trans-1,2-Dichloroethene	26.3	2.0	0.27	ug/l	25.0	ND	105	65-135	3	20	
1,2-Dichloropropane	25.8	2.0	0.35	ug/l	25.0	ND	103	65-130	3	20	
cis-1,3-Dichloropropene	25.9	2.0	0.22	ug/l	25.0	ND	104	70-140	5	20	
trans-1,3-Dichloropropene	26.5	2.0	0.24	ug/l	25.0	ND	106	70-140	6	25	
Ethylbenzene	26.3	2.0	0.25	ug/l	25.0	ND	105	70-130	8	20	
Methylene chloride	26.4	5.0	0.48	ug/l	25.0	ND	106	60-135	5	20	
1,1,2,2-Tetrachloroethane	27.2	2.0	0.24	ug/l	25.0	ND	109	60-145	7	30	
Tetrachloroethene	23.9	2.0	0.32	ug/l	25.0	ND	96	70-130	5	20	
Toluene	26.3	2.0	0.36	ug/l	25.0	ND	105	70-120	3	20	
1,1,1-Trichloroethane	24.6	2.0	0.30	ug/l	25.0	ND	98	75-140	8	20	
1,1,2-Trichloroethane	25.8	2.0	0.30	ug/l	25.0	ND	103	60-135	7	25	
Trichloroethene	25.0	2.0	0.26	ug/l	25.0	ND	100	70-125	4	20	
Trichlorofluoromethane	25.7	5.0	0.34	ug/l	25.0	ND	103	55-145	8	25	
Vinyl chloride	27.6	0.50	0.26	ug/l	25.0	ND	110	40-135	4	30	
Surrogate: Dibromofluoromethane	27.1			ug/l	25.0		108	80-120			
Surrogate: Toluene-d8	27.2			ug/l	25.0		109	80-120			
Surrogate: 4-Bromofluorobenzene	26.9			ug/l	25.0		108	80-120			

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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: Annual Outfall 001 Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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	RPD Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B12011 Extracted: 02/12/05</b>											
<b>Blank Analyzed: 02/12/2005 (5B12011-BLK1)</b>											
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	21.9			ug/l	25.0		88	80-120			
Surrogate: Toluene-d8	26.4			ug/l	25.0		106	80-120			
Surrogate: 4-Bromofluorobenzene	24.3			ug/l	25.0		97	80-120			
<b>LCS Analyzed: 02/12/2005 (5B12011-BS1)</b>											
2-Chloroethyl vinyl ether	26.8	5.0	1.3	ug/l	25.0		107	20-175			
Surrogate: Dibromofluoromethane	21.8			ug/l	25.0		87	80-120			
Surrogate: Toluene-d8	26.6			ug/l	25.0		106	80-120			
Surrogate: 4-Bromofluorobenzene	24.8			ug/l	25.0		99	80-120			
<b>Matrix Spike Analyzed: 02/12/2005 (5B12011-MS1) Source: IOB0980-01</b>											
2-Chloroethyl vinyl ether	27.2	5.0	1.3	ug/l	25.0	ND	109	20-175			
Surrogate: Dibromofluoromethane	22.6			ug/l	25.0		90	80-120			
Surrogate: Toluene-d8	26.3			ug/l	25.0		105	80-120			
Surrogate: 4-Bromofluorobenzene	25.1			ug/l	25.0		100	80-120			
<b>Matrix Spike Dup Analyzed: 02/12/2005 (5B12011-MSD1) Source: IOB0980-01</b>											
2-Chloroethyl vinyl ether	27.5	5.0	1.3	ug/l	25.0	ND	110	20-175	1	25	
Surrogate: Dibromofluoromethane	22.7			ug/l	25.0		91	80-120			
Surrogate: Toluene-d8	26.4			ug/l	25.0		106	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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05

Received: 02/11/05

**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
<b>Batch: 5B17020 Extracted: 02/17/05</b>										
<b>Blank Analyzed: 02/17/2005 (5B17020-BLK1)</b>										
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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MWH-Pasadena/Boeing  
 300 North Lake Avenue, Suite 1200  
 Pasadena, CA 91101  
 Attention: Bronwyn Kelly

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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 Limits	RPD RPD	Data Qualifiers
<b>Batch: 5B14010 Extracted: 02/14/05</b>										
<b>Blank Analyzed: 02/18/2005 (5B14010-BLK1)</b>										
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	ND	5.0	0.34	ug/l						
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	0.200	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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 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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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 Limits	RPD RPD	Data Qualifiers
<b>Batch: 5B14010 Extracted: 02/14/05</b>										
<b>Blank Analyzed: 02/18/2005 (SB14010-BLK1)</b>										
4,6-Dinitro-2-methylphenol	ND	5.0	0.38	ug/l						
2,4-Dinitrophenol	ND	5.0	2.7	ug/l						
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	0.200	0.50	0.075	ug/l						J
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	8.70	1.0	0.13	ug/l						B
2-Methylphenol	ND	2.0	0.28	ug/l						
4-Methylphenol	ND	5.0	0.20	ug/l						
Naphthalene	0.300	1.0	0.13	ug/l						J
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	0.120	0.50	0.071	ug/l						J
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	15.9			ug/l	20.0		80	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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B14010 Extracted: 02/14/05</b>											
<b>Blank Analyzed: 02/18/2005 (5B14010-BLK1)</b>											
Surrogate: Phenol-d6	15.5			ug/l	20.0		78	45-120			
Surrogate: 2,4,6-Tribromophenol	14.0			ug/l	20.0		70	50-125			
Surrogate: Nitrobenzene-d5	7.44			ug/l	10.0		74	45-120			
Surrogate: 2-Fluorobiphenyl	7.50			ug/l	10.0		75	45-120			
Surrogate: Terphenyl-d14	8.10			ug/l	10.0		81	45-135			
<b>LCS Analyzed: 02/18/2005 (5B14010-BS1)</b>											
Acenaphthene	7.94	0.50	0.10	ug/l	10.0		79	55-120			M-NR1
Acenaphthylene	8.16	0.50	0.10	ug/l	10.0		82	55-120			
Aniline	8.24	10	2.9	ug/l	10.0		82	30-120			J
Anthracene	8.12	0.50	0.083	ug/l	10.0		81	60-120			
Benzidine	4.50	5.0	2.4	ug/l	10.0		45	20-180			J
Benzoic acid	4.86	20	3.7	ug/l	10.0		49	30-125			J
Benzo(a)anthracene	8.28	5.0	0.038	ug/l	10.0		83	65-120			
Benzo(a)pyrene	9.18	2.0	0.14	ug/l	10.0		92	55-125			
Benzo(b)fluoranthene	8.00	2.0	0.050	ug/l	10.0		80	50-125			
Benzo(g,h,i)perylene	8.04	5.0	0.059	ug/l	10.0		80	35-160			
Benzo(k)fluoranthene	8.44	0.50	0.053	ug/l	10.0		84	50-125			
Benzyl alcohol	7.34	5.0	0.21	ug/l	10.0		73	40-130			
Bis(2-chloroethoxy)methane	7.30	0.50	0.072	ug/l	10.0		73	55-120			
Bis(2-chloroethyl)ether	6.84	0.50	0.084	ug/l	10.0		68	50-120			
Bis(2-chloroisopropyl)ether	7.40	0.50	0.11	ug/l	10.0		74	50-120			
Bis(2-ethylhexyl)phthalate	7.70	5.0	1.1	ug/l	10.0		77	65-125			
4-Bromophenyl phenyl ether	7.56	1.0	0.12	ug/l	10.0		76	55-125			
Butyl benzyl phthalate	7.22	5.0	0.34	ug/l	10.0		72	60-125			
4-Chloroaniline	7.90	2.0	0.20	ug/l	10.0		79	55-120			
2-Chloronaphthalene	7.86	0.50	0.059	ug/l	10.0		79	60-120			
4-Chloro-3-methylphenol	7.90	2.0	0.34	ug/l	10.0		79	60-120			
4-Chlorophenyl phenyl ether	8.28	0.50	0.056	ug/l	10.0		83	55-120			
2-Chlorophenol	7.16	1.0	0.12	ug/l	10.0		72	45-120			
Chrysene	8.20	0.50	0.072	ug/l	10.0		82	65-120			
Dibenz(a,h)anthracene	7.62	0.50	0.083	ug/l	10.0		76	40-160			
Dibenzofuran	8.14	0.50	0.075	ug/l	10.0		81	60-120			
Di-n-butyl phthalate	7.96	2.0	0.26	ug/l	10.0		80	65-125			
1,2-Dichlorobenzene	6.54	0.50	0.11	ug/l	10.0		65	40-120			
1,3-Dichlorobenzene	6.38	0.50	0.13	ug/l	10.0		64	40-120			

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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 Limits	RPD RPD	Data Limit	Qualifiers
<b>Batch: 5B14010 Extracted: 02/14/05</b>											
<b>LCS Analyzed: 02/18/2005 (5B14010-BS1)</b>											
1,4-Dichlorobenzene	6.22	0.50	0.050	ug/l	10.0		62	40-120			M-NR1
3,3-Dichlorobenzidine	7.52	5.0	0.93	ug/l	10.0		75	50-170			
2,4-Dichlorophenol	7.64	2.0	0.21	ug/l	10.0		76	55-120			
Diethyl phthalate	7.58	1.0	0.12	ug/l	10.0		76	60-120			
2,4-Dimethylphenol	5.34	2.0	0.31	ug/l	10.0		53	35-120			
Dimethyl phthalate	7.42	0.50	0.081	ug/l	10.0		74	60-120			
4,6-Dinitro-2-methylphenol	6.64	5.0	0.38	ug/l	10.0		66	55-120			
2,4-Dinitrophenol	6.02	5.0	2.7	ug/l	10.0		60	40-140			
2,4-Dinitrotoluene	6.68	5.0	0.23	ug/l	10.0		67	60-140			
2,6-Dinitrotoluene	7.44	5.0	0.24	ug/l	10.0		74	65-125			
Di-n-octyl phthalate	6.72	5.0	0.17	ug/l	10.0		67	60-130			
1,2-Diphenylhydrazine/Azobenzene	8.52	1.0	0.087	ug/l	10.0		85	60-120			
Fluoranthene	9.34	0.50	0.089	ug/l	10.0		93	55-125			
Fluorene	8.32	0.50	0.075	ug/l	10.0		83	60-120			
Hexachlorobenzene	7.70	1.0	0.13	ug/l	10.0		77	50-120			
Hexachlorobutadiene	6.44	2.0	0.38	ug/l	10.0		64	45-120			
Hexachlorocyclopentadiene	7.70	5.0	1.8	ug/l	10.0		77	10-130			
Hexachloroethane	6.90	3.0	0.51	ug/l	10.0		69	40-120			
Indeno(1,2,3-cd)pyrene	7.40	2.0	0.19	ug/l	10.0		74	35-150			
Isophorone	6.42	1.0	0.059	ug/l	10.0		64	55-120			
2-Methylnaphthalene	8.02	1.0	0.13	ug/l	10.0		80	50-120			
2-Methylphenol	7.06	2.0	0.28	ug/l	10.0		71	45-120			
4-Methylphenol	7.38	5.0	0.20	ug/l	10.0		74	45-120			
Naphthalene	7.88	1.0	0.13	ug/l	10.0		79	50-120			
2-Nitroaniline	7.54	5.0	0.18	ug/l	10.0		75	60-130			
3-Nitroaniline	7.72	5.0	0.35	ug/l	10.0		77	50-140			
4-Nitroaniline	7.48	5.0	0.49	ug/l	10.0		75	45-160			
Nitrobenzene	7.26	1.0	0.10	ug/l	10.0		73	50-120			
2-Nitrophenol	8.06	2.0	0.23	ug/l	10.0		81	55-120			
4-Nitrophenol	6.82	5.0	0.73	ug/l	10.0		68	50-135			
N-Nitrosodimethylamine	5.44	2.0	0.22	ug/l	10.0		54	40-120			
N-Nitroso-di-n-propylamine	6.94	2.0	0.18	ug/l	10.0		69	50-120			
N-Nitrosodiphenylamine	7.04	1.0	0.077	ug/l	10.0		70	60-120			
Pentachlorophenol	7.14	2.0	0.78	ug/l	10.0		71	50-125			
Phenanthrene	7.92	0.50	0.071	ug/l	10.0		79	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: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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	RPD Limit	Data Qualifiers
<b>Batch: 5B14010 Extracted: 02/14/05</b>										
<b>LCS Analyzed: 02/18/2005 (5B14010-BS1)</b>										
Phenol	7.54	1.0	0.14	ug/l	10.0		75 45-120			M-NR1
Pyrene	7.86	0.50	0.059	ug/l	10.0		79 50-120			
1,2,4-Trichlorobenzene	6.84	1.0	0.10	ug/l	10.0		68 50-120			
2,4,5-Trichlorophenol	8.44	2.0	0.075	ug/l	10.0		84 60-120			
2,4,6-Trichlorophenol	7.90	1.0	0.10	ug/l	10.0		79 60-120			
Surrogate: 2-Fluorophenol	13.9			ug/l	20.0		70 35-120			
Surrogate: Phenol-d6	14.3			ug/l	20.0		72 45-120			
Surrogate: 2,4,6-Tribromophenol	14.7			ug/l	20.0		74 50-125			
Surrogate: Nitrobenzene-d5	7.24			ug/l	10.0		72 45-120			
Surrogate: 2-Fluorobiphenyl	7.38			ug/l	10.0		74 45-120			
Surrogate: Terphenyl-d14	6.90			ug/l	10.0		69 45-135			
<b>LCS Dup Analyzed: 02/18/2005 (5B14010-BSD1)</b>										
Acenaphthene	7.88	0.50	0.10	ug/l	10.0		79 55-120	1	20	
Acenaphthylene	8.12	0.50	0.10	ug/l	10.0		81 55-120	1	20	
Aniline	8.62	10	2.9	ug/l	10.0		86 30-120	5	25	J
Anthracene	8.18	0.50	0.083	ug/l	10.0		82 60-120	1	20	
Benzdine	ND	5.0	2.4	ug/l	10.0		20-180		35	L2
Benzoic acid	4.38	20	3.7	ug/l	10.0		44 30-125	10	30	J
Benzo(a)anthracene	8.50	5.0	0.038	ug/l	10.0		85 65-120	3	20	
Benzo(a)pyrene	9.16	2.0	0.14	ug/l	10.0		92 55-125	0	25	
Benzo(b)fluoranthene	8.60	2.0	0.050	ug/l	10.0		86 50-125	7	25	
Benzo(g,h,i)perylene	7.20	5.0	0.059	ug/l	10.0		72 35-160	11	25	
Benzo(k)fluoranthene	8.40	0.50	0.053	ug/l	10.0		84 50-125	1	20	
Benzyl alcohol	8.70	5.0	0.21	ug/l	10.0		87 40-130	17	20	
Bis(2-chloroethoxy)methane	7.60	0.50	0.072	ug/l	10.0		76 55-120	4	20	
Bis(2-chloroethyl)ether	7.02	0.50	0.084	ug/l	10.0		70 50-120	3	20	
Bis(2-chloroisopropyl)ether	7.66	0.50	0.11	ug/l	10.0		77 50-120	3	20	
Bis(2-ethylhexyl)phthalate	7.78	5.0	1.1	ug/l	10.0		78 65-125	1	20	
4-Bromophenyl phenyl ether	7.50	1.0	0.12	ug/l	10.0		75 55-125	1	25	
Butyl benzyl phthalate	7.26	5.0	0.34	ug/l	10.0		73 60-125	1	20	
4-Chloroaniline	8.46	2.0	0.20	ug/l	10.0		85 55-120	7	25	
2-Chloronaphthalene	7.72	0.50	0.059	ug/l	10.0		77 60-120	2	20	
4-Chloro-3-methylphenol	8.48	2.0	0.34	ug/l	10.0		85 60-120	7	25	
4-Chlorophenyl phenyl ether	7.90	0.50	0.056	ug/l	10.0		79 55-120	5	20	
2-Chlorophenol	7.54	1.0	0.12	ug/l	10.0		75 45-120	5	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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
Received: 02/11/05

METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B14010 Extracted: 02/14/05</b>											
<b>LCS Dup Analyzed: 02/18/2005 (5B14010-BSD1)</b>											
Chrysene	8.04	0.50	0.072	ug/l	10.0	80	65-120	2	20		
Dibenz(a,h)anthracene	7.18	0.50	0.083	ug/l	10.0	72	40-160	6	25		
Dibenzofuran	8.06	0.50	0.075	ug/l	10.0	81	60-120	1	20		
Di-n-butyl phthalate	8.06	2.0	0.26	ug/l	10.0	81	65-125	1	20		
1,2-Dichlorobenzene	6.78	0.50	0.11	ug/l	10.0	68	40-120	4	25		
1,3-Dichlorobenzene	6.54	0.50	0.13	ug/l	10.0	65	40-120	2	25		
1,4-Dichlorobenzene	6.60	0.50	0.050	ug/l	10.0	66	40-120	6	25		
3,3-Dichlorobenzidine	7.96	5.0	0.93	ug/l	10.0	80	50-170	6	25		
2,4-Dichlorophenol	8.34	2.0	0.21	ug/l	10.0	83	55-120	9	20		
Diethyl phthalate	7.90	1.0	0.12	ug/l	10.0	79	60-120	4	20		
2,4-Dimethylphenol	6.10	2.0	0.31	ug/l	10.0	61	35-120	13	25		
Dimethyl phthalate	7.50	0.50	0.081	ug/l	10.0	75	60-120	1	20		
4,6-Dinitro-2-methylphenol	7.64	5.0	0.38	ug/l	10.0	76	55-120	14	25		
2,4-Dinitrophenol	6.88	5.0	2.7	ug/l	10.0	69	40-140	13	25		
2,4-Dinitrotoluene	7.20	5.0	0.23	ug/l	10.0	72	60-140	7	20		
2,6-Dinitrotoluene	7.78	5.0	0.24	ug/l	10.0	78	65-125	4	20		
Di-n-octyl phthalate	7.08	5.0	0.17	ug/l	10.0	71	60-130	5	20		
1,2-Diphenylhydrazine/Azobenzene	8.36	1.0	0.087	ug/l	10.0	84	60-120	2	25		
Fluoranthene	9.12	0.50	0.089	ug/l	10.0	91	55-125	2	20		
Fluorene	8.50	0.50	0.075	ug/l	10.0	85	60-120	2	20		
Hexachlorobenzene	7.62	1.0	0.13	ug/l	10.0	76	50-120	1	20		
Hexachlorobutadiene	6.72	2.0	0.38	ug/l	10.0	67	45-120	4	25		
Hexachlorocyclopentadiene	7.88	5.0	1.8	ug/l	10.0	79	10-130	2	30		
Hexachloroethane	6.98	3.0	0.51	ug/l	10.0	70	40-120	1	25		
Indeno(1,2,3-cd)pyrene	7.64	2.0	0.19	ug/l	10.0	76	35-150	3	25		
Isophorone	7.28	1.0	0.059	ug/l	10.0	73	55-120	13	20		
2-Methylnaphthalene	8.84	1.0	0.13	ug/l	10.0	88	50-120	10	20		
2-Methylphenol	8.02	2.0	0.28	ug/l	10.0	80	45-120	13	20		
4-Methylphenol	8.32	5.0	0.20	ug/l	10.0	83	45-120	12	20		
Naphthalene	7.78	1.0	0.13	ug/l	10.0	78	50-120	1	20		
2-Nitroaniline	7.58	5.0	0.18	ug/l	10.0	76	60-130	1	20		
3-Nitroaniline	7.74	5.0	0.35	ug/l	10.0	77	50-140	0	25		
4-Nitroaniline	8.56	5.0	0.49	ug/l	10.0	86	45-160	13	20		
Nitrobenzene	7.48	1.0	0.10	ug/l	10.0	75	50-120	3	25		
2-Nitrophenol	8.62	2.0	0.23	ug/l	10.0	86	55-120	7	25		

Del Mar Analytical, Irvine  
Michele Harper  
Project Manager



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 Attention: Bronwyn Kelly

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## METHOD BLANK/QC DATA

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

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B14010 Extracted: 02/14/05</b>											
<b>LCS Dup Analyzed: 02/18/2005 (5B14010-BSD1)</b>											
4-Nitrophenol	7.58	5.0	0.73	ug/l	10.0		76	50-135	11	25	
N-Nitrosodimethylamine	8.36	2.0	0.22	ug/l	10.0		84	40-120	42	20	R-7
N-Nitroso-di-n-propylamine	7.70	2.0	0.18	ug/l	10.0		77	50-120	10	20	
N-Nitrosodiphenylamine	7.34	1.0	0.077	ug/l	10.0		73	60-120	4	20	
Pentachlorophenol	7.76	2.0	0.78	ug/l	10.0		78	50-125	8	25	
Phenanthrene	8.06	0.50	0.071	ug/l	10.0		81	55-120	2	20	
Phenol	7.90	1.0	0.14	ug/l	10.0		79	45-120	5	25	
Pyrene	8.10	0.50	0.059	ug/l	10.0		81	50-120	3	25	
1,2,4-Trichlorobenzene	6.66	1.0	0.10	ug/l	10.0		67	50-120	3	20	
2,4,5-Trichlorophenol	8.32	2.0	0.075	ug/l	10.0		83	60-120	1	20	
2,4,6-Trichlorophenol	8.22	1.0	0.10	ug/l	10.0		82	60-120	4	20	
Surrogate: 2-Fluorophenol	14.0			ug/l	20.0		70	35-120			
Surrogate: Phenol-d6	15.1			ug/l	20.0		76	45-120			
Surrogate: 2,4,6-Tribromophenol	15.1			ug/l	20.0		76	50-125			
Surrogate: Nitrobenzene-d5	7.54			ug/l	10.0		75	45-120			
Surrogate: 2-Fluorobiphenyl	7.30			ug/l	10.0		73	45-120			
Surrogate: Terphenyl-d14	7.24			ug/l	10.0		72	45-135			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001 Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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	Data Limit	Qualifiers
<b>Batch: 5B14073 Extracted: 02/14/05</b>										
<b>Blank Analyzed: 02/15/2005 (5B14073-BLK1)</b>										
Aldrin	ND	0.10	0.030	ug/l						
alpha-BHC	ND	0.010	0.00049	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	0.015	ug/l						
Chlordane	ND	1.0	0.20	ug/l						
4,4'-DDD	ND	0.10	0.015	ug/l						
4,4'-DDE	ND	0.10	0.020	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	0.015	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	0.302			ug/l	0.500		60	35-120		
Surrogate: Decachlorobiphenyl	0.370			ug/l	0.500		74	45-120		
Surrogate: Tetrachloro-m-xylene	0.302			ug/l	0.500		60	35-120		
Surrogate: Decachlorobiphenyl	0.370			ug/l	0.500		74	45-120		
<b>LCS Analyzed: 02/15/2005 (5B14073-BS1)</b>										
Aldrin	0.399	0.10	0.030	ug/l	0.500		80	45-115		M-NR1
alpha-BHC	0.427	0.10	0.015	ug/l	0.500		85	45-115		
alpha-BHC	0.427	0.010	0.00049	ug/l	0.500		85	45-115		
beta-BHC	0.398	0.10	0.015	ug/l	0.500		80	50-115		
delta-BHC	0.409	0.20	0.020	ug/l	0.500		82	55-120		
gamma-BHC (Lindane)	0.429	0.10	0.015	ug/l	0.500		86	45-115		
4,4'-DDD	0.443	0.10	0.015	ug/l	0.500		89	60-120		
4,4'-DDE	0.439	0.10	0.020	ug/l	0.500		88	55-120		
4,4'-DDT	0.374	0.10	0.030	ug/l	0.500		75	60-130		

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001 Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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 Limit	Qualifiers
<b>Batch: 5B14073 Extracted: 02/14/05</b>											
<b>LCS Analyzed: 02/15/2005 (5B14073-BS1)</b>											
Dieldrin	0.428	0.10	0.015	ug/l	0.500		86	55-120			M-NRI
Endosulfan I	0.410	0.10	0.015	ug/l	0.500		82	50-115			
Endosulfan II	0.402	0.10	0.040	ug/l	0.500		80	60-125			
Endosulfan sulfate	0.399	0.20	0.015	ug/l	0.500		80	60-120			
Endrin	0.467	0.10	0.015	ug/l	0.500		93	55-125			
Endrin aldehyde	0.377	0.10	0.045	ug/l	0.500		75	55-115			
Endrin ketone	0.396	0.10	0.020	ug/l	0.500		79	60-120			
Heptachlor	0.439	0.10	0.030	ug/l	0.500		88	45-115			
Heptachlor epoxide	0.409	0.10	0.020	ug/l	0.500		82	50-120			
Methoxychlor	0.409	0.10	0.035	ug/l	0.500		82	60-135			
Surrogate: Tetrachloro-m-xylene	0.363			ug/l	0.500		73	35-120			
Surrogate: Decachlorobiphenyl	0.397			ug/l	0.500		79	45-120			
Surrogate: Tetrachloro-m-xylene	0.363			ug/l	0.500		73	35-120			
Surrogate: Decachlorobiphenyl	0.397			ug/l	0.500		79	45-120			
<b>LCS Dup Analyzed: 02/15/2005 (5B14073-BSD1)</b>											
Aldrin	0.416	0.10	0.030	ug/l	0.500		83	45-115	4	30	
alpha-BHC	0.444	0.010	0.00049	ug/l	0.500		89	45-115	4	30	
alpha-BHC	0.444	0.10	0.015	ug/l	0.500		89	45-115	4	30	
beta-BHC	0.425	0.10	0.015	ug/l	0.500		85	50-115	7	30	
delta-BHC	0.443	0.20	0.020	ug/l	0.500		89	55-120	8	30	
gamma-BHC (Lindane)	0.450	0.10	0.015	ug/l	0.500		90	45-115	5	30	
4,4'-DDD	0.496	0.10	0.015	ug/l	0.500		99	60-120	11	30	
4,4'-DDE	0.477	0.10	0.020	ug/l	0.500		95	55-120	8	30	
4,4'-DDT	0.437	0.10	0.030	ug/l	0.500		87	60-130	16	30	
Dieldrin	0.467	0.10	0.015	ug/l	0.500		93	55-120	9	30	
Endosulfan I	0.515	0.10	0.015	ug/l	0.500		103	50-115	23	30	
Endosulfan II	0.448	0.10	0.040	ug/l	0.500		90	60-125	11	30	
Endosulfan sulfate	0.475	0.20	0.015	ug/l	0.500		95	60-120	17	30	
Endrin	0.514	0.10	0.015	ug/l	0.500		103	55-125	10	30	
Endrin aldehyde	0.425	0.10	0.045	ug/l	0.500		85	55-115	12	30	
Endrin ketone	0.454	0.10	0.020	ug/l	0.500		91	60-120	14	30	
Heptachlor	0.460	0.10	0.030	ug/l	0.500		92	45-115	5	30	
Heptachlor epoxide	0.441	0.10	0.020	ug/l	0.500		88	50-120	8	30	
Methoxychlor	0.494	0.10	0.035	ug/l	0.500		99	60-135	19	30	
Surrogate: Tetrachloro-m-xylene	0.363			ug/l	0.500		73	35-120			

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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
<b>Batch: 5B14073 Extracted: 02/14/05</b>											
<b>LCS Dup Analyzed: 02/15/2005 (5B14073-BSD1)</b>											
Surrogate: Decachlorobiphenyl	0.455			ug/l	0.500		91	45-120			
Surrogate: Tetrachloro-m-xylene	0.363			ug/l	0.500		73	35-120			
Surrogate: Decachlorobiphenyl	0.455			ug/l	0.500		91	45-120			

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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
<b>Batch: 5B14073 Extracted: 02/14/05</b>											
<b>Blank Analyzed: 02/15/2005 (5B14073-BLK1)</b>											
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	0.357			ug/l	0.500		71	45-120			
<b>LCS Analyzed: 02/15/2005 (5B14073-BS2)</b>											
Aroclor 1016	2.85	1.0	0.20	ug/l	4.00		71	50-115			M-NR1
Aroclor 1260	3.02	1.0	0.40	ug/l	4.00		76	60-115			
Surrogate: Decachlorobiphenyl	0.400			ug/l	0.500		80	45-120			
<b>LCS Dup Analyzed: 02/15/2005 (5B14073-BSD2)</b>											
Aroclor 1016	2.72	1.0	0.20	ug/l	4.00		68	50-115	5	30	
Aroclor 1260	2.96	1.0	0.40	ug/l	4.00		74	60-115	2	25	
Surrogate: Decachlorobiphenyl	0.384			ug/l	0.500		77	45-120			

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001 Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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 Limit	Data Qualifiers
<b>Batch: 5B12033 Extracted: 02/12/05</b>											
<b>Blank Analyzed: 02/12/2005 (5B12033-BLK1)</b>											
Mercury	ND	0.20	0.063	ug/l							
<b>LCS Analyzed: 02/12/2005 (5B12033-BS1)</b>											
Mercury	7.92	0.20	0.063	ug/l	8.00		99	85-115			
<b>Matrix Spike Analyzed: 02/12/2005 (5B12033-MS1)</b>											
Mercury	8.00	0.20	0.063	ug/l	8.00	ND	100	70-130			
<b>Matrix Spike Dup Analyzed: 02/12/2005 (5B12033-MSD1)</b>											
Mercury	7.77	0.20	0.063	ug/l	8.00	ND	97	70-130	3	20	
<b>Batch: 5B12041 Extracted: 02/12/05</b>											
<b>Blank Analyzed: 02/14/2005 (5B12041-BLK1)</b>											
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							
Selenium	ND	2.0	0.36	ug/l							
Silver	ND	1.0	0.089	ug/l							
Thallium	ND	1.0	0.075	ug/l							
<b>LCS Analyzed: 02/14/2005 (5B12041-BS1)</b>											
Antimony	87.7	2.0	0.18	ug/l	80.0		110	85-115			
Cadmium	79.7	1.0	0.015	ug/l	80.0		100	85-115			
Copper	81.5	2.0	0.49	ug/l	80.0		102	85-115			
Lead	83.2	1.0	0.13	ug/l	80.0		104	85-115			
Selenium	84.2	2.0	0.36	ug/l	80.0		105	85-115			
Silver	79.8	1.0	0.089	ug/l	80.0		100	85-115			
Thallium	81.7	1.0	0.075	ug/l	80.0		102	85-115			

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## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
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#### Batch: 5B12041 Extracted: 02/12/05

##### Matrix Spike Analyzed: 02/14/2005 (5B12041-MS1)

##### Source: IOB0878-01

Antimony	93.0	2.0	0.18	ug/l	80.0	ND	116	70-130			
Cadmium	82.9	1.0	0.015	ug/l	80.0	ND	104	70-130			
Copper	81.6	2.0	0.49	ug/l	80.0	ND	102	70-130			
Lead	85.4	1.0	0.13	ug/l	80.0	ND	107	70-130			
Selenium	84.3	2.0	0.36	ug/l	80.0	ND	105	70-130			
Silver	80.3	1.0	0.089	ug/l	80.0	ND	100	70-130			
Thallium	87.9	1.0	0.075	ug/l	80.0	0.17	110	70-130			

##### Matrix Spike Analyzed: 02/14/2005 (5B12041-MS2)

##### Source: IOB0573-02

Antimony	88.7	2.0	0.18	ug/l	80.0	ND	111	70-130			
Cadmium	75.6	1.0	0.015	ug/l	80.0	0.065	94	70-130			
Copper	90.6	2.0	0.49	ug/l	80.0	14	96	70-130			
Lead	81.3	1.0	0.13	ug/l	80.0	0.28	101	70-130			
Selenium	80.4	2.0	0.36	ug/l	80.0	2.0	98	70-130			
Silver	72.9	1.0	0.089	ug/l	80.0	ND	91	70-130			
Thallium	87.1	1.0	0.075	ug/l	80.0	0.16	109	70-130			

##### Matrix Spike Dup Analyzed: 02/14/2005 (5B12041-MSD1)

##### Source: IOB0878-01

Antimony	93.1	2.0	0.18	ug/l	80.0	ND	116	70-130	0	20	
Cadmium	82.9	1.0	0.015	ug/l	80.0	ND	104	70-130	0	20	
Copper	79.9	2.0	0.49	ug/l	80.0	ND	100	70-130	2	20	
Lead	83.8	1.0	0.13	ug/l	80.0	ND	105	70-130	2	20	
Selenium	82.8	2.0	0.36	ug/l	80.0	ND	104	70-130	2	20	
Silver	79.7	1.0	0.089	ug/l	80.0	ND	100	70-130	1	20	
Thallium	88.0	1.0	0.075	ug/l	80.0	0.17	110	70-130	0	20	

#### Batch: 5B12044 Extracted: 02/12/05

##### Blank Analyzed: 02/12/2005 (5B12044-BLK1)

Arsenic	ND	5.0	3.8	ug/l							
Barium	ND	0.010	0.0028	mg/l							
Beryllium	ND	2.0	0.62	ug/l							
Boron	0.00980	0.050	0.0074	mg/l							J
Chromium	ND	5.0	0.68	ug/l							
Cobalt	ND	10	0.89	ug/l							
Iron	0.0110	0.040	0.0088	mg/l							J

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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
<b>Batch: 5B12044 Extracted: 02/12/05</b>										
<b>Blank Analyzed: 02/12/2005 (5B12044-BLK1)</b>										
Manganese	ND	20	3.2	ug/l						
Nickel	ND	10	2.0	ug/l						
Vanadium	ND	10	1.4	ug/l						
Zinc	ND	20	3.7	ug/l						
<b>LCS Analyzed: 02/12/2005 (5B12044-BS1)</b>										
Arsenic	517	5.0	3.8	ug/l	500		103	85-115		
Barium	0.505	0.010	0.0028	mg/l	0.500		101	85-115		
Beryllium	505	2.0	0.62	ug/l	500		101	85-115		
Boron	0.496	0.050	0.0074	mg/l	0.500		99	85-115		
Chromium	510	5.0	0.68	ug/l	500		102	85-115		
Cobalt	541	10	0.89	ug/l	500		108	85-115		
Iron	0.522	0.040	0.0088	mg/l	0.500		104	85-115		
Manganese	524	20	3.2	ug/l	500		105	85-115		
Nickel	505	10	2.0	ug/l	500		101	85-115		
Vanadium	498	10	1.4	ug/l	500		100	85-115		
Zinc	490	20	3.7	ug/l	500		98	85-115		
<b>Matrix Spike Analyzed: 02/12/2005 (5B12044-MS1)</b>										
					<b>Source: IOB0991-02</b>					
Arsenic	532	5.0	3.8	ug/l	500	ND	106	70-130		
Barium	0.519	0.010	0.0028	mg/l	0.500	0.0073	102	70-130		
Beryllium	511	2.0	0.62	ug/l	500	ND	102	70-130		
Boron	0.502	0.050	0.0074	mg/l	0.500	0.012	98	70-130		
Chromium	522	5.0	0.68	ug/l	500	ND	104	70-130		
Cobalt	552	10	0.89	ug/l	500	ND	110	70-130		
Iron	0.758	0.040	0.0088	mg/l	0.500	0.21	110	70-130		
Manganese	534	20	3.2	ug/l	500	5.0	106	70-130		
Nickel	518	10	2.0	ug/l	500	ND	104	70-130		
Vanadium	508	10	1.4	ug/l	500	ND	102	70-130		
Zinc	544	20	3.7	ug/l	500	44	100	70-130		

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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 Limit	Data Qualifiers
<b>Batch: 5B12044 Extracted: 02/12/05</b>											
<b>Matrix Spike Dup Analyzed: 02/12/2005 (5B12044-MSD1)</b>						<b>Source: IOB0991-02</b>					
Arsenic	524	5.0	3.8	ug/l	500	ND	105	70-130	2	20	
Barium	0.516	0.010	0.0028	mg/l	0.500	0.0073	102	70-130	1	20	
Beryllium	506	2.0	0.62	ug/l	500	ND	101	70-130	1	20	
Boron	0.503	0.050	0.0074	mg/l	0.500	0.012	98	70-130	0	20	
Chromium	514	5.0	0.68	ug/l	500	ND	103	70-130	2	20	
Cobalt	544	10	0.89	ug/l	500	ND	109	70-130	1	20	
Iron	0.735	0.040	0.0088	mg/l	0.500	0.21	105	70-130	3	20	
Manganese	530	20	3.2	ug/l	500	5.0	105	70-130	1	20	
Nickel	510	10	2.0	ug/l	500	ND	102	70-130	2	20	
Vanadium	500	10	1.4	ug/l	500	ND	100	70-130	2	20	
Zinc	537	20	3.7	ug/l	500	44	99	70-130	1	20	

### Batch: 5B14104 Extracted: 02/14/05

#### Blank Analyzed: 02/15/2005 (5B14104-BLK1)

Copper	ND	2.0	0.49	ug/l
Lead	ND	1.0	0.13	ug/l

#### LCS Analyzed: 02/15/2005 (5B14104-BS1)

Copper	83.3	2.0	0.49	ug/l	80.0	104	85-115
Lead	85.4	1.0	0.13	ug/l	80.0	107	85-115

#### Matrix Spike Analyzed: 02/15/2005 (5B14104-MS1)

Copper	74.2	2.0	0.49	ug/l	80.0	0.54	92	70-130
Lead	80.7	1.0	0.13	ug/l	80.0	ND	101	70-130

#### Matrix Spike Analyzed: 02/15/2005 (5B14104-MS2)

Copper	76.1	2.0	0.49	ug/l	80.0	1.6	93	70-130
Lead	79.5	1.0	0.13	ug/l	80.0	ND	99	70-130

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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
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#### Batch: 5B14104 Extracted: 02/14/05

#### Matrix Spike Dup Analyzed: 02/15/2005 (5B14104-MSD1)

Source: IOB0599-01

Copper	73.1	2.0	0.49	ug/l	80.0	0.54	91	70-130	1	20	
Lead	77.8	1.0	0.13	ug/l	80.0	ND	97	70-130	4	20	

#### Batch: 5B14113 Extracted: 02/14/05

#### Blank Analyzed: 02/15/2005 (5B14113-BLK1)

Chromium	ND	5.0	0.68	ug/l							
Iron	ND	0.040	0.0088	mg/l							
Manganese	ND	20	3.2	ug/l							
Zinc	ND	20	3.7	ug/l							

#### LCS Analyzed: 02/15/2005 (5B14113-BS1)

Chromium	500	5.0	0.68	ug/l	500		100	85-115			
Iron	0.511	0.040	0.0088	mg/l	0.500		102	85-115			
Manganese	505	20	3.2	ug/l	500		101	85-115			
Zinc	495	20	3.7	ug/l	500		99	85-115			

#### Matrix Spike Analyzed: 02/15/2005 (5B14113-MS1)

Source: IOB0599-01

Chromium	495	5.0	0.68	ug/l	500	ND	99	70-130			
Iron	0.652	0.040	0.0088	mg/l	0.500	0.14	102	70-130			
Manganese	665	20	3.2	ug/l	500	170	99	70-130			
Zinc	519	20	3.7	ug/l	500	23	99	70-130			

#### Matrix Spike Dup Analyzed: 02/15/2005 (5B14113-MSD1)

Source: IOB0599-01

Chromium	490	5.0	0.68	ug/l	500	ND	98	70-130	1	20	
Iron	0.636	0.040	0.0088	mg/l	0.500	0.14	99	70-130	2	20	
Manganese	654	20	3.2	ug/l	500	170	97	70-130	2	20	
Zinc	504	20	3.7	ug/l	500	23	96	70-130	3	20	

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B17051 Extracted: 02/17/05</b>											
<b>Blank Analyzed: 02/17/2005 (5B17051-BLK1)</b>											
Copper	ND	2.0	0.49	ug/l							
Lead	ND	1.0	0.13	ug/l							
<b>LCS Analyzed: 02/17/2005 (5B17051-BS1)</b>											
Copper	77.5	2.0	0.49	ug/l	80.0		97	85-115			
Lead	82.6	1.0	0.13	ug/l	80.0		103	85-115			
<b>Matrix Spike Analyzed: 02/17/2005 (5B17051-MS1) Source: IOB1301-01</b>											
Copper	82.1	2.0	0.49	ug/l	80.0	8.3	92	70-130			
Lead	84.4	1.0	0.13	ug/l	80.0	0.74	105	70-130			
<b>Matrix Spike Dup Analyzed: 02/17/2005 (5B17051-MSD1) Source: IOB1301-01</b>											
Copper	81.3	2.0	0.49	ug/l	80.0	8.3	91	70-130	1	20	
Lead	83.2	1.0	0.13	ug/l	80.0	0.74	103	70-130	1	20	
<b>Batch: 5B17052 Extracted: 02/17/05</b>											
<b>Blank Analyzed: 02/17/2005 (5B17052-BLK1)</b>											
Chromium	ND	5.0	0.68	ug/l							
Iron	ND	0.040	0.0088	mg/l							
Manganese	ND	20	3.2	ug/l							
Zinc	ND	20	3.7	ug/l							
<b>LCS Analyzed: 02/17/2005 (5B17052-BS1)</b>											
Chromium	523	5.0	0.68	ug/l	500		105	85-115			
Iron	0.520	0.040	0.0088	mg/l	0.500		104	85-115			
Manganese	519	20	3.2	ug/l	500		104	85-115			
Zinc	505	20	3.7	ug/l	500		101	85-115			

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

Project ID: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05

Received: 02/11/05

## METHOD BLANK/QC DATA

### METALS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	Limit	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B17052 Extracted: 02/17/05</b>											
<b>Matrix Spike Analyzed: 02/17/2005 (5B17052-MS1)</b>						<b>Source: IOB1301-01</b>					
Chromium	508	5.0	0.68	ug/l	500	ND	102	70-130			
Iron	0.925	0.040	0.0088	mg/l	0.500	0.40	105	70-130			
Manganese	605	20	3.2	ug/l	500	100	101	70-130			
Zinc	511	20	3.7	ug/l	500	6.6	101	70-130			
<b>Matrix Spike Dup Analyzed: 02/17/2005 (5B17052-MSD1)</b>						<b>Source: IOB1301-01</b>					
Chromium	514	5.0	0.68	ug/l	500	ND	103	70-130	1	20	
Iron	0.955	0.040	0.0088	mg/l	0.500	0.40	111	70-130	3	20	
Manganese	611	20	3.2	ug/l	500	100	102	70-130	1	20	
Zinc	518	20	3.7	ug/l	500	6.6	102	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	RPD Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B11072 Extracted: 02/11/05</b>											
<b>Duplicate Analyzed: 02/11/2005 (5B11072-DUP1)</b>						<b>Source: IOB0822-02</b>					
Residual Chlorine	ND	0.10	0.10	mg/l		ND				20	
<b>Batch: 5B11108 Extracted: 02/11/05</b>											
<b>Blank Analyzed: 02/16/2005 (5B11108-BLK1)</b>											
Biochemical Oxygen Demand	ND	2.0	0.59	mg/l							
<b>LCS Analyzed: 02/16/2005 (5B11108-BS1)</b>											
Biochemical Oxygen Demand	206	100	30	mg/l	198		104	85-115			
<b>LCS Dup Analyzed: 02/16/2005 (5B11108-BSD1)</b>											
Biochemical Oxygen Demand	204	100	30	mg/l	198		103	85-115	1	20	
<b>Batch: 5B11117 Extracted: 02/11/05</b>											
<b>Blank Analyzed: 02/11/2005 (5B11117-BLK1)</b>											
Ammonia-N (Distilled)	ND	0.50	0.30	mg/l							
<b>LCS Analyzed: 02/11/2005 (5B11117-BS1)</b>											
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0		95	80-115			
<b>Matrix Spike Analyzed: 02/11/2005 (5B11117-MS1)</b>						<b>Source: IOB0942-01</b>					
Ammonia-N (Distilled)	9.24	0.50	0.30	mg/l	10.0	ND	92	70-120			
<b>Matrix Spike Dup Analyzed: 02/11/2005 (5B11117-MSD1)</b>						<b>Source: IOB0942-01</b>					
Ammonia-N (Distilled)	9.52	0.50	0.30	mg/l	10.0	ND	95	70-120	3	15	

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Report Number: IOB0980

Sampled: 02/11/05  
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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
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**Batch: 5B11120 Extracted: 02/11/05**

**Blank Analyzed: 02/11/2005 (5B11120-BLK1)**

Chloride	ND	0.50	0.26	mg/l							
Fluoride	ND	0.50	0.10	mg/l							
Nitrate/Nitrite-N	ND	0.26	0.072	mg/l							
Sulfate	ND	0.50	0.18	mg/l							

**LCS Analyzed: 02/11/2005 (5B11120-BS1)**

Chloride	4.84	0.50	0.26	mg/l	5.00		97	90-110			
Fluoride	4.87	0.50	0.10	mg/l	5.00		97	90-110			
Sulfate	10.0	0.50	0.18	mg/l	10.0		100	90-110			

**Matrix Spike Analyzed: 02/12/2005 (5B11120-MS1)**

Source: IOB0980-01

Chloride	15.6	0.50	0.26	mg/l	5.00	11	92	80-120			
Fluoride	5.03	0.50	0.10	mg/l	5.00	0.29	95	80-120			
Sulfate	38.7	0.50	0.18	mg/l	10.0	29	97	80-120			

**Matrix Spike Dup Analyzed: 02/12/2005 (5B11120-MSD1)**

Source: IOB0980-01

Chloride	15.8	0.50	0.26	mg/l	5.00	11	96	80-120	1	20	
Fluoride	5.10	0.50	0.10	mg/l	5.00	0.29	96	80-120	1	20	
Sulfate	39.3	0.50	0.18	mg/l	10.0	29	103	80-120	2	20	

**Batch: 5B12048 Extracted: 02/12/05**

**Blank Analyzed: 02/12/2005 (5B12048-BLK1)**

Total Cyanide	ND	5.0	2.2	ug/l							
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**LCS Analyzed: 02/12/2005 (5B12048-BS1)**

Total Cyanide	192	5.0	2.2	ug/l	200		96	90-110			
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Sampled: 02/11/05

Received: 02/11/05

**METHOD BLANK/QC DATA**

**INORGANICS**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B12048 Extracted: 02/12/05</b>										
<b>Matrix Spike Analyzed: 02/12/2005 (5B12048-MS1)</b>					<b>Source: IOB0928-01</b>					
Total Cyanide	162	5.0	2.2	ug/l	200	ND	81	70-115		
<b>Matrix Spike Dup Analyzed: 02/12/2005 (5B12048-MSD1)</b>					<b>Source: IOB0928-01</b>					
Total Cyanide	147	5.0	2.2	ug/l	200	ND	74	70-115	10	15
<b>Batch: 5B12050 Extracted: 02/12/05</b>										
<b>Blank Analyzed: 02/12/2005 (5B12050-BLK1)</b>										
Surfactants (MBAS)	ND	0.10	0.044	mg/l						
<b>LCS Analyzed: 02/12/2005 (5B12050-BS1)</b>										
Surfactants (MBAS)	0.247	0.10	0.044	mg/l	0.250		99	90-110		
<b>Matrix Spike Analyzed: 02/12/2005 (5B12050-MS1)</b>					<b>Source: IOB1021-01</b>					
Surfactants (MBAS)	0.315	0.10	0.044	mg/l	0.250	0.084	92	50-125		
<b>Matrix Spike Dup Analyzed: 02/12/2005 (5B12050-MSD1)</b>					<b>Source: IOB1021-01</b>					
Surfactants (MBAS)	0.284	0.10	0.044	mg/l	0.250	0.084	80	50-125	10	20
<b>Batch: 5B12055 Extracted: 02/12/05</b>										
<b>Blank Analyzed: 02/12/2005 (5B12055-BLK1)</b>										
Turbidity	0.0400	1.0	0.040	NTU						J
<b>Duplicate Analyzed: 02/12/2005 (5B12055-DUP1)</b>					<b>Source: IOB0952-01</b>					
Turbidity	48.8	2.0	0.080	NTU		48			2	20

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**METHOD BLANK/QC DATA**

**INORGANICS**

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD RPD	Limit Limits	RPD	Limit	Data Qualifiers
<b>Batch: 5B14044 Extracted: 02/14/05</b>												
<b>Blank Analyzed: 02/14/2005 (5B14044-BLK1)</b>												
Oil & Grease	ND	5.0	0.94	mg/l								
<b>LCS Analyzed: 02/14/2005 (5B14044-BS1)</b>												
Oil & Grease	19.8	5.0	0.94	mg/l	20.0		99		65-120			M-NR1
<b>LCS Dup Analyzed: 02/14/2005 (5B14044-BSD1)</b>												
Oil & Grease	19.3	5.0	0.94	mg/l	20.0		96		65-120	3	20	
<b>Batch: 5B16069 Extracted: 02/16/05</b>												
<b>Blank Analyzed: 02/16/2005 (5B16069-BLK1)</b>												
Perchlorate	ND	4.0	0.80	ug/l								
<b>LCS Analyzed: 02/16/2005 (5B16069-BS1)</b>												
Perchlorate	52.0	4.0	0.80	ug/l	50.0		104		85-115			
<b>Matrix Spike Analyzed: 02/16/2005 (5B16069-MS1)</b>												
Perchlorate	51.9	4.0	0.80	ug/l	50.0	ND	104		80-120			
<b>Matrix Spike Dup Analyzed: 02/16/2005 (5B16069-MSD1)</b>												
Perchlorate	51.6	4.0	0.80	ug/l	50.0	ND	103		80-120	1	20	
<b>Batch: 5B16118 Extracted: 02/16/05</b>												
<b>Blank Analyzed: 02/16/2005 (5B16118-BLK1)</b>												
Total Dissolved Solids	ND	10	10	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: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
--	--	---

## METHOD BLANK/QC DATA

### INORGANICS

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	RPD Limits	RPD	RPD Limit	Data Qualifiers
<b>Batch: 5B16118 Extracted: 02/16/05</b>											
<b>LCS Analyzed: 02/16/2005 (5B16118-BS1)</b>											
Total Dissolved Solids	1050	10	10	mg/l	1000		105	90-110			
<b>Duplicate Analyzed: 02/16/2005 (5B16118-DUP1)</b>											
Total Dissolved Solids	756	10	10	mg/l		Source: IOB1205-06 750			1	10	
<b>Batch: 5B16120 Extracted: 02/16/05</b>											
<b>Duplicate Analyzed: 02/16/2005 (5B16120-DUP1)</b>											
Specific Conductance	95.3	1.0	1.0	umhos/cm		Source: IOB0937-02 95			0	5	
<b>Batch: 5B16128 Extracted: 02/16/05</b>											
<b>Blank Analyzed: 02/16/2005 (5B16128-BLK1)</b>											
Total Suspended Solids	ND	10	10	mg/l							
<b>LCS Analyzed: 02/16/2005 (5B16128-BS1)</b>											
Total Suspended Solids	978	10	10	mg/l	1000		98	85-115			
<b>Duplicate Analyzed: 02/16/2005 (5B16128-DUP1)</b>											
Total Suspended Solids	ND	10	10	mg/l		Source: IOB1206-01 ND				10	
<b>Batch: 5B17130 Extracted: 02/17/05</b>											
<b>Blank Analyzed: 02/17/2005 (5B17130-BLK1)</b>											
Total Organic Carbon	ND	1.0	0.25	mg/l							

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: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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
<b>Batch: 5B17130 Extracted: 02/17/05</b>											
<b>LCS Analyzed: 02/17/2005 (5B17130-BS1)</b>											
Total Organic Carbon	10.0	1.0	0.25	mg/l	10.0		100	90-110			
<b>Matrix Spike Analyzed: 02/17/2005 (5B17130-MS1) Source: IOB0931-02</b>											
Total Organic Carbon	10.6	1.0	0.25	mg/l	5.00	5.6	100	80-120			
<b>Matrix Spike Dup Analyzed: 02/17/2005 (5B17130-MSD1) Source: IOB0931-02</b>											
Total Organic Carbon	10.9	1.0	0.25	mg/l	5.00	5.6	106	80-120	3	20	

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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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	Data Limit	Qualifiers
<b>Batch: P5B1701 Extracted: 02/17/05</b>											
<b>Blank Analyzed: 02/17/2005 (P5B1701-BLK1)</b>											
1,4-Dioxane	ND	1.0	0.49	ug/l							
Surrogate: Dibromofluoromethane	0.930			ug/l	1.00		93	80-125			
<b>LCS Analyzed: 02/17/2005 (P5B1701-BS1)</b>											
1,4-Dioxane	10.9	1.0	0.49	ug/l	10.0		109	70-130			
Surrogate: Dibromofluoromethane	0.920			ug/l	1.00		92	80-125			
<b>LCS Dup Analyzed: 02/17/2005 (P5B1701-BSD1)</b>											
1,4-Dioxane	12.3	1.0	0.49	ug/l	10.0		123	70-130	12	20	
Surrogate: Dibromofluoromethane	0.950			ug/l	1.00		95	80-125			
<b>Matrix Spike Analyzed: 02/17/2005 (P5B1701-MS1) Source: POB0398-01</b>											
1,4-Dioxane	11.1	1.0	0.49	ug/l	10.0	ND	111	70-150			
Surrogate: Dibromofluoromethane	0.980			ug/l	1.00		98	80-125			
<b>Matrix Spike Dup Analyzed: 02/17/2005 (P5B1701-MSD1) Source: POB0398-01</b>											
1,4-Dioxane	11.0	1.0	0.49	ug/l	10.0	ND	110	70-150	1	25	
Surrogate: Dibromofluoromethane	1.00			ug/l	1.00		100	80-125			

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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
 Received: 02/11/05

## 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
IOB0980-01	413.1 Oil and Grease	Oil & Grease	mg/l	3.80	5.0	10.00
IOB0980-01	608-Pest Boeing 001/002 Q (LL)	alpha-BHC	ug/l	0	0.010	0.0100
IOB0980-01	624-Boeing 001/002 Q (Fr113+X)	1,1-Dichloroethene	ug/l	0	3.0	3.20
IOB0980-01	624-Boeing 001/002 Q (Fr113+X)	Trichloroethene	ug/l	0	5.0	5.00
IOB0980-01	625+NDMA, LL	2,4,6-Trichlorophenol	ug/l	0	1.0	6.50
IOB0980-01	625+NDMA, LL	2,4-Dinitrotoluene	ug/l	0	5.0	9.10
IOB0980-01	625+NDMA, LL	Bis(2-ethylhexyl)phthalate	ug/l	0.35	5.0	4.00
IOB0980-01	625+NDMA, LL	N-Nitrosodimethylamine	ug/l	0	2.0	8.10
IOB0980-01	625+NDMA, LL	Pentachlorophenol	ug/l	0	2.0	8.20
IOB0980-01	Antimony-200.8	Antimony	ug/l	0.20	2.0	6.00
IOB0980-01	Arsenic-200.7	Arsenic	ug/l	6.70	5.0	50
IOB0980-01	Barium-200.7	Barium	mg/l	0.14	0.010	1.00
IOB0980-01	Beryllium-200.7	Beryllium	ug/l	1.30	2.0	4.00
IOB0980-01	BOD	Biochemical Oxygen Demand	mg/l	3.00	2.0	20
IOB0980-01	Cadmium-200.8	Cadmium	ug/l	0.19	1.0	2.00
IOB0980-01	Chloride - 300.0	Chloride	mg/l	11	0.50	150
IOB0980-01	Chlorine, Residual	Residual Chlorine	mg/l	0	0.10	0.100
IOB0980-01	Chromium-200.7	Chromium	ug/l	27	5.0	8.10
IOB0980-01	Copper-200.8	Copper	ug/l	13	2.0	7.10
IOB0980-01	Cyanide-335.2 5ppb	Total Cyanide	ug/l	-2	5.0	4.30
IOB0980-01	Fluoride-300.0	Fluoride	mg/l	0.29	0.50	1.60
IOB0980-01	Iron-200.7	Iron	mg/l	27	0.040	0.30
IOB0980-01	Lead-200.8	Lead	ug/l	9.70	1.0	2.60
IOB0980-01	Manganese-200.7	Manganese	ug/l	370	20	50
IOB0980-01	MBAS - SM5540-C	Surfactants (MBAS)	mg/l	1.00	1.0	0.50
IOB0980-01	Mercury - 245.1	Mercury	ug/l	0.16	0.20	0.20
IOB0980-01	Nickel-200.7	Nickel	ug/l	23	10	35
IOB0980-01	Nitrogen, NO3+NO2 -N	Nitrate/Nitrite-N	mg/l	0.94	0.26	8.00
IOB0980-01	Perchlorate 314.0	Perchlorate	ug/l	0	4.0	6.00
IOB0980-01	Selenium-200.8	Selenium	ug/l	0.37	2.0	4.10
IOB0980-01	Settleable Solids	Total Settleable Solids	ml/l/hr	0	0.10	0.100
IOB0980-01	Silver-200.8	Silver	ug/l	0.100	1.0	2.00
IOB0980-01	Sulfate-300.0	Sulfate	mg/l	29	0.50	300
IOB0980-01	TDS - SM 2540C	Total Dissolved Solids	mg/l	190	10	950
IOB0980-01	Thallium-200.8	Thallium	ug/l	0.46	1.0	2.00
IOB0980-01	TSS - EPA 160.2	Total Suspended Solids	mg/l	460	10	15
IOB0980-01	Zinc-200.7	Zinc	ug/l	90	20	54
IOB0980-01RE1	Chromium-200.7	Chromium	ug/l	26	5.0	8.10
IOB0980-01RE1	Copper-200.8	Copper	ug/l	17	2.0	7.10
IOB0980-01RE1	Iron-200.7	Iron	mg/l	27	0.040	0.30

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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05  
Received: 02/11/05

**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
IOB0980-01RE1	Lead-200.8	Lead	ug/l	13	1.0	2.60
IOB0980-01RE1	Manganese-200.7	Manganese	ug/l	350	20	50
IOB0980-01RE1	Zinc-200.7	Zinc	ug/l	98	20	54
IOB0980-01RE2	Chromium-200.7	Chromium	ug/l	28	5.0	8.10
IOB0980-01RE2	Copper-200.8	Copper	ug/l	16	4.0	7.10
IOB0980-01RE2	Iron-200.7	Iron	mg/l	29	0.040	0.30
IOB0980-01RE2	Lead-200.8	Lead	ug/l	11	2.0	2.60
IOB0980-01RE2	Manganese-200.7	Manganese	ug/l	360	20	50
IOB0980-01RE2	Zinc-200.7	Zinc	ug/l	82	20	54
IOB0980-02	624-Boeing 001/002 Q (Fr113+X)	1,1-Dichloroethene	ug/l	0	3.0	3.20
IOB0980-02	624-Boeing 001/002 Q (Fr113+X)	Trichloroethene	ug/l	0	5.0	5.00

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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05

Received: 02/11/05

### DATA QUALIFIERS AND DEFINITIONS

- B** Analyte was detected in the associated Method Blank.
- C** Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
- J** Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of unknown quality.
- K** The sample dilutions set-up for the BOD analysis did not meet the oxygen depletion criteria of at least 2 mg/l. Therefore the reported result is an estimated value only.
- 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.
- R-7** LFB/LFBD RPD exceeded the method control limit. Recovery met acceptance criteria.
- 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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MWH-Pasadena/Boeing 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101 Attention: Bronwyn Kelly	Project ID: Annual Outfall 001  Report Number: IOB0980	Sampled: 02/11/05 Received: 02/11/05
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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 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](http://www.dmalabs.com).*

#### Subcontracted Laboratories

##### Alta Analytical Perspectives

Analysis Performed: 1613-Dioxin-HR  
 Samples: IOB0980-01

Analysis Performed: EDD + Level 4  
 Samples: IOB0980-01

##### Aquatic Testing Laboratories-SUB California Cert #1775

4350 Transport Street, Unit 107 - Ventura, CA 93003

Analysis Performed: Bioassay-7 dy Chrnic  
 Samples: IOB0980-01

Analysis Performed: Bioassay-Acute 96hr  
 Samples: IOB0980-01

#### 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: Annual Outfall 001

Report Number: IOB0980

Sampled: 02/11/05

Received: 02/11/05

**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: IOB0980-01

**Eberline Services - SUB**

2030 Wright Avenue - Richmond, CA 94804

Analysis Performed: EDD + Level 4

Samples: IOB0980-01

Analysis Performed: Gross Alpha

Samples: IOB0980-01

Analysis Performed: Gross Beta

Samples: IOB0980-01

Analysis Performed: Strontium 90

Samples: IOB0980-01

Analysis Performed: Tritium

Samples: IOB0980-01

**Truesdail Laboratories-SUB** California Cert #1237

14201 Franklin Avenue - Tustin, CA 92680

Analysis Performed: Hydrazine

Samples: IOB0980-01

Analysis Performed: Level 4 Data Package

Samples: IOB0980-01

**Del Mar Analytical, Irvine**  
Michele Harper  
Project Manager



08/20 22

WU

**CHAIN OF CUSTODY FORM**

Del Mar Analytical Version 5.8/12/04

Client Name/Address:		Project:		ANALYSIS REQUIRED		Comments	
MWH-Pasadena 300 North Lake Avenue, Suite 1200 Pasadena, CA 91101		Boeing-SSFL NPDES Annual Outfall 001		1,4-Dioxane	Total Organic Carbon	Total Residual Chlorine	Gross Alpha, Gross Beta, Tritium (906.0), Sr-90 (906.0), Total Combined Radium 226 & Radium 228
Project Manager: Bronwyn Kelly		Phone Number: (626) 568-6691 Fax Number: (626) 568-6515		PCBs	TPH = all fuels, gas, diesel, and jet fuel; modified 8015 and 418.1	Monomethylhydrazine	Acute and Chronic toxicity
Sampler: <i>Pick Brwara</i>		Sample Description	Sample Matrix	Container Type	# of Cont.	Preservative	Bottle #
Outfall 001	W	VOAs	3	VOAs	3	HCl	15A, 15B, 15C
Outfall 001	W	VOAs	2	VOAs	2	HCl	16A, 16B
Outfall 001	W	Poly-150 ml	1	Poly-150 ml	1	None	17
Outfall 001	W	Poly-1Gal VOAs	1 2	Poly-1Gal VOAs	1 2	None None	18A 18B, 18C
Outfall 001	W	1L Amber	2	1L Amber	2	None	19A, 19B
Outfall 001	W	VOAs	3	VOAs	3	HCl	20A, 20B, 20C, 20D, 20E, 20F, 20G
Outfall 001	W	1L Amber	2	1L Amber	2	None	21A, 21B
Outfall 001	W	1 Gal	2	1 Gal	2	None	22A, 22B
Outfall 001	W	VOAs	3	VOAs	3	None	23A, 23B, 23C
Trip Blank	W	VOAs	3	VOAs	3	None	24A, 24B, 24C
Relinquished By	<i>W. DeLong</i>	Date/Time	2-11-05	Received By	<i>W. DeLong</i>	Date/Time	2/11/05 1420
Relinquished By	<i>W. DeLong</i>	Date/Time	2-11-05 10:56	Received By	<i>W. DeLong</i>	Date/Time	2/11/05 1420
Relinquished By	<i>W. DeLong</i>	Date/Time	2/11/05 18:15	Received By	<i>W. DeLong</i>	Date/Time	2/11/05 18:15

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:  2°C  
 Intact





2852 Alton Ave., Irvine CA 92606 (949) 261-1022 FAX (949) 261-1228  
1014 E. Coolcy Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (949) 370-1046  
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March 31, 2005

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

Attention: Bronwyn Kelly  
Project: Annual Outfall 001  
Sampled: 02/11/05  
Del Mar Analytical Number: IOB0980

Dear Ms. Kelly:

Alta Analytical Laboratory performed EPA Method 1613 for Dioxin, Aquatic Testing Laboratories tested Fathead Minnow 96 hr Percent Survival Bioassay (EPA Method 2000.0) and *Ceriodaphnia dubia* Survival and Reproduction Test (EPA Method 1002), Eberline Services performed gross alpha/ gross beta (EPA 900.0), tritium (H-3, EPA906.0), and strontium-90 (Sr-90, EPA 905.0) and Truesdail Laboratories tested Hydrazines by EPA 8315 M for the project referenced above. Please use the following cross-reference table when reviewing your results.

MWH ID	DEL MAR ID	ALTA ID	ATL ID	EBERLINE ID	TRUESDAIL ID
Outfall 001	IOB0980-01	P5072_2989_007	A-05021203-001/002	R502136-8265	939702-1

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 at (949) 261-1022 at extension 215.

Sincerely yours,  
DEL MAR ANALYTICAL

Michele Harper  
Project Manager


**ALTA ANALYTICAL PERSPECTIVES**

3 March 2005

Scott Unze  
 Pace Analytical Services  
 1700 Elm Street  
 Minneapolis, MN 55414

Ph.: 612-607-1700  
 Fax: 612-607-6444

Subject: Certificate of Results

Dear Scott;

Attached to this narrative are the analytical results you requested on the samples submitted for the determination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans. The insert below summarizes the relevant information pertaining to your project. In particular, the QC annotations bring to your attention specific analytical observations and assessments made during the sample handling and data interpretation phases. A brief description of the report's components is provided on the next page.

Project Information Summary	When applicable, see QC Annotations for details
Client Project No.	
AAP Project No.	P5072
Analytical Protocol	Method 1613B
No. Samples Submitted	13
No. Samples Analyzed	13
No. Laboratory Method Blanks	1
No. OPRs / Batch CS3	1
No. Outstanding Samples	0
Date Received	1-Mar-2005
Condition Received	good
Temperature upon Receipt (C)	1-3
Extraction within Holding Time	yes
Analysis within Holding Time	yes
Data meet QA/QC Requirements	yes
Exceptions	none
Analytical Difficulties	none

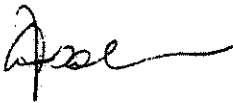
2714 EXCHANGE DRIVE  
 WILMINGTON  
 NORTH CAROLINA 28405  
 TEL: 910-794-1613 FAX 910-794-3919

**QC Annotations:**

1. A "J" data qualifier is used for analytes with a concentration below the reporting limit.

Alta Analytical Perspectives remains committed to serving you in the most effective manner. Should you have any questions or need additional information and technical support, please, do not hesitate to contact us. We wanted to thank you for choosing Alta Analytical Perspectives as part of your analytical support team.


Sincerely,



Amy J. Boehm  
Project Manager

Sample ID: IOB0980-01

Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Pace Inc.	Matrix:	Aqueous	Project No.:	P5072	Date Received:	01 Mar 05
Project ID:	General Analytical HRMS	Weight/Volume:	1.00 L	Sample ID:	P5072_2989_007	Date Extracted:	01 Mar 05
Date Collected:	11 Feb 05	pH:	6	QC Batch No.:	2989	Date Analyzed:	03 Mar 05
Analyte	Conc. pg/L	DL pg/L	EMPC pg/L	Qualifier	Recoveries		
					ES	CS	
2,3,7,8-TCDD	ND	2.55			72.2	79.1	
1,2,3,7,8-PeCDD	ND	1.89			75.2	89.4	
1,2,3,4,7,8-HxCDD	ND	2.42			74.8	83.1	
1,2,3,6,7,8-HxCDD	ND	2.41			81.7	83.1	
1,2,3,7,8,9-HxCDD	ND	2.88			76.5	83.1	
1,2,3,4,6,7,8-HpCDD	49.8	7.48			67	62.4	
OCDD	471	6.38			57.8	62.4	
2,3,7,8-TCDF	ND	1.64			74.9	79.1	
1,2,3,7,8-PeCDF	ND	1.98			82.6	83.9	
2,3,4,7,8-PeCDF	ND	2.03			75.2	83.9	
1,2,3,4,7,8-HxCDF	ND	1.47			73.6	83.1	
1,2,3,6,7,8-HxCDF	ND	1.51			77.5	83.1	
2,3,4,6,7,8-HxCDF	ND	1.9			71.7	83.1	
1,2,3,7,8,9-HxCDF	ND	2.85			67.8	83.1	
1,2,3,4,6,7,8-HpCDF	10.8	1.71		J	56.2	62.4	
1,2,3,4,7,8,9-HpCDF	ND	2.58			59.7	62.4	
OCDF	34.9	12		J	58.6	62.4	
<b>Totals &amp; TEQs</b>							
TCDDs	ND	2.55			 <b>ALTA ANALYTICAL PERSPECTIVES</b> 2714 Exchange Drive Wilmington North Carolina 28405 USA Tel: 910 794-1613 Fax: 910 794-3919 e-mail: yt@ultratrace.com web: www.ultratrace.com		
PeCDDs	ND	1.89					
HxCDDs	ND	2.58	8.86				
HpCDDs	101	7.48					
TCDFs	ND	1.64	2.21				
PeCDFs	ND	2.01	0.368				
HxCDFs	4.13	1.87	7.22				
HpCDFs	36.5	2.12					
<b>Total PCDD/Fs</b>	<b>648</b>		<b>663</b>				


AAP 2005 Rev. B

Checkcode: 0067

Reviewer: *[Signature]*  
 Date: *03 Mar 05*

Sample ID: 0\_2989\_MB001

Method 1613

Client Data		Sample Data		Laboratory Data			
Name:	Pace Inc.	Matrix:	Aqueous	Project No.:	P5072	Date Received:	n/a
Project ID:	General Analytical HRMS	Weight/Volume:	1.00 L	Sample ID:	0_2989_MB001	Date Extracted:	01 Mar 05
Date Collected:	n/a	pH	6	QC Batch No.:	2989	Date Analyzed:	02 Mar 05
Analyte	Conc. pg/L	DL pg/L	EMPC pg/L	Qualifier	Recoveries		
					ES	CS	
2,3,7,8-TCDD	ND	1.65			75.2	80.6	
1,2,3,7,8-PeCDD	ND	1.55			70.5	83.7	
1,2,3,4,7,8-HxCDD	ND	2.57			80	86.4	
1,2,3,6,7,8-HxCDD	ND	2.4			91.5	86.4	
1,2,3,7,8,9-HxCDD	ND	2.8			86	86.4	
1,2,3,4,6,7,8-HpCDD	ND	1.98			74.9	69.8	
OCDD	ND	4.78			67.4	69.8	
2,3,7,8-TCDF	ND	1.04			81.1	80.6	
1,2,3,7,8-PeCDF	ND	1.91			85.1	82.9	
2,3,4,7,8-PeCDF	ND	1.98			76.6	82.9	
1,2,3,4,7,8-HxCDF	ND	0.812			79.4	86.4	
1,2,3,6,7,8-HxCDF	ND	0.784			86.7	86.4	
2,3,4,6,7,8-HxCDF	ND	1.01			77.8	86.4	
1,2,3,7,8,9-HxCDF	ND	1.42			75.6	86.4	
1,2,3,4,6,7,8-HpCDF	ND	1.78			64.7	69.8	
1,2,3,4,7,8,8-HpCDF	ND	2.67			65.1	69.8	
OCDF	ND	11.1			67.2	69.8	
<b>Totals &amp; TEQs</b>							
TCDDs	ND	1.65			 <p>ALTA ANALYTICAL PERSPECTIVES</p> <p>2714 Exchange Drive Wilmington North Carolina 28405 USA</p> <p>Tel: 910 794-1613 Fax: 910 794-3919 e-mail: yt@ultratrace.com web: www.ultratrace.com</p>		
PeCDDs	ND	1.55					
HxCDDs	ND	2.59					
HpCDDs	ND	1.98					
TCDFs	ND	1.04					
PeCDFs	ND	1.94					
HxCDFs	ND	0.974					
HpCDFs	ND	2.19					
<b>Total PCDD/Fs</b>	<b>0</b>		<b>0</b>				

Checkcode: 3385

AAP 2005 Rev. B

Reviewer  
Date

*[Signature]*  
23 Mar 05

Sample Summary Part 1		Method 1613												
Analyte	5_2888_MS 001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0989-01	IOB1006-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0988-01	IOB0981-01
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L
2,3,7,8-TCDF	(1.65)	(2.29)	(2.09)	(2.02)	(1.34)	(1.71)	(2.29)	(2.55)	(1.61)	(1.44)	(2.57)	(1.79)	(3.24)	(3.91)
1,2,3,7,8-PeCDD	(1.56)	(1.65)	(1.75)	(2.09)	(2.11)	(1.73)	(3.2)	(1.89)	(1.82)	(2.04)	(3.14)	(2.92)	(2.19)	(5.39)
1,2,3,4,7,8-HxCDD	(2.57)	(3.45)	(2.58)	(2.71)	(2.48)	(3.89)	(4.19)	(2.42)	3.57	(2.74)	(5.91)	(12.2)	(4.91)	(4.94)
1,2,3,6,7,8-HxCDD	(2.4)	(3.21)	(2.57)	(2.7)	(2.34)	(3.6)	(4.11)	(2.41)	6.47	(2.99)	(5.99)	(12)	(4.84)	(4.7)
1,2,3,4,6,7,8-HpCDD	(1.98)	75.4	51.5	(3.33)	(2.82)	(4.66)	(4.93)	(2.99)	6.27	(3.13)	(7.12)	(13.8)	(5.54)	(5.81)
OCDD	(4.78)	883	267	134	70.4	167	56.1	471	207	12.1	(10.8)	20.6	(3.19)	(9.6)
2,3,7,8-TCDF	(1.04)	(1.24)	(1.64)	(1.85)	(0.996)	(2.08)	(1.37)	(1.64)	(1.49)	(1.03)	(2.58)	(2.71)	(2.39)	(2.51)
1,2,3,7,8-PeCDF	(1.91)	(1.79)	(2.75)	(1.44)	(2.33)	(1.84)	(3.71)	(1.98)	(2.38)	(2.11)	(4.02)	(2.52)	(2.96)	(2.46)
2,3,4,7,8-PeCDF	(1.98)	(1.86)	(2.8)	(1.48)	(2.42)	(1.89)	(3.89)	(2.03)	(2.31)	(1.95)	(3.97)	(2.53)	(3)	(2.49)
1,2,3,4,7,8-HxCDF	(0.812)	(0.867)	(0.9)	(0.785)	(0.943)	(1.38)	(1.39)	(1.47)	(0.97)	(0.616)	(1.55)	(0.86)	(1.62)	(1.13)
1,2,3,6,7,8-HxCDF	(0.764)	(0.843)	(0.827)	(0.708)	(0.871)	(1.31)	(1.3)	(1.51)	(0.898)	(0.78)	(1.42)	(0.24)	(1.53)	(1.19)
2,3,4,6,7,8-HxCDF	(1.01)	(1.12)	(1.04)	(0.933)	(1.12)	(1.65)	(1.73)	(1.9)	(1.1)	(0.98)	(1.91)	(0.23)	(2.03)	(1.48)
1,2,3,4,6,7,8-HpCDF	(1.42)	(1.67)	(1.58)	(1.47)	(1.73)	(2.41)	(2.59)	(2.85)	(1.7)	(1.51)	(2.81)	(12.4)	(2.74)	(2.05)
1,2,3,4,7,8,9-HpCDF	(1.78)	16.8	(1.89)	(4.97)	(1.8)	4.04	(3.26)	10.8	27.2	(1.69)	(4.35)	(3.42)	(2.05)	(3.28)
1,2,3,4,7,8,9-HpCDF	(2.87)	(3.46)	(2.95)	(7.47)	(3.25)	(2.63)	(4.59)	(2.58)	(4.43)	(2.59)	(7.3)	(5.49)	(3.04)	(4.59)
OCDF	(11.1)	155	(11)	(22.4)	(12.4)	(9.53)	(14.8)	34.9	67.1	(10.1)	(7.69)	(20.5)	(13.1)	(6.59)
Checkcode	3385	4381	4651	4965	5239	5527	5797	0067	0335	0612	3629	4355	4622	4900

( ) = DL  
 [ ] = EMPC

Reviewer: *[Signature]*  
 Date: 2.2.2005

**P5072 - Totals**  
**Project ID: General Analytical HRMS**

Sample Summary Part 2		ALTA ANALYTICAL PERSPECTIVES												Method 1613	
Analyte	0_2999_M8001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0988-01	IOB1008-01	IOB1002-01	IOB0992-01	IOB1004-01	IOB0988-01	IOB0981-01	
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	
<b>Totals</b>															
TCDDs	0	0	0	0	0	0	0	0	4.77	0	0	0	0	0	
PeCDDs	0	0	0	0	0	0	0	0	15.5	0	0	0	0	0	
HxCDDs	0	7.36	4.44	0	0	0	0	0	39.8	0	0	0	0	0	
HpCDDs	0	153	85.1	25.2	9.48	29.6	0	101	415	12.1	0	43.1	12.2	0	
OCDD	0	883	267	134	70.4	157	56.1	471	2120	163	70.2	213	50.3	50	
TCDFs	0	0	0	0	0	0	0	0	6.53	0	0	0	0	0	
PeCDFs	0	0	0.858	0	0	0.76	0.256	0	2.57	0	0.456	0	0	0	
HxCDFs	0	2.68	0	0	0	0	0	4.13	32.8	0	0	0	0	0	
HpCDFs	0	92.9	0	0	0	10.2	0	36.5	98.7	5.96	0	0	0	0	
OCDF	0	155	0	0	0	0	0	34.9	67.1	0	0	0	0	0	
<b>Total PCDD/Fs (ND=0; EMPC=0)</b>	<b>0.00</b>	<b>1,290</b>	<b>338</b>	<b>159</b>	<b>79.9</b>	<b>197</b>	<b>56.4</b>	<b>648</b>	<b>2,800</b>	<b>182</b>	<b>70.7</b>	<b>256</b>	<b>62.6</b>	<b>50</b>	
<b>Total PCDD/Fs (ND=0; EMPC=EMPC)</b>	<b>0.00</b>	<b>1,300</b>	<b>342</b>	<b>160</b>	<b>79.9</b>	<b>197</b>	<b>56.4</b>	<b>663</b>	<b>2,830</b>	<b>193</b>	<b>70.7</b>	<b>256</b>	<b>62.6</b>	<b>50</b>	
<b>Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)</b>	<b>42.2</b>	<b>1,330</b>	<b>381</b>	<b>215</b>	<b>128</b>	<b>238</b>	<b>119</b>	<b>691</b>	<b>2,840</b>	<b>229</b>	<b>144</b>	<b>370</b>	<b>121</b>	<b>114</b>	
<b>Total 2378s (ND=0; EMPC=0)</b>	<b>0.00</b>	<b>1,130</b>	<b>299</b>	<b>144</b>	<b>70.4</b>	<b>173</b>	<b>56.1</b>	<b>567</b>	<b>2,440</b>	<b>176</b>	<b>70.2</b>	<b>234</b>	<b>50.3</b>	<b>50</b>	
<b>Total 2378s (ND=0.5; EMPC=0)</b>	<b>21.1</b>	<b>1,140</b>	<b>319</b>	<b>172</b>	<b>94.6</b>	<b>193</b>	<b>67.5</b>	<b>581</b>	<b>2,450</b>	<b>193</b>	<b>107</b>	<b>291</b>	<b>79.5</b>	<b>82</b>	
<b>Total 2378s (ND=1; EMPC=0)</b>	<b>42.2</b>	<b>1,160</b>	<b>338</b>	<b>200</b>	<b>119</b>	<b>214</b>	<b>119</b>	<b>595</b>	<b>2,450</b>	<b>211</b>	<b>144</b>	<b>348</b>	<b>109</b>	<b>114</b>	
<b>Total 2378s (ND=0; EMPC=1)</b>	<b>0.00</b>	<b>1,130</b>	<b>299</b>	<b>144</b>	<b>70.4</b>	<b>173</b>	<b>56.1</b>	<b>567</b>	<b>2,440</b>	<b>176</b>	<b>70.2</b>	<b>234</b>	<b>50.3</b>	<b>50</b>	
<b>Total 2378s (ND=0.5; EMPC=1)</b>	<b>21.1</b>	<b>1,140</b>	<b>319</b>	<b>172</b>	<b>94.6</b>	<b>193</b>	<b>67.5</b>	<b>581</b>	<b>2,450</b>	<b>193</b>	<b>107</b>	<b>291</b>	<b>79.5</b>	<b>82</b>	
<b>Total 2378s (ND=1; EMPC=1)</b>	<b>42.2</b>	<b>1,180</b>	<b>338</b>	<b>200</b>	<b>119</b>	<b>214</b>	<b>119</b>	<b>595</b>	<b>2,450</b>	<b>211</b>	<b>144</b>	<b>348</b>	<b>109</b>	<b>114</b>	
Checkcode	3385	4361	4681	4965	5239	5527	5797	0067	0336	0812	3929	4355	4822	4900	

Total 2378s = Sum of 17 2378-substituted PCDD/PCDF congeners (SARA 313)

() = DL  
 [] = EMPC

Reviewer: *[Signature]*  
 Date: *05/20/03*

**P5072 - Others**  
**Project ID: General Analytical HRMS**

Sample Summary Part 3		ALTA ANALYTICAL PERSPECTIVES												Method 1613	
Analyte	0_2985_MB001	IOB1001-01	IOB0993-01	IOB0996-01	IOB0997-01	IOB1014-01	IOB0990-01	IOB0980-01	IOB1008-01	IOB1002-01	IOB0982-01	IOB1004-01	IOB0988-01	IOB0981-01	
	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	pg/L	
<b>Other PCDD/Fs (ND=0, EMPC=0)</b>															
Other TCDD	0	0	0	0	0	0	0	0	4.77	0	0	0	0	0	
Other PeCDD	0	0	0	0	0	0	0	0	15.5	0	0	0	0	0	
Other HxCDD	0	7.38	4.44	0	0	0	0	0	22.5	0	0	0	0	0	
Other HpCDD	0	77.2	33.8	15.2	9.46	17.4	0	51.5	208	0	0	22.3	12.2	0	
Other TCDF	0	0	0	0	0	0	0	0	8.53	0	0	0	0	0	
Other PeCDF	0	0	0.858	0	0	0.78	0.256	0	2.57	0	0.458	0	0	0	
Other HxCDF	0	2.68	0	0	0	0	0	4.13	32.8	0	0	0	0	0	
Other HpCDF	0	76.1	0	0	0	6.16	0	25.7	71.6	5.96	0	0	0	0	
<b>Other PCDD/Fs (ND=0, EMPC=EMPC)</b>															
Other TCDD	0	0	0	0	0	0	0	0	4.77	0	0	0	0	0	
Other PeCDD	0	0	0	0	0	0	0	0	15.5	0	0	0	0	0	
Other HxCDD	0	7.38	8.57	0	0	0	0	8.86	47.7	0	0	0	0	0	
Other HpCDD	0	77.2	33.8	15.2	9.46	17.4	0	51.5	208	11.3	0	22.3	12.2	0	
Other TCDF	0	0	0	0	0	0	0	2.21	6.53	0	0	0	0	0	
Other PeCDF	0	0	0.858	0.213	0	0.76	0.256	0.368	2.57	0	0.458	0	0	0	
Other HxCDF	0	9.88	0	0	0	0	0	7.22	32.8	0	0	0	0	0	
Other HpCDF	0	76.1	0	0	0	6.16	0	25.7	71.6	5.96	0	0	0	0	
Checksum	3385	4361	4681	4965	5239	5527	5797	0067	0335	0612	3929	4355	4622	4900	

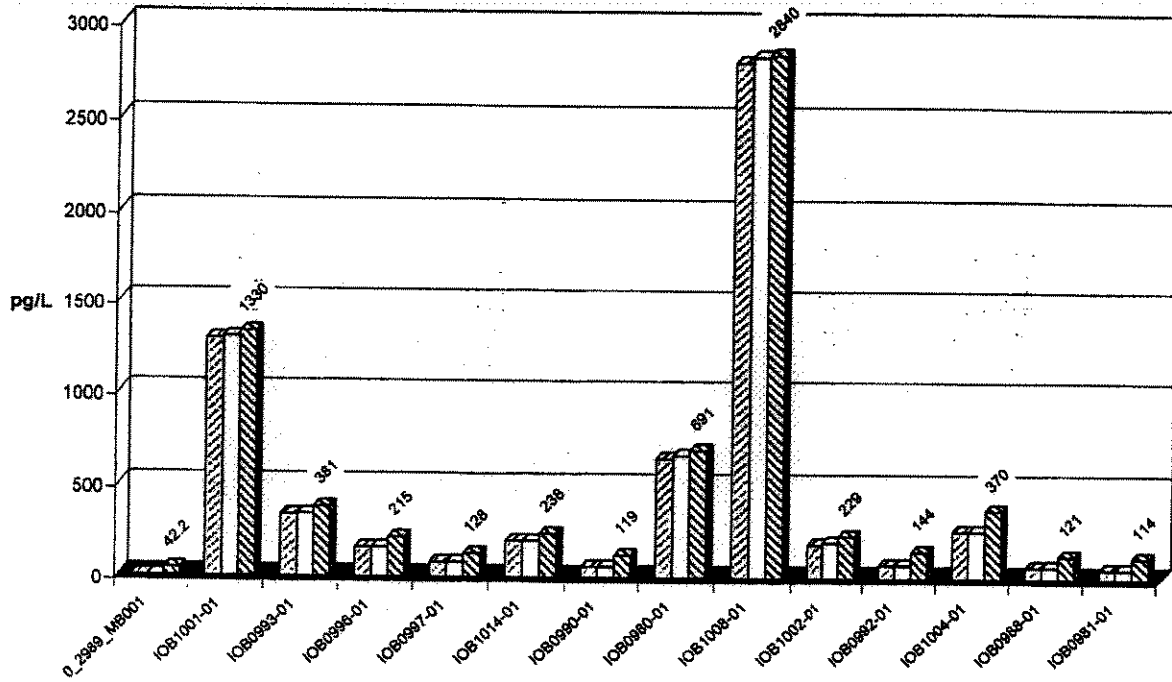
() = DL  
 [] = EMPC

Reviewer: *TA*  
 Date: *03/21/03*



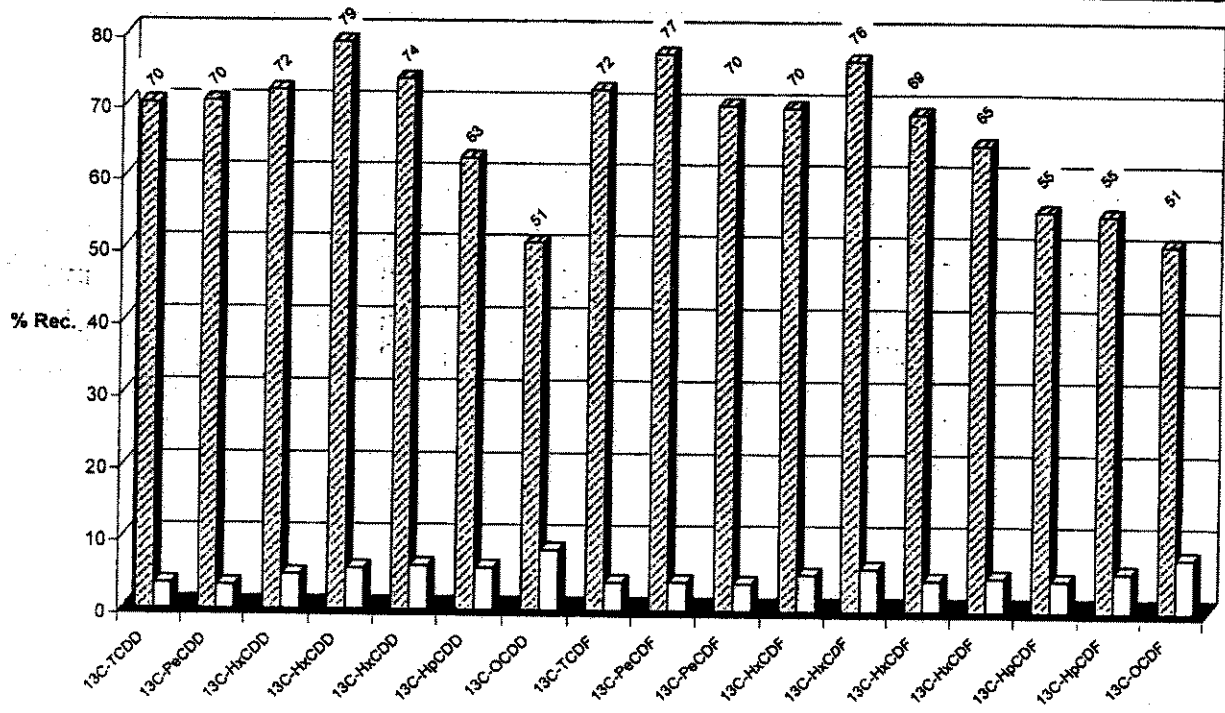
**Totals**  
**Project ID: General Analytical HRMS**  
**P5072**

- ▨ Total PCDD/Fs (ND=0; EMPC=0)
- ▤ Total PCDD/Fs (ND=0; EMPC=EMPC)
- ▩ Total PCDD/Fs (2378-X ND=DL; EMPC=EMPC)



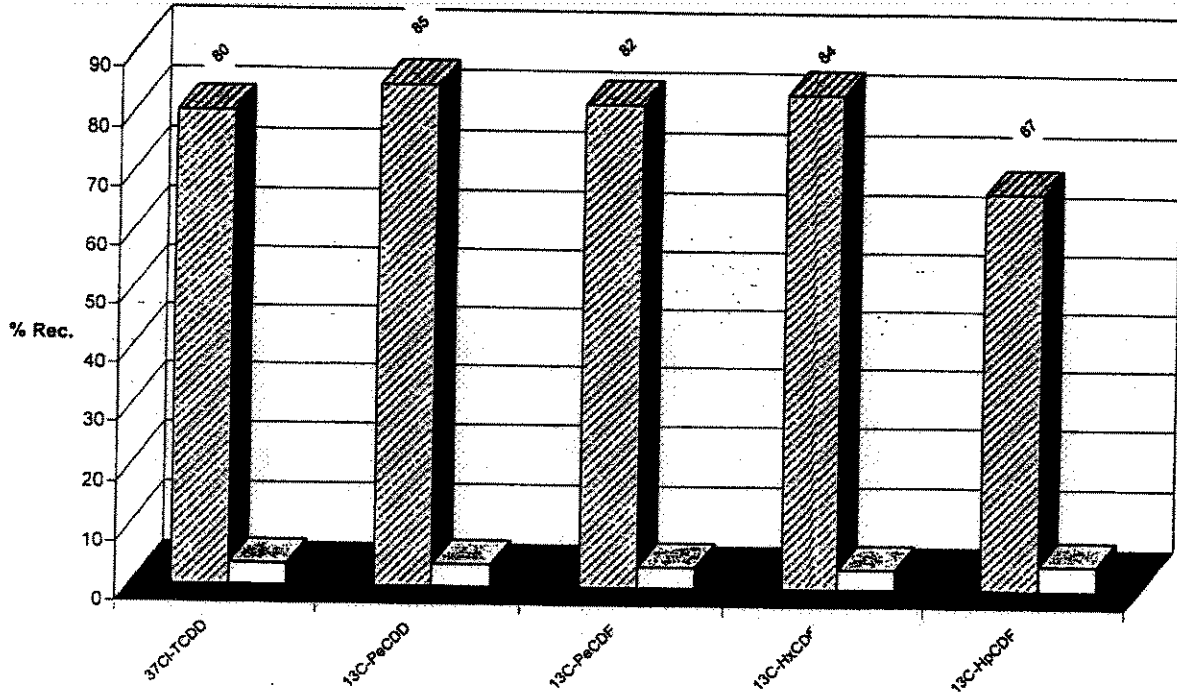
Mean Recoveries of Extraction Standards (N=14)  
Project ID: General Analytical HRMS  
P5072

Mean Std. Dev.



Mean Recoveries of Clean-Up Standards (N=14)  
Project ID: General Analytical HRMS  
P5072

Mean    Std. Dev.





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

## SUBCONTRACT ORDER - PROJECT # IOB0980

**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:**

Pace Analytical, MN- SUB  
 1700 Elm Street, Ste 200  
 Minneapolis, MN 55414  
 Phone : (612) 607-1700  
 Fax: (612) 607-6444

107696

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

Analysis	Expiration	Comments
<b>Sample ID: IOB0980-01 Water      Sampled: 02/11/05 10:56</b>		
1613-Dioxin-HR	02/18/05 10:56	J flags, 17 congeners, no TEQ, sub to Pace-MN
EDD + Level 4	03/11/05 10:56	Excel EDD email to pm, Include Std logs for Lvl IV
<b>Containers Supplied:</b>		
1 L Amber (IOB0980-01I)		001
1 L Amber (IOB0980-01J)		

**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): 3

Released By: *[Signature]*      Date: 2/14/05      Time: 17:00  
 Received By: *[Signature]*      Date: 2-15-05      Time: 9:00

Released By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_





# LABORATORY REPORT

## Aquatic Testing Laboratories



*"dedicated to providing quality aquatic toxicity testing"*

**Date:** February 19, 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-05021203-001/002  
**Sample I.D.:** IOB0980-01

**Sample Control:** The sample was received by ATL chilled, with the chain of custody record attached.

Date Sampled: 02/11/05  
Date Received: 02/12/05  
Date Tested: 02/12/05 to 02/18/05

**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:

<b>Acute:</b>	<b><u>Survival</u></b>	<b><u>TUa</u></b>
Fathead Minnow:	100%	0.0
<b>Chronic:</b>	<b><u>NOEC</u></b>	<b><u>TUc</u></b>
<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-05021203-001  
 Client/ID: Del Mar IOB0980-01

Start Date: 02/12/2005

## TEST SUMMARY

Species: *Pimephales promelas*.  
 Age: 13 (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-050208.

## TEST DATA

		°C	DO	pH	# Dead		Analyst & Time of Readings
					A	B	
INITIAL	Control	20.2	8.1	7.8	0	0	LR 1100
	100%	19.8	9.1	6.8	0	0	
24 Hr	Control	20.3	6.5	7.7	0	0	LR 1100
	100%	20.2	6.5	7.4	0	0	
48 Hr	Control	21.4	7.4	7.5	0	0	LR 1200
	100%	21.3	7.0	7.0	0	0	
Renewal	Control	20.4	8.0	7.7	0	0	LR 1200
	100%	20.2	8.7	6.9	0	0	
72 Hr	Control	19.8	7.8	7.4	0	0	LR 1100
	100%	19.6	7.4	7.0	0	0	
96 Hr	Control	20.7	7.8	7.4	0	0	LR 1100
	100%	20.5	7.6	7.0	0	0	

**Comments:**

Sample as received: Chlorine: 0 mg/l; pH: 6.8; Conductivity: 180 umho; Temp: 4°C;  
 DO: 9.1 mg/l; Alkalinity: 36 mg/l; Hardness: 73 mg/l; NH<sub>3</sub>-N: 0.5 mg/l.  
 Sample aerated moderately (approx. 500 ml/min) to raise or lower DO? Yes /  No  
 Control: Alkalinity: 54 mg/l; Hardness: 87 mg/l; Conductivity: 295 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-05021203  
Client/ID: Del Mar IOB0980-01

Date Tested: 02/12/05 to 02/18/05

**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-050204.

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%	24.7
6.25%	100%	28.1
12.5%	100%	27.1
25%	100%	28.1
50%	100%	27.0
100%	100%	23.4

\* 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	Pass (24.7 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 = 11.8%)
Statistically significantly different concentrations relative difference >13%	NA - No stat. sig. diff. concentrations
Concentration response relationship acceptable	Pass (slight 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) 370-4867 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. Sunset Rd., Suite #3, Las Vegas, NV 89120 Ph (702) 796-3620 Fax (702) 796-3621

## SUBCONTRACT ORDER - PROJECT # IOB0980

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: \_\_\_\_\_ Initials: \_\_\_\_\_

Analysis	Expiration	Comments
<b>Sample ID: IOB0980-01 Water      Sampled: 02/11/05 10:56</b>		
Bioassay-7 dy Chrnrc	02/12/05 22:56	Cerio, EPA/821-R02-013, Sub to AqTox Labs
Bioassay-Acute 96hr	02/12/05 22:56	FH minnow, EPA/821-R02-012, Sub to AqTox Labs
<b>Containers Supplied:</b>		
1 gal Poly (IOB0980-01AT)		
1 gal Poly (IOB0980-01AU)		

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
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 On Ice:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
			Samples Received at (temp):	<u>4°C</u>	

<i>[Signature]</i> Released By	2/11/05 Date	21:35 Time	<i>[Signature]</i> Received By	2/12/05 Date	0700 Time
<i>[Signature]</i> Released By	2/12/05 Date	855 Time	<i>[Signature]</i> Received By	2-12-05 Date	0855 Time



# EBERLINE SERVICES

March 8, 2005

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

Reference: Del Mar Analytical Project No. IOB0980  
Eberline Services NELAP Cert #01120CA (exp. 01/31/06)  
Eberline Services Report R502136-8265

Dear Ms. Harper:

Enclosed are results from the analyses of one water sample received at Eberline Services on February 15, 2005. The sample was analyzed according to the accompanying Del Mar Analytical Subcontract Order Form. The requested analyses were gross alpha/gross beta (EPA900.0), tritium (H-3, EPA906.0), and strontium-90 (Sr-90, EPA905.0). The QC LCS, blank analyses, sample duplicates, and matrix spike results for the analyses were within the limits defined in Eberline Services Quality Control Procedures Manual. Analyses that involve the yielding of an analytical tracer or carrier, such as Sr-90, do not require matrix spike analyses to be performed.

Please call me if you have any questions concerning this report.

Regards,

Melissa Mannion  
Senior Program Manager

*MC/M/njv*

Enclosure: Report  
Subcontract Form  
Receipt checklist  
Invoice

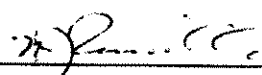
Analytical Services  
2030 Wright Avenue  
P.O. Box 4040  
Richmond, California 94804-0040  
(510) 235-2633 Fax (510) 235-0438  
Toll Free (800) 841-5487  
[www.eberlineservices.com](http://www.eberlineservices.com)

# Eberline Services

## ANALYSIS RESULTS

SDG <u>8265</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502136-01</u>	Contract <u>PROJECT# IOB0980</u>
Received Date <u>02/15/05</u>	Matrix <u>WATER</u>

Client	Lab						
<u>Sample ID</u>	<u>Sample ID</u>	<u>Collected</u>	<u>Analyzed</u>	<u>Nuclide</u>	<u>Results ± 2σ</u>	<u>Units</u>	<u>MDA</u>
IOB0980-01	8265-001	02/11/05	03/01/05	GrossAlpha	17.3 ± 4.5	pCi/L	2.78
			03/01/05	Gross Beta	20.0 ± 3.4	pCi/L	3.94
			03/03/05	H3	157 ± 150	pCi/L	244
			02/25/05	Sr90	0.034 ± 0.20	pCi/L	0.392

Certified by   
Report Date 03/08/05  
Page 1

# Eberline Services

## QC RESULTS

SDG <u>8265</u>	Client <u>DEL MAR ANAL</u>
Work Order <u>R502136-01</u>	Contract <u>PROJECT# IOB0980</u>
Received Date <u>02/15/05</u>	Matrix <u>WATER</u>

Lab	Sample ID	Nuclide	Results	Units	Amount Added	MDA	Evaluation
<u>LCS</u>							
	8261-002	GrossAlpha	8.92 ± 1.1	pCi/Smpl	11.2	0.403	80% recovery
		Gross Beta	10.6 ± 0.77	pCi/Smpl	12.1	0.556	88% recovery
		H3	281 ± 24	pCi/Smpl	259	23.4	108% recovery
		Sr90	12.0 ± 0.59	pCi/Smpl	11.1	0.238	108% recovery
<u>BLANK</u>							
	8261-003	GrossAlpha	-0.032 ± 0.15	pCi/Smpl	NA	0.374	<MDA
		Gross Beta	-0.073 ± 0.30	pCi/Smpl	NA	0.554	<MDA
		H3	13.6 ± 15	pCi/Smpl	NA	23.9	<MDA
		Sr90	-0.091 ± 0.10	pCi/Smpl	NA	0.234	<MDA

<u>DUPLICATES</u>			
Sample ID	Nuclide	Results + 2σ	MDA
8261-004	GrossAlpha	3.40 ± 1.4	0.926
	Gross Beta	6.02 ± 1.4	1.80
	H3	393 ± 160	242
	Sr90	-0.186 ± 0.19	0.431

<u>ORIGINALS</u>						
Sample ID	Results + 2σ	MDA	3σ	RPD (Tot)	Eval	
8261-001	1.64 ± 1.0	0.936	70	112	satis.	
	5.18 ± 1.3	1.80	15	60	satis.	
	71.9 ± 150	246	138	144	satis.	
	-0.077 ± 0.25	0.499	-	0	satis.	

<u>SPIKED SAMPLE</u>			
Sample ID	Nuclide	Results + 2σ	MDA
8261-005	GrossAlpha	81.8 ± 5.3	1.04
	Gross Beta	82.0 ± 3.7	1.81
	H3	17800 ± 520	243

<u>ORIGINAL SAMPLE</u>					
Sample ID	Results + 2σ	MDA	Added	%Recv	
8261-001	1.64 ± 1.0	0.936	76.6	105	
	5.18 ± 1.3	1.80	73.9	104	
	71.9 ± 150	246	18900	94	

Certified by <u><i>[Signature]</i></u>
Report Date <u>03/08/05</u>
Page 2



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9830 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) 796-3620 Fax (702) 796-3621

### SUBCONTRACT ORDER - PROJECT # IOB0980

**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:**

Eberline Services  
2030 Wright Avenue  
Richmond, CA 94804  
Phone : (510) 235-2633  
Fax: (510) 235-0438

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

Analysis	Expiration	Comments
Sample ID: IOB0980-01 Water	Sampled: 02/11/05 10:56	
EDD + Level 4-OUT	03/11/05 10:56	**LEVEL IV QC, ACCESS 7 EDD**
Gross Alpha-O	02/11/06 10:56	900.0, IF RESULT>15 pCi/L, run Radium 226 & 228
Gross Beta-O	02/11/06 10:56	900.0, IF RESULT>50 pCi/L, run Radium 226 & 228
Radium, Combined-O	02/11/06 10:56	HOLD for Gross Alpha/Beta result; EPA 903.1 & 904.0
Strontium 90-O	02/11/06 10:56	905.0
Tritium-O	02/11/06 10:56	906

**Containers Supplied:**

- 1 gal Poly (IOB0980-01AF) + HNO<sub>3</sub>
- 40 ml Voa Vial (IOB0980-01AG)
- 40 ml Voa Vial (IOB0980-01AH)

**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: 2/14/05      Time: 17:30  
 Received By: *[Signature]*      Date: 2/15/05      Time: 0:00

Released By: \_\_\_\_\_      Date: \_\_\_\_\_      Time: \_\_\_\_\_      Received By: \_\_\_\_\_      Date: \_\_\_\_\_      Time: \_\_\_\_\_



RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: Del Mar City Irvine State CA

Date/Time received 2/15/05 10:00 CoC No. I080980 /  
Sample 01-AF

Container I.D. No. Blue Cochr #24 Requested TAT (Days) 21 P.O. Received Yes  No

INSPECTION

- 1. Custody seals on shipping container intact? Yes  No  N/A
- 2. Custody seals on shipping container dated & signed? Yes  No  N/A
- 3. Custody seals on sample containers intact? Yes  No  N/A
- 4. Custody seals on sample containers dated & signed? Yes  No  N/A
- 5. Packing material is: Wet  Dry
- 6. Number of samples in shipping container: 1 Sample Matrix Water
- 7. Number of containers per sample: 3 (Or see CoC \_\_\_\_\_)
- 8. Samples are in correct container Yes  No
- 9. Paperwork agrees with samples? Yes  No
- 10. Samples have: Tape  Hazard labels  Rad labels  Appropriate sample labels
- 11. Samples are: In good condition  Leaking  Broken Container  Missing
- 12. Samples are: Preserved  Not preserved  pH ~2 Preservative HNO3
- 13. Describe any anomalies: \_\_\_\_\_

14. Was P.M. notified of any anomalies? Yes  No  Date \_\_\_\_\_  
15. Inspected by ZH Date: 2/15/05 Time: 10:00

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_  
Alpha Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_  
Beta/Gamma Meter Ser. No. \_\_\_\_\_ Calibration date \_\_\_\_\_

# TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

February 18, 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:** IOB0980  
**Date Received:** 02/14/05

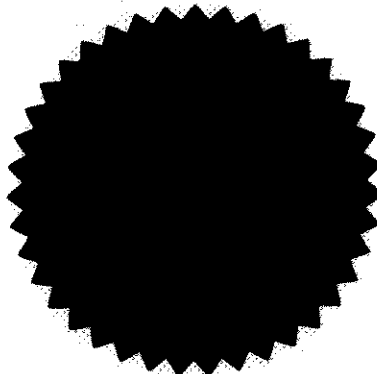
**Truesdail Project:** 939702

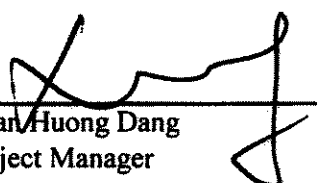
## Samples Cross-reference

<u>Truesdail ID</u>	<u>Client ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Time Sampled</u>	<u>Analysis Requested</u>
939702-1	IOB0980-01	Water	02/11/05	10:56	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.

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www.truesdail.com

**Client:** Del Mar Analytical  
17461 Derian Avenue, Suite 100  
Irvine, CA 92614  
**Attention:** Michele Harper

**Project Name:** IOB0980  
**Date Received:** 02/14/05

**Truesdail Project:** 939702

## 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.

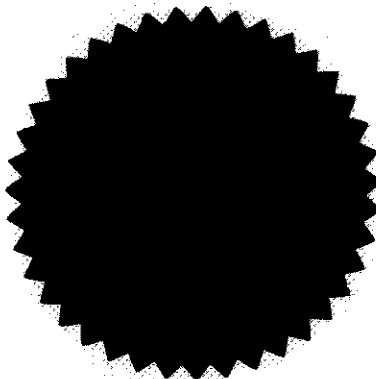
**Quality Control** The analytical results for each batch of samples performed include a minimum of one set of laboratory control sample/laboratory control sample duplicate (LCS/LCSD), one matrix spike (MS) and a reagent blank (Method blank). Any exceptions or problems would be noted in the "comments" 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 1937

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## REPORT

**Client:** Del Mar Analytical  
17461 Derian Ave.  
Irvine, CA 92614

**Attention:** Michele Harper  
Liquid / 1 Sample

**Sample:** IOB0980

**Project Name:** IOB0980

**P.O. Number:** 8315 (Modified)

**Method Number:** 8315 (Modified)

**Investigation:** Hydrazines in Liquid

**Laboratory No:** 939702

**Report Date:** February 16, 2005

**Sampling Date:** February 11, 2005

**Receiving Date:** February 14, 2005

**Extraction Date:** February 14, 2005

**Analysis Date:** February 15, 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
704765-MB	Method Blank	ND	ND	ND	ND
939702	IOB0980-01	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.

  
Xujan 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

14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008  
(714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

**Client:** Del Mar Analytical  
17461 Derian Ave.  
Irvine, CA 92614

**Client Contact:** Michele Harper  
**Sample:** Liquid / 1 Sample  
**Sample ID:** IOB0980  
**P.O. Number:** IOB0980  
**Method Number:** 8315 (Modified)  
**Run Batch No.:** Extraction: 2968; Analysis: 365  
**Investigation:** Hydrazines in Liquid

## REPORT

**QC Lab. No.:** 704765  
**Project Lab. No.:** 939702  
**Spiked Sample ID:** 939702  
**Report Date:** February 16, 2005  
**Sampling Date:** February 11, 2005  
**Receiving Date:** February 14, 2005  
**Extraction Date:** February 14, 2005  
**Analysis Date:** February 15, 2005  
**Units:** ug/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	24.5	98.1	85-115	PASS
u-Dimethyl Hydrazine	25.0	25.4	102	85-115	PASS
Hydrazine	5.0	4.87	97.4	85-115	PASS

#### QCS

Parameter	Theoretical Value (ug/L)		Measured Value (ug/L)		% Rec.	Control Limits	Flag
	Value	MSD	Value	MSD			
Monomethyl Hydrazine	50.0	37.4	49.9	100	85-115	PASS	
u-Dimethyl Hydrazine	50.0	44.3	46.8	93.5	85-115	PASS	
Hydrazine	10.0	7.61	10.9	109	85-115	PASS	

### Quality Control/Quality Assurance Spikes Report MS/MSD

Parameter	Spiked Conc.		Recovered Conc.		% Rec.	Control Limits	Flag
	ug/L	MSD	ug/L	MSD			
Monomethyl Hydrazine	50.0	37.4	35.3	0.0	70.6	70-130	PASS
u-Dimethyl Hydrazine	50.0	44.3	44.7	0.0	89.3	70-130	PASS
Hydrazine	10.0	7.61	7.27	0.0	72.7	70-130	PASS

#### LCS/LCSD

Parameter	Spiked Conc.		Recovered Conc.		% Rec.	Control Limits	Flag
	ug/L	MSD	ug/L	MSD			
Monomethyl Hydrazine	50.0	37.4	35.3	0.0	70.6	70-130	PASS
u-Dimethyl Hydrazine	50.0	44.3	44.7	0.0	89.3	70-130	PASS
Hydrazine	10.0	7.61	7.27	0.0	72.7	70-130	PASS

ICV: Initial Calibration Verification

QCS: Quality Control Standard

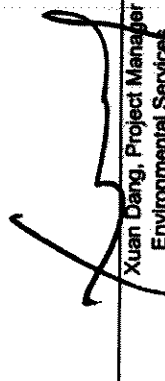
LCS: Laboratory Control Spike

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 matter of 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

## 737 102

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) 796-3620 Fax (702) 796-3621

### SUBCONTRACT ORDER - PROJECT # IOB0980

#### 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

LS 2/14/05  
Rec'd 02/14/05  
s23c 939702

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

Analysis	Expiration	Comments
----------	------------	----------

Sample ID: IOB0980-01 Water	Sampled: 02/11/05 10:56	
Hydrazine-OUT	02/14/05 10:56	
Level 4 Data Package	03/11/05 10:56	

Sub Truesdail for Monomethylhydrazine, J flags

Containers Supplied:  
1 L Amber (IOB0980-01AR)  
1 L Amber (IOB0980-01AS)

**ALERT!!**  
**Level IV QC**

**For Sample Conditions**  
**See Form Attached**

#### 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: <i>M. Harper</i>	Date: 2/11/05	Time: 21:40	Received By: <i>A. Mayberry</i>	Date: 2-14-05	Time: 7:50
Released By: <i>M. Harper</i>	Date: 2-14-05	Time: 7:20	Received By: <i>A. Mayberry</i>	Date: 2/14/05	Time: 7:23



# Sample Integrity & Analysis Discrepancy Form

Client: Del Mar Analytical

Lab # 939702

Date Delivered 11/4/05 Time: 07:23 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  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: [Signature]

# Internal Chain of Custody Logbook

Case No: 939702  
 Re: Del MAR

Storage Temperature: 4°C

Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature
			2/14/05	9:45		L. Shabunina	<i>[Signature]</i>
Hydrazine	2/14/05	10:30 AM	2/14/05	11:00 AM	300 ml	Jeff Sumner	<i>[Signature]</i>

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

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

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

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